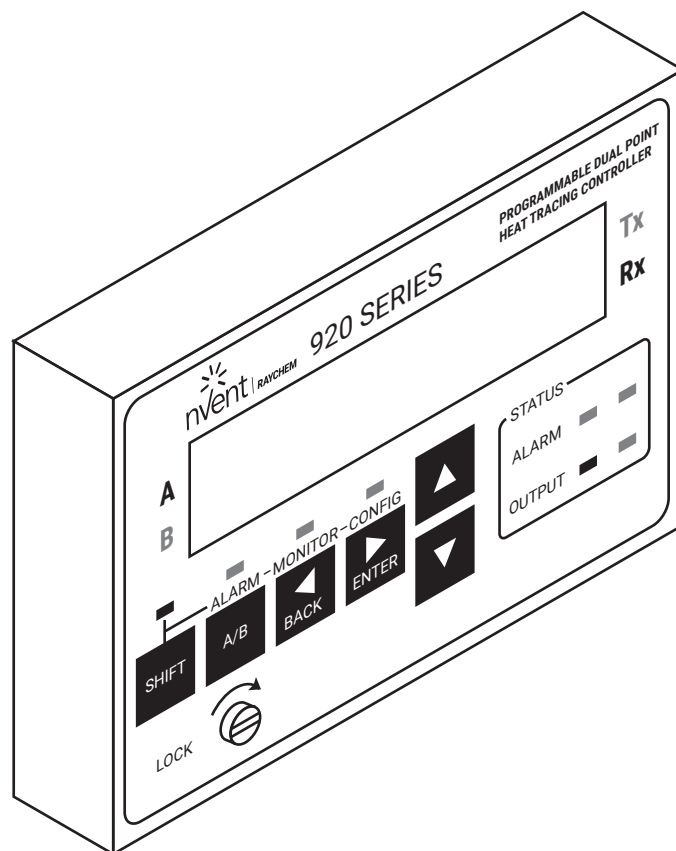# 920 SERIES HEAT TRACE CONTROLLER OPERATOR CONSOLE

Installation and Operation Instructions

Firmware Versions up to and including V3.2x

CONTENTS

This manual provides information pertaining to the installation, operation, testing, adjustment, and maintenance of the nVent RAYCHEM Model 920 Series Heat Trace Control and Monitoring products.

Additional copies of the operating manual may be ordered separately through your nVent representative or online at nVent.com using the document number H56903.

Notice: The information contained in this document is subject to change without notice.

Certification

nVent certifies that this product met its published specifications at the time of shipment from the Factory.

Limited Warranty

This nVent product is warranted against defects in material and workmanship for a period of 18 months from the date of installation or 24 months from the date of purchase, whichever occurs first. During the warranty period, nVent will, at its option, either repair or replace products that prove to be defective.

For warranty service or repair, this product must be returned to a service facility designated by nVent. The Buyer shall prepay shipping charges to nVent and nVent shall pay shipping charges to return the product to the Buyer. However, the Buyer shall pay all shipping charges, duties, and taxes for products returned to nVent from another country.

nVent warrants that the software and firmware designated by nVent for use with the nVent RAYCHEM 920 Controller will execute its programming instructions properly. nVent does not warrant that the operation of the hardware, or software, or firmware will be uninterrupted or error-free.

Warranty Exclusion/Disclaimer

The foregoing warranty shall not apply to defects resulting from improper or inadequate maintenance by the Buyer, Buyer-supplied software or interfacing, unauthorized modification or misuse, operation outside of the specifications for the product, or improper installation.

No other warranty is expressed or implied. nVent disclaims the implied warranties of merchantability and fitness for a particular purpose.

Exclusive Remedies

The remedies provided herein are the buyer's sole and exclusive remedies. nVent shall not be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any other legal theory.

Conducted and Radiated Emissions - FCC/DOC Statement of Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

This equipment does not exceed Class A limits for radio emissions as set out in Schedule V to VIII of the Radio Interference Regulations of Communication Canada.

Cet appareil respecte les limites de bruits radioelectriques applicables aux appareils numeriques de Classe A prescrites dans la norme sur le materiel brouilleur: "Appareils Numeriques",

NMB-003 edictee par le Ministre des Communications.

1.1 INTRODUCTION

This manual provides information pertaining to the installation and operation of the 920 Series Heat Trace Controller Operator Console. For information relating to the programming, installation maintenance and troubleshooting of other 920 Series products, including the Dual Point Control Module, Controller Assemblies, etc., please refer to the 920 Series Controller Manual.

Additional copies of this manual may be ordered separately through your nearest sales office using the order number listed on the front cover.

1.2 CONTROLLERS COVERED BY THIS MANUAL

This document covers the 920 Series Heat Trace Controller Operator Console. The information coincides with the specific releases of firmware for the 920 product which are listed on the front page. As nVent releases new firmware to modify or enhance the product significantly, new documentation will accompany these releases. To ensure that you are using the correct documentation for your particular version of controller, please check the firmware version number of the 920 against the version number listed on the front of this manual. This may be displayed using the 920 Series Operator Console or a communicating device. As subsequent changes are made, updates will be included in manuals shipped after the firmware is released. If issued, supplements will make specific reference to any operational or functional changes.

1.3 PRODUCT OVERVIEW

1.3.1 Description

The 920 Series Operator Console provides a simple, easy to use interface to the Dual Point Controller, alleviating the need for a communicating device to configure the Controller. The Console allows you to look at or reset alarms, test or monitor the heat tracing, and examine or alter the configuration.

The Console may be left installed permanently or may be installed temporarily for display/setup during maintenance and troubleshooting. Access is available for all monitored parameters, programmed values, and alarm information. Enhanced security is provided by password protection.

The unique design of the Operator Console allows it to be installed or removed under power even in hazardous areas.

1.3.2 Features

Keypad and Alpha-numeric Display

A six character alpha-numeric LED display provides the operator with large easy to read messages and prompts, eliminating complex and cryptic programming. Six individual keys are provided to quickly access alarming and operational information.

−40 to 140°F (−40 to 60°C) Operation

Extended temperature operation permits installation in all but the harshest environments.

CSA C/US Approved

The 920 Series Operator Console is approved for Class I, Division II, Groups A,B,C,D and Zone 2 hazardous locations making it ideal for direct use in the field.

1.4 ORDERING INFORMATION

The 920 Series Operator Console is ordered as a separate item from the Controller Assembly or other components. It may be ordered as Model #920CON. Please refer to the latest 920 Series Ordering Guide for additional information.

IMPORTANT WARNINGS AND NOTES

The following icons are used extensively throughout this manual to alert you to important warnings ⚠ that affect safety and to important notes 📝 that affect the proper operation of the unit.

Be sure to read and follow them carefully.

> ⚠ **CAUTION:**
>
> Be sure all personnel involved in installation, servicing, and programming are qualified and familiar with electrical equipment, their ratings and proper practices and codes. Multiple voltages and signal levels may be present during the installation, operation, and servicing of this product. Do not power the product until the safety provisions outlined in this section have been observed.

2.1 INTRODUCTION

This section includes information regarding the initial inspection, preparation for use, and storage instructions for the 920 series operator console.

2.2 INITIAL INSPECTION

Inspect the shipping container for damage. If the shipping container or cushioning material is damaged, it should be kept until the contents of the shipment have been verified for completeness and the equipment has been checked mechanically and electrically. Procedures for operating the Console are given in Section 3. If the shipment is incomplete, there is mechanical damage, a defect, or the console does not operate properly, notify the nearest nVent representative. If the shipping container is damaged, or the cushioning material shows signs of stress, notify the carrier as well as your nVent representative. Keep the shipping materials for the carrier's inspection.

2.3 OPERATOR SAFETY CONSIDERATIONS

The 920 series operator console is suitable for use in Class 1, Division 2, Groups A, B, C, D and Zone 2 hazardous areas. Hazardous areas are defined by Article 500 of the National Electrical Code and Section 18 of the Canadian Electrical Code.

2.4 OPERATING ENVIRONMENT

The operating environment should be within the limitations specified in the 920 Operator Console Specifications outlined in Section 6.

2.5 INSTALLATION LOCATION

The wide ambient operating temperature range of the console permits installation and use in any convenient location. Considerations should include expected atmospheric conditions, accessibility for maintenance and testing, and hazardous area rating.

> ⚠ **CAUTION:**
>
> Always be sure that the intended location is classified as an area that the product is approved for as defined by Article 500 of the National Electrical Code and/or Part I, Section 18 of the Canadian Electrical Code.

2.6.1 Operator Console Installation and Removal

The Operator Console is designed to be easily installed or removed while the Controller is powered - even in Class I Division 2 and Zone 2 hazardous locations. It may be temporarily or permanently installed.

The console is installed in three steps:

Step **1** "Hook" the lip provided on the rear cover of the Console over the top edge of the Control Module front plate.

Figure 2.1 Console Installation - Step 1
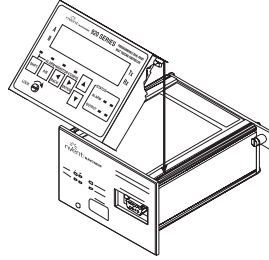
Step **2** "Hinge" the bottom of the Console downwards until it is flush with the front of the Control Module.
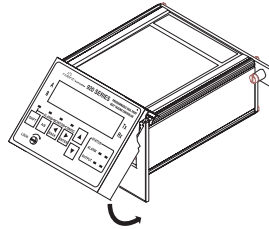
Figure 2.2 Console Installation - Step 2

Step **3** If the Console is to be permanently installed, secure it to the Control Module using the captive screw provided. It should be finger tight only. **Do not over-tighten the screw or damage to the console housing may occur.**
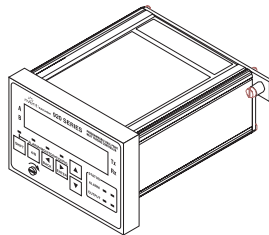
Figure 2.3 Console Installation - Step 3

To remove the Console, follow the three steps outlined above in reverse order.

SECTION 3 USER INTERFACE & OPERATION

3.1 ALPHA-NUMERIC DISPLAY

The console incorporates a 6 character 14 segment plus decimal LED display. Messages and prompts that are greater than 6 characters long are scrolled, allowing more meaningful, non-cryptic messages to be used.

3.2 KEYPAD

The local keypad consists of 6 keys that allow you to select the console mode function that you are interested in. For certain keys, the shift key selects an alternate function, as shown by the text above that key.
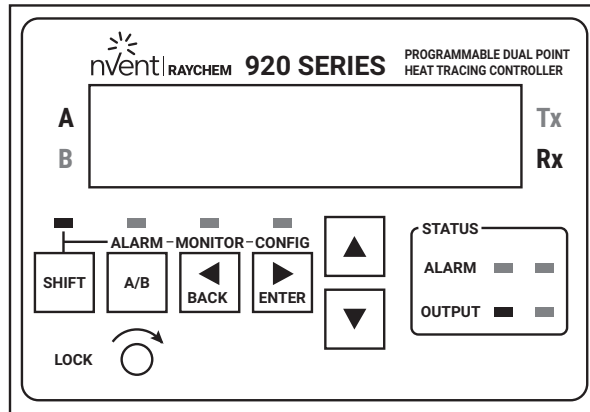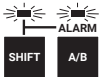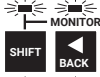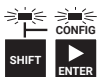

Figure 3.1 Operator onsole

Key		Function
SHIFT		• Press to activate a shifted function — the next key pressed uses the alternate (shifted) function
		• The **SHIFT** LED illuminates, indicating the next key uses the alternate (shifted) function
		• Pressing **SHIFT** again cancels the alternate (shifted) function
A/B **[shift ALARM]**		• Toggles the console display from one control point to the other (A to B or B to A)
		• When prefixed by the **SHIFT** key, this key switches the console to the **ALARM** mode
BACK **[shift MONITOR]**		• Exits the current menu (or cancels the new setting when editing a parameter)
		• Moves the cursor to the left when editing an alpha-numeric parameter
		• When prefixed by the **SHIFT** key, this key switches the console to the **MONITOR** mode
ENTER **[shift CONFIG]**		• Selects the item in the display (or accepts the setting when editing a parameter)
		• Moves the cursor to the right when editing an alpha-numeric parameter
		• When prefixed by the **SHIFT** key, this key switches the console to the **CONFIGURE** mode
▲		• Moves to the previous item in a menu
		• Increments the value when editing
▼		• Moves to the next item in a menu
		• Decrements the value when editing

3.3 LED INDICATORS

The console includes twelve LED indicators:

Six LEDs indicate the console status — the operating mode (a **shift**ed function, **alarm**, **monitor**, or **config**ure modes) and the active control Point (**A** or **B**).

Four LEDs indicate the alarm and control output status for both Points A and B.

The two additional LEDs are used to indicate external communications activity — the "**Rx**" LED flashes to show that the controller is receiving information via its communications port, and the "**Tx**" LED flashes when the controller is transmitting data.

3.4 OPERATIONAL BASICS

3.4.1 Operating Modes

The console operates in one of four modes and is related to the basic function the operator selects. These modes are:

Mode	Function
Scan	• This is the default mode. In this mode the console sequentially displays the active control point, the setpoint, temperature, and load current readings for Points A and B.
Alarm	• Invoked when you press the **SHIFT** key followed by **ALARM** key. This mode allows you to examine or reset any alarms that may exist. The LED above the **ALARM** key is illuminated while in this mode.
Monitor	• Invoked when you press the **SHIFT** key followed by **MONITOR** key. In this mode, you may examine any of the controller readings such as temperature, load current, ground fault current, etc. The LED above the **MONITOR** key is illuminated while in this mode.
Configure	• Invoked when you press the **SHIFT** key followed by **CONFIG** key. In this mode, you may examine or alter the controller configuration. The LED above the **CONFIG** key is illuminated while in this mode.

3.4.2 Menus

Each of the operating modes has a list of data items associated with it. For example, in the **Monitor** mode you may view temperatures, load current, resistance, ground fault current, voltage, or power information. This collection of data items is referred to as a menu.

Only one menu item may be viewed at a time. The ▼ (▲) keys move to the next (previous) item in the menu. When you reach the end of the menu (indicated by --- END ---), ▼ wraps you to the first item in the menu; conversely, ▲ wraps you to the last item in the menu.

Some of the items within a menu are actually entry points to sub-menus — these entries are indicated with "..." at the end of the message. To enter a sub-menu, press the ▶ key. To move around in the menu, use the ▼ and ▲ keys move to the next and previous items respectively. The ◀ key exits the current menu and returns to the previous menu.

After approximately five minutes of keypad inactivity, the current menu and mode will be exited and the console will revert back to the **Scan** mode.

IMPORTANT: Some menus are dynamic, that is, some items appear or disappear depending on the configuration. For example, if you disable the low voltage alarm, then the corresponding low voltage setpoint is not available and will not be displayed.

3.4.3 Changing the Configuration

To change the controller configuration:

- Position the desired parameter (menu item) in the display.
- Press the ▶ key to initiate an edit session.
- If the console is "locked" you are prompted to enter the passcode.
- The present setting will flash on the display to indicate that you are editing the parameter.
- Use the ▲ and ▼ keys to change the value.
- The operation of the ▶ and ◀ varies depends on the type of data being editing. See the following sections for details.

🖊 **IMPORTANT:** Once you have initiated an edit session, you must end it before switching to another mode or invoking another function (including switching between Points A and B). An edit session ends when you enter a new value (using the ▶ key) or you back out of it (using the ◀ key).

3.4.4 Changing a Non-Numeric Parameter

To change a non-numeric parameter (e.g.: an alarm mask setting):

- Position the appropriate parameter in the display.
- Press the ▶ key to initiate the edit session.
- If the console is "locked" you are prompted to enter the passcode.
- The present setting will flash on the display to indicate that you are editing the parameter.
- Use ▲ or ▼ until the desired value appears in the display.
- Pressing ▶ saves the new value.
- Pressing ◀ ends the edit session without altering the parameter.

3.4.5 Changing a Numeric Parameter

To change a numeric parameter (e.g.: the control setpoint):

- Position the appropriate parameter in the display.
- Press the ▶ key to initiate the edit session.
- If the console is "locked" you are prompted to enter the passcode.
- The present value is displayed and the last (rightmost) digit blinks.
- The blinking digit identifies the digit that you are editing.
- Use ▲ or ▼ to set the desired value.
- Use ◀ or ▶ to move to a different digit.
- To enter a negative value, scroll the first (leftmost) digit until a "-" appears in the display.
- Pressing ▶ while on the last (rightmost) digit saves the new value.
- Pressing ◀ while on the first (leftmost) digit ends the edit session without altering the parameter.

3.4.6 Passcode Protection

The 920 Series Dual Point Controller provides a passcode for protection of its configuration. You may view any portion of the configuration with the console "locked", however, when you attempt to initiate an edit session by pressing ▶, you are prompted to enter the passcode. Entering the passcode is just like entering any other numeric value; see Section 3.4.5 "Changing a Numeric Parameter".

Once the console is "unlocked", you may edit any configuration parameter. The console will automatically re-lock after approximately five minutes of keypad inactivity, or until the user explicitly locks it.

🖊 **IMPORTANT:** Setting the programmed passcode to "0" disables passcode protection.

🖊 **IMPORTANT:** The console does not have to be unlocked to reset alarms.

3.4.7 Switching Between Points A and B

There are two LEDs to indicate which point has control of the console. You may switch from Point A to Point B (or vice versa) at any time (except during an edit session) by pressing the **A/B** key. When you switch points, the same menu item is active. For example, if you are monitoring the voltage for Point B and press **A/B**, then the voltage for Point A is displayed. Pressing **A/B** again takes you back to monitoring Point B.

3.4.8 Quick Notes on Operation

Remember the followwing basic rules for efficient console use:

- Use the **SHIFT** key followed by the appropriate function key — **ALARM**, **MONITOR**, or **CONFIG** — to select the operating mode
- Use ▼ and ▲ to move around in the menu
- Use ▶ to enter a new menu, enter a new value, or select a menu item
- Use ◀ to exit the current menu or cancel an edit
- Use the **A/B** key to toggle between Points A and B

4.1 ALARM MODE

The **ALARM** mode is invoked when you press the **SHIFT** key followed by the **ALARM** key. This mode allows you to examine and reset any alarms that may exist. Use ▼ (▲) to examine the next (previous) active alarm.

4.1.1 Resetting One Alarm

To reset an alarm, press ▶. You are prompted for confirmation — answering "YES" resets the alarm and advances you to the next alarm.

4.1.2 Resetting All Alarms

To reset all active alarms for the control point being displayed, press ▶. You are prompted for confirmation — press ▲ to select "ALL" and press ▶ to accept.

4.1.3 Monitor Mode Tracking

The **MONITOR** mode "tracks" the **ALARM** mode. If the **MONITOR** mode is selected while viewing an alarm, the controller will enter the **MONITOR** menu and display an appropriate reading. For example, if you are examining a High Load Current Alarm and then select the **MONITOR** mode, the starting point within the **MONITOR** menu will be the load current reading. Once the **MONITOR** mode has been selected, you may move around in the menu using ▼ and ▲.

4.1.4 Alarm Messages

Table 4.1 lists sample alarms and the corresponding starting point in the **MONITOR** mode menu, if it is invoked from the **ALARM** mode.

Sample Alarm Message			Monitor Mode Starting Point
LO TS 1	=	-2°C	TS 1 Temperature
HI TS 1	=	102°C	"
TS 1 FAIL	=	ALARM	"
LO TS 2	=	−4°C	TS 2 Temperature
HI TS 2	=	105°C	"
TS 2 FAIL	=	ALARM	"
CTL TS FAIL	=	ALARM	Control Temperature
LO LOAD	=	0.5 A	Load Current
HI LOAD	=	21.0 A	"
HI GFI	=	52 mA	Ground Fault Current
GFI TRIP	=	77 mA	"
LO VOLT	=	85 V	Voltage
HI VOLT	=	140 V	"
LO RESIST	=	3.38Ω	Resistance
HI RESIST	=	9.24Ω	"
OVERCURRENT TRIP	=	ALARM	Load Current
SWITCH FAIL	=	ALARM	"
HTC RESET	=	ALARM	Time Since Last Reset
SWITCH LIMITING	=	ALARM	Load Current
C.B. LIMITING	=	ALARM	"
POWER LIMITING	=	ALARM	Power
EEROM DATA FAIL	=	ALARM	N/A
CONTACTOR COUNT	=	200,000	Contactor Cycle Count

Table 4.1

The **MONITOR** mode is invoked when you press the **SHIFT** key followed by the **MONITOR** key.

This mode allows you to test the heat tracing and examine any of the analog readings. The data is updated in real-time, providing the user with a method of viewing tracer information as it occurs.

4.2.1 Main Menu

Monitor Mode Main Menu			
CONTROL TEMP	=	4°C	**(or CONTROL TEMPBUS = 4°C)**
TS 1 TEMP	=	4°C	
TS 2 TEMP	=	7°C	**(only if TS2 is being used)**
LOAD	=	8.9 A	
RESIST	=	13.26 Ω	
GFI	=	0 mA	
VOLT	=	118 V	
POWER	=	1050 W	**(or POWER = 10.4 kW**
TEST TRACING			**(turn on tracing for 30 seconds)**
DISPLAY TEST			**(to abort DISPLAY TEST, press any key)**
MAINTENANCE DATA...			**Note the "..." indicating a sub-menu.**
--- END			

Table 4.2

4.2.2 "MAINTENANCE DATA..." Sub-Menu

This sub-menu is used to view minimum and maximum temperatures, total accumulated power, hours in use, and the number of hours since the last time the Controller was reset. These parameters may be reset by the user. For additional information, refer to the 920 Series Heat Trace Controller Manual.

CONTROL TEMP	=	4°C
TS 1 TEMP	=	4°C
TS 2 TEMP	=	7°C
LOAD	=	8.9 A
RESIST	=	13.26 Ω
GFI	=	0 mA
VOLT	=	118 V
POWER	=	1050 W
TEST TRACING		
DISPLAY TEST		
MAINTENANCE DATA...		
--- END ---		

MAINTENANCE DATA Sub-Menu			
MIN CTL TEMP	=	−2°C	
MAX CTL TEMP	=	65°C	
TS 1 MIN TEMP	=	−2°C	
TS 1 MAX TEMP	=	65°C	
TS 2 MIN TEMP	=	−1°C	
TS 2 MAX TEMP	=	61°C	
POWER ACCUM	=	145.9 kW-h	
CONTACTOR CYCLE COUNT	=	1234	**(only if Deadband or Prop. Amb. Contactor modes are being used)**
IN USE	=	2896 h	
TIME SINCE LAST RESET	=	675 h	
---- END ----			

Table 4.3

The **CONFIGURE** mode is selected when the operator presses the **SHIFT** key followed by the **CONFIG** key. This mode allows you to examine or alter the Controller's configuration.

Menu items with a trailing "..." indicate an entry point to a sub-menu. To enter a sub-menu, use ⬇ and ⬆ to position the menu item in the display and then press ▶. Note that the controller "remembers" where you are in the **CONFIGURE** mode if you temporarily switch to a different mode (such as the **MONITOR** mode). Switching back to the **CONFIGURE** mode will return you to the same menu item.

IMPORTANT: A few of the controller parameters that are often used have been duplicated in the **CONFIGURE** mode main menu for quick access. These parameters (Lo TS 1, Lo Load, Hi GFI, GFI Trip) may also be accessed using their respective sub-menus.

4.3.1 Main Menu

Monitor Mode Main Menu		
CONTROL SETPOINT	=	{−60 to 570}°C
LO TS 1	=	{−60 to 570}°C
LO LOAD	=	{0.3 to 100.0} A
HI GFI	=	{20 to 250} mA
GFI TRIP	=	{20 to 250} mA
TS ALARMS CONFIG...		**Note that the menu items with a trailing "..." indicate the entry point to a sub-menu.**
OTHER ALARMS CONFIG...		
POINT SETUP...		
COMMON SETUP...		
COMMUNICATIONS SETUP...		
LOCK DATABASE		**(only if passcode is not 0 and database is unlocked)**
UNLOCK DATABASE		**(only if passcode is not 0 and database is locked)**
--- END ---		

Table 4.4

4.3.2 "TS ALARM CONFIG..." Sub-Menu

This sub-menu is used to set up alarms that relate to any of the temperature sensors. Each alarm may be ENAbled or DISabled, and if the alarm is ENAbled, an alarm setting may be entered.

CONTROL SETPOINT	=	20°C
LO TS 1	=	−10°C
LO LOAD	=	1.0 A
HI GFI	=	50 mA
GFI TRIP	=	75 mA
TS ALARMS CONFIG...		
OTHER ALARMS SETUP...		
POINT SETUP...		
COMMON SETUP...		
COMMUNICATIONS SETUP...		
--- END ---		

TS Alarms Configuration Sub-Menu		
TS 1 FAIL	=	{ENA or DIS}
LO TS 1	=	{ENA or DIS}
LO TS 1	=	{−60 to 570}°C
HI TS 1	=	{ENA or DIS)
HI TS 1	=	{−60 to 570}°C
TS 2 FAIL	=	{ENA or DIS)
LO TS 2	=	{ENA or DIS)
LO TS 2	=	{−60 to 570}°C
HI TS 2	=	{ENA or DIS}
HI TS 2	=	{−60 to 570}°C
LO TS FILTER	=	{0 to 999} MIN (**only if** LO TS 1 or 2 **are enabled**)
HI TS FILTER	=	{0 to 999} MIN (**only if** HI TS 1 or 2 **are enabled**)
LATCH TS ALARMS	=	{YES or NO}
CTL TS FAIL	=	{ENA or DIS}
--- END ---		

Table 4.5

4.3.3 "OTHER ALARMS CONFIG..." Sub-Menu

This sub-menu allows the user to set up all alarms that do not directly relate to the temperature sensors. These include all AC alarms (voltage, current. ground fault, etc.) as well as protection settings such as power limiting, etc.

Each alarm may be ENAbled or DISabled. If the alarm is ENAbled, an alarm setting and filter setting may be entered.

CONTROL SETPOINT	=	20°C
LO TS 1	=	−10°C
LO LOAD	=	1.0 A
HI GFI	=	50 mA
GFI TRIP	=	75 mA
TS ALARMS CONFIG...		
OTHER ALARMS CONFIG...		
POINT SETUP...		
COMMON SETUP...		
COMMUNICATIONS SETUP...		
--- END ---		

Other Alarms Configuration Sub-Menu

LO LOAD	=	{ENA or DIS}	
LO LOAD	=	{0.3 to 100.0} A	
LO LOAD FILTER	=	{0 to 12} S	
HI LOAD	=	{ENA or DIS}	
HI LOAD	=	{0.3 to 100.0} A	
HI LOAD FILTER	=	{0 to 12) S	
HI GFI	=	{ENA or DIS}	
HI GFI	=	{20 to 250} mA	
HI GFI FILTER	=	{0 to 12} S	
GFI TRIP	=	{ENA or DIS}	
GFI TRIP	=	{20 to 250} mA	
* LO VOLT	=	{ENA or DIS}	
* LO VOLT	=	{10 to 330} V	
* LO VOLT FILTER	=	{0 to 12} S	
* HI VOLT	=	{ENA or DIS}	
* HI VOLT	=	{10 to 330} V	
* HI VOLT FILTER	=	{0 to 12} S	
LO RESIST	=	{ENA or DIS}	
LO RESIST	=	{1 to 100} %	
LO RESIST FILTER	=	{0 to 12} S	
HI RESIST	=	{ENA or DIS}	
HI RESIST	=	{1 to 250} %	
HI RESIST FILTER	=	{0 to 12} S	
NOMINAL RESIST	=	{2.00 to 2000.00}Ω	**(only if LO or HI is enabled)**
OVERCURRENT TRIP	=	{ENA or DIS}	**(only if SSR is being used)**
SWITCH FAIL	=	{ENA or DIS}	
HTC RESET	=	{ENA or DIS}	
C.B. LIMITING	=	{ENA or DIS}	**(only if SSR is being used)**
POWER LIMITING	=	{ENA or DIS}	**(only if SSR is being used)**
SWITCH LIMITING	=	{ENA or DIS}	**(only if SSR is being used)**
CONTACTOR COUNT	=	{ENA or DIS}	**(only if Deadband or Prop. Amb. Contactor are being used)**
CONTACTOR COUNT	=	{0 to 999,999}	**(only if Deadband or Prop. Amb. Contactor are being used)**
EEROM DATA FAIL	=	{ENA or DIS}	
--- END ---			

• Only if VOLT SOURCE is set to the point being used.

Table 4.6

4.3.4 "POINT SETUP..." Sub-Menu

The "Point Setup" sub-menu is used to configure parameters that relate directly to each specific control Point (A or B). Note that these settings must be configured for each of the control points that are in use.

Included in this menu are control mode settings, circuit breaker and switch ratings, auto-cycle set up parameters, etc..

CONTROL SETPOINT	=	20°C
LO TS 1	=	−10°C
LO LOAD	=	1.0 A
HI GFI	=	50 mA
GFI TRIP	=	75 mA
TS ALARMS CONFIG...		
OTHER ALARMS CONFIG...		
POINT SETUP...		
COMMON SETUP...		
COMMUNICATIONS SETUP...		
--- END ---		

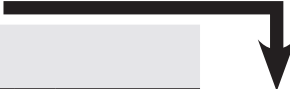| Point Setup Sub-Menu			
TAG	=	{19 ALPHA-NUMERIC CHARACTERS}	
SWITCH CONTROL MODE	=	{PROPORTIONAL, PROP AMB. SSR, DEADBAND, or PROP AMB. CONTACTOR}	
DEADBAND	=	{1 to 50}°C	(**only if** SWITCH CONTROL MODE is DEADBAND **or point A and** EXT. OUTPUT = INHIBIT)
PROP BAND	=	{1 to 50}°C	(**only if** SWITCH CONTROL MODE **is not** DEADBAND)
CYCLE TIME	=	{10 to 255}MIN	(**only if** SWITCH CONTROL MODE **is** PROP AMB. CONTACTOR)
SWITCH RATING	=	{0.3 to 100.0} A	(**only if** SSR is being used)
CIRCUIT BREAKER	=	{0.3 to 100.0} A	(**only if** SSR is being used)
MAX POWER	=	{3 W to 33,000} W	(**only if** SSR is being used)
3 PH PWR CALC	=	{YES or NO}	
TS FAIL MODE	=	{OFF or ON}	
TS CTL MODE	=	{TS 1.FAIL OFF(ON) or TS 1-FAIL TO TS 2 or TS 2-FAIL OFF(ON) or TS 2-FAIL TO TS 1 or AVERAGE-FAIL OFF(ON) or AVERAGE-FAIL TO GOOD or LOWEST-FAIL OFF(ON) or LOWEST-FAIL TO GOOD or EXT.INPUT-FAIL OFF(ON)or EXT.INPUT-FAIL TO TS 1 or EXT.INPUT-FAIL TO TS 2}	
TS 1 TYPE	=	{100 (PLAT or NI-FE}	
TS 1 LEAD RESIST	=	{0 to 20.00} Ω	(**only if** TS 1 TYPE = NI-FE)
TS 1 HI LIMIT	=	{ENA or DIS}	
TS 2 TYPE	=	{100 (PLAT or NI-FE}	
TS 2 LEAD RESIST	=	{0 to 20.00} Ω	(**only if** TS 2 TYPE = NI-FE)
TS 2 HI LIMIT	=	{ENA or DIS}	
VOLT SOURCE	=	{PT. A or PT. B or FIXED}	
FIXED VOLT	=	= {0 to 1000} V	(**only if** VOLT SOURCE = FIXED)
VOLT TURNS RATIO	=	{0.10 to 9.90} TO 1	(only if VOLT SOURCE = **current point's voltage**)
CURRENT TURNS RATIO	=	{0.10 to 60.00} TO 1	
AUTO-CYCLE	=	{ENA or DIS}	
AUTO-CYCLE INTERVAL	=	{1 to 240}	(**only if** AUTO-CYCLE = ENA)
AUTO-CYCLE UNITS	=	{HOURS or MINUTES}	(**only if** AUTO-CYCLE = ENA)
OVERRIDE SOURCE	=	{REMOTE or EXT. INPUT}	
LOAD SHEDDING	=	{ENA or DIS}	
--- END ---	=		

Table 4.7

4.3.5 "COMMON SETUP..." Sub-Menu

The "Common Setup" sub-menu is used to configure parameters that are common to both control Points A and B. These settings are set up only once to define the operation of both control points.

CONTROL SETPOINT	=	20°C
LO TS 1	=	−10°C
LO LOAD	=	1.0 A
HI GFI	=	50 mA
GFI TRIP	=	75 mA
TS ALARMS CONFIG...		
OTHER ALARMS CONFIG...		
POINT SETUP...		
COMMON SETUP...		
COMMUNICATIONS SETUP...		
--- END ---		

Common Setup Sub-Menu		
TEMP UNITS	=	{°C or °F}
VERSION	=	V3.14.0
EXT. INPUT	=	{NOT USED, TEMPBUS, INHIBIT or FORCE ON}
EXT. OUTPUT	=	{NOT USED, TEMPBUS or INHIBIT}
FLASH ALARM OUTPUT	=	{YES or NO}
ALARM OUTPUT	=	{N.C. or N.O.}
LANGUAGE	=	{ENGLISH or FRANCAIS}
POINT B USED	=	{YES or NO}
PASSCODE	=	{0000 to 9999} **(only if 0 or database is unlocked)**
SCROLL DELAY	=	{0.07 to 0.25} S
COPY CONFIG...		**Note the "..." indicating a sub-menu.**
--- END ---		

Table 4.8

4.3.5.1 "COPY CONFIG..." Sub-Menu

The "Copy Config" sub-menu is used to copy configuration parameters.

COPY CONFIGURATION Sub-Menu	
DEFAULTS TO COMMON	(copies the Factory default COMMON parameters to memory)
DEFAULTS TO A	(copies the Factory default Point parameters to control Point A)
DEFAULTS TO B	(copies the Factory default Point parameters to control Point B)
A TO B	(copies Point A settings to Point B)
B TO A	(copies Point B settings to Point A)
--- END ---	

Table 4.9

4.3.6 "COMMUNICATIONS SETUP…" Sub-Menu

The settings found in this sub-menu must be configured whenever an optional communications board is installed in the Control Module. These parameters are common to both control points, EXCEPT the "HTCBUS ADDR", "MODBUS ADDR", and "MODBUS SUBADDR" parameters, which must be defined for each control point individually.

CONTROL SETPOINT	=	20°C
LO TS 1	=	−10°C
LO LOAD	=	1.0 A
HI GFI	=	50 mA
GFI TRIP	=	75 mA
TS ALARMS CONFIG...		
OTHER ALARMS CONFIG...		
POINT SETUP...		
COMMON SETUP...		
COMMUNICATIONS SETUP...		
--- END ---		

COMMUNICATIONS Sub-Menu

PROTOCOL	=	{HTCBUS or MODBUS ASCII or MODBUS RTU}	
HTCBUS ADDR	=	{1 to 1,6777,215}	(**only if** PROTOCOL= HTCBUS)
MODBUS ADDR	=	{1 to 247}	(**only if** PROTOCOL **is not** HTCBUS)
MODBUS SUB ADDR	=	{0 to 31}	(**only if** PROTOCOL **is not** HTCBUS)
BAUD RATE	=	{AUTO or 9600 or 4800 or 2400 or 1200 or 600 or 300}	
PARITY	=	{NONE or ODD or EVEN}	(**only if** PROTOCOL **is not** HTCBUS)
HARDWARE	=	{NONE or MODEM or RS-232 or RS-485}	
DRIVER	=	{AUTO or RS-485 or RS-232 or MODEM}	
PROFILE	=	{AUTO or FLOW CONTROL RS-232 or STANDARD RS-232 or 3-WIRE RS-232 or RS-485 or EXTERNAL MODEM or 1200 BAUD MODEM or 300 BAUD MODEM}	
Tx DELAY	=	{0.00 to 2.50} S	
--- END ---			

Table 4.10

SECTION 5 MAINTENANCE

5.1 OPERATOR MAINTENANCE

The 920 Series Operator Console is designed to be a maintenance free product. No regular maintenance should be required.

5.2 REPLACEABLE PARTS

There are no user-serviceable parts in the 920 Series Operator Console. The unit is modular and easily changed out in the field in a matter of minutes. Those units appearing inoperative should be returned to the nearest nVent RAYCHEM Service Center for service.

⚠ **WARNING:**

Tampering with the 920 components without approval from nVent could result in voiding the warranty of the product.

SECTION 6 SPECIFICATIONS

System Ratings		
Storage Ambient	−40 to +185°F (−40 to +85°C)	
Approvals	CSA C/US	
Classification	Cl I, Div 2, Grp A,B,C,D and Ex nA IIA, IIB, IIC	T-code: T6 and Ordinary areas
920 Series Operator Console		
Operating Temperature	−40 to +140°F (−40 to +60°C)	
Power Requirement	+9Vdc nominal, 500 ma max.	

IMPORTANT: Specifications are @ 25°C unless otherwise noted and are subject to change without notice.

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