Q.bloxx XL A105

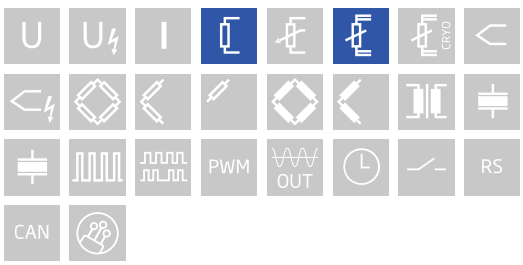
Measurement Module for Temperature (RTD) and Resistance

Q.bloxx XL is a new addition to the Q.series product family - the ideal DAQ solution for widely distributed installations that require higher performance and custom sensor terminations. Q.bloxx XL products are packaged in modular, DIN Rail mountable enclosures that easily snap together for system expansion. Flexibility in distribution allows for highly synchronized data that is less prone to noise due to shorter sensor cable runs to the subject.

- RS485 fieldbus interface up to 48 Mbps: LocalBus, up to 115.2 kbps: Modbus-RTU, ASCII
- Connectable to Controller Q.station X
- Electromagnetic Compatibility according to EN61000-4 and EN55011
- Power supply 10 ... 30 VDC
- DIN rail mounting (EN60715)

Key Features

- **4 analog input channels**
  Pt100, Pt1000, resistance 400 ohm / 4000 ohm , 2-, 3- or 4- wire connection
- **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**
  500 VDC channel to channel, channel to power supply, and channel to bus



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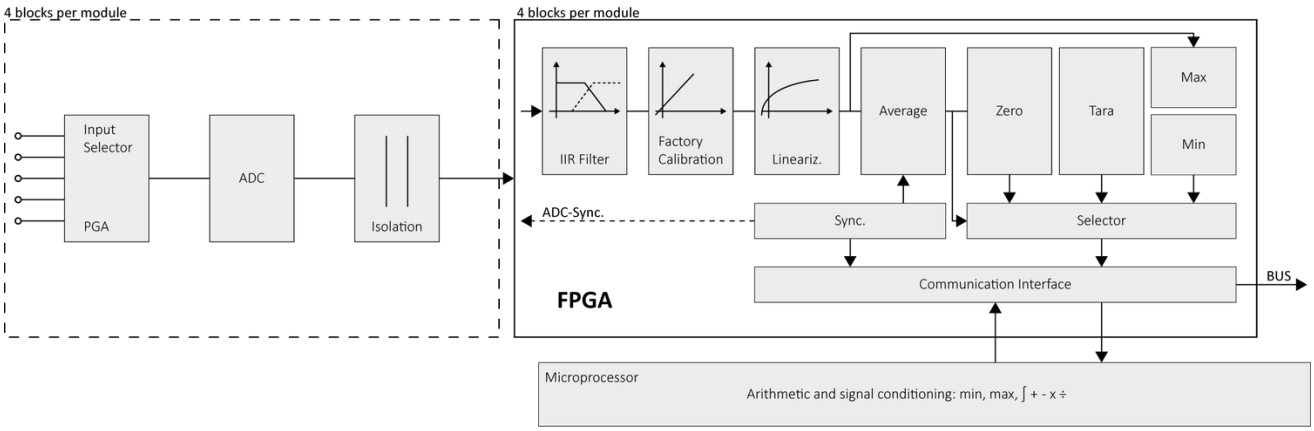
Block diagram



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)
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

Pt100 Measurement

Sensor excitation	1 mA pulsed (500 µA effective)	
Input impedance	470 MΩ	
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 µA pulsed (50 µA effective)	
Input impedance	470 MΩ	
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	

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Resistance Measurement (400 Ω)

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

Resistance Measurement (4000 Ω)

Sensor excitation	100 µA pulsed (50 µA effective)	
Input impedance	470 MΩ	
Range	0 Ω to 4000 Ω	
Margin of error	0.4 Ω	
Resolution	0.002 Ω	
Long term stability	<100 mΩ / 24 hrs	<1500 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 Localbus

Protocols	proprietary Localbus (115200 bps to 48 Mbps, latency <100 ns) ASCII (19200 bps to 115200 bps) Modbus RTU
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)

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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

Material	Aluminum and ABS
Measurements (W x H x D)	30x 145 x 135mm
Weight	approx. 500 g

Ordering Information

Article number	495228

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