Q.raxx A108

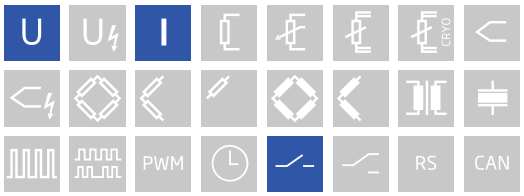
Voltage Measurement Module

Q.raxx is the ideal 19" rackmount DAQ solution for applications that require high channel density and custom sensor terminations. Q.raxx DAQ systems can utilize an integrated, high-performance controller for communication, control, and data logging purposes. With a controller, multiple Q.raxx 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

Key Features

- 8 Analog input channels
  differential voltage, current (with shunt resistor)
- 2 Digital inputs and outputs
  status, trigger, tare, alarm, command
- High-accuracy digitization
  24-bit ADC, 10 kHz 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 bank
- Electromagnetic compatibility (EMC)
  according to IEC 61000-4 and EN 55011



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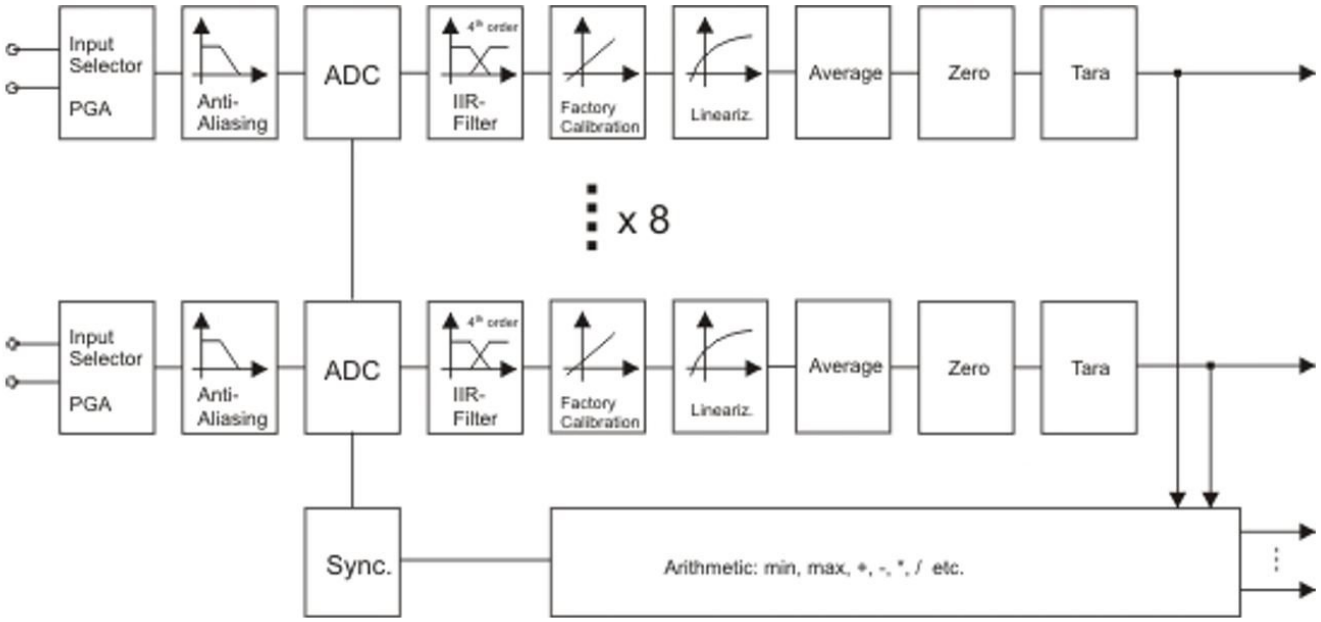
Block diagram



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 hrs)
Input impedance	>1 MΩ
Common-mode voltage (cmv)	±500 VDC
Common-mode rejection ratio (cmrr)	>100 dB at 50 or 60 Hz
Isolation voltage	500 VDC channel to channel, channel to power supply, and 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, permanent up to 250 VDC

Q.raxx A108

Voltage Measurement Module

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Analog to Digital Conversion

Resolution	24-bit
Update rate	10 kHz per channel
Modulation method	sigma-delta (group delay time 600 µs)
Anti-aliasing filter	2 kHz, 3rd order
Digital filters	Infinite Impulse Response (IIR), low-pass, high-pass, band-pass, band-stop, Butterworth or Bessel (2nd, 4th, 6th or 8th order), frequency range 0.1 Hz to 1 kHz
Averaging	configurable or automatic according to the user-defined data rate

Measurement Mode Voltage

Input range	±10 VDC	
Margin of error	±2 mV	
Resolution	1.5 µV	
Long-term stability	<25 µV / 24 hrs	<100 µV / 8000 hrs
Temperature drift	<50 µV / 10 K offset drift	<100 ppm / 10 K gain drift
Signal-to-noise ratio	>100 dB at 100 Hz	>120 dB at 1 Hz

Digital Input

Channels	2
Mode(s) of operation	status
Logic voltage	<2 VDC (Low) >10 VDC (High)
Input type	PNP (current sinking)
Input voltage	30 VDC max.
Input current	2 mA max.
Isolation voltage	500 VDC, group to group, group to power supply, channel to bus [1]

[1] noise pulses up to 1000 VDC, permanent up to 250 VDC

Digital Output

Channels	2
Mode(s) of operation	status
Output voltage	10 - 30 VDC (external supply required)
Contact	open drain p-channel MOSFET
Load capacity	30 VDC / 100 mA (ohmic load)

Communication Interface

Electrical standard	RS-485, 2-wire
Data format	8E1
Protocols	local bus (115200 bps to 24 Mbps) ASCII (19200 bps to 115200 bps) Modbus RTU

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Power Supply

Input voltage	10 - 30 VDC, overvoltage and overcurrent protection
Power consumption	2 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 - 95 % at 50°C (non-condensing)

Remarks

Validity of all listed specifications are subject to a warm-up period of at least 45 minutes
Specifications subject to change without notice

Ordering Information

Article number	101923
Accessories	Terminal SR, article number 791989