

High Isolation Multi-Purpose Module

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.

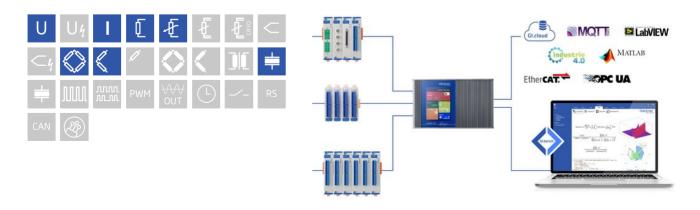
- RS485 fieldbus interface up to 48 Mbps: LocalBus, up to 115.2 kbps: Modbus-RTU, ASCII
- Connectable to Controller Q.station X

- Electromagnetic Compatibility according to EN61000-4 and EN55011
- Power supply 10 ... 30 VDC
- DIN rail mounting (EN60715)



Key Features

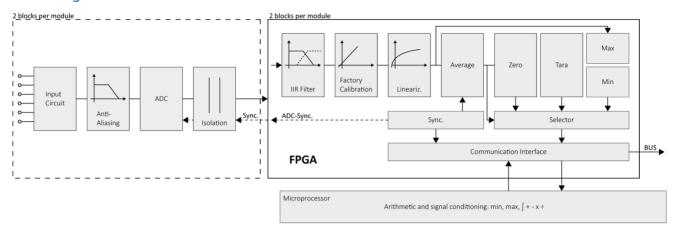
- 2 high galvanic isolated input channels voltage, current, Pt100, potentiometer, full- and half bridges, IEPE, isolation voltage 1200 VDC permanent
- Signal conditioning linearization, digital filter, average, scaling, min/max storage, arithmetic, alarm
- Fast high accuracy digitalization 24 bit ADC, 100 kHz sample rate each channel
- Galvanic isolation channel to channel to power supply and to interface isolation voltage 1200 VDC / 848 VACrms test voltage 5 kVDC over 1 minute
- Categories 1000 V CAT II and 600 V CAT III





High Isolation Multi-Purpose Module

Block diagram



Technical Data

Analog Inputs

Channels	2
	0.01 % typical
Accuracy	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 h)
Isolation voltage	1200 VDC continuous, channel to channel to power supply channel to bus

 $^{^{\}rm 1}\,$ according to EN 61326 2006: appendix B

Measurement Mode Voltage

	range	max. error	resolution
Frence	±10 V	±2 mV	1.2 μV
Error	±1 V	±0,2 mV	120 nV
	±100 mV	±20 μV	12 nV
Input impedance	>10 MΩ		
Long term drift	< 20 μV / 24 h	< 200 µV / 8000 h	
Temperature influence	Offset drift	Gain drift	
	<50 μV / 10 K	<0.02 % / 10 K	
Signal-to-noise ratio	>100 dB at 100 Hz		

² according to EN 61326 2006: appendix A



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Measurement Mode Current

Error	range	max. error	resolution
Internal shunt resistor 50 Ω	±25 mA	±5 μA	3.0 nA
Long term drift	<0.5 µA / 24 h	<5 μA / 8000 h	
T	Offset drift	Gain drift	
Temperature influence	<1 µA/10 K	<0.025 % / 10 K	

Measurement Mode Resistance / RTD

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Error	range	max. error	resolution
Resistance, 2-wire	100 kΩ	±100Ω	12 mΩ
Resistance, 2- and 4-wire	4 kΩ	±1Ω	0.5 mΩ
Resistance, 2- and 4-wire	400 Ω	±0.1Ω	48 μΩ
Pt100, 2- and 4-wire	-200 to +850°C	±0.25°C	0.2 m°C
Pt1000, 2- and 4-wire	-200 to +850°C	±1°C	0.2 m°C
Long term drift	<0.01°C/24 h	<0.1°C/8000 h	
Temperature influence	Offset drift (range 400 Ω)	Gain drift	
	<10 mΩ/10 K	<0.025 % / 10 K	

Measurement Mode Potentiometer

Allowable potentiometer resistance	1 kΩ to 10 kΩ	
Long term drift	<0.01 % / 24 h	<0.1 % / 8000 h
Temperature influence	Offset drift	Gain drift
	<0.0001/10 K	<0.02 % / 10 K

Measurement Mode Bridge

Bridge configuration(s)	half- and full-bridge, 5-/6-wire, quarter-bridge with completion terminal, 3-wire		
Accuracy class	0.05		
Bridge resistance	>100 Ω	>100 Ω	
Bridge excitation	2.5 VDC, nominal		
Measurement range	±2.5 mV/V, ±5 mV/V, ±10 mV/V, ±25 mV/V, ±500 mV/V		
Long term drift	<0.12 µV/V / 24 h	<1.2 µV/V / 8000 h	
Towns and one influence	Offset drift	Gain drift	
Temperature influence	<0.2 µV/V / 10 K	<0.05 % / 10 K	

Measurement Mode IEPE Sensor

	range	max. error	resolution
Error	±10 V	±10 mV	1.2 μV
	±1 V	±1 mV	120 nV
Supply	constant current 4 mA		
Input frequency range	0.5 Hz to 10 kHz		
T	Offset drift (range 10 V)	Gain drift	
Temperature influence	<10 µV / 10 K	<0.025 % / 10 K	



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Analog/Digital Conversation

Resolution	24-bit
Update rate	100 kHz (measurement thermocouple 8 Hz)
Modulation method	Sigma-Delta (group delay time 380 μs)
Anti-aliasing filter	20 kHz, 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 kHz (adjustable via software)
Averaging	configurable or automatic according to the selected 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

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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High Voltage Warnings



- Attention High voltage device, Danger for life and health in case of non regular use.
- Only special and sufficient educated persons are permitted to handle this device only.
- all metal housing parts must be safely and continuous connected to protected earth (PE)
- Only contact protection plugs and cables may be used. All parts must be approved for voltages up to 1200 VDC.
- During installation, the whole system must be without voltage and safely be disconnected from the mains.
- All relevant safety regulations must be considered.

Base is the european standard EN61010-1

Mechanical Information

Material	Aluminum and ABS
Measurements (W x H x D)	30x 145 x 160mm
Weight	approx. 500 g

Ordering Information

Article number	577027

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