

Q.raxx XL A105

Measurement Module for Temperature (RTD) and Resistance

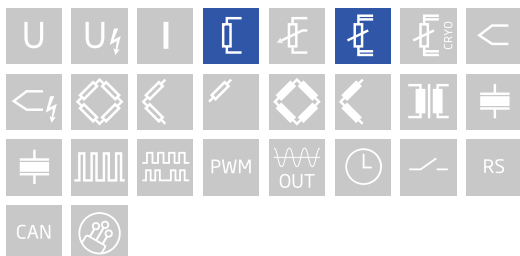
Q.raxx XL is a new addition to the Q.series product family - the ideal 19" rackmount DAQ solution for applications that require high channel density and custom sensor terminations. Q.raxx XL DAQ systems can utilize an integrated, high-performance controller for communication, control, and data logging purposes. With a controller, multiple Q.raxx XL systems can be synchronized to each other allowing for efficient DAQ distribution with low jitter and gradual expansion up to thousands of channels.

- High Density
up to 13 I/O modules per Q.raxx 3U chassis with up to 16 channels per I/O module
- User Friendly
front panel indicators for module status, power, and input range error
- Fully Customizable
multiple front panel termination options available
- Maximum Flexibility
parallel communication available in TCP/IP, CAN, PROFIBUS, Modbus, and EtherCAT
- Gantner's Quality Standard
integrated filtering, galvanic isolation & signal/sensor conditioning per channel

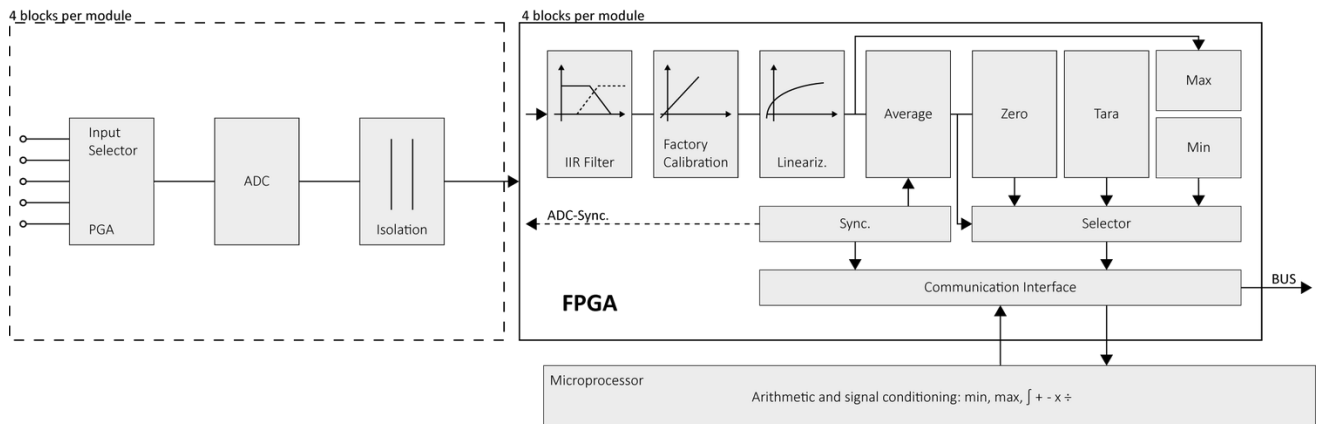


Key Features

- 4 analog input channels
Pt100, Pt1000, resistance 400 ohm / 4000 ohm , 2-, 3- or 4- wire connection
- High-precision temperature measurement
max. measurement error 0.05°C, temperature drift 0.02 / 10K (for Pt100)
- High-accuracy digitization
24-bit ADC, 10 Hz sample rate per channel
- Signal conditioning
linearization, filtering, average, scaling, min/max, RMS, arithmetic, alarm
- 3-Way galvanic isolation
500 VDC channel to channel, channel to power supply, and channel to bus



Block diagram



Technical Data

Analog Input

Channels	4
Accuracy	0.01 % typical
	0.025 % in controlled environment ¹
	0.05 % in industrial area ²
Linearity error	0.01 % typical full-scale
Repeatability	0.003 % typical (within 24 hrs)
Isolation voltage	500 VDC channel to channel to power supply channel to bus ³

¹ according to EN 61326 2006: appendix B

² according to EN 61326 2006: appendix A

³ noise pulses up to 1000 VDC, continuous up to 250 VDC

Pt100 Measurement

Sensor excitation	1 mA pulsed (500 µA effective)	
Input impedance	470 MΩ	
Input range	-200°C to +350°C	-200°C to +850°C
Margin of error	0.05°C	0.08°C
Resolution	0.0001°C	0.0001°C
Temperature drift	0.02°C / 10 K	0.04°C / 10 K
Long-term stability	<0.02°C / 24 h <0.05°C / 8000 h	<0.02°C / 24 h <0.1°C / 8000 h

Pt1000 Measurement

Sensor excitation	100 μA pulsed (50 μA effective)		
Input impedance	470 MΩ		
Input range	-200°C to +850°C		
Margin of error	0.1°C		
Resolution	0.0005°C		
Long-term stability	<0.05°C / 24 hrs	<0.4°C / 8000 hrs	
Temperature drift	0.1°C / 10 K		

Resistance Measurement (400 Ω)

Sensor excitation	1 mA pulsed (500 μ A effective)	
Input impedance	470 M Ω	
Range	0 Ω to 400 Ω	
Margin of error	0.015 Ω	
Resolution	0.0002 Ω	
Long-term stability	<10 m Ω / 24 hrs	<20 m Ω / 8000 hrs
Temperature drift	0.01 Ω / 10 K	

Resistance Measurement (4000 Ω)

Sensor excitation	100 μ A pulsed (50 μ A effective)	
Input impedance	470 M Ω	
Range	0 Ω to 4000 Ω	
Margin of error	0.4 Ω	
Resolution	0.002 Ω	
Long-term stability	<100 m Ω / 24 hrs	<1500 m Ω / 8000 hrs
Temperature drift	0.01 Ω / 10 K	

Analog to Digital Conversion

Resolution	24-bit
Update rate	10 kHz per channel, reduced by averaging to 10 Hz
Modulation method	sigma-delta
Anti-aliasing filter	500 Hz, 3rd order
Digital filters	Infinite impulse response (IIR), low-pass, 1st order, frequency range 0.1 Hz, 0.2 Hz, 0.5 Hz, 1 Hz, 2 Hz, 5 Hz, 10 Hz (adjustable via software)
Averaging	configurable or automatic according to the user-defined data rate

Communication Interface Localbus

Protocols	proprietary Localbus (115200 bps to 48 Mbps, latency <100 ns) ASCII (19200 bps to 115200 bps) Modbus RTU
Data format	8E1
Electrical standard	ANSI/TIA/EIA-485-A, 2-wire

Input Power

Input voltage	10 to 30 VDC, overvoltage and overcurrent protection
Power consumption	approx. 2.5 W
Input voltage influence	<0.001 % / V

Environmental Specifications

Electromagnetic compatibility (EMC)	according to IEC 61000-4 and EN 55011
Operating temperature	-20°C to +60°C
Storage temperature	-40°C to +85°C
Relative humidity	5 - 95 % at 50°C (non-condensing)

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Remarks

Validity of all listed specifications are subject to a warm-up period of at least 45 minutes

Specifications subject to change without notice

Mechanical information

Material	Aluminum
Measurements (W x H x D)	30x 128 x 120mm
Weight	approx. 200 g

Ordering Information

Article number	528831
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