Q.raxx A111 BNC

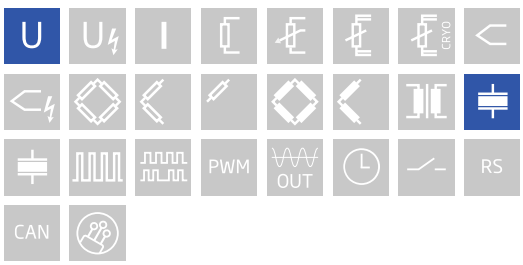
Measurement Module for Voltages and IEPE Sensors

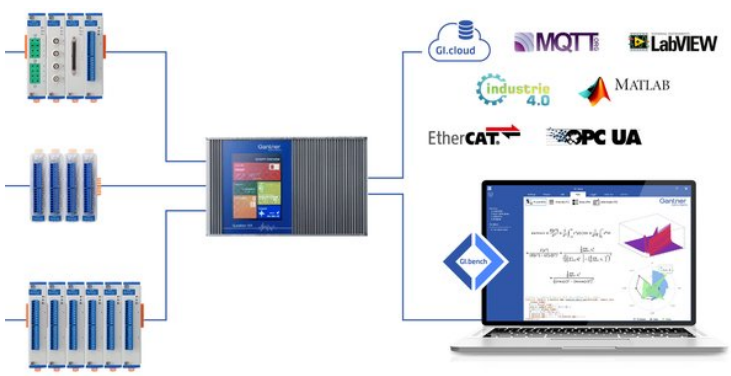
Q.raxx is the ideal 19" rackmount DAQ solution for applications that require high channel density. Q.raxx DAQ systems can utilize an integrated, high-performance controller for communication, control, and data logging purposes. With a controller, multiple Q.raxx systems can be synchronized to each other 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
- 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
- Configurable input ranges
  ±100 mV, ±1 VDC, ±10 VDC
- Galvanic isolation
  500 VDC channel to channel, channel to power supply, and bank

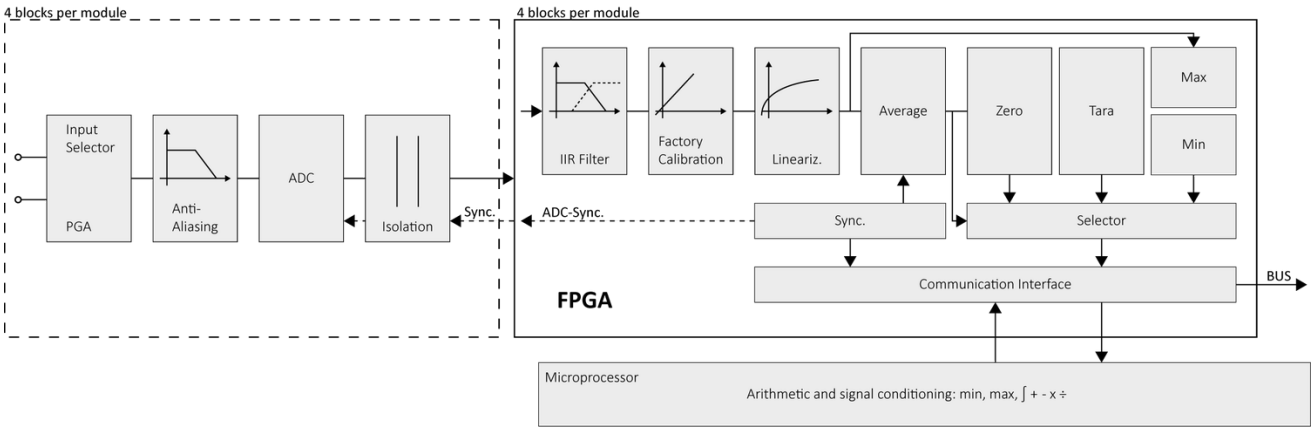




Q.raxx A111 BNC

Measurement Module for Voltages and IEPE Sensors

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	>1 MΩ (unless otherwise stated)
Isolation voltage	500 VDC channels, 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

Voltage Measurement

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	

Q.raxx A111 BNC

Measurement Module for Voltages and IEPE Sensors

IEPE Measurement

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	22 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 to 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

Input Power

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

Environmental Specifications

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 BNC

Measurement Module for Voltages and IEPE Sensors

Mechanical information

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

Ordering Information

Article number	480222

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