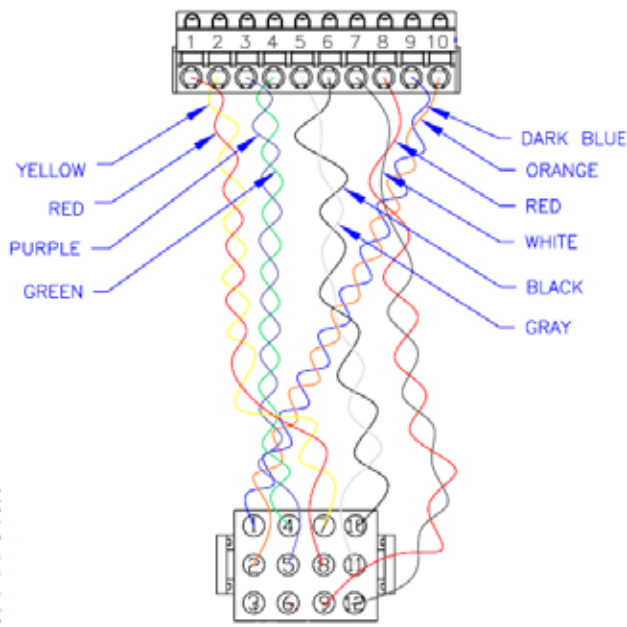


## T3K Wire Harness Adapter Change

**PART:** TEC 2000 to TEC 3000 Wire Harness Adapter (PN 13319598S)

**KIT:** TEC 3000 Upgrade Kit for MDC TEC 2000 Non-Cabinet (PN 13319512)

**DETAILS:** The wiring configuration for the TEC 2000 to TEC 3000 wire harness adapter is changing. The polarity of the battery backup pins (9 and 10) is being reversed on the 10-pin Phoenix connector. The polarity of the battery backup should always be confirmed, as described in the upgrade kit instructions, before plugging it into the adapter. This wiring change will decrease the incidence of the battery backup being accidentally connected incorrectly. If the battery is connected incorrectly, it can damage the TEC 3000 and may void the controller's warranty.



10-pin Phoenix (green connector)	Pin Description
1	- Purge Valve
2	+ Purge Valve
3	- Fill Valve
4	+ Fill Valve
5	- Bypass Valve
6	+ Bypass Valve
7	- Bypass Sensor
8	+ Bypass Sensor
9	+ Battery Backup
10	- Battery Backup

TEC 3000 12-pin	Pin Description
1	+ Battery Backup
2	- Battery Backup
3	+ Lid Switch
4	+ Fill Valve
5	- Fill Valve
6	- Lid Switch
7	+ Purge Valve
8	- Purge Valve
9	+ Bypass Sensor
10	+ Bypass Valve
11	- Bypass Valve
12	- Bypass Sensor

## Inline Filter and Slow Fills

If you have ever experienced a slow fill, don't forget to investigate the inline filter. This component sometimes does such a great job of keeping debris out of the solenoids, it clogs the fill line. After allowing the transfer line to warm to room temperature, depressurize the line, remove the filter, and back-purge the filter with clean, dry compressed gas.

## Accessory Options for the Lab Units

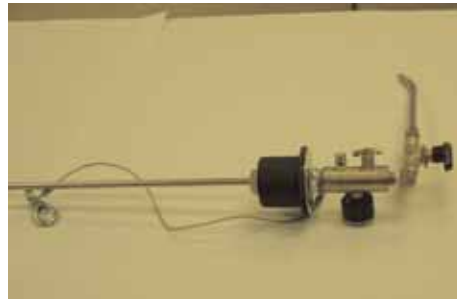
There are several accessories that Chart offers for the Lab Series to withdraw nitrogen. The pouring spout can be used if a stream of liquid nitrogen is desired.



### Pouring Spout

Associated Unit	Neck ID	Part Number
Lab 5/10/20	2.2	9720729
Old Lab 20	2	9711909
Lab 30/50	2.5	9711929

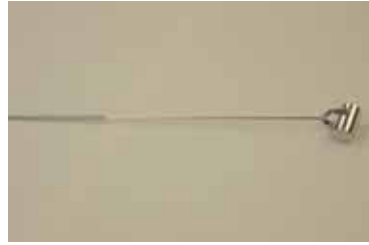
If a spray of liquid nitrogen is needed, the discharge device is a good option. However, our device does not have a pressure builder, so once the pressure bleeds off, the user has to wait for the pressure to rebuild.



### Discharge Device

Associated Unit	Neck ID	Part Number
Lab 10	2.2	10668101
Old Lab 10	2	13467208
Lab 20	2.2	73484139
Old Lab 20	2	13464867
Lab 30	2.5	10668004
Lab 50	2.5	10668021

Dippers are also available for liquid nitrogen dewars. The user can choose between a cup that swivels, also known as the Picasso, or a rigid dipper. There is also an extended dipper which accommodates more nitrogen.



#### Rigid Dipper (45 mL)

Associated Unit	Handle Length (inches)	Part Number
Lab 5	16.25	9711569
Lab 10	19.625	9711589
Lab 20/30	21.75	9711619
Lab 50	28.25	9711669

#### Extended Dipper (103 mL)

Associated Unit	Handle Length (inches)	Part Number
N/A	22.75	11555669

#### Picasso Dipper/Swivel (17 mL)

Associated Unit	Handle Length (inches)	Part Number
N/A	21.25	9711679

If the user would like to use the Lab unit as a source instead of a receptacle, Chart offers a transfer line with phase separator. There are two types, one with a small phase separator and another with a large. Transfer hoses are used in conjunction with a discharge device.



Transfer Hose for Discharge Device

Size	Part Number
Small	14044143
Medium	14044151

**Note: The Lab 4 has no withdrawal accessories available. However it has a long handle to assist with pouring**

## Gas Bypass Sensor

The temperature sensor used for the gas bypass circuit, PN: 10713400, is similar to the sensor that is used for the temperature probes. It is a Pt1000Ω RTD. If you suspect there is an issue with the gas bypass sensor, the easiest thing to do is to measure the resistance. The bypass sensor is located immediately after the fill solenoid and has 2 wires, red and white. After unplugging the connector, use an ohmmeter or multimeter to measure the resistance. If the sensor has been submerged in LN2, the resistance of the sensor should be around 200 ohms, at 0°C the resistance should be 1000 ohms, and at room temperature the resistance should be around 1100 ohms. If the temperature sensor resistances vary by more than 20 ohms from these values, the sensor could be faulty. If you are experiencing incorrect temperature readings, but the sensor resistances are correct, then recalibrate. If the problem persists, contact Technical Service.

## Customer & Technical Info

For ordering information contact

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**US Toll Free:** 800.482.2473  
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