Q.raxx slimline RS A116 -32

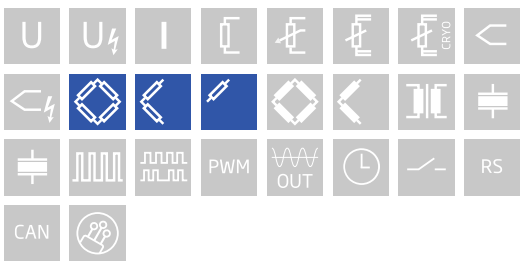
Strain Gage Measurement Module

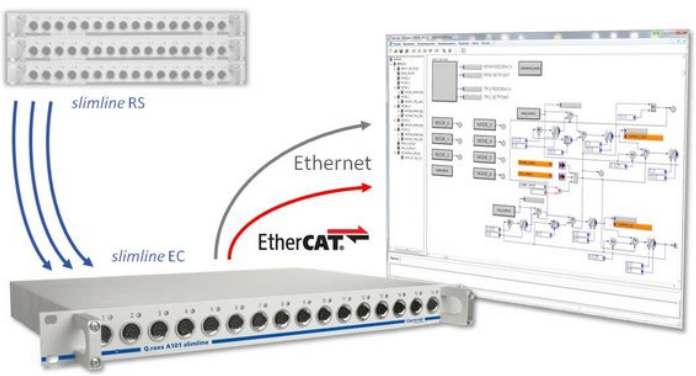
Q.raxx slimline RS is Q.series' highest density 19" 1U rackmount DAQ system - the ideal solution for boom box installations or applications that require maximum channel density and custom sensor terminations. Q.raxx slimline RS DAQ systems utilize an external high-performance controller for communication, control, and data logging purposes. Multiple systems can be synchronized to each other allowing for efficient DAQ distribution with low jitter and gradual expansion up to thousands of channels. In addition to available variations, the Q.raxx slimline RS is fully customizable to your specific measurement needs.

- RS485 fieldbus interface up to 24 Mbps
- Rack standard, 1 hight unit (1 HU)
- Power supply 10 up to 30 VDC
- Connectable to any Controller, e. g. Q.gate or Q.pac

Key Features

- **32 analog input channels for strain gages**
  full-, half-, and quarter-bridge configuration, configurable per channel
- **Selectable input ranges for optimal signal-to-noise ratio**
  2.5 or 10 mV/V for half- and full-bridge, 1 or 10 mV/V for quarter-bridge
- **High-accuracy digitization**
  24-bit ADC, 10 kHz sample rate per channel
- **Active lead wire resistance compensation**
  online compensation signal (OCS) for continuous compensation of lead wire resistance changes
- **Shunt calibration per channel**
- **Build-in shunt resistor**
  Shunt verification of the complete measurement chain.
- **Galvanic Isolation**
  channel to supply to interface





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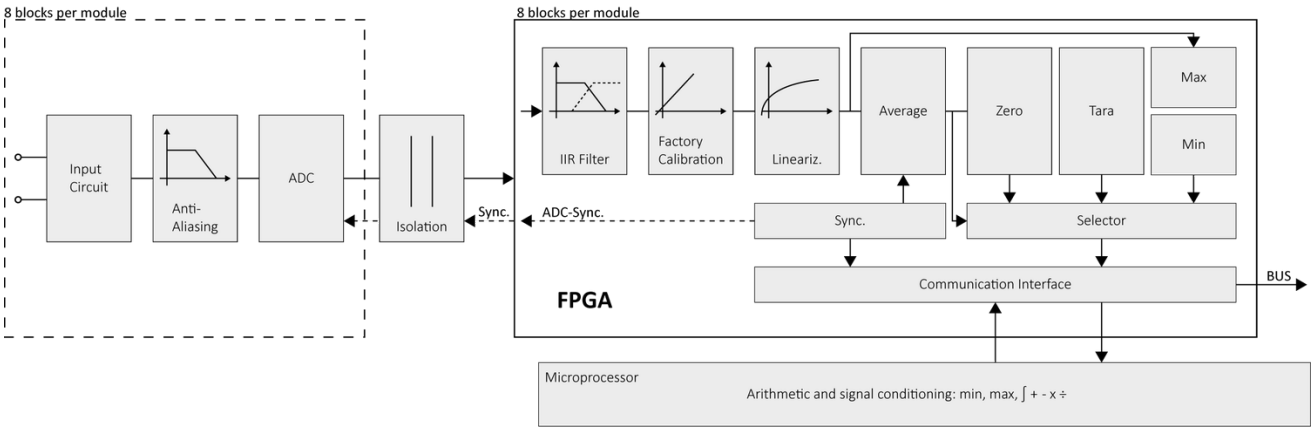
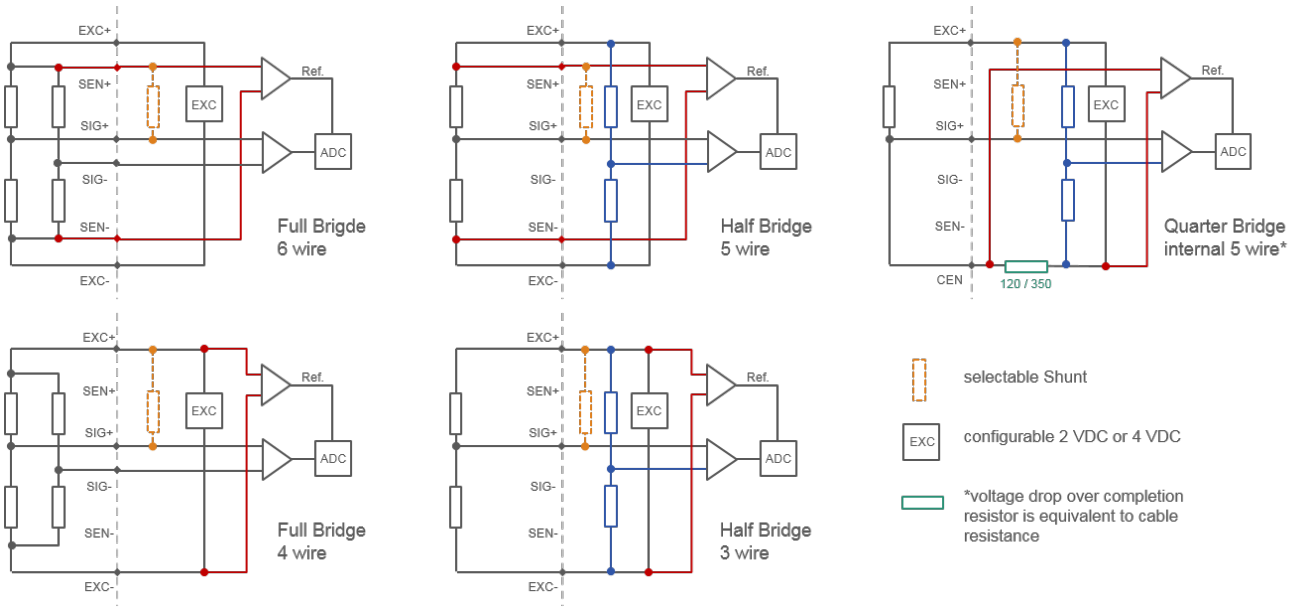
Block diagram



Technical Data

Strain Gage Wiring Diagram



Analog Input Slimline

Channels	32
Accuracy	0.02 % typical 0.05 % in controlled environment[1] 0.1 % in industrial area[2]
Repeatability	0.01 % typical (within 24 h)
Isolation voltage	500 VDC channel to input voltage to interface[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

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Analog to Digital Conversion

Resolution	24-bit
Sample rate	10 kHz per channel
Modulation method	sigma-delta
Anti-aliasing filter	1 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 2 kHz
Averaging	configurable or automatic according to the user-defined data rate

Strain Gage Measurement

Bridge configuration(s)	resistance full-bridge (4/6-wire) resistance half-bridge (3/5-wire) resistance quarter-bridge (3-wire, with lead wire resistance compensation)	
Accuracy class	0.05	
Bridge completion resistor	selectable 120 Ω or 350 Ω per channel (others upon request)	
Temp. Coefficient of Resistance (TCR)	0.05 ppm/K	
Input range	full-bridge ±2.5 mV/V or ±10 mV/V half-bridge ±2.5 mV/V or ±10 mV/V quarter-bridge ±1 mV/V or ±10 mV/V (±2000 µm/m or ±20000 µm/m with k=2) selectable per channel	
Shunt resistor	100 kΩ internal resistor	
Bridge excitation	selectable 2 VDC or 4 VDC per channel	
Allowable sensor resistance	>200 Ω at 4 VDC >100 Ω at 2 VDC	
Maximum sensor cable length	full-bridge 300 m half-bridge 300 m quarter-bridge 100 m	
Long-term stability	<0.2 µV/V / 24 hrs	<2 µV/V / 8000 hrs
Temperature drift	<0.5 µV/V / 10 K Offset drift	0.05 % / 10 K Gain drift
Noise	<0.3 µV/V (at 10 Hz)	
Linearity deviation	< 0.02 % f.s.	

Communications 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

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Environmental Specifications

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

Mechanical information

Type	19" Standard, 1 Unit
Measurements (W x H x D)	444 x 44 x 260 mm
Weight	approx. 2000 g

Ordering Information

Article number	517530

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