June 2012

MVE Chart Tech Tips

PRODUCT INFORMATION

Chart MVE TEC3000 Upgrade Kits

Chart provides upgrade kits that will allow freezers with the TEC2000 to be upgraded to the TEC3000. Contact our Technical Support with the freezer's serial and model numbers, so that we can provide the correct upgrade kit.

The most basic upgrade kit is shipped with a new TEC3000, power supply, and a wiring harness adaptor. The adaptor connects directly to the freezer's existing plumbing harness, which enables a plug and play upgrade.
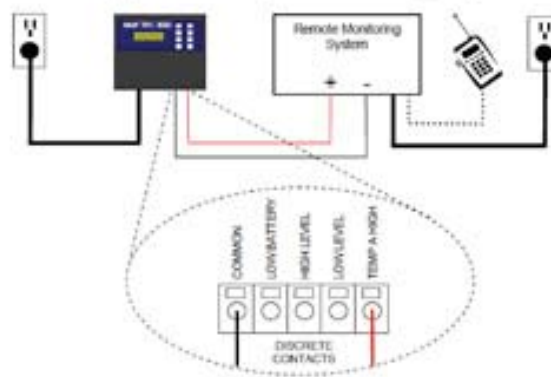

Upgrade Kit for MicroDynamics TEC2000
Equipped non-Cabinet Freezers

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TEC3000 Global and Discrete Contact Alarm Connections

The TEC3000 has the ability to connect to an externalalarm system via its discrete and global contacts, both located at the rear of the panel. The discrete contacts are open collectors and are polarity sensitive, whereas the global contacts are dry contacts and are not polarity sensitive. Once the TEC3000 goes into alarm, these latching contacts change state. The global common terminal is not connected to the chassis.

Typical Remote Monitoring System Schematic

HELPFUL HINTS / FAQS

TEC3000 Global Remote and Discrete Contacts Alarm Connections

Q: How does one insert and remove the physical wiring connections to the global and discrete alarm contacts?
A: The TEC3000 has two styles of discrete connectors. The discrete connector will have either the white push button style (See Figure 1) or the slotted lever style (See Figure 2). For the white button style, wires can be inserted and removed by pressing on the white button using a small flathead screwdriver (See Figure 1). For the slotted lever style, wires can be inserted and removed by placing a jeweler flathead screwdriver in the slot above the contact and prying down on the latch until the clamp connector opens (See Figures 2 & 3). To close the connector simply remove the screwdriver.

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TEC3000 Global and Discrete Contact Alarm Connections
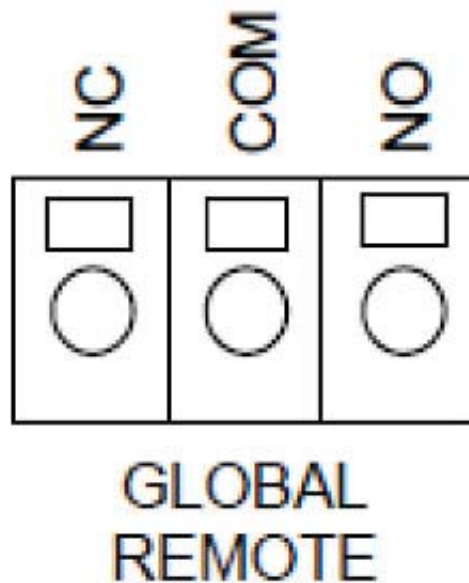
Figure 1

Figure 2

Figure 3

TEC3000 Global Remote Alarm Connections

Q: How does the global connection trigger a remote alarm system?

A: The global remote connection is a latching type of contact that will change its state should the TEC3000 go into alarm. Once the alarm condition has been corrected, and after the ALARM MUTE button is pressed, the global contacts will revert back to their original state. For example, the normally closed (NC) to common (COM) contacts remain connected during the no alarm state. When the controller goes into an alarm these contacts will change state and open no longer making contact. The same principle applies to the normally open (NO) to the common (COM) contacts. In the no alarm condition these connections are open. If the TEC3000 goes into an alarm the normally open (NO) to common (COM) contacts close establishing contact with one another. The global contact specifications are 250 VAC @ 1A maximum and are not polarity sensitive.

Global Remote
Normally Open or Normally Closed
Dry Contact Relay
Latching
Non-Polarity Sensitive
230 VAC at 1 A Max

TEC3000 Discrete Contact Alarm Connections

Q: How does the discrete contact trigger a remote alarm system?

A: The individual discrete alarm contact is a latching type of contact that will change its state should the TEC3000 goes into alarm. Once the individual discrete alarm condition has been corrected, and after the ALARM MUTE button is pressed, the contact reverts back to its original state. For example, the HIGH LEVEL to COMMON contacts is open during the no alarm state. If the level of liquid nitrogen exceeds its high level set point, the TEC3000 will change the state of the contact and close; establishing contact. The similar principle applies to the other three discrete contacts. For proper discrete contact function ensure that the negative (low voltage) terminal of the remote monitoring system is connected to the COMMON terminal on the TEC3000. The positive (high voltage) remote monitoring terminal should be connected to the respective alarm contact. The discrete contact specifications are open collectors, 24DVC, 100mA, and are polarity sensitive.
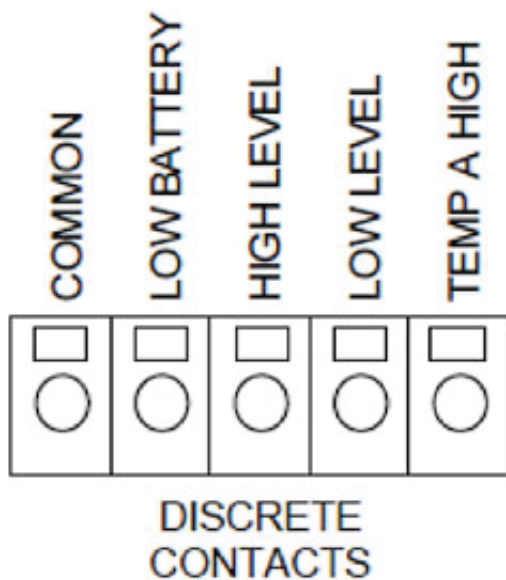
Discrete Contacts
Normally Open
Open Collector
Latching
Polarity Sensitive
24 VDC at 100 mA Max

COMMON   LOW BATTERY   HIGH LEVEL   LOW LEVEL   TEMP A HIGH

DISCRETE CONTACTS

TEC3000 Global and Discrete Contact Test

Q: How are the global and discrete alarm connections on the TEC3000 tested?
A: To test the global and discrete alarm connections use a regular multi-meter. Follow the steps below:

Global Remote contacts:
Normal State (No Alarms):

- Check for continuity across the leads of the multi-meter
- During the no alarm state there should be contact between the COM and NC terminals of the global remote connections.
- The COM-NO circuit should be open.

Alarm Condition:

- There should be contact between the COM and NO terminals of the Global Remote.
- The COM-NC circuit should be open.

Discrete Contacts:

- Check for continuity using the multi-meter on the *diode setting*. Since the discrete contacts are open collectors the diode check function should be used.

Normal State (No Alarms):

- All discrete contact terminals should be open with respect to COMMON.

Alarm State:

- There should be continuity between the specific active alarm terminal and COMMON.
- Inactive alarms should remain open with respect to COMMON.

ACCESSORIES

New Temperature Probes

In the March Technical Tips, Chart introduced a new temperature probe P/N 20570663. Chart has made the switch to one temperature probe measuring 65 inches (165cm) in the effort to simplify replacement orders. The new temperature probes can be used as replacements on freezers with the 96" inch (244cm) or 44" (112cm) probe length. The new 65 inch (165cm) temperature probe is robust, precise, and accurate in measuring cryogenic temperatures.

Canisters for Aluminum and Stainless Steel Dewars

Chart sells various canisters for its aluminum and stainless steel dewars. Contact customer/technical support for more information.
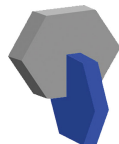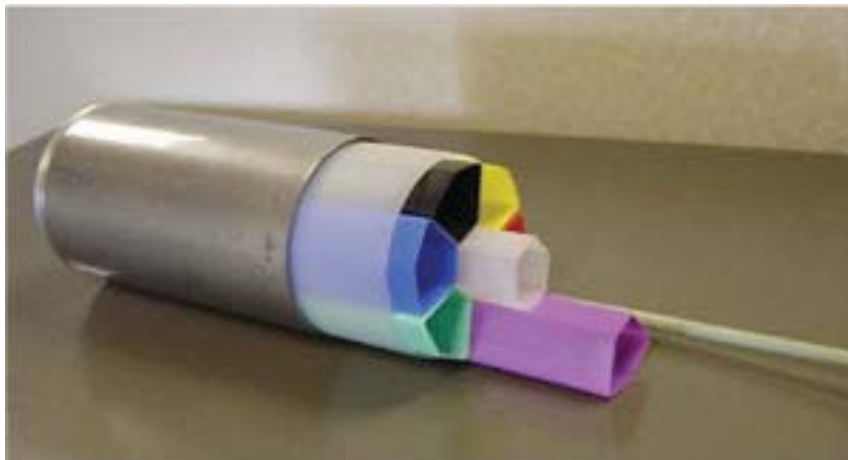
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