

Q.raxx A111

Measurement Module for IEPE Sensors and Voltages

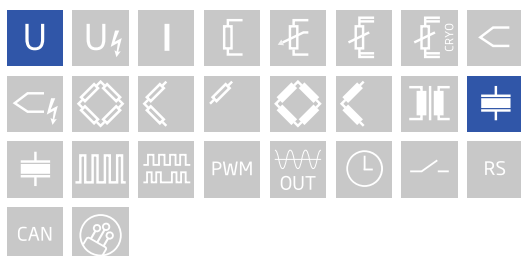
Q.raxx is the ideal 19" rackmount DAQ solution for applications that require high channel density. Q.raxx DAQ systems can utilize an integrated, high-performance controller for communication, control, and data logging purposes. With a controller, multiple Q.raxx systems can be synchronized to each other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

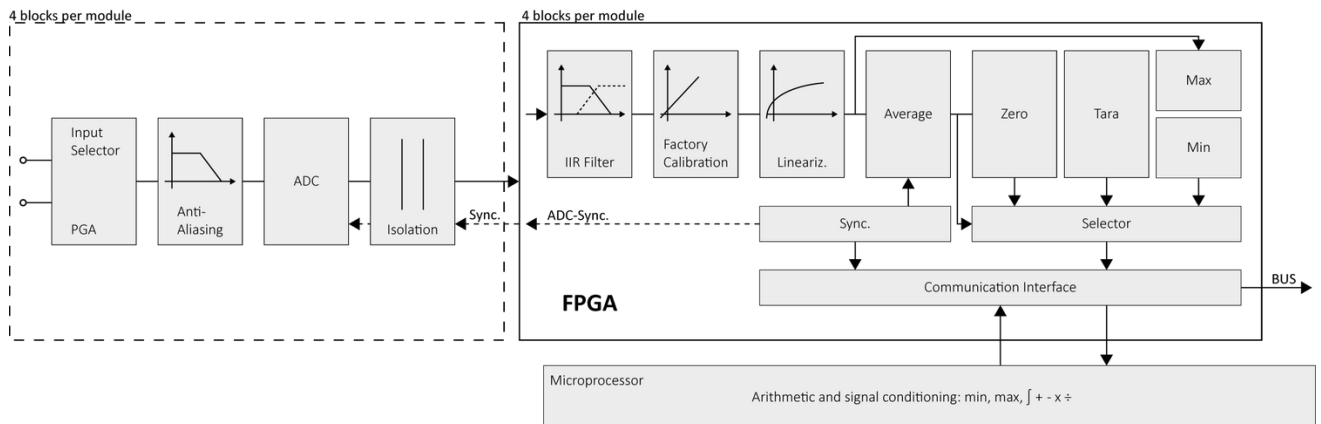


Key Features

- **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**
500 VDC channel to channel, channel to power supply, and bank



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)
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

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 20 kHz (adjustable via software)
Averaging	configurable or automatic according to the selected data rate

Communication Interface

Protocols	proprietary Localbus (115200 bps to 24 Mbps, latency <100 ns) ASCII (19200 bps to 115200 bps) Modbus RTU Profibus-DP (19200 bps to 12 Mbps) (special Firmware required)
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

Remarks

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

Specifications subject to change without notice

Q.raxx A111

Measurement Module for IEPE Sensors and Voltages

Mechanical information

Material	Aluminum
Measurements (W x H x D)	30 x 128 x 118 mm
Weight	approx. 100 g

Ordering Information

Article number	697034
----------------	--------

Gantner Instruments

Austria | Germany | France | Sweden | India | USA | China | Singapore
Montafonerstraße 4 · A-6780 Schruns · T +43 55 56 · 77 463-0

office@gantner-instruments.com
www.gantner-instruments.com