High-Pressure Systems

Technical Service Bulletin

Chart Trifecta Software Update   ***Date:*** April 13, 2018   TSB-HPS-1020

Issue: Version 11 software update for all Trifecta® X-Series Gas Supply Systems.

Models Affected: Trifecta X-Series with the following part numbers: 13132395, 11907767, 11862511, 13500872, 13500881, 13500899, 20614842, 20538067, 20679790. These include all X-Series models such as oxygen and nitrogen, high-pressure oxygen and the 600 psig nitrogen.

Description: An upgraded PLC program is now available to load into all Trifecta X-Series. Version 11 contains several enhancements that will provide for a failsafe condition in the event of a locked pressure transmitter that reads high, but is not out of range. The new program also provides for an output signal to a relay that can be used for a telemetry alarm signal or to close an emergency shutoff valve. A summary of the key changes that are included in this new version are as follows:

> A.) Decreased the out of range format for pressure transmitters on the PLC from 550 psi to 530 psi as well as 650 psi to 630 psi on 600 psi units. Effectively, any time a pressure reading is higher than 530 psi (630 psi for 600 psi units), the PLC on the unit will issue an error code and enter the monitoring mode. When put into monitoring mode, the PLC will shut down the unit and trigger a service event, which then requires a manual reset.
> B.) Programmed the PLC to only release pressure back to the bulk tank during an overpressure venting event. If the pressure inside the affected Trifecta tank has not dropped below 495 psi (595 psi for 600 psi units) after one minute, the system will lock itself into "monitor" mode due to the lack of response to overpressure venting. At no time during an over pressure event will the tank vent to atmosphere, regardless of the vent to bulk setting.
> C.) Added an output to energize a relay in the event that the Trifecta has a shutdown condition. (Optional solenoid valve can be added and wired to this relay to isolate the Trifecta from the bulk tank)
> D) Eliminated cycle count feature to make room in the PLC for these new modifications.
> E) Corrected the low temp alarm (C3) that is tripped every time the power on the panel is cycled.

Any Trifecta with a serial number higher than 3103CX will already have these changes included in the PLC program and there will be a sticker on the unit indicating the software version. (see fig 1)

Fig 1

Corrective Action: The new version 11 program can be uploaded into the PLC with an EEPROM. The instructions for loading the new program are on page 3 of this TSB. A single EEPROM can be used to change multiple Trifectas, but EEPROM programs are specific to Trifecta models. Each part number contained in paragraph two above has its own specific program. Pre-programmed EEPROMs can be ordered by calling

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Chart customer service and requesting the specific part numbers that you need. EEPROM part numbers are shown in Table 1.

	Description	EEPROM Part Numbers		
		Nitrogen	Argon	Oxygen
13132395	Trifecta 5K X-Series 500 psig	21240340	21240346	
11907767	Trifecta 10K X-Series 500 psig	21240344	21240348	
11862511	Trifecta 15K X-Series 500 psig	21240345		
13500872	Trifecta 5K X-Series 350 psig (Oxy)			21240347
13500881	Trifecta 10K X-Series 350 psig (Oxy)			21240354
13500899	Trifecta 15K X-Series 350 psig (Oxy)			21240352
20614842	Trifecta 15K X-Series 500 psig (Oxy)			21240350
20538067	Trifecta 10K X-Series 600 psig	21240356		
20679790	Trifecta 15K X-Series 600 psig	21240355		

TABLE 1

A video is also available that demonstrates how to upload the PLC with an EEPROM at:

https://www.youtube.com/watch?v=yEcuO7z7SjI

Chart's continuous attention to product improvement and customer satisfaction has resulted in this design modification. If you have concerns or questions relative to this action, please contact your Chart Customer Service Representative at (800) 400-4683. Thank you for depending on Chart to provide high product quality and service.
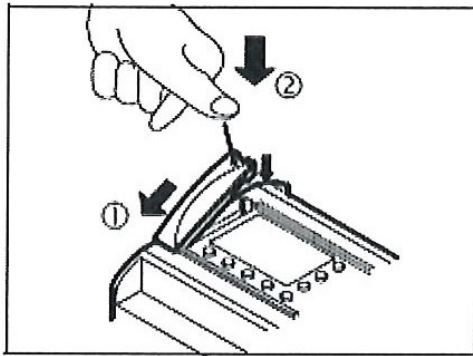
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Trifecta X-Series EEPROM Chip Installation/Programming Instructions

STEP 1: Removing the existing EEPROM Chip

- Power **OFF** the control panel
  Turn the 3-position switch on the front of the control panel to the **"OFF"** position
- Open the control panel door
  Locate the PLC (upper right corner of control panel)
- Remove the EEPROM Chip Cover
  Using a small flat head screwdriver pry off the EEPROM Slot Cover
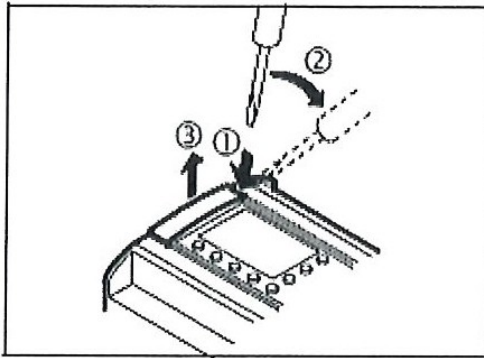
- Install the new EEPROM Chip
  Ensure the EEPROM Chip in installed in the correctly (it will only fit into the slot in one direction)
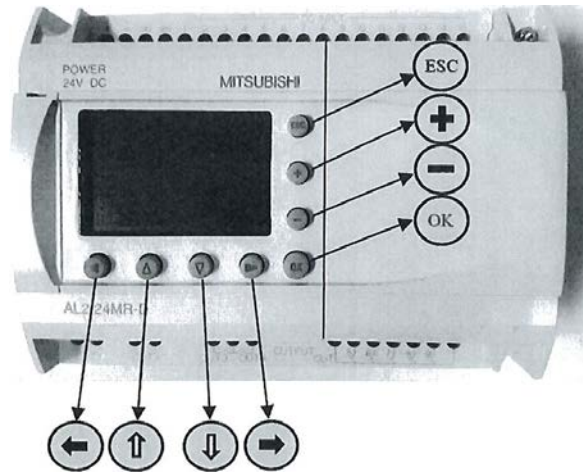- Close the control panel door

- Power **ON** the control panel
  Turn the 3-position switch on the front of the control panel to the **"RUN"** position

Misubishi AL2-24MR-D PLC

Button Summary

STEP 2: Stopping the PLC Controller

- Press OK and ESC at the same time (this will bring up the **Main Menu** on the PLC Controller)
- Using the arrow up and arrow down keys move the arrow to the position where it says **STOP,** (**STOP** will now be flashing).
- Press the **OK** button, and a screen will appear that will reflect (**RUN/STOP)** at the top with an arrow pointed at the word **STOP**
- Press the **OK** button again
    - The controller should now be stopped

STEP 3: Programming the PLC Controller

- Press the **DOWN** arrow until you see (**OTHERS)** and press **OK**
- Press the **DOWN** arrow until you see (**ProgTran)** then press **OK**
- Press the **DOWN** arrow until you see (**CASSETTE)**
    - The arrow should be pointing right and flashing
- Press the **OK** button
- Press the **OK** button again
    - Once programming is downloaded the PLC screen will reflect **Completed**
- Press the **OK** button
- Press the **OK** button again to enter (**ProgTran)** again
    - **Verify** should be flashing
- Then press **OK**
- Press **OK** again once it says completed
- Power **OFF** the Control Panel
    - Turn the 3-position switch on the front of the control panel to the **"OFF"** position
- Power **ON** the Control Panel
    - Turn the 3-position switch on the front of the control panel to the **"Monitor"** position
- Press the **ESC** button
    - Press the **UP** arrow until you see **RUN**
    - Press the **OK** button
    - Press the **OK** button again
        - Push and hold the **RIGHT** arrow to confirm the software version
- Push the **LEFT** arrow five (5) times
- Turn the switch on the front of the control panel is in the **"RUN"** position
    - **The EEPROM Chip Installation is now complete**