

Q.raxx slimline RS A105 -16

Measurement Module for Temperature (RTD) and Resistance

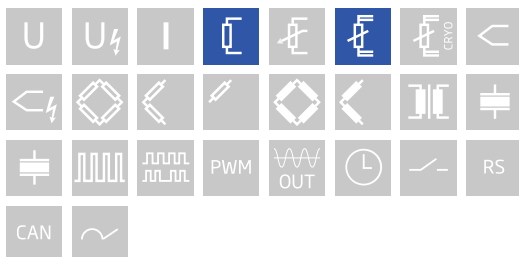
Q.raxx slimline RS is Q.series' highest density 19" 1U rackmount DAQ system - the ideal solution for boom box installations or applications that require maximum channel density and custom sensor terminations. Q.raxx slimline RS DAQ systems utilize an external high-performance controller for communication, 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

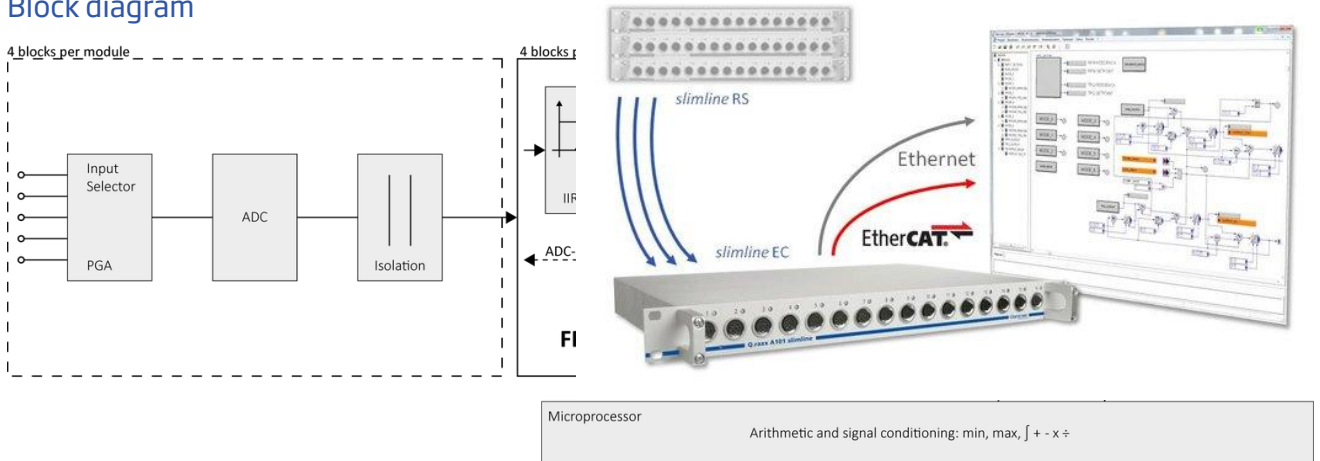
- **16 input channels**
Pt100 or resistance in 2-, 3- or 4- wire technique
- **High-precision temperature measurement**
max. measurement error 0.05°C, temperature drift 0.02 / 10K (for Pt100)
- **High-accuracy digitization**
24-bit ADC, 10 Hz sample rate per channel
- **Signal conditioning**
linearization, filtering, average, scaling, min/max, RMS, arithmetic, alarm
- **3-Way galvanic isolation**
Channel to channel, channel to power supply, and channel to bus



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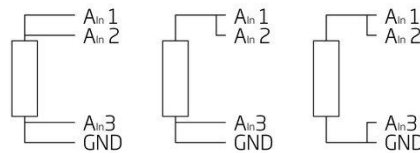
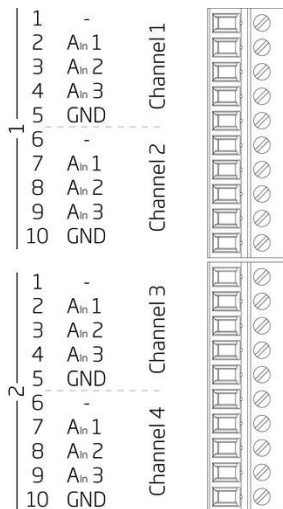
Measurement Module for Temperature (RTD) and Resistance

Block diagram



Technical Data

Terminal assignment 10pole screw



Analog Inputs Slimline

Channels	16
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)
Isolation voltage	500 VDC channel to channel 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

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Measurement Module for Temperature (RTD) and Resistance

Pt100 Measurement

Sensor excitation	1 mA pulsed (500 μ A effective)	
Input impedance	470 M Ω	
Input range	-200°C to +350°C	-200°C to +850°C
Margin of error	0.05°C	0.08°C
Resolution	0.0001°C	0.0001°C
Temperature drift	0.02°C / 10 K	0.04°C / 10 K
Long-term stability	<0.02°C / 24 h <0.05°C / 8000 h	<0.02°C / 24 h <0.1°C / 8000 h

Pt1000 Measurement

Sensor excitation	100 μ A pulsed (50 μ A effective)	
Input impedance	470 M Ω	
Input range	-200°C to +850°C	
Margin of error	0.1°C	
Resolution	0.0005°C	
Long-term stability	<0.05°C / 24 hrs	<0.4°C / 8000 hrs
Temperature drift	0.1°C / 10 K	

Resistance Measurement (400 Ω)

Sensor excitation	1 mA pulsed (500 μ A effective)	
Input impedance	470 M Ω	
Range	0 Ω to 400 Ω	
Margin of error	0.015 Ω	
Resolution	0.0002 Ω	
Long-term stability	<10 m Ω / 24 hrs	<20 m Ω / 8000 hrs
Temperature drift	0.01 Ω / 10 K	

Resistance Measurement (230 Ω)

Sensor excitation	1 mA pulsed (500 μ A effective)	
Input impedance	470 M Ω	
Range	0 Ω to 230 Ω	
Margin of error	0.012 Ω	
Resolution	0.0001 Ω	
Long-term stability	<10 m Ω / 24 hrs	<20 m Ω / 8000 hrs
Temperature drift	0.01 Ω / 10 K	

Resistance Measurement (4000 Ω)

Sensor excitation	100 μ A pulsed (50 μ A effective)	
Input impedance	470 M Ω	
Range	0 Ω to 4000 Ω	
Margin of error	0.4 Ω	
Resolution	0.002 Ω	
Long-term stability	<100 m Ω / 24 hrs	<1500 m Ω / 8000 hrs
Temperature drift	0.01 Ω / 10 K	

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Measurement Module for Temperature (RTD) and Resistance

Resistance Measurement (2300 Ω)

Sensor excitation	100 μA pulsed (50 μA effective)	
Input impedance	470 MΩ	
Range	0 Ω to 2300 Ω	
Margin of error	0.23 Ω	
Resolution	0.001 Ω	
Long-term stability	<10 mΩ / 24 hrs	<20 mΩ / 8000 hrs
Temperature drift	0.01 Ω / 10 K	

Analog to Digital Conversion

Resolution	24-bit	
Update rate	10 kHz per channel, reduced by averaging to 10 Hz	
Modulation method	sigma-delta	
Anti-aliasing filter	500 Hz, 3rd order	
Digital filters	Infinite impulse response (IIR), low-pass, 1st order, frequency range 0.1 Hz, 0.2 Hz, 0.5 Hz, 1 Hz, 2 Hz, 5 Hz, 10 Hz (adjustable via software)	
Averaging	configurable or automatic according to the user-defined 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	approx. 2.5 W
Input voltage influence	<0.001 % / V

Environmental Specifications

Electromagnetic compatibility (EMC)	according to IEC 61000-4 and EN 55011
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

in a controlled electromagnetic environment¹

With configuration: Low-pass 10Hz²

Specifications subject to change without notice

¹ according to EN 61326 2006: appendix B

² according to EN 61326 2006: appendix A

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Measurement Module for Temperature (RTD) and Resistance

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	695335
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