

# Q.raxx XE A103

## Multi-Channel Module for Voltages

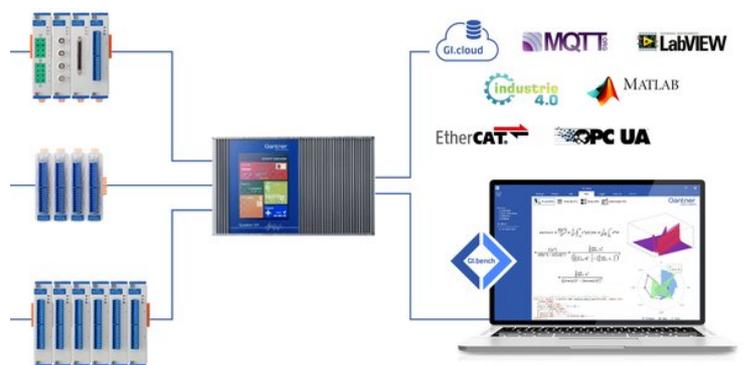
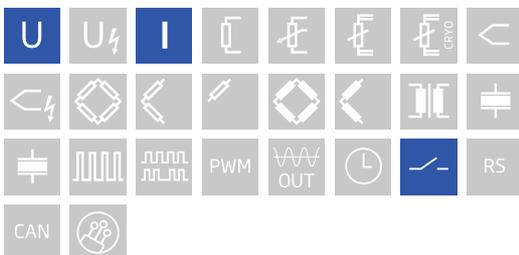
Q.raxx XE is an new addition to the Q.series product family - the ideal 19" rackmount EtherCAT DAQ solution for applications that require high channel density and custom sensor terminations. Q.raxx XE DAQ systems can consist of an integrated EtherCAT bus coupler for communication and 10 measurement modules capable of up to 100 kHz sampling per channel with short cycle times and low jitter for accurate synchronization

- According 19"-standard IEC
- Electromagnetic Compatibility according to EN61000-4 and EN55011
- High density and flexibility with 13 modules in one system in any constellation
- FoE ( file access over EtherCAT, ETG.1000.5) and CoE (CAN over EtherCAT, ETG.50001.1)

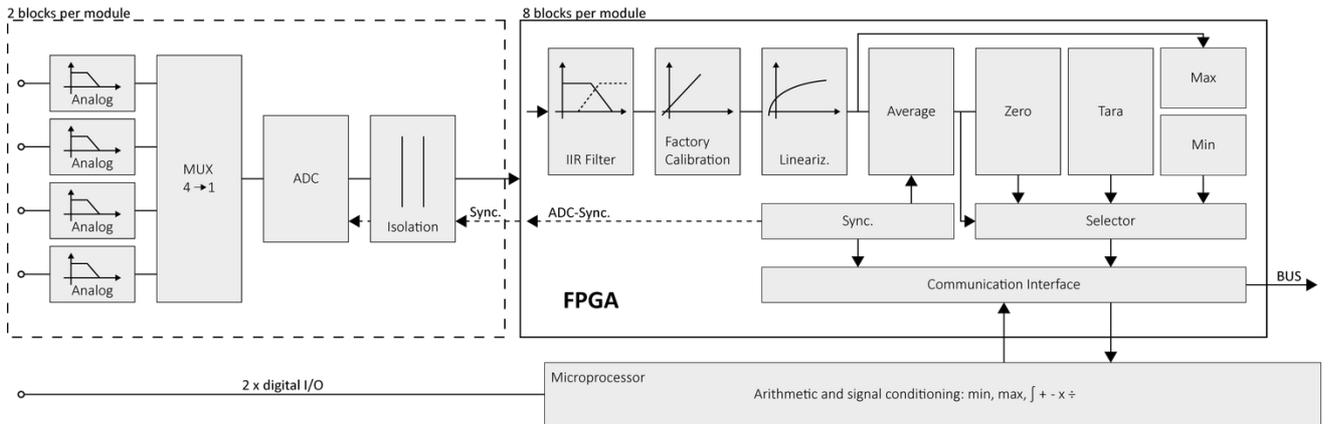


### Key Features

- 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, threshold
- 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



### Block diagram



### Technical Data

#### Analog Input

|                   |  |
|-------------------|--|
| Channels          | 8  |
| Accuracy          | 0.01 % typical   |
|                   | 0.025 % in controlled environment <sup>1</sup>               |
|                   | 0.05 % in industrial area <sup>2</sup>                       |
| 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 <sup>3</sup> |
|                   | 100 VDC continuous, channel to channel                       |

<sup>1</sup> according to EN 61326 2006: appendix B

<sup>2</sup> according to EN 61326 2006: appendix A

<sup>3</sup> 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           |                  |            |

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## 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 EtherCAT

|                     |                 |
|---------------------|-----------------|
| Electrical standard | RS-485, 2-wire  |
| Protocols           | EtherCAT (LVDS) |

## 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  |

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## Mechanical information

|                          |                 |
|--------------------------|-----------------|
| Material                 | Aluminum        |
| Measurements (W x H x D) | 30x 128 x 120mm |
| Weight                   | approx. 200 g   |

## Ordering Information

|                |                                    |
|----------------|------------------------------------|
| Article number | 540926                             |
| Accessories    | Terminal SR, article number 791989 |

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