Q.raxx XL A103

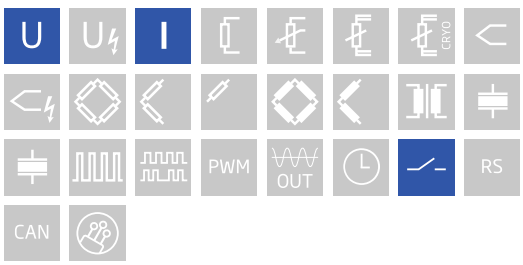
Multi-Channel Module for Voltages

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

- 8 galvanic isolated input channels
  differential voltage, current via shunt connector Isolation voltage 100 VDC
- High accuracy digitalization
  24 bit ADC, 100 Hz sample rate per channel
- 2 digital in and 2 outputs
  input: state, tare, memory reset
  output: state, alarm, threshhold
- Signal conditioning
  linearization, digital filter, average, scaling, min/max storage, arithmetic, alarm
- Galvanic isolation
  channel to channel, isolation voltage 100VDC, power supply and interface, isolation voltage 500 VDC



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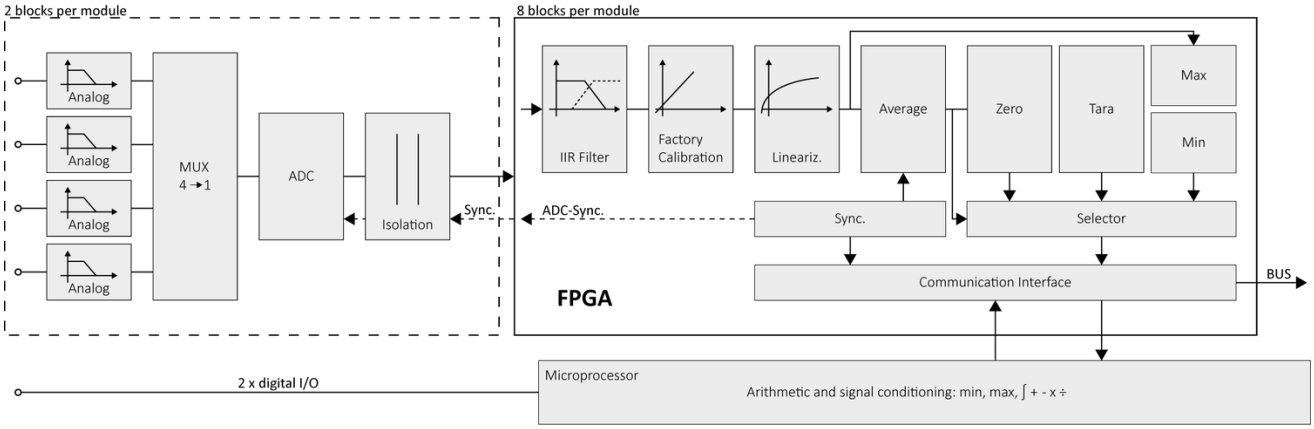
Block diagram



Technical Data

Analog Input

Channels	8
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 h)
Isolation voltage	500 VDC channels to power supply channel to bus[3]
	100 VDC continuous, channel to channel

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

Measurement Mode Voltage

Error	Range	max. Error	Resolution
	±10 V	±2 mV	40 µV
Input impedance	>1 MΩ		
Long-term drift	<50 µV / 24 h	<500 µV / 8000 h	
Temperature influence	Offset drift	Gain drift	
	<50 µV / 10 K	<0.025 % / 10 K	
Signal-to-noise ratio	>100 dB at 100 Hz	>120 dB at 1 Hz	
Overvoltage protection	± 200 V		

Measurement Mode Current (Only with Q.series Terminal SR [791989])

Input range	±25 mA
Margin of error	±22 µA
Resolution	400 nA
Long-term stability	500 nA / 24 hrs
Temperature drift	<75 ppm / 10 K
Input impedance	100 Ω

Analog/Digital-Conversion

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

Digital In-/Outputs

Channels	4, 2 digital inputs and 2 digital outputs
Input	status, tare, reset
Input voltage / input current	max. 30 VDC / max. 0,5 mA
Lower / upper threshold	<2.0 V (low) / >10 V (high)
Output	status, alarm
Contact	open drain p-channel MOSFET
Load capacity	30 VDC / 100 mA (ohmic load)

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	approx. 2 W
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

Remarks

Warm-up time	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	540825
Accessories	Terminal SR, article number 791989

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