



Q.bloxx A107

Universal Measurement Module



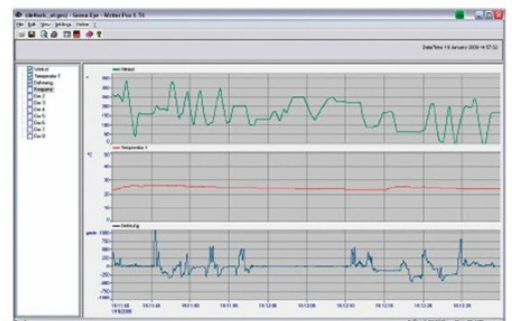
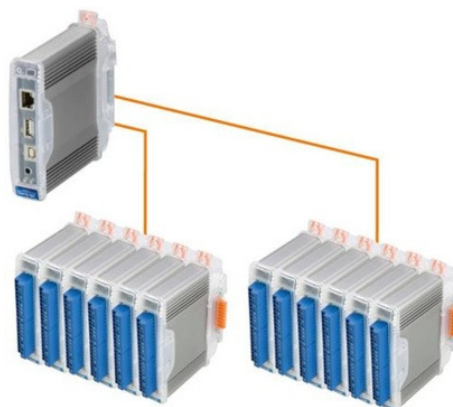
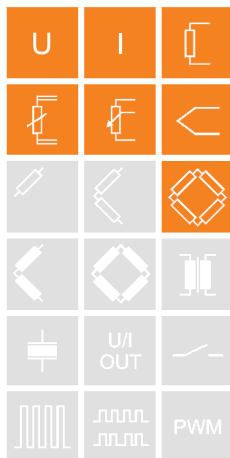
The Q.series has been designed for demanding measurements found in today's most industrial measuring and testing environments. The range of applications starts from single stand-alone solutions up to networked multi-channel applications in the field of component testing, engine testing, process performance testing and structural monitoring.

The range and flexibility of the modules allows an optimized solution for each single task: Dynamic signal acquisition up to 100 kHz, in/outputs for all types of signals, galvanic isolation of in/outputs, multi-channel solutions, high density packaging and intelligent signal conditioning.

Data exchange between Test Controller and automation level is communicated via Ethernet TCP/IP or fieldbus systems like EtherCAT, Profibus-DP or CANopen and additional Ethernet-based industrial standards.

Most important features:

- **4 universal analog input channels**
voltage, current, resistance, potentiometer, Pt100, Pt1000, thermocouples, measuring bridges
- **Fast high accuracy digitalization**
24 bit ADU, 10 kHz sample rate per channel
- **Signal conditioning**
16 virtual channels, linearization, digital filter, average, scaling, min/max storage, RMS, arithmetic, alarm
- **RS485 fieldbus interface**
up to 48 Mbps: LocalBus
up to 115.2 kbps: Modbus-RTU, ASCII
- **Connectable to any Test Controller**
e.g. Q.gate or Q.pac
- **Galvanic isolation**
of I/O-signals, power supply and interface
- **Electromagnetic Compatibility**
according EN 61000-4 and EN 55011
- **Power supply 10...30 VDC**
- **DIN rail mounting (EN 50022)**



Ethernet TCP/IP

EtherCAT

PROFIBUS

CANopen

USB UNIVERSAL SERIAL BUS



Q.bloxx A107

Universal Measurement Module

Connection Diagram



X1 - 1
X1 - 2
X1 - 3
X1 - 4
X1 - 5
X1 - 6
X1 - 7
X1 - 8
X1 - 9
X1 - 10

X2 - 1
X2 - 2
X2 - 3
X2 - 4
X2 - 5
X2 - 6
X2 - 7
X2 - 8
X2 - 9
X2 - 10

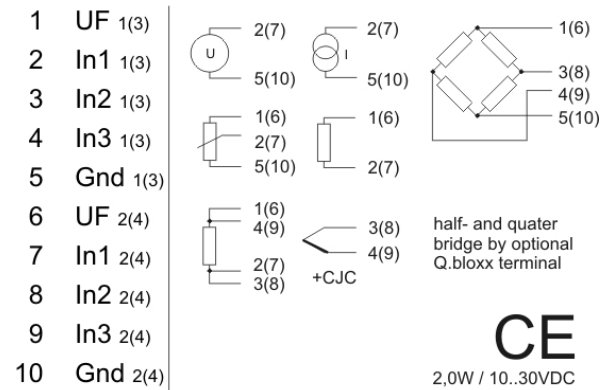
Input 1

Input 2

Input 3

Input 4

Q.bloxx A107 - Multiconditioning I/O Module



CE
2,0W / 10...30VDC

Analog Inputs			
Number	4		
Accuracy	0.01 % typical		
	0.02 % in controlled environment ¹		
	0.05 % in industrial area ²		
Linearity error	0.01 % of the final value typical		
Repeatability	0.003 % typical (within 24 h)		
Measurement Voltage	Range	max. Deviation	Resolution
	±10 V	±2 mV	1.2 µV
	±1 V	±0.2 mV	120 nV
	±100 mV	±20 µV	12 nV
Input resistance	>10 MΩ (at range ±10 V = 1 MΩ; ±60 V = 3 MΩ)		
Noise voltage	<50 µVpp		range ±10 V
Long term drift	<1 µV/24 h		
Perm. common mode voltage	500 V permanent		
Temperature influence	on zero	on sensitivity	
	<1 µV/10 K	<0,05 %/10 K	
Signal-noise-ratio	> 90 dB at 1 kHz	>120 dB at 1 Hz	

¹ according EN 61326: 1997, appendix B

² according EN 61326: 1997, appendix A



Q.bloxx A107

Universal Measurement Module

Measurement Current	Range	max. Deviation	Resolution
(internal shunt 50 Ω)	0...25 mA	±5 μA	3.0 nA
Long term drift	<0.1 μA/24 h		
Perm. common mode voltage	500 V permanent		
Temperature influence	on zero	on sensitivity	
	<0.1 μA / 10 K	<0.03 % / 10 K	
Measurement Resistance / RTD	Range	max. Deviation	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 up to +850 °C	±0.5 °C	0.2 m°C
Pt1000, 2- and 4-wire*	-200 up to +850 °C	±1 °C	0.2 m°C
Linearity error	<0.05% of final value at range 100 kΩ		
Measuring Bridge			
Accuracy class	0.05		
Bridge Type	full bridge, 4-wire connection, half and quarter bridge with completion terminal		
Sensor resistance	>100 Ω		
Supply	2.5 V		
Measurement range	±2.5 mV/V	±50 mV/V	±500 mV/V
Temperature influence	on zero	on sensitivity	
	<1 μV/V/10 K	<0.05 %/10 K	
Long term drift	<1 μV/V/24h		
Measurement Thermo Couple	Whole range	-100 °C...upper limit	
Type B	better than ±5 °C	better than ±2.5 °C	
Type E, J, K, L, T, U	better than ±1 °C	better than ±0.5 °C	
Type N	better than ±2 °C	better than ±1 °C	
Type R, S	better than ±3 °C	better than ±1.5 °C	
Input resistance	> 10 MΩ		
Perm. common mode voltage	500 V permanent		
Temperature influence	on zero	on sensitivity	
	<1 μV/10 K	<0.02%/10 K	
Temperature influence	on zero	on sensitivity	
	<1 μV/10 K	0.05 %/10 K	



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Analog/Digital-Conversion	
Resolution	24 bit
Sample rate	10 kHz
Conversion method	Sigma-Delta
Filter	IIR, low pass or high pass, 4 th order
	1 Hz up to 1 kHz, in steps 1, 2, 5, automated sample reduction for lower frequencies
Power Supply	
Power supply	10 up to 30 VDC, overvoltage and overload protection
Power consumption	approx. 2 W
Influence of the voltage	<0.001 %/V
Environmental	
Operating temperature	-20 °C up to +60 °C
Storage temperature	-40 °C up to +85 °C
Relative humidity	5 % up to 95 % at 50 °C, non condensing
Communication Interface	
Standard	RS-485, 2-wire
Data format	8e1
Protocols	Local-Bus: 115200 bps up to 48 Mbps
	Modbus-RTU, ASCII: 19200 bps up to 115200 bps
Connectable devices	max. 32
Galvanic Isolation	500 V
Mechanical	
Case	Aluminum and ABS
Dimensions (W x H x D)	(27 x 120 x 105) mm
Weight	approx. 200 g
Mounting	DIN EN-rail

Warm Up Time

All declarations are valid after a warm up time of 45 minutes.

Valid from August 4th 2009. Specification subject to change without notice
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