



MR050B SERIES DEHYDRATOR

USER MANUAL

Bulletin AE01B-A0553-001
© 2009 - 2012 CommScope, Inc. All rights reserved

Rev: N
(12/12)

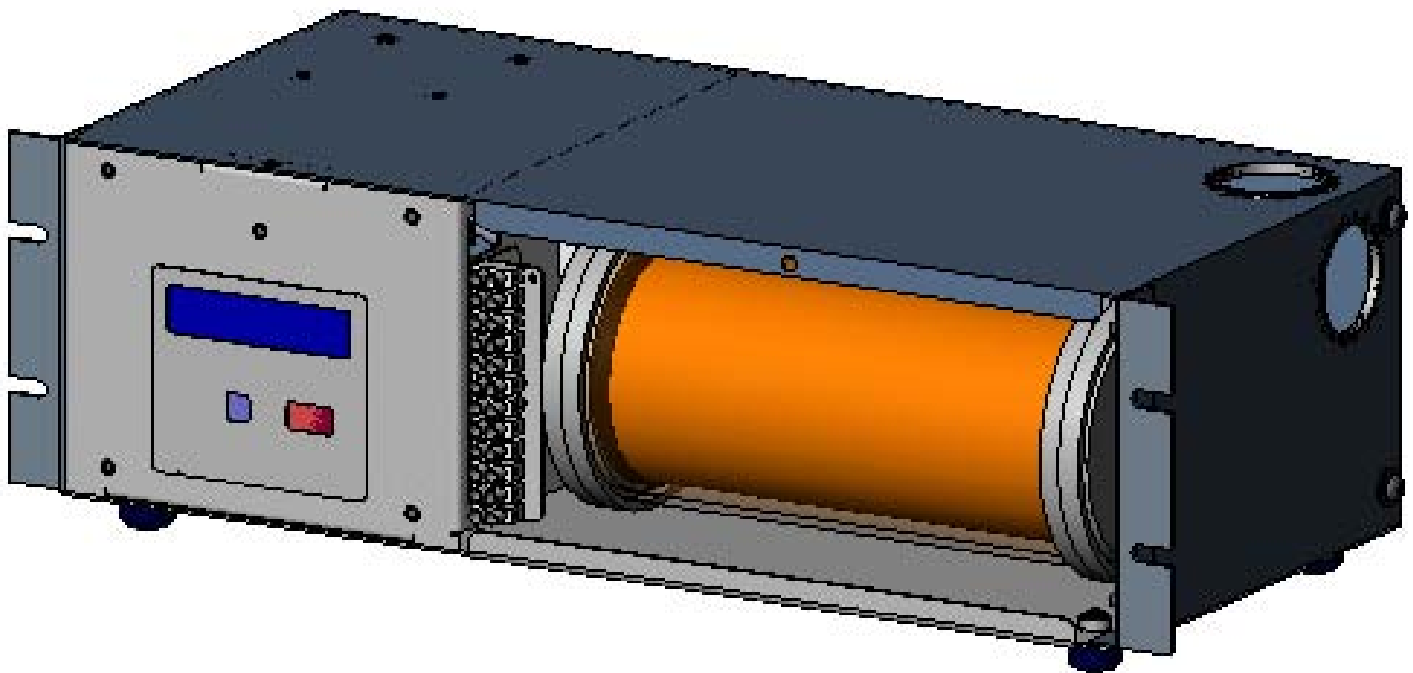


Table Contents

Section 1	General Information	3
1.1	Introduction	3
1.2	Description	3
1.3	Operation	3
1.4	Alarms	3
	Figure 1 Summary Alarm Terminal	4
	Figure 2 Discrete Alarm Terminal	4
	Figure 3 Control Board	5
1.5	Specifications MR050B Dehydrator	5
Section 2	Installation	6
2.1	Unpacking and Inspection	6
2.2	Controls and Displays	6
2.2.1	Event Log Codes	6
2.3	Installing the Dehydrator	6
2.3.1	19" Rack Mounting or set on shelf	6
2.4	Power Connections	6
2.4.2	Safety Ground	7
2.4.3	Test the Dehydrator	7
2.5	Connecting the Alarm Outputs	7
2.6	Connecting Dehydrator to the Transmission Line	7
2.7	Purging the Transmission Line	7
Section 3	Maintenance	8
3.0	Maintenance	8
3.1	Preventive Maintenance	8
3.2	Desiccant Canister Replacement	8
3.3	Annual Inspection	8
3.4	Check the electrical connections	8
3.5	Check the duty cycle	8
3.6	Parts Replacement	8
3.7	Unit Shutdown and Removal	8
3.8	Service Restoration	9
Section 4	Troubleshooting	10
	Problem/Condition	10
	Figure 4 MR050B-31015 Wiring Diagram	11
	Figure 5 MR050B-31215 Wiring Diagram	12
	Figure 6 Pneumatic Diagram	13
Section 5	Replacement Parts	14
	Desiccant Kit MR050B-KIT-DSCNT	14
	Compressor Kit MR050B-KIT-CPRSR	14
Section 6	Customer Service	14
6.0	Introduction	14
6.1	In Case of Trouble	14
6.2	Initial Steps by CommScope	15
6.3	Repair Center Process	15
6.4	RoHS Inquiries	15

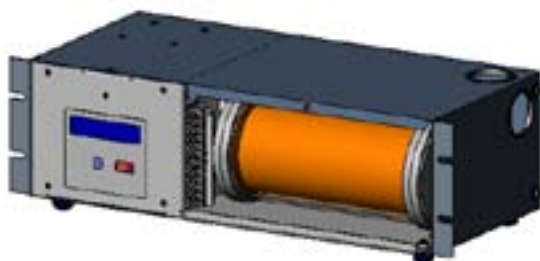
Section 1 General Information

1.1 Introduction

This manual contains the information you need to install, operate, and maintain your MR050B Series dehydrator. Please take the time to read this manual before attempting to operate or service the unit.

This appliance is not intended for access by the general public.

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.



1.2 Description

MR050B Series dehydrators provide dry air for pressurizing small (up to 280 liters, or 10 cubic feet, in volume) antenna and transmission line systems. The dehydrators produce -40°C (-40°F) dew point dry air at a nominal rate of 1.4 liters (0.05 cubic feet) per minute up to a total of 8495 liters (300 cubic feet) on a single desiccant canister.

Each dehydrator consists of an electrically-driven air compressor, a desiccant canister, an automatic transmission line pressure sensing system, and alarm outputs housed in a rigid metal chassis. It is designed to mount directly to the rack, directly on a wall, or as a free-standing unit. The front panel features a control interface with display for alarms and pressure. For easy serviceability, power connections, alarm output connections, and the desiccant canister are easily accessible from the front of the unit.

The MR050B maintains transmission line

pressures between 2.0 and 3.4 kPa (0.3 and 0.5 psig). It is intended for use with high performance microwave antennas and earth station antennas.

1.3 Operation

MR050B series dehydrators include a compressor, color indicating desiccant, high and low-pressure sensors, and a low-pressure alarm sensor.

When system pressure falls to a preset low limit, the low-pressure sensor activates the compressor. Air is channeled through a desiccant canister, where moisture is adsorbed. The air exits the drying canister at -40°C (-40°F) dew point. It is then channeled directly to an internal 4-port manifold.

When system pressure reaches a preset high limit, the high-pressure sensor shuts off the compressor. A check valve prevents system dry air from retreating back through the compressor.

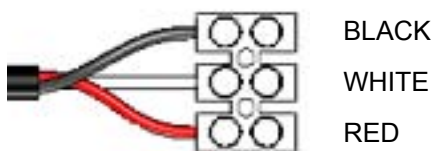
If system pressure falls significantly below the low-pressure trigger point, the low-pressure alarm sensor will activate an alarm contact. This alarm is an indication of a significant system leak or a dehydrator failure.

1.4 Alarms

The MR050B offers Low Pressure and Excess Run alarms as a standard feature. Indicated on a summary alarm connection. The discrete alarm option includes Low Pressure, Excess Run and Power Fail alarms which report through discrete contacts. Alarm conditions are indicated on the display. The alarms are Form C dry contacts and have connection options for Normally Open (NO) or Normally Closed (NC) configuration.

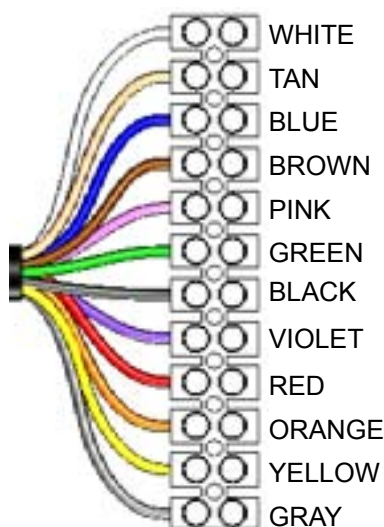
The external alarm monitoring system (supplied by others) is connected to the terminal strip located on the front of the unit. A small slotted screwdriver is necessary to make the connections.

Refer to Figure 1 and 2 for correct locations and colors of the wires on the alarm terminal strip.



WIRE FUNCTION REFERENCE		
WIRE TERMINAL	COLOR	ALARM FUNCTION
1	BLACK	SUMMARY NC
2	WHITE	SUMMARY COM
3	RED	SUMMARY NO

Figure 1 Summary Alarm Terminal



WIRE FUNCTION REFERENCE		
WIRE TERMINAL	COLOR	ALARM FUNCTION
1	WHITE	EXCESS RUN NO
2	TAN	EXCESS RUN COM
3	BLUE	EXCESS RUN NC
4	BROWN	SUM NO
5	PINK	SUM COM
6	GREEN	SUM NC
7	BLACK	POWER FAIL NO
8	VIOLET	POWER FAIL COM
9	RED	POWER FAIL NC
10	ORANGE	LOW PRESSURE NO
11	YELLOW	LOW PRESSURE COM
12	GRAY	LOW PRESSURE NC

Figure 2 Discrete Alarm Terminal

Alarm Definitions:

Summary: Activates when the High Pressure (*only indicated on summary contacts*), Excess Run, and/or Low Pressure alarms are triggered. The summary alarm does not report Power Fail.

Power Fail: Activates open when power is removed from the dehydrator. This includes turning the power off at the switch.

Excess Run: Factory strapped run time set in accordance with the normal run time for the dehydrator application. Selectable times are 1, 10, 30, 120 and 240 minutes, with the 10 minute selection used on the MR050B as the default setting.

Low Pressure: If system pressure falls below the low-pressure trigger point (factory set on the MR050B), the low-pressure alarm sensor will activate an alarm contact. This alarm is an indication of a significant system leak or a dehydrator failure.

Note: All of the alarms clear and reset automatically, but can be manually reset in the display menus. However, if the alarm condition still exists, the alarm will return immediately after being reset.

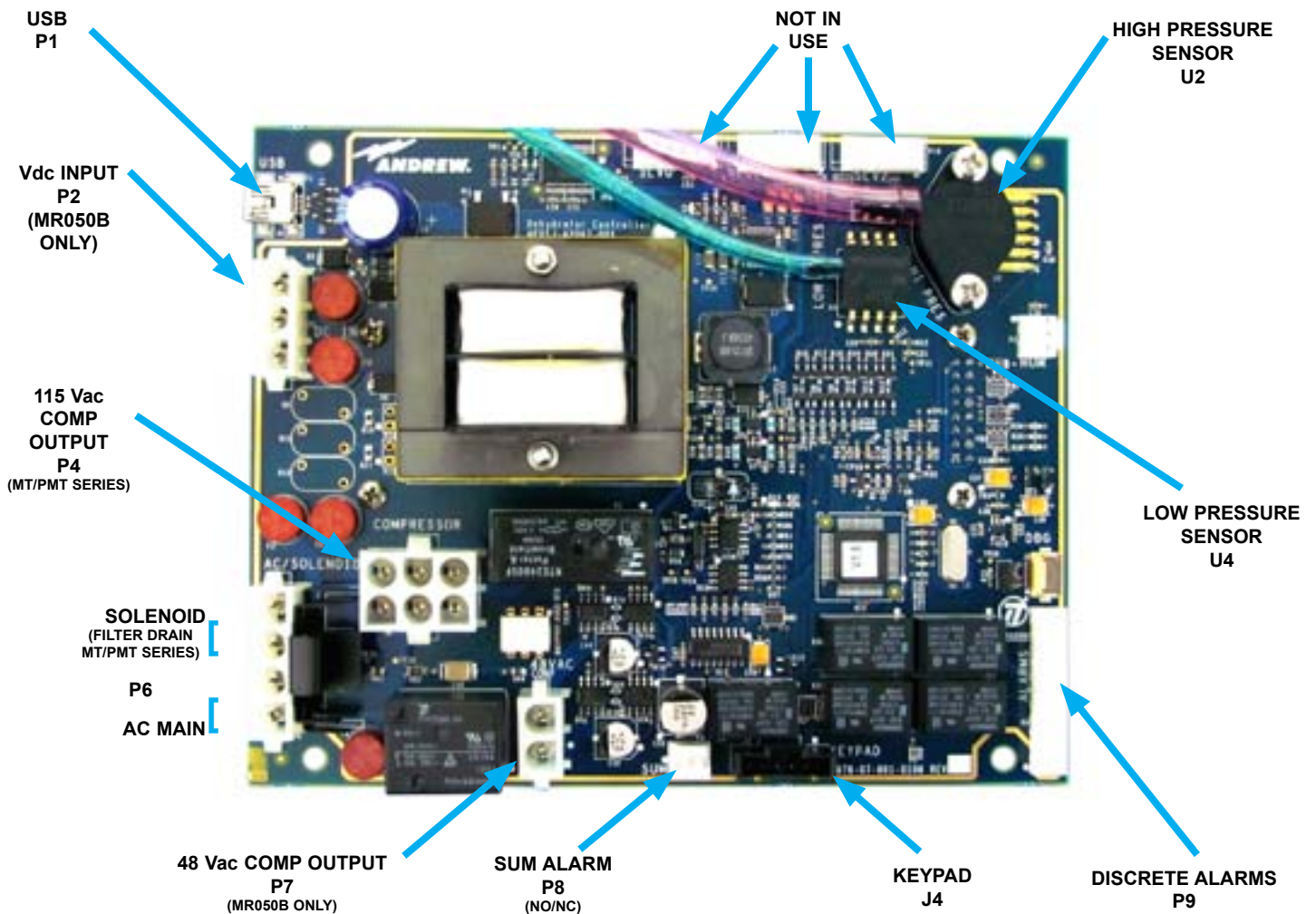


Figure 3 Control Board

1.5 Specifications MR050B Dehydrator

Cut Out Pressure, kPa (psig)	3.5 (0.5)	Output Connectors	3/8" polytube, compression	
Cut In Pressure, kPa (psig)	2 (0.3)	Dimensions	Height, cm (in)	13.2 (5.2)
Output capacity	85 SLPH , 1.4 SLPM (3.0 SCFH; 0.05 SCFM) (total, approx.)		Width, cm (in)	43.9 (17.3)
			Depth, cm (in)	20.3 (8.0)
		Net weight, kg (lb)	7.26 (16)	
Output Dew Point,	-36°C (-33°F) or better	Alarms		
Operating Temperature Range	1° to +40° C (34° to +104° F)	Power Fail Alarm	loss of input power	
		Excess Run Alarm	10 minutes, factory set	
Electrical Input	24/48 Vdc 115/240 Vac, 50/60 Hz (with ac-to-dc adapter)	Low Pressure Alarm	factory set	
		High Pressure Alarm	factory set	
Power Consumption	11 watts continuous			

Section 2 Installation

2.1 Unpacking and Inspection

Open Carton

Remove the top piece of foam packaging. Carefully remove the installation accessories, manual, and dehydrator. Check the dehydrator for shipping damage such as dents or loose parts.

2.2 Controls and Displays

Default password is 1111

Familiarize yourself with the controls and displays prior to installing or testing the dehydrator.



Keypad Controls:



Advances display (scrolls ahead) to the next display or program mode without changing the values in the microprocessor memory.



Numerically increase displayed settings in display window. When depressed longer than 1/2 second scrolling will occur at a faster rate.



Numerically decrease displayed settings in display window. When depressed longer than 1/2 second scrolling will occur at a faster rate.



Enters into the microprocessor memory the values displayed in the window and advances display (scrolls ahead) to the next program or display mode.



Used to allow the user quick access to the system event log.

2.2.1 Event Log Codes

EV= 0 Event = Power Up
 EV= 1 Event = High Humidity Alarm
 EV= 2 Event = Excessive Run Time Alarm
 EV= 3 Event = Low Pressure Alarm
 EV= 4 Event = High Pressure Alarm
 EV= 5 Event = Compressor Fault
 EV= 6 Event = Log Cleared
 EV= 7 Event = Powering Down
 EV= 8 Event = Compressor Lifetime Eeprom Fail

2.3 Installing the Dehydrator

2.3.1 19" Rack Mounting or set on shelf

MR050B can be mounted in standard 19 inch equipment rack, mounted to a wall with ear's or placed on an optional shelf.

2.4 Power Connections

Confirm your dehydrator electrical input matches the available power.

Ensure an electrical safety ground is installed on the ground stud located adjacent to the power input connector. (It is intended to be customer installed in the field to your halo grounding system.)

115 Vav 60 Hz/240 Vac 50 Hz
 24 Vdc/48 Vdc

2.4.1 AC Power

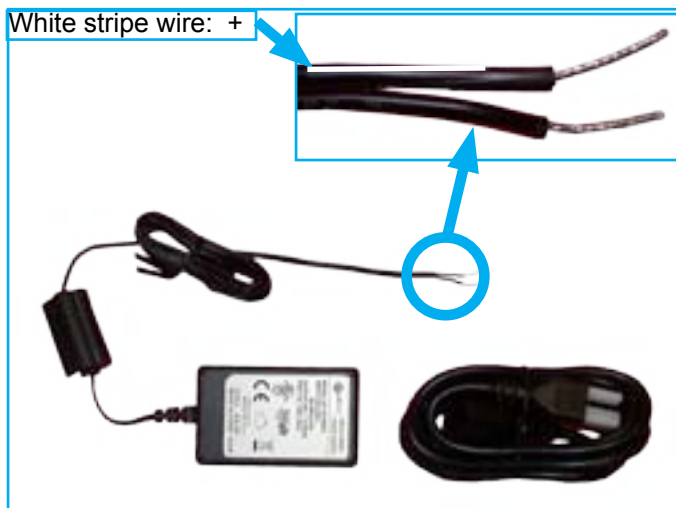
AC units can be connected into a standard 15 Amp power receptacle of the proper voltage via the power supply. Make sure the power circuit is properly grounded. Two power cords are supplied, one 115 Vac American and one 240 Vac International.

CAUTION:

Proper electrical connection is required. It is suggested a licensed electrician be contracted to connect the AC wiring to the unit, if it is connected directly to the mains. Failure to properly connect the power wires could result in a dangerous electrical shock hazard.

CAUTION:

This unit is designed for connection to a single phase power source. Connection to a 3 phase power source will cause significant damage to internal components.



2.4.2 Safety Ground

Ensure an electrical safety ground is installed on the ground stud located adjacent to the power input connector. (It is intended to be customer installed in the field to your halo grounding system.)

2.4.3 Test the Dehydrator

Turn the dehydrator ON and check the output port on the rear of the unit to make sure air is flowing.

2.5 Connecting the Alarm Outputs

To connect the alarms, locate the alarm output terminal block on the front of the unit.

(See section 1.4 for alarm location)

2.6 Connecting Dehydrator to the Transmission Line

CAUTION:

Check the antenna and transmission line system pressure rating before connecting the dehydrator to the system.

Insert one end of the 3/8" polytube feed line tubing into the compression fitting on one of the dehydrator output ports. Tighten securely with a 9/16" wrench. Be careful not to over tighten. Connect the other end of the polytube to the transmission line.

Note:

If the transmission lines have not been purged, continue with section 2.7. Otherwise proceed to section 3.

2.7 Purging the Transmission Line

Air in the transmission line system must be replaced with dry air to ensure satisfactory operation of the transmitted signal.

1. Determine the total system volume.
2. Divide the system volume by the flow rate of the dehydrator (3.0 SCFH) to determine the number of hours needed for the purge cycle.
3. Open the far end of the transmission line.
4. Operate the dehydrator for three purge cycles.

If it is not possible to open the far end of the transmission line, follow these steps:

1. Connect the dehydrator to the transmission line and pressurize the system. The system pressure should reach 0.5 psig.
2. Wait 15 minutes while the air absorbs moisture in the system, then disconnect the dehydrator from the transmission line and allow the air to vent.
3. Repeat steps 1 and 2 twelve times to purge the system.

Section 3 Maintenance

3.0 Maintenance

The MR050B Dehydrator requires relatively little maintenance to ensure satisfactory operation over long periods of time. This section outlines the recommended annual preventive maintenance for the unit and the suggested overhaul for every 6000 hours of compressor operation.

3.1 Preventive Maintenance

The annual maintenance of a MR050B consists of a preventative maintenance inspection of the dehydrator.

These tasks can easily be performed in the field with the unit connected to the transmission line system.

In addition to the annual inspection, a complete overhaul is recommended every 6000 hours or sooner if local conditions warrant.

3.2 Desiccant Canister Replacement

As the desiccant becomes saturated over time, it will change from blue to pink or orange to green. When the desiccant is exhausted, there will be a degradation of performance. In order to replace the desiccant, simply turn the unit off, disconnect the desiccant canister from the pneumatic lines, and replace the entire canister.

3.3 Annual Inspection

Inspection includes checking for loose or damaged hoses, fittings, and electrical connections. Remove the desiccant canister and verify that there are no leaks in the pneumatic lines.

Warning:

Electrical Hazard! Unplug power cord before servicing unit.

3.4 Check the electrical connections.

Check the screw at the power input connector to ensure that the ac power cord is securely terminated. Check the screw-in alarm terminals to ensure that all wire connections are tight.

A loose or damaged connection may result in erratic operation and unnecessary downtime. Refer to the troubleshooting section if an electrical problem is encountered.

3.5 Check the duty cycle.

Check the hour meter on the front panel to determine the duty cycle of the dehydrator.

If the dehydrator has been running for more than 10% of its installed time, check the systems for leaks.



3.6 Parts Replacement

When the MR050B dehydrator unit is in need of service, the main components are simply replaced. The compressor, desiccant canister, and control module are all meant to be replaceable parts. The parts can be purchased from CommScope for field replacement, or the unit can be sent to the repair center for component replacement. (See section 5 or 6)

3.7 Unit Shutdown and Removal

In order to perform an overhaul on the MR050B, the unit must be turned off and removed from service. As this is being done, the low pressure alarm may activate through a reporting alarm system. Personnel monitoring such an alarm should be notified in advance so that they are aware of the fact that service is being performed. It is also necessary to disconnect the dehydrator dry air output from the waveguide system during the overhaul.

Remove the chassis top and front panels for overhaul.

1. Unplug the unit from the power supply.
2. Follow the instructions included in the compressor replacement kit. When the replacement is complete, reinstall.

3.8 Service Restoration

RECOMMENDATION:

Verify unit operates normally and return to service.

Section 4

Troubleshooting

If you experience difficulty with your dehydrator, use the troubleshooting procedures described below.

Caution: Electrical troubleshooting requires access to potentially dangerous voltages and should only be performed by a licensed electrician

Problem/Condition	Solution
Dehydrator display does not light, unit does not run.	If the display light fails to light, make sure the unit is plugged in and power outlet is operating.
	If you still have no light, unplug the unit, remove the unit cover and check for loose connections. Refer to the wiring diagram for proper connections. Figure 4 for summary alarm unit or figure 5. For discrete alarm unit
	Check to assure that the fuse is OK.
	Check to assure that proper ac voltage is being supplied to the input.
Low-pressure alarm activated.	Plug the unit output with finger and observe pressure gauge. The pressure gauge line should read approximately 0.5 psig and the alarm should clear. If alarm does not clear, remove cover and verify tubing and wiring connections are secure.
	If the pressure does not remain constant after plugging the output, apply leak detector to isolate the leak in the dehydrator (exercise care when applying solution not to wet wiring or electronics).
	If the problem persists contact CommScope Customer Service. (See section 6)
Compressor does not turn OFF.	Check for leaks.

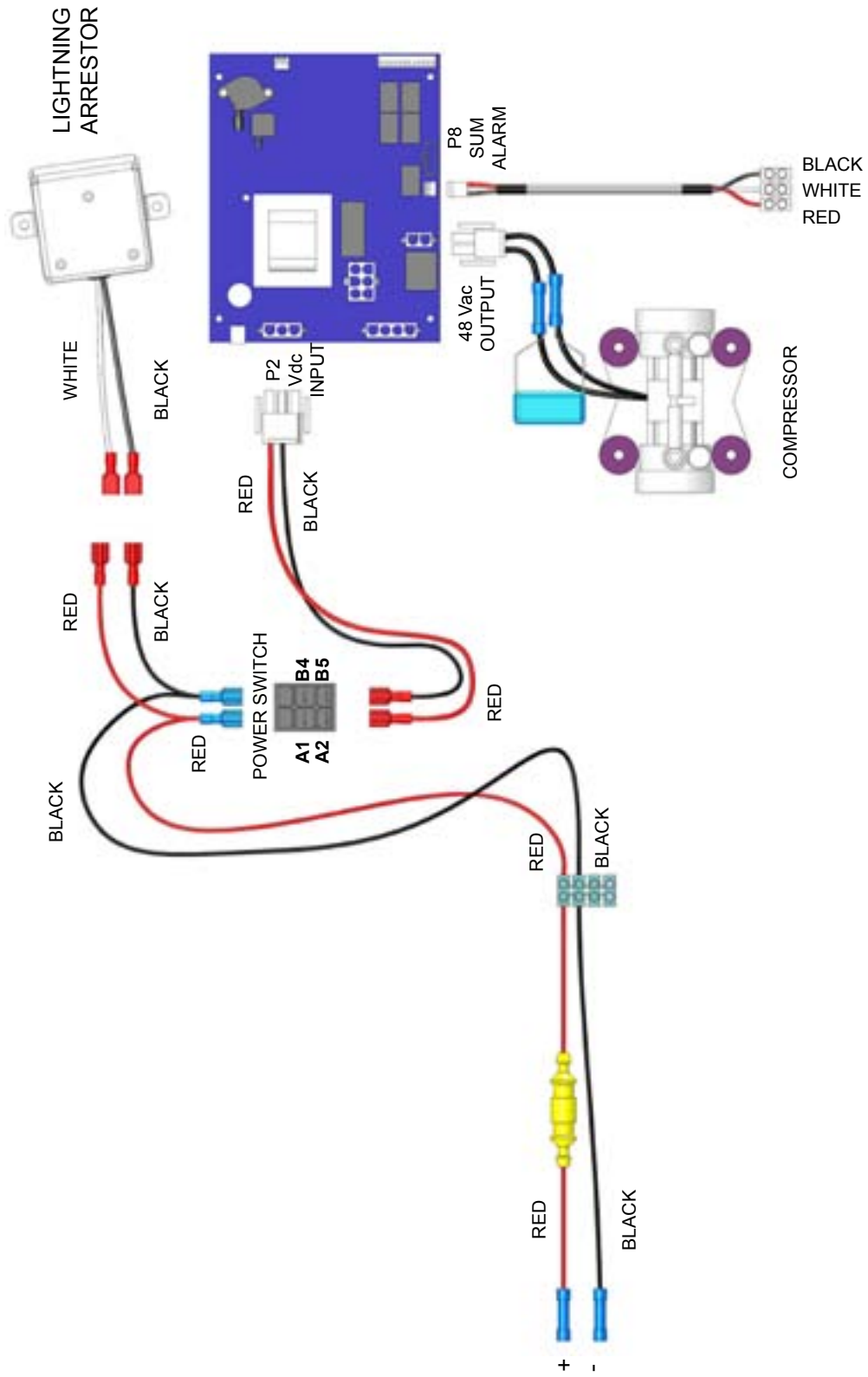


Figure 4 MR050B-31015 Wiring Diagram

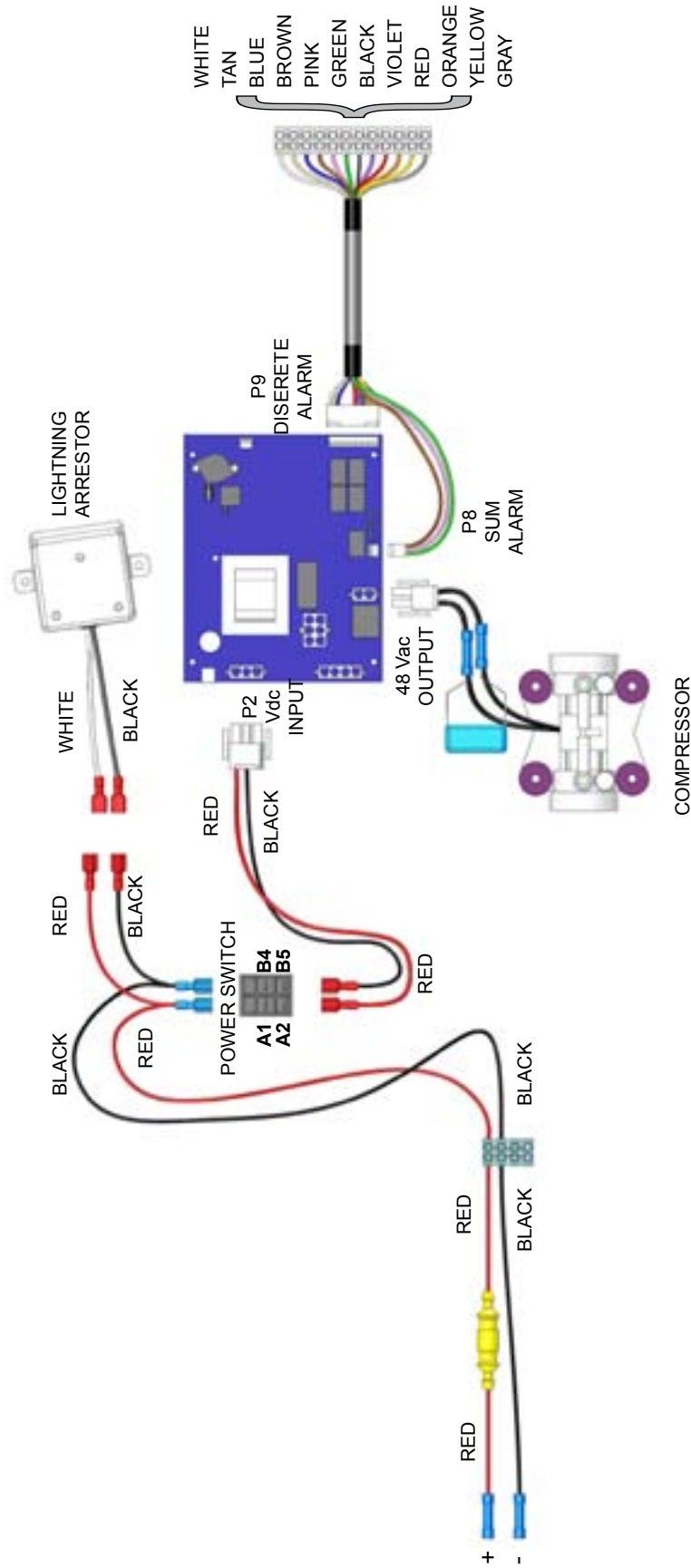


Figure 5 MR050B-31215 Wiring Diagram

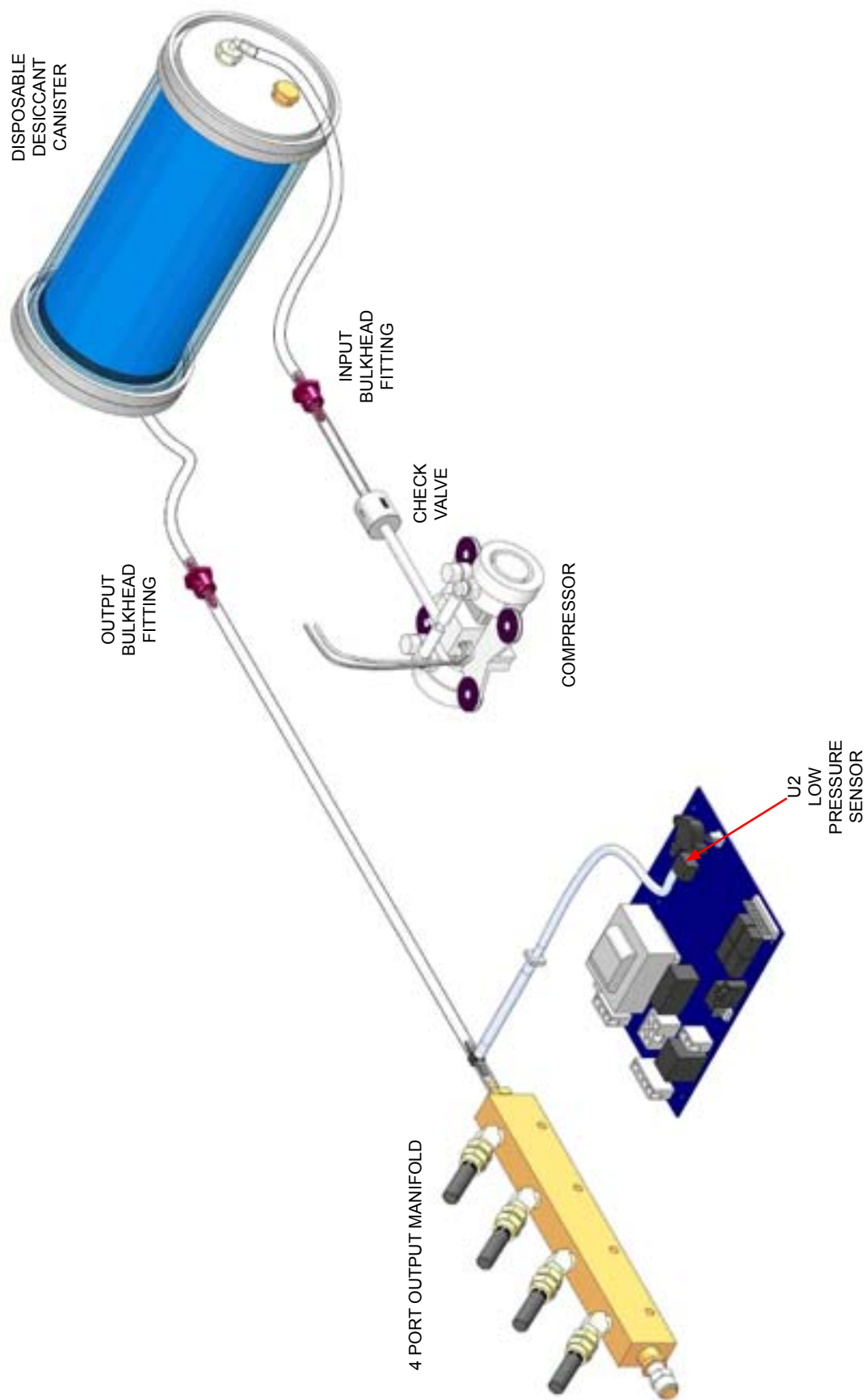


Figure 6 Pneumatic Diagram

Section 5 Replacement Parts

Go to commscope.com eCatalog for the most current parts available for your dehydrator.

<http://awapps.commscope.com/catalog/andrew/catalog.aspx>



Desiccant Kit MR050B-KIT-DSCNT



Compressor Kit MR050B-KIT-CPRSR

Section 6 Customer Service

6.0 Introduction

CommScope provides in-warranty and out-of-warranty repairs as well as dehydrator and compressor overhauls from several Repair Centers. Coordination of these services is provided through the nearest Sales Office or Customer Service Center. The Center is also prepared to help you with the following: Technical Assistance Troubleshooting Repairs Loaner Units Spare Parts Installation Materials System Accessories.

6.1 In Case of Trouble

The first step you should take if trouble develops using a dehydrator is to read the operators manual and follow the trouble isolating procedures given in it.

If the steps in the manual do not identify and remedy the problem, then contact an CommScope Customer Service Center for 24-hour telephone assistance. Record the Model Number (e.g. MR050B) and Serial Number from the product label, as you will be asked for these when you call. Two main locations are currently available to help:

COMMSCOPE

3 Westbrook Corporate Center, Suite 900
Westchester, IL 60154 USA

From North America

Telephone: 1-800-255-1479
Fax (U.S.A.): 1-800-349-5444

International

Telephone: +1-779-435-6500
Fax Number: +1-779-435-8579

Web Access

Internet: www.commscope.com
Email: #prc@commscope.com

6.2 Initial Steps by CommScope

When your call or fax communication is received, the CommScope staff will work with you to pinpoint the possible cause of trouble. If the pressurization equipment is suspect, they will:

- ask for your unit Model Number and Serial Number
- check the warranty status of the unit
- advise the availability of a loaner unit
- provide an estimate of the cost for inspection and repairs, if the unit is out-of-warranty
- fax a Return Material Authorization Sheet to you.

6.3 Repair Center Process

A method of Payment must be provided prior to issuing of RMA regardless of warranty status.

IN-WARRANTY REPAIR: Most CommScope pressurization products carry a warranty of one to three years, depending upon model number. Warranty details are available on our web page. If your unit falls within its warranty period, inspection and repairs will be performed at no charge and the unit will be promptly returned to you. If a warranty unit is deemed no problem found an inspection fee and freight will be charged to the customer.

OUT-OF-WARRANTY REPAIR: We will inform you with the cost of repair and obtain your approval to proceed with repairs or, if you elect not to have the unit repaired, your instructions on disposition of your unit. When repairs are complete, we will return your unit and invoice you for the inspection charge, materials used for the repair and labor applied to complete the repair. If you elected not to repair the unit, we will invoice you for the inspection and freight charge if unit is to be returned.

LOANER UNITS: Loaner units are available from the repair center to maintain your system

while repairs are being performed. If you feel you need a loaner, please contact us at at one of the numbers listed under contact numbers. A P.O. for the full value of the unit must be issued prior to shipment. Also contact us when the loaner is ready to be returned so that we can issue a NEW RMA number to identify your return and create the appropriate credit to your account. Damages to loaner will be deducted from the P.O.

PACKING INSTRUCTIONS: Pack your unit securely for shipment to the Repair Center. If you received a loaner unit, we suggest you use the box and packing materials to return your unit. Otherwise we have factory packing materials available for a nominal fee. Enclose a completed copy of this form inside the box and clearly mark your Company Name and RMA: XXXXXXX on outside of the box. Address the box to the following Ship-To Address:

COMMScope PRESSURIZATION SERVICE
CENTER
RMA# XXXXXXX
11312 S. PIPELINE RD.
EULESS, TX. 76040-6629

Please note, Units received with Biological/ animal contamination will be returned unrepared or scraped after notification and you will be invoiced for inspection and freight.

CONTACT NUMBERS: If you have any questions about the repair process or status of your unit, please contact us directly through one of the following methods – Telephone (below)

TEL: 817-864-4150
817-864-4155

FAX: 817-864-4179

6.4 RoHS Inquiries

For inquiries on RoHS please contact the following:

CommScope Inc.
Corke Abbey, Bray Co.,
Dublin, Ireland
Attn: Legal Department

