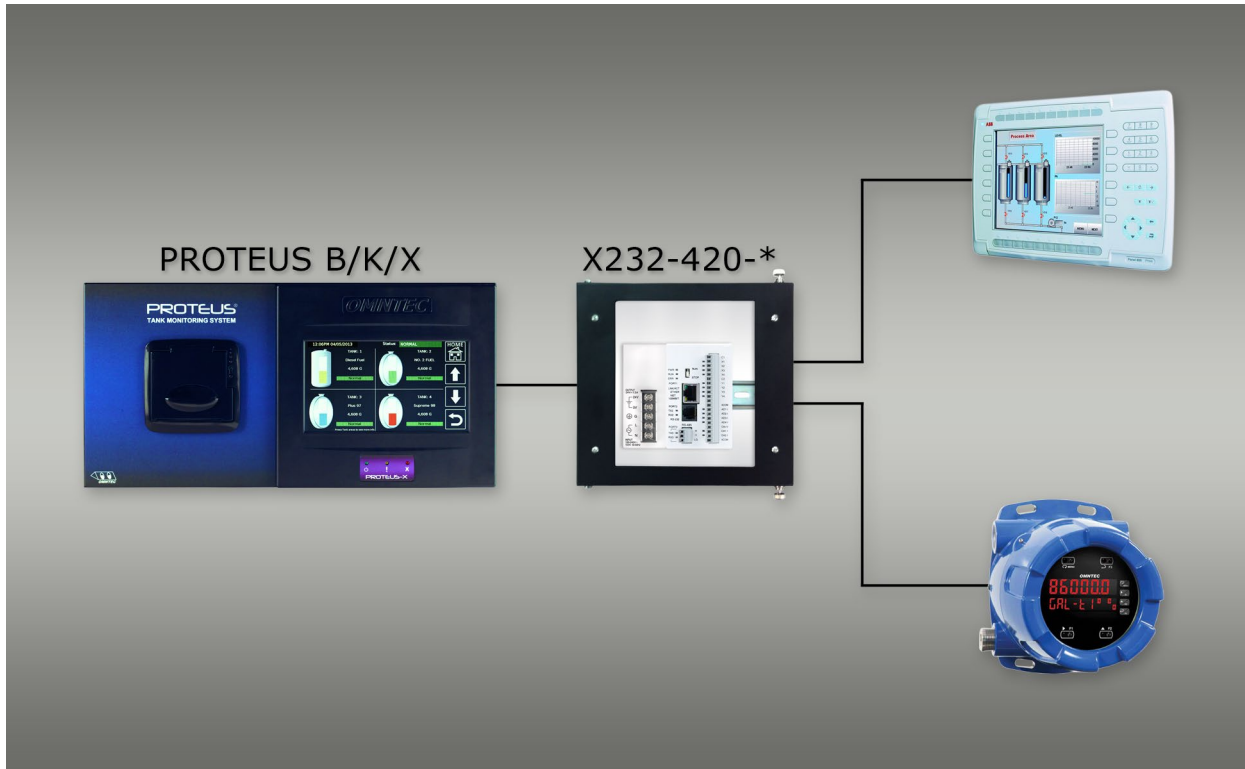




# PROTEUS® 4 to 20 mA Interface Module Source Version

**Part Number:** X232-420-2-SRC  
X232-420-4-SRC  
X232-420-6-SRC  
X232-420-10-SRC



## Description

The OMNTEC X232-420 interface module is a free standing/self-enclosed device for use with the OEL8000III/Proteus ATG that has up to 34\*\* 4 to 20 milliamp outputs. These outputs are configured to the tank volume for remote monitoring of any probe/tank in the ATG system.

## Features

- 2 standard (up to 34 optional\*\*) 4 to 20 mA Source outputs (Sink available upon request)
- Allows for remote real-time data monitoring of ATG tank levels
- Factory calibrated
- For isolated and non isolated applications
- 4 relay outputs standard, 6-240 VAC / 6-27 VDC Form A (SPST) relays, 0.5 amp/point, 1 common\*\*\*
- RS-485 compatible (extra hardware may be needed)\*\*\*\*

## Usage

- Remote level output of tank level or height (optional)
- Building management systems
- SCADA

\* Denote number of channels

\*\* Contact manufacturer for applications requiring more than (10) 4-20 mA outputs.

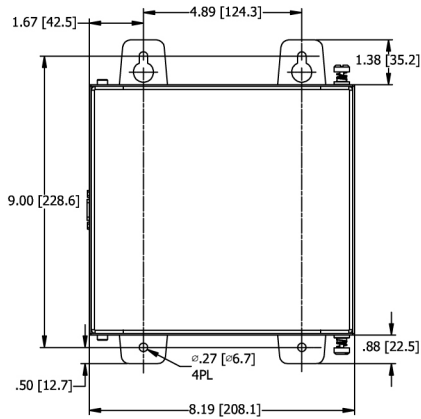
\*\*\* Contact manufacturer for relay programming options.

\*\*\*\* Contact manufacturer - additional relays available

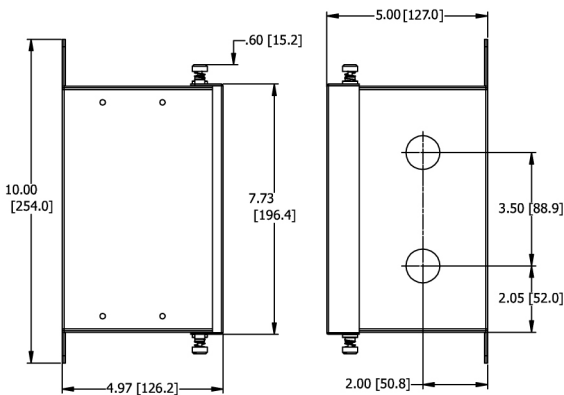
# 4 to 20 mA Interface Module

Part No. X232-420-2-SRC / X232-420-4-SRC / X232-420-6-SRC / X232-420-10-SRC

(Source Version)

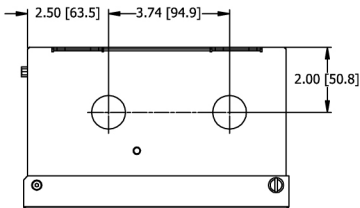


**FRONT VIEW**

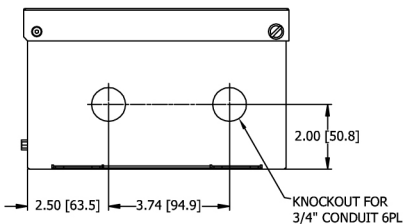


**LEFT VIEW**

**RIGHT VIEW**



**TOP VIEW**



**BOTTOM VIEW**

Specifications	
Supply Voltage	100-240VAC 1 amp 50-60Hz
Operating Temperature	32°F - 131°F
Ambient Humidity Range	30% - 95% (non-condensing)
Outputs	2 standard (up to 34 optional**)
Output Range	4 -20 mA (Source) <i>*Sink available upon request*</i>
Resolution	12 bit (.004 mA)
Loop Supply Voltage	DC24V
Full-Scale Calibration Error	±2% maximum
Accuracy vs. Temperature Error	±120 ppm / °C maximum
Weight	1 lb.
Connections	Screw Terminal
Compatible Controllers	<b>PROTEUS Series</b> OEL8000III-B OEL8000III-K OEL8000III-X
Agency Approvals	UL508 (File No. E157382, E316037); CE (EN61131-2)
Communications	MODBUS RTU via RS-232 / RS-485 / Ethernet

*Note: Current published specifications are subject to change without notification. Verify specifications with manufacturer.*

\* Denote number of channels

\*\* Contact manufacturer for applications requiring more than 10 4-20 mA outputs.

\*\*\* Contact manufacturer for additional relay options.

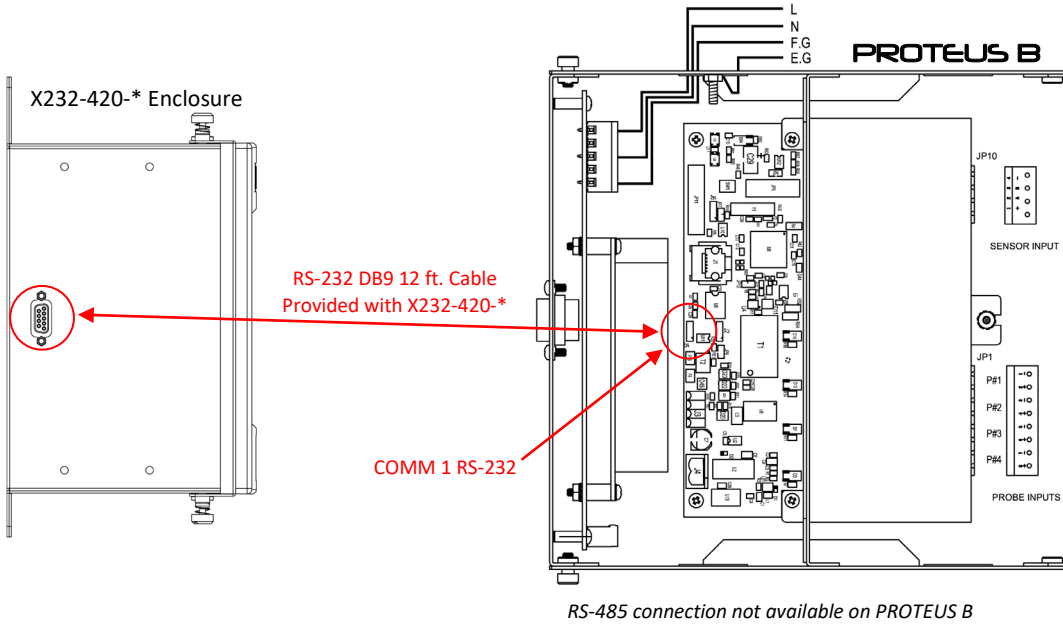
# 4 to 20 mA Interface Module

Part No. X232-420-2-SRC / X232-420-4-SRC / X232-420-6-SRC / X232-420-10-SRC

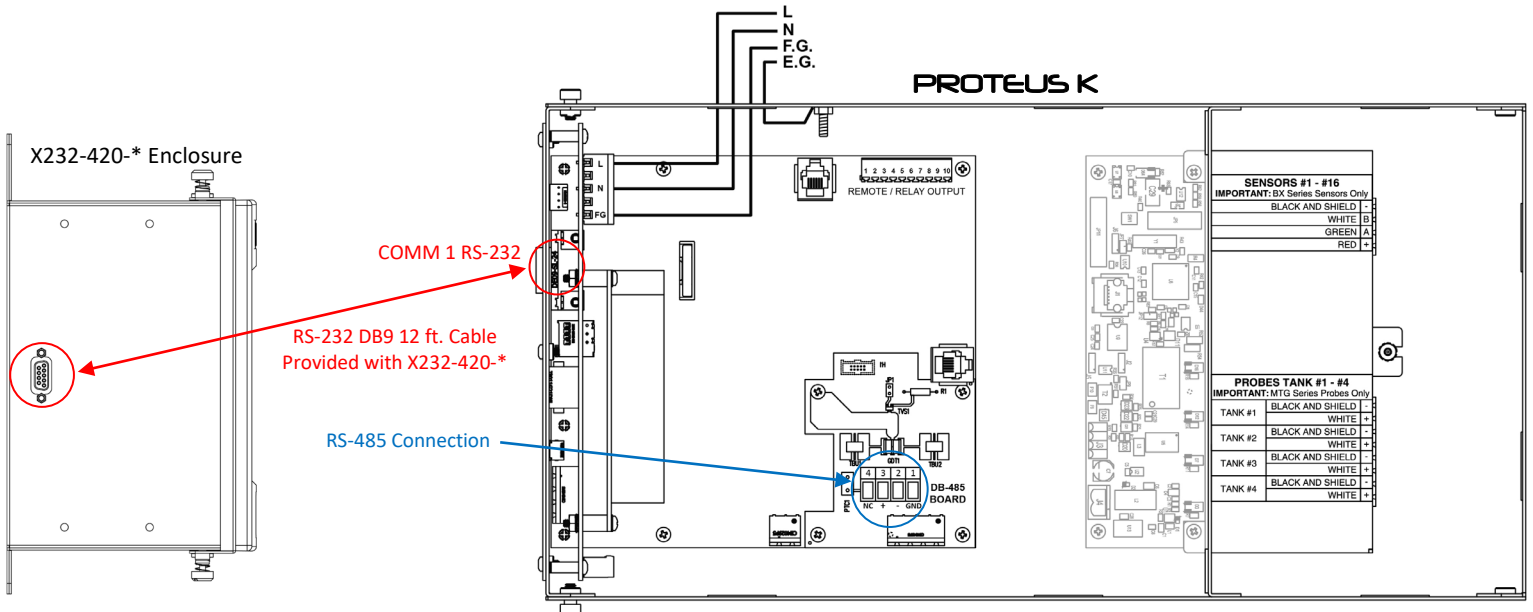
(Source Version)

- Using the provided DB-9 Serial Cable connect the X232-420-\* Module DB9 RS-232 port to the PROTEUS DB9 Serial Port. This is found on the left side of the PROTEUS-K unit, or the bottom left side of the PROTEUS-X unit.

## RS-232 DB9 Cable between X232-420-\* and PROTEUS-B Controller



## RS-232 DB9 Cable between X232-420-\* and PROTEUS-K Controller

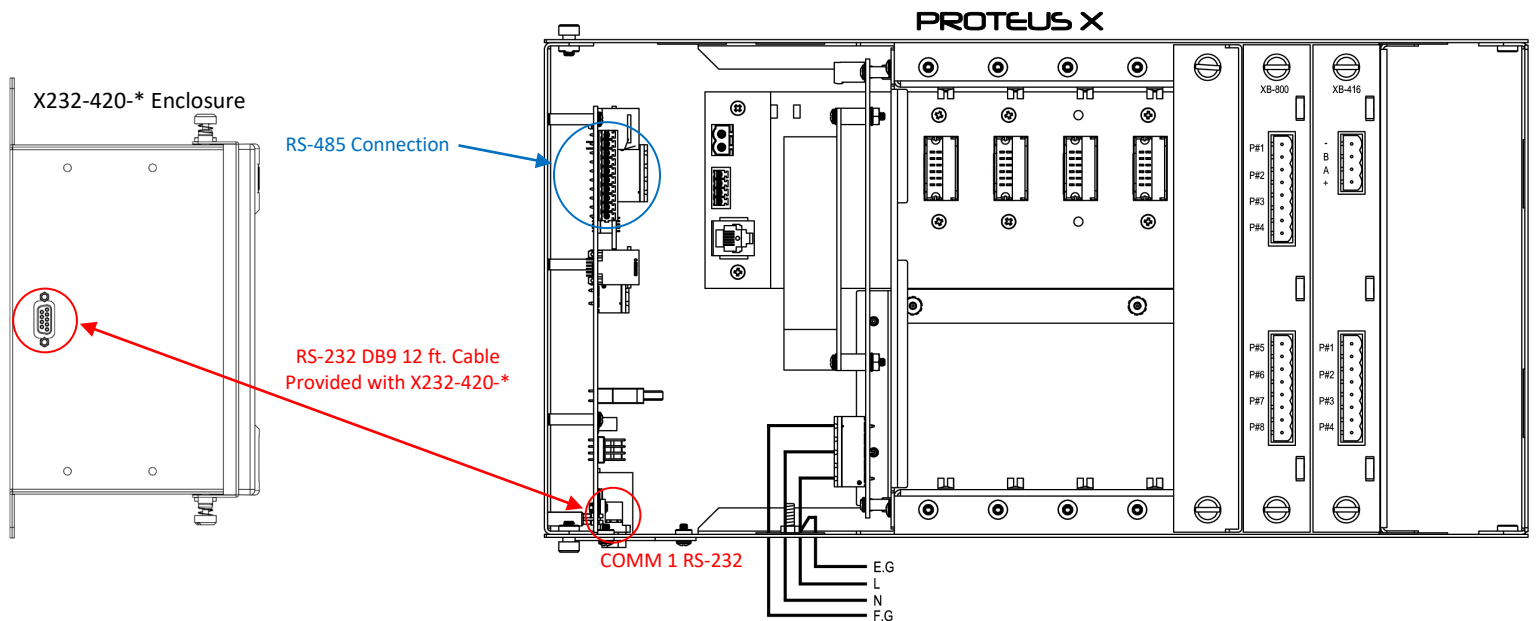


# 4 to 20 mA Interface Module

Part No. X232-420-2-SRC / X232-420-4-SRC / X232-420-6-SRC / X232-420-10-SRC

(Source Version)

## RS-232 DB9 Cable between X232-420-\* and PROTEUS-X Controller



- Verify that the Comm 1 Port RS-232 Settings on the PROTEUS Controller by pressing HOME>UTILITIES>HELP MENU>REMOTE SETTINGS. The Comm 1 Port remote settings are pre-programmed at the factory and should match the following:

Baud Rate	9600
Data Bits	8
Parity	None
Stop Bits	1
Comm Type	MODBUS
MODBUS Address	2 (default)
MODBUS Offset	0

### RS-485 Connection

PLC PORTS			PROTEUS DB-485 WIRING		
1	+	RED	1	GND	BLACK
2	-	WHITE	2	-	WHITE
3	LG	BLACK	3	+	RED
			4	N/C	N/C

**Please Note:** The PROTEUS Controller will need the MODBUS option enabled for the X232-420-\* module to function. The MODBUS option will be enabled by default at the factory when ordered with X232-420-\* module. Modbus RS-232 is available on PROTEUS K/X controllers with MCU firmware version E2AA and greater. Modbus RS-232 is available on PROTEUS B controllers with MCU firmware version MCU\_P2AI and greater. Please consult with factory if X232-420-\* module is being added to existing controller or for replacement controllers.

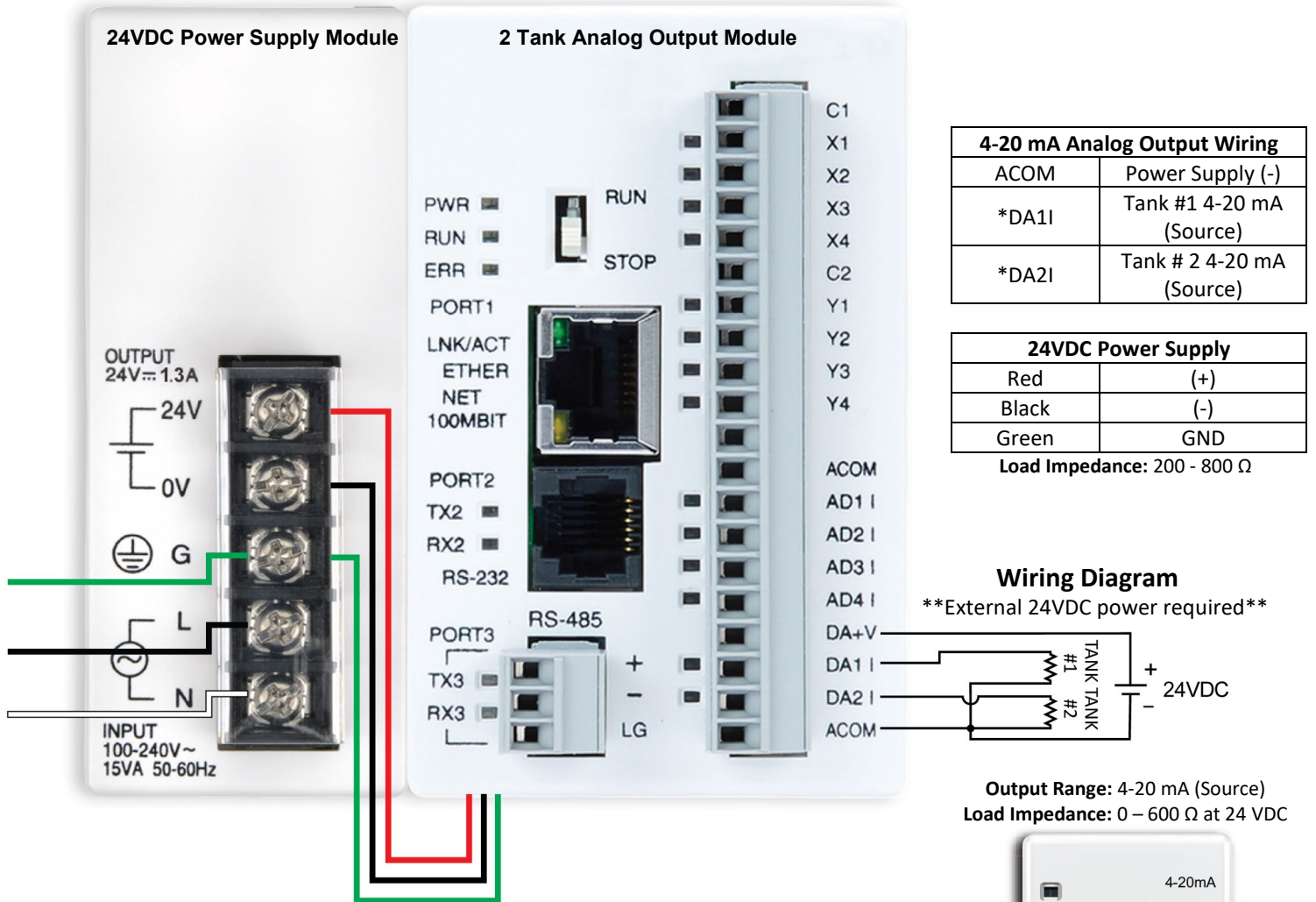
# 4 to 20 mA Interface Module

Part No. X232-420-2-SRC / X232-420-4-SRC / X232-420-6-SRC / X232-420-10-SRC

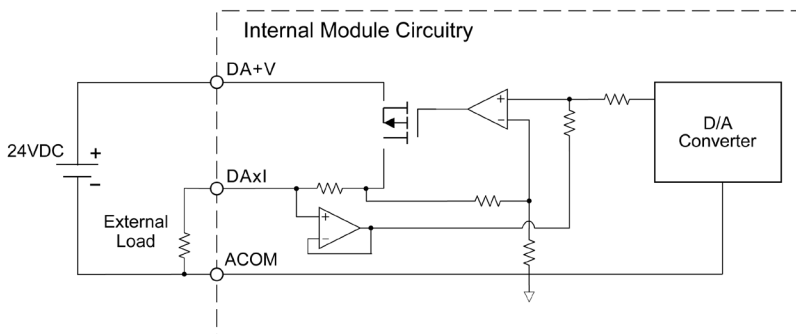
(Source Version)

## IMPORTANT

For technical reference only. Refer to pages 6 and 7 for physical wiring to module.

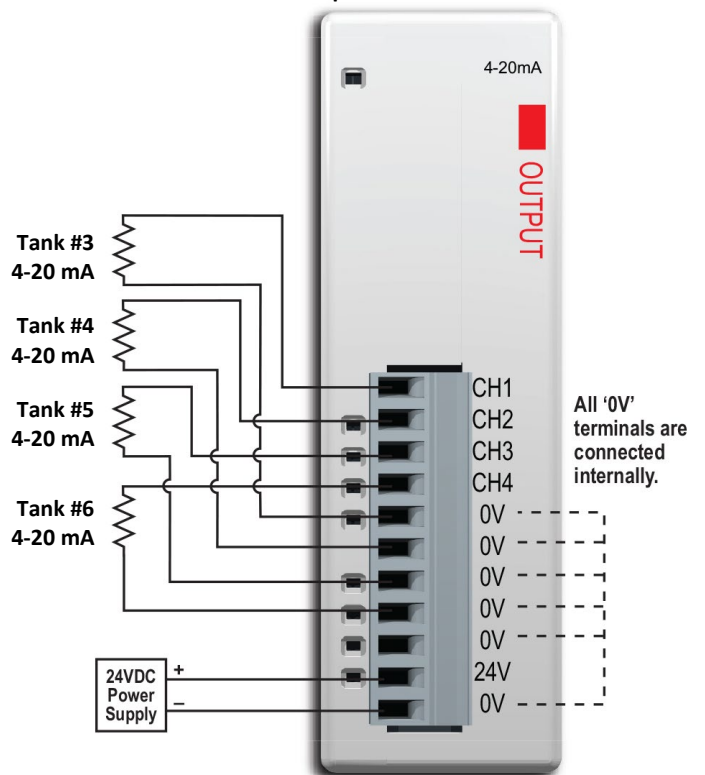


## Analog Current Output Circuit



**IMPORTANT:** If using RS-485 please see connection diagram on page 3.

- \* Loss of signal from PROTEUS to X232-420 will give 20mA output.
- \* Probe time out will give 20mA output.
- \* When tank is disabled, system will show a 4 mA output.
- \* Scaling is 0% to 100%

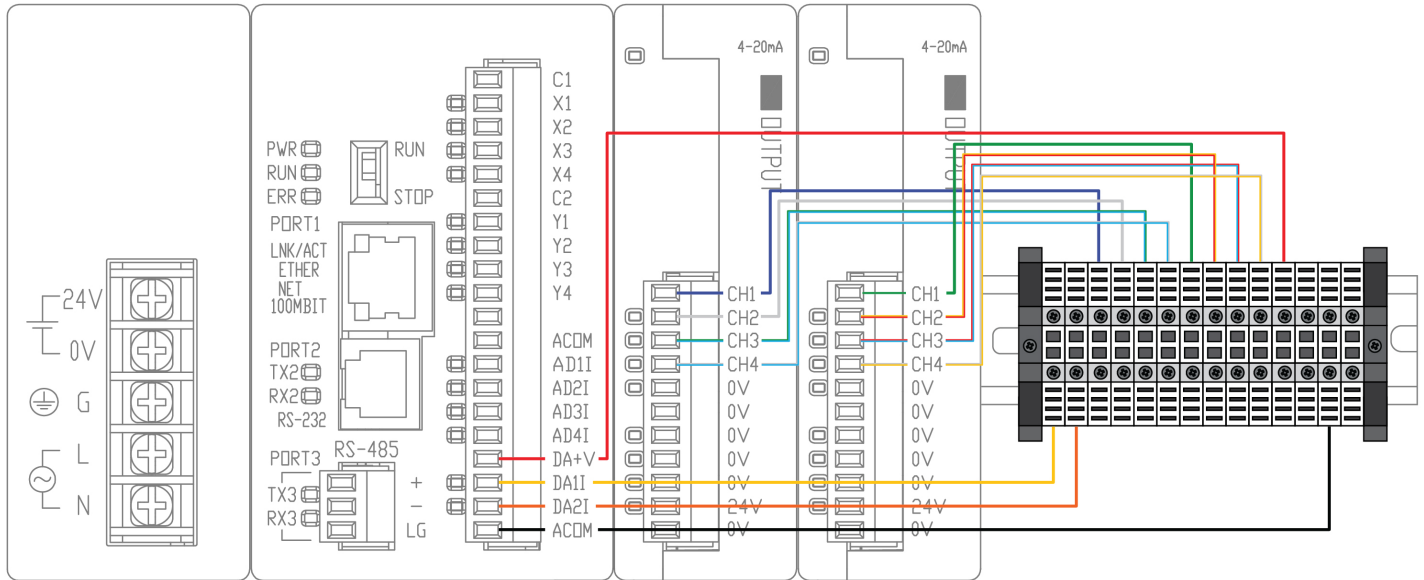


# 4 to 20 mA Interface Module

Part No. X232-420-2-SRC / X232-420-4-SRC / X232-420-6-SRC / X232-420-10-SRC

(Source Version)

## 10-Channel Module Wiring



### 10-Channel Module Wiring (Sink)

FACTORY WIRED (YELLOW WIRE) CHANNEL 1 (+) (DA1I)	CHANNEL 1 (+) TANK 1 LEVEL		FACTORY WIRED (RED/YELLOW WIRE) CHANNEL 8 (+) (CH2-2)	CHANNEL 8 (+) TANK 4 TEMPERATURE
FACTORY WIRED (ORANGE WIRE) CHANNEL 2 (+) (DA2I)	CHANNEL 2 (+) TANK 1 TEMPERATURE		FACTORY WIRED (RED/BLUE WIRE) CHANNEL 9 (+) (CH3-2)	CHANNEL 9 (+) TANK 5 LEVEL
FACTORY WIRED (DARK BLUE WIRE) CHANNEL 3 (+) (CH1-1)	CHANNEL 3 (+) TANK 2 LEVEL		FACTORY WIRED (WHITE/YELLOW WIRE) CHANNEL 10 (+) (CH4-2)	CHANNEL 10 (+) TANK 5 TEMPERATURE
FACTORY WIRED (WHITE WIRE) CHANNEL 4 (+) (CH2-1)	CHANNEL 4 (+) TANK 2 TEMPERATURE		FACTORY WIRED (RED WIRE) POWER SUPPLY 24VDC (+) (DA+V)	POWER SUPPLY 24VDC (+) (PROVIDED BY CUSTOMER)
FACTORY WIRED (BLUE/GREEN WIRE) CHANNEL 5 (+) (CH3-1)	CHANNEL 5 (+) TANK 3 LEVEL	JUMPER	FACTORY WIRED (RED WIRE) POWER SUPPLY 24VDC (+)	POWER SUPPLY 24VDC (+) (PROVIDED BY CUSTOMER)
FACTORY WIRED (WHITE/BLUE WIRE) CHANNEL 6 (+) (CH4-1)	CHANNEL 6 (+) TANK 3 TEMPERATURE		FACTORY WIRED (BLACK WIRE) POWER SUPPLY 24VDC (-) (ACOM)	POWER SUPPLY 24VDC (-) (PROVIDED BY CUSTOMER)
FACTORY WIRED (GREEN WIRE) CHANNEL 7 (+) (CH1-2)	CHANNEL 7 (+) TANK 4 LEVEL	JUMPER	FACTORY WIRED (BLACK WIRE) POWER SUPPLY 24VDC (-)	POWER SUPPLY 24VDC (-) (PROVIDED BY CUSTOMER)

**IMPORTANT:** SHADED CELLS (INPUTS) SHOULD NOT BE UNDONE OR CHANGED.

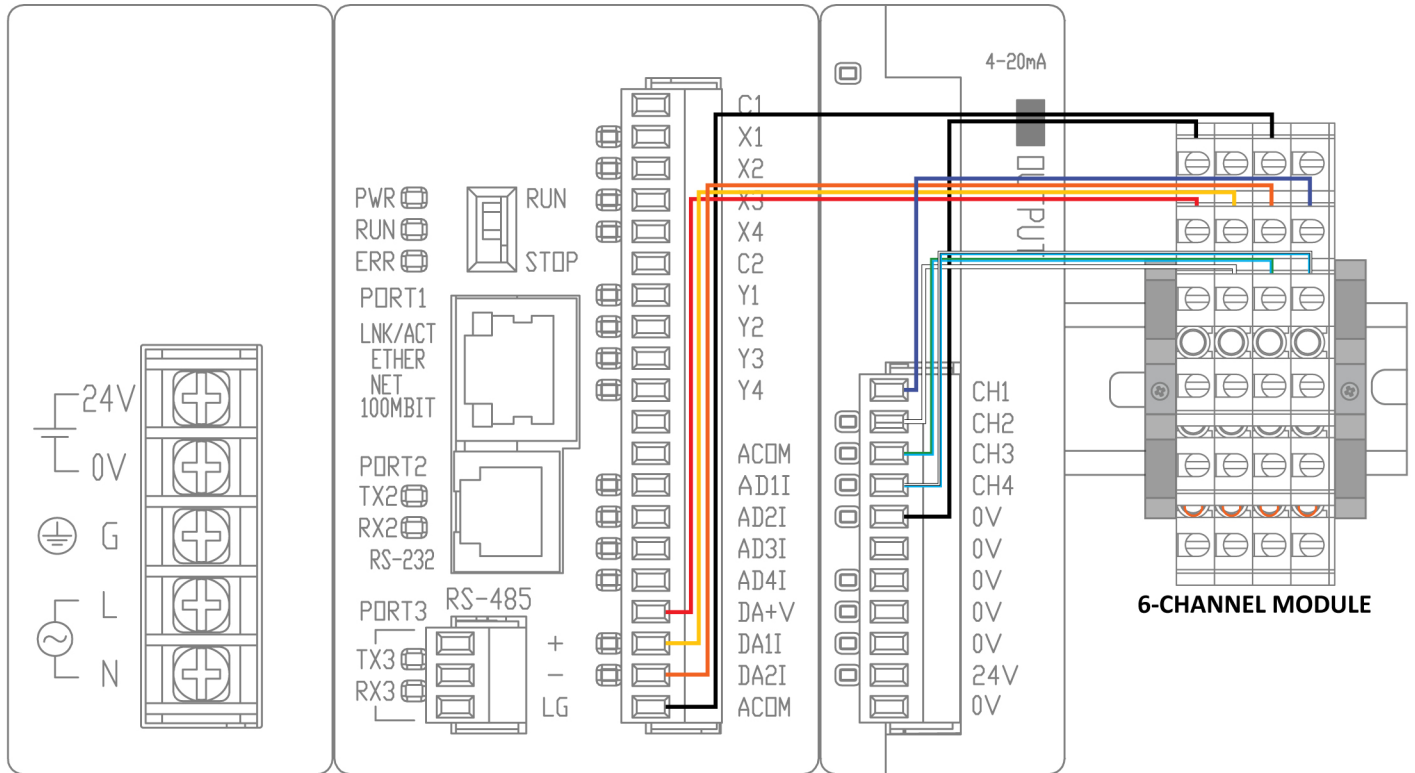
 Note: These jumpers are pre-installed.

# 4 to 20 mA Interface Module

Part No. X232-420-2-SRC / X232-420-4-SRC / X232-420-6-SRC / X232-420-10-SRC

(Source Version)

## 6-Channel Module Wiring



6-Channel Module Wiring (Source)			
FACTORY WIRED (BLACK WIRE) POWER SUPPLY 24VDC (-)	FACTORY WIRED (UNUSED)	FACTORY WIRED (BLACK WIRE) TANK 3 to TANK 6 (-)	FACTORY WIRED (UNUSED)
FACTORY WIRED (RED WIRE) POWER SUPPLY 24VDC (+)	FACTORY WIRED (YELLOW WIRE) TANK 1 (+)	FACTORY WIRED (ORANGE WIRE) TANK 2 (+)	FACTORY WIRED (DARK BLUE WIRE) TANK 3 (+)
UNUSED	FACTORY WIRED (WHITE WIRE) TANK 4 (+)	FACTORY WIRED (BLUE/GREEN WIRE) TANK 5 (+)	FACTORY WIRED (WHITE/BLUE WIRE) TANK 6 (+)
UNUSED	TANK 4 (+)	TANK 5 (+)	TANK 6 (+)
POWER SUPPLY 24VDC (+) (PROVIDED BY CUSTOMER)	TANK 1 (+)	TANK 2 (+)	TANK 3 (+)
POWER SUPPLY 24VDC (-) (PROVIDED BY CUSTOMER)	TANKS 1 & 2 (-)	TANK 3 to TANK 6 (-)	TANK 3 to TANK 6 (-)

**IMPORTANT:** SHADED CELLS (INPUTS) SHOULD NOT BE UNDONE OR CHANGED.



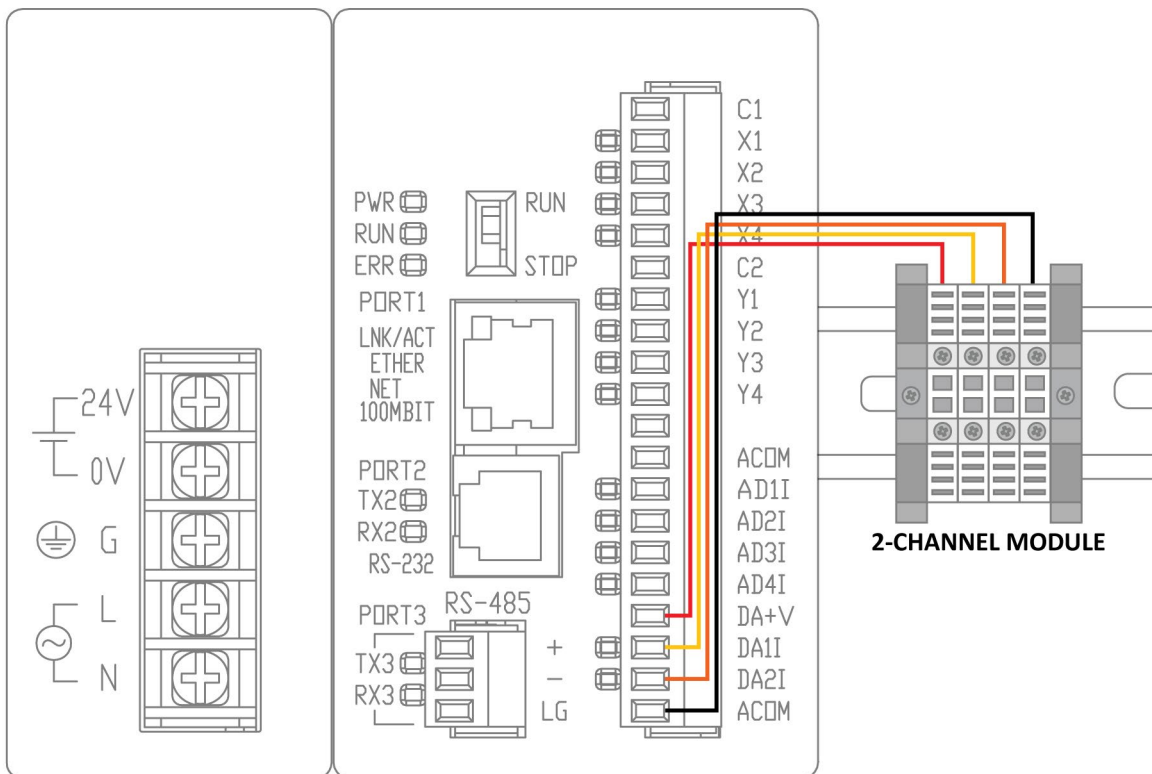
Note: These jumpers are pre-installed.

# 4 to 20 mA Interface Module

Part No. X232-420-2-SRC / X232-420-4-SRC / X232-420-6-SRC / X232-420-10-SRC

(Source Version)

## 2-Channel Module Wiring



2-Channel Module Wiring (Source)			
<b>FACTORY WIRED (RED WIRE)</b>	<b>FACTORY WIRED (YELLOW WIRE)</b>	<b>FACTORY WIRED (ORANGE WIRE)</b>	<b>FACTORY WIRED (BLACK WIRE)</b>
<b>POWER SUPPLY 24VDC (+)</b>	<b>TANK 1 (+)</b>	<b>TANK 2 (+)</b>	<b>TANK 1 &amp; 2 (-) and</b>
<b>POWER SUPPLY 24VDC (+) (PROVIDED BY CUSTOMER)</b>	<b>TANK 1 (+)</b>	<b>TANK 2 (+)</b>	<b>TANK 1 &amp; 2 (-) and POWER SUPPLY 24VDC (-) (PROVIDED BY CUSTOMER)</b>

**IMPORTANT:** SHADED CELLS (INPUTS) SHOULD NOT BE UNDONE OR CHANGED.


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