ADVANCED GAUGING TECHNOLOGIES, L.L.C.

QUALITY INDUSTRIAL INSTRUMENTATION

AGT800

SYSTEM MANUAL

8430 Estates Court Plain City OH 43064-8015 USA
Telephone: (614) 873-6691 Fax: (614) 873-6770
E-mail: Service@AdvGauging.com Website: www.AdvGauging.com

Table of Contents

TRA – 2/13/2017

Reports

Maintenance

Troubleshooting

Schematics

Appendices

Introduction

SAC – 1/26/2017

Introduction

The AGT800 Laser Thickness Gauge & S.P.C. Reporting System Manual is based on two assumptions. First, we assume that the user has a basic understanding of common Microsoft Windows® operating systems. Second, all information contained herein is based on our current version of the gauge. Not all information will be backwards compatible and applicable to all of the oldest gauges currently operating in the field.

Additional copies of the AGT800 System Manual are available for a nominal fee from Advanced Gauging Technologies (A.G.T.) by ordering part number MAN-800.

Legal Disclaimers

Information in this document is subject to change without notice. Companies, names and data used in examples herein are fictitious unless otherwise noted. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical or stored in a retrieval system for any purpose, without the express written permission of Advanced Gauging Technologies, L.L.C.

AGT800 software and documentation are proprietary, and remain the property of A.G.T. when you purchase the system. A.G.T. issues you a permanent license to use the software on a single or subsequent (but not additional) computer. You agree not to rent, lease, sub-license, or transfer any of your rights under this license, or use the software in other computer systems. Acceptance of this document constitutes acceptance of the conditions and uses as stated above.

ISOcal™, ISOgraph™ and ISOtemp™ are trademarks of Advanced Gauging Technologies, L.L.C. in the United States. Microsoft® and Windows® are registered trademarks of Microsoft Corporation in the United States and/or other countries. Other product and company names mentioned herein may be the trademarks of their respective owners.

United States Patent

On October 6, 2015, the United States Patent and Trademark Office granted patent #9,151,595 to Advanced Gauging Technologies, L.L.C. This patent covers the AGT800 laser thickness gauge and method, including passline angle correction.

Laser Safety

SAC – 1/27/2017

Keyence LK-G5000 Series Laser Sensors

The AGT800 Laser Thickness Gauge utilizes Keyence LK-G5000 series laser sensors. These sensors produce a 655 nanometer (nm.) red semi-conductor light source classified as Class 2 or Class II, depending on the standards organization.

IEC Laser Product Classification

The International Electrotechnical Commission (IEC) is a global organization that prepares and publishes international standards for all electrical, electronic and related technologies. The IEC document 60825-1 is the primary standard that outlines the safety of laser products. The latest edition of IEC 60825-1 is 60825-1:2007. Classification is based on calculations and determined by the Accessible Exposure Limit (AEL) as with the American Nation Standards Institute (ANSI) standard, but the IEC standard also incorporates viewing conditions.

IEC Class 2 laser products emit visible radiation in the wavelength range from 400 to 700 nanometers. They are safe for momentary exposures but can be hazardous for deliberate staring into the beam.

CDRH/FDA Laser Product Classification

The Center for Devices and Radiological Health (CDRH) is a regulatory bureau within the U.S. Federal Food and Drug Administration (FDA) of the Department of Health and Human Services. CDRH has been chartered by the U.S. Congress to standardize the performance safety of manufactured laser products. All laser products that have been manufactured and entered into commerce, after August 2, 1976, must comply with these regulations.

CDRH/FDA Class II laser products emit visible radiation in the wavelength range from 400 to 710 nanometers. Levels of radiation are considered a chronic viewing hazard. Eye protection is normally afforded by aversion responses, including the blink reflex.

Theory of Operation

SAC – 1/27/2017

As optoelectronics have improved, laser displacement sensors have kept pace, with increased resolution, accuracy, linearity and frequency response. The introduction of complementary metal-oxide semiconductor (CMOS) optical displacement sensors has resulted in laser displacement sensors that are starting to rival other traditional displacement sensors such as eddy current and capacitive sensors.

Laser displacement sensors are an ideal choice for non-contact online thickness measurements. For example, they are not bothered by humidity or water vapor that can affect capacitive sensors; they are relatively immune to temperature and acoustic variations that can affect ultrasonic sensors; and they are not sensitive to target conductivity or magnetization that affects eddy current sensors.

These sensors can measure any target material and typically have operating ranges of several inches, with standoff distances ranging from inches to feet, compared to capacitive and eddy current probes, which typically have operating ranges of tenths of inches. Large standoffs help keep the sensors out of harm's way when something goes wrong with the processing line as well as allow for relatively large changes in thickness without the need to reset the sensor for different production runs.

The heart and soul of the AGT800 Thickness Gauge & S.P.C. Reporting System is a pair of these laser displacement sensors. The sensors emit visible Class II laser beams that reflect off the target material to be measured and produce high precision distance measurements.

The National Institute of Standards and Technology (NIST) is a measurements laboratory and a non-regulatory agency of the United States Department of Commerce. A set of NIST-traceable calibration samples is used to calibrate the AGT800 thickness gauge is calibrated. The air gap between the laser sensors is precisely determined during the calibration process. This is the distance between the top and bottom laser sensors, which are supported on opposite sides of the material to be measured. The distance measurements from the top and bottom laser sensors are subtracted from the air gap to calculate measured thickness.

An optional third laser sensor can be installed and used to determine passline angle. In this case, a correction may be made to the calculated thickness. There is one other adjustment that is made to measured thickness, and that is for C-frame temperature. A sensor in the C-frame measures the current temperature, and compares it to the temperature at the time of the last calibration, allowing an offset to be made to account for thermal expansion and contraction.

Sensor electronics automatically adjust laser light intensity to the optimal level according to the target. This permits the AGT800 to provide continuous, high speed, non-contact, accurate and reliable thickness measurements.

Installation

SAC – 1/27/2017

Installation Procedure

1. Install new C-frame on the line. The C-frame should be solidly mounted with the I-beam on the bottom.
    a. The C-frame must be positioned so the **bottom** of the strip passes between 5.00 to 5.25 inches above the lower arm of the frame. This dimension is correct for our standard systems with air gaps of approximately 12". For different air gaps, consult with A.G.T. personnel for correct passline height.
    b. There is a centerline painted on the I-beam of the AGT800 C-frame. **This centerline should be positioned in the center of the line. This will allow oscillating C-frames to travel across the entire strip. It will also assure that all C-frames are able to retract far enough off sheet for the gauges to be calibrated.**

2. Lay conduit per the Block Diagram. See drawing #800.100 attached or in the Schematics section of this manual.

3. Locate and mount the AGT800 system cabinet so it meets the following criteria:
    a. Within 200 feet of C-frame,
    b. Adequate space in both front and rear for access doors to be opened 90 degrees,
    c. Easily accessible by operator (if located at operator station),
    d. In convenient view of the operator, but not blocking his view of the line (if located at operator station).

4. Permanently mount the light fixture assemblies as follows:
    a. Green and red measure indicators should be visible from the operator station.
    b. Amber and blue classifier indicators should be visible from the operator station.
    c. All four light fixture assemblies may be mounted together on top of the AGT800 system cabinet, as long as both of the above conditions are met.

5. Mount the AGT800 tachometer on a roll that turns whenever the strip is moving and will have sufficient wrap or tension to eliminate slippage. The closer the tachometer is to the C-frame, the more closely our measured thickness will align with the footage counted.
    a. Pull the Tachometer cable (TM) through conduit to the AGT800 system cabinet. This cable should pass through the cabinet floor, entering in the right rear corner. Leave at least seven feet of cable inside the system cabinet.

6. Pull two individual AC line feeds into the AGT800 system cabinet. There will need to be two separate dedicated 120VAC, 60 Hz. lines, originating from individual 20 amp circuit breakers, which are completely free from line drive interference, etc. **The AC line feeds must have solid earth grounds, and be completely free of noise, spikes, etc. The AGT800 system will not function properly without good earth grounds and clean AC power.**

7. Both AC line feeds should pass through the AGT800 system cabinet floor, entering in the rear. Each one should be terminated in the form of a standard duplex receptacle. These receptacles should be mounted on the cabinet floor where indicated on the **inside** of the cabinet.

8. Pull the following cables through a single 3/4" conduit from the C-frame junction box to the AGT800 system cabinet. These cables should pass through the cabinet floor, entering in the right rear corner. Leave at least seven feet of each cable inside the system cabinet. Note: This conduit may also contain other cables as long as they are not high voltage or high amperage.
    a. C-frame Digital cable (CD)
    b. Laser Controller cable (LC)
    c. Temperature Sensor cable (TS)

9. Pull the following cables through a second 3/4" conduit from the C-frame junction box to the AGT800 system cabinet. These cables should pass through the cabinet floor, entering in the right rear corner. Leave at least seven feet of each cable inside the system cabinet. Note: This conduit may also contain other cables as long as they are not high voltage or high amperage.
    a. Drive Motor cable (DM)
    b. Measure Lights cable (ML) (if measure lights are mounted on the C-frame)
    c. Home Light (HL) (if C-frame Home Light option is installed)

10. Pull the following cables (ML and CL) through conduit, from the light fixtures to the AGT800 system cabinet. These cables should pass through the cabinet floor, entering in the right rear corner. Leave at least seven feet of cable inside the system cabinet. Measure lights cable (ML) if measure lights are mounted near classifier lights Classifier lights cable (CL).

11. Pull the tachometer cable (TM) through conduit, from the tachometer to the AGT800 system cabinet. This cable should pass through the cabinet floor, entering in the left rear corner. Leave at least seven feet of cable inside the system cabinet. Plug the pre-assembled connector into the tachometer. The tachometer cable (TM) may be pulled in the same conduit as step 7, if location permits.

12. If the system includes a remote digital display, cut a mounting hole (1.772"H x 3.622"W) in the panel where the display is to be mounted. Install the remote digital display in the new mounting hole.

13. If the system has a remote digital display, pull the remote digital display cable (RD) through the conduit from the remote display location to the AGT800 system cabinet. This cable should pass through the cabinet floor, entering in the left rear corner. Leave at least seven feet of cable inside the system cabinet.

14. If the system has a remote video monitor, pull the remote monitor cable (RM) through conduit from the remote monitor location to the AGT800 system cabinet. This cable should pass through the cabinet floor, entering in the right rear corner. Leave at least seven feet of cable inside the system cabinet. A 120VAC receptacle will need to be available at the location of the remote video monitor.

15. If the system includes Coil Mapping, pull the Coil Mapping cable (CM) through the conduit from the coil mapping jacks to the AGT800 system cabinet. This cable should pass through the cabinet floor, entering in the left rear corner. Leave at least seven feet of cable inside the system cabinet.
    a. Mount the Coil Mapping jacks in electrical boxes at each of the possible inspection stations.
    b. Terminate the Coil Mapping cable (CM) at each Coil Mapping jack.

16. Auto Data Entry (ADE) and Auto Data Gathering (ADG) are features that utilize digital inputs to assist in the operation of the gauge. They are not required for regular operation but do improve gauge efficiency. To use these features, you will need an Allen Bradley or similar momentary contact push button switch for ADE and an Allen Bradley or similar continuous contact single throw switch for ADG, as well as three 16 or 18 gauge wires between the switch location and the Electronics Cabinet.
    a. Install the ADE button and the ADG switch in a location convenient for the operator, usually on the operator's control console.
    b. Pull the three wires from the operator's panel through conduit to the AGT800 system cabinet. This cable should pass through the cabinet floor, entering the right rear corner. Leave at least seven feet of cable inside the system cabinet as well as enough wiring inside the operator panel to dress the wires.

17. If the system is to be connected to the plant network, pull standard category 5 or category 6 network cable from local switch to the AGT800 system cabinet. This cable should pass through the cabinet floor, entering in the right rear corner. Leave at least three feet of cable inside the system cabinet.

18. Terminate the following cables in the C-frame junction box, as indicated in the Installation Junction Box Cable Terminations list.
    a. C-frame digital cable (CD)
    b. Drive motor cable (DM)
    c. Temperature sensor cable (TS)
    d. Home Light (HL) (if C-frame Home Light option is installed)

19. Terminate the measure and classifier indicator light cables (ML and CL) in light fixture assemblies as indicated in the Installation Junction Box Cable Terminations list.

20. Determine where to locate the printer. The printer must be located within ten feet of the AGT800 system cabinet unless the remote printer option was purchased or a network card is to be used. The system printer requires a space that is at least 18" wide, 20" deep, and 18" high. Typically, the system printer is mounted inside the electronics cabinet. If an alternate location is selected, an additional hole will need to be cut in the cabinet, a 120VAC receptacle will need to be available at that location, and a printer enclosure should be used to extend printer life.

21. Ensure A.G.T. is scheduled to handle your AGT800 system startup. Please plan ahead, and allow four to eight weeks advance notice. Call (614) 873-6691 or email Service@AdvGauging.com.

Installation Junction Box Cable Terminations

Drive Motor Cable (DM)

(terminates in C-frame junction box)

Terminal 1 – red wire
Terminal 2 – black wire or brown wire

C-frame Digital Cable (CD)

(terminates in C-frame junction box)

Terminal 3 – orange wire & orange wire with black stripe	+24 VDC power
Terminal 4 – jumper	+24 VDC power
Terminal 5 – blue wire	switched ground
Terminal 6 – black wire and black wire with white stripe	ground
Terminal 7 – jumper	ground
Terminal 8 – red wire with white stripe	center line limit switch
Terminal 9 – blue wire with white stripe	off sheet limit switch
Terminal 10 – green wire with white stripe	on sheet limit switch
Terminal 11 – green wire	on photocell
Terminal 12 – white wire	off photocell
Terminal 13 – blue wire with black stripe	spare
Terminal 14 – white wire with black stripe	spare
Terminal 15 – red wire with black stripe	spare
Terminal 16 – green wire with black stripe	spare

Temperature Sensor Cable (TS)

(terminates in C-frame junction box)

Terminal 17 – red wire	temp. sensor power
Terminal 18 – white wire	temp. sensor signal out
Terminal 19 – black wire	temp. sensor ground
Terminal 20 – shield	temp. sensor shield

Measure Indicator Lights Cable (ML)

(terminates in green and red indicator light junction boxes)

white wire	green light
black wire	red light
green wire	common

Classifier Lights Cable (CL)

(terminates in amber and blue indicator light junction boxes)

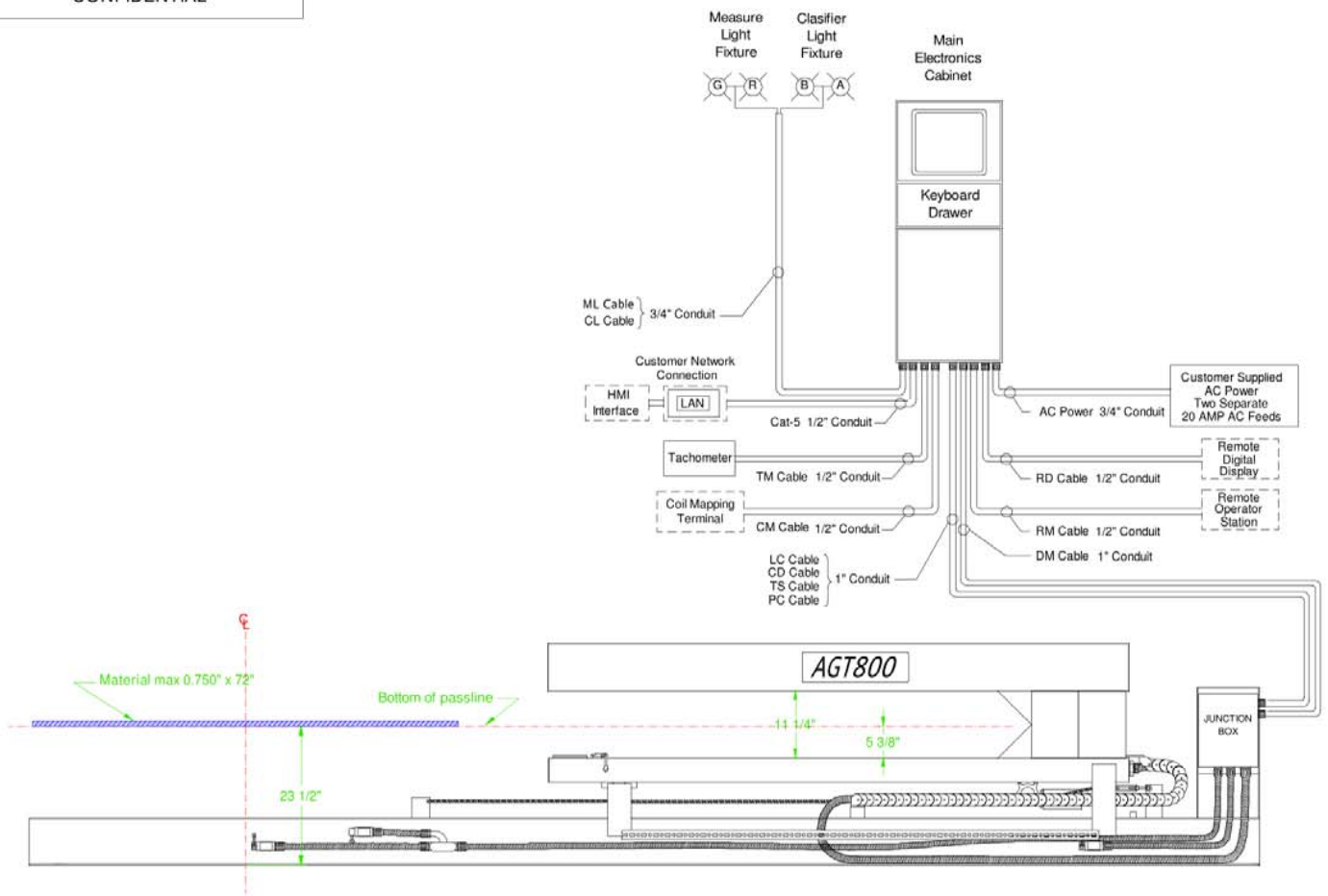
white wire	amber light
black wire	blue light
green wire	common

Remote Digital Display Cable (RD)

(terminates at rear of remote digital display)

Terminal J1-1 – red wire	+24 VDC power
Terminal J1-2 – black wire	DC ground
Terminal J5-3 – green wire	signal return
Terminal J5-4 – white wire	thickness signal

CONFIDENTIAL



NOTE 1: The C-frame should be solidly mounted with the I-beam on the bottom.
NOTE 2: The C-frame must be positioned so the bottom of the strip is 5 3/8" above the lower arm.
NOTE 3: The I-Beam has a centerline marked on it. This mark should be aligned with the machine center line.
NOTE 4: Conduit should be rigid or liquid-tight flexible steel conduit.

ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

DRAWING NAME

BLOCK DIAGRAM

SIZE		REV
A	800.100	0
DRAWN BY: J.P.F. 12/29/2016		SHEET 1 OF 1

Startup

SAC – 1/27/2017

Startup Procedure

AGT800 system startups are performed by specifically trained A.G.T. Field Service Engineers. There are more than 60 steps completed by our personnel, and once commissioned your gauge will be fully operational. For reference purposes, following is a listing of the Cable Terminations usually completed at system startup.

Startup Cable Terminations

Digital Inputs from Customer (optional)

(from customer-supplied cable to J7 on Multi-Function Circuit Board)

Terminal 1 – determined by customer	digital input #1
Terminal 2 – determined by customer	digital input #2
Terminal 3 – determined by customer	external ground

Scaled Analog Outputs to Customer (optional)

(from J6 on Multi-Function Circuit Board to customer-supplied cable)

Terminal 1 – determined by customer	thickness
Terminal 2 – determined by customer	deviation
Terminal 3 – determined by customer and shield	ground

Analog Outputs from Computer

(from Digital Computer Board Cable to J5 on Multi-Function Circuit Board)

Terminal 1 – red wire	thickness
Terminal 2 – white wire	deviation
Terminal 3 – black wire and shield	ground

Remote Digital Display Cable – RD (optional)

(from Remote Digital Display to J2 and J6 on Multi-Function Circuit Board)

Terminal J2-1 – red wire	+24 VDC power
Terminal J2-3 – black wire	DC ground
Terminal J6-1 – white wire	thickness signal
Terminal J6-3 – green wire and shield	signal return

Tachometer Cable - TM

(from Tachometer to J2 on Multi-Function Circuit Board)

Terminal 1 – red wire	+24 VDC power
Terminal 2 – white wire	signal
Terminal 3 – black wire and shield	ground

Temperature Sensor – TS

(from C-frame Junction Box to J8 and J9 on Multi-Function Circuit Board)

J8 (1) – white wire	temperature signal
J8 (2) and J9 (-) – black wire	ground
J9 (+) – red wire	+24 VDC

Analog Computer Board Cable

(from J4 On Multi-Function Circuit Board to Computer)

DC Power Plug

(from DC Power Supplies to J3 On Multi-Function Circuit Board)

Fan Power Cord

(from AC power strip and thermostat to cabinet cooling fan)

Drive Motor Cable – DM

(from Direction Relay to C-frame Junction Box)

Terminal 1 - red wire
Terminal 8 - black wire or brown wire

Digital Computer Board Ribbon Cable

(from Computer to Opto22 Rack)

Classifier Lights Cable - CL

(from Classifier Light Fixtures to Opto22 Rack)

Terminal 9 – green wire	common
Module 5-8 – white wire	amber light
Module 5-6 – black wire	blue light

Measure Indicator Lights Cable - SL

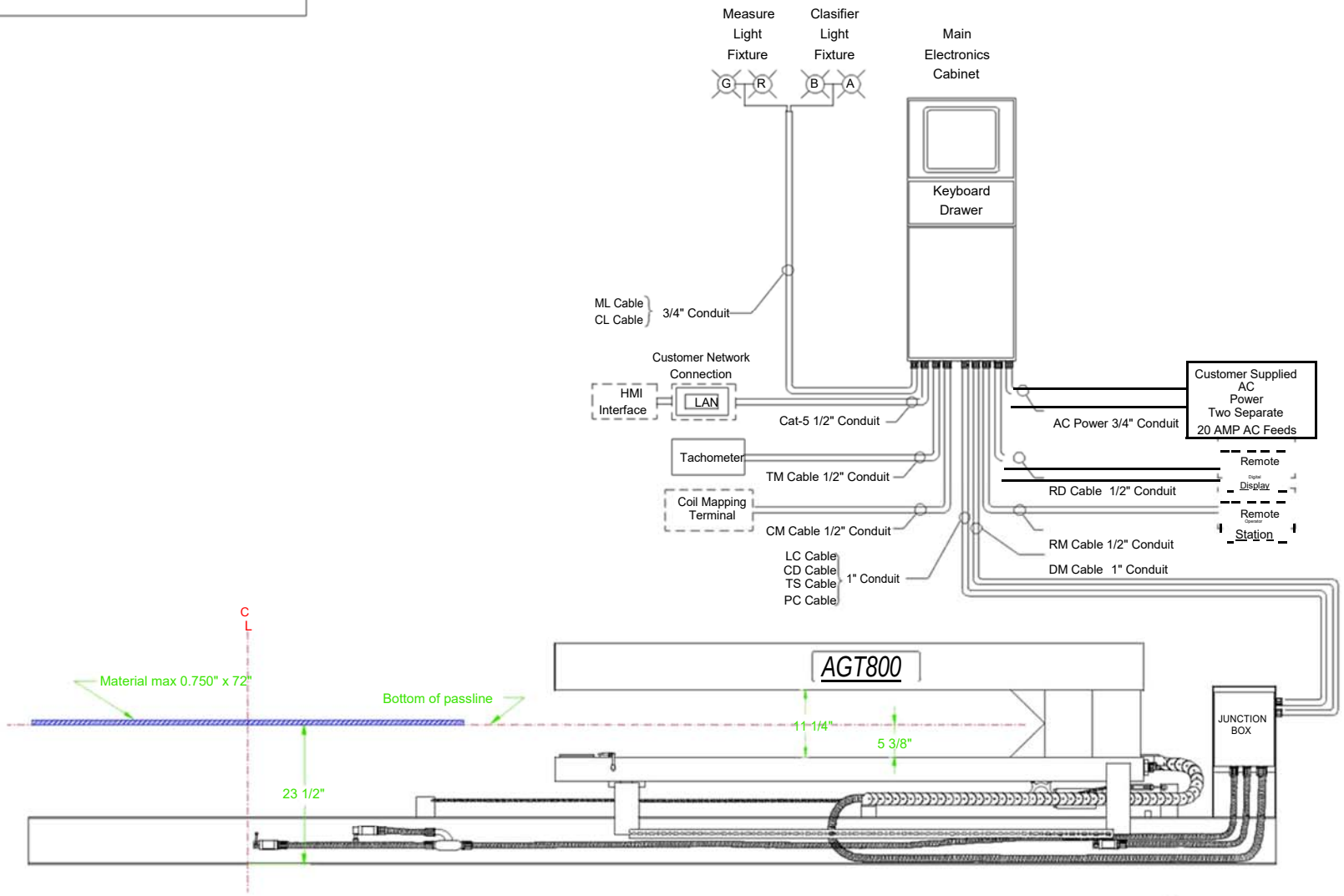
(from Measure Indicator Light Fixtures to Opto22 Rack)

Terminal 9 – green wire	common
Module 5-4 – white wire	green light
Module 5-2 – black wire	red light

C-frame Digital Cable – CD

(from C-frame junction box to Opto22 Rack)

Terminal 7 – black wire & black wire with white stripe	ground
Terminal 6 – orange wire & orange wire with black stripe	+24 VDC power
Module 4-8 – green wire	on sheet photocell
Module 4-6 – white wire	off sheet photocell
Module 4-4 – green wire with white stripe	on sheet limit switch
Module 4-2 – blue wire with white stripe	off sheet limit switch
Module 3-6 – red wire with white stripe	center line limit switch
Module 3-2 – blue wire with black stripe	spare
Module 2-4 – green wire with black stripe	spare
Module 2-2 - red wire with black stripe	spare
Module 1-6 – blue wire	switched ground



NOTE 1: The C-frame should be solidly mounted with the I-beam on the bottom.
NOTE 2: The C-frame must be positioned so the bottom of the strip is 5 3/8" above the lower arm.
NOTE 3: The I-Beam has a centerline marked on it. This mark should be aligned with the machine center line.
NOTE 4: Conduit should be rigid or liquid-tight flexible steel conduit.

ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

DRAWING NAME

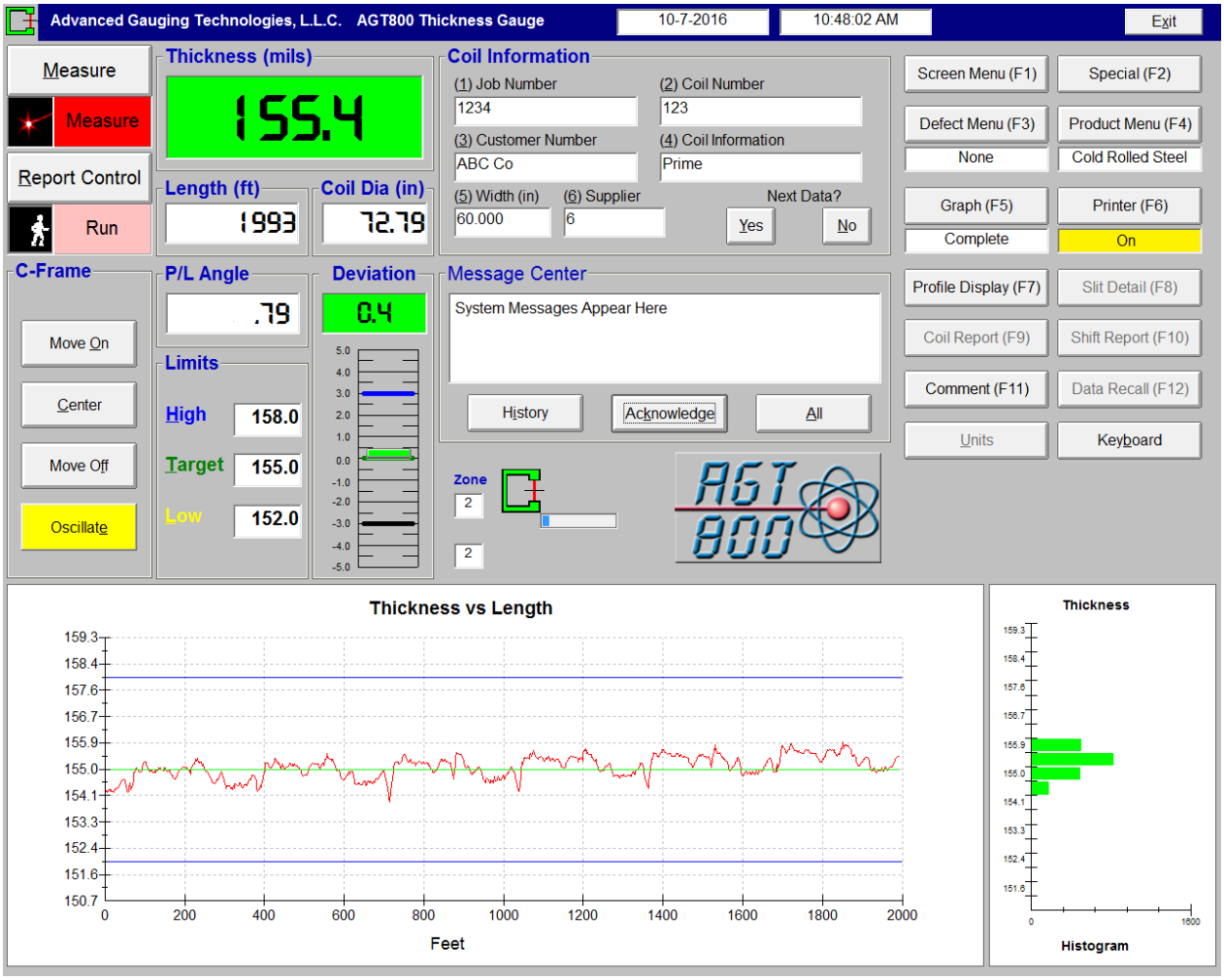
BLOCK DIAGRAM

SIZE		REV
A	800.100	0

DRAWN BY: J.P.F. 12/29/2016 | SHEET 1 OF 1

Main Screen

JRR - 1/27/2017



The Main Screen is where the operator controls most aspects of the thickness gauge. This section gives a description of all areas of the Main Screen.

Measure (Alt-M)

The Measure button commands the gauge to enter measure mode as long as the LASER POWER key switch is in the ON position. The graphic area shows the measure command and is color coded. When not measuring, the graphic area displays the word Off on a green background with a key symbol to the left. When measuring has started, the graphic area displays the word Measure on a red background with a laser symbol to the left. A black background indicates the gauge is in measure mode but not receiving valid data from the lasers.

Note: The lasers need at least 30 minutes to reach proper operating temperature. Anytime power is removed from the lasers, either by restarting the AGT800 software or turning of laser power via the LASER POWER key switch on the Electronics Shelf, care should be taken to allow them to warm up in order to achieve the most accurate and repeatable measurements. For this reason, A.G.T. recommends that the AGT800 Laser Thickness Gauge electronics, computer and software program be left running 24 hours a day, seven days a week.

Report Control (Alt-R)
The Report Control button starts or stops the reporting function. When beginning a coil, press the Report Control button and the gauge will switch to Run mode. The gauge will display a measured thickness, begin plotting the measured thickness versus length on the ISOgraph™, plotting the thickness information on the histogram, making changes to the deviation meter, and counting footage. When the Report Control button is pressed again at the end of the coil, the gauge will switch to Stop mode, and save coil information to the hard disk and the USB flash drive (or network if enabled). A Coil Summary Report is sent to the printer at this time if the printer is enabled. The minimum coil length parameter may be changed on the System Setup Screen.

Note: The gauge must be measuring and the tachometer turning to collect data.

C-frame Controls
This area contains the buttons for moving the electric C-frame as long as the Manual/Auto Switch on the Power Panel is set to AUTO. When the C-frame is commanded to move, the corresponding C-frame control button will have a yellow background.

Move On (Alt-O)
This button will move the C-frame on sheet. The C-frame will continue moving on sheet until any C-frame control button is clicked, the C-frame reaches the on sheet limit switch, the on sheet photocells reach the on sheet strip edge (with oscillating C-frame) or a motor timeout occurs.

Center (Alt-C)
This button will move the C-frame on sheet to the center of the material if it has a center switch. In the System Setup Screen, the center switch box must be checked for this function to work.

Move Off (Alt-F)
This button will move the C-frame off sheet. The C-frame will continue moving off sheet until any C-frame control button is clicked, the C-frame reaches the off sheet limit switch or a motor timeout occurs.

Oscillate (Alt-E)
This button will move the C-frame on sheet and oscillate from edge to edge. The C-frame will continue oscillating until any C-frame control is clicked, either limit switch is reached or a motor timeout occurs. The oscillate function requires photocells.

Thickness Display
Displays the measured thickness in inches, mils, millimeters or microns depending on the current units selected. The background of the Thickness Display field will be green when the measured thickness is in tolerance, blue when the measured thickness is above tolerance and yellow when the measured thickness is below tolerance.

Length
Displays measured length in feet (ft) or meters (m). This display shows actual measured length or simulated length, depending on the Tach Mode selected in the System Setup Screen.

Coil Dia
Displays the diameter of the coil based on material thickness and length.

P/L Angle
Displays the passline angle of the material passing through the C-frame. The gauge must have the passline angle compensation option installed for this to operate.

Deviation
Displays measured deviation from target thickness in thousandths of inches (mils), millimeters (mm) or percent of target thickness. When the measured thickness exceeds the upper limit, the deviation bar displays in blue. When the measured thickness is within tolerance, the deviation bar displays in green. When the measured thickness is below the lower limit, the deviation bar displays in yellow.

Limits
This section contains the fields for entering the thickness limits of the current coil. This information must be in inches, mils, millimeters or microns, depending on the units selected on the system setup screen. There are four target mode options called Method of Selecting Target on the System Setup Screen.

High Tolerance (Alt-H)
The maximum thickness limit for a particular coil depending on the Method of Selecting Target on the System Setup Screen.

Low Tolerance (Alt-L)
The minimum thickness limit for a particular coil depending on the Method of Selecting Target on the System Setup Screen.

Target (Alt-T)
The target thickness limit for a particular coil depending on the Method of Selecting Target on the System Setup Screen.

Coil Information Fields
Field names can be changed on the Nomenclature Screen located in Screen Menu.

Job Number (Alt-1)
This field contains Job or Work Order Number or equivalent. Field name can be changed on the Nomenclature Screen. * AGT recommends not changing this field due to its use in the Database function.

Coil Number (Alt-2)
This field contains Coil or Tag Number or equivalent. Field name can be changed on the Nomenclature screen. *AGT recommends not changing this field due to its use in the Database function.

Customer Number (Alt-3)
This field contains Customer Name or Number in this field. Field name can be changed on the Nomenclature Screen.

Coil Information (Alt-4)
This field contains coil information here. Field name can be changed on the Nomenclature Screen.

Width (Alt-5)
This field contains the full coil width. This information must be in inches (in) or centimeters (cm), depending on the units selected on the System Setup Screen.

Supplier (Alt-6)
This field contains supplier or vendor info. Field name can be changed on the Nomenclature Screen.

Next Data
Allows the operator to set up next coil while running current coil. Clicking Next Data will bring up the question 'Yes' to confirm. Auto-increment rotation can be used by clicking Next Data multiple times. Each subsequent time Next Data is clicked, the coil number will increment by one.

Note: If the Database function is selected and enabled in the Parameter File, the Next Data function will work differently. Selecting Next Data will take the user directly to the Next Data Screen to select the next coil from the database.

Yes (Alt-Y)
Loads data for the next coil from the Next Data Screen. Clicking the button once brings up a message prompting the operator to click the button again to load data for next coil. Clicking the button a second time loads the data for the next coil.

No (Alt-N)
Cancels the request to load data for the next coil.

Message Center
System messages are date and time stamped and displayed in this area. Only the oldest unacknowledged message is visible at any time. When two or more messages are in the queue, the Message Center heading changes to MESSAGES WAITING in bold red letters. When five or more messages are in the queue, the MESSAGES WAITING heading begins to flash from red to white. System messages can be reviewed on the Message Review screen.

History (Alt-I)
Shows the Message Center history. Past messages can be viewed, printed (Alt-R), or written to disk (Alt-W).

Used to Acknowledge (Alt-K)
Used to acknowledge and clear the oldest message from the Message Center display.

All (Alt-A)
Used to acknowledge and clear the oldest message from the Message Center display.

Zone
The upper box displays the area in which the C-frame is positioned and corresponds to the zone numbers used in the optional Coil Mapping. The lower box contains the approximate position of the frame in inches or centimeters from the off sheet edge.

Off = at off sheet limit switch
0 = completely off sheet, but not at the off sheet limit switch
1 = off sheet photocell off sheet, on sheet photocell on sheet
2 = not at center, both photocells on sheet, near off sheet edge
3 = approximate center
4 = not at center, both photocells on sheet, near on sheet edge
5 = off sheet photocell on sheet, on sheet photocell off sheet
6 = completely off sheet, but not at the on sheet limit switch
7 = at on sheet limit switch

C-frame Icon
Displays the relative position of the C-frame on the strip, if equipped with an electric or oscillating C-frame. This icon oscillates back and forth continuously with a manual C-frame.

Real-time Chart (ISOgraph™)
Displays a graph showing measured thickness versus length of the current coil. The upper blue horizontal line on this graph indicates the upper thickness limit. The green horizontal line on this graph indicates the target thickness. The lower yellow horizontal line indicates the lower thickness limit. The red line on this graph indicates the measured thickness. Graph scaling is partially determined by the limits and/or target thicknesses entered by the operator. The graph will display the entire coil or in 500 foot (or 150 meter) increments, depending on setting of Graph (F5). The percentage of the graph taken by the high and low limits is defined on the System Setup Page.

Histogram
Histogram displays a bar graph showing measured thickness, with bars indicating relative percentages of material at each thickness. Measured thickness is scaled in inches, mils, millimeters or microns. The blue bars on this graph represent material that exceeded the high thickness limit. The green bars on this graph represent material that was in tolerance. The black bars on this graph represent material that was below the low thickness limit.

Exit (Alt-X)
Clicking this button once prompts a system message asking the operator to click the button again to exit. Clicking the button a second time exits the AGT800 program and returns the operator to the operating system desktop.

Note: This function is only open to maintenance personnel. The MODE key switch must be in the PROGRAM position in order to exit AGT800 program.

Screen Menu (F1)
Displays a menu of all available screens. Certain screens may be accessed only when the Report Control is in Stop mode, the C-frame is stopped and the MODE key switch is in the PROGRAM position.

Special (F2)
Clicking this button brings up the Special Functions Screen.

Defect Menu (F3)
Clicking this button displays the Defect Menu. The text box shows the currently selected defect. If any defects are selected, the background color will change from white to yellow. If more than one defect is selected, this box will show “Multiple Defects”.

Product Menu (F4)
Clicking this button displays the Product Menu. The text box shows the currently selected product. If any product other than Product 0 (normally Uncoated or Cold-Rolled Steel) is selected, the background color will change from white to yellow.

Graph (F5)
This button toggles the ISOgraph™ display between Detail and Complete modes.
Detail - Shows ISOgraph™ most recent 500 foot or 150 meter increments.
Complete - Shows entire coil on ISOgraph™.

Printer (F6)
The printer button toggles printing of the various automatic printouts on and off. Printer needs to be enabled here to print Coil Summary Reports, Shift Summary Reports and create PDF coil reports automatically.

Note: Coil Data is saved to the hard drive regardless of printer setting.

Profile Display (F7)
Clicking this button displays the current coil profile.

Slit Detail (F8)
Clicking this button brings up the Slit Menu screen.

Coil Report (F9)
Clicking this button displays the report for the most recent coil or the last coil searched on the Data Recall Screen.

Shift Report (F10)
Clicking this button displays the shift report from the beginning of the shift to the time the button is pressed.

Comments (F11)
Click to open the comment box. Once the box opens the operator can type any desired comments. When finished, click the comment box again to close. Comments will be saved with other coil information and can be changed at any time by clicking the comments box again.

Note: Comments can also be added or changed in Coil Summary Report for any saved coil data. Any entered comments are on the second page of the coil report.

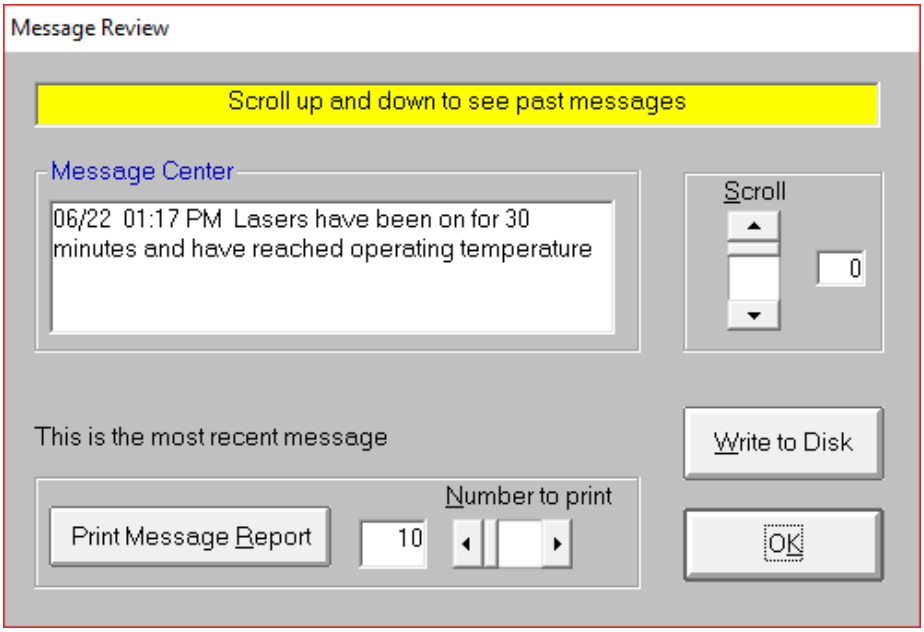
Data Recall (F12)
Clicking this button displays the Data Recall Screen.

Units (Alt-U)
Clicking on this button cycles through the four units of measurement, inches, mils, millimeters and microns.

Keyboard (Alt-B)
Clicking this button displays the on-screen keyboard.

Message Review Screen

JPF – 1/27/2017



The Message Review screen lists all messages since the last AGT800 program start. Exiting the gauge program will delete all messages.

Message Center
Displays the message with a date and time stamp when the message was generated.

Print Message Report (Alt-R)
Used to send (Number to print) messages to the system printer. The MODE key switch must be in PROGRAM in order to use this function.

Number to Print (Alt-N)
Selects the number of messages to print. The user can select any number of messages to print from 10 to 200.

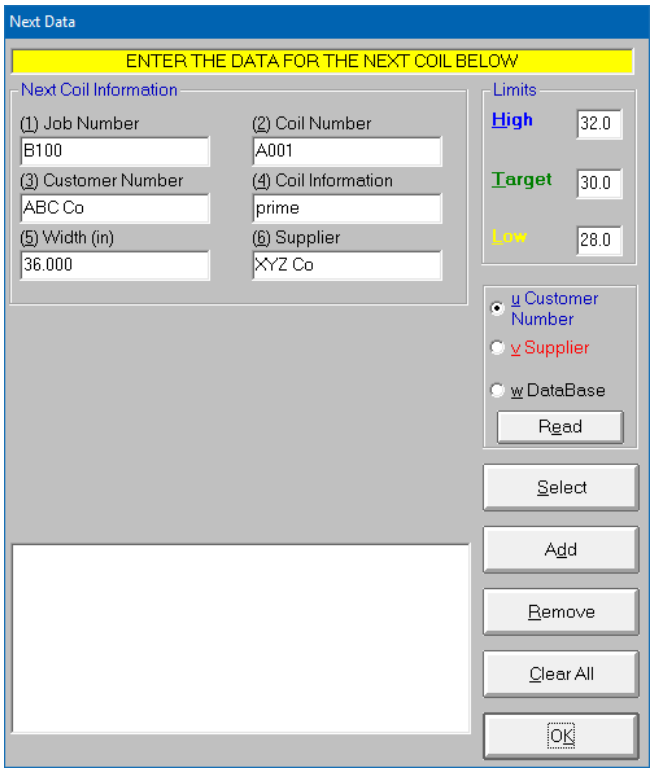
Scroll (Alt-S)
Selects individual message to be reviewed.

Write to Disk (Alt-W)
Used to write (Number to print) messages to specified area on hard drive. Can be accessed and viewed with Notepad. The MODE key switch must be in PROGRAM in order to use this function.

OK (Alt-K)
Exits the Message Review screen and returns the operator to the AGT800 Main Screen.

Next Data Screen

JRR – 1/27/2017



The Next Data Screen allows the operator to pre-set coil data for the next coil. The operator may also build a database by Customer Number or Supplier Fields. Coils may be loaded from this screen via the network by using the database function, if enabled in the Parameter File and with the network enabled. Field names match the field names on the Main Screen and can be changed on the Nomenclature Screen.

Job Number (Alt-1)
Operator enters Job or Work Order Number for the next coil in this field

Coil Number (Alt-2)
Operator enters Coil or Tag Number for the next coil in this field.

Customer Number (Alt-3)
Operator enters Customer Name or Number for the next coil in this field.

Note: When a Coil Number is entered here and either Customer Number database or Supplier database is active, the Coil Number on the main screen will increment by one automatically when the data Yes button is selected.

Coil Information (Alt-4)
Operator enters Coil Information, Operator Name, Product or other information for the next coil in this field.

Width (Alt-5)
Operator enters full coil width for the next coil in this field. This information will be in inches or centimeters, depending on the units selected on the System Setup Screen.

Supplier (Alt-6)
Operator enters Supplier, Vendor or Mill Name or Number for the next coil in this field. Field name can be changed on the Nomenclature Screen.

Limits
Contains the fields for entering the thickness limits for the next coil.

High (Alt-H)
Operator enters upper thickness limit.

Low (Alt-L)
Operator enters lower thickness limit.

Target (Alt-T)
Operator enters target thickness.

Customer Number (Alt-U)
Selects the customer database and displays a list of customers set up in the Customer File. The Customer File database does not save fields 1 or 2. The database only allows one entry for each customer name.

Supplier (Alt-V)
Selects supplier database and displays a list of saved suppliers set up in the Supplier File. This is the most limited database and will only save supplier name. No other fields will be saved.

Database (Alt-W)
Selects the entire database and displays a list of all the saved coil data. Coil information is listed by coil number in alphanumeric order. Database is only available if enabled in the Parameter File. Added coil information is only saved when OK is selected. If Customer Number or Supplier are selected before selecting OK, the new data in the database will be lost.

Read (Alt-E)
Only available when database is enabled in Parameter File. Selecting the Read button reads the information contained in the coil database file to be loaded into the gauge. This allows the database to be created remotely.

Select (Alt-S)
This is used to copy highlighted data from the Customer, Supplier, or Database list box to the appropriate Next Data fields on this screen.

Add (Alt-D)
This button is used to add information from the Next Data fields to the Customer File or Supplier File.

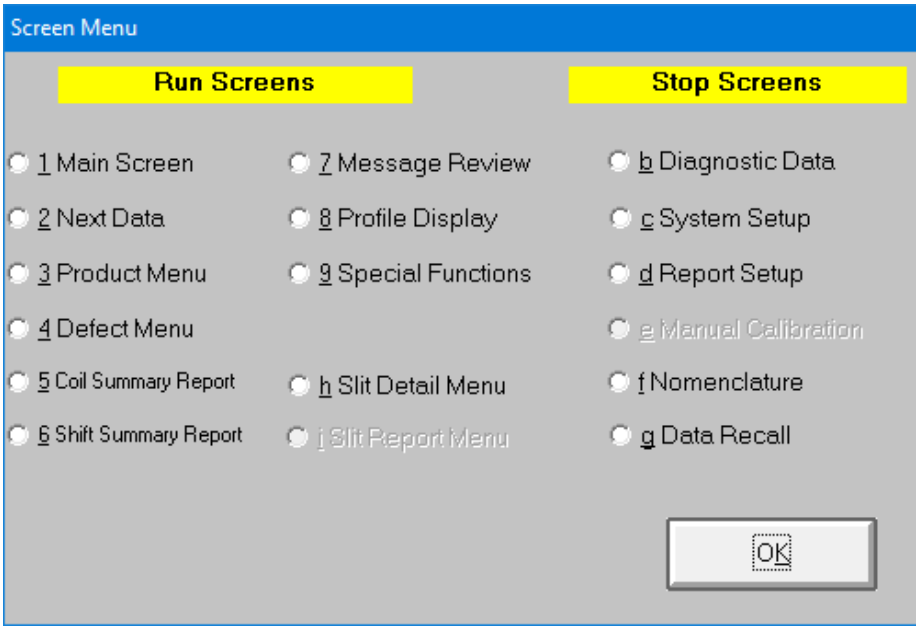
Remove (Alt-R)
This button is used to remove information from the Customer File, Supplier File or Database.

Clear All (Alt-C)
Resets Job Number, Coil Number, Customer Number, Coil Information, Width, Supplier, Limits and Product for the next coil.

OK (Alt-K)
Exits the Next Data Screen and returns the operator to the AGT800 Main Screen. OK will also save all database information to the AGTDB1.txt file. The file name for the database information can be changed in the Parameter File.

Screen Menu Screen

JRR – 1/27/2017

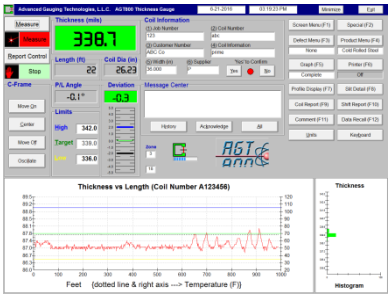


The Screen Menu displays all available screens. The Run Screens are available at any time. The Stop Screens are only available when Report Control is in the Stop Mode and the C-frame is stopped. Data Recall is the only Stop Screen that does not require the MODE key switch to be in the PROGRAM position. All other Stop Screens require the MODE key switch to be in the PROGRAM position to gain access.

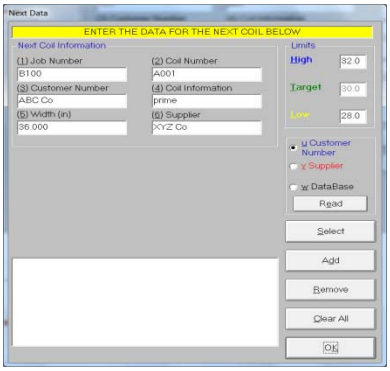
To gain access to the Screen Menu, select the Screen Menu (F1) button in the upper right hand corner of the main screen.

Run Screens

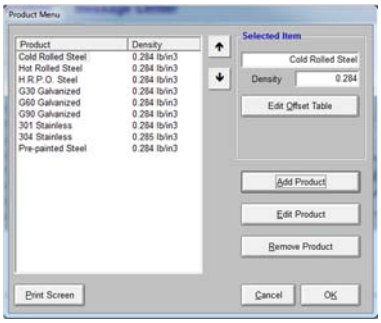
Main Screen (Alt-1)
The primary screen used during normal AGT800 system operation.



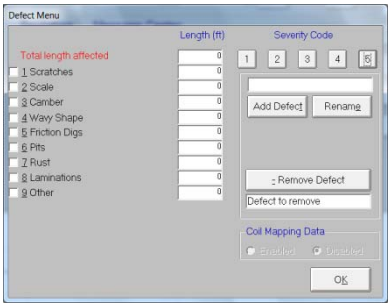
Next Data (Alt-2)
Used to enter data for the next coil. It may also be used to set up customers, suppliers, or select data to be loaded for the next coil.



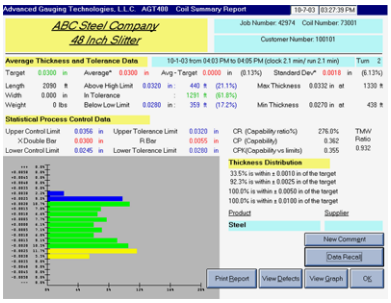
Product Menu (Alt-3)
Used to select or edit products to be measured.



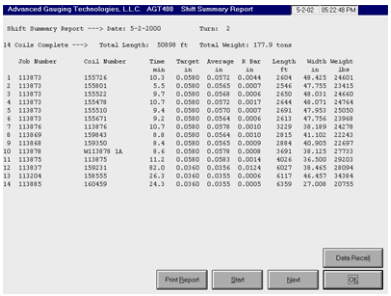
Defect Menu (Alt-4)
Used to select or edit defects observed by the operator.



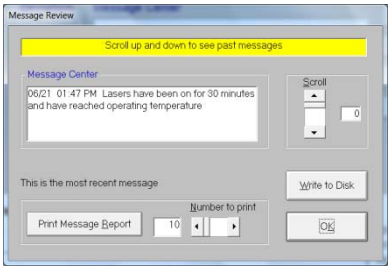
Coil Summary Report (Alt-5)
Used to view coil information for the last coil produced or recalled. The name of this screen and the corresponding report may be changed on the Nomenclature Screen.



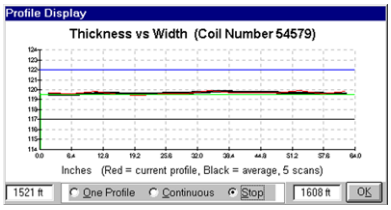
Shift Summary Report (Alt-6)
Used to view shift information for the current shift or a recalled shift. The name of this screen and the corresponding report may be changed on the Nomenclature Screen.



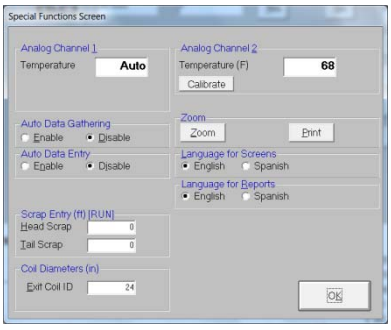
Message Review (Alt-7)
Used to view and print System Messages.



Profile Display (Alt-8)
Used to view the profile of a coil, or measured thickness versus strip width.

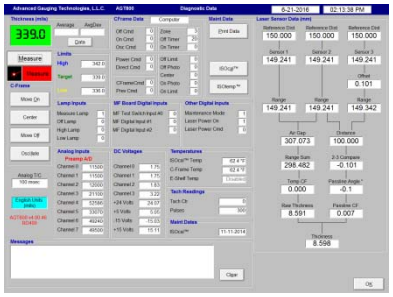


Special Functions (Alt-9)
Used to access many special functions.

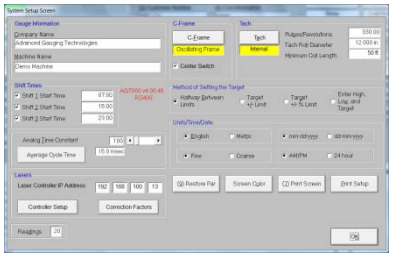


Stop Screens

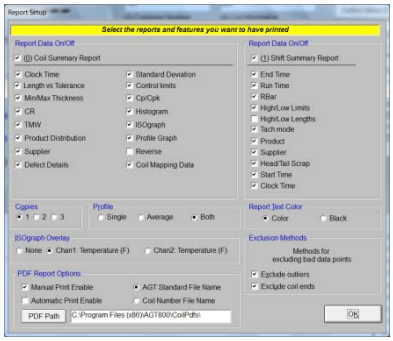
Diagnostic Data (Alt-B)
Used for diagnostic purposes and to perform calibration checks. This screen is also used to perform automatic calibrations using internal calibration samples.



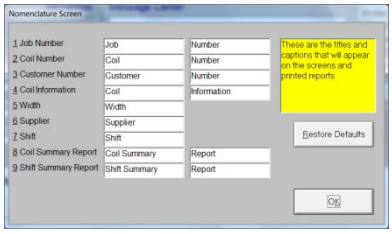
System Setup (Alt-C)
Used to customize system setup items, such as the Method of Setting the Target, Shift Start Times, and English or Metric units.



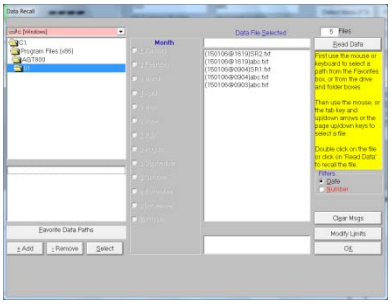
Report Setup (Alt-D)
Used to customize system reports, such as the Coil Summary Report, Shift Summary Report, Profile Report, and Defect Report.



Nomenclature (Alt-F)
Used to customize the names of certain fields on various screens and reports.



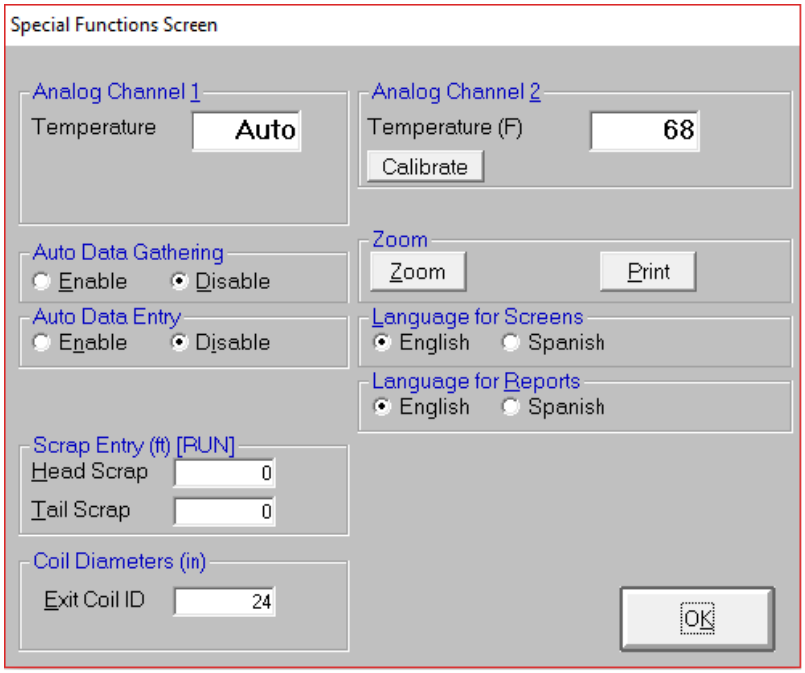
Data Recall (Alt-G)
Used to recall data, such as Coil Summary Reports or Shift Summary Reports.



OK (Alt-K)
Exits the Screen Menu Screen and returns the operator to the AGT800 Main Screen.

Special Functions Screen

JPF – 1/27/2017



This screen allows the user to enable or disable special functions.

Analog Channel 1 (Alt-1)
The AGT800 continuously monitors eight channels of analog inputs. Channels 1 and 2 can be enabled to monitor Multifunction Circuit Board temperature, which may be configured in Fahrenheit (°F), Celsius (°C) or for customer inputs ranging from 0 to 10VDC. This frame is only visible if enabled in the Parameter File.

Auto Data Gathering (Alt-E, Alt-D)
When activated in the Parameter File, allows Auto Data Gathering to be enabled **(Alt-E)** and disabled **(Alt-D)**. When enabled, the voltage present at Digital Input 1 on the Multifunction Board automatically moves the C-frame on, starts measuring and changes Report Control from Stop to Run. The function of this input is defined in the parameter file. As an example, the C-frame motion can be disabled. Removing the voltage at Digital Input 1 on the multifunction board will stop the reporting, set the Measure Mode to Off and move the C-frame off sheet, depending on system configuration and settings in the Parameter file.

OK (Alt-K)
Exits the Special Functions Screen and returns the operator to the AGT800 Main Screen.

Auto Data Entry (Alt-N Alt-I)
When activated in the Parameter file, this button allows Auto Data Entry to be enabled **(Alt-N)** or disabled **(Alt-I)**. When enabled, momentary voltage present at Digital Input 2 on the Multifunction Board will trigger the AGT800 software to read setup data from a text file. This must be a momentary voltage signal. The logged in Windows user profile running the AGT800 software must have read access to the file and file location specified in the Parameter file and the text data in the file must follow the Auto Data Entry template.

Scrap Entry (Alt-H, Alt-T)
The Scrap Entry allows the operator to enter head and tail scrap while a coil is running. To enter Head Scrap, click in Head Scrap box **(Alt-H)** and type in estimated footage scrapped at beginning of coil. To enter Tail Scrap, click in Tail Scrap box **(Alt-T)** and type in estimated footage scrapped at end of coil.

Coil Diameter (Alt-E)
The Exit Coil ID is used to calculate the Coil Diameter on the Main Screen. This is the diameter of the exit end mandrel. The most common entries for this field are 20 and 24 (inches)

Analog Channel 2 (Alt-2)
The AGT800 continuously monitors eight channels of analog inputs. Channels 1 and 2 can be configured to monitor Multifunction Circuit Board temperature, which may be configured in Fahrenheit (°F) or Celsius (°C), or for customer inputs ranging from 0 to 10VDC. This frame is only visible if enabled in the Parameter File.

Zoom (Alt-Z)
Clicking the Zoom button will bring up two directional controls for the ISOgraph™. This allows the operator to view the coil in 500 foot (200 meter) increments. After clicking Zoom (Alt-Z), the graph will shrink to a 500 foot (200 meter) section. By selecting **<< (Alt-<)**, the ISOgraph™ view will shift to the left (beginning) of the coil. By selecting **>> (Alt->)**, the ISOgraph™ view will shift to the right (end) of the coil. Clicking the Zoom button a second time will set the ISOgraph™ back to normal view.

Note: See Zoom Report for example of a “zoomed in” ISOgraph™ printout.

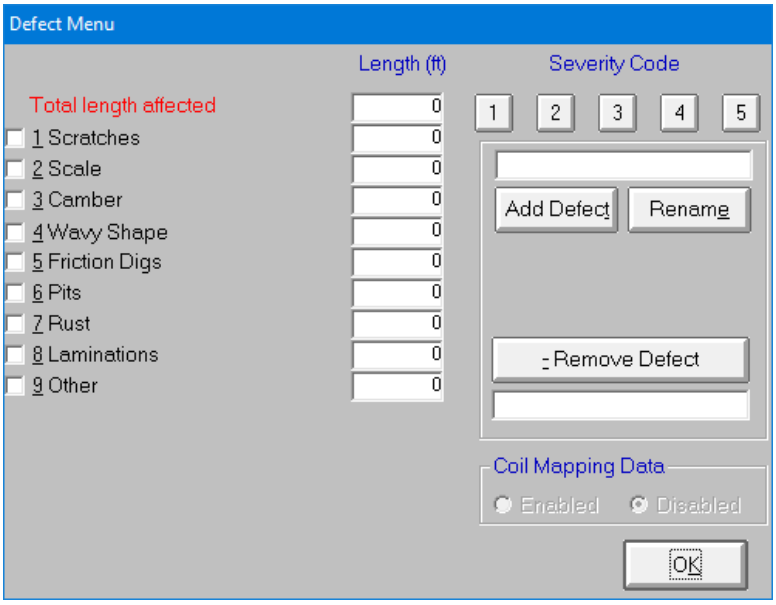
Print (Alt-P)
The Print button will allow the user to print a Coil Zoom report.

Language for Screens (Alt-L)
The operator can select between English or Spanish for all screens.

Language for Reports (Alt-R)
The operator can select between English or Spanish for all reports.

Defect Menu Screen

JRR – 1/27/2017



The defects shown are defaults. This list is completely customizable by the customer

Total Length Affected
This field displays the total length of the current coil where defects were present and noted by the operator.

Length
This column displays the total length of each defect for the current coil, where a particular defect was present and noted by the operator.

Defect List (Alt-1 through Alt-P)
The operator may select current visible defect by checking a box. This enables a particular defect and the gauge will start counting footage at that point. Unchecking a box disables a particular defect, and the gauge will stop counting footage. The total length affected will not change until the coil is finished.

Severity Code
This feature enables the operator to select the severity of the defect on a scale of one to five with one being the least severe and five being the worst.

Add Defect (Alt-T)
This feature is used to add a new defect to the Defect Menu. Operator types the name of the new defect in the yellow text box, then clicks Yes to confirm. Defect will be added to the Defect list. It is recommended that the last defect on the list remain “Other” for gauges without Coil Mapping. On gauges with Coil Mapping, the last two defects should be “Other Defect” and “Spot Defect”.

Rename (Alt-E)
This feature is used to rename an existing defect in the Defect Menu. Select the defect to be renamed and the defect will appear in the blue text box. After making changes to defect name, click Yes to confirm changes.

Remove Defect (Alt- -)
This is used to remove the selected defect from the Defect Menu. Select the defect to be removed and the defect will appear in the white box. Click on the Remove Defect button, which will then turn yellow, and then click Yes to confirm removal.

Yes (Alt->)
This button confirms the request to add, rename or remove a defect. This button is only visible when the Add Defect, Rename or Remove Defect buttons have been clicked.

No (Alt-<)
This button cancels the request to add, rename or remove a defect. This button is only visible when the Add Defect, Rename or Remove Defect buttons have been clicked.

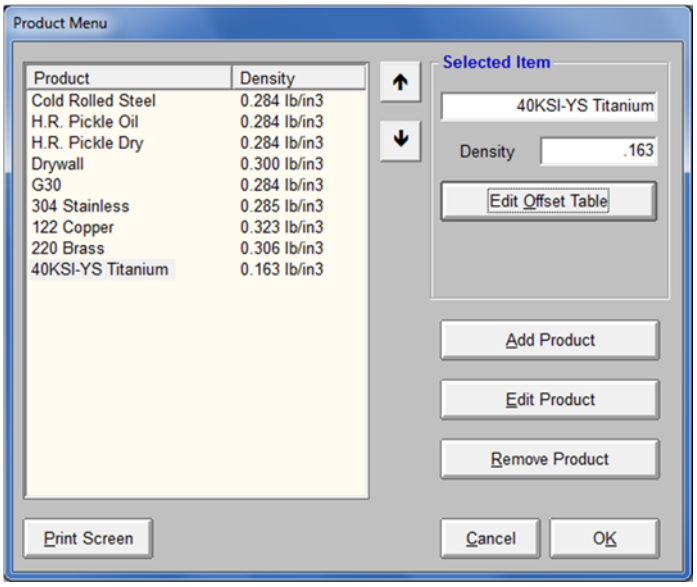
Coil Mapping Data
If Coil Mapping is present, the Coil Mapping Data will usually be enabled. This will allow defects to be entered using the Coil Mapping handheld units. When enabled, defects will not be able to be entered using the Defect Menu Screen. To enter defects using the Defect Menu Screen, Coil Mapping Data must be disabled. When Coil Mapping Data is disabled, defects will not be able to be entered using the Coil Mapping handheld units.

OK (Alt-K)
This button exits the Defect Menu and returns the operator to the AGT800 Main Screen.

Note: Defects will print out on the second page of the Coil Summary Report Printout if enabled on the Report Setup Screen. See Coil Summary Screen section for an example of the Defect Menu Printout.

Product Menu Screen

JRR – 1/27/2017



The Product Menu is used to list the density for various products so the gauge can calculate accurate coil weights. The operator selects the product for the current coil by clicking on it.

Density
Displays the density factor used by the AGT800 to calculate weight of a coil for a particular product. Uncoated steel typically has a density of .284 pounds per cubic inch (lbs/in³), or 7.861 grams per cubic centimeter (gm/cm³), depending on the units selected on the system setup screen. Other products may range from .051 to .749 pounds per cubic inch (lbs/in³), or 1.385 to 20.760 grams per cubic centimeter (gm/cm³). Density can only be adjusted with the MODE Keyswitch in the PROGRAM position.

Print Screen (Alt-P)
The Print Screen button will print a screen shot of the Product Menu.

Edit Offset Table (Alt-O)
Clicking on this button brings up the Product Thickness Modifier Matrix Screen for the selected product.

Add Product (Alt-A)
Clicking on this button adds a product to the Product Menu. Up to 25 products can be set up on this screen. This button is not available during Run mode.

Edit Product (Alt-E)
Clicking on this button renames or adjusts the density of an existing product on the Product Menu. This button is not available during Run mode.

Apply (Alt-Y)
Clicking on this button confirms the request to add or edit a product. This button is only visible when either the Add Product or Edit button has been clicked. This area is not accessible during Run mode.

Cancel (Alt-N)
Clicking on this button cancels the request to add or edit a product. This button is only visible when either the Add Product or Rename button have been clicked. This area is not accessible during Run mode.

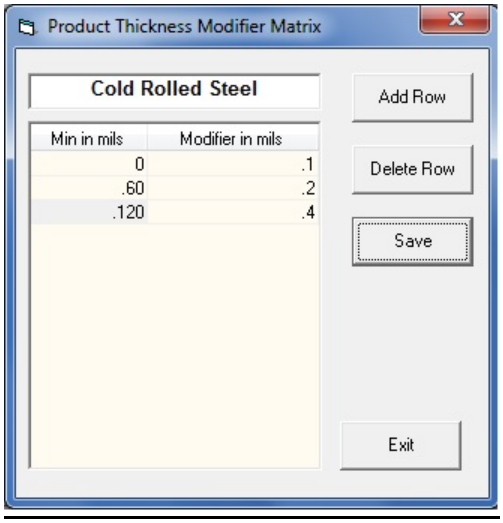
Remove Product (Alt-R)
Clicking on this button removes an existing product from the Product Menu. Product 0 cannot be removed. This area is not accessible during Run mode.

Cancel (Alt-C)
Exits the Product Menu Screen without saving the product choice.

OK (Alt-K)
Exits the Product Menu Screen and returns the operator to the AGT800 Main Screen.

Product Thickness Modifier Matrix Screen

TRA – 1/27/2017



This screen allows a measurement modifier to be added to a specific product at a specific target thickness. The first column lists the target thickness at which the modifier is applied. The modifier is the second column and can be negative or positive. Modifiers do not stack and as the target thickness changes only that specific modifier is applied. Data can be added or changed by clicking in the cell and typing the data.

Add Row
This button adds a new row to the Offset Table.

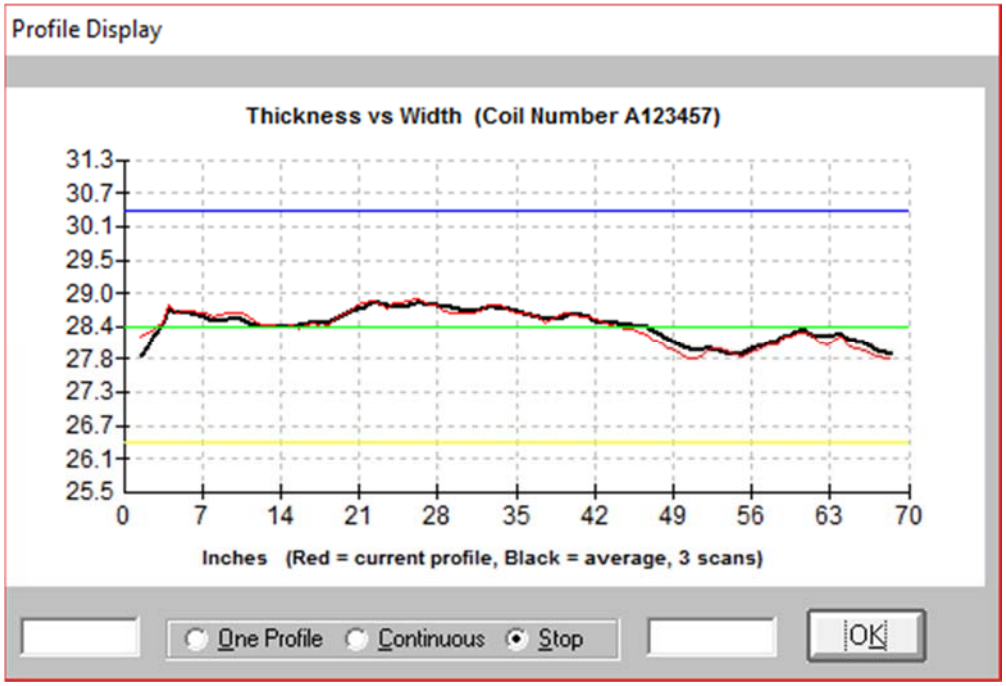
Delete Row
This button deletes a row from the Offset Table.

Save
This button saves the information for the row.

Exit
Clicking this button closes out the Offset Table.

Profile Display Screen

JPF – 1/27/2017



The Profile Display is a graphic representation for viewing the profile of a coil. It is only available with the optional oscillating C-frame.

Thickness vs Width

A graph shows measured thickness versus entered width of the current strip profile. Measured thickness is scaled to the same units that the gauge is set to. Length is scaled in feet (ft) or meters (m). Width is scaled in inches or centimeters. The upper blue horizontal line represents the upper thickness limit. The lower yellow horizontal line represents the lower thickness limit. The green horizontal line represents the target thickness. The red line represents the measured thickness of the last scan. The black line represents the average thickness of previous scans when in continuous mode.

Both red and black lines typically stop just short of the edge of the graph. This is because the AGT800 cannot measure all the way to the strip edges. This distance is defined in the AGTPar2.txt file and is determined by actual measurements from the C-frame movement.

Measured Length

There are two white text boxes on the bottom of this screen. The left box displays the length of coil at the beginning of the most recent scan. The right box displays the length of coil at the end of the most recent scan.

One Profile (Alt-O)
Used to begin a single profile scan across the strip width.

Continuous (Alt-C)
Used to begin a repetitive profile scan across the strip. The C-frame will continue to scan until Stop is selected or the Report Control is set to Stop mode on the Main Screen.

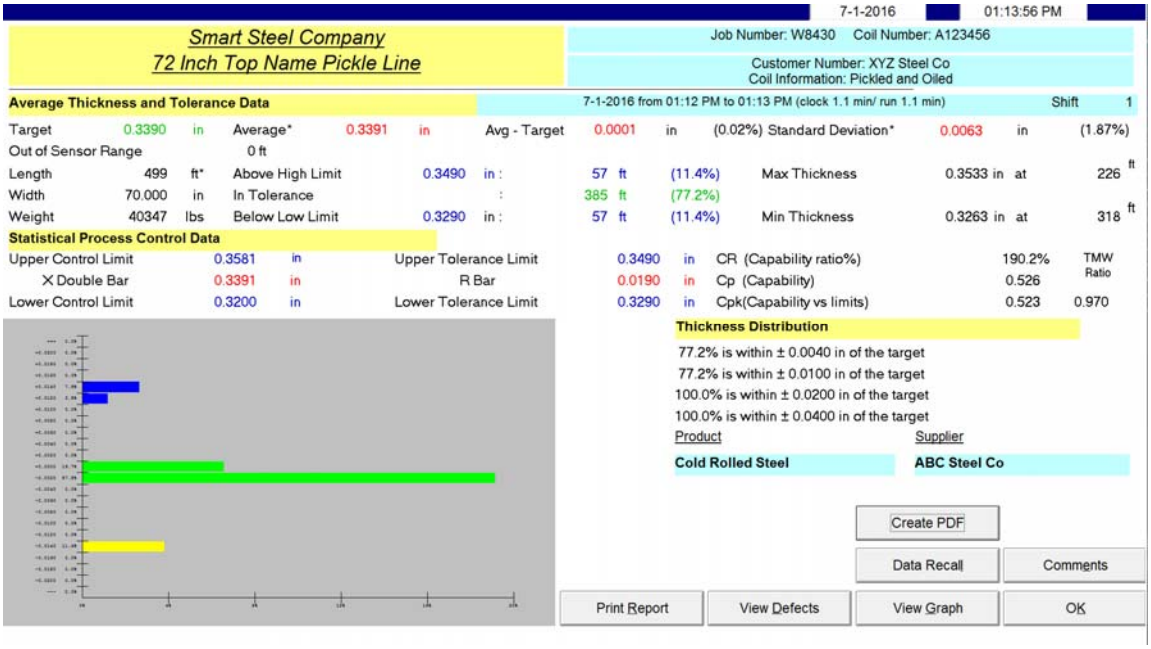
Stop (Alt-S)
Used to stop a single or continuous profile scan.

OK (Alt-K)
Exits the Profile Display Screen and returns the operator to the AGT800 Main Screen.

Note: Profile Display will print out on the second page of the Coil Summary Report. See Coil Summary Screen section for an example of the Profile Display report.

Coil Summary Report Screen

JPF – 1/27/2017



The Coil Summary Report gives a report on the current coil or a saved coil by way of the Data Recall button. The Coil Summary Report includes the following information: Job Number, Coil Number, Customer, Coil Information, Date the coil was started, Time the coil began, Time the coil was completed, Clock Time, Run Time and Shift.

The **Average Thickness and Tolerance Data** section includes the following: Target, Average, Average-Target, Standard Deviation, Out of Sensor Range, Length, Width, calculated Weight, Above High Limit, In Tolerance, Below Low Limit, Maximum Thickness at footage and Minimum Thickness at footage out of entered limits.

Note: For Average and Standard Deviation, if only outliers are excluded from the S.P.C. calculations, the ^ symbol will appear on the Coil Report screen and printouts. If only coil ends are excluded, the **‘** symbol will appear on the Coil Report screen and printouts. If both outliers and coil ends are excluded, the ***** symbol will appear on the Coil Report screen and printouts. Unusual thickness data points and coil ends may be excluded from S.P.C. calculations on the Report Setup screen.

The **Statistical Process Control Data** section includes the following: Upper Control Limit, X Double Bar, Lower Control Limit, Upper Tolerance Limit, R Bar, Lower Tolerance Limit, CR (Capability ratio %), CP (Capability), CPK (Capability vs. Limits). Explanations of these fields can be found in the S.P.C. Definitions list in this manual.

The **Thickness Distribution** section gives a breakdown of the percent of the coil within +/-0.0010”, +/-0.0025”, +/-0.0050” and +/-0.0100”, or metric equivalents.

Print Report (Alt-R)
The Print Report button will print a coil report for the coil currently selected in the Coil Summary Report.

View Defects (Alt-D)
The View Defects button allows the user to see all defects recorded when this coil initially ran. To return to the Coil Summary screen from the View Defects screen, click on the Return to previous menu button. Clicking the OK button from the View Defects screen will return the operator to the Main Screen.

Create PDF
The Create PDF button allows the user to create an electronic PDF coil report. The file path of the PDF is defined on the Report Setup Screen or the System Setup screen.

Data Recall (Alt-L)
The Data Recall button will access the Data Recall screen and allow the user to access saved coil data by either date or coil number.

View Graph (Alt-G)
The View Graph button allows the user to see a graphic representation of the current coil. To return to the Coil Summary screen from the View Graph screen, click on the Return to previous menu button. Clicking the OK button from the View Graph screen will return the operator to the Main Screen.

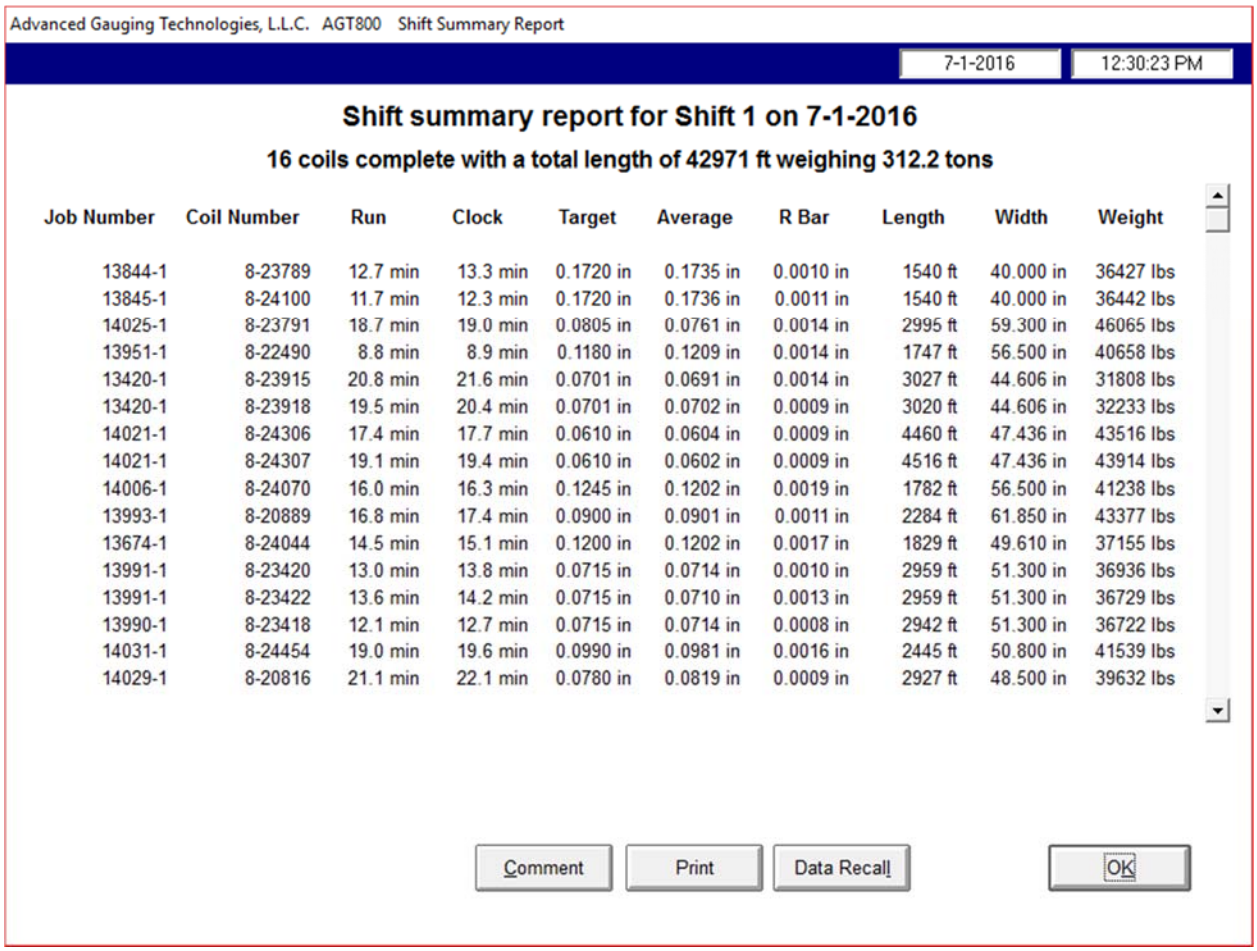
Comments (Alt-E)
The Comments button allows the user to add comments to the coil data after the coil has been saved. Clicking the Comment button opens a yellow text box that can be used to enter any desired comments. Simply click the Comment button again to close the box.

OK (Alt-K)
Exits the Coil Summary Report and returns the operator to the AGT800 Main Screen.

Note: See example of the Coil Summary Report on the next page. This report also includes a Profile Display and the Defects printout.

Shift Summary Report Screen

JPF – 1/27/2017



The Shift Summary Report gives a detailed report of all coils ran during a particular shift. The shift number and date are located at the top of the window. Below the date and shift are the total number of coils completed during the shift, the total length of all the coils and the total weight of all the coils.

The Shift Summary Report then breaks down each coil by Job Number, Coil Number and several other pieces of information that can be configured on the Report Setup screen. The shift times are defined on the System Setup screen.

If there are more coils than can be shown on a single window, the scroll bar on the right can be used to see the remaining coils for the shift.

Comments (Alt-C)
The Comments button allows the user to add comments to the coil data after the coil has been saved. Clicking the Comment button opens a yellow text box that can be used to enter any desired comments. Simply click the Comment button again to close the box.

Print
The Print button allows the operator to print an “on demand” copy of the current Shift Summary Report, without waiting for the shift to end.

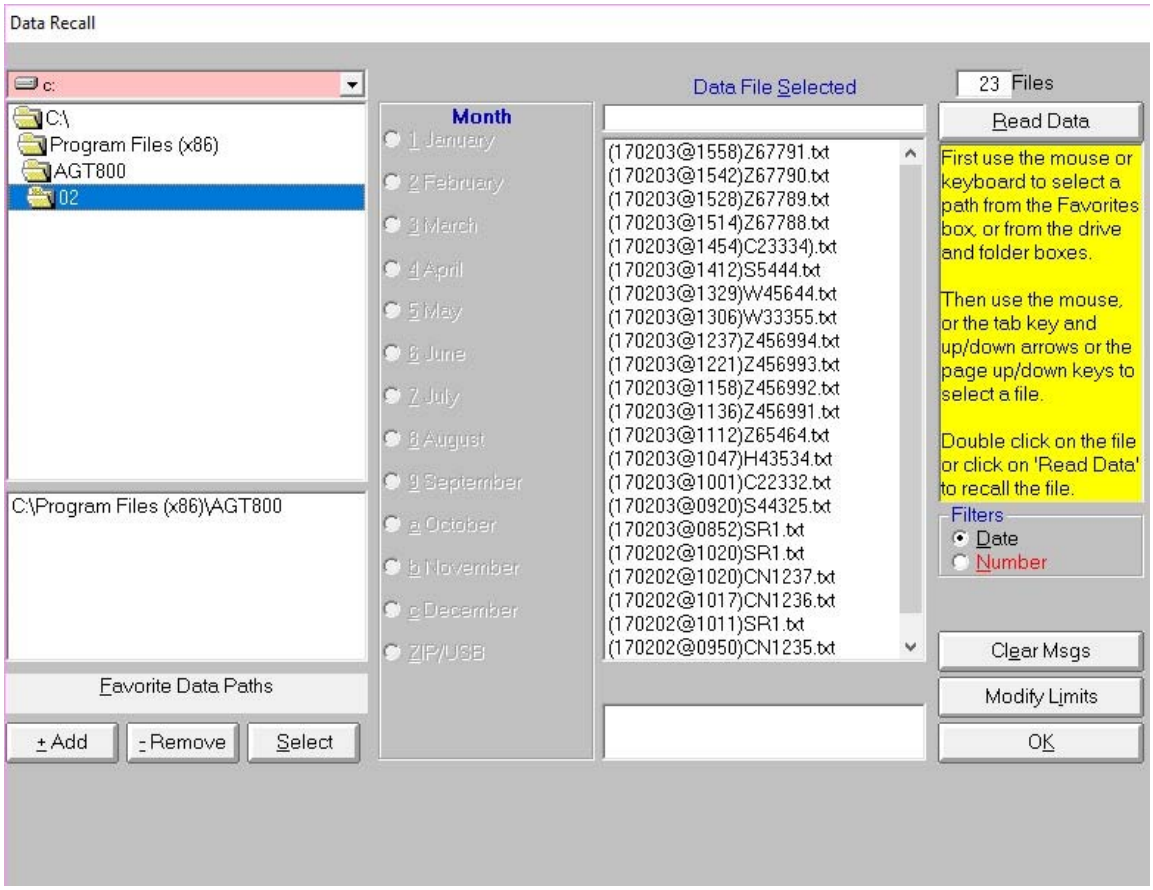
Data Recall (Alt-L)
The Data Recall button takes the operator to the Data Recall screen where the operator can recall old Shift Summary Reports. The file name format is (year, month, and day @ time the coil was produced) followed by the SRX file extension. Example: (160621@1450).SR1

OK (Alt-K)
Exits the Shift Summary Report screen and returns the operator to the AGT800 Main Screen.

Note: See Shift Summary Report for an example of a report printed from this screen.

Data Recall

JRR – 1/27/2017



The Data Recall screen allows the user to recall saved Coil Summary Reports and Shift Summary Reports.

Data Recall Field

The Data Recall field displays all coils that have been saved to the hard disk, USB drive or network, depending on parameter settings and network connections. The coils and shift summaries will be in either date order or coil/shift number order depending on 'Filter' selection.

Note 1: Files with 'SRx' in place of coil number are Shift Summary files. (i.e. SR1, SR2 and SR3 translate to Shift1, Shift 2 and Shift 3, respectively.

Note 2: If searching by coil number, select the first coil in the Data Recall field and begin typing the coil number. As the number is typed, the scroll bar will move to the typed number. If the scroll bar does not move, the coil is not present.

Paths
Locations of where the reports are stored. Default locations are folders 1 through 12, which represent the 12 months of the year, in the AGT800 folder.

Favorite Data Paths (Alt-F)
This field shows the favorite location of paths where files are stored. This can be on the hard disk, USB drive, or network.

Add (Alt-+) / Remove (Alt- -)
Clicking these buttons add or remove favorite locations to the list of favorites.

Select (Alt-S)
Clicking on this button selects a favorite location.

Data File Selected
Displays the file currently highlighted in the Data Recall field. The file may be opened by double-clicking it or using the Read Data button.

Read Data (Alt-R)
Opens the selected data file.

Files
Displays the total number of files in the current folder for the Data Recall field.

Filters/Date (Alt-D)
Allows the user to sort all data in the Data Recall field by the date and time [(yymmdd@time)coilnumber.txt] file was saved.

Filters/Number (Alt-N)
Allows the user to sort all data in the Data Recall field by the coil number [coil#(yymmdd@time).txt] the file was saved under.

Message Box
This box contains any system messages pertaining to the usage of the Data Recall feature.

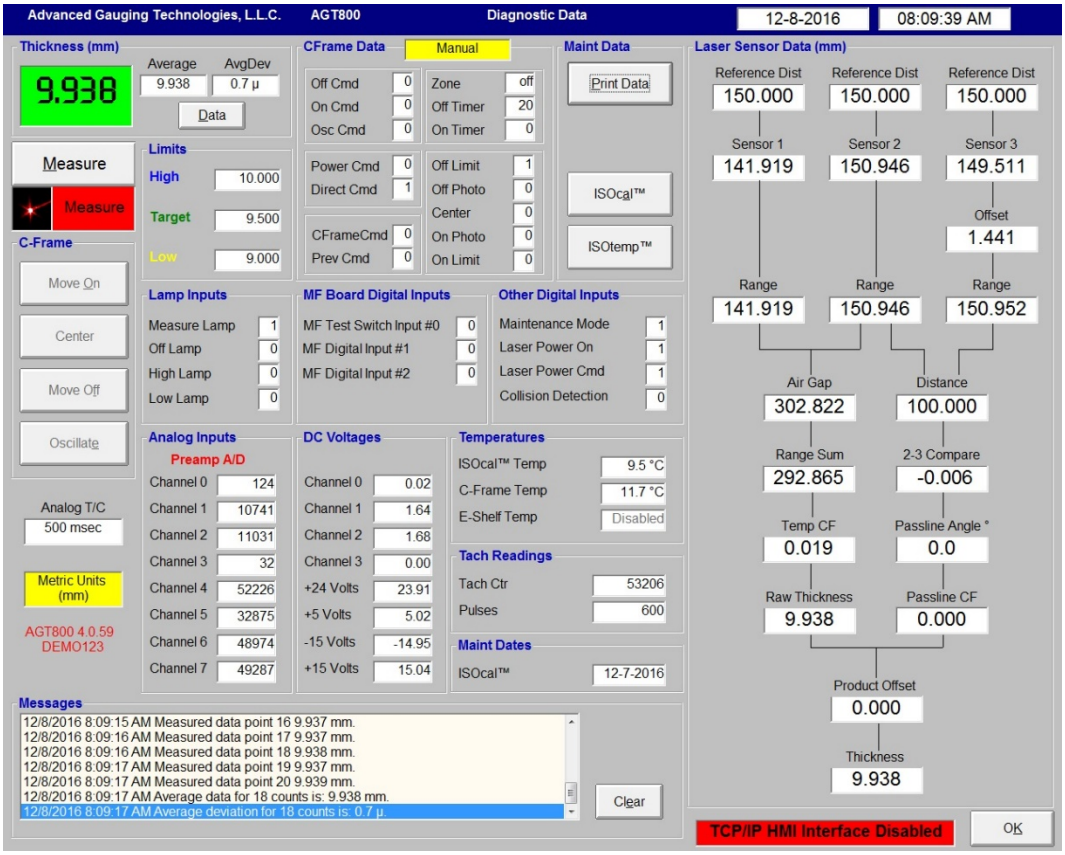
Clear Msgs (Alt-E)
Allows the user to clear any messages in the Message Box.

Modify Limits (Alt-l)
This button opens a window that allows you to change the high, low and target thicknesses of a previous coil report. This can be useful if an operator forgot to set them properly before running the coil.

OK (Alt-K)
Exits the Data Recall screen and returns the operator to the AGT800 Main Screen.

Diagnostic Data Screen

KRG – 1/27/2017



The Diagnostic Data Screen is a unique feature of the AGT800. This screen is a great troubleshooting aid and allows for the quick viewing of all pertinent information such as analog and digital signals, DC voltages, laser sensor information, C-frame status, A/D values and many others. Among the best features of the Diagnostic Data Screen are the ISOcal™ and ISOtemp™ functions. They permit the quick and easy verification and/or correction of the measurement.

ISOcal™ (Alt-A)

The ISOcal™ function of the AGT800 should be used to calibrate the gauge. Refer to the ISOcal™ procedure in the Maintenance section of this manual for instructions.

ISOtemp™ (Alt-T)

This will start or stop the ISOtemp™ data gathering procedure which is used to calculate the C-frame temperature correction factor. Refer to the ISOtemp™ procedure in the Maintenance section of this manual for instructions.

Measure (Alt-M)
The Measure button starts and stops measurements whenever the LASER POWER key switch is in the ON position. The graphic area shows the measure command and is color-coded. When the gauge is commanded to stop measuring, the graphic area displays the word Off on a green background with a key symbol to the left. When the gauge is commanded to measure, the graphic area displays the word Measure on a red background with a laser symbol to the left.

Note 1: The Measure button on the Diagnostic Data screen works the same as the Measure button on the Main Screen. The gauge will not measure with the LASER POWER key switch in the OFF position.

Note 2: If the LASER POWER key switch is in the OFF position and the Measure button is activated, the graphic will show the gauge is commanded to be in the measure state. The Message Center will display alarms indicating laser power is turned off.

Thickness Display
Displays the measured thickness in inches, mils, millimeters or microns depending on the current units selected. The background of the Thickness Display field will be green when the measured thickness is in tolerance, blue when the measured thickness is above tolerance and yellow when the measured thickness is below tolerance.

Data (Alt-D)
The Data button allows the user to average a predetermined number of measurements. The result is displayed in the Average box and AvgDev box. The predetermined number can be changed in the Parameter file. The units are as selected on the System Setup screen.

Average
This is the average of the predetermined number of measurements when the Data button is used.

AvgDev
This is the average deviation of the measurements taken using the Data button. The AvgDev is displayed after the predetermined number of measurements have taken place.

C-frame Control
Contains the buttons for moving the Electric C-frame or Oscillating C-frame. The C-frame Controls are enabled on the System Setup screen, as long as the MANUAL/AUTO Switch on the Power Panel is set to AUTO.

Move On (Alt-O)
This button will move the C-frame on sheet, and turns yellow when motion is commanded.

Move Off (Alt-F)
This button will move the C-frame off sheet, and turns yellow when motion is commanded.

Center (Alt-C)
This button will move the C-frame to the center of the sheet, and turns yellow when motion is commanded.

Oscillate (Alt-E)
This button will bring the C-frame on sheet and will oscillate it from edge to edge, and turns yellow when motion is commanded. The oscillate function requires photocells.

Limits
Displays the high, low and target thicknesses entered by the operator on the Main Screen. These values cannot be changed on the Diagnostic Data Screen.

Analog T/C
The Time Constant listed on the Diagnostic Data page is the analog time constant for the gauge at that moment. The time constant can be changed on the System Setup screen.

System Information
This section, located in the lower left-hand portion of the Diagnostic Data page, contains the units of measurement used by the gauge, gauge model, current software version and the system serial number.

CFrame Data
The CFrame Data section of the Diagnostic Data screen gives a visual quick look at all signals relating to the C-frame. In the upper portion of the CFrame Data is a text box. In it will be the word Computer on a white background or the word Manual on a yellow background. This is determined by the C-frame control switch on the Electronics Shelf. While the switch is in AUTO, the CFrame Data box will read Computer on a white background. While in MANUAL, the CFrame Data box will read Manual on a yellow background.

Off Cmd
The Off Cmd is a digital high or low depending on the status of the command. When the Move Off (Alt-F) button is selected under C-frame, the 0 (low) next to Off Cmd will change to a 1 (high) until the C-frame reaches the off limit switch or the C-frame drive motor times out.

On Cmd
The On Cmd is a digital high or low depending on the status of the command. When the Move On (Alt-O) button is selected under C-frame, the 0 (low) next to On Cmd will change to a 1 (high) until the C-frame reaches the on limit switch, reaches the forward photocell or the C-frame drive motor times out.

Osc Cmd
The Osc Cmd is a digital high or low depending on the status of the command. When the Oscillate (Alt-C) button is selected under C-frame, the 0 (low) next to Osc Cmd will change to a 1 (high) until the C-frame reaches the forward photocell. At the forward photocell, the C-frame will reverse direction until it reaches the rear photocell. It will then reverse direction again and move to the forward photocell. This process will continue until the Oscillate (Alt-C) button is selected again, the Move On (Alt-O) is selected or the Move Off (Alt-F) is selected, or the C-frame motor times out.

Zone
The Zone area is the physical location of the C-frame.

Off = at Off Sheet Limit Switch
0 = completely off sheet, but not at the Off Sheet Limit Switch
1 = Off Sheet Photocell off sheet, On Sheet Photocell on sheet
2 = not at center, both Photocells on sheet, near off sheet edge
3 = approximate center
4 = not at center, both Photocells on sheet, near on sheet edge
5 = Off Sheet Photocell on sheet, On sheet Photocell off sheet
6 = completely off sheet, but not at the On Sheet Limit Switch
7 = at On Sheet Limit Switch

Note: Zones 1 through 5 correspond to Zones 1 through 5 on systems equipped with coil mapping.

Off Timer
The Off Timer is a feature of the AGT800 to give the C-frame a pause before moving or changing direction. The Off Timer will commence prior to any C-frame movement or change in direction after a C-frame movement command is given or present. Once the Off Timer has reached a predetermined count, typically one second (shown as 20 50-millisecond increments), the C-frame will commence movement. This timer may be adjusted in the Parameter file.

On Timer
The On Timer is a timeout feature of the AGT800 to prevent the C-frame drive motor from burning out in the event of a C-frame obstruction or limit switch failure. The On Timer will commence counting as long as a C-frame movement command is present. Once the On Timer has reached a predetermined count, typically 30 seconds (shown as 600 50-millisecond increments), the C-frame drive motor will turn off. This timer may be adjusted in the Parameter file.

Power Cmd
When the C-frame is commanded to move, the Power Cmd will change from a 0 (low) to a 1 (high). This command will energize the power relay R1 on the Electronics Shelf.

Direct Cmd
When the Power Cmd is a 1 (high), the C-frame will commence movement. The Direct Cmd determines in which direction the C-frame will move. When moving On Sheet, the Direct Cmd will change from a 0 (low) to a 1 (high). This command will energize the power relay R2 on the Electronics Shelf. While energized, R2 will proved a DC voltage from the rectifier to move the C-frame in the On Sheet direction. When moving Off Sheet, the Direct Cmd will change from a 1 (high) to a 0 (low). This will de-energize the power relay R2 on the Electronics Shelf. While de-energized, R2 will pass a reverse polarity DC voltage from the rectifier to move the C-frame in the Off Sheet direction.

CFrame Cmd
The CFrame Cmd will command the C-frame to stop, move On Sheet, move Off Sheet or Oscillate.
0 = C-frame is commanded to stop.
1 = C-frame is commanded to move in the Off Sheet direction.
2 = C-frame is commanded to move in the On Sheet direction.
3 = C-frame is commanded to Oscillate.

Prev Cmd
The Prev Cmd is a receipt of, and will always follow the CFrame Cmd.
0 = C-frame is commanded to stop.
1 = C-frame is commanded to move in the Off Sheet direction.
2 = C-frame is commanded to move in the On Sheet direction.
3 = C-frame is commanded to Oscillate.

Off Limit
The Off Limit is a digital high or low depending on the status of the digital input. When the off limit switch is closed, the status is a 1 (high). When the off limit switch is open, the status is a 0 (low).

Off Photo
The Off Photo is a digital high or low depending on the status of the digital input. When the off photocell is blocked, the status is a 0 (low). When the off photocell is unblocked, the status is a 1 (high).

Center
The Center Limit is a digital high or low depending on the status of the digital input. When the center limit switch is closed, the status is a 1 (high). When the center limit switch is open, the status is a 0 (low).

On Photo
The On Photo is a digital high or low depending on the status of the digital input. When the on photocell is blocked, the status is a 0 (low). When the on photocell is unblocked, the status is a 1 (high).

On Limit
The On Limit is a digital high or low depending on the status of the digital input. When the on limit switch is closed, the status is a 1 (high). When the on limit switch is open, the status is a 0 (low).

Print Data (Alt-P)
Located in the Maint Data section of the Diagnostic Data page, the Print Data button allows the user to print an exact copy of the entire Diagnostic Data page and an AGT800 Diagnostic Data Report. This is a very useful tool in troubleshooting, as the page printouts can be faxed or emailed to A.G.T. for additional technical support.

Laser Sensor Data
This area will display current laser sensor data.

Reference Dist
These distances are the reference point of halfway between the top and bottom and lasers.

Sensor 1, 2, 3
This displays the distance from the laser that is currently being read by the lasers. Sensor 3 is only active if installed and Passline Angle Compensation is enabled.

Offset
This is the difference in height from the material, derived from ISOcal readings, between sensor 2 and sensor 3.

Range
This is the range from the sensor to the material with any offsets calculated in.

Air Gap
This will display the Air Gap calculated from the last ISOcal™.

Distance
This is the horizontal distance between sensor 2 and sensor 3. Sensor 3 is only active if installed and Passline Angle Compensation is enabled.

Range Sum
This is the sum of adding the sensor 1 and sensor 2 Range readings.

2-3 Compare
This is the sum of subtracting sensor 3 from sensor 2 Range readings. Sensor 3 is only active if installed and Passline Angle Compensation is enabled.

Temp CF
This is the Temperature Correction Factor applied if enabled.

Passline Angle°
This displays the material angle as it passes through the lasers if sensor 3 is installed and enabled.

Raw Thickness
This displays the calculated Raw Thickness of the material.

Passline CF
This displays the Passline Correction Factor being applied to the material according to the current passline angle measurements. This is only active is sensor 3 is installed and enabled.

Thickness
This displays the final calculated thickness after all correction factors are applied to the sensor readings.

Lamp Inputs
This area displays the status of the Measure, Off, High and Low Indicator Lamps.

Measure Lamp
The Measure Lamp is a digital high or low depending on the status of the digital output. When the gauge is commanded to measure with material in the beam, the status will change from a 0 (low) to a 1 (high), sending 120 VAC to the red lamp. When the gauge is commanded to stop measuring, the status will change from a 1 (high) to a 0 (low), removing 120 VAC from the red lamp.

Off Lamp
The Off Lamp is a digital high or low depending on the status of the digital output. When the gauge is commanded to stop measuring, the status will change from a 0 (low) to a 1 (high), sending 120 VAC to the green lamp. When the gauge is commanded to measure with material in the beam, the status will change from a 1 (high) to a 0 (low), removing 120 VAC from the green lamp.

High Lamp
The High Lamp is a digital high or low depending on the command to the digital output. When the gauge is measuring and the measured thickness is above the high limit, the status is a 1 (high), sending 120 VAC to the blue lamp. When the gauge is not measuring or the measured thickness is below the high limit, the status is a 0 (low), removing 120 VAC from the blue lamp.

Low Lamp
The Low Lamp is a digital high or low depending on the command to the digital output. When the gauge is measuring and the measured thickness is below the low limit, the status is a 1 (high), sending 120 VAC to the amber lamp. When the gauge is not measuring or the measured thickness is above the low limit, the status is a 0 (low), removing 120 VAC from the amber lamp.

MF Board Digital Inputs
Displays the status information of the Multifunction Board test switch, digital input #1 (used for Auto Data Gathering) and digital input #2 (used for Auto Data Entry).

MF Test Switch Input #0
Shows the status of the Multifunction Board test switch. The normal status is a 0 (low). A 1 (high) indicates the Multifunction Board test switch is in the low or high test mode.

MF Digital Input #1
The MF Digital Input #1 is used with Auto Data Gathering. The normal status is a 0 (low). A 1 (high) activates the Auto Data Gathering if it is enabled in the Parameter file and on the Special Functions Screen. The AGT800 will gather data in one of two ways. If the Parameter file is set to a 1, the gauge will automatically start measuring and start the report. If the Parameter file is set to a 2, the gauge will also command the C-frame to move on sheet or oscillate, depending on C-frame configuration.

MF Digital Input #2
The MF Digital Input #2 is used with Auto Data Entry. The normal status is a 0 (low). A 1 (high) activates the Auto Data Entry if it is enabled in the Parameter file and on the Special Functions Screen.

Other Digital Inputs
This displays other digital inputs.

Maintenance Mode
When the MODE key switch is in the RUN mode, this digital input will be a 0 (low). When the MODE key switch is in the PROGRAM mode, this digital input will be a 1 (high).

Laser Power On
This shows if the laser controller currently has power enabled to it.

Laser Power CMD
This shows if the Laser Power is being commanded to be toggled.

Analog Inputs
This section gives the user the ability to monitor the eight 16 bit analog input channels. Values range from 0 to 65535, with 0 representing 0 VDC and 65535 representing 10 VDC.

Chan 0
Unused spare

Chan 1
C-frame temperature

Chan 2
Electronics Shelf temperature

Chan 3
Unused spare

Chan 4
Positive 24 Volts (+24 VDC), typically around 52400. The AGT800 software triples this count to determine 24 VDC power supply voltage. 52400 = 8 VDC. 8 VDC X 3 = 24 VDC.

Chan 5
Positive 5 Volts (+5 VDC) typically around 32750

Chan 6
Negative 15 Volts (-15 VDC), typically around 49150. The AGT800 software doubles this count to determine -15 Volts voltage. 49150 = 7.5 VDC. 7.5 VDC X 2 = 15 VDC.

Chan 7
Positive 15 Volts (+15 VDC), typically around 49150. The AGT800 software doubles this count to determine -15 Volts voltage. 49150 = 7.5 VDC. 7.5 VDC X 2 = 15 VDC.

DC Voltages
The DC Voltages section gives the user the ability to quickly check important voltages. Chan 0 and Chan 3 are spare analog channels. +24 Volts, +5 Volts, -15 Volts and +15 Volts give the user the ability to monitor the gauge power supplies without having to use a voltmeter.

Temperatures
The Temperatures section shows you important gauge and C-frame temperature information.

ISOcal™ Temp
This will display the temperature of the C-frame when the last ISOcal™ was performed.

C-Frame Temp
This displays the current C-frame temperature reading.

E-Shelf Temp
This displays the current Electronics Shelf temperature reading.

Tach Readings
The Tach Readings section of the Diagnostic Data screen monitors tachometer rotation and operation. The Tach Ctr section is a continuous tachometer counter. If the tachometer stops moving, this section will give a current count of tachometer pulses received. If the tachometer is currently moving, the Pulses section will scroll numbers as it pulses from the tachometer.

Maint Dates
The date the gauge was ISOcal™ was last performed. This date is there so the user knows when the gauge was last calibrated.

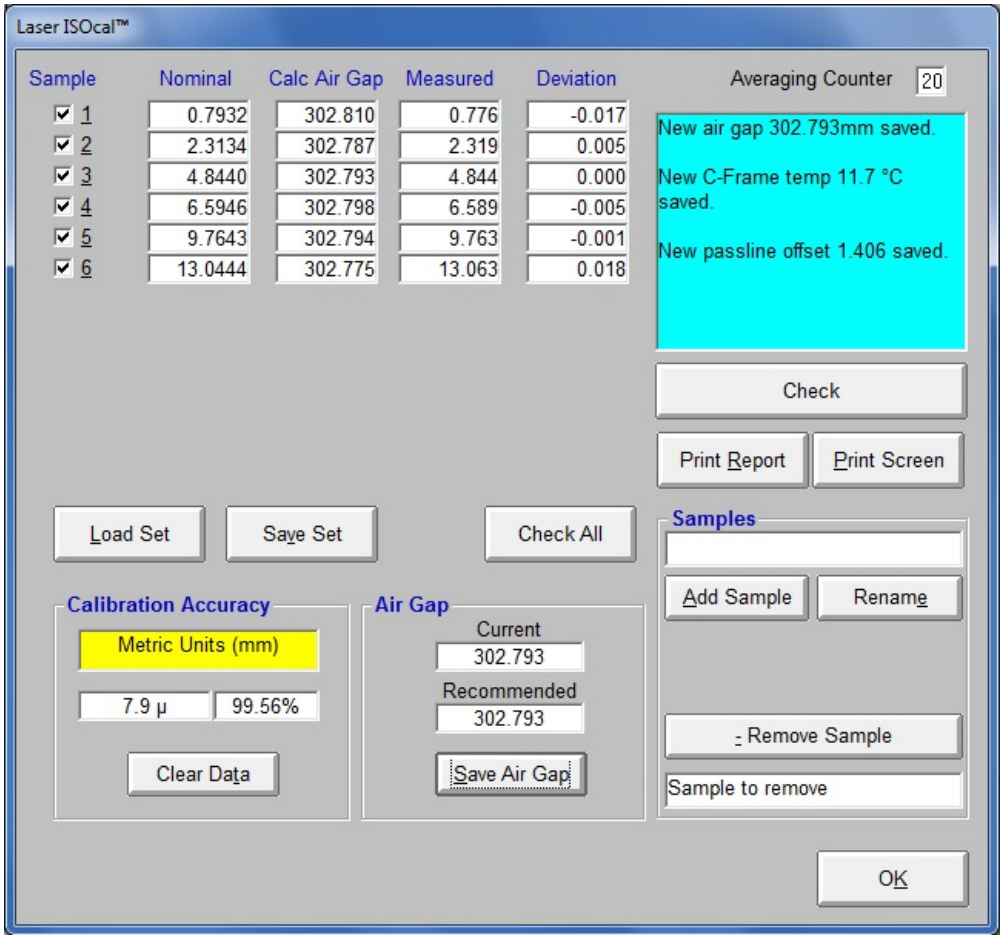
Message Box
The message box will give the user valuable information relating to the ISOcal™ procedure, the ISOtemp™ procedure, C-frame errors, etc.

Clear (Alt-L)
Clears all displayed messages in the message box.

OK (Alt-K)
Exits the Diagnostic Data Screen and returns the operator to the AGT800 Main Screen.

ISOcal™

KRG – 1/27/2017



This screen is used for the calibration of the AGT800 gauge during the Manual Calibration (ISOcal™) procedure located in the Maintenance section of this manual.

Sample
Each sample entered is assigned a number ascending from smallest to largest.

Nominal
This is the NIST-traceable nominal thickness of each sample.

Calc Air Gap
The calculated air gap between the laser sensors with the sample in the beam.

Measured
The measured thickness for each sample after the calibration changes are applied.

Deviation
The amount of deviation from nominal to the measured thickness.

Averaging Counter
Counts the predetermined number of cycles for each reading to gather an average.

Message Box
This box will display important system messages and information during the ISOcal™ procedure.

Check
This button will acknowledge messages in the Message Box and is used to progress through the ISOcal™ procedure.

Print Report (Alt-R)
This button will open a window to select a completed ISOcal™ to print.

Print Screen (Alt-P)
This button will print the information currently on the screen.

Load Set (Alt-L)
Opens a window to load a saved sample set.

Save Set (Alt-V)
Opens a window to save a sample set.

Check All
When an ISOcal™ is performed this button will appear after all the sample measurements and allows the operator to select all the samples to be included in the calibration at once.

Calibration Accuracy
Shows the units of measurement used for the calibration and the calibration accuracy information.

Clear Data (Alt-T)
Resets the ISOcal™ screen without saving any calibration changes.

Air Gap
Displays the current Air Gap and the recommended Air Gap after an ISOcal™.

Save Air Gap (Alt-S)
Saves the Air Gap after completion of an ISOcal™.

Samples
This area is used to add, remove or change samples and their thicknesses.

Add Sample (Alt-A)
Pressing this will highlight the Add Sample button and the field above it in yellow and display Yes (Alt- >) and No (Alt- <) buttons. You then enter your sample thickness in the yellow highlighted field and press Yes (Alt- >) to confirm or No (Alt- <) to cancel.

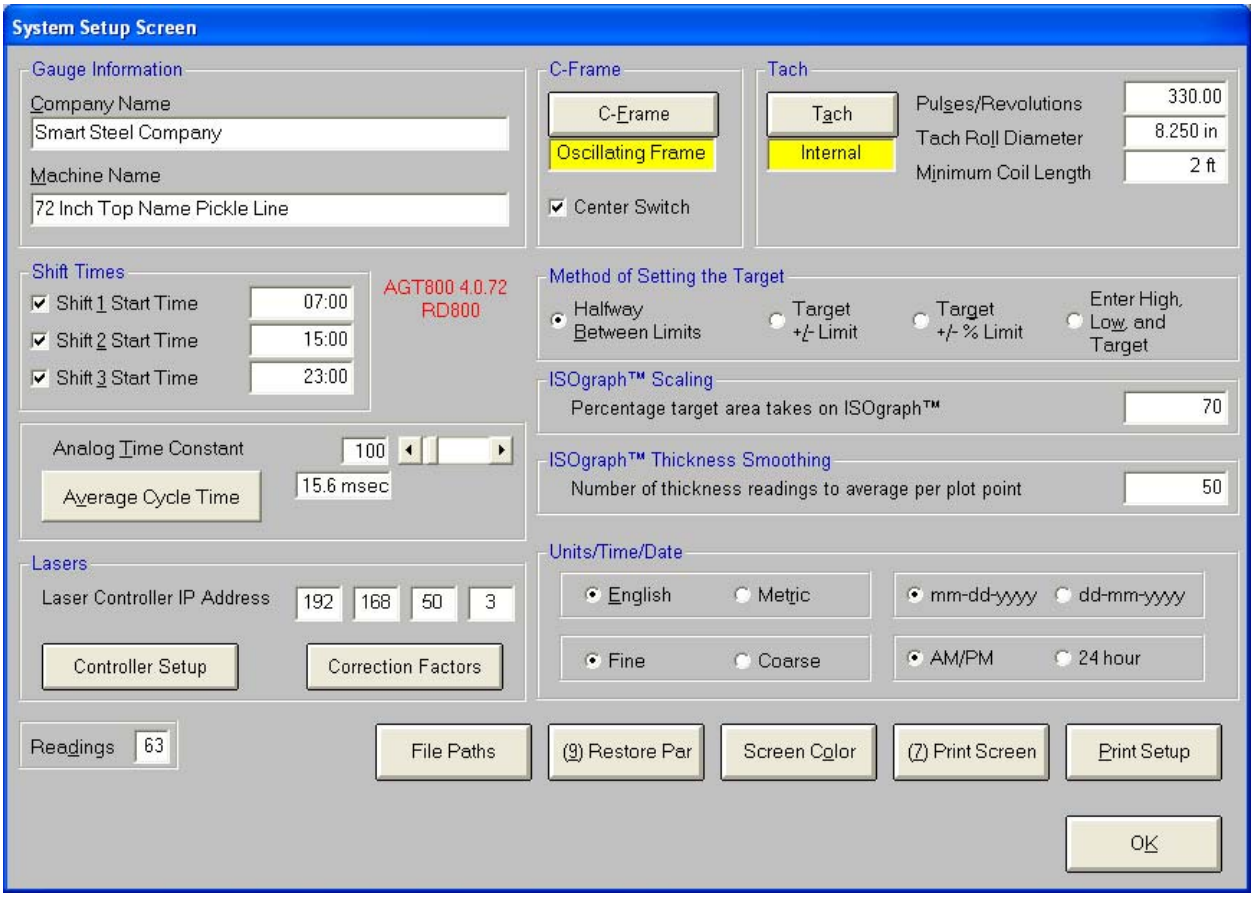
Rename (Alt-E)
You can check a box beside a sample to select it and press this to change the sample value. Pressing this will highlight the Rename button and the field above it in blue and display Yes (Alt- >) and No (Alt- <) buttons. You then enter your sample thickness in the blue highlighted field and press Yes (Alt- >) to confirm or No (Alt- <) to cancel.

Remove Sample (Alt- -)
You can check a box beside a sample to select it and press this to remove that sample. Pressing this will highlight the Remove Sample in yellow and display Yes (Alt- >) to confirm or No (Alt- <) to cancel buttons.

OK (Alt-K)
This button will close this screen and return you to the Diagnostic Data Screen.

System Setup Screen

JRR - 3/6/2017



The System Setup Screen is used to customize the system for the user's preferences.

Company Name (Alt-C)
The company name to be printed on all reports should be entered here.

Machine Name (Alt-M)
The name of the processing line to be printed on all reports should be entered here.

Shift Times (Alt 1-3)
The AGT800 has the ability to distinguish between shifts and at what times each shift starts and stops. These times are used to create the Shift Summary Reports. To change the Shift Times section, determine how many shifts will be working, and at what times they will begin and end. To toggle a shift on or off, check the box (on) next to the shift to be run or uncheck (off) if there is no shift at that time.

For example: If the gauge was only going to be used during the first and second shift, Shift 1 and Shift 2 would have a check in the box next to them. Shift 3 would be unchecked. With this setup, the AGT800 will generate Shift Summary Reports for shift 1 and shift 2, but not shift 3.

To change the Shift Start Times, simply click in the box to the right of the Shift and enter the time the shift is to begin. The time must be entered in AM/PM or 24 hour format, depending on the setting in the Time section of this screen.

Analog Time Constant (Alt-T)
This is what the AGT800 uses to determine how fast calculations are made. The average time constant of the AGT800 is 500 milliseconds.

Average Cycle Time (Alt-V)
Average Cycle Time is the amount of time it takes to complete one data analysis cycle in the AGT800 software. When this button is clicked, 1000 data analysis cycles are completed and the amount of time this takes is measured. The displayed value is the elapsed time divided by 1000. A healthy computer will have an Average Cycle Time between 12 and 16 milliseconds.

Laser Controller IP Address
This is the IP address of the Laser Control Box.

Controller Setup
This button brings up the Keyence Control screen which is used by A.G.T. personnel to make changes to the laser controller. Access is limited by password as changes will affect how the laser sensors operate.

Note: Shift-Right Mouse Click will open an expanded parameter screen.

Correction Factors
This button brings up the Laser Correction Factors screen which is used by A.G.T. personnel to make changes to correction values so that the gauge functions at a high rate. Access is limited by password as changes will affect how the gauge reads material.

C-Frame (Alt-F)
The C-frame button allows the user to choose between three separate C-frame modes of operation. The user can choose between Manual, Electric and Oscillating C-frames with this button.

Note: The type of C-frame will determine what settings are available.

Center Switch
This box is checked when a C-frame has a center switch installed.

Tach (Alt-A)
This button is used to toggle the tachometer between External and Internal mode. When Tachometer is in External mode, the gauge will count footage from the actual tachometer based on the settings in the Pulses/Rev and Tach Roll Diameter fields. When Tachometer is in internal mode, the gauge will give a steady, but inaccurate, footage count. This is useful in the situation that the tachometer is damaged. The internal footage counter will allow reports to be generated, until the tachometer is repaired, although the footage and estimated weight will be inaccurate in this mode. It is also useful for testing purposes.

Note: Internal tach mode is useful to create test reports if the line is idle or to allow graphing of coil reports if the physical tachometer is not functioning properly.

Pulses/Revolutions (Alt-S)
This is the number of electrical pulses the tachometer produces each time the roll is attached and makes one complete rotation. The standard AGT800 tachometers are 300 PPR. If a standard tachometer is used and the tach and roll are a 1:1 ratio, this number would equal 300 to match the tachometer.

Tach Roll Diameter (Alt-L)
This is the diameter of the roll the tachometer is connected to. This setting is in inches (in) or centimeters (cm) depending on the settings in the Units section of this screen.

Minimum Coil Length (Alt-I)
This is the smallest length the AGT800 software will interpret as a genuine coil. Coils with less length specified in this setting will be treated as operator errors. No report will be printed and no data will be saved.

Method of Setting the Target
This setting allows the user to determine the manner in which the operator will enter the target thickness, high limit or low limit.

Halfway Between Limits (Alt-B)
The most common way to enter target thickness is with the Halfway Between Limits setting. In this setting, the operator enters the high limit and the low limit. The gauge will then calculate the target halfway between the high and low limits, then set the target thickness there.

Target +/- Limit (Alt-/)
In this mode, the operator enters the target thickness. The gauge then adds a predetermined amount to the target for a high limit and subtracts a predetermined amount from the target for the low limit. The amount of thickness added and subtracted from the target can be set in the Parameter File. The predetermined limit can be overwritten by the operator on the Main Screen. In this mode, both limits will always be the same distance from the target thickness.

Target +/- % Limit (Alt-G)
In this mode, the operator enters the target thickness. The gauge then adds a predetermined percentage of the target to the target for a high limit and subtracts a predetermined percentage of the target from the target for the low limit. The amount of thickness percentage added and subtracted from the target can be set in the Parameter File. The predetermined limit can be overwritten by the operator on the Main Screen. In this mode, both limits will always be the same distance from the target thickness.

Enter High, Low and Target (Alt-W)
This mode requires the operator to enter the high, low and target value for each coil.

ISOgraph™ Scaling
Changing the percentage determines how much the area between high and low limits takes up on the ISOgraph™.

ISOgraph™ Thickness Smoothing
This is the number of thickness readings averaged per plot point on the ISOgraph™.

Units/Time/Date
This section allows the user to determine what settings will be used on all screens and reports.

English (Alt-E) / Metric (Alt-R)
Allows the user to toggle between English and Metric units for all measurements and calculations. The setting here will determine how all values are viewed. Fine/Coarse allows the user to use mils and inches in English and microns and millimeters in metric units for all measurements and calculations. AM/PM /24 hour allow the user to toggle between the 12 hour clock and the 24 hour clock for all times to be viewed and mm-dd-yy/dd-mm-yy allows the user to toggle between the month/day/year and day/month/year format for all dates to be viewed.

Readings (Alt-D)
This allows the user to determine the number of readings the AGT800 will use when performing a Manual Calibration or Data Measurement. Normally this is set to 20, but may vary slightly from gauge to gauge.

Restore Par (Alt-9)
The Restore Par button is in a sense a safety net. If the settings of the AGT800 have been altered by a great deal, the gauge calibration curve has been lost, System Settings have been changed, Product or Defect Menu is lost, etc. The user may click on the Restore Par button, and the AGT800 will reset all system setup settings to the date of the last successful Manual Calibration. This previous system setup was saved in a special file that is updated each time a Manual Calibration is successfully completed.

Screen Color (Alt-O)
The Screen Color button allows the user to cycle through seven different colors to be used in the background. Each time the Screen Color button is selected, the gauge background color will change. The color choices are gray, yellow, turquoise, white, blue, black and purple.

Print Screen (Alt-7)
Allows the user to print the System Setup Screen.

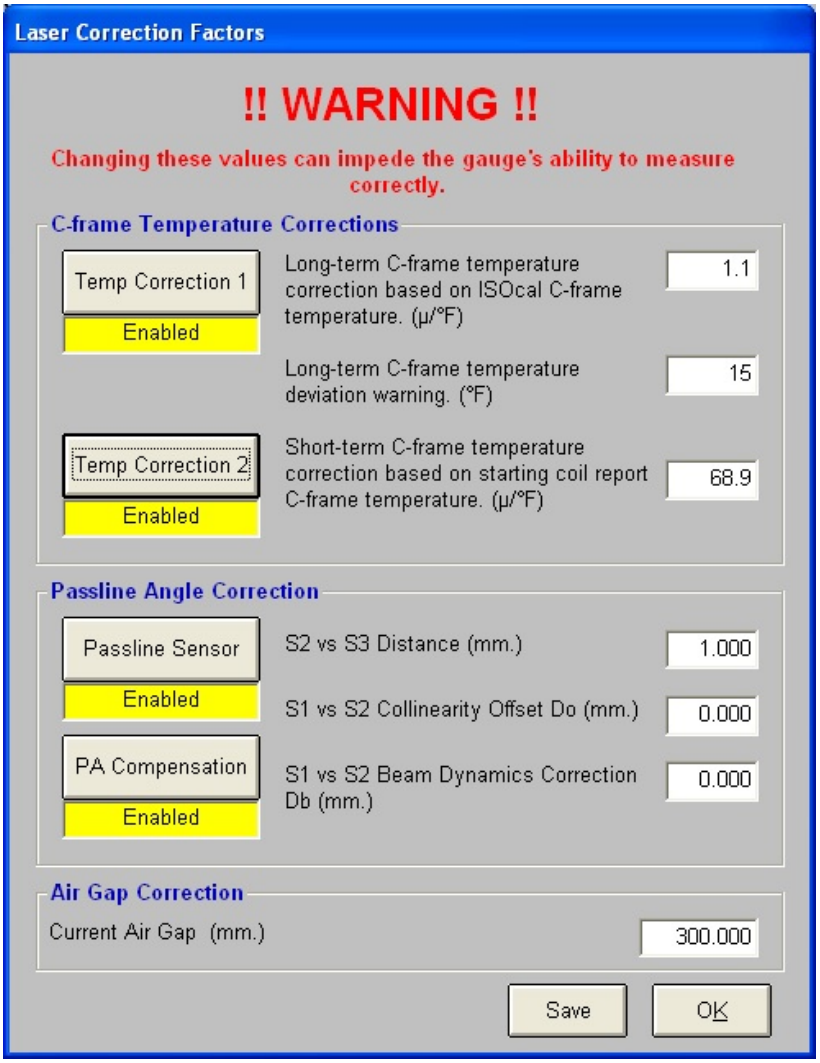
Print Setup (Alt-P)
Sends the AGT800 Setup Report to the system printer.

File Paths (ALT-8)
Opens the Select File Paths screen where various program file paths can be set.

OK (Alt-K)
Exits the System Setup Screen and returns the operator to the AGT800 Main Screen.

Laser Correction Factors

KRG – 3/9/2017



Do not make changes to these values without consulting with Advanced Gauging Technologies first as it can have an adverse effect on the accuracy of the gauge.

C-frame Temperature Correction – Values to compensate for temperature variations of the C-frame that change the distance of the lasers from each other.

Temp Correction 1 – This button will enable or disable the long-term C-frame temperature correction factors.

Long-term C-frame temperature correction based on ISOcal C-frame temperature. (µ/°F) – This value is how many microns (µ) are added or subtracted from the thickness per °F change from the last calibration.

Long-term C-frame temperature deviation warning. (°F) – If the current C-frame temperature deviates from the last calibration by more than this value the AGT800 will display a message to recalibrate the gauge.

Temp Correction 2 – This button will enable or disable the short-term C-frame temperature correction factor.

Short-term C-frame temperature correction based on starting coil report C-frame temperature. (µ/°F) – This value is how many microns (µ) are added or subtracted from the thickness per °F change from the C-frame temperature at the start of a coil.

Passline Angle Correction – This requires the optional third laser to function. Contains values to calculate the correct thickness even if the passline angle changes.

Passline Sensor – This button will toggle the passline laser Enabled or Disabled.

PA Compensation – This button will toggle the Passline Angle Compensation Enabled or Disabled.

S2 vs S3 Distance (mm.) – The horizontal distance between laser 2 and laser 3.

S1 vs S2 Collinearity Offset Do (mm.) – The calculated collinearity offset between laser 1 and laser 2.

S1 vs S2 Beam Dynamics Correction Db (mm.) – An empirical beam dynamics correction factor that accounts for other factors that may adversely influence the measurements.

Air Gap Correction

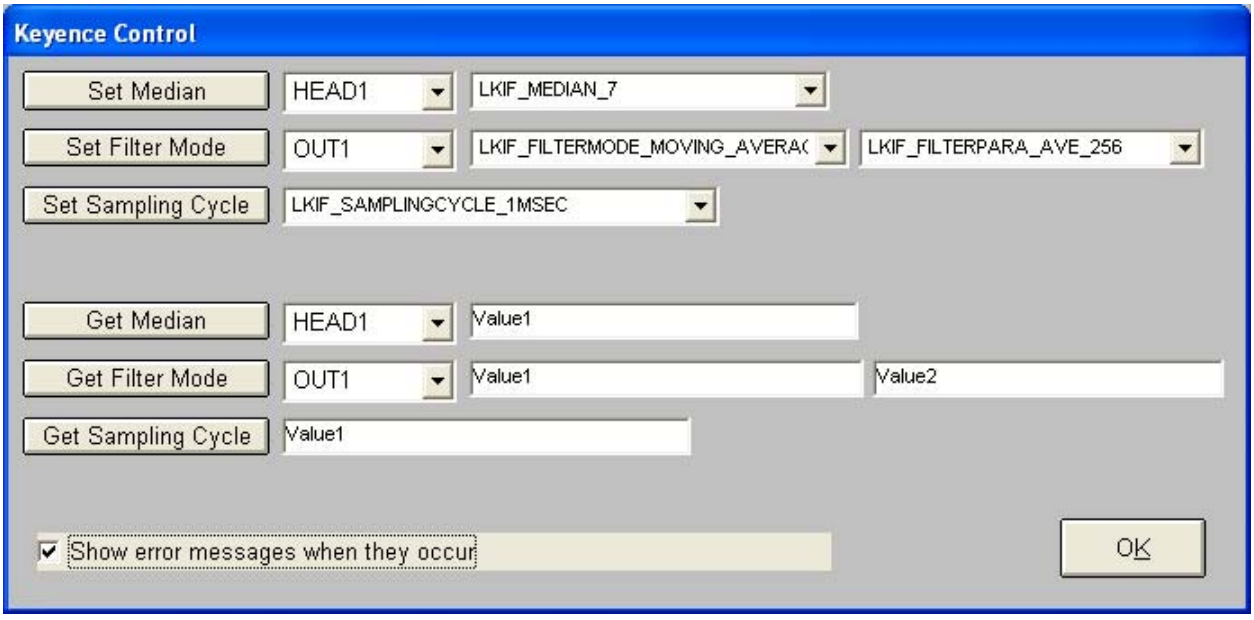
Current Air Gap (mm.) – The value of the calculated air gap between laser 1 and laser 2.

Save – Saves the changes made to values on this screen.

OK (Alt-K) – Exits the Laser Correction Factors screen. This will not save any changes made.

Keyence Control Screen

TRA - 1/27/2017



The Keyence Control screen is used to customize the Keyence Laser Controller settings. This screen is password protected as changing these parameters can be detrimental to the operation of the AGT800. Do not change any of these settings unless directed to by an A.G.T. employee.

Set Median
Sets the median for each individual laser sensor. First select the laser sensor (head) then select the median setting and finally press the Set Median button. Usually, each head should be set to the same value. The default setting is LKIF_MEDIAN_7.

Set Filter Mode
Sets the filter mode for each individual output. First select the output (out) then select the filter mode, filter parameter and finally press the Set Filter Mode button. Usually, each head should be set to the same value. The default setting is LKIF_FILTERMODE_MOVING_AVERAGE and LKIF_FILTERPARA_AVE_256.

Set Sampling Cycle
This button sets the frequency at which the controller samples measurements. Select the sampling cycle and press the Set Sampling Cycle button. The default value is LKIF_SAMPLINGCYCLE_1MSEC.

Get Median
Shows the current median setting for the selected laser sensor (head).

Get Filter Mode
Shows the current filter mode for the selected output.

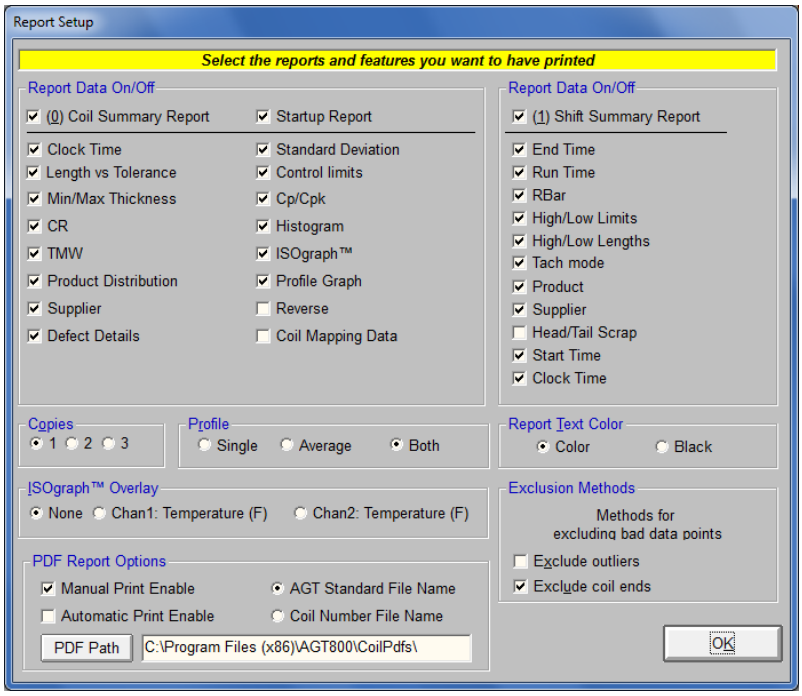
Get Sampling Cycle
Shows the current sampling cycle.

Show error messages when they occur
This checkbox enables or disables the ability of the controller to send error messages to the AGT800 software.

OK (Alt-K)
Exits the Keyence Control screen.

Report Setup Screen

JRR – 1/27/2017



The Report Setup Screen allows the user to customize if and how the Coil and Shift Summary Reports will print out.

Report Data On/Off, Coil Summary Report (Alt-0)
This section allows the user to turn the paper Coil Summary Report printouts on and off. This is a useful tool if the user only wishes to print out Shift Summary Reports with no Coil Summary Reports or vice versa. The report needs to be off here and on the main screen the printer needs to be set to on to get a PDF report without a paper report.

The user has the option to customize the Coil Summary Report. By checking (to include in report) or unchecking (to exclude from report) certain boxes, the user can include or exclude Clock Time, Length vs Tolerance, Min/Max Thickness, CR, TMW, Product Distribution, Supplier, Defect Details, Standard Deviation, Control Limits, Cp/Cpk, Histogram, ISOgraph™, Profile Graph, Reverse and Coil Mapping Data.

Report Data On/Off, Startup Report On/Off
Checking this box turns on the AGT800 Startup Report that prints when the AGT software is launched. This report includes System Setup Data, Auto Time Constant Data, Report Setup Data and Nomenclature Data.

Report Data On/Off, Shift Summary Report (Alt-1)
This section allows the user to turn the Shift Summary Report printouts on and off. This is a useful tool if the user only wishes to print out Coil Summary Reports with no Shift Summary Reports or vice versa.

The user has the option to customize the Shift Summary Report. By checking (to include in report) or unchecking (to exclude from report) certain boxes, the user can include or exclude End Time, Run Time, Rbar, High/Low Limits, High/Low Lengths, Tach Mode, Product, Supplier, Head/Tail Scrap, Start Time, and Clock Time.

Note 1: If the Reverse box is checked, the AGT800 will record defects in reverse order. This option is available so that when the coil is unwound, the defects will be in the correct order.

Note 2: The Thickness portion of the coil will not be affected by the Reverse box.

Copies (Alt-O, then left/right arrow)
This feature allows the user to choose the number of Coil Summary Reports and Shift Summary Reports to be printed. In order for Coil Summary Reports and Shift Summary reports to be printed automatically, the Printer button on the Main Screen must be turned on.

Profile (Alt-R, then left/right arrow)
This feature allows the user to determine how a Profile Display is displayed. The user may choose between Single, Average or Both.

Report Text Color (Alt-T, then left/right arrow)
This feature allows the user to choose between printing reports in full color or black and white. In order for Coil Summary Reports to be printed automatically, the Printer button on the Main Screen must be turned on.

ISOgraph™ Overlay (Alt-I, then left/right arrow)
This feature allows the user to determine whether or not an overlay graph is used, and what overlay graph will be used. The overlay graph prints on the length histogram with the x-axis scale on the right side of the graph.

Exclusion Methods
This feature allows the user to determine whether or not bad data points, as determined by the gauge software, coil heads and coil tails will be used in S.P.C. calculations.

Exclude outliers (Alt-X)
Checking this box will exclude all unusual thickness data points in S.P.C. calculations. The AGT800 software defines outliers as any readings in excess of three standard deviations from the mean thickness of the coil. If only outliers are excluded, the **^** symbol will appear on the Coil Report Screen and printouts. If both outliers and coil ends are excluded, the ***** symbol will appear on the Coil Report Screen and printouts.

Exclude coil ends (Alt-U)
Checking this box will exclude all thickness data points at the start and end of a coil in S.P.C. calculations. The AGT800 software defines coil ends as half of the minimum coil length, which can be adjusted on the System Setup screen. If only coil ends are excluded, the **‘** symbol will appear on the Coil Report Screen and printouts. If both coil ends and outliers are excluded, the ***** symbol will appear on the Coil Report Screen and printouts.

Manual Print Enable
When this box is checked, the operator can go into the Coil Report screen and by clicking on the ‘Create PDF’ button create a PDF of the coil report.

Automatic Print Enable
When this box is checked and on the Main Screen the printer is turned on, a PDF will be automatically created after the coil report is generated.

AGT Standard File Name
When this button is checked, the PDF file that is created will have the standard database format file name where (yymmdd@x:xx)xxxxx.txt represents the (yearmonthday@time) coil number.

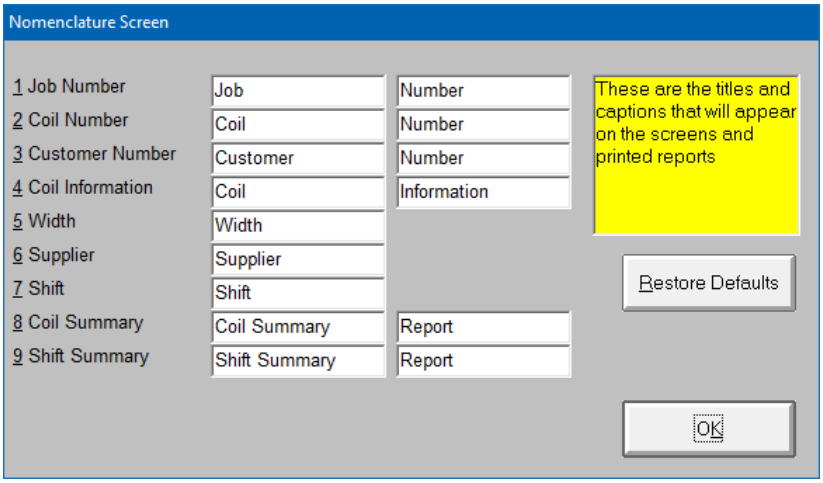
Coil Number File Name
When this button is checked, the PDF file that is created will have coil number as its file name.

PDF Path
By clicking on this button, the user can select the folder where the PDF is to be stored.

OK (Alt-K)
Exits the Report Setup screen and returns the operator to the AGT800 Main Screen.

Nomenclature Screen

JRR – 1/27/2017



The Nomenclature Screen of the AGT800 allows the user to change the titles and captions that will appear on the Main Screen and printed reports.

Job Number (Alt-1)
The user can change the word Job, Number or both. This field must remain Job Number, Work Order Number or the equivalent for data storage purposes.

Coil Number (Alt-2)
The user can change the word Coil, Number or both. This field must remain Coil Number or the equivalent for data storage purposes.

Customer Number (Alt-3)
The user can change the word Customer, Number or both. This is one of the database fields for the next data screen search feature.

Coil Information (Alt-4)
The user can change the word Coil, Information or both. This is a spare field, and can be used for anything the user desires.

Width (Alt-5)
The user can change the word Width. This field must remain Width or the equivalent for weight calculations.

Supplier (Alt-6)
The user can change the word Supplier. This field must remain Supplier, Mill or the equivalent for database purposes. This is one of the database fields for the next data screen search feature.

Shift (Alt-7)
The user can change the word Shift. This field must remain Shift, Turn or the equivalent for accurate reporting purposes.

Coil Summary Report (Alt-8)
The user can change the word Coil Summary, Report or both. This field must remain Coil Summary Report or the equivalent for reporting purposes.

Shift Summary Report (Alt-9)
The user can change the word Shift Summary, Report or both. This field must remain Shift Summary Report or the equivalent for reporting purposes.

Restore Defaults (Alt-R)
This feature will restore all nomenclatures settings to their defaults.

OK (Alt-K)
Exits the Nomenclature Screen and returns the operator to the AGT800 Main Screen.

AGT800 Coil Summary Report

KRG – 2/13/2017

The AGT800 Coil Summary Report shows the data gathered for a coil.

The heading includes the company name and the line on which the gauge is installed. This information can be changed in the System Setup screen. Also included is the coil information, such as Job Number, Coil Number, Customer Name, Customer Tag No and PO, these fields can be renamed in the Nomenclature screen. The product chosen in the Product Menu is displayed here along with the time, date, duration and shift of the run.

Average Thickness and Tolerance Data
Includes the following: Target, Average, Average-Target, Out of Sensor Range, Standard Deviation, Length, Width, calculated Weight, Above High Limit, In Tolerance, Below Low Limit, Maximum Thickness at footage and Minimum Thickness at footage out of entered limits, Head Scrap and Tail Scrap.

Note: For Average and Standard Deviation, if only outliers are excluded from the S.P.C. calculations, the ^ symbol will appear on the Coil Report screen and printouts. If only coil ends are excluded, the **‘** symbol will appear on the Coil Report screen and printouts. If both outliers and coil ends are excluded, the ***** symbol will appear on the Coil Report screen and printouts. Unusual thickness data points and coil ends may be excluded from S.P.C. calculations on the Report Setup screen.

Statistical Process Control Data
Includes the following: Upper Control Limit, X Double Bar, Lower Control Limit, Upper Tolerance Limit, R Bar, Lower Tolerance Limit, CR (Capability Ratio %), CP (Process Capability), CPK (Capability vs. Limits) and TMW Ratio (Low Limit/Avg). Explanations of these fields can be found in the S.P.C. Definitions list in this manual.

Thickness Distribution Relative to the Target
Gives a breakdown of the percent of the coil within +/-0.0010”, +/-0.0025”, +/-0.0050” and +/-0.0100”, or metric equivalents.

Thickness vs Length (Coil Number ######)
Displays a graph showing measured thickness versus length of the current coil. The upper blue horizontal line on this graph indicates the upper thickness limit. The green horizontal line on this graph indicates the target thickness. The lower yellow horizontal line indicates the lower thickness limit. The red line on this graph indicates the measured thickness. Graph scaling is partially determined by the limits and/or target thicknesses entered by the operator. The graph will display the entire coil length. The percentage of the graph taken by the high and low limits is defined on the System Setup Page.

Page 2 Data
The following data only shows up if the operator commands a profile on the Profile Display screen (F7) or enters a defect on the Defect Menu (F3).

Thickness vs Width (Coil Number ######)
Displays a graph showing measured thickness versus width of the current coil. The upper blue horizontal line on this graph indicates the upper thickness limit. The green horizontal line on this graph indicates the target thickness. The lower yellow horizontal line indicates the lower thickness limit. The red line on this graph indicates the measured thickness of the last scan. The black line on this graph indicates the average thickness of all the scans done during the profile scan.

Defect Summary
The summary of recorded defects showing the type of defect, the total length of material with defects and the percentage of the material with each defect.

Defect Details (# defects measured)
Lists any recorded defects and where on the material it was marked at and the severity code entered by the operator.

AGT800 Coil Summary Report

Smart Steel Company -- 72 Inch Top Name Slitter

Job Number: A56432 Coil Number: Z456992

Customer Number: ABC Automotive Coil Information: DAN Supplier: XYZ Co

Product: Cold Rolled Steel Feb-20-17 1:21 PM to 1:24 PM (clock 2.5 min/ run 2.5 min) Shift: 1

Average Thickness and Tolerance Data

Target	0.0320 in	Average'	0.0326 in
Out of Sensor Range	0 ft		
Length*	1129 ft		
Width	60.000 in		
Weight	7534 lbs		
Average - Target	0.0006 in	(1.97%)	
Standard Deviation'	0.0001 in	(0.34%)	
Above	0.0340 in	0 ft	(0.0%)
In Tolerance		1129 ft	(100.0%)
Below	0.0300 in	0 ft	(0.0%)

Max Thickness is 0.0331 in at 414 ft Min Thickness is 0.0324 in at 381 ft

Head Scrap 0 ft Tail Scrap 0 ft

Statistical Process Control Data

Upper Control Limit	0.0330 in	Upper Tolerance Limit	0.0340 in
X Double Bar	0.0326 in	R Bar	0.0003 in
Lower Control Limit	0.0323 in	Lower Tolerance Limit	0.0300 in

CR 16.5% (Capability Ratio %, 100/CP)

Cp 6.061 (Process Capability, HiLim-LoLim/6*Sigma)

Cpk 4.152 (Capability vs Limits) TMW Ratio 0.919(Low Limit/Avg)

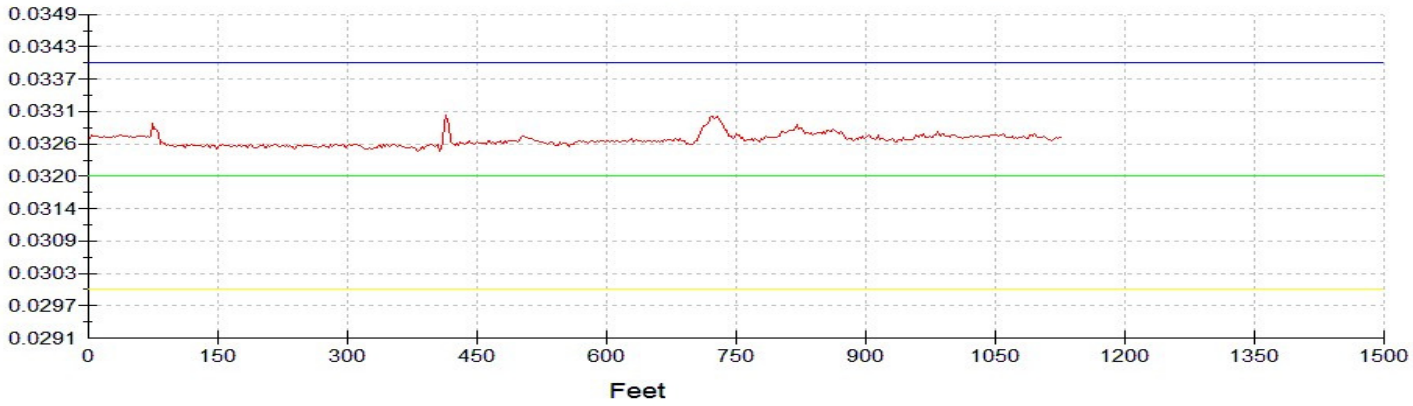
Thickness Distribution Relative to the Target

```
   +++   0.0%
+0.0050  0.0%
+0.0045  0.0%
+0.0040  0.0%
+0.0035  0.0%
+0.0030  0.0%
+0.0025  0.0%
+0.0020  0.0%
+0.0015  0.0%
+0.0010  1.8% ****
+0.0005 98.0% ************************************************************>
+0.0000  0.2%
-0.0005  0.0%
-0.0010  0.0%
-0.0015  0.0%
-0.0020  0.0%
-0.0025  0.0%
-0.0030  0.0%
-0.0035  0.0%
-0.0040  0.0%
-0.0045  0.0%
-0.0050  0.0%
   ---   0.0%
         0    3    6    9   12   15   18   21   24   27   30   33   %
```

100.0% is within ± 0.0010 in of the target 100.0% is within ± 0.0025 in of the target

100.0% is within ± 0.0050 in of the target 100.0% is within ± 0.0100 in of the target

Thickness vs Length (Coil Number Z456992)



Gauge readings provided by Advanced Gauging Technologies, L.L.C. Plain City, OH 43064 USA Tel:(614) 873-6691

AGT800 Coil Summary Report

Smart Steel Company -- 72 Inch Top Name Slitter

Job Number: A56432 Coil Number: Z456992

Customer Number: ABC Automotive Coil Information: DAN Supplier: XYZ Co

Product: Cold Rolled Steel Feb-20-17 1:21 PM to 1:24 PM (clock 2.5 min/ run 2.5 min) Shift: 1

Defect Summary

Defect Name	Recorded Length
1 Scratches	35 ft (3.1%)
2 Scale	49 ft (4.3%)
7 Rust	110 ft (9.7%)
Total length affected	187 ft (16.5%)
Total length	1129 ft

Defect Details (3 defects measured)

Defect Name	From	To	Severity
7 Rust	145 ft	255 ft	2
2 Scale	247 ft	297 ft	1
1 Scratches	444 ft	479 ft	5

Gauge readings provided by Advanced Gauging Technologies, L.L.C. Plain City, OH 43064 USA Tel:(614) 873-6691

AGT800 Diagnostic Data Report

KRG – 2/13/2017

The AGT800 Diagnostic Data report shows the current Diagnostic Data information and related settings. This report can only be printed from the Print Data button on the Diagnostic Data screen.

The heading includes the company name and the line on which the gauge is installed. This information can be changed in the System Setup screen. Also included is the date and time of the report.

Calibration History
The date and time of the last Manual Calibration (ISOcal™) completed. This includes the calibration information such as the Air Gap, CFT (C-frame temperature), the fixed distance S2/S3 Offset, Average Deviation and the Calibration accuracy.

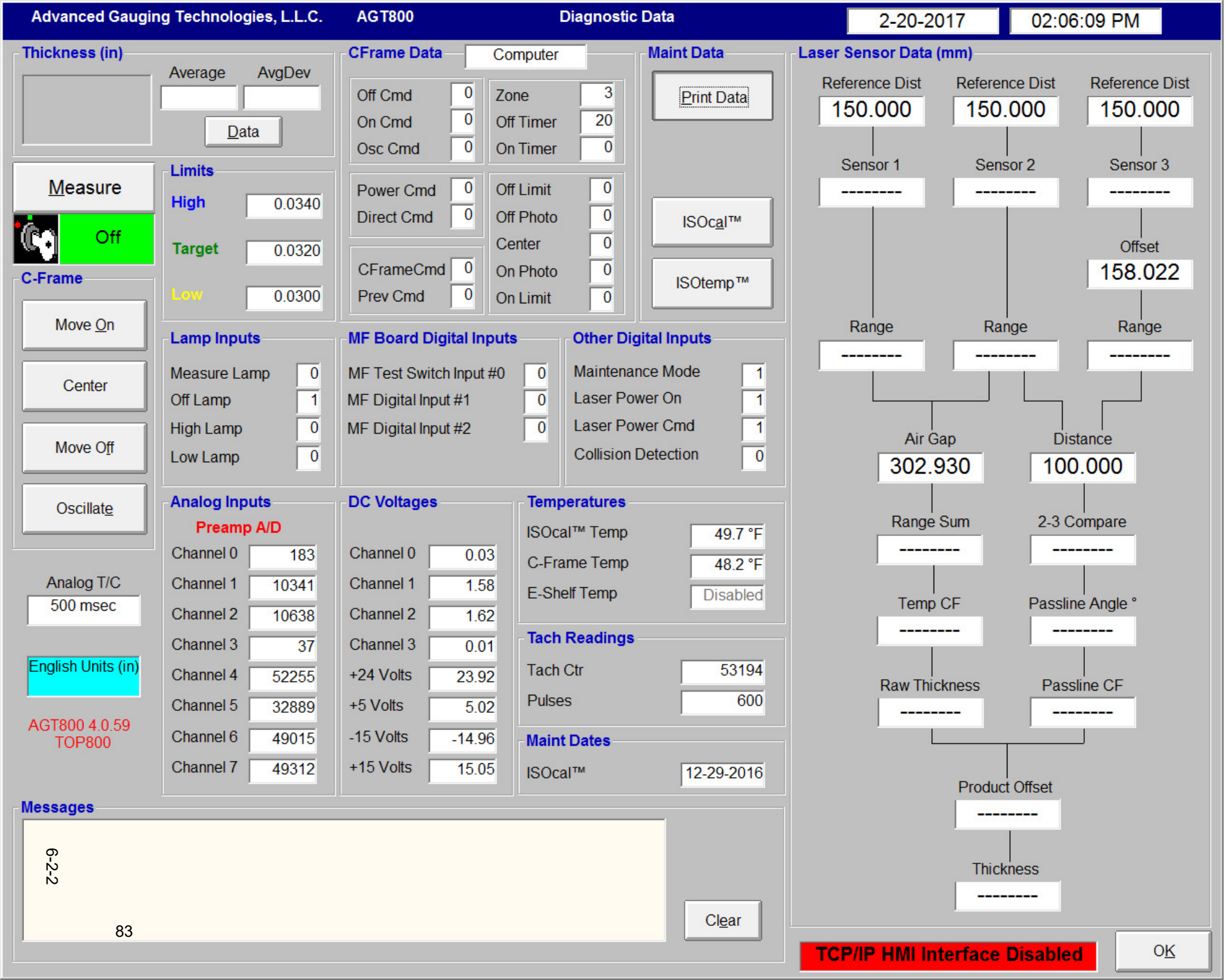
Diagnostic Data
The software version and system serial number are shown here.

Digital I/O
Shows the C-frame control data including the zone number and motor timer, indicator lamp status, MFIO switch data, Report Start status and Laser Power.

Analog Inputs
Shows the Analog Time Constant set in the System Setup screen. Each of the analog channels are listed here with their description, analog value, the calculated voltage and temperature.

Laser Information
Shows the status of each laser, Temperature Correction Factor status and value, IP Address of the laser controller and if the Passline Correction Factor is enabled as well as the values used.

Tachometer Information
Shows the mode the tachometer is in, TachCTr count of tachometer roll rotations, the number of pulses being received from a rotation of the tachometer roller, as well as the settings for the offset for the shear and tach.


Advanced Gauging Technologies, L.L.C.
AGT800
Diagnostic Data
2-20-2017
02:06:09 PM
Thickness (in)
Average
AvgDev
Data
Measure
Off
Limits
High
0.0340
Target
0.0320
Low
0.0300
C-Frame
Move On
Center
Move Off
Oscillate
Analog T/C
500 msec
English Units (in)
AGT800 4.0.59
TOP800
CFrame Data
Computer
Off Cmd 0
On Cmd 0
Osc Cmd 0
Zone 3
Off Timer 20
On Timer 0
Power Cmd 0
Direct Cmd 0
CFrameCmd 0
Prev Cmd 0
Off Limit 0
Off Photo 0
Center 0
On Photo 0
On Limit 0
Maint Data
Print Data
ISOcal™
ISOtemp™
Laser Sensor Data (mm)
Reference Dist 150.000
Reference Dist 150.000
Reference Dist 150.000
Sensor 1 --------
Sensor 2 --------
Sensor 3 --------
Offset 158.022
Range --------
Range --------
Range --------
Air Gap 302.930
Distance 100.000
Range Sum --------
2-3 Compare --------
Temp CF --------
Passline Angle ° --------
Raw Thickness --------
Passline CF --------
Product Offset --------
Thickness --------
Lamp Inputs
Measure Lamp 0
Off Lamp 1
High Lamp 0
Low Lamp 0
MF Board Digital Inputs
MF Test Switch Input #0 0
MF Digital Input #1 0
MF Digital Input #2 0
Other Digital Inputs
Maintenance Mode 1
Laser Power On 1
Laser Power Cmd 1
Collision Detection 0
Analog Inputs
Preamp A/D
Channel 0 183
Channel 1 10341
Channel 2 10638
Channel 3 37
Channel 4 52255
Channel 5 32889
Channel 6 49015
Channel 7 49312
DC Voltages
Channel 0 0.03
Channel 1 1.58
Channel 2 1.62
Channel 3 0.01
+24 Volts 23.92
+5 Volts 5.02
-15 Volts -14.96
+15 Volts 15.05
Temperatures
ISOcal™ Temp 49.7 °F
C-Frame Temp 48.2 °F
E-Shelf Temp Disabled
Tach Readings
Tach Ctr 53194
Pulses 600
Maint Dates
ISOcal™ 12-29-2016
Messages
6-2-2
83
Clear
TCP/IP HMI Interface Disabled
OK

*

AGT800 Diagnostic Data Report

Smart Steel Company -- 72 Inch Top Name Slitter

Monday, February 20, 2017 2:06 PM

Calibration History

An ISOcal™ was performed on Thursday, December 29, 2016 at 3:09 PM

	Date	Air Gap	CFT	S2/S3 Offset
Last ISOcal™	12-29-2016	302.930 mm	49.7 °F	158.022 mm

Average Deviation	Calibration Accuracy
0.0003 in	99.06%

Diagnostic Data

AGT800 4.0.59 TOP800

Digital I/O

Off Cmd	0	Zone	3	Measure Lamp	0	MF Test Switch	0
On Cmd	0	Off Timer	20	Off Lamp	1	MF Digital Input 1	0
Osc Cmd	0	On Timer	0	High Lamp	0	MF Digital Input 2	0
Power Cmd	0	Off Limit	0	Low Lamp	0	Report Start	0
Direct Cmd	0	Off Photo	0			Laser Power	1
CFrame Cmd	0	On Photo	0				
Previous Cmd	0	On Limit	0				
Center Cmd	0	Center Limit	0				

Analog Inputs

Analog Time Constant is 500 msec

Channel 0	Spare	187	0.03v	
Channel 1	C-Frame Temp	10338	1.58v	48.2 °F
Channel 2	E-Shelf Temp	10637	1.62v	51.8 °F
Channel 3	Spare	43	0.01v	
Channel 4	+24 Volts	52255	23.92v	
Channel 5	+5 Volts	32889	5.02v	
Channel 6	-15 Volts	49015	-14.96v	
Channel 7	+15 Volts	49312	15.05v	

Laser Information

S1 Enabled	1	PCF Enabled	0
S2 Enabled	1	PCF Distance	100.000 mm
S3 Enabled	1	PCF Do	-0.137 mm
TCF Enabled	1	PCF Db	0 mm
TCF	4.7 µ/°F		
IP Address	192.168.50.2		

Tachometer Information

Mode	Internal
TachCtr	53194
Pulses	600
Shear Offset	0.000 ft
Tach Offset	0.000 ft

AGT800 ISOcal™ Report

TRA – 2/13/2017

The AGT800 ISOcal™ report shows the results of a Manual Calibration (ISOcal™) procedure.

The heading includes the company name and the line on which the gauge is installed. This information can be changed in the System Setup screen. Also included is the date and time of the report.

The summary paragraph lists the time and date the calibration was performed along with the accuracy results and average deviation. It also shows whether the laser sensors were warmed up at the time of the calibration.

Calibration Details

C-frame Temperature shows the temperature of the C-frame during the previous and current ISOcal™ procedure. This is listed in either °F or °C depending on the units enabled at the time the report is printed. The AGT800 uses C-frame temperature to apply a thickness modifier which accounts for expansion of the C-frame due to thermal changes.

Air Gap is the distance between laser sensor 1 and laser sensor 2 that is calculated by the Manual Calibration (ISOcal™) procedure. The AGT800 uses this information during normal operation to determine thickness of material.

Passline Offset is the difference in distance of laser sensor 2 and the passline laser sensor 3 (if installed) to the material. The AGT800 uses this information to help determine passline angle of the material during normal operation.

External Sample Results

This section displays the nominal thickness, the measured thickness and the deviation of measured from nominal thickness of each sample used in the Manual Calibration (ISOcal™) procedure. Thickness values can be in inches, mils, millimeters or microns.

DC Power Supply Checks

This section displays the nominal voltage, measured voltage, tolerance limit and tolerance status of each power supply used by the AGT800 during the ISOcal™ process. The four power supplies used are +24VDC, +5VDC, -15VDC and +15VDC.

*

AGT800 ISOcal™ Report

Smart Steel Company -- 72 Inch Top Name Slitter

Monday, February 20, 2017 2:05 PM

This ISOcal™ was performed on Thursday, December 29, 2016 at 3:09 PM. The calibration was checked using 6 external samples and found to be 99.06% accurate with an average deviation of 0.34 mils.

Lasers at operating temperature during calibration: No

Calibration Details

	Previous Calibration	Current Calibration
C-Frame Temperature	49.7 °F	49.7 °F
Air Gap	302.921 mm	302.930 mm
Passline Offset	157.940 mm	158.022 mm

External Sample Results

	Nominal Value	Measured Value	Deviation
External Sample 1	0.0080 in	0.0082 in	0.0002 in
External Sample 2	0.0305 in	0.0300 in	-0.0005 in
External Sample 3	0.0631 in	0.0633 in	0.0002 in
External Sample 4	0.0668 in	0.0668 in	0.0000 in
External Sample 5	0.0910 in	0.0905 in	-0.0005 in
External Sample 6	0.0933 in	0.0939 in	0.0006 in

DC Power Supply Checks

	Nominal Value	Measured Value	Tolerance	Status
Power Supply 1	24.00 volts	23.92 volts	0.50 volts	In
Power Supply 2A	5.00 volts	5.02 volts	0.25 volts	In
Power Supply 2B	-15.00 volts	-14.96 volts	0.25 volts	In
Power Supply 2C	15.00 volts	15.05 volts	0.25 volts	In

AGT800 Setup Report

KRG – 2/13/2017

The AGT800 Setup report shows the various AGT800 software settings. This report may be printed by pressing Screen Menu (F1) then System Setup (Alt-C) then Print Setup (Alt-P).

The heading includes the company name and the line on which the gauge is installed. This information can be changed in the System Setup screen. Also included is the Time and Date of the report.

System Setup Data
Shows system settings and status: Tach mode, Frame drive, Target Mode, Average cycle time, C-frame type, Units, Density, Tach roll diameter, Shift start times, Time constant, Readings, Pulses/rev, Minimum coil length, Auto time constant, Serial number, Network/ZIP/USB, Auto data gathering, Deviation output, Analog input #1, Analog input #2, Coil Mapping, ZIP/USB path, and Auto data entry.

Auto Time Constant Data
Shows the Target Thickness (mils) and the corresponding Time Constant (msec) for each of the five possible auto time constant switch points.

Report Setup Data (Copies: #)
Shows the report setup fields and their status: Coil Summary Report, Clock Time, Length vs Tolerance, Standard Deviation, Min/Max Thickness, Control Limits, End Time, Run Time, RBar, CR, Cp/Cpk, TMW, Histogram, Product Distribution, ISOgraph™, PO, High/Low Limits, High/Low Lengths, Tach mode, Profile Graph, Defect Details, Reverse, Coil Mapping, Exclude, Shift Summary Report, Product, Supplier and Head/Tail Scrap.

Nomenclature Data
Designated names for fields 1 through 9 on the main screen. The defaults are Job Number, Coil Number, Customer Name, Customer Tag No, Width, PO, Shift, Coil Summary Report and Shift Summary Report. These can be changed in the Nomenclature screen.

*

AGT800 Setup Report

Smart Steel Company -- 72 Inch Top Name Slitter

Monday, February 20, 2017 2:05 PM

System Setup Data

Tach mode:	Internal	Average cycle time:	9.0 msec
Frame drive:	Computer control	C Frame type:	Oscillating
Target Mode:	High/Low/Target	Units:	English Units
Density:	0.2840 lb/in3	Pulses/rev:	300.00
Tach roll diameter:	8.250 in	Minimum coil length:	50 ft
Shift start times:	(1)* 07:00 (2)* 13:35 (3)* 23:00		
Time constant:	500 msec	Auto time constant:	Disabled
Readings:	20	Serial number:	AGT800 4.0.59 TOP800
Network/ZIP/USB:	Not present	ZIP/USB path:	D:\
Auto data gathering:	Yes, disabled	Auto data entry:	Yes, disabled
Deviation output:	0.0500 in/5 volts		
Analog input #1:	Enabled, Temperature (F)	A0= -78.00 A1= 80.00 A2= 0.00	
Analog input #2:	Enabled, Temperature (F)	A0= -78.01 A1= 80.00 A2= 0.00	
Coil Mapping:	No		

Auto Time Constant Data

Target Thickness (in)	0.0750	0.1500	0.2000	0.3000
Time Constant (msec)	100	150	200	300

Report Setup Data (Copies: 1)

Coil Summary Report:	On	CR: On Cp/Cpk:	On	Profile Graph:	On, Both
Clock Time:	On	TMW:	On	Defect Details:	On
Length vs Tolerance:	On	Histogram:	On	Reverse:	Off
Standard Deviation:	On	Product Distribution:	On	Coil Mapping:	Off
Min/Max Thickness:	On	ISOgraph™:	On	Exclude:	Coil ends
Control limits:	On	Supplier:	On	Shift Summary Report:	On
End Time:	On	High/Low Limits:	On	Product:	On
Run Time:	On	High/Low Lengths:	On	Supplier:	On
RBar:	On	Tach mode:	On	Head/Tail Scrap:	Off

Nomenclature Data

(1) Job Number	(4) Coil Information	(7) Shift
(2) Coil Number	(5) Width	(8) Coil Summary Report
(3) Customer Number	(6) Supplier	(9) Shift Summary Report

Gauge readings provided by Advanced Gauging Technologies, L.L.C. Plain City, OH 43064 USA Tel:(614) 873-6691

AGT800 Shift Summary Report

KRG – 2/13/2017

The AGT800 Shift Summary Report shows a summary of coils ran during a shift. Shift times can be changed in the System Setup screen.

The heading includes the company name and the line on which the gauge is installed. This information can be changed in the System Setup screen. Also included is the Shift, Time, Date and page number.

Coil Information
Individual coil information consisting of: Coil Number, Start time, End time, Run duration, Clock, Target thickness, Average thickness, R Bar, Length, Width, Weight, HiLim, LoLim HiLen, LoLen, Tach Mode, Product, Supplier, and Head/Tail Scrap. These fields can be enabled or disabled on the Report Setup screen.

Job Summary
Shows the number of coils, total length and weight for all material under the same job number.

Shift Summary
Number of coils processed, total length of material, and total weight of the material for the shift.

*

AGT800 Shift Summary Report

Smart Steel Company -- 72 Inch Top Name Slitter

Shift: 1 Monday, February 20, 2017 (on demand report, page 1)

Coil Number	Start	End	Run	Clock	Target	Average	R Bar	Length	Width	Weight	HiLim	LoLim	HiLen	LoLen
Z456991	13:16	13:20	4.4 min	4.4 min	0.0320 in	0.0327 in	0.0002 in	1991 ft	60.000 in	13302 lbs	0.0340 in	0.0300 in	0 ft	0 ft
	Tach mode: Internal		Product: Cold Rolled Steel		Supplier: XYZ Co									
Z456992	13:21	13:24	2.5 min	2.5 min	0.0320 in	0.0326 in	0.0003 in	1129 ft	60.000 in	7534 lbs	0.0340 in	0.0300 in	0 ft	0 ft
	Tach mode: Internal		Product: Cold Rolled Steel		Supplier: XYZ Co									
Z4569923	13:26	13:28	2.3 min	2.3 min	0.0320 in	0.0331 in	0.0008 in	1057 ft	60.000 in	7142 lbs	0.0340 in	0.0300 in	0 ft	0 ft
	Tach mode: Internal		Product: Cold Rolled Steel		Supplier: XYZ Co									
Z4569924	13:29	13:31	2.7 min	2.7 min	0.0320 in	0.0329 in	0.0008 in	1241 ft	60.000 in	8357 lbs	0.0340 in	0.0300 in	0 ft	0 ft
	Tach mode: Internal		Product: Cold Rolled Steel		Supplier: XYZ Co									

Job Number A56432 contains 4 coils with a total length of 5418 ft weighing 36336 lbs

Shift Totals:	**4 Coils TOTAL-->**	**5418**	**36336 (18.2 tons)**	

6-5-2

Gauge readings provided by Advanced Gauging Technologies, L.L.C. Plain City, OH 43064 USA Tel:(614) 873-6691

AGT800 Startup Report

KRG – 1/31/2017

The AGT800 Startup report shows the same information as the AGT800 Setup Report.

This will be printed automatically when the AGT800 software starts up if the Printer is ON in the AGT800 software main screen.

The heading includes the company name and the line on which the gauge is installed. This information can be changed in the System Setup screen. Also included is the Time and Date of the report.

System Setup Data
Shows system settings and status: Tach mode, Frame drive, Target Mode, Average cycle time, C-frame type, Units, Density, Tach roll diameter, Shift start times, Time constant, Readings, Pulses/rev, Minimum coil length, Auto time constant, Serial number, Network/ZIP/USB, Auto data gathering, Deviation output, Analog input #1, Analog input #2, Coil Mapping, ZIP/USB path, and Auto data entry.

Auto Time Constant Data
Shows the Target Thickness (mils) and the corresponding Time Constant (msec) for each of the five possible auto time constant switch points.

Report Setup Data (Copies: #)
Shows the report setup fields and their status: Coil Summary Report, Clock Time, Length vs Tolerance, Standard Deviation, Min/Max Thickness, Control Limits, End Time, Run Time, RBar, CR, Cp/Cpk, TMW, Histogram, Product Distribution, ISOgraph™, PO, High/Low Limits, High/Low Lengths, Tach mode, Profile Graph, Defect Details, Reverse, Coil Mapping, Exclude, Shift Summary Report, Product, Supplier and Head/Tail Scrap.

Nomenclature Data
Designated names for fields 1 through 9 on the main screen. The defaults are Job Number, Coil Number, Customer Name, Customer Tag No, Width, PO, Shift, Coil Summary Report and Shift Summary Report. These can be changed in the Nomenclature screen.

*

AGT800 Program Startup Report

Smart Steel Company -- 72 Inch Top Name Slitter

Monday, February 20, 2017 2:04 PM

System Setup Data

Tach mode:	Internal	Average cycle time:	9.0 msec
Frame drive:	Computer control	C Frame type:	Oscillating
Target Mode:	High/Low/Target	Units:	English Units
Density:	0.2840 lb/in3	Pulses/rev:	300.00
Tach roll diameter:	8.250 in	Minimum coil length:	50 ft
Shift start times:	(1)* 07:00 (2)* 13:35 (3)* 23:00		
Time constant:	500 msec	Auto time constant:	Disabled
Readings:	20	Serial number:	AGT800 4.0.59 TOP800
Network/ZIP/USB:	Not present	ZIP/USB path:	D:\
Auto data gathering:	Yes, disabled	Auto data entry:	Yes, disabled
Deviation output:	0.0500 in/5 volts		
Analog input #1:	Enabled, Temperature (F)	A0= -78.00 A1= 80.00 A2= 0.00	
Analog input #2:	Enabled, Temperature (F)	A0= -78.01 A1= 80.00 A2= 0.00	
Coil Mapping:	No		

Auto Time Constant Data

Target Thickness (in)	0.0750	0.1500	0.2000	0.3000
Time Constant (msec)	100	150	200	300

Report Setup Data (Copies: 1)

Coil Summary Report:	On	CR: On Cp/Cpk:	On	Profile Graph:	On, Both
Clock Time:	On	TMW:	On	Defect Details:	On
Length vs Tolerance:	On	Histogram:	On	Reverse:	Off
Standard Deviation:	On	Product Distribution:	On	Coil Mapping:	Off
Min/Max Thickness:	On	ISOgraph™:	On	Exclude:	Coil ends
Control limits:	On	Supplier:	On	Shift Summary Report:	On
End Time:	On	High/Low Limits:	On	Product:	On
Run Time:	On	High/Low Lengths:	On	Supplier:	On
RBar:	On	Tach mode:	On	Head/Tail Scrap:	Off

Nomenclature Data

(1) Job Number	(4) Coil Information	(7) Shift
(2) Coil Number	(5) Width	(8) Coil Summary Report
(3) Customer Number	(6) Supplier	(9) Shift Summary Report

Gauge readings provided by Advanced Gauging Technologies, L.L.C. Plain City, OH 43064 USA Tel:(614) 873-6691

AGT800 General Cleaning

JPF – 2/14/2017

Your AGT800 Laser Thickness Gauge should be serviced by an A.G.T. Field Service Technician on a semi-annual basis. These visits include preventative maintenance items, software updates, training for new personnel, calibration, cleaning, etc. In between these visits, basic cleaning can help ensure your AGT800 continues to operate as smoothly as possible.

Time Required:

A few minutes

Tools Required:

Flat screwdriver

Procedure:

Laser Sensor Cleaning:

The AGT800 is an optical based measuring system. This means it is very important to keep the laser sensors clean and free of dust, dirt, scale, water and oil mist. See the Laser Sensor Cleaning procedure in the Maintenance section of this manual for the proper way to clean the sensors.

Air Filters:

Replacing the air filters in the cabinet, computer and optional air conditioner will help air circulation and prevent dirt build up in the gauge.

Cabinet:

1. Remove the filter cover and inspect the filter. Either clean the dirty filter or install a new filter if required. Place the filter cover back in place on the cabinet.

2. Repeat the previous step for the rear filter on the cabinet.

Air Conditioner:

1. Some gauge units may have the optional air conditioning unit. The filter is located on the side and runs the entire length of the unit. This filter slides out of the top of the unit.

2. Inspect the filter and either clean or replace as needed.

Computer:

1. With a flat screwdriver, turn the quarter turn screw counter clockwise on the front panel of the computer.

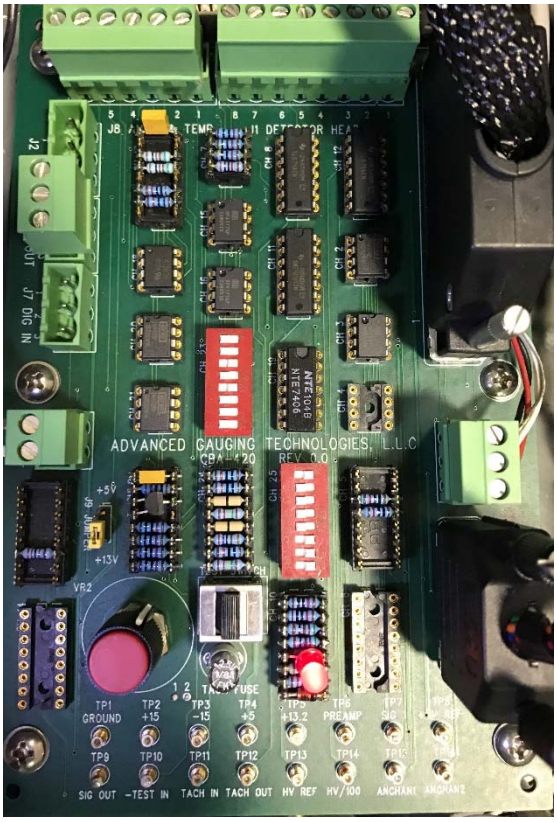
2. Pull the filter out from the computer and clean it. The filter can be cleaned by blowing it out or washing it. One thing to note is if it is washed; make sure it is dry before placing it back in place.

3. Clean the area around the filter with a clean cloth.

4. Place the filter back in place, close the panel and turn the screw clockwise.

Multifunction Circuit Board:

Cleaning the Multifunction Circuit Board will extend the life of the board. The environment the gauge is in and how often the filters are changed will determine how often the board needs cleaned.



1. Perform the System Shutdown procedure located in the Maintenance section of this manual.

2. If the board has an unusual amount of dirt on it, spray contact cleaner on the entire board. Let the board completely dry before restarting the gauge.

3. Turn on both circuit breakers located on the Electronics Shelf.

4. Open the front access door of the computer and use the power switch to turn the computer on.

5. Start the AGT800 software.

Laser Sensor Cleaning

JPF – 2/14/2017

Cleaning the AGT800 laser sensors is very simple and should take no longer than five minutes to complete. The AGT800 is an optical based measuring system. This means it is very important to keep the laser sensors clean and free of dust, dirt, scale, water and oil mist. The sensors must be kept clean in order for the gauge to provide accurate and repeatable thickness measurements. In some cases, this may need to be done every few hours. In a clean environment, once per day could be adequate.

Time Required:

A few minutes

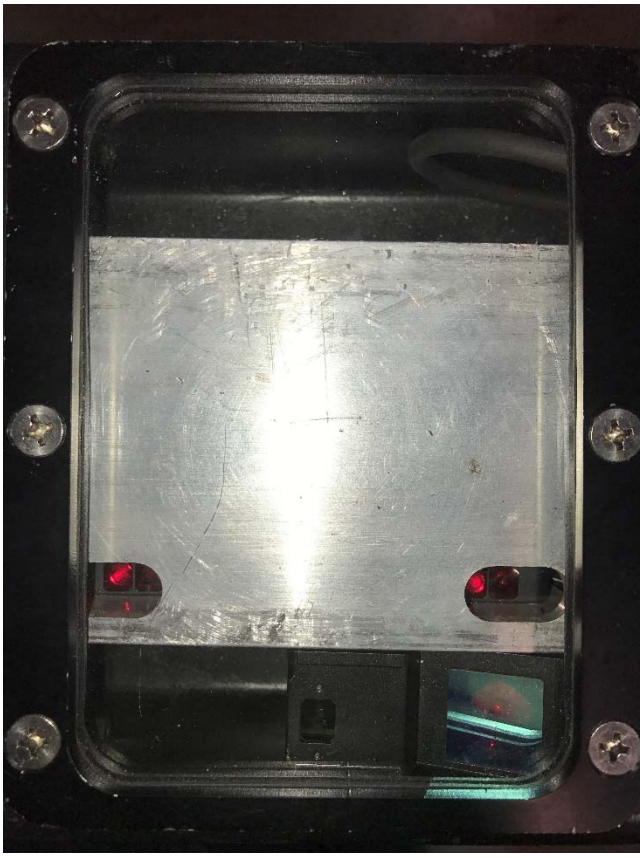
Tools Required:

Microfiber cloths
Glass cleaner

Procedure:

1. Start by using compressed air to remove any abrasive shavings, flakes and/or loose debris.

2. Use glass cleaner and a microfiber cloth to clean the polycarbonate laser sensor covers. If your C-frame does not have these covers, clean the glass lens of each laser sensor.



Drive Chain Adjustment Procedure

TRA – 2/14/2017

Time Required:

Five minutes

Tools Required:

Adjustable wrench

Procedure:

1. Examine the movement of the C-frame, monitoring if the chain is too loose or too tight. If the chain is hanging down and there is excess slack, the chain is too loose. If the chain does not have slack and the motor gear teeth have trouble grasping the chain as it turns, the chain is too tight.

2. Loosen the turnbuckle locking nut with the adjustable wrench.

3. To tighten or loosen the chain, rotate the turnbuckle connected to the chain.

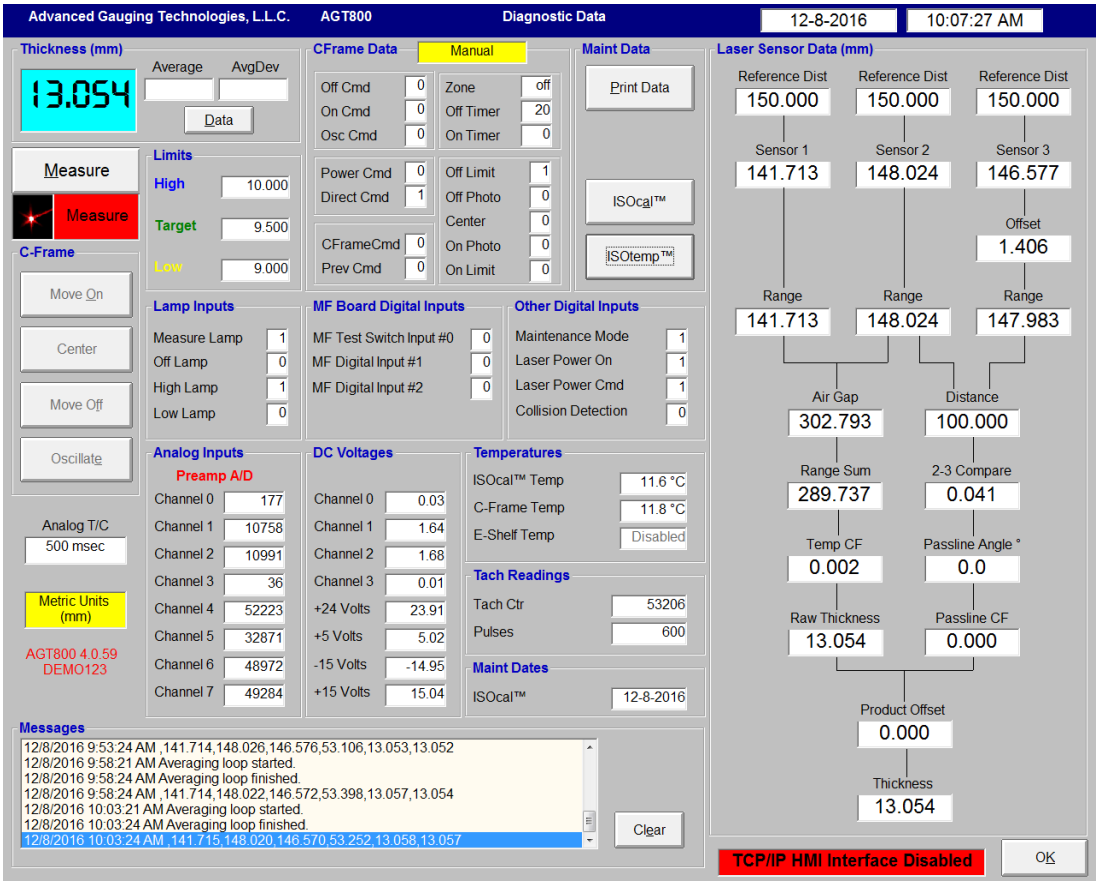
4. If the chain is too loose, turn the turnbuckle until most of the slack is gone. Test the movement of the C-frame and tighten more if necessary.

5. If the chain is too tight turn the turnbuckle to add slack in the chain. Test the movement of the C-frame and loosen if necessary.

6. Tighten the turnbuckle locking nut with the adjustable wrench.

Temperature Drift Test (ISOtemp™) Procedure

KRG – 2/14/2017



This process will take a reading of the C-frame temperature and the measured laser sensor displacement once every five minutes. Using the data gathered from this procedure we can calculate a temperature correction factor and compensate for temperature variations.

This will require the AGT800 gauge to be offline and not used for the duration of this procedure.

Time Required:

Two to three days

Tools Required:

AGT800 Calibration Sample Holder
NIST-Traceable sample set
USB flash drive

Procedure:

1. Ensure the gauge electronics and software have been running continuously, and the laser sensors are properly warmed and clean.

2. Turn the MODE key on the Electronics Shelf to PROGRAM.

3. Press the Screen Menu button (F1) on the main screen of the AGT800 software then choose Diagnostic Data (Alt-B) on the Screen Menu.

4. Move the C-frame to the offline position using the Move Off (Alt-F) button. When the C-frame is in position switch the C-frame MANUAL/AUTO switch on the Electronics Shelf to MANUAL. This will ensure the C-frame cannot be accidently moved.

5. Place the sample holder on the end of the lower C-frame arm and place a sample on the sample holder.

6. Press the ISOtemp™ button to begin data gathering. Let this run for 2-3 days to collect data.

7. When you're done gathering data, press the ISOtemp™ button again to stop the data gathering process.

8. Remove the sample and sample holder from the end of the lower C-frame arm.

9. Switch the C-frame MANUAL/AUTO switch on the Electronics Shelf to AUTO.

10. Turn the MODE key on the Electronics Shelf to RUN.

11. Minimize the AGT800 software by pressing Alt-Tab.

12. In Windows®, go to the AGT800 folder at C:\Program Files (x86)\AGT800 and copy the agt800.log file to the USB flash drive.

13. Remove the flash drive and place it in a computer so you can email the AGT800.log file to A.G.T. at Service@AdvGauging.com.

Laser Sensor Alignment Procedure

JPF – 2/14/2017

Time Required:

Aligning the lasers is a simple procedure but requires time and patience to perform. It should only be done after performing the Laser Sensor Alignment Verification procedure first. Refer to the Laser Sensor Alignment Verification document in the Maintenance section of this manual.

Tools Required:

7/16” wrench
9/16” ratcheting wrench
Laser Sensor Alignment Tool (LSAT) with magnetic backing
AGT800 Calibration Sample Holder
NIST-traceable sample set

Note: a single sheet of 8 ½”x 11” paper and two magnets can be used in place of the LSAT.

Procedure:

1. Remove the C-frame front access panels from both of the C-frame upper and lower arms using the 7/16” wrench.

2. Use the 9/16” ratcheting wrench to make all adjustments to the laser assemblies. Loosen or tighten all four bolts on top of the upper laser assembly until all four bolts have good spring tension, an easy indicator is the washer. If you can turn the washer; the bolt and spring are too loose. If a single bolt does not have tension, it will allow the assembly to move in that direction. You can also do a visual inspection of the assembly by looking to see if it is mostly level. A small bubble level can be used as well. The entire laser assembly inside the upper arm can be raised or lowered using the adjustments on the outside of the C-frame arm.

3. Repeat the process on the four bolts on the bottom of the lower laser assembly. The assembly should be visually level within the lower arm. The laser assembly in the lower arm can only be raised or lowered using the four spring loaded tension bolts.

4. Attach the Laser Sensor Alignment Tool (LSAT) to the bottom of the C-frame upper arm. Make sure the laser line beams are clearly visible on the white paper.

5. There should be two clear laser line beam lines on the paper, one larger than the other. If you only see one line, the two beams may overlap already. You can use your finger to block one laser and check to see if they overlap. The smaller duller line will be the upper laser.

6. Use the wrench to adjust the tension of the bolts on the bottom of the C-frame lower arm. Move the larger laser line until it overlaps the smaller line. Once they overlap, you can use your finger to block the beam to see how well the two lines overlap. The correct alignment is the smaller line in the center of the larger line. All four bolts must have good spring tension without being fully compressed.

   Example of beam alignment: These are examples only. The actual line is more of a line than an oval.

   Move the large line left until the smaller line is centered within it.

   The final alignment should look like this keeping in mind that you will not be able to see the smaller line on the paper; you will need to block the larger beam to see how well they are aligned.

7. Place the LSAT on the top of the C-frame lower arm. Adjust the four bolts on the top of assembly inside the upper arm. Repeat the alignment of the two lines just like the upper arm. The smaller duller line will be the lower laser. Cover the smaller line with the larger line and center them as best as possible.

8. As you adjust one laser the other may move out of alignment. It may be necessary to adjust both lasers multiple times.

9. When you have the laser lines aligned correctly on the upper and lower, place the AGT800 Calibration Sample Holder on the lower C-frame arm and place the LSAT on the sample holder at normal passline height. If everything is aligned correctly you will only see one laser line on the paper. Use your finger to block the upper beam and you should see the line in the same place on the paper. If you block the lower beam you should still see the line in the same place on the paper.

10. Replace the front access panels on both of the C-frame upper and lower arms using the 7/16” wrench.

11. Once the lasers have been aligned the gauge will need to be calibrated. See the Manual Calibration (ISOcal™) procedure located in the Maintenance section of this manual.

12. If the gauge has Passline Angle Compensation (has the optional third laser), a passline angle test will also need to be performed. See the Passline Angle Calibration procedure located in the Maintenance section of this manual.

Laser Sensor Alignment Verification Procedure

JPF – 2/14/2017

Verifying laser alignment is a simple procedure. It requires a few minutes to complete. The laser beams should be collinear. Collinear means that the two laser beams overlap each other from top to bottom within the air gap. The following procedure checks the collinearity of the two laser beams. It is possible for the lasers to be collinear at passline but not be collinear at one or both ends of the air gap. For this reason it is important to check the collinearity at all three of the positions as described.

Time Required:

Ten minutes

Tools Required:

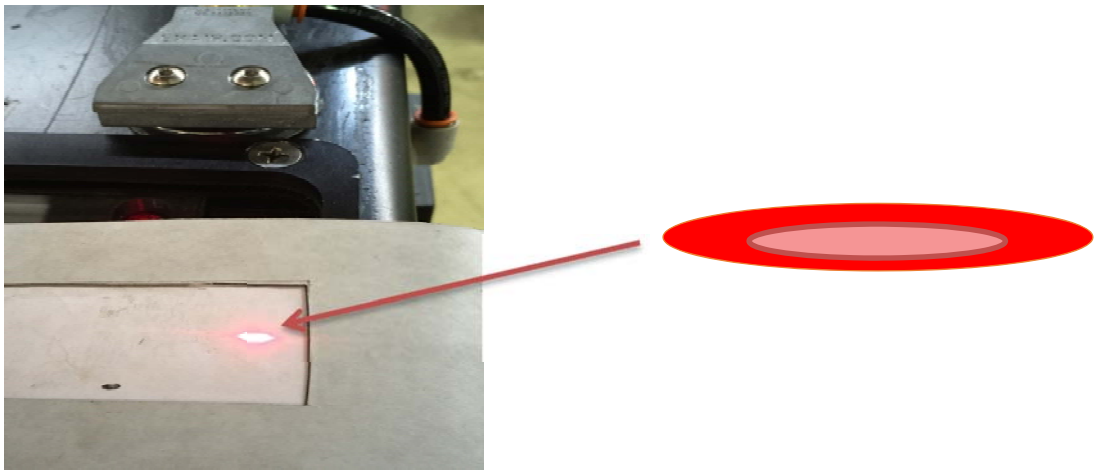
Laser Sensor Alignment Tool (LSAT) with magnetic backing
AGT800 Calibration Sample Holder

Note: a single sheet of 8 ½"x 11" paper and two magnets can be used in place of the LSAT.

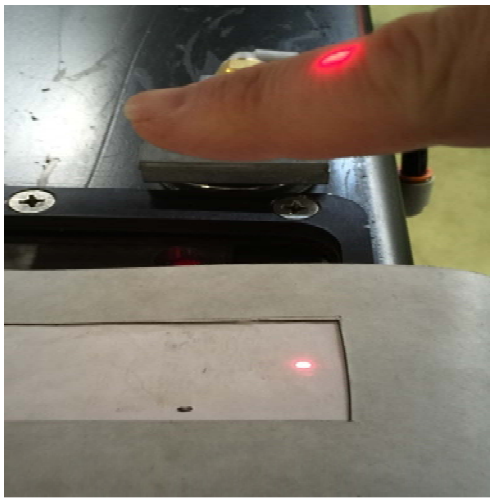
Procedure:

1. Attach the Laser Sensor Alignment Tool (LSAT) to the top of the C-frame lower arm. Make sure the laser line beams are clearly visible on the white paper.

2. There should only be one laser line on the paper. If there are two distinct lines, the lasers are not in alignment and will need to be re-aligned. See the Laser Sensor Alignment procedure located in the Maintenance section of this manual.

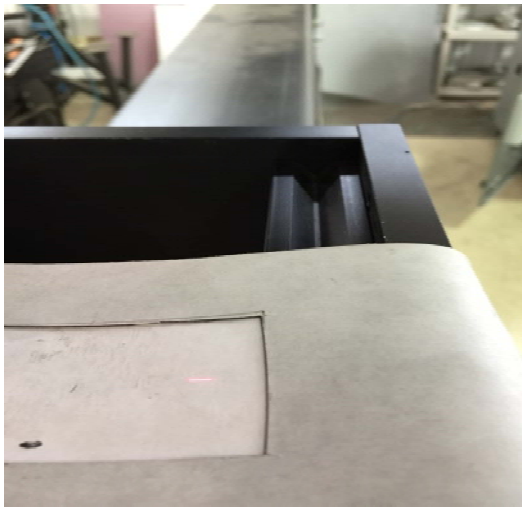


3. Place your finger over the top laser emitter. Now you will only see a single smaller laser line on the paper. Slowly remove your finger from the laser beam and the larger line will cover the smaller line. The smaller line should be centered within the larger line.



4. Place the LSAT on the bottom of the C-frame upper arm. Repeat steps 2 and 3.

5. Place the AGT800 Calibration Sample Holder on the lower C-frame arm and place the LSAT on the sample holder at normal passline height. If everything is aligned correctly you will only see one laser line on the paper. Use your finger to block the upper beam and you should see the line in the same place on the paper. If you block the lower beam you should still see the line in the same place on the paper. If there are two distinct lines, the lasers are not in alignment and will need to be re-aligned. See the Laser Sensor Alignment procedure located in the Maintenance section of this manual.



Manual Calibration (ISOcal™) Procedure

JPF – 2/14/2017

Gauge calibration should be checked on a periodic basis. As a starting point, most customers should perform the calibration on a daily basis. This should be done at the start of a shift, rather than at the end. In challenging environments, calibration may need to be performed once per shift, or possibly every few hours. In a clean environment, every couple day, or even weekly may be adequate.

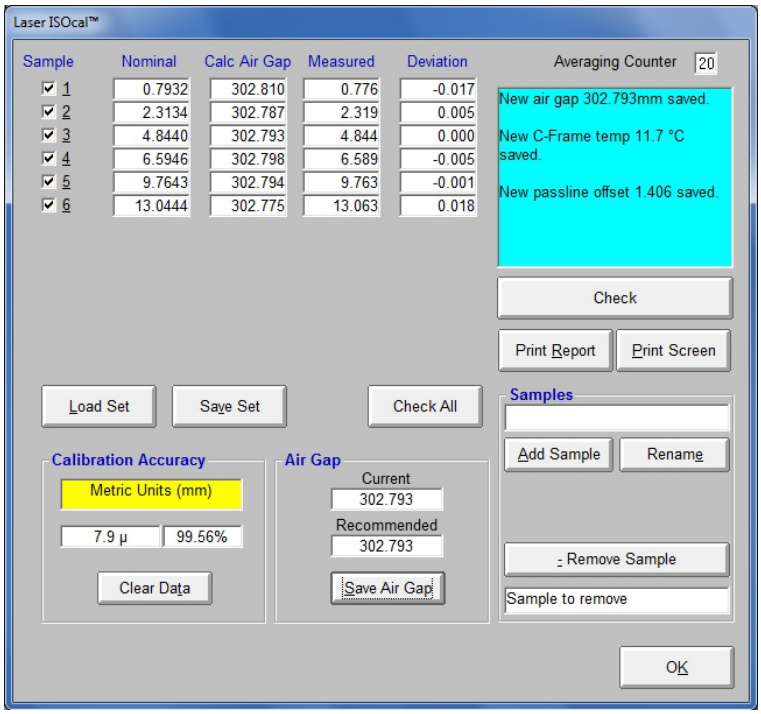
Time Required:

Ten Minutes

Tools Required:

AGT800 Calibration Sample Holder
NIST-traceable sample set

Procedure:



1. Ensure the gauge electronics and software have been running continuously, and the laser sensors are properly warmed up and clean.

2. Turn the MODE key on the Electronics Shelf to PROGRAM.

3. Press the Screen Menu button (F1) on the main screen of the AGT800 software then choose Diagnostic Data (Alt-B) on the Screen Menu.

4. Use the C-frame control buttons and move the C-frame to the position where your installation calibrates at. This is normally the off sheet position. When the C-frame is in position switch the C-frame MANUAL/AUTO switch on the Electronics Shelf to MANUAL. This will ensure the C-frame cannot be accidently moved.

5. Place the sample holder on the end of the C-frame lower arm.

6. Press the ISOcal™ button on the Diagnostic Data screen.

7. Verify the samples entered into the ISOcal™ screen match the sample set you are using. Once verified press the Check button.

8. Perform the Laser Sensor Cleaning procedure in the Maintenance section of this manual to clean the lenses before proceeding. Press the Check button when complete.

9. Read the following dialog and verify. “Do not place samples, tools or any other objects on the upper arm of the C-frame, or lean on the C-frame during the ISOcal™ procedure. Use NIST-traceable calibration samples supported at correct passline height and angle. Try to center the laser beam as well as possible.” Press the Check button when ready to proceed.

10. Place Sample 1 on the Sample Holder trying to avoid any surface defects in the area of the lasers. Take good care to place each sample on the holder so the laser beam is centered, while avoiding surface defects, within the indicated one inch square as well as possible. Press the Check button when ready to proceed.

11. Repeat step 10 for all remaining samples.

12. After the last sample is completed remove the sample from the sample holder and remove the sample holder from the C-frame lower arm.

13. Press the Check button to analyze the results.

14. Press the Check All button to include all the samples in the calibration then press the Check button again to calculate the results.

    Note: Any samples that read outside the standard deviations will be automatically greyed out and may not be included in the calibration.

15. Read the dialog box. If it did not calibrate within spec there will be a dialog telling you it is not in spec and to restart the ISOcal™. The operator has the option of unchecking specific samples and recalculating the air gap or clearing the data and repeating the calibration.

16. If the calibration was in spec press the Save Air Gap button (Alt-S) to save the readings.

17. Press the OK button (Alt-K) to close the ISOcal™ screen.

18. Press the OK button (Alt-K) to close the Diagnostic Data screen.

19. Turn the MODE key on the Electronics Shelf to Run.

Passline Angle Calibration Procedure

JPF – 2/14/2017

This procedure is only required on AGT800 systems equipped with the optional Passline Angle Compensation feature. Passline Angle Calibration should only be required after the lasers have been realigned.

Time Required:

Passline Angle Calibration takes time to do properly. It requires recording the reference distance on the Diagnostic Data screen for each laser at approximate passline angles of 0.0°, -2.5°, -5.0°, +2.5° and +5.0° for each of the three samples. This equates to a total of 15 measured data points per sample for a total of 45 data points to properly calculate the passline angle correction factor.

Tools Required:

AGT800 Calibration Sample Holder
NIST-traceable sample set
¼" aluminum rod supplied with sample holder
½" aluminum rod supplied with sample holder

Procedure:

1. Contact A.G.T. to schedule a service visit to collect this data.

2. The Passline Angle Calibration is used to collect the data required to calculate the passline angle correction factor. The correction factor is stored on the Laser Correction Factors screen accessed through the System Setup screen via the Correction Factors button.

System Shutdown Procedure

JRR – 2/14/2017

Time Required:

A few minutes

Tools Required:

None

Procedure:

1. Turn the MODE key on the Electronics Shelf to PROGRAM and then click the Exit button in the upper right hand corner of the Main Screen twice.

2. The AGT800 program should close to the Windows® desktop. Once it does, click the ***windows*** button at the lower left hand corner of the screen and select shutdown.

3. Once the computer lights go off, turn off both circuit breakers on the Electronics Shelf.

4. If necessary, turn off the UPS using the power button above the display on the UPS.

C-frame Cable Replacement

JRR – 2/14/2017

Time Required:

Replacing the C-frame cable(s) is not complicated but may be time consuming. There are two common places where the cables can be replaced: from the electronics cabinet to the C-frame J-box, and inside the C-frame itself.

Note: If the AGT800 has Passline Angle Compensation you may need to contact A.G.T. to schedule a service visit to perform this procedure.

Tools required:

Electrical tape
Adjustable wrench
Wire snake
7/16” wrench
9/16” ratcheting wrench
Wire strippers
Flat screwdriver

Procedure:

Perform the proper AGT800 shutdown procedure. See the System Shutdown procedure located in the Maintenance section of this manual.

Replacing cables from the electronics cabinet to the J-box:

1. Disconnect the cable terminations from the J-box on the C-frame and the Electronics Shelf in the electronics cabinet.

2. Pull the new cables through the conduit. Tip: Remove about three inches of the outer cover of both cables exposing the smaller wires. Tape each of the smaller wires together separately and then tape the exposed wires. Have someone feed the cable through as someone else is pulling on the other end.

3. Once the wires have been successfully pulled, remove the outer cover of the cable and refer to the Schematics section of this manual to make the proper connections in the J-box and Electronics Shelf.

Replacing the cables in the C-frame:

1. Disconnect the wire connections for the defective cables in the J-box. In the J-box the lower laser is Laser 1, the upper laser is Laser 2, and if there is a third laser, for Passline Angle Compensation, it is plugged into the secondary laser controller by itself.

2. Remove the C-frame front access panels from both of the C-frame upper and lower arms using the 7/16” wrench.

3. Remove the four socket head screws that attach the laser sensor assembly to the C-frame with a 9/16” ratcheting wrench. Pull the laser assembly from the C-frame and unscrew the cable connector from the lasers and photocells. There is also an access panel on the back of the C-frame that can be removed if there is a problem pulling the wires. The wire track on the back of the C-frame can be removed and laid flat to make it easier to pull the cables.

4. Pull the new cable through the conduit, festoon and C-frame. For the laser cable you will want to feed the cable from the J-box to the laser due to the plug size. Remove about three inches of the outer cover of the old cable exposing the smaller wires. Wrap the smaller wires around the new cable and tape them together. Have someone feed the cable through as someone else is pulling the other end.

5. Once the cable has been pulled through the C-frame refer to the Schematics section of this manual to make the proper connections in the J-box.

6. Connect the cables to the lasers and photocells and mount the laser assembly in the C-frame.

7. Turn on both circuit breakers located on the Electronics Shelf.

8. Open the front access door of the computer and use the power switch to turn the computer on.

9. Start the AGT800 software.

10. Perform the Laser Sensor Alignment procedure located in the Maintenance section of this manual. Reinstall the C-frame front access panels when complete.

11. Perform the Manual Calibration (ISOcal™) procedure located in the Maintenance section of this manual.

12. If Passline Angle Compensation is installed perform the Passline Angle Calibration procedure located in the Maintenance section of this manual.

C-frame Limit Switch Replacement

JRR – 2/14/2017

Time Required:

Less than an hour

Tools Required:

Adjustable wrench
#2 Phillips screwdriver

Procedure:

Limit Switch Replacement

1. Use a #2 Philips screwdriver to remove the two screws that attach the limit switch cover plate to the limit switch. Once the limit switch cover plate is removed, loosen the screw terminals and remove the two wires.

2. Remove the limit switch mounting hardware by grasping the nut with the adjustable wrench and using the #2 Phillips screwdriver to remove the machine screw.

3. If the switch base is still in good condition, remove the two mounting screws and separate the top half of the switch. Plug the top half of the replacements to the existing switch base and move the switch arm to the new switch.

4. Install the new limit switch the same way the defective one was removed. Reattach wires, cover plate, etc. ensuring proper adjustment.

Limit Switch Adjustment

1. Remove the limit switch trigger from the angle iron on the C-frame.

2. Attach the trigger to the desired position, ensuring the full range of motion for the C-frame.

3. Tighten the trigger in place.

4. Test the switch alignment using the Diagnostic Data screen. In the CFrame Data field, verify the status of the Off, Center and On limit switches change from ‘0’ to ‘1’ when individually triggered.

Computer I/O Board Replacement

TRA – 2/14/2017

Time Required:

Replacing the Computer I/O Board is a simple process that should take less than an hour. It is recommended that this procedure be done in a controlled environment to keep dirt and debris from getting into the computer.

Tools Required:

#1 Phillips screwdriver

Procedure:

1. Perform the proper AGT800 shutdown procedure. See the System Shutdown procedure located in the Maintenance section of this manual.

2. Remove all connections from the rear of the computer (power, video, keyboard, printer, analog and digital cable, etc.).

3. Remove the computer from the AGT800 electronics cabinet and take it to a controlled environment. To release the rack-mounted computer pull it out as far as it can go and press the tab on each rail.

4. Remove the cover from the computer. Rack-mount style computers have two thumb screws on the top back side holding the cover on.

5. The computer has a metal retaining bracket holding the cards in place. Remove the two Phillips screws and the bracket.

6. Locate the I/O board which can be identified by the Measurement Computing label on its metal shield. Remove the Phillips screw securing the I/O board to the case.

7. Remove the defective board; compare the jumper and DIP switch settings from the defective board with the new board. Change any settings that are different on the new board to match the old board.

Note: Some jumpers exist under the metal shield and should be checked.

8. Install the new board and secure with Phillips screw previously removed.

9. Replace the metal retaining bracket and secure with Phillips screws previously removed.

10. Replace cover and secure with two thumb screws on the back.

11. Reinstall the computer on the rails in the AGT800 electronics cabinet.

12. Reconnect all connections to the rear of the computer (power, video, keyboard, printer, analog and digital cable, etc.).

13. Turn on both circuit breakers located on the Electronics Shelf.

14. Open the front access door of the computer and use the power switch to turn the computer on.

15. Return the MODE key on the Electronics Shelf to RUN.

Computer Motherboard Replacement

TRA – 2/14/2017

WARNING: It is NOT recommended that customers perform this procedure because of the complexity of the installation and the possibility that other component failures may need addressed. This procedure will briefly describe the replacement process in the event a customer has to perform it. If it is necessary that the procedure be performed please *read through and understand* all the directions before attempting.

Time Required:

Less than one hour

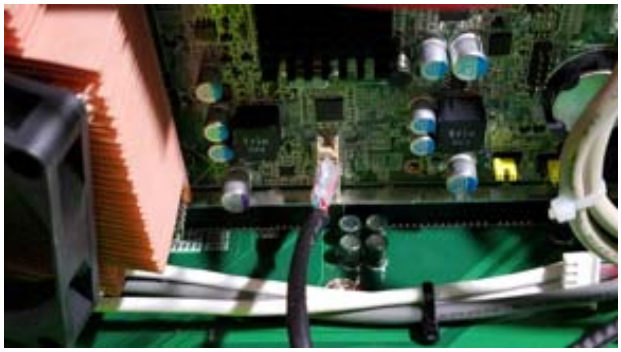
Tools Required:

#1 Phillips screwdriver

Procedure:

1. Perform the proper AGT800 shutdown procedure. See the System Shutdown procedure located in the Maintenance section of this manual.
2. Remove all connections from the rear of the computer (power, video, keyboard, printer, analog and digital cable, etc.).
3. Remove the computer from the AGT800 electronics cabinet and take it to a controlled environment. To release the rack-mounted computer pull it out as far as it can go and press the tab on each rail.
4. Remove the cover from the computer. Rack-mount style computers have two thumb screws on the top back side holding the cover on.
5. The computer has a metal retaining bracket holding the cards in place. Remove the two Phillips screws and the bracket.
6. Note the position of all cables connected to the main computer board. It may help to take a digital picture of the card before removing the cables.
7. Remove all cables connected to the Computer Motherboard.
8. Remove the Phillips screws securing the Computer Motherboard to the case.
9. Gently remove the Computer Motherboard by holding the top left and right edges of the board and pulling up with equal pressure.
10. Insert the new Computer Motherboard and press firmly into the socket.

11. Secure the Computer Motherboard using the Phillips screws previously removed.
12. Attach all cables previously removed from the Computer Motherboard. Refer to your digital picture or use the images below for guidance.
13. Replace the metal retaining bracket and secure with Phillips screws previously removed.
14. Replace cover and secure with two thumb screws on the back.
15. Reinstall the computer on the rails in the AGT800 electronics cabinet.
16. Reconnect all connections to the rear of the computer (power, video, keyboard, printer, analog and digital cable, etc.).
17. Switch on the power switch on the back of the computer. The switch is labeled with a 0 (off) and a 1 (on). The 1 should be depressed.
18. Turn on both circuit breakers located on the Electronics Shelf.
19. Open the front access door of the computer and use the power switch to turn the computer on.



Fuse Replacement

JRR – 2/14/2017

Time Required:

Five minutes

Tools Required:

Needle nose pliers or a fuse puller

Procedure:

1. Locate the correct fuse that needs replaced.

   Note: There are only five fuses on the Electronics Shelf: three on the Opto22 Rack Assembly, one on the Opto22 Rack and one on the Multifunction Board.

2. Perform the proper AGT800 shutdown procedure. See the System Shutdown procedure located in the Maintenance section of this manual.

3. To replace the Tachometer Fuse simply grasp the fuse and pull it out of its socket. Replace the fuse with a 125V 1/8 amp micro fuse.

4. To replace an Opto22 Module Fuse grasp the plastic fuse tab and pull up. The fuse holder should release from the Opto22 Module. Twist the fuse to remove it from the holder. Replace it with a 250V 4 amp fuse.

5. To replace the Opto22 Rack Fuse grasp the fuse with needle nose pliers or a fuse puller and pull up on the fuse. Replace the fuse with a 250V 1 amp fuse.

6. Turn on both circuit breakers located on the Electronics Shelf.

7. Open the front access door of the computer and use the power switch to turn the computer on.

8. Turn the MODE key on the Electronics Shelf to RUN.

Keyboard Replacement

KRG – 2/14/2017

Time Required:

Replacing the keyboard should take no longer than ten minutes.

Tools Required:

Wire snips

Procedure:

1. Perform the proper AGT800 shutdown procedure. See the System Shutdown procedure located in the Maintenance section of this manual.

2. Unplug the defective keyboard from the back of the computer. Some keyboards have integrated touch pads so the mouse connector may need to be unplugged as well.

3. Remove the defective keyboard from the keyboard tray in the AGT800 cabinet. The new keyboard will likely have an integrated touch pad if purchased from Advanced Gauging Technologies. If the user prefers to use a mouse instead of the touch pad do not connect the mouse plug from the keyboard and continue to use the original mouse. Insert the keyboard plug into the keyboard port in the rear of the computer.

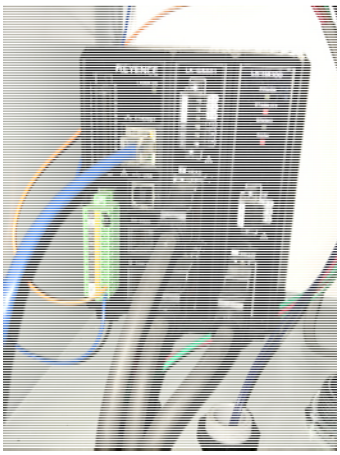
4. Turn on both circuit breakers located on the Electronics Shelf.

5. Open the front access door of the computer and use the power switch to turn the computer on.

6. Start the AGT800 software.

Laser Controller Replacement

KRG – 2/14/2017



Time Required:

One to two hours

Tools Required:

Small flat screwdriver
Long flat screwdriver
AGT800 Calibration Sample Holder
NIST-traceable sample set

Procedure:

1. Perform the proper AGT800 shutdown procedure. See the System Shutdown procedure located in the Maintenance section of this manual.

2. Open the C-frame J-box.

3. Disconnect the laser control cables and the CAT5 cable from the laser controller.

4. Disconnect the wires from the laser controller green wire block using the small flat screwdriver to depress the orange locking mechanism. Blue is the bottom (-24 VDC), Orange is second from the bottom (+24VDC), and the black jumper connects the top two (COM1 and RMT).

5. At the bottom of the laser controller, in the rear, there is a tab sticking out that requires you to insert the long flat screwdriver and pull it down to unlock the laser control box from the din rail it is mounted on.

6. Slide the laser controller off of the din rail and slide the new laser controller on to the din rail.

7. Using the long flat screwdriver push the locking tab at the bottom of the laser controller up so it is locked in position.

8. Reconnect the wires into the laser controller green wire block using the small flat screwdriver to depress the orange locking mechanism. Blue is the bottom (-24 VDC), Orange is second from the bottom (+24VDC), and the black jumper connects the top two (COM1 and RMT).

9. Plug the CAT5 cable into the laser controller.

10. Check the number on the laser control cables and plug them into the corresponding port of the laser controller.

11. Close the C-frame J-box.

12. Turn on both circuit breakers located on the Electronics Shelf.

13. Open the front access door of the computer and use the power switch to turn the computer on.

14. Start the AGT800 software.

15. Turn the MODE key on the Electronics Shelf to PROGRAM.

16. Press the Screen Menu button (F1) on the main screen of the AGT800 software. Then choose Diagnostic Data (ALT-B) on the Screen Menu.

17. Use the C-frame control buttons and move the C-frame to the position where you perform the calibration. This is normally the off sheet position. Once the C-frame is in position switch the C-frame MANUAL/AUTO switch on the Electronics Shelf to MANUAL. This will ensure the C-frame cannot be accidently moved.

18. Place the AGT800 Calibration Sample Holder on the end of the lower C-frame arm. Place a sample on the sample holder.

19. Press the Measure (Alt-M) and verify you are receiving laser sensor data from both lasers (three if the optional passline laser is installed).

20. Allow the lasers to warm up to operating temperature. This normally takes 30-60 minutes.

21. Calibrate the gauge using the Manual Calibration (ISOcal™) procedure located in the Maintenance section of this manual.

Laser Sensor Replacement

TRA – 2/14/2017

WARNING: It is not recommended that customers perform this procedure because of the complexity of the laser alignment. This procedure will briefly describe the replacement process in the event a customer has to perform it. If it is necessary that the procedure be performed please *read through and understand* all the directions before attempting.

The AGT800 uses Keyence LK-H series laser sensors. These are the highest quality sensors available on the market today. They are rated to have an average life expectancy of 60,000 to 70,000 hours. This is approximately seven to eight years with continuous operation 24 hours a day, seven days a week.

The lasers have a built-in algorithm (ABLE) that automatically adjusts for decreases in power over time. Specifically, the ABLE function auto adjusts for laser power, signal gain and shutter speed to obtain the best possible real-time reading. Therefore, as the laser begins to slowly fade it will not become less effective. Eventually however, the laser will no longer be able to function properly and will need to be replaced.

Time Required:

This procedure can take some time and should not be rushed.

Tools Required:

7/16” wrench
9/16” ratcheting wrench
#2 Phillips screwdriver

Procedure:

1. Turn the MODE key to PROGRAM and exit the AGT800 software by pressing the Exit button twice.

2. Turn the Laser Power Key Switch to Off.

3. Remove the C-frame front access panel from the arm containing the defective laser using the 7/16” wrench. Using the 9/16” ratcheting wrench, remove the four bolts on the laser assembly and pull the laser assembly from the frame.

   Note: The laser assembly is under spring tension and care should be taken to remove it.

4. Unplug the laser by unscrewing the plug and separating the cables.

5. Remove the laser from the laser assembly using the #2 Phillips screwdriver.

6. Replace the laser on the laser assembly.

7. Plug the laser in by reconnecting the cables and screwing the plug together.

8. Replace the laser assembly back into the C-frame and attach with the four mounting bolts.

9. Turn the Laser Power Key Switch to On.

10. Perform the Laser Sensor Alignment procedure located in the Maintenance section of this manual.

11. Replace the C-frame front access panel on the arm using the 7/16” wrench.

12. Start the AGT800 software.

13. Allow the lasers to warm up to operating temperature. This normally takes 30 to 60 minutes.

14. Calibrate the gauge using the Manual Calibration (ISOcal™) procedure located in the Maintenance section of this manual.

15. If the gauge has Passline Angle Compensation (has the optional third laser), a passline angle test will also need to be performed. See the Passline Angle Calibration procedure located in the Maintenance section of this manual.

16. Turn the MODE key back to RUN.

Opto22 Module Replacement

JRR – 2/14/2017

Time Required:

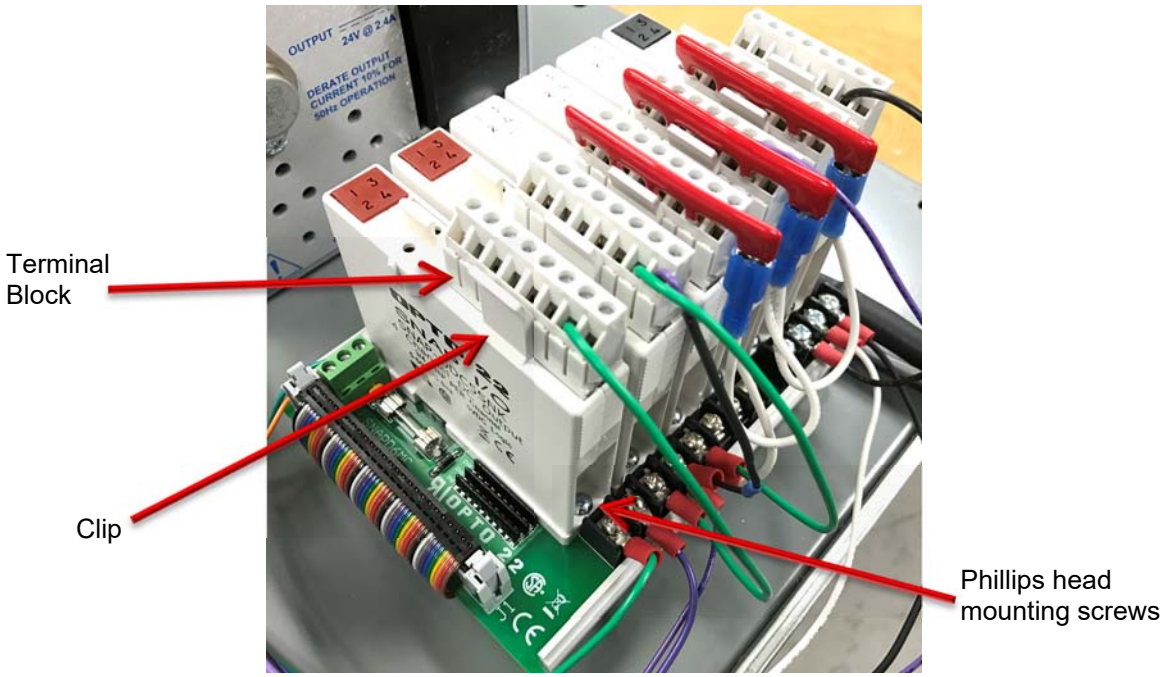
Less than one hour

Tools Required:

Small flat screwdriver
Opto22 Key
#1 Phillips screwdriver

Procedure:

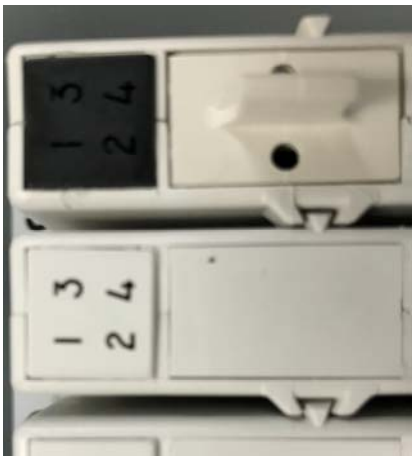
1. Perform the proper AGT800 shutdown procedure. See the System Shutdown procedure in the Maintenance section of this manual.



2. If the wire terminal block on top of the Opto22 Module is in good condition, the entire block can be removed by releasing the clip and pulling on it. The terminal block can then be reinstalled once the new Opto22 Module is installed. Otherwise, use a small flat screwdriver to remove the wires that are inserted into the Opto22 Module. Remove the mounting screws on each side of the Opto22 Module using a #1 Phillips screwdriver.

3. Once the two Phillips screws have been removed, insert the Opto22 Key into the screw hole on the side of the number label. Ensure the flat end of the Opto22 Key is facing out. Press the tool toward the Opto22 Module and then lift up on the module. It should not take excessive force to remove the module.

4. Firmly snap the new module in place ensuring that the interlocking tabs are inserted correctly.



5. Replace the two Phillips screws.

6. Reinstall the terminal block in the new Opto22 Module if it was removed. If the terminal block was replaced refer to Startup document in the Installation section or the corresponding Opto22 Module diagram in the Schematics section of this manual to ensure the connections are correct.

7. Turn on both circuit breakers located on the Electronics Shelf.

8. Open the front access door of the computer and use the power switch to turn the computer on.

Photocell Replacement

JRR – 2/14/2017

WARNING: It is not recommended that customers perform this procedure because of the complexity of the laser alignment. This procedure will briefly describe the replacement process in the event a customer has to perform it. If it is necessary that the procedure be performed please *read through and understand* all the directions before attempting.

Time Required:

This procedure can take some time and should not be rushed.

Tools Required:

7/16" wrench
9/16" ratcheting wrench
#2 Phillips screwdriver
Small flat screwdriver
Adjustable wrench

Procedure:

1. Perform the proper AGT800 shutdown procedure. See the System Shutdown procedure located in the Maintenance section of this manual.

2. Remove the C-frame front access panel from the arm containing the defective photocell using the 7/16" wrench. Using the 9/16" ratcheting wrench, remove the four bolts on the laser assembly and pull the laser assembly from the frame.

   Note: The laser assembly is under spring tension and care should be taken to remove it.

3. If the defective photocell is mounted beside a laser remove the laser from the laser assembly using the #2 Phillips screwdriver.

4. Remove the defective photocell by removing the mounting hardware. Grasp the nut with the adjustable wrench and remove the screw with the Phillips screwdriver.

5. There will be a locking sleeve on the connector attached to the photocell cable. Pull the sleeve back to release the cable connector from the defective photocell.

6. Pull back the new photocell locking sleeve on the cable connector and insert the replacement photocell cable connector in place. After the cable connector is connected push the locking sleeve forward to lock the connector.

7. Reinstall the photocell reusing the same hardware from the defective photocell.

8. Replace the laser assembly back into the C-frame and attach with the four mounting bolts.

9. Turn on both circuit breakers located on the Electronics Shelf.

10. Open the front access door of the computer and use the power switch to turn the computer on.

11. Verify the photocell has power; the green LED will be on at all times indicating power.

12. If you replaced a Photocell Emitter in the C-frame lower arm, the top of the photocell will be illuminated red indicating it is functioning.

13. If you replaced a Photocell Receiver in the C-frame upper arm there will be a yellow LED that indicates it is receiving the Photocell Emitter signal. If there is nothing blocking the beam and the yellow LED is not on the Photocell Receiver sensitivity will need to be adjusted by inserting a small flat screwdriver into the potentiometer on the end of the receiver. Once the yellow LED is on, test by blocking the beam to make sure the yellow LED goes out.

14. Perform the Laser Sensor Alignment procedure located in the Maintenance section of this manual.

15. Replace the C-frame front access panel on the arm using the 7/16” wrench.

16. Start the AGT800 software.

17. Allow the lasers to warm up to operating temperature. This normally takes 30 to 60 minutes.

18. Calibrate the gauge using the Manual Calibration (ISOcal™) procedure located in the Maintenance section of this manual.

19. If the gauge has Passline Angle Compensation (has the optional third laser), a passline angle test will also need to be performed. See the Passline Angle Calibration procedure located in the Maintenance section of this manual.

20. Turn the MODE key back to RUN.

Power Supply Replacement

JRR – 2/14/2017

Time Required:

Less than one hour

Tools Required:

#2 Phillips screwdriver
Small Phillips screwdriver
Needle nose pliers
Soldering iron
11/32” nut driver or an adjustable wrench

Procedure:

1. Perform the proper AGT800 shutdown procedure. See the System Shutdown procedure located in the Maintenance section of this manual.

2. The AGT800 power supplies have a plastic shield on the rear that will have to be removed. Use the #2 Phillips screwdriver to remove the screws that hold the shield in place.

3. Extend the Electronics Shelf as far as it will go. Insert a #2 Phillips screwdriver into the Phillips head screw that mounts the power supply to the Electronics Shelf. Loosen the nut attached to the Phillips head mounting screws on the bottom of the Electronics Shelf. Repeat this step with the other mounting screws.

4. Write down where each wire on the power supply is connected in order to reference later. Use a soldering iron to remove the wires from the defective power supply. Care should be taken to not overheat the wires and damage the insulation.

5. Remove the defective power supply.

6. Use a soldering iron to connect the wires to the new power supply, reference the list recorded earlier. Care should be taken to not overheat the wires and damage the insulation.

7. Reinstall the new power supply, using the old hardware to fasten it to the Electronics Shelf.

8. Reinstall the plastic shield on the rear of the power supplies using the old hardware to fasten it.

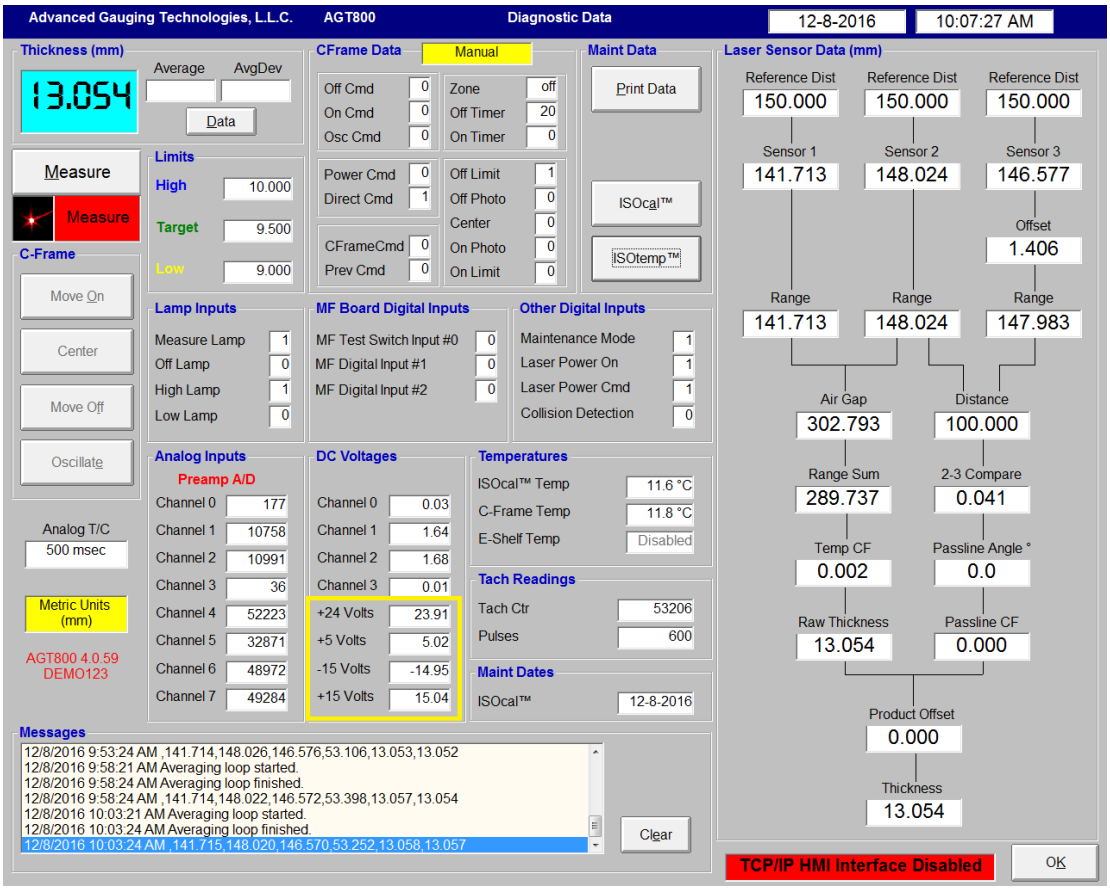
9. Turn on both circuit breakers located on the Electronics Shelf.

10. Open the front access door of the computer and use the power switch to turn the computer on.

11. Start the AGT800 software.

12. Turn the MODE key on the Electronics Shelf to PROGRAM.

13. Press the Screen Menu button (F1) on the main screen of the AGT800 software. Then choose Diagnostic Data (ALT-B) on the Screen Menu.



14. Check the power supply voltages on the Diagnostic Data screen. Adjust any power supply voltages out of tolerance using the chart below for reference. To adjust the power supply output voltages, adjust the trim pots on the power supplies using a small Phillips screwdriver

MFIO Board	Diagnostic Data	Tolerance	Adjustment
TP2	+15.00V	(±)0.25	R82 on the triple output power supply
TP3	- 15.00V	(±)0.25	R57 on the triple output power supply
TP4	+5.00V	(±)0.10	R9 on the triple output power supply
TP5	+24.00V	(±)0.50	R9 on the single output power supply

15. Once the voltages are correct exit the Diagnostic Data screen by clicking the OK button (Alt-K).

16. Turn the MODE key to RUN.

Printer Replacement

JRR – 2/14/2017

Time Required:

Less than one hour

Tools Required:

None

Procedure:

1. Compare the power and data cables going into the old printer to the new printer. Remove old power or data cables that are not the same as the new printer or are damaged. Replaces cables as needed with cables from the new printer.

2. Remove the old printer and install the new printer. Follow the directions supplied with the new printer to install the toner cartridge(s) and paper. Plug the power cord and the data cable into the new printer.

3. Remove the old printer from Windows®. Click the ***windows*** button at the bottom-left corner of the screen. Click Devices and Printers in the column at the right side of the menu. Locate the printer that you want to remove. Right-click the printer, then click Remove Device. Click the Yes option to confirm that you want to remove the printer.

4. If the new printer is a different model than the old printer follow directions supplied with the new printer to install printer drivers from the supplied installation disc. Choose to set this printer as the default.

Tachometer Replacement

JRR – 2/14/2017

Time Required:

Replacing a tachometer is a fairly simple procedure. Where and how the Tachometer is mounted will greatly influence how long this procedure will take.

Tools Required:

Varies

Procedure:

1. Perform the proper AGT800 shutdown procedure. See the System Shutdown procedure located in the Maintenance section of this manual.
2. Examine how the Tachometer is mounted to find out what tools will be required.
3. Remove the cable that is connected to the Tachometer.
4. Remove the hardware that mounts the Tachometer to the line.
5. Replace the defective Tachometer with the new one.
6. Reassemble the hardware that mounts the Tachometer to the line.
7. Connect the Tachometer Cable to the new Tachometer.
8. Turn on both circuit breakers located on the Electronics Shelf.
9. Open the front access door of the computer and use the power switch to turn the computer on.
10. Start the AGT800 software.
11. Turn the MODE key on the Electronics Shelf to PROGRAM.
12. Press the Screen Menu button (F1) on the main screen of the AGT800 software. Then choose Diagnostic Data (ALT-B) on the Screen Menu.
13. To verify correct operation take note of the Tach Ctr number in the Tach Readings field. Mark the roll the tachometer is attached to and turn it ten times in one direction. The Tach Ctr number should change (±)3000 counts (300 per revolution X 10 revolutions).

14. Turn the MODE key to RUN.

Uninterruptible Power Supply (UPS) Replacement

JRR – 2/14/2017

Time Required:

Less than one hour

Tools Required:

#2 Phillips screwdriver

Procedure:

1. Perform the proper AGT800 shutdown procedure. See the System Shutdown procedure located in the Maintenance section of this manual.
2. Turn off the UPS.
3. Unplug the UPS from the electric outlet and the cables from the back of the UPS.
4. Remove the four screws mounting the UPS to the rack rails, in the front of the cabinet, using a #2 Phillips screwdriver.
5. Slide the defective UPS out of the front of the cabinet.
6. Plug the battery of the new UPS in.
7. Mount the front plate on the new UPS.
8. Slide the new UPS in the front of the cabinet.
9. Mount the new UPS on the rack rails using the four screws.
10. Plug the cables back into the UPS and plug the UPS back into the electric outlet, ensure it is plugged into a different AC feed from the auxiliary power.
11. Turn on both circuit breakers located on the Electronics Shelf.
12. Open the front access door of the computer and use the power switch to turn the computer on.
13. Start the AGT800 software.

Uninterruptible Power Supply (UPS) Battery Replacement

JRR – 2/14/2017

Time Required:

Less than 30 minutes

Tools Required:

#1 Phillips screwdriver

Procedure:

1. Perform the proper AGT800 shutdown procedure. See the System Shutdown procedure located in the Maintenance section of this manual.
2. Turn off the UPS.
3. Remove the front bezel of the UPS.
4. Unplug the battery pack from the UPS.
5. Remove the six screws holding the battery pack in place with a #1 Phillips screwdriver.

6. Slide the battery pack out from the UPS using care as the batteries are heavy.
7. Slide the new battery pack into place and secure it with the six screws.
8. Plug the battery pack into the UPS.
9. Replace the front bezel of the UPS.
10. Turn the UPS on.
11. Turn on both circuit breakers located on the Electronics Shelf.

12. Open the front access door of the computer and use the power switch to turn the computer on.

13. Start the AGT800 software.

Video Monitor Replacement

TRA – 2/14/2017

Time Required:

Thirty minutes

Tools Required:

Wire snips
Cable ties

Procedure:

1. Turn the defective monitor's power off.

2. Unplug the video cable and power cable from the back of the defective monitor. If the cables are in good condition they may be reused, replace any cables that show any damage. When replacing cables it may be necessary to snip cable ties to remove the old cables.

3. Remove the defective monitor from the cabinet and replace it with the new one.

4. Plug the video cable and power cable into the new monitor. Verify the video cable is plugged into the rear of the computer and the power cable is plugged into the UPS.

5. Turn the monitor power on.

6. If necessary restart Windows® to find the correct driver.

7. The monitor may have to be adjusted before it works properly. If there are problems with these adjustments, refer to the instruction booklet that came with the monitor.

C-frame Errors

TRA – 2/17/2017

When trying to resolve C-frame movement issues, the first step should be to qualify the type of problem being experienced. Use the examples below to determine what type of C-frame movement issue you are experiencing:

C-frame Will Not Move

1. If the C-frame will not move, first check that the Auxiliary circuit breaker on the Electronics Shelf had power and is turned on. If not, see the NO AC Power procedure in the Troubleshooting section of this manual.

   Note: The Auxiliary Circuit Breaker also powers the indicator lights and the Electronics Cabinet Cooling Fan.

2. Verify that the C-frame command button turns yellow when clicked. If not, the Manual/Auto switch on the Electronics Shelf may be set incorrectly (must be set to Auto), the C-frame may be configured incorrectly on the System Setup screen (must be set to Electric or Oscillating) or you may be attempting to move the frame illegally (can't move on sheet if the C-frame is already at the on sheet limit for example).

3. Command the C-frame to the Move On or Move Off (choose the opposite of the current C-frame position so the command is valid, while measuring the voltage at the Direction Relay on the Electronics Shelf (R2-1 to R2-8). It should read 30 to 120 VDC. If not, there may be a problem with the rectifier or speed control, or it may be incorrectly adjusted or turned off. Contact A.G.T. for further assistance.

4. Check the fuse in the Opto22 Module 0 (the first red Opto22 module). Replace it if necessary. See the Fuse Replacement procedure in the Maintenance section of this manual.

5. If the Auxiliary circuit has AC power, the C-frame is properly configured, the C-frame is being commanded to move in a legitimate fashion and the fuse is good, turn the MODE keyswitch on the Electronics Shelf to the PROGRAM position and switch to the Diagnostic Data screen.

6. Command the C-frame to Move On or Move Off (choose the opposite of the current C-frame position so the command is valid), while monitoring the digital output for Pwr Command. It should become a 1 shortly after the Move On or Move Off button is clicked. During the period when this digital output is a 1, Opto22 Module 0, LED 1 should be illuminated. If not, there may be a problem with the Digital Computer Board, the Digital Board Cable or the Opto22 Module 0. Contact A.G.T. for further assistance.

7. Disconnect the two wires at the Direction Relay on the Electronics Shelf (R2-1 to R2-8), and measure the resistance across them. It should measure 5 to 50 Ω. If it measures less than 5 Ω, there may be a shorted Drive Motor Cable or Drive Motor. Disconnect the cable on both ends and measure across the cable conductors and across the motor winding. Replace the defective cable or motor as necessary.

8. If the measurement across the two wires at the Direction Relay on the Electronics Shelf (R2-1 to R2-8) measures greater than 50 Ω, there may be an open Drive Motor Cable or Drive Motor. Disconnect the cable on both ends and measure across the cable conductors and across the motor winding. Replace the defective cable or motor as necessary.

C-frame Moves Too Slowly

1. If the C-frame moves but slower than the desired speed, adjust the speed control on the Electronics Shelf. Sliding the Speed Control Slider up will increase the C-frame speed, while sliding it down will decrease the C-frame speed.

   NOTE: Excessive C-frame speed can cause a variety of problems such as missed strip edges (with Oscillating C-frame)

2. Command the C-frame to Move On or Move Off (choose the opposite of the current C-frame position so the command is valid), while measuring the voltage at the Direction Relay on the Electronics Shelf (R2-1 to R2-8). It should read 30 to 120 VDC. If not, there may be a problem with the rectifier or Speed Control Slider. Contact A.G.T. for further assistance.

3. Verify drive chain is adjusted properly, and does not have excess slack.

4. Disconnect the C-frame drive chain and manually move the C-frame all the way from one mechanical limit to the other. The frame should move freely and without restriction. If not, remove any debris from the C-frame I-beam and/or bend things back into position as necessary in order to facilitate free movement.

5. Inspect the motor brushes, remove brush cap on side of motor and verify each brush is in good condition and making good contact.

6. Check continuity on the drive motor wires. Replace the Drive Motor Cable if necessary.

7. If the C-frame Speed Control Slider is set correctly, the Drive Motor voltage is correct, there are no physical C-frame restrictions and the Drive Motor Cable is good, replace the C-frame Drive Motor.

C-Frame Moves, But Will Not Oscillate

1. The C-frame uses two sets of photo eyes to determine the strip edge in C-frames that oscillate.

2. With the C-frame in an easily accessible location, you should be able to see a red LED in each of the (lower) Photocell Emitters. If the red LED is illuminated then skip to step 6. If not, there may be a problem with the 24 VDC Power Supply, the photocell wiring or the Photocell Emitter(s). This 24 VDC Power Supply can be tested at the Multifunction Board by measuring between TP1 (ground) and TP5 (+24 VDC), in the C-frame junction box between JTB1-6 (ground) and JTB1-3 (+24 VDC).

3. There is another terminal block behind the rear access cover in the top of the C-frame, and the 24 VDC Power Supply can be measured here between terminals 1 (+24VDC) and 2 (ground). Replace the photocell wiring or Photocell Emitter(s) as required.

4. Check for power at each of the (upper) Photocell Receivers by looking for a green LED on each one. If one or both are missing, there may be a problem with the 24 VDC Power Supply, the Photocell Cable, the Photocell Pull-up Resistors or the Photocell Receivers(s). This 24 VDC Power Supply can be tested at the Multifunction Board by measuring between TP1 (ground) and TP5 (+24 VDC), in the C-frame junction box between JTB1-6 (ground) and JTB1-3 (+24 VDC).

5. There is another terminal block behind the rear access cover in the top of the C-frame, and the 24 VDC Power Supply can be measured here between terminals 1 (+24 VDC) and 2 (ground). The Photocell Pull-up Resistors (10kΩ) can be inspected on this terminal strip. Replace the Photocell Cable, Photocell Pull-up Resistors or Photocell Receiver(s) as required.

6. If both Photocell Emitters and both Photocell Receivers have power, the next step is to verify correct operation of the photocell receivers. With no photocell beam obstructions, each Photocell Receiver should have a yellow LED illuminated in addition to the green power LED described in step 2 above.

7. Use your hand to block each photocell beam with your hand, and the yellow LED on each respective Photocell Receiver should go out. If one or both of the Photocell Receivers is not working correctly, verify all four photocells (emitters and receivers) are clean and properly aligned with each other.

8. The Photocell Receiver has a single turn sensitivity adjustment on the front located below the two LED indicators. If the green power LED is on, adjust the sensitivity pot until the yellow LED turns on.

9. If the yellow LED indicator on the Photocell Receiver is on continuously and the emitter is blocked, the sensitivity adjustment is too high. Turn the sensitivity pot down until the yellow LED turns off.

10. Once proper photocell operation has been verified at the C-frame, the next step is to verify the correct digital signals are being received by the gauge software. Go to the Diagnostic Data screen and look for the Off Photo and On Photo fields in the CFrame Data box. Since each Photocell Receiver should be detecting its respective Photocell Emitter, there should be a corresponding 1 in each of these boxes. If one or both are low (0), measure for the proper signals (+24 VDC) at terminals 3 (on sheet Photocell Receiver) and 4 (off sheet Photocell Receiver) on the internal C-frame terminal strip, then at terminals JTB1-11 (on sheet Photocell Emitter) and JTB1-12 (off sheet Photocell Emitter) in the C-frame junction box, then at Opto22 Module 4-6 (off sheet Photocell Receiver) and 4-8 (on sheet Photocell Receiver). Once it is determined where the photocell signal(s) is being lost, repair or replace the cable as required.

11. Contact A.G.T. for further assistance.

C-frame Drive Motor Fails Prematurely Or Often

1. Disconnect the drive chain completely, and manually move the C-frame in both directions across the width of the I-beam. It should roll freely, and there should not be any drag.

2. Check the C-frame Speed Control Slider, located in the front right corner of the Electronics Shelf. There should be an indicator mark for the proper speed setting. Make sure no one has increased the speed beyond the indicated mark.

3. With a full width piece of steel in place, set the C-frame to oscillate, and observe what happens. Every time the C-frame reaches the strip edge it should pause for a second, then change directions and restart. During oscillation, the C-frame should never go off sheet.

4. With no steel in place, command the C-frame on sheet, then watch to verify two things. First, make sure the C-frame is stopping at the On Sheet Limit Switch. And second, make sure the C-frame leg never makes contact with the on sheet mechanical stop.

5. Command the C-frame off sheet, then watch to verify two things. First, make sure the C-frame is stopping at the Off Sheet Limit Switch. And second, make sure the C-frame leg never makes contact with the off sheet mechanical stop.

6. Repeat steps four and five several times, until you're confident that the C-frame limit switches are working properly, and the mechanical stops are never being reached.

Computer Inoperable

JPF – 2/17/2017

If the AGT800 computer is completely inoperable, use this procedure to determine the cause:

1. Verify AC power is present at the outlet box in the AGT800 Electronics Cabinet where the computer plugs in.

2. Ensure the computer is plugged in and turned on. If not, plug it in and/or turn it on.

3. Ensure the power supply toggle switch on the back of the computer's power supply is turned on. The switch is labeled with a 0 (off) and a 1 (on). The 1 should be depressed.

4. Attempt to restart the computer using the computer power switch or the left (computer) circuit breaker on the AGT800 Electronics Shelf. If the computer doesn't restart automatically when the power is reapplied, press the power button on the computer. In some instances, just restarting the computer will solve unexplained computer problems.

5. If AC power is present, everything is plugged in properly and the computer still will not run, your computer may have a defective internal power supply, defective main board or defective CPU. Contact A.G.T. for further assistance.

Computer Slow or Locked Up

JRR – 2/17/2017

If the AGT800 computer operation has slowed, or the computer is completely locked up, use this procedure to determine the cause:

1. Inspect the LED panel on the front of the computer. Check to see if any of the LED indicators are in the red. If they are, the corresponding LED should be addressed first, is it a power supply issue, temperature issue, hard drive issue, etc.

2. Reboot the computer. Attempt to do a proper shutdown by exiting the AGT800 software, then properly shutting down Windows®. If this isn't possible, use the computer power switch or the left Computer Circuit Breaker on the AGT800 Electronics Shelf to remove power. Restart the computer by turning the left Computer Circuit Breaker on and pressing the power button inside the front access panel of the computer. In some instances, just rebooting the computer will solve the unexplained computer problems.

3. After the reboot, check the print queue for backed up print jobs. Note: a simple paper jam or printer error can cause the AGT800 to fill up the print queue to the point where the CPU can only function very slowly if at all. Delete any and all jobs in the print queue. If the print queue was empty, and the computer seems to be running at normal speed, monitor the system for proper operation.

4. If the computer is still running slow or exhibits a tendency to lock up, remove the computer cover and inspect the CPU cooling fan with the computer on. It must operate at full speed in order to keep the CPU from overheating and slowing down to a crawl. If the fan is turning slowly or not at all, it must be replaced.

5. If the computer is still running slow or exhibits a tendency to lock up, disconnect the plant network (if applicable) and reboot the AGT800 computer again. If the problem disappears, it was probably a network related issue and the network administrator should investigate the situation.

6. If the computer is still running slow or exhibits a tendency to lock up, contact A.G.T. for further assistance.

Indicator Light(s) Inoperable

TRA – 2/17/2017

Tools Required:

AGT800 Calibration Sample Holder
NIST-traceable sample(s)

Procedure:

Note: The following procedures should only be performed with the AGT800 Calibration Sample Holder in place with a sample. Make sure the C-frame Auto/Manual Switch is in the manual position.

1. Check each indicator lamp to ensure it is not defective, loose, or missing. Replace the lamp(s) as necessary.

2. If all four lamps (red and green measure indicators and amber ad blue classifier indicators are inoperable, verify that the auxiliary circuit breaker on the Electronics Shelf has power and is turned on. If not, see the No AC Power procedure in the Troubleshooting section of this manual.

3. If all four lamps (red and green measure indicators and amber and blue classifier indicators) are inoperable and the auxiliary circuit breaker is on, check the fuse in Opeo22 Module 5 (the only black Opto22 Module). Replace the fuse if necessary. See the Fuse Replacement procedure in the Maintenance section of this manual.

4. If all four lamps are good, the auxiliary circuit breaker on the Electronics Shelf has power and is turned on and the Opto22 Module 5 fuse is good, the problem is likely a wiring issue between the gauge and the lamps. Test the wires for continuity and short circuits.

5. Verify that LED 2 on Opto22 Module 5 is illuminated. If not there may be a problem with the I/O Computer Board, Digital Cable or Opto22 Rack. Contact A.G.T. for further assistance.

6. Measure the voltage between Opto 22 Rack TB-9 and Opto22 Module 5-4. It should measure ~120 VAC. If so, locate the cable problem, and repair/replace the cable as necessary. If not, contact A.G.T. for further assistance.

7. If only the Laser Off Indicator Lamp (green) is inoperable switch the MODE key switch, on the Electronics Shelf, to PROGRAM position and go to the Diagnostic Data screen. Command the gauge to stop measuring and verify the Off Lamp command in the Digital Data frame is a '1', LED 2 is illuminated on Opto22 Module 5 and measure the voltage between Opto22 Rack TB-9 and Opto22 Module 5-4. It should measure ~120 VAC. If so, locate the cable problem, and repair/replace the cable as necessary. If not, contact A.G.T. for further assistance.

8. If only the Measure Indicator Lamp (red) is inoperable, switch the MODE key switch, on the Electronics Shelf, to the PROGRAM position and go to the Diagnostic Data screen. Command the gauge to measure and verify the Measure Lamp command in the Digital Data frame is a '1', LED 1 is illuminated on Opto22 Module 5 and measure the voltage between Opto22 Rack TB-9 and Opto22 Module 5-2. It should measure ~120 VAC. If so, locate the cable problem, and repair/replace the cable as necessary. If not, contact A.G.T. for further assistance.

9. If the Low Classifier Indicator Lamp (amber) is inoperable, verify the user limits are set correctly on the Main Screen. If so, switch the MODE key switch, on the Electronics Shelf, to the PROGRAM position and go to the Diagnostic Data screen. Command the gauge to measure. This will force the AGT800 software to issue the low classifier indicator command. Verify the Low Lamp command in the Digital Data frame is a '1'. If not, there may be a problem with the I/O Computer Board, Digital Cable or Opto22 Rack. Verify that LED 4 on the Opto22 Module 5 is illuminated. Measure the voltage between Opto22 Rack TB-9 and Opto22 Module 5-8. It should measure ~120 VAC. If so, locate the cable problem and repair/replace the cable as necessary. If not contact A.G.T. for further assistance.

10. If the High Classifier Indicator Lamp (blue) is inoperable, verify the user limits are set correctly on the Main Screen. If so, switch the MODE key switch, on the Electronics Shelf, to the PROGRAM position and go to the Diagnostic Data screen. Place material thicker than the current high limit setting on the source. Command the gauge to measure. This will force the AGT800 software to issue the high classifier indicator command. Verify the High Lamp command in the Digital Data frame is a '1'. If not, there may be a problem with the I/O Computer Board, Digital Cable or Opto22 Rack. Verify that LED 3 on the Opto22 Module 5 is illuminated. Measure the voltage between Opto22 Rack TB-9 and Opto22 Module 5-6. It should measure ~120 VAC. If so, locate the cable problem and repair/replace the cable as necessary. If not contact A.G.T. for further assistance.

Keyboard Inoperable

JRR – 2/17/2017

If your AGT800 keyboard is inoperable, use this procedure to determine the cause:

1. Ensure the computer is functioning otherwise (i.e. has video, etc.). If not, see Computer Inoperable procedure or Computer Slow or Locked up procedure in the Troubleshooting section of this manual.

2. Ensure the keyboard is plugged in.

3. If your computer is working properly and the keyboard is plugged in, see Keyboard Replacement procedure in the Maintenance section of this manual.

   Note: If your system has a remote station and the keyboard does not work, connect the local keyboard directly to the computer and restart the computer to see if the computer will recognize the keyboard.

Length or Weight Errors

TRA – 2/17/2017

If the AGT800 system counts footage incorrectly, calculates weight incorrectly or fails to measure length correctly, use the examples below to first determine what type of length or weight issue your gauge is experiencing:

Length Measurement Incorrect

1. Check a few Coil Reports with incorrect lengths to see if there is a pattern to the length reporting error. For example, is the reported length error always in the same direction and/or approximately the same percentage?

2. If the reported length is consistently low by roughly the same percentage, the most likely causes are tachometer roll slippage, incorrect tachometer, incorrect system setup or a damaged or defective tachometer or cable. See step 5 below.

3. If the reported length is consistently high by roughly the same percentage, the most likely causes are incorrect tachometer, incorrect system setup or a damaged or defective tachometer cable. See step 6 below.

4. If the reported length seems to be random, with no obvious pattern when compared to the actual length, the most likely causes are tachometer roll slippage, or a damaged or defective tachometer or cable. See step 5 below.

5. Check the tachometer roll for slippage.

6. Verify your tachometer is a 300 PPR (pulses per revolution) model.

7. Go to the System Setup page and verify the Tach, Pulses/Rev and Tach Roll Diam parameters are set correctly. See the System Setup page of the Software Screens section of this manual for an explanation of these parameters.

8. Inspect your tachometer, cable and connector. Replace the cable or connector as required. If no problem is found, see the Tachometer Replacement procedure in the Maintenance section of this manual.

Weight Calculation Incorrect

The AGT800 software calculates the weight of each coil using the measured length, measured thickness and density as entered on the Product Menu screen.

1. Refer to the Manual Calibration (ISOcal™) procedure in the Troubleshooting section of this manual to verify thickness measurement accuracy.

2. Check a few Coil Reports to verify the correct length is being reported. If not, see the Length Measurement Incorrect procedure above.

3. If the AGT800 is reporting length correctly, but the weight is inaccurate, verify the density of each product in your Product Menu.

No Length

1. Inspect the Tachometer Fuse on the Multifunction Board. Replace the fuse if necessary.

2. Inspect your tachometer cable and connector. Replace the cable or connector as required.

3. Measure the voltage on the Multifunction Board at J2-1 in reference to ground (TP1). It should read 13.20 ± 0.50 VDC. If not, disconnect each circuit from this power supply individually in order to determine where the short is originating. Start by disconnecting the tachometer wires at J2 on the Multifunction Board.

4. If the power supply voltage returns to normal when a specific load is disconnected, check for shorts in that circuit. A typical failure in this area would include a situation where the tachometer cable or connector has been damaged by scrap steel.

5. Have an assistant slowly rotate the tachometer roll and verify the tachometer is actually rotating. Observe the LED on the Multifunction Board and verify that it flashes as the roll is turned (18.75 FPR).

6. Have an assistant slowly rotate the tachometer roll and verify the presence of the tachometer pulses on the Diagnostic Data screen in the Pulses box of the Tach Readings frame.

7. If a problem is not found, see the Tachometer Replacement procedure in the Maintenance section of this manual.

Measurement Errors

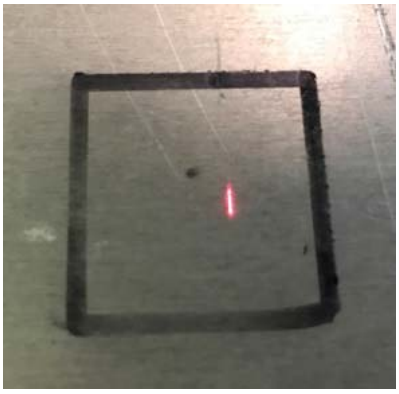
JPF – 2/17/2017

Accurate and consistent thickness measurements depend on a good manual calibration. Below are some factors that may impact the calibration process and introduce measurement errors:

Laser Alignment
Laser alignment is an important aspect of proper operation of the gauge. If the lasers are not properly aligned the result will be poor measurement performance. Consult the Laser Sensor Alignment procedure in the Maintenance section of this manual for further assistance.

Temperature Drift
Temperature changes will cause measurement errors. As the temperature changes the C-frame expands and contracts. As the expansion and contraction occur, the lasers drift further from or closer to each other resulting in a measurement error. Fortunately, this change occurs at a measureable rate and can be compensated for mathematically. The AGT800 uses a temperature sensor on the C-frame and applies a calculated correction factor based on readings from the Temperature Drift Test (ISOtemp™) procedure. See the Temperature Drift Test (ISOtemp™) procedure in the Maintenance section of this manual for more information on how to account for temperature drift.

Calibration Sample Placement
Each calibration sample is marked with a 1”×1” square. This area of the sample is where the sample was certified by an outside NIST-certified laboratory. It is required to place the sample on the holder so that the laser is centered, but not on surface defects, in this marked square to get acceptable calibration results.



Calibration Sample Alignment
Sample alignment is similar to sample placement. The AGT800 Calibration Sample Holder has rails that are adjustable so the calibration sample can be as close to the material passline height as possible.

Calibration Sample Quality
The supplied NIST-traceable Calibration Sample Set is comprised of aluminum samples primarily for weight reduction. Care in handling these aluminum samples should be taken to prevent damage. If the marked area of the sample becomes scratched, dented, warped or dirty, it can have a negative effect on sample measurement accuracy.

Calibration Frequency
Gauge calibration should be checked on a periodic basis. As a starting point, most customers should perform the calibration on a daily basis. This should be done at the start of a shift, rather than at the end. In challenging environments, calibration may need to be performed once per shift, or possibly every few hours. In a clean environment, every couple days, or even weekly may be adequate. See the Manual Calibration (ISOcal™) procedure in the Maintenance section of this manual for more information.

Laser Cleanliness
The AGT800 is an optical based measuring system. This means it is very important to keep the laser sensors clean and free of dust, dirt, scale, water and oil mist. The sensors must be kept clean in order for the gauge to provide accurate and repeatable thickness measurements. In some cases, this may need to be done every few hours. In a clean environment, once per day could be adequate. Start by using compressed air to remove any abrasive shavings, flakes and/or loose debris. Then use glass cleaner and a soft cloth to clean the glass lens of each laser sensor. If your C-frame has polycarbonate laser sensor covers, clean these covers instead of the actual sensors.

Passline Height/Angle
If the measurement error spot is always in the same location at the head and tail it is an indication that something is happening to the coil that is likely changing the pass-line height or the pass-line angle of the material. The lasers are extremely accurate and small changes to the pass-angle can result in apparent changes to the thickness of the coil. If the line is stopped when this occurs it will result in a spike in the report. If the line is running slow while they crop the head or tail for example, it may show up as a “bad spot”.

No AC Power

JRR – 2/17/2017

If the AGT800 cabinet does not have AC power on one or both of its circuits, use this procedure to determine the cause:

1. Verify both AGT800 circuit breakers on the Electronics Shelf are turned on. If not, turn them on. If so, determine which breakers actually do or do not have power.

   Note: These two circuit breakers should be on individual AC power feeds.

2. If both circuit breakers are turned on and there is an absence of AC power, check for AC power at each of the outlets in the electrical gang box inside the AGT800 electronics cabinet.

   Note: Two separate AC feeds should be located in this electrical gang box, so it will be necessary to check each outlet for power.

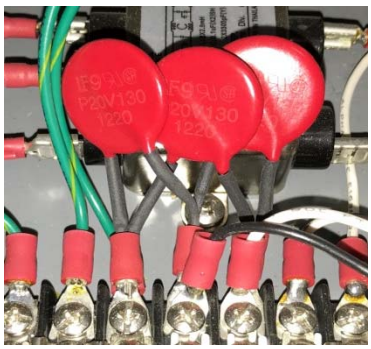
3. If there is still no AC power at any of the outlets, locate the main circuit breaker box that feeds the AGT800 and resolve the issue at the origin.

4. If only the left Computer Circuit Breaker was tripped, reset the breaker and see if it trips again. If so, you may have a single device loading down the 5-amp circuit or the breaker itself may need to be replaced.

5. If both circuit breakers are turned on, and there is an absence of AC power on the left (computer) circuit, check the AGT800 UPS for AC power out. If it does not have AC power output, check its AC feed. If it does not have AC power in, see step 3 above. If it has AC in, but no AC out, ensure it is turned on. If it is turned on, but still does not have AC out, the UPS may need to be repaired or replaced. Contact A.G.T. for further assistance.

6. If only the right Auxiliary Circuit Breaker was tripped, reset the breaker and see if it trips again. If so, there may be a single circuit loading down the 5-amp circuit or the breaker itself may need to be replaced.

   Note: This circuit powers the indicator lights, C-frame drive circuit and cabinet cooling fan.



7. If AC feeds are working and the circuit breaker will still not latch, open the hinged cover panel and inspect the MOV filters (pictured) and the AC line filters. Verify these components are not damaged or shorted out.

8. Contact A.G.T. for further assistance if necessary.

Printer or Report Errors

TRA – 2/17/2017

If the AGT800 system has any type of report or printout error, ranging from portions of reports missing to a complete failure to generate reports, use the steps below to first determine what type of report issue you are experiencing.

Portion of Reports Missing

1. Check a few incorrectly printed Coil Reports to see if there is a pattern to which portions are actually being printed and which portions are missing.

2. If all or most of the black ink portions of the report seem to be missing, but the color ink portions are present, replace the black printer ink cartridge. If some of the color ink portions of the report seem to be missing, but all the black ink portions are present, replace the color printer ink cartridge.

3. If a certain piece of information is missing from the Coil Reports, check the Report Setup screen to verify the parameter is enabled.

4. If the Profile Graph is missing from the Coil Reports, check the Report Setup screen to verify that parameter is enabled.

5. If the Defect Details are missing from the Coil Reports, check the Report Setup screen to verify that parameter is enabled.

6. If the Coil Mapping Data is missing from the Coil Reports, check the Reports Setup screen to verify that parameter is enabled.

7. If the entire ISOgraph™ is missing from the Coil Reports, check the Report Setup screen to verify that parameter is enabled. If so, shut down the AGT800 software and restart the AGT800 computer.

8. If a certain piece of information is missing from the Shift Summary Reports, check the Report Setup screen to verify that parameter is enabled.

9. If there is still a report printing problem, check Windows® to verify the default printer driver corresponds to the printer used on this computer and is correctly installed.

10. If the printer ink cartridges have been replaced, the computer has been rebooted and the appropriate printer driver is correctly installed, see the Printer Replacement procedure in the Maintenance section of this manual or contact A.G.T. for assistance.

Printer Prints Gibberish

1. Turn the printer power off.

2. Shut down the AGT800 software and restart the AGT800 computer.

3. Turn the printer back on.

4. Check Windows® to verify the default printer driver corresponds to the printer used on this computer and is correctly installed.

5. Replace the printer cable.

6. If the computer has been rebooted, the appropriate printer driver is correctly installed and the printer cable has been replaced, test the printer on another computer if feasible.

7. See the Printer Replacement procedure in the Maintenance section of this manual.

8. If there is still a report gibberish issue, contact A.G.T. for assistance.

No Reports

1. Verify that the Printer button on the Main Screen is set to On.

2. Verify the printer has paper, does not have a paper jam and is ready (steady green LED is illuminated, but no other LEDs are illuminated or flashing).

3. If the printer will not print Coil Reports, but does not have trouble printing System Startup or other reports verify gauge is in Run mode and the length is being measured on the Main Screen. If the length remains at zero, see the Length or Weight Errors procedure in the Troubleshooting section of this manual.

4. Cycle power to the printer by turning it off, waiting 30 seconds and then turning it back on.

5. Check the print queue for backed up print jobs and delete any and all jobs in the print queue.

   Note: A simple paper jam or printer error can cause the AGT800 to up the print queue to the point where the CPU can only function very slowly if at all.

6. Reboot the computer. Do a proper shutdown using the System Shutdown procedure in the Maintenance section of this manual. In some instances, just rebooting the computer will solve unexplained computer problems.

7. If there is still a report printing problem, check Windows® to verify the default printer driver corresponds to the printer used on this computer and is correctly installed.

8. Replace the printer cable.

9. If the printer is ready to print, enabled in the AGT800 software, the computer has been rebooted, print queue cleared and the appropriate printer driver is correctly installed, test the printer on another computer if feasible.

10. See the Printer Replacement procedure in the Maintenance section of this manual.

11. If replacing the printer does not resolve the issue, contact A.G.T. for further assistance.

AGT800 Software Inoperable

TRA – 2/17/2017

If the AGT800 software will not start, run or is inoperable, use this procedure to determine the cause:

1. Start by rebooting the AGT800 computer in case Windows® needs to be restarted.

2. If the AGT800 software will not start but displays an error message, note the message and refer to the System Messages list in the Appendices section of this manual for the appropriate action.

3. If the AGT800 software will not start and does not display and error message, contact A.G.T. for further assistance.

4. If the AGT800 software starts but displays an error message, note the message and refer to the System Messages list in the Appendices section of this manual for the appropriate action.

5. If a displayed error message is not listed in the System Messages list, contact A.G.T. for further assistance.

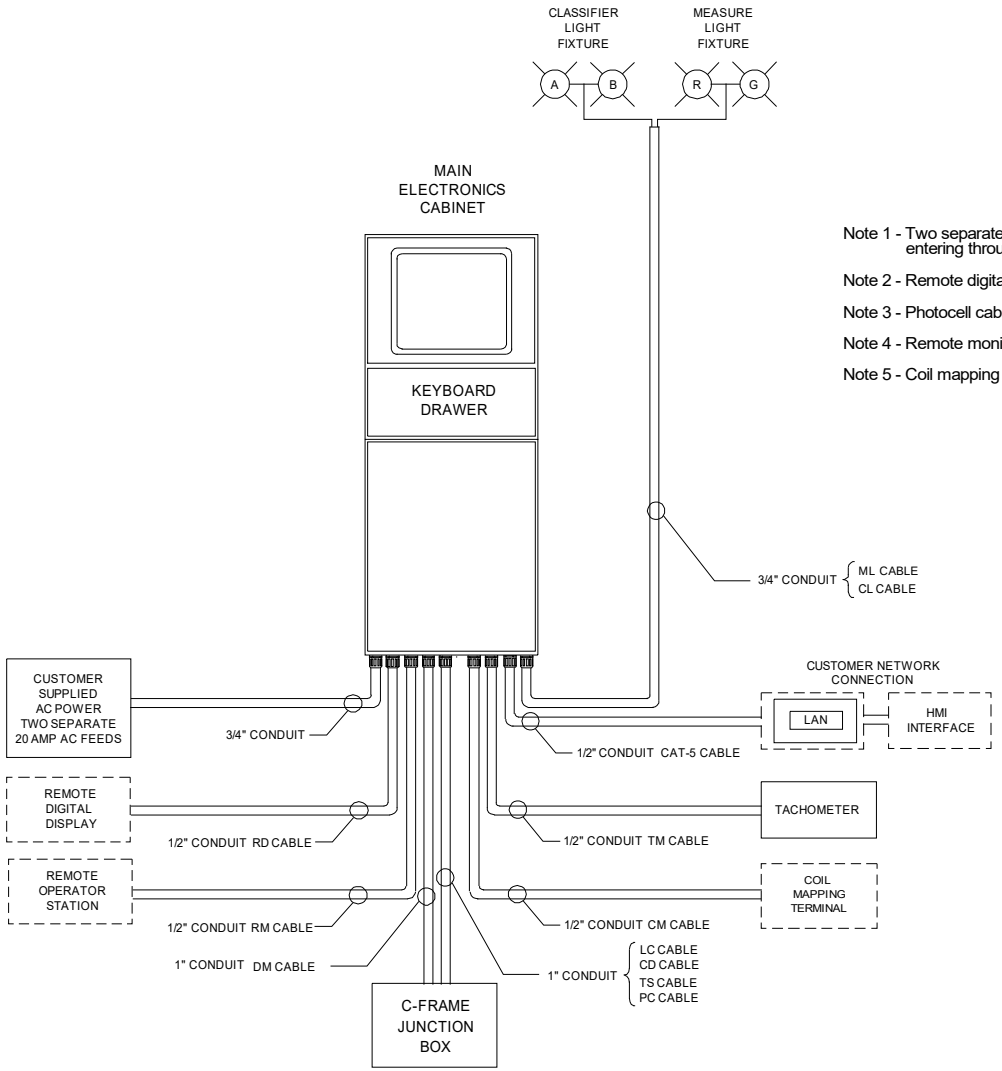
9-1-1

ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

DRAWING NAME

TABLE OF CONTENTS

SIZE		REV
A	800.000	0
DRAWN BY: J.P.F. 12/27/2016		SHEET 1 OF 1



Note 1 - Two separate AC line feeds with good earth grounds should also be brought into the system cabinet, entering through the floor, and terminating in a four-outlet electrical box where indicated on the cabinet floor.

Note 2 - Remote digital display cable (RD) is only used with optional remote digital display.

Note 3 - Photocell cable (PC) is only used with optional oscillating C-frame.

Note 4 - Remote monitor cable (RM) is only used with optional remote video display monitor.

Note 5 - Coil mapping cable (CM) is only used with optional coil mapping system.

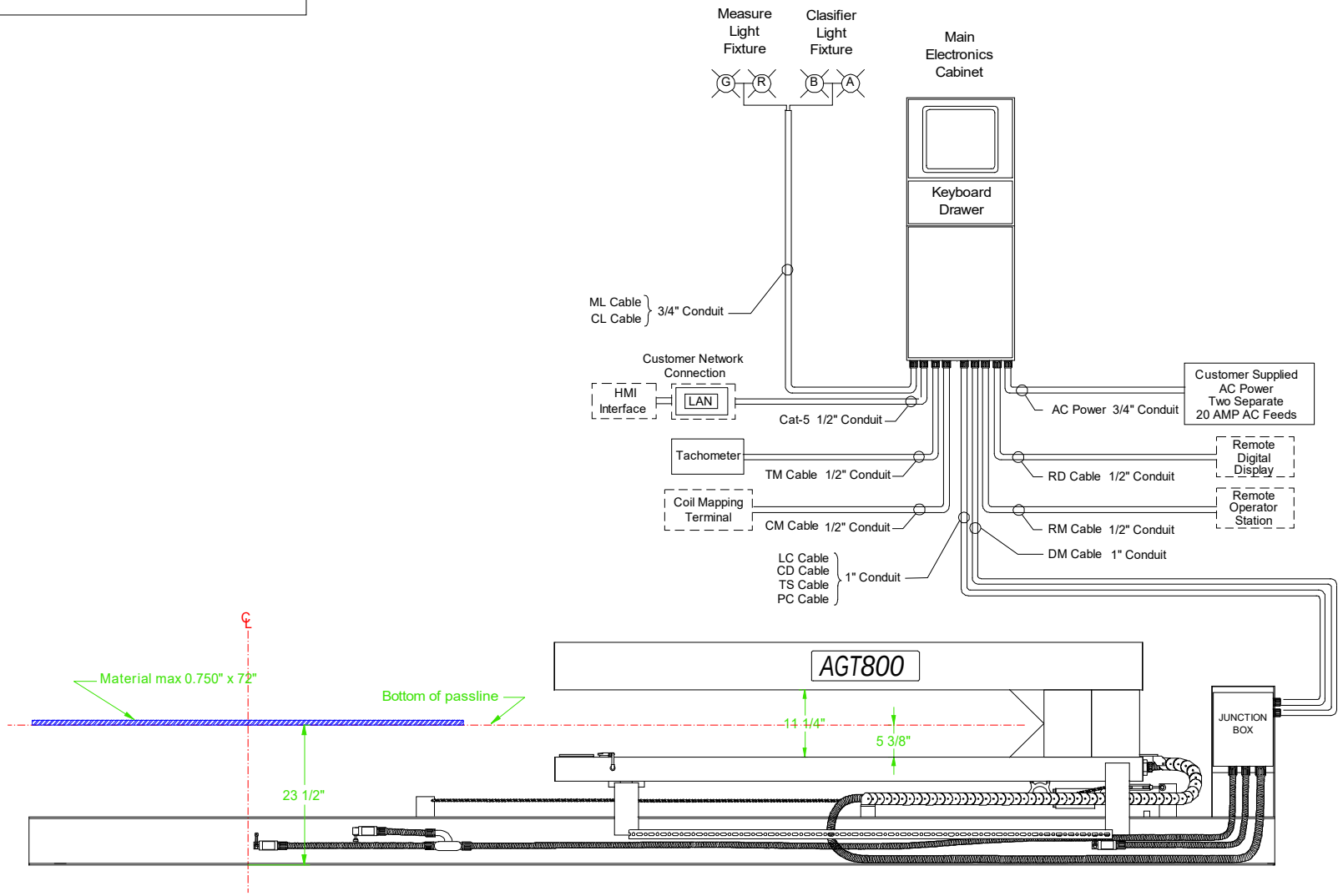
ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

DRAWING NAME

AGT800 INTERCONNECT DIAGRAM

SIZE		REV
A	800.050	0
DRAWN BY: J.P.F. 11/1/2016		SHEET 1 OF 1

9-2-1



NOTE 1: The C-frame should be solidly mounted with the I-beam on the bottom.
NOTE 2: The C-frame must be positioned so the bottom of the strip is 5 3/8" above the lower arm.
NOTE 3: The I-Beam has a centerline marked on it. This mark should be aligned with the machine center line.
NOTE 4: Conduit should be rigid or liquid-tight flexible steel conduit.

ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

DRAWING NAME

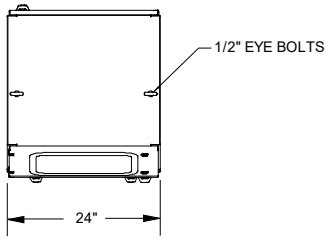
BLOCK DIAGRAM

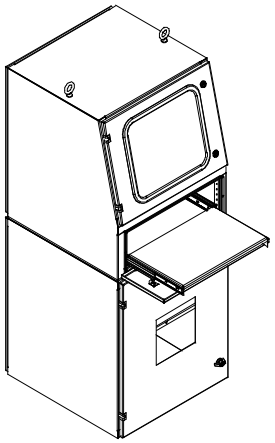
SIZE		REV
A	800.100	0

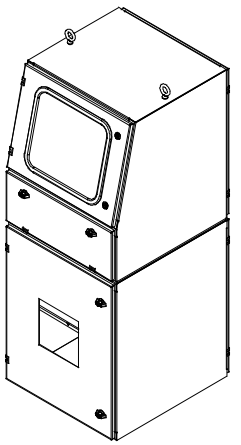
DRAWN BY: J.P.F. 12/29/2016 | SHEET 1 OF 1

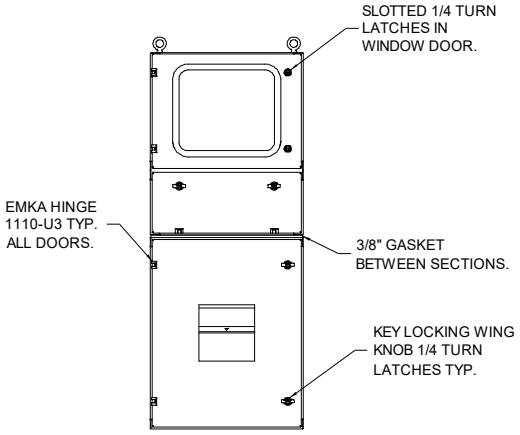
9-3-1

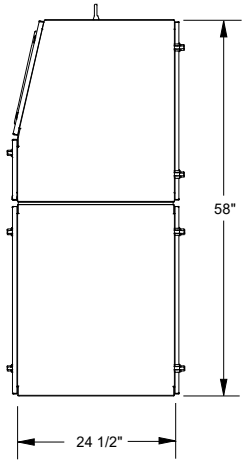
CONFIDENTIAL

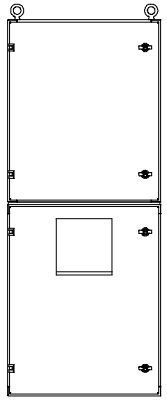












ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

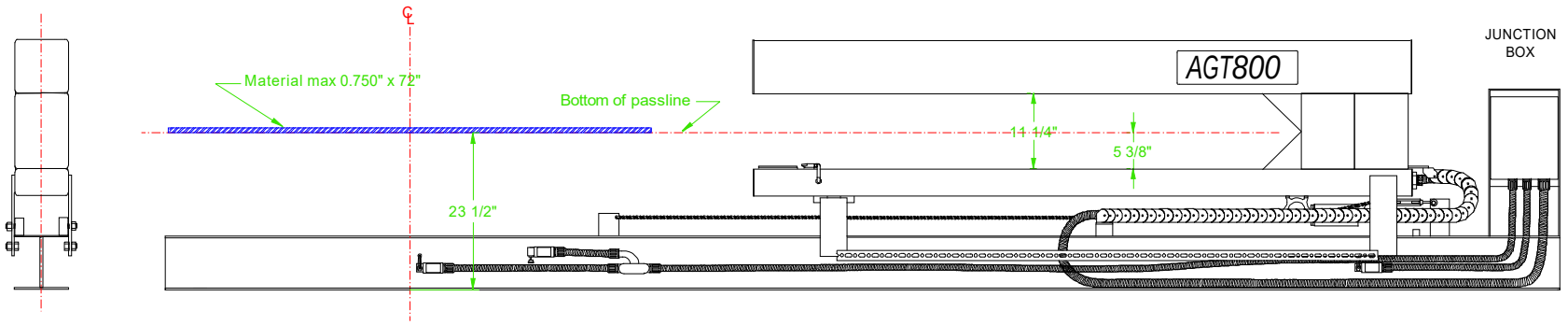
DRAWING NAME

MAIN ELECTRONICS CABINET

SIZE		REV
A	800.150	0
DRAWN BY: .P.F.12/27/2016		SHEET 1 OF 1

9-4-1

CONFIDENTIAL



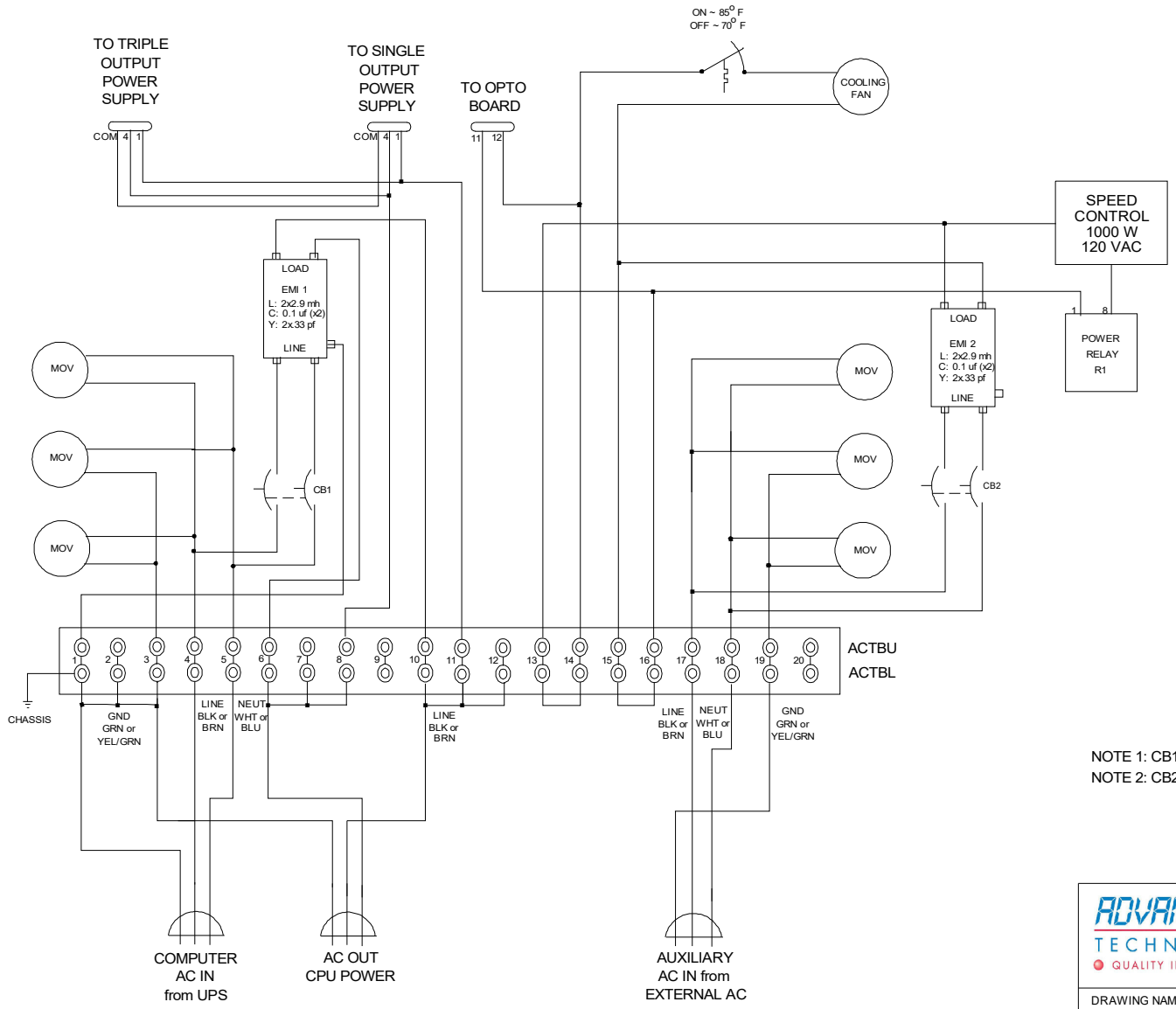
Note 1 - C-frame must be installed so center of material is as close to center of air gap as possible.
Note 2 - C-frame must be installed before slitter head on all slitting lines.
Note 3 - Junction box and limit switches (shown on left side) can be mounted on the right at customer request.

ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

DRAWING NAME
TYPICAL C-FRAME ASSEMBLY

SIZE		REV
A	800.160	0
DRAWN BY: J.P.F.11/26/2016		SHEET 1 OF 1

9-5-1



NOTE 1: CB1 5 AMP LABELED AS COMPUTER
NOTE 2: CB2 5 AMP LABELED AS AUXILIARY

ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

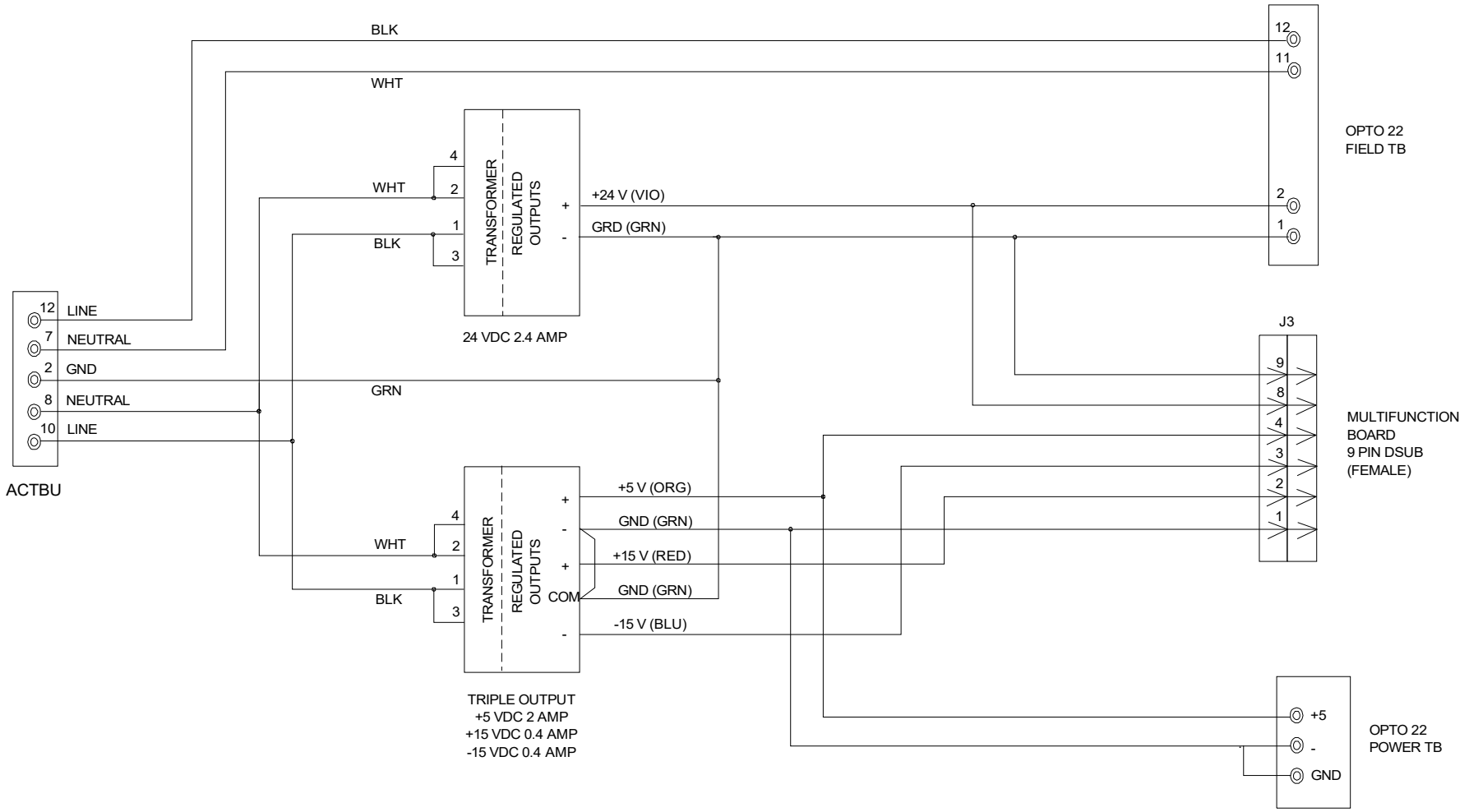
DRAWING NAME

AC POWER TERMINAL STRIP WIRING

SIZE		REV
A	800.200	0
DRAWN BY: J.P.F. 12/27/2016		SHEET 1 OF 1

9-6-1

CONFIDENTIAL



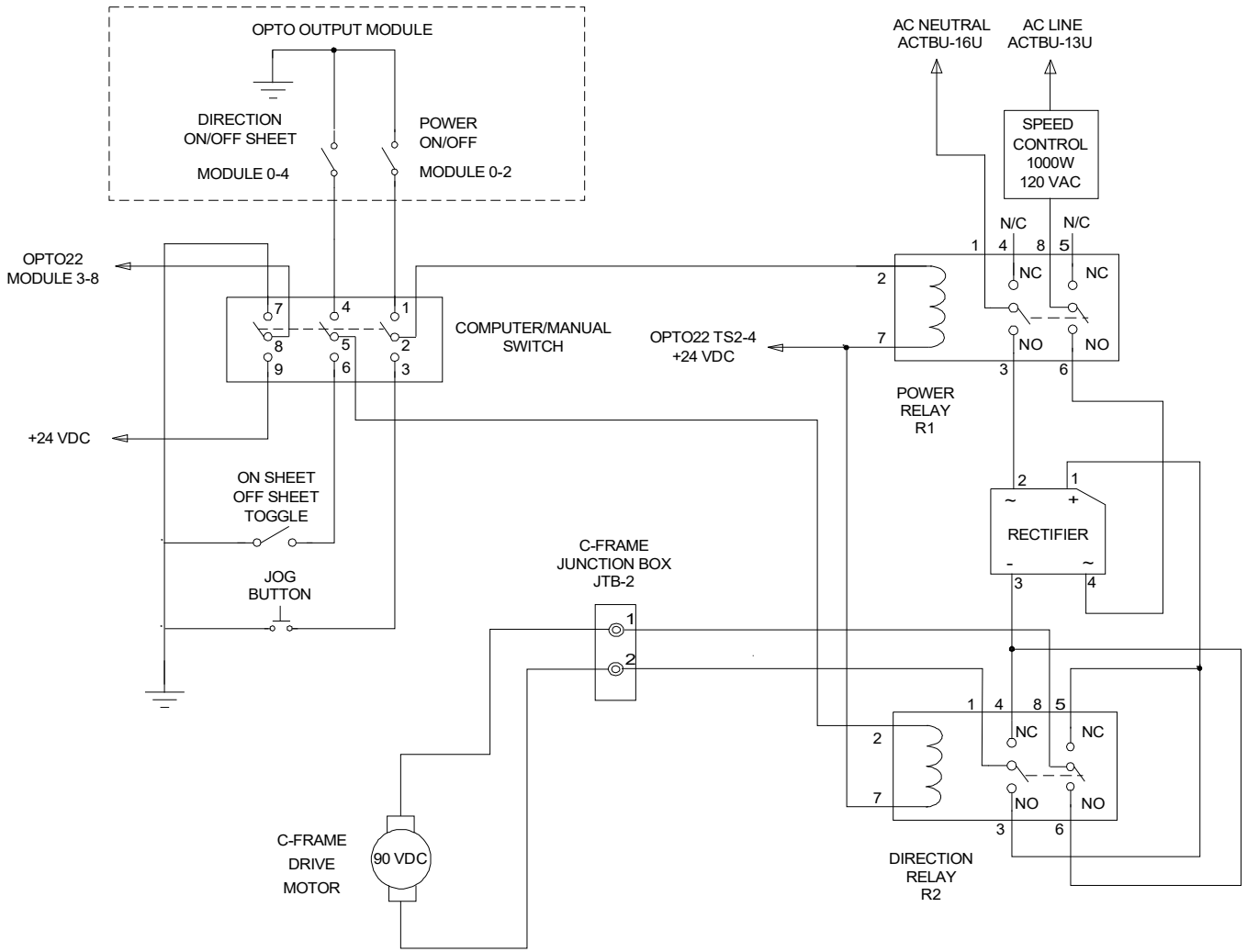
ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

DRAWING NAME

DC POWER TERMINAL STRIP WIRING

SIZE		REV
A	800.250	0
DRAWN BY: J.P.F. 9/19/2016		SHEET 1 OF 1

9-7-1



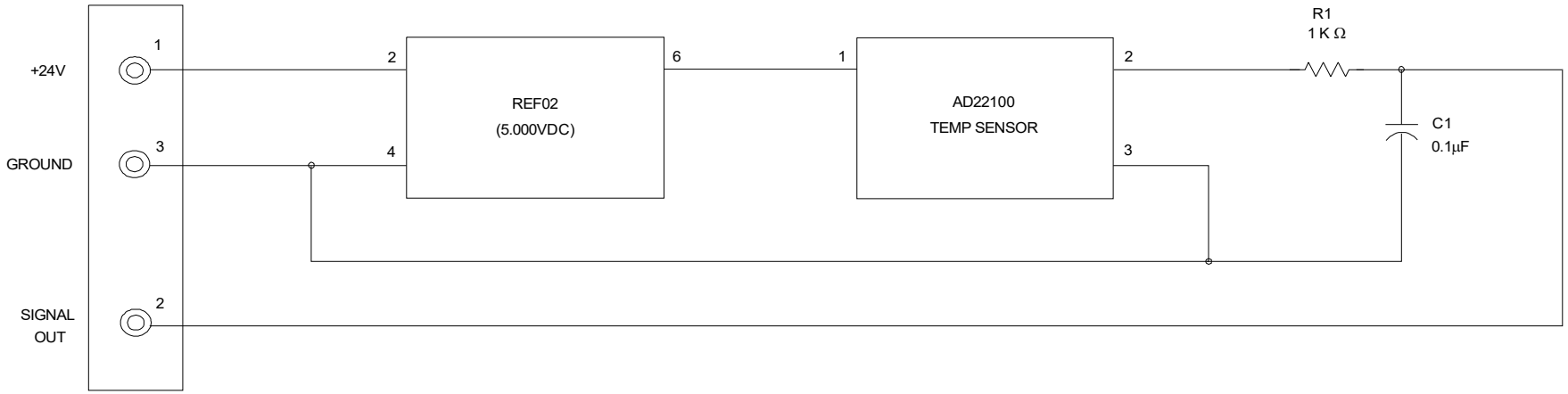
ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

DRAWING NAME

C-FRAME DRIVE SCHEMATIC

SIZE		REV
A	800.300	0
DRAWN BY: J.P.F. 12/27/2016		SHEET 1 OF 1

9-8-1



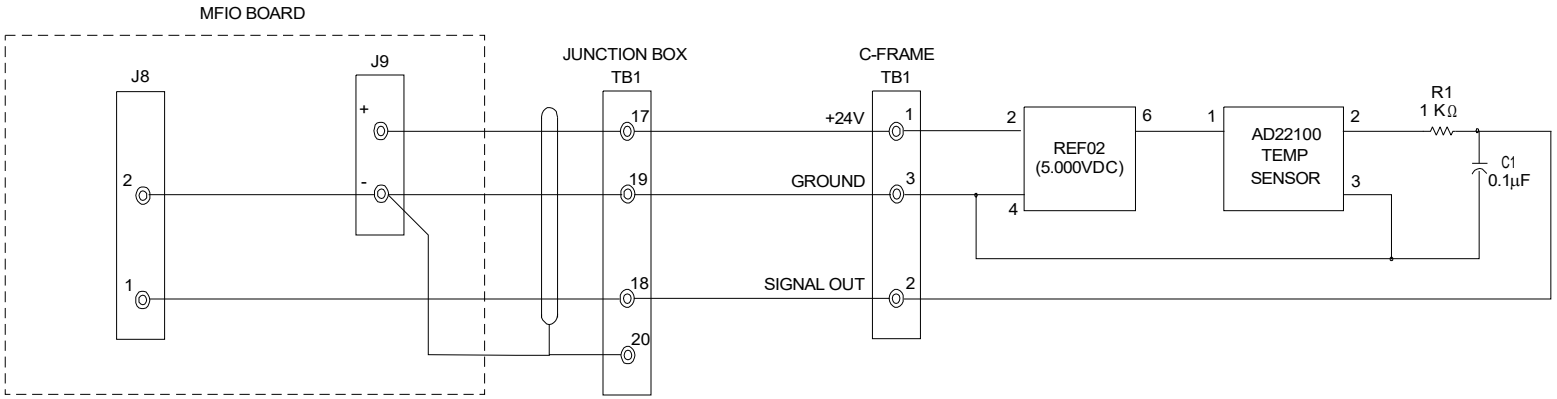
ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

DRAWING NAME

C-FRAME TEMPERATURE SENSOR SCHEMATIC

SIZE		REV
A	800.400	0
DRAWN BY: J.P.F. 9/19/2016		SHEET 1 OF 1

9-9-1



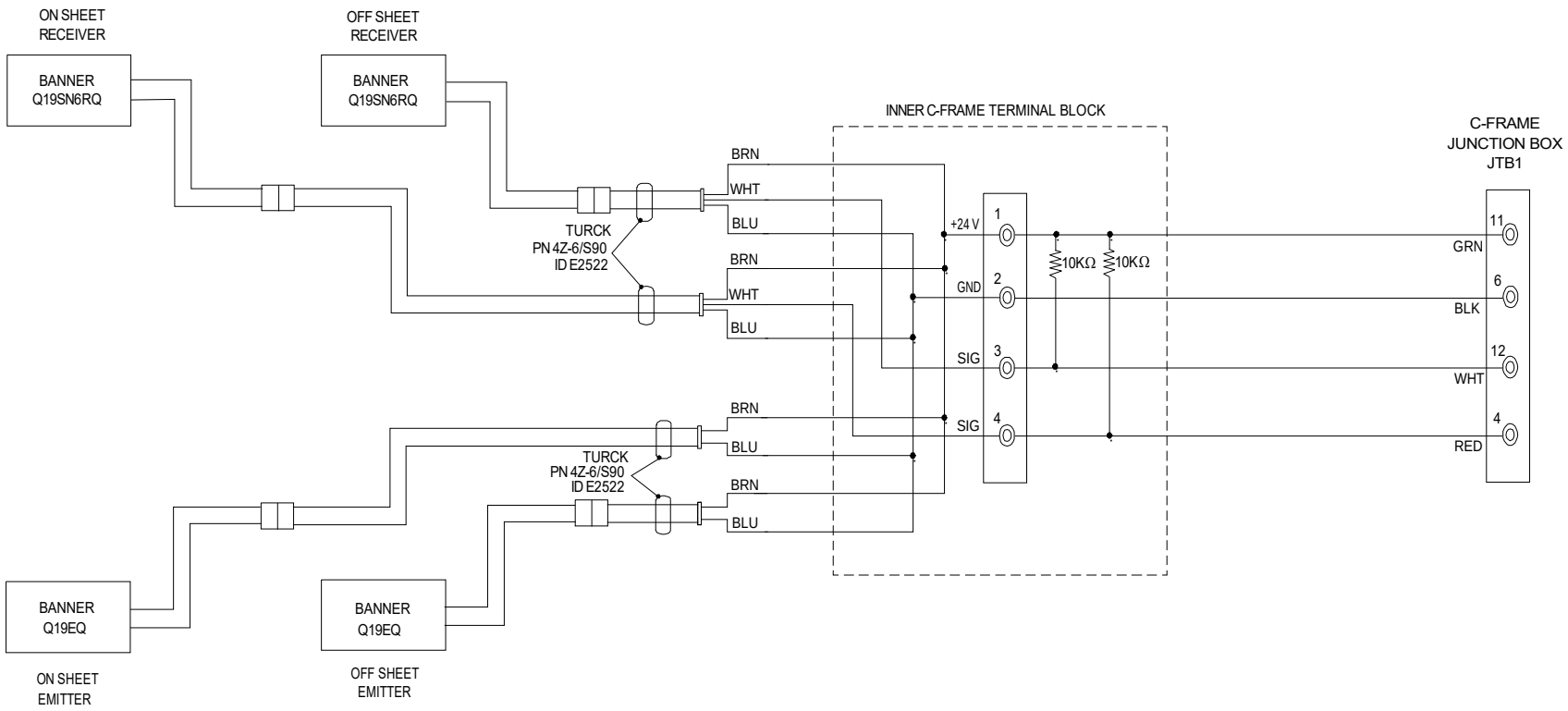
ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

DRAWING NAME

C-FRAME TEMPERATURE SENSOR INTERCONNECT

SIZE		REV
A	800.450	0
DRAWN BY: J.P.F. 12/27/2016		SHEET 1 OF 1

9-10-1



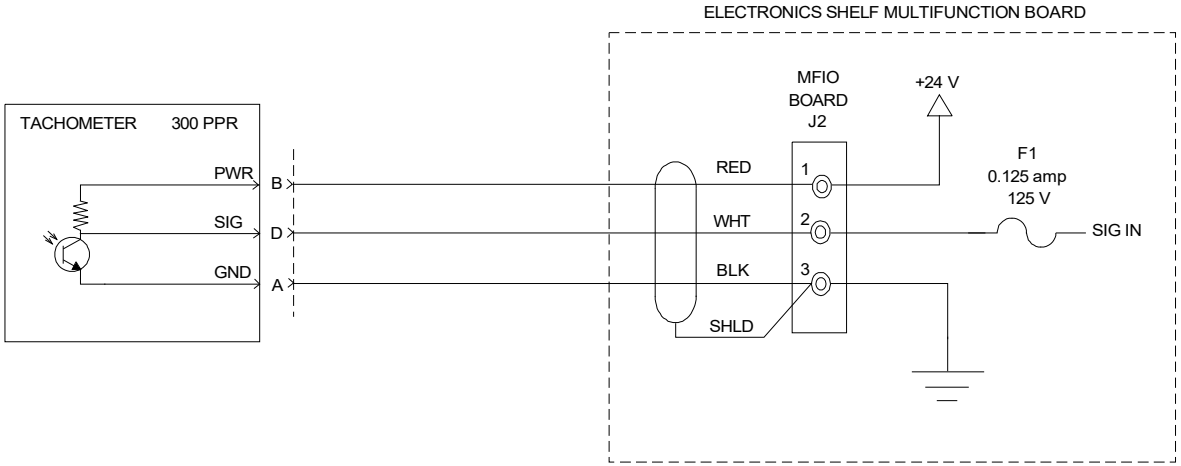
ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

DRAWING NAME

PHOTOCELL INTERCONNECT

SIZE		REV
A	800.600	0
DRAWN BY: J.P.F. 12/27/2016		SHEET 1 OF 1

9-11-1



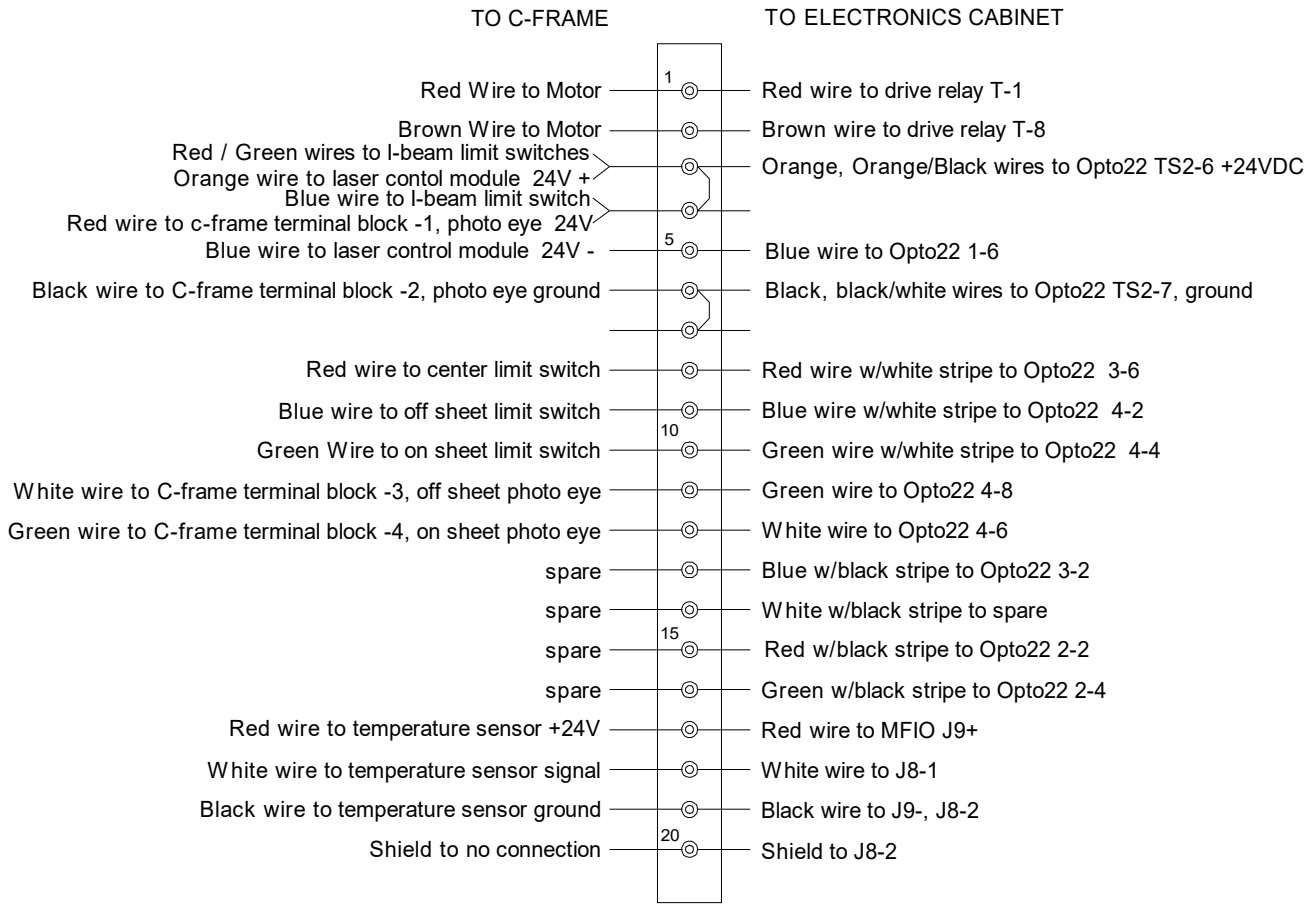
ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

DRAWING NAME

TACHOMETER INTERCONNECT

SIZE		REV
A	800.650	0
DRAWN BY: J.P.F. 9/9/2016		SHEET 1 OF 1

9-12-1



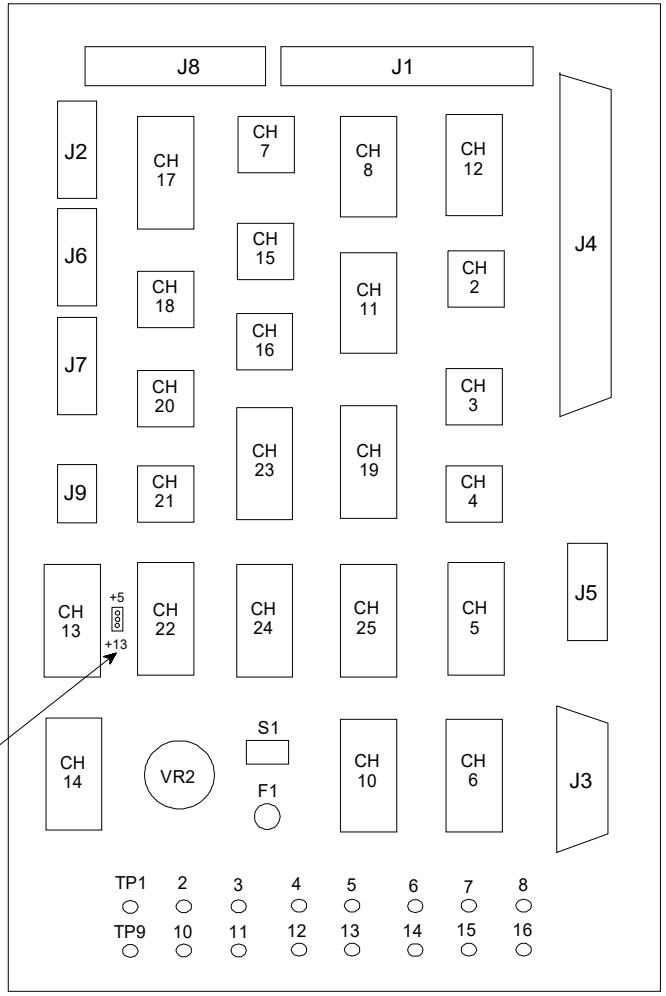
ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

DRAWING NAME

JUNCTION BOX TERMINAL STRIP WIRING

SIZE		REV
A	800.700	0
DRAWN BY: J.P.F. 02/15/2017		SHEET 1 OF 1

9-13-1



J1 Not Used
J2 Tachometer
J3 DC Power
J4 Analog Computer Board
J5 Analog Input
J6 Analog Output
J7 Digital Input
J8 Analog Input & Temperature
J9 Power Terminal +5 or +24

F1 Tachometer Input Fuse
S1 Test Switch
VR2 Test Voltage Adjust

CH2 IC INA128P
CH3 IC REF02AP
CH4 Not Used
CH5 Component Header #5
CH6 Not Used
CH7 Component Header #7
CH8 IC TL074ACN
CH10 Component Header #10
CH11 IC 74LS93N
CH12 IC TL074ACN
CH13 Component Header #13
CH14 Not Used
CH15 IC OPA177GP
CH16 IC OPA177GP
CH17 Component Header #17
CH18 IC 2630
CH19 IC NTE7406
CH20 IC INA128P
CH21 IC INA128P
CH22 Component Header #22
CH23 S2 DIP Switches
CH24 Component Header #24
CH25 S3 DIP Switches

TP1 Ground
TP2 +15 Volts
TP3 -15 Volts
TP4 +5 Volts
TP5 +24 Volts
TP6 Not Used
TP7 Signal 1
TP8 +5.000V Reference
TP9 Signal Out
TP10 Test Input
TP11 Tach Input
TP12 Tach Out
TP13 Not Used
TP14 Not Used
TP15 Analog Channel 1 Input
TP16 Analog Channel 2 Input

NOTE 1: REFER TO 800.820, 800.830, 800.840 FOR DIP SWITCH SETTINGS
NOTE 2: J9 JUMPER CONNECTS EITHER +5 OR +24 TO THE + TERMINAL OF J9
NOTE 3: J9 IS LABELED +13 NOT +24 ON THE CIRCUIT BOARD

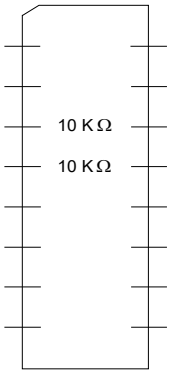
ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

DRAWING NAME

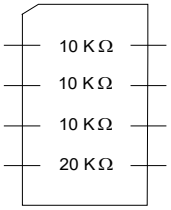
MFIO BOARD COMPONENT LAYOUT

SIZE		REV
A	800.800	0
DRAWN BY: J.P.F. 12/27/2016		SHEET 1 OF 2

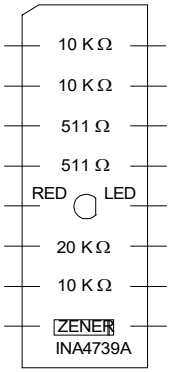
9-14-1



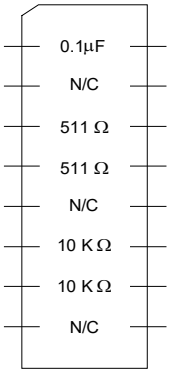
CH5



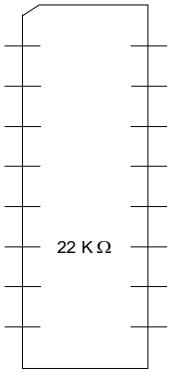
CH7



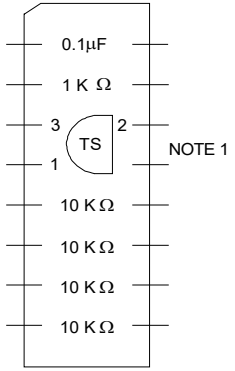
CH10



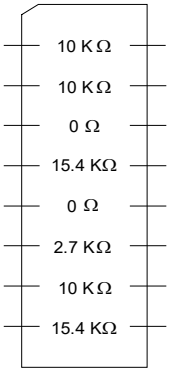
CH17



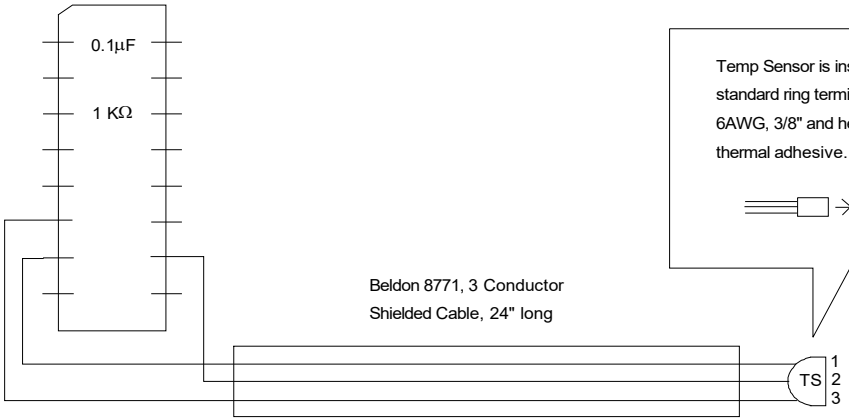
CH13



CH22



CH24



CH30
NOTE 2

NOTE 1: TEMPERATUR SENSOR AD22100TK

NOTE 2: COMPONENT HEADER 30 IS MOUNTED ON THE ACCESS PANEL LOCATED ON THE REAR COVER OF C-FRAME UPPER ARM

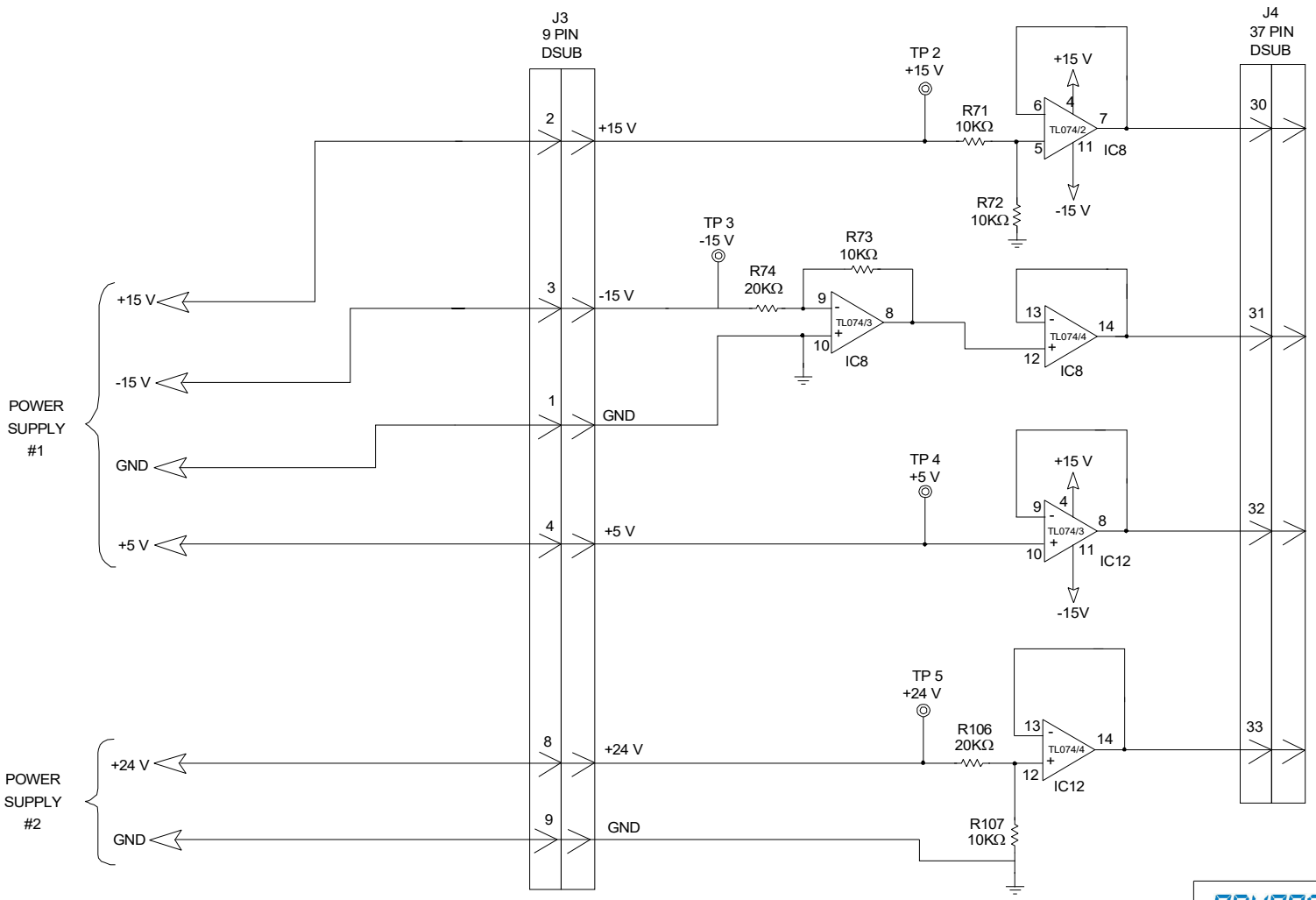
ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

DRAWING NAME

MFIO BOARD
COMPONENT HEADER LAYOUT

SIZE		REV
A	800.800	0
DRAWN BY: J.P.F. 12/27/2016		SHEET 2 OF 2

9-15-1



ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

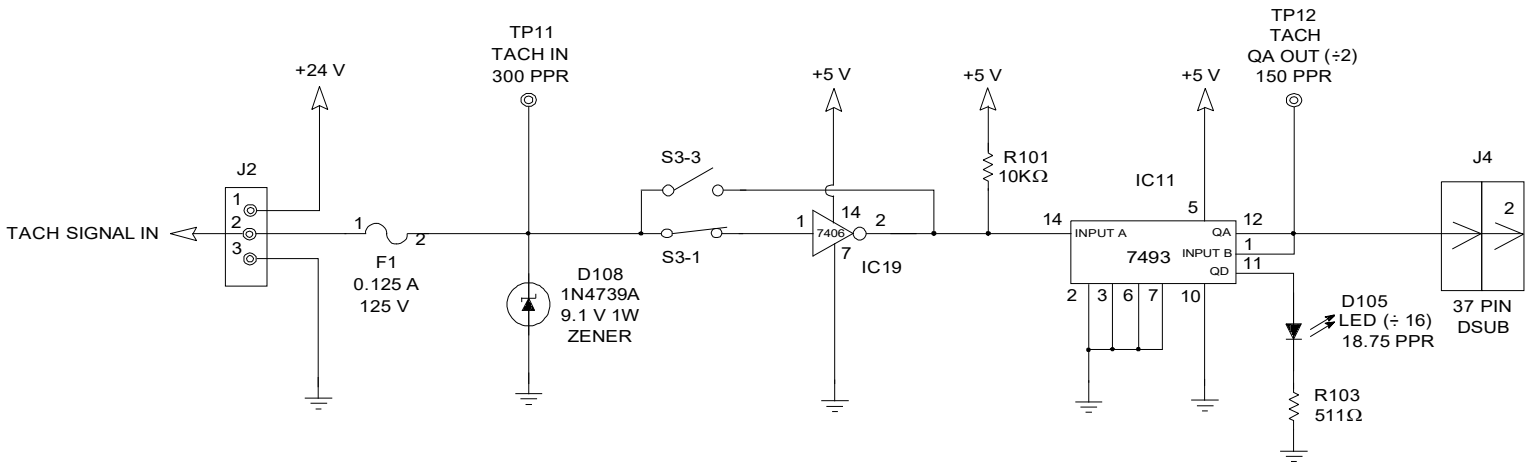
DRAWING NAME

MFIO BOARD
POWER SUPPLY WIRING

SIZE		REV
A	800.810	0
DRAWN BY: J.P.F. 5/25/2016		SHEET 1 OF 1

9-16-1

TACHOMETER INPUT CIRCUIT



(CH25)	S3-1	S3-3
NORMAL	ON	OFF
STAMCO	OFF	ON

ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

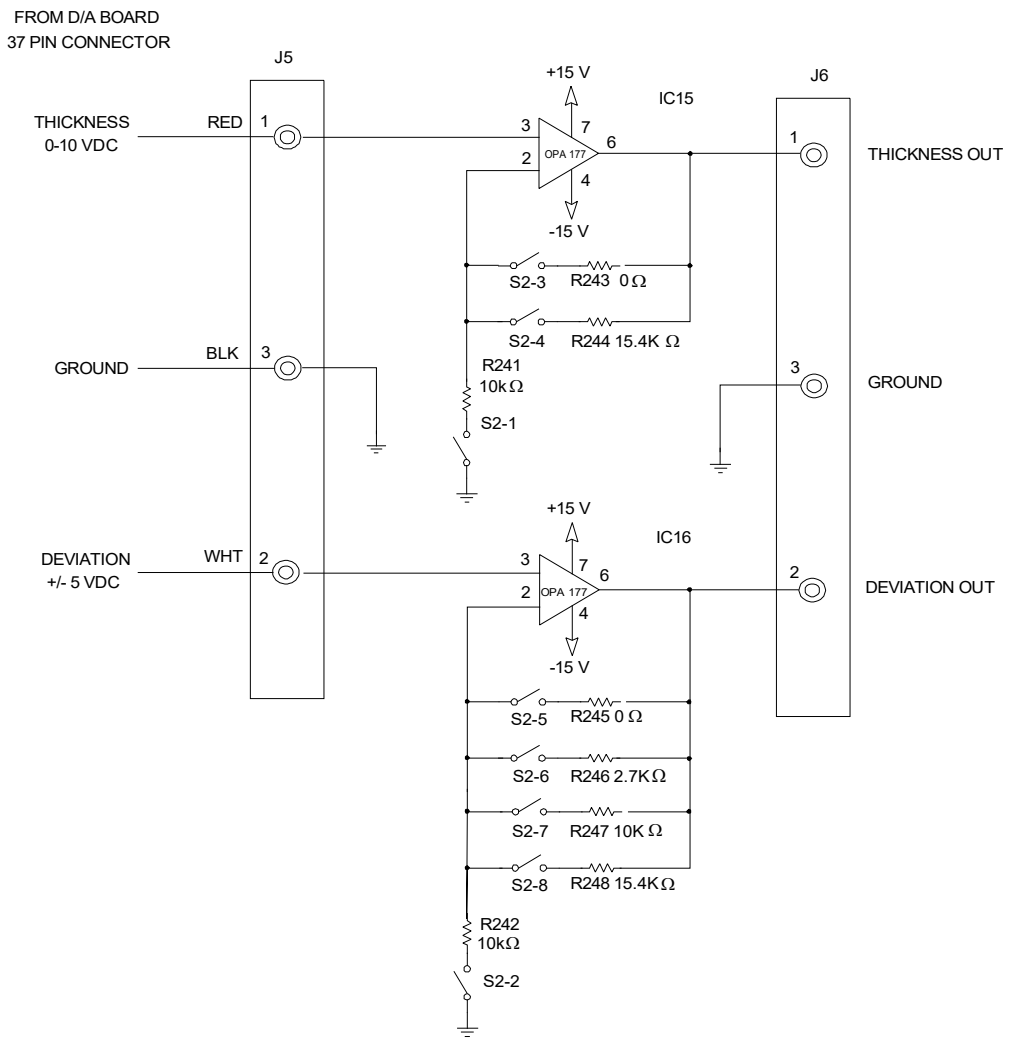
DRAWING NAME

MFIO BOARD TACHOMETER INPUT

SIZE		REV
A	800.820	0
DRAWN BY: J.P.F. 9/11/2016		SHEET 1 OF 1

9-17-1

BUFFERED ANALOG OUTPUTS



ANALOG THICKNESS CONFIGURATION CH23			THICKNESS RANGE	VOLTAGE (J6-1)	R241	R243/244
S2-1	S2-3	S2-4				
OFF	ON	OFF	0-1"	0-10.0 VDC	OPEN	0 Ω
OFF	ON	OFF	0-25.4 mm	0-10.0 VDC	OPEN	0 Ω

ANALOG DEVIATION CONFIGURATION CH23					PAR FILE	DEVIATION	VOLTAGE		R245/R246
S2-2	S2-5	S2-6	S2-7	S2-8	SETTINGS	RANGE	(J6-1)	R242	R247/R248
OFF	ON	OFF	OFF	OFF	10 mils/V	+/-50 mils	+/- 5 VDC	OPEN	0 Ω
ON	OFF	OFF	ON	OFF	10 mils/V	+/-50 mils	+/-10 VDC	10K Ω	10K Ω
ON	OFF	ON	OFF	OFF	10 mils/V	+/- 1 mm	+/- 5 VDC	10K Ω	2.7K Ω
ON	OFF	OFF	OFF	ON	10 mils/V	+/- 1 mm	+/-10 VDC	10K Ω	15.4K Ω
OFF	ON	OFF	OFF	OFF	2 mils/V	+/-10 mils	+/- 5 VDC	OPEN	0 Ω
ON	OFF	OFF	ON	OFF	2 mils/V	+/-10 mils	+/-10 VDC	10K Ω	10K Ω
ON	OFF	ON	OFF	OFF	2 mils/V	+/-0.2 mm	+/- 5 VDC	10K Ω	2.7K Ω
ON	OFF	OFF	OFF	ON	2 mils/V	+/-0.2 mm	+/-10 VDC	10K Ω	15.7K Ω
OFF	ON	OFF	OFF	OFF	3.937 mils/V	+/-19.658 mils	+/- 5 VDC	OPEN	0 Ω
ON	OFF	OFF	ON	OFF	3.937 mils/V	+/-19.685 mils	+/-10 VDC	10K Ω	10K Ω
OFF	ON	OFF	OFF	OFF	3.937 mils/V	+/-0.5 mm	+/- 5 VDC	OPEN	0 Ω
ON	OFF	OFF	ON	ON	3.937 mils/V	+/-0.5 mm	+/-10 VDC	10K Ω	10K Ω

R241 through R248 are chosen for the desired units and scalling, all resistors are 1%, 1/4W, and 100 PPM/Celsius degree, 0 Ω indicates an electrical short

ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

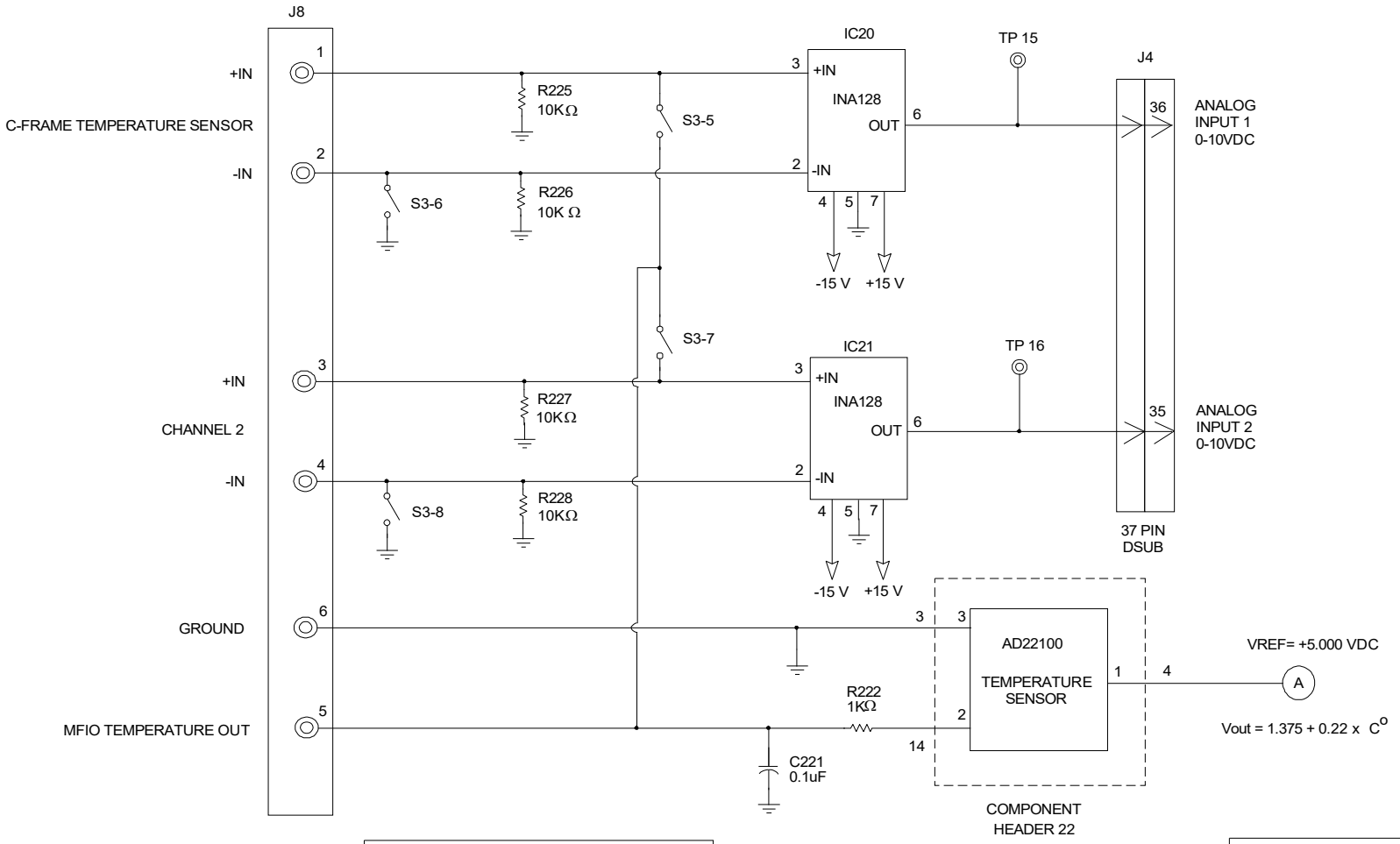
DRAWING NAME

MFIO BOARD
ANALOG OUTPUTS

SIZE		REV
A	800.830	0
DRAWN BY: J.P.F 6/7/2016		SHEET 1 OF 1

9-18-1

ANALOG and TEMPERATURE INPUTS



TEMPERATURE INPUT CONFIGURATION

CH25	S3-5	S3-6	S3-7	S3-8
NOT USED	OFF	OFF	OFF	OFF
ANALOG CH 1	ON	ON	OFF	OFF
ANALOG CH2	OFF	OFF	ON	ON
BOTH	ON	ON	ON	ON

ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

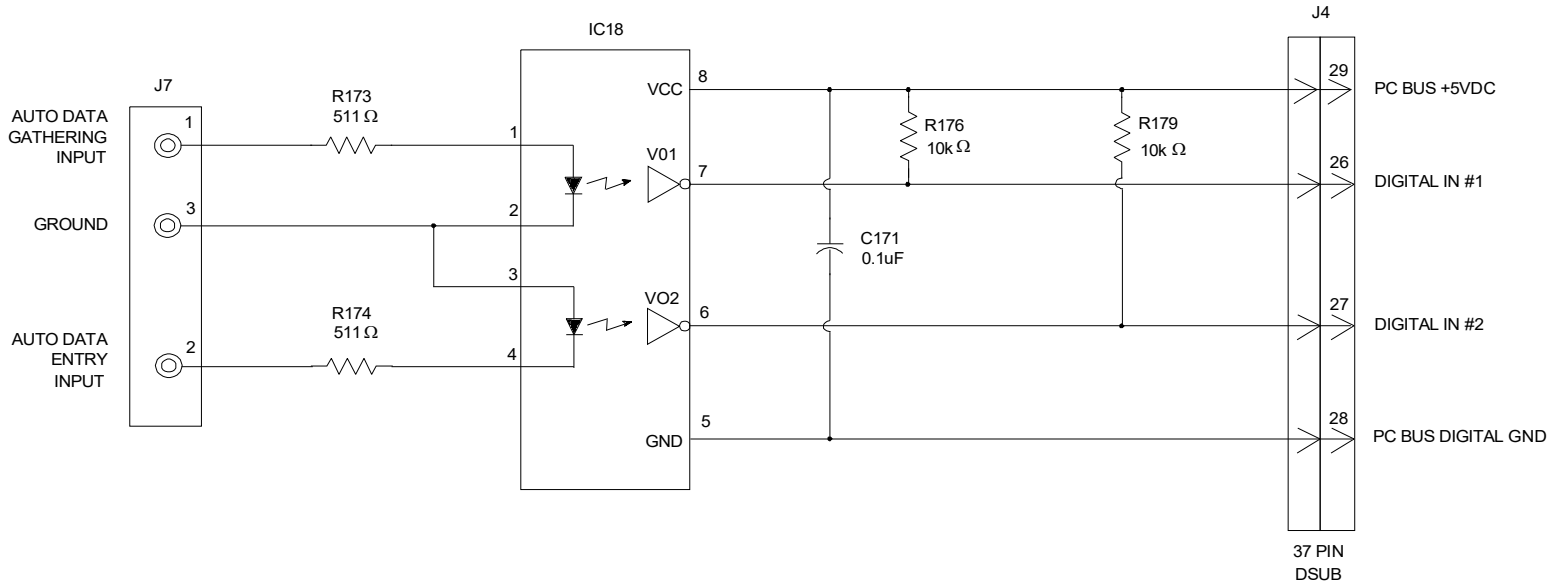
DRAWING NAME

MFIO BOARD ANALOG INPUTS

SIZE		REV
A	800.840	0
DRAWN BY: J.P.F. 6/7/2016		SHEET 1 OF 1

9-19-1

AUXILIARY DIGITAL INPUTS



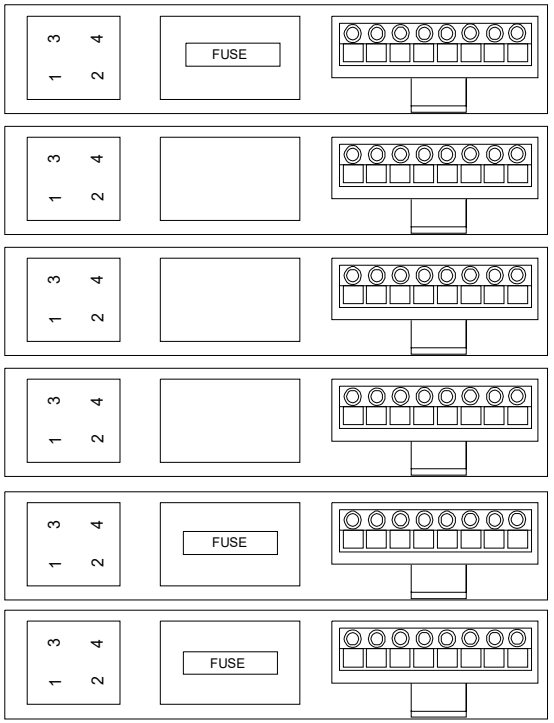
ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

DRAWING NAME

MFIO BOARD
AUXILIARY DIGITAL INPUTS

SIZE		REV
A	800.850	0
DRAWN BY: J.P.F. 6/7/2016		SHEET 1 OF 1

9-20-1



MODULE 5
AC OUTPUT
(BLACK TOP)

1 Measure On Lamp Command
2 Measure Off Lamp Command
3 Classifier High Lamp Command
4 Classifier Low Lamp Command

MODULE 4
DC INPUT
(WHITE TOP)

1 Off Sheet Limit Switch
2 On Sheet Limit Switch
3 Off Sheet Photo Eye
4 On Sheet Photo Eye

MODULE 3
DC INPUT
(WHITE TOP)

1 Not Used
2 Laser Power On
3 Center Limit Switch
4 C-frame in Manual Mode

MODULE 2
DC INPUT
(WHITE TOP)

1 Not Used
2 Not Used
3 Not Used
4 Mode Switch in Program

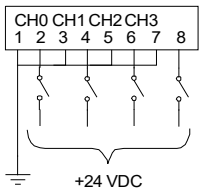
MODULE 1
DC OUTPUT
(RED TOP)

1 Not Used
2 Not Used
3 Laser On Output
4 Report Start

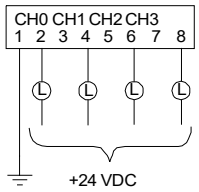
MODULE 0
DC OUTPUT
(RED TOP)

1 Power Relay Command
2 Direction Relay Command
3 Not Used
4 Not Used

OPTO-22
SNAP-IDC5
DC IN

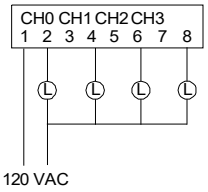


OPTO-22
SNAP-ODC5SNK
DC OUT



FUSE = 5X20mm 4 AMP FB

OPTO-22
SNAP-OAC5
AC OUT



FUSE = 5X20mm 4 AMP FB

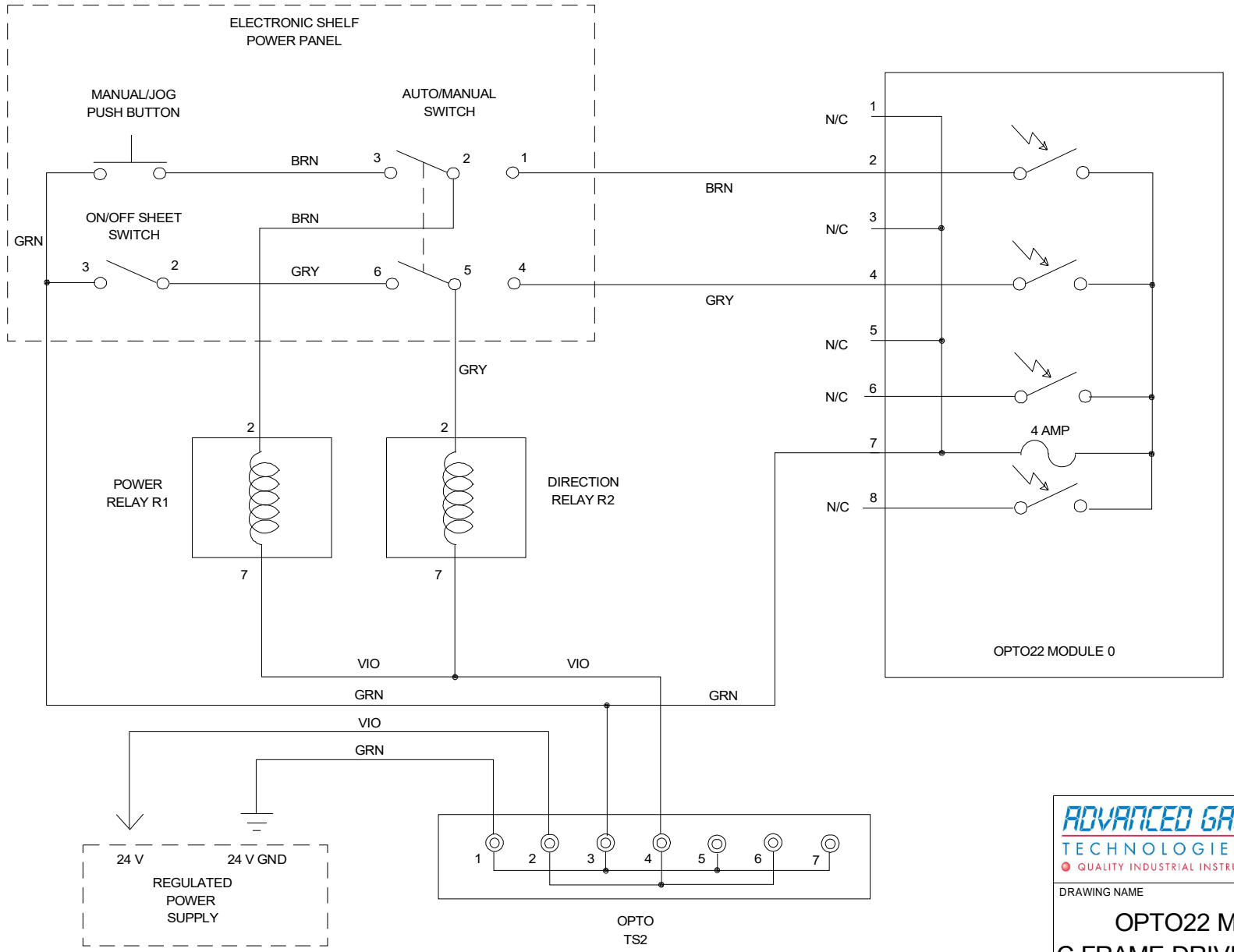
ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

DRAWING NAME

OPTO22 MODULE LAYOUT TOP VIEW

SIZE		REV
A	800.900	0
DRAWN BY: J.P.F. 9/19/2016		SHEET 1 OF 1

9-21-1



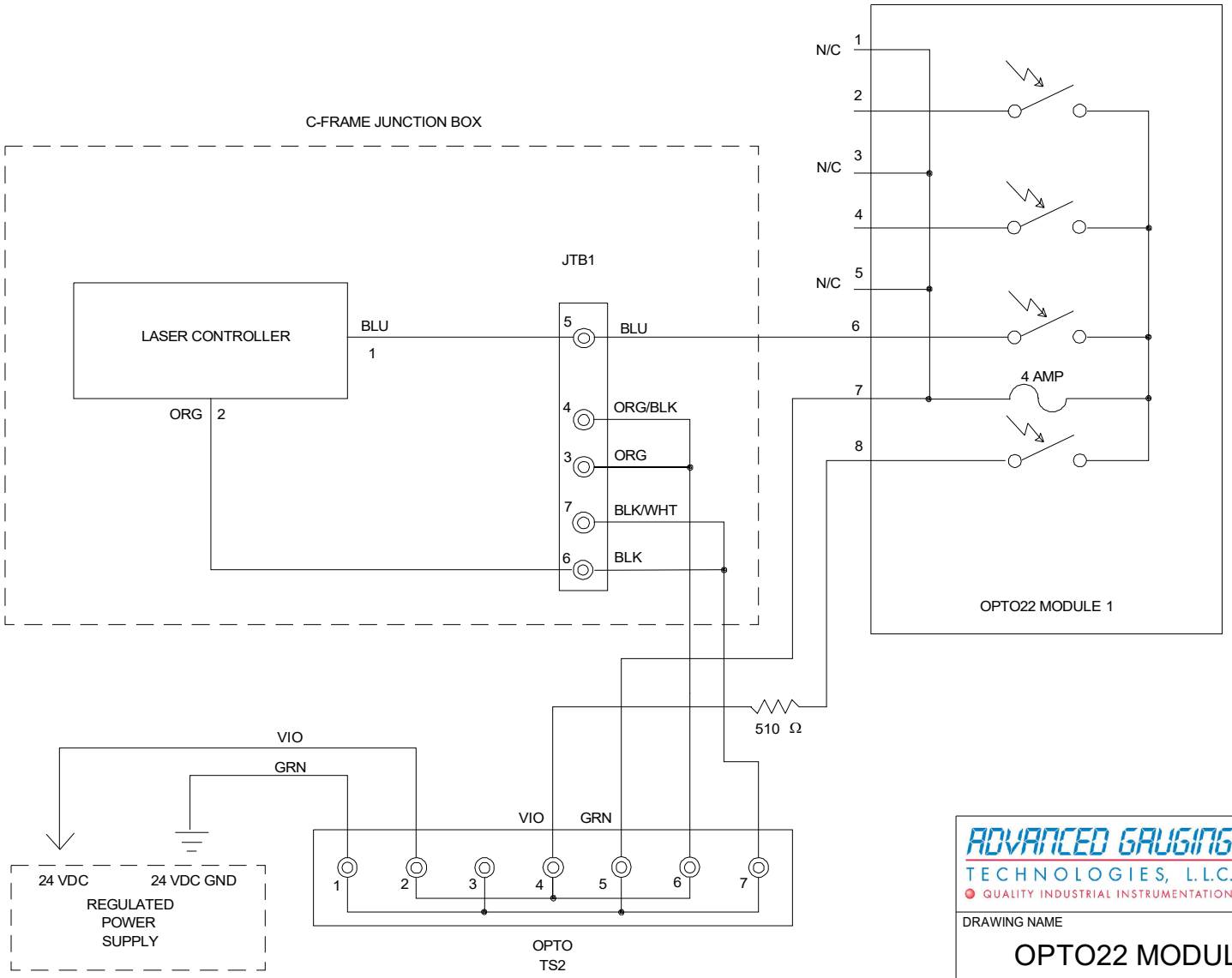
9-22-1

ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

DRAWING NAME

OPTO22 MODULE 0
C-FRAME DRIVE SCHEMATIC

SIZE		REV
A	800.910	0
DRAWN BY: J.P.F. 9/10/2016		SHEET 1 OF 1



ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

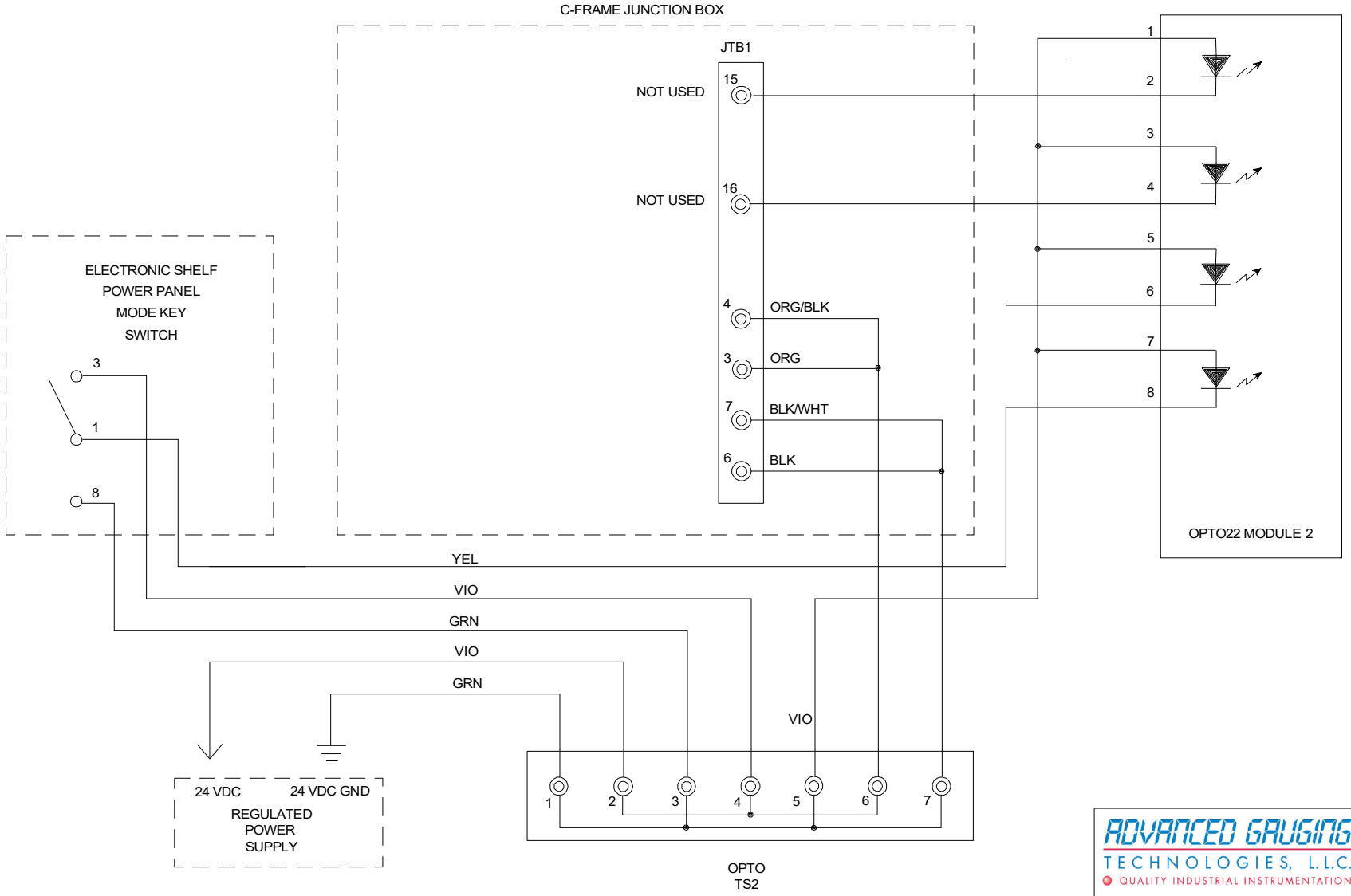
DRAWING NAME

OPTO22 MODULE 1 LASER POWER

SIZE		REV
A	800.920	0
DRAWN BY: J.P.F. 9/19/2016		SHEET 1 OF 1

9-23-1

CONFIDENTIAL



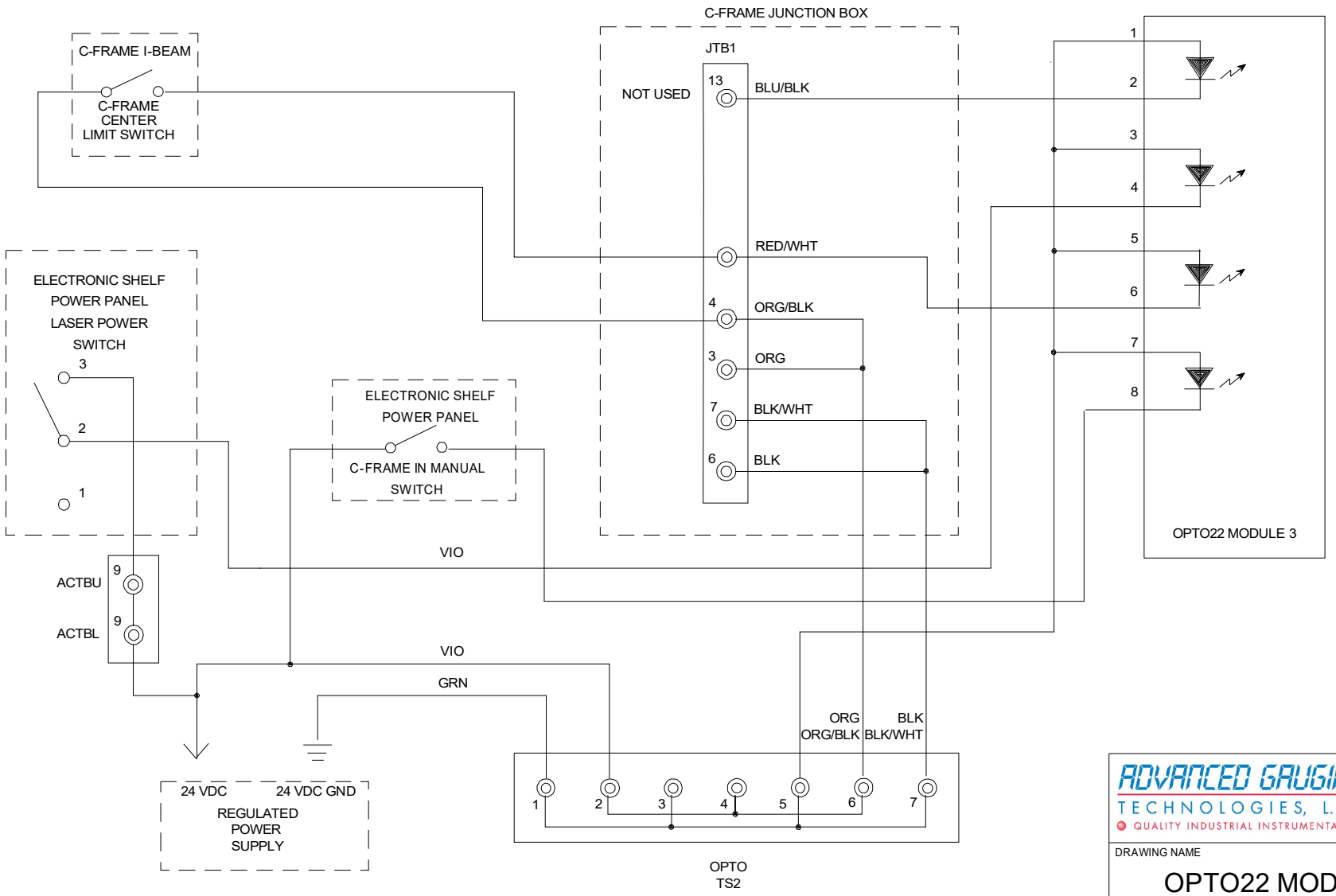
ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

DRAWING NAME

OPTO22 MODULE 2 MODE SWITCH

SIZE		REV
A	800.930	0
DRAWN BY: J.P.F. 9/19/2016		SHEET 1 OF 1

9-24-1



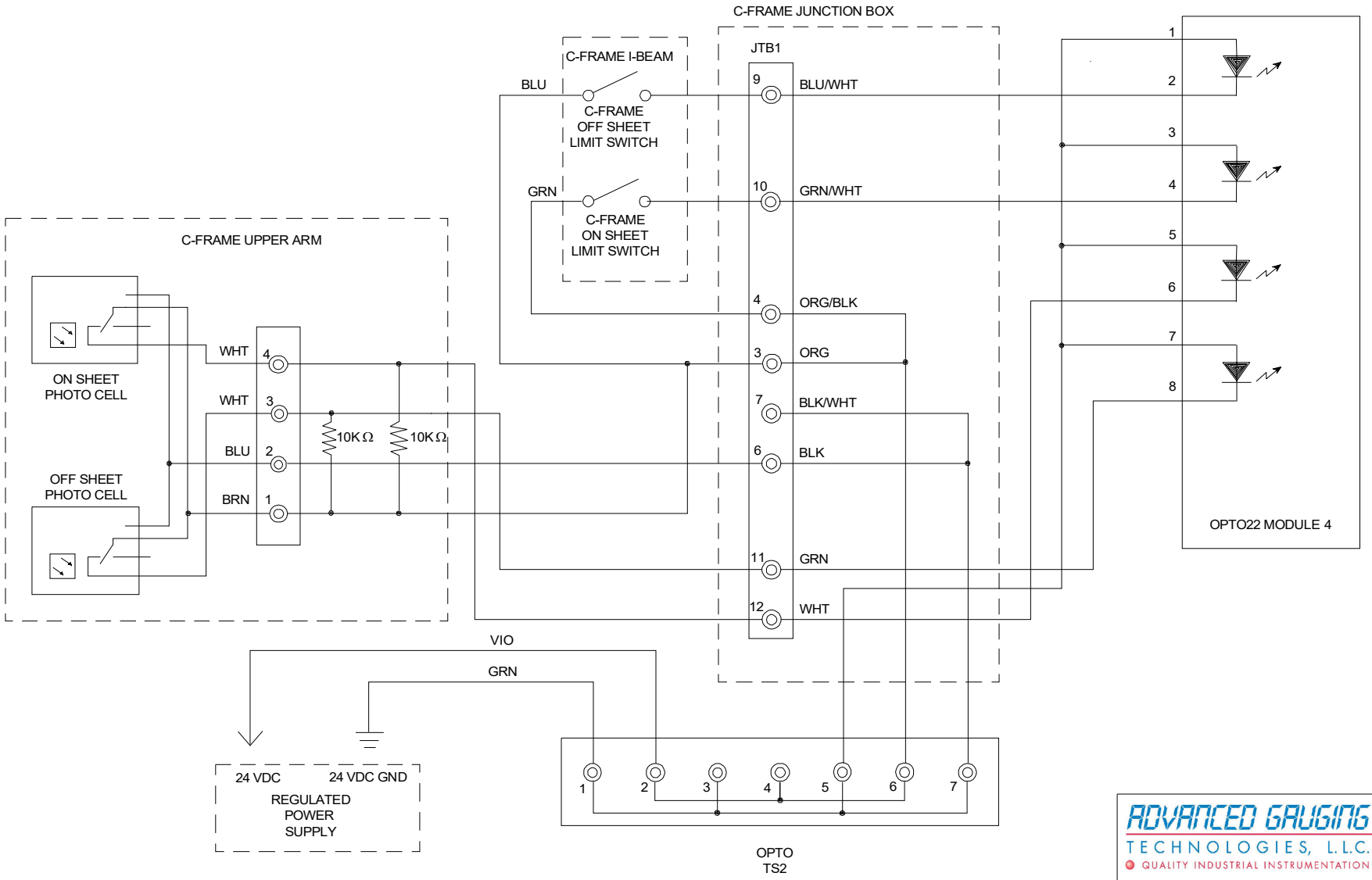
ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

DRAWING NAME

OPTO22 MODULE 3 LASER POWER SWITCH

SIZE		REV
A	800.940	0
DRAWN BY: J.P.F. 10/5/2016		SHEET 1 OF 1

9-25-1



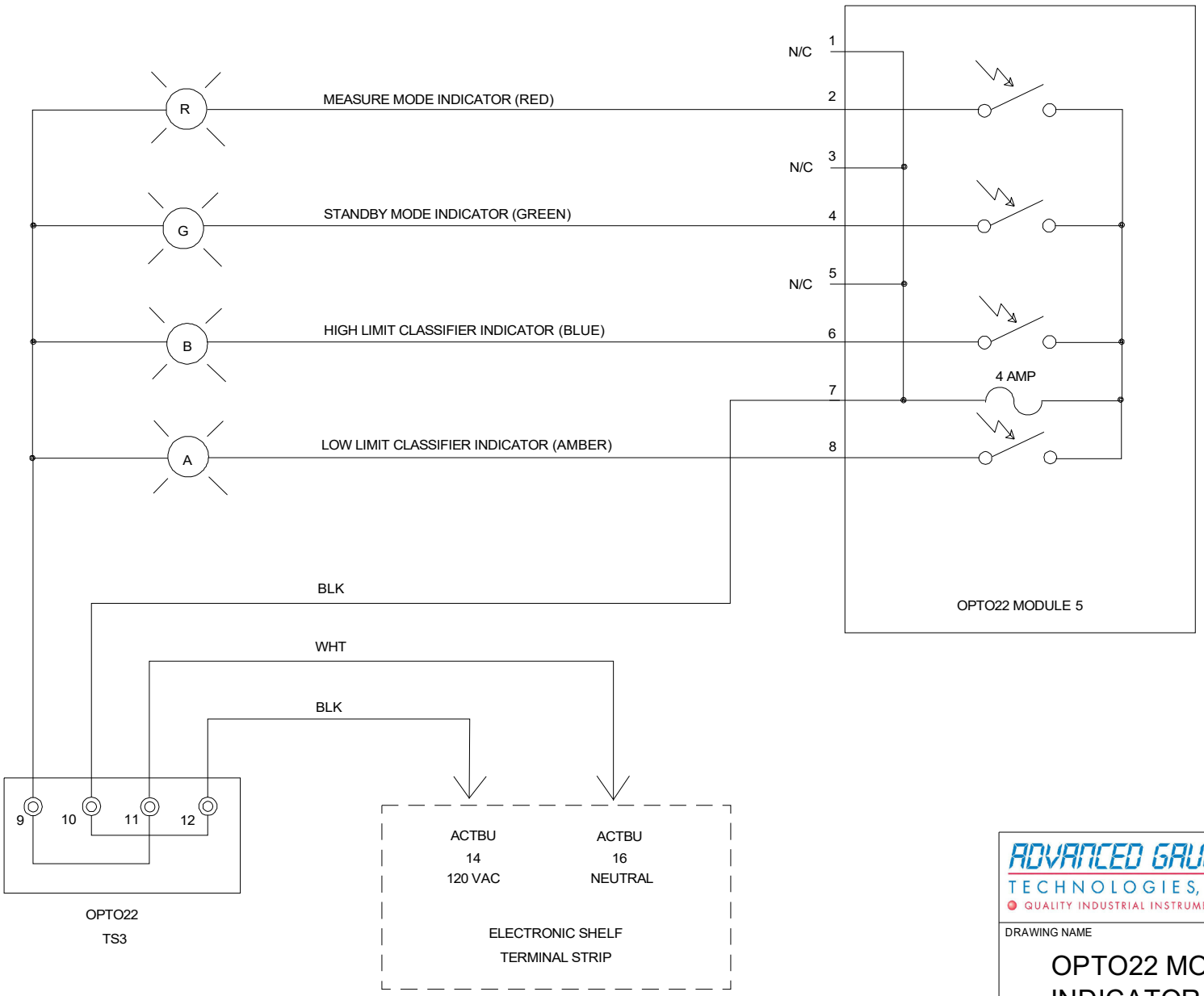
ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

DRAWING NAME

OPTO22 MODULE 4 PHOTO CELL / SWITCHES

SIZE		REV
A	800.950	0
DRAWN BY: J.P.F. 9/19/2016		SHEET 1 OF 1

9-26-1



ADVANCED GAUGING TECHNOLOGIES, L.L.C.
QUALITY INDUSTRIAL INSTRUMENTATION

DRAWING NAME

OPTO22 MODULE 5 INDICATOR LIGHTS

SIZE		REV
A	800.960	0
DRAWN BY: J.P.F. 9/19/2016		SHEET 1 OF 1

9-27-1

Auto Data Entry File

TRA – 2/17/2017

The AGT800 has a feature called Auto Data Entry. It has a digital input that, when supplied with a 5V momentary power signal to digital input #2, will cause the AGT800 software to read a text file containing the next coil information.

By default this file is called AGTNext2.txt and is located in the application directory. Alternatively, you can write the file anywhere you wish as long as the gauge computer has access to the file to be able to read it. The path can be set using the Path button on the System Setup Screen. At the end of this document is the template for the way the text file must be written.

The process would be to write the text file with the information you want imported into the AGT800 then send the momentary 5v signal for the gauge to access the file and process it. Then repeat for next coil.

ADE Values and Explanation

The table below this text section shows an ADE File with the values for all the parameters. Except as noted the values are the default values.

- Column one is the line number.
- Column two is the actual data in the ADE File.
- Column three shows the variable type.
- Column four shows whether the variable is input to the program or output from the program.
- Column five is a description of the variables and data.

ONLY COLUMN TWO ACTUALLY APPEARS IN THE ADE FILE. The other columns are included for this document. In this document the words "parameter" and "variable" are often used interchangeably.

The variable types are string, integer (2 byte, +/- 32,767), long (long integer, 4 byte, above +/- 32,767), and single (single precision floating point, decimal). String data is shown in quotation marks. Numeric data is shown without quotation marks. When you edit the ADE File and change a variable it is important to know if it is an integer, long integer or floating point variable. DON'T PUT A DECIMAL POINT IN AN INTEGER VARIABLE. This will result in an error "type mismatch" when the program tries to read the file. The decimal may be omitted from a floating point number. (e.g. -- 43.0 or 43 are both correct.) Floating point numbers may also be written in exponential format (e.g. 1.5128E-02 = .015128, 1.4375E03 = 1437.5).

Unless otherwise noted all items with dimensions are given in English units. Thickness is usually given in mils (1 mil = .001”).

I/O types:

c = comment string
o = output variable
I = input variable
b = blank line

NO COMMAS OR TABS ARE ALLOWED IN COMMENT LINES

Blank lines have no description. However, these blank lines are essential to the program; the routines that read the ADE File expect blank lines in the sequence shown.

Var Type:

Strings are lines of alphanumeric data with no embedded commas or tabs.
Integers may assume values to +/- 32,767.
Longs may assume values to +/- (2^31) - 1 (2,147,483,647).
Singles are numbers with a decimal point which may be omitted. (7 = 7.0)

Line #	**Auto Data Entry File Contents** (this column contains the actual data & format of an ADE file.)	**Var type**	**I/O**	**Description**
001	AGT Next Coil File	1 string	o	File identifier string
002	2.2m	1 string	i	The version number of the ADE File, used in the AGT800 program to determine which subroutine to use to read the ADE File.
003	Blank Line			
003	Comment Line	1 string	I	Text that appears here will be appended to the comments section of the coil.
004	WO435	1 string	I	Text that appears here will be used as the work order number.
005	CN876	1 string	I	Text that appears here will be used as the coil number.
006	CL444	1 string	I	Text that appears here will be used as the customer number.
007	Prime	1 string	I	Text that appears here will be used as the coil information.
008	3.33	1 single	I	This is the width of the material
009	ft	1 string	I	Text that appears here identifies the units of the above width measurement. These units can be: ft = feet in = inches mm = millimeters cm = centimeters m = meters
010	PZ1231	1 string	I	Text that appears here will be used as the supplier.
011	.0315	1 single	I	This is the high limit thickness.
012	.0305	1 single	I	This is the target thickness.
013	.0285	1 single	I	This is the low limit thickness.
014	In	1 string	I	Text that appears here identifies the units of the above thickness measurements. These units can be: in = inches mils = mils microns = microns mm = millimeters
015	2	1 integer	I	This number identifies which product in the product list is to be used.

Parameter File (AGTPar2.txt)

TRA – 2/17/2017

The Parameter File (Par File) is a database of settings and information used by the AGT800 program. It includes configuration information (e.g. whether a USB drive is present, a network drive, a Coil Mapping terminal, etc.), calibration information, and settings such as the time constant, nomenclature, etc. The Par File is called "AGTPar2.txt". The current version is 4.00.52 (dated 3/3/2016). The current AGT800 program is version 4.00.55 (dated 6/10/2016).

Versions

The Par File has changed over time as additional features have been added to the AGT800 program although the AGT800 program remains fully backwards compatible with all previous versions of AGT800 software. Any version of the AGT800 program will read Par Files from earlier versions of the program. The Par File format was not changed with every version of the AGT800 program. For example, AGT800 versions 4.00.52 through 4.00.55 all used Par File version 4.00.52.

The AGT800 program is not forward compatible. Version 4.00.51 of the AGT800 program, for example, will not read a type 4.00.52 Par File correctly. The 4.00.52 Par File contains new information and formatting that the AGT800 version 4.00.51 is not programmed to read.

The AGT800 evolved from the AGT400 Isotope Thickness Gauge and some parameters used only in the AGT400 version of software remain. Lines that require special attention or are not used in the AGT800 version of software are highlighted in RED.

Mechanics

When the AGT800 program starts, it reads the Par File from the application directory where the AGT800 program resides and immediately saves a copy to the directory called Parfiles within the application directory. The saved copy is called AGTPar2(yymmdd@hhmm).txt. As an example, a Par File saved on June 14, 2016 at 4:22 PM would be saved as the file AGTPar2(160614@1622).txt. These saved copies provide a useful history of changes in the Par File, and provide an additional level of backup if the working Par File becomes corrupt or lost.

The Par File itself is written to the application directory with its normal name "AGTPar2.txt" whenever the user exits the AGT800 program. It is also written whenever the user leaves the Product Menu (but not during data gathering), the Defect Menu (but not during data gathering), the Diagnostic Screen, the System Setup Screen, the Report Setup Screen, and the Nomenclature Screen. "Data gathering" means accumulating thickness, length, defect, and other data after the Report Control button on the Main Screen has been pushed, and before the end of the coil.

Recovery

When the program starts, it sets all the variables that are found in the Par File to default values using a subroutine in the program called "Altpar." Next, it looks for and reads the Par File. If the Par File is missing, or there are errors in the Par File type, an error message is sent to the Main Screen. The program will run correctly, but it will have the default values, not the current values (of the calibration parameters for example). All the data will have to be entered again or restored. There are two ways to restore the data.

1) This method can be used without leaving the program (an advantage), but it does not restore all the data (a disadvantage). When an external calibration is done the program writes a backup of the Par File to the application directory. This Par File is called “AGTPar2X.txt”. If the current Par File is not found, the backup Par File can be restored by using the “Restore Par” button on the System Setup Screen. This restores most, but not all, of the data. Data saved in the Par File between the last external calibration and the current date must be re-entered.

2) This method requires leaving the program and using Windows Explorer to restore the Par File (a disadvantage) but it restores the most recent Par File data from the previous time the user exited the program.

To use method 2, first exit the program. Start Windows Explorer and open the directory Parfiles located in the application directory. Look for the most recent Par File with a file name similar to "AGTPar2(160619@1400).txt". The numbers in parentheses are the date of the Par File, yymmdd (in this example June 19, 2016) and the time hhmm (2:00 PM). Copy this file to the AGT800 application directory. Now delete the current Par File "AGTPar2.txt" and rename the copied Par File to "AGTPar2.txt". Then restart the program.

If the format of the Par File has been corrupted the data will be wrong and the program will not run correctly. In this case you must exit the program and restore the Par File manually as in case 2 just above.

Editing

The Par File can also be edited off line as a text file by a field engineer. Using Windows Explorer double click on AGTPar2.txt. Make your changes and save them when you leave the editing program. DO NOT CHANGE THE STRUCTURE OR FORMAT of the Par File when editing it as a text file. Blank lines must be left blank or the AGT800 program will not read the file correctly. CHANGE ONLY NUMBERS AND TEXT, AND MAKE SURE NOT TO INCLUDE ANY ADDITIONAL COMMAS, TABS OR LINE FEEDS. Commas, tabs, and line feeds are used as "end of field" identifiers when the AGT800 program reads the Par File. Adding any of these characters will change the

structure of the Par File and cause the AGT800 program to misread the file. If you need to use separators in comments use the following characters: / - = : [ ] ( )

Many of the Par File data items are set directly by users of the program. These include the items on the Product Menu, the Defect Menu, the System Setup Screen, the Report Setup Screen, the Nomenclature Screen, and the Special Functions Screen. Some information is set indirectly; they are values measured by the program or calculated by the program. Some information, such as the system serial number, is written out in the Par File for diagnostic purposes while other information is set manually in the Par File itself.

Par File Values and Explanation

The table below this text section shows a Parameter File with the values for all the parameters. Except as noted the values are the default values.

- Column one is the line number.
- Column two is the actual data in the Par File.
- Column three shows the variable type.
- Column four shows whether the variable is input to the program or output from the program.
- Column five is a description of the variables and data.

ONLY COLUMN TWO ACTUALLY APPEARS IN THE PAR FILE. The other columns are included for this document. THE ACTUAL NUMBERS OF LINES IN A PARAMETER FILE MAY VARY because the number of products, defects, calibration samples, etc. may vary. WHEN LOCATING AN ITEM IN THE PAR FILE, refer to the section headings and comment lines. In this document the words "parameter" and "variable" are often used interchangeably.

Large numbers of comments are included within the Par File to help understand the purpose of various data items. Comment lines that begin major data sections start with "***" and are called "headings". Comment lines for individual data items or groups of related data items begin with ">". These heading and comment lines are string variables, but they do not begin and end with quotation marks. Items that begin and end with quotations marks are string variables that are parameters in the program.

For example: >USB Drive Path is the comment line that tells you what the data parameter on the next line is, while "D:\" is the actual data, the USB drive path.

IN MOST CASES THE COMMENT IN THE PAR FILE ITSELF EXPLAINS THE PURPOSE OF A VARIABLE. THESE COMMENTS IN THE PAR FILE HAVE NOT BEEN DUPLICATED IN THE COMMENT COLUMN.

The variable types are string, integer (2 byte, +/- 32,767), long (long integer, 4 byte, above +/- 32,767), and single (single precision floating point, decimal). String data is

shown in quotation marks. Numeric data is shown without quotation marks. When you edit the Par File and change a variable it is important to know if it is an integer, long integer or floating point variable. DON'T PUT A DECIMAL POINT IN AN INTEGER VARIABLE. This will result in an error "type mismatch" when the program tries to read the file. The decimal may be omitted from a floating point number. (e.g. -- 43.0 or 43 are both correct.) Floating point numbers may also be written in exponential format (e.g. 1.5128E-02 = .015128, 1.4375E03 = 1437.5).

Where more than one variable appears on a line the variables are separated by commas. Lines may include any mixture of string, integer, or floating point variables. There is no comma at the end of a line. The descriptions of the variables show where in the program the variable is set. Most of the entries in the first part of the file are set directly in the Par File, and not in the AGT800 program. The first part of the Par File has the heading:

*** Parameters primarily set in this file (all in English Units)
> ---------- (thicknesses in mils = .001 inch)

Most (but not all) of the entries in the second part of the file are set in the AGT800 program. The second part of the Par File has the heading:

*** Parameters primarily set in the program (all in English Units)
> ---------- (thicknesses in mils = .001 inch)

See the variable descriptions for more information.

Unless otherwise noted all items with dimensions are given in English units. Thickness is usually given in mils (1 mil = .001"). Variable names have been made as understandable as possible. However, some shorthand has still been used. For example, "min" and "max" are sometimes used for minimum and maximum.

The "second language" of the AGT800 program at present is Spanish. Other languages may be added at some point in the future.

I/O types:

c = comment string
o = output variable
I = input variable
b = blank line

NO COMMAS OR TABS ARE ALLOWED IN COMMENT LINES

Blank lines have no description. However, these blank lines are essential to the program; the routines that read the Par File expect blank lines in the sequence shown.

Var Type:

Strings are lines of alphanumeric data with no embedded commas or tabs.
Integers may assume values to +/- 32,767.
Longs may assume values to +/- (2^31) - 1 (2,147,483,647).
Singles are numbers with a decimal point which may be omitted. (7 = 7.0)

The AGT800 program stores a blank string as "" within the Par File. THESE BLANK STRINGS MUST BE PRESENT FOR THE AGT800 PROGRAM TO READ THE PAR FILE CORRECTLY!! IF THEY ARE NOT THERE THE RESULTS WILL BE UNPREDICTABLE AND ALMOST CERTAINLY INCORRECT. For example, on line 518, the Par File shows three blank string variables reserved for future use. The line shows three blank (or "null") strings, "", "", "".

Most of the variables shown in column 2 of this table are the default settings. In some cases more typical data has been shown. In particular, the default list of defects are shorter than shown in the table below.

Line #	Parameter File Contents (this column contains the actual data & format of a Parfile)	Var type	I/O	Description
001	*** AGT800 Parameter File, "03-14-2016","15:38:29"	3 strings	h,o,o	Heading: includes the date & time the file was written to disk
002	"4.00.52"	1 string	o	The version number of the Par File, used in the AGT800 program to determine which subroutine to use to read the Par File, & how to set default values for new variables introduced in this Par File.
003	"AGT800 v4.00.54 RD800"	1 string	o	The version number of the AGT800 program & the system serial number.
004			b	
005	*** Parameters primarily set in this file (all in English Units)	1 string	h	This section describes variables usually set within the Par File, not the program The "native" language of this Par File is English
006	> ---------- (thicknesses in mils = .001 inch)	1 string	c	The "native" measuring units in the program are all in English units. If the user selects Metric units to be displayed on the screens and reports all conversions are done in the program.
007			b	
008	>Program Status [0=Isotope Online | 1=Isotope Demo | 2=Offline | 3=Laser Online | 4=Laser Demo]	1 string	c	Comment describing the effects of the Program Status variable
009	3	1 integer	I	Laser Online mode is the normal way of operating the program. It accesses the I/O boards to get the input signals that are processed into thickness data, and generates output signals that are used to control the shutters, frame, lamps, etc. If there are no I/O boards the program will generate error messages when it operates. The demo mode and offline mode perform all the functions of the online mode except that it simulates all input signals, and does not try to produce output signals. At start-up demo and offline modes do not automatically produce a start-up report. Demo mode looks exactly like the online mode, except that on the Screen Menu there is an option button that can call up the Demo Data Screen. To access functions usually done by maintenance personnel or field engineers (e.g. exiting the AGT800 program) the "Maint" button on the Demo Data Screen should be set to "1". Offline mode contains an expanded Data Recall Screen, and automatically opens with the Maint button set to "1"
010			b	
011	>Main Program Loop Cycle Timing ~10msec (7 to 13 msec)	1 string	c	
012	>See the file 'DD2.txt' for timing details	1 string	c	DD2.txt is written out by the program each time it starts. DD2.txt shows the timing for the first 1000 cycles through the program.
013	>Average Cycle Time (msec)	1 string	c	Program cycle time
014	9.36	1 single	o	Program cycle time, measured & written by the program. This value should be about 10 msec. The minimum allowed by the program is 8 msec. Cycle times longer than 15 msec may indicate that the operating system is performing background functions that may interfere with the operation of the AGT800.
015			b	
016	>Zip/USB Path	1 string	c	
017	"D:\"	1 string	I	Zip or USB drive path.
018			b	
019	>AutoBackup to ZIP/USB frequency	1 string	c	

020	>[0=disabled 1=by shift 2=daily 3=weekly 4=monthly]	1 string	c	These lines control the automatic backup to the Zip/USB drive.
021	1	1 integer	I	
022	>AutoBackup hour [0 to 23]	1 string	c	
023	21	1 integer	I	
024	>AutoBackup day [1 to 7 if weekly or 1 to 28 if monthly]	1 string	c	
025	3	1 integer	I	In order to allow this function to operate in all months we only permit backup on days 1 to 28. No backup is permitted on the 29th, 30th, or 31st day of the month.
026			b	
027	>Set Move to ZIP/USB Button Visible	1 string	c	
028	>[0=invisible 1=visible]	1 string	c	
029	0	1 integer	I	If this variable is set to "1" a "Move to Zip" button appears on the Data Recall Screen. This button allows a manual backup to the Zip drive, copying all the files from the Month directory selected to the Zip drive.
030			b	
031	>Variables for the I/O Board configuration	1 string	c	
032	>These values MUST agree with the I/O Board cb.cfg file	1 string	c	
033	>A/D In : AuxDig In : AuxDig Out : Counter In : Dig In : Dig Out : D/A out	1 string	c	
034	0,0,0,0,0,0,0	7 integers	I	These variables show on which boards the various I/O functions are located; they must agree with the way the I/O boards have been installed with the Measurement Computing (ComputerBoards) software.
035			b	
036	>Local printer check [1=enabled 0=disabled]	1 string	c	
037	0	1 integer	I	This function has not been used in AGT800 versions to 4.00.55, but has been included for possible later use.
038	>Printer Port [HEX string]	1 string	c	
039	"&H378"	1 string	I	The printer port (given as a hex string).
040			b	
041	>Modem Present or Not [1=present 0=not present]	1 string	c	
042	0	1 integer	I	This function has not been used in AGT800 versions to 4.00.55, but has been included for possible later use.
043			b	
044	>Network Present or Not [1=present 0=not present] + Path	1 string	c	
045	0,"F:\"	1 integer 1 string	I	In addition to writing each coil report or shift report to the C: drive of the system computer, the program checks to see if a network is present. If it is the reports are also written to the network. The "network" drive may also be the Zip/USB drive built into the system. The program checks to see if the network drive is the same as the Zip/USB drive.
046			b	
047	>Secondary Coil Report Output format [0=not present] + Path	1 string	c	
048	<Format Definition>	1 string	c	A comment here will identify several possible secondary coil report formats In AGT800 versions to 4.00.55 there is only a single format.
049	0,"F:\"	1 integer 1 string	I	0 = no secondary report, 1 = a type 1 secondary report. The type 1 secondary report creates a flat-file text output with a header line & a line for each data point (thickness, length position in ft, cross sheet width position in inches, & the zone/defect status word).
050			b	

051	>Coil Report PDF Options <NameStyle> <Manual Enable> <Auto Enable>	1 string	c	The PDF naming style can use either the AGT default naming convention or use the coil number as the file name. If set to 1, Manual Enable will allow PDFs to be created from the Coil Report Screen. If set to 1, Auto Enable will create PDFs automatically after each Coil Report is finished.
052	>NameStyle: [0= AGT 1=CoilNumber]	1 string	c	
053	1,1,1	3 integers	I	
054			b	
055	>PDF Storage Path	1 string	c	
056	"C:\Program Files (x86)\AGT800\CoilPdfs\"	1 string	I	This is the location where PDF versions of coil reports will be saved.
057			b	
058	>Secondary Shift Report Output format [0=not present] + Path	1 string	c	
059	<Format Definition>	1 string	c	A comment here will identify several possible secondary shift report formats.
060	0,"F:\"	1 integer 1 string	I	In AGT800 versions to 4.00.55 there are no secondary shift reports outputs.
061			b	
062	>Coil Information Database Present or Not [1=present 0=not present]	1 string	c	The Coil Information Database allows the user to setup for production without having to enter data for every coil. The data can be entered offline using an offline text editor, or a demo or offline version of the AGT800 program, or it may be entered on-line on the "Next Data" screen. When entered on the Next Data Screen the data is written out to the application directory before exiting the AGT800 program.
063	1	1 integer	I	
064	>Coil Information Database Path	1 string	c	
065	"C:\Program Files (x86)\AGT800\"	1 string	I	
066	>Coil Information Database Name	1 string	c	
067	"AGTDB2.TXT"	1 string	I	This file should be a *.txt file. If no extension is present the program will add ".txt". In fact any file name and extension will be accepted by the program as long as the file is really a text file. If the program does not find the coil database file with the name specified on this line it creates a file with the default name AGTDB2.txt
068	>Coil Information Database Type	1 string	c	
069	>99=Default Text Database (versions 2.2mnp 2.3abc 2.4a)	1 string	c	
070	> 99 Format: 3 line header + 14 lines per coil (including blank lines)	1 string	c	
071	> These lines are reserved for future expansion	1 string	c	
072	> to include other database formats	1 string	c	
073	> This line reserved for other formats	1 string	c	
074	> This line reserved for other formats	1 string	c	
075	99	1 integer	I	In AGT800 versions to 4.00.55 there is only one format, type "99". The format of the database is found in the file AGTDB2.txt. This file may have a different name (if it is specified above in line 67) but the format must be the same as in AGTDB2.txt. The format for type 99 is described in the comment lines 69 & 70.
076			b	
077	>Output Type and scaling (Note: D/A out=5V full scale)	1 string	c	
078	> 0=none [placeholder]	1 string	c	These lines describe the scaling for analog outputs (e.g. for chart recorders or control systems).
079	> 1=analog deviation out scale (mils/ 5 volts)	1 string	c	
080	> 2=analog % deviation out scale (%/ 5 volts)	1 string	c	

081	> other codes as needed	1 string	c	If digital outputs are required a digital output board with buffered outputs will be required, perhaps with additional Opto22 modules. Software for generating these outputs will also be needed.
082	1,5	2 integers	I	The "1" here indicates a type 1 output, an analog deviation output with 5 volts = 5 mils ("1, 10" would indicate an analog output with 5 volts = 10 mils).
083			b	
084	*** Auxiliary digital inputs: Code [1=enabled 0=disabled]	1 string	h	This section describes the Auxiliary Digital inputs.
085	1	1 integer	I	The Auxiliary digital inputs are used to read the "Test" switch on the multi-function board, control automatic data gathering and control auto data entry.
086	>Auxiliary digital inputs #0 #1 #2	1 string	c	
087	>Input #0: 1 = MF board test switch status	1 string	c	
088	>Input #1: 1 = Auto Data Gathering shutter & report control Two = Same + frame control	1 string	c	
089	3 = Single Scan Option	1 string	c	
090	>For other values consult Advanced Gauging Technologies	1 string	c	
091	>Input #2: 1 = Auto Data Entry for Next Coil	1 string	c	
092	>For other values consult Advanced Gauging Technologies	1 string	c	Other uses of these inputs are possible if custom software is added to the AGT800 program.
093	>Auxiliary digital input codes #0 #1 #2 (code=0 means input not used)	1 string	c	
094	1,0,0	3 integers	I	The first of these three inputs (input 0) tells the program to monitor the status of the "Test" switch on the multi-function board. It should always be set =1 unless the Test switch is broken. Knowing the status of the Test switch is a valuable diagnostic tool. Occasionally the Test switch is left in the "On" position after it has been used by maintenance or field engineering personnel.
095			b	
096	*** Analog Channel 1 (0 to +10V)	1 string	c	This section describes the setup for Analog Input Channel 1. Analog input data is displayed on the Special Functions Screen. It can be plotted on the ISOgraph™ at the end of the coil, and printed on coil report ISOgraph™.
097	> 0=disabled 1=enabled 2=temp F 3=temp C 4=zone 5=defects	1 string	c	0= no input on Channel 1.
098	> use code 0 to disable this input or 1 for user defined inputs	1 string	c	1 = an input from an external sensor.
099	0	1 integer	I	Types 2 to 5 do not require an external input. 2 = an input from the temperature sensor on the multi-function board in degrees F. 3 = an input from the temperature sensor on the multi-function board in degrees C. 4 = shows the zone of each thickness reading on the ISOgraph™. 5 = shows the defect type (if any) for each thickness reading on the ISOgraph™.
100	>Channel 1 title and calibration constants --> A0 A1 A2	1 string	c	
101	>(calibration = A0 + A1*volts +A2*volts^2)	1 string	c	
102	"Elongation",0,3.67,0	1 string, 3 singles	I*	These are single precision decimal numbers despite being shown as integers in this example. The AGT800 often omits the decimal point when printing decimal numbers that are whole numbers. The Special Functions display will show 3.67 x the input voltage for "Elongation". The default values for this line are "", 0,1.0,0. The data on this line will be "output" by the program if the selection on line 99 is 2, 3, 4, or 5.
103	>(number of decimals in the variable display: 0 to 4)	1 string	c	

104	2	1 integer	I*	*The data on this line will be "output" by the program if the selection on line 99 is 2, 3, 4, or 5.
105	>Minimum and Maximum Y axis values	1 string	c	
106	0,100	2 singles	I*	These are single precision decimal numbers despite being shown as integers in this example (e.g 0,20 = 0.0, 20.0). *The data on this line will be "output" by the program if the selection on line 99 is 2, 3, 4, or 5.
107			b	
108	*** Analog Channel 2 (0 to +10V)	1 string	c	This section describes the setup for Analog Input Channel 2, same as Channel 1.
109	> 0=disabled 1=enabled 2=temp F 3=temp C 4=zone 5=defects	1 string	c	
110	> use code 0 to disable this input or 1 for user defined inputs	1 string	c	
111	0	1 integer	I	
112	>Channel 2 title and calibration constants --> A0 A1 A2	1 string	c	
113	>(calibration = A0 + A1*volts +A2*volts^2)	1 string	c	
114	"Temperature (F)",-78.0,80.0,0	1 string, 3 singles	I*	*The data on this line will be "output" by the program if the selection on line 111 is 2, 3, 4, or 5.
115	>(number of decimals in display: 0 to 4)	1 string	c	
116	0	1 integer	I*	*The data on this line will be "output" by the program if the selection on line 111 is 2, 3, 4, or 5.
117	>Minimum and Maximum Y axis values	1 string	c	
118	20,120	2 singles	I*	*The data on this line will be "output" by the program if the selection on line 111 is 2, 3, 4, or 5.
119			b	
120	>Counter Limit for bad A/D readings (~10 msec@)	1 string	c	
121	100	1 integer	I	This variable is the number of successive 10 msec bad readings that must be observed before a message is generated. A single good reading resets the counter. A "bad" A/D reading is a reading that would produce a thickness value greater than the maximum possible measured thickness for this system (this thickness is entered on line 440 in the calibration data section). A "bad A/D readings" would indicate a problem in the detector head electronics.
122			b	
123	>Shutter Lamp & Data Acquisition Control [1=by head switches 0=by command]	1 string	c	
124	1	1 integer	I	= 0 if the shutter lamps reflect the state of the shutter open/closed button. = 1 if the shutter lamps reflect the state of the shutter open/closed switches in the source head. This parameter is not used in the AGT800 version of software.
125			b	
126	>Head/Tail Scrap Code [1=enabled 0=disabled]	1 string	c	
127	0	1 integer	I	= 0 if the entry boxes for Head and Tail scrap are disabled. = 1 if the boxes are enabled. These check boxes are found on the “Special Functions” Screen. The scrap data is printed on the coil report in the first section of data, “Average thickness and Tolerance Data”, just above the SPC data.
128			b	

129	>Frame Motor Off Cycles and Maximum On Cycles (~0.05 sec/cycle)	1 string	c	These variables prevent the motor from making abrupt changes in direction and from remaining on for a time that is much longer than the expected time to travel across the widest strip. They prevent the motor from being damaged.
130	>(choose a value for the maximum 'on' time limit to prevent motor burnout)	1 string	c	
131	20,600	2 integers	I	OffCycles = The number of 1/4 second cycles that the frame dwells at the edges of the strip. The program checks this value and limits it to between 16 (4 sec) and 300(75 sec). The actual time may be longer than OffCycles/4 by as much as 25%. In this example the frame dwells at the strip edge for approximately 20/4 = 5 sec. OnCycles = The number of 1/4 second cycles that the frame can be on in a single direction before shutting off. The program checks this value and limits it to between 300(75 sec) and 6000 (1500 sec). This time should be set long enough so the frame can make a full scan of the maximum width strip but not so long that the motor will be damaged if the motor drives the frame up against a limit. The actual time may be longer than OnCycles/4 by as much as 25%. E.g. Scanning a 120 inch wide strip at 4 inches/sec takes 30 seconds, or about 120 program cycles. Setting OnCycles substantially larger than the maximum expected value that the scanning time would take, but shorter than the time before the motor would burn out, protects the motor without affecting the operation of the system. In this example the motor may run 600/4 = about 150 seconds before shutting down.
132			b	
133	>Minimum tolerance (mils) and Minimum % tolerance	1 string	c	
134	.2,.5	2 singles	I	The minimum tolerance on the internal sample thicknesses [expressed in mils (.001"), to the nearest 0.1 mils] and the minimum per cent tolerance on the internal sample thicknesses. These values should not be set too small. We recommend 0.2 as the minimum setting for the minimum tolerance. NEVER SET the minimum tolerance to 0. We recommend 0.3 (0.3%) as the minimum setting for the percent tolerance. NEVER SET the percent tolerance below 0.2%. Gamma ray thickness gauges can rarely measure better than 0.2%.
135			b	
136	>Scaling for the coil report histogram vs. the target thickness:	1 string	c	This section controls the scaling for the coil report histogram. The units used here for the sizes of the bins are a bit confusing. They are a result of the early versions of the program using a lot of integer arithmetic, and they were never changed. When entering the size of the bins you must enter an integer that corresponds to the number of tenths of a mil (e.g. 0.5 mils ➔ enter "5"). For the upper thickness range the unit used is the integral number of mils (e.g. 50 mils ➔ enter "50").
137	>Number of ranges -- DO NOT CHANGE THIS VALUE: 0 to 4	1 string	c	It chooses the size of the "bins" in the histogram according to the target thickness.
138	4	1 integer	I	You must set 5 segments (0,1,2,3,4) for the coil report histogram increment.
139	>Increment(unit=.1 mils) and upper thickness range(mils)	1 string	c	The minimum value of the histogram increment must be 0.2 mils (enter a "2" for this increment size). The upper thickness range in mils on each line must be at least 10 times the size of the histogram increment in mils (and typically will be much greater -- see the example below). E.g. if the minimum histogram increment were 0.5 mils the minimum range would be 5 mils. This would correspond to an entry on the first line of 5, 5.

140	>(5:50 means the increment =0.5 mils --> up to a target thickness of 50 mils)	1 string	c	
141	5,50	1 integer, 1 single	I	In this example the choice of 5, 50 for range 0 means that for target settings up to 50.0 mils the size of the bins on the histogram will be 0.5 (5x0.1) mils = .0005".
142	10,100	1 integer, 1 single	I	In this example the choice 10, 100 for range 1 means that for target settings >50.0 mils and up to 100.0 mils the size of the bins on the histogram will be 1.0 mils.
143	10,150	1 integer, 1 single	I	In this example the choice 10, 150 for range 2 means that for target settings >100.0 mils and up to 150.0 mils the size of the bins on the histogram will be 1.0 mils.
144	10,200	1 integer, 1 single	I	In this example the choice 10, 200 for range 3 means that for target settings >150.0 mils and up to 200.0 mils the size of the bins on the histogram will be 1.0 mils.
145	20,350	1 integer, 1 single	I	In this example the choice 20, 350 for range 4 means that for target settings >200.0 mils and up to 350.0 mils and above the size of the bins on the histogram will be 2.0 mils.
146			b	
147	>Scaling for the deviation bar meter:	1 string	c	Scaling for the deviation bar meter in English units. In this section the thickness range is expressed as the number of mils full scale (10 = .010").
148	>Number of ranges -- DO NOT CHANGE THIS VALUE: 0 to 4	1 string	c	
149	4	1 integer	I	You must set 5 segments (0,1,2,3,4) for the deviation bar meter.
150	>Ranges (mils --> use integers)	1 string	c	
151	5,10,15,20,25	5 singles	I	These values are the full scale deviation of the bar meter, depending on the difference between the target value and the high or low limit. The scaling of the bar meter also depends on what fraction of the bar meter you want deviation to fill [see line 158/159 below]. The program automatically scales the bar meter to make sure that the full scale deviation of the bar meter is greater than the difference between the high (or low limit) and the target multiplied by the factor in line 159. These must serve both for absolute deviation in thickness and % deviation, so choose round numbers such as 4.0, 5.0, 10., 15., 20., 25., 30., etc. To have the bar meter scale correspond exactly to the ISOgraph™ scale chose these values as half the values for set for the ISOgraph™ in the next section In this example the bar meter will have maximum deviations of either 5.0, 10.0, 15.0, 20.0, 25.0 mils (or 5.0%, 10.0%, 15.0%, 20.0%, 25.0%). Conditions on the ranges you enter are: 1) The minimum value cannot be less than 2.0 mils. 2) The values must increase monotonically. 3) The largest value must be at least 10.0 mils.
152			b	

153	>Scaling for the ISOgraph™ Y axis:	1 string	c	Scaling for the ISOgraph™ Y axis in English units (10 = .010"). There are 20 grid lines on the ISOgraph, scaling should be chosen to make these divisions easily readable. Conditions on the scaling ranges entered in line 157: 1) The minimum value for the scaling range must be at least 4.0 (if the value entered in the Par File is less than 4.0 the program automatically increases it to 4.0). 2) The values must increase monotonically. 3) The values must be even whole numbers (this is necessary for the Main Screen histogram to work). 4) The largest value must be at least 10.0 (if the value entered in the Par File is less than 10.0 the program automatically increases it to 10.0). All these values MUST BE EVEN to make the Main Screen histogram work Suggested possible values for the gvGraphY() array are: 4.0, 10.0, 20.0, 30.0, 40.0, 50.0, 60.0, 80.0, etc. NOTE: 5.0 mils is not good, because it makes the "bins" on the Main Screen histogram = 0.25 mils. (5.0 mils/20 grid lines = 0.25 mils per grid line) In the AGT800 program data is stored in units of 0.1 mils. The bins on the Main Screen histogram must be an even multiple of 0.1 mils.
154	>Number of ranges -- DO NOT CHANGE THIS VALUE: 0 to 4	1 string	c	
155	4	1 integer	I	
156	>Ranges (mils --> use even integers)	1 string	c	You must set 5 segments (0,1,2,3,4) for the ISOgraph™ Y axis
157	4,10,20,30,40	5 singles	I	These values are the range of high thickness to low thickness shown on the ISOgraph™, depending on the difference between the target value and the high or low limit. The scaling of the bar meter also depends on what fraction of the ISOgraph™ you want deviation to fill [see line 158/159 below]. The program automatically scales the ISOgraph™ to make sure that the full scale deviation is greater than the difference between the high (or low limit) and the target multiplied by the factor in line 159.
158	>Percentage of the Y axis filled by the high and low limit lines	1 string	c	This value controls how much of the ISOgraph™ will be filled by the area between the high and low limit. The remaining percentage is halved and added to the top and bottom of the ISOgraph™ in order to center the limits area.
159	70	1 single	I	0-100 percent.
160			b	
161	>Scale for the ISOgraph™ X axis (feet --> use hundreds)	1 string	c	
162	500	1 single	I	This value determines the initial scaling of the X axis of the ISOgraph™ (e.g. 500 feet). In the "Detail" mode the graph will display twice this number of feet. The minimum value for this parameter is 100 feet, and the program always rounds the number in this Par File to a multiple of 100 feet.
163			b	

164	>Length offset (feet -- must be positive)	1 string	c	Offset for the coil length -- This is the distance from the encoder to the measuring heads. The offset must always be positive (if the offset in the Par File is negative the program uses the absolute value). This value is added to the coil length at the start of a new coil. The ISOgraph™ will show no data (a horizontal line) from length 0 to this value plus the normal "settling time" allowed by the program at the start of a coil. The program displays thickness readings for the length of coil between the gauge heads and where the encoder is located, but no data is saved for these readings because there are no counts from the encoder.
165	>(Distance from the encoder to the measuring heads)	1 string	c	This deals with the case where the encoder is placed after the gauge location. When data gathering begins for a coil (when the Report Control button is clicked on the Main Screen) the length is initially set equal to the value of this offset.
166	0	1 single	I	
167			b	
168	>Shear offset (feet -- negative before encoder / positive after encoder)	1 string	c	
169	>(Distance from the shear to the encoder)	1 string	c	
170	0	1 integer	I	This information is used in determining the coil diameter. Any discrepancy in footage due to the placement of the tach from the shear can be offset here. Distance in feet.
171			b	
172	>Tach noise filter	1 string	c	Filter to eliminate tach noise -- maximum length difference between readings (every 0.25 sec). This allows us to eliminate bursts of noise that can produce faulty length readings on the graphs and reports and distort the graphs. A long horizontal line on the ISOgraph™ is usually produced by a burst of noise on the tach wiring.
173	>Maximum delta length per second (feet)	1 string	c	The value must always be positive. The value shouldn't be too small, or real data may be eliminated. It shouldn't be too large or the filter won't be effective. Choose a value that is about 2 to 3 times the maximum distance that might be recorded in 0.25 seconds.
174	100	1 single	I	
175			b	
176	>Profile Graph: inches from the edge for the first reading	1 string	c	Inches from the edge for the first measurement in the profile display. This should be an average of both directions. For example, if it's 1.0" on the off sheet edge, and 1.4" on the on sheet edge, 1.2 should be entered here.
177	2	1 single	I	This should be set to correspond to where the center of the measuring heads are relative to the strip edge when the heads are stopped at the strip edge.
178			b	
179	>Coil Mapping option [0=not present 1=present] and report path	1 string	c	This variable tells the program if the coil mapping option is present. Coil Mapping terminals loaded with the proper data are required for the Coil Mapping to function correctly regardless of the setting of this variable. Coil Mapping is enabled or disabled on the Defect Menu.
180	0,"C:\Program Files (x86)\AGT800\CoilMap1\"	1 integer, 1 string	I	Enable/Disable and the path for the Coil Mapping reports. If Coil Mapping is present and enabled a report that can be read by Microsoft Excel is written to this path.
181	>Coil Mapping COM port [1 or 2 or ... etc]	1 string	c	
182	2	1 integer	I	The serial port (COM port) that is used for I/O with the coil mapping terminals.

183	>Coil Mapping offsets (feet) [distance from the inspect to the encoder]	1 string	c	The Coil Mapping offset is in feet, and is subtracted from the distance when determining the location of defects. The index (1 or 2) directs us to the Coil Mapping terminals unit for top or bottom.
184	> [if the inspector is before the encoder the offset should be negative / positive if after]	1 string	c	These values may be positive or negative
185	> Unit 1 / Unit 2	1 string	c	This value is subtracted from the distance when determining the location of defects.
186	25,25	2 singles	I	Two values must be supplied, even if there is only one Coil Mapping terminal.
187	>Pre-set port offsets in feet for 5 port locations [MUST HAVE 5 VALUES]	1 string	c	These are the offsets, in feet, for up to 5 port locations.
188	0,20,40,60,80	5 singles	I	These allow the user to change the offset from the Coil Mapping terminal without stopping the program and changing the Par File. This might be used when the system is wired to allow the inspector to plug in the Coil Mapping terminals at several different locations. When the program detects a change in the offset value it automatically assigns it to the Top or Bottom unit that made the change. NOTE: 5 offsets must be present in the Par File, regardless of how many ports there actually are. To see any of the values stored for the Port offsets press "Clear", then ">Port" then a zone key (1 to 5). The first line will show ">Port >Zn". Then press "Send". The computer will return ">Port >Zn" on the first line, and "Offset +xx ft" on the second line. The cursor will be placed after the ">Port >Zn " string on the first line, ready for input. To change the value for the Port offset of unit 1 or unit 2, press "Clear", then ">Port" then a zone key, then "End", then "Send". The computer will change to the new value of the offset and return the opening screen message "AGT800 Coil Mapping", "Unit Number 0n", Unit Name, "Offset +xx ft ". This new data will be written out into the Par File. When the offset changes a message is displayed on the Main Screen message center showing the unit and the new offset value.
189	>Coil Mapping unit names (English) Unit 1 / Unit 2	1 string	c	
190	"Top","Bottom"	2 strings	I	These are the names in English and Spanish that will appear on the Coil Mapping reports and the displays on the Coil Mapping terminal.
191	>Coil Mapping unit names (Other) Unit 1 / Unit 2	1 string	c	
192	"Alto","Bajo"	2 strings	I	
193			b	
194	>Beam obstructions [0=not present 1=present]	1 string	c	
195	>This variable is for dealing with slotted slitter tables	1 string	c	This variable lets us deal with obstructions in the beam such as those caused by a slotted slitter line table. When the variable is set to a value other than zero the "stop at on-sheet edge" logic is disabled in the frame motion subroutine. Set this parameter = 0 if there is no obstruction (the normal case). Set it = 1 if there is an obstruction.
196	0	1 integer	I	
197			b	
198	*** Parameters primarily set in the program (all in English Units)	1 string	h	This section describes the setup for items set primarily from screens controlled by the line operator or by maintenance.
199	> ---------- (thicknesses in mils = .001 inch)	1 string	c	

200			b	
201	>Units [1 = Metric units 0=English units] | Precision [0=Fine 1=Coarse]	1 string	c	
202	0,0	2 integers	I	Sets English or Metric units and their precision. 0,0 = mils 0,1 = inches 1,0 = microns 1,1 = mm
203			b	
204	>Time Format Type [0=AM/PM 1=24 hour]	1 string	c	
205	0	1 integer	I	Sets 12 hr+AM/PM or 24 hr format for time outputs.
206			b	
207	>Date Format Type [0=mm-dd-yy 1=dd-mm-yy]	1 string	c	
208	0	1 integer	I	Sets date format.
209			b	
210	>Printer [1=on 0=off]	1 string	c	
211	0	1 integer	I	Sets the printer On/Off. If the printer is set to "On", reports are automatically printed at the end of the coil or shift.
212			b	
213	>ISOgraph™ format [1=full coil 0=detail]	1 string	c	Sets ISOgraph™ format. When the ISOgraph™ is in “Full Coil” format, the entire graph is displayed from the beginning of the coil to the present. When the plot reaches the right edge of the X-axis the scale of the graph is doubled. At the end of the coil the ISOgraph™ is re-scaled to fill as much of the graph as possible. When the ISOgraph™ is in “Detail” format, it shows the most recent footage. The length shown is twice the distance entered on line 162. When the plot reaches the right edge of the X-axis the graph shifts to the left by the length shown on line 162.
214	1	1 integer	I	
215			b	
216	>Auto Data Gathering [1=enabled 0=disabled]	1 string	c	Auto Data Gathering is enabled on the Special Functions Screen
217	0	1 integer	I	If Auto Data Gathering is enabled (1), the Report Control button on the Main Screen is disabled. The program looks at Auxiliary Digital input #1 on the multi-function board and gathers data according to the information on lines 88, 89 and 94 above. Normally the signal on Auxiliary Digital input #1 is zero (set to ground). When this signal becomes a one (+5 volts) the program begins gathering data as though the Report Control button has been pushed. If the value of input 1 (the second item on line 87 above) is =1 measuring will start and data gathering begins. When the signal becomes a zero (ground, 0 volts) again the data gathering and measuring stops. If the value of input 1 is =2 the frame will also start to oscillate. The frame will be retracted at the end of the coil.
218			b	
219	>Exit Coil Hub Diameter (inches)	1 string	c	This is used to calculate the coil diameter.
220	24	1 integer	I	

221				
222	>Auto Next Coil Data Entry [1=enabled 0=disabled]	1 string	c	Auto Next Coil Data Entry is enabled on the Special Functions Screen
223	0	1 integer	I	If Auto Next Coil Data Entry is enabled the program looks at Auxiliary Digital Input #2 on the multi-function board and transfers data from the Next Coil Data file to the Main Screen according to the information on line 91 and 94 above. Normally the signal on Auxiliary Digital Input #2 is zero (set to ground). When this signal becomes a one (+5 volts) data from the Next Coil Data file is transferred.
224	>Path and Filename for Next Coil text data	1 string	c	
225	"C:\Program Files (x86)\AGT800\","AGTNEXT2.TXT"	2 strings	I	The folder where the Next Coil data file (a text file) will be found. And the name of the file with its extension (must be a *.txt file). The folder is usually the AGT800 application folder. However on a system connected to a network it may be easier to have the Next Coil data file appear in a network folder. If the program does not find a file with the name specified here it creates a file with the default name "AGTNext2.txt".
226			b	
227	*** Products are now stored in AGTProducts.txt	1 string	h	All of the product information resides in the AGTProducts.txt file located in the AGT800 application directory.
228			b	
229	*** Defect(0) Name (2 languages)	1 string	h	Heading for the "Defect" information that appears on the "Defect Menu" Screen.
230	"None","<--->","Ninguno"	3 strings	I	
231	>Multiple Defect Name (2 languages)	1 string	c	
232	"Multiple Defects","<--->","Defectos Multiplos"	3 strings	I	The second Defect name entry in this section cannot be changed within the program. It is the name for the "multiple defects" message shown on the Main Screen when there are multiple defects present.
233	>Number of Defect Names (must be >1 and <=26) 2 t0	1 string	c	
234	24	1 integer	I	The number of entries in the defect list. DO NOT CHANGE THIS NUMBER IN THE PAR FILE. The program writes out the correct value and reads it back in. This number is equal to the number of products displayed on the defect menu + 1. The data array has a number of locations equal to the number of products displayed on the defect menu + 2. It goes from 0 to the value shown on line 234. The extra two names in the array (compared to what is shown on the defect menu) are the no defects case and the multiple defects case.
235	>Defect Names (2 languages)	1 string	c	
236	"Rust","<--->","Oxidacion"	3 strings	I	For each defect there in entry with the Defect name in English, a separator arrow string "<--->", and the Defect name in Spanish.
237	"Scratches","<--->","Rayas"	3 strings	I	
238	"Pin Holes","<--->","Agujeros"	3 strings	I	
239	"Skid Marks","<--->","Marcas patinazos"	3 strings	I	
240	"Wavy Edges","<--->","Bordes ondulados"	3 strings	I	
241	"Laminations","<--->","Laminacion"	3 strings	I	
242	"Oil","<--->","Aceite"	3 strings	I	
243	"Scale","<--->","Modura"	3 strings	I	
244	"Mill Edges","<--->","Bordes malos"	3 strings	I	
245	"Other","<--->","Otro"	3 strings	I	
246	"D11","<--->","D11"	3 strings	I	
247	"D12","<--->","D12"	3 strings	I	

248	"D13","<--->","D13"	3 strings	l	
249	"D14","<--->","D14"	3 strings	l	
250	"D15","<--->","D15"	3 strings	l	
251	"New defect 16","<--->","New defect 16"	3 strings	l	
252	"D17","<--->","D16"	3 strings	l	
253	"D18","<--->","D17"	3 strings	l	
254	"D19","<--->","D18"	3 strings	l	
255	"New defect 20","<--->","New defect 20"	3 strings	l	
256	"D21","<--->","D21"	3 strings	l	
257	"D22","<--->","D22"	3 strings	l	
258	"Spot Defect","<--->","Defecto Instante"	3 strings	l	The final entry in the Defect list is also a special entry. It cannot be removed from the list. It is used for the "Spot" or "Instant" defect in coil mapping. The spot defect is activated by pushing the "F2" button on the coil mapping terminal. It is turned off by pushing F2 again.
259			b	
260	>Coil mapping [0=disabled 1=enabled]	1 string	c	
261	0	1 integer	l	This variable tells the program if coil mapping is enabled or disabled. In order for coil mapping to work the variable in line 180 above must indicate that coil mapping present (line 180 = 1, "Path").
262			b	
263	*** Number of Nomenclature Items -- DO NOT CHANGE THIS VALUE: 1 to 9	1 string	h	Heading for the "Nomenclature" data entered on the Nomenclature Screen
264	9	1 integer	l	There are 9 nomenclature items. DO NOT CHANGE THIS NUMBER IN THE PAR FILE. The program writes out the correct value and reads it back in.
265	>Nomenclature Names (2 languages)	1 string	c	Nomenclature items dictate the headings on the Main Screen data entry area and on the reports for job number, coil number, shift, etc. The Nomenclature Screen allows customers to use their own terminology for things like "Job Number". For example, customers may prefer "Work Order" instead of “Job Number” or they may prefer to use the word “Turn” instead of "Shift".
266	"Job","Number","<--->","Numero de","Lote"	5 strings	l	Two separate strings are used for each item in English, a separator arrow string "<--->", followed by two separate strings in Spanish.
267	"Coil","Number","<--->","Numero de","Rollo"	5 strings	l	All lines must have five strings even though some items entered on the Nomenclature Screen only have one text box (e.g. "Shift").
268	"Customer","Number","<--->","Numero de","Cliente"	5 strings	l	
269	"Coil","Information","<--->","Datos de","Rollo"	5 strings	l	Changing the nomenclature in English does not change the Spanish entries.
270	"Width","","<--->","Anchura",""	5 strings	l	To change the Spanish nomenclature settings within the program, the user must go to the Special Functions Screen and select Spanish then return to the Nomenclature Screen and enter the Spanish data.
271	"Supplier","","<--->","Vendador",""	5 strings	l	
272	"Shift","","<--->","Turno",""	5 strings	l	
273	"Coil Summary","Report","<--->","Informe de","Rollo"	5 strings	l	
274	"Shift Summary","Report","<--->","Informe de","Turno"	5 strings	l	
275			b	
276	*** System Setup Data	1 string	h	Heading for the section with data entered mostly on the System Setup Screen
277	>Target Mode[1=halfway 2=target +/- 3=target +/-% 4=high:target:low]	1 string	c	

278	2	1 integer	I	Determines the method for setting the Target. 1) The high and low limits are entered and the target value is set halfway between the limits. 2) The target value is entered and the high and low limits are set up relative to the target in mils. 3) The target value is entered and the high and low limits are set up relative to the target as a % of the target. 4) The target value, high and low limits are all entered.
279			b	
280	>Tach Mode ['Internal' or 'External'] and Internal Ticks	1 string	c	This parameter determines how the program computes the coil length. The normal setting is "External". For this setting the program reads the counts from the tachometer and converts this number to a length. The backup setting is "Internal" and is used when the tachometer is out of service for any reason, or if the program is used in the "Demo" or "Off-Line" mode when there is no tachometer. Using “Internal” allows the program to function even without the tachometer. When "Internal" is used however, the length reported by the program is meaningless and even the average thickness may not be accurate since the average thickness is calculated as a length-weighted average. (Usually, if the processing line is running smoothly, at fairly constant speeds the average thickness will be close to the true value)
281	"External",600	1 string, 1 integer	I	The number of internal ticks determines the scaling of the ISOgraph™ when Internal mode is used. 600 is a recommended value for internal ticks. This value gives a simulated footage of about 1000 ft/min for a 12 inch diameter tach roll.
282			b	
283	>Time Constant (msec) and Maximum Time Constant (msec)	1 string	c	
284	100,1000	2 integers	I	The time constant in use and the Maximum Time Constant permitted (both expressed as an integer number of milliseconds). The time constant in use must be 10 milliseconds or more. It is recommended that this number always be a multiple of 10. The Maximum Time Constant permitted is 1000 (1000 msec = 1 second). If a value over 1000 is entered for the maximum time constant the program will reduce the value to 1000. The Maximum Time Constant is entered only in the Par File, not in the program.
285			b	
286	>Auto Time Constant Enable [1=enabled 0=disabled]	1 string	c	Enable or disable the Auto Time Constant Feature according to the table of thicknesses and time constants on lines 292 to 295. Auto Time Constant is not used in the AGT800 version of software.
287	>(sets the time constant as a function of target thickness if enabled)	1 string	c	
288	0	1 integer	I	Enabled or disabled on the System Setup Screen.
289	>Thicknesses (mils)& Time Constants (msec)	1 string	c	This table is entered only in the Par File.
290	>use the time constant from the setup screen up to the 1st thickness	1 string	c	

291	>use the time constant in this table above the thickness in the table	1 string	c	In this example the time constant from the Setup Screen (e.g. 50 msec) is used for targets <100 mils 100 msec is used for targets = 100 mils and <180 mils 150 msec is used for targets = 100 mils and <250 mils 250 msec is used for targets = 250 mils and <500 mils 300 msec is used for targets >= 500 mils The Auto Time Constant feature allows the user to be aggressive in setting the time constant low at the smaller thicknesses, knowing that it will automatically increase (and keep the noise level down) at the larger thicknesses. This is an excellent strategy since the line is usually moving faster at low thickness, when more spatial resolution is important (good spatial resolution is achieved with a low time constant). For thicker material the line is moving more slowly, and good spatial detail can be achieved even with a longer time constant. If Auto Time Constant is enabled then the Diagnostics Screen will use the longest time constant in the table when gathering data for an ISOcal™, etc. This may slow down the data gathering unnecessarily. To speed things up turn off Auto Time Constant before using the Diagnostics Screen (but remember to re-enable it after you are finished with the Diagnostics Screen.)
292	100,100	2 integers	I	Thickness, time constant
293	180,150	2 integers	I	"
294	250,250	2 integers	I	"
295	300,500	2 integers	I	"
301			b	
302	>C-Frame Present [0=manual 1=oscillating 2=electric]	1 string	c	
303	0	1 integer	I	If this value is set to "0" (Manual) and no C-frame is present the three Main Screen buttons for moving the frame are disabled. If this value is set to "2" (Electric) the "Oscillate" button on the Main Screen is disabled
304			b	
305	>C-Frame Auto Remove on Report Stop [0=off 1=on]	1 string	c	
306	1		I	When “1” the C-frame will automatically move off sheet when the coil report is finished otherwise “0” it will stop where it is at.
307			b	
308	>C-Frame Center Switch Present [0=no 1=yes]	1 string	c	
309	#TRUE#	1 boolean	I	This is the saved value #TRUE# or #FALSE# determining whether the C-frame has a center switch or not.
310			b	
311	>C-Frame Nominal Temp F (Temp F of C-Frame during last ISOcal or Factory Calibration)	1 string	c	
312	62.38299	1 single	I	This is the value, in degrees Fahrenheit, of the C-frame temperature sensor during the last ISOcal™.
313			b	
314	>C-Frame temperature deviation allowed before ISOcal warning (degrees)	1 string	c	
315	15	1 integer	I	This is the value, in degrees, that the C-frame temperature sensor can deviate from the value in line 312 before an alarm message is given to perform an ISOcal™.
316			b	

317	>Shutter Timer Code [1=enabled 0=disabled] Type [1=photocell 0=thickness]	1 string	c	This is a safety feature that closes the shutter after a specified number of cycles through the program if the program decides that the gauge heads are not over the strip. Shutter Timer Code is not used in the AGT800 version of software.
318	0,0	2 integers	I	The first input determines if this feature is activated. The second feature determines if the program will make its decision based on signals from the photocells or a reading of a thickness close to zero. If the decision is made based on thickness, it uses the value of the minimum thickness measured entered in line 446 below.
319	>Shutter Timer Limit Cycles (~0.25 sec/cycle)	1 string	c	Shutter Timer Limit Cycles is not used in the AGT800 version of software.
320	120	1 integer	I	This is a safety feature of the AGT400. The number of cycles set for the shutter timer limit determines how many readings (at about 0.25 seconds per reading) with no strip or sample in the beam are needed before the shutter is closed. In this example 120 off strip readings (about 30 seconds) will close the shutter. The "native" unit of the AGT400 program is program cycles, not seconds. This might confuse the gauge users, so the text box on the Setup Screen asks for seconds. The program converts from seconds to cycles for use in the Par File and other places in the program. The actual number of seconds may be up to 25% longer than the time entered on the System Setup Screen. A time of not less than 30 seconds is recommended for this entry. A single on-strip reading will reset the counter that records the number of off-strip readings.
321			b	
322	>Pulses/Revolution & Roll Diameter (inches) & Minimum Coil Length (ft)	1 string	c	These variables provide the calibration for the tachometer between pulses per revolution and the length of strip that has passed over the roll on which the tach is mounted. The software corrects for the factor of 2 division on the multifunction board so the change in the counter reading on the diagnostic display agrees with the tach output.
323	300,12,50	3 integers	I	The minimum coil length reduces the number of short coils recorded. It should be set to a length somewhat shorter than the shortest coil expected on the line.
324			b	
325	>Company Name and Machine Name	1 string	c	
326	"Smart Steel Company","72 Inch Top Name Pickle Line"	2 strings	I	Company name and the processing line (machine) name.
327			b	
328	>Screen Color	1 string	c	
329	12632256	1 integer	I	This code saves the background color for the Main Screen. This variable is a long integer and should never be set in the Par File.
330			b	
331	>Shift Start Times: 1 2 3 [hh:mm]	1 string	c	
332	"07:00","15:00","23:00"	3 strings	I	The shift start times must be in 24 hour time format. Three shift times must be entered even if the plant only runs one or two shifts. For example, if you are running only one shift from 6:30 AM to 4:00 PM, enter 06:30, 16:00, and any other time such as 23:00. For the two shifts that you are not running, no data will be stored, and no shift reports will be produced for shifts 2 and 3.
333	>Shift messages enabled [1=enabled 0=disabled] shifts: 1 2 3	1 string	c	
334	1,1,1	3 integers	I	If the plant runs less than three shifts or no shift summary is needed for a particular shift set these input parameters to zero for shift 1, shift 2, or shift 3.

335			b	
336	>Source Head Switch Check Code [1=enabled 0=disabled]	1 string	c	Source Head Switch Check Code is unused in the AGT800 version of software.
337	1	1 integer	I	This is a safety feature. If the program finds that the actual switch readings don't agree with the condition expected it will give the operator a message. For example, when the shutter has been commanded to the "Open" position the shutter open switch reading should be a "1" and the shutter closed reading should be a "0". If this is not the case we begin to count cycles. A single good reading resets the counter to zero.
338	>Cycles of delay before message is displayed (~0.25 sec/cycle)	1 string	c	Cycles of delay is unused in the AGT800 version of software.
339	20	1 integer	I	The number of consecutive system cycles (at 0.25 sec) that the system must find before issuing a message that the source head switch positions don't agree with the system commands. Usually, you would want this feature enabled but sometimes the shutter and samples are in the correct position and the switches, or the optoisolators are not working properly. The check can disabled by setting this value = 0 as a temporary solution until the switches or optoisolators are repaired. This variable should be set to about 20 meaning the switches must read incorrectly for about 5 seconds before we get the message. In practice it may take up to 25% longer
340			b	
341	>Enable Language Options [1=enabled 0=disabled]	1 string	c	This parameter is set only in the Par File, not in the program. If it is set to zero the languages cannot be changed in the program (they can still be changed in the Par File). If this variable is set to 0 the frame on the Special Functions screen that has the language options does not appear.
342	1	1 integer	I	
343	>Language for Screen Displays [0=English 1=Spanish]	1 string	c	Set on the Special Functions Screen. The screens may have a language that is different from the reports.
344	0	1 integer	I	
345	>Language for Reports [0=English 1=Spanish]	1 string	c	Set on the Special Functions Screen
346	0	1 integer	I	
347			b	
348	*** Number of Report Setup Items -- DO NOT CHANGE THIS VALUE: 0 to 17	1 string	c	Heading for the section with data for the Coil Report entered on the Report Setup Screen
349	17	1 integer	I	DO NOT CHANGE THIS NUMBER IN THE PAR FILE. The program writes out the correct value and reads it back in.
350	>Description & Code [1=enabled 0=disabled]	1 string	c	
351	"Length vs tolerance ",1	1 string, 1 integer	I	The text strings in this section are written out by the AGT800 program. The strings here correspond to the text on the Report Setup Screen
352	"Standard deviation ",1	1 string, 1 integer	I	
353	"Min/Max Thickness ",1	1 string, 1 integer	I	
354	"Control Limits ",1	1 string, 1 integer	I	
355	"CR ",1	1 string, 1 integer	I	
356	"CP/CPK ",1	1 string, 1 integer	I	

357	"TMW ",1	1 string, 1 integer	I	
358	"Histogram ",1	1 string, 1 integer	I	
359	"Product Distribution",1	1 string, 1 integer	I	
360	"ISOgraph™ ",1	1 string, 1 integer	I	
361	"Supplier ",1	1 string, 1 integer	I	
362	"Profile Graph ",0	1 string, 1 integer	I	
363	"Defect Report ",0	1 string, 1 integer	I	
364	"Shift Report ",0	1 string, 1 integer	I	This item is enabled at the top of the list of Shift Report Items on the Report Setup Screen. If this value is "1" Shift Reports will be created for printing if the "Printer" button is "on" (yellow) on the Main Screen. If it is "0" Shift Reports will not be printed even if the Printer button is on.
365	"Coil Report ",1	1 string, 1 integer	I	This item is enabled at the top of the list of Coil Report Items. If it is "1", Coil Reports will be created for printing if the "Printer" button is "on" (yellow) on the Main Screen. If it is "0" Coil Reports will not be printed even if the Printer button is on.
366	"Clock Time ",1	1 string, 1 integer	I	
367	"Coil Mapping Data ",0	1 string, 1 integer	I	
368	"Reverse Defect Print",0	1 string, 1 integer	I	
369			b	
370	*** Number of Shift Summary Setup Items -- DO NOT CHANGE THIS VALUE: 1 to 9	1 string	c	Heading for the section with data for the Shift Report entered on the Report Setup Screen.
371	9	1 integer	I	DO NOT CHANGE THIS NUMBER IN THE PAR FILE. The program writes out the correct value and reads it back in.
372	Note: Turn the shift report 'On' or 'Off' with the 'Shift Report' variable above		c	
373	>Description & Code [1=enabled 0=disabled]		c	Enabling or disabling these items allows the user to customize the Shift Summary Report to the practice followed in that company, showing only items that will be useful to them. The text strings in this section are written out by the AGT800 program. The strings here correspond to the text on the Report Setup Screen.
374	"End Time ",0	1 string, 1 integer	I	The program will print either the End Time or the Run Time, but not both
375	"Run Time ",1	1 string, 1 integer	I	
376	"RBar ",1	1 string, 1 integer	I	
377	"High/Low Limits ",1	1 string, 1 integer	I	
378	"High/Low Lengths ",1	1 string, 1 integer	I	The program will only print the lengths if the limits are enabled (line 377).

379	"Tach mode ",0	1 string, 1 integer	I	
380	"Product ",0	1 string, 1 integer	I	
381	"Supplier ",0	1 string, 1 integer	I	
382	"Head/Tail Scrap ",0	1 string, 1 integer	I	
383			b	
384	>Number of Report Copies to be printed	1 string	c	
385	1	1 integer	I	The program checks this value and limits it to a number between 1 and 3.
386	>Profile Graph Style [0=single 1=average 2=both]	1 string	c	
387	0	1 integer	I	0 = print the last profile only, 1 = print the average profile only, 2 = print the last profile and the average profile.
388	>ISOgraph™ Overlay [0=none 1=analog channel 1 2=analog channel 2]	1 string	c	
389	0	1 integer	I	If the corresponding analog input channels are present and enabled (lines 96 to 114) this data will be overlaid onto the ISOgraph™ AT THE END OF THE COIL. It will also be printed on the Coil Report.
390	>Report Color [0=color 1=black only]	1 string	c	
391	0	1 integer	I	The report will print in color if this value is zero. For any other value the report will print in black only. This feature was added for cases where the user will be copying the reports on copiers that don't copy blue or green lines.
392			b	
393	>Exclude 'outliers' >3 standard deviations in average 1=yes 0=no	1 string	c	
394	1	1 integer	I	Enter a "1" here to exclude thickness data values that are more than 3 standard deviations from the average value. This is a statistically valid method of rejecting data points that may have some unusual outside influence such as noise bursts.
395	>Exclude footage at start/end of coil in average 1=yes 0=no	1 string	c	
396	0	1 integer	I	Enter a "1" here to exclude data at the start and end of a coil. Readings at the start and end of the coil may not be representative of the body of the coil or they may be bad (e.g. if the passline for the head or tail of the coil is not properly controlled). The head and tail data is excluded only in the calculation of the average thickness. It is still shown on the ISOgraph™. The distance omitted is half the "minimum coil length" entered on the System Setup Screen (line 323).
397			b	
398	*** Calibration Data	1 string	h	Heading for the calibration data section. Much of this data is measured or calculated by the program. Only the nominal thicknesses of the external calibration samples are routinely entered on the Manual Calibration screen. The tolerances for the internal samples are calculated by the AGT400 program, but the calculations can be overridden and entered here. The tolerances for the internal samples can also be entered on the System Setup Screen. This calibration data is not used by the AGT800 version of software.
399	----------	1 string	c	Note that no commas or tabs are used in comment lines in the Par File. Commas and tabs are read as "end of field" markers by the AGT800 program. All comment lines are treated as a single string.

400	>A/D Values -- Measured : Nominal : Previous	1 string	c	Lines 402 to 406 each contain 3 A/D readings. The "measured" value is first recorded during the External Calibration but may be modified during an ISOcheck™, ISOcal™, or AutoComp™. The "nominal" value is the value recorded for shutter closed, air, etc. at the end of the External Calibration. The "previous" value is first recorded during the External Calibration, but may be modified during an ISOcheck™, ISOcal™ or AutoComp™. The previous value allows us to revert to a previously correct calibration if an error occurs during ISOcheck™, ISOcal™ or AutoComp™. This data may also be useful in diagnosing unusual changes in the A/D values for shutter closed, air, etc. between the date of the most recent external calibration and the current date. This calibration data is not used by the AGT800 version of software.
401	>for Shutter Closed : Air : Sample1 : Sample2 : Sample3	1 string	c	In this example the "measured" values are the default values used by the AGT400 program. They are fairly typical of what is seen in practice. The "nominal" and "previous" values are typical values rather than the default values. This calibration data is not used by the AGT800 version of software.
402	100,95,94	3 integers	o	Shutter Closed values. This calibration data is not used by the AGT800 version of software.
403	60000,59928,59907	3 integers	o	Air values. This calibration data is not used by the AGT800 version of software.
404	14650,14612,14612	3 integers	o	Sample 1 values. This calibration data is not used by the AGT800 version of software.
405	3350,3347,3349	3 integers	o	Sample 2 values. This calibration data is not used by the AGT800 version of software.
406	900,899,899	3 integers	o	Sample 3 values. This calibration data is not used by the AGT800 version of software.
407			b	
408	>Thickness Values -- Measured : Nominal : Previous : Tolerance (mils)			Lines 410 to 413 each contain 4 thickness values in mils. The first 3 thickness values are the "measured", "nominal", and "previous" readings described above. The fourth value is the tolerance limit on the air, sample 1, etc. The tolerance values are automatically calculated on the Manual Calibration Screen, or are entered on the System Setup Screen. The minimum tolerance in mils and in percent is set on line 127. The minimum tolerance for any internal sample must be larger than the greater of the minimum tolerance in mils or the minimum tolerance percent. This calibration data is not used by the AGT800 version of software.
409	>for Air : Sample 1 : Sample 2 : Sample 3	1 string	c	In this example the "measured", "nominal" and "previous" values are typical values rather than the default values. This calibration data is not used by the AGT800 version of software.
410	0,0,0,.2	3 singles	o	Air values. This calibration data is not used by the AGT800 version of software.
411	61.2,60.21,60.2,.3	3 singles	o	Sample 1 values. This calibration data is not used by the AGT800 version of software.
412	126,124.31,124.3,.62	3 singles	o	Sample 2 values. This calibration data is not used by the AGT800 version of software.

413	188,185.71,185.7,.93	3 singles	o	Sample 3 values. This calibration data is not used by the AGT800 version of software.
414			b	
415	>Wait Time Counter Limit Min and Max Cycles (~0.25 sec/cycle)	1 string	c	The use of a "Wait Counter" allows the system to “settle down” before gathering data. It includes time for the shutter and samples to physically move into place and the digital filters in the program to respond fully to a change in the input signal. The Wait Counter is used when the shutter is first opened on the Main Screen, for AutoComp™ on the Product Menu, for Data gathering, ISOcheck™, and ISOcal™ on the diagnostic screen, and on the Calibration Screen. The Wait Time Counter is not used by the AGT800 version of software.
416	>(the minimum and maximum delays before we start taking readings)	1 string	c	The Wait Time Counter Lim Min is the minimum number of system cycles that the system waits before starting to take readings. The Wait Time Counter Limit Max is used to scale how much waiting time there is, particularly important with longer time constants, when the time constant approaches the length of the data gathering interval (0.25 seconds, 250 msec). When the time constant in use is equal to the data gathering interval the waiting time (in program cycles of about 0.25 sec) is equal to the Wait Time Counter Limit Max. Longer time constants may cause the program to increase the waiting time to a value larger than the value entered here. The Wait Time Counter is not used by the AGT800 version of software.
417	6,20	2 integers	I	NOTE: the Wait Time Counter Lim Min and Max are set only in the Par File, not in the program. The Wait Time Counter is not used by the AGT800 version of software.
418	>Number of readings used in Calibration & ISOcheck & Diagnostics & etc.	1 string	c	The number of readings used in gathering data on the Main Screen, for AutoComp™ on the Product Menu, for Data gathering, ISOcheck™, and ISOcal™ on the diagnostic screen and on the Calibration Screen. We recommend that this variable be set at about 20 to give a good sample and minimize the effects of noise. Reducing this value will save a small amount of time but it may increase the noise in the average that is calculated from these readings, making for a less reliable calibration, ISOcheck™, etc. It is always better to have good statistical accuracy when there is no pressing need for fast response time.
419	20	1 integer	I	
420			b	
421	>External Calibration Date and Time and Calibration File Name	1 string	c	Under normal circumstances the information in this section is not modified in the Par File. If under some unusual circumstance these values must be modified in the Par File make sure to use the correct format for the date and time information.
422	"06-11-2016","08:37:38","AGTCal1(61116@0837).txt"	3 strings	o	These values are written out after the most recent external calibration. The default value of the Calibration File name is "", showing that there is no valid Calibration File.
423	>ISOcal™ date and time	1 string	c	
424	"06-11-2016","08:37:38"	2 strings	o	These values are written out after the most recent ISOcal™.
425	>ISOcal™ Avg Dev	1 string	c	
426	65.55742	1 single	o	The average deviation of the last ISOcal™.

427	>ISOcal™ Calibration Accuracy	1 string	c	
428	30.35042	1 single	o	The calculated accuracy based on the last ISOcal™.
429			b	
430	>Model type and current calibration constants: A1 A2 P1	1 string	c	These are the calibration constants.
431	"Buildup Model"	1 string	o	Calibration constants are not used in the AGT800 version of software.
432	43,475,.78	3 singles	o	The values of A1, A2, P1 currently in use. Calibration constants are not used in the AGT800 version of software.
433			b	
434	>Nominal values of calibration constants: A1 A2 P1	1 string	c	
435	42.30855,627.7186,.78	3 singles	o	The nominal values of A1, A2, and P1 are determined by the most recent external calibration. The default values for these parameter are equal to the default values on line 432. Nominal values of calibration constants are not used in the AGT800 version of software.
436	>Nominal values of average deviation and average % deviation	1 string	c	
437	1.512833E-02,1.361953E-02	2 singles	o	The values of the average deviation, in mils, and average percentage deviation between the external sample thicknesses entered on the Manual Calibration Screen and the thicknesses calculated by the AGT800 program using the best fit parameters, A1, A2, etc. determined when an external calibration was done. [NOTE: these are averages of the absolute value of the deviation and percent deviation, not standard deviations] The default values of the average deviation value = 0.1 and the average percent deviation = 0.1. Nominal values of average deviation are not used in the AGT800 version of software.
438			b	
439	>Absolute maximum thickness measured (mils)	1 string	c	In this section the Maximum and Minimum thicknesses to be read by this AGT800 system are entered. While processing data for a coil the program will reject measurements of thickness that fall outside this range; they are considered to be invalid ("bad") data. Reducing the Maximum Thickness improves the performance of the system, subject to the considerations given below.
440	1000	1 single	I	This is the maximum thickness that this AGT800 system will measure. This value cannot be more than 1000.0. The program limits this value to 1000.0; if a larger number is entered here the program automatically reduces it to 1000.0. For systems that will only measure thinner material reducing this value will improve the performance. The Maximum Thickness Measured is set only in the Par File, not in the program.
441	>Maximum calibration sample thickness entered (mils)	1 string	c	
442	1000	1 single	o	This is the maximum external calibration sample thickness. It should always be less than the value in line 440. This value is set only in the Par File, not in the program. The default value of the maximum calibration sample thickness is equal to the maximum thickness measured on line 440.
443	>Maximum thickness checked by least squares fit (mils)	1 string	c	

444	1000	1 single	I	This is the maximum thickness to which the least squares fitting routine in the Manual Calibration Screen will try to fit. IF THIS VALUE IS LESS THAN THE VALUE OF THE THICKEST EXTERNAL CALIBRATION SAMPLE THE PROGRAM WILL CHECK UP TO THE THICKNESS OF THE THICKEST CALIBRATION SAMPLE. Reducing this value improves performance. This value should always be less than or equal to the value on line 440.
445	>Minimum measured thickness (mils) [lower values are not stored]	1 string	c	Thickness measurements below this value made while gathering data for a coil are rejected.
446	2	1 single	I	This is the minimum thickness that will be measured by this gauge. It should be set close to, but not at, zero. The recommended value is 2.0. This value is set only in the Par File, not in the program.
447			b	
448	>Number of External Calibration Samples: 1 to	1 string	c	
449	4	1 integer	I	This is the number of samples used in the most recent external calibration. Do not change this value unless you also add or delete values from the list of sample thicknesses shown below in lines 441 to 444.
450	>Entered Values (mils)	1 string	c	These are the thickness values for the calibration samples entered on the Manual Calibration Screen. The program remembers the calibration samples so their thicknesses don't have to be re-entered if the calibration is repeated. The sample thicknesses in this list can be deleted, or have their thickness changed, or have samples added or deleted on the Manual Calibration Screen.
451	60	1 single	I	The AGT800 program automatically arranges the samples in order from thinnest to thickest.
452	120	1 single	I	
453	180	1 single	I	
454	240	1 single	I	
455			b	
456	*** Power supply voltages -- nominal values and tolerances	1 string	h	Heading for the section with Power Supply data. The power supply values on lines 457 to 461 are typical values. The default values are zero for all the power supply voltages. This is the case before the first ISOcal™ is performed. The default values for the tolerances as shown.
457	"Power Supply 1 ",24.08,.5	1 string, 2 singles	o	24 V power supply output & tolerance (e.g. +24.08 V +/- 0.5 V)
458	"Power Supply 2A",5.05,.25	1 string, 2 singles	o	5 V power supply
459	"Power Supply 2A",-15.03,.25	1 string, 2 singles	o	-15 V power supply
460	"Power Supply 2A",15.11,.25	1 string, 2 singles	o	+15 V power supply
461	"Power Supply 2A",-445.97,25	1 string, 2 singles	o	HV power supply (e.g. -445.97 V +/- 25 V) High voltage power supply is not used on the AGT800.
462			b	
463	>Slit scan [1=On | 0=Off]	1 string	c	Turns slit scanning on or off. This allows the AGT800 to create separate Coil Reports for multiple slits in one coil.
464	1	1 integer	I	
465	>Show total slit width accumulation [1=On | 0=Off]	1 string	c	Turns total slit width accumulation on individual slit reports on or off.
466	1	1 integer	I	

467	>Slit edge name (English | Spanish)	1 string	c	The English and Spanish nomenclature names for the slit edge.
468	"",""	2 strings	l	
469	>Slit cut name (English | Spanish)	1 string	c	The English and Spanish nomenclature names for the slit cuts.
470	"",""	2 strings	l	
471			b	
472	>Profile Single Scan Option [1=On | 0=Off]	1 string	c	Turns the single scan option, in the Profile Display, on or off.
473	0	1 integer	l	
474			b	
475	>OnScreen Keyboard Option [1=On | 0=Off]	1 string	c	Shows or hides the onscreen keyboard button on the Main Screen.
476	1	1 integer	l	
477			b	
478	>Severity Codes Option [1=On | 0=Off]	1 string	c	Enables or disables the severity code option for defects.
479	0	1 integer	l	
480			b	
481	>Non GR100 Upgrade Diagnostic Display Option	1 string	c	Unused in the AGT800 version of software.
482	[0=Off | 1=Hide High Voltage | 2=Show High Voltage]	1 string	c	Unused in the AGT800 version of software.
483	0	1 integer	l	Unused in the AGT800 version of software.
484			b	
485	***Laser Setup Section	1 string	h	This section is used to set up the lasers for the AGT800.
486			b	
487	>Laser and Correction Password	1 string	c	Passwords protect the Laser Setup Screen and the Laser Corrections Screen.
488	"8430","8430"	2 strings	l	
489			b	
490	>Laser Models: [Keyence LK-H =0 | DSE ODS =1 | Mic-Eps ILD 2300 =2]	1 string	c	As of 4.00.55 the AGT800 only supports Keyence LK-H lasers (0).
491	>Laser Definitions [Enabled =1 | Not =0] [Model] [Ref Dist(mm)]	1 string	c	
492			b	
493	>Laser 1 Definition	1 string	c	
494	1,0,150	2 integers, 1 single	l	Laser 1 is enabled and it is a Keyence LK-H model with a 150mm reference distance.
495			b	
496	>Laser 2 Definition	1 string	c	
497	1,0,150	2 integers, 1 single	l	Laser 2 is enabled and it is a Keyence LK-H model with a 150mm reference distance.
498			b	
499	>Laser 3 Definition	1 string	c	
500	1,0,150	2 integers, 1 single	l	Laser 3 is enabled and it is a Keyence LK-H model with a 150mm reference distance.
501			b	
502	>Laser Control Box IP Address	1 string	c	This is the IP address of the Laser Control Box.
503	"192.168.50.2"	1 string	l	The default value is 192.168.50.2 and the IP address of the network interface on the AGT800 should be 192.168.50.1.
504			b	
505	>Passline Angle Correction Factor [enabled =1 | disabled =0]	1 string	c	This enables or disables passline angle compensation. If enabled the AGT800 will use the calculated angle difference between sensor 1 and sensor 3 to make corrections to the thickness reading.
506	1	1 integer	l	
507			b	

508	>Passline Angle Correction Factors Do and Db in mm	1 string	c	These are parameters used by the AGT800 software to calculate how much the material passline angle is affecting the thickness reading.
509	.623,-.006	2 singles	I	These should not be changed unless an A.G.T. representative tells you to.
510			b	
511	>Primary Sensors Air Gap Offset (mm)	1 string	c	This is the airgap offset between sensors 1 and 2 calculated during the last ISOcal™.
512	307.0728	1 single	I	
513			b	
514	>Passline Angle Sensor Distance (mm)	1 string	c	The horizontal distance the passline angle sensor is from sensor 1.
515	100	1 single	I	
516			b	
517	>Passline Sensor Offset (mm)	1 string	c	The vertical offset distance the passline angle sensor is from sensor 1 as calculated during the last ISOcal™.
518	.1009018	1 single	I	
519			b	
520	>C-Frame Temp Correction Enabled [enabled =1 | disabled =0]	1 string	c	Enables or disables C-frame temperature correction. As the C-frame expands and contracts due to thermal expansion the AGT800 software will apply a thickness correction based on the C-frame Temp Correction Factor in line 524.
521	1	1 integer	I	
522			b	
523	>C-Frame Temp Correction Factor [mm]	1 string	c	The C-frame temperature correction factor as calculated using data from the last ISOtemp™.
524	.0056	1 single	I	
525			b	
526	*** Spare Data Area	1 string	h	In AGT800 version 4.00.55 the spare data area is not used.
527	""	1 string	o	An output comment showing how the spares are used The variables may be either input or output, depending on how they are used
528	"","","",""	4 strings	I or o	4 string values.
529	0,0,0,0	4 integers	I or o	4 integer values (+/- 32,767).
530	0,0,0,0	4 longs	I or o	4 long integer values (absolute values >32, 767).
531	0,0,0,0	4 singles	I or o	4 floating point (decimal) values (These may use exponential notation, e.g. 1.5128E-02).
532			b	
533	""	1 string	o	An output comment showing how the spares are used.
534	"","","",""	4 strings	I or o	The variables may be either input or output, depending on how they are used.
535	0,0,0,0	4 integers	I or o	
536	0,0,0,0	4 longs	I or o	
537	0,0,0,0	4 singles	I or o	
538			b	
539	""	1 string	o	An output comment showing how the spares are used
540	"","","",""	4 strings	I or o	The variables may be either input or output, depending on how they are used
541	0,0,0,0	4 integers	I or o	
542	0,0,0,0	4 longs	I or o	
543	0,0,0,0	4 singles	I or o	
544			b	These 2 blank lines at the end of the file are essential so that the AGT800 program reads the Par File correctly.
545			b	

Products File (AGTProducts.txt)

TRA – 2/17/2016

The Products File is a list of products, their densities and any measurement offsets applied to them. This information is used by the AGT800 program to determine weight and apply any corrections that may be needed to the thickness measurement of that product. The Product File is called "AGTProducts.txt" and resides in the application directory.

Versions

Version control is built into the AGT800 software and older versions of the Products File should be read by any future version of the AGT800 software. Older versions of the AGT800 software may not be able to read newer versions of the Products File in which case a default set of products may be added.

Mechanics

When the AGT800 program starts, it reads the Products File from the application directory where the AGT800 program resides and loads them into the operating database. When products are added, removed or changed within the AGT800 software these changes are saved to the Products File automatically.

Editing

While it is recommended that the AGT800 program be used to edit the Products File, it can also be edited offline by a text editor, such as notepad, by a field engineer. The AGT800 software must be closed before editing the file manually. Using Windows Explorer double click on AGTProducts.txt. Make your changes and save them when you leave the editing program. DO NOT CHANGE THE STRUCTURE OR FORMAT of the Products File when editing it as a text file. Blank lines must be left blank or the AGT800 program will not read the file correctly. CHANGE ONLY NUMBERS AND TEXT, AND MAKE SURE NOT TO INCLUDE ANY ADDITIONAL COMMAS, TABS OR LINE FEEDS. Commas, tabs, and line feeds are used as "end of field" identifiers when the AGT800 program reads the Products File. Adding any of these characters will change the structure of the Products File and cause the AGT800 program to misread the file. If you need to use separators in comments use the following characters: / - = : [ ] ( )

Products File Values and Explanation

The table below this text section shows a Products File with the values for all the parameters. Except as noted the values are the default values.

- Column one is the line number.
- Column two is the actual data in the Products File.
- Column three shows the variable type.
- Column four shows whether the variable is input to the program or output from the program.
- Column five is a description of the variables and data.

ONLY COLUMN TWO ACTUALLY APPEARS IN THE PRODUCTS FILE. The other columns are included for this document. THE ACTUAL NUMBERS OF LINES IN A PRODUCTS FILE MAY VARY because the number of products and offsets may vary. In this document the words "parameter" and "variable" are often used interchangeably.

The variable types are string, integer (2 byte, +/- 32,767), long (long integer, 4 byte, above +/- 32,767), and single (single precision floating point, decimal). String data is shown in quotation marks. Numeric data is shown without quotation marks. When you edit the Products File and change a variable it is important to know if it is an integer, long integer or floating point variable. DON'T PUT A DECIMAL POINT IN AN INTEGER VARIABLE. This will result in an error "type mismatch" when the program tries to read the file. The decimal may be omitted from a floating point number. (e.g. -- 43.0 or 43 are both correct.) Floating point numbers may also be written in exponential format (e.g. 1.5128E-02 = .015128, 1.4375E03 = 1437.5).

Unless otherwise noted all items with dimensions are given in English units. Thickness is usually given in mils (1 mil = .001"). Variable names have been made as understandable as possible. However, some shorthand has still been used. For example, "min" and "max" are sometimes used for minimum and maximum.

I/O types:

c = comment string
o = output variable
I = input variable
b = blank line

NO COMMAS OR TABS ARE ALLOWED IN COMMENT LINES

Blank lines have no description. However, these blank lines are essential to the program; the routines that read the Products File expect blank lines in the sequence shown.

Var Type:

Strings are lines of alphanumeric data with no embedded commas or tabs.
Integers may assume values to +/- 32,767.
Longs may assume values to +/- (2^31) - 1 (2,147,483,647).
Singles are numbers with a decimal point which may be omitted. (7 = 7.0)

The AGT800 program stores a blank string as "" within the Products File. THESE BLANK STRINGS MUST BE PRESENT FOR THE AGT800 PROGRAM TO READ THE PRODUCTS FILE CORRECTLY!! IF THEY ARE NOT THERE THE RESULTS WILL BE UNPREDICTABLE AND ALMOST CERTAINLY INCORRECT.

Most of the variables shown in column two of this table are the default settings. In some cases more typical data has been shown.

Line #	**Products File Contents** (this column contains the actual data & format of a Products File)	Var type	I/O	Description
001	>Number of Products	1 string	C	Comment
002	2	1 string	I	The number of products in the file. In this case 2 products should be listed below.
003			B	
004	>Product Array	1 string	C	Comment
005			B	
006	“Cold Rolled Steel”	1 string	I	The name of the first product.
007	.284	1 single	I	The density of the first product.
008	3	1 integer	I	Number of offsets for first product. There should be as many target thickness/offset entries below as this number indicates.
009	0,-1.4	2 singles	I	The first number is the TARGET thickness at which the offset (second number) is applied. The offset modifies the thickness reading by the entered amount. In this case, a negative 1.4 mil modifier is applied to the measured thickness reading for all TARGET thicknesses above 0 up to the second offset if present.
010	35, -.7	2 singles	I	This offset will apply a negative .7 mil to the measured thickness for all TARGET thicknesses above 35 mils. If the TARGET thickness is between 0 and 35 then the negative 1.4 offset above would apply. These modifiers DO NOT stack.
011	140, 0	2 singles	I	This offset will apply a 0 mil modifier to all TARGET thicknesses above 140 mils. If the TARGET thickness is between 35 and 140 then the negative .7 offset above would apply.
012			B	
013	“High Carbon Steel”	1 string	I	The name of the second product.
014	.284	1 single	I	The density of the second product.
015	2	1 integer	I	Number of offsets for second product. There should be as many target thickness/offset entries below as this number indicates.
016	0, .2	2 singles	I	The first number is the TARGET thickness at which the offset (second number) is applied. The offset modifies the thickness reading by the entered amount. In this case, a positive .2 mil modifier is applied to the measure thickness reading for all TARGET thicknesses above 0 up to the second offset if present.
017	200, .6	2 singles	I	This offset will apply a positive .6 mil to the measured thickness for all TARGET thicknesses above 200 mils. If the TARGET thickness is between 0 and 200 then the positive .2 mil modifier offset above would apply. These modifiers DO NOT stack.

Replacement Parts

TRA - 2/17/2017

Following is a list of common replacement parts for the AGT800 Thickness Gauge & S.P.C. Reporting System.

Electronics Cabinet Filter

7-3/4” x 8-1/4”, A.G.T. part number FIL-440

Indicator Lamps (measure or classifier)

G.E. Survivor 60A/S-130V, order code 40325, A.G.T. part number LMP-410
Life expectancy is 3,000 hours at 130V or 8,300 hours at 120V.

Laser Controller

Controller, main, Keyence LK laser sensors, part number CKM-810

Laser Controller Expansion Port

Controller, expansion unit, Keyence LK laser sensor, part number CKE-810

Laser Sensor
These are rated to have an average life expectancy of 60,000 to 70,000 hours. This is approximately seven to eight years with continuous operation of 24 hours per day.

Keyence laser sensor, 20 mm. ref distance, +/-3 mm. range, part number LSK-027
Keyence laser sensor, 50 mm. ref distance, +/-10 mm. range, part number LSK-057
Keyence laser sensor, 80 mm. ref distance, +/-18 mm. range, part number LSK-087
Keyence laser sensor, 150 mm. ref distance, +/-40 mm. range, part number LSK-157

Laser Sensor Cable

Cable, Keyence LK laser sensor, high flex, 10 meters, part number CLS-033

Laser Sensor Cover

Cover, laser sensor, polycarbonate, part number CVR-810

Opto22 Fuses (AC and DC out modules)

4 amp, 250V micro fuse, 5 x 20 mm, A.G.T. part number FUS-420

Opto22 Fuse (rack circuit board)

1 amp, 250V micro fuse, 5 x 20 mm, A.G.T. part number FUS-410

Printer Paper

Letter size (8.5” x 11”), white, 20 to 24 lb.

Tachometer Fuse

1/8 amp, 125V micro fuse, A.G.T. part number FUS-440

USB Drive

16GB, PC format, A.G.T. part number USB-400

S.P.C. Definitions

TRA – 2/17/2017

Average (X Double Bar or XBB)

This is the average, weighted by footage, of all the readings in a coil. Our value of XBB may be slightly different (but statistically more correct) than what some customers are used to seeing. We don't just take the average; we weight our readings by the amount of footage that reading is for. For example, reading 1 is .030" and is made 2 feet into the coil (2 feet measured) then the line speeds up. Reading 2 is .036" and is made 6 feet into the coil (4 feet measured). Reading 3 is .033" and is made 8 feet into the coil (2 feet measured). A simple average (.030" + .036" + .033")/3 works out to .033", but our footage weighted (.030 x 2 + .036" x 4 + .033" x 2)/(2 + 4 + 2) gives .03375".

On AGT800 Coil Reports, outliers and/or coil ends may be excluded from this calculation. If only outliers are excluded, the **^** symbol will appear on the Coil Report screen and printout. If only coil ends are excluded, the **'** symbol will appear on the Coil Report screen and printout. If both outliers and coil ends are excluded, the ***** symbol will appear on the Coil Report screen and printout.

Average – Target

This is the average thickness less the target thickness.

Capability Ratio (CR)

CR is calculated as 100/CP, shown as a percent.

CP and CR measure whether the observed variation in the product falls within the range of specifications. An "in spec" product will have CP greater than 1 (or CR less than 100%). An "out of spec" product has CP less than 1.

Capability versus Limits (CPK)

CPK is the lesser of (High Limit – XBB)/(3*sigma) and (XBB – Low Limit)/(3*sigma).

CPK should always be smaller than CP. This is important where the high and low limits cannot be changed, or are asymmetric. CPK gives a "worse case" scenario since it always shows the process to be less capable than CP. It is possible to have a negative value of CPK when the mean is outside the specification limits.

Coil Ends

Coil ends are footage at the start and end of a coil, equal to half of the Minimum Coil Length, which can be adjusted on the System Setup Screen.

If only coil ends are excluded from the AGT800 S.P.C. calculations, the ‘ symbol will appear on the Coil Report screen and printout. If both coil ends and outliers are excluded, the * symbol will appear on the Coil Report screen and printout.

CP (process capability)

CP is calculated as (High Limit – Low Limit)/(6* sigma).

CP and CR measure whether the observed variation in the product falls within the range of specifications. An “in spec” product will have CP greater than 1 (or CR less than 100%). An “out of spec” product has CP less than 1.

CPK (capability versus limits)

CPK is the lesser of (High Limit – XBB)/(3*sigma) and (XBB – Low Limit)/(3*sigma)

CPK should always be smaller than CP. This is important where the high and low limits cannot be changed, or are asymmetric. CPK gives a “worse case” scenario since it always shows the process to be less capable than CP. It is possible to have a negative value of CPK when the mean is outside the specification limits.

CR (capability ratio as a percent)

CR is calculated as 100/CP, shown as a percent.

CP and CR measure whether the observed variation in the product falls within the range of specifications. An “in spec” product will have CP greater than 1 (or CR less than 100%). An “out of spec” product has CP less than 1.

High (Upper Tolerance Limit)

This is the High Limit as entered by the operator. High and low limits are the process specifications.

Length

This is the length of coil as measured by AGT800 footage counter (tachometer).

LCL (Lower Control Limit)

LCL is calculated as XBB - 3*sigma.

UCL and LCL are measures of the process “spread”. Technically speaking, these are the “natural limits”. Therefore this is the full range of values that may be observed except for readings due to some non-statistical cause.

Low (Lower Tolerance Limit)

This is the Low Limit as entered by the operator. High and low limits are the process specifications.

Lower Control Limit (LCL)

LCL is calculated as XBB - 3*sigma.

UCL and LCL are measures of the process “spread”. Technically speaking, these are the “natural limits”. Therefore this is the full range of values that may be observed except for readings due to some non-statistical cause.

Lower Tolerance Limit (Low)

This is the Low Limit as entered by the Operator. High and low limits are the process specifications.

Outliers

Outliers are any thickness readings in excess of three standard deviations from the mean thickness of the coil. If only outliers are excluded from the AGT800 S.P.C. calculations, the **^** symbol will appear on the Coil Report screen and printout. If both outliers and coil ends are excluded, the ***** symbol will appear on the Coil Report screen and printout.

Process Capability (CP)

CP is calculated as (High Limit – Low Limit)/(6* sigma).

CP and CR measure whether the observed variation in the product falls within the range of specifications. An “in spec” product will have CP greater than 1 (or CR less than 100%). An “out of spec” product has CP less than 1.

R Bar

R Bar is calculated as 3* sigma**.**

Sigma (standard deviation)

Sigma is calculated as √(sum ((Xi – XBB)²/(Nreadings)) where Xi are the individual readings and Nreadings is the total number of readings for a coil.

This is the key number for understanding process variation. On AGT800 Coil Reports, outliers and/or coil ends may be excluded from this calculation. If only outliers are excluded, the **^** symbol will appear on the Coil Report screen and printout. If only coil ends are excluded, the " symbol will appear on the Coil Report screen and printout. If both outliers and coil ends are excluded, the ***** symbol will appear on the Coil Report screen and printout.

S.P.C.

S.P.C. stands for statistical process & control.

Standard Deviation (sigma)

Sigma is calculated as √(sum ((Xi – XBB)²/(Nreadings)) where Xi are the individual readings and Nreadings is the total number of readings for a coil.

This is the key number for understanding process variation. On AGT800 Coil Reports, outliers and/or coil ends may be excluded from this calculation. If only outliers are excluded, the **^** symbol will appear on the Coil Report screen and printout. If only coil ends are excluded, the " symbol will appear on the Coil Report screen and printout. If both outliers and coil ends are excluded, the ***** symbol will appear on the Coil Report screen and printout.

Target

This is the target thickness as entered by the operator.

TMW Ratio

TMW ratio is calculated as Low Limit/Average**.**

UCL (Upper Control Limit)

UCL is calculated as XBB + 3*sigma.

UCL and LCL are measures of the process "spread". Technically speaking, these are the "natural limits". Therefore this is the full range of values that may be observed except for readings due to some non-statistical cause.

Upper Control Limit (UCL)

UCL is calculated as XBB + 3*sigma.

UCL and LCL are measures of the process “spread”. Technically speaking, these are the “natural limits”. Therefore this is the full range of values that may be observed except for readings due to some non-statistical cause.

Upper Tolerance Limit (High)

This is the Low Limit as entered by the operator. High and low limits are the process specifications.

Weight

This is the weight of the coil calculated from measured length, measured thickness and density as entered on the Product Menu screen.

X Double Bar (XBB or average)

This is the average, weighted by footage, of all the readings in a coil. Our value of XBB may be slightly different (but statistically more correct) than what some customers are used to seeing. We don’t just take the average; we weight our readings by the amount of footage that reading is for. For example, reading 1 is .030” and is made 2 feet into the coil (2 feet measured) then the line speeds up. Reading 2 is .036” and is made 6 feet into the coil (4 feet measured). Reading 3 is .033” and is made 8 feet into the coil (2 feet measured). A simple average (.030” + .036” + .033”)/3 works out to .033”, but our footage weighted (.030 x 2 + .036” x 4 + .033” x 2)/(2 + 4 + 2) gives .03375”.

On AGT800 Coil Reports, outliers and/or coil ends may be excluded from this calculation. If only outliers are excluded, the **^** symbol will appear on the Coil Report screen and printout. If only coil ends are excluded, the ‘ symbol will appear on the Coil Report screen and printout. If both outliers and coil ends are excluded, the ***** symbol will appear on the Coil Report screen and printout.

XBB (X Double Bar or average)

This is the average, weighted by footage, of all the readings in a coil. Our value of XBB may be slightly different (but statistically more correct) than what some customers are used to seeing. We don’t just take the average; we weight our readings by the amount of footage that reading is for. For example, reading 1 is .030” and is made 2 feet into the coil (2 feet measured) then the line speeds up. Reading 2 is .036” and is made 6 feet into the coil (4 feet measured). Reading 3 is .033” and is made 8 feet into the coil (2 feet measured). A simple average (.030” + .036” + .033”)/3 works out to .033”, but our footage weighted (.030 x 2 + .036” x 4 + .033” x 2)/(2 + 4 + 2) gives .03375”.

On AGT800 Coil Reports, outliers and/or coil ends may be excluded from this calculation. If only outliers are excluded, the **^** symbol will appear on the Coil Report screen and printout. If only coil ends are excluded, the **‘** symbol will appear on the Coil Report screen and printout. If both outliers and coil ends are excluded, the ***** symbol will appear on the Coil Report screen and printout.

AGT800-SPC Specifications

TRA – 2/17/2017

Thickness Range	1 to 19 mm. (.040 to .750″)
Strip Width	up to 244 cm. (96″)
Air Gap	310 mm. (12.20″)
Measurement Range	± 25 mm. (± 1.00″)
Light Source	Red semi-conductor laser
Wavelength	650 nm.
IEC/IFDA (CDRH) Laser Class	Class 2/Class II
Laser Power Output	0.95 mW
Laser Spot Diameter	120 µm. x 4,200 µm (at reference distance)
Ambient Light Resistance	5,000 lux maximum (incandescent or fluorescent)
Sampling Cycle	1 ms.
Response Time	10 ms.
Calibration Accuracy	< 10 µm (.39 mils)
Linearity	± 32 µm (± 1.26 mils)
Analog Output Resolution	1 µm.
Precision (Noise)	~ 5 µm.
Temperature Range	0 to 50° C (32 to 122° F)
Relative Humidity Range	35 to 85% (no condensation)

System Messages

TRA - 2/17/2017

Following is a list of system messages most likely to be encountered when using the AGT800 Thickness Gauge & S.P.C. Reporting System. AGT800 system messages may appear during program start, in the Message Center of the Main Screen or in various text boxes.

AGT800 was recently powered up. For optimal performance, please allow lasers 30 minutes to reach normal operating temperature.

The AGT800 software was recently started. The laser sensors take approximately 30 minutes to stabilize their temperature and give accurate readings. Anytime the program is stopped, power is turned off in the laser control box.

Applying a x.x <Units> offset for product <Product Name> with a target of xx.x <Units>.

The AGT800 software has applied an offset thickness based on the offset table, located in the Product Menu, of the current product and target thickness.

Can't move frame while Data Diagnosis is in progress.

C-frame movement functions are not available during the first ten seconds (approximately) after the AGT800 software is initialized. Wait a few seconds and command the C-frame to move again.

Can't move in from the 'off' limit.

From the Off Sheet limit switch, the C-frame can only be moved in the On Sheet direction.

Can't move out from the 'in' limit.

From the On Sheet limit switch, the C-frame can only be moved in the Off Sheet direction.

C-frame temperature has deviated beyond allowed limit. Please perform an ISOcal™ before running the next coil.

The temperature sensor in the C-frame indicates the current C-frame temperature has deviated from the temperature used in the last calibration past the number of degrees allowed in the system setup. This can cause inaccurate measurements and an ISOcal™ should be performed as soon as possible.

Check Limit and Target values.

The entered target value lies outside the limits entered or the entered limits contain invalid values (the high limit is less than the low limit or vice versa).

Client xxx connected from zzz.zzz.zzz.zzz:yyyyy

A remote client (xxx) has connected to the TCP/IP HMI Service at port yyyyy from the ip address of zzz.zzz.zzz.zzz.

Coil data exceeds storage capability.

Coil run time may have exceeded the maximum 30,000 data points of storage. Each data point is taken at 250ms intervals resulting in a run time of 125 minutes.

Error: 6 Overflow.

Coil run time may have exceeded the maximum 30,000 data points of storage. As of software version 4.00.55, each data point is taken at 250ms intervals resulting in a run time of 125 minutes.

Error: 9 Subscript out of range.

The AGT800 software attempted to manipulate data it was not expecting. Contact A.G.T. for assistance.

Error: 13 Type mismatch.

The file in question has an incorrect format. Contact A.G.T. for further assistance.

Error: 48 Error in loading file.

A necessary file has been deleted or moved. Try restarting the computer, restore the file from the Recycle Bin or contact A.G.T. for further assistance.

Error: 52 Bad file name or number.

A necessary file has been deleted or moved. Try restarting the computer, restoring the file from the Recycle Bin, checking USB drive or network connection (if applicable) or contact A.G.T. for further assistance.

Error: 53 File not found.

A necessary file has been deleted or moved. Try restarting the computer, restoring the file from the Recycle Bin, checking USB drive or network connection (if applicable) or contact A.G.T. for further assistance.

Error: 57 Disk not ready or unavailable – check disk.

A hard disk read or write is called and an error occurs while reading or writing to the disk. Check USB drive or network connection (if applicable) or contact A.G.T. for further assistance.

Error: 62 Input past end of file.

The AGT800 software attempted to read data from a file but got data it was not expecting. This could be the result of an invalid or corrupt file.

Error: 68 Disk not ready or unavailable – check disk.

A hard disk read or write is called and an error occurs while reading or writing to the disk. Check USB drive or network connection (if applicable) or contact A.G.T. for further assistance.

Error: 71 Disk not ready or unavailable – check disk.

A hard disk read or write is called and an error occurs while reading or writing to the disk. Check USB drive or network connection (if applicable) or contact A.G.T. for further assistance.

Error: 72 Disk not ready or unavailable – check disk.

A hard disk read or write is called and an error occurs while reading or writing to the disk. Check USB drive or network connection (if applicable) or contact A.G.T. for further assistance.

Frame drive power turned off after timeout.

The C-frame was commanded to Move On, Move Off or Oscillate, and a period of time elapsed without the AGT800 receiving feedback that the frame had traversed across the strip. The 'Frame Motor Maximum On Cycles' item in the Parameter File is set to a number, typically 30 seconds (shown as 600 50-millisecond increments). If C-frame movement is commanded and this amount of time is exceeded without the proper digital inputs from the C-frame limit switches or photocells, this message will appear. See the procedures for C-frame Won't Move or C-frame Speed Incorrect.

Free Hard Disk Space = xx Mb.

The free hard disk space < 100 Mb. at the end of a shift. Delete some of your oldest data, and restart the computer.

Free USB Disk Space = xx Mb.

The free USB disk space is running low at the end of a shift. Replace the USB disk and restart the computer.

Network Server listening on port yyyy.

The TCP/IP HMI service has started and is listening to port yyyy.

No communication with Laser Control Box. Check Laser Power Switch.

The AGT800 software is unable to communicate with the Laser Control Box. Check that the network cable between the computer and the Laser Control Box is connected, that the Laser Power Switch is turned on and the Laser Control Box has power.

No data stored for shift report.

No coils were processed during this designated shift and no shift report was created.

No material is present. Move C-frame On Sheet before trying to measure.

The measure button was engaged while no material was detected by the C-frame photoeyes.

Laser x is out of range.

During measuring, the material deviated out of the range of the laser sensor to measure. It either moved too far away from the sensor, too close to the sensor or wasn't present for the sensor to measure.

Lasers 1 and 2 are out of range. Is material inserted at passline height?

Both measuring laser sensors are unable to detect material.

Lasers 1, 2 and 3 are out of range. Is material inserted at passline height?

Both measuring laser sensors and the passline angle compensation laser are unable to detect material.

Laser power is turned off. Check Laser Power Switch.

The AGT800 software has detected that the Laser Power Switch is turned off. Turn the switch on to allow power to the laser sensors.

Parameter file missing -- call maintenance!

The AGT800 parameter file (AGTpar2.txt) was missing when the program started. Acknowledge the message, go to the System Setup Screen, and perform the Restore Par procedure.

Short coil or not enough data. No report produced

The length of the coil was less than the minimum coil length parameter set in the system settings. No coil report was generated.

The data in your serial number file is incorrect.

The parallel port or USB security dongle is not communicating properly with the AGT800 software. See the procedure for Software Inoperable.

Unable to connect to LCB at 192.168.50.2.

During software startup the AGT800 software was unable to establish a connection with the Laser Control Box. Check that the network cable between the computer and the Laser Control Box is connected, that the Laser Power Switch is turned on and the Laser Control Box has power.

You have attempted to run an improperly installed program

One or more of the AGT800 security files may be corrupted or missing. Contact A.G.T. for further assistance.

Your serial number file has been lost or corrupted.

One or more of the AGT800 security files may be corrupted or missing. Contact A.G.T. for further assistance.

INDEX

D

J

K

L

M

N

O

P

Q

R

S

T

U

V

W

Y

Z