



PrincetonCryo.com
Cryogenic Delivery and Storage Systems

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MVE Chart Tech Tips

PRODUCT INFORMATION

Software Online Retrieval on the Chart BioMedical New Website

The latest firmware and Chart Connect Software can be retrieved online. Customers may download the firmware to their computers and then upgrade the firmware to the TEC3000 offline.

http://chartbiomed.com/Literature_Resources/Software.aspx

Storage Wizard Tool on the BioMedical Home Page

The Storage Wizard is a program on the Chart BioMedical website that searches our database of products and selects which freezer and/or aluminum tank best suits a customer's specific application. This is a great tool for customers that would like a recommendation as to which Chart freezer will meet their demand for vial and blood bag storage most efficiently.

The Storage Wizard can be accessed from the Home Page of our website (<http://www.chartbiomed.com>) and can be found at the bottom right hand corner of your screen.

By selecting what you are storing in and the number of units you would like to store, the Storage Wizard is given ample data to make a recommendation as to which product best suits your individual needs. For example, if one chose to store 10,001 to 20,000 vials the Storage Wizard would display the following results:

Chart MVE Supply Low Pressure Cylinders

Storage Wizard
 Find which products best fit your application. Simply select the criteria from the drop down menus and submit for the answer.
 Storing In:
 Straws
 Number of Units:
 Less than 500
 Submit

The screenshot displays the Chart BioMedical website interface. At the top, the navigation bar includes links for Home, Cryopreservation Products, Literature & Resources, Events, About, and Contact. The main banner features the MVE BioMedical logo and a large image of laboratory equipment. On the left, a sidebar lists product categories such as Stainless Steel Freezers, Aluminum Specimen Drawers, Dry Vapor Shippers, Lab Series, Supply Systems, and Accessories. Below this is a 'Calendar of Events' section listing upcoming conferences like ESBB and Australasian Biogen/Amers Research Association Annual Meeting. The right side of the page contains an 'About Chart BioMedical' section, a 'News' section with links to recent articles, and a 'Storage Wizard' tool. The Storage Wizard tool is highlighted, showing the same selection criteria as the inset image: 'Storing In: Straws' and 'Number of Units: Less than 500'. Below the tool, a list of 'Applicable Products' is shown, including MVE 800-190 Series, MVE 510, MVE 616, MVE 616C, and 810.

Chart MVE Supply Low Pressure Cylinders

Designed specifically for low-pressure liquid applications the CryoCyl LP has a low center of gravity and a polished stainless steel outer shell, which makes these cylinders perfect for laboratory and hospital applications. By specifying stainless-steel casters, CryoCyl LP have become non-magnetic and ideal for MRI service. As with every Chart product line, our attention to detail the Cryo-Cyl LP continues to rise above the competition. Along with the optimal balance of low NER and the durability in a liquid cylinder, its design includes an extended stem, easy-operating globe valve that provides less ice build-up on the handle and increased ease of operation. A pressure building circuit inside the cylinder needs only an optional regulator kit to turn the Cryo-Cyl LP into a full, pressure building unit.

Special Features:

- Easy to handle 26" (66.04 cm) diameter 230 liter model (low center of gravity)
- Extended stem liquid valve
- Rugged, oversized casters
- Optional stainless-steel casters (MRI applications)



HELPFUL HINTS / FAQs

TEC3000 Global Remote and Discrete Contacts Alarm Connections

Q: How do I connect the physical wiring to the global and discrete alarm contacts?

A: The TEC3000 has two physical style discrete connectors.

The discrete connection will have either the white push button style (See Figure One) or the slotted lever style (See Figure Two). For the white button style, wires can be inserted and removed by pressing on the white button with a small flathead screwdriver. 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 Two and Three). Remove the screwdriver to close the connector.



Figure 1



Figure 2

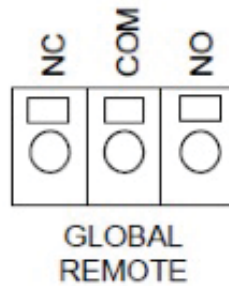


Figure 3

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 begin to alarm.

Once the alarm condition has been corrected and after the ALARM MUTE button has been pressed, the global contacts will revert back to their original state. For example, the normally closed (NC) to common (COM) contacts are in continuity during the no alarm state. When the controller enters into an alarm state 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 state these connections are open. If the TEC3000 enters an alarm state, the normally open (NO) to common (COM) contacts close; establishing continuity. The global contact specifications are 250 VAC at 1A maximum and are not polarity sensitive.

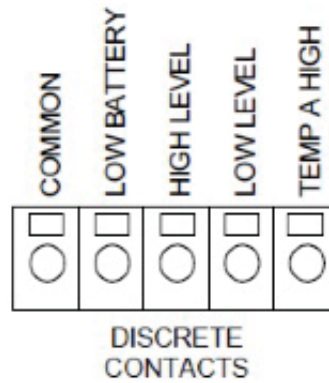


Global Remote
Normally Open or Normally Closed
Dry Contact Relay
Latching
Non-Polarity Sensitive
230 VAC at 1 A Max

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; making continuity. 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, 24VDC, 100mA, and are polarity sensitive.



Discrete Contacts
Normally Open
Open Collector
Latching
Polarity Sensitive
24 VDC at 100 mA Max

TEC3000 Global and Discrete Contact Test

Q: How do I test the global and discrete alarm connections on the TEC3000?

A: To test the global and discrete alarm connections you may use a regular multimeter by following the steps below:

Normal State (No Alarms):

Global Remote Contacts:

1. Check for continuity across the leads of the multimeter.
2. During normal state, there should be continuity between the COM and NC terminals of the Global Remote connections. The COM-NO circuit should be open.

Alarm State:

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

Discrete Contacts:

Check for continuity using the multimeter on the diode setting. Since the discrete contacts are open collectors, the diode check function should be used.

Normal State (No Alarms):

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

Alarm State:

1. There should be continuity between the specific active alarm terminal and COMMON. Inactive alarms should remain open with respect to COMMON.
 1. Check for continuity across the leads of the multimeter.
 2. During normal state, there should be continuity between the COM and NC terminals of the Global Remote connections. The COM-NO circuit should be open.

ACCESSORIES

TEC COM Kit



The TEC COM Kit is a useful tool that enables a user to download data from both the TEC2000 and TEC3000 freezer controllers. This tool can assist with periodic maintenance and troubleshooting. To order the TEC COM Kit, use PN #13376947.

Cryogenic Gloves



Chart provides cryogenic gloves for the safe handling of samples. Cryogenic gloves are available in the following sizes:

Medium length-medium size	P/N 9717119
Medium length-large size	P/N 9717129
Medium length-XL size	P/N 9717139
Elbow length-medium size(pictured)	P/N 9717149
Elbow length-large size	P/N 9717159
Elbow length-XL size	P/N 9717169



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