

DYNALCO

3690 N.W. 53rd Street
Fort Lauderdale, FL 33309

SC-2124

SC-2124M

24 Channel Universal Scanner

Installation and Operation Manual

P/N 145F-11902

Rev. 3.30

(c) Copyright 2000, Dynalco Controls
All Rights Reserved

Published: October 6, 2000

Revised: October 21, 2009

TABLE OF CONTENTS

1.0	Introduction	3
1.1	Ratings & Certification	6
2.0	Installation	7
2.1	Panel Cutout	7
2.2	Wiring	8
2.3	Mounting	10
3.0	Setup	13
3.1	HOST Software	13
3.1.1	Setup Screen	14
3.1.2	Configuration File	15
4.0	Standard Operation	16
4.1	RESET	17
4.2	START	17
4.3	ALARM	18
4.4	SHUTDOWN	18
5.0	User Interface	19
5.1	Navigation	19
5.2	Run Screens	21
5.2.1	Title Screen	21
5.2.2	Main Menu Screen	22
5.2.3	Main SCANNER Screen	22
5.2.4	SCAN Screen	23
5.2.5	Custom Screen(s)	23
5.2.6	Channel Screens	23
5.2.6.1	HELP Screens	24
5.2.7	SNAP Screen	24
5.2.7.1	First-Out Screen	24
FIGURES		
1	Configuration Screen	14
2	Run Screens	20
APPENDICES		
Appendix A	Configuration Parameter List	25
Appendix B	Example of a Configuration File	54
Appendix C	Instructions for Downloading WinHost	67
Appendix D	Modbus Addresses	68
Appendix E	SC-RTD Module	69

1.0 Introduction

The SC-2124 is a microprocessor-based universal scanner for continuous monitoring of up to 24 channels measuring temperature from thermocouples, pressure or any other analog signal that can be represented by either 0-5V or 4-20mA . Each scanner channel may be configured for the following input types:

- J, K, E, or T thermocouple inputs
- 4-20 mA inputs (8 on-board resistors available via DIP switch)
- 0-5 V Inputs

The SC-2124 provides **ALARM** and **SHUTDOWN** capabilities via two dedicated on-board 5 Amp relays (plus 2 additional general-purpose relays) and automatically TRIPs should any user-programmable threshold be exceeded.

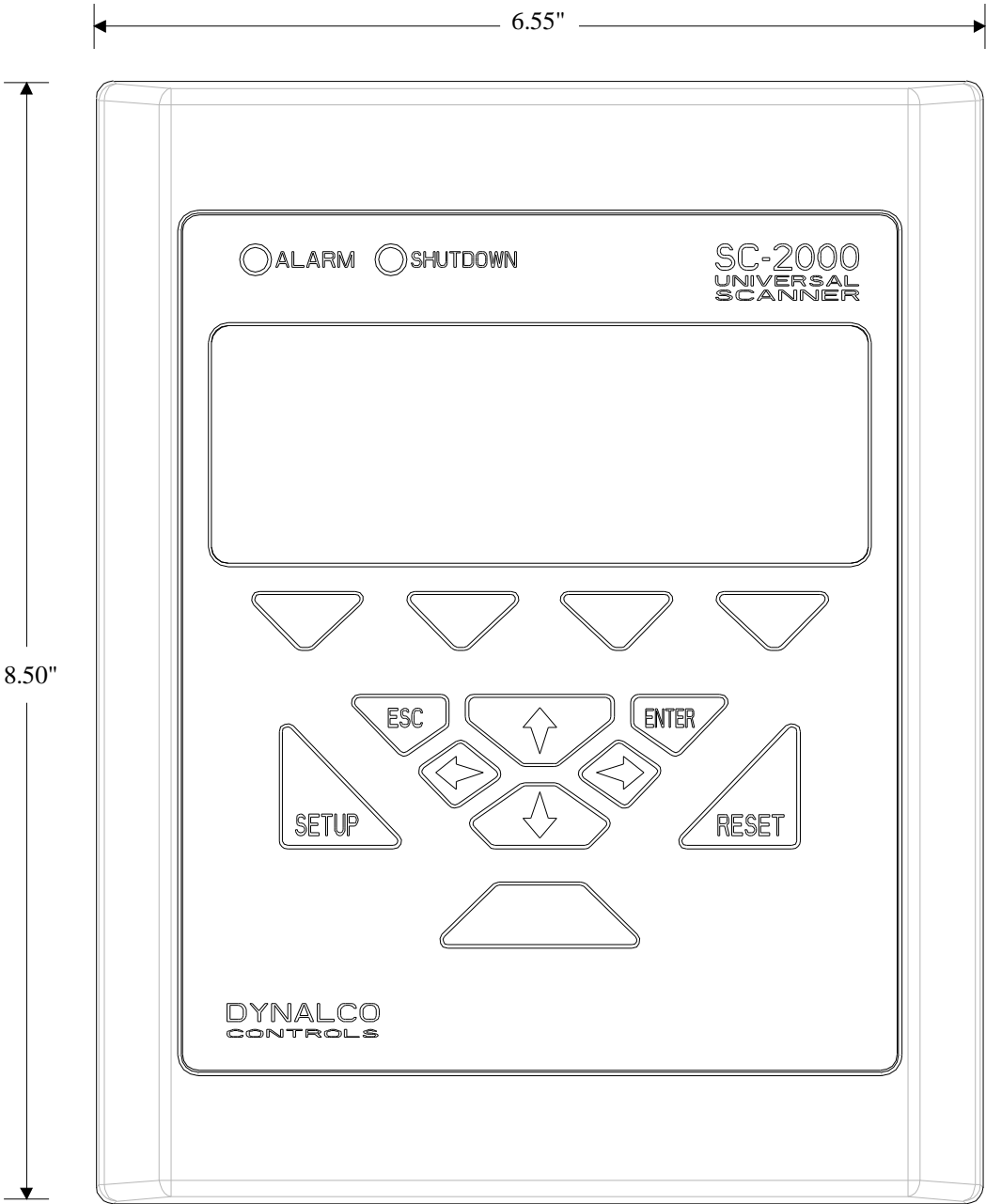
The SC-2124 utilizes all DB-Style Connectors on the back of the unit for a cleaner wiring arrangement. All wiring to the unit is done via separate DIN-RAIL type terminal modules and then DB-25/15 cables connect to the unit.

The SC-2124 front panel includes a large-character, 4-row by 20-column, backlit LCD display and application keypad. The display has several Run Screens: a SCAN Screen that displays each enabled scanner channel, one channel screen at a time; one or more Custom Screens to display up to four user-specified scanner channels per screen; and a SNAPSHOT Screen that displays each enabled channel's analog input reading at the time of the last **SHUTDOWN** plus indication of the "First-Out" channel causing the shutdown.

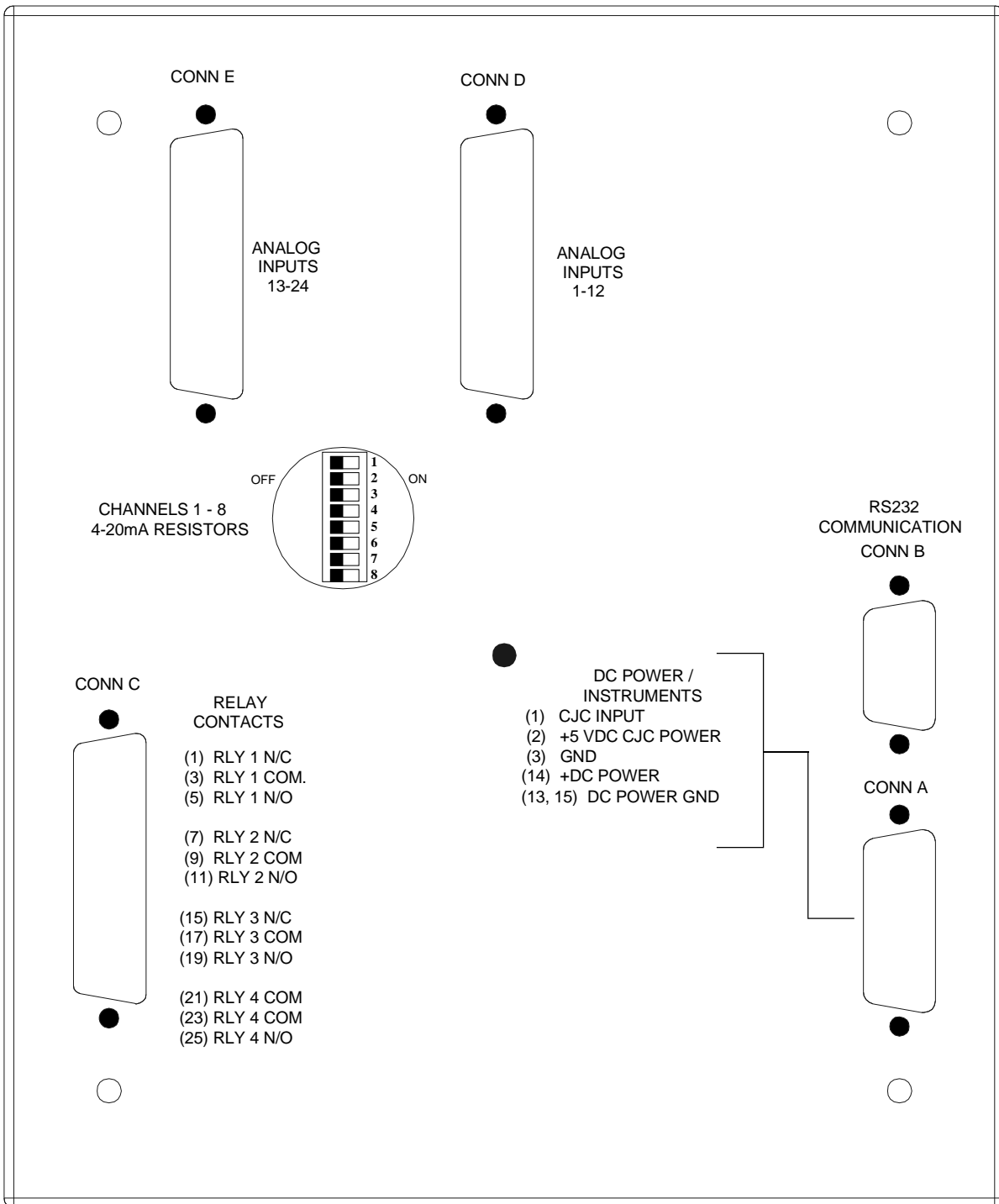
Utilizing an on-board RS-232 communications port with a convenient DB-9 connector, the SC-2124 provides powerful communications capabilities. Quick and easy configuration is done from a laptop computer using the Dynalco DYNALINK software. The unit can also switch protocols and talk Modbus RTU for continuous remote monitoring.

1.1 Packaging

Front View



Rear View



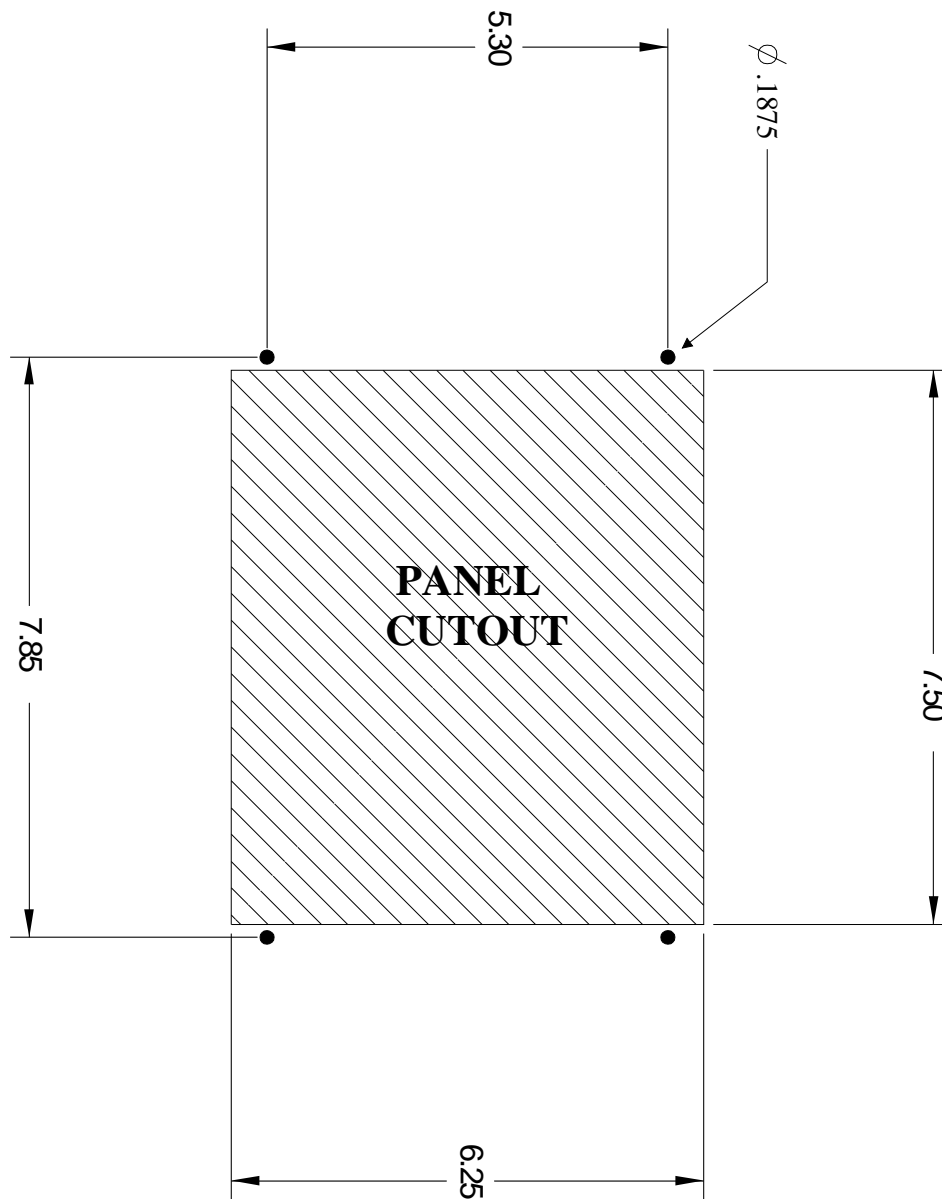
1.2 Specifications

1. **Input Channels:** 24 Thermocouple (J,K,T, or E), 0 – 5V, or 4 – 20mA (On-Board 100 Ohm resistor provided on Channels 1 through 8).
Note: All Thermocouples have “Open-Thermocouple Detection”
2. **Channel Scan Rate:** Programmable (50mS Minimum)
3. **Relay Outputs:** 4 Relays, SPDT, rated @ 5A/24VDC, 1A/120VAC, and 0.5A/220VAC
4. **Input Power:** 9 – 38 VDC, 0.8A Max.
5. **Sensor Power Out:** +5VDC CJC Sensor Power, +8VDC RPM Sensor Power
6. **Display:** Backlit, 4 Line x 20 Character Alphanumeric Display with large 0.36” Characters
7. **Communications:**
Hardware: RS-232
Software: Dynalink Laptop Configuration Software and Modbus RTU.
8. **Rear Connections:** All “DB - Style” Connectors on rear of unit. All field Wiring is done via DIN-RAIL mounted Terminal Blocks.
9. **Operating Temperature Range:** -20 to +80C
10. **Certification:** CSA Class I, Div.2, Groups A, B, C, D

2.0 Installation

Installation requires a cutout as shown in section 2.1 along with four mounting holes. Once the unit is mounted, a nearby (less than 6 feet away) location is needed for performing the wiring to separate terminals. One method is to purchase the optional DB-to-Screw-Terminal modules which are DIN-RAIL mounted. Also, the supplied Cold Junction Compensation (CJC) Sensor is necessary if any thermocouples are to be used. The Dynalco ETS-202 CJC sensor should be mounted as close as possible to the location where the thermocouple wires are terminated.

2.1 Panel Cutout



2.2 Wiring

Connector A (DB-15M):

This Connector is used for the DC Power Input and the Cold Junction Compensation (CJC) Sensor Input. In addition, depending upon the Scanner Model, it also contains Meter Bus signals and an RPM Input.

Pinout:	<u>Pin#</u>	<u>Pin Name</u>
	1	CJC Sensor Input (WHT)
	2	+5VDC CJC Sensor Power (RED)
	3	CJC Sensor Common (BLK)
	4	+8VDC RPM Sensor Power
	5	RPM Input
	6	RPM Common
	7	NO CONNECTION
	8	NO CONNECTION
	9	Display (IIC Bus) Data
	10	Display (IIC Bus) Clock
	11	CAN Bus +
	12	CAN Bus -
	13	Common
	14	+ DC Power In
	15	DC Power Common

Connector B (DB-9F)

This Connector is used for RS-232 Communications to either a Laptop for Configuration or a Modbus Communications Link.

Pinout:	<u>Pin#</u>	<u>Pin Name</u>
	1	NO CONNECTION
	2	Transmit Data Out
	3	Receive Data In
	4	NO CONNECTION
	5	Common
	6	NO CONNECTION
	7	NO CONNECTION
	8	NO CONNECTION
	9	NO CONNECTION

2.2 Wiring (Cont'd)

Connector C (DB-25M)

This Connector provides Contact Outputs for the 4 on-board relays.

Pinout:	<u>Pin#</u>	<u>Pin Name</u>
	1	Relay 1 NC Contact
	2	NO CONNECTION
	3	Relay 1 Com
	4	NO CONNECTION
	5	Relay 1 NO Contact
	6	NO CONNECTION
	7	Relay 2 NC Contact
	8	NO CONNECTION
	9	Relay 2 Com
	10	NO CONNECTION
	11	Relay 2 NO Contact
	12	NO CONNECTION
	13	NO CONNECTION
	14	NO CONNECTION
	15	Relay 3 NC Contact
	16	NO CONNECTION
	17	Relay 3 Com
	18	NO CONNECTION
	19	Relay 3 NO Contact
	20	NO CONNECTION
	21	Relay 4 NC Contact
	22	NO CONNECTION
	23	Relay 4 Com
	24	NO CONNECTION
	25	Relay 4 NO Contact

2.2 DIP Switch (Rear of Unit)

Channels 1 – 8 have a 100 Ohm resistor available across their inputs for use with 4-20mA inputs **ONLY**. Only move the appropriate DIP switch to the “ON” side if that channel is to be configured as a 4-20mA input.

If any inputs besides channels # 1 – 8 are to be configured for 4 – 20 mA, a 100 ohm resistor will need to be installed across the corresponding input channel terminations on the terminal block.

NOTE: Setting the DIP switch to “ON” for either a 0-5V or thermocouple input will result in faulty operation of the SC-2124.

2.2 Wiring (Cont'd)

Connectors D and E are input terminals, each requiring p/n SC-CBLE25MM cable / terminal block assembly.

Thermocouples can be connected to any input of either connector D or E.

For linear inputs (4 – 20 mA or 0 – 5 VDC) it is recommended to connect the wires to the appropriate terminals for connector D. However, either connector D or E may be used. See previous page for information on DIP switch settings for 4 – 20 mA inputs.

Any RTD inputs require the RTD module p/n SC-RTD, which includes the cable assembly. In this case ,p/n SC-CBLE25MM will not be required. Note that (1) SC-RTD will handle up to 12 RTD inputs and can be connected to either connector D (Ch # 1 – 12) or connector E (Ch # 13 – 24).

Instructions for SC-RTD module configuration are in Appendix E.

Connector D (DB-25F)

This Connector provides the Analog Inputs for Channels 1 – 12.

Pinout:

<u>Pin#</u>	<u>Pin Name</u>	<u>Pin#</u>	<u>Pin Name</u>
1	Channel 1 (+)	14	Channel 1 (-)
2	Channel 2 (+)	15	Channel 2 (-)
3	Channel 3 (+)	16	Channel 3 (-)
4	Channel 4 (+)	17	Channel 4 (-)
5	Channel 5 (+)	18	Channel 5 (-)
6	Channel 6 (+)	19	Channel 6 (-)
7	Channel 7 (+)	20	Channel 7 (-)
8	Channel 8 (+)	21	Channel 8 (-)
9	Channel 9 (+)	22	Channel 9 (-)
10	Channel 10 (+)	23	Channel 10 (-)
11	Channel 11 (+)	24	Channel 11 (-)
12	Channel 12 (+)	25	Channel 12 (-)

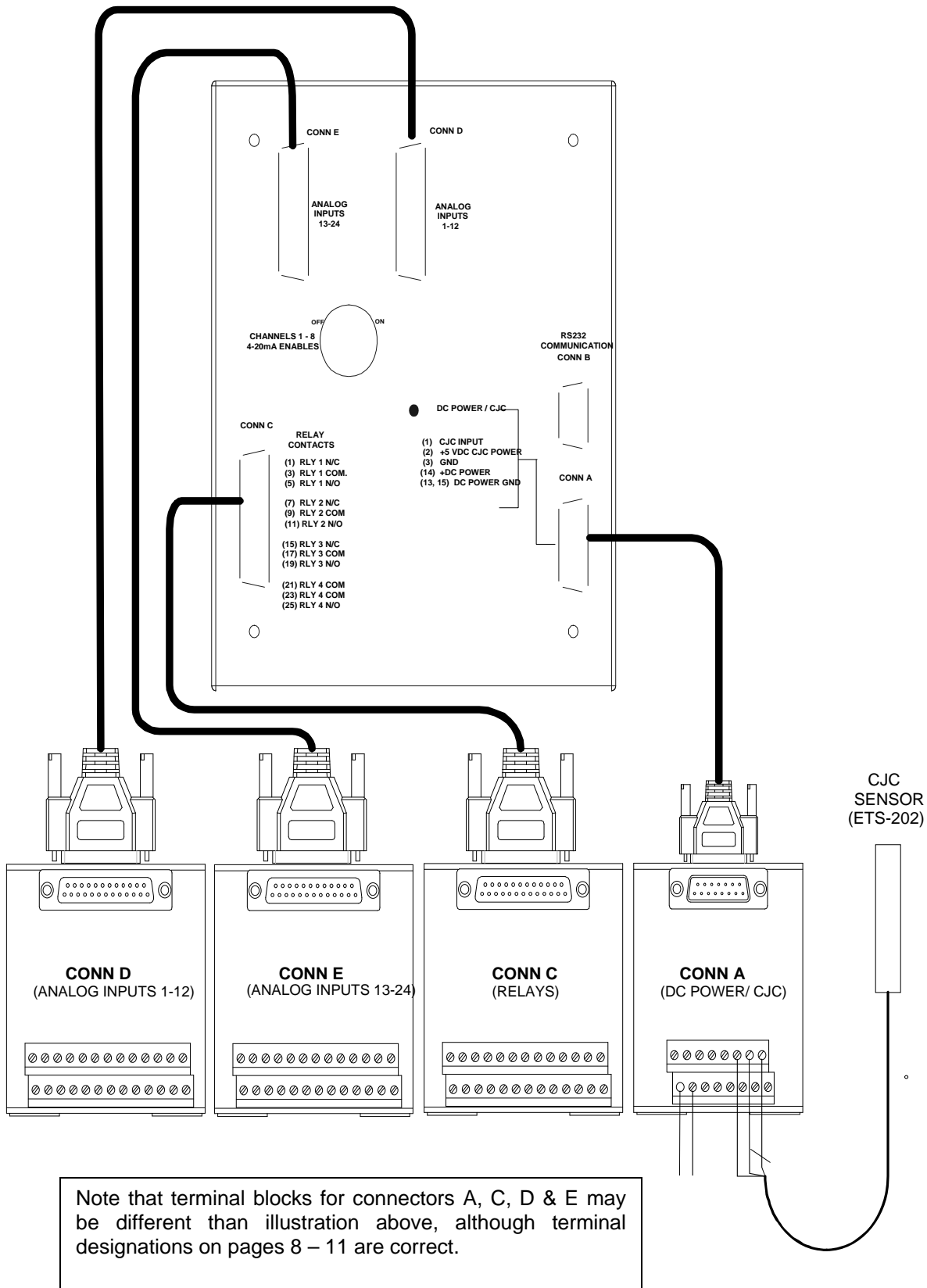
Connector E (DB-25F)

This Connector provides the Analog Inputs for Channels 13 – 24.

Pinout:

<u>Pin#</u>	<u>Pin Name</u>	<u>Pin#</u>	<u>Pin Name</u>
1	Channel 13 (+)	14	Channel 13 (-)
2	Channel 14 (+)	15	Channel 14 (-)
3	Channel 15(+)	16	Channel 15 (-)
4	Channel 16 (+)	17	Channel 16 (-)
5	Channel 17 (+)	18	Channel 17 (-)
6	Channel 18 (+)	19	Channel 18 (-)
7	Channel 19 (+)	20	Channel 19 (-)
8	Channel 20 (+)	21	Channel 20 (-)
9	Channel 21 (+)	22	Channel 21 (-)
10	Channel 22 (+)	23	Channel 22 (-)
11	Channel 23 (+)	24	Channel 23 (-)
12	Channel 24 (+)	25	Channel 24 (-)

2.2 Wiring (Cont'd) Optional DB cables and DB-to-Screw -Terminal DIN-RAIL Modules are available



3.0 Setup

The SC-2124 requires the user to configure a variety of parameters: SCANNER channel analog inputs; ALARM & SHUTDOWN TRIP conditions; Main SCAN Screen; and other various other parameters. These parameters must be configured through the use of Dyalco Controls HOST software. The user configures SCANNER parameters by either a user-edited download file or individual parameter modification. The following sections details use of the HOST software, download file, and parameter modification.

3.1 HOST Software

Dyalco Controls HOST software provides serial communication between a PC or laptop and the SC-2124. **WinHost** is compatible with Windows 95, 98, 2000 & XP operating systems.

When communicating via WinHost software, the SCANNER must be connected via a standard RS-232, 9-pin, male-female, serial communication cable. The HOST software communicates to the SCANNER via *Dynalink*, Dyalco Control's serial communication protocol.

Each parameter has its own parameter number as listed in the spec file example in Appendix B

When you open WinHost, you should see current parameters in the monitor screens. If you see "??" instead of parameter values, check the serial link cable.

Any parameter value can be read by entering the parameter # in the "Command" line located in the lower left corner of the monitor screen in WinHost. For example if you want to know the value of parameter # 8001.1 (input type for channel 1) you would type 8001.1 in the command line and hit enter. You will see the value of that parameter in the "Response" line which is below the command line.

If you want to change the value of parameter 8001.1 so that channel 1 would be configured for a K type thermocouple, you would then type in 8001.1=1 in the command line. After hitting enter, you should see an "@" sign in the response line, indicating that the new value was accepted.

Remember to always click on "Store" at the top of the screen after making changes. Otherwise, the new values will be lost if you lose power to the SC2124.

In order to save any changes made to the scanner, you must store the new parameters as follows:

Enter a letter "S" in the command line after making the changes. The response should be the usual "@" sign.

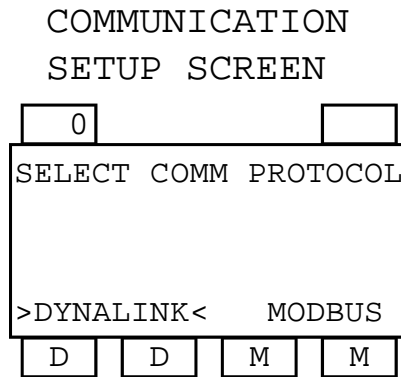
During the store process, the SC2124 display will indicate "Configuration Parameter Store In Progress." Make sure that the power is not removed during the "store" operation or you will lose the saved data and all parameters will return to default values.

See Appendix B for instructions on downloading and installing WinHost software.

3.1.1 Setup Screen

The SCANNER has the capability of communicating via *Dynalink* (*point to point*) using the communications cable p/n CBLE-8509 or via Modbus (SC2124M only) through the serial communications port CONN B. The user must setup the SCANNER to communicate via *Dynalink* in order to configure the SCANNER with HOST software. A Configuration Screen is available to switch between the *Dynalink* and Modbus protocols (See Figure 1).

Figure 1, Configuration Screen



To enter Configuration Mode, the user must press the SETUP Key. The Communication Setup Screen prompts the user to select a communication protocol. To communicate with Dynalco Controls HOST software, the user must select the *Dynalink* protocol. To communicate with an external device on a Modbus, the user must select the Modbus protocol. To select either protocol, the user must press either of the *Soft Keys* located under the corresponding protocol listed in the last row of the Configuration Screen. The currently selected protocol is enclosed in brackets ('>' and '<'). The default SCANNER protocol is *Dynalink*.

To exit Configuration Mode, the user must press and hold the ESC Key for one second.

3.1.2 Configuration File

The easiest method for the user to configure the SC-2124 is by editing and downloading a configuration file to the SCANNER. The configuration file is a template file that contains all configurable parameters and an explanation for all parameter configuration settings. The user must enter desired configuration values for all appropriate configuration parameters before downloading the file to the SCANNER.

The configuration file can be edited with any text editor or word processor that can save files in text format, such as **Notepad** or **Wordpad** available on Windows PCs.

The download file contains configuration comments and parameter configurations. The comments for the configuration parameters explain the function for each parameter and the programmable values associated for each parameter. The comments are any text or text characters that follow a semicolon. General SCANNER configuration comments should **not** be deleted. However, some comments, such as '<ANALOG INPUT CHANNEL #01>', have been included for the user to overwrite with application-specific descriptors, such as 'Engine Exhaust Temperature'.

The configuration file's parameter configurations program the corresponding SC-2124 parameters when the file is downloaded to the SCANNER.

See Appendix A for an example of the standard SC2124.spc configuration file.

4.0 Standard Operation

After power-up, the SC-2124 performs all standard SCANNER operations continually. These operations include scanning all enabled analog input channels to update the channel readings; monitoring channel inputs for Open Thermocouple, **ALARM**, or **SHUTDOWN** TRIP conditions; performing *Dynalink* or Modbus communications to external devices.

To update all scanner channels, the SCANNER reads all enabled channels' current analog input readings. These readings are performed continuously and sequentially for all enabled scanner channels. Current channel measurement readings are averaged with the previous value to update the current analog input channel value.

The SCANNER then monitors each channel's value compared to the channel's configured **ALARM** and **SHUTDOWN** thresholds. If any of the channel thresholds is exceeded, the channels are considered to be in a fault state, and the SCANNER TRIPs an **ALARM** or **SHUTDOWN** (See Sections 4.3 & 4.4). In addition, the SCANNER monitors all thermocouple channels for Open Thermocouple detection. If any thermocouple channel is open, the SCANNER labels that channel as open and displays 'OPEN TC' instead of that channel's current analog input reading. Detection of an open thermocouple on any scanner channel may also result in an **ALARM** or **SHUTDOWN** (See Sections 4.3, 4.4, & 3.1.2.1).

Lastly, the SCANNER continually communicates with any external devices that initiate communication and request SCANNER parameters. The SCANNER is capable of communicating by Dynalink and Modbus. Only one serial communication port is available on the SC-2124; thus, only one type of communication may occur on the port at any one time (See Section 3.1). Dynalink would be used primarily while the SCANNER is being configured using Dynalco Controls HOST software. Modbus communication would be used to connect the SCANNER to other devices that communicate via Modbus.

4.1 RESET

After power-up, the SC-2124 starts up in a RESET condition that assumes that all channels are in a non-fault state, initializes the **ALARM** and **SHUTDOWN** TRIP conditions to a non-fault state, and forces all relays and discrete outputs to their non-fault states. After startup, however, the user must manually RESET any TRIP conditions by a RESET key press from the front panel or by setting the RESET parameter via HOST software (See Section 3.2.3). This forces the user to actively acknowledge every SCANNER **ALARM** and **SHUTDOWN**.

When a RESET is manually triggered, the SCANNER clears the **ALARM** and **SHUTDOWN** TRIP conditions and forces all relays and discrete outputs to their non-fault states. The RESET is performed even if any scanner channels are in a fault state. If this is the case, the SCANNER immediately TRIPs a new **ALARM** or **SHUTDOWN** (See Sections 4.3 & 4.4).

4.2 START

After RESET, the user may trigger specific SCANNER monitoring conditions via a START request. To trigger a START request, the user must press the START key from the front panel or set the START parameter via HOST software (See Section 3.2.3).

When a START is triggered, the SCANNER reloads the TRIP Class B timer with its initial timer value, expressed in minutes. Once loaded, the timer ticks down until it expires, whereupon all TRIP Class B channels become active. If any Class B channel is in a fault state, no **ALARM** or **SHUTDOWN** is TRIPPED until the Class B timer is expired.

4.3 ALARM

The SCANNER provides a precautionary **ALARM** warning to alert the user to potentially hazardous or dangerous input conditions. The SCANNER monitors all enabled scanner channels' current analog input readings and compares each channel's reading with a user-configurable **ALARM** threshold. If any channel's **ALARM** threshold is exceeded, the SCANNER TRIPs an **ALARM** condition and blinks the **ALARM** indicator LED on the front panel. A SCANNER **ALARM** is **not latched** and clears if no channel's **ALARM** threshold is faulted.

4.4 SHUTDOWN

The SCANNER provides a protective **SHUTDOWN** fault to guard against hazardous or dangerous fault conditions. The SCANNER monitors all enabled scanner channels' current analog input readings and compares each channel's reading with a user-configurable **SHUTDOWN** threshold. If any channel's **SHUTDOWN** threshold is exceeded, the SCANNER TRIPs a **SHUTDOWN** condition and blinks the **SHUTDOWN** indicator LED on the front panel.

When a **SHUTDOWN** occurs, the SCANNER saves the channel that caused the **SHUTDOWN** to non-volatile memory as the First-Out channel. This First-Out channel is the first channel that the SCANNER detects in a **SHUTDOWN** fault state. The SCANNER displays the First-Out cause of the **SHUTDOWN** on the Main SCANNER Screen (See Section 5.2.3). A SCANNER **SHUTDOWN** is **latched** and is not cancelled until acknowledged by a RESET (See Section 4.1).

At the time of a **SHUTDOWN**, other scanner channels may be in a **SHUTDOWN** fault state. Since several channels may be faulted, it is possible that another scanner channel besides the First-Out channel caused the actual **SHUTDOWN**—the SCANNER merely detected and labeled one faulted channel before the actual First-Out channel.

To aid the user in analyzing a SCANNER **SHUTDOWN**, the SCANNER also takes a Snap Shot of all enabled scanner channels' analog input readings at the time of the **SHUTDOWN** and saves these Snap Shots to non-volatile memory. These Snap Shot values are displayed on the SNAP Screen (See Section 5.2.7) and may be viewed after the user acknowledges the **SHUTDOWN** condition via a SCANNER RESET. Only one set of **SHUTDOWN** Snap Shot values is saved to memory at any one time. When a subsequent **SHUTDOWN** occurs, the new Snap Shot values overwrite the old values in memory.

5.0 User Interface

The SC-2124 user interface located on the front panel of the SCANNER consists of a large-character, 4-row by 20-column, backlit LCD display and an application keypad. The LCD display is used to display SCANNER channel readings, **SHUTDOWN** First-Outs, **SHUTDOWN** Snap Shot histories, and other informative statistics.

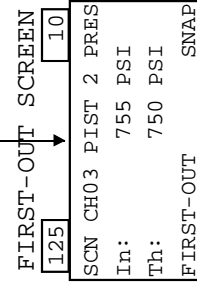
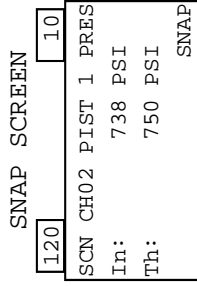
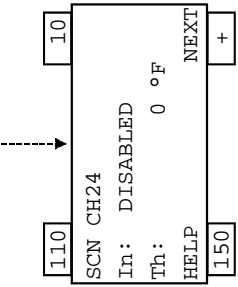
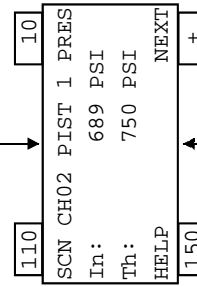
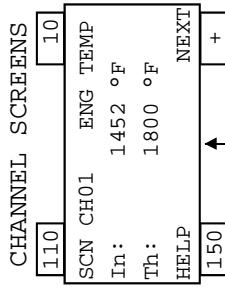
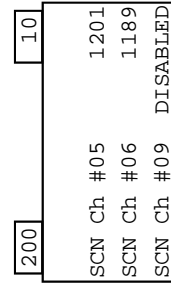
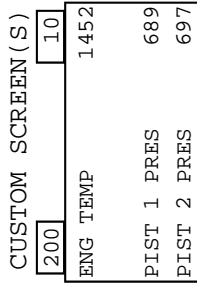
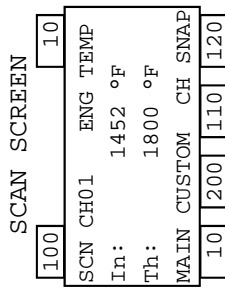
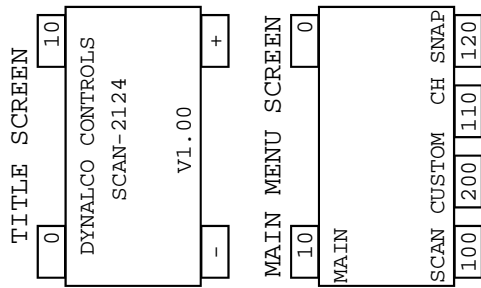
5.1 Navigation

The application keypad is used to navigate between Run Screens that display various SCANNER readings and statistics. The keypad has the following keys used for navigation:

- UP, DOWN, LEFT, RIGHT Keys Navigate to screen in the desired direction
- *Soft Keys* Located directly under the LCD display, these keys navigate to various screens as indicated in the last line of the LCD display
- RESET Key RESET SCANNER
- START Key START SCANNER timers
- Setup Key Enter Configuration Mode
- ESC Key Navigate up one menu level; exit from Configuration Mode

In addition to navigation, the user may execute specific key-press events from certain screens. These screen-specific functions are typically labeled above corresponding *Soft Keys*. To execute any screen-specific event function, the user must press and release the corresponding *Soft Key* located below the labeled function. To repeatedly execute some event functions, the user must press and hold the corresponding *Soft Key*. All SC-2124 screen-specific functions are described in the following sections that detail screen operation.

SCAN-2124 Run Screens



First Out Shutdown Channel on SNAP Screen & First-Out Screen will blink 'FIRST-OUT' in lower left-hand corner of screen

Figure 2, Run Screens

5.2 Run Screens

The main purpose of the SC-2124 Run Screens is to allow the user to navigate to and from screens that display current run-time values of scanner channels. Several screens are available to display channel information in a few different formats (See Figure 1).

Each screen is shown with the following information: screen ID, screen text display, navigational links, and possible screen event functions. This information is listed both in the large, main text box area of the screen, as well as in the smaller informational boxes above and below the main text box.

Listed in the upper, left-hand box is each screen's navigational ID. Listed inside the main text box is each screen's text and run-time values display. Listed in the upper, right-hand box is the navigational link to the next screen if the user presses the ESC Key. Listed in the boxes below the main text box are the navigational links to other Run Screens or possible event functions if the user presses any *Soft Keys*. If a navigational ID is listed, then the user navigates to the specified screen if the user presses corresponding *Soft Key*. If a function is listed by a '+' or '-', then the user executes a screen-specific event function if the user presses the corresponding *Soft Key* (See Section 5.1).

The following sections describe the behavior and functions available for each of the Run Screens.

5.2.1 Title Screen

At startup, the SC-2124 displays the SCANNER Title Screen that includes the Dynalco Controls banner, SCANNER name, and software version number. This Title Screen is displayed for five seconds before navigating to the user-configured SCANNER Screen (See Section 5.2.3).

In addition to the above information, this screen has two *Soft Keys* that increase or decrease the LCD contrast. The left-most *Soft Key* decreases the LCD contrast by one step for every key press or by one step every 200 milliseconds if the key is held. The right-most *Soft Key* increases the LCD contrast by one step for every key press or by one step every 200 milliseconds if the key is held. The five second display timer is reset if any user key presses are detected. This allows the user enough time to adjust the LCD contrast. If the user modifies the LCD contrast, the SCANNER performs a CONFIGURATION Store to non-volatile memory at screen exit to save the contrast setting.

After startup, the user may navigate to the Title Screen from the Main Menu Screen. This allows the user to adjust the LCD contrast at any time during the operation of the SC-2124. The Title Screen is displayed for five seconds before navigating back to the Main Menu Screen. The user may immediately navigate back to the Main Menu Screen by pressing the ESC Key at any time.

5.2.2 Main Menu Screen

The Main Menu Screen allows fast navigation to all other Run Screens. To navigate to a particular Run Screen, the user must press the *Soft Key* located directly under the corresponding Screen Name listed on the Main Menu Screen: SCAN, Custom, Channel, or SNAP. The user may also navigate to the Title Screen by pressing the ESC Key.

5.2.3 Main SCANNER Screen

One of the SC-2124 Run Screens is user-configured as the Main SCANNER Screen. This is the main screen where the user views and monitors most of the information displayed by the SCANNER. By default, the SCAN Screen is configured as the SCANNER Screen, but the user may also configure the Custom Screen(s) as the SCANNER Screen.

For either configuration, the SCANNER Screen displays current measurement readings of the analog input channels during normal operation. When a **SHUTDOWN** occurs, the SCANNER automatically navigates[†] back to the Main SCANNER Screen to display the First-Out **SHUTDOWN** channel, i.e. the cause of the **SHUTDOWN** (See Section 4.4). No navigation may be performed until the First-Out **SHUTDOWN** is acknowledged by a SCANNER RESET (See Section 4.1).

Since the Main SCANNER Screen is the default screen of primary interest to the user, the SCANNER automatically navigates[†] back to the Main SCANNER Screen after 60 seconds of user inactivity (delay is user-configurable).

[†]Note: The SCANNER performs the automatic navigation **only** if the SC-2124 is in RUN Mode Screens, **not** in CONFIGURATION Mode. This allows the user to enter CONFIGURATION Mode during a **SHUTDOWN** to modify parameters that may cancel the **SHUTDOWN** condition.

5.2.4 SCAN Screen

The SCAN Screen is the default SCANNER screen. The SCAN Screen displays each enabled scanner channel for three seconds (delay is user-configurable) before displaying the next enabled channel. Each channel display includes channel number, name, current analog input reading (with units), and **SHUTDOWN** TRIP threshold (with units). If no scanner channels are enabled, the SCAN Screen displays 'ALL CHANNELS DISABLED'.

The SCAN Screen also contains fast navigation links back to the Main Menu Screen, as well as to the Custom, Channel, and SNAP Screens. As from the Main Menu, to navigate to a particular Run Screen, the user must press the *Soft Key* located directly under the corresponding Screen Name listed in the last row of the SCAN Screen. In addition to the fast navigational link, the user may also navigate back to the Main Menu by pressing the ESC Key.

5.2.5 Custom Screen(s)

The Custom Screen(s) are user-configurable screens that display up to four scanner channels per custom screen. The user may configure up to eight total scanner channels to be displayed on two custom screens. If both custom screens are active, each custom screen displays its configured scanner channels for three seconds (delay is user-configurable) before displaying the next custom screen. If no custom screens are active, the Custom Screen displays 'NO CUSTOM SCREENS AVAILABLE'.

A custom screen is active if at least one scanner channel is configured to display on the screen. Each scanner channel is displayed on its own row. If a user-configured channel name is available, this channel name is displayed on the left-hand portion of the row. Otherwise, the channel number is displayed on the left-hand portion of the row. The channel's current analog input reading is displayed on the right-hand portion of the row. If the channel is disabled, the right-hand portion of the row displays 'DISABLED' instead of the current analog input reading.

To navigate back to the Main Menu, the user must press the ESC Key.

5.2.6 Channel Screens

The Channel Screens display individual scanner channels. The display of each scanner channel is identical to the format described for the SCAN Screen. Each channel displays channel number, name, current analog input reading (with units), and **SHUTDOWN** TRIP threshold (with units). Unlike the SCAN Screen, the SCANNER displays the individual scanner channel without automatically displaying the next scanner channel after three seconds. Note that the SCANNER returns to the Main SCANNER Screen after 60 seconds of user inactivity (See Section 5.2.3).

To display the next scanner channel, the user must press the right-most *Soft Key*, labeled 'NEXT'. In addition, the user may press the DOWN Key to display the next scanner channel or the UP Key to display the previous scanner channel. To navigate back to the Main Menu, the user must press the ESC Key.

5.2.6.1 HELP Screens

In addition to viewing the channel's current analog input reading, the Channel Screen provides a link to channel HELP Screens. Each HELP Screen informs the user of the specific Din Rail Connector and Pin-out for any scanner channel. To view the HELP Screen, the user must press the left-most *Soft Key*, labeled 'HELP'. This navigates to the desired HELP Screen that displays the Connector number and +/- Pin Input numbers for the specific scanner channel.

To return to the Channel Screen, the user must press either the ESC Key or the left-most *Soft Key*. To view the next scanner channel's HELP Screen, the user must press either the right-most *Soft Key* or the DOWN Key, and to view the previous scanner channel's HELP Screen, the user must press the UP Key. To navigate back to the Main Menu, the user must press the ESC Key.

5.2.7 SNAP Screen

The SNAP Screen displays a Snap Shot of all enabled scanner channels' analog input readings at the time of the last **SHUTDOWN**. The display of each scanner channel Snap Shot is identical to the format described for the SCAN Screen. Each channel displays channel number, name, Snap Shot analog input reading (with units), and **SHUTDOWN** TRIP threshold (with units). To inform the user that the display values are a Snap Shot of the last **SHUTDOWN**, the SNAP Screen displays 'SNAP' in the lower, right-hand corner of the screen. In addition, to indicate the First-Out channel that caused the last **SHUTDOWN** (See Section 4.4), the SNAP Screen blinks 'FIRST-OUT' in the lower, left-hand corner of the screen whenever the First-Out channel is displayed.

Note that the values displayed are those saved from each channel's analog input reading and configuration at the time of the last **SHUTDOWN**. If any channel's configuration parameters have been modified since the last **SHUTDOWN**, it follows that these values will differ from the current configuration settings.

To navigate to the First-Out Screen to display the First-Out channel, the user may press either the UP or DOWN Key. To navigate back to the SNAP Screen, the user must again press either the UP or DOWN Key. To navigate back to the Main Menu, the user must press the ESC Key.

5.2.7.1 First-Out Screen

The First-Out Screen displays the First-Out channel that caused the last **SHUTDOWN** (See Section 4.4). The display of the First-Out channel is identical to the format described for the SCAN Screen. The First-Out Screen displays First-Out channel number, name, Snap Shot analog input reading (with units), and **SHUTDOWN** TRIP threshold (with units). To indicate to the user that the display value is the First-Out channel, the First-Out Screen blinks 'FIRST-OUT' in the lower, left-hand corner of the screen and displays 'SNAP' in the lower, right-hand corner of the screen.

To navigate to the SNAP Screen, the user may press either the UP or DOWN Key. To navigate back to the First-Out Screen, the user must again press either the UP or DOWN Key. To navigate back to the Main Menu, the user must press the ESC Key.

Appendix A

This appendix contains a table of all parameter numbers found in the SCAN2124.SPC file.

Use this appendix to keep track of the values you assign to each parameter number. The numbers in this table are in the same order as they appear in the SCAN2124.SPC file.

Password Settings

Parameter	Description	Valid Inputs
6130=	Changes the Configuration Password	Default=1234 "8 characters of '1','2','3', or '4'"
6101=	Change the time that the Configuration Password is active AFTER the user exits Configuration Mode	Minimum= 30 seconds Default= 60 seconds Maximum=540 seconds

Trip Relay Settings

Parameter	Description	Valid Inputs
136=	Configure relays as inverted outputs or non-inverted outputs	0= relay outputs non-inverted 1= relay outputs inverted (default)
63102.1=	Sets trip action for user relay 1.	0= normally energized
63102.2=	Sets trip action for user relay 2.	1= normally de-energized
63102.3=	Sets trip action for alarm relay.	2= normally energized latching
63102.4=	Sets trip action for shutdown relay.	3= normally de-energized latching
149=	Selects trip action for any open thermocouple channel	0= disabled (default) 1= alarm 2= shutdown
63050=	Changes the Trip Class B timer triggered from front-panel 'Start' key press	0= 0 minutes 1=1 minute (default) 2= 2 minutes 3= 3 minutes 4= 4 minutes 5= 5 minutes
144=	Changes the Trip Class B timer time remaining before Class B faults are displayed	0= 0 seconds 1=15 seconds 2=30 seconds (default) 3=45 seconds 4=60 seconds 5=75 seconds 6=90 seconds

Scan Screen Settings

Parameter	Description	Valid Inputs
195=	Selects type of scan screen to view (default or custom)	0= displays default screen (enabled channels shown one at a time) 1= displays custom screen (shows up to 4 channels on one screen)
140=	Define time between scan screens	Minimum= 2 seconds Default= 3 seconds Maximum=10 seconds
141=	Change the time it takes to return to the main scanner screen after no key press activity	0= off 1= 1 minute (default) 2= 2 minutes 3= 3 minutes 4= 4 minutes 5= 5 minutes
170=	Select the scanner channel or node to display	0= display scanner channel number ['CHXX'] (default) 1= display scanner node number ['N:XX']

Custom Screen Settings

Parameter	Defines the analog input channel to display on:	Valid Input:
190.1=	Screen 1, Line 1	0 = off (default)
190.2=	Screen 1, Line 2	1 to 24= analog input channel
190.3=	Screen 1, Line 3	
190.4=	Screen 1, Line 4	
190.5=	Screen 2, Line 1	
190.6=	Screen 2, Line 2	
190.7=	Screen 2, Line 3	
190.8=	Screen 2, Line 4	
190.9=	Screen 3, Line 1	
190.10=	Screen 3, Line 2	
190.11=	Screen 3, Line 3	
190.12=	Screen 3, Line 4	
190.13=	Screen 4, Line 1	
190.14=	Screen 4, Line 2	
190.15=	Screen 4, Line 3	
190.16=	Screen 4, Line 4	
190.17=	Screen 5, Line 1	
190.18=	Screen 5, Line 2	
190.19=	Screen 5, Line 3	
190.20=	Screen 5, Line 4	
190.21=	Screen 6, Line 1	
190.22=	Screen 6, Line 2	
190.23=	Screen 6, Line 3	
190.24=	Screen 6, Line 4	

Channel 1 Input Settings

Parameter	Function Description	Valid Inputs
110.1=	Channel name for CH01	Default=" " (blank=CH01) 11 characters (including spaces)
111.1=	Units of measure for CH01	0= deg F (default) 1= deg C 2= PSI 3= PSA 4= KPA 5= FTP 6= RPM 7= " " (blank)
8001.1=	Input type for CH01	0= J-TC (default) 1= K-TC 2= Nickel RTD 3= Platinum RTD 4= 4-20 mA (DIP 1 switch on) 5= 0-5 V
8000.1=	Enables CH01 for scanning	0= disabled (default) 1= enabled
8017.1=	Filter speed for CH01	Minimum=0.00 (none) Default=0.05 (slow) Maximum=1.00 (fast)
8012.1=	Display value for 0 V or 4 mA input	Minimum=-999.0
8013.1=	Display value for 5 V or 20 mA input	Default= 0.0 Maximum=9999.0 (in channel units)
8015.1=	Inverted resistance for 4-20mA source on CH01	Minimum=0.0 1/kohms Default=10.0 1/kohms Maximum=100.0 1 /kohms
8008.1=	CH01 output offset to add to computed output value	Minimum=-1000.0 Default= 0.0 Maximum= 1000.0 (in channel units)
63000.1=	Shutdown trip class for CH01	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.1=	Shutdown threshold value for CH01	Numeric value
63002.1=	Shutdown threshold hysteresis for CH01	(channel units)
63003.1=	Delay time between exceeded CH01 shutdown threshold and CH01 shutdown	seconds
63000.25=	Alarm trip class for CH01	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.25=	Alarm threshold value for CH01	Numeric value
63002.25=	Alarm threshold hysteresis for CH01	(channel units)
63003.25=	Delay time between exceeded CH01 alarm threshold and CH01 alarm	seconds

Channel 2 Input Settings

Parameter	Function Description	Valid Inputs
110.2=	Channel name for CH02	Default=" " (blank=CH02) 11 characters (including spaces)
111.2=	Units of measure for CH02	0= deg F (default) 1= deg C 2= PSI 3= PSA 4= KPA 5= FTP 6= RPM 7= " " (blank)
8001.2=	Input type for CH02	0= J-TC (default) 1= K-TC 2= Nickel RTD 3= Platinum RTD 4= 4-20 mA (DIP 2 switch on) 5= 0-5 V
8000.2=	Enables CH02 for scanning	0= disabled (default) 1= enabled
8017.2=	Filter speed for CH02	Minimum=0.00 (none) Default=0.05 (slow) Maximum=1.00 (fast)
8012.2=	Display value for 0 V or 4 mA input	Minimum=-999.0
8013.2=	Display value for 5 V or 20 mA input	Default= 0.0 Maximum=9999.0 (in channel units)
8015.2=	Inverted resistance for 4-20mA source on CH02	Minimum=0.0 1/kohms Default=10.0 1/kohms Maximum=100.0 1 /kohms
8008.2=	CH02 output offset to add to computed output value	Minimum=-1000.0 Default= 0.0 Maximum= 1000.0 (in channel units)
63000.2=	Shutdown trip class for CH02	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.2=	Shutdown threshold value for CH02	Numeric value
63002.2=	Shutdown threshold hysteresis for CH02	(channel units)
63003.2=	Delay time between exceeded CH02 shutdown threshold and CH02 shutdown	seconds
63000.26=	Alarm trip class for CH02	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.26=	Alarm threshold value for CH02	Numeric value
63002.26=	Alarm threshold hysteresis for CH02	(channel units)
63003.26=	Delay time between exceeded CH02 alarm threshold and CH02 alarm	seconds

Channel 3 Input Settings

Parameter	Function Description	Valid Inputs
110.3=	Channel name for CH03	Default=" " (blank=CH03) 11 characters (including spaces)
111.3=	Units of measure for CH03	0= deg F (default) 1= deg C 2= PSI 3= PSA 4= KPA 5= FTP 6= RPM 7= " " (blank)
8001.3=	Input type for CH03	0= J-TC (default) 1= K-TC 2= Nickel RTD 3= Platinum RTD 4= 4-20 mA (DIP 3 switch on) 5= 0-5 V
8000.3=	Enables CH03 for scanning	0= disabled (default) 1= enabled
8017.3=	Filter speed for CH03	Minimum=0.00 (none) Default=0.05 (slow) Maximum=1.00 (fast)
8012.3=	Display value for 0 V or 4 mA input	Minimum=-999.0
8013.3=	Display value for 5 V or 20 mA input	Default= 0.0 Maximum=9999.0 (in channel units)
8015.3=	Inverted resistance for 4-20mA source on CH03	Minimum=0.0 1/kohms Default=10.0 1/kohms Maximum=100.0 1 /kohms
8008.3=	CH03 output offset to add to computed output value	Minimum=-1000.0 Default= 0.0 Maximum= 1000.0 (in channel units)
63000.3=	Shutdown trip class for CH03	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.3=	Shutdown threshold value for CH03	Numeric value (channel units)
63002.3=	Shutdown threshold hysteresis for CH03	
63003.3=	Delay time between exceeded CH03 shutdown threshold and CH03 shutdown	seconds
63000.27	Alarm trip class for CH03	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.27=	Alarm threshold value for CH03	Numeric value (channel units)
63002.27=	Alarm threshold hysteresis for CH03	
63003.27=	Delay time between exceeded CH03 alarm threshold and CH03 alarm	seconds

Channel 4 Input Settings

Parameter	Function Description	Valid Inputs
110.4=	Channel name for CH04	Default=" " (blank=CH04) 11 characters (including spaces)
111.4=	Units of measure for CH04	0= deg F (default) 1= deg C 2= PSI 3= PSA 4= KPA 5= FTP 6= RPM 7= " " (blank)
8001.4=	Input type for CH04	0= J-TC (default) 1= K-TC 2= Nickel RTD 3= Platinum RTD 4= 4-20 mA (DIP 4 switch on) 5= 0-5 V
8000.4=	Enables CH04 for scanning	0= disabled (default) 1= enabled
8017.4=	Filter speed for CH04	Minimum=0.00 (none) Default=0.05 (slow) Maximum=1.00 (fast)
8012.4=	Display value for 0 V or 4 mA input	Minimum=-999.0
8013.4=	Display value for 5 V or 20 mA input	Default= 0.0 Maximum=9999.0 (in channel units)
8015.4=	Inverted resistance for 4-20mA source on CH04	Minimum=0.0 1/kohms Default=10.0 1/kohms Maximum=100.0 1 /kohms
8008.4=	CH04 output offset to add to computed output value	Minimum=-1000.0 Default= 0.0 Maximum= 1000.0 (in channel units)
63000.4=	Shutdown trip class for CH04	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.4=	Shutdown threshold value for CH04	Numeric value
63002.4=	Shutdown threshold hysteresis for CH04	(channel units)
63003.4=	Delay time between exceeded CH04 shutdown threshold and CH04 shutdown	seconds
63000.28=	Alarm trip class for CH04	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.28=	Alarm threshold value for CH04	Numeric value
63002.28=	Alarm threshold hysteresis for CH04	(channel units)
63003.28=	Delay time between exceeded CH04 alarm threshold and CH04 alarm	seconds

Channel 5 Input Settings

Parameter	Function Description	Valid Inputs
110.5=	Channel name for CH05	Default=" " (blank=CH05) 11 characters (including spaces)
111.5=	Units of measure for CH05	0= deg F (default) 1= deg C 2= PSI 3= PSA 4= KPA 5= FTP 6= RPM 7= " " (blank)
8001.5=	Input type for CH05	0= J-TC (default) 1= K-TC 2= Nickel RTD 3= Platinum RTD 4= 4-20 mA (DIP 5 switch on) 5= 0-5 V
8000.5=	Enables CH05 for scanning	0= disabled (default) 1= enabled
8017.5=	Filter speed for CH05	Minimum=0.00 (none) Default=0.05 (slow) Maximum=1.00 (fast)
8012.5=	Display value for 0 V or 4 mA input	Minimum=-999.0
8013.5=	Display value for 5 V or 20 mA input	Default= 0.0 Maximum=9999.0 (in channel units)
8015.5=	Inverted resistance for 4-20mA source on CH05	Minimum=0.0 1/kohms Default=10.0 1/kohms Maximum=100.0 1 /kohms
8008.5=	CH05 output offset to add to computed output value	Minimum=-1000.0 Default= 0.0 Maximum= 1000.0 (in channel units)
63000.5=	Shutdown trip class for CH05	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.5=	Shutdown threshold value for CH05	Numeric value
63002.5=	Shutdown threshold hysteresis for CH05	(channel units)
63003.5=	Delay time between exceeded CH05 shutdown threshold and CH05 shutdown	seconds
63000.29=	Alarm trip class for CH05	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.29=	Alarm threshold value for CH05	Numeric value
63002.29=	Alarm threshold hysteresis for CH05	(channel units)
63003.29=	Delay time between exceeded CH05 alarm threshold and CH05 alarm	seconds

Channel 6 Input Settings

Parameter	Function Description	Valid Inputs
110.6=	Channel name for CH06	Default=" " (blank=CH06) 11 characters (including spaces)
111.6=	Units of measure for CH06	0= deg F (default) 1= deg C 2= PSI 3= PSA 4= KPA 5= FTP 6= RPM 7= " " (blank)
8001.6=	Input type for CH06	0= J-TC (default) 1= K-TC 2= Nickel RTD 3= Platinum RTD 4= 4-20 mA (DIP 6 switch on) 5= 0-5 V
8000.6=	Enables CH06 for scanning	0= disabled (default) 1= enabled
8017.6=	Filter speed for CH06	Minimum=0.00 (none) Default=0.05 (slow) Maximum=1.00 (fast)
8012.6=	Display value for 0 V or 4 mA input	Minimum=-999.0
8013.6=	Display value for 5 V or 20 mA input	Default= 0.0 Maximum=9999.0 (in channel units)
8015.6=	Inverted resistance for 4-20mA source on CH06	Minimum=0.0 1/kohms Default=10.0 1/kohms Maximum=100.0 1 /kohms
8008.6=	CH06 output offset to add to computed output value	Minimum=-1000.0 Default= 0.0 Maximum= 1000.0 (in channel units)
63000.6=	Shutdown trip class for CH06	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.6=	Shutdown threshold value for CH06	Numeric value
63002.6=	Shutdown threshold hysteresis for CH06	(channel units)
63003.6=	Delay time between exceeded CH06 shutdown threshold and CH06 shutdown	seconds
63000.30=	Alarm trip class for CH06	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.30=	Alarm threshold value for CH06	Numeric value
63002.30=	Alarm threshold hysteresis for CH06	(channel units)
63003.30=	Delay time between exceeded CH06 alarm threshold and CH06 alarm	seconds

Channel 7 Input Settings

Parameter	Function Description	Valid Inputs
110.7=	Channel name for CH07	Default=" " (blank=CH07) 11 characters (including spaces)
111.7=	Units of measure for CH07	0= deg F (default) 1= deg C 2= PSI 3= PSA 4= KPA 5= FTP 6= RPM 7= " " (blank)
8001.7=	Input type for CH07	0= J-TC (default) 1= K-TC 2= Nickel RTD 3= Platinum RTD 4= 4-20 mA (DIP 7 switch on) 5= 0-5 V
8000.7=	Enables CH07 for scanning	0= disabled (default) 1= enabled
8017.7=	Filter speed for CH07	Minimum=0.00 (none) Default=0.05 (slow) Maximum=1.00 (fast)
8012.7=	Display value for 0 V or 4 mA input	Minimum=-999.0
8013.7=	Display value for 5 V or 20 mA input	Default= 0.0 Maximum=9999.0 (in channel units)
8015.7=	Inverted resistance for 4-20mA source on CH07	Minimum=0.0 1/kohms Default=10.0 1/kohms Maximum=100.0 1 /kohms
8008.7=	CH07 output offset to add to computed output value	Minimum=-1000.0 Default= 0.0 Maximum= 1000.0 (in channel units)
63000.7=	Shutdown trip class for CH07	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.7=	Shutdown threshold value for CH07	Numeric value
63002.7=	Shutdown threshold hysteresis for CH07	(channel units)
63003.7=	Delay time between exceeded CH07 shutdown threshold and CH07 shutdown	seconds
63000.31=	Alarm trip class for CH07	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.31=	Alarm threshold value for CH07	Numeric value
63002.31=	Alarm threshold hysteresis for CH07	(channel units)
63003.31=	Delay time between exceeded CH07 alarm threshold and CH07 alarm	seconds

Channel 8 Input Settings

Parameter	Function Description	Valid Inputs
110.8=	Channel name for CH08	Default=" " (blank=CH08) 11 characters (including spaces)
111.8=	Units of measure for CH08	0= deg F (default) 1= deg C 2= PSI 3= PSA 4= KPA 5= FTP 6= RPM 7= " " (blank)
8001.8=	Input type for CH08	0= J-TC (default) 1= K-TC 2= Nickel RTD 3= Platinum RTD 4= 4-20 mA (DIP 8 switch on) 5= 0-5 V
8000.8=	Enables CH08 for scanning	0= disabled (default) 1= enabled
8017.8=	Filter speed for CH08	Minimum=0.00 (none) Default=0.05 (slow) Maximum=1.00 (fast)
8012.8=	Display value for 0 V or 4 mA input	Minimum=-999.0
8013.8=	Display value for 5 V or 20 mA input	Default= 0.0 Maximum=9999.0 (in channel units)
8015.8=	Inverted resistance for 4-20mA source on CH08	Minimum=0.0 1/kohms Default=10.0 1/kohms Maximum=100.0 1 /kohms
8008.8=	CH08 output offset to add to computed output value	Minimum=-1000.0 Default= 0.0 Maximum= 1000.0 (in channel units)
63000.8=	Shutdown trip class for CH08	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.8=	Shutdown threshold value for CH08	Numeric value
63002.8=	Shutdown threshold hysteresis for CH08	(channel units)
63003.8=	Delay time between exceeded CH08 shutdown threshold and CH08 shutdown	seconds
63000.32=	Alarm trip class for CH08	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.32=	Alarm threshold value for CH08	Numeric value
63002.32=	Alarm threshold hysteresis for CH08	(channel units)
63003.32=	Delay time between exceeded CH08 alarm threshold and CH08 alarm	seconds

Channel 9 Input Settings

Parameter	Function Description	Valid Inputs
110.9=	Channel name for CH09	Default=" " (blank=CH09) 11 characters (including spaces)
111.9=	Units of measure for CH09	0= deg F (default) 1= deg C 2= PSI 3= PSA 4= KPA 5= FTP 6= RPM 7= " " (blank)
8001.9=	Input type for CH09	0= J-TC (default) 1= K-TC 2= Nickel RTD 3= Platinum RTD 4= 4-20 mA (ext. resistor req'd) 5= 0-5 V
8000.9=	Enables CH09 for scanning	0= disabled (default) 1= enabled
8017.9=	Filter speed for CH09	Minimum=0.00 (none) Default=0.05 (slow) Maximum=1.00 (fast)
8012.9=	Display value for 0 V or 4 mA input	Minimum=-999.0
8013.9=	Display value for 5 V or 20 mA input	Default= 0.0 Maximum=9999.0 (in channel units)
8015.9=	Inverted resistance for 4-20mA source on CH09	Minimum=0.0 1/kohms Default=10.0 1/kohms Maximum=100.0 1 /kohms
8008.9=	CH09 output offset to add to computed output value	Minimum=-1000.0 Default= 0.0 Maximum= 1000.0 (in channel units)
63000.9=	Shutdown trip class for CH09	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.9=	Shutdown threshold value for CH09	Numeric value
63002.9=	Shutdown threshold hysteresis for CH09	(channel units)
63003.9=	Delay time between exceeded CH09 shutdown threshold and CH09 shutdown	seconds
63000.33=	Alarm trip class for CH09	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.33=	Alarm threshold value for CH09	Numeric value
63002.33=	Alarm threshold hysteresis for CH09	(channel units)
63003.33=	Delay time between exceeded CH09 alarm threshold and CH09 alarm	seconds

Channel 10 Input Settings

Parameter	Function Description	Valid Inputs
110.10=	Channel name for CH10	Default=" " (blank=CH10) 11 characters (including spaces)
111.10=	Units of measure for CH10	0= deg F (default) 1= deg C 2= PSI 3= PSA 4= KPA 5= FTP 6= RPM 7= " " (blank)
8001.10=	Input type for CH10	0= J-TC (default) 1= K-TC 2= Nickel RTD 3= Platinum RTD 4= 4-20 mA (ext. resistor req'd) 5= 0-5 V
8000.10=	Enables CH10 for scanning	0= disabled (default) 1= enabled
8017.10=	Filter speed for CH10	Minimum=0.00 (none) Default=0.05 (slow) Maximum=1.00 (fast)
8012.10=	Display value for 0 V or 4 mA input	Minimum=-999.0
8013.10=	Display value for 5 V or 20 mA input	Default= 0.0 Maximum=9999.0 (in channel units)
8015.10=	Inverted resistance for 4-20mA source on CH10	Minimum=0.0 1/kohms Default=10.0 1/kohms Maximum=100.0 1 /kohms
8008.10=	CH10 output offset to add to computed output value	Minimum=-1000.0 Default= 0.0 Maximum= 1000.0 (in channel units)
63000.10=	Shutdown trip class for CH10	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.10=	Shutdown threshold value for CH10	Numeric value
63002.10=	Shutdown threshold hysteresis for CH10	(channel units)
63003.10=	Delay time between exceeded CH10 shutdown threshold and CH10 shutdown	seconds
63000.34=	Alarm trip class for CH10	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.34=	Alarm threshold value for CH10	Numeric value
63002.34=	Alarm threshold hysteresis for CH10	(channel units)
63003.34=	Delay time between exceeded CH10 alarm threshold and CH10 alarm	seconds

Channel 11 Input Settings

Parameter	Function Description	Valid Inputs
110.11=	Channel name for CH 11	Default=" " (blank=CH11) 11 characters (including spaces)
111.11=	Units of measure for CH11	0= deg F (default) 1= deg C 2= PSI 3= PSA 4= KPA 5= FTP 6= RPM 7= " " (blank)
8001.11=	Input type for CH11	0= J-TC (default) 1= K-TC 2= Nickel RTD 3= Platinum RTD 4= 4-20 mA (ext. resistor req'd) 5= 0-5 V
8000.11=	Enables CH11 for scanning	0= disabled (default) 1= enabled
8017.11=	Filter speed for CH11	Minimum=0.00 (none) Default=0.05 (slow) Maximum=1.00 (fast)
8012.11=	Display value for 0 V or 4 mA input	Minimum=-999.0
8013.11=	Display value for 5 V or 20 mA input	Default= 0.0 Maximum=9999.0 (in channel units)
8015.11=	Inverted resistance for 4-20mA source on CH11	Minimum=0.0 1/kohms Default=10.0 1/kohms Maximum=100.0 1 /kohms
8008.11=	CH11 output offset to add to computed output value	Minimum=-1000.0 Default= 0.0 Maximum= 1000.0 (in channel units)
63000.11=	Shutdown trip class for CH11	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.11=	Shutdown threshold value for CH11	Numeric value
63002.11=	Shutdown threshold hysteresis for CH11	(channel units)
63003.11=	Delay time between exceeded CH11 shutdown threshold and CH11 shutdown	seconds
63000.35=	Alarm trip class for CH11	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.35=	Alarm threshold value for CH11	Numeric value
63002.35=	Alarm threshold hysteresis for CH11	(channel units)
63003.35=	Delay time between exceeded CH11 alarm threshold and CH11 alarm	seconds

Channel 12 Input Settings

Parameter	Function Description	Valid Inputs
110.12=	Channel name for CH12	Default=" " (blank=CH12) 11 characters (including spaces)
111.12=	Units of measure for CH12	0= deg F (default) 1= deg C 2= PSI 3= PSA 4= KPA 5= FTP 6= RPM 7= " " (blank)
8001.12=	Input type for CH12	0= J-TC (default) 1= K-TC 2= Nickel RTD 3= Platinum RTD 4= 4-20 mA (ext. resistor req'd) 5= 0-5 V
8000.12=	Enables CH12 for scanning	0= disabled (default) 1= enabled
8017.12=	Filter speed for CH12	Minimum=0.00 (none) Default=0.05 (slow) Maximum=1.00 (fast)
8012.12=	Display value for 0 V or 4 mA input	Minimum=-999.0
8013.12=	Display value for 5 V or 20 mA input	Default= 0.0 Maximum=9999.0 (in channel units)
8015.12=	Inverted resistance for 4-20mA source on CH12	Minimum=0.0 1/kohms Default=10.0 1/kohms Maximum=100.0 1 /kohms
8008.12=	CH12 output offset to add to computed output value	Minimum=-1000.0 Default= 0.0 Maximum= 1000.0 (in channel units)
63000.12=	Shutdown trip class for CH12	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.12=	Shutdown threshold value for CH12	Numeric value
63002.12=	Shutdown threshold hysteresis for CH12	(channel units)
63003.12=	Delay time between exceeded CH12 shutdown threshold and CH12shutdown	seconds
63000.36=	Alarm trip class for CH12	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.36=	Alarm threshold value for CH12	Numeric value
63002.36=	Alarm threshold hysteresis for CH12	(channel units)
63003.36=	Delay time between exceeded CH12 alarm threshold and CH12 alarm	seconds

Channel 13 Input Settings

Parameter	Function Description	Valid Inputs
110.13=	Channel name for CH13	Default=" " (blank=CH13) 11 characters (including spaces)
111.13=	Units of measure for CH13	0= deg F (default) 1= deg C 2= PSI 3= PSA 4= KPA 5= FTP 6= RPM 7= " " (blank)
8001.13=	Input type for CH13	0= J-TC (default) 1= K-TC 2= Nickel RTD 3= Platinum RTD 4= 4-20 mA (ext. resistor req'd) 5= 0-5 V
8000.13=	Enables CH13 for scanning	0= disabled (default) 1= enabled
8017.13=	Filter speed for CH13	Minimum=0.00 (none) Default=0.05 (slow) Maximum=1.00 (fast)
8012.13=	Display value for 0 V or 4 mA input	Minimum=-999.0
8013.13=	Display value for 5 V or 20 mA input	Default= 0.0 Maximum=9999.0 (in channel units)
8015.13=	Inverted resistance for 4-20mA source on CH13	Minimum=0.0 1/kohms Default=10.0 1/kohms Maximum=100.0 1 /kohms
8008.13=	CH13 output offset to add to computed output value	Minimum=-1000.0 Default= 0.0 Maximum= 1000.0 (in channel units)
63000.13=	Shutdown trip class for CH13	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.13=	Shutdown threshold value for CH13	Numeric value
63002.13=	Shutdown threshold hysteresis for CH13	(channel units)
63003.13=	Delay time between exceeded CH13 shutdown threshold and CH13shutdown	seconds
63000.37=	Alarm trip class for CH13	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.37=	Alarm threshold value for CH13	Numeric value
63002.37=	Alarm threshold hysteresis for CH13	(channel units)
63003.37=	Delay time between exceeded CH13 alarm threshold and CH13 alarm	seconds

Channel 14 Input Settings

Parameter	Function Description	Valid Inputs
110.14=	Channel name for CH14	Default=" " (blank=CH14) 11 characters (including spaces)
111.14=	Units of measure for CH14	0= deg F (default) 1= deg C 2= PSI 3= PSA 4= KPA 5= FTP 6= RPM 7= " " (blank)
8001.14=	Input type for CH14	0= J-TC (default) 1= K-TC 2= Nickel RTD 3= Platinum RTD 4= 4-20 mA (ext. resistor req'd) 5= 0-5 V
8000.14=	Enables CH14 for scanning	0= disabled (default) 1= enabled
8017.14=	Filter speed for CH14	Minimum=0.00 (none) Default=0.05 (slow) Maximum=1.00 (fast)
8012.14=	Display value for 0 V or 4 mA input	Minimum=-999.0
8013.14=	Display value for 5 V or 20 mA input	Default= 0.0 Maximum=9999.0 (in channel units)
8015.14=	Inverted resistance for 4-20mA source on CH14	Minimum=0.0 1/kohms Default=10.0 1/kohms Maximum=100.0 1 /kohms
8008.14=	CH14 output offset to add to computed output value	Minimum=-1000.0 Default= 0.0 Maximum= 1000.0 (in channel units)
63000.14=	Shutdown trip class for CH14	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.14=	Shutdown threshold value for CH14	Numeric value
63002.14=	Shutdown threshold hysteresis for CH14	(channel units)
63003.14=	Delay time between exceeded CH14 shutdown threshold and CH14shutdown	seconds
63000.38=	Alarm trip class for CH14	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.38=	Alarm threshold value for CH14	Numeric value
63002.38=	Alarm threshold hysteresis for CH14	(channel units)
63003.38=	Delay time between exceeded CH14 alarm threshold and CH14 alarm	seconds

Channel 15 Input Settings

Parameter	Function Description	Valid Inputs
110.15=	Channel name for CH15	Default=" " (blank=CH15) 11 characters (including spaces)
111.15=	Units of measure for CH15	0= deg F (default) 1= deg C 2= PSI 3= PSA 4= KPA 5= FTP 6= RPM 7= " " (blank)
8001.15=	Input type for CH15	0= J-TC (default) 1= K-TC 2= Nickel RTD 3= Platinum RTD 4= 4-20 mA (ext. resistor req'd) 5= 0-5 V
8000.15=	Enables CH15 for scanning	0= disabled (default) 1= enabled
8017.15=	Filter speed for CH15	Minimum=0.00 (none) Default=0.05 (slow) Maximum=1.00 (fast)
8012.15=	Display value for 0 V or 4 mA input	Minimum=-999.0
8013.15=	Display value for 5 V or 20 mA input	Default= 0.0 Maximum=9999.0 (in channel units)
8015.15=	Inverted resistance for 4-20mA source on CH15	Minimum=0.0 1/kohms Default=10.0 1/kohms Maximum=100.0 1 /kohms
8008.15=	CH15 output offset to add to computed output value	Minimum=-1000.0 Default= 0.0 Maximum= 1000.0 (in channel units)
63000.15=	Shutdown trip class for CH15	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.15=	Shutdown threshold value for CH15	Numeric value
63002.15=	Shutdown threshold hysteresis for CH15	(channel units)
63003.15=	Delay time between exceeded CH15 shutdown threshold and CH15shutdown	seconds
63000.38=	Alarm trip class for CH15	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.38=	Alarm threshold value for CH15	Numeric value
63002.38=	Alarm threshold hysteresis for CH15	(channel units)
63003.38=	Delay time between exceeded CH15 alarm threshold and CH15 alarm	seconds

Channel 16 Input Settings

Parameter	Function Description	Valid Inputs
110.16=	Channel name for CH16	Default=" " (blank=CH16) 11 characters (including spaces)
111.16=	Units of measure for CH16	0= deg F (default) 1= deg C 2= PSI 3= PSA 4= KPA 5= FTP 6= RPM 7= " " (blank)
8001.16=	Input type for CH16	0= J-TC (default) 1= K-TC 2= Nickel RTD 3= Platinum RTD 4= 4-20 mA (ext. resistor req'd) 5= 0-5 V
8000.16=	Enables CH16 for scanning	0= disabled (default) 1= enabled
8017.16=	Filter speed for CH16	Minimum=0.00 (none) Default=0.05 (slow) Maximum=1.00 (fast)
8012.16=	Display value for 0 V or 4 mA input	Minimum=-999.0
8013.16=	Display value for 5 V or 20 mA input	Default= 0.0 Maximum=9999.0 (in channel units)
8015.16=	Inverted resistance for 4-20mA source on CH16	Minimum=0.0 1/kohms Default=10.0 1/kohms Maximum=100.0 1 /kohms
8008.16=	CH16 output offset to add to computed output value	Minimum=-1000.0 Default= 0.0 Maximum= 1000.0 (in channel units)
63000.16=	Shutdown trip class for CH16	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.16=	Shutdown threshold value for CH16	Numeric value
63002.16=	Shutdown threshold hysteresis for CH16	(channel units)
63003.16=	Delay time between exceeded CH16 shutdown threshold and CH16shutdown	seconds
63000.40=	Alarm trip class for CH16	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.40=	Alarm threshold value for CH16	Numeric value
63002.40=	Alarm threshold hysteresis for CH16	(channel units)
63003.40=	Delay time between exceeded CH16 alarm threshold and CH16 alarm	seconds

Channel 17 Input Settings

Parameter	Function Description	Valid Inputs
110.17=	Channel name for CH17	Default=" " (blank=CH17) 11 characters (including spaces)
111.17=	Units of measure for CH17	0= deg F (default) 1= deg C 2= PSI 3= PSA 4= KPA 5= FTP 6= RPM 7= " " (blank)
8001.17=	Input type for CH17	0= J-TC (default) 1= K-TC 2= Nickel RTD 3= Platinum RTD 4= 4-20 mA (ext. resistor req'd) 5= 0-5 V
8000.17=	Enables CH17 for scanning	0= disabled (default) 1= enabled
8017.17=	Filter speed for CH17	Minimum=0.00 (none) Default=0.05 (slow) Maximum=1.00 (fast)
8012.17=	Display value for 0 V or 4 mA input	Minimum=-999.0
8013.17=	Display value for 5 V or 20 mA input	Default= 0.0 Maximum=9999.0 (in channel units)
8015.17=	Inverted resistance for 4-20mA source on CH17	Minimum=0.0 1/kohms Default=10.0 1/kohms Maximum=100.0 1 /kohms
8008.17=	CH17 output offset to add to computed output value	Minimum=-1000.0 Default= 0.0 Maximum= 1000.0 (in channel units)
63000.17=	Shutdown trip class for CH17	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.17=	Shutdown threshold value for CH17	Numeric value
63002.17=	Shutdown threshold hysteresis for CH17	(channel units)
63003.17=	Delay time between exceeded CH17 shutdown threshold and CH17shutdown	seconds
63000.41=	Alarm trip class for CH17	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.41=	Alarm threshold value for CH17	Numeric value
63002.41=	Alarm threshold hysteresis for CH17	(channel units)
63003.41=	Delay time between exceeded CH17 alarm threshold and CH17 alarm	seconds

Channel 18 Input Settings

Parameter	Function Description	Valid Inputs
110.18=	Channel name for CH18	Default=" " (blank=CH18) 11 characters (including spaces)
111.18=	Units of measure for CH18	0= deg F (default) 1= deg C 2= PSI 3= PSA 4= KPA 5= FTP 6= RPM 7= " " (blank)
8001.18=	Input type for CH18	0= J-TC (default) 1= K-TC 2= Nickel RTD 3= Platinum RTD 4= 4-20 mA (ext. resistor req'd) 5= 0-5 V
8000.18=	Enables CH18 for scanning	0= disabled (default) 1= enabled
8017.18=	Filter speed for CH18	Minimum=0.00 (none) Default=0.05 (slow) Maximum=1.00 (fast)
8012.18=	Display value for 0 V or 4 mA input	Minimum=-999.0
8013.18=	Display value for 5 V or 20 mA input	Default= 0.0 Maximum=9999.0 (in channel units)
8015.18=	Inverted resistance for 4-20mA source on CH18	Minimum=0.0 1/kohms Default=10.0 1/kohms Maximum=100.0 1 /kohms
8008.18=	CH18 output offset to add to computed output value	Minimum=-1000.0 Default= 0.0 Maximum= 1000.0 (in channel units)
63000.18=	Shutdown trip class for CH18	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.18=	Shutdown threshold value for CH18	Numeric value
63002.18=	Shutdown threshold hysteresis for CH18	(channel units)
63003.18=	Delay time between exceeded CH18 shutdown threshold and CH18shutdown	seconds
63000.42=	Alarm trip class for CH18	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.42=	Alarm threshold value for CH18	Numeric value
63002.42=	Alarm threshold hysteresis for CH18	(channel units)
63003.42=	Delay time between exceeded CH18 alarm threshold and CH18 alarm	seconds

Channel 19 Input Settings

Parameter	Function Description	Valid Inputs
110.19=	Channel name for CH19	Default=" " (blank=CH19) 11 characters (including spaces)
111.19=	Units of measure for CH19	0= deg F (default) 1= deg C 2= PSI 3= PSA 4= KPA 5= FTP 6= RPM 7= " " (blank)
8001.19=	Input type for CH19	0= J-TC (default) 1= K-TC 2= Nickel RTD 3= Platinum RTD 4= 4-20 mA (ext. resistor req'd) 5= 0-5 V
8000.19=	Enables CH19 for scanning	0= disabled (default) 1= enabled
8017.19=	Filter speed for CH19	Minimum=0.00 (none) Default=0.05 (slow) Maximum=1.00 (fast)
8012.19=	Display value for 0 V or 4 mA input	Minimum=-999.0
8013.19=	Display value for 5 V or 20 mA input	Default= 0.0 Maximum=9999.0 (in channel units)
8015.19=	Inverted resistance for 4-20mA source on CH19	Minimum=0.0 1/kohms Default=10.0 1/kohms Maximum=100.0 1 /kohms
8008.19=	CH19 output offset to add to computed output value	Minimum=-1000.0 Default= 0.0 Maximum= 1000.0 (in channel units)
63000.19=	Shutdown trip class for CH19	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.19=	Shutdown threshold value for CH19	Numeric value
63002.19=	Shutdown threshold hysteresis for CH19	(channel units)
63003.19=	Delay time between exceeded CH19 shutdown threshold and CH19shutdown	seconds
63000.43=	Alarm trip class for CH19	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.43=	Alarm threshold value for CH19	Numeric value
63002.43=	Alarm threshold hysteresis for CH19	(channel units)
63003.43=	Delay time between exceeded CH19 alarm threshold and CH19 alarm	seconds

Channel 20 Input Settings

Parameter	Function Description	Valid Inputs
110.20=	Channel name for CH20	Default=" " (blank=CH20) 11 characters (including spaces)
111.20=	Units of measure for CH20	0= deg F (default) 1= deg C 2= PSI 3= PSA 4= KPA 5= FTP 6= RPM 7= " " (blank)
8001.20=	Input type for CH20	0= J-TC (default) 1= K-TC 2= Nickel RTD 3= Platinum RTD 4= 4-20 mA (ext. resistor req'd) 5= 0-5 V
8000.20=	Enables CH20 for scanning	0= disabled (default) 1= enabled
8017.20=	Filter speed for CH20	Minimum=0.00 (none) Default=0.05 (slow) Maximum=1.00 (fast)
8012.20=	Display value for 0 V or 4 mA input	Minimum=-999.0
8013.20=	Output value for 5 V or 20 mA input	Default= 0.0 Maximum=9999.0 (in channel units)
8015.20=	Inverted resistance for 4-20mA source on CH20	Minimum=0.0 1/kohms Default=10.0 1/kohms Maximum=100.0 1 /kohms
8008.20=	CH20 output offset to add to computed output value	Minimum=-1000.0 Default= 0.0 Maximum= 1000.0 (in channel units)
63000.20=	Shutdown trip class for CH20	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.20=	Shutdown threshold value for CH20	Numeric value
63002.20=	Shutdown threshold hysteresis for CH20	(channel units)
63003.20=	Delay time between exceeded CH20 shutdown threshold and CH20shutdown	seconds
63000.44=	Alarm trip class for CH20	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.44=	Alarm threshold value for CH20	Numeric value
63002.44=	Alarm threshold hysteresis for CH20	(channel units)
63003.44=	Delay time between exceeded CH20 alarm threshold and CH20 alarm	seconds

Channel 21 Input Settings

Parameter	Function Description	Valid Inputs
110.21=	Channel name for CH21	Default=" " (blank=CH21) 11 characters (including spaces)
111.21=	Units of measure for CH21	0= deg F (default) 1= deg C 2= PSI 3= PSA 4= KPA 5= FTP 6= RPM 7= " " (blank)
8001.21=	Input type for CH21	0= J-TC (default) 1= K-TC 2= Nickel RTD 3= Platinum RTD 4= 4-20 mA (ext. resistor req'd) 5= 0-5 V
8000.21=	Enables CH21 for scanning	0= disabled (default) 1= enabled
8017.21=	Filter speed for CH21	Minimum=0.00 (none) Default=0.05 (slow) Maximum=1.00 (fast)
8012.21=	Output value for 0 V or 4 mA input	Minimum=-999.0
8013.21=	Output value for 5 V or 20 mA input	Default= 0.0 Maximum=9999.0 (in channel units)
8015.21=	Inverted resistance for 4-20mA source on CH21	Minimum=0.0 1/kohms Default=10.0 1/kohms Maximum=100.0 1 /kohms
8008.21=	CH21 output offset to add to computed output value	Minimum=-1000.0 Default= 0.0 Maximum= 1000.0 (in channel units)
63000.21=	Shutdown trip class for CH21	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.21=	Shutdown threshold value for CH21	Numeric value
63002.21=	Shutdown threshold hysteresis for CH21	(channel units)
63003.21=	Delay time between exceeded CH21 shutdown threshold and CH21 shutdown	seconds
63000.45=	Alarm trip class for CH21	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.45=	Alarm threshold value for CH21	Numeric value
63002.45=	Alarm threshold hysteresis for CH21	(channel units)
63003.45=	Delay time between exceeded CH21 alarm threshold and CH21 alarm	seconds

Channel 22 Input Settings

Parameter	Function Description	Valid Inputs
110.22=	Channel name for CH22	Default=" " (blank=CH22) 11 characters (including spaces)
111.22=	Units of measure for CH22	0= deg F (default) 1= deg C 2= PSI 3= PSA 4= KPA 5= FTP 6= RPM 7= " " (blank)
8001.22=	Input type for CH22	0= J-TC (default) 1= K-TC 2= Nickel RTD 3= Platinum RTD 4= 4-20 mA (ext. resistor req'd) 5= 0-5 V
8000.22=	Enables CH22 for scanning	0= disabled (default) 1= enabled
8017.22=	Filter speed for CH22	Minimum=0.00 (none) Default=0.05 (slow) Maximum=1.00 (fast)
8012.22=	Output value for 0 V or 4 mA input	Minimum=-999.0
8013.22=	Output value for 5 V or 20 mA input	Default= 0.0 Maximum=9999.0 (in channel units)
8015.22=	Inverted resistance for 4-20mA source on CH22	Minimum=0.0 1/kohms Default=10.0 1/kohms Maximum=100.0 1 /kohms
8008.22=	CH22 output offset to add to computed output value	Minimum=-1000.0 Default= 0.0 Maximum= 1000.0 (in channel units)
63000.22=	Shutdown trip class for CH22	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.22=	Shutdown threshold value for CH22	Numeric value
63002.22=	Shutdown threshold hysteresis for CH22	(channel units)
63003.22=	Delay time between exceeded CH22 shutdown threshold and CH22shutdown	seconds
63000.46=	Alarm trip class for CH22	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.46=	Alarm threshold value for CH22	Numeric value
63002.46=	Alarm threshold hysteresis for CH22	(channel units)
63003.46=	Delay time between exceeded CH22 alarm threshold and CH22 alarm	seconds

Channel 23 Input Settings

Parameter	Function Description	Valid Inputs
110.23=	Channel name for CH23	Default=" " (blank=CH23) 11 characters (including spaces)
111.23=	Units of measure for CH23	0= deg F (default) 1= deg C 2= PSI 3= PSA 4= KPA 5= FTP 6= RPM 7= " " (blank)
8001.23=	Input type for CH23	0= J-TC (default) 1= K-TC 2= Nickel RTD 3= Platinum RTD 4= 4-20 mA (ext. resistor req'd) 5= 0-5 V
8000.23=	Enables CH23 for scanning	0= disabled (default) 1= enabled
8017.23=	Filter speed for CH23	Minimum=0.00 (none) Default=0.05 (slow) Maximum=1.00 (fast)
8012.23=	Output value for 0 V or 4 mA input	Minimum=-999.0
8013.23=	Output value for 5 V or 20 mA input	Default= 0.0 Maximum=9999.0 (in channel units)
8015.23=	Inverted resistance for 4-20mA source on CH23	Minimum=0.0 1/kohms Default=10.0 1/kohms Maximum=100.0 1 /kohms
8008.23=	CH23 output offset to add to computed output value	Minimum=-1000.0 Default= 0.0 Maximum= 1000.0 (in channel units)
63000.23=	Shutdown trip class for CH23	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.23=	Shutdown threshold value for CH23	Numeric value
63002.23=	Shutdown threshold hysteresis for CH23	(channel units)
63003.23=	Delay time between exceeded CH23 shutdown threshold and CH23shutdown	seconds
63000.47=	Alarm trip class for CH23	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.47=	Alarm threshold value for CH23	Numeric value
63002.47=	Alarm threshold hysteresis for CH23	(channel units)
63003.47=	Delay time between exceeded CH23 alarm threshold and CH23 alarm	seconds

Channel 24 Input Settings

Parameter	Function Description	Valid Inputs
110.24=	Channel name for CH24	Default=" " (blank=CH24) 11 characters (including spaces)
111.24=	Units of measure for CH24	0= deg F (default) 1= deg C 2= PSI 3= PSA 4= KPA 5= FTP 6= RPM 7= " " (blank)
8001.24=	Input type for CH24	0= J-TC (default) 1= K-TC 2= Nickel RTD 3= Platinum RTD 4= 4-20 mA (ext. resistor req'd) 5= 0-5 V
8000.24=	Enables CH24 for scanning	0= disabled (default) 1= enabled
8017.24=	Filter speed for CH24	Minimum=0.00 (none) Default=0.05 (slow) Maximum=1.00 (fast)
8012.24=	Output value for 0 V or 4 mA input	Minimum=-999.0
8013.24=	Output value for 5 V or 20 mA input	Default= 0.0 Maximum=9999.0 (in channel units)
8015.24=	Inverted resistance for 4-20mA source on CH24	Minimum=0.0 1/kohms Default=10.0 1/kohms Maximum=100.0 1/kohms
8008.24=	CH24 output offset to add to computed output value	Minimum=-1000.0 Default= 0.0 Maximum= 1000.0 (in channel units)
63000.24=	Shutdown trip class for CH24	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.24=	Shutdown threshold value for CH24	Numeric value
63002.24=	Shutdown threshold hysteresis for CH24	(channel units)
63003.24=	Delay time between exceeded CH24 shutdown threshold and CH24shutdown	seconds
63000.48=	Alarm trip class for CH24	0= Off 1= Class A over (default) 2= Class B over 3= Class C over 4= Class A under 5= Class B under 6= Class C under
63001.48=	Alarm threshold value for CH24	Numeric value
63002.48=	Alarm threshold hysteresis for CH24	(channel units)
63003.48=	Delay time between exceeded CH24 alarm threshold and CH24 alarm	seconds

User-defined Trips

User Trip Class

Parameter	Define the trip class for:	Valid Inputs
63000.49=	user trip 01	0=Class A over (default)
63000.50=	user trip 02	1=Class B over
63000.51=	user trip 03	2=Class C over
63000.52=	user trip 04	3=Class A under
63000.53=	user trip 05	4=Class B under
		5=Class C under
63000.54=	user trip 06	
63000.55=	user trip 07	
63000.56=	user trip 08	
63000.57=	user trip 09	
63000.58=	user trip 10	

User Trip Threshold

Parameter	Sets the threshold value for:	Valid Inputs
63001.49	user trip	Numeric value (channel units)
≡	01 user	
63001.50	trip 02	
≡	user trip	
63001.51	03 user	
≡	trip 04	
63001.52	user trip	
≡	05 user	
63001.53	trip 06	
≡	user trip	

User Trip Hysteresis

Parameter	Sets the hysteresis for:	Valid Inputs
63002.49=	user trip 01	Numeric value (channel units)
63002.50=	user trip 02	
63002.51=	user trip 03	
63002.52=	user trip 04	
63002.53=	user trip 05	
63002.54=	user trip 06	
63002.55=	user trip 07	
63002.56=	user trip 08	
63002.57=	user trip 09	
63002.58=	user trip 10	

User Trip Timer

Parameter	Sets the delay time between:	Valid Inputs
63003.49=	exceeded user trip 01 threshold and channel fault	Minimum=0.0 seconds (default)
63003.50=	exceeded user trip 02 threshold and channel fault	
63003.51=	exceeded user trip 03 threshold and channel fault	
63003.52=	exceeded user trip 04 threshold and channel fault	
63003.53=	exceeded user trip 05 threshold and channel fault	
63003.54=	exceeded user trip 06 threshold and channel fault	
63003.55=	exceeded user trip 07 threshold and channel fault	
63003.56=	exceeded user trip 08 threshold and channel fault	
63003.57=	exceeded user trip 09 threshold and channel fault	
63003.58=	exceeded user trip 10 threshold and channel fault	

User Trip Channel Source

Parameter	Defines the channel source for:	Valid Inputs
121.1=	user trip	0 = off (default) 1 to 24= analog input channel
121.2=	01 user	
121.3=	trip 02	
121.4=	user trip	
121.5=	03 user	
121.6=	trip 04	
121.7=	user trip	
121.8=	05 user	
121.9=	trip 06	
121.10=	user trip	

User Relay Assignment

Parameter	Assigns user relay 1 or 2 to:	Valid inputs:
120.1=	trip 01	1= user relay 1 (default) 2= user relay 2
120.2=	trip 02	
120.3=	trip 03	
120.4=	trip 04	
120.5=	trip 05	
120.6=	trip 06	
120.7=	trip 07	
120.8=	trip 08	
120.9=	trip 09	
120.10=	trip 10	

Meter Channel Sources

<u>Parameter</u>	<u>Sets the channel to view on:</u>	<u>Valid inputs:</u> 0 = off
115.1=	<u>meter</u>	(default)
115.2=	<u>01</u>	1 to 24= analog input channel
115.3=	<u>meter</u>	
115.4=	<u>02</u>	
115.5=	<u>meter</u>	
115.6=	<u>03</u>	
115.7=	<u>meter</u>	
	<u>04</u>	

APPENDIX B. Example of a Configuration File (SCAN2124.SPC)

```

;*****
****
;
;           DYNALCO CONTROLS
;           3690 N.W. 53rd Street
;           Fort Lauderdale, FL 33309
;
;           SCAN 2124
;
; Filename : SCAN2124.SPC
; Date      : September 26, 2000
;*****
****
; (1) This download file is used to configure a 24-channel SCANNER.
; (2) Desired configuration values should be entered in all appropriate
fields
;     before downloading to the SCANNER.
; (3) Comments are included for each configuration variable to explain
the
;     purpose and programmable values associated with each variable.
; (4) Some comment headers, such as '<ANALOG INPUT CHANNEL #01>', have
been
;     included for the user to overwrite with application-specific
descriptors,
;     such as 'Engine Exhaust Temperature'.
;*****
****

; ***** DIGITAL POTENTIOMETERS *****
; Digital Pot control.
;     Min Val      Max Val
;     0 (dflt) -> 255 (in step Ohms)
103=0           ; RPM Sensitivity
104=0           ; LCD Contrast

; ***** TRIP RELAY ACTION *****
;     0 Normally Energized (dflt)
;     1 Normally Deenergized
;     2 Normally Energized Latching
;     3 Normally Deenergized Latching
63102.1=0       ; AUX 1 RLY
63102.2=0       ; AUX 2 RLY
63102.3=0       ; ALM RLY
63102.4=0       ; SHUTDOWN RLY
; AI OPEN THERMOCOUPLE TRIP SELECT *****
; Selects TRIP action on detection of ANY
; Open TC channel.
;
;     0 DISABLED (dflt)
;     1 ALARM
;     2 SHUTDOWN
149=0

```

```

/*$PAGE*/
; ***** SCAN SCREEN *****
; Main SCANNER Screen.
;      0 (dflt) SCAN screen displays all
;          ENABLED channels, one at
;          a time for SCAN dly secs.
;      1      CUSTOM screen displays up
;          to four channels on one
;          screen.
195=0

; SCAN SCREEN DLY TIME *****
; Dly time before displaying next Main
; SCANNER screen.
;
;      Min Val          Max Val
;      2      -> 3 (dflt) -> 10      (in secs)
140=3

; SCAN RETURN DLY TIME *****
; Dly time before returning to Main SCANNER
; Screen after no user key-press activity.
;
;      Min Val          Max Val
;      30      -> 60 (dflt) -> 300      (in secs)
141=60

; SCAN CHANNEL/NODE SELECT *****
; Select SCANNER Channel or Node display.
;
;      0 Disp SCANNER Channel Nbr ['Chxx'] (dflt)
;      1 Disp SCANNER Node      Nbr ['n:xx']
170=0

; ***** CUSTOM SCREEN *****
; Custom Screen Channels.
; Up to four channels per Custom Screen.
; If both screens contain ENABLED channels,
; then each screen is displayed for SCAN
; dly secs.
;
; 190.1 - 190.4 First Custom Screen
; 190.5 - 190.8 Second Custom Screen
;
;      0 OFF (dflt)
;      1-24 AI Channels
190.1=0      ; <CUSTOM SCREEN #1, LINE 1>
190.2=0      ; <CUSTOM SCREEN #1, LINE 2>
190.3=0      ; <CUSTOM SCREEN #1, LINE 3>
190.4=0      ; <CUSTOM SCREEN #1, LINE 4>
190.5=0      ; <CUSTOM SCREEN #2, LINE 1>
190.6=0      ; <CUSTOM SCREEN #2, LINE 2>
190.7=0      ; <CUSTOM SCREEN #2, LINE 3>
190.8=0      ; <CUSTOM SCREEN #2, LINE 4>

```

```

/*$PAGE*/
; ***** AI DELAY TIMERS *****

; CHANNEL READ DLY TIME *****
; Dly time between analog sw setup & analog
; read.
;
;      Min Val      Max Val
;      0.050 (dflt) -> 10.0   (in secs)
8200=0.050

; OPEN TC DETECT DLY TIME *****
; Dly time between Open TC detections on
; consecutive TC channels.
;
;      Min Val      Max Val
;      0.1   -> 1.0 (dflt) -> 300.0 (in secs)
8201=1

; CJC UPDATE DLY TIME *****
; Dly time between consecutive CJC reads.
;
;      Min Val      Max Val
;      5.0   -> 60.0 (dflt) -> 300.0 (in secs)
8202=60

; ***** AI CALIBRATION *****

; LOW CALIBRATION VOLTAGE INVERTED *****
;      Min Val      Max Val
;      0.0 (dflt)   1.0   -> 100.0 (in 1/V)
8101=43.88

; HIGH CALIBRATION VOLTAGE INVERTED *****
;      Min Val      Max Val
;      0.0 (dflt)   0.1   -> 2.0   (in 1/V)
8102=1.0

; NUMBER CALIBRATION AVERAGES *****
; Number of Calibration reads to perform
; and average for each AI offset and gain.
;
;
;      Min Val      Max Val
;      1   -> 10 (dflt) -> 255   (in iterations)
8152=10

; ***** CJC FILTER CONSTANT *****
; CJC Average Correction Filter.
;
; CJC = [CJC_prev * (1 - filter)] + [CJC_read * filter]
;
;      Min Val      Max Val
;      0.0 (dflt) -> 1.0   (no units)
100=0.1

```



```

/*$PAGE*/
; ***** AI CHANNEL #01 *****
; <ANALOG INPUT CHANNEL #01>

; AI CH NAME *****
; User-defined alphanumeric channel name up
; to 11 characters in length. If configured
; for BLANK name, then Ch # will be displayed
; on Custom Screens instead of Ch Name.
;
;          <BLANK> (dflt)
110.1=

; AI CH INPUT TYPE *****
; 0 J-TC (dflt)
; 1 K-TC
; 2 Nickel RTD
; 3 Platinum RTD
; 4 4-20 mA (Note: 4-20 mA inputs supported
; on SCANNER Ch #s 1-8 ONLY.
; Corresponding on-board
; dip-switch (SW1) MUST be
; turned ON)
; 5 0-5 V
8001.1=0

; AI CH ENABLE *****
; 0 Disabled (dflt)
; 1 Enabled
8000.1=0

; AI CH UNITS *****
; 0 Deg F (dflt)
; 1 Deg C
; 2 PSI
; 3 PSA
; 4 KPA
; 5 FTP (Foot-Pounds)
; 6 RPM
; 7 " " <BLANK>
111.1=0

; TEMPERATURE READING IN DEGREES CELSIUS OR FAHRENHEIT
; 0 Deg F (dflt)
; 1 Deg C
65425=0

```

```

; AI CH FILTER CONSTANT *****
;   Averages new AI readings into current AI
;   value by the following equation:
;
;   AI = [AI_prev * (1 - filter)] + [AI_read * filter]
;
;       Min Val                Max Val
;       0.00  -> 0.05 (dflt) -> 1.00   (no units)
8017.1=0.05

; AI CH POINT 1 OUTPUT *****
;   FOR USE WITH 0-5 V INPUT TYPES.
;   AI Ch output value for 0 V input.
;
;       Min Val                Max Val
;       -999.0  -> 0.0 (dflt) -> 9999.0 (in channel units)
8012.1=0

; AI CH POINT 2 OUTPUT *****
;   FOR USE WITH 0-5 V INPUT TYPES.
;   AI Ch output value for 5 V input.
;
;       Min Val                Max Val
;       -999.0  -> 0.0 (dflt) -> 9999.0 (in channel units)
8013.1=0

; AI CH 4-20 mA INVERTED RESISTANCE *****
;   FOR USE WITH 4-20 mA INPUT TYPES.
;   Inverted 4-20 mA source resistor in
;   1/kOhms.  Input resistor is .1 kOhms;
;   thus, inverted resistance (or conductance)
;   is 10 siemens.
;
;       Min Val                Max Val
;       0.0    -> 10.0 (dflt) -> 100.0 (1/kOhms; siemens)
8015.1=10

;

```

```

/*$PAGE*/
; AI CH ALARM & SHUTDOWN TRIP CLASS *****
;     0  Off                (dflt)
;     1  Class A Over
;     2  Class B Over
;     3  Class C Over
;     4  Class A Under
;     5  Class B Under
;     6  Class C Under
63000.1=0      ; AI Ch #01 ALARM    TRIP
63000.25=0     ; AI Ch #01 SHUTDOWN TRIP

; AI CH ALARM & SHUTDOWN TRIP TH *****
; TRIP threshold; TRIP value required to
; fault channel (in channel units).
63001.1=0      ; AI Ch #01 ALARM    TRIP
63001.25=0     ; AI Ch #01 SHUTDOWN TRIP

; AI CH ALARM & SHUTDOWN TRIP HYS *****
; TRIP hysteresis; difference between fault
; threshold of TRIPPED channel and clear-
; fault threshold (in channel units).
63002.1=0      ; AI Ch #01 ALARM    TRIP
63002.25=0     ; AI Ch #01 SHUTDOWN TRIP

; AI CH ALARM & SHUTDOWN TRIP DLY TIME ****
; TRIP dly time between actual TRIP channel
; threshold exceeded and channel fault
; (in secs).
63003.1=0      ; AI Ch #01 ALARM    TRIP
63003.25=0     ; AI Ch #01 SHUTDOWN TRIP

; AI CH SHUTDOWN DISCRETE OUTPUT ACTION ***
; Select SHUTDOWN Discrete Output non-fault
; state. (Note: Some SCANNERS force Discrete
; Output action to Normally Energized.)
;
;     0  Normally Energized  (dflt)
;     1  Normally Deenergized
130.1=0

;

```

```

/*$PAGE*/
; ***** AI CHANNEL #02 *****
; <ANALOG INPUT CHANNEL #02>

; AI CH NAME *****
; User-defined alphanumeric channel name up
; to 11 characters in length. If configured
; for BLANK name, then Ch # will be displayed
; on Custom Screens instead of Ch Name.
;
; <BLANK> (dflt)
110.2=

; AI CH INPUT TYPE *****
; 0 J-TC (dflt)
; 1 K-TC
; 2 Nickel RTD
; 3 Platinum RTD
; 4 4-20 mA (Note: 4-20 mA inputs supported
; on SCANNER Ch #s 1-8 ONLY.
; Corresponding on-board
; dip-switch (SW1) MUST be
; turned ON)
; 5 0-5 V
8001.2=0

; AI CH ENABLE *****
; 0 Disabled (dflt)
; 1 Enabled
8000.2=0

; AI CH UNITS *****
; 0 Deg F (dflt)
; 1 Deg C
; 2 PSI
; 3 PSA
; 4 KPA
; 5 FTP (Foot-Pounds)
; 6 RPM
; 7 " " <BLANK>
111.2=0

```

```

; AI CH FILTER CONSTANT *****
;   Averages new AI readings into current AI
;   value by the following equation:
;
;   AI = [AI_prev * (1 - filter)] + [AI_read * filter]
;
;       Min Val                Max Val
;       0.00  -> 0.05 (dflt) -> 1.00   (no units)
8017.2=0.05

; AI CH POINT 1 OUTPUT *****
;   FOR USE WITH 0-5 V INPUT TYPES.
;   AI Ch output value for 0 V input.
;
;       Min Val                Max Val
;       -999.0  -> 0.0 (dflt) -> 9999.0 (in channel units)
8012.2=0

; AI CH POINT 2 OUTPUT *****
;   FOR USE WITH 0-5 V INPUT TYPES.
;   AI Ch output value for 5 V input.
;
;       Min Val                Max Val
;       -999.0  -> 0.0 (dflt) -> 9999.0 (in channel units)
8013.2=0

; AI CH 4-20 mA INVERTED RESISTANCE *****
;   FOR USE WITH 4-20 mA INPUT TYPES.
;   Inverted 4-20 mA source resistor in
;   1/kOhms.  Input resistor is .1 kOhms;
;   thus, inverted resistance (or conductance)
;   is 10 siemens.
;
;       Min Val                Max Val
;       0.0    -> 10.0 (dflt) -> 100.0 (1/kOhms; siemens)
8015.2=10

;

```

```

/*$PAGE*/
; AI CH ALARM & SHUTDOWN TRIP CLASS *****
;     0 Off (dflt)
;     1 Class A Over
;     2 Class B Over
;     3 Class C Over
;     4 Class A Under
;     5 Class B Under
;     6 Class C Under
63000.2=0 ; AI Ch #02 ALARM TRIP
63000.26=0 ; AI Ch #02 SHUTDOWN TRIP

; AI CH ALARM & SHUTDOWN TRIP TH *****
; TRIP threshold; TRIP value required to
; fault channel (in channel units).
63001.2=0 ; AI Ch #02 ALARM TRIP
63001.26=0 ; AI Ch #02 SHUTDOWN TRIP

; AI CH ALARM & SHUTDOWN TRIP HYS *****
; TRIP hysteresis; difference between fault
; threshold of TRIPPED channel and clear-
; fault threshold (in channel units).
63002.2=0 ; AI Ch #02 ALARM TRIP
63002.26=0 ; AI Ch #02 SHUTDOWN TRIP

; AI CH ALARM & SHUTDOWN TRIP DLY TIME ****
; TRIP dly time between actual TRIP channel
; threshold exceeded and channel fault
; (in secs).
63003.2=0 ; AI Ch #02 ALARM TRIP
63003.26=0 ; AI Ch #02 SHUTDOWN TRIP

; AI CH SHUTDOWN DISCRETE OUTPUT ACTION ***
; Select SHUTDOWN Discrete Output non-fault
; state. (Note: Some SCANNERS force Discrete
; Output action to Normally Energized.)
;
;     0 Normally Energized (dflt)
;     1 Normally Deenergized
130.2=0

;

```

```

/*$PAGE*/
; ***** USER TRIPS *****
;   USER-defined TRIPS allow mapping from
;   any Analog Input channels (or RPM input)
;   to an additional SCANNER rly.  Thus, any
;   AI ch may be monitored for application-
;   specific purposes in addition to monitoring
;   for ALARM & SHUTDOWN conditions.
;
; Example: An exhaust temperature sensor is
; connected to Analog Input #4.  It
; is set to ALARM at 400 degrees and
; to SHUTDOWN at 450 degrees.  In
; addition, it is used to TRIP Spare
; Rly #1 at 175 degrees to engage an
; engine cooling fan.  Thus, a USER-
; defined TRIP may be setup to map
; AI Ch #4 to User TRIP #1 for Class
; A Over with a TRIP th of 175.
;
;           63000.49=0           ; Class A Over
;           63001.49=175        ; 175 degrees
;           121.1=4             ; AI Ch #04
;           120.1=1             ; Rly #1

; USER TRIP CLASS *****
;   0 Class A Over (dflt)
;   1 Class B Over
;   2 Class C Over
;   3 Class A Under
;   4 Class B Under
;   5 Class C Under
63000.49=0           ; <USER TRIP #01>
63000.50=0           ; <USER TRIP #02>
63000.51=0           ; <USER TRIP #03>
63000.52=0           ; <USER TRIP #04>
63000.53=0           ; <USER TRIP #05>
63000.54=0           ; <USER TRIP #06>
63000.55=0           ; <USER TRIP #07>
63000.56=0           ; <USER TRIP #08>
63000.57=0           ; <USER TRIP #09>
63000.58=0           ; <USER TRIP #10>

; USER TRIP TH *****
;   TRIP threshold; TRIP value required to
;   fault channel (in channel units).
63001.49=0           ; <USER TRIP #01>
63001.50=0           ; <USER TRIP #02>
63001.51=0           ; <USER TRIP #03>
63001.52=0           ; <USER TRIP #04>
63001.53=0           ; <USER TRIP #05>
63001.54=0           ; <USER TRIP #06>
63001.55=0           ; <USER TRIP #07>
63001.56=0           ; <USER TRIP #08>
63001.57=0           ; <USER TRIP #09>

```

```

63001.58=0      ; <USER TRIP #10>

; USER TRIP HYS *****
; TRIP hysteresis; difference between fault
; threshold of TRIPPED channel and clear-
; fault threshold (in channel units).
63002.49=0      ; <USER TRIP #01>
63002.50=0      ; <USER TRIP #02>
63002.51=0      ; <USER TRIP #03>
63002.52=0      ; <USER TRIP #04>
63002.53=0      ; <USER TRIP #05>
63002.54=0      ; <USER TRIP #06>
63002.55=0      ; <USER TRIP #07>
63002.56=0      ; <USER TRIP #08>
63002.57=0      ; <USER TRIP #09>
63002.58=0      ; <USER TRIP #10>

; USER TRIP TMR *****
; TRIP dly time between actual TRIP channel
; threshold exceeded and channel fault
; (in secs).
63003.49=0      ; <USER TRIP #01>
63003.50=0      ; <USER TRIP #02>
63003.51=0      ; <USER TRIP #03>
63003.52=0      ; <USER TRIP #04>
63003.53=0      ; <USER TRIP #05>
63003.54=0      ; <USER TRIP #06>
63003.55=0      ; <USER TRIP #07>
63003.56=0      ; <USER TRIP #08>
63003.57=0      ; <USER TRIP #09>
63003.58=0      ; <USER TRIP #10>

;

```



```
/*$PAGE*/
; USER TRIP SOURCE *****
;      0  OFF (dflt)
;     1-24 AI Channels
;      25  RPM
121.1=0      ; <USER TRIP #01>
121.2=0      ; <USER TRIP #02>
121.3=0      ; <USER TRIP #03>
121.4=0      ; <USER TRIP #04>
121.5=0      ; <USER TRIP #05>
121.6=0      ; <USER TRIP #06>
121.7=0      ; <USER TRIP #07>
121.8=0      ; <USER TRIP #08>
121.9=0      ; <USER TRIP #09>
121.10=0     ; <USER TRIP #10>
```

```
; USER TRIP RLY *****
;      1  (Spare) Rly #1
;      2  (Spare) Rly #2
120.1=1      ; <USER TRIP #01>
120.2=1      ; <USER TRIP #02>
120.3=1      ; <USER TRIP #03>
120.4=1      ; <USER TRIP #04>
120.5=1      ; <USER TRIP #05>
120.6=1      ; <USER TRIP #06>
120.7=1      ; <USER TRIP #07>
120.8=1      ; <USER TRIP #08>
120.9=1      ; <USER TRIP #09>
120.10=1     ; <USER TRIP #10>
```

```
;
```

```

/*$PAGE*/
; ***** RPM TRIPS *****
; !!!!! Only if RPM Input available !!!!!
; *****
; RPM-defined TRIPS allow mapping from
; RPM input to an additional SCANNER rly.
; (See USER TRIPS for additional notes.)

; RPM TRIP CLASS *****
; 0 Class A Over (dflt)
; 1 Class B Over
; 2 Class C Over
; 3 Class A Under
; 4 Class B Under
; 5 Class C Under
63000.59=0 ; <RPM TRIP #01>
63000.60=0 ; <RPM TRIP #02>

; RPM TRIP TH *****
; TRIP threshold; TRIP value required to
; fault (in RPM).
63001.59=0 ; <RPM TRIP #01>
63001.60=0 ; <RPM TRIP #02>

; RPM TRIP HYS *****
; TRIP hysteresis; difference between fault
; threshold of RPM Input and clear-fault
; threshold (in RPM).
63002.59=0 ; <RPM TRIP #01>
63002.60=0 ; <RPM TRIP #02>

; RPM TRIP TMR *****
; TRIP dly time between actual RPM Input
; threshold exceeded and RPM fault (in RPM).
63003.59=0 ; <RPM TRIP #01>
63003.60=0 ; <RPM TRIP #02>

; RPM TRIP RLY *****
; 1 (Spare) Rly #1
; 2 (Spare) Rly #2
125.1=1 ; <RPM TRIP #01>
125.2=1 ; <RPM TRIP #02>

;

```

```

/*$PAGE*/
; ***** METER MODULE *****
; !!! Only if Digital METERS available !!!
; *****

; ***** METER SOURCE *****
;      0  OFF (dflt)
;     1-24 AI Channels
;     25  RPM
115.1=0      ; <METER #1>
115.2=0      ; <METER #2>
115.3=0      ; <METER #3>
115.4=0      ; <METER #4>
115.5=0      ; <METER #5>
115.6=0      ; <METER #6>
115.7=0      ; <METER #7>

; ***** METER BARGRAPH *****
; METER Bargraphs' only attributes are MIN &
; MAX for the bargraph range.  Bargraph scale
; is turned OFF.

; ***** METER BARGRAPH MIN *****
6004.1=0      ; <METER #1>
6004.2=0      ; <METER #2>
6004.3=0      ; <METER #3>
6004.4=0      ; <METER #4>
6004.5=0      ; <METER #5>
6004.6=0      ; <METER #6>
6004.7=0      ; <METER #7>

; ***** METER BARGRAPH MAX *****
6005.1=1000   ; <METER #1>
6005.2=1000   ; <METER #2>
6005.3=1000   ; <METER #3>
6005.4=1000   ; <METER #4>
6005.5=1000   ; <METER #5>
6005.6=1000   ; <METER #6>
6005.7=1000   ; <METER #7>

```

APPENDIX C

Instructions for Downloading WinHost from Dynalco website:

1. Go to the www.Dynalco.com web site. Start by clicking on the "Support" tab, then select "Uploads/Downloads". When you select "Downloads" you will be asked to enter your username and password. If you don't have one, select "new user" and set one up.
2. When you get into the "Downloads" section, select "WinHost Version 2.13 Software".
3. Upon completion of WinHost Program Installation you will need to Restart your computer to allow the WinHost program to be added to your Start Menu Programs.
4. After Restart you should see the WinHost program in your Start Menu Programs. (or it may be a shortcut located on your desktop)
5. Now you must add the SC2124.spc Configuration File as follows:
6. In Windows Explorer, Create a New Folder called CFG under C:\Winhost\Products\SC2124.
7. Now Copy the File SC2124.spc into C:\Winhost\Products\SC2124\Cfg. This file will be located on the floppy disk set that was included with the scanner.
8. You may now Start the WinHost program and click on the SC2124 product on the left to bring up the SC2124 Screen. If WinHost is not communicating with the connected SC2124 there will be '??' appearing in all the parameter fields. Once WinHost starts communicating with the SC2124 the actual parameter values will appear in all the parameter fields.

APPENDIX D

Modbus Addresses (SC-2124M Only)

These addresses are all RUN time related (Function Code 03)

RANGE	CHANNELS	VALUE	INTEGER	DECIMAL
40001–40024	1-24	Scanner value (such as 327°F)	X	
40025	~	Channel number of first out	X	
40026–40049	1-24	Alarm status (Alarmed or inactive)	X	
40050–40073	1–24	Shutdown status (Alarmed or inactive)	X	
40074–40097	1–24	Shutdown trip threshold	X	
40098–40121	1–24	Alarm trip thresholds	X	
40122–40137	User trips 1–16	User trip thresholds	X	
47001–47024	1 - 24	Scanner value such (as 327°F)		X
47025	1–24	Channel number of first out		X
47026–47049		Alarm status (Alarmed or inactive)		X
47050–47073	1–24	Shutdown status (Alarmed or inactive)		X
47074–47097	1–24	Shutdown trip threshold		X
47098–47121	1–24	Alarm trip thresholds		X
47124–47137	User trips 1–16	User trip thresholds		X

Parameter 2320 = 33309 To initiate the Modbus table

Parameter 2321 = Node # (1 to 247)

See page 8 for wiring.

APPENDIX E

Instructions for SC-RTD configuration:

The SC-RTD module is required for any inputs to be configured for RTD type inputs. Each module will accept up to (12) RTD inputs. One would be required for channels 1 – 12 and another required for channels 13 – 24.

There are total of (4) jumpers for each input on the SC-RTD module. The jumpers are used to configure each channel input as either “enabled” for RTD inputs or “disabled” for thermocouple or linear type inputs. The normal configuration is for all jumpers to be in the enabled position; this would be the default configuration or status as shipped from Dynalco. If any inputs are determined to be either thermocouple or linear type (4-20 mA or 0-5 VDC) the corresponding inputs will need to be disabled by changing the jumper configuration. The jumpers are located on the PC board which is accessible by removing the cover of the SC-RTD module.

Please call Dynalco for assistance in locating the jumpers and instructions for configuration.