Q.bloxx XL A121 LEMO

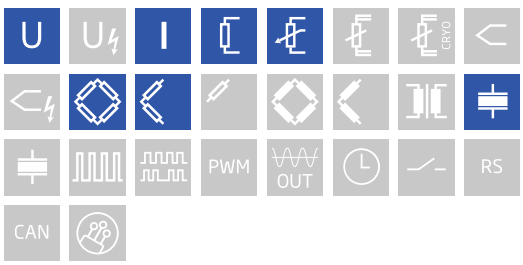
High Isolation Multi-Purpose Module

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

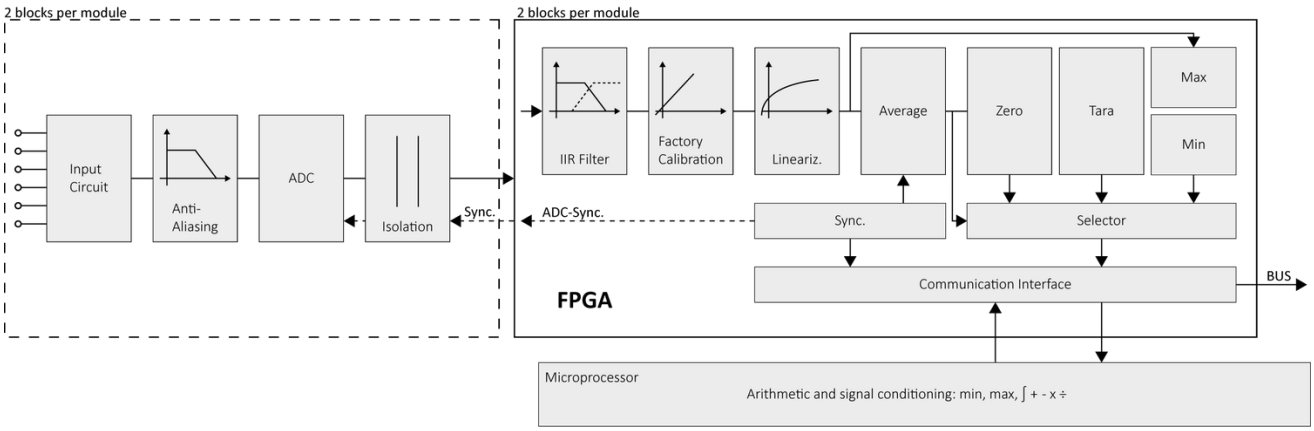
- **2 high galvanic isolated input channels**
  voltage, current, Pt100, potentiometer, full- and half bridges, IEPE, isolation voltage 1200 VDC permanent
- **Signal conditioning**
  linearization, digital filter, average, scaling, min/max storage, arithmetic, alarm
- **Fast high accuracy digitalization**
  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



Q.bloxx XL A121 LEMO

High Isolation Multi-Purpose Module

Block diagram



Technical Data

Analog Inputs

Channels	2
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 h)
Isolation voltage	1200 VDC continuous, channel to channel to power supply channel to bus

[1] according to EN 61326 2006: appendix B
[2] according to EN 61326 2006: appendix A

Measurement Mode Voltage

Error	range	max. error	resolution
	±10 V	±2 mV	1.2 µV
	±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		

Measurement Mode Current

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

Measurement Mode Resistance / RTD

Error	range	max. error	resolution
Resistance, 2-wire	100 kΩ	±100 Ω	12 mΩ
Resistance, 2- and 4-wire	4 kΩ	±1 Ω	0.5 mΩ
Resistance, 2- and 4-wire	400 Ω	±0.1 Ω	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	
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
Temperature influence	Offset drift	Gain drift
	<0.2 µV/V / 10 K	<0.05 % / 10 K

Measurement Mode IEPE Sensor

Error	range	max. error	resolution
	±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		
Temperature influence	Offset drift (range 10 V)	Gain drift	
	<10 µV / 10 K	<0.025 % / 10 K	

Q.bloxx XL A121 LEMO

High Isolation Multi-Purpose Module

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

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