L.B.WHITE ®

Commander
Remote Display Unit (RDU)
500-133951

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Kit Contents:

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Remote Display Unit	1
AA Lithium Batteryy	1

Tools required:
Small slotted screwdriver

Qualifications for installation of the kit:
• You must be able to read and understand these instructions.
• You must be properly trained and have sufficient experience in servicing heaters and be capable of testing the heater for proper operation.

General information:
• The following instructions provide information for the installation and operation of the Remote Display Unit (RDU) to the Temperature Controller of the Commander heaters.
• Read all instructions carefully before beginning installation.
• Allow the heater to cool down or be in cold condition before installation.
• Minimum gauge of 22 AWG, 2 wires must be provided by installer.
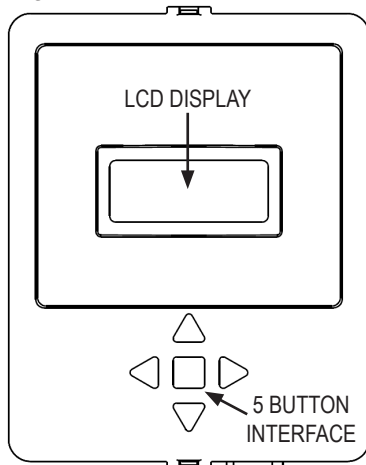• Consult with your local electrician, local code, or NFPA 70, National Electrical Code for proper wiring.

Preparation:
• Check all packing material carefully for possible damages during shipment.
• Disconnect power supply and gas supply to the heater.

Overview:
The Remote Display Unit (RDU) is a remote digital set point space temperature controller which is hardwired to the local temperature controller of the make-up air heater. The RDU controller has a simple five buttons interface with a four-digit LCD display as shown in Fig. 1. The RDU has one integrated temperature sensor for discharging temperature range from 70-190°F (21.1-87.8°C). The factory default temperature setpoint is set at 130°F (54.5°C). The programmable parameters can be accessed through the user menu with the five-button interface and LCD display. The RDU is powered by one AA Lithium battery providing up to 2 years of operation. When the RDU has a low battery it will signal the text "bAtt", which will flash on the LCD every 10 seconds. User parameters are stored in the nonvolatile memory, and are retained even during a battery disconnection.

FIG. 1

RDU MOUNT PANEL

LCD DISPLAY

5 BUTTON INTERFACE

Mounting the RDU:

The RDU may be directly wall mounted or attached to a conduit box. Mounting screws and wires must be provided by the installer.

Wiring the RDU:

1. Open the RDU by pressing in either the top or bottom tab on the back panel.

2. Carefully remove the RDU front cover panel.

3. Insert the supplied AA Lithium battery into the battery holder located behind the front cover panel. See Fig. 2.

4. Check to see if there is power to the LCD. The LCD should display the current room temperature.

5. Connect two 1/4 in. quick connect female terminal wires of 22 AWG (minimum) cable to terminal 6 & 7 as shown in Fig. 3.

6. Use the provided strain relief to protect and secure the cable to the RDU back panel.

7. Install the front cover panel onto the back panel. Ensuring NOT to damage or bend the connector pins when inserting them into the connector slots.
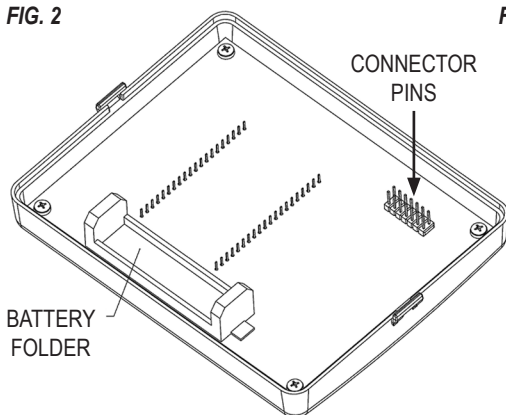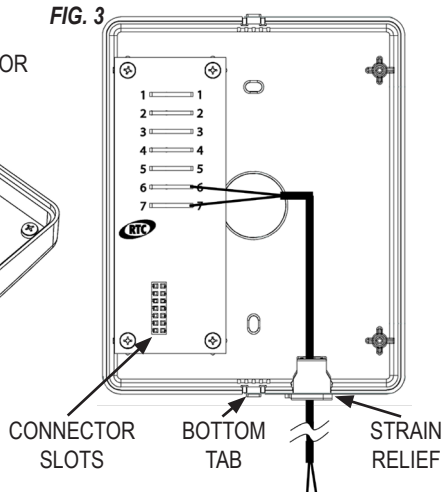
FIG. 2

CONNECTOR PINS

BATTERY FOLDER

FIG. 3

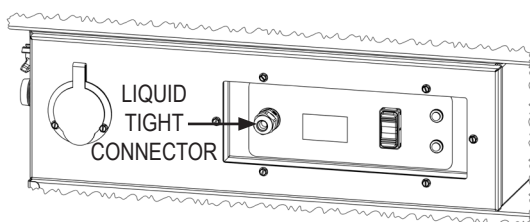CONNECTOR SLOTS   BOTTOM TAB   STRAIN RELIEF

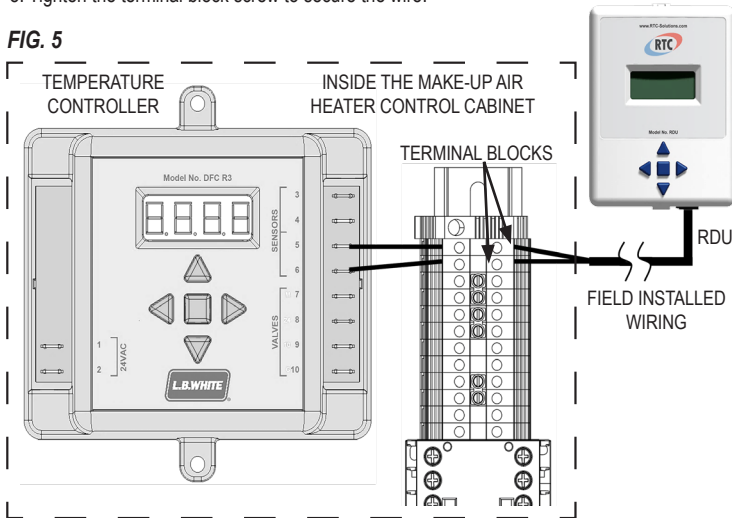# Installing the RDU to the Make-Up Air Heater:

The following installation instructions illustrate the RDU being hardwired to the Temperature Controller inside the control cabinet of the make-up air heater.

1. Locate the liquid tight connector cap on the control panel of the make-up air heater. See Fig. 4.

FIG. 4

LIQUID TIGHT CONNECTOR

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Installation Instructions • Commander Remote Display Unit (RDU)

2. Remove the cap and discard the black plug.

3. Insert the RDU cable through the liquid tight connector cap and the liquid tight connector.

4. Open the control cabinet lid and pull the RDU wires through. Ensure enough wire length to connect to the terminal blocks marked USER.

5. Tighten the liquid tight connector cap.

6. Loosen the terminal blocks screws.

7. Strip each RDU wire 3/4 in. and fully insert one wire per terminal block. Terminal block connections are not polarity sensitive. See Fig. 5.

8. Tighten the terminal block screw to secure the wire.

FIG. 5

TEMPERATURE CONTROLLER

INSIDE THE MAKE-UP AIR HEATER CONTROL CABINET

TERMINAL BLOCKS

RDU

FIELD INSTALLED WIRING

Setting up Temperature Controller:

The temperature controller setting, on the heater, MUST be changed from "LOCL" to "rdU" in the "rEtd" menu in order to properly operate the RDU. To access the menu in the Temperature Controller:

• Press the UP or DN key until "rEtd" is displayed on the LCD. Press RT . Use the UP or DN key to select "rdU". Press ENT to select.
• If a key is not pressed within 10 seconds while in the main menu, the controller will exit the menu and return to display mode.

RDU Control Modes:

The RDU has three temperature modes; DISCHARGE MODE (diS), SPACE MODE (SPC), and REMOTE (rE).
• In discharge mode (diS), the discharge temperature is driven directly by the RDU setpoint temperature. The LCD will display the SP temperature.

• In space mode (SPC), the RDU toggles the discharge temperature between dLo and dhi to drive the space temperature to the current setpoint . The RDU displays the current temperature in the space. When the spaces reach the SP temperature, the heater will shift to dLo temperature. On a call for heat, the heater will operate at full output until the dhi temperature is satisfied.

• rE mode is not applicable in this application.

Programming:

The RDU's factory default setpoint temperature is set at 130°F (54.5°C). The programmable parameters can be accessed through the user menu with the five-button interface and LCD displace. If a key is not pressed within10 seconds, the menu will automatically return to the display mode. Available parameters are as follows:

• "SP": Adjusts the discharge temperature setpoint.
  o Press UP or DN key until "SP" is displayed. Press RT to select it. Use UP or DN key to increase or decrease the temperature to the desired setpoint. Press ENT to save the new setpoint temperature.

• "ForC": Sets the control to display °F (Fahrenheit) or °C (Celsius).
  o Press UP or DN key until "ForC" is displayed. Press RT to select it. Use UP or DN key to scroll between "F" or "C". Press ENT to save selection.

• "oPr": Sets the RDU operating mode. The three operating mode are Discharge mode (diS), Space mode (SPC), or Remote (rE).
  o Press UP or DN key until "oPr" is displayed. Press RT to select it. Use UP or DN key to scroll between modes. Press ENT to save selection.

• "dhi": Sets the high temperature for SPACE mode. This can be set between 70-190°F (21.1-87.8°C) and must be at least 10°F (-12.2°C) greater than the low discharge limit (dLo). This will limit the discharge temperature of the heater during space control mode.
  o Press UP or DN key until "dhi" is displayed. Press RT to select it. Use UP or DN key to increase or decrease the temperature. Press ENT to save the new temperature.

• "dLo": Sets the low discharge temperature for SPACE mode. This can be set between 70-190°F (21.1-87.8°C) and must be at least 10°F (-12.2°C) less than the high discharge limit (dhi). This will limit the discharge temperature of the heater during space control mode.
  o Press UP or DN key until "dLo" is displayed. Press RT to select it. Use UP or DN key to increase or decrease the temperature. Press ENT to save the new temperature.

Service

Contact your local L.B. White dealer for replacement parts and service. You may also call the L.B. White Company, LLC at U.S. & Canada: 1-800-345-7200, Overseas: 001-608-783-5691 assistance, or email us at customerservice@lbwhite.com. Be sure that you have your heater model number or serial number when calling.

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