MCR Kit High Temperature Alarm

Installer/User Guide

The information contained in this document is subject to change without notice and may not be suitable for all applications. While every precaution has been taken to ensure the accuracy and completeness of this document, Vertiv assumes no responsibility and disclaims all liability for damages result from use of this information or for any errors or omissions.

Refer to local regulations and building codes relating to the application, installation, and operation of this product. The consulting engineer, installer, and/or end user is responsible for compliance with all applicable laws and regulations relation to the application, installation, and operation of this product.

The products covered by this instruction manual are manufactured and/or sold by Vertiv. This document is the property of Vertiv and contains confidential and proprietary information owned by Vertiv. Any copying, use, or disclosure of it without the written permission of Vertiv is strictly prohibited.

Names of companies and products are trademarks or registered trademarks of the respective companies. Any questions regarding usage of trademark names should be directed to the original manufacturer.

Technical Support Site

If you encounter any installation or operational issues with your product, check the pertinent section of this manual to see if the issue can be resolved by following outlined procedures.

Visit https://www.vertiv.com/en-us/support/ for additional assistance.

TABLE OF CONTENTS

This page intentionally left blank

1 Important Safety Instructions

Save These Instructions

This manual contains important instructions that must be closely followed during the installation of this unit to maintain compliance with agency listings. Read all safety and operating instructions. Adhere to all warnings on the unit and in this manual. Follow all operating and user instructions.

WARNING! Risk of electric shock. Only qualified professionals may disconnect the power supply connectors between the main's electricity and cabinet.

CAUTION: Maintenance and cleaning operations are to be performed by trained personnel only. Regularly scheduled maintenance must be performed based on the schedule in the MCR User Manual.

CAUTION: Read this Installer User Guide before operating this unit. This unit is to be used only as intended, as described in this manual.

CAUTION: This unit must be maintained by a trained electrician. Follow all local regulations and codes. Disconnect the unit from power before performing any maintenance by switching OFF all poles. Safeguard from switching the unit on unintentionally. The unit must be connected to marked sources of power supply only. If the unit or parts of the unit are damaged, switch the unit off at the mains fuse. The unit must never be exposed to rain or water. Fluids and other foreign matter must be prevented from entering the device. This product is designed for commercial/ industrial use only. This product is not intended for use with life support or other US FDA designated critical devices. Install and operate in a clean environment, free from moisture, flammable liquids, gases, and corrosive substances. Maintain minimum clearances as specified in this manual. Provide the minimum space between the accessories and components and the housing. This spacing shall be maintained for the safe operation of the equipment when installed in accordance with the National Electric Code, ANSI/NFPA 70. As appropriate, all wiring and equipment should be installed in accordance with NFPA 70, “National Electrical Code,” and the applicable sections of ANSI C2, “National Electrical Safety Code."

This page intentionally left blank

2 Product Overview

Vertiv™ MCR Kit High Temperature Alarm is a single point or threshold type of temperature alarm. This type of temperature alarm monitors the temperature at the sensor probe tip and when this temperature passes above or below the setpoint, the unit will execute a preset operation.

2.1 Appearance and Components

The MCR Kit High Temperature Alarm is depicted in Figure 2.1 below , Figure 2.2 on the next page , and Figure 2.3 on page 5 .

Figure 2.1 Main Appearance of Components of Vertiv™ MCR Kit High Temperature Alarm

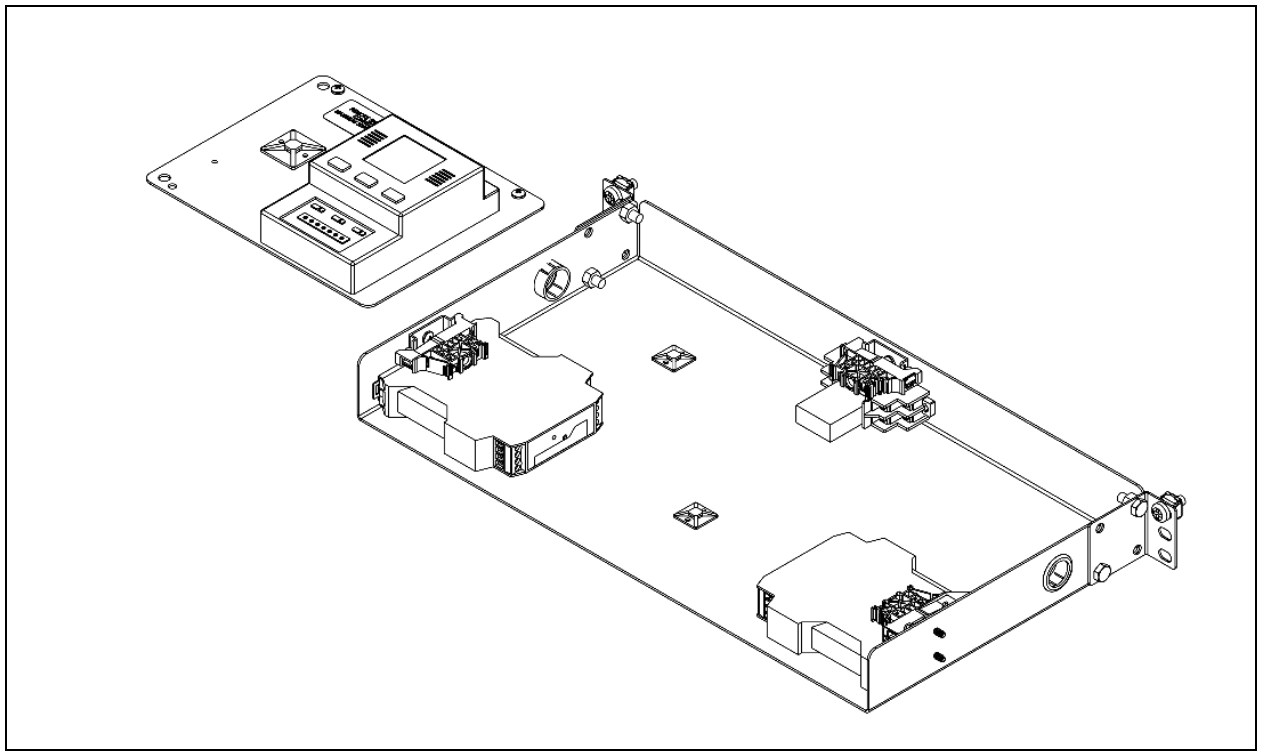
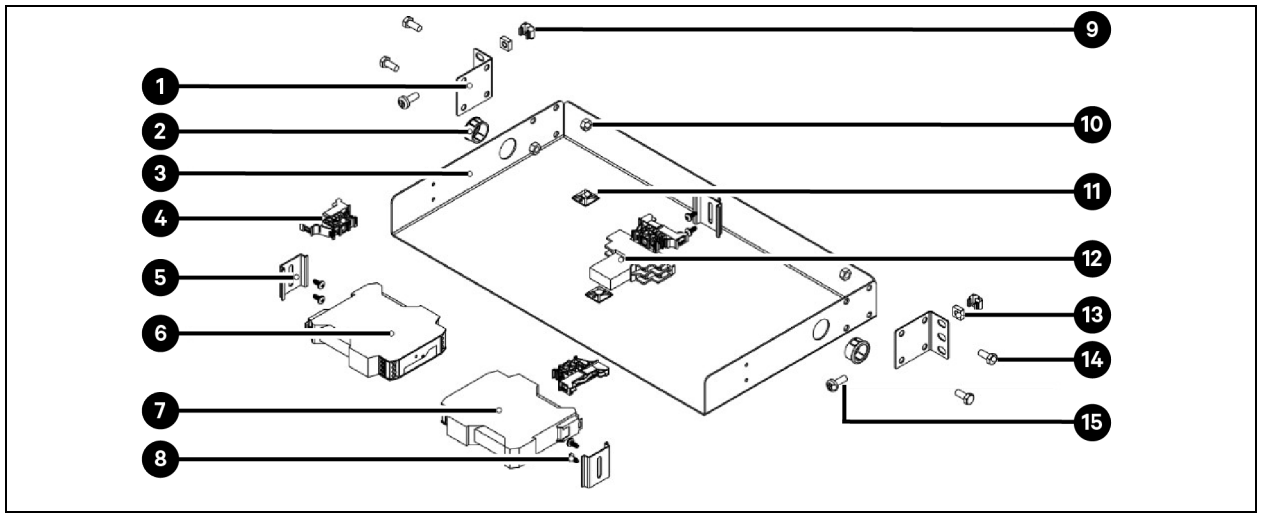
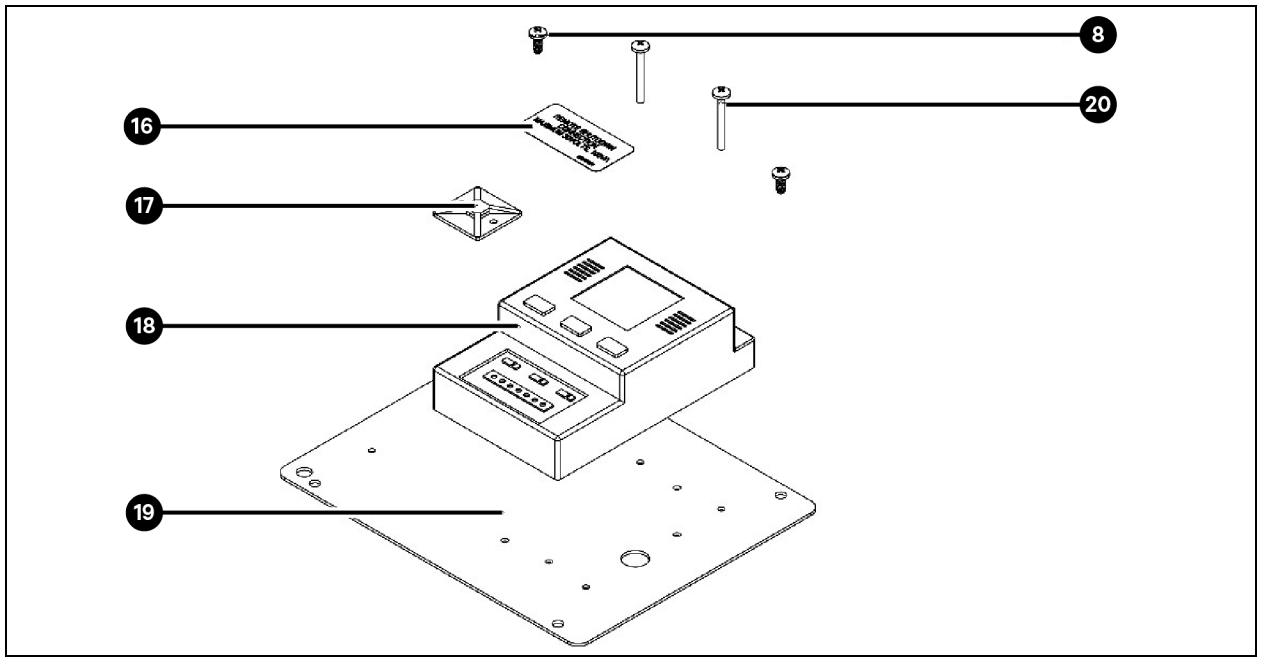


Figure 2.2 Appearance and Components of Vertiv™ MCR Kit High Temperature Alarm



Item	Description	Item	Description
1	Mounting bracket B	9	Cage nut
2	Bushing snap 7/8"	10	Nut hex
3	MCR Kit High Temperature Alarm bracket	11	Cable tie pad small
4	Retainer din rail	12	Relay 2PDT
5	Rail din 35mm	13	Nut retainer
6	Converter DC/DC 24VDC-12VDC	14	Screw cap
7	Converter AC/DC 24VAC-28VDC	15	Screw P/H PH M6
8	Screw TPG PH PHL		

Figure 2.3 Appearance and Components of Vertiv™ MCR Kit High Temperature Alarm (Temperature Sensor)



Item	Description
16	Label remote shutdown
17	Cable tie pad large
18	High temperature alarm
19	Plate mounting T/H LGH2
8	Screw TPG PH PHL
20	Screw TPG PH

2.2 MCR Kit High Temperature Alarm Usage Scenarios

The Table 2.1 below lists the racks models where the MCR Kit High Temperature Alarm is applied.

Table 2.1 MCR Kit High Temperature Alarm Rack Models, Nominal Dimensions

Model Number	U	Height (inch)	Width (inch)
RD848	42	38	23
HD788	42	38	19

This page intentionally left blank

3 Pre-Installation Preparation

3.1 Equipment Inspection

Upon receiving a Vertiv™ MCR Kit High Temperature Alarm, inspect the packaging for any signs of mishandling or damage. If any damage is noted, notify your local Vertiv representative and your carrier immediately.

3.2 Necessary Equipment or Tools

The following tools or equipment are required to unpack or install the MCR Kit High Temperature Alarm:

- Utility knife or scissors
- Philips head screwdriver
- Tie wraps (provided)
- Ladder, if necessary

This page intentionally left blank

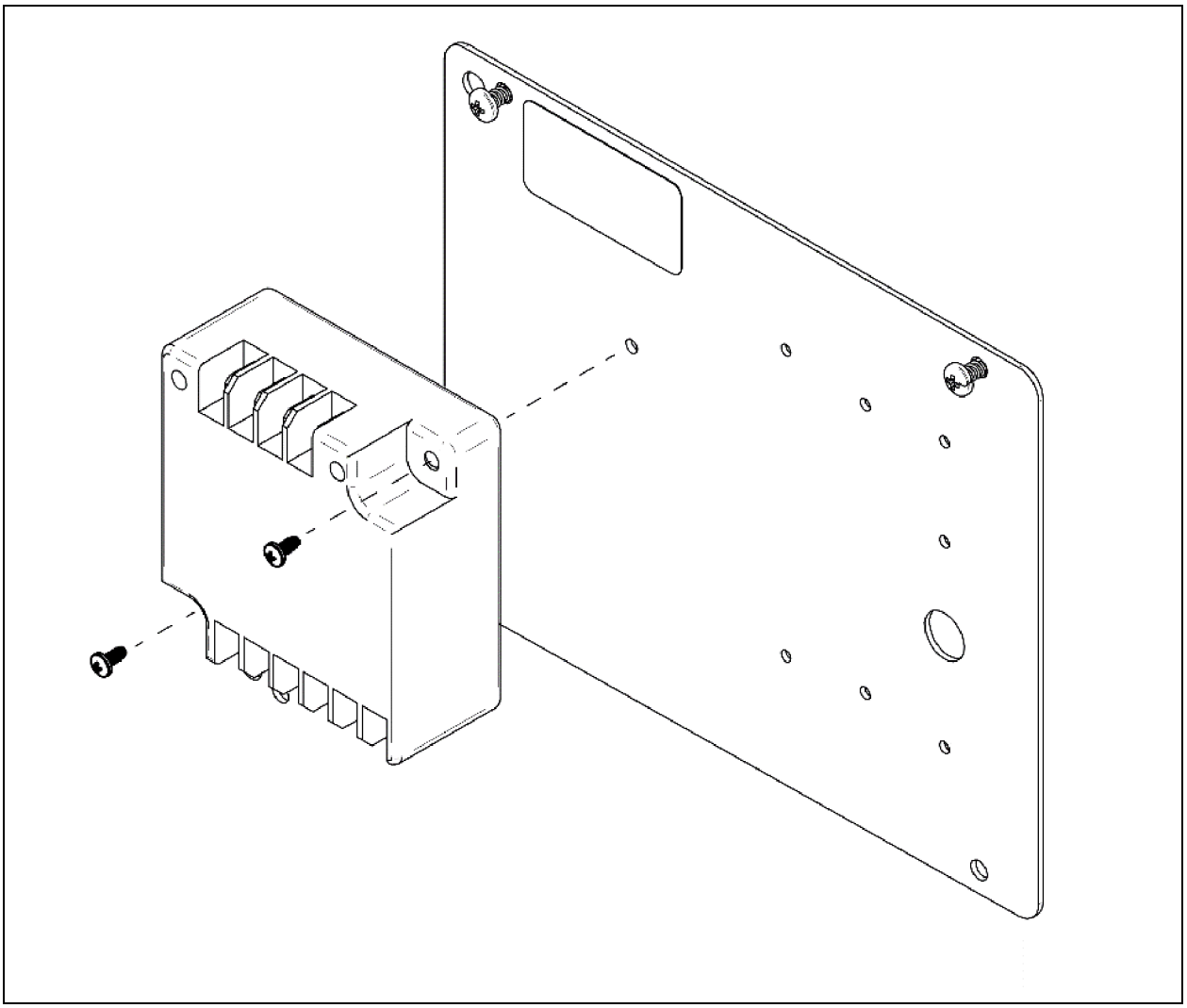
4 Installation and Assembly Procedures

After your Vertiv™ MCR Kit High Temperature Alarm is placed in its final location, refer to the following procedures to install accessories, adjust components, and load equipment into the rack.

4.1 Uninstall the Previous Sensor

The first step to install the MCR Kit High Temperature Alarm is to remove and replace the old version sensor already installed in the equipment. Unscrew the alarm from the sheet metal plate as shown in Figure 4.1 below .

Figure 4.1 Uninstall the Previous Sensor



IMPORTANT! Be sure to uninstall the previous high temperature alarm along with the wiring harness before starting to install the new high temperature alarm.

4.2 Install the Vertiv™ MCR Kit High Temperature Alarm Sensor

Once the previous alarm has been correctly uninstalled, use the screws TPG PH to attach the temperature sensor to the right side of the already assembled plate mounting T/H LGH2 as shown in Figure 2.3 on page 5 , fitting it to the screw holes, as shown in Figure 4.2 below . Avoid mounting in areas of excessive humidity or temperatures outside the operating range of the alarm.

Figure 4.2 Attaching Temperature Sensor

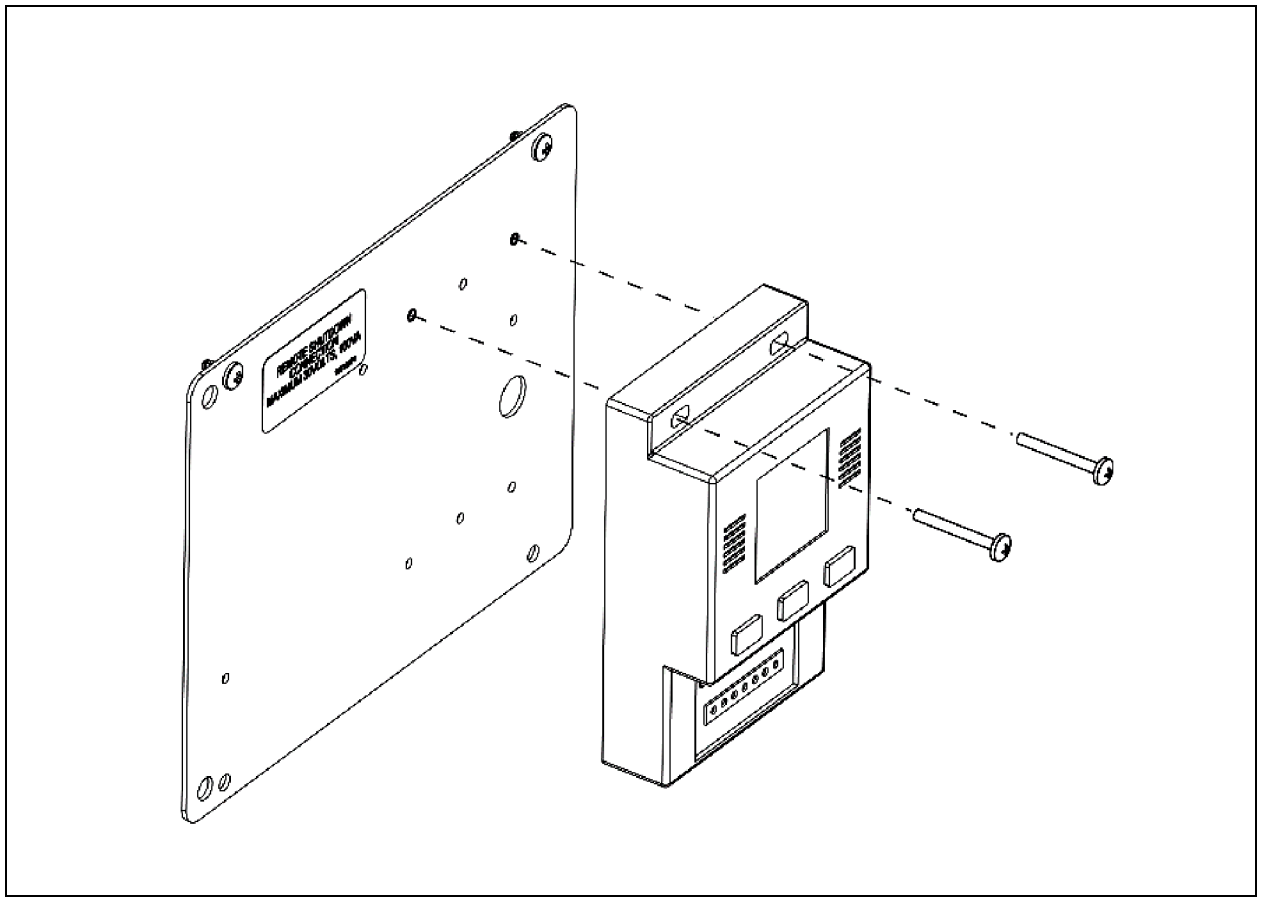
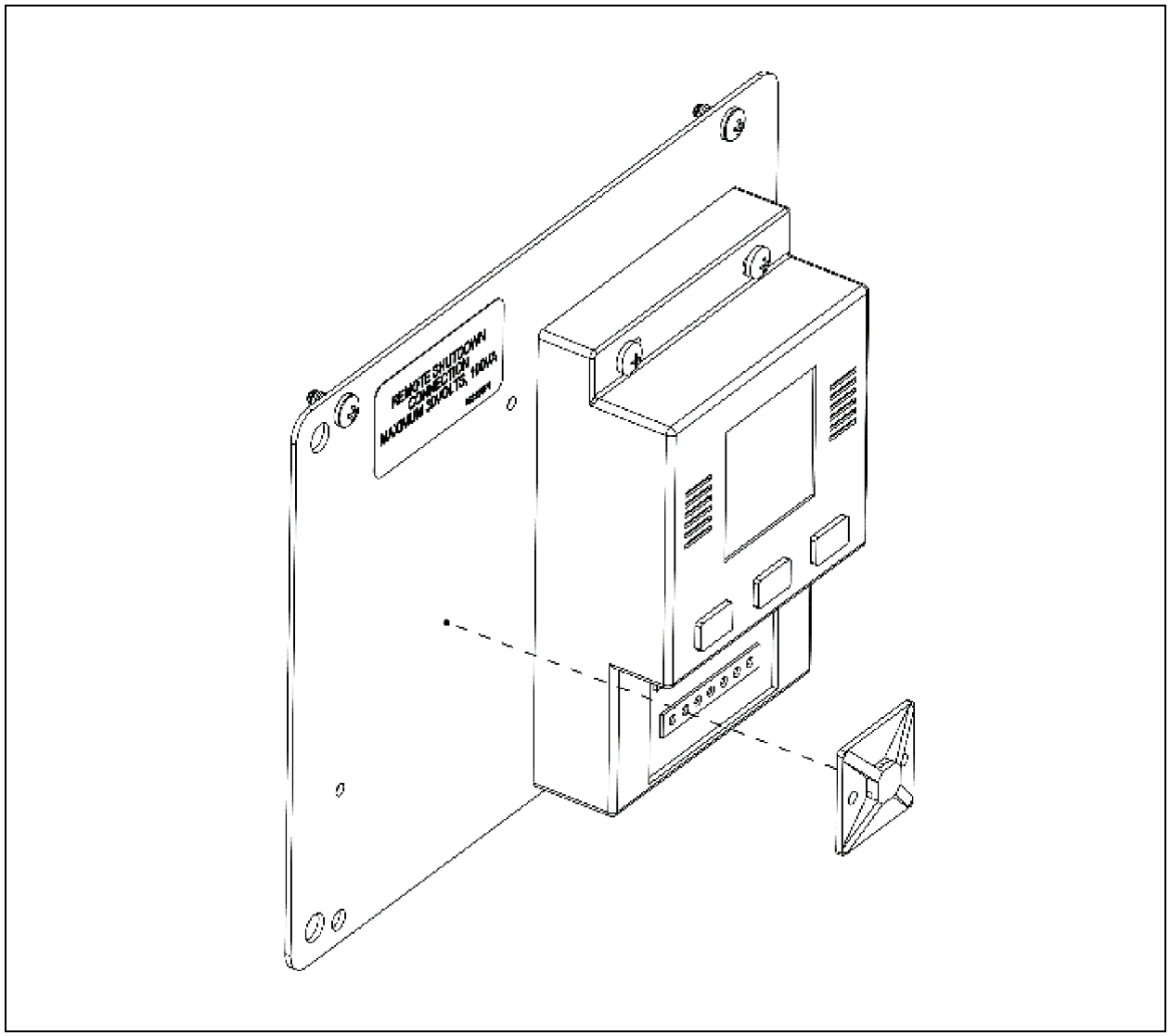


Figure 4.3 Attaching the Cable Tie Pad to the Temperature Sensor

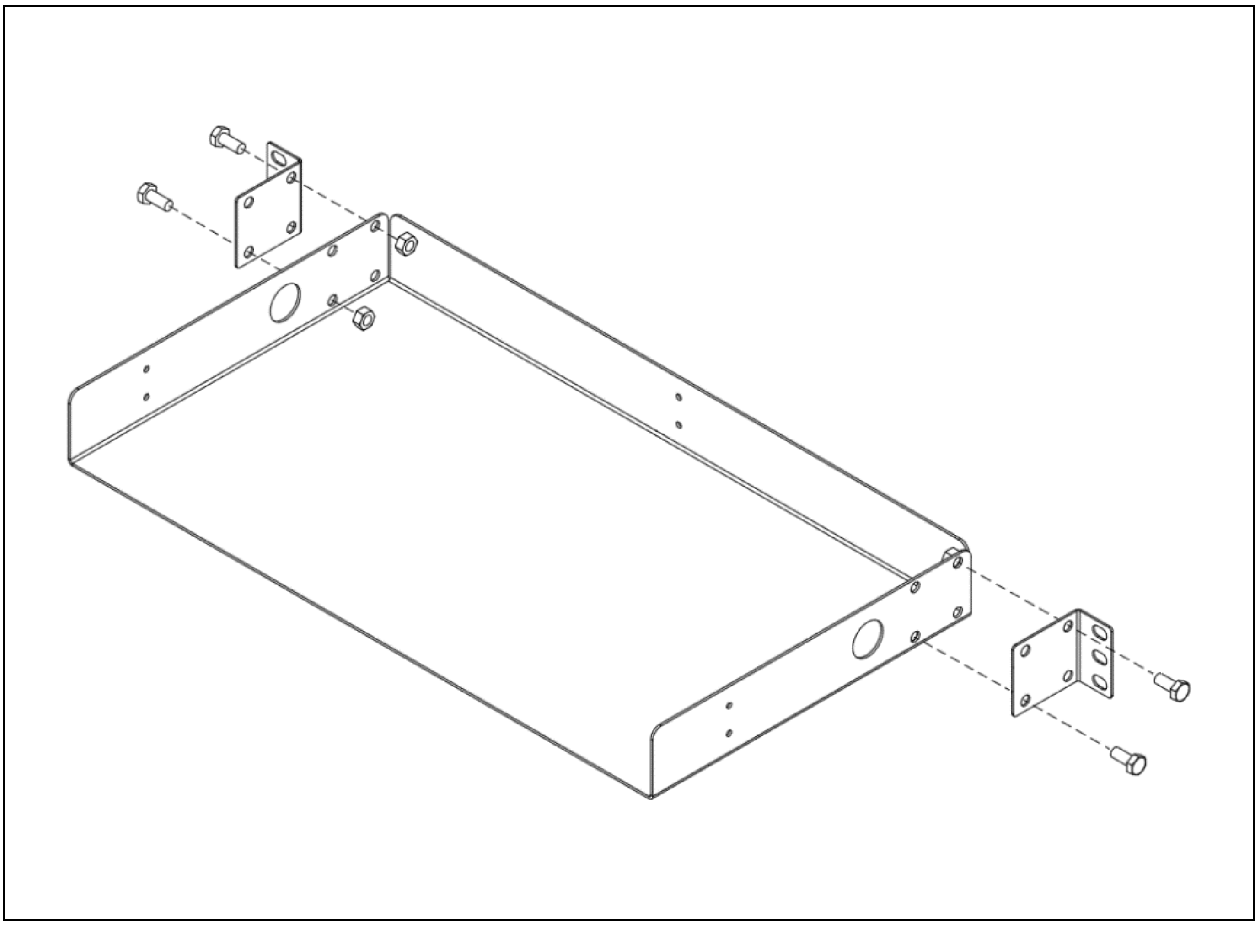


NOTE: Tie pad has rubber foam adhesive in the back.

4.3 Pre-assembly of Mechanical Components

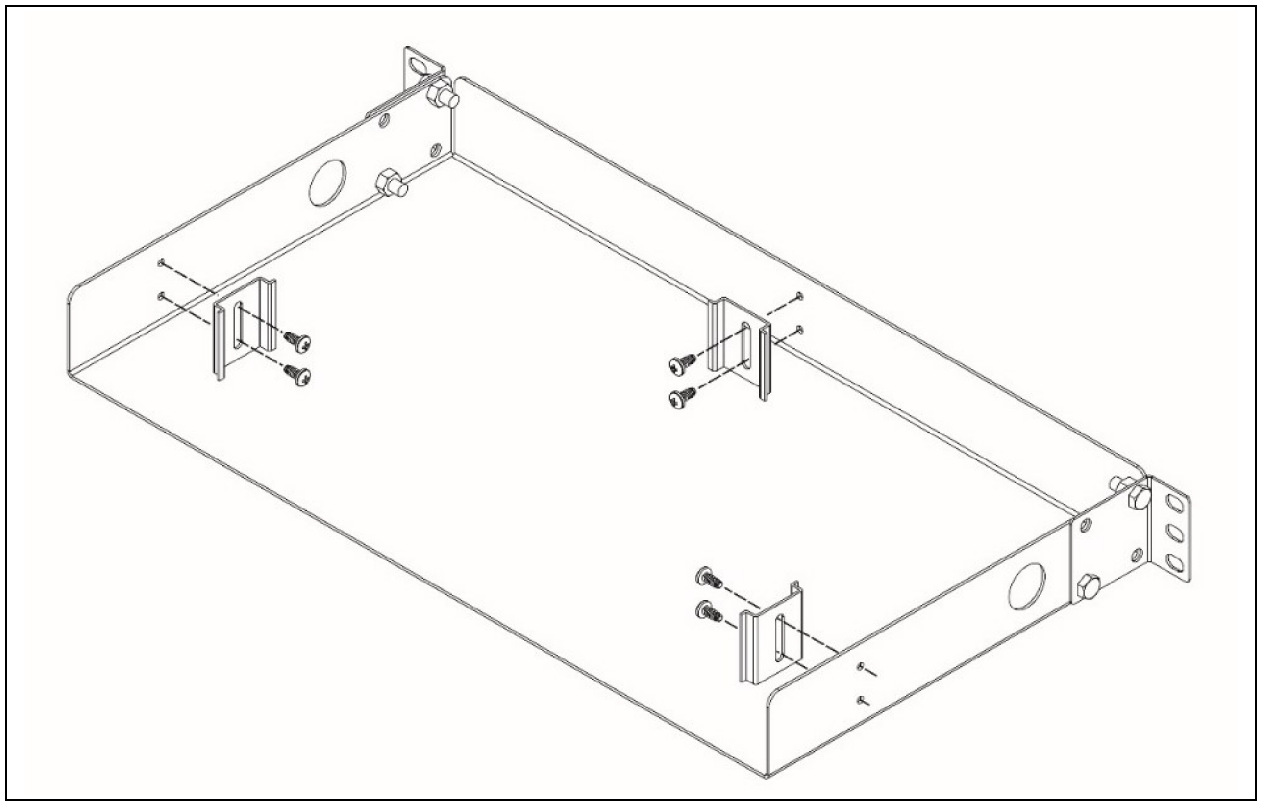
For convenience and to facilitate the installation of the Vertiv™ MCR Kit High Temperature Alarm, the mechanical components will be pre-assembled outside of the units.

Figure 4.4 Attaching the Mounting Bracket B to the Bracket of MCR Kit High Temperature Alarm



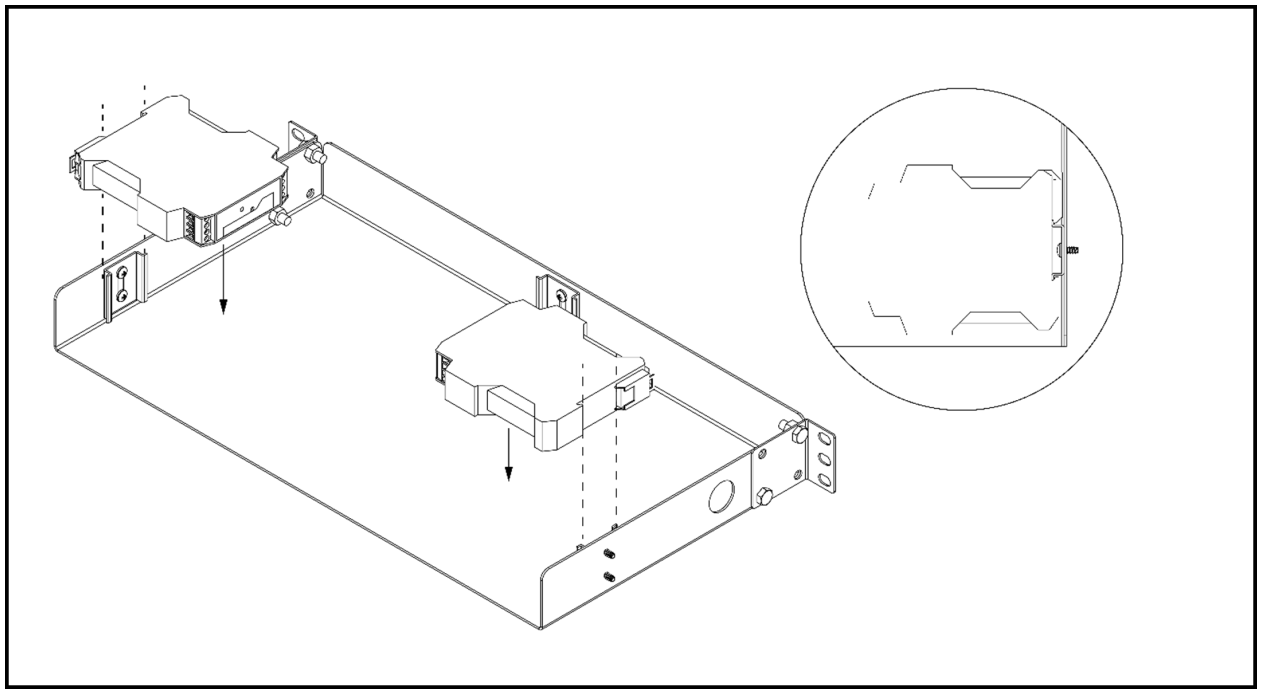
NOTE: Use the screw caps and the nuts hex to fix the components.

Figure 4.5 Attaching the Rails DIN to the Bracket of Vertiv™ MCR Kit High Temperature Alarm



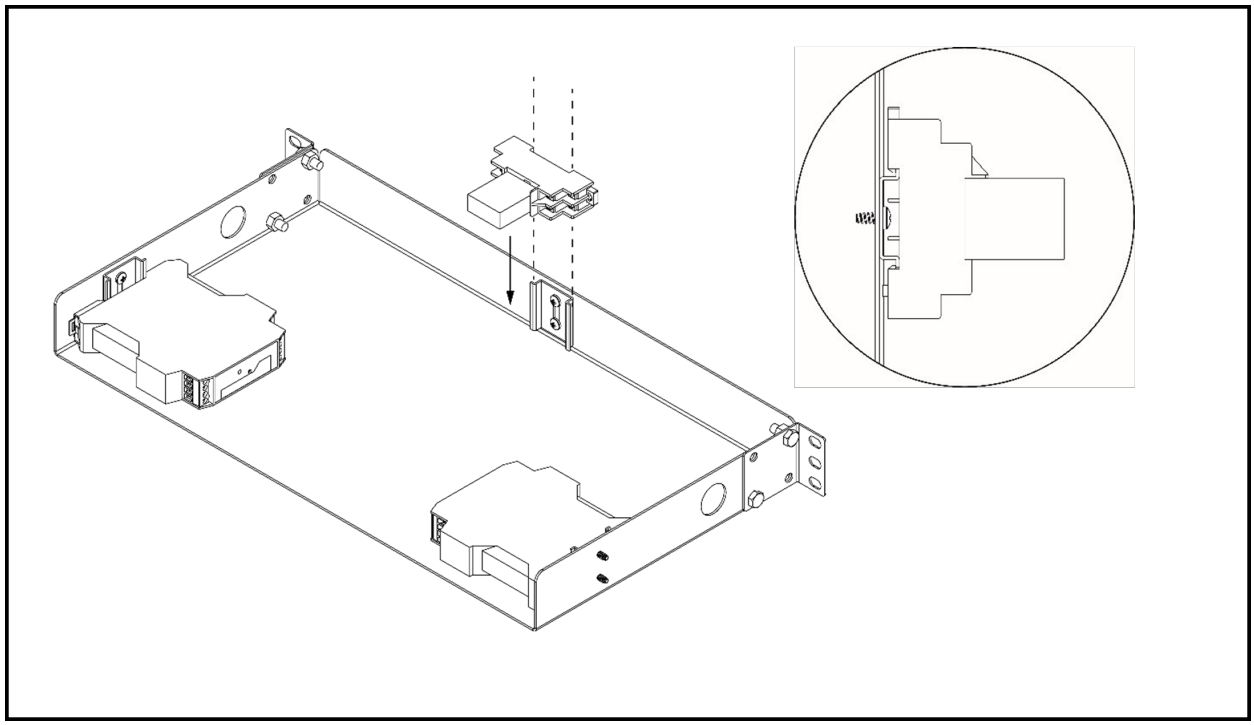
NOTE: Fix the rails DIN with the screws TPG PH PHL using a Philips head screwdriver.

Figure 4.6 Attaching the Converters to the Rails DIN



NOTE: The converters must slide down through the DIN rail lugs until they contact the bracket of Vertiv™ MCR Kit High Temperature Alarm. The converters should be fixed as shown in **Figure 4.6** on the previous page .

Figure 4.7 Attaching the Relay 2PDT to the Rail DIN



NOTE: The relay also must slide down through the DIN rail lugs until they contact the bracket of MCR Kit High Temperature Alarm. The relay should be fixed as shown in **Figure 4.7** above .

Figure 4.8 Attaching Bushing Snap to Bracket

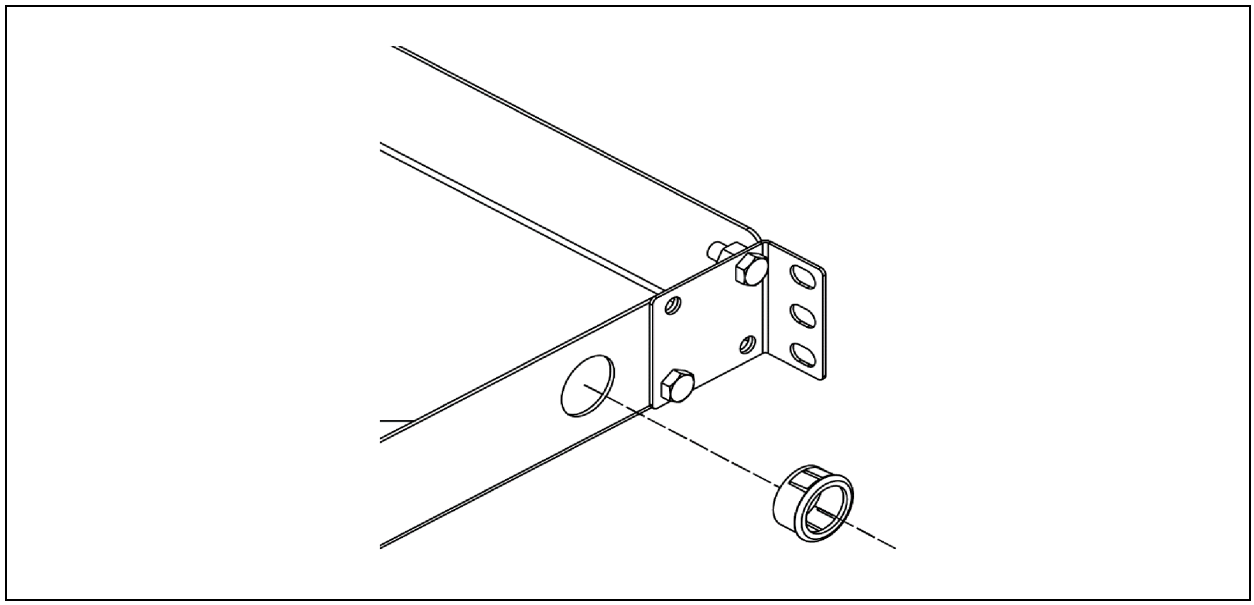


Figure 4.9 Sticking Tie Pad Small to Bracket

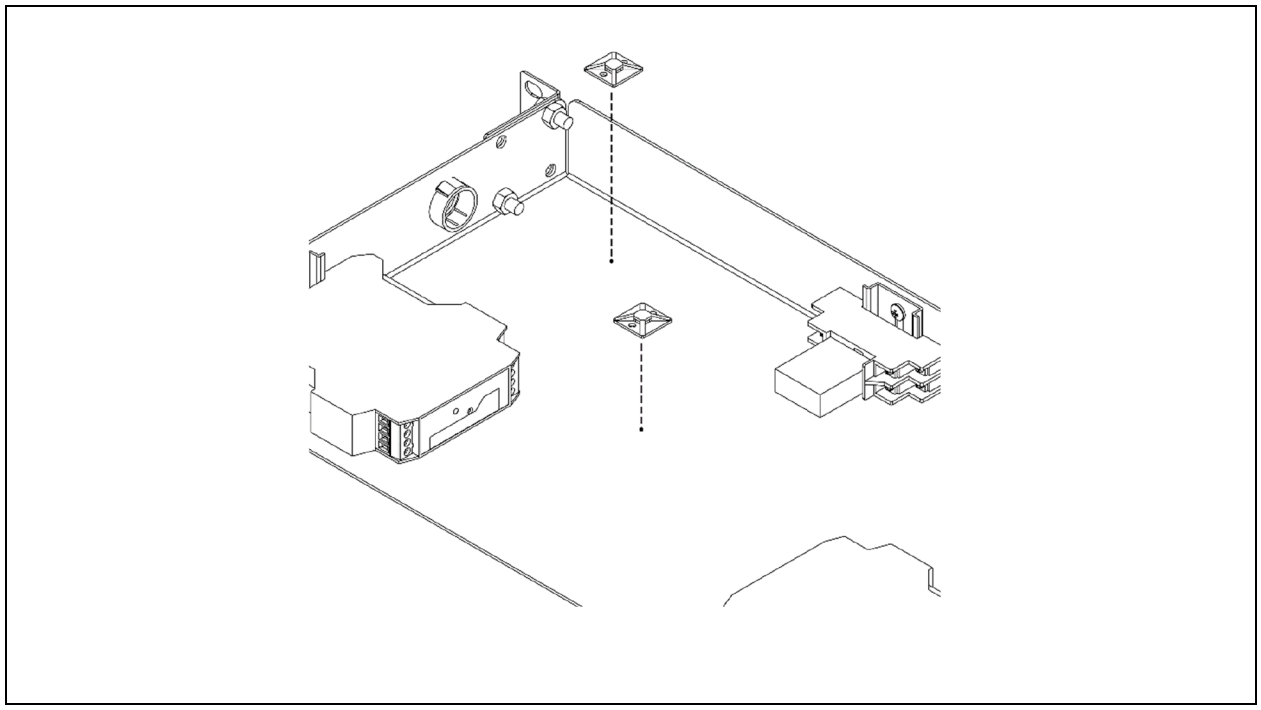
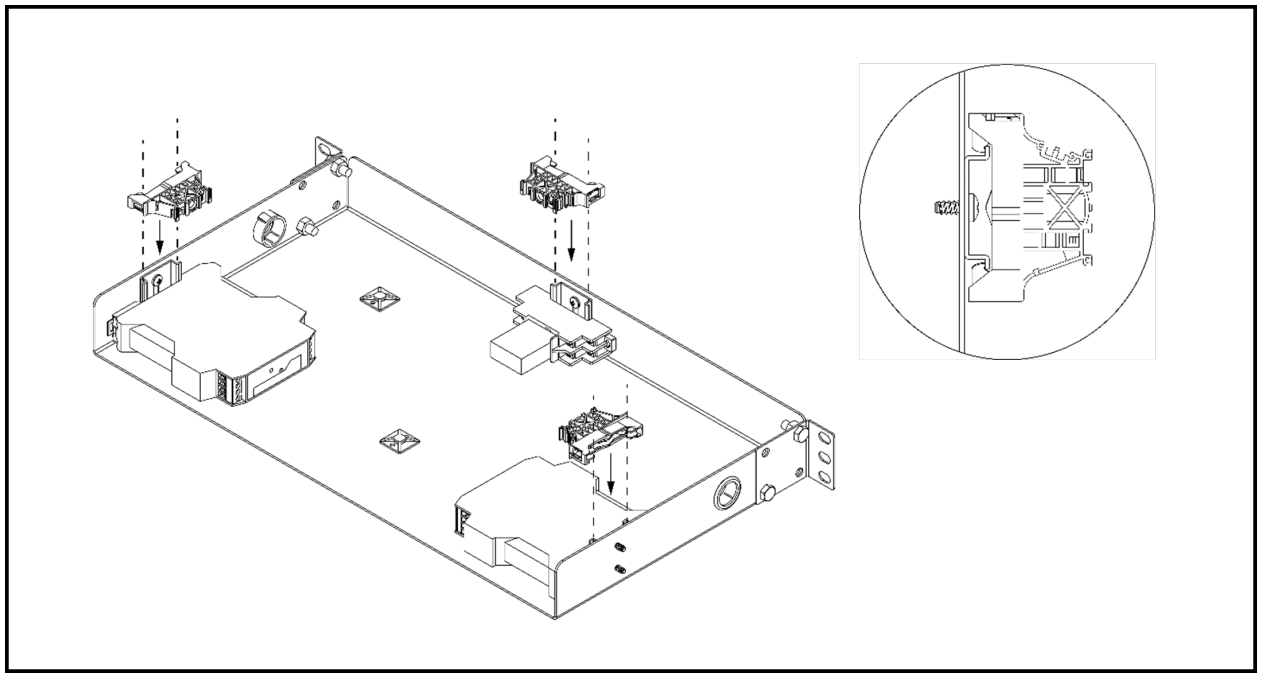


Figure 4.10 Attaching the Retainers to the Rail DIN



NOTE: In the same way as the converters and the relay, the retainers must slide down through the DIN rail lugs until they contact the converters and the relay. The retainers should be fixed as shown in **Figure 4.10** above .

4.4 Pre-assembly of Electrical Components

Once the pre-assembly of components is complete, the next phase consists of pre-assembling the electrical components. The following figures show diagrams to be used as a guide to connect or pre-assemble all wiring components. For more information, please refer to Submittal Drawings for 15603 MCR Kit High Temperature Alarm.

Figure 4.11 High Temperature Alarm

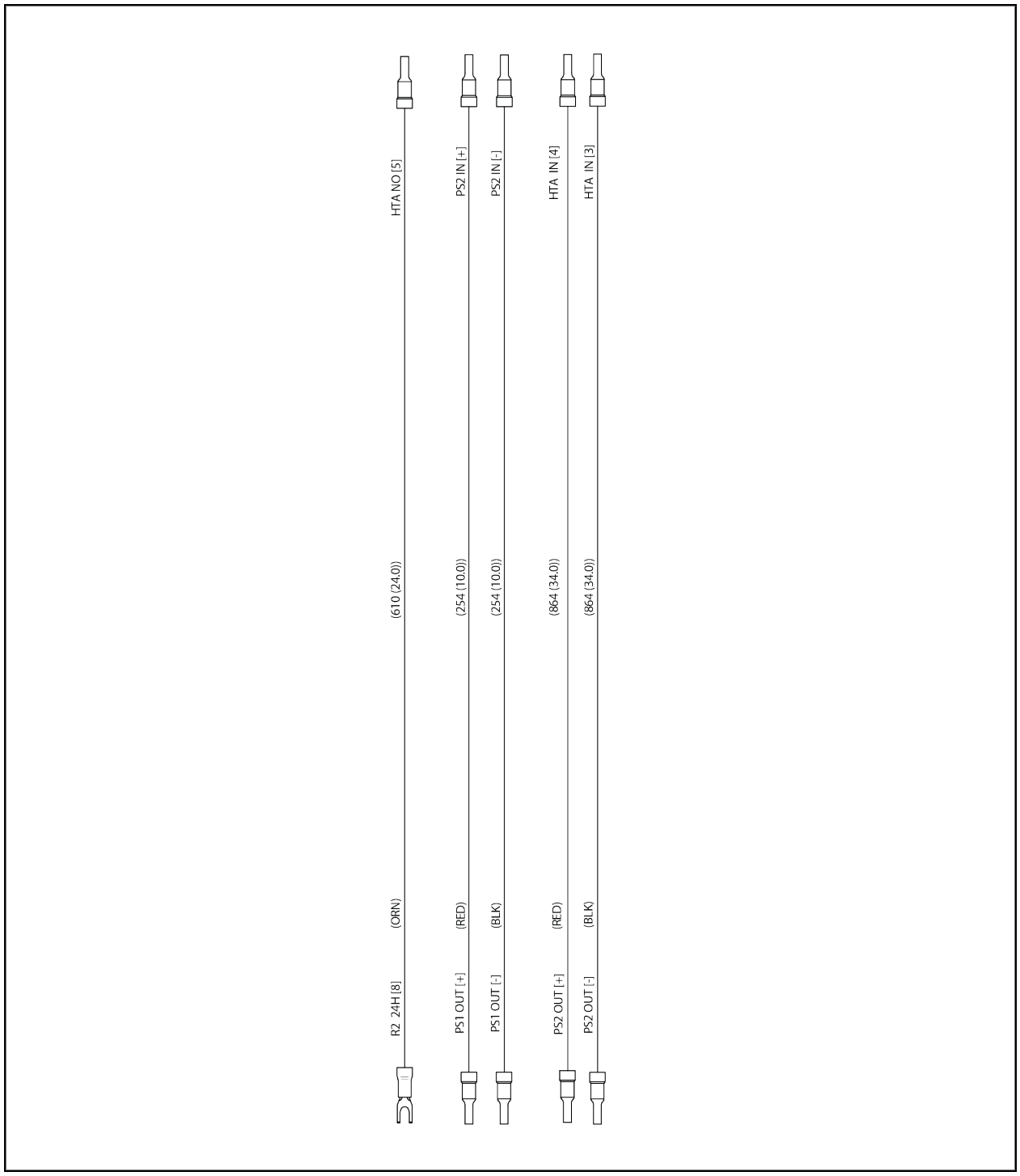
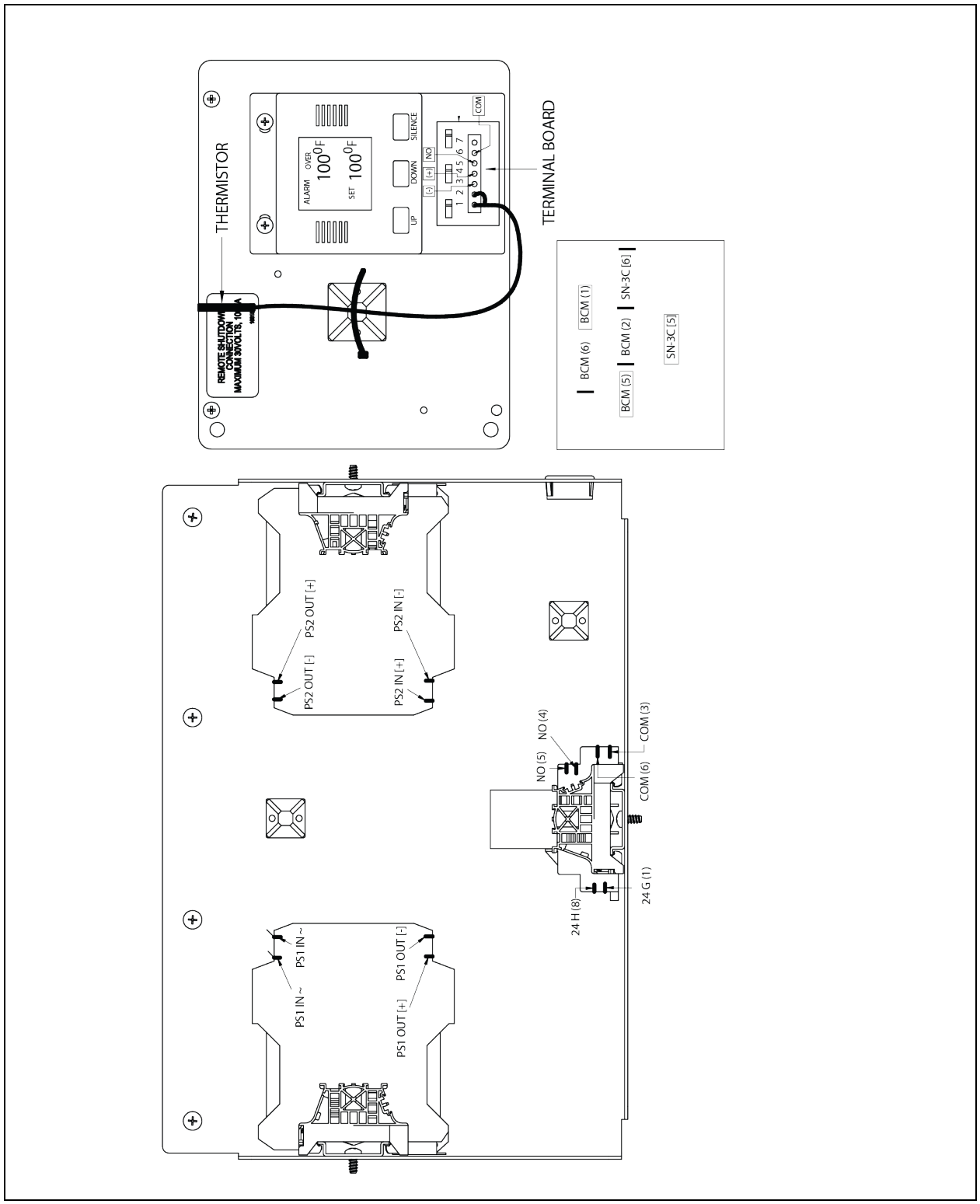
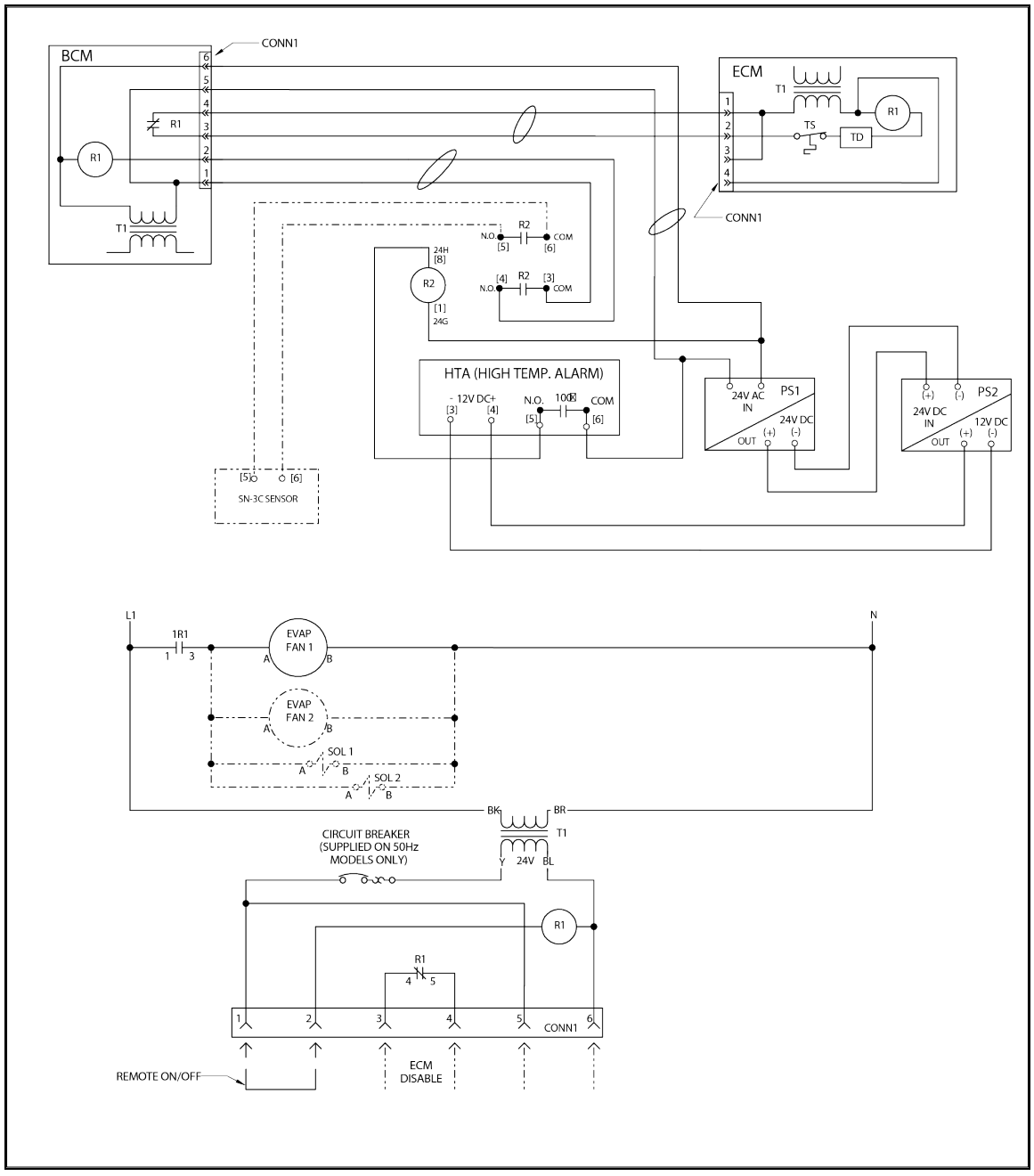


Figure 4.12 Vertiv™ MCR Kit High Temperature Alarm High Temperature Terminals



NOTE: Use the tie wraps (provided) and the tie pads to fix and arrange the wiring as shown in Figure 4.12 above with the thermistor cable as an example.

Figure 4.13 Electrical Schematic Economizer Control MCR BCM



NOTE: Additional connections are made to this SN-3C from other sensors. In the RD MCR rack models, a ferrite bead is required in the electrical assembly. For more details, see **Figure 4.14** on the facing page and **Figure 4.15** on page 20 .

Figure 4.14 High Temperature Alarm with Ferrite Bead

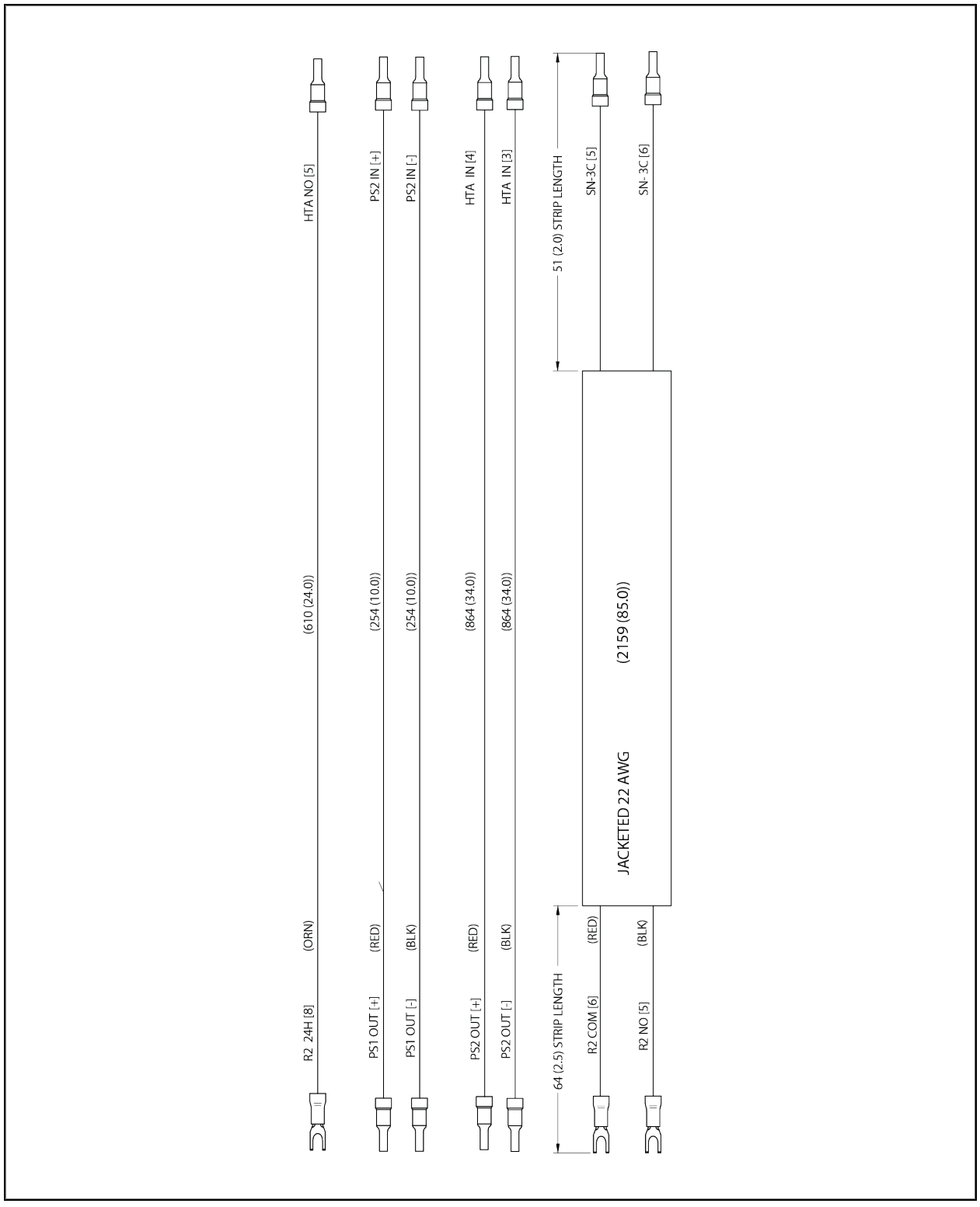
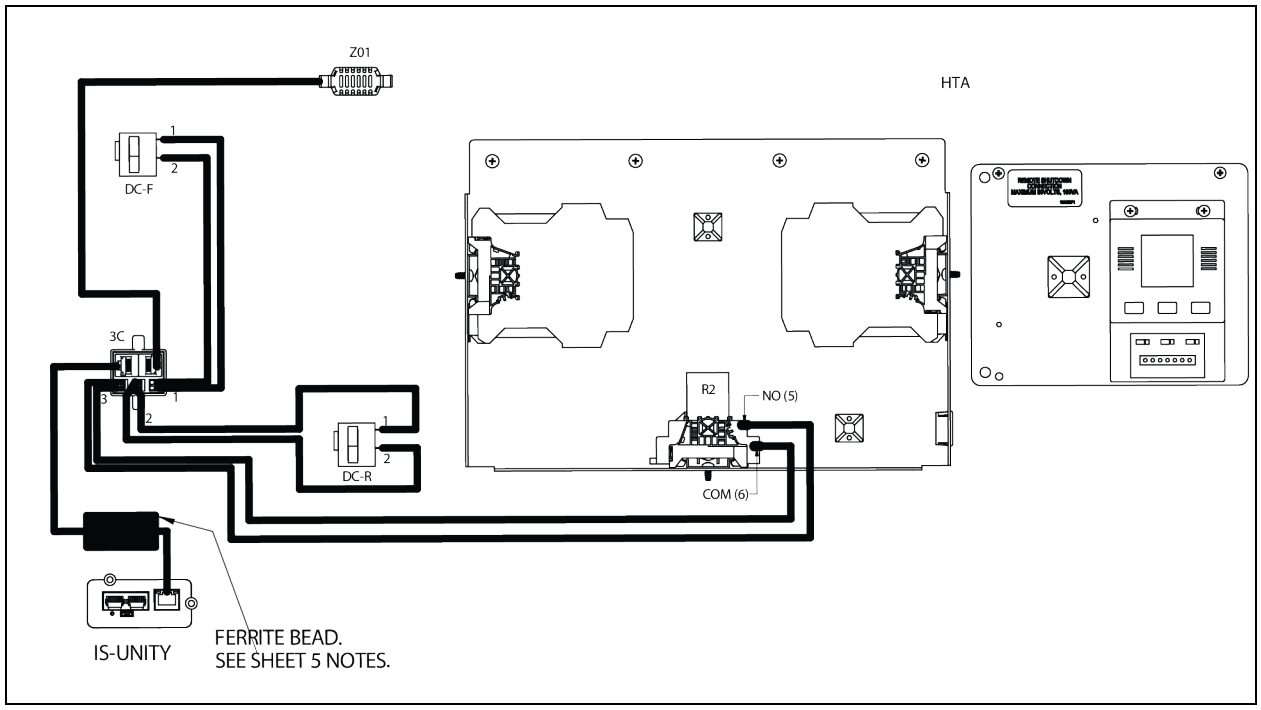


Figure 4.15 Wiring Interconnect Diagram



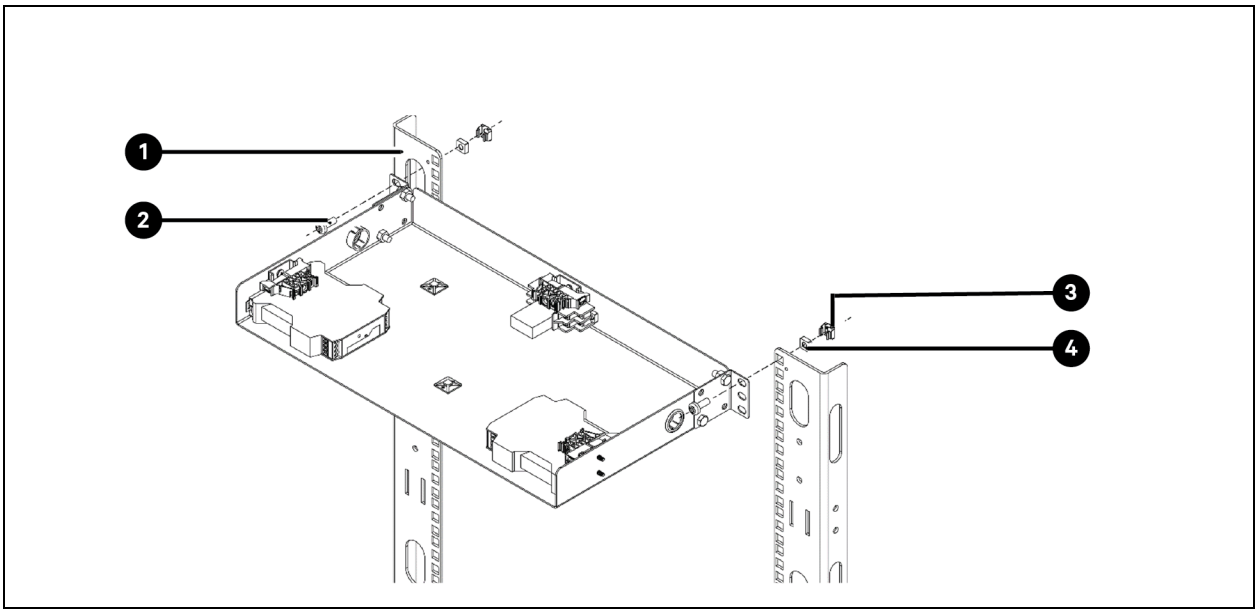
Ferrite bead Installation:

- Open ferrite bead.
- Loop the cable through the ferrite bead three times. The ferrite bead shall be located as close as possible to the unity card.
- Close the ferrite bead around the looped cables.

4.5 Attaching the Vertiv™ MCR Kit High Temperature Alarm to the Rails

Once the mechanical and electrical components are pre-assembled, it is time to assemble the MCR Kit High Temperature Alarm to the corresponding equipment. Attach to the bracket of MCR Kit High Temperature Alarm with all its components to the highest U-space in the rail of the equipment, using a Philips head screwdriver to set screws P/H PH M6 and fix with the cage nut, as shown in Figure 4.16 on the facing page .

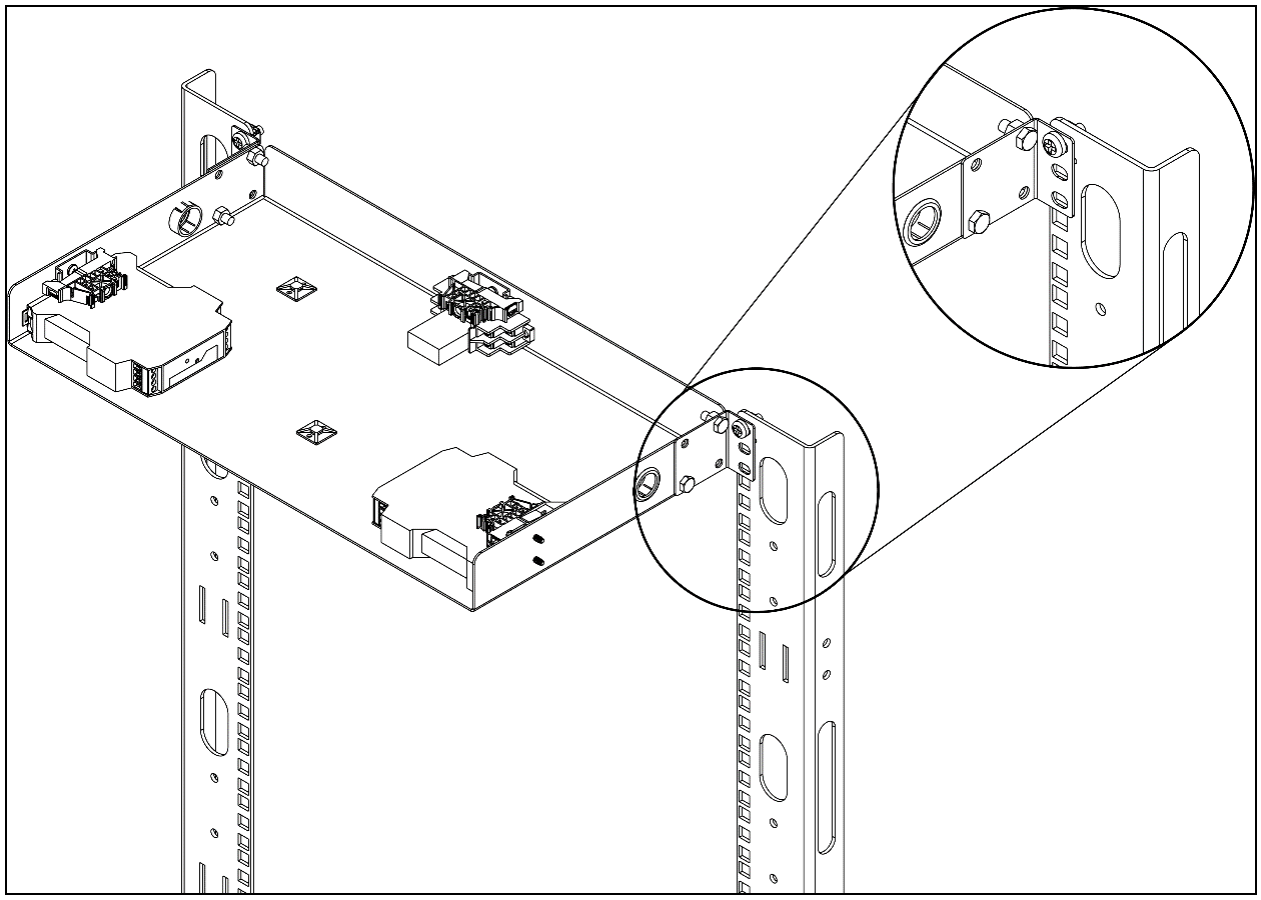
Figure 4.16 Attaching the Bracket of Vertiv™ MCR Kit High Temperature Alarm



Item	Description
1	Rail
2	Screws P/H PH M6
3	Cage nut
4	Nut hex

NOTE: Follow all precautions when mounting the MCR Kit High Temperature Alarm on the equipment. Use the recommended ladder to reach the assembly spot, if necessary.

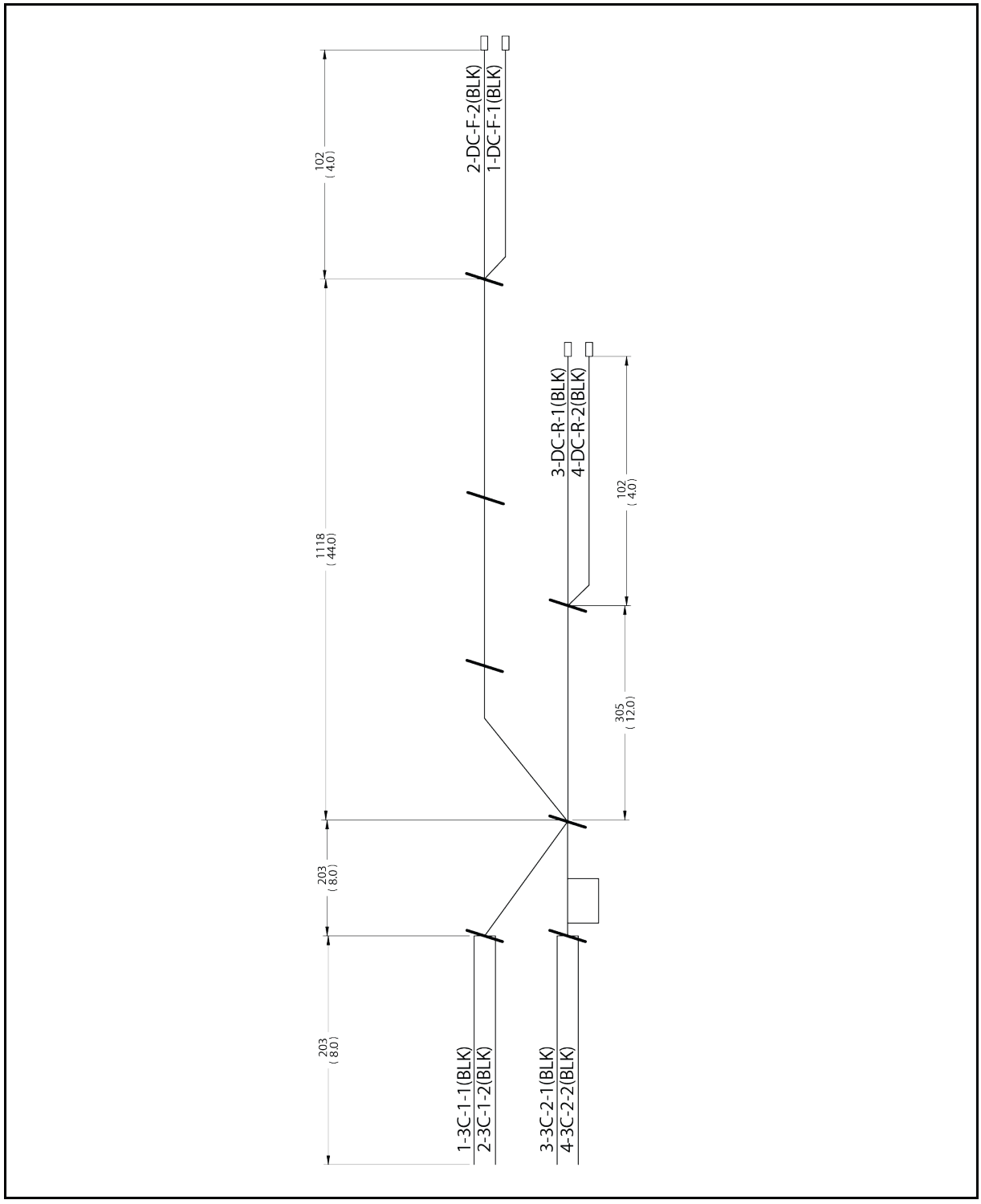
Figure 4.17 Vertiv™ MCR Kit High Temperature Alarm Bracket attached to Rails



4.6 Connecting the Cable Components to the MCR Kit High Temperature Alarm Kit

Once the installation of the MCR Kit High Temperature Alarm has been completed on the above mentioned equipment, the wiring can be connected to the door. For more information, please refer to Submittal Drawings for 15603 MCR Kit High Temperature Alarm.

Figure 4.18 Wire Harness Door Ajar X4/X2+HT MCR



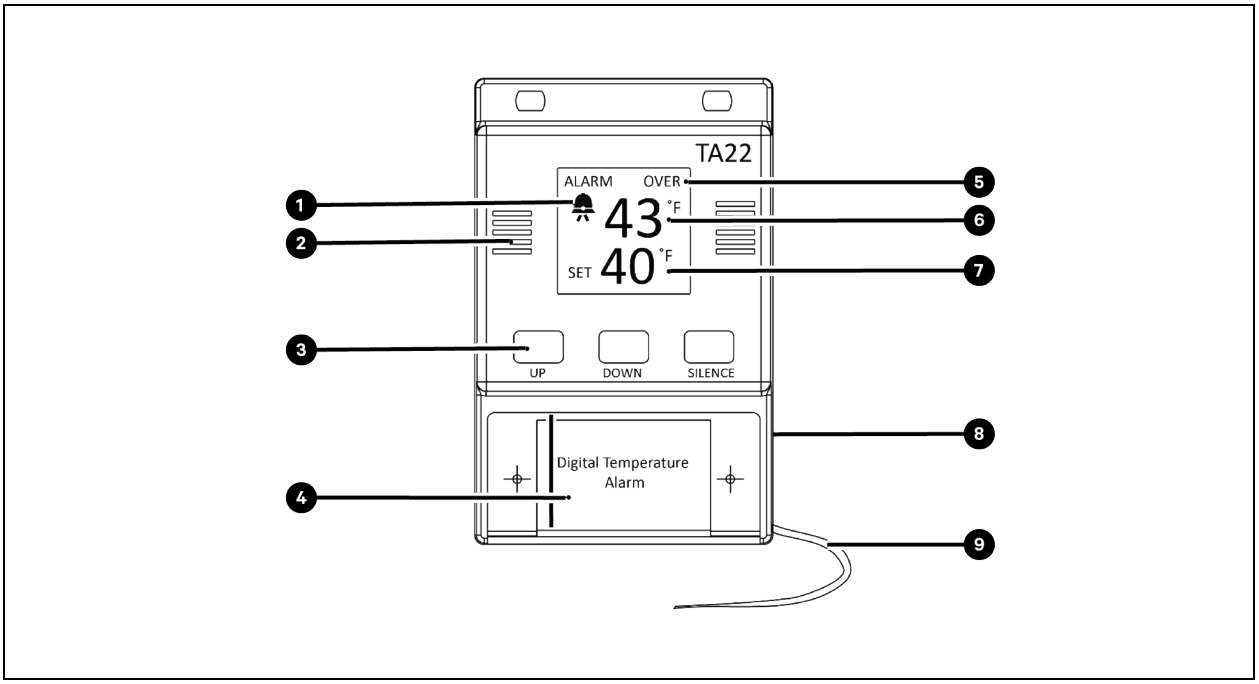
This page intentionally left blank

5 Setting the Temperature Alarm

Once the Vertiv™ MCR Kit High Temperature Alarm is installed in the equipment, it is time to set the alarm. The MCR Kit High Temperature Alarm is a single point or threshold type of temperature alarm. This type of temperature alarm monitors the temperature at the sensor probe tip and when this temperature passes above or below the setpoint, the unit will execute a preset operation.

5.1 Display

Figure 5.1 Single Set Point Temperature Alarm with Digital Display



Item	Description	Item	Description
1	Alarm indicator	6	Current temperature
2	Audible warning beeper	7	Alarm setpoint
3	Alarm adjustments	8	Durable thermoplastic housing
4	Removable cover for remote alarm connections	9	Sensor
5	Over / Under mode indicator		

The unit's display shows the current temperature, the alarm set point temperature, the alarm state, and the mode of operation of the unit (over temperature or under temperature alarm).

When the probe temperature reaches the set point, the unit will display its state as follows:

- In delayed alarm state, the ALARM icon and the bell will flash.
- In the alarm state, the ALARM icon and the bell will remain solid. The bell clapper will flash.

Audible alarm will sound and the normally open relay contacts will close.

- If the silence button is pressed during alarm condition, the audible alarm will turn off and the normally open relay contacts will open.

NOTE: This unit also has a concealed slide switch that allows for the alarm to be activated immediately when the temperature has met the alarm threshold, if desired.

5.2 Sensor Extension

The sensor probe of Vertiv™ MCR Kit High Temperature Alarm is designed to measure air temperature and may be mounted in any convenient location in the area to be monitored. The sensor probe may be extended up to 200 feet with any 24AWG stranded wire.

5.3 Relay Contacts

The MCR Kit High Temperature Alarm may be connected to a remote alarm using the relay contacts provided under the switch cover. Connections are provided for normally open or normally closed dry contacts. Dry contacts mean that no electrical power is supplied to the contacts and power for a remote alarm or other devices must be supplied externally. When an alarm occurs the normally open relay contacts will close and remain closed as long as the alarm condition exists. The relay contacts will open if the user hits the silence alarm button.

5.4 Operation

Plug the MCR Kit High Temperature Alarm into a 120VAC (220V available) outlet and verify that the display shows the current temperature and the alarm set point. If the display is not on, the MCR Kit High Temperature Alarm is not receiving power and is not operating. For continued protection, this requires immediate attention.

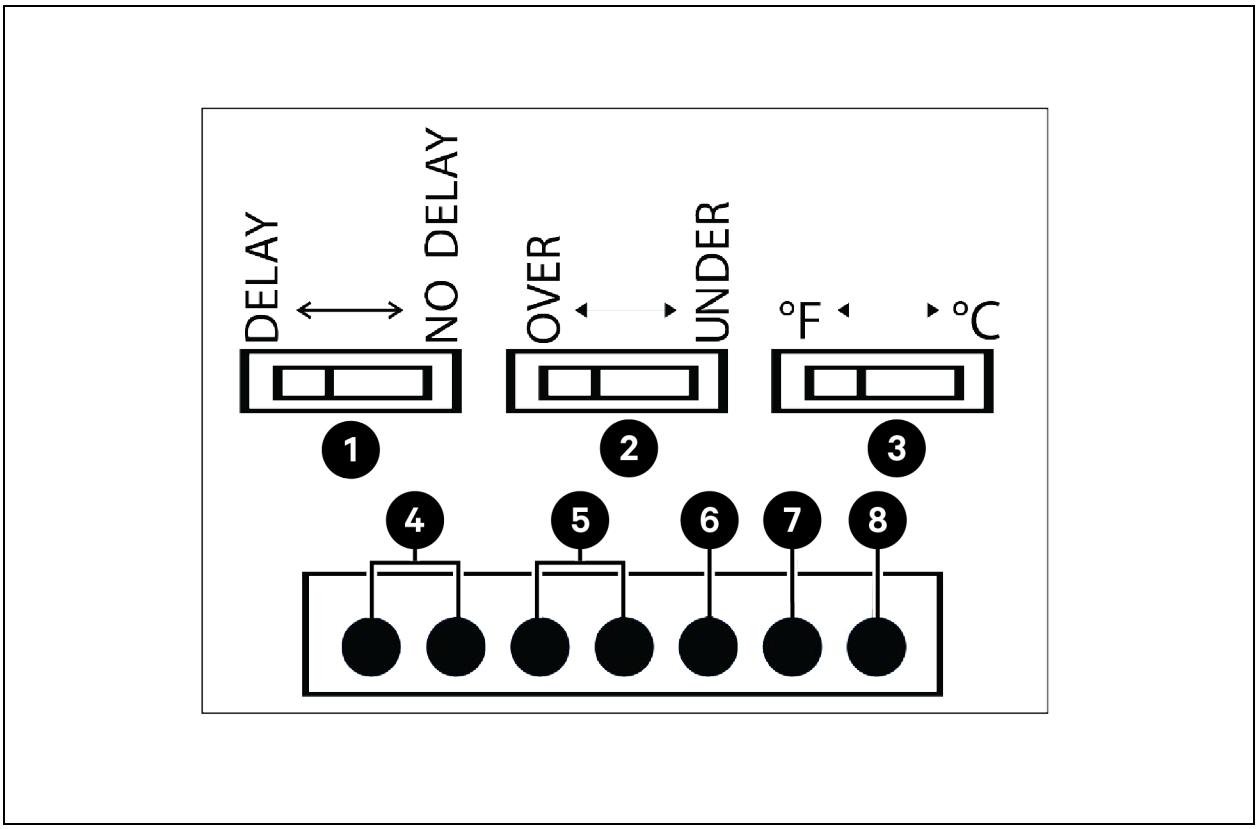
Set the temperature alarm threshold such that the temperature of the MCR Kit High Temperature Alarm must respond to, using the up and down buttons. Typical values will be between 35°F (2°C) to 45°F (7°C) for a refrigerator and 0°F (-18°C) to 15°F (-9°C) for a freezer. The setting of this adjustment will depend on the type of protection the MCR Kit High Temperature Alarm is being used for and it is up to the judgment of the user to select an appropriate alarm temperature.

The MCR Kit High Temperature Alarm is set at the factory to alarm on a rise above the set temperature, after a one hour delay. The OVER/UNDER switch is in the OVER position and the DELAY/NO DELAY switch is set to the DELAY position.

To change the operation of the MCR Kit High Temperature Alarm, remove the switch cover. SW1 controls the DELAY/NO DELAY operation. Setting this switch to NO DELAY will activate the audible alarm and the normally open relay switch as soon as the probe temperature reaches the set point temperature.

SW2 controls the OVER/UNDER operation of the unit. Setting this switch to OVER will cause the alarm to be activated when the sensor temperature rises above the temperature setpoint. Setting this switch to UNDER will cause the alarm to activate when the sensor temperature falls below the temperature setpoint. SW3 controls the temperature units displayed (°F or °C).

Figure 5.2 Terminal Board



Item	Description
1	SW1
2	SW2
3	SW3
4	Probe
5	Power
6	N/O
7	Common
8	N/C

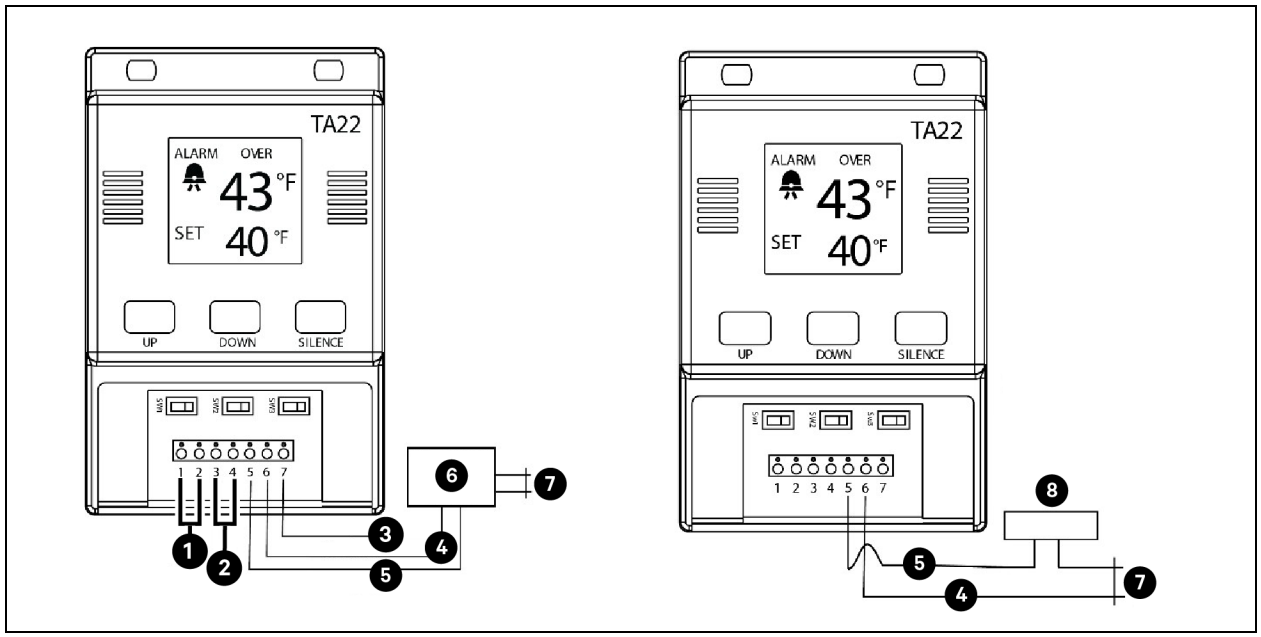
The position of the SW1 switch is on the left hand side. Note the lettering above this switch (DELAY– NO DELAY). Setting this switch to DELAY will cause the Vertiv™ MCR Kit High Temperature Alarm to blink the ALARM and bell icons when the sensor temperature passes the threshold set by the front panel adjustment. When approximately one hour has passed and the sensor temperature has remained past the threshold set by the front panel adjustment, the MCR Kit High Temperature Alarm will sound the audible alarm and close the normally open relay contacts.

If the temperature return to its normal value before this period has elapsed, the one hour delay will be reset. Setting this switch to NO DELAY will cause the MCR Kit High Temperature Alarm to sound an immediate alarm and display the ALARM and bell icons (solid) when the temperature passes the threshold set by the front panel adjustment. If the temperature return to its normal value, the MCR Kit High Temperature Alarm will automatically reset.

Locate the terminal strip below the switches. This is where the sensor probe, power supply, and remote alarm are connected to the Vertiv™ MCR Kit High Temperature Alarm. The MCR Kit High Temperature Alarm comes from the factory with the power supply and sensor probe attached. Note the three unused terminals on the right. These are the relay contacts for use with external devices, such as remote alarms or automatic dialers. Since each installation has different requirements, it is suggested you consult the instructions supplied with any remote device prior to making any connections to the MCR Kit High Temperature Alarm. Note that the rating of the relay contacts is 5Amp at 120VAC and if this limit is exceeded, then permanent damage will result.

5.5 Typical Connections

Figure 5.3 Typical Connections



Item	Description
1	Probe
2	12 VDC
3	Normally closed
4	Common
5	Normally open
6	Automatic phone dialer
7	Power supply
8	Load

NOTE: If connecting a light, buzzer relay, etc to load terminal, limit to 100 Watts.

6 Periodic Maintenance

The Vertiv™ MCR Kit High Temperature Alarm requires no special maintenance. Follow Maintenance schedule located in MCR User Manual. Clean dust from installed equipment according to the manufacturer's recommendations. Clean the interior of the rack with a dry cloth.

This page intentionally left blank

Appendices

Appendix A: Technical Support and Contacts

A.1 Technical Support/Service in the United States

Vertiv Group Corporation

24x7 dispatch of technicians for all products.

1-800-543-2378

Liebert® Thermal Management Products

1-800-543-2378

Liebert® Channel Products

1-800-222-5877

Liebert® AC and DC Power Products

1-800-543-2378

A.2 Locations

United States

Vertiv Headquarters

1050 Dearborn Drive

Columbus, OH, 43085, USA

Europe

Via Leonardo Da Vinci 8 Zona Industriale Tognana

35028 Piove Di Sacco (PD) Italy

Asia

7/F, Dah Sing Financial Centre

3108 Gloucester Road, Wanchai

Hong Kong

This page intentionally left blank

Appendix B: Submittal Drawings

Refer SL-71009 Vertiv™ MCR Kit High Temperature Alarm Submittal Addendum for drawings.

Table B.1 Submittal Drawings Contents

Document Number	Title
Wire Harness Economizer LGH2	
163516G1	WH Energy Saver Control
Electrical Schematic Economizer Control LIEBERT® MCR BCM	
163517	Schematic BCM/Energy Saver Control
WH CON1 37/38 JUMPER LGH2	
163772G1	WH CON1 37/38 JUMPER LGH2
HIGH TEMP ASSY LGH2	
168605G1	HIGH TEMP ALARM ASSY LGH2
WH DOOR AJAR X4/X2+HT MCR	
560142G1	WH DOOR AJAR X4+HT MCR
560142G2	WH DOOR AJAR X2+HT MCR
WH HIGH TEMP ALARM MCR	
10031558G1	WH HTA SN-3C MCR
10031558G2	WH HTA NO SN-3C MCR
10037297DRW	WIRING INTERCONNECT DIAGRAM

This page intentionally left blank

Connect with Vertiv on Social Media

https://www.facebook.com/vertiv/

https://www.instagram.com/vertiv/

https://www.linkedin.com/company/vertiv/

https://www.twitter.com/Vertiv/

Vertiv.com | Vertiv Headquarters, 1050 Dearborn Drive, Columbus, OH, 43085, USA

SL-15603_REVA_11-22