

Q.raxx XE A105

Measurement Module for Temperature (RTD) and Resistance

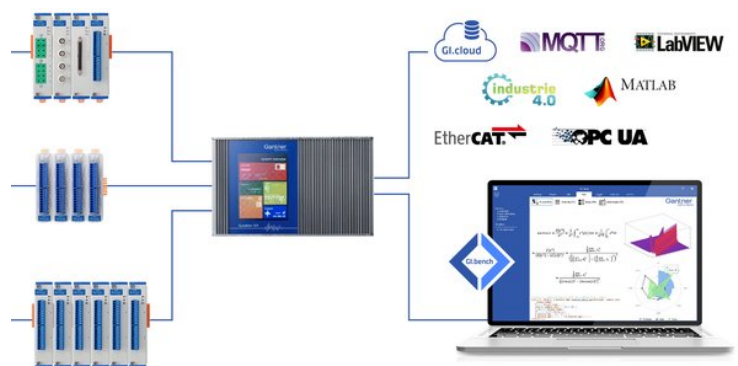
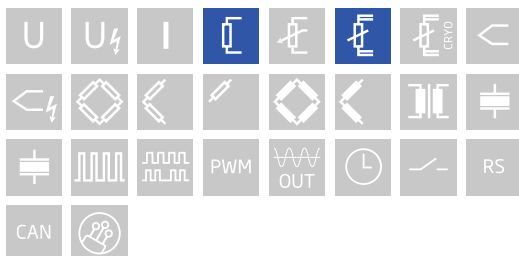
Q.raxx XE is an new addition to the Q.series product family - the ideal 19" rackmount EtherCAT DAQ solution for applications that require high channel density and custom sensor terminations. Q.raxx XE DAQ systems can consist of an integrated EtherCAT bus coupler for communication and 10 measurement modules capable of up to 100 kHz sampling per channel with short cycle times and low jitter for accurate synchronization

- According 19"-standard IEC
- Electromagnetic Compatibility according to EN61000-4 and EN55011
- High density and flexibility with 13 modules in one system in any constellation
- FoE (file access over EtherCAT, ETG.1000.5) and CoE (CAN over EtherCAT, ETG.50001.1)

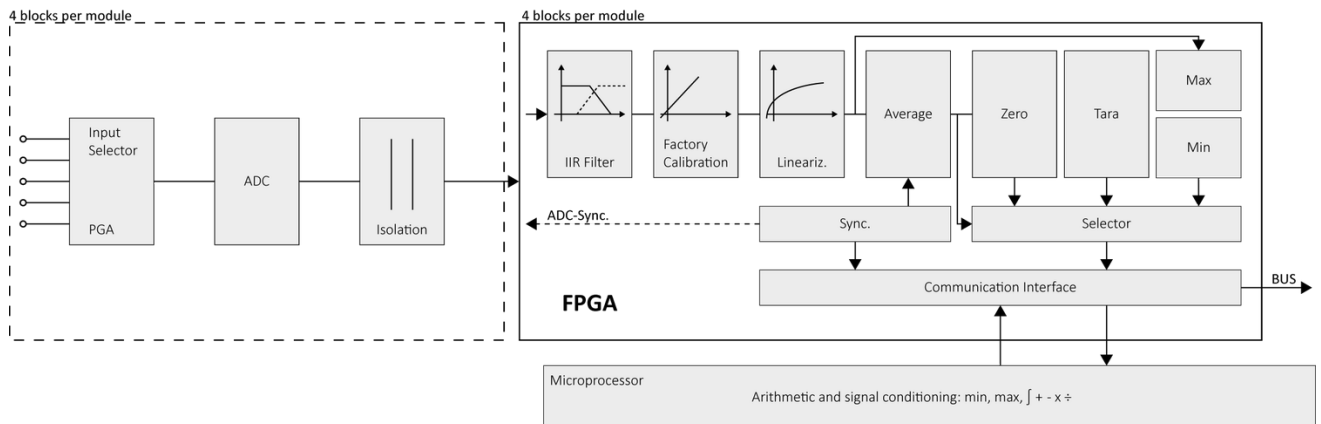


Key Features

- 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 EtherCAT

Electrical standard	RS-485, 2-wire
Protocols	EtherCAT (LVDS)

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	528932
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