Q.raxx XL A111

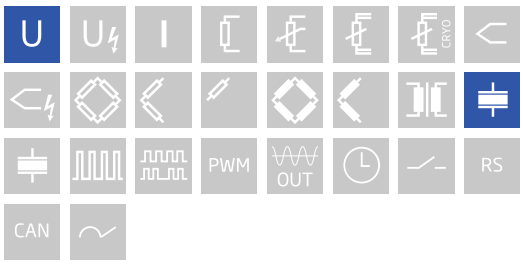
Measurement Module for IEPE Sensors and Voltages

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 galvanic isolated analog input channels
  IEPE sensors, voltage
- Configurable input ranges
  ±100 mV, ±1 VDC, ±10 VDC
- High-accuracy digitization
  24-bit ADC, 100 kHz sample rate per channel
- Signal conditioning
  16 virtual channels, linearization, digital filter, average, scaling, min/max storage, RMS, arithmetic, alarm
- Galvanic isolation
  Channel to channel, channel to power supply, and bank



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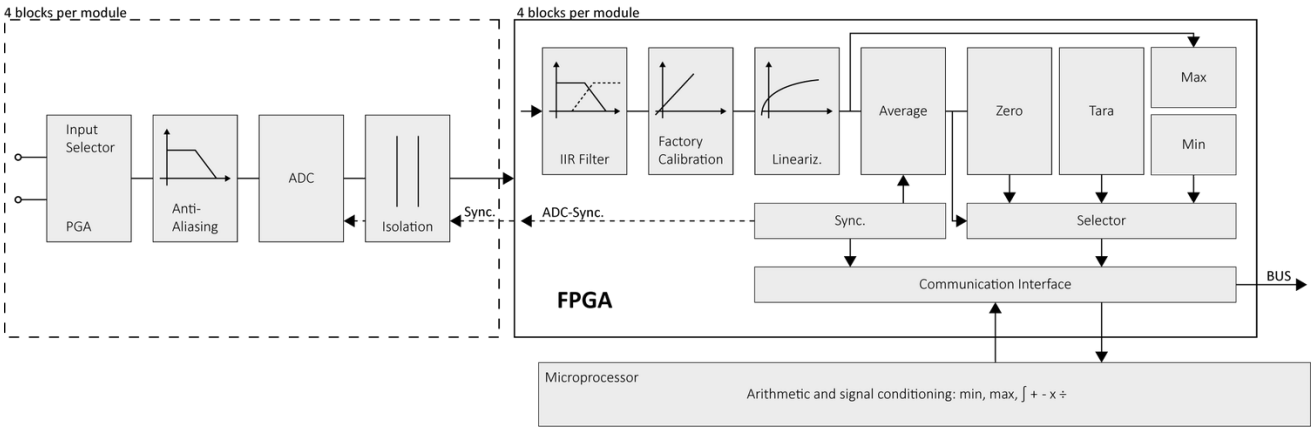
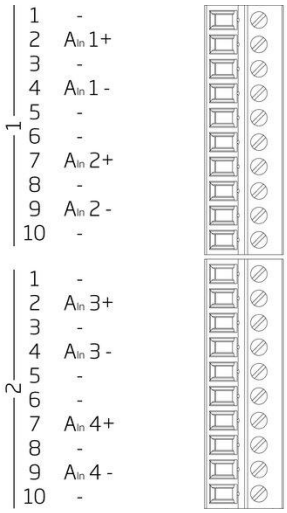
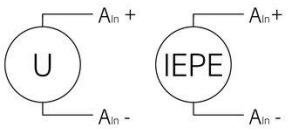
Block diagram



Technical Data

Terminal assignment 10pole screw





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)
Input impedance	>10 MΩ (unless otherwise stated)
Isolation voltage	500 VDC channels, to power supply, channel to bus [3]
Overvoltage protection	±30 V
Max. Common-mode voltage (CMV)	250 VDC

[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

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Measurement Mode Voltage

Input range	Margin of error	Resolution	Input impedance
±100 mV	±20 µV	12 nV	>1 MΩ
±1 V	±200 µV	120 nV	>1 MΩ
±10 V	±2 mV	1.2 µV	>1 MΩ
Long-term stability (range ±1 V)	<20 µV / 24 hrs	<200 µV / 8000 hrs	
Temperature drift (range ±1 V)	<50 µV / 10 K Offset drift	<0.01 % / 10 K Gain drift	
Signal-to-noise ratio	>90 dB at 1 kHz	>120 dB at 1 Hz	
Dynamic range	109 dB @ ±10 V		
Input impedance	1.2 MΩ || 330 pF		

Measurement Mode IEPE

Input range	Margin of error	Resolution	Input impedance
±1 V	±1 mV	120 nV	>1 MΩ
±10 V	±10 mV	1.2 µV	>1 MΩ
Sensor excitation	4 mA ±10% constant current		
Compliance voltage	24 VDC ±10%		
Input frequency range	0.5 Hz to 20 kHz		
Temperature drift (range ±1 V)	<50 µV / 10 K Offset drift	<0.025 % / 10 K Gain drift	

Analog/Digital Conversion

Resolution	24-bit
Sample rate	100 kHz per channel
Modulation method	sigma-delta
Anti-aliasing filter	20 kHz, 3rd order
Digital filters	Infinite impulse response (IIR), low-pass, high-pass, Butterworth or Bessel (2nd, 4th, 6th or 8th order), frequency range 0.1 Hz to 10 kHz (adjustable via software)
Averaging	configurable or automatic according to the selected 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

Power Supply

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

Environmental

Operating temperature	-20°C to +60°C
Storage temperature	-40°C to +85°C
Relative humidity	5 % to 95 % at 50°C, non-condensing

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Remarks

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	530117

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