

ABB MEASUREMENT & ANALYTICS | DATA SHEET

# Valve control module

## XSeries, RMC, and XIO



## Overview

The 2100412 TFIO module is a software-configurable combination I/O module specifically tailored for valve control applications. The module incorporates six general-purpose digital/pulse input/outputs. Two source mode digital outputs and one 4 to 20 mA sink/source mode analog output are also provided.

## Point specifications

### Electrical (each point)

- Open circuit voltage
- Short circuit leakage current
- Input capacitance
- Maximum allowable voltage range on input
- 5VDC (Internally up to 5VDC Nom.)
- -430uA typical
- 1000pF typical
- -0.5VDC to 26.5VDC

### General digital input/outputs 6 channels

Input: Dry contact or voltage type

- Minimum contact resistance to activate input 150 K $\Omega$
- Maximum voltage to activate the input: 3.8V (referenced to GND terminal.)
- Minimum voltage to deactivate the input: 4.75V (referenced to GND terminal.)

Output: Open Drain FET Sink

- RDS(ON): 0.060 $\Omega$  Typical
- Maximum continuous sink current: 2A @ 24VDC

### Hot Pluggable

This module is hot-pluggable and can be inserted, replaced or removed during the normal operation of the device with no restart required. The system will detect the changes in the TFIO bus and reflect the state of the modules that can be verified on PCCU. User should take power precaution measurements when execution this action.

### Source digital outputs 2 channels

IoVBB supply @ 2A Max

### Analog output 1 channel

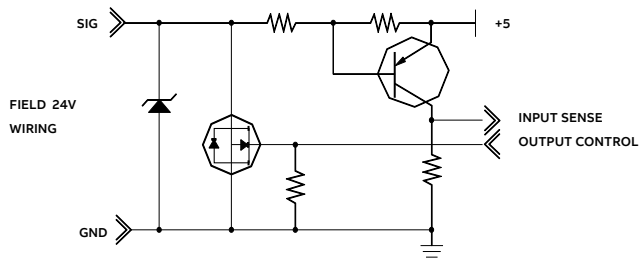
- Maximum allowable voltage range on VDC source, 1 sink or 1 source: 26.5 VDC.
- Maximum External Power Source: 26.5VDC
- Maximum load resistance (internal/external powered) 0 Ohms
- Maximum load resistance (internally powered) 350 Ohms
- Maximum load resistance RMAX (Calculated): (VDC External -4) x 50

## Wiring requirements

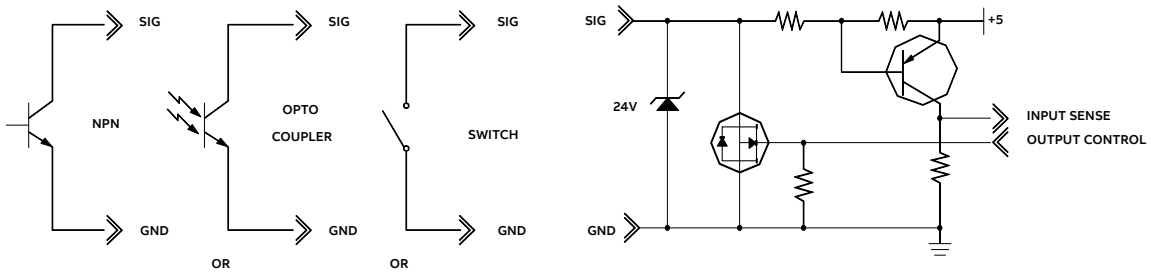
Sufficient gauge wire should be used to handle total load current. Use shielded pair or twisted pair conductors to reduce the possibility of erroneous transitions on the inputs in high EMI/RFI environments. (Ground the shield at field device only).

When digital outputs are used to sink current, the sum total sink current for all points and modules should not exceed 5A total. If more than 5A are required, separate ground wires from module output ground to power source ground terminal (bus bar) are required. Failure to do so may cause erratic system operation.

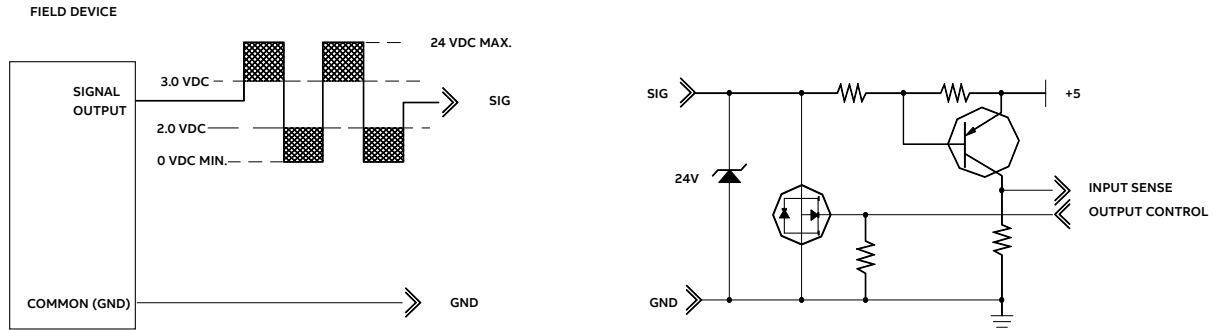




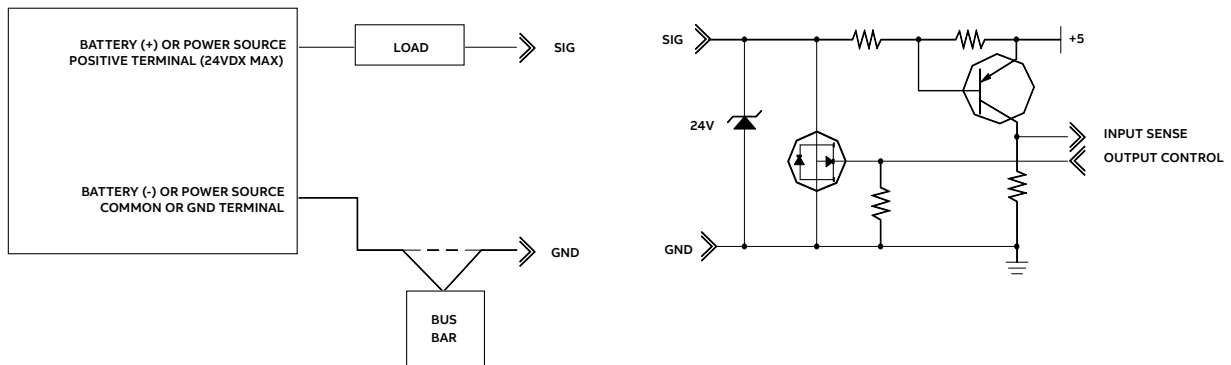
POINT CONNECTIONS



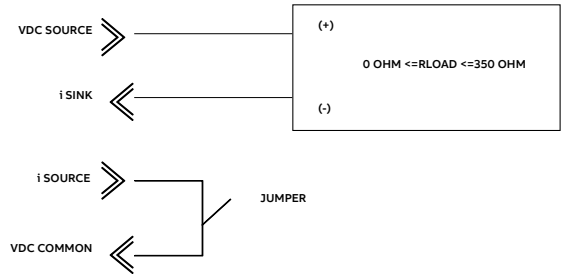
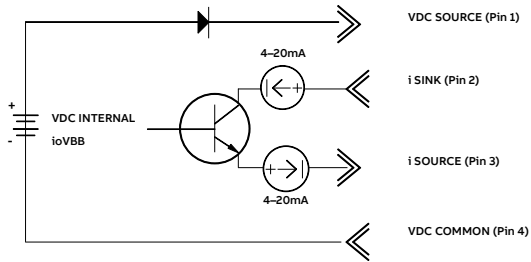
TYPICAL VOLTAGE INPUT FIELD



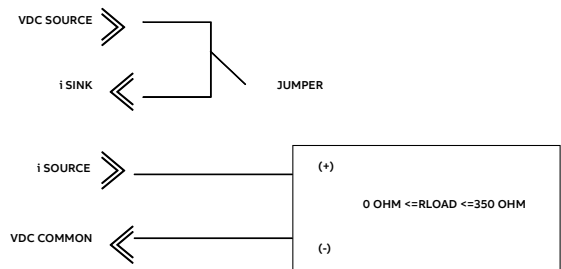
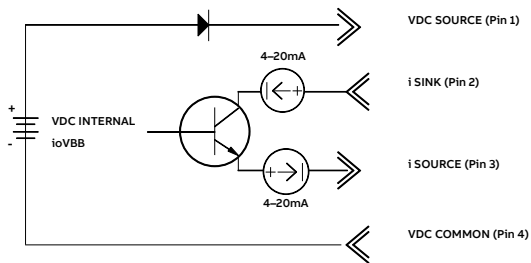
TYPICAL SINK OUTPUT FIELD WIRING



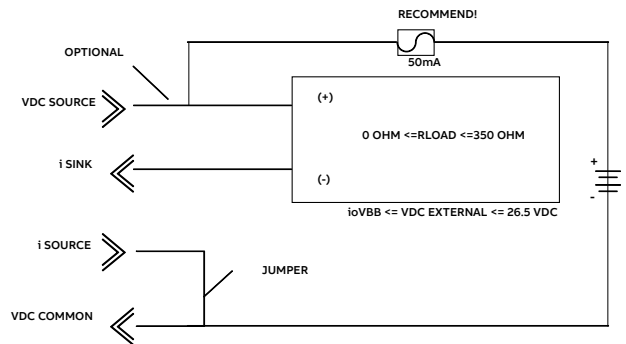
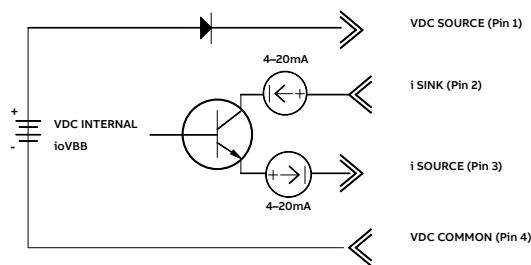
POWER SUPPLY: TFIO MODULE CURRENT SINK MODE



POWER SUPPLY: TFIO MODULE CURRENT SOURCE MODE

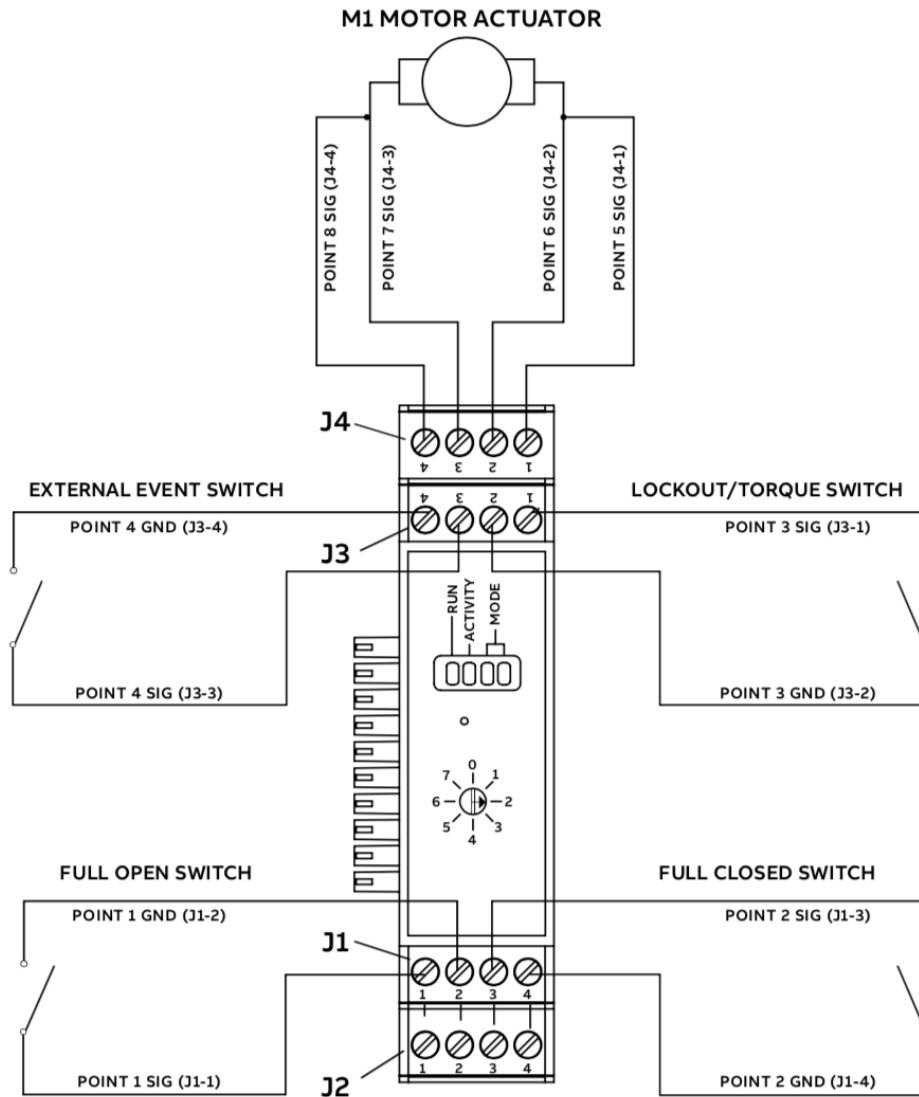


POWER SUPPLY: EXTERNAL CURRENT SINK MODE



**Valve control applications**

	J1	J2	J3	J4
1	Point 1 SIG (DI or DO)	AO VDC source	Point 3 SIG (DI or DO)	Point 5 SIG (DO Output source)
2	Point 1 GND	AO I sink	Point 3 GND	Point 6 SIG (DI or DO) w/o GND
3	Point 2 SIG (DI or DO)	AO I source	Point 4 SIG (DI or DO)	Point 7 SIG (DO Output source)
4	Point 2 GND	AO VDC common	Point 4 GND	Point 6 SIG (DI or DO) w/o GND





**Notes**



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