Installation Manual & Set-Up Guide

IntelliTrace

Ordinary Area

ITAS Ambient Sensing Control Panel
ITAS-EXT Ambient Sensing Extender Control Panel
ITLS Line Sensing Control Panel
ITLS-EXT Line Sensing Extender Control Panel

Hazardous Area

ITASC1D2 Ambient Sensing Control Panel
ITASC1D2-EXT Ambient Sensing Extender Control Panel
ITLS C1D2 Line Sensing Control Panel
ITLS C1D2-EXT Line Sensing Extender Control Panel

CHROMALOX
Advanced Thermal Technologies

PK497-4
0037-75514
November 2017

Safety Precautions

IMPORTANT SAFEGUARDS

Throughout the IntelliTrace® Setup Guide, these symbols will alert you to potential hazards. Safety precautions should always be followed to reduce the risk of fire, electrical shock, injury and even death to persons.

Please read all instructions before operating your IntelliTrace® ITLS, ITAS, ITLS-EXT or ITAS-EXT Control Panel.

To avoid electrical shock or injury, always remove power before servicing a circuit. Personnel working with or near high voltages should be familiar with modern methods of resuscitation. Contact an area supervisor or safety personnel for more information.

WARNING

HIGH VOLTAGE is used in the operation of this equipment; DEATH ON CONTACT may result if personnel fail to observe safety precautions.

Learn the areas containing high-voltage connections when installing or operating this equipment.

Be careful not to contact high-voltage connections when installing or operating this equipment.

Before working inside the equipment, turn power off and ground all points of high potential before touching them.

WARNING
ELECTRIC SHOCK HAZARD

Any installation involving control equipment must be performed by a qualified person and must be effectively grounded in accordance with the National Electrical Code to eliminate shock hazard.

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Introduction

IntelliTrace

For nearly 100 years, customers have relied upon Chromalox for premiere quality and innovative solutions for industrial heating applications. Chromalox manufactures the world's largest and broadest line of electric heat and control products.

The IntelliTrace® ITLS & ITAS Series Multiple Circuit Panels and Extender Panels are a complete temperature control and system management solution for electrical heat trace applications. They are designed for industrial applications in Hazardous (Class I, Division 2) or Non-Hazardous environments.

IntelliTrace® provides the user with an easy to navigate touch-screen interface, system parameter monitoring, off duty preventative maintenance, application flexibility and system customization.

The ITAS and ITASC1D2 provide Ambient Sensing control while the ITLS and ITLSC1D2 provide either Line Sensing control or a hybrid of both Line and Ambient Sensing control.

IntelliTrace® Features:

- 40 Amps/Circuit @ 100 – 600 VAC
- SSR Output Power Control
- 2 to 72 Circuit
- Large Touch Screen HMI
- Integral Control Panel and Circuit Breaker Distribution (non-hazardous areas)
- 1-pole or 2-pole Designs
- Soft Start, On/Off, PID and Manual (Hand) Control
- Modbus RTU/RS485 or TCP/Ethernet Communications
- Full Monitoring & Alarms (Lo/Hi Current & Temperature, Sensor, Transmitter Battery, Communications & GFEP)
- Hazardous (Class I, Division 2) and Non Hazardous Environments
- NEMA 4 Enclosure (Optional NEMA 4X 304 SS)
- UL, cUL Listing (CE available)

Touch Screen Computer:

- 10” on 6 – 72 Circuit Systems and 7” On 2 – 8 Circuit Systems
- 2 or 6 Circuit Circuit Detail Displayed at a Time
- Quick Launch to any 2 or 6 Circuit Group Display
- Remote Desktop Monitoring
- Extremely Intuitive Navigation, User Setting and Operation
- Fully Customizable Circuit Naming and Parameter Programming

Options:

- Powerful and Flexible Sensor Mapping (ITLS, ITLSC1D2 only)
- Enclosure Heater
- Fully Integrated Wireless Temperature Sensing
- IntelliTrace® Supervisory Control (ISC) for Central Command of Multiple Systems

Model Overview

The Chromalox line of IntelliTrace® Heat Trace Control Panels provides a significant amount of application and feature flexibility.

The ITAS and ITASC1D2 are designed for Ambient Sensing applications while the ITLS and ITLSC1D2 are designed for Line Sensing applications. Additionally, the ITLS and ITLSC1D2 have the capability to function as both a Line Sensing control panel and an Ambient Sensing control panel should the Customizable Sensor Mapping feature be selected.

The IntelliTrace® matching ITAS-EXT, ITASC1D2-EXT and ITLS-EXT, ITLSC1D2-EXT Extension Panels provide the flexibility for the owner to meet their process expansion needs. Simply connect the Extension Panel to its matching ITLS, ITLSC1D2 or ITAS, ITASC1D2 Base Panel and circuit capacity is seamlessly increased. The Extension Panels do not have a HMI, but otherwise are identical.

These panels are UL and cUL Listed for Ordinary (Non Hazardous ITLS/ITAS) and Hazardous (Class I, Division 2 ITLS/ITAS C1D2) Environments. CE is available.

Please see Table 1 below for applicable features and capabilities by model type.

Table 1

Standard Features/Capabilities	ITLS	ITLS C1D2	ITAS	ITAS C1D2	ITLS-EXT	ITLS C1D2-EXT	ITAS-EXT	ITAS C1D2-EXT
Ordinary, Non-Hazardous Area	X	n/a	X	n/a	X	n/a	X	n/a
Hazardous Area (Class I, Division 2)	n/a	X	n/a	X	n/a	X	n/a	X
7" Touch Screen HMI (2-4 Loop Versions)	X	X	X	X	n/a	n/a	n/a	n/a
10" Touch Screen HMI (6-48 Loop Versions)	X	X	X	X	n/a	n/a	n/a	n/a
40 Amps/Loop @ 100-600 VAC	X	X	X	X	X	X	X	X
Circuits	2, 4, 6, 8, 12, 18, 24, 30, 36, 42, 48 (Expandable to 72 with -EXT Panel)							
SCR Control	X	X	X	X	X	X	X	X
NEMA 4 Enclosure	X	X	X	X	X	X	X	X
Integral Circuit Panel with Circuit Breakers	X	n/a	X	n/a	X	n/a	X	n/a
Soft Start Feature	X	X	X	X	1	1	1	1
Full Communications	X	X	X	X	1	1	1	1
Full Alarm Capabilities	X	X	X	X	1	1	1	1
Complete GFEP Monitoring & Alarms	X	X	X	X	1	1	1	1
Load Monitoring & Alarms	X	X	X	X	1	1	1	1
Sensor Mapping	X	X	X	X	1	1	1	1
UL, cUL Listing	X	X	X	X	X	X	X	X
Options								
Enclosure Heater	X	X	X	X	X	X	X	X
Wireless Temperature Sensing	X	X	X	X	1	1	1	1
Main Breaker/Disconnect	X	n/a	X	n/a	X	n/a	X	n/a
Nema 4X 304 SS Enclosure	X	X	X	X	X	X	X	X
HMI Sunshield	X	X	X	X	n/a	n/a	n/a	n/a
Panel Weathersheild	X	X	X	X	X	X	X	X
Heater Power and RTD Terminal Blocks	X	X	X	X	X	X	X	X
Z-purge system	X	n/a	X	n/a	X	n/a	X	n/a
Panel Light (on separate breaker)	X	X	X	X	X	X	X	X
Powered Receptacle (on separate breaker)	X	X	X	X	X	X	X	X
Copper Ground Bar	X	X	X	X	X	X	X	X
CE available	X	X	X	X	X	X	X	X

X - Available as a standard or option for this model
1 - This feature is enabled when paired with matching base panel
n/a - This feature is not available for this model

Theory of Operation

The set-up of the individual and global circuit parameters is explained in the Temp/Load Set-up sections of this manual. This Theory of Operation overview is intended to give a quick summary of how it all works together.

- Each circuit of the system may be enabled (active) or disabled (inactive). A disabled loop will have no output and will not map into the common alarm. It will display “Circuit #” and “Disabled” text above the process temperature. Alarms for disabled circuit will not be monitored or displayed on the screen.
- Each circuit of the system may use unique individual control parameters or the control parameters may be alike. The Global Settings function facilitates this action.
- The GFEP and Load current are automatically and continuously being calculated. The horizontal orange bar indicates the average output current for that circuit. The GFEP current value is not displayed on the screen but its value is compared to the GFEP setpoint. A GFEP alarm condition will occur when the GFEP current value exceeds the GFEP setpoint value.
- If a ground fault that exceeds the GFEP setpoint value is detected during normal operation and “Trip” button on the Load Setpoints screen is checked, the output of the defective circuit is set to 0% and that circuit goes into an alarm condition. If “Trip” button is not selected, the operation of that circuit continues and that circuit goes into alarm condition. The GFEP alarm may be either Latching or Non-Latching.
- During extended periods of time where the output of all circuits are off, such as during warmer seasons, the Auto Cycle feature may be engaged. This feature initiates power to each circuit and checks for alarms. Each output is tested for one minute within the desired Auto Cycle Interval. The Auto Cycle feature may be disabled by setting the Auto Cycle Interval time to “0 Hours”.
- To limit inrush current on the overall system, a proprietary Soft Start algorithm is applied during system start-up. This will ONLY occur while the operation mode is set to AUTO. The Soft Start program will increment output % by 1% every 1 second until the desired temperature is reached or the output % achieves 100%. After the Soft Start program completes its cycle, the Control Mode of the system will either be PID or ON/OFF Control Mode, depending what was selected by the user. The Soft Start Program will not function if the control mode is set to Manual.
- Centralized control of multiple ITAS or ITLS panels is accomplished via the ISC-IntelliTrace Supervisory Controller.

Types of Sensing Control

Ambient Sensing Control

Strict ambient-sensing control utilizes a thermostat or a simple electronic controller which senses the ambient temperature via an RTD, Thermocouple or Bulb & Capillary sensor. This is the simplest type of control as the heating circuit is energized only when the ambient temperature drops below the setpoint of the controlling device. This is also known as On/Off control. A relatively large temperature variation around the setpoint is anticipated. Mechanical thermostats are often employed due to their low cost and acceptable accuracy. Multiple heater circuits are controlled by a singular ambient sensed temperature. This is the least efficient type of control and it is typically limited to freeze-protection applications.

PASC - Proportional Ambient Sensing Control

Proportional ambient sensing control (PASC) utilizes an electronic controller which continuously compares ambient temperature and the rate of the change of the ambient temperature to the desired temperature setpoint and regulates the heater output power accordingly. The result is a smaller temperature variation around the desired setpoint and a much smoother response to changing weather conditions. Like ambient sensing control, multiple heater circuits are controlled by a singular ambient sensed temperature. PASC control is therefore significantly more energy efficient than ambient sensing control. PASC control can be employed in a variety of heat trace temperature control applications but is typically used for freeze protection.

Line Sensing Control

Line sensing control is where each heated section of pipe (or heated surface area) is controlled independently of other sections of pipe and therefore must have its own controller. Multiple sections of pipe may also be independently controlled by an electronic multiple circuit control system. The control method may be either proportional or On/Off control. Each section may have different setpoints and different allowances around the setpoint temperature. Line sensing control is typically found in process temperature maintenance applications. These applications are typically more critical and thus demand tighter temperature control. Electronic control is highly recommended over thermostat control. Like PASC, the pipe surface temperature and the rate at which it is changing is continuously compared to the setpoint temperature. The controller responds to these variations and regulates the heater output power accordingly. Mission critical applications should only be managed by controllers which monitor all parameters and present alarms both locally and remotely via communications or supervisory control means.

Before Powering Up

Chromalox takes great pride in knowing that we have provided to you a product of premium quality and workmanship. We have taken every precaution to ensure that your equipment arrives safe and secure.

However, vibration and temperature changes during shipping can cause some components to become loose. Additionally, throughout the life span of this product, other environmental and application conditions may have affected the mechanical and electrical continuity of several internal components. Therefore, for your safety and overall product performance, please take the time to familiarize yourself with the **MAINTENANCE, OPERATION, AND INSTALLATION INSTRUCTIONS** technical manual that was shipped with your panel.

Since it is not uncommon for electrical wiring and mechanical connections to become slightly loosened during shipment, we ask that you pay particular attention to section 4-5.3 Wiring and Connections:

4-5.3 WIRING AND CONNECTIONS. Check wiring and connections as follows:

a. Inspect wiring for wear, fraying, chipping, nicks, and evidence of overheating. Repair minor defects with a good grade of electrical tape, or replace if needed.

b. Inspect for loose electrical and mechanical connections. Tighten or replace defective crimp-style lugs. Re-solder loose solder connections. Tighten or replace all loose or missing hardware.

General Panel Notes

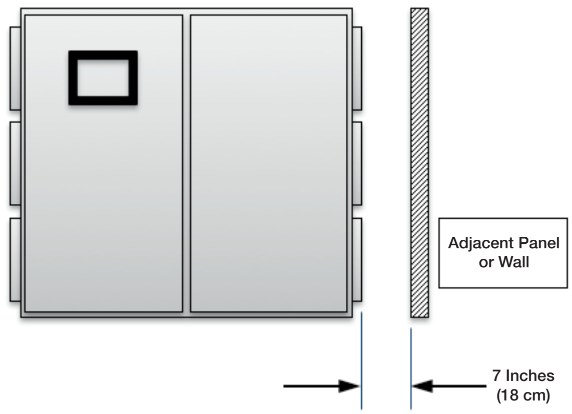
1. This panel is designed to UL508A to facilitate NEC and CEC compliance, However it is the responsibility of installer(s) and end user(s) to make sure that the installation wiring and all equipment, including this panel, fulfill appropriate national and local electrical code requirements.
2. Incoming and outgoing branch circuit conductors may not be protected by fuses or breakers in this panel. Consult appropriate national and local electrical codes and device specifications for selective coordination.
3. Protection relays must be set on site according to the requirements of the site engineer's protection study. Low-level ground fault protection, if required, should be provided.
4. Consult all applicable instruction manuals.
5. Customer interlocks are provided for use of external shutdown device(s). Interlocks require contacts that open to trip or shutdown.
6. Contacts are shown in the de-energized state. Controller contacts shown on electrical schematics are internal to the controller. Most of these contacts are programmable to suit the mode of operation. Consult the appropriate user manual(s).
7. Dashed lines indicate user field wiring connections.
8. The panel installer must ground the panel according to appropriate national and local electrical code requirements.
9. Conduit openings in enclosure are to be user installed, sized and located as required. Hubs or fittings must be of the same environmental rating as the enclosure to maintain integrity.
10. Unless fitted with an HMI sun sheild, do not place this equipment in direct sunlight.
11. Unless panel is properlly equipped with an enclosure heater for ambient temps below 0°C (32°F), the ambient temperature outside this panel must be between 0°C (32°F) and 40°C (104°F).
12. If the panel cannot be placed into service upon receipt, an anticondensation heater must be used to prevent condensation from forming inside the panel. This heater can be user supplied or factory supplied but must be used to prevent damage to the panel.
13. Dimensions are for reference only, and are nominal unless otherwise specified.

Installation

Heat Sink Considerations – Heat Dissipation

The Chromalox ITLS, ITLSC1D2, ITAS & ITASC1D2 Multiple Loop Heat Trace panels employ SSRs (Solid State Relays) as a means to switch the heating load power. Inherently, SSRs produce heat when operating. This heat is dissipated through the heat sinks which are typically mounted on the sides of the enclosures. These heat sinks must be mounted such that the fins are vertically orientation in order to allow the heat sink to properly dissipate the heat from the controller. The air flow around these heat sinks must in no way become restricted.

To maintain UL/cUL listing, the heat sinks must be inspected prior to and during every season, or no more than every 12 months, to confirm that no debris or objects are in contact with the heat sink. All debris must be removed from the heat sink fins. High pressure blasts of clean, dry air or other means which will not damage the fins are to be used to dislodge all debris from the fins.



Servicing Heat Sinks

In the rare occurrence that the Power Board assembly, which includes the Heat Sink, needs to be removed or inspected, a minimum of 7 inches (18 cm) of clearance is needed to externally withdraw the assembly from the enclosure.

Outdoor Applications

Equipment protection from the environment must be carefully considered when installing these systems outdoors. Both **Solar Loading** and **UV Rays** from the sun can impact the performance of these systems.

<u>Solar Loading</u>

The panel ratings, per UL/cUL, are based on operating the panel within the listed Ambient Environmental temperatures and under NO SOLAR LOAD (exposure to direct sunlight).

Therefore, it is <u>**highly recommended**</u> to install an adequately designed Solar Shield to provide shade across the entire top of the panel so no solar load is realized. This Shield will also provide some protection to the HMI Touchscreen.

See the appendix for Solar Shield design options offered by Chromalox.

<u>UV Rays</u>

The IntelliTrace® Heat Trace Panels employ an HMI Touch Screen with LED backlit technology. UV Rays are known to be damaging to these types of HMI touch screens. Chromalox insists on installing HMI Sunscreens in all outdoor applications to protect the HMI Touch screen from these harmful rays.
See the appendix for HMI Sunscreen design options offered by Chromalox.

Please note that warranties will only be honored if all of the following conditions are met:

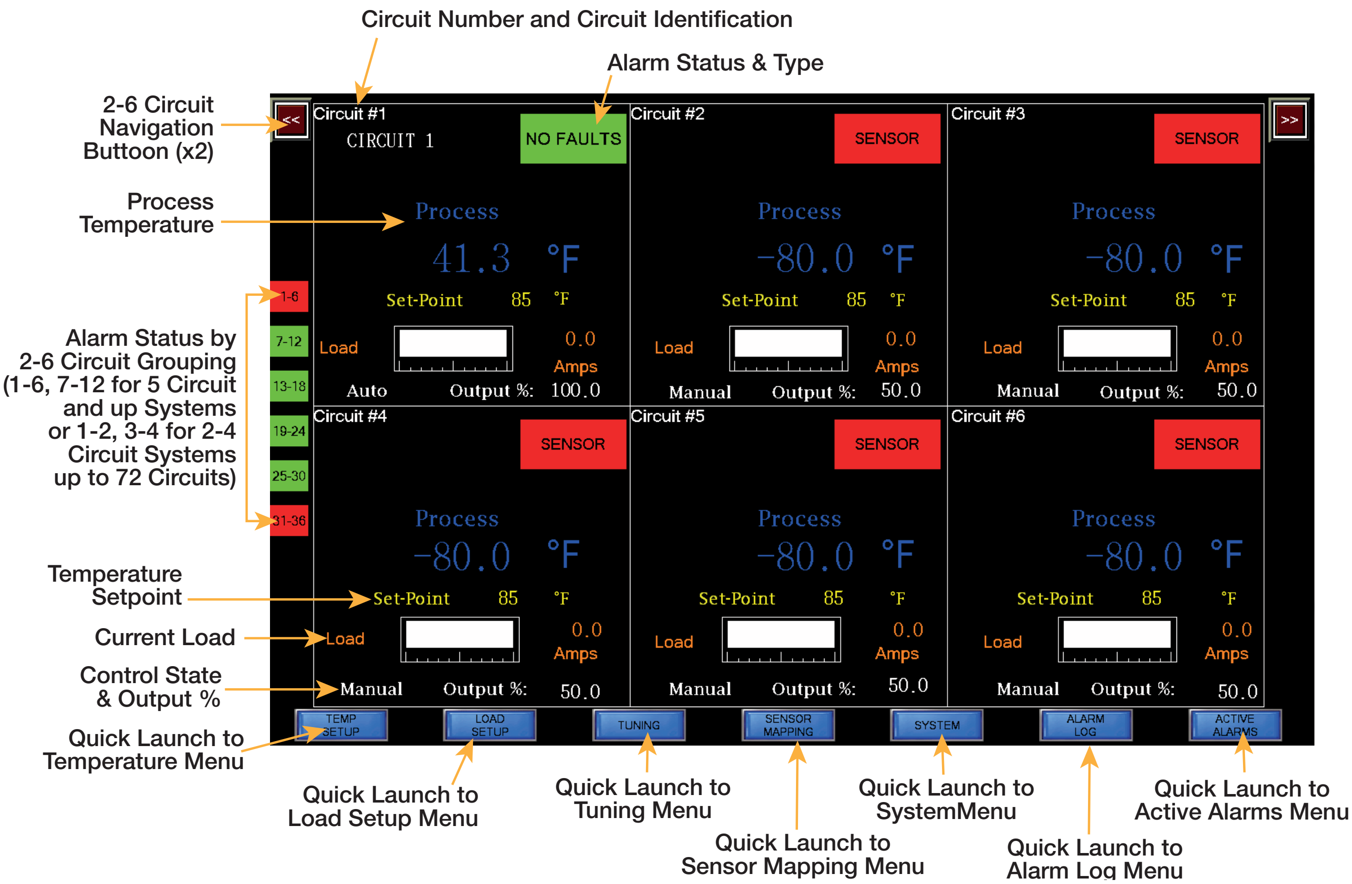
1. Suggested options are adequately designed are properly employed
2. These designs must either meet or exceed the designs suggested by Chromalox
3. This Optional Equipment must be installed prior to initial equipment commissioning

Main Menu Screen

The ITAS/ITLS Touch Screen Computer is extremely user friendly and quite intuitive. Navigation to any other screens or any 2 or 6 circuit grouping of circuits is accomplished by selecting the blue labeled buttons along the bottom of the screen or in the upper right or left hand corners.

The main menu screen displays alarm status, circuit number, circuit name, process and set point temperatures, current load demand, manual/auto control state and output percentage for 2-6 circuits at a time. See Figure 1.

Figure 1



Temp Setup Menu

The Temp Setup button at the bottom of the screen is a quick launch to the Temperature Property Sheet which is simply a series of tabaulated screens. See Figure 2.

Figure 2

Each block contains input cells for the panel operation. For example, temperature and overide controls are located within the Temp Setup Screen.

Navigation notes:

1. Each screen illustrates 2 or 6 circuits at a time. To make setting changes to circuits beyond the current screen within the menus, one must select the Circuit Navigation buttons in the upper right or left of screen.
2. For most screens, to save your settings and exit back to the mail screen, select the “X” button in the lower right corner of the screen.

Security Levels & Password Screen

After touching the Temp Setup button, but before the Temp Setup Menu is presented, a pop-up screen requesting a password will appear. See Figure 3:

Figure 3

Initial factory set passwords for the below levels of Security are:

Level	Title	Code
4.	Manager	999
3.	Engineering	55
2.	Supervisor	20
1.	Operator	100

Enter the appropriate password and then hit ENT to continue to the setup screen.

Each of the above Security Levels has predefined accessibility and rights within the programming of the control panel. They include:

Level	Title	Accessibility/Rights
4.	Manager	All customer pages, all passwords and Setpoints editing
3.	Engineering	All customer pages, Engineering password and All Setpoints editing
2.	Supervisor	Setpoints, Tuning and Sensor Mapping Tabs & All Setpoints editing
1.	Operator	Setpoints Tab. Temperature Set Point editing

Changes to specific areas within the menus can only be made once the correct security level code has been selected.

Temp Setup Menu

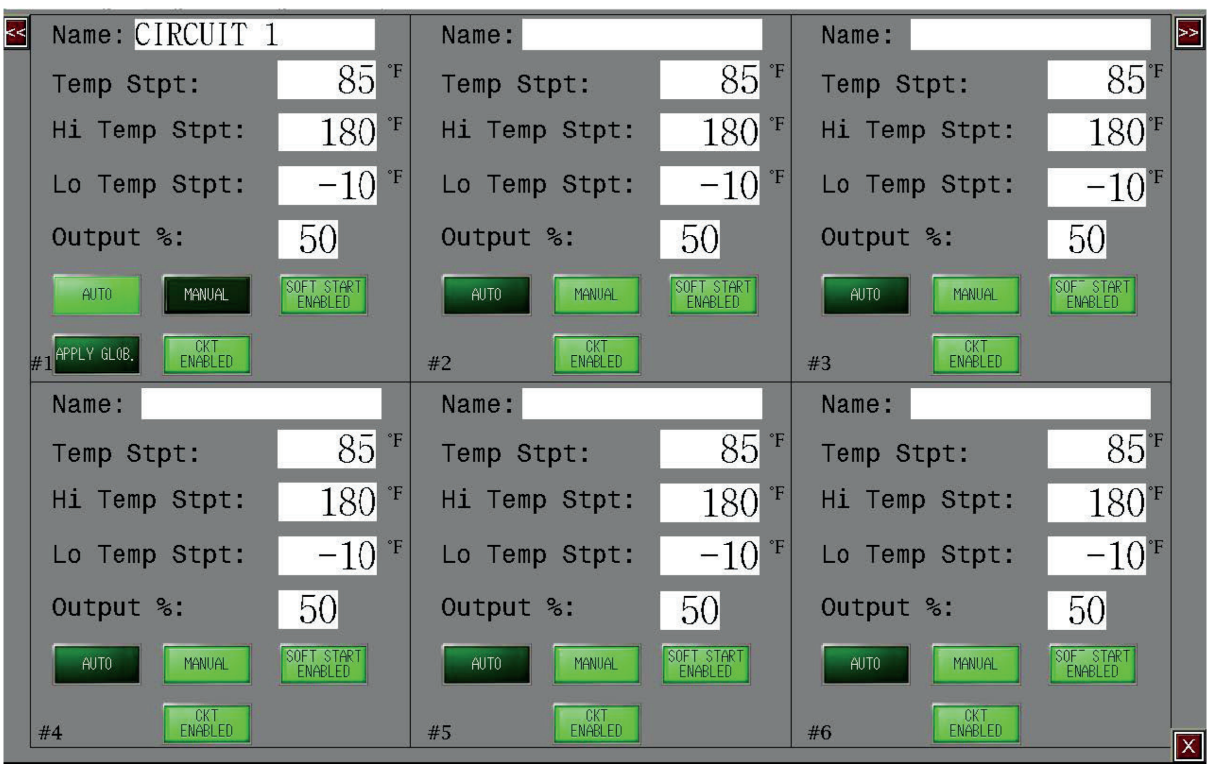
The Temp Setup Menu tab (See Figure 4) contains input cells for the following settings for each circuit:

- Customized Naming of each Circuit
- Process Temperature Set Point
- High & Low Temperature Alarm Limits
- Maximum allowable GFEP (Ground Fault Equipment Protection) Alarm Limit
- Output behavior, whether Automatically or Manually
- Manual Output Load Percentage (if enabled)
- Circuit Output Override (Enable or Disable Each Circuit)

Additionally, there exists a "Global Setting" within the Circuit# 1 Grid

- Apply Globally Setting

Figure 4

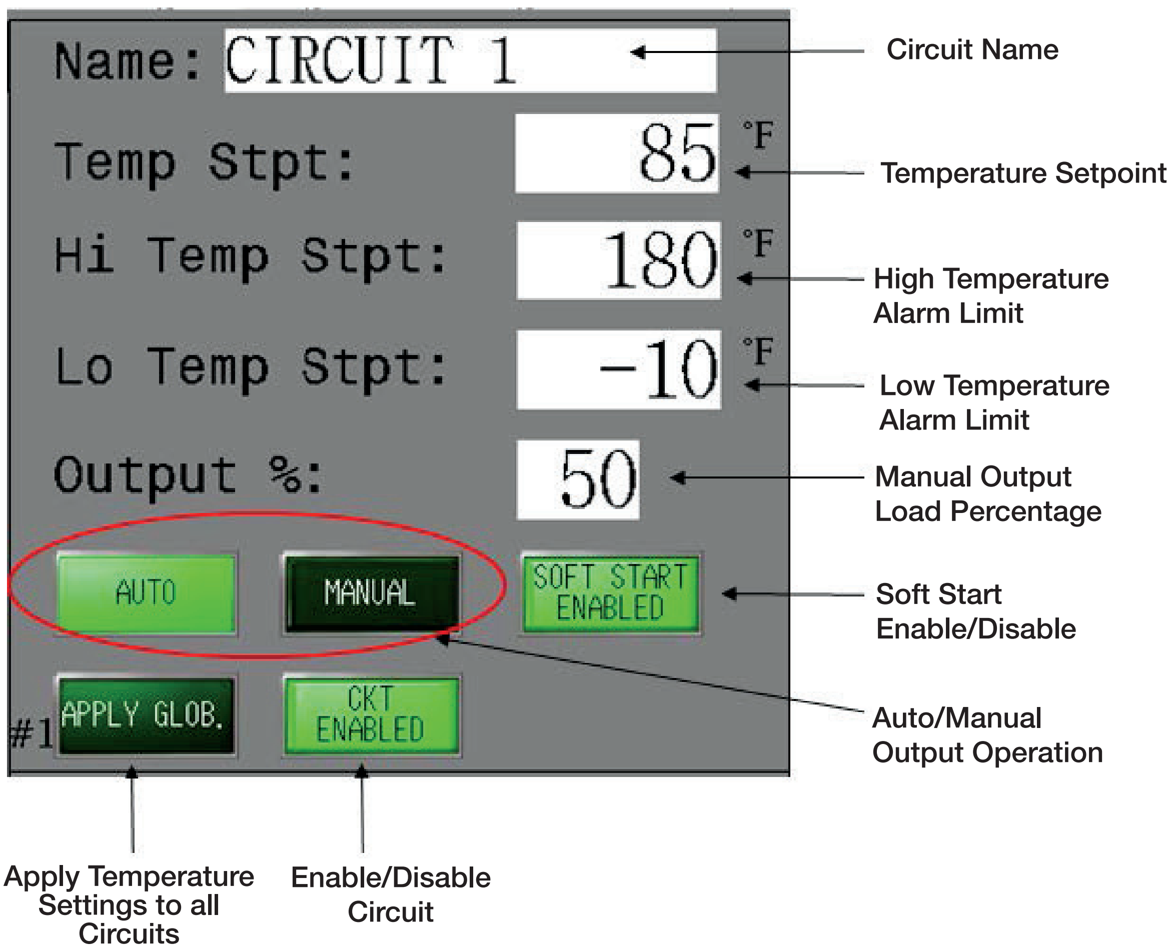


Temp Setup Menu Navigation notes:

1. Each screen illustrates 2 or 6 circuits at a time. To make setting changes to circuits beyond the current screen within the Temp Setup Menu, one must select the Circuit Navigation buttons in the upper right or left of screen.

Figure 5 illustrates the input cell identification and location for a single circuit within the Temp Setup Menu:

Figure 5



Definitions for each of the Temp Setup Input Cells:

Name:	Customize the Name of this individual circuit or loop
Temp STPT:	Process Temperature Set Point (degrees F or C)
HI STPT:	High Temperature Alarm Limit (degrees F or C)
LO STPT:	Low Temperature Alarm Limit (degrees F or C)
Auto/Manual:	Select Auto if you wish the Output behavior to be a function of a PID Algorithm or ON/OFF Control (See Tuning Tab for selection) Select Manual if you wish the Output to be driven by a pre-determined Output Percentage. Enter the desired % output.
Disable Output:	Select this check box if you wish to turn off or disable this circuit.
Apply Globally:	This allows the user to copy all of the settings or Circuit Parameters from Circuit #1 to all other available circuits.

Apply Settings Globally

The ITLS/ITAS has a feature which allows the user to apply settings from a single circuit to all of the remaining circuit within the system. Within Circuit #1 on the Load Setup Menu (See Figure 6), complete the input of the parameters and select the "Apply Glob" button to mirror these settings across all circuits.

Soft Start Feature

These control panels are ideal for controlling heat trace cable. Certain heating cables exhibit inherent current inrush in colder temperatures. This inrush can cause nuisance breaker tripping. To limit inrush current on the overall system, a proprietary soft start algorithm is applied during system start-up. This will ONLY occur while the operation mode is set to AUTO.

The soft start program will increment output % by 1% every 1 second until the desired temperature is reached or the output % achieves 100%. After the soft start program completes its cycle, the control mode of the system will either be PID or ON/OFF Control Mode, depending what was selected by the user.

The soft start program will not function if the control mode is set to Manual.

The default setting of the proprietary soft start feature for each circuit is "enabled". However, the soft start feature may be disabled if so desired by the owner. The owner has the option to manage the soft start feature on each circuit individually.

See Figure 5.

Load Setup Menu

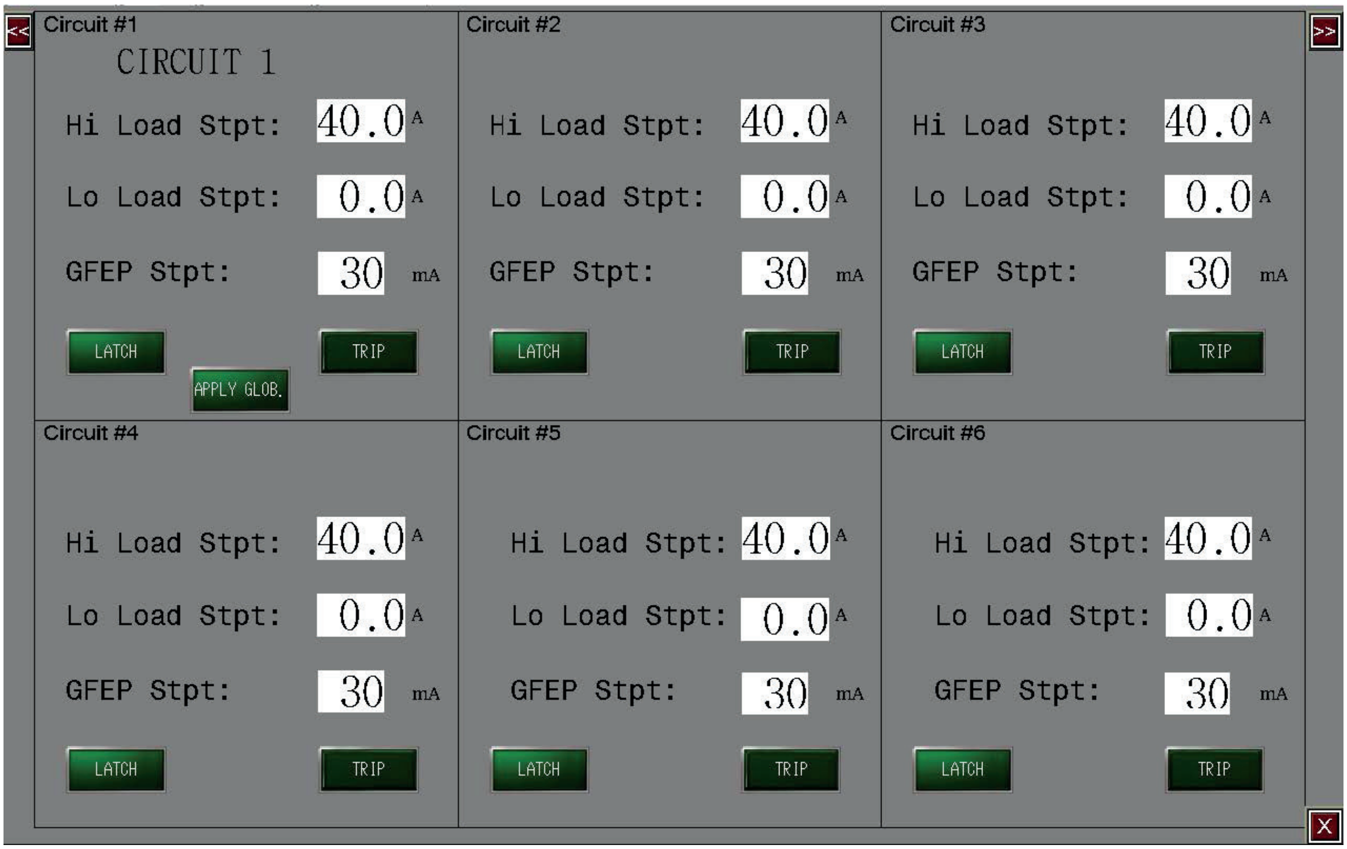
The Load Setup Menu (See Figure 6) contains input cells for the following settings for each circuit:

- High & Low Load Alarm Limits
- Trip and/or Latch Enabled/Disabled (Output Permission) upon GFEP Violation
- Maximum allowable GFEP (Ground Fault Equipment Protection) Alarm Limit

Additionally, there exists a “Global Setting” within the circuit# 1 Grid

- Apply Glob. Setting

Figure 6



Definitions for each of the Load Setup Menu Input Cells

Load HI Stpt .... High Current Alarm Limit (Amps)

LoadLO Stpt .... Low Current Alarm Limit (Amps)

GFEP: .... Maximum Allowable Leakage Current setpoint (milliamps)

Trip (GFEP): .... Enabled: If the GFEP limit is met, the output will be 0%.
Disabled: If the GFEP limit is met, the output is unaffected.

Latch (GFEP): .... Enabled: If the GFEP limit is met, the alarm condition will remain until it is manually cleared.
Disabled: If the GFEP limit is met, the alarm condition will be cleared once the GFEP variable is less than the GFEP setpoint

Apply Globally: .... This allows the user to copy all of the settings or Circuit Parameters from Circuit #1 to all other available Circuits.

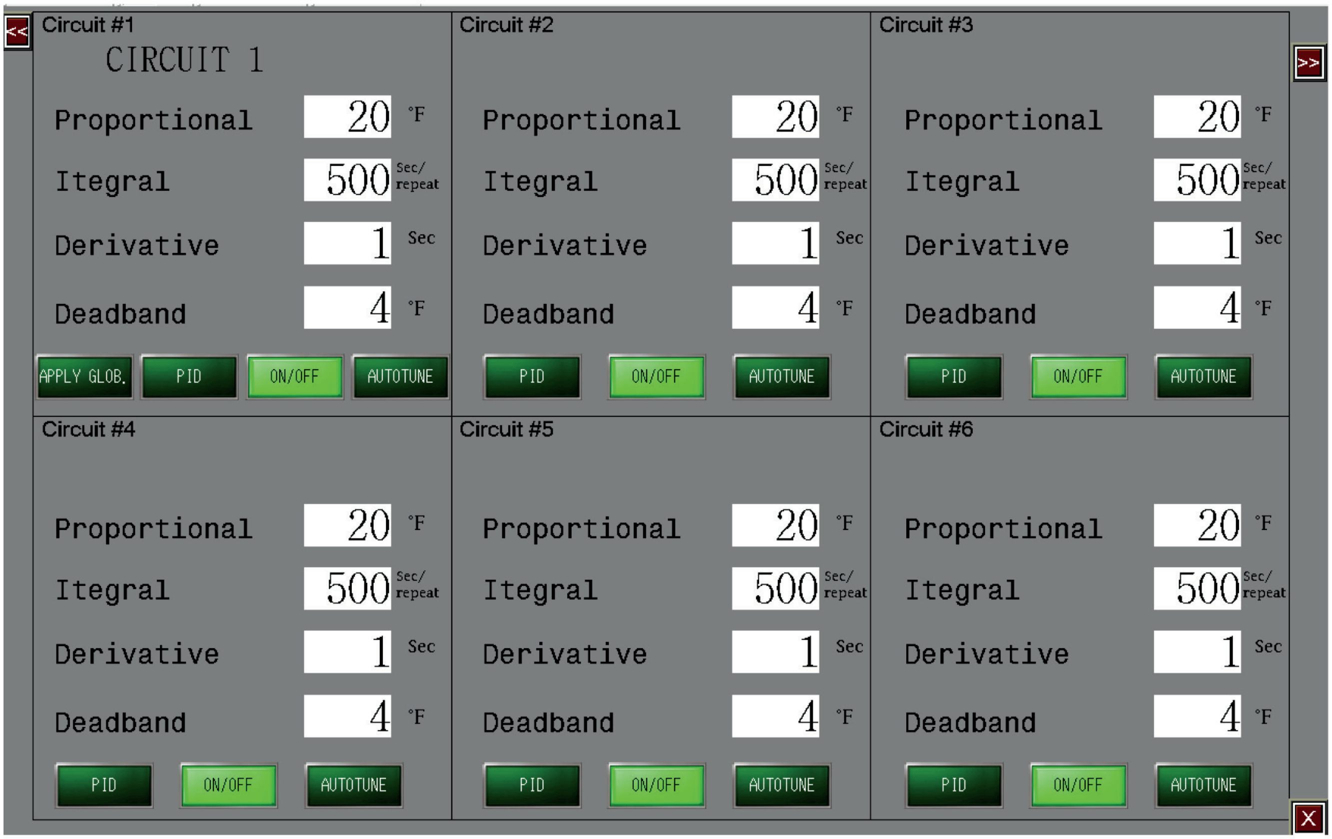
Apply Settings Globally

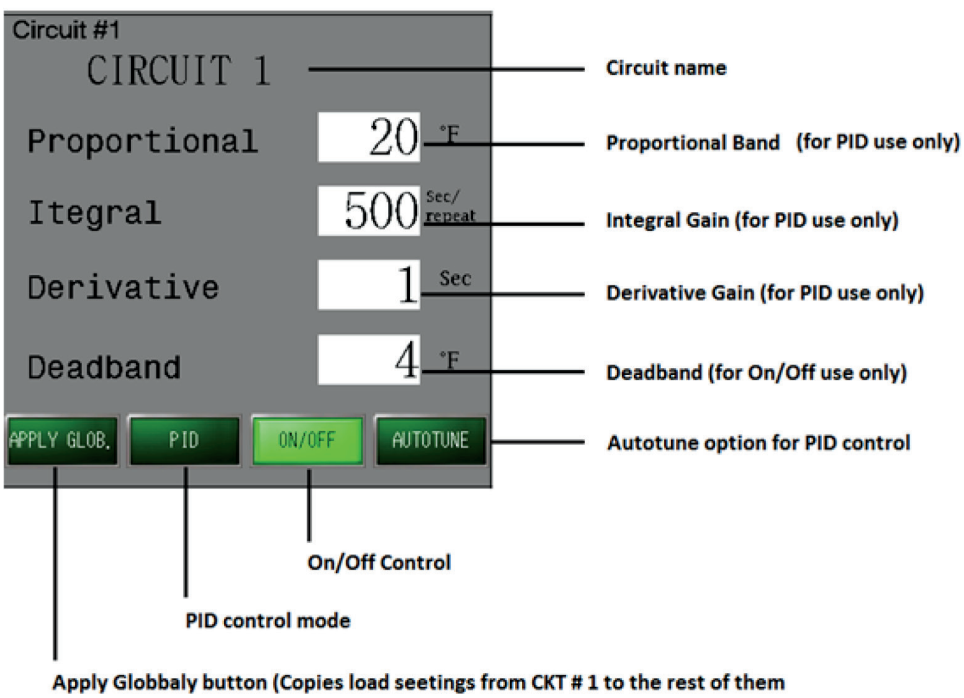
The ITLS/ITAS has a feature which allows the user to apply settings from a single loop to all of the remaining loops within the system. Within Loop #1 on the Setpoints Tab (See Figure 4), complete the input of the parameters and select the “Apply Globally” button to mirror these settings across all loops.

Tuning Menu

The owner has a choice of how the output is to be operated: Auto, Manual or Off. These selections are made within the Temp Setup Menu. If “Auto”, or Automatic Control Operation is desired, then the tuning of the automatic control is accomplished via the Tuning Menu.

Figure 7





Control Modes: ON/OFF, PID & Autotune

ON/OFF

- Select ON/OFF if you wish the operation of the heaters to be 100% ON when a demand for heat exists and 0% once the Set Point Temperature of the Process is achieved.
- The Deadband is enabled while in ON/OFF control mode.
- The Deadband is the temperature range equally divided above & below the temperature set point, where the controller will not take corrective action.
  - o Example: A setting of “10” for the deadband will result in a deadband that is 5 degrees above and below the temperature setpoint.
- The deadband is adjustable in 2 degree increments. It’s default is 10.

PID

- Select PID if you desire PID Control of the load.
- The Proportional Band (P), the Integral (I) & Derivative (D) are modes of control that work in union to bring the process variable to setpoint as smoothly and quickly as possible. They are enabled while in PID Control mode.
- The P, I & D will be automatically established during the Autotune procedure (see above).
- Additionally, the P, I & D may all be manually established by the user. Great care should be taken when manually establishing the P, I & D.
- Proportional Band: The temperature band expressed in degrees within which the controller‘s proportioning action takes place. (Note: The wider the proportional band, the greater the area around the setpoint in which the proportional action takes place.) This is sometimes referred to as gain, which is the reciprocal of proportional band.

Autotune

- If the Autotune Feature is selected, then the PID parameters will be calculated and entered by the system once the Autotune function has completed its demand profile function.
- The Autotune function establishes the individual P, I & D (Proportional Band, Integral & Derivative) control modes. These modes help to bring the process variable to the setpoint temperature as quickly as possible.
- In order to properly calculate the P, I & D modes, the Autotune program requires a 25 degree rise in sensed temperature after initiating the program. If within 30 minutes the temperature will not reach its setpoint, the Autotune algorithm will be canceled and old PID values will be used.
- Once the Autotune feature is activated, you must not change the menu page until the Autotune algorithm is completed. Changing the page will cause the Autotune algorithm to shut down.
- The Autotune function is a one-time algorithm set up of the P, I & D control modes. Should your process variables change significantly, it is suggested to that the Autotune feature be turned off and then reinitiated.

Tuning Tab Navigation Notes:

1. Each screen illustrates 6 loops at a time. To make setting changes to loops beyond the current screen within the Tuning tab, one must select the Loop Navigation buttons in the upper right or left of screen.

Sensor Mapping

The ITLS and ITLSC1D2 models provide the owner with customizable sensor mapping. This becomes a very powerful and desirable feature when the owner needs added flexibility in controlling the circuit outputs beyond the standard single sensor input.

1. Sensor Mapping is the assignment of one or more Sensor Inputs to one or more output circuits.

Sensor (Input) Mapping is accessed via the **Sensor Mapping Menu.**

Sensor Mapping

Ambient or Line Sensing, Single Sensor
A single sensor (RTD) may be mapped (or linked) to multiple output circuits. This allows several circuits to be controlled by a single sensor.

Minimum, Maximum, Averaging
Several sensors may be mapped to a single output circuit. This allows a single circuit to be controlled by the minimum, or the maximum or the average temperature of all of the sensors mapped to that output circuit. This may be desirable on long runs or zones which realize varying temperatures or weather conditions at different times of the day.

This does not apply when only 1 Input/Circuit selection is made from the Order Table.

Multiple Sensor Mapping
A single sensor may be used independently or combined with other sensors to control more than one circuit.

For Example:
The average temperature of Sensors 1, 3 and 5 is used to control Circuit 1 while simultaneously the maximum Temperature of Sensor 3, 4 and 5 is used to control Circuit 2.

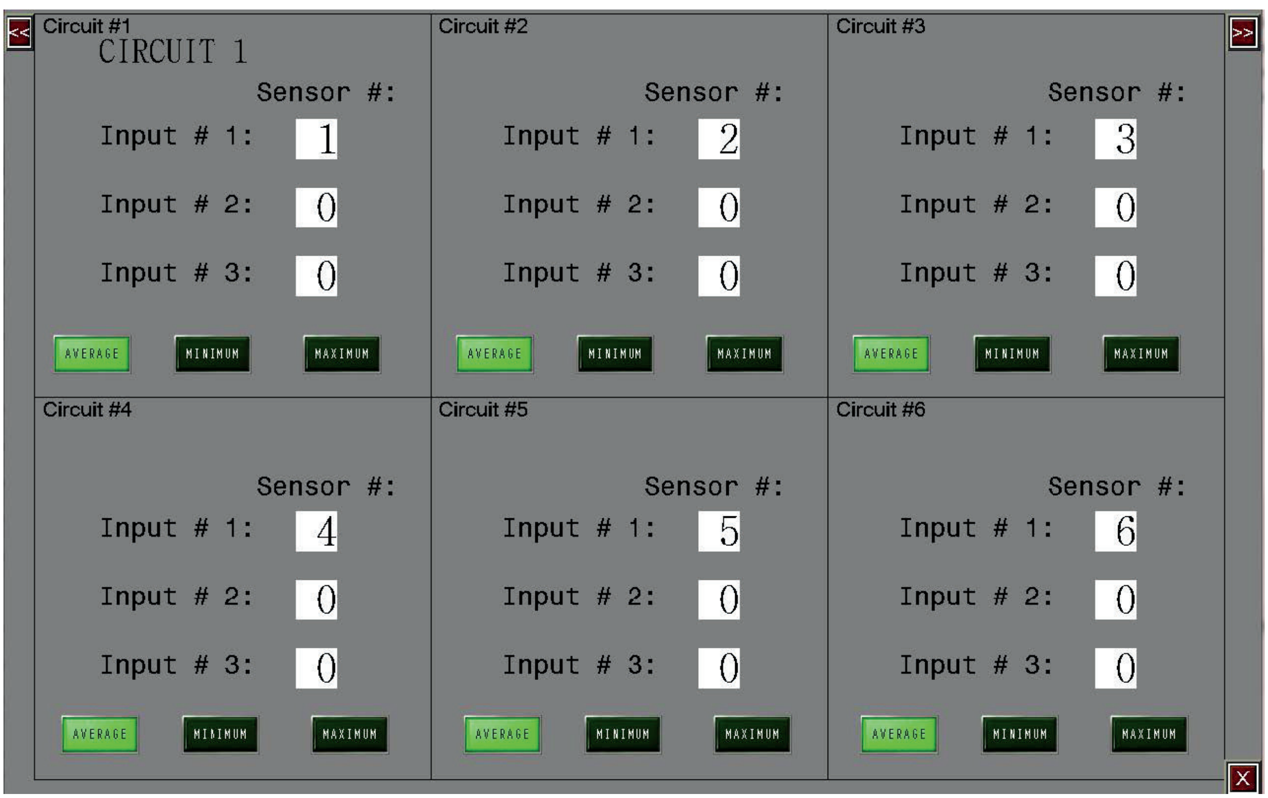
Combining Sensing Types
The owner may need to have multiple line and/or ambient sensing control scenarios occurring simultaneously.

For example, these may be occurring simultaneously:

1. Circuits 1, 2, 3, 4, and 5 are all controlled by a single RTD (Sensor 1) that is sensing the ambient temperature (Ambient Sensing)
2. Circuit 6 is controlled by Sensor Input 2 which is strapped to a process pipe. (Line Sensing)

Sensor mapping is accomplished within the Sensor Mapping Menu. See Figure 8.

Figure 8



System Properties

Several informative items and general settings are available within the System Menu.

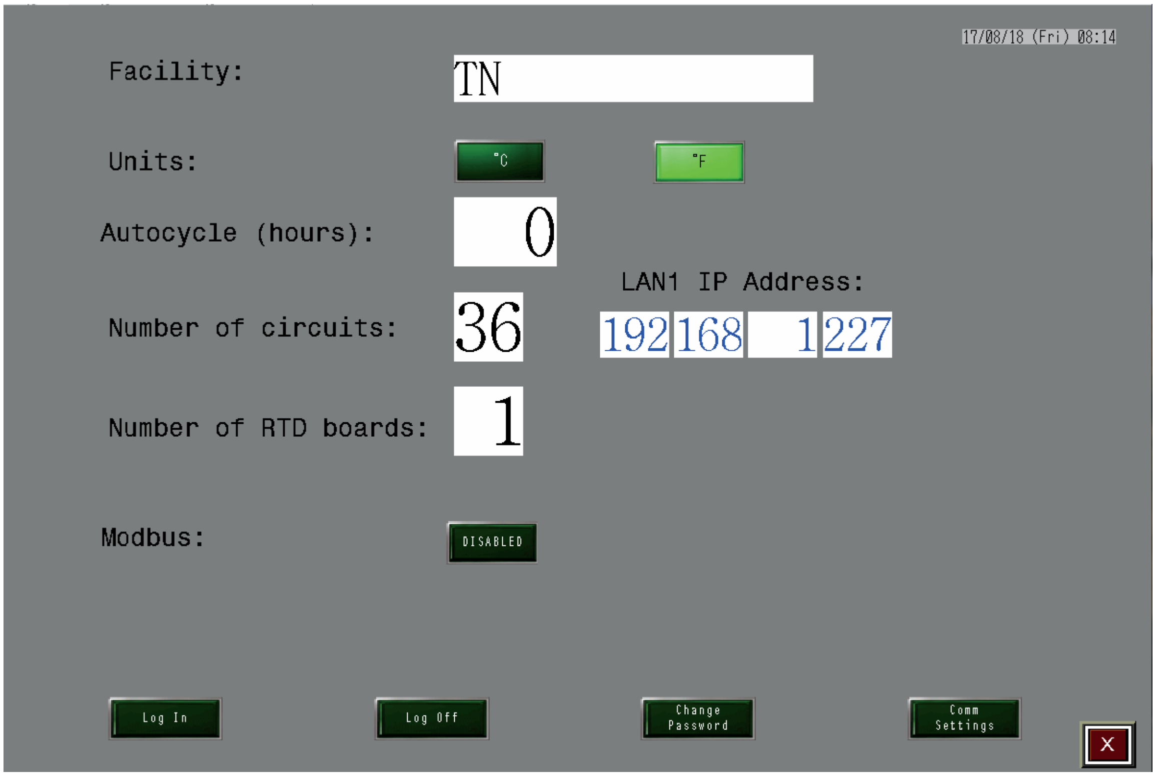
The System tab is only available to the two highest owner security levels: Manager and Engineer.

The Autocycle function is reviewed in the Autocycle Feature section.

Here, one can enter/revise the Facility Name, Date, Time, Temperature Units, Auto Cycle Interval and Security Codes. The Manager has access to all security codes while the Engineer has access to only the Engineering Security Code. See Figure 9.

The Security Passwords and the respective rights for each security level are reviewed in the **Security Level and Password Screen** Section.

Figure 9



System Page Definitions

Facility – name of the facility

Units – degree Celsius or Fahrenheit

Autocycle – Autocycle feature. Value of 0 disables it

Number of circuits – number of SSR circuits (not boards) installed in the panel

Number of RTD boards – Number of RTD boards installed in the panel

Modbus – Modbus feature can be disabled or enabled to speed up processing and screen update current security level password

Comm Settings – used to select correct Modbus communication parameters (baud rate, parity, stop bits, etc)

IP Address – present IP address of the HMI screen. IP address can be changed by pushing Comm Settings button.

Log In – used to change current security level

Log Off – used to log off from the system

Change Password – used to change current security level password

Auto Cycle Feature

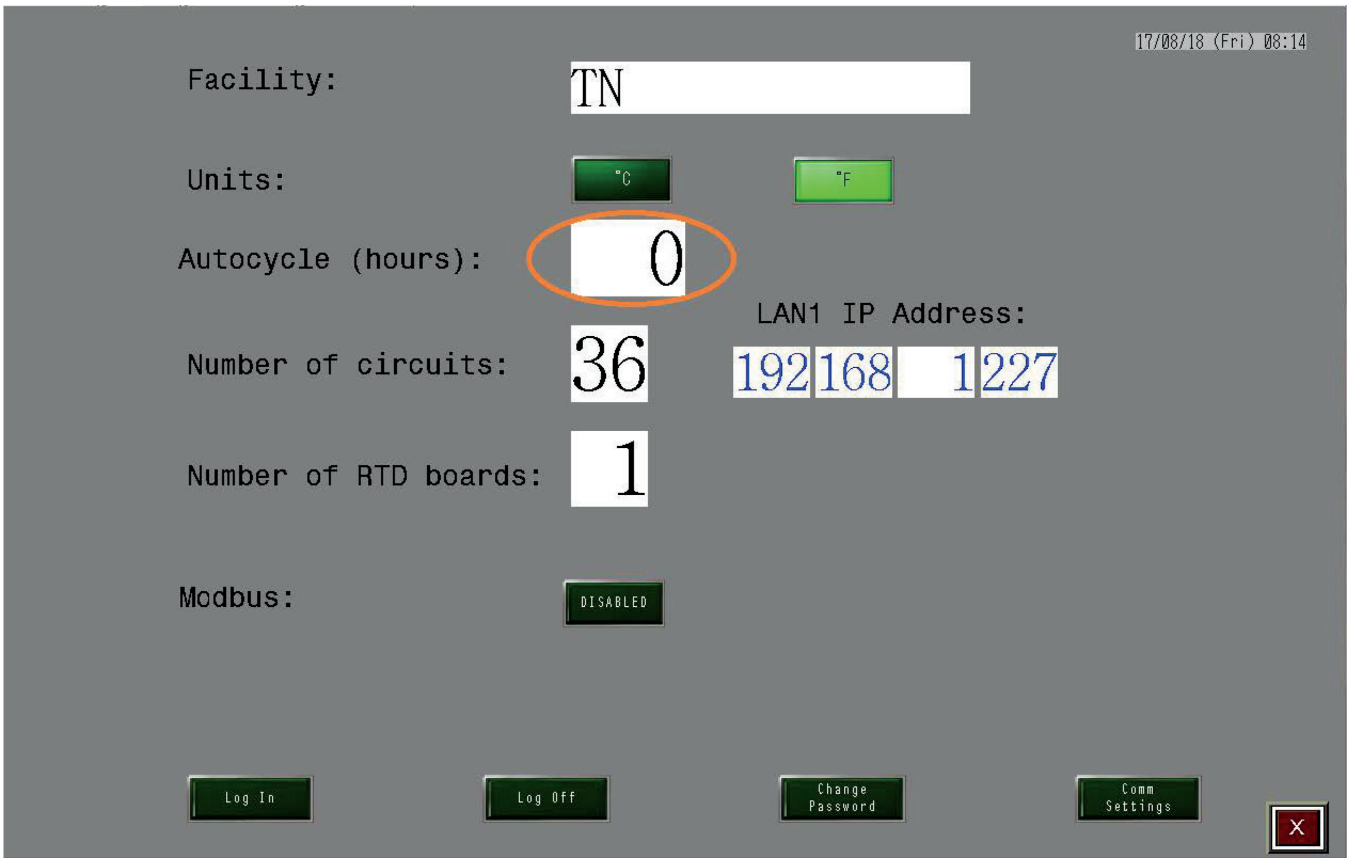
During prolonged down time periods, typically during the summer months, it advisable to intermittently exercise the loops. This exercising of the loops is accomplished via the Autocycle feature.

To enable the Auto Cycle feature, select an Auto Cycle Interval greater than 0 hours within the System tab. See Figure 9. The Auto Cycle feature is disabled when the Auto Cycle Interval equals 0 hours.

On a sequential circuit basis, the Autocycle feature periodically monitors system performance between 1-999 hours. The minimum and maximum values for Current Load, GFEP and Temperatures are stored. Once the new high or low value is attained the old value is overwritten and displayed in the Autocycle tab text boxes. See Figure 10.

This provides a certain level of preventative maintenance of the system as Faults (Alarms) will present themselves accordingly. Problem areas can be addressed during non-essential operating periods.

Figure 10



WARNING:

It is NOT advisable to engage the Auto Cycle feature during normal operating periods. The heating cables will become fully energized for approximately 2 minutes throughout the Auto Cycle Interval which could cause undesirable temperature overshoot.

Communications

All changes to the MODBUS settings are achieved via the COMMS screen. See Figure 11.

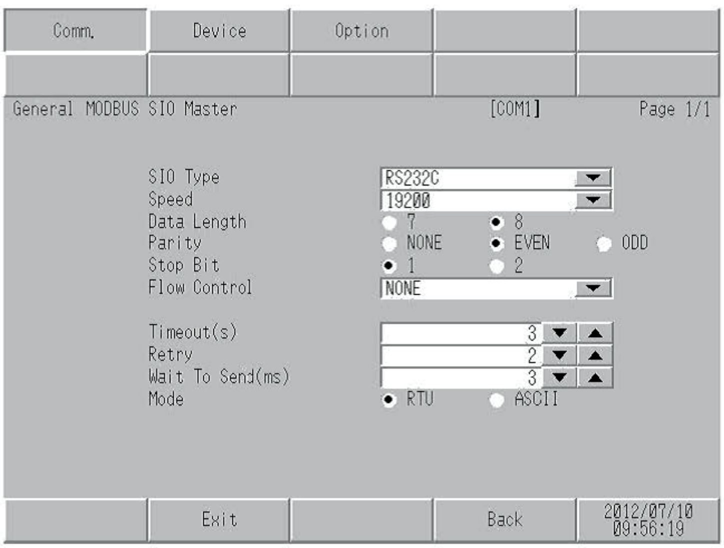
The Comms (Communications) screen may be accessed by selecting the COMMS button located at the bottom of the System screen. The MODBUS Address, Communication Speed, Parity and Stop parameters are set within the Communications screen.

For complete communications specification details on ModBus messaging, Registers and Sensor Mapping, please reference our “ModBus Wiring and Registry Map Instructions Document A-60682-04. This is an addendum to the PK497 manual. Go to the ITLS or ITAS product pages and search in the Technical Resources Tab at: www.chromalox.com.

Remote Monitoring & System Management

Users may monitor as well as adjust the System Parameters settings of the panel remotely. The files required for this feature are available to the owner. Due to the frequent program updates, we ask that you contact the factory for the most recent release version.

Figure 11



Communication Settings

To display the setting screen, touch (Device/PLC Settings) from (Peripheral Equipment Settings) in offline mode.

Touch the External Device you want to set from the displayed list.

Setup Items	Setup Description
SIO Type	Select the SIO type for communicating with the External Device. **IMPORTANT** In the communications settings, set (SIO Type) correctly according to interface specifications of the Display. If you select an SIO type that the serial interface does not support, proper operation cannot be guaranteed. Refer to your Display Manual for details on the serial interface specifications.
Speed	Select the communications speed between the External Drive and the Display
Data Length	Select a data length
Parity	Select how to check parity.
Stop Bit	Select a stop bit length.
Flow Control	Select the communications control methond to prevent overflow of transmission and reception data

Alarm Log

The purpose of Alarm Log is to record every alarm condition with a date and time stamp. This log may be viewed via the ALARM LOG button at the bottom of the main screen. See Figure 12.

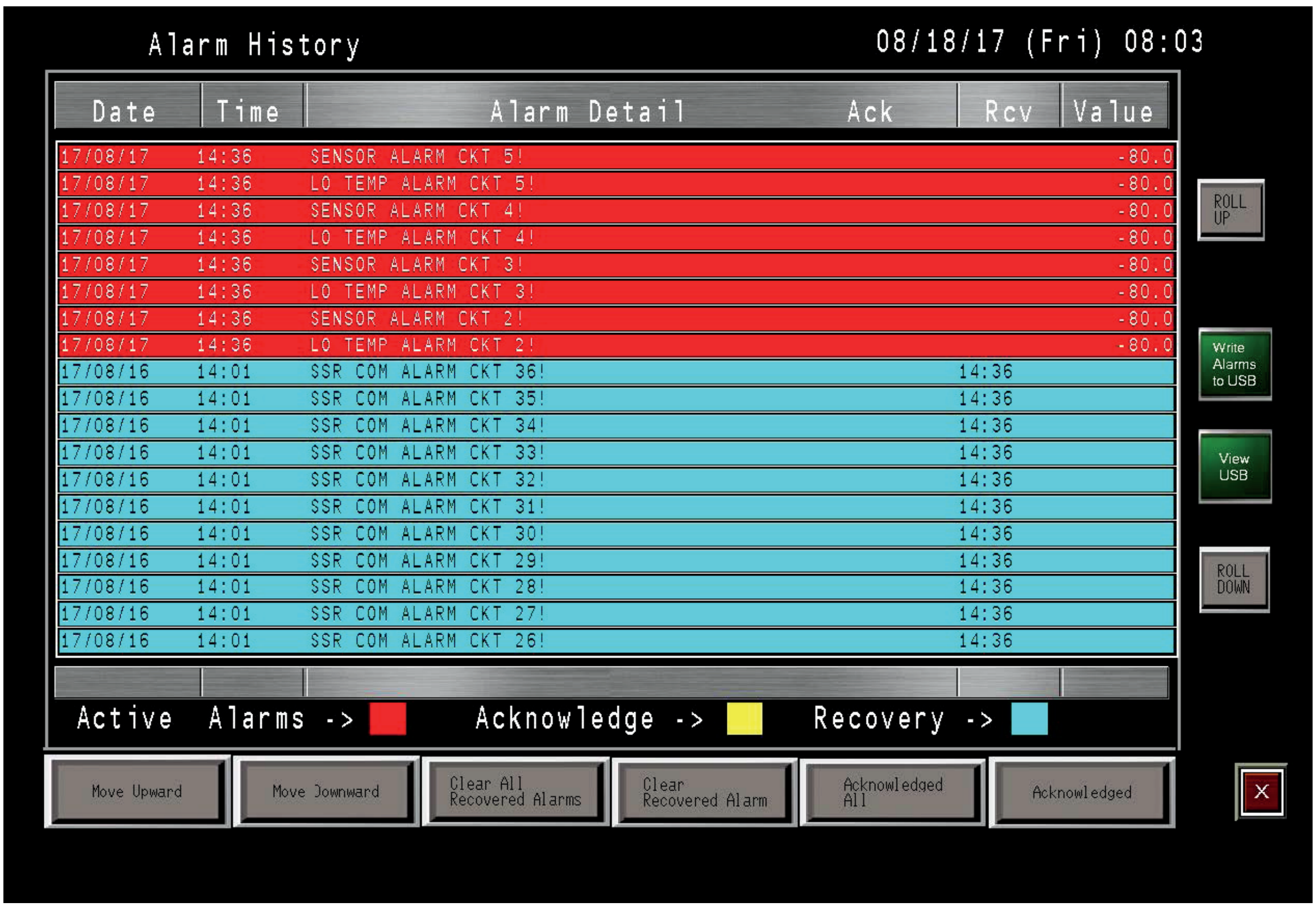
Alarm condition example: Sensor Error alarm on circuit 18 will be recorded as “11/08/12 – 13:38:48 SENSOR ALRAM CKT 18”. Every alarm event is saved into a text file (\Storage Card\log5.txt). Each event is appended to the file string on a new line.

This table holds up to 750 events (alarms). If the number of entries exceeds 750 then the event that is last on the list (by date) will be removed from the table. This process repeats indefinitely. Once an alarm has been recovered, it can be removed from the list by pushing the clear recovered alarm button.

To extract these files, one must:

1. Plug a USB flash drive into the USB port located on the back of the ITLS/ITAS computer. Go to Alarm Log Screen and push green button on the right of the screen labeled “Write Alarms to USB.”

Figure 12



Move Upward – moves cursor one position up

Move Downward – moves cursor one position down

Clear All Recovered Alarms – clears all recovered alarms from the alarm log

Clear Recovered Alarm – clears selected recovered alarm from the log

Acknowledge All – acknowledge all present alarms

Acknowledged – acknowledge selected alarm

Roll Up – move cursor one position up

Roll Down – move cursor one position down

Write Alarms to USB – saves alarm log into USB thumb drive

View USB – reads previously recorded alarm log from the USB thumb drive

Active Alarms

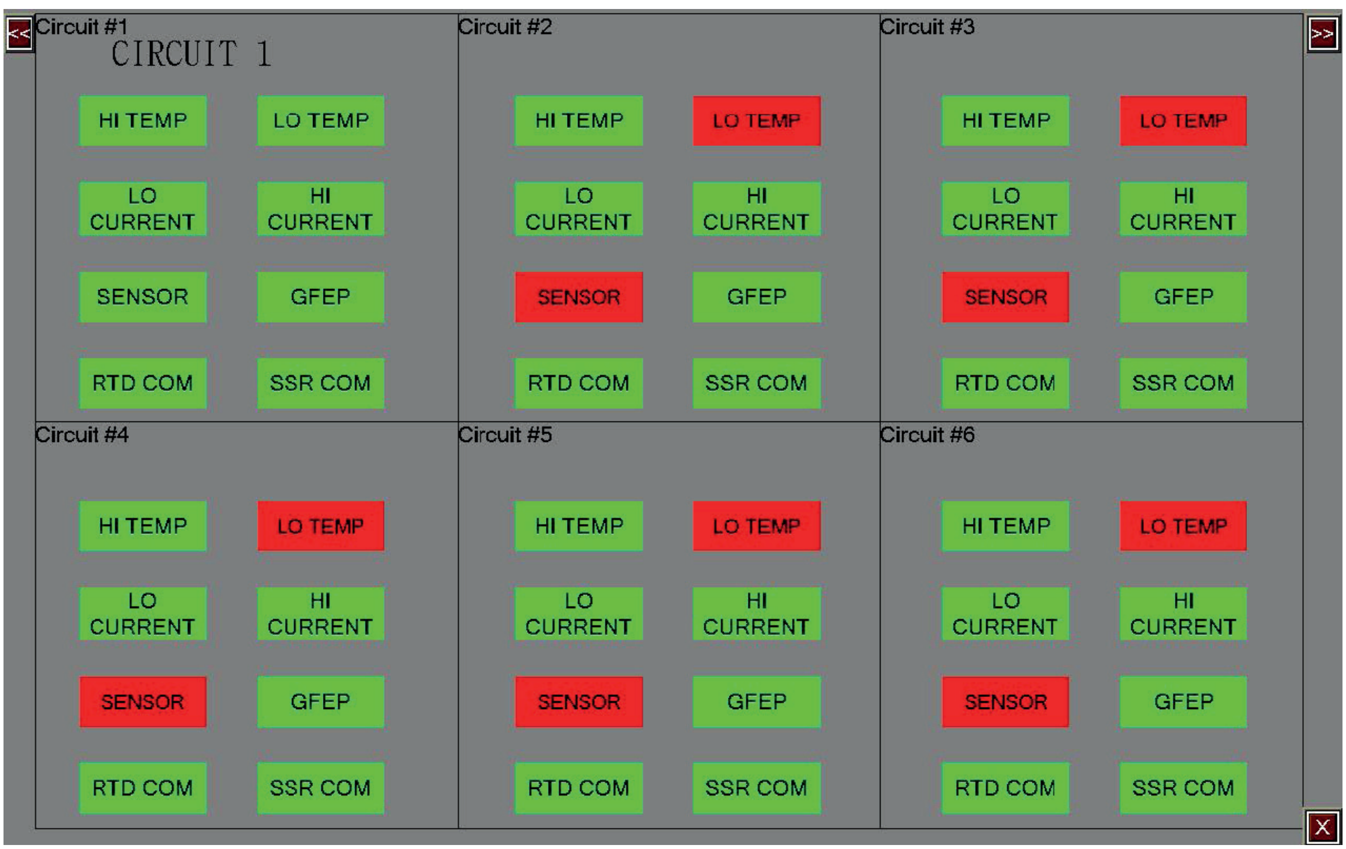
Alarms within any 6-circuit or 2-circuit grouping are indicted by RED squares in the left and right panels on any screen. If the square is GREEN, then no faults exist within that 6-circuit grouping. Once a fault is realized within any 6-circuit grouping, one may view the individual alarm circuit or circuits in two different ways:

1. When in the Main Display screen, one may navigate to the desired 6-circuit grouping via the Navigation buttons found in the upper right hand or upper left hand corner. Alarm conditions are illustrated within each circuit window. Up to three alarm conditions can be illustrated for any single circuit on the Main Menu screen.
2. One may view the status of all fault conditions by selecting the ACTIVE ALARMS MENU button located at the bottom of the main display screen. To navigate to the desired 6-circuit grouping, one must press the Circuit Navigation but-tons found in the upper right or left corner of any screen. See Figure 13.

Clearing Alarms

Except for a Communications Alarm and a Latched GFEP Alarm, all other alarms are cleared once the acceptable parameters are achieved.

Figure 13



Alarm Troubleshooting

The Alarm Condition, the resultant Output and the Design Behavior for each Alarm type can be found in Table 2 below.

Table 2

Alarm Type	Condition	Trip	Latch	Output	Design Behavior
HIGH TEMP	Sensed Temp => Hi Temp Setpoint			No change	Alarm will be cleared automatically when Sensed Temp < Hi Temp Setpoint
LOWTEMP	Sensed Temp <= Lo Temp Setpoint			No change	Alarm will be cleared automatically when Sensed Temp > Lo Temp Setpoint
GFEP	Sensed GFEP Current => GFEP Setpoint	No	No	Output will remain at selected output %.	Alarm will be cleared automatically when sensed GFEP Current < GFEP Setpoint
		Yes	No	Output will go to 0% (OFF) while in alarm state	
		No	Yes	Output will remain at selected output %.	The Alarm condition may only be cleared with a manual RESET of the GFEP Alarm.
		Yes	Yes	Output will go to 0% (OFF) until alarm is reset	
HI CURRENT (LOAD on Faults Screen)	Sensed Load Current => Hi Current Setpoint			Output will switch to Manual Mode	Alarm will be cleared automatically when sensed Load Current < Hi Current Setpoint
LO CURRENT (LOAD on Faults Screen)	Sensed Load Current <= Lo Current Setpoint			No change	Alarm will clear automatically when Sensed Load Current > Lo Current Setpoint. If your output is turned OFF, GFEP and Load values will not be updated.
SENSOR	Sensor Open, Sensor Shorted, Sensor Fault			Output will switch to Manual Mode	Alarm will clear automatically when the RTD resistance is between 75.44Ω - 311.56Ω. Check if your sensor wire is not damaged and that it is properly connected to the Sensor board.
COMM	Communication Error			Output will switch to Manual Mode	Make sure that the communication cable that connects the Touchscreen computer with boards inside enclosure is properly connected and/or not broken. Press **"RESET ALM"** to reset this alarm.

Extension Panels

Connecting an Extension panel or a Remote Sensor Panel to the Main Panel

Below is the procedure to connect an Extension or a Remote Sensor Panel to the Main Panel. The Main Panel will manage the circuits in the Extension Panel and the inputs of the Remote Sensor Panel.

Procedure:

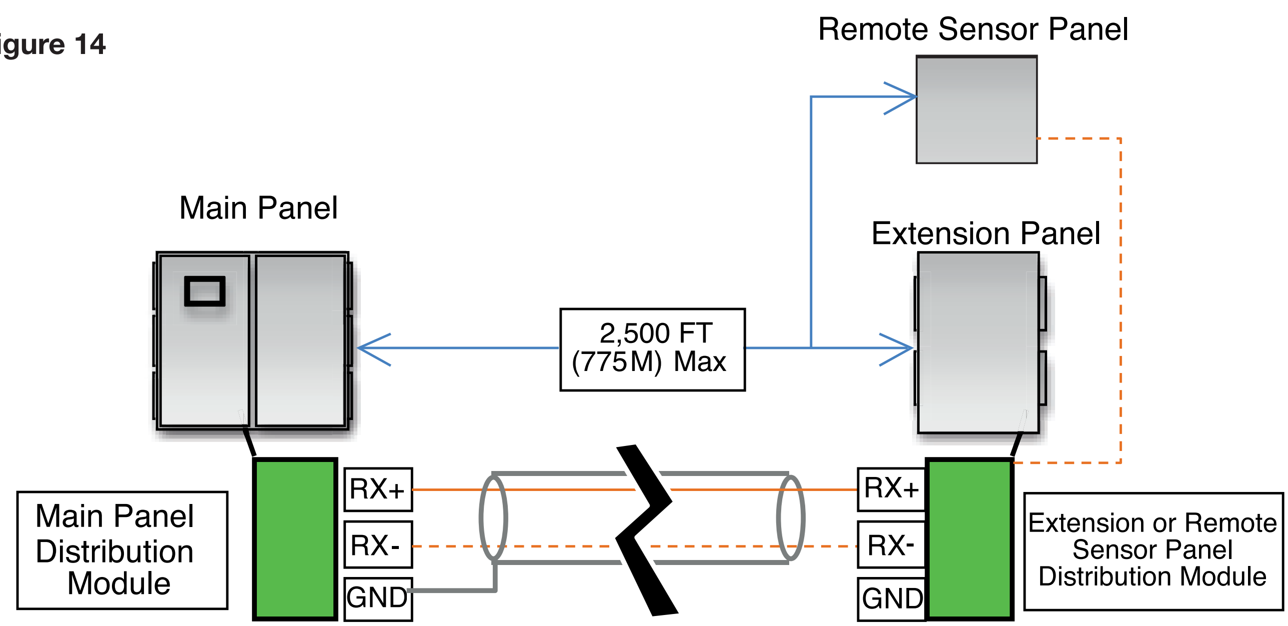
1. Turn off the power to the system.
2. In the main panel (the one with a touch screen computer) locate the distribution board (0113-10246) and verify that jumpers J.16 and J.17 are set in positions 1 & 2.
3. Connect one end of the twisted pair cable into connectors J15.1 (RX+) and J15.2 (RX-) on the distribution board of the Main Panel. Connect the other end of the twisted pair cable into connector J15.1 RX+ and J15.2 (RX-) on the distribution board of the Extension panel.

Make sure that RX+ is connected to RX+ and RX- to RX-. (See Diagram Below)

4. Connect the metallic shielding material (see wire specification below) to the ground of the base panel Distribution Module. However, DO NOT connect the metallic shielding to the Extension Panel Distribution Module. (See Diagram Below)
5. If the number of loops needs to be changed, power up the system and login into the setup menu using 5731 as the password. Go to the "System" tab and select the desired number of loops and press "OK".
6. Cycle power to the system.

****Note - a 2 or 4 Circuit Extension Panel may be added to a 6-48 Circuit system but not vice versa.**

Figure 14



Extension Panel or Remote Sensor Panel Considerations

Environmental influences such as EMI/RFI can compromise the communication signal between the Extension or Remote Sensor Panel and the Main Pane. The use of properly designed cable will protect against and minimize these influences.

<u>Here is a design guide for extension panel wiring:</u>
RS-485 Max. total cable length...........2,500 ft (800 M)
RS-485 Wire specification.........T1/E1/DSL compatible
24-AWG shielded cable

Chromalox uses the following vendor and cable item as a viable reference:

Example Vendor: ....L-com
Typical Specification:...2 - 120 Ohm (E1) Shielded Pair
Vendor Item Number: TSC9928
Available at: .... http://www.l-com.com

Wireless Temperature Sensing

Overview

Chromalox now provides fully integrated Wireless Temperature Sensing Solutions for Heat Trace applications in ordinary and hazardous locations.

The components of the Chromalox Heat Trace Wireless Temperature Sensing system include the IntelliTrace ITLS or ITAS Series Heat Trace Control Panel and specific industrial wireless transmitters which are paired with appropriate temperature sensors.

Control Panel

When the wireless temperature sensing feature is selected, the IntelliTrace Control Panel is properly configured at the factory and internally equipped with an industrial-duty ***Wireless*HART®** certified **wireless gateway, antenna** and the necessary communication accessories.

The panel facilitates both wired and wireless temperature sensor inputs and the touchscreen computer HMI distinguishes wireless circuits from wired ones. Several of the IntelliTrace HMI screens are impacted when Wireless Temperature Sensing is ordered and enabled at the factory: The Main Screen and Sensor Mapping Menu.

Main Menu

On the main menu screen, the alarm status will appear as BATTERY when the transmitter battery of a wireless circuit is due to be changed. Each wireless circuit has its own transmitter battery life meter. This provides three levels of remaining battery life so that you may properly plan service before it is needed.

Wirless Transmitter Battery Meter

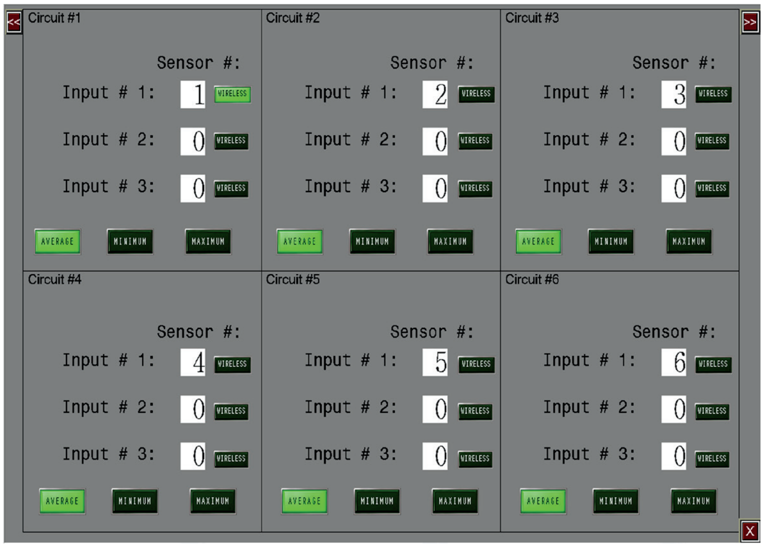
Battery Life Good.
No Maintenance Needed.

Battery Life Low.
Plan for Maintenance.

Battery Life Very Low.
Perform Maintenance
Immediately.

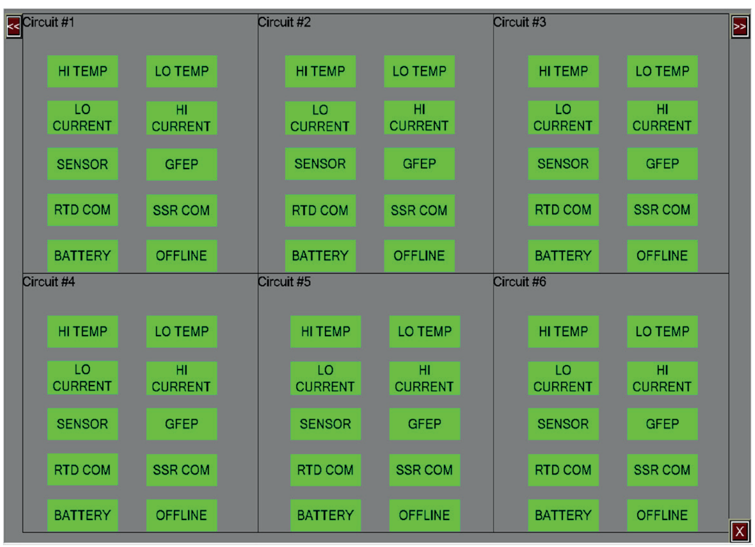
Sensor Mapping Tab

Wireless sensors will automatically show up in the SENSOR window of the I/O Mapping Tab. They are labeled as WS #1, WS #2, etc., and can be assigned to any output circuit.



Faults Page

The BATTERY fault state on the Faults page will change from Green to either Orange or Red depending on the remaining battery life of the Wireless Transmitter.



Wireless Transmitter

Chromalox has chosen the Rosemount® 248 Wireless Temperature Transmitter. This transmitter is ***Wireless*****HART**® certified and it may be pipe or structure mounted. When deployed in a Mesh network, this transmitter is actually both a transmitter and a receiver (also known as a Bi-Directional Wireless Device).

The 248 Transmitter is offered in either aluminum or polymer housing and is available with or without a matching universal mounting bracket. A battery is also required and ordered as a separate item. Manufacturer's data sheets and user manuals are available in the technical resources tab within the Heat Trace products / Wireless Temperature Sensing section at www.chromalox.com

Rosemount 248 Wireless Temperature Transmitter Features

- Output - WirelessHART 2.4 GHz
- IEC 62591 Compliant
- Update Rate – 1 sec to 60 min - user selectable
- Accuracy +/- 0.45oC @ 20oC
- Wireless radio
  - o 2.4 – 2.485 GHz
  - o 15 channels
  - o IEEE 802.15.4 compliant
- Power Module
  - o Lithium Thionyl Chloride with PTB enclosure
  - o 7 to 10 year life (1 minute update rate)
- Housing
  - o IP66/67
  - o NEMA 4X
- Self-Calibrating Unit
- Direct Pipe or Flat Surface Mounting
- Accepts RTD & Thermocouple Sensors & mV input
- The following approvals/certifications:

Polymer Housing

Aluminum Housing

Please see the Rosemount 248 Data Sheet and Instruction Manual for completed details. Manufacturer's data sheets and user manuals are available in the technical resources tab within the Heat Trace products / Wireless Temperature Sensing section at www.chromalox.com

Ordering Information:

There are many design and feature options available on the Rosemount 248 model. Chromalox has standardized on the following:

Wireless Temperature Transmitter

Rosemount 248 Wireless Temperature Transmitter, USA Intrinsically Safe and Non-incendive, Aluminum or Polymer Housing, with 1/2-14 NPT Conduit Entry Size, WirelessHART, 2.4 GHz, External Omni-directional Antenna (Aluminum Housing only), 5-point Calibration, External ground lug, 60Hz & 3 Year Warranty

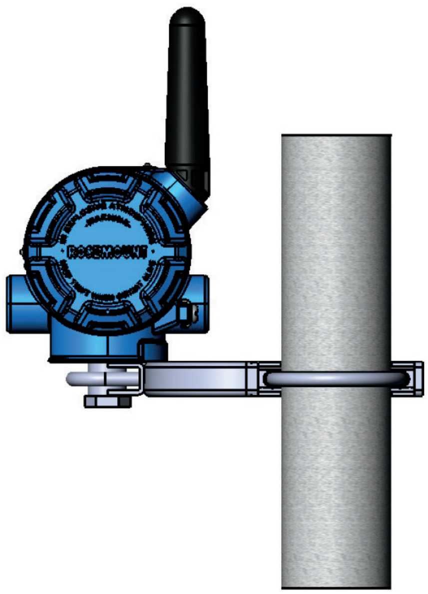
Desription (Manufacturer Model No.)	Part Number
Aluminum Housing with universal mounting bracket (248DXI5D2NSWA3WK1B5C4Q4G1WR3)	0108-70477
Aluminum Housing without universal mounting bracket (248DXI5D2NSWA3WK1C4Q4G1WR3)	0108-70478
Polymer Housing with universal mounting bracket (248DXI5P2NSWA3WP5B5C4Q4WR3)	0108-70479
Polymer Housing without universal mounting bracket (248DXI5P2NSWA3WP5C4Q4WR3)	0108-70480
Battery for 248 Wireless Trans0mitter with Aluminum Housing Only	0108-70432
Battery for 248 Wireless Transmitter with Polymer Housing Only	0108-70481

Universal Mounting Bracket

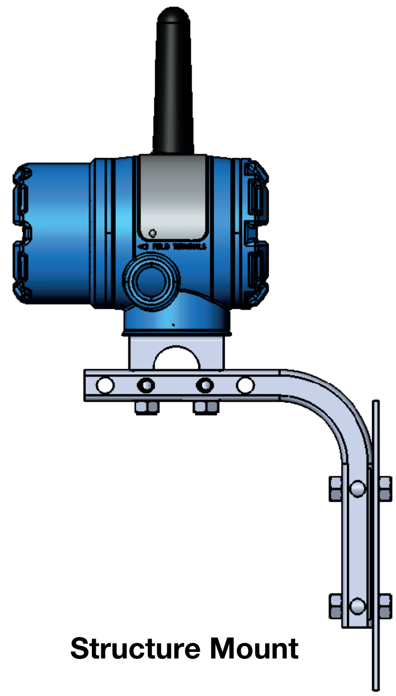
The Rosemount 248 Wireless Temperature Transmitter may be ordered with or without a matching Universal Mounting Bracket (see above table). This bracket eases and enables transmitter mounting to either pipe structures or flat structural surfaces.

Rosemount 248 Wireless Temperature Transmitter with Universal Mounting Bracket

(Shown With Aluminum Housing Model)



Pipe Mounting



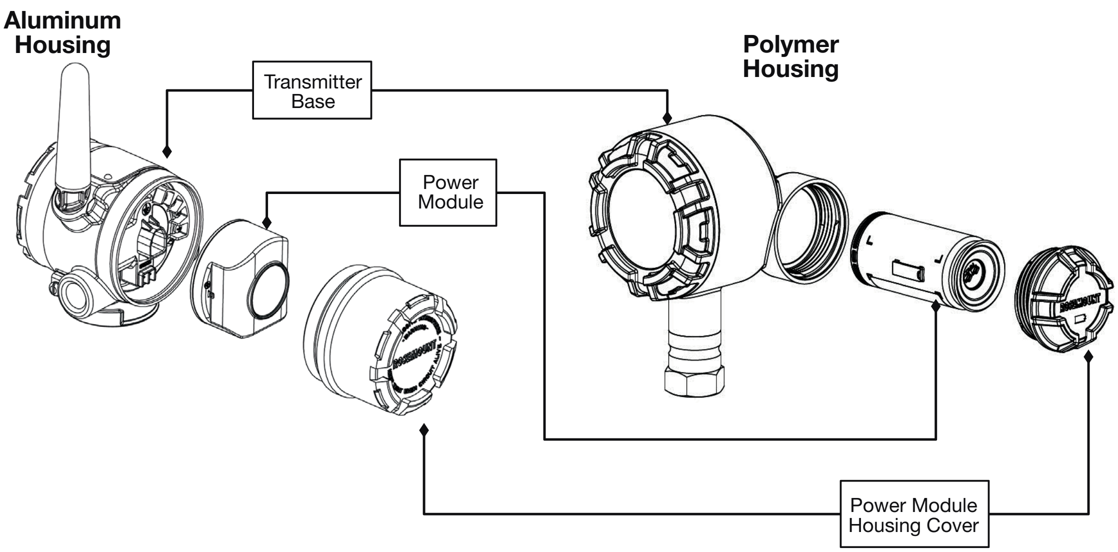
Structure Mount

Transmitter Power Module (Battery)

The transmitter power module must be installed prior to device configuration and device use. It may be removed from the device in between configuration and commissioning.

The Polymer housing transmitter utilizes the **Green Power Module** while the Aluminum housing transmitter uses the **Black Power Module**. These are dramatically different in physical dimensions and may not be used universally.

Exploded view of the two models:



Temperature Sensor

Although other RTD sensors may be utilized, Chromalox has standardized on the RBF185M type Heat Trace Sensor. This industrial duty RTD is designed to be Pipe Mounted and it comes complete with either an Aluminum or 316L Stainless Steel connection head.

This sensor is suitable for NEMA 4X or IP66 environments and designed for ordinary or hazardous areas (Class I, Divisions 1 & 2).

Heat Trace Temperature Sensor - 100 Ohm, 3-Wire RTD

Pipe Mounted Heat Trace Sensor with Connection Head

- 316 SS Sheath, 1/2” or 3/4” NPT Connection Port

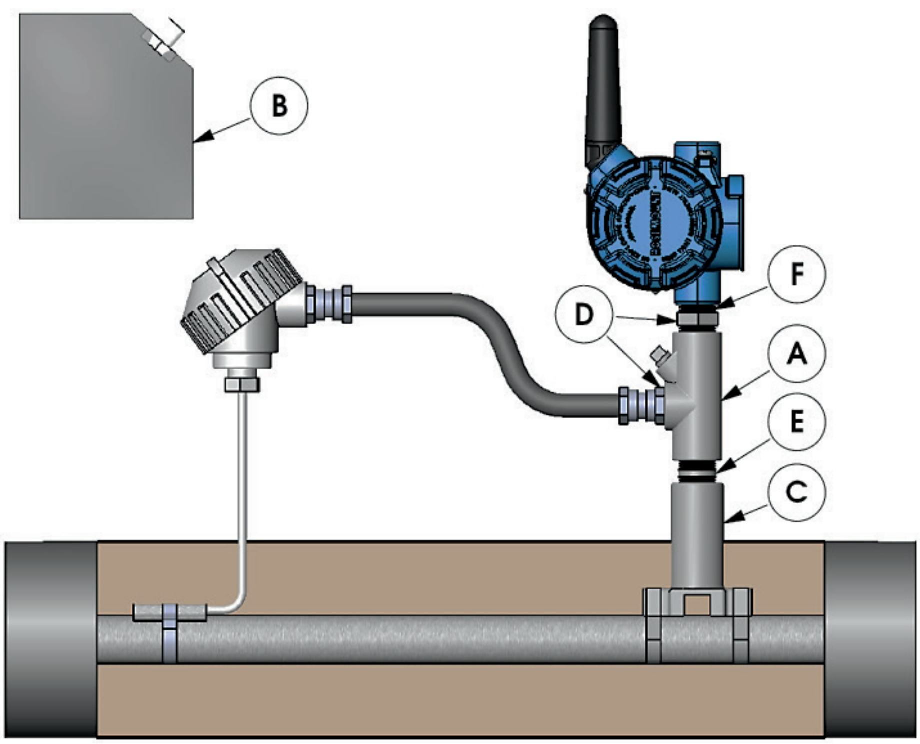
Desription (Manufacturer Model No.)	Part Number
RBF185M-HT30418RD31SB/C Aluminum - NEMA 4X	317315
RBF185M-HT30418RD91SB/C 316L Stainless Steel - NEMA 4X	317323
RBF185M-HT30418RD93SB/C Aluminum - Class I, Div's 1 & 2, NEMA 4X, IP66	317340
RBF185M-HT30418RD94SB/C 316L Stainless Steel - Class I, Div's 1 & 2, NEMA 4X, IP66	399550

Wireless Transmitter Pipe Mounting Kit

To simplify co-location installation of the RBF 185M Type pipe mounted heat trace temperature sensor and Rosemount 248 Wireless transmitter, Chromalox has developed a pipe mounting kit.

This kit may be installed in both ordinary and hazardous areas (Class I, Divisions 1 or 2).

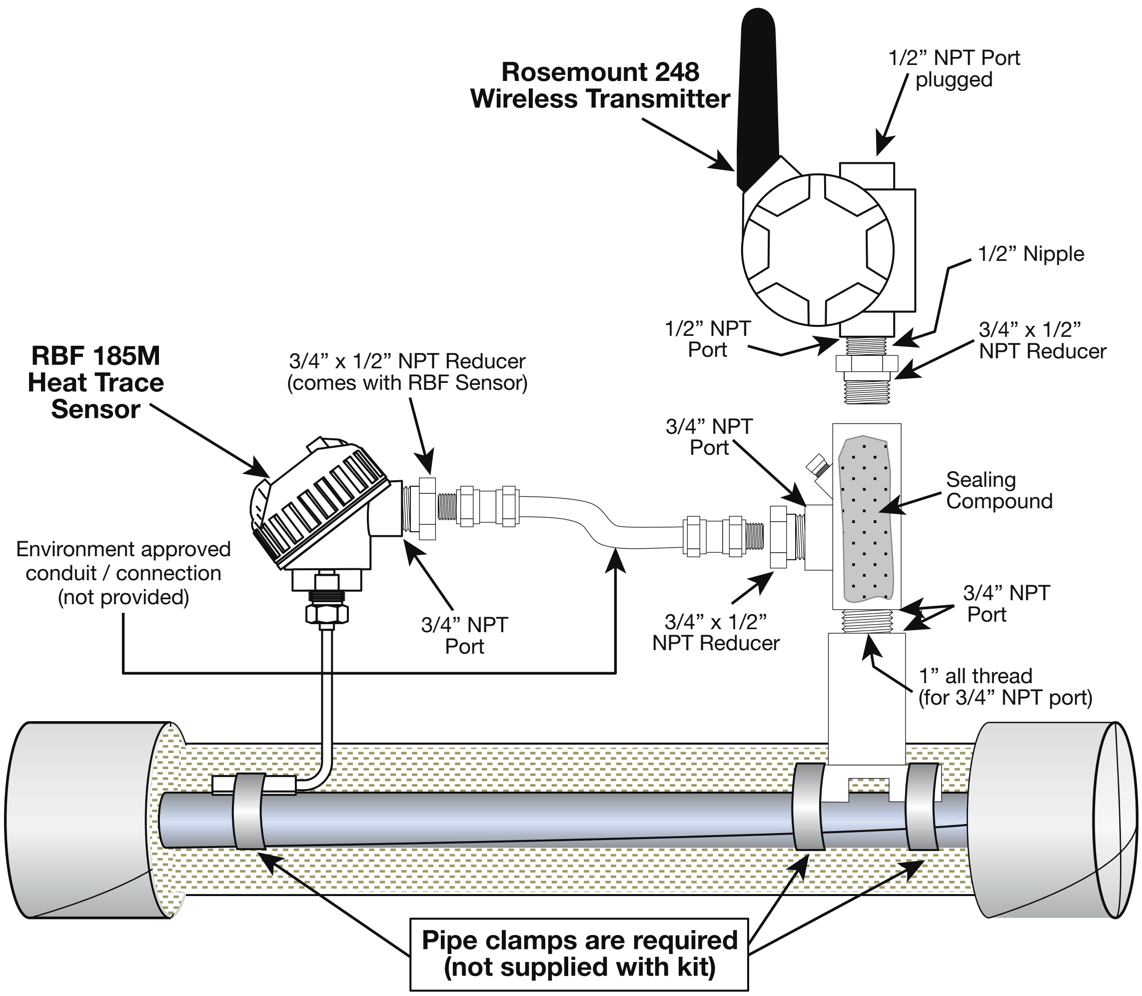
Desription			Part Number	
Pipe Standoff Kit, Divisions 1 & 2			394337	
Item	**Qty.**	**Component**	**Div. 1**	**Div. 2**
A	1	3/4” Seal Fitting	Yes	Yes
B	1	Sealing Compound & Fiber	Yes	No
C	1	Pipe Standoff	Yes	Yes
D	2	3/4” To 1/2” NPT Reducer	Yes	Yes
E	1	All-thread	Yes	Yes
F	1	1/2” NPT X 1” Nipple	Yes	Yes



Wireless Transmitter Pipe Mounting Kit Detail:

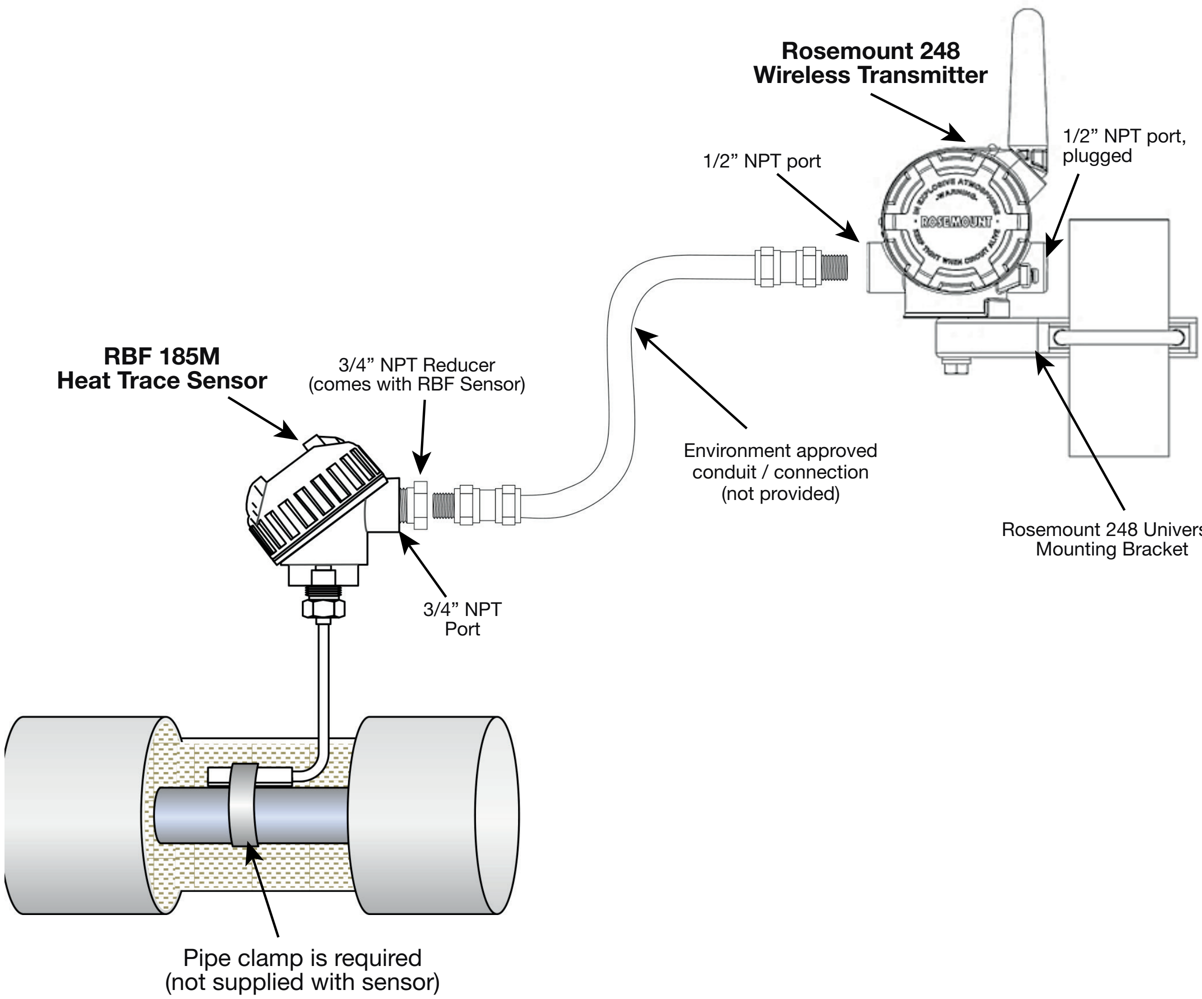
Installation Notes:

1. The conduit (customer supplied) from the seal fitting to the sensor must be rated for the environment in which it is being installed.
2. Pipe clamps are required to secure the RBF sensor and Kit Pipe Standoff (C) to the piping.
3. DIVISION 1 AREA: The Sealing Compound is required for Div. 1 areas. It is used to seal off the Seal Fitting ports, ensuring that no gas ingress occurs within the Wireless Transmitter or the Sensor. The Fiber is used as a dam for the sealing compound.



Installation Example –

Wireless Transmitter and Universal Mounting Bracket to Pipe Mounted Heat Trace Sensor



Wireless Network Planning

It is generally expected that the user / installer has substantial knowledge of wireless networking whereby they fully understand wireless topology, component capabilities and system-wide organization. To ensure complete system integrity, the Chromalox specified core components must be properly employed and wireless network design best practices must be followed. Chromalox will not be held responsible otherwise.

For support, Chromalox provides optional professional startup and commissioning services as well as the following wireless sensing information and guidelines:

Wireless Network Topology

When it comes to industrial wireless sensor networks (WSN), two types of topologies, (or the way wireless components interact with each other), exist: **Infrastructure and Ad hoc.** Each has their own strengths and limitations.

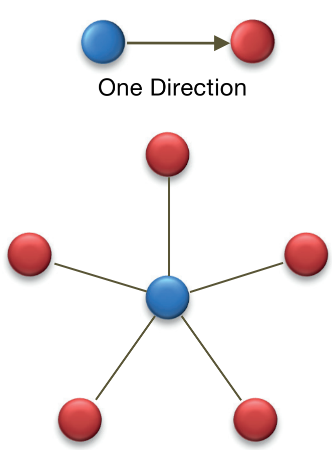
In the Infrastructure or **Star** topology, there is one central coordinator, typically a hub (or switch). In this topology, the sensor devices communicate via the hub rather than directly with each other as shown in Figure A below. Communication rates are relatively high while complexity, reliability and distances between components are relatively low.

In an Ad hoc or **Mesh** topology, however, all devices are capable of communicating with all other devices within radio range, creating the topology shown in Figure B. The benefits of this topology include increased reliability and the distance between components whereas latency and complexity becomes greater.

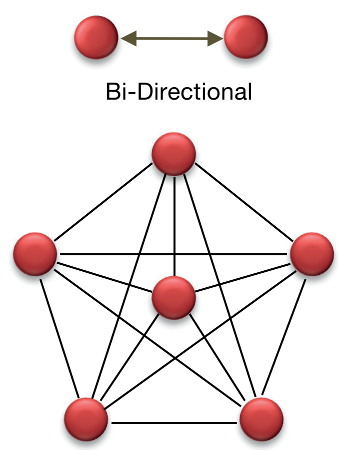
It is also possible to have a hybrid topology called **Star-Mesh,** in which there is a combination of both Mesh and Star topologies such as in Figure C.

In reality, most Industrial Sensor Networks combine internal wired and wireless topologies, which employ routers, gateways and firewalls with external Mesh topologies that are comprised of multiple bi-directional wireless sensors tied to a common wireless gateway.

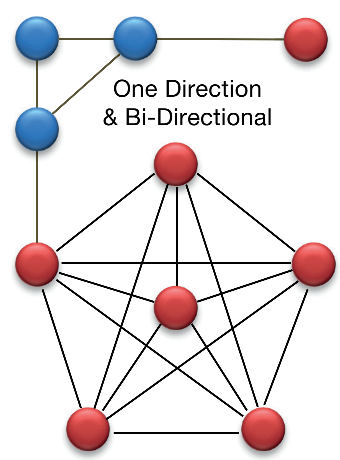
See the **Site Installation Guidelines** for component considerations within a Mesh or Ad hoc wireless sensor network.



Star
Figure A



Mesh
Figure B



Star-Mesh
Figure C

Site Installation Guidelines

Many factors, such as component positioning, equipment density, site obstructions, and environmental conditions, will impact wireless communication integrity. Network reliability and latency may be maximized by better understanding component limitations and adhering to fundamental installation guidelines. The following guidelines are biased towards an Ad hoc or Mesh Sensor Network Topology.

Communication Range

The effective wireless communication range between nodes, under ideal conditions (clear line of sight), is 600-750 feet (200-250 meters). Most environments have obstructions, which may compromise signal performance below commonly acceptable levels. An obstruction vs. distance guideline to consider would be:

- Heavy obstructions (high density industrial plant environment): 100 feet (30 meters)
- Medium obstructions (light processing or manufacturing facility): 250 feet (80 meters)
- Light obstructions (remotely located structures, such as a tank farm): 500 feet (160 meters)
- Clear line-of-sight, with antenna mounted above obstructions and angle of terrain change less than 5 degrees : 600-750 feet (200-250 meters)

Additional environmental and material factors which can shorten effective wireless communication distance:

Environmental
- Device proximity to the ground or water.
- Barrier isolation (walls). Having a mesh network both inside and outside of a building.

Material
- Metals - Potentially the greatest impact
- Wood, soil or anything with water content – moderate impact
- Fiberglass - slight impact

To increase the distance a network can cover, you can add Repeaters or Nodes. In a Mesh network, a node is merely a bi-directional wireless transmitter, such as the Rosemount 248.

Antenna Positioning

Signal strength will be improved when the antenna of wireless transmitters and /or gateways is unobstructed and kept away from the ground or bodies of water. Quite often, by utilizing a directional antenna or having the antenna be remotely mounted to the gateway (or control panel) the communication strength becomes greater. Antenna extension cables are available to accommodate most structure challenges such as penetrating walls or rooftops. In most situations, the optimum design is to have the gateway antenna as close to the center of the system as possible.

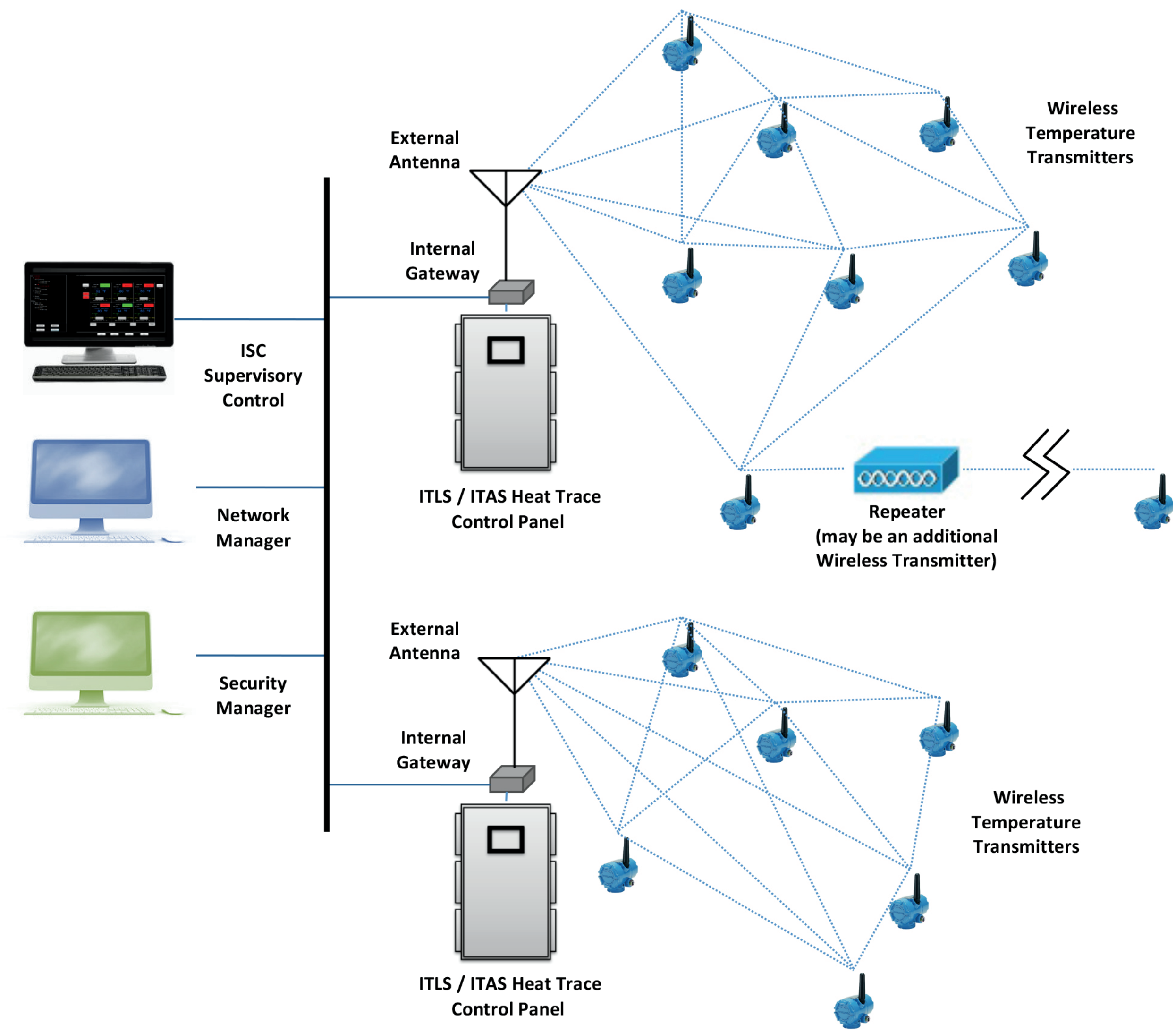
- Devices (antenna) should be mounted >0.5m from any vertical surface
- Wireless transmitter antenna should always be positioned vertically, either straight up or straight down.
- Devices should be mounted >1.5m off of the ground
- Avoid having devices mounted inside and outside of a building. The signal does not transmit well through wood or cement walls.

Redundancy

A mesh network obtains its reliability by having multiple or redundant communication paths between wireless devices, such as transmitters and gateways.

- Each wireless transmitter device in the network should have a minimum of three neighbors.
- Place five or more wireless devices within effective communication range of the gateway itself.
- For networks with considerably more than five devices, have at least 25% of them within range of the gateway. This minimizes latency in the network.

Below is a representation of a typical industrial wireless sensor network:



Commissioning the Wireless Network

To most efficiently setup and commission your wireless network, please refer to the RMT 248 Quick Install Guide 00825-0200-4248, RMT 248 Product Data Sheet 00813-0100-4248 and RMT 248 Reference Manual 00809-0100-4248 for complete commissioning details and guidance. These documents are available in the technical resources tab within the Heat Trace products / Wireless Temperature Sensing section at www.chromalox.com.

Appendix A

Specifications

Input	
Input Types	- 3-wire RTD, 100 Ω PT, 0.00385 Ω/Ω/°C, 20 Ω balanced lead wire, - Dry Contact Closure (Thermostat) - Snow or Ice Sensor (voltage drop)
Number of Sensor Inputs	1 to 252 per Circuit
Sensing Configuration	1: Sensed Reading 2 (or more): Min, Max, Average
Output	
Power Switching	SSR Zero Cross Fired, DOT (Demand on Transfer) Timing
Number of Circuits	2-72 Per ITAS or ITLS system
Capacity	40 Amps per Circuit (Breaker size shall be 50 Amps maximum per circuit or 125% of anticipated load)
Control Types	
PID	Control mode must be set to Auto
Autotune	On or Off
Proportional Band, (°F)	Range: 1 – 100
Integral (sec/repeat)	Range: 0 – 9,999
Rate or Derivative, (seconds)	Range: 0 – 500
On/Off	Control mode must be set to Auto
Dead band, (°F)	Range: 2 – 100
Manual	Range: 0 – 100%
Soft Start, Current Clamping	Enable or Disable
Settings	
Temperature (SP)	Range: -80°F to +1100°F
	Range: -62°C to +593°C
Low Temperature Alarm	Range: -80°F to +1050°F, Off
	Range: -62°C to +566°C, Off
High Temperature Alarm	Range: -80°F to +1150°F, Off
	Range: -62°C to +621°C, Off
Low Current Alarm	Range: 0.0 A – 50.0 A, Off
High Current Alarm	Range: 0.1 A – 50.0 A, Off
GFEP	Range: 30mA – 150 mA, +/-2.5% of Span or +/- 3mA
GFEP Alarm Condition	Alarm Only or Alarm & Trip. (These conditions are latching or non-latching)
Output on Sensor Failure	Mode Range: 0 – 100%, Bumpless Transfer to Manual Mode
Security	4 Levels of password protected security
Alarm State	Normal Operation: Closed (default), Open
Display, HMI, Indication	
Display	10 in. (25 cm) or 7 in. (18 cm) diagonal measurement, depending on the panel selection
Human Interface	Touchscreen Display

Alarms		
Alarm Types	Low & High Temperature, Low & High Current, High GFEP, Sensor Failure, Communications, Wireless Transmitter Battery	
Alarm Relay	5 Amps, Customer Supplied 2-30 VDC or 12-240 VAC	
Alarm Contact State	**Mode**	**Default**
	Normal Operation	Closed
	Alarm Condition	Open
	Power Off	Open

Communications	
ModBus	RTU/RS485 (2 or 4 wire), TCP/Ethernet
Baud Rate, Hz	2400, 4800, 9600, 19200, 38400, 56000
Parity	Range: Even, Odd, None
ModBus ID	Range: 1 – 255
BacNET	Available, Contact Sales

Operating & Environmental	
Temperature	-40˚F to 104˚F (-40˚C to 40˚C) *Enclosure heater required for below 0°C (32°F)*
Humidity	Relative Humidity 0% to 90%
Power Supply	100-600 Vac 50/60Hz
Protection	IEC IP66 (Front Panel)
Enclosure Rating	NEMA 4 or Optional NEMA 4X 304SS
Approvals	UL/cUL Ordinary and Class I, Division 2, Groups A,B,C,D Hazardous locations (UL file Number: E347725)
Temperature Rating	T4 (Derate to T3 & Groups B,C,D when using enclosure heater)

Default Settings

Below is the parameter settings chart organized by Menu Screen. It includes the default, minimum, maximum and/or the range of settings, where applicable.

Parameter	Default	Min	Max
Temperature Setpoint	0˚F (-18˚C)	-80˚F (62˚C)	1100˚F (593˚C)
Hi Temp Setpoint	200˚F (93˚C)	-80˚F (62˚C)	1100˚F (593˚C)
Lo Temp Setpoint	32˚F (0˚C)	-80˚F (62˚C)	1100˚F (593˚C)
HI Current	50 Amp	0.2 Amp	50 Amp
Lo Current	0.2 Amp	0 Amp	50 Amp
GFEP	30 mA	20 mA	150 mA
Control Mode	Manual	Manual	Auto
Output %	0	0	100
Integral	8	0	100
Derivative	2	0	500
PID or ON/OFF	On/OFF	PID	On/OFF
Soft Start	Enabled	Enabled	Disabled

Solar Shield Options

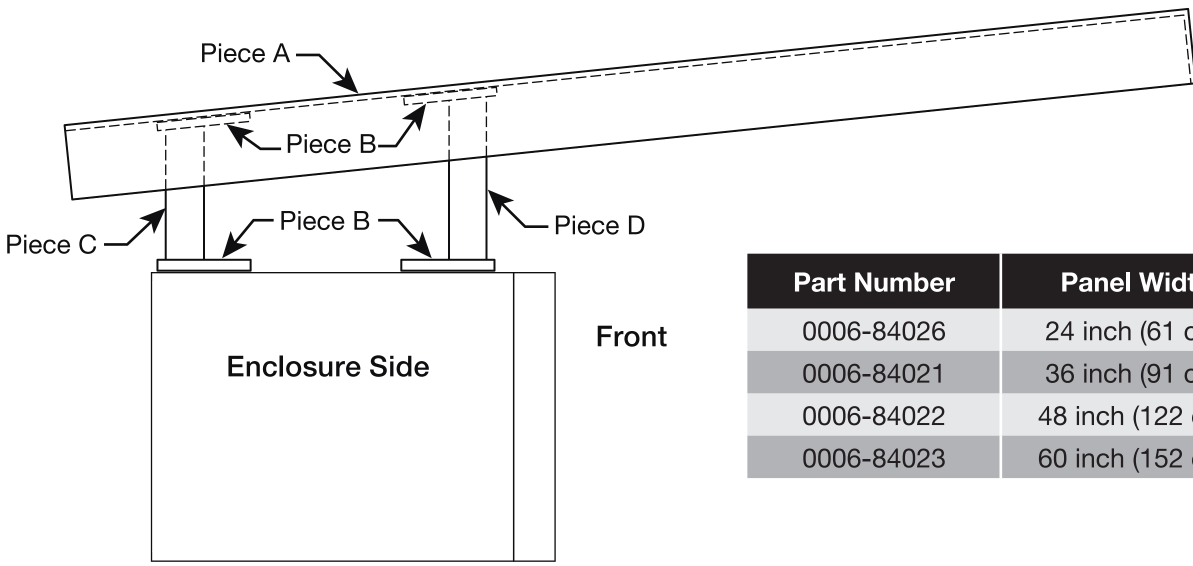
Equipment protection from the environment must be carefully considered when installing these systems outdoors. Both Solar Loading and UV Rays from the sun can impact the performance of these systems.

Chromalox offers optional industrial duty, heavy gage Stainless Steel canopy type Solar Shields which provide solar load protection to the control panel enclosure itself. In addition, it also provides some UV protection to the HMI / Touchscreen.

The Solar Shield spans the entire width of the panel. Cut outs are provided for the Lifting Eye Hooks.

Construction includes:

Piece	Description
A	12 Gage x 30” (76 cm) x Panel Width - 304 SS Sheet for solar shield
B	0.250” (6.5 mm) thick 304 SS plate for tubing base and cap
C	1.0” (25 mm) 304 SS structural square support tubing



Part Number	Panel Width
0006-84026	24 inch (61 cm)
0006-84021	36 inch (91 cm)
0006-84022	48 inch (122 cm)
0006-84023	60 inch (152 cm)

HMI / Touchscreen Note:
The Solar Shield will provide some UV protection to the HMI / Touchscreen. However, without complete UV protection, the life of the HMI / Touchscreen will be compromised. For outdoor installations, Chromalox insists on installing an HMI Sunscreen to fully protect the HMI / Touchscreen from harmful UV rays. HMI warranty claims will not be honored on outdoor installations which do not employ Chromalox-recommended Sunscreens.

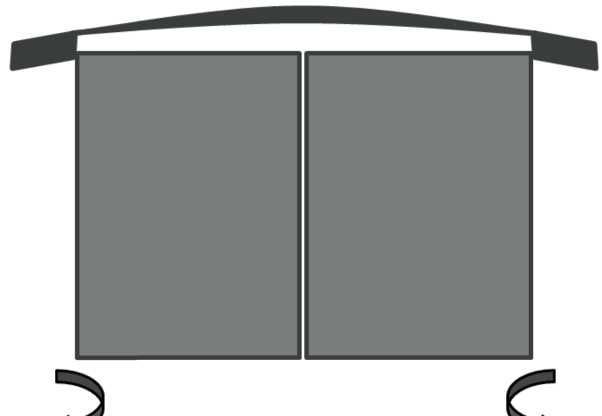
See HMI Sunscreen Options.

HMI Sunscreen Options

The HMI Sunscreen provides complete protection from the harmful effects of UV Ray exposure. When installed properly, along with the supplied hardware and accessories, the NEMA 4/4X control panel rating is maintained.

The Sunscreen collapses nearly flush with the front of the enclosure when not in use and it may be secured shut with a common padlock.

As Closed
To Open, Lift Cover Upwards



Open Two Inner Panels Outward

Eyelets For
Padlock

Two Inner Panels Will Support Cover
When Fully Opened

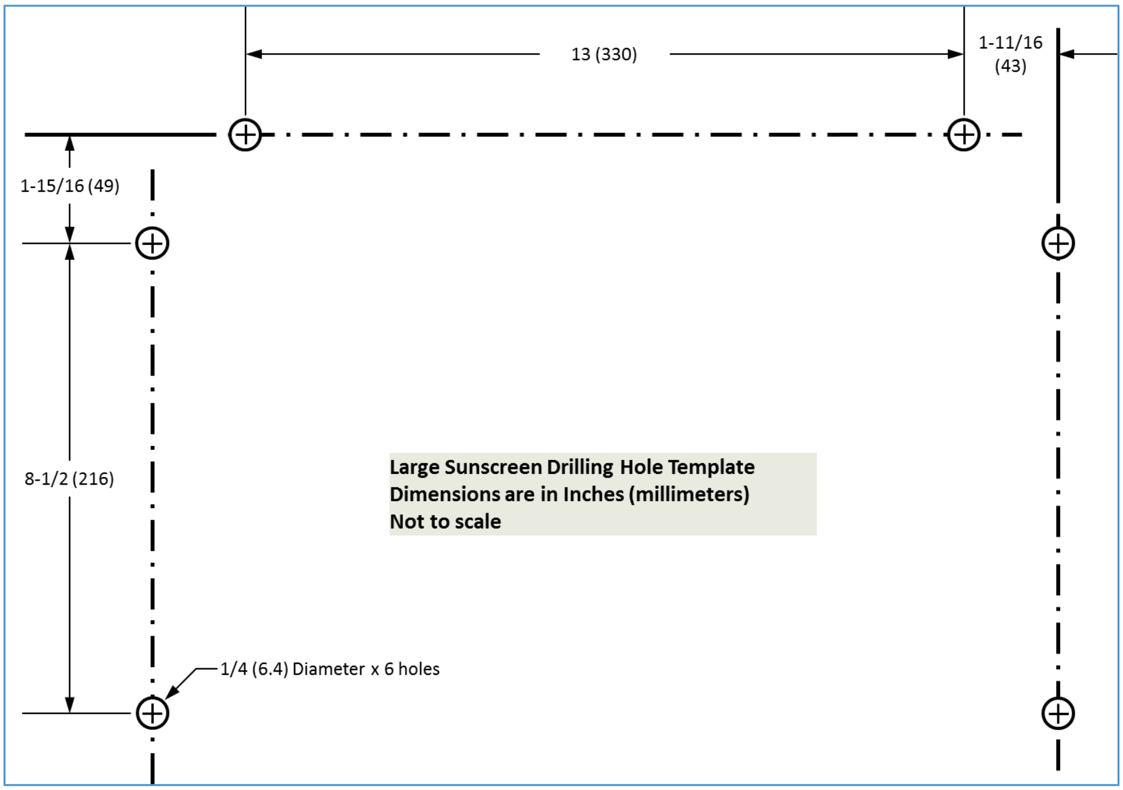
Part Number	Applicable Control Panel	Material
0076-15392	ITLS/ITAS-6-72	Painted Steel
0076-15488	ITLS/ITAS-2-4	Painted Steel

Retrofitting control panels with the HMI Sunscreen is done as follows:

1. Use the mounting template below to establish the drill hole locations.
2. Install the provided gas-tight sealing washers and sealing gasket along with the cap screws and nuts.

Field Installation

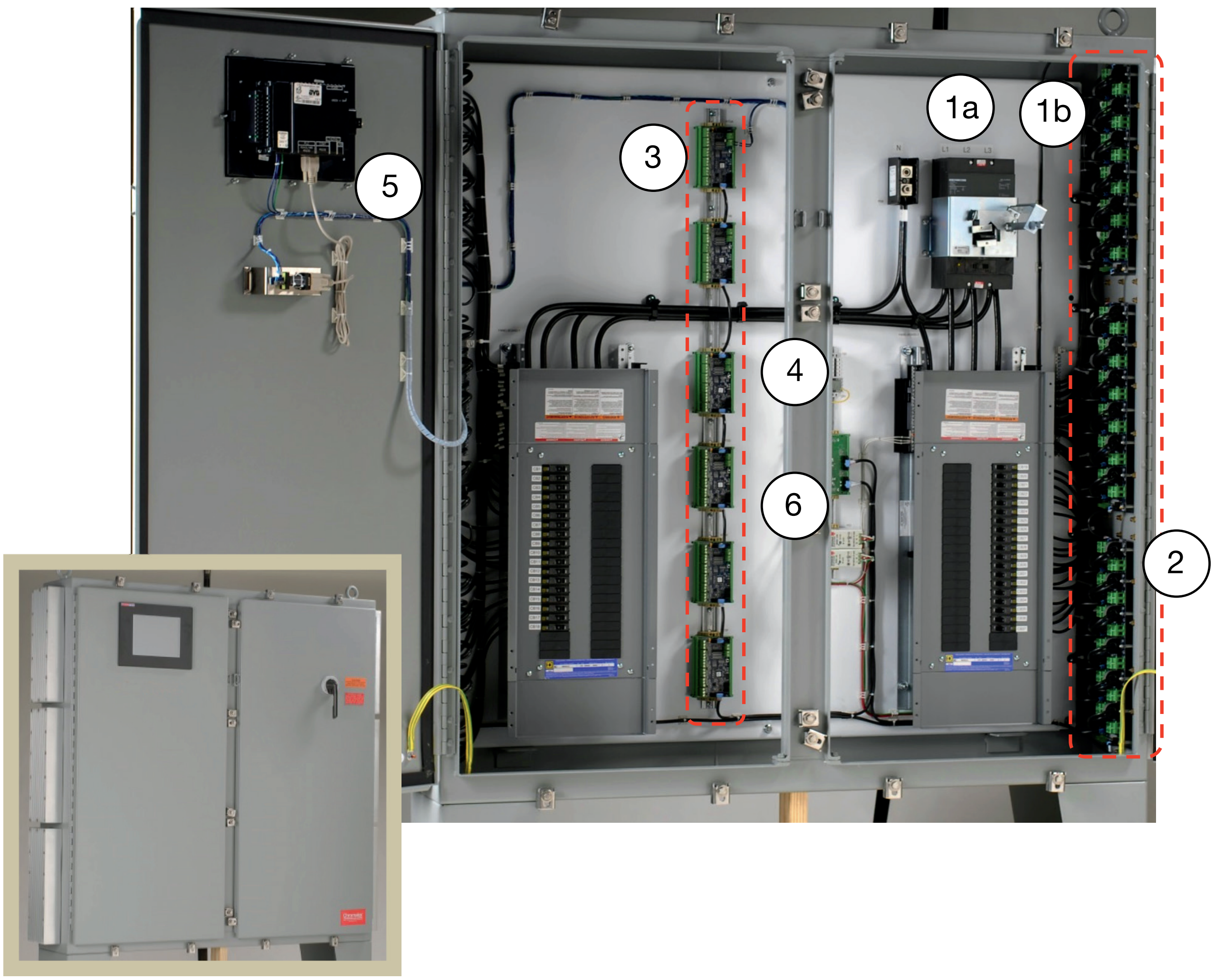
Below is the mounting template for the larger Sunscreen, 0076-15392 for the ITLS/ITAS-6-72 designs:



Wiring Considerations

All standard IntelliTRACE panels will have the same core components. Please see the table and pictures below to understand basic wiring needs. Refer to the wiring diagram(s) supplied with your specific panel for reference.

Item	Function	ITAS, ITLS	ITAS-EXT, ITLS-EXT	ITASC1D2, ITLSC1D2	ITASC1D2-EXT, ITLSC1D2-EXT
1a	Main Voltage Supply - In	X	X		
1b	Remote Voltage Distribution – In			X	X
2	Heaters - Out	X	X	X	X
3	Temperature Sensors (RTD) - In	X	X	X	X
4	Alarm - Out	X		X	
5	Communications - Out	X		X	
6	Extension Panel Connection	X	X	X	X

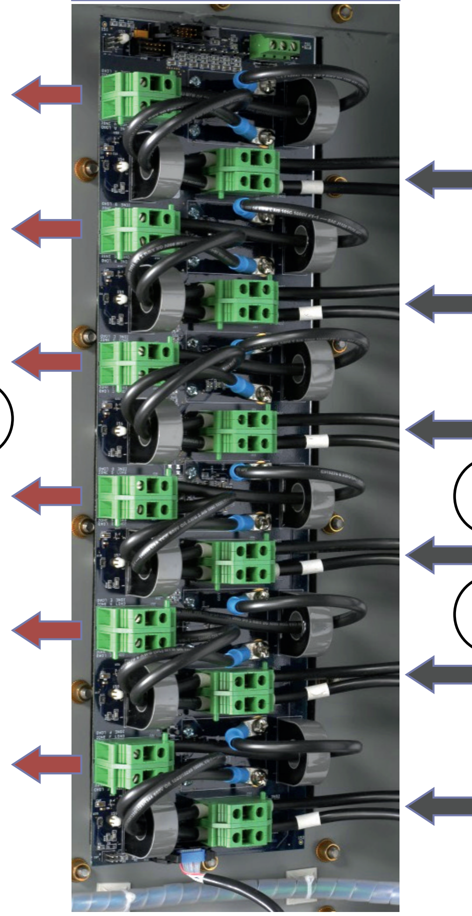


Heater (Load) – OUT

Heat Trace or Other Resistive Heater Loads are connected here.

Modules are labeled:
- Zone A is the first circuit on each module
- Zone F is the last circuit on each module

Power Module (6 Pack)
Side/Rear Panel Mounted
(2-Pack Not Shown)



2

1a

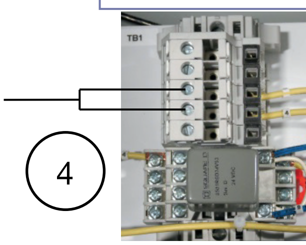
1b

Remote Voltage Distribution – IN

Unless an optional Z-Purge pressurization system is employed, Hazardous Area panels (C1D2) require wiring from a remote area (non-hazardous). Each circuit will need its own separate voltage feed.

Non-Hazardous Area panels are pre-wired.

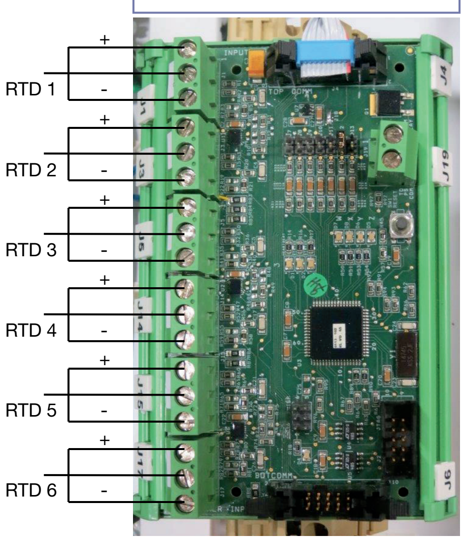
Alarm Contact
DIN Rail Mounted



4

Sensor Input Module
DIN Rail Mounted

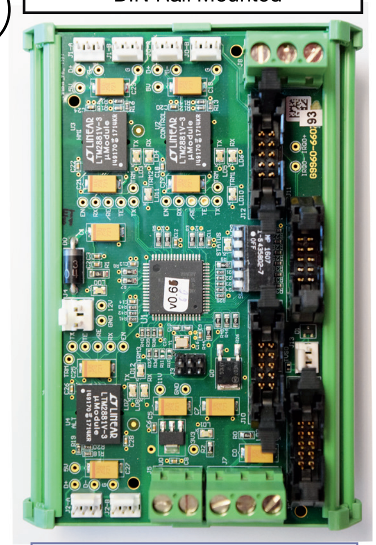
3



6 x 3 Pin & 1 x 2 Pin
Terminal Blocks

6

Control/Distribution Module
DIN Rail Mounted



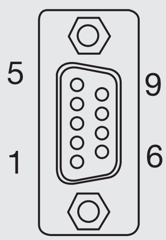
4 x 3 Pin & 2 x 2 Pin
Terminal Blocks

Appendix B

Modbus Wiring Connection for ITAS & ITLS Control Panels

RS-422/RS-485

D-Sub 9 Pin Plug Connector

		RS-422/RS485		
Product Side	**Pin No.**	**Signal Name**	**Direction**	**Meaning**
	1	RDA	Input	Receive Data A (+)
	2	RDB	Input	Receive Data B (-)
	3	SDA	Output	Send Data A (+)
	4	ERA	Output	Data Terminal Ready A (+)
	5	SG	—	Signal Ground
	6	CSB	Input	Send Possible B (-)
	7	SDB	Output	Send Data B (-)
	8	CSA	Input	Send Possible A (+)
	9	ERB	Output	Data Terminal Ready B (-)
	Shell	FG	—	Finctional Ground (Common with SG)

Interfit bracket is #4-40 (UNC)

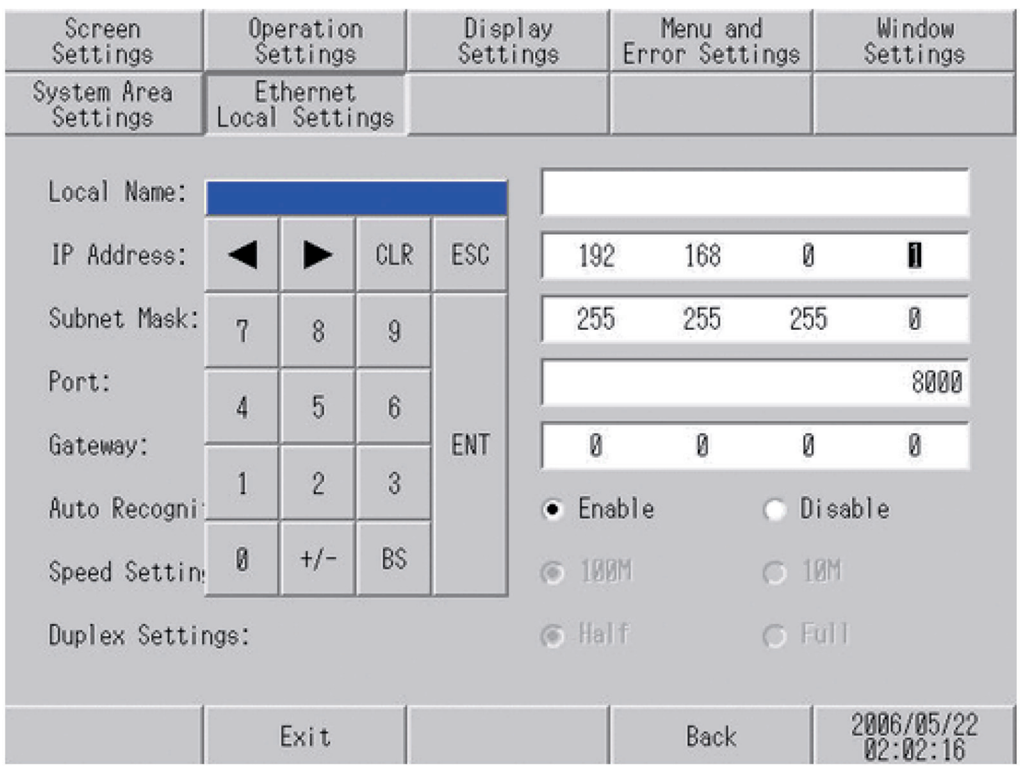
Reccomendations:
- Cable Connector: XM3D-0921 manufactured by OMRON Coprporation
- Cable Cover: XM2S-0913 manufactured by OMRON Coprporation
- Jack Screw (#4-40 UNC): XM2Z-0073 manufactured by OMRON Coprporation

Modbus Wiring Connection for ITASC1D2 & ITLSC1D2 Control Panels

Modbus TCP

1. Connect Ethernet cable to the back of the HMI display
2. Press “Comm Settings” button on the System page
3. Go to Offline mode and touch [Main Unit] on the item changeover switch.
4. From the [Main Unit Settings] screen, touch [Ethernet Local Settings].
5. The [Ethernet Local Settings] screen opens. Touch the IP address input field to display the numeric touch keys and then enter an IP address. (For example, 192.168.0.1)

   Note: For details about the IP address setting, ask your network administrator.



6. Using the same steps, specify the [Subnet Mask], [Port], and [Gateway].
7. [Exit] saves the changes and restarts the display unit.

Description of Modbus Register Set

Table A
HT Touch Screen Computer Function and Exception Code Set

Function Code	Function Name
03	Write Holding Registers
04	Read Input Registers
06	Write Single Holding Register
16	Write Multiple Holding Registers

Detailed Register Descriptions are on the following pages. See Table 1 & 2 for ITLS/ITAS 6 Registers and Table 3 & 4 for ITLS/ITAS 2-4 Registers.

Input Registers

Channel outputs can be disabled through use of the discrete output register set.

Table 1: ITLS/ITAS 6-72 Circuit Input Registers

Input Register Address	Name	Range	Format
300001	Temperature from Sensor 1	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300002	Temperature from Sensor 2	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300003	Temperature from Sensor 3	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300004	Temperature from Sensor 4	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300005	Temperature from Sensor 5	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300006	Temperature from Sensor 6	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300007	Temperature from Sensor 7	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300008	Temperature from Sensor 8	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300009	Temperature from Sensor 9	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300010	Temperature from Sensor 10	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300011	Temperature from Sensor 11	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300012	Temperature from Sensor 12	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300013	Temperature from Sensor 13	from -800 to 11001	expressed in tenth of deg e.g., 765 = 76.5˚F
300014	Temperature from Sensor 14	from -800 to 11002	expressed in tenth of deg e.g., 765 = 76.5˚F
300015	Temperature from Sensor 15	from -800 to 11003	expressed in tenth of deg e.g., 765 = 76.5˚F
300016	Temperature from Sensor 16	from -800 to 11004	expressed in tenth of deg e.g., 765 = 76.5˚F
300017	Temperature from Sensor 17	from -800 to 11005	expressed in tenth of deg e.g., 765 = 76.5˚F
300018	Temperature from Sensor 18	from -800 to 11006	expressed in tenth of deg e.g., 765 = 76.5˚F
300019	Temperature from Sensor 19	from -800 to 11007	expressed in tenth of deg e.g., 765 = 76.5˚F
300020	Temperature from Sensor 20	from -800 to 11008	expressed in tenth of deg e.g., 765 = 76.5˚F
300021	Temperature from Sensor 21	from -800 to 11009	expressed in tenth of deg e.g., 765 = 76.5˚F
300022	Temperature from Sensor 22	from -800 to 11010	expressed in tenth of deg e.g., 765 = 76.5˚F
300023	Temperature from Sensor 23	from -800 to 11011	expressed in tenth of deg e.g., 765 = 76.5˚F
300024	Temperature from Sensor 24	from -800 to 11012	expressed in tenth of deg e.g., 765 = 76.5˚F
300025	Temperature from Sensor 25	from -800 to 11013	expressed in tenth of deg e.g., 765 = 76.5˚F

Input Registers, cont'd.

Input Register Address	Name	Range	Format
300026	Temperature from Sensor 26	from -800 to 11014	expressed in tenth of deg e.g., 765 = 76.5°F
300027	Temperature from Sensor 27	from -800 to 11015	expressed in tenth of deg e.g., 765 = 76.5°F
300028	Temperature from Sensor 28	from -800 to 11016	expressed in tenth of deg e.g., 765 = 76.5°F
300029	Temperature from Sensor 29	from -800 to 11017	expressed in tenth of deg e.g., 765 = 76.5°F
300030	Temperature from Sensor 30	from -800 to 11018	expressed in tenth of deg e.g., 765 = 76.5°F
300031	Temperature from Sensor 31	from -800 to 11019	expressed in tenth of deg e.g., 765 = 76.5°F
300032	Temperature from Sensor 32	from -800 to 11020	expressed in tenth of deg e.g., 765 = 76.5°F
300033	Temperature from Sensor 33	from -800 to 11021	expressed in tenth of deg e.g., 765 = 76.5°F
300034	Temperature from Sensor 34	from -800 to 11022	expressed in tenth of deg e.g., 765 = 76.5°F
300035	Temperature from Sensor 35	from -800 to 11023	expressed in tenth of deg e.g., 765 = 76.5°F
300036	Temperature from Sensor 36	from -800 to 11024	expressed in tenth of deg e.g., 765 = 76.5°F
300037	Temperature from Sensor 37	from -800 to 11025	expressed in tenth of deg e.g., 765 = 76.5°F
300038	Temperature from Sensor 38	from -800 to 11026	expressed in tenth of deg e.g., 765 = 76.5°F
300039	Temperature from Sensor 39	from -800 to 11027	expressed in tenth of deg e.g., 765 = 76.5°F
300040	Temperature from Sensor 40	from -800 to 11028	expressed in tenth of deg e.g., 765 = 76.5°F
300041	Temperature from Sensor 41	from -800 to 11029	expressed in tenth of deg e.g., 765 = 76.5°F
300042	Temperature from Sensor 42	from -800 to 11030	expressed in tenth of deg e.g., 765 = 76.5°F
300043	Temperature from Sensor 43	from -800 to 11031	expressed in tenth of deg e.g., 765 = 76.5°F
300044	Temperature from Sensor 44	from -800 to 11032	expressed in tenth of deg e.g., 765 = 76.5°F
300045	Temperature from Sensor 45	from -800 to 11033	expressed in tenth of deg e.g., 765 = 76.5°F
300046	Temperature from Sensor 46	from -800 to 11034	expressed in tenth of deg e.g., 765 = 76.5°F
300047	Temperature from Sensor 47	from -800 to 11035	expressed in tenth of deg e.g., 765 = 76.5°F
300048	Temperature from Sensor 48	from -800 to 11036	expressed in tenth of deg e.g., 765 = 76.5°F
300049	Temperature from Sensor 49	from -800 to 11037	expressed in tenth of deg e.g., 765 = 76.5°F
300050	Temperature from Sensor 50	from -800 to 11038	expressed in tenth of deg e.g., 765 = 76.5°F
300051	Temperature from Sensor 51	from -800 to 11039	expressed in tenth of deg e.g., 765 = 76.5°F
300052	Temperature from Sensor 52	from -800 to 11040	expressed in tenth of deg e.g., 765 = 76.5°F
300053	Temperature from Sensor 53	from -800 to 11041	expressed in tenth of deg e.g., 765 = 76.5°F
300054	Temperature from Sensor 54	from -800 to 11042	expressed in tenth of deg e.g., 765 = 76.5°F
300055	Temperature from Sensor 55	from -800 to 11043	expressed in tenth of deg e.g., 765 = 76.5°F
300056	Temperature from Sensor 56	from -800 to 11044	expressed in tenth of deg e.g., 765 = 76.5°F
300057	Temperature from Sensor 57	from -800 to 11045	expressed in tenth of deg e.g., 765 = 76.5°F
300058	Temperature from Sensor 58	from -800 to 11046	expressed in tenth of deg e.g., 765 = 76.5°F
300059	Temperature from Sensor 59	from -800 to 11047	expressed in tenth of deg e.g., 765 = 76.5°F
300060	Temperature from Sensor 60	from -800 to 11048	expressed in tenth of deg e.g., 765 = 76.5°F
300061	Temperature from Sensor 61	from -800 to 11049	expressed in tenth of deg e.g., 765 = 76.5°F
300062	Temperature from Sensor 62	from -800 to 11050	expressed in tenth of deg e.g., 765 = 76.5°F
300063	Temperature from Sensor 63	from -800 to 11051	expressed in tenth of deg e.g., 765 = 76.5°F
300064	Temperature from Sensor 64	from -800 to 11052	expressed in tenth of deg e.g., 765 = 76.5°F
300065	Temperature from Sensor 65	from -800 to 11053	expressed in tenth of deg e.g., 765 = 76.5°F
300066	Temperature from Sensor 66	from -800 to 11054	expressed in tenth of deg e.g., 765 = 76.5°F

Input Registers, cont'd.

Input Register Address	Name	Range	Format
300067	Temperature from Sensor 67	from -800 to 11055	expressed in tenth of deg e.g., 765 = 76.5°F
300068	Temperature from Sensor 68	from -800 to 11056	expressed in tenth of deg e.g., 765 = 76.5°F
300069	Temperature from Sensor 69	from -800 to 11057	expressed in tenth of deg e.g., 765 = 76.5°F
300070	Temperature from Sensor 70	from -800 to 11058	expressed in tenth of deg e.g., 765 = 76.5°F
300071	Temperature from Sensor 71	from -800 to 11059	expressed in tenth of deg e.g., 765 = 76.5°F
300072	Temperature from Sensor 72	from -800 to 11060	expressed in tenth of deg e.g., 765 = 76.5°F
300073	Load current 1	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300074	Load current 2	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300075	Load current 3	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300076	Load current 4	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300077	Load current 5	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300078	Load current 6	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300079	Load current 7	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300080	Load current 8	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300081	Load current 9	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300082	Load current 10	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300083	Load current 11	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300084	Load current 12	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300085	Load current 13	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300086	Load current 14	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300087	Load current 15	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300088	Load current 16	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300089	Load current 17	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300090	Load current 18	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300091	Load current 19	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300092	Load current 20	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300093	Load current 21	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300094	Load current 22	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300095	Load current 23	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300096	Load current 24	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300097	Load current 25	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300098	Load current 26	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300099	Load current 27	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300100	Load current 28	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300101	Load current 29	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300102	Load current 30	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300103	Load current 31	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300104	Load current 32	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300105	Load current 33	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300106	Load current 34	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300107	Load current 35	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps

Input Registers, cont'd.

Input Register Address	Name	Range	Format
300108	Load current 36	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300109	Load current 37	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300110	Load current 38	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300111	Load current 39	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300112	Load current 40	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300113	Load current 41	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300114	Load current 42	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300115	Load current 43	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300116	Load current 44	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300117	Load current 45	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300118	Load current 46	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300119	Load current 47	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300120	Load current 48	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300121	Load current 49	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300122	Load current 50	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300123	Load current 51	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300124	Load current 52	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300125	Load current 53	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300126	Load current 54	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300127	Load current 55	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300128	Load current 56	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300129	Load current 57	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300130	Load current 58	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300131	Load current 59	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300132	Load current 60	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300133	Load current 61	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300134	Load current 62	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300135	Load current 63	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300136	Load current 64	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300137	Load current 65	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300138	Load current 66	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300139	Load current 67	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300140	Load current 68	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300141	Load current 69	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300142	Load current 70	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300143	Load current 71	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300144	Load current 72	from 0 to 50.0 Amps	expressed in tenth of Amps e.g., 56 = 5.6 Amps
300145	GFEP current 1	from 30 to 150 mA	expressed in mA
300146	GFEP current 2	from 30 to 150 mA	expressed in mA
300147	GFEP current 3	from 30 to 150 mA	expressed in mA
300148	GFEP current 4	from 30 to 150 mA	expressed in mA

Input Registers, cont'd.

Input Register Address	Name	Range	Format
300149	GFEP current 5	from 30 to 150 mA	expressed in mA
300150	GFEP current 6	from 30 to 150 mA	expressed in mA
300151	GFEP current 7	from 30 to 150 mA	expressed in mA
300152	GFEP current 8	from 30 to 150 mA	expressed in mA
300153	GFEP current 9	from 30 to 150 mA	expressed in mA
300154	GFEP current 10	from 30 to 150 mA	expressed in mA
300155	GFEP current 11	from 30 to 150 mA	expressed in mA
300156	GFEP current 12	from 30 to 150 mA	expressed in mA
300157	GFEP current 13	from 30 to 150 mA	expressed in mA
300158	GFEP current 14	from 30 to 150 mA	expressed in mA
300159	GFEP current 15	from 30 to 150 mA	expressed in mA
300160	GFEP current 16	from 30 to 150 mA	expressed in mA
300161	GFEP current 17	from 30 to 150 mA	expressed in mA
300162	GFEP current 18	from 30 to 150 mA	expressed in mA
300163	GFEP current 19	from 30 to 150 mA	expressed in mA
300164	GFEP current 20	from 30 to 150 mA	expressed in mA
300165	GFEP current 21	from 30 to 150 mA	expressed in mA
300166	GFEP current 22	from 30 to 150 mA	expressed in mA
300167	GFEP current 23	from 30 to 150 mA	expressed in mA
300168	GFEP current 24	from 30 to 150 mA	expressed in mA
300169	GFEP current 25	from 30 to 150 mA	expressed in mA
300170	GFEP current 26	from 30 to 150 mA	expressed in mA
300171	GFEP current 27	from 30 to 150 mA	expressed in mA
300172	GFEP current 28	from 30 to 150 mA	expressed in mA
300173	GFEP current 29	from 30 to 150 mA	expressed in mA
300174	GFEP current 30	from 30 to 150 mA	expressed in mA
300175	GFEP current 31	from 30 to 150 mA	expressed in mA
300176	GFEP current 32	from 30 to 150 mA	expressed in mA
300177	GFEP current 33	from 30 to 150 mA	expressed in mA
300178	GFEP current 34	from 30 to 150 mA	expressed in mA
300179	GFEP current 35	from 30 to 150 mA	expressed in mA
300180	GFEP current 36	from 30 to 150 mA	expressed in mA
300181	GFEP current 37	from 30 to 150 mA	expressed in mA
300182	GFEP current 38	from 30 to 150 mA	expressed in mA
300183	GFEP current 39	from 30 to 150 mA	expressed in mA
300184	GFEP current 40	from 30 to 150 mA	expressed in mA
300185	GFEP current 41	from 30 to 150 mA	expressed in mA
300186	GFEP current 42	from 30 to 150 mA	expressed in mA
300187	GFEP current 43	from 30 to 150 mA	expressed in mA
300188	GFEP current 44	from 30 to 150 mA	expressed in mA
300189	GFEP current 45	from 30 to 150 mA	expressed in mA

Input Registers, cont'd.

Input Register Address	Name	Range	Format
300190	GFEP current 46	from 30 to 150 mA	expressed in mA
300191	GFEP current 47	from 30 to 150 mA	expressed in mA
300192	GFEP current 48	from 30 to 150 mA	expressed in mA
300193	GFEP current 49	from 30 to 150 mA	expressed in mA
300194	GFEP current 50	from 30 to 150 mA	expressed in mA
300195	GFEP current 51	from 30 to 150 mA	expressed in mA
300196	GFEP current 52	from 30 to 150 mA	expressed in mA
300197	GFEP current 53	from 30 to 150 mA	expressed in mA
300198	GFEP current 54	from 30 to 150 mA	expressed in mA
300199	GFEP current 55	from 30 to 150 mA	expressed in mA
300200	GFEP current 56	from 30 to 150 mA	expressed in mA
300201	GFEP current 57	from 30 to 150 mA	expressed in mA
300202	GFEP current 58	from 30 to 150 mA	expressed in mA
300203	GFEP current 59	from 30 to 150 mA	expressed in mA
300204	GFEP current 60	from 30 to 150 mA	expressed in mA
300205	GFEP current 61	from 30 to 150 mA	expressed in mA
300206	GFEP current 62	from 30 to 150 mA	expressed in mA
300207	GFEP current 63	from 30 to 150 mA	expressed in mA
300208	GFEP current 64	from 30 to 150 mA	expressed in mA
300209	GFEP current 65	from 30 to 150 mA	expressed in mA
300210	GFEP current 66	from 30 to 150 mA	expressed in mA
300211	GFEP current 67	from 30 to 150 mA	expressed in mA
300212	GFEP current 68	from 30 to 150 mA	expressed in mA
300213	GFEP current 69	from 30 to 150 mA	expressed in mA
300214	GFEP current 70	from 30 to 150 mA	expressed in mA
300215	GFEP current 71	from 30 to 150 mA	expressed in mA
300216	GFEP current 72	from 30 to 150 mA	expressed in mA
300217	Output Demand 1	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300218	Output Demand 2	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300219	Output Demand 3	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300220	Output Demand 4	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300221	Output Demand 5	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300222	Output Demand 6	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300223	Output Demand 7	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300224	Output Demand 8	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300225	Output Demand 9	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300226	Output Demand 10	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300227	Output Demand 11	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300228	Output Demand 12	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300229	Output Demand 13	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300230	Output Demand 14	0-1000	expressed in tenth of % e.g., 500 = 50.0 %

Input Registers, cont'd.

Input Register Address	Name	Range	Format
300231	Output Demand 15	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300232	Output Demand 16	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300233	Output Demand 17	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300234	Output Demand 18	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300235	Output Demand 19	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300236	Output Demand 20	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300237	Output Demand 21	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300238	Output Demand 22	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300239	Output Demand 23	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300240	Output Demand 24	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300241	Output Demand 25	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300242	Output Demand 26	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300243	Output Demand 27	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300244	Output Demand 28	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300245	Output Demand 29	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300246	Output Demand 30	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300247	Output Demand 31	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300248	Output Demand 32	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300249	Output Demand 33	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300250	Output Demand 34	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300251	Output Demand 35	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300252	Output Demand 36	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300253	Output Demand 37	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300254	Output Demand 38	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300255	Output Demand 39	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300256	Output Demand 40	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300257	Output Demand 41	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300258	Output Demand 42	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300259	Output Demand 43	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300260	Output Demand 44	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300261	Output Demand 45	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300262	Output Demand 46	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300263	Output Demand 47	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300264	Output Demand 48	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300265	Output Demand 49	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300266	Output Demand 50	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300267	Output Demand 51	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300268	Output Demand 52	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300269	Output Demand 53	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300270	Output Demand 54	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300271	Output Demand 55	0-1000	expressed in tenth of % e.g., 500 = 50.0 %

Input Registers, cont'd.

Input Register Address	Name	Range	Format
300272	Output Demand 56	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300273	Output Demand 57	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300274	Output Demand 58	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300275	Output Demand 59	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300276	Output Demand 60	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300277	Output Demand 61	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300278	Output Demand 62	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300279	Output Demand 63	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300280	Output Demand 64	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300281	Output Demand 65	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300282	Output Demand 66	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300283	Output Demand 67	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300284	Output Demand 68	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300285	Output Demand 69	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300286	Output Demand 70	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300287	Output Demand 71	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300288	Output Demand 72	0-1000	expressed in tenth of % e.g., 500 = 50.0 %
300289	Temperature circuit 1	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300290	Temperature circuit 2	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300291	Temperature circuit 3	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300292	Temperature circuit 4	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300293	Temperature circuit 5	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300294	Temperature circuit 6	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300295	Temperature circuit 7	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300296	Temperature circuit 8	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300297	Temperature circuit 9	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300298	Temperature circuit 10	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300299	Temperature circuit 11	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300300	Temperature circuit 12	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300301	Temperature circuit 13	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300302	Temperature circuit 14	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300303	Temperature circuit 15	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300304	Temperature circuit 16	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300305	Temperature circuit 17	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300306	Temperature circuit 18	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300307	Temperature circuit 19	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300308	Temperature circuit 20	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300309	Temperature circuit 21	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300310	Temperature circuit 22	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300311	Temperature circuit 23	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300312	Temperature circuit 24	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F

Input Registers, cont'd.

Input Register Address	Name	Range	Format
300313	Temperature circuit 25	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300314	Temperature circuit 26	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300315	Temperature circuit 27	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300316	Temperature circuit 28	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300317	Temperature circuit 29	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300318	Temperature circuit 30	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300319	Temperature circuit 31	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300320	Temperature circuit 32	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300321	Temperature circuit 33	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300322	Temperature circuit 34	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300323	Temperature circuit 35	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300324	Temperature circuit 36	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300325	Temperature circuit 37	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300326	Temperature circuit 38	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300327	Temperature circuit 39	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300328	Temperature circuit 40	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300329	Temperature circuit 41	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300330	Temperature circuit 42	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300331	Temperature circuit 43	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300332	Temperature circuit 44	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300333	Temperature circuit 45	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300334	Temperature circuit 46	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300335	Temperature circuit 47	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300336	Temperature circuit 48	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300337	Temperature circuit 49	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300338	Temperature circuit 50	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300339	Temperature circuit 51	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300340	Temperature circuit 52	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300341	Temperature circuit 53	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300342	Temperature circuit 54	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300343	Temperature circuit 55	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300344	Temperature circuit 56	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300345	Temperature circuit 57	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300346	Temperature circuit 58	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300347	Temperature circuit 59	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300348	Temperature circuit 60	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300349	Temperature circuit 61	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300350	Temperature circuit 62	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300351	Temperature circuit 63	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300352	Temperature circuit 64	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F
300353	Temperature circuit 65	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5°F

Input Registers, cont'd.

Input Register Address	Name	Range	Format
300354	Temperature circuit 66	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300355	Temperature circuit 67	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300356	Temperature circuit 68	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300357	Temperature circuit 69	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300358	Temperature circuit 70	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300359	Temperature circuit 71	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F
300360	Temperature circuit 72	from -800 to 11000	expressed in tenth of deg e.g., 765 = 76.5˚F

Holding Registers

Table 2: ITLS/ITAS 6-72 Circuit Holding Registers

Holding Register Address	Name	Range	Format
400001	Setpoint 1	from -80 to 1100 F	expressed as integer number
400002	Setpoint 2	from -80 to 1100 F	expressed as integer number
400003	Setpoint 3	from -80 to 1100 F	expressed as integer number
400004	Setpoint 4	from -80 to 1100˚F	expressed as integer number
400005	Setpoint 5	from -80 to 1100 F	expressed as integer number
400006	Setpoint 6	from -80 to 1100 F	expressed as integer number
400007	Setpoint 7	from -80 to 1100 F	expressed as integer number
400008	Setpoint 8	from -80 to 1100 F	expressed as integer number
400009	Setpoint 9	from -80 to 1100 F	expressed as integer number
400010	Setpoint 10	from -80 to 1100 F	expressed as integer number
400011	Setpoint 11	from -80 to 1100 F	expressed as integer number
400012	Setpoint 12	from -80 to 1100 F	expressed as integer number
400013	Setpoint 13	from -80 to 1100 F	expressed as integer number
400014	Setpoint 14	from -80 to 1100 F	expressed as integer number
400015	Setpoint 15	from -80 to 1100 F	expressed as integer number
400016	Setpoint 16	from -80 to 1100 F	expressed as integer number
400017	Setpoint 17	from -80 to 1100 F	expressed as integer number
400018	Setpoint 18	from -80 to 1100 F	expressed as integer number
400019	Setpoint 19	from -80 to 1100 F	expressed as integer number
400020	Setpoint 20	from -80 to 1100 F	expressed as integer number
400021	Setpoint 21	from -80 to 1100 F	expressed as integer number
400022	Setpoint 22	from -80 to 1100 F	expressed as integer number
400023	Setpoint 23	from -80 to 1100 F	expressed as integer number
400024	Setpoint 24	from -80 to 1100 F	expressed as integer number
400025	Setpoint 25	from -80 to 1100 F	expressed as integer number
400026	Setpoint 26	from -80 to 1100 F	expressed as integer number
400027	Setpoint 27	from -80 to 1100 F	expressed as integer number

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400028	Setpoint 28	from -80 to 1100 F	expressed as integer number
400029	Setpoint 29	from -80 to 1100 F	expressed as integer number
400030	Setpoint 30	from -80 to 1100 F	expressed as integer number
400031	Setpoint 31	from -80 to 1100 F	expressed as integer number
400032	Setpoint 32	from -80 to 1100 F	expressed as integer number
400033	Setpoint 33	from -80 to 1100 F	expressed as integer number
400034	Setpoint 34	from -80 to 1100 F	expressed as integer number
400035	Setpoint 35	from -80 to 1100 F	expressed as integer number
400036	Setpoint 36	from -80 to 1100 F	expressed as integer number
400037	Setpoint 37	from -80 to 1100 F	expressed as integer number
400038	Setpoint 38	from -80 to 1100 F	expressed as integer number
400039	Setpoint 39	from -80 to 1100 F	expressed as integer number
400040	Setpoint 40	from -80 to 1100 F	expressed as integer number
400041	Setpoint 41	from -80 to 1100 F	expressed as integer number
400042	Setpoint 42	from -80 to 1100 F	expressed as integer number
400043	Setpoint 43	from -80 to 1100 F	expressed as integer number
400044	Setpoint 44	from -80 to 1100 F	expressed as integer number
400045	Setpoint 45	from -80 to 1100 F	expressed as integer number
400046	Setpoint 46	from -80 to 1100 F	expressed as integer number
400047	Setpoint 47	from -80 to 1100 F	expressed as integer number
400048	Setpoint 48	from -80 to 1100 F	expressed as integer number
400049	Setpoint 49	from -80 to 1100 F	expressed as integer number
400050	Setpoint 50	from -80 to 1100 F	expressed as integer number
400051	Setpoint 51	from -80 to 1100 F	expressed as integer number
400052	Setpoint 52	from -80 to 1100 F	expressed as integer number
400053	Setpoint 53	from -80 to 1100 F	expressed as integer number
400054	Setpoint 54	from -80 to 1100 F	expressed as integer number
400055	Setpoint 55	from -80 to 1100 F	expressed as integer number
400056	Setpoint 56	from -80 to 1100 F	expressed as integer number
400057	Setpoint 57	from -80 to 1100 F	expressed as integer number
400058	Setpoint 58	from -80 to 1100 F	expressed as integer number
400059	Setpoint 59	from -80 to 1100 F	expressed as integer number
400060	Setpoint 60	from -80 to 1100 F	expressed as integer number
400061	Setpoint 61	from -80 to 1100 F	expressed as integer number
400062	Setpoint 62	from -80 to 1100 F	expressed as integer number
400063	Setpoint 63	from -80 to 1100 F	expressed as integer number
400064	Setpoint 64	from -80 to 1100 F	expressed as integer number
400065	Setpoint 65	from -80 to 1100 F	expressed as integer number
400066	Setpoint 66	from -80 to 1100 F	expressed as integer number
400067	Setpoint 67	from -80 to 1100 F	expressed as integer number
400068	Setpoint 68	from -80 to 1100 F	expressed as integer number

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400069	Setpoint 69	from -80 to 1100 F	expressed as integer number
400070	Setpoint 70	from -80 to 1100 F	expressed as integer number
400071	Setpoint 71	from -80 to 1100 F	expressed as integer number
400072	Setpoint 72	from -80 to 1100 F	expressed as integer number
400073	Default Output Demand 1	0-100	expressed as integer number
400074	Default Output Demand 2	0-100	expressed as integer number
400075	Default Output Demand 3	0-100	expressed as integer number
400076	Default Output Demand 4	0-100	expressed as integer number
400077	Default Output Demand 5	0-100	expressed as integer number
400078	Default Output Demand 6	0-100	expressed as integer number
400079	Default Output Demand 7	0-100	expressed as integer number
400080	Default Output Demand 8	0-100	expressed as integer number
400081	Default Output Demand 9	0-100	expressed as integer number
400082	Default Output Demand 10	0-100	expressed as integer number
400083	Default Output Demand 11	0-100	expressed as integer number
400084	Default Output Demand 12	0-100	expressed as integer number
400085	Default Output Demand 13	0-100	expressed as integer number
400086	Default Output Demand 14	0-100	expressed as integer number
400087	Default Output Demand 15	0-100	expressed as integer number
400088	Default Output Demand 16	0-100	expressed as integer number
400089	Default Output Demand 17	0-100	expressed as integer number
400090	Default Output Demand 18	0-100	expressed as integer number
400091	Default Output Demand 19	0-100	expressed as integer number
400092	Default Output Demand 20	0-100	expressed as integer number
400093	Default Output Demand 21	0-100	expressed as integer number
400094	Default Output Demand 22	0-100	expressed as integer number
400095	Default Output Demand 23	0-100	expressed as integer number
400096	Default Output Demand 24	0-100	expressed as integer number
400097	Default Output Demand 25	0-100	expressed as integer number
400098	Default Output Demand 26	0-100	expressed as integer number
400099	Default Output Demand 27	0-100	expressed as integer number
400100	Default Output Demand 28	0-100	expressed as integer number
400101	Default Output Demand 29	0-100	expressed as integer number
400102	Default Output Demand 30	0-100	expressed as integer number
400103	Default Output Demand 31	0-100	expressed as integer number
400104	Default Output Demand 32	0-100	expressed as integer number
400105	Default Output Demand 33	0-100	expressed as integer number
400106	Default Output Demand 34	0-100	expressed as integer number
400107	Default Output Demand 35	0-100	expressed as integer number
400108	Default Output Demand 36	0-100	expressed as integer number
400109	Default Output Demand 37	0-100	expressed as integer number

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400110	Default Output Demand 38	0-100	expressed as integer number
400111	Default Output Demand 39	0-100	expressed as integer number
400112	Default Output Demand 40	0-100	expressed as integer number
400113	Default Output Demand 41	0-100	expressed as integer number
400114	Default Output Demand 42	0-100	expressed as integer number
400115	Default Output Demand 43	0-100	expressed as integer number
400116	Default Output Demand 44	0-100	expressed as integer number
400117	Default Output Demand 45	0-100	expressed as integer number
400118	Default Output Demand 46	0-100	expressed as integer number
400119	Default Output Demand 47	0-100	expressed as integer number
400120	Default Output Demand 48	0-100	expressed as integer number
400121	Default Output Demand 49	0-100	expressed as integer number
400122	Default Output Demand 50	0-100	expressed as integer number
400123	Default Output Demand 51	0-100	expressed as integer number
400124	Default Output Demand 52	0-100	expressed as integer number
400125	Default Output Demand 53	0-100	expressed as integer number
400126	Default Output Demand 54	0-100	expressed as integer number
400127	Default Output Demand 55	0-100	expressed as integer number
400128	Default Output Demand 56	0-100	expressed as integer number
400129	Default Output Demand 57	0-100	expressed as integer number
400130	Default Output Demand 58	0-100	expressed as integer number
400131	Default Output Demand 59	0-100	expressed as integer number
400132	Default Output Demand 60	0-100	expressed as integer number
400133	Default Output Demand 61	0-100	expressed as integer number
400134	Default Output Demand 62	0-100	expressed as integer number
400135	Default Output Demand 63	0-100	expressed as integer number
400136	Default Output Demand 64	0-100	expressed as integer number
400137	Default Output Demand 65	0-100	expressed as integer number
400138	Default Output Demand 66	0-100	expressed as integer number
400139	Default Output Demand 67	0-100	expressed as integer number
400140	Default Output Demand 68	0-100	expressed as integer number
400141	Default Output Demand 69	0-100	expressed as integer number
400142	Default Output Demand 70	0-100	expressed as integer number
400143	Default Output Demand 71	0-100	expressed as integer number
400144	Default Output Demand 72	0-100	expressed as integer number
400145	Proportional Band 1	0-100	expressed as integer number
400146	Proportional Band 2	0-100	expressed as integer number
400147	Proportional Band 3	0-100	expressed as integer number
400148	Proportional Band 4	0-100	expressed as integer number
400149	Proportional Band 5	0-100	expressed as integer number
400150	Proportional Band 6	0-100	expressed as integer number

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400151	Proportional Band 7	0-100	expressed as integer number
400152	Proportional Band 8	0-100	expressed as integer number
400153	Proportional Band 9	0-100	expressed as integer number
400154	Proportional Band 10	0-100	expressed as integer number
400155	Proportional Band 11	0-100	expressed as integer number
400156	Proportional Band 12	0-100	expressed as integer number
400157	Proportional Band 13	0-100	expressed as integer number
400158	Proportional Band 14	0-100	expressed as integer number
400159	Proportional Band 15	0-100	expressed as integer number
400160	Proportional Band 16	0-100	expressed as integer number
400161	Proportional Band 17	0-100	expressed as integer number
400162	Proportional Band 18	0-100	expressed as integer number
400163	Proportional Band 19	0-100	expressed as integer number
400164	Proportional Band 20	0-100	expressed as integer number
400165	Proportional Band 21	0-100	expressed as integer number
400166	Proportional Band 22	0-100	expressed as integer number
400167	Proportional Band 23	0-100	expressed as integer number
400168	Proportional Band 24	0-100	expressed as integer number
400169	Proportional Band 25	0-100	expressed as integer number
400170	Proportional Band 26	0-100	expressed as integer number
400171	Proportional Band 27	0-100	expressed as integer number
400172	Proportional Band 28	0-100	expressed as integer number
400173	Proportional Band 29	0-100	expressed as integer number
400174	Proportional Band 30	0-100	expressed as integer number
400175	Proportional Band 31	0-100	expressed as integer number
400176	Proportional Band 32	0-100	expressed as integer number
400177	Proportional Band 33	0-100	expressed as integer number
400178	Proportional Band 34	0-100	expressed as integer number
400179	Proportional Band 35	0-100	expressed as integer number
400180	Proportional Band 36	0-100	expressed as integer number
400181	Proportional Band 37	0-100	expressed as integer number
400182	Proportional Band 38	0-100	expressed as integer number
400183	Proportional Band 39	0-100	expressed as integer number
400184	Proportional Band 40	0-100	expressed as integer number
400185	Proportional Band 41	0-100	expressed as integer number
400186	Proportional Band 42	0-100	expressed as integer number
400187	Proportional Band 43	0-100	expressed as integer number
400188	Proportional Band 44	0-100	expressed as integer number
400189	Proportional Band 45	0-100	expressed as integer number
400190	Proportional Band 46	0-100	expressed as integer number
400191	Proportional Band 47	0-100	expressed as integer number

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400192	Proportional Band 48	0-100	expressed as integer number
400193	Proportional Band 49	0-100	expressed as integer number
400194	Proportional Band 50	0-100	expressed as integer number
400195	Proportional Band 51	0-100	expressed as integer number
400196	Proportional Band 52	0-100	expressed as integer number
400197	Proportional Band 53	0-100	expressed as integer number
400198	Proportional Band 54	0-100	expressed as integer number
400199	Proportional Band 55	0-100	expressed as integer number
400200	Proportional Band 56	0-100	expressed as integer number
400201	Proportional Band 57	0-100	expressed as integer number
400202	Proportional Band 58	0-100	expressed as integer number
400203	Proportional Band 59	0-100	expressed as integer number
400204	Proportional Band 60	0-100	expressed as integer number
400205	Proportional Band 61	0-100	expressed as integer number
400206	Proportional Band 62	0-100	expressed as integer number
400207	Proportional Band 63	0-100	expressed as integer number
400208	Proportional Band 64	0-100	expressed as integer number
400209	Proportional Band 65	0-100	expressed as integer number
400210	Proportional Band 66	0-100	expressed as integer number
400211	Proportional Band 67	0-100	expressed as integer number
400212	Proportional Band 68	0-100	expressed as integer number
400213	Proportional Band 69	0-100	expressed as integer number
400214	Proportional Band 70	0-100	expressed as integer number
400215	Proportional Band 71	0-100	expressed as integer number
400216	Proportional Band 72	0-100	expressed as integer number
400217	Integral Band 1	0-9999	expressed as integer number
400218	Integral Band 2	0-9999	expressed as integer number
400219	Integral Band 3	0-9999	expressed as integer number
400220	Integral Band 4	0-9999	expressed as integer number
400221	Integral Band 5	0-9999	expressed as integer number
400222	Integral Band 6	0-9999	expressed as integer number
400223	Integral Band 7	0-9999	expressed as integer number
400224	Integral Band 8	0-9999	expressed as integer number
400225	Integral Band 9	0-9999	expressed as integer number
400226	Integral Band 10	0-9999	expressed as integer number
400227	Integral Band 11	0-9999	expressed as integer number
400228	Integral Band 12	0-9999	expressed as integer number
400229	Integral Band 13	0-9999	expressed as integer number
400230	Integral Band 14	0-9999	expressed as integer number
400231	Integral Band 15	0-9999	expressed as integer number
400232	Integral Band 16	0-9999	expressed as integer number

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400233	Integral Band 17	0-9999	expressed as integer number
400234	Integral Band 18	0-9999	expressed as integer number
400235	Integral Band 19	0-9999	expressed as integer number
400236	Integral Band 20	0-9999	expressed as integer number
400237	Integral Band 21	0-9999	expressed as integer number
400238	Integral Band 22	0-9999	expressed as integer number
400239	Integral Band 23	0-9999	expressed as integer number
400240	Integral Band 24	0-9999	expressed as integer number
400241	Integral Band 25	0-9999	expressed as integer number
400242	Integral Band 26	0-9999	expressed as integer number
400243	Integral Band 27	0-9999	expressed as integer number
400244	Integral Band 28	0-9999	expressed as integer number
400245	Integral Band 29	0-9999	expressed as integer number
400246	Integral Band 30	0-9999	expressed as integer number
400247	Integral Band 31	0-9999	expressed as integer number
400248	Integral Band 32	0-9999	expressed as integer number
400249	Integral Band 33	0-9999	expressed as integer number
400250	Integral Band 34	0-9999	expressed as integer number
400251	Integral Band 35	0-9999	expressed as integer number
400252	Integral Band 36	0-9999	expressed as integer number
400253	Integral Band 37	0-9999	expressed as integer number
400254	Integral Band 38	0-9999	expressed as integer number
400255	Integral Band 39	0-9999	expressed as integer number
400256	Integral Band 40	0-9999	expressed as integer number
400257	Integral Band 41	0-9999	expressed as integer number
400258	Integral Band 42	0-9999	expressed as integer number
400259	Integral Band 43	0-9999	expressed as integer number
400260	Integral Band 44	0-9999	expressed as integer number
400261	Integral Band 45	0-9999	expressed as integer number
400262	Integral Band 46	0-9999	expressed as integer number
400263	Integral Band 47	0-9999	expressed as integer number
400264	Integral Band 48	0-9999	expressed as integer number
400265	Integral Band 49	0-9999	expressed as integer number
400266	Integral Band 50	0-9999	expressed as integer number
400267	Integral Band 51	0-9999	expressed as integer number
400268	Integral Band 52	0-9999	expressed as integer number
400269	Integral Band 53	0-9999	expressed as integer number
400270	Integral Band 54	0-9999	expressed as integer number
400271	Integral Band 55	0-9999	expressed as integer number
400272	Integral Band 56	0-9999	expressed as integer number
400273	Integral Band 57	0-9999	expressed as integer number

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400274	Integral Band 58	0-9999	expressed as integer number
400275	Integral Band 59	0-9999	expressed as integer number
400276	Integral Band 60	0-9999	expressed as integer number
400277	Integral Band 61	0-9999	expressed as integer number
400278	Integral Band 62	0-9999	expressed as integer number
400279	Integral Band 63	0-9999	expressed as integer number
400280	Integral Band 64	0-9999	expressed as integer number
400281	Integral Band 65	0-9999	expressed as integer number
400282	Integral Band 66	0-9999	expressed as integer number
400283	Integral Band 67	0-9999	expressed as integer number
400284	Integral Band 68	0-9999	expressed as integer number
400285	Integral Band 69	0-9999	expressed as integer number
400286	Integral Band 70	0-9999	expressed as integer number
400287	Integral Band 71	0-9999	expressed as integer number
400288	Integral Band 72	0-9999	expressed as integer number
400289	Derivative Band 1	0-500	expressed as integer number
400290	Derivative Band 2	0-500	expressed as integer number
400291	Derivative Band 3	0-500	expressed as integer number
400292	Derivative Band 4	0-500	expressed as integer number
400293	Derivative Band 5	0-500	expressed as integer number
400294	Derivative Band 6	0-500	expressed as integer number
400295	Derivative Band 7	0-500	expressed as integer number
400296	Derivative Band 8	0-500	expressed as integer number
400297	Derivative Band 9	0-500	expressed as integer number
400298	Derivative Band 10	0-500	expressed as integer number
400299	Derivative Band 11	0-500	expressed as integer number
400300	Derivative Band 12	0-500	expressed as integer number
400301	Derivative Band 13	0-500	expressed as integer number
400302	Derivative Band 14	0-500	expressed as integer number
400303	Derivative Band 15	0-500	expressed as integer number
400304	Derivative Band 16	0-500	expressed as integer number
400305	Derivative Band 17	0-500	expressed as integer number
400306	Derivative Band 18	0-500	expressed as integer number
400307	Derivative Band 19	0-500	expressed as integer number
400308	Derivative Band 20	0-500	expressed as integer number
400309	Derivative Band 21	0-500	expressed as integer number
400310	Derivative Band 22	0-500	expressed as integer number
400311	Derivative Band 23	0-500	expressed as integer number
400312	Derivative Band 24	0-500	expressed as integer number
400313	Derivative Band 25	0-500	expressed as integer number
400314	Derivative Band 26	0-500	expressed as integer number

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400315	Derivative Band 27	0-500	expressed as integer number
400316	Derivative Band 28	0-500	expressed as integer number
400317	Derivative Band 29	0-500	expressed as integer number
400318	Derivative Band 30	0-500	expressed as integer number
400319	Derivative Band 31	0-500	expressed as integer number
400320	Derivative Band 32	0-500	expressed as integer number
400321	Derivative Band 33	0-500	expressed as integer number
400322	Derivative Band 34	0-500	expressed as integer number
400323	Derivative Band 35	0-500	expressed as integer number
400324	Derivative Band 36	0-500	expressed as integer number
400325	Derivative Band 37	0-500	expressed as integer number
400326	Derivative Band 38	0-500	expressed as integer number
400327	Derivative Band 39	0-500	expressed as integer number
400328	Derivative Band 40	0-500	expressed as integer number
400329	Derivative Band 41	0-500	expressed as integer number
400330	Derivative Band 42	0-500	expressed as integer number
400331	Derivative Band 43	0-500	expressed as integer number
400332	Derivative Band 44	0-500	expressed as integer number
400333	Derivative Band 45	0-500	expressed as integer number
400334	Derivative Band 46	0-500	expressed as integer number
400335	Derivative Band 47	0-500	expressed as integer number
400336	Derivative Band 48	0-500	expressed as integer number
400337	Derivative Band 49	0-500	expressed as integer number
400338	Derivative Band 50	0-500	expressed as integer number
400339	Derivative Band 51	0-500	expressed as integer number
400340	Derivative Band 52	0-500	expressed as integer number
400341	Derivative Band 53	0-500	expressed as integer number
400342	Derivative Band 54	0-500	expressed as integer number
400343	Derivative Band 55	0-500	expressed as integer number
400344	Derivative Band 56	0-500	expressed as integer number
400345	Derivative Band 57	0-500	expressed as integer number
400346	Derivative Band 58	0-500	expressed as integer number
400347	Derivative Band 59	0-500	expressed as integer number
400348	Derivative Band 60	0-500	expressed as integer number
400349	Derivative Band 61	0-500	expressed as integer number
400350	Derivative Band 62	0-500	expressed as integer number
400351	Derivative Band 63	0-500	expressed as integer number
400352	Derivative Band 64	0-500	expressed as integer number
400353	Derivative Band 65	0-500	expressed as integer number
400354	Derivative Band 66	0-500	expressed as integer number
400355	Derivative Band 67	0-500	expressed as integer number

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400356	Derivative Band 68	0-500	expressed as integer number
400357	Derivative Band 69	0-500	expressed as integer number
400358	Derivative Band 70	0-500	expressed as integer number
400359	Derivative Band 71	0-500	expressed as integer number
400360	Derivative Band 72	0-500	expressed as integer number
400361	Deadband 1	2-100	expressed as integer number
400362	Deadband 2	2-100	expressed as integer number
400363	Deadband 3	2-100	expressed as integer number
400364	Deadband 4	2-100	expressed as integer number
400365	Deadband 5	2-100	expressed as integer number
400366	Deadband 6	2-100	expressed as integer number
400367	Deadband 7	2-100	expressed as integer number
400368	Deadband 8	2-100	expressed as integer number
400369	Deadband 9	2-100	expressed as integer number
400370	Deadband 10	2-100	expressed as integer number
400371	Deadband 11	2-100	expressed as integer number
400372	Deadband 12	2-100	expressed as integer number
400373	Deadband 13	2-100	expressed as integer number
400374	Deadband 14	2-100	expressed as integer number
400375	Deadband 15	2-100	expressed as integer number
400376	Deadband 16	2-100	expressed as integer number
400377	Deadband 17	2-100	expressed as integer number
400378	Deadband 18	2-100	expressed as integer number
400379	Deadband 19	2-100	expressed as integer number
400380	Deadband 20	2-100	expressed as integer number
400381	Deadband 21	2-100	expressed as integer number
400382	Deadband 22	2-100	expressed as integer number
400383	Deadband 23	2-100	expressed as integer number
400384	Deadband 24	2-100	expressed as integer number
400385	Deadband 25	2-100	expressed as integer number
400386	Deadband 26	2-100	expressed as integer number
400387	Deadband 27	2-100	expressed as integer number
400388	Deadband 28	2-100	expressed as integer number
400389	Deadband 29	2-100	expressed as integer number
400390	Deadband 30	2-100	expressed as integer number
400391	Deadband 31	2-100	expressed as integer number
400392	Deadband 32	2-100	expressed as integer number
400393	Deadband 33	2-100	expressed as integer number
400394	Deadband 34	2-100	expressed as integer number
400395	Deadband 35	2-100	expressed as integer number
400396	Deadband 36	2-100	expressed as integer number

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400397	Deadband 37	2-100	expressed as integer number
400398	Deadband 38	2-100	expressed as integer number
400399	Deadband 39	2-100	expressed as integer number
400400	Deadband 40	2-100	expressed as integer number
400401	Deadband 41	2-100	expressed as integer number
400402	Deadband 42	2-100	expressed as integer number
400403	Deadband 43	2-100	expressed as integer number
400404	Deadband 44	2-100	expressed as integer number
400405	Deadband 45	2-100	expressed as integer number
400406	Deadband 46	2-100	expressed as integer number
400407	Deadband 47	2-100	expressed as integer number
400408	Deadband 48	2-100	expressed as integer number
400409	Deadband 49	2-100	expressed as integer number
400410	Deadband 50	2-100	expressed as integer number
400411	Deadband 51	2-100	expressed as integer number
400412	Deadband 52	2-100	expressed as integer number
400413	Deadband 53	2-100	expressed as integer number
400414	Deadband 54	2-100	expressed as integer number
400415	Deadband 55	2-100	expressed as integer number
400416	Deadband 56	2-100	expressed as integer number
400417	Deadband 57	2-100	expressed as integer number
400418	Deadband 58	2-100	expressed as integer number
400419	Deadband 59	2-100	expressed as integer number
400420	Deadband 60	2-100	expressed as integer number
400421	Deadband 61	2-100	expressed as integer number
400422	Deadband 62	2-100	expressed as integer number
400423	Deadband 63	2-100	expressed as integer number
400424	Deadband 64	2-100	expressed as integer number
400425	Deadband 65	2-100	expressed as integer number
400426	Deadband 66	2-100	expressed as integer number
400427	Deadband 67	2-100	expressed as integer number
400428	Deadband 68	2-100	expressed as integer number
400429	Deadband 69	2-100	expressed as integer number
400430	Deadband 70	2-100	expressed as integer number
400431	Deadband 71	2-100	expressed as integer number
400432	Deadband 72	2-100	expressed as integer number
400433	Sensor # circuit 1	0-72	specify sensor # from 0(unused) up to 72
400434	Sensor # circuit 1	0-72	specify sensor # from 0(unused) up to 72
400435	Sensor # circuit 1	0-72	specify sensor # from 0(unused) up to 72
400436	Sensor # circuit 2	0-72	specify sensor # from 0(unused) up to 72
400437	Sensor # circuit 2	0-72	specify sensor # from 0(unused) up to 72

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400438	Sensor # circuit 2	0-72	specify sensor # from 0(unused) up to 72
400439	Sensor # circuit 3	0-72	specify sensor # from 0(unused) up to 72
400440	Sensor # circuit 3	0-72	specify sensor # from 0(unused) up to 72
400441	Sensor # circuit 3	0-72	specify sensor # from 0(unused) up to 72
400442	Sensor # circuit 4	0-72	specify sensor # from 0(unused) up to 72
400443	Sensor # circuit 4	0-72	specify sensor # from 0(unused) up to 72
400444	Sensor # circuit 4	0-72	specify sensor # from 0(unused) up to 72
400445	Sensor # circuit 5	0-72	specify sensor # from 0(unused) up to 72
400446	Sensor # circuit 5	0-72	specify sensor # from 0(unused) up to 72
400447	Sensor # circuit 5	0-72	specify sensor # from 0(unused) up to 72
400448	Sensor # circuit 6	0-72	specify sensor # from 0(unused) up to 72
400449	Sensor # circuit 6	0-72	specify sensor # from 0(unused) up to 72
400450	Sensor # circuit 6	0-72	specify sensor # from 0(unused) up to 72
400451	Sensor # circuit 7	0-72	specify sensor # from 0(unused) up to 72
400452	Sensor # circuit 7	0-72	specify sensor # from 0(unused) up to 72
400453	Sensor # circuit 7	0-72	specify sensor # from 0(unused) up to 72
400454	Sensor # circuit 8	0-72	specify sensor # from 0(unused) up to 72
400455	Sensor # circuit 8	0-72	specify sensor # from 0(unused) up to 72
400456	Sensor # circuit 8	0-72	specify sensor # from 0(unused) up to 72
400457	Sensor # circuit 9	0-72	specify sensor # from 0(unused) up to 72
400458	Sensor # circuit 9	0-72	specify sensor # from 0(unused) up to 72
400459	Sensor # circuit 9	0-72	specify sensor # from 0(unused) up to 72
400460	Sensor # circuit 10	0-72	specify sensor # from 0(unused) up to 72
400461	Sensor # circuit 10	0-72	specify sensor # from 0(unused) up to 72
400462	Sensor # circuit 10	0-72	specify sensor # from 0(unused) up to 72
400463	Sensor # circuit 11	0-72	specify sensor # from 0(unused) up to 72
400464	Sensor # circuit 11	0-72	specify sensor # from 0(unused) up to 72
400465	Sensor # circuit 11	0-72	specify sensor # from 0(unused) up to 72
400466	Sensor # circuit 12	0-72	specify sensor # from 0(unused) up to 72
400467	Sensor # circuit 12	0-72	specify sensor # from 0(unused) up to 72
400468	Sensor # circuit 12	0-72	specify sensor # from 0(unused) up to 72
400469	Sensor # circuit 13	0-72	specify sensor # from 0(unused) up to 72
400470	Sensor # circuit 13	0-72	specify sensor # from 0(unused) up to 72
400471	Sensor # circuit 13	0-72	specify sensor # from 0(unused) up to 72
400472	Sensor # circuit 14	0-72	specify sensor # from 0(unused) up to 72
400473	Sensor # circuit 14	0-72	specify sensor # from 0(unused) up to 72
400474	Sensor # circuit 14	0-72	specify sensor # from 0(unused) up to 72
400475	Sensor # circuit 15	0-72	specify sensor # from 0(unused) up to 72
400476	Sensor # circuit 15	0-72	specify sensor # from 0(unused) up to 72
400477	Sensor # circuit 15	0-72	specify sensor # from 0(unused) up to 72
400478	Sensor # circuit 16	0-72	specify sensor # from 0(unused) up to 72

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400479	Sensor # circuit 16	0-72	specify sensor # from 0(unused) up to 72
400480	Sensor # circuit 16	0-72	specify sensor # from 0(unused) up to 72
400481	Sensor # circuit 17	0-72	specify sensor # from 0(unused) up to 72
400482	Sensor # circuit 17	0-72	specify sensor # from 0(unused) up to 72
400483	Sensor # circuit 17	0-72	specify sensor # from 0(unused) up to 72
400484	Sensor # circuit 18	0-72	specify sensor # from 0(unused) up to 72
400485	Sensor # circuit 18	0-72	specify sensor # from 0(unused) up to 72
400486	Sensor # circuit 18	0-72	specify sensor # from 0(unused) up to 72
400487	Sensor # circuit 19	0-72	specify sensor # from 0(unused) up to 72
400488	Sensor # circuit 19	0-72	specify sensor # from 0(unused) up to 72
400489	Sensor # circuit 19	0-72	specify sensor # from 0(unused) up to 72
400490	Sensor # circuit 20	0-72	specify sensor # from 0(unused) up to 72
400491	Sensor # circuit 20	0-72	specify sensor # from 0(unused) up to 72
400492	Sensor # circuit 20	0-72	specify sensor # from 0(unused) up to 72
400493	Sensor # circuit 21	0-72	specify sensor # from 0(unused) up to 72
400494	Sensor # circuit 21	0-72	specify sensor # from 0(unused) up to 72
400495	Sensor # circuit 21	0-72	specify sensor # from 0(unused) up to 72
400496	Sensor # circuit 22	0-72	specify sensor # from 0(unused) up to 72
400497	Sensor # circuit 22	0-72	specify sensor # from 0(unused) up to 72
400498	Sensor # circuit 22	0-72	specify sensor # from 0(unused) up to 72
400499	Sensor # circuit 23	0-72	specify sensor # from 0(unused) up to 72
400500	Sensor # circuit 23	0-72	specify sensor # from 0(unused) up to 72
400501	Sensor # circuit 23	0-72	specify sensor # from 0(unused) up to 72
400502	Sensor # circuit 24	0-72	specify sensor # from 0(unused) up to 72
400503	Sensor # circuit 24	0-72	specify sensor # from 0(unused) up to 72
400504	Sensor # circuit 24	0-72	specify sensor # from 0(unused) up to 72
400505	Sensor # circuit 25	0-72	specify sensor # from 0(unused) up to 72
400506	Sensor # circuit 25	0-72	specify sensor # from 0(unused) up to 72
400507	Sensor # circuit 25	0-72	specify sensor # from 0(unused) up to 72
400508	Sensor # circuit 26	0-72	specify sensor # from 0(unused) up to 72
400509	Sensor # circuit 26	0-72	specify sensor # from 0(unused) up to 72
400510	Sensor # circuit 26	0-72	specify sensor # from 0(unused) up to 72
400511	Sensor # circuit 27	0-72	specify sensor # from 0(unused) up to 72
400512	Sensor # circuit 27	0-72	specify sensor # from 0(unused) up to 72
400513	Sensor # circuit 27	0-72	specify sensor # from 0(unused) up to 72
400514	Sensor # circuit 28	0-72	specify sensor # from 0(unused) up to 72
400515	Sensor # circuit 28	0-72	specify sensor # from 0(unused) up to 72
400516	Sensor # circuit 28	0-72	specify sensor # from 0(unused) up to 72
400517	Sensor # circuit 29	0-72	specify sensor # from 0(unused) up to 72
400518	Sensor # circuit 29	0-72	specify sensor # from 0(unused) up to 72
400519	Sensor # circuit 29	0-72	specify sensor # from 0(unused) up to 72

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400520	Sensor # circuit 30	0-72	specify sensor # from 0(unused) up to 72
400521	Sensor # circuit 30	0-72	specify sensor # from 0(unused) up to 72
400522	Sensor # circuit 30	0-72	specify sensor # from 0(unused) up to 72
400523	Sensor # circuit 31	0-72	specify sensor # from 0(unused) up to 72
400524	Sensor # circuit 31	0-72	specify sensor # from 0(unused) up to 72
400525	Sensor # circuit 31	0-72	specify sensor # from 0(unused) up to 72
400526	Sensor # circuit 32	0-72	specify sensor # from 0(unused) up to 72
400527	Sensor # circuit 32	0-72	specify sensor # from 0(unused) up to 72
400528	Sensor # circuit 32	0-72	specify sensor # from 0(unused) up to 72
400529	Sensor # circuit 33	0-72	specify sensor # from 0(unused) up to 72
400530	Sensor # circuit 33	0-72	specify sensor # from 0(unused) up to 72
400531	Sensor # circuit 33	0-72	specify sensor # from 0(unused) up to 72
400532	Sensor # circuit 34	0-72	specify sensor # from 0(unused) up to 72
400533	Sensor # circuit 34	0-72	specify sensor # from 0(unused) up to 72
400534	Sensor # circuit 34	0-72	specify sensor # from 0(unused) up to 72
400535	Sensor # circuit 35	0-72	specify sensor # from 0(unused) up to 72
400536	Sensor # circuit 35	0-72	specify sensor # from 0(unused) up to 72
400537	Sensor # circuit 35	0-72	specify sensor # from 0(unused) up to 72
400538	Sensor # circuit 36	0-72	specify sensor # from 0(unused) up to 72
400539	Sensor # circuit 36	0-72	specify sensor # from 0(unused) up to 72
400540	Sensor # circuit 36	0-72	specify sensor # from 0(unused) up to 72
400541	Sensor # circuit 37	0-72	specify sensor # from 0(unused) up to 72
400542	Sensor # circuit 37	0-72	specify sensor # from 0(unused) up to 72
400543	Sensor # circuit 37	0-72	specify sensor # from 0(unused) up to 72
400544	Sensor # circuit 38	0-72	specify sensor # from 0(unused) up to 72
400545	Sensor # circuit 38	0-72	specify sensor # from 0(unused) up to 72
400546	Sensor # circuit 38	0-72	specify sensor # from 0(unused) up to 72
400547	Sensor # circuit 39	0-72	specify sensor # from 0(unused) up to 72
400548	Sensor # circuit 39	0-72	specify sensor # from 0(unused) up to 72
400549	Sensor # circuit 39	0-72	specify sensor # from 0(unused) up to 72
400550	Sensor # circuit 40	0-72	specify sensor # from 0(unused) up to 72
400551	Sensor # circuit 40	0-72	specify sensor # from 0(unused) up to 72
400552	Sensor # circuit 40	0-72	specify sensor # from 0(unused) up to 72
400553	Sensor # circuit 41	0-72	specify sensor # from 0(unused) up to 72
400554	Sensor # circuit 41	0-72	specify sensor # from 0(unused) up to 72
400555	Sensor # circuit 41	0-72	specify sensor # from 0(unused) up to 72
400556	Sensor # circuit 42	0-72	specify sensor # from 0(unused) up to 72
400557	Sensor # circuit 42	0-72	specify sensor # from 0(unused) up to 72
400558	Sensor # circuit 42	0-72	specify sensor # from 0(unused) up to 72
400559	Sensor # circuit 43	0-72	specify sensor # from 0(unused) up to 72
400560	Sensor # circuit 43	0-72	specify sensor # from 0(unused) up to 72

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400561	Sensor # circuit 43	0-72	specify sensor # from 0(unused) up to 72
400562	Sensor # circuit 44	0-72	specify sensor # from 0(unused) up to 72
400563	Sensor # circuit 44	0-72	specify sensor # from 0(unused) up to 72
400564	Sensor # circuit 44	0-72	specify sensor # from 0(unused) up to 72
400565	Sensor # circuit 45	0-72	specify sensor # from 0(unused) up to 72
400566	Sensor # circuit 45	0-72	specify sensor # from 0(unused) up to 72
400567	Sensor # circuit 45	0-72	specify sensor # from 0(unused) up to 72
400568	Sensor # circuit 46	0-72	specify sensor # from 0(unused) up to 72
400569	Sensor # circuit 46	0-72	specify sensor # from 0(unused) up to 72
400570	Sensor # circuit 46	0-72	specify sensor # from 0(unused) up to 72
400571	Sensor # circuit 47	0-72	specify sensor # from 0(unused) up to 72
400572	Sensor # circuit 47	0-72	specify sensor # from 0(unused) up to 72
400573	Sensor # circuit 47	0-72	specify sensor # from 0(unused) up to 72
400574	Sensor # circuit 48	0-72	specify sensor # from 0(unused) up to 72
400575	Sensor # circuit 48	0-72	specify sensor # from 0(unused) up to 72
400576	Sensor # circuit 48	0-72	specify sensor # from 0(unused) up to 72
400577	Sensor # circuit 49	0-72	specify sensor # from 0(unused) up to 72
400578	Sensor # circuit 49	0-72	specify sensor # from 0(unused) up to 72
400579	Sensor # circuit 49	0-72	specify sensor # from 0(unused) up to 72
400580	Sensor # circuit 50	0-72	specify sensor # from 0(unused) up to 72
400581	Sensor # circuit 50	0-72	specify sensor # from 0(unused) up to 72
400582	Sensor # circuit 50	0-72	specify sensor # from 0(unused) up to 72
400583	Sensor # circuit 51	0-72	specify sensor # from 0(unused) up to 72
400584	Sensor # circuit 51	0-72	specify sensor # from 0(unused) up to 72
400585	Sensor # circuit 51	0-72	specify sensor # from 0(unused) up to 72
400586	Sensor # circuit 52	0-72	specify sensor # from 0(unused) up to 72
400587	Sensor # circuit 52	0-72	specify sensor # from 0(unused) up to 72
400588	Sensor # circuit 52	0-72	specify sensor # from 0(unused) up to 72
400589	Sensor # circuit 53	0-72	specify sensor # from 0(unused) up to 72
400590	Sensor # circuit 53	0-72	specify sensor # from 0(unused) up to 72
400591	Sensor # circuit 53	0-72	specify sensor # from 0(unused) up to 72
400592	Sensor # circuit 54	0-72	specify sensor # from 0(unused) up to 72
400593	Sensor # circuit 54	0-72	specify sensor # from 0(unused) up to 72
400594	Sensor # circuit 54	0-72	specify sensor # from 0(unused) up to 72
400595	Sensor # circuit 55	0-72	specify sensor # from 0(unused) up to 72
400596	Sensor # circuit 55	0-72	specify sensor # from 0(unused) up to 72
400597	Sensor # circuit 55	0-72	specify sensor # from 0(unused) up to 72
400598	Sensor # circuit 56	0-72	specify sensor # from 0(unused) up to 72
400599	Sensor # circuit 56	0-72	specify sensor # from 0(unused) up to 72
400600	Sensor # circuit 56	0-72	specify sensor # from 0(unused) up to 72
400601	Sensor # circuit 57	0-72	specify sensor # from 0(unused) up to 72

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400602	Sensor # circuit 57	0-72	specify sensor # from 0(unused) up to 72
400603	Sensor # circuit 57	0-72	specify sensor # from 0(unused) up to 72
400604	Sensor # circuit 58	0-72	specify sensor # from 0(unused) up to 72
400605	Sensor # circuit 58	0-72	specify sensor # from 0(unused) up to 72
400606	Sensor # circuit 58	0-72	specify sensor # from 0(unused) up to 72
400607	Sensor # circuit 59	0-72	specify sensor # from 0(unused) up to 72
400608	Sensor # circuit 59	0-72	specify sensor # from 0(unused) up to 72
400609	Sensor # circuit 59	0-72	specify sensor # from 0(unused) up to 72
400610	Sensor # circuit 60	0-72	specify sensor # from 0(unused) up to 72
400611	Sensor # circuit 60	0-72	specify sensor # from 0(unused) up to 72
400612	Sensor # circuit 60	0-72	specify sensor # from 0(unused) up to 72
400613	Sensor # circuit 61	0-72	specify sensor # from 0(unused) up to 72
400614	Sensor # circuit 61	0-72	specify sensor # from 0(unused) up to 72
400615	Sensor # circuit 61	0-72	specify sensor # from 0(unused) up to 72
400616	Sensor # circuit 62	0-72	specify sensor # from 0(unused) up to 72
400617	Sensor # circuit 62	0-72	specify sensor # from 0(unused) up to 72
400618	Sensor # circuit 62	0-72	specify sensor # from 0(unused) up to 72
400619	Sensor # circuit 63	0-72	specify sensor # from 0(unused) up to 72
400620	Sensor # circuit 63	0-72	specify sensor # from 0(unused) up to 72
400621	Sensor # circuit 63	0-72	specify sensor # from 0(unused) up to 72
400622	Sensor # circuit 64	0-72	specify sensor # from 0(unused) up to 72
400623	Sensor # circuit 64	0-72	specify sensor # from 0(unused) up to 72
400624	Sensor # circuit 64	0-72	specify sensor # from 0(unused) up to 72
400625	Sensor # circuit 65	0-72	specify sensor # from 0(unused) up to 72
400626	Sensor # circuit 65	0-72	specify sensor # from 0(unused) up to 72
400627	Sensor # circuit 65	0-72	specify sensor # from 0(unused) up to 72
400628	Sensor # circuit 66	0-72	specify sensor # from 0(unused) up to 72
400629	Sensor # circuit 66	0-72	specify sensor # from 0(unused) up to 72
400630	Sensor # circuit 66	0-72	specify sensor # from 0(unused) up to 72
400631	Sensor # circuit 67	0-72	specify sensor # from 0(unused) up to 72
400632	Sensor # circuit 67	0-72	specify sensor # from 0(unused) up to 72
400633	Sensor # circuit 67	0-72	specify sensor # from 0(unused) up to 72
400634	Sensor # circuit 68	0-72	specify sensor # from 0(unused) up to 72
400635	Sensor # circuit 68	0-72	specify sensor # from 0(unused) up to 72
400636	Sensor # circuit 68	0-72	specify sensor # from 0(unused) up to 72
400637	Sensor # circuit 69	0-72	specify sensor # from 0(unused) up to 72
400638	Sensor # circuit 69	0-72	specify sensor # from 0(unused) up to 72
400639	Sensor # circuit 69	0-72	specify sensor # from 0(unused) up to 72
400640	Sensor # circuit 70	0-72	specify sensor # from 0(unused) up to 72
400641	Sensor # circuit 70	0-72	specify sensor # from 0(unused) up to 72
400642	Sensor # circuit 70	0-72	specify sensor # from 0(unused) up to 72

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400643	Sensor # circuit 71	0-72	specify sensor # from 0(unused) up to 72
400644	Sensor # circuit 71	0-72	specify sensor # from 0(unused) up to 72
400645	Sensor # circuit 71	0-72	specify sensor # from 0(unused) up to 72
400646	Sensor # circuit 72	0-72	specify sensor # from 0(unused) up to 72
400647	Sensor # circuit 72	0-72	specify sensor # from 0(unused) up to 72
400648	Sensor # circuit 72	0-72	specify sensor # from 0(unused) up to 72
400649	Temp. calculation algorithm CKT 1	0-2	AVERAGE 0, MIN 1, MAX 2
400650	Temp. calculation algorithm CKT 2	0-2	AVERAGE 0, MIN 1, MAX 2
400651	Temp. calculation algorithm CKT 3	0-2	AVERAGE 0, MIN 1, MAX 2
400652	Temp. calculation algorithm CKT 4	0-2	AVERAGE 0, MIN 1, MAX 2
400653	Temp. calculation algorithm CKT 5	0-2	AVERAGE 0, MIN 1, MAX 2
400654	Temp. calculation algorithm CKT 6	0-2	AVERAGE 0, MIN 1, MAX 2
400655	Temp. calculation algorithm CKT 7	0-2	AVERAGE 0, MIN 1, MAX 2
400656	Temp. calculation algorithm CKT 8	0-2	AVERAGE 0, MIN 1, MAX 2
400657	Temp. calculation algorithm CKT 9	0-2	AVERAGE 0, MIN 1, MAX 2
400658	Temp. calculation algorithm CKT 10	0-2	AVERAGE 0, MIN 1, MAX 2
400659	Temp. calculation algorithm CKT 11	0-2	AVERAGE 0, MIN 1, MAX 2
400660	Temp. calculation algorithm CKT 12	0-2	AVERAGE 0, MIN 1, MAX 2
400661	Temp. calculation algorithm CKT 13	0-2	AVERAGE 0, MIN 1, MAX 2
400662	Temp. calculation algorithm CKT 14	0-2	AVERAGE 0, MIN 1, MAX 2
400663	Temp. calculation algorithm CKT 15	0-2	AVERAGE 0, MIN 1, MAX 2
400664	Temp. calculation algorithm CKT 16	0-2	AVERAGE 0, MIN 1, MAX 2
400665	Temp. calculation algorithm CKT 17	0-2	AVERAGE 0, MIN 1, MAX 2
400666	Temp. calculation algorithm CKT 18	0-2	AVERAGE 0, MIN 1, MAX 2
400667	Temp. calculation algorithm CKT 19	0-2	AVERAGE 0, MIN 1, MAX 2
400668	Temp. calculation algorithm CKT 20	0-2	AVERAGE 0, MIN 1, MAX 2
400669	Temp. calculation algorithm CKT 21	0-2	AVERAGE 0, MIN 1, MAX 2
400670	Temp. calculation algorithm CKT 22	0-2	AVERAGE 0, MIN 1, MAX 2
400671	Temp. calculation algorithm CKT 23	0-2	AVERAGE 0, MIN 1, MAX 2
400672	Temp. calculation algorithm CKT 24	0-2	AVERAGE 0, MIN 1, MAX 2
400673	Temp. calculation algorithm CKT 25	0-2	AVERAGE 0, MIN 1, MAX 2
400674	Temp. calculation algorithm CKT 26	0-2	AVERAGE 0, MIN 1, MAX 2
400675	Temp. calculation algorithm CKT 27	0-2	AVERAGE 0, MIN 1, MAX 2
400676	Temp. calculation algorithm CKT 28	0-2	AVERAGE 0, MIN 1, MAX 2
400677	Temp. calculation algorithm CKT 29	0-2	AVERAGE 0, MIN 1, MAX 2
400678	Temp. calculation algorithm CKT 30	0-2	AVERAGE 0, MIN 1, MAX 2
400679	Temp. calculation algorithm CKT 31	0-2	AVERAGE 0, MIN 1, MAX 2
400680	Temp. calculation algorithm CKT 32	0-2	AVERAGE 0, MIN 1, MAX 2
400681	Temp. calculation algorithm CKT 33	0-2	AVERAGE 0, MIN 1, MAX 2
400682	Temp. calculation algorithm CKT 34	0-2	AVERAGE 0, MIN 1, MAX 2
400683	Temp. calculation algorithm CKT 35	0-2	AVERAGE 0, MIN 1, MAX 2

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400684	Temp. calculation algorithm CKT 36	0-2	AVERAGE 0, MIN 1, MAX 2
400685	Temp. calculation algorithm CKT 37	0-2	AVERAGE 0, MIN 1, MAX 2
400686	Temp. calculation algorithm CKT 38	0-2	AVERAGE 0, MIN 1, MAX 2
400687	Temp. calculation algorithm CKT 39	0-2	AVERAGE 0, MIN 1, MAX 2
400688	Temp. calculation algorithm CKT 40	0-2	AVERAGE 0, MIN 1, MAX 2
400689	Temp. calculation algorithm CKT 41	0-2	AVERAGE 0, MIN 1, MAX 2
400690	Temp. calculation algorithm CKT 42	0-2	AVERAGE 0, MIN 1, MAX 2
400691	Temp. calculation algorithm CKT 43	0-2	AVERAGE 0, MIN 1, MAX 2
400692	Temp. calculation algorithm CKT 44	0-2	AVERAGE 0, MIN 1, MAX 2
400693	Temp. calculation algorithm CKT 45	0-2	AVERAGE 0, MIN 1, MAX 2
400694	Temp. calculation algorithm CKT 46	0-2	AVERAGE 0, MIN 1, MAX 2
400695	Temp. calculation algorithm CKT 47	0-2	AVERAGE 0, MIN 1, MAX 2
400696	Temp. calculation algorithm CKT 48	0-2	AVERAGE 0, MIN 1, MAX 2
400697	Temp. calculation algorithm CKT 49	0-2	AVERAGE 0, MIN 1, MAX 2
400698	Temp. calculation algorithm CKT 50	0-2	AVERAGE 0, MIN 1, MAX 2
400699	Temp. calculation algorithm CKT 51	0-2	AVERAGE 0, MIN 1, MAX 2
400700	Temp. calculation algorithm CKT 52	0-2	AVERAGE 0, MIN 1, MAX 2
400701	Temp. calculation algorithm CKT 53	0-2	AVERAGE 0, MIN 1, MAX 2
400702	Temp. calculation algorithm CKT 54	0-2	AVERAGE 0, MIN 1, MAX 2
400703	Temp. calculation algorithm CKT 55	0-2	AVERAGE 0, MIN 1, MAX 2
400704	Temp. calculation algorithm CKT 56	0-2	AVERAGE 0, MIN 1, MAX 2
400705	Temp. calculation algorithm CKT 57	0-2	AVERAGE 0, MIN 1, MAX 2
400706	Temp. calculation algorithm CKT 58	0-2	AVERAGE 0, MIN 1, MAX 2
400707	Temp. calculation algorithm CKT 59	0-2	AVERAGE 0, MIN 1, MAX 2
400708	Temp. calculation algorithm CKT 60	0-2	AVERAGE 0, MIN 1, MAX 2
400709	Temp. calculation algorithm CKT 61	0-2	AVERAGE 0, MIN 1, MAX 2
400710	Temp. calculation algorithm CKT 62	0-2	AVERAGE 0, MIN 1, MAX 2
400711	Temp. calculation algorithm CKT 63	0-2	AVERAGE 0, MIN 1, MAX 2
400712	Temp. calculation algorithm CKT 64	0-2	AVERAGE 0, MIN 1, MAX 2
400713	Temp. calculation algorithm CKT 65	0-2	AVERAGE 0, MIN 1, MAX 2
400714	Temp. calculation algorithm CKT 66	0-2	AVERAGE 0, MIN 1, MAX 2
400715	Temp. calculation algorithm CKT 67	0-2	AVERAGE 0, MIN 1, MAX 2
400716	Temp. calculation algorithm CKT 68	0-2	AVERAGE 0, MIN 1, MAX 2
400717	Temp. calculation algorithm CKT 69	0-2	AVERAGE 0, MIN 1, MAX 2
400718	Temp. calculation algorithm CKT 70	0-2	AVERAGE 0, MIN 1, MAX 2
400719	Temp. calculation algorithm CKT 71	0-2	AVERAGE 0, MIN 1, MAX 2
400720	Temp. calculation algorithm CKT 72	0-2	AVERAGE 0, MIN 1, MAX 2
400721	Soft Start 1	0-1	0 -OFF, 1- ON
400722	Soft Start 2	0-1	0 -OFF, 1- ON
400723	Soft Start 3	0-1	0 -OFF, 1- ON
400724	Soft Start 4	0-1	0 -OFF, 1- ON

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400725	Soft Start 5	0-1	0 -OFF, 1- ON
400726	Soft Start 6	0-1	0 -OFF, 1- ON
400727	Soft Start 7	0-1	0 -OFF, 1- ON
400728	Soft Start 8	0-1	0 -OFF, 1- ON
400729	Soft Start 9	0-1	0 -OFF, 1- ON
400730	Soft Start 10	0-1	0 -OFF, 1- ON
400731	Soft Start 11	0-1	0 -OFF, 1- ON
400732	Soft Start 12	0-1	0 -OFF, 1- ON
400733	Soft Start 13	0-1	0 -OFF, 1- ON
400734	Soft Start 14	0-1	0 -OFF, 1- ON
400735	Soft Start 15	0-1	0 -OFF, 1- ON
400736	Soft Start 16	0-1	0 -OFF, 1- ON
400737	Soft Start 17	0-1	0 -OFF, 1- ON
400738	Soft Start 18	0-1	0 -OFF, 1- ON
400739	Soft Start 19	0-1	0 -OFF, 1- ON
400740	Soft Start 20	0-1	0 -OFF, 1- ON
400741	Soft Start 21	0-1	0 -OFF, 1- ON
400742	Soft Start 22	0-1	0 -OFF, 1- ON
400743	Soft Start 23	0-1	0 -OFF, 1- ON
400744	Soft Start 24	0-1	0 -OFF, 1- ON
400745	Soft Start 25	0-1	0 -OFF, 1- ON
400746	Soft Start 26	0-1	0 -OFF, 1- ON
400747	Soft Start 27	0-1	0 -OFF, 1- ON
400748	Soft Start 28	0-1	0 -OFF, 1- ON
400749	Soft Start 29	0-1	0 -OFF, 1- ON
400750	Soft Start 30	0-1	0 -OFF, 1- ON
400751	Soft Start 31	0-1	0 -OFF, 1- ON
400752	Soft Start 32	0-1	0 -OFF, 1- ON
400753	Soft Start 33	0-1	0 -OFF, 1- ON
400754	Soft Start 34	0-1	0 -OFF, 1- ON
400755	Soft Start 35	0-1	0 -OFF, 1- ON
400756	Soft Start 36	0-1	0 -OFF, 1- ON
400757	Soft Start 37	0-1	0 -OFF, 1- ON
400758	Soft Start 38	0-1	0 -OFF, 1- ON
400759	Soft Start 39	0-1	0 -OFF, 1- ON
400760	Soft Start 40	0-1	0 -OFF, 1- ON
400761	Soft Start 41	0-1	0 -OFF, 1- ON
400762	Soft Start 42	0-1	0 -OFF, 1- ON
400763	Soft Start 43	0-1	0 -OFF, 1- ON
400764	Soft Start 44	0-1	0 -OFF, 1- ON
400765	Soft Start 45	0-1	0 -OFF, 1- ON

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400766	Soft Start 46	0-1	0 -OFF, 1- ON
400767	Soft Start 47	0-1	0 -OFF, 1- ON
400768	Soft Start 48	0-1	0 -OFF, 1- ON
400769	Soft Start 49	0-1	0 -OFF, 1- ON
400770	Soft Start 50	0-1	0 -OFF, 1- ON
400771	Soft Start 51	0-1	0 -OFF, 1- ON
400772	Soft Start 52	0-1	0 -OFF, 1- ON
400773	Soft Start 53	0-1	0 -OFF, 1- ON
400774	Soft Start 54	0-1	0 -OFF, 1- ON
400775	Soft Start 55	0-1	0 -OFF, 1- ON
400776	Soft Start 56	0-1	0 -OFF, 1- ON
400777	Soft Start 57	0-1	0 -OFF, 1- ON
400778	Soft Start 58	0-1	0 -OFF, 1- ON
400779	Soft Start 59	0-1	0 -OFF, 1- ON
400780	Soft Start 60	0-1	0 -OFF, 1- ON
400781	Soft Start 61	0-1	0 -OFF, 1- ON
400782	Soft Start 62	0-1	0 -OFF, 1- ON
400783	Soft Start 63	0-1	0 -OFF, 1- ON
400784	Soft Start 64	0-1	0 -OFF, 1- ON
400785	Soft Start 65	0-1	0 -OFF, 1- ON
400786	Soft Start 66	0-1	0 -OFF, 1- ON
400787	Soft Start 67	0-1	0 -OFF, 1- ON
400788	Soft Start 68	0-1	0 -OFF, 1- ON
400789	Soft Start 69	0-1	0 -OFF, 1- ON
400790	Soft Start 70	0-1	0 -OFF, 1- ON
400791	Soft Start 71	0-1	0 -OFF, 1- ON
400792	Soft Start 72	0-1	0 -OFF, 1- ON
400793	PID vs ON OFF 1	0-1	0 -ON/OFF, 1- PID
400794	PID vs ON OFF 2	0-1	0 -ON/OFF, 1- PID
400795	PID vs ON OFF 3	0-1	0 -ON/OFF, 1- PID
400796	PID vs ON OFF 4	0-1	0 -ON/OFF, 1- PID
400797	PID vs ON OFF 5	0-1	0 -ON/OFF, 1- PID
400798	PID vs ON OFF 6	0-1	0 -ON/OFF, 1- PID
400799	PID vs ON OFF 7	0-1	0 -ON/OFF, 1- PID
400800	PID vs ON OFF 8	0-1	0 -ON/OFF, 1- PID
400801	PID vs ON OFF 9	0-1	0 -ON/OFF, 1- PID
400802	PID vs ON OFF 10	0-1	0 -ON/OFF, 1- PID
400803	PID vs ON OFF 11	0-1	0 -ON/OFF, 1- PID
400804	PID vs ON OFF 12	0-1	0 -ON/OFF, 1- PID
400805	PID vs ON OFF 13	0-1	0 -ON/OFF, 1- PID
400806	PID vs ON OFF 14	0-1	0 -ON/OFF, 1- PID

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400807	PID vs ON OFF 15	0-1	0 -ON/OFF, 1- PID
400808	PID vs ON OFF 16	0-1	0 -ON/OFF, 1- PID
400809	PID vs ON OFF 17	0-1	0 -ON/OFF, 1- PID
400810	PID vs ON OFF 18	0-1	0 -ON/OFF, 1- PID
400811	PID vs ON OFF 19	0-1	0 -ON/OFF, 1- PID
400812	PID vs ON OFF 20	0-1	0 -ON/OFF, 1- PID
400813	PID vs ON OFF 21	0-1	0 -ON/OFF, 1- PID
400814	PID vs ON OFF 22	0-1	0 -ON/OFF, 1- PID
400815	PID vs ON OFF 23	0-1	0 -ON/OFF, 1- PID
400816	PID vs ON OFF 24	0-1	0 -ON/OFF, 1- PID
400817	PID vs ON OFF 25	0-1	0 -ON/OFF, 1- PID
400818	PID vs ON OFF 26	0-1	0 -ON/OFF, 1- PID
400819	PID vs ON OFF 27	0-1	0 -ON/OFF, 1- PID
400820	PID vs ON OFF 28	0-1	0 -ON/OFF, 1- PID
400821	PID vs ON OFF 29	0-1	0 -ON/OFF, 1- PID
400822	PID vs ON OFF 30	0-1	0 -ON/OFF, 1- PID
400823	PID vs ON OFF 31	0-1	0 -ON/OFF, 1- PID
400824	PID vs ON OFF 32	0-1	0 -ON/OFF, 1- PID
400825	PID vs ON OFF 33	0-1	0 -ON/OFF, 1- PID
400826	PID vs ON OFF 34	0-1	0 -ON/OFF, 1- PID
400827	PID vs ON OFF 35	0-1	0 -ON/OFF, 1- PID
400828	PID vs ON OFF 36	0-1	0 -ON/OFF, 1- PID
400829	PID vs ON OFF 37	0-1	0 -ON/OFF, 1- PID
400830	PID vs ON OFF 38	0-1	0 -ON/OFF, 1- PID
400831	PID vs ON OFF 39	0-1	0 -ON/OFF, 1- PID
400832	PID vs ON OFF 40	0-1	0 -ON/OFF, 1- PID
400833	PID vs ON OFF 41	0-1	0 -ON/OFF, 1- PID
400834	PID vs ON OFF 42	0-1	0 -ON/OFF, 1- PID
400835	PID vs ON OFF 43	0-1	0 -ON/OFF, 1- PID
400836	PID vs ON OFF 44	0-1	0 -ON/OFF, 1- PID
400837	PID vs ON OFF 45	0-1	0 -ON/OFF, 1- PID
400838	PID vs ON OFF 46	0-1	0 -ON/OFF, 1- PID
400839	PID vs ON OFF 47	0-1	0 -ON/OFF, 1- PID
400840	PID vs ON OFF 48	0-1	0 -ON/OFF, 1- PID
400841	PID vs ON OFF 49	0-1	0 -ON/OFF, 1- PID
400842	PID vs ON OFF 50	0-1	0 -ON/OFF, 1- PID
400843	PID vs ON OFF 51	0-1	0 -ON/OFF, 1- PID
400844	PID vs ON OFF 52	0-1	0 -ON/OFF, 1- PID
400845	PID vs ON OFF 53	0-1	0 -ON/OFF, 1- PID
400846	PID vs ON OFF 54	0-1	0 -ON/OFF, 1- PID
400847	PID vs ON OFF 55	0-1	0 -ON/OFF, 1- PID

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400848	PID vs ON OFF 56	0-1	0 -ON/OFF, 1- PID
400849	PID vs ON OFF 57	0-1	0 -ON/OFF, 1- PID
400850	PID vs ON OFF 58	0-1	0 -ON/OFF, 1- PID
400851	PID vs ON OFF 59	0-1	0 -ON/OFF, 1- PID
400852	PID vs ON OFF 60	0-1	0 -ON/OFF, 1- PID
400853	PID vs ON OFF 61	0-1	0 -ON/OFF, 1- PID
400854	PID vs ON OFF 62	0-1	0 -ON/OFF, 1- PID
400855	PID vs ON OFF 63	0-1	0 -ON/OFF, 1- PID
400856	PID vs ON OFF 64	0-1	0 -ON/OFF, 1- PID
400857	PID vs ON OFF 65	0-1	0 -ON/OFF, 1- PID
400858	PID vs ON OFF 66	0-1	0 -ON/OFF, 1- PID
400859	PID vs ON OFF 67	0-1	0 -ON/OFF, 1- PID
400860	PID vs ON OFF 68	0-1	0 -ON/OFF, 1- PID
400861	PID vs ON OFF 69	0-1	0 -ON/OFF, 1- PID
400862	PID vs ON OFF 70	0-1	0 -ON/OFF, 1- PID
400863	PID vs ON OFF 71	0-1	0 -ON/OFF, 1- PID
400864	PID vs ON OFF 72	0-1	0 -ON/OFF, 1- PID
400865	TRIP 1	0-1	0 -OFF, 1- ON
400866	TRIP 2	0-1	0 -OFF, 1- ON
400867	TRIP 3	0-1	0 -OFF, 1- ON
400868	TRIP 4	0-1	0 -OFF, 1- ON
400869	TRIP 5	0-1	0 -OFF, 1- ON
400870	TRIP 6	0-1	0 -OFF, 1- ON
400871	TRIP 7	0-1	0 -OFF, 1- ON
400872	TRIP 8	0-1	0 -OFF, 1- ON
400873	TRIP 9	0-1	0 -OFF, 1- ON
400874	TRIP 10	0-1	0 -OFF, 1- ON
400875	TRIP 11	0-1	0 -OFF, 1- ON
400876	TRIP 12	0-1	0 -OFF, 1- ON
400877	TRIP 13	0-1	0 -OFF, 1- ON
400878	TRIP 14	0-1	0 -OFF, 1- ON
400879	TRIP 15	0-1	0 -OFF, 1- ON
400880	TRIP 16	0-1	0 -OFF, 1- ON
400881	TRIP 17	0-1	0 -OFF, 1- ON
400882	TRIP 18	0-1	0 -OFF, 1- ON
400883	TRIP 19	0-1	0 -OFF, 1- ON
400884	TRIP 20	0-1	0 -OFF, 1- ON
400885	TRIP 21	0-1	0 -OFF, 1- ON
400886	TRIP 22	0-1	0 -OFF, 1- ON
400887	TRIP 23	0-1	0 -OFF, 1- ON
400888	TRIP 24	0-1	0 -OFF, 1- ON

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400889	TRIP 25	0-1	0 -OFF, 1- ON
400890	TRIP 26	0-1	0 -OFF, 1- ON
400891	TRIP 27	0-1	0 -OFF, 1- ON
400892	TRIP 28	0-1	0 -OFF, 1- ON
400893	TRIP 29	0-1	0 -OFF, 1- ON
400894	TRIP 30	0-1	0 -OFF, 1- ON
400895	TRIP 31	0-1	0 -OFF, 1- ON
400896	TRIP 32	0-1	0 -OFF, 1- ON
400897	TRIP 33	0-1	0 -OFF, 1- ON
400898	TRIP 34	0-1	0 -OFF, 1- ON
400899	TRIP 35	0-1	0 -OFF, 1- ON
400900	TRIP 36	0-1	0 -OFF, 1- ON
400901	TRIP 37	0-1	0 -OFF, 1- ON
400902	TRIP 38	0-1	0 -OFF, 1- ON
400903	TRIP 39	0-1	0 -OFF, 1- ON
400904	TRIP 40	0-1	0 -OFF, 1- ON
400905	TRIP 41	0-1	0 -OFF, 1- ON
400906	TRIP 42	0-1	0 -OFF, 1- ON
400907	TRIP 43	0-1	0 -OFF, 1- ON
400908	TRIP 44	0-1	0 -OFF, 1- ON
400909	TRIP 45	0-1	0 -OFF, 1- ON
400910	TRIP 46	0-1	0 -OFF, 1- ON
400911	TRIP 47	0-1	0 -OFF, 1- ON
400912	TRIP 48	0-1	0 -OFF, 1- ON
400913	TRIP 49	0-1	0 -OFF, 1- ON
400914	TRIP 50	0-1	0 -OFF, 1- ON
400915	TRIP 51	0-1	0 -OFF, 1- ON
400916	TRIP 52	0-1	0 -OFF, 1- ON
400917	TRIP 53	0-1	0 -OFF, 1- ON
400918	TRIP 54	0-1	0 -OFF, 1- ON
400919	TRIP 55	0-1	0 -OFF, 1- ON
400920	TRIP 56	0-1	0 -OFF, 1- ON
400921	TRIP 57	0-1	0 -OFF, 1- ON
400922	TRIP 58	0-1	0 -OFF, 1- ON
400923	TRIP 59	0-1	0 -OFF, 1- ON
400924	TRIP 60	0-1	0 -OFF, 1- ON
400925	TRIP 61	0-1	0 -OFF, 1- ON
400926	TRIP 62	0-1	0 -OFF, 1- ON
400927	TRIP 63	0-1	0 -OFF, 1- ON
400928	TRIP 64	0-1	0 -OFF, 1- ON
400929	TRIP 65	0-1	0 -OFF, 1- ON

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400930	TRIP 66	0-1	0 -OFF, 1- ON
400931	TRIP 67	0-1	0 -OFF, 1- ON
400932	TRIP 68	0-1	0 -OFF, 1- ON
400933	TRIP 69	0-1	0 -OFF, 1- ON
400934	TRIP 70	0-1	0 -OFF, 1- ON
400935	TRIP 71	0-1	0 -OFF, 1- ON
400936	TRIP 72	0-1	0 -OFF, 1- ON
400937	LATCH 1	0-1	0 -OFF, 1- ON
400938	LATCH 2	0-1	0 -OFF, 1- ON
400939	LATCH 3	0-1	0 -OFF, 1- ON
400940	LATCH 4	0-1	0 -OFF, 1- ON
400941	LATCH 5	0-1	0 -OFF, 1- ON
400942	LATCH 6	0-1	0 -OFF, 1- ON
400943	LATCH 7	0-1	0 -OFF, 1- ON
400944	LATCH 8	0-1	0 -OFF, 1- ON
400945	LATCH 9	0-1	0 -OFF, 1- ON
400946	LATCH 10	0-1	0 -OFF, 1- ON
400947	LATCH 11	0-1	0 -OFF, 1- ON
400948	LATCH 12	0-1	0 -OFF, 1- ON
400949	LATCH 13	0-1	0 -OFF, 1- ON
400950	LATCH 14	0-1	0 -OFF, 1- ON
400951	LATCH 15	0-1	0 -OFF, 1- ON
400952	LATCH 16	0-1	0 -OFF, 1- ON
400953	LATCH 17	0-1	0 -OFF, 1- ON
400954	LATCH 18	0-1	0 -OFF, 1- ON
400955	LATCH 19	0-1	0 -OFF, 1- ON
400956	LATCH 20	0-1	0 -OFF, 1- ON
400957	LATCH 21	0-1	0 -OFF, 1- ON
400958	LATCH 22	0-1	0 -OFF, 1- ON
400959	LATCH 23	0-1	0 -OFF, 1- ON
400960	LATCH 24	0-1	0 -OFF, 1- ON
400961	LATCH 25	0-1	0 -OFF, 1- ON
400962	LATCH 26	0-1	0 -OFF, 1- ON
400963	LATCH 27	0-1	0 -OFF, 1- ON
400964	LATCH 28	0-1	0 -OFF, 1- ON
400965	LATCH 29	0-1	0 -OFF, 1- ON
400966	LATCH 30	0-1	0 -OFF, 1- ON
400967	LATCH 31	0-1	0 -OFF, 1- ON
400968	LATCH 32	0-1	0 -OFF, 1- ON
400969	LATCH 33	0-1	0 -OFF, 1- ON
400970	LATCH 34	0-1	0 -OFF, 1- ON

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400971	LATCH 35	0-1	0 -OFF, 1- ON
400972	LATCH 36	0-1	0 -OFF, 1- ON
400973	LATCH 37	0-1	0 -OFF, 1- ON
400974	LATCH 38	0-1	0 -OFF, 1- ON
400975	LATCH 39	0-1	0 -OFF, 1- ON
400976	LATCH 40	0-1	0 -OFF, 1- ON
400977	LATCH 41	0-1	0 -OFF, 1- ON
400978	LATCH 42	0-1	0 -OFF, 1- ON
400979	LATCH 43	0-1	0 -OFF, 1- ON
400980	LATCH 44	0-1	0 -OFF, 1- ON
400981	LATCH 45	0-1	0 -OFF, 1- ON
400982	LATCH 46	0-1	0 -OFF, 1- ON
400983	LATCH 47	0-1	0 -OFF, 1- ON
400984	LATCH 48	0-1	0 -OFF, 1- ON
400985	LATCH 49	0-1	0 -OFF, 1- ON
400986	LATCH 50	0-1	0 -OFF, 1- ON
400987	LATCH 51	0-1	0 -OFF, 1- ON
400988	LATCH 52	0-1	0 -OFF, 1- ON
400989	LATCH 53	0-1	0 -OFF, 1- ON
400990	LATCH 54	0-1	0 -OFF, 1- ON
400991	LATCH 55	0-1	0 -OFF, 1- ON
400992	LATCH 56	0-1	0 -OFF, 1- ON
400993	LATCH 57	0-1	0 -OFF, 1- ON
400994	LATCH 58	0-1	0 -OFF, 1- ON
400995	LATCH 59	0-1	0 -OFF, 1- ON
400996	LATCH 60	0-1	0 -OFF, 1- ON
400997	LATCH 61	0-1	0 -OFF, 1- ON
400998	LATCH 62	0-1	0 -OFF, 1- ON
400999	LATCH 63	0-1	0 -OFF, 1- ON
401000	LATCH 64	0-1	0 -OFF, 1- ON
401001	LATCH 65	0-1	0 -OFF, 1- ON
401002	LATCH 66	0-1	0 -OFF, 1- ON
401003	LATCH 67	0-1	0 -OFF, 1- ON
401004	LATCH 68	0-1	0 -OFF, 1- ON
401005	LATCH 69	0-1	0 -OFF, 1- ON
401006	LATCH 70	0-1	0 -OFF, 1- ON
401007	LATCH 71	0-1	0 -OFF, 1- ON
401008	LATCH 72	0-1	0 -OFF, 1- ON
401009	ENABLE/DISABLE CIRCUIT 1	0-1	0-ENABLED, 1-DISABLED
401010	ENABLE/DISABLE CIRCUIT 2	0-1	0-ENABLED, 1-DISABLED
401011	ENABLE/DISABLE CIRCUIT 3	0-1	0-ENABLED, 1-DISABLED

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
401012	ENABLE/DISABLE CIRCUIT 4	0-1	0-ENABLED, 1-DISABLED
401013	ENABLE/DISABLE CIRCUIT 5	0-1	0-ENABLED, 1-DISABLED
401014	ENABLE/DISABLE CIRCUIT 6	0-1	0-ENABLED, 1-DISABLED
401015	ENABLE/DISABLE CIRCUIT 7	0-1	0-ENABLED, 1-DISABLED
401016	ENABLE/DISABLE CIRCUIT 8	0-1	0-ENABLED, 1-DISABLED
401017	ENABLE/DISABLE CIRCUIT 9	0-1	0-ENABLED, 1-DISABLED
401018	ENABLE/DISABLE CIRCUIT 10	0-1	0-ENABLED, 1-DISABLED
401019	ENABLE/DISABLE CIRCUIT 11	0-1	0-ENABLED, 1-DISABLED
401020	ENABLE/DISABLE CIRCUIT 12	0-1	0-ENABLED, 1-DISABLED
401021	ENABLE/DISABLE CIRCUIT 13	0-1	0-ENABLED, 1-DISABLED
401022	ENABLE/DISABLE CIRCUIT 14	0-1	0-ENABLED, 1-DISABLED
401023	ENABLE/DISABLE CIRCUIT 15	0-1	0-ENABLED, 1-DISABLED
401024	ENABLE/DISABLE CIRCUIT 16	0-1	0-ENABLED, 1-DISABLED
401025	ENABLE/DISABLE CIRCUIT 17	0-1	0-ENABLED, 1-DISABLED
401026	ENABLE/DISABLE CIRCUIT 18	0-1	0-ENABLED, 1-DISABLED
401027	ENABLE/DISABLE CIRCUIT 19	0-1	0-ENABLED, 1-DISABLED
401028	ENABLE/DISABLE CIRCUIT 20	0-1	0-ENABLED, 1-DISABLED
401029	ENABLE/DISABLE CIRCUIT 21	0-1	0-ENABLED, 1-DISABLED
401030	ENABLE/DISABLE CIRCUIT 22	0-1	0-ENABLED, 1-DISABLED
401031	ENABLE/DISABLE CIRCUIT 23	0-1	0-ENABLED, 1-DISABLED
401032	ENABLE/DISABLE CIRCUIT 24	0-1	0-ENABLED, 1-DISABLED
401033	ENABLE/DISABLE CIRCUIT 25	0-1	0-ENABLED, 1-DISABLED
401034	ENABLE/DISABLE CIRCUIT 26	0-1	0-ENABLED, 1-DISABLED
401035	ENABLE/DISABLE CIRCUIT 27	0-1	0-ENABLED, 1-DISABLED
401036	ENABLE/DISABLE CIRCUIT 28	0-1	0-ENABLED, 1-DISABLED
401037	ENABLE/DISABLE CIRCUIT 29	0-1	0-ENABLED, 1-DISABLED
401038	ENABLE/DISABLE CIRCUIT 30	0-1	0-ENABLED, 1-DISABLED
401039	ENABLE/DISABLE CIRCUIT 31	0-1	0-ENABLED, 1-DISABLED
401040	ENABLE/DISABLE CIRCUIT 32	0-1	0-ENABLED, 1-DISABLED
401041	ENABLE/DISABLE CIRCUIT 33	0-1	0-ENABLED, 1-DISABLED
401042	ENABLE/DISABLE CIRCUIT 34	0-1	0-ENABLED, 1-DISABLED
401043	ENABLE/DISABLE CIRCUIT 35	0-1	0-ENABLED, 1-DISABLED
401044	ENABLE/DISABLE CIRCUIT 36	0-1	0-ENABLED, 1-DISABLED
401045	ENABLE/DISABLE CIRCUIT 37	0-1	0-ENABLED, 1-DISABLED
401046	ENABLE/DISABLE CIRCUIT 38	0-1	0-ENABLED, 1-DISABLED
401047	ENABLE/DISABLE CIRCUIT 39	0-1	0-ENABLED, 1-DISABLED
401048	ENABLE/DISABLE CIRCUIT 40	0-1	0-ENABLED, 1-DISABLED
401049	ENABLE/DISABLE CIRCUIT 41	0-1	0-ENABLED, 1-DISABLED
401050	ENABLE/DISABLE CIRCUIT 42	0-1	0-ENABLED, 1-DISABLED
401051	ENABLE/DISABLE CIRCUIT 43	0-1	0-ENABLED, 1-DISABLED
401052	ENABLE/DISABLE CIRCUIT 44	0-1	0-ENABLED, 1-DISABLED

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
401053	ENABLE/DISABLE CIRCUIT 45	0-1	0-ENABLED, 1-DISABLED
401054	ENABLE/DISABLE CIRCUIT 46	0-1	0-ENABLED, 1-DISABLED
401055	ENABLE/DISABLE CIRCUIT 47	0-1	0-ENABLED, 1-DISABLED
401056	ENABLE/DISABLE CIRCUIT 48	0-1	0-ENABLED, 1-DISABLED
401057	ENABLE/DISABLE CIRCUIT 49	0-1	0-ENABLED, 1-DISABLED
401058	ENABLE/DISABLE CIRCUIT 50	0-1	0-ENABLED, 1-DISABLED
401059	ENABLE/DISABLE CIRCUIT 51	0-1	0-ENABLED, 1-DISABLED
401060	ENABLE/DISABLE CIRCUIT 52	0-1	0-ENABLED, 1-DISABLED
401061	ENABLE/DISABLE CIRCUIT 53	0-1	0-ENABLED, 1-DISABLED
401062	ENABLE/DISABLE CIRCUIT 54	0-1	0-ENABLED, 1-DISABLED
401063	ENABLE/DISABLE CIRCUIT 55	0-1	0-ENABLED, 1-DISABLED
401064	ENABLE/DISABLE CIRCUIT 56	0-1	0-ENABLED, 1-DISABLED
401065	ENABLE/DISABLE CIRCUIT 57	0-1	0-ENABLED, 1-DISABLED
401066	ENABLE/DISABLE CIRCUIT 58	0-1	0-ENABLED, 1-DISABLED
401067	ENABLE/DISABLE CIRCUIT 59	0-1	0-ENABLED, 1-DISABLED
401068	ENABLE/DISABLE CIRCUIT 60	0-1	0-ENABLED, 1-DISABLED
401069	ENABLE/DISABLE CIRCUIT 61	0-1	0-ENABLED, 1-DISABLED
401070	ENABLE/DISABLE CIRCUIT 62	0-1	0-ENABLED, 1-DISABLED
401071	ENABLE/DISABLE CIRCUIT 63	0-1	0-ENABLED, 1-DISABLED
401072	ENABLE/DISABLE CIRCUIT 64	0-1	0-ENABLED, 1-DISABLED
401073	ENABLE/DISABLE CIRCUIT 65	0-1	0-ENABLED, 1-DISABLED
401074	ENABLE/DISABLE CIRCUIT 66	0-1	0-ENABLED, 1-DISABLED
401075	ENABLE/DISABLE CIRCUIT 67	0-1	0-ENABLED, 1-DISABLED
401076	ENABLE/DISABLE CIRCUIT 68	0-1	0-ENABLED, 1-DISABLED
401077	ENABLE/DISABLE CIRCUIT 69	0-1	0-ENABLED, 1-DISABLED
401078	ENABLE/DISABLE CIRCUIT 70	0-1	0-ENABLED, 1-DISABLED
401079	ENABLE/DISABLE CIRCUIT 71	0-1	0-ENABLED, 1-DISABLED
401080	ENABLE/DISABLE CIRCUIT 72	0-1	0-ENABLED, 1-DISABLED
401081	AUTO vs MANUAL 1	0-1	0-MANUAL, 1-AUTO
401082	AUTO vs MANUAL 2	0-1	0-MANUAL, 1-AUTO
401083	AUTO vs MANUAL 3	0-1	0-MANUAL, 1-AUTO
401084	AUTO vs MANUAL 4	0-1	0-MANUAL, 1-AUTO
401085	AUTO vs MANUAL 5	0-1	0-MANUAL, 1-AUTO
401086	AUTO vs MANUAL 6	0-1	0-MANUAL, 1-AUTO
401087	AUTO vs MANUAL 7	0-1	0-MANUAL, 1-AUTO
401088	AUTO vs MANUAL 8	0-1	0-MANUAL, 1-AUTO
401089	AUTO vs MANUAL 9	0-1	0-MANUAL, 1-AUTO
401090	AUTO vs MANUAL 10	0-1	0-MANUAL, 1-AUTO
401091	AUTO vs MANUAL 11	0-1	0-MANUAL, 1-AUTO
401092	AUTO vs MANUAL 12	0-1	0-MANUAL, 1-AUTO
401093	AUTO vs MANUAL 13	0-1	0-MANUAL, 1-AUTO

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
401094	AUTO vs MANUAL 14	0-1	0-MANUAL, 1-AUTO
401095	AUTO vs MANUAL 15	0-1	0-MANUAL, 1-AUTO
401096	AUTO vs MANUAL 16	0-1	0-MANUAL, 1-AUTO
401097	AUTO vs MANUAL 17	0-1	0-MANUAL, 1-AUTO
401098	AUTO vs MANUAL 18	0-1	0-MANUAL, 1-AUTO
401099	AUTO vs MANUAL 19	0-1	0-MANUAL, 1-AUTO
401100	AUTO vs MANUAL 20	0-1	0-MANUAL, 1-AUTO
401101	AUTO vs MANUAL 21	0-1	0-MANUAL, 1-AUTO
401102	AUTO vs MANUAL 22	0-1	0-MANUAL, 1-AUTO
401103	AUTO vs MANUAL 23	0-1	0-MANUAL, 1-AUTO
401104	AUTO vs MANUAL 24	0-1	0-MANUAL, 1-AUTO
401105	AUTO vs MANUAL 25	0-1	0-MANUAL, 1-AUTO
401106	AUTO vs MANUAL 26	0-1	0-MANUAL, 1-AUTO
401107	AUTO vs MANUAL 27	0-1	0-MANUAL, 1-AUTO
401108	AUTO vs MANUAL 28	0-1	0-MANUAL, 1-AUTO
401109	AUTO vs MANUAL 29	0-1	0-MANUAL, 1-AUTO
401110	AUTO vs MANUAL 30	0-1	0-MANUAL, 1-AUTO
401111	AUTO vs MANUAL 31	0-1	0-MANUAL, 1-AUTO
401112	AUTO vs MANUAL 32	0-1	0-MANUAL, 1-AUTO
401113	AUTO vs MANUAL 33	0-1	0-MANUAL, 1-AUTO
401114	AUTO vs MANUAL 34	0-1	0-MANUAL, 1-AUTO
401115	AUTO vs MANUAL 35	0-1	0-MANUAL, 1-AUTO
401116	AUTO vs MANUAL 36	0-1	0-MANUAL, 1-AUTO
401117	AUTO vs MANUAL 37	0-1	0-MANUAL, 1-AUTO
401118	AUTO vs MANUAL 38	0-1	0-MANUAL, 1-AUTO
401119	AUTO vs MANUAL 39	0-1	0-MANUAL, 1-AUTO
401120	AUTO vs MANUAL 40	0-1	0-MANUAL, 1-AUTO
401121	AUTO vs MANUAL 41	0-1	0-MANUAL, 1-AUTO
401122	AUTO vs MANUAL 42	0-1	0-MANUAL, 1-AUTO
401123	AUTO vs MANUAL 43	0-1	0-MANUAL, 1-AUTO
401124	AUTO vs MANUAL 44	0-1	0-MANUAL, 1-AUTO
401125	AUTO vs MANUAL 45	0-1	0-MANUAL, 1-AUTO
401126	AUTO vs MANUAL 46	0-1	0-MANUAL, 1-AUTO
401127	AUTO vs MANUAL 47	0-1	0-MANUAL, 1-AUTO
401128	AUTO vs MANUAL 48	0-1	0-MANUAL, 1-AUTO
401129	AUTO vs MANUAL 49	0-1	0-MANUAL, 1-AUTO
401130	AUTO vs MANUAL 50	0-1	0-MANUAL, 1-AUTO
401131	AUTO vs MANUAL 51	0-1	0-MANUAL, 1-AUTO
401132	AUTO vs MANUAL 52	0-1	0-MANUAL, 1-AUTO
401133	AUTO vs MANUAL 53	0-1	0-MANUAL, 1-AUTO
401134	AUTO vs MANUAL 54	0-1	0-MANUAL, 1-AUTO

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
401135	AUTO vs MANUAL 55	0-1	0-MANUAL, 1-AUTO
401136	AUTO vs MANUAL 56	0-1	0-MANUAL, 1-AUTO
401137	AUTO vs MANUAL 57	0-1	0-MANUAL, 1-AUTO
401138	AUTO vs MANUAL 58	0-1	0-MANUAL, 1-AUTO
401139	AUTO vs MANUAL 59	0-1	0-MANUAL, 1-AUTO
401140	AUTO vs MANUAL 60	0-1	0-MANUAL, 1-AUTO
401141	AUTO vs MANUAL 61	0-1	0-MANUAL, 1-AUTO
401142	AUTO vs MANUAL 62	0-1	0-MANUAL, 1-AUTO
401143	AUTO vs MANUAL 63	0-1	0-MANUAL, 1-AUTO
401144	AUTO vs MANUAL 64	0-1	0-MANUAL, 1-AUTO
401145	AUTO vs MANUAL 65	0-1	0-MANUAL, 1-AUTO
401146	AUTO vs MANUAL 66	0-1	0-MANUAL, 1-AUTO
401147	AUTO vs MANUAL 67	0-1	0-MANUAL, 1-AUTO
401148	AUTO vs MANUAL 68	0-1	0-MANUAL, 1-AUTO
401149	AUTO vs MANUAL 69	0-1	0-MANUAL, 1-AUTO
401150	AUTO vs MANUAL 70	0-1	0-MANUAL, 1-AUTO
401151	AUTO vs MANUAL 71	0-1	0-MANUAL, 1-AUTO
401152	AUTO vs MANUAL 72	0-1	0-MANUAL, 1-AUTO
401153	AUTOTUNE 1	0-1	0-NO, 1-YES
401154	AUTOTUNE 2	0-1	0-NO, 1-YES
401155	AUTOTUNE 3	0-1	0-NO, 1-YES
401156	AUTOTUNE 4	0-1	0-NO, 1-YES
401157	AUTOTUNE 5	0-1	0-NO, 1-YES
401158	AUTOTUNE 6	0-1	0-NO, 1-YES
401159	AUTOTUNE 7	0-1	0-NO, 1-YES
401160	AUTOTUNE 8	0-1	0-NO, 1-YES
401161	AUTOTUNE 9	0-1	0-NO, 1-YES
401162	AUTOTUNE 10	0-1	0-NO, 1-YES
401163	AUTOTUNE 11	0-1	0-NO, 1-YES
401164	AUTOTUNE 12	0-1	0-NO, 1-YES
401165	AUTOTUNE 13	0-1	0-NO, 1-YES
401166	AUTOTUNE 14	0-1	0-NO, 1-YES
401167	AUTOTUNE 15	0-1	0-NO, 1-YES
401168	AUTOTUNE 16	0-1	0-NO, 1-YES
401169	AUTOTUNE 17	0-1	0-NO, 1-YES
401170	AUTOTUNE 18	0-1	0-NO, 1-YES
401171	AUTOTUNE 19	0-1	0-NO, 1-YES
401172	AUTOTUNE 20	0-1	0-NO, 1-YES
401173	AUTOTUNE 21	0-1	0-NO, 1-YES
401174	AUTOTUNE 22	0-1	0-NO, 1-YES
401175	AUTOTUNE 23	0-1	0-NO, 1-YES

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
401176	AUTOTUNE 24	0-1	0-NO, 1-YES
401177	AUTOTUNE 25	0-1	0-NO, 1-YES
401178	AUTOTUNE 26	0-1	0-NO, 1-YES
401179	AUTOTUNE 27	0-1	0-NO, 1-YES
401180	AUTOTUNE 28	0-1	0-NO, 1-YES
401181	AUTOTUNE 29	0-1	0-NO, 1-YES
401182	AUTOTUNE 30	0-1	0-NO, 1-YES
401183	AUTOTUNE 31	0-1	0-NO, 1-YES
401184	AUTOTUNE 32	0-1	0-NO, 1-YES
401185	AUTOTUNE 33	0-1	0-NO, 1-YES
401186	AUTOTUNE 34	0-1	0-NO, 1-YES
401187	AUTOTUNE 35	0-1	0-NO, 1-YES
401188	AUTOTUNE 36	0-1	0-NO, 1-YES
401189	AUTOTUNE 37	0-1	0-NO, 1-YES
401190	AUTOTUNE 38	0-1	0-NO, 1-YES
401191	AUTOTUNE 39	0-1	0-NO, 1-YES
401192	AUTOTUNE 40	0-1	0-NO, 1-YES
401193	AUTOTUNE 41	0-1	0-NO, 1-YES
401194	AUTOTUNE 42	0-1	0-NO, 1-YES
401195	AUTOTUNE 43	0-1	0-NO, 1-YES
401196	AUTOTUNE 44	0-1	0-NO, 1-YES
401197	AUTOTUNE 45	0-1	0-NO, 1-YES
401198	AUTOTUNE 46	0-1	0-NO, 1-YES
401199	AUTOTUNE 47	0-1	0-NO, 1-YES
401200	AUTOTUNE 48	0-1	0-NO, 1-YES
401201	AUTOTUNE 49	0-1	0-NO, 1-YES
401202	AUTOTUNE 50	0-1	0-NO, 1-YES
401203	AUTOTUNE 51	0-1	0-NO, 1-YES
401204	AUTOTUNE 52	0-1	0-NO, 1-YES
401205	AUTOTUNE 53	0-1	0-NO, 1-YES
401206	AUTOTUNE 54	0-1	0-NO, 1-YES
401207	AUTOTUNE 55	0-1	0-NO, 1-YES
401208	AUTOTUNE 56	0-1	0-NO, 1-YES
401209	AUTOTUNE 57	0-1	0-NO, 1-YES
401210	AUTOTUNE 58	0-1	0-NO, 1-YES
401211	AUTOTUNE 59	0-1	0-NO, 1-YES
401212	AUTOTUNE 60	0-1	0-NO, 1-YES
401213	AUTOTUNE 61	0-1	0-NO, 1-YES
401214	AUTOTUNE 62	0-1	0-NO, 1-YES
401215	AUTOTUNE 63	0-1	0-NO, 1-YES
401216	AUTOTUNE 64	0-1	0-NO, 1-YES

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
401217	AUTOTUNE 65	0-1	0-NO, 1-YES
401218	AUTOTUNE 66	0-1	0-NO, 1-YES
401219	AUTOTUNE 67	0-1	0-NO, 1-YES
401220	AUTOTUNE 68	0-1	0-NO, 1-YES
401221	AUTOTUNE 69	0-1	0-NO, 1-YES
401222	AUTOTUNE 70	0-1	0-NO, 1-YES
401223	AUTOTUNE 71	0-1	0-NO, 1-YES
401224	AUTOTUNE 72	0-1	0-NO, 1-YES
401225	RESERVED	RESERVED	RESERVED
401226	RESERVED	RESERVED	RESERVED
401227	IS SYSTEM IN ALARM STATE	0-1	0-NO, 1-YES
401228	TEMP UNITS	0-1	0-F, 1 C
401229	ALARM REG CKT 1	See Alarm Bits Desc.	
401230	ALARM REG CKT 2	See Alarm Bits Desc.	
401231	ALARM REG CKT 3	See Alarm Bits Desc.	
401232	ALARM REG CKT 4	See Alarm Bits Desc.	
401233	ALARM REG CKT 5	See Alarm Bits Desc.	
401234	ALARM REG CKT 6	See Alarm Bits Desc.	
401235	ALARM REG CKT 7	See Alarm Bits Desc.	
401236	ALARM REG CKT 8	See Alarm Bits Desc.	
401237	ALARM REG CKT 9	See Alarm Bits Desc.	
401238	ALARM REG CKT 10	See Alarm Bits Desc.	
401239	ALARM REG CKT 11	See Alarm Bits Desc.	
401240	ALARM REG CKT 12	See Alarm Bits Desc.	
401241	ALARM REG CKT 13	See Alarm Bits Desc.	
401242	ALARM REG CKT 14	See Alarm Bits Desc.	
401243	ALARM REG CKT 15	See Alarm Bits Desc.	
401244	ALARM REG CKT 16	See Alarm Bits Desc.	
401245	ALARM REG CKT 17	See Alarm Bits Desc.	
401246	ALARM REG CKT 18	See Alarm Bits Desc.	
401247	ALARM REG CKT 19	See Alarm Bits Desc.	
401248	ALARM REG CKT 20	See Alarm Bits Desc.	
401249	ALARM REG CKT 21	See Alarm Bits Desc.	
401250	ALARM REG CKT 22	See Alarm Bits Desc.	
401251	ALARM REG CKT 23	See Alarm Bits Desc.	
401252	ALARM REG CKT 24	See Alarm Bits Desc.	
401253	ALARM REG CKT 25	See Alarm Bits Desc.	
401254	ALARM REG CKT 26	See Alarm Bits Desc.	
401255	ALARM REG CKT 27	See Alarm Bits Desc.	
401256	ALARM REG CKT 28	See Alarm Bits Desc.	
401257	ALARM REG CKT 29	See Alarm Bits Desc.	

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
401258	ALARM REG CKT 30	See Alarm Bits Desc.	
401259	ALARM REG CKT 31	See Alarm Bits Desc.	
401260	ALARM REG CKT 32	See Alarm Bits Desc.	
401261	ALARM REG CKT 33	See Alarm Bits Desc.	
401262	ALARM REG CKT 34	See Alarm Bits Desc.	
401263	ALARM REG CKT 35	See Alarm Bits Desc.	
401264	ALARM REG CKT 36	See Alarm Bits Desc.	
401265	ALARM REG CKT 37	See Alarm Bits Desc.	
401266	ALARM REG CKT 38	See Alarm Bits Desc.	
401267	ALARM REG CKT 39	See Alarm Bits Desc.	
401268	ALARM REG CKT 40	See Alarm Bits Desc.	
401269	ALARM REG CKT 41	See Alarm Bits Desc.	
401270	ALARM REG CKT 42	See Alarm Bits Desc.	
401271	ALARM REG CKT 43	See Alarm Bits Desc.	
401272	ALARM REG CKT 44	See Alarm Bits Desc.	
401273	ALARM REG CKT 45	See Alarm Bits Desc.	
401274	ALARM REG CKT 46	See Alarm Bits Desc.	
401275	ALARM REG CKT 47	See Alarm Bits Desc.	
401276	ALARM REG CKT 48	See Alarm Bits Desc.	
401277	ALARM REG CKT 49	See Alarm Bits Desc.	
401278	ALARM REG CKT 50	See Alarm Bits Desc.	
401279	ALARM REG CKT 51	See Alarm Bits Desc.	
401280	ALARM REG CKT 52	See Alarm Bits Desc.	
401281	ALARM REG CKT 53	See Alarm Bits Desc.	
401282	ALARM REG CKT 54	See Alarm Bits Desc.	
401283	ALARM REG CKT 55	See Alarm Bits Desc.	
401284	ALARM REG CKT 56	See Alarm Bits Desc.	
401285	ALARM REG CKT 57	See Alarm Bits Desc.	
401286	ALARM REG CKT 58	See Alarm Bits Desc.	
401287	ALARM REG CKT 59	See Alarm Bits Desc.	
401288	ALARM REG CKT 60	See Alarm Bits Desc.	
401289	ALARM REG CKT 61	See Alarm Bits Desc.	
401290	ALARM REG CKT 62	See Alarm Bits Desc.	
401291	ALARM REG CKT 63	See Alarm Bits Desc.	
401292	ALARM REG CKT 64	See Alarm Bits Desc.	
401293	ALARM REG CKT 65	See Alarm Bits Desc.	
401294	ALARM REG CKT 66	See Alarm Bits Desc.	
401295	ALARM REG CKT 67	See Alarm Bits Desc.	
401296	ALARM REG CKT 68	See Alarm Bits Desc.	
401297	ALARM REG CKT 69	See Alarm Bits Desc.	
401298	ALARM REG CKT 70	See Alarm Bits Desc.	

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
401299	ALARM REG CKT 71	See Alarm Bits Desc.	
401300	ALARM REG CKT 72	See Alarm Bits Desc.	
401301	HI TEMP SETPOINT 1	from -80 to 1100 F	expressed as integer number
401302	HI TEMP SETPOINT 2	from -80 to 1100 F	expressed as integer number
401303	HI TEMP SETPOINT 3	from -80 to 1100 F	expressed as integer number
401304	HI TEMP SETPOINT 4	from -80 to 1100 F	expressed as integer number
401305	HI TEMP SETPOINT 5	from -80 to 1100 F	expressed as integer number
401306	HI TEMP SETPOINT 6	from -80 to 1100 F	expressed as integer number
401307	HI TEMP SETPOINT 7	from -80 to 1100 F	expressed as integer number
401308	HI TEMP SETPOINT 8	from -80 to 1100 F	expressed as integer number
401309	HI TEMP SETPOINT 9	from -80 to 1100 F	expressed as integer number
401310	HI TEMP SETPOINT 10	from -80 to 1100 F	expressed as integer number
401311	HI TEMP SETPOINT 11	from -80 to 1100 F	expressed as integer number
401312	HI TEMP SETPOINT 12	from -80 to 1100 F	expressed as integer number
401313	HI TEMP SETPOINT 13	from -80 to 1100 F	expressed as integer number
401314	HI TEMP SETPOINT 14	from -80 to 1100 F	expressed as integer number
401315	HI TEMP SETPOINT 15	from -80 to 1100 F	expressed as integer number
401316	HI TEMP SETPOINT 16	from -80 to 1100 F	expressed as integer number
401317	HI TEMP SETPOINT 17	from -80 to 1100 F	expressed as integer number
401318	HI TEMP SETPOINT 18	from -80 to 1100 F	expressed as integer number
401319	HI TEMP SETPOINT 19	from -80 to 1100 F	expressed as integer number
401320	HI TEMP SETPOINT 20	from -80 to 1100 F	expressed as integer number
401321	HI TEMP SETPOINT 21	from -80 to 1100 F	expressed as integer number
401322	HI TEMP SETPOINT 22	from -80 to 1100 F	expressed as integer number
401323	HI TEMP SETPOINT 23	from -80 to 1100 F	expressed as integer number
401324	HI TEMP SETPOINT 24	from -80 to 1100 F	expressed as integer number
401325	HI TEMP SETPOINT 25	from -80 to 1100 F	expressed as integer number
401326	HI TEMP SETPOINT 26	from -80 to 1100 F	expressed as integer number
401327	HI TEMP SETPOINT 27	from -80 to 1100 F	expressed as integer number
401328	HI TEMP SETPOINT 28	from -80 to 1100 F	expressed as integer number
401329	HI TEMP SETPOINT 29	from -80 to 1100 F	expressed as integer number
401330	HI TEMP SETPOINT 30	from -80 to 1100 F	expressed as integer number
401331	HI TEMP SETPOINT 31	from -80 to 1100 F	expressed as integer number
401332	HI TEMP SETPOINT 32	from -80 to 1100 F	expressed as integer number
401333	HI TEMP SETPOINT 33	from -80 to 1100 F	expressed as integer number
401334	HI TEMP SETPOINT 34	from -80 to 1100 F	expressed as integer number
401335	HI TEMP SETPOINT 35	from -80 to 1100 F	expressed as integer number
401336	HI TEMP SETPOINT 36	from -80 to 1100 F	expressed as integer number
401337	HI TEMP SETPOINT 37	from -80 to 1100 F	expressed as integer number
401338	HI TEMP SETPOINT 38	from -80 to 1100 F	expressed as integer number
401339	HI TEMP SETPOINT 39	from -80 to 1100 F	expressed as integer number

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
401340	HI TEMP SETPOINT 40	from -80 to 1100 F	expressed as integer number
401341	HI TEMP SETPOINT 41	from -80 to 1100 F	expressed as integer number
401342	HI TEMP SETPOINT 42	from -80 to 1100 F	expressed as integer number
401343	HI TEMP SETPOINT 43	from -80 to 1100 F	expressed as integer number
401344	HI TEMP SETPOINT 44	from -80 to 1100 F	expressed as integer number
401345	HI TEMP SETPOINT 45	from -80 to 1100 F	expressed as integer number
401346	HI TEMP SETPOINT 46	from -80 to 1100 F	expressed as integer number
401347	HI TEMP SETPOINT 47	from -80 to 1100 F	expressed as integer number
401348	HI TEMP SETPOINT 48	from -80 to 1100 F	expressed as integer number
401349	HI TEMP SETPOINT 49	from -80 to 1100 F	expressed as integer number
401350	HI TEMP SETPOINT 50	from -80 to 1100 F	expressed as integer number
401351	HI TEMP SETPOINT 51	from -80 to 1100 F	expressed as integer number
401352	HI TEMP SETPOINT 52	from -80 to 1100 F	expressed as integer number
401353	HI TEMP SETPOINT 53	from -80 to 1100 F	expressed as integer number
401354	HI TEMP SETPOINT 54	from -80 to 1100 F	expressed as integer number
401355	HI TEMP SETPOINT 55	from -80 to 1100 F	expressed as integer number
401356	HI TEMP SETPOINT 56	from -80 to 1100 F	expressed as integer number
401357	HI TEMP SETPOINT 57	from -80 to 1100 F	expressed as integer number
401358	HI TEMP SETPOINT 58	from -80 to 1100 F	expressed as integer number
401359	HI TEMP SETPOINT 59	from -80 to 1100 F	expressed as integer number
401360	HI TEMP SETPOINT 60	from -80 to 1100 F	expressed as integer number
401361	HI TEMP SETPOINT 61	from -80 to 1100 F	expressed as integer number
401362	HI TEMP SETPOINT 62	from -80 to 1100 F	expressed as integer number
401363	HI TEMP SETPOINT 63	from -80 to 1100 F	expressed as integer number
401364	HI TEMP SETPOINT 64	from -80 to 1100 F	expressed as integer number
401365	HI TEMP SETPOINT 65	from -80 to 1100 F	expressed as integer number
401366	HI TEMP SETPOINT 66	from -80 to 1100 F	expressed as integer number
401367	HI TEMP SETPOINT 67	from -80 to 1100 F	expressed as integer number
401368	HI TEMP SETPOINT 68	from -80 to 1100 F	expressed as integer number
401369	HI TEMP SETPOINT 69	from -80 to 1100 F	expressed as integer number
401370	HI TEMP SETPOINT 70	from -80 to 1100 F	expressed as integer number
401371	HI TEMP SETPOINT 71	from -80 to 1100 F	expressed as integer number
401372	HI TEMP SETPOINT 72	from -80 to 1100 F	expressed as integer number
401373	LO TEMP SETPOINT 1	from -80 to 1100 F	expressed as integer number
401374	LO TEMP SETPOINT 2	from -80 to 1100 F	expressed as integer number
401375	LO TEMP SETPOINT 3	from -80 to 1100 F	expressed as integer number
401376	LO TEMP SETPOINT 4	from -80 to 1100 F	expressed as integer number
401377	LO TEMP SETPOINT 5	from -80 to 1100 F	expressed as integer number
401378	LO TEMP SETPOINT 6	from -80 to 1100 F	expressed as integer number
401379	LO TEMP SETPOINT 7	from -80 to 1100 F	expressed as integer number
401380	LO TEMP SETPOINT 8	from -80 to 1100 F	expressed as integer number

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
401381	LO TEMP SETPOINT 9	from -80 to 1100 F	expressed as integer number
401382	LO TEMP SETPOINT 10	from -80 to 1100 F	expressed as integer number
401383	LO TEMP SETPOINT 11	from -80 to 1100 F	expressed as integer number
401384	LO TEMP SETPOINT 12	from -80 to 1100 F	expressed as integer number
401385	LO TEMP SETPOINT 13	from -80 to 1100 F	expressed as integer number
401386	LO TEMP SETPOINT 14	from -80 to 1100 F	expressed as integer number
401387	LO TEMP SETPOINT 15	from -80 to 1100 F	expressed as integer number
401388	LO TEMP SETPOINT 16	from -80 to 1100 F	expressed as integer number
401389	LO TEMP SETPOINT 17	from -80 to 1100 F	expressed as integer number
401390	LO TEMP SETPOINT 18	from -80 to 1100 F	expressed as integer number
401391	LO TEMP SETPOINT 19	from -80 to 1100 F	expressed as integer number
401392	LO TEMP SETPOINT 20	from -80 to 1100 F	expressed as integer number
401393	LO TEMP SETPOINT 21	from -80 to 1100 F	expressed as integer number
401394	LO TEMP SETPOINT 22	from -80 to 1100 F	expressed as integer number
401395	LO TEMP SETPOINT 23	from -80 to 1100 F	expressed as integer number
401396	LO TEMP SETPOINT 24	from -80 to 1100 F	expressed as integer number
401397	LO TEMP SETPOINT 25	from -80 to 1100 F	expressed as integer number
401398	LO TEMP SETPOINT 26	from -80 to 1100 F	expressed as integer number
401399	LO TEMP SETPOINT 27	from -80 to 1100 F	expressed as integer number
401400	LO TEMP SETPOINT 28	from -80 to 1100 F	expressed as integer number
401401	LO TEMP SETPOINT 29	from -80 to 1100 F	expressed as integer number
401402	LO TEMP SETPOINT 30	from -80 to 1100 F	expressed as integer number
401403	LO TEMP SETPOINT 31	from -80 to 1100 F	expressed as integer number
401404	LO TEMP SETPOINT 32	from -80 to 1100 F	expressed as integer number
401405	LO TEMP SETPOINT 33	from -80 to 1100 F	expressed as integer number
401406	LO TEMP SETPOINT 34	from -80 to 1100 F	expressed as integer number
401407	LO TEMP SETPOINT 35	from -80 to 1100 F	expressed as integer number
401408	LO TEMP SETPOINT 36	from -80 to 1100 F	expressed as integer number
401409	LO TEMP SETPOINT 37	from -80 to 1100 F	expressed as integer number
401410	LO TEMP SETPOINT 38	from -80 to 1100 F	expressed as integer number
401411	LO TEMP SETPOINT 39	from -80 to 1100 F	expressed as integer number
401412	LO TEMP SETPOINT 40	from -80 to 1100 F	expressed as integer number
401413	LO TEMP SETPOINT 41	from -80 to 1100 F	expressed as integer number
401414	LO TEMP SETPOINT 42	from -80 to 1100 F	expressed as integer number
401415	LO TEMP SETPOINT 43	from -80 to 1100 F	expressed as integer number
401416	LO TEMP SETPOINT 44	from -80 to 1100 F	expressed as integer number
401417	LO TEMP SETPOINT 45	from -80 to 1100 F	expressed as integer number
401418	LO TEMP SETPOINT 46	from -80 to 1100 F	expressed as integer number
401419	LO TEMP SETPOINT 47	from -80 to 1100 F	expressed as integer number
401420	LO TEMP SETPOINT 48	from -80 to 1100 F	expressed as integer number
401421	LO TEMP SETPOINT 49	from -80 to 1100 F	expressed as integer number

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
401422	LO TEMP SETPOINT 50	from -80 to 1100 F	expressed as integer number
401423	LO TEMP SETPOINT 51	from -80 to 1100 F	expressed as integer number
401424	LO TEMP SETPOINT 52	from -80 to 1100 F	expressed as integer number
401425	LO TEMP SETPOINT 53	from -80 to 1100 F	expressed as integer number
401426	LO TEMP SETPOINT 54	from -80 to 1100 F	expressed as integer number
401427	LO TEMP SETPOINT 55	from -80 to 1100 F	expressed as integer number
401428	LO TEMP SETPOINT 56	from -80 to 1100 F	expressed as integer number
401429	LO TEMP SETPOINT 57	from -80 to 1100 F	expressed as integer number
401430	LO TEMP SETPOINT 58	from -80 to 1100 F	expressed as integer number
401431	LO TEMP SETPOINT 59	from -80 to 1100 F	expressed as integer number
401432	LO TEMP SETPOINT 60	from -80 to 1100 F	expressed as integer number
401433	LO TEMP SETPOINT 61	from -80 to 1100 F	expressed as integer number
401434	LO TEMP SETPOINT 62	from -80 to 1100 F	expressed as integer number
401435	LO TEMP SETPOINT 63	from -80 to 1100 F	expressed as integer number
401436	LO TEMP SETPOINT 64	from -80 to 1100 F	expressed as integer number
401437	LO TEMP SETPOINT 65	from -80 to 1100 F	expressed as integer number
401438	LO TEMP SETPOINT 66	from -80 to 1100 F	expressed as integer number
401439	LO TEMP SETPOINT 67	from -80 to 1100 F	expressed as integer number
401440	LO TEMP SETPOINT 68	from -80 to 1100 F	expressed as integer number
401441	LO TEMP SETPOINT 69	from -80 to 1100 F	expressed as integer number
401442	LO TEMP SETPOINT 70	from -80 to 1100 F	expressed as integer number
401443	LO TEMP SETPOINT 71	from -80 to 1100 F	expressed as integer number
401444	LO TEMP SETPOINT 72	from -80 to 1100 F	expressed as integer number
401445	GFEP SETPOINT 1	from 30 to 150 mA	expressed as integer number
401446	GFEP SETPOINT 2	from 30 to 150 mA	expressed as integer number
401447	GFEP SETPOINT 3	from 30 to 150 mA	expressed as integer number
401448	GFEP SETPOINT 4	from 30 to 150 mA	expressed as integer number
401449	GFEP SETPOINT 5	from 30 to 150 mA	expressed as integer number
401450	GFEP SETPOINT 6	from 30 to 150 mA	expressed as integer number
401451	GFEP SETPOINT 7	from 30 to 150 mA	expressed as integer number
401452	GFEP SETPOINT 8	from 30 to 150 mA	expressed as integer number
401453	GFEP SETPOINT 9	from 30 to 150 mA	expressed as integer number
401454	GFEP SETPOINT 10	from 30 to 150 mA	expressed as integer number
401455	GFEP SETPOINT 11	from 30 to 150 mA	expressed as integer number
401456	GFEP SETPOINT 12	from 30 to 150 mA	expressed as integer number
401457	GFEP SETPOINT 13	from 30 to 150 mA	expressed as integer number
401458	GFEP SETPOINT 14	from 30 to 150 mA	expressed as integer number
401459	GFEP SETPOINT 15	from 30 to 150 mA	expressed as integer number
401460	GFEP SETPOINT 16	from 30 to 150 mA	expressed as integer number
401461	GFEP SETPOINT 17	from 30 to 150 mA	expressed as integer number
401462	GFEP SETPOINT 18	from 30 to 150 mA	expressed as integer number

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
401463	GFEP SETPOINT 19	from 30 to 150 mA	expressed as integer number
401464	GFEP SETPOINT 20	from 30 to 150 mA	expressed as integer number
401465	GFEP SETPOINT 21	from 30 to 150 mA	expressed as integer number
401466	GFEP SETPOINT 22	from 30 to 150 mA	expressed as integer number
401467	GFEP SETPOINT 23	from 30 to 150 mA	expressed as integer number
401468	GFEP SETPOINT 24	from 30 to 150 mA	expressed as integer number
401469	GFEP SETPOINT 25	from 30 to 150 mA	expressed as integer number
401470	GFEP SETPOINT 26	from 30 to 150 mA	expressed as integer number
401471	GFEP SETPOINT 27	from 30 to 150 mA	expressed as integer number
401472	GFEP SETPOINT 28	from 30 to 150 mA	expressed as integer number
401473	GFEP SETPOINT 29	from 30 to 150 mA	expressed as integer number
401474	GFEP SETPOINT 30	from 30 to 150 mA	expressed as integer number
401475	GFEP SETPOINT 31	from 30 to 150 mA	expressed as integer number
401476	GFEP SETPOINT 32	from 30 to 150 mA	expressed as integer number
401477	GFEP SETPOINT 33	from 30 to 150 mA	expressed as integer number
401478	GFEP SETPOINT 34	from 30 to 150 mA	expressed as integer number
401479	GFEP SETPOINT 35	from 30 to 150 mA	expressed as integer number
401480	GFEP SETPOINT 36	from 30 to 150 mA	expressed as integer number
401481	GFEP SETPOINT 37	from 30 to 150 mA	expressed as integer number
401482	GFEP SETPOINT 38	from 30 to 150 mA	expressed as integer number
401483	GFEP SETPOINT 39	from 30 to 150 mA	expressed as integer number
401484	GFEP SETPOINT 40	from 30 to 150 mA	expressed as integer number
401485	GFEP SETPOINT 41	from 30 to 150 mA	expressed as integer number
401486	GFEP SETPOINT 42	from 30 to 150 mA	expressed as integer number
401487	GFEP SETPOINT 43	from 30 to 150 mA	expressed as integer number
401488	GFEP SETPOINT 44	from 30 to 150 mA	expressed as integer number
401489	GFEP SETPOINT 45	from 30 to 150 mA	expressed as integer number
401490	GFEP SETPOINT 46	from 30 to 150 mA	expressed as integer number
401491	GFEP SETPOINT 47	from 30 to 150 mA	expressed as integer number
401492	GFEP SETPOINT 48	from 30 to 150 mA	expressed as integer number
401493	GFEP SETPOINT 49	from 30 to 150 mA	expressed as integer number
401494	GFEP SETPOINT 50	from 30 to 150 mA	expressed as integer number
401495	GFEP SETPOINT 51	from 30 to 150 mA	expressed as integer number
401496	GFEP SETPOINT 52	from 30 to 150 mA	expressed as integer number
401497	GFEP SETPOINT 53	from 30 to 150 mA	expressed as integer number
401498	GFEP SETPOINT 54	from 30 to 150 mA	expressed as integer number
401499	GFEP SETPOINT 55	from 30 to 150 mA	expressed as integer number
401500	GFEP SETPOINT 56	from 30 to 150 mA	expressed as integer number
401501	GFEP SETPOINT 57	from 30 to 150 mA	expressed as integer number
401502	GFEP SETPOINT 58	from 30 to 150 mA	expressed as integer number
401503	GFEP SETPOINT 59	from 30 to 150 mA	expressed as integer number

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
401504	GFEP SETPOINT 60	from 30 to 150 mA	expressed as integer number
401505	GFEP SETPOINT 61	from 30 to 150 mA	expressed as integer number
401506	GFEP SETPOINT 62	from 30 to 150 mA	expressed as integer number
401507	GFEP SETPOINT 63	from 30 to 150 mA	expressed as integer number
401508	GFEP SETPOINT 64	from 30 to 150 mA	expressed as integer number
401509	GFEP SETPOINT 65	from 30 to 150 mA	expressed as integer number
401510	GFEP SETPOINT 66	from 30 to 150 mA	expressed as integer number
401511	GFEP SETPOINT 67	from 30 to 150 mA	expressed as integer number
401512	GFEP SETPOINT 68	from 30 to 150 mA	expressed as integer number
401513	GFEP SETPOINT 69	from 30 to 150 mA	expressed as integer number
401514	GFEP SETPOINT 70	from 30 to 150 mA	expressed as integer number
401515	GFEP SETPOINT 71	from 30 to 150 mA	expressed as integer number
401516	GFEP SETPOINT 72	from 30 to 150 mA	expressed as integer number
401517	HI LOAD SPT CKT 1	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401518	HI LOAD SPT CKT 2	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401519	HI LOAD SPT CKT 3	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401520	HI LOAD SPT CKT 4	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401521	HI LOAD SPT CKT 5	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401522	HI LOAD SPT CKT 6	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401523	HI LOAD SPT CKT 7	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401524	HI LOAD SPT CKT 8	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401525	HI LOAD SPT CKT 9	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401526	HI LOAD SPT CKT 10	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401527	HI LOAD SPT CKT 11	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401528	HI LOAD SPT CKT 12	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401529	HI LOAD SPT CKT 13	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401530	HI LOAD SPT CKT 14	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401531	HI LOAD SPT CKT 15	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401532	HI LOAD SPT CKT 16	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401533	HI LOAD SPT CKT 17	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401534	HI LOAD SPT CKT 18	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401535	HI LOAD SPT CKT 19	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401536	HI LOAD SPT CKT 20	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401537	HI LOAD SPT CKT 21	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401538	HI LOAD SPT CKT 22	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401539	HI LOAD SPT CKT 23	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401540	HI LOAD SPT CKT 24	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401541	HI LOAD SPT CKT 25	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401542	HI LOAD SPT CKT 26	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401543	HI LOAD SPT CKT 27	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401544	HI LOAD SPT CKT 28	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
401545	HI LOAD SPT CKT 29	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401546	HI LOAD SPT CKT 30	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401547	HI LOAD SPT CKT 31	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401548	HI LOAD SPT CKT 32	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401549	HI LOAD SPT CKT 33	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401550	HI LOAD SPT CKT 34	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401551	HI LOAD SPT CKT 35	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401552	HI LOAD SPT CKT 36	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401553	HI LOAD SPT CKT 37	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401554	HI LOAD SPT CKT 38	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401555	HI LOAD SPT CKT 39	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401556	HI LOAD SPT CKT 40	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401557	HI LOAD SPT CKT 41	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401558	HI LOAD SPT CKT 42	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401559	HI LOAD SPT CKT 43	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401560	HI LOAD SPT CKT 44	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401561	HI LOAD SPT CKT 45	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401562	HI LOAD SPT CKT 46	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401563	HI LOAD SPT CKT 47	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401564	HI LOAD SPT CKT 48	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401565	HI LOAD SPT CKT 49	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401566	HI LOAD SPT CKT 50	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401567	HI LOAD SPT CKT 51	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401568	HI LOAD SPT CKT 52	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401569	HI LOAD SPT CKT 53	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401570	HI LOAD SPT CKT 54	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401571	HI LOAD SPT CKT 55	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401572	HI LOAD SPT CKT 56	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401573	HI LOAD SPT CKT 57	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401574	HI LOAD SPT CKT 58	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401575	HI LOAD SPT CKT 59	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401576	HI LOAD SPT CKT 60	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401577	HI LOAD SPT CKT 61	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401578	HI LOAD SPT CKT 62	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401579	HI LOAD SPT CKT 63	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401580	HI LOAD SPT CKT 64	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401581	HI LOAD SPT CKT 65	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401582	HI LOAD SPT CKT 66	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401583	HI LOAD SPT CKT 67	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401584	HI LOAD SPT CKT 68	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401585	HI LOAD SPT CKT 69	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
401586	HI LOAD SPT CKT 70	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401587	HI LOAD SPT CKT 71	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401588	HI LOAD SPT CKT 72	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401589	LO LOAD SPT CKT 1	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401590	LO LOAD SPT CKT 2	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401591	LO LOAD SPT CKT 3	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401592	LO LOAD SPT CKT 4	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401593	LO LOAD SPT CKT 5	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401594	LO LOAD SPT CKT 6	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401595	LO LOAD SPT CKT 7	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401596	LO LOAD SPT CKT 8	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401597	LO LOAD SPT CKT 9	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401598	LO LOAD SPT CKT 10	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401599	LO LOAD SPT CKT 11	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401600	LO LOAD SPT CKT 12	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401601	LO LOAD SPT CKT 13	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401602	LO LOAD SPT CKT 14	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401603	LO LOAD SPT CKT 15	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401604	LO LOAD SPT CKT 16	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401605	LO LOAD SPT CKT 17	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401606	LO LOAD SPT CKT 18	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401607	LO LOAD SPT CKT 19	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401608	LO LOAD SPT CKT 20	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401609	LO LOAD SPT CKT 21	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401610	LO LOAD SPT CKT 22	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401611	LO LOAD SPT CKT 23	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401612	LO LOAD SPT CKT 24	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401613	LO LOAD SPT CKT 25	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401614	LO LOAD SPT CKT 26	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401615	LO LOAD SPT CKT 27	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401616	LO LOAD SPT CKT 28	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401617	LO LOAD SPT CKT 29	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401618	LO LOAD SPT CKT 30	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401619	LO LOAD SPT CKT 31	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401620	LO LOAD SPT CKT 32	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401621	LO LOAD SPT CKT 33	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401622	LO LOAD SPT CKT 34	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401623	LO LOAD SPT CKT 35	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401624	LO LOAD SPT CKT 36	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401625	LO LOAD SPT CKT 37	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401626	LO LOAD SPT CKT 38	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
401627	LO LOAD SPT CKT 39	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401628	LO LOAD SPT CKT 40	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401629	LO LOAD SPT CKT 41	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401630	LO LOAD SPT CKT 42	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401631	LO LOAD SPT CKT 43	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401632	LO LOAD SPT CKT 44	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401633	LO LOAD SPT CKT 45	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401634	LO LOAD SPT CKT 46	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401635	LO LOAD SPT CKT 47	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401636	LO LOAD SPT CKT 48	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401637	LO LOAD SPT CKT 49	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401638	LO LOAD SPT CKT 50	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401639	LO LOAD SPT CKT 51	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401640	LO LOAD SPT CKT 52	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401641	LO LOAD SPT CKT 53	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401642	LO LOAD SPT CKT 54	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401643	LO LOAD SPT CKT 55	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401644	LO LOAD SPT CKT 56	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401645	LO LOAD SPT CKT 57	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401646	LO LOAD SPT CKT 58	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401647	LO LOAD SPT CKT 59	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401648	LO LOAD SPT CKT 60	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401649	LO LOAD SPT CKT 61	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401650	LO LOAD SPT CKT 62	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401651	LO LOAD SPT CKT 63	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401652	LO LOAD SPT CKT 64	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401653	LO LOAD SPT CKT 65	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401654	LO LOAD SPT CKT 66	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401655	LO LOAD SPT CKT 67	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401656	LO LOAD SPT CKT 68	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401657	LO LOAD SPT CKT 69	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401658	LO LOAD SPT CKT 70	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401659	LO LOAD SPT CKT 71	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps
401660	LO LOAD SPT CKT 72	0-500 ; e.g. 25 = 2.5 Amp	expressed in tenth/Amps e.g., 56 = 5.6 Amps

Input Registers

Table 3: ITLS/ITAS 2-4 Circuit Input Registers

Input Register Address	Name	Range	Format
300001	Temperetaure from Sensor 1	from -800 to 11000	expressed in tenth of deg i.e. 765 = 76.5˚F
300002	Temperetaure from Sensor 2	from -800 to 11000	expressed in tenth of deg i.e. 765 = 76.5˚F
300003	Temperetaure from Sensor 3	from -800 to 11000	expressed in tenth of deg i.e. 765 = 76.5˚F
300004	Temperetaure from Sensor 4	from -800 to 11000	expressed in tenth of deg i.e. 765 = 76.5˚F
300005	Temperetaure from Sensor 5	from -800 to 11000	expressed in tenth of deg i.e. 765 = 76.5˚F
300006	Temperetaure from Sensor 6	from -800 to 11000	expressed in tenth of deg i.e. 765 = 76.5˚F
300007	Temperetaure from Sensor 7	from -800 to 11000	expressed in tenth of deg i.e. 765 = 76.5˚F
300008	Temperetaure from Sensor 8	from -800 to 11000	expressed in tenth of deg i.e. 765 = 76.5˚F
300009	Temperetaure from Sensor 9	from -800 to 11000	expressed in tenth of deg i.e. 765 = 76.5˚F
300010	Temperetaure from Sensor 10	from -800 to 11000	expressed in tenth of deg i.e. 765 = 76.5˚F
300011	Temperetaure from Sensor 11	from -800 to 11000	expressed in tenth of deg i.e. 765 = 76.5˚F
300012	Temperetaure from Sensor 12	from -800 to 11000	expressed in tenth of deg i.e. 765 = 76.5˚F
300013	Load current 1	from 0 to 50.0 Amps	expressed in tenth of Amps i.e. 56 = 5.6 Amps
300014	Load current 2	from 0 to 50.0 Amps	expressed in tenth of Amps i.e. 56 = 5.6 Amps
300015	Load current 3	from 0 to 50.0 Amps	expressed in tenth of Amps i.e. 56 = 5.6 Amps
300016	Load current 4	from 0 to 50.0 Amps	expressed in tenth of Amps i.e. 56 = 5.6 Amps
300017	Load current 5	from 0 to 50.0 Amps	expressed in tenth of Amps i.e. 56 = 5.6 Amps
300018	Load current 6	from 0 to 50.0 Amps	expressed in tenth of Amps i.e. 56 = 5.6 Amps
300019	Load current 7	from 0 to 50.0 Amps	expressed in tenth of Amps i.e. 56 = 5.6 Amps
300020	Load current 8	from 0 to 50.0 Amps	expressed in tenth of Amps i.e. 56 = 5.6 Amps
300021	Load current 9	from 0 to 50.0 Amps	expressed in tenth of Amps i.e. 56 = 5.6 Amps
300022	Load current 10	from 0 to 50.0 Amps	expressed in tenth of Amps i.e. 56 = 5.6 Amps
300023	Load current 11	from 0 to 50.0 Amps	expressed in tenth of Amps i.e. 56 = 5.6 Amps
300024	Load current 12	from 0 to 50.0 Amps	expressed in tenth of Amps i.e. 56 = 5.6 Amps
300025	GFEP current 1	from 30 to 150 mA	expressed in mA
300026	GFEP current 2	from 30 to 150 mA	expressed in mA
300027	GFEP current 3	from 30 to 150 mA	expressed in mA
300028	GFEP current 4	from 30 to 150 mA	expressed in mA
300029	GFEP current 5	from 30 to 150 mA	expressed in mA
300030	GFEP current 6	from 30 to 150 mA	expressed in mA
300031	GFEP current 7	from 30 to 150 mA	expressed in mA
300032	GFEP current 8	from 30 to 150 mA	expressed in mA
300033	GFEP current 9	from 30 to 150 mA	expressed in mA
300034	GFEP current 10	from 30 to 150 mA	expressed in mA
300035	GFEP current 11	from 30 to 150 mA	expressed in mA
300036	GFEP current 12	from 30 to 150 mA	expressed in mA
300037	Output Demand 1	0-1000	expressed in tenth of % i.e. 500 = 50.0 %
300038	Output Demand 2	0-1000	expressed in tenth of % i.e. 500 = 50.0 %

Input Registers, cont'd.

Input Register Address	Name	Range	Format
300039	Output Demand 3	0-1000	expressed in tenth of % i.e. 500 = 50.0 %
300040	Output Demand 4	0-1000	expressed in tenth of % i.e. 500 = 50.0 %
300041	Output Demand 5	0-1000	expressed in tenth of % i.e. 500 = 50.0 %
300042	Output Demand 6	0-1000	expressed in tenth of % i.e. 500 = 50.0 %
300043	Output Demand 7	0-1000	expressed in tenth of % i.e. 500 = 50.0 %
300044	Output Demand 8	0-1000	expressed in tenth of % i.e. 500 = 50.0 %
300045	Output Demand 9	0-1000	expressed in tenth of % i.e. 500 = 50.0 %
300046	Output Demand 10	0-1000	expressed in tenth of % i.e. 500 = 50.0 %
300047	Output Demand 11	0-1000	expressed in tenth of % i.e. 500 = 50.0 %
300048	Output Demand 12	0-1000	expressed in tenth of % i.e. 500 = 50.0 %
300049	Temperature circuit 1	from -800 to 11000	expressed in tenth of deg i.e. 765 = 76.5˚F
300050	Temperature circuit 2	from -800 to 11000	expressed in tenth of deg i.e. 765 = 76.5˚F
300051	Temperature circuit 3	from -800 to 11000	expressed in tenth of deg i.e. 765 = 76.5˚F
300052	Temperature circuit 4	from -800 to 11000	expressed in tenth of deg i.e. 765 = 76.5˚F
300053	Temperature circuit 5	from -800 to 11000	expressed in tenth of deg i.e. 765 = 76.5˚F
300054	Temperature circuit 6	from -800 to 11000	expressed in tenth of deg i.e. 765 = 76.5˚F
300055	Temperature circuit 7	from -800 to 11000	expressed in tenth of deg i.e. 765 = 76.5˚F
300056	Temperature circuit 8	from -800 to 11000	expressed in tenth of deg i.e. 765 = 76.5˚F
300057	Temperature circuit 9	from -800 to 11000	expressed in tenth of deg i.e. 765 = 76.5˚F
300058	Temperature circuit 10	from -800 to 11000	expressed in tenth of deg i.e. 765 = 76.5˚F
300059	Temperature circuit 11	from -800 to 11000	expressed in tenth of deg i.e. 765 = 76.5˚F
300060	Temperature circuit 12	from -800 to 11000	expressed in tenth of deg i.e. 765 = 76.5˚F

Holding Registers

Table 4: ITLS/ITAS 2-4 Circuit Holding Registers

Holding Register Address	Name	Range	Format
400001	Setpoint 1	from -80 to 1100 F	expressed as integer number
400002	Setpoint 2	from -80 to 1100 F	expressed as integer number
400003	Setpoint 3	from -80 to 1100 F	expressed as integer number
400004	Setpoint 4	from -80 to 1100 F	expressed as integer number
400005	Setpoint 5	from -80 to 1100 F	expressed as integer number
400006	Setpoint 6	from -80 to 1100 F	expressed as integer number
400007	Setpoint 7	from -80 to 1100 F	expressed as integer number
400008	Setpoint 8	from -80 to 1100 F	expressed as integer number
400009	Setpoint 9	from -80 to 1100 F	expressed as integer number
400010	Setpoint 10	from -80 to 1100 F	expressed as integer number
400011	Setpoint 11	from -80 to 1100 F	expressed as integer number
400012	Setpoint 12	from -80 to 1100 F	expressed as integer number
400013	Default Output Demand 1	0-100	expressed as integer number
400014	Default Output Demand 2	0-100	expressed as integer number
400015	Default Output Demand 3	0-100	expressed as integer number
400016	Default Output Demand 4	0-100	expressed as integer number
400017	Default Output Demand 5	0-100	expressed as integer number
400018	Default Output Demand 6	0-100	expressed as integer number
400019	Default Output Demand 7	0-100	expressed as integer number
400020	Default Output Demand 8	0-100	expressed as integer number
400021	Default Output Demand 9	0-100	expressed as integer number
400022	Default Output Demand 10	0-100	expressed as integer number
400023	Default Output Demand 11	0-100	expressed as integer number
400024	Default Output Demand 12	0-100	expressed as integer number
400025	Proportional Band 1	0-100	expressed as integer number
400026	Proportional Band 2	0-100	expressed as integer number
400027	Proportional Band 3	0-100	expressed as integer number
400028	Proportional Band 4	0-100	expressed as integer number
400029	Proportional Band 5	0-100	expressed as integer number
400030	Proportional Band 6	0-100	expressed as integer number
400031	Proportional Band 7	0-100	expressed as integer number
400032	Proportional Band 8	0-100	expressed as integer number
400033	Proportional Band 9	0-100	expressed as integer number
400034	Proportional Band 10	0-100	expressed as integer number
400035	Proportional Band 11	0-100	expressed as integer number
400036	Proportional Band 12	0-100	expressed as integer number
400037	Integral Band 1	0-9999	expressed as integer number
400038	Integral Band 2	0-9999	expressed as integer number

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400039	Integral Band 3	0-9999	expressed as integer number
400040	Integral Band 4	0-9999	expressed as integer number
400041	Integral Band 5	0-9999	expressed as integer number
400042	Integral Band 6	0-9999	expressed as integer number
400043	Integral Band 7	0-9999	expressed as integer number
400044	Integral Band 8	0-9999	expressed as integer number
400045	Integral Band 9	0-9999	expressed as integer number
400046	Integral Band 10	0-9999	expressed as integer number
400047	Integral Band 11	0-9999	expressed as integer number
400048	Integral Band 12	0-9999	expressed as integer number
400049	Derivative Band 1	0-500	expressed as integer number
400050	Derivative Band 2	0-500	expressed as integer number
400051	Derivative Band 3	0-500	expressed as integer number
400052	Derivative Band 4	0-500	expressed as integer number
400053	Derivative Band 5	0-500	expressed as integer number
400054	Derivative Band 6	0-500	expressed as integer number
400055	Derivative Band 7	0-500	expressed as integer number
400056	Derivative Band 8	0-500	expressed as integer number
400057	Derivative Band 9	0-500	expressed as integer number
400058	Derivative Band 10	0-500	expressed as integer number
400059	Derivative Band 11	0-500	expressed as integer number
400060	Derivative Band 12	0-500	expressed as integer number
400061	Deadband 1	2-100	expressed as integer number
400062	Deadband 2	2-100	expressed as integer number
400063	Deadband 3	2-100	expressed as integer number
400064	Deadband 4	2-100	expressed as integer number
400065	Deadband 5	2-100	expressed as integer number
400066	Deadband 6	2-100	expressed as integer number
400067	Deadband 7	2-100	expressed as integer number
400068	Deadband 8	2-100	expressed as integer number
400069	Deadband 9	2-100	expressed as integer number
400070	Deadband 10	2-100	expressed as integer number
400071	Deadband 11	2-100	expressed as integer number
400072	Deadband 12	2-100	expressed as integer number
400073	Sensor # circuit 1	0-12	specify sensor # from 0(unused) up to 72
400074	Sensor # circuit 1	0-12	specify sensor # from 0(unused) up to 72
400075	Sensor # circuit 1	0-12	specify sensor # from 0(unused) up to 72
400076	Sensor # circuit 2	0-12	specify sensor # from 0(unused) up to 72

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400077	Sensor # circuit 2	0-12	specify sensor # from 0(unused) up to 72
400078	Sensor # circuit 2	0-12	specify sensor # from 0(unused) up to 72
400079	Sensor # circuit 3	0-12	specify sensor # from 0(unused) up to 72
400080	Sensor # circuit 3	0-12	specify sensor # from 0(unused) up to 72
400081	Sensor # circuit 3	0-12	specify sensor # from 0(unused) up to 72
400082	Sensor # circuit 4	0-12	specify sensor # from 0(unused) up to 72
400083	Sensor # circuit 4	0-12	specify sensor # from 0(unused) up to 72
400084	Sensor # circuit 4	0-12	specify sensor # from 0(unused) up to 72
400085	Sensor # circuit 5	0-12	specify sensor # from 0(unused) up to 72
400086	Sensor # circuit 5	0-12	specify sensor # from 0(unused) up to 72
400087	Sensor # circuit 5	0-12	specify sensor # from 0(unused) up to 72
400088	Sensor # circuit 6	0-12	specify sensor # from 0(unused) up to 72
400089	Sensor # circuit 6	0-12	specify sensor # from 0(unused) up to 72
400090	Sensor # circuit 6	0-12	specify sensor # from 0(unused) up to 73
400091	Sensor # circuit 7	0-12	specify sensor # from 0(unused) up to 74
400092	Sensor # circuit 7	0-12	specify sensor # from 0(unused) up to 75
400093	Sensor # circuit 7	0-12	specify sensor # from 0(unused) up to 76
400094	Sensor # circuit 8	0-12	specify sensor # from 0(unused) up to 77
400095	Sensor # circuit 8	0-12	specify sensor # from 0(unused) up to 78
400096	Sensor # circuit 8	0-12	specify sensor # from 0(unused) up to 79
400097	Sensor # circuit 9	0-12	specify sensor # from 0(unused) up to 79
400098	Sensor # circuit 9	0-12	specify sensor # from 0(unused) up to 79
400099	Sensor # circuit 9	0-12	specify sensor # from 0(unused) up to 80
400100	Sensor # circuit 10	0-12	specify sensor # from 0(unused) up to 81
400101	Sensor # circuit 10	0-12	specify sensor # from 0(unused) up to 82
400102	Sensor # circuit 10	0-12	specify sensor # from 0(unused) up to 82
400103	Sensor # circuit 11	0-12	specify sensor # from 0(unused) up to 81
400104	Sensor # circuit 11	0-12	specify sensor # from 0(unused) up to 82
400105	Sensor # circuit 11	0-12	specify sensor # from 0(unused) up to 82
400106	Sensor # circuit 12	0-12	specify sensor # from 0(unused) up to 81
400107	Sensor # circuit 12	0-12	specify sensor # from 0(unused) up to 82
400108	Sensor # circuit 12	0-12	specify sensor # from 0(unused) up to 82
400109	Temp. calculation algorithm CKT 1	0-2	AVERAGE 0, MIN 1, MAX 2
400110	Temp. calculation algorithm CKT 2	0-2	AVERAGE 0, MIN 1, MAX 2
400111	Temp. calculation algorithm CKT 3	0-2	AVERAGE 0, MIN 1, MAX 2
400112	Temp. calculation algorithm CKT 4	0-2	AVERAGE 0, MIN 1, MAX 2
400113	Temp. calculation algorithm CKT 5	0-2	AVERAGE 0, MIN 1, MAX 2
400114	Temp. calculation algorithm CKT 6	0-2	AVERAGE 0, MIN 1, MAX 2
400115	Temp. calculation algorithm CKT 7	0-2	AVERAGE 0, MIN 1, MAX 2

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400116	Temp. calculation algorithm CKT 8	0-2	AVERAGE 0, MIN 1, MAX 2
400117	Temp. calculation algorithm CKT 9	0-2	AVERAGE 0, MIN 1, MAX 2
400118	Temp. calculation algorithm CKT 10	0-2	AVERAGE 0, MIN 1, MAX 2
400119	Temp. calculation algorithm CKT 11	0-2	AVERAGE 0, MIN 1, MAX 2
400120	Temp. calculation algorithm CKT 12	0-2	AVERAGE 0, MIN 1, MAX 2
400121	Soft Start 1	0-1	0 -NO, 1- YES
400122	Soft Start 2	0-1	0 -NO, 1- YES
400123	Soft Start 3	0-1	0 -NO, 1- YES
400124	Soft Start 4	0-1	0 -NO, 1- YES
400125	Soft Start 5	0-1	0 -NO, 1- YES
400126	Soft Start 6	0-1	0 -NO, 1- YES
400127	Soft Start 7	0-1	0 -NO, 1- YES
400128	Soft Start 8	0-1	0 -NO, 1- YES
400129	Soft Start 9	0-1	0 -NO, 1- YES
400130	Soft Start 10	0-1	0 -NO, 1- YES
400131	Soft Start 11	0-1	0 -NO, 1- YES
400132	Soft Start 12	0-1	0 -NO, 1- YES
400133	PID vs ON OFF 1	0-1	0 -ON/OFF, 1- PID
400134	PID vs ON OFF 2	0-1	0 -ON/OFF, 1- PID
400135	PID vs ON OFF 3	0-1	0 -ON/OFF, 1- PID
400136	PID vs ON OFF 4	0-1	0 -ON/OFF, 1- PID
400137	PID vs ON OFF 5	0-1	0 -ON/OFF, 1- PID
400138	PID vs ON OFF 6	0-1	0 -ON/OFF, 1- PID
400139	PID vs ON OFF 7	0-1	0 -ON/OFF, 1- PID
400140	PID vs ON OFF 8	0-1	0 -ON/OFF, 1- PID
400141	PID vs ON OFF 9	0-1	0 -ON/OFF, 1- PID
400142	PID vs ON OFF 10	0-1	0 -ON/OFF, 1- PID
400143	PID vs ON OFF 11	0-1	0 -ON/OFF, 1- PID
400144	PID vs ON OFF 12	0-1	0 -ON/OFF, 1- PID
400145	TRIP 1	0-1	0-NO, 1-YES
400146	TRIP 2	0-1	0-NO, 1-YES
400147	TRIP 3	0-1	0-NO, 1-YES
400148	TRIP 4	0-1	0-NO, 1-YES
400149	TRIP 5	0-1	0-NO, 1-YES
400150	TRIP 6	0-1	0-NO, 1-YES
400151	TRIP 7	0-1	0-NO, 1-YES
400152	TRIP 8	0-1	0-NO, 1-YES
400153	TRIP 9	0-1	0-NO, 1-YES
400154	TRIP 10	0-1	0-NO, 1-YES

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400155	TRIP 11	0-1	0-NO, 1-YES
400156	TRIP 12	0-1	0-NO, 1-YES
400157	LATCH 1	0-1	0-NO, 1-YES
400158	LATCH 2	0-1	0-NO, 1-YES
400159	LATCH 3	0-1	0-NO, 1-YES
400160	LATCH 4	0-1	0-NO, 1-YES
400161	LATCH 5	0-1	0-NO, 1-YES
400162	LATCH 6	0-1	0-NO, 1-YES
400163	LATCH 7	0-1	0-NO, 1-YES
400164	LATCH 8	0-1	0-NO, 1-YES
400165	LATCH 9	0-1	0-NO, 1-YES
400166	LATCH 10	0-1	0-NO, 1-YES
400167	LATCH 11	0-1	0-NO, 1-YES
400168	LATCH 12	0-1	0-NO, 1-YES
400169	ENABLED/DISABLED CIRCUIT 1	0-1	0-ENABLED, 1-DISABLED
400170	ENABLED/DISABLED CIRCUIT 2	0-1	0-ENABLED, 1-DISABLED
400171	ENABLED/DISABLED CIRCUIT 3	0-1	0-ENABLED, 1-DISABLED
400172	ENABLED/DISABLED CIRCUIT 4	0-1	0-ENABLED, 1-DISABLED
400173	ENABLED/DISABLED CIRCUIT 5	0-1	0-ENABLED, 1-DISABLED
400174	ENABLED/DISABLED CIRCUIT 6	0-1	0-ENABLED, 1-DISABLED
400175	ENABLED/DISABLED CIRCUIT 7	0-1	0-ENABLED, 1-DISABLED
400176	ENABLED/DISABLED CIRCUIT 8	0-1	0-ENABLED, 1-DISABLED
400177	ENABLED/DISABLED CIRCUIT 9	0-1	0-ENABLED, 1-DISABLED
400178	ENABLED/DISABLED CIRCUIT 10	0-1	0-ENABLED, 1-DISABLED
400179	ENABLED/DISABLED CIRCUIT 11	0-1	0-ENABLED, 1-DISABLED
400180	ENABLED/DISABLED CIRCUIT 12	0-1	0-ENABLED, 1-DISABLED
400181	AUTO vs MANUAL 1	0-1	0-MANUAL, 1-AUTO
400182	AUTO vs MANUAL 2	0-1	0-MANUAL, 1-AUTO
400183	AUTO vs MANUAL 3	0-1	0-MANUAL, 1-AUTO
400184	AUTO vs MANUAL 4	0-1	0-MANUAL, 1-AUTO
400185	AUTO vs MANUAL 5	0-1	0-MANUAL, 1-AUTO
400186	AUTO vs MANUAL 6	0-1	0-MANUAL, 1-AUTO
400187	AUTO vs MANUAL 7	0-1	0-MANUAL, 1-AUTO
400188	AUTO vs MANUAL 8	0-1	0-MANUAL, 1-AUTO
400189	AUTO vs MANUAL 9	0-1	0-MANUAL, 1-AUTO
400190	AUTO vs MANUAL 10	0-1	0-MANUAL, 1-AUTO
400191	AUTO vs MANUAL 11	0-1	0-MANUAL, 1-AUTO
400192	AUTO vs MANUAL 12	0-1	0-MANUAL, 1-AUTO

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400193	AUTOTUNE 1	0-1	0-NO, 1-YES
400194	AUTOTUNE 2	0-1	0-NO, 1-YES
400195	AUTOTUNE 3	0-1	0-NO, 1-YES
400196	AUTOTUNE 4	0-1	0-NO, 1-YES
400197	AUTOTUNE 5	0-1	0-NO, 1-YES
400198	AUTOTUNE 6	0-1	0-NO, 1-YES
400199	AUTOTUNE 7	0-1	0-NO, 1-YES
400200	AUTOTUNE 8	0-1	0-NO, 1-YES
400201	AUTOTUNE 9	0-1	0-NO, 1-YES
400202	AUTOTUNE 10	0-1	0-NO, 1-YES
400203	AUTOTUNE 11	0-1	0-NO, 1-YES
400204	AUTOTUNE 12	0-1	0-NO, 1-YES
400205	RESERVED		
400206	RESERVED		
400207	IS SYSTEM IN ALARM STATE	0-1	0-NO, 1-YES
400208	TEMP UNITS	0-1	0-F, 1 C
400209	ALARM REG CKT 1	See Alarm Bits Desc.	
400210	ALARM REG CKT 2	See Alarm Bits Desc.	
400211	ALARM REG CKT 3	See Alarm Bits Desc.	
400212	ALARM REG CKT 4	See Alarm Bits Desc.	
400213	ALARM REG CKT 5	See Alarm Bits Desc.	
400214	ALARM REG CKT 6	See Alarm Bits Desc.	
400215	ALARM REG CKT 7	See Alarm Bits Desc.	
400216	ALARM REG CKT 8	See Alarm Bits Desc.	
400217	ALARM REG CKT 9	See Alarm Bits Desc.	
400218	ALARM REG CKT 10	See Alarm Bits Desc.	
400219	ALARM REG CKT 11	See Alarm Bits Desc.	
400220	ALARM REG CKT 12	See Alarm Bits Desc.	
400221	HI TEMP SETPOINT 1	from -80 to 1100 F	expressed as integer number
400222	HI TEMP SETPOINT 2	from -80 to 1100 F	expressed as integer number
400223	HI TEMP SETPOINT 3	from -80 to 1100 F	expressed as integer number
400224	HI TEMP SETPOINT 4	from -80 to 1100 F	expressed as integer number
400225	HI TEMP SETPOINT 5	from -80 to 1100 F	expressed as integer number
400226	HI TEMP SETPOINT 6	from -80 to 1100 F	expressed as integer number
400227	HI TEMP SETPOINT 7	from -80 to 1100 F	expressed as integer number
400228	HI TEMP SETPOINT 8	from -80 to 1100 F	expressed as integer number
400229	HI TEMP SETPOINT 9	from -80 to 1100 F	expressed as integer number
400230	HI TEMP SETPOINT 10	from -80 to 1100 F	expressed as integer number

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400231	HI TEMP SETPOINT 11	from -80 to 1100 F	expressed as integer number
400232	HI TEMP SETPOINT 12	from -80 to 1100 F	expressed as integer number
400233	LO TEMP SETPOINT 1	from -80 to 1100 F	expressed as integer number
400234	LO TEMP SETPOINT 2	from -80 to 1100 F	expressed as integer number
400235	LO TEMP SETPOINT 3	from -80 to 1100 F	expressed as integer number
400236	LO TEMP SETPOINT 4	from -80 to 1100 F	expressed as integer number
400237	LO TEMP SETPOINT 5	from -80 to 1100 F	expressed as integer number
400238	LO TEMP SETPOINT 6	from -80 to 1100 F	expressed as integer number
400239	LO TEMP SETPOINT 7	from -80 to 1100 F	expressed as integer number
400240	LO TEMP SETPOINT 8	from -80 to 1100 F	expressed as integer number
400241	LO TEMP SETPOINT 9	from -80 to 1100 F	expressed as integer number
400242	LO TEMP SETPOINT 10	from -80 to 1100 F	expressed as integer number
400243	LO TEMP SETPOINT 11	from -80 to 1100 F	expressed as integer number
400244	LO TEMP SETPOINT 12	from -80 to 1100 F	expressed as integer number
400245	GFEP SETPOINT 1	from 30 to 150 mA	expressed as integer number
400246	GFEP SETPOINT 2	from 30 to 150 mA	expressed as integer number
400247	GFEP SETPOINT 3	from 30 to 150 mA	expressed as integer number
400248	GFEP SETPOINT 4	from 30 to 150 mA	expressed as integer number
400249	GFEP SETPOINT 5	from 30 to 150 mA	expressed as integer number
400250	GFEP SETPOINT 6	from 30 to 150 mA	expressed as integer number
400251	GFEP SETPOINT 7	from 30 to 150 mA	expressed as integer number
400252	GFEP SETPOINT 8	from 30 to 150 mA	expressed as integer number
400253	GFEP SETPOINT 9	from 30 to 150 mA	expressed as integer number
400254	GFEP SETPOINT 10	from 30 to 150 mA	expressed as integer number
400255	GFEP SETPOINT 11	from 30 to 150 mA	expressed as integer number
400256	GFEP SETPOINT 12	from 30 to 150 mA	expressed as integer number
400257	HI LOAD CURRENT SETPOINT 1	from 0 to 50 Amps	expressed in tenth/Amps i.e. 56 = 5.6 Amps
400258	HI LOAD CURRENT SETPOINT 2	from 0 to 50 Amps	expressed in tenth/Amps i.e. 56 = 5.6 Amps
400259	HI LOAD CURRENT SETPOINT 3	from 0 to 50 Amps	expressed in tenth/Amps i.e. 56 = 5.6 Amps
400260	HI LOAD CURRENT SETPOINT 4	from 0 to 50 Amps	expressed in tenth/Amps i.e. 56 = 5.6 Amps
400261	HI LOAD CURRENT SETPOINT 5	from 0 to 50 Amps	expressed in tenth/Amps i.e. 56 = 5.6 Amps
400262	HI LOAD CURRENT SETPOINT 6	from 0 to 50 Amps	expressed in tenth/Amps i.e. 56 = 5.6 Amps
400263	HI LOAD CURRENT SETPOINT 7	from 0 to 50 Amps	expressed in tenth/Amps i.e. 56 = 5.6 Amps
400264	HI LOAD CURRENT SETPOINT 8	from 0 to 50 Amps	expressed in tenth/Amps i.e. 56 = 5.6 Amps
400265	HI LOAD CURRENT SETPOINT 9	from 0 to 50 Amps	expressed in tenth/Amps i.e. 56 = 5.6 Amps
400266	HI LOAD CURRENT SETPOINT 10	from 0 to 50 Amps	expressed in tenth/Amps i.e. 56 = 5.6 Amps
400267	HI LOAD CURRENT SETPOINT 11	from 0 to 50 Amps	expressed in tenth/Amps i.e. 56 = 5.6 Amps
400268	HI LOAD CURRENT SETPOINT 12	from 0 to 50 Amps	expressed in tenth/Amps i.e. 56 = 5.6 Amps
400269	LO LOAD CURRENT SETPOINT 1	from 0 to 50 Amps	expressed in tenth/Amps i.e. 56 = 5.6 Amps

Holding Registers, cont'd.

Holding Register Address	Name	Range	Format
400270	LO LOAD CURRENT SETPOINT 2	from 0 to 50 Amps	expressed in tenth/Amps i.e. 56 = 5.6 Amps
400271	LO LOAD CURRENT SETPOINT 3	from 0 to 50 Amps	expressed in tenth/Amps i.e. 56 = 5.6 Amps
400272	LO LOAD CURRENT SETPOINT 4	from 0 to 50 Amps	expressed in tenth/Amps i.e. 56 = 5.6 Amps
400273	LO LOAD CURRENT SETPOINT 5	from 0 to 50 Amps	expressed in tenth/Amps i.e. 56 = 5.6 Amps
400274	LO LOAD CURRENT SETPOINT 6	from 0 to 50 Amps	expressed in tenth/Amps i.e. 56 = 5.6 Amps
400275	LO LOAD CURRENT SETPOINT 7	from 0 to 50 Amps	expressed in tenth/Amps i.e. 56 = 5.6 Amps
400276	LO LOAD CURRENT SETPOINT 8	from 0 to 50 Amps	expressed in tenth/Amps i.e. 56 = 5.6 Amps
400277	LO LOAD CURRENT SETPOINT 9	from 0 to 50 Amps	expressed in tenth/Amps i.e. 56 = 5.6 Amps
400278	LO LOAD CURRENT SETPOINT 10	from 0 to 50 Amps	expressed in tenth/Amps i.e. 56 = 5.6 Amps
400279	LO LOAD CURRENT SETPOINT 11	from 0 to 50 Amps	expressed in tenth/Amps i.e. 56 = 5.6 Amps
400280	LO LOAD CURRENT SETPOINT 12	from 0 to 50 Amps	expressed in tenth/Amps i.e. 56 = 5.6 Amps

Alarm Bits Descriptions

Table 5: ITLS/ITAS 2-72 Alarm Bits Description

Bit #	Alarm
0	HI TEMP
1	LO TEMP
2	SENSOR
3	LO CURRENT
4	HI CURRENT
5	GFEP
6	RTD COM
7	SSR COM
8	WIREELSS SENSOR VERY LOW BATTERY
9	WIREELSS SENSOR LOW BATTERY
10	WIRELESS SENSOR OFFLINE

Service Contact Information

Chromalox is a global supplier, providing the highest level of customer support. If you should have questions concerning your intelliTRACE™ ITLS/ITAS control panel, or need information, you may contact Chromalox at:

Corporate Headquarters Chromalox, Inc.	Controls Division Chromalox, Inc.
103 Gamma Drive Pittsburgh, PA 15238 Phone: (412) 967-3800	1347 Heil-Quaker Blvd LaVergne, TN 37086 Phone: (615) 793-3900
Customer Service Hotline: 1-800-443-2640	

For application questions, you can:

1. Call one of our application engineers for personal assistance at 1-888-996-9258.
2. Visit the technical reference section of our website at www.chromalox.com for downloadable manuals in PDF format.

Limited Warranty:
Please refer to the Chromalox limited warranty applicable to this product at
http://www.chromalox.com/customer-service/policies/termsofsale.aspx.

Chromalox, Inc.
1347 Heil Quaker Boulevard
Lavergne, TN 37086
(615) 793-3900
www.chromalox.com