

ABB MEASUREMENT & ANALYTICS | DATA SHEET

High Speed Pulse Counter Module

XSeries^{G5}, RMC, and XIO



Overview

The High Speed Pulse Counter (HSPC) TFIO Module (2108103) is an 8-point digital I/O module. Each point can be configured as a Digital Input (DI), Digital Output (DO) or Pulse Input (PI).

Application

The HSPC module has IEC voltage levels and supports pulse inputs at frequencies of up to 20 KHz. The module works well for pulse input meters used in both gas and liquid applications on XSeries^{GS}, RMC-100, and XIO devices. It accepts pulse inputs from:

- Any gas or liquid linear meters such as turbine, positive displacement, vortex, and swirl meters. These meters are recommended for use with the AGA7 and API Liquid measurement applications.
- Any gas or liquid Coriolis mass meter. These meter types are recommended for use with the Coriolis SU and API Liquid measurement applications.

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 in the user interface. Do not connect or disconnect TFIO modules while energized unless the area is known to be non-hazardous.

Point Specifications

Electrical (for each point)

Parameter	Value
Open circuit voltage	24 Vdc (IEC 61131-2)
Short circuit leakage current	60 μ A typical
Input capacitance	10,000 pF typical
Allowable voltage range on input	-0.5 to 40 Vdc

Digital input

Parameter	Value
Input modes	– IEC Type 1/3 (Power Saving) – IEC Type 2 (Power Dissipation)
DI Sink Current per channel	– Power saving: 2.3 mA – Power Dissipation: 7 mA
DI Source Current per channel (Wet Current/ Pullup: Enabled)	15 mA
Input types	– Active – Open-Collector
Minimum contact resistance to activate input	200 K Ω
Voltage range to activate the input	6.8 to 8.0 Vdc (Referenced to GND)
Voltage range to deactivate the input	5.5 to 6.8 Vdc (Referenced to GND)

Digital output

Parameter	Value
Output modes	– High-Side – Push-pull
ON Resistance	0.12 Ω typical
Maximum continuous sink current	150 mA per channel at 9-30 Vdc

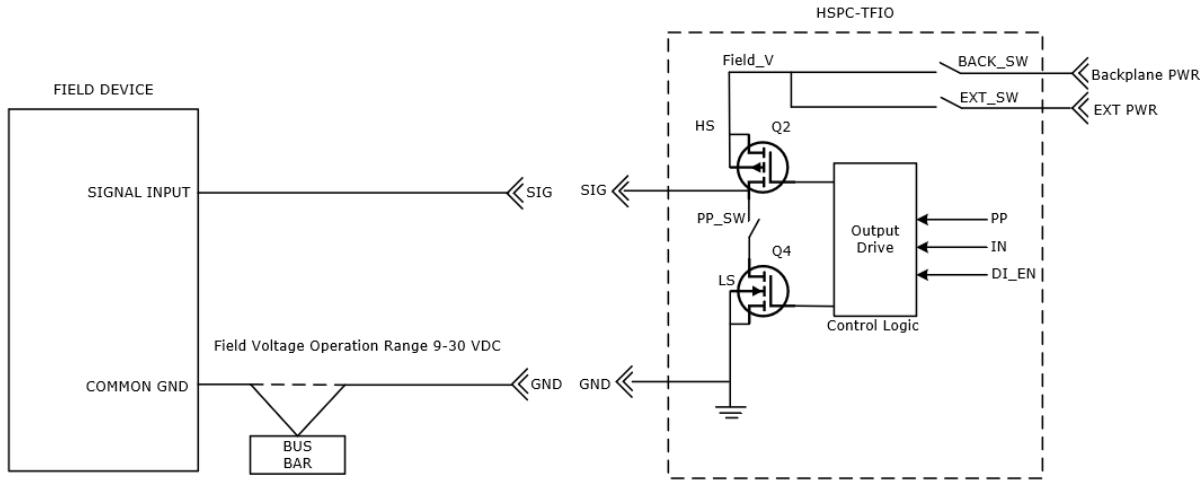
Pulse input

Parameter	Value
Input frequency range*	0-20 KHz, 5-95% duty cycle – Debounce disabled: 0-20 KHz – Debounce enabled: 0-100 Hz
Accuracy	\pm 3.4 pulses per million at 20KHz for -40 °C to 85 °C
Minimum high or low period	1.25 μ S

*For input pulse frequencies below 100 Hz, enable debounce.

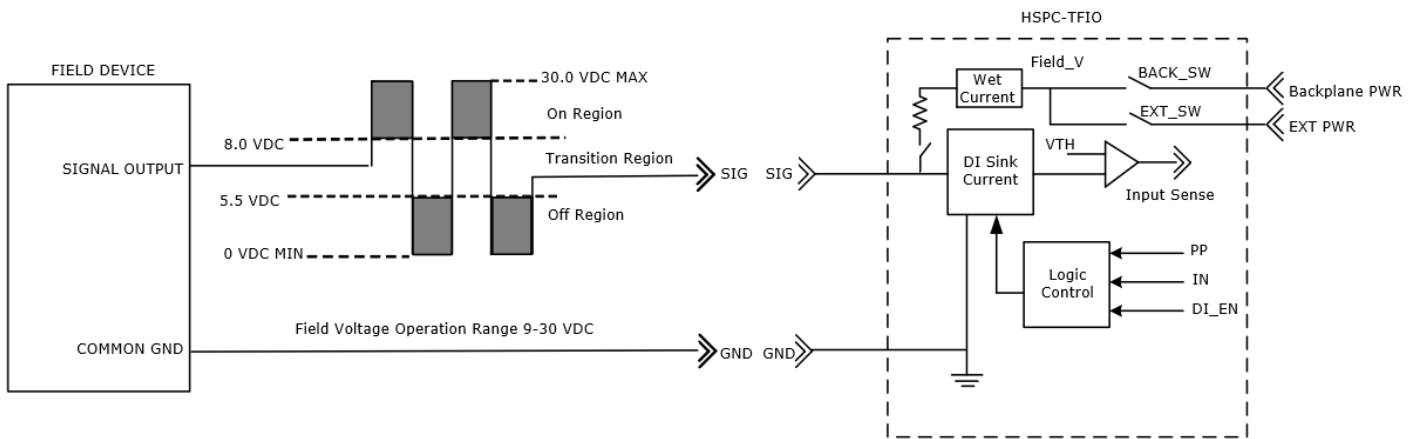
Connections and point schematics

Figure 1: HSPC Module Digital Output and signal ranges



Limits	High-side		Push-pull	
	Signal 0	Signal 1	Signal 0	Signal 1
Voltage (Volt)	0 to 1.3	2.0 to 30	0 to 1.3	2.0 to 30
Current (mA)	-0.06 to 0.06	135 to 150	-0.15 to 0.15	Up to 150

Figure 2: HSPC Module Digital Input and signal ranges



Limits*	IEC Type 1/3		IEC Type 2	
	Signal 0	Signal 1	Signal 0	Signal 1
Voltage (Volt)	0 to 5.5	8.0 to 30	0 to 5.5	8.0 to 30
Current (mA)	2.6	2 to 2.6	7.5	6 to 7.7

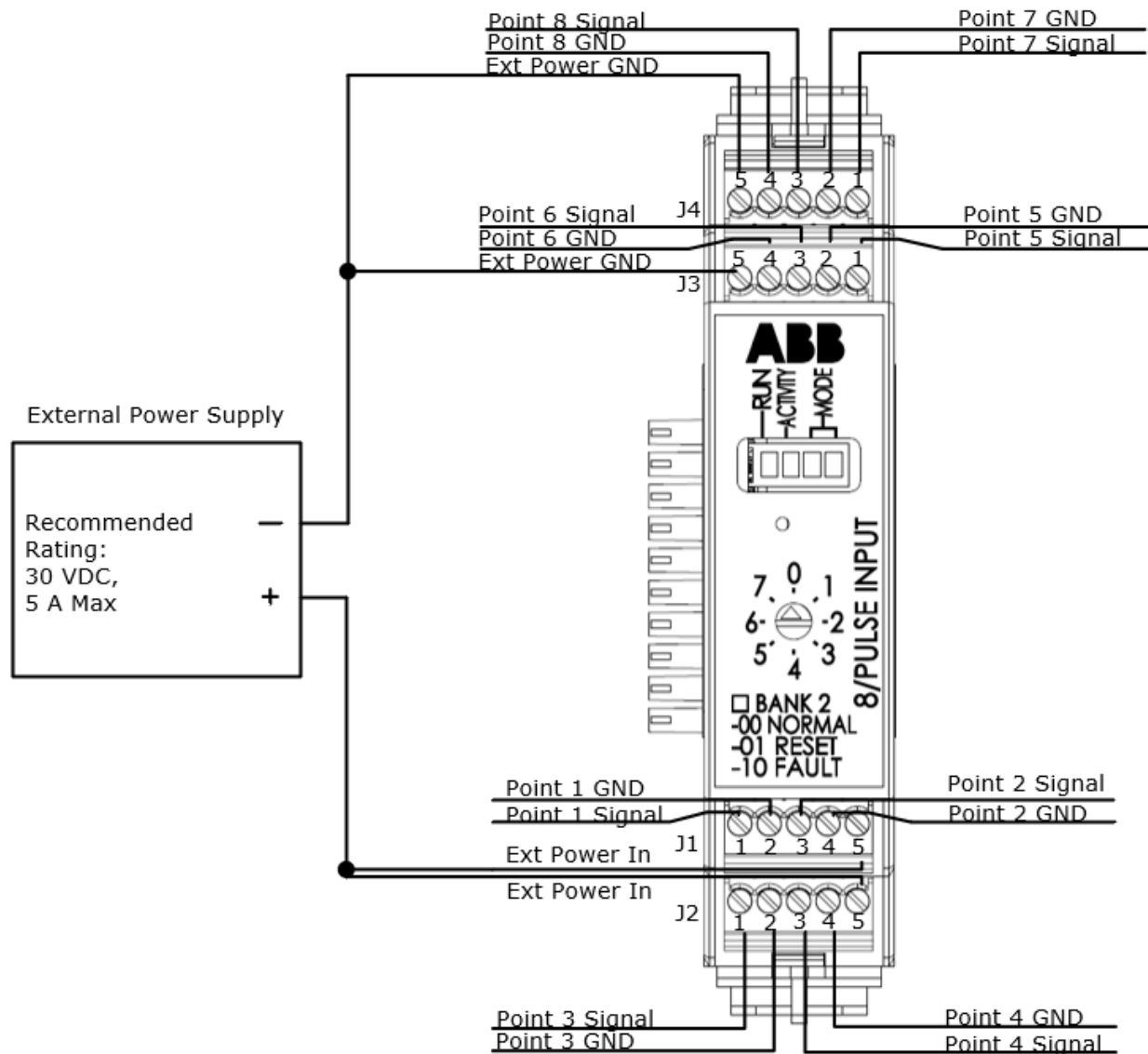
* Note: These values also work with an Open Collector field device by enabling Pull-up on the HSPC module.

Module pinouts

Pin	J1	J2	J3	J4
1	POINT 1 Signal	POINT 3 Signal	POINT 5 Signal	POINT 7 Signal
2	POINT 1 GND	POINT 3 GND	POINT 5 GND	POINT 7 GND
3	POINT 2 Signal	POINT 4 Signal	POINT 6 Signal	POINT 8 Signal
4	POINT 2 GND	POINT 4 GND	POINT 6 GND	POINT 8 GND
5*	Ext Power In	Ext Power In	Ext Power GND	Ext Power GND

***Note:** Connecting a power supply to **Ext Power** provides an alternate option to internal backplane power supply. If you use an External power supply, the recommended rating is 30 VDC, 5 A maximum (see wiring diagram).

Wiring diagram with external power





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