

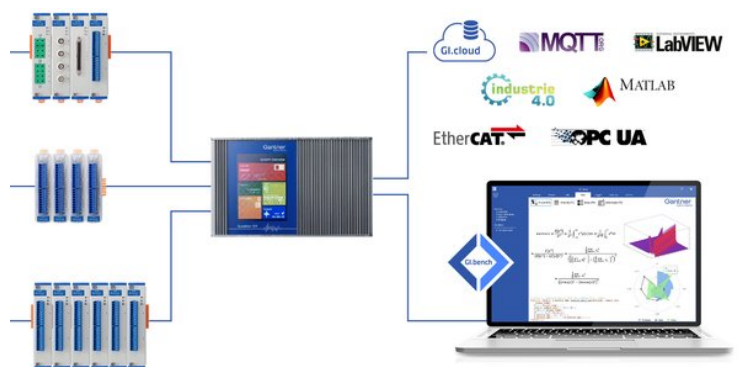
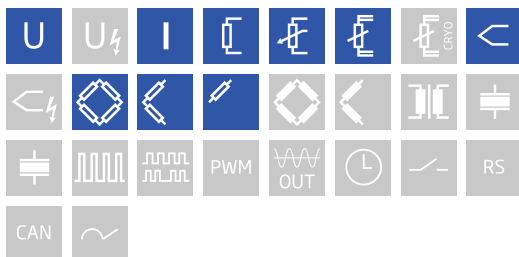
Q.bloxx is the ideal DAQ solution for widely distributed installations, electrical panels, and environmental enclosures. Q.bloxx measurement modules provide integrated signal conditioning and arithmetic functions, packaged in modular, DIN Rail mountable enclosures that easily snap together for quick system expansion. Flexibility in distribution allows for highly synchronized data that is less prone to noise due to shorter sensor cable runs to the actual point of measurement.

- RS 485 fieldbus interface up to 24 Mbps: LocalBus up to 115.2 kbps: Modbus-RTU, ASCII
- Connectable to any Controller, e.g. Q.station, Q.gate or Q.pac
- Electromagnetic Compatibility according to EN61000-4 and EN55011
- Power supply 10 ... 30 VDC
- DIN rail mounting (EN60715)

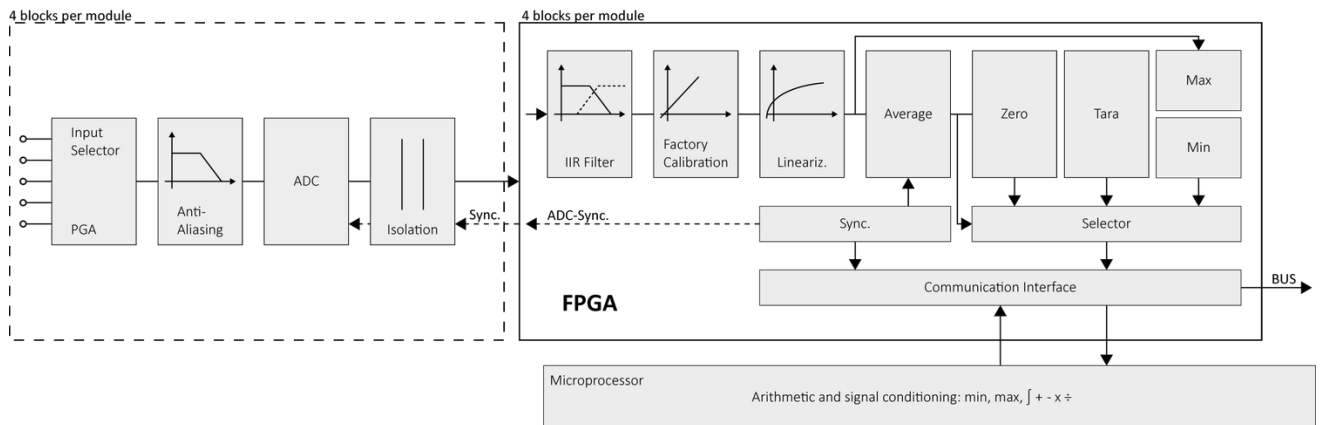


Key Features

- 4 Universal analog input channels
Voltage, current, resistance, potentiometer, RTD (Pt100 / Pt1000), thermocouple, strain gage
- High-accuracy digitization
24-bit ADC, 10 kHz 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
- Electromagnetic compatibility (EMC)
According to IEC 61000-4 and EN 55011

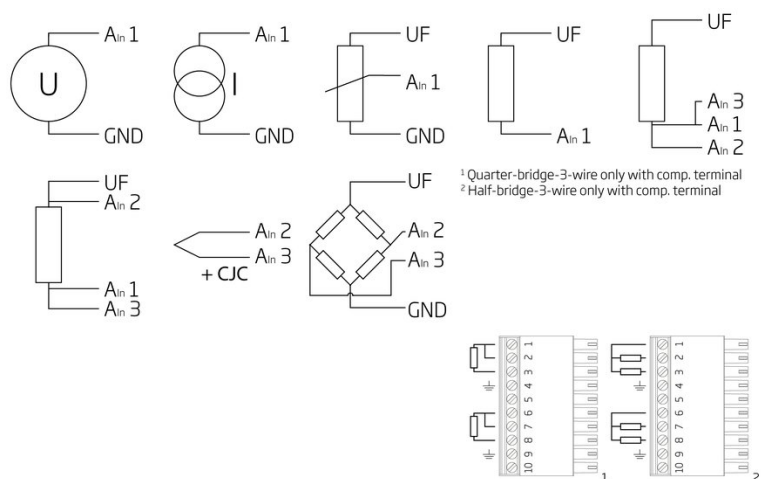
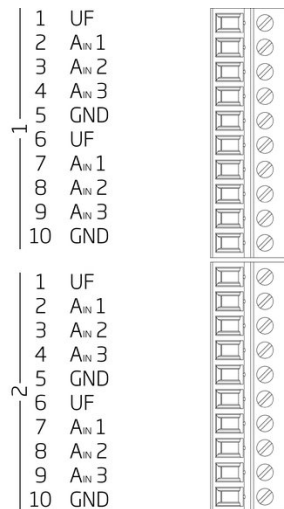


Block diagram



Technical Data

Terminal assignment 10pole screw



Analog Input

Channels	4
Isolation voltage	500 VDC channel to channel, to power supply, channel to bus ¹

¹ noise pulses up to 1000 VDC, continuous up to 250 VDC

Voltage Measurement

Range and error	Input range	Margin of error	Resolution
	± 10 V	± 2 mV	1.2 μV
	± 1 V	± 200 μV	120 nV
	± 100 mV	± 20 μV	12 nV
Long-term stability	Input range	24 hrs	8000 hrs
	± 10 V	< 200 μV	< 2000 μV
	± 1 V	< 20 μV	< 200 μV
	± 100 mV	< 2 μV	< 20 μV
Temperature drift	Input range	Offset drift	Gain drift
	± 10 V	< 500 μV / 10 K	< 0.01 % / 10 K
	± 1 V	< 50 μV / 10 K	< 0.01 % / 10 K
	± 100 mV	< 5 μV / 10 K	< 0.01 % / 10 K
Signal-to-noise ratio	> 90 dB at 1 kHz	> 120 dB at 1 Hz	
Input impedance	> 100 MΩ		
Overvoltage protection	± 20 V (± 30 V for 5 sec)		

Current Measurement

Input range	± 25 mA (Internal shunt resistor 50 Ω)		
Margin of error	± 5 µA		
Resolution	3 nA		
Long-term stability	< 0.5 µA / 24 hrs	< 5 µA / 8000 hrs	
Temperature drift	< 1 µA / 10 K Offset drift	< 0.03 % / 10 K Gain drift	

Potentiometer Measurement

Resistance range	1 kΩ to 10 kΩ		
Long-term stability	< 0.02 % / 24 hrs	< 0.2 % / 8000 hrs	
Temperature drift	< 0.0001 / 10 K Offset drift	< 0.03 % / 10 K Gain drift	

Resistance / RTD Measurement

Range and error	Input range	Margin of error	Resolution
Resistance, 2-wire	100 kΩ	± 100 Ω	12 mΩ
Resistance, 2-, 3- and 4-wire	4 kΩ	± 1 Ω	0.5 mΩ
Resistance, 2-, 3- and 4-wire	400 Ω	± 0.1 Ω	48 µΩ
Pt100, 2-, 3- and 4-wire	- 200 to + 850 °C	± 0.25 °C	0.2 m°C
Pt1000, 2-, 3- and 4-wire	- 200 to + 850 °C	± 1 °C	0.2 m°C
Sensor excitation	640 µA (< 4 kΩ) 15 µA (> 4 kΩ)		
Long-term stability	< 10 mΩ / 24 hrs	< 100 mΩ / 8000 hrs	
Temperature drift (range 400 Ω)	< 10 mΩ / 10 K Offset drift	< 0.03 % / 10 K Gain drift	

Thermocouple Measurement

	Type	Range	Accuracy ¹	
	Type B	0 °C to 1820 °C	100 °C to 400 °C	< ± 5.0 °C
			200 °C to 1820 °C	< ± 2.5 °C
	Type E	- 270 °C to 1000 °C	- 250 °C to - 100 °C	< ± 2.5 °C
			- 100 °C to 1000 °C	< ± 1.0 °C
		- 200 °C to 1000 °C	- 200 °C to -100 °C	< ± 1.5 °C
			- 100 °C to 1000 °C	< ±0.8 °C
	Type K	- 270 °C to 1372 °C	- 250 °C to -100 °C	< ± 2.0 °C
			- 100 °C to 1372 °C	< ± 1.0 °C
		- 200 °C to 1200 °C	- 200 °C to - 100 °C	< ± 1.5 °C
			- 100 °C to 1200 °C	< ± 0.8 °C
	Type J	- 210 °C to 1200 °C	- 210 °C to - 100 °C	< ± 1.5 °C
			- 100 °C to - 1200 °C	< ± 0.8 °C
	Type L	- 200 °C to 900 °C	- 200 °C to 0 °C	< ± 1.5 °C
			0 °C to 900 °C	< ± 0.8 °C
	Type N	- 270 °C to 1300 °C	- 250 °C to - 100 °C	< ± 2.0 °C
			- 100 °C to 1300 °C	< ± 1.0 °C
		- 200 °C to 1300 °C	- 200 °C to - 100 °C	< ± 1.5 °C
			- 100 °C to 1300 °C	< ± 0.8 °C
	Type R	- 50 °C to 1768 °C	- 50 °C to 100 °C	< ± 2.0 °C
			100 °C to 1768 °C	< ± 1.5 °C
	Type T	- 270 °C to 400 °C	- 250 °C to - 100 °C	< ± 2.0 °C
			- 100 °C to 400 °C	< ± 1.0 °C
		- 200 °C to 400 °C	- 200 °C to - 100 °C	< ± 1.5 °C
			- 100 °C to 400 °C	< ± 0.8 °C
	Type S	- 50 °C to 1768 °C	- 50 °C to 400 °C	< ± 2.0 °C
400 °C to 1768 °			< ± 1.5 °C	
Input impedance	> 10 MΩ			
Long-term drift	< 0.1°C / 24 h		< 0.2 °C / 8000 h	
Temperature influence	Offset drift		Gain drift	
	< 0.2 °C / 10 K		< 0.025 % / 10 K	
Uncertainty CJC	< 0.3 °C			

¹ The specifications are valid with activated mains suppression 50 Hz or 60 Hz

Strain Gage Measurement

Bridge configuration(s)	Resistive full-bridge (4-wire) Resistive half-bridge (3-wire, with bridge completion terminal) Resistive quarter-bridge 120 Ω or 350 Ω (3-wire, with bridge completion terminal)	
Accuracy class	0.05	
Allowable bridge resistance	> 100 Ω	
Bridge excitation (nominal)	2.5 VDC	
Input range	± 2.5 mV / V ± 50 mV / V ± 500 mV / V	
Long-term stability (range 2.5 mV/V)	< 0.12 μ V / V / 24 hrs	< 1.25 μ V / V / 8000 hrs
Temperature drift (range 2.5 mV/V)	< 0.2 μ V / V / 10 K Offset drift	< 0.05 % / 10 K Gain drift

Analog to Digital Conversion

Resolution	24-bit
Sample rate	10 kHz per channel (thermocouple 10 Hz)
Modulation method	Sigma-delta
Anti-aliasing filter	2 kHz, 3rd order
Digital filters	Infinite impulse response (IIR), low-pass, high-pass, Butterworth or Bessel (2nd, 4th, 6th or 8th order), frequency range 0.1 Hz to 1 kHz (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	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)

Q.bloxx A107

Universal Measurement Module

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

Mechanical information

Material	Aluminum and ABS
Measurements (W x H x D)	27 x 120 x 105 mm
Weight	approx. 200 g

Ordering Information

Article number	895590
Accessories	Terminal B4/120-A107, article number 894589
	Terminal B4/350-A107, article number 894690
	Terminal CJC-A107, article number 893790

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