

Q.raxx slimline RS A116 -32

Strain Gage Measurement Module

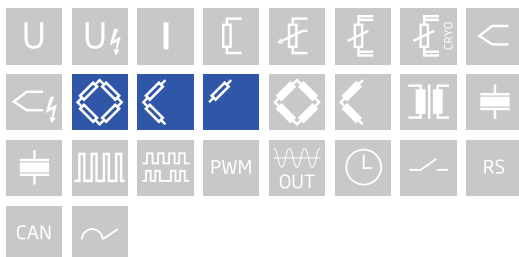
Q.raxx slimline RS is Q.series' highest density 19" 1U rackmount DAQ system - the ideal solution for boom box installations or applications that require maximum channel density and custom sensor terminations. Q.raxx slimline RS DAQ systems utilize an external high-performance controller for communication, 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 high unit (1 HU)
- Power supply 10 up to 30 VDC
- Connectable to any Controller, e. g. Q.gate or Q.pac



Key Features

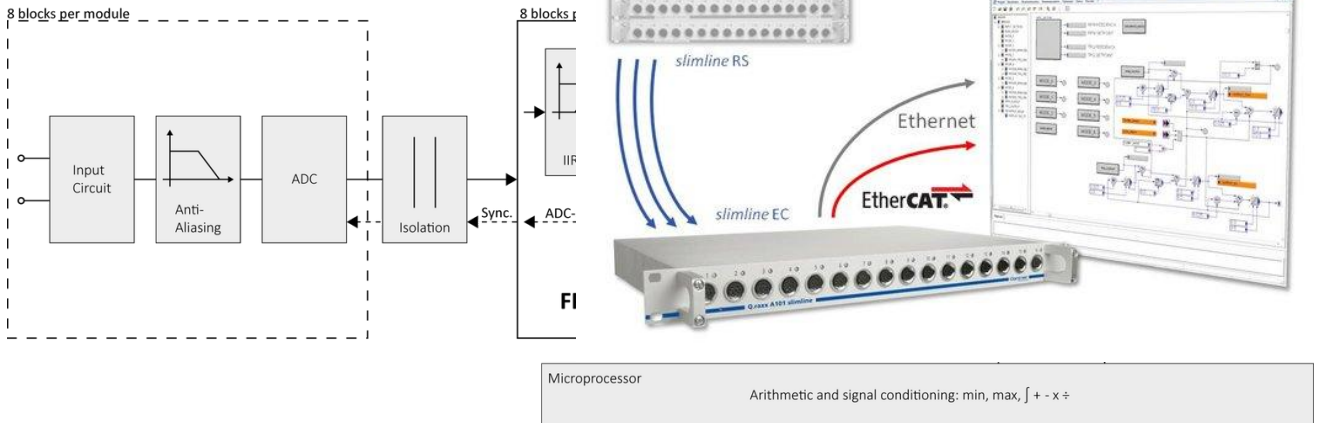
- 32 analog input channels for strain gages
full-, half-, and quarter-bridge configuration, configurable per channel
- Selectable input ranges for optimal signal-to-noise ratio
2.5 or 10 mV/V for half- and full-bridge, 1 or 10 mV/V for quarter-bridge
- High-accuracy digitization
24-bit ADC, 10 kHz sample 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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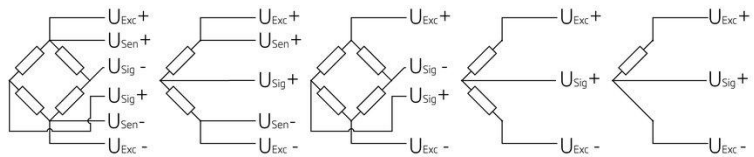
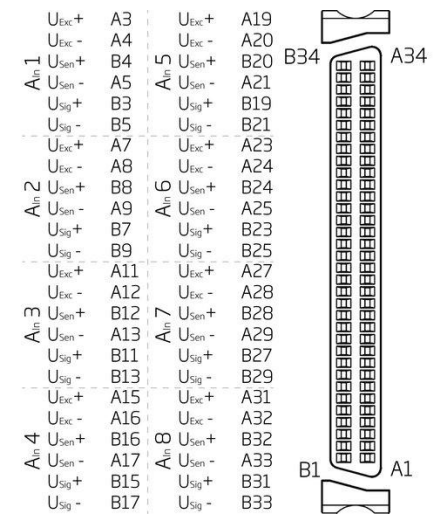
Strain Gage Measurement Module

Block diagram



Technical Data

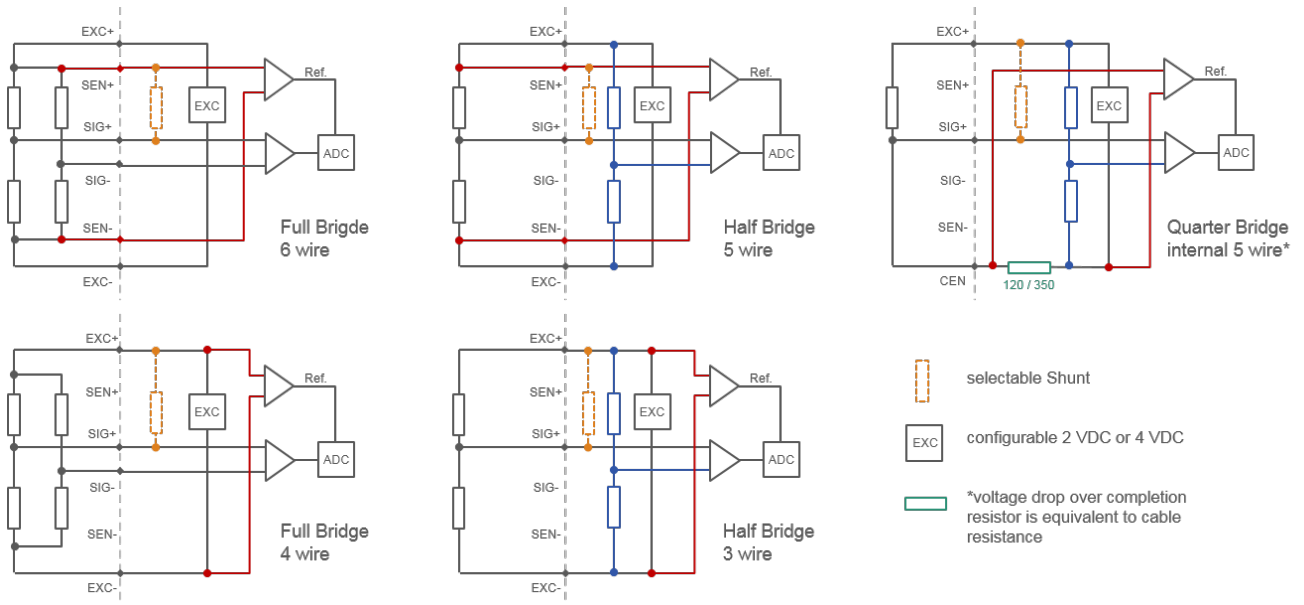
Terminal assignment 68pole harting



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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

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 |

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Strain Gage Measurement Module

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 |

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

Are subject to a warm-up period of at least 45 minutes

Specifications subject to change without notice

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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 |
|----------------|--------|

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