



## Q.bloxx A116

## Multichannel Bridge 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, inputs and outputs for all types of signals, galvanic isolation of inputs and 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 or Profibus-DP and additional Ethernet-based industrial standards.

### Most important features:

- **8 analog input channels for bridges**  
strain gauge bridges (full, half, quarter)  
8 real parallel inputs, neither scanned nor multiplexed
- **Flexible Input**  
DC bridge excitation 2 V and 4 V  
input range 2000  $\mu\text{m/m}$  and 20000  $\mu\text{m/m}$ , 2,5 mV/V and 10 mV/V
- **Fast high accuracy digitalization**  
24 bit ADU, 10 kHz sample rate per channel
- **Signal conditioning**  
linearization, digital filter, average, scaling,  
min/max storage, arithmetic, alarm
- **Shunt calibration signal per channel**
- **Connectable to any Test Controller**  
e.g. Q.gate, Q.pac or Q.station
- **Compatible with all Q-series modules**  
e.g. for displacement, temperature, counter, voltage, current,  
resistance, frequency, I/O
- **Galvanic isolation**  
channel to power supply and to interface  
Isolation voltage 500 VDC
- **RS485 fieldbus interface**  
up to 24 Mbps: LocalBus  
up to 115.2 kbps: Modbus-RTU, ASCII
- **Electromagnetic Compatibility**  
according EN 61000-4 and EN 55011
- **Power supply 10...30 VDC**
- **DIN rail mounting (EN 60715)**

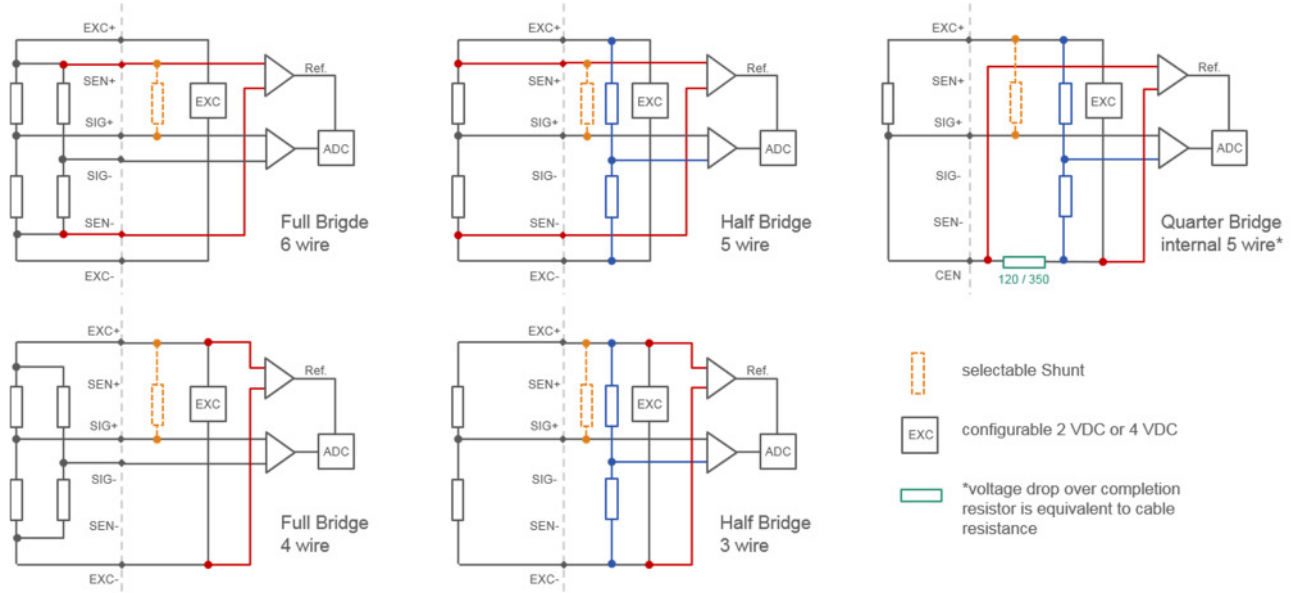




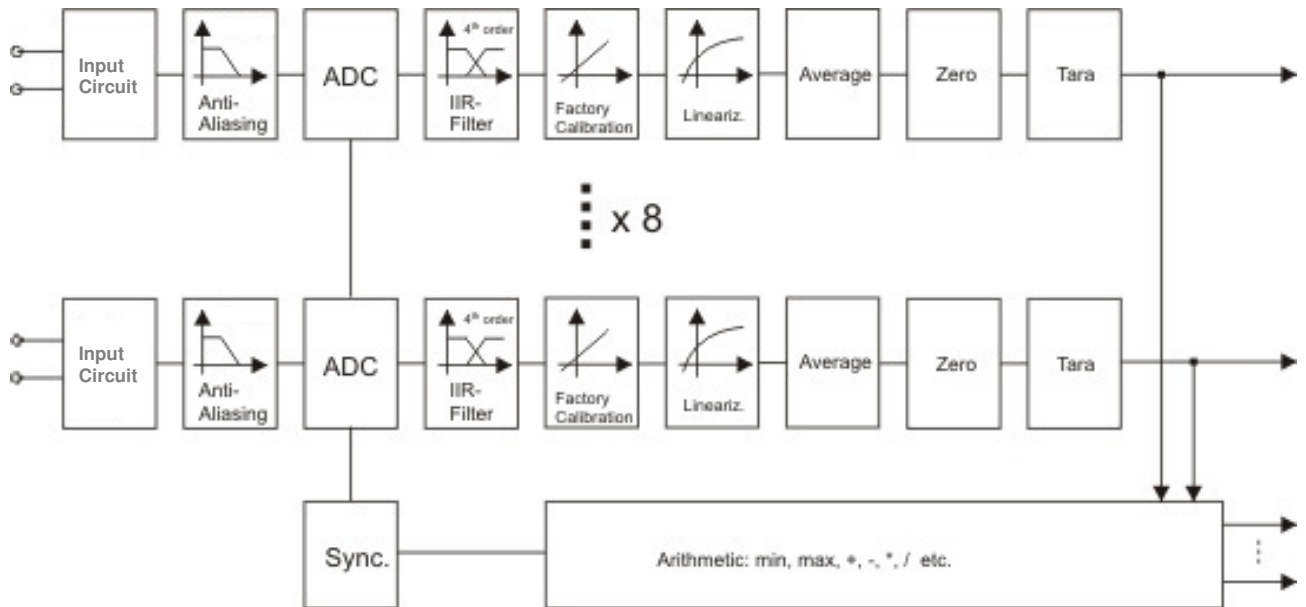
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### Input Circuit



### Block Diagram





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Analog Inputs	
Number	8
Accuracy	0.02 % typical
	0.05 % in controlled environment <sup>1</sup>
	0.1 % in industrial area <sup>2</sup>
Repeatability	0.01 % typical (within 24 h)
Input resistance	>10 MΩ
Isolation voltage	500 VDC channel to power supply to interface <sup>3</sup>
Sensor type	resistive full bridge (4/6 wire), resistive half bridge (3/5 wire), resistive quarter bridge 120 Ω and 350 Ω (3 wire incl. cable compensation)
Bridge completion resistor	120 Ω und 350 Ω, temperature stability 0,05 ppm / K
Permitted sensor cable length	<300 m full and half bridge, <100 m quarter bridge
Sensor excitation	2 VDC and 4 VDC selectable
Permitted sensor resistance	full bridge >300 Ω, half bridge >200 Ω, quarter bridge >100 Ω
Measuring range full and half bridge	±2,5 mV/V and ±10 mV/V
Measuring range quarter bridge	±1 mV/V and ±10 mV/V (±2000 μm/m and ±20000 μm/m at k=2)
Temperature influence on zero	<0.2 μV/V / 10 K
Temperature influence on sensitivity	<0.05 % / 10 K
Long term drift	<0.2 μV/V / 24 h , <2 μV/V / 8000h
Linearity Error	<0.02 % f.s.
Noise voltage at 10 Hz	<0.3 μV/V

Analog Digital Conversion	
Resolution	24 bit
Sample rate	10 kHz
Conversion method	Sigma-Delta (group delay time 600 μs)
Anti-aliasing Filter	1 kHz 3 <sup>rd</sup> order
Digital filter	IIR, low pass, high pass, band pass, 4 <sup>th</sup> order, 1 Hz up to 1 kHz in steps 1, 2, 5
Averaging	configurable or automated according the selected data rate

<sup>1</sup> according EN 61326: 2006, appendix B

<sup>2</sup> according EN 61326: 2006, appendix A

<sup>3</sup> noise pulses up to 1000 VDC, permanent up to 250 VDC




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Power Supply	
Power supply	10 up to 30 VDC, overvoltage and overload protection
Power consumption	approx. 2.5 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 24 Mbps
	Modbus-RTU, ASCII: 19200 bps up to 115200 bps

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
Sensor Connection	<p>68 pole Harting Har-Mik</p> <p>Connecting cable 1m length with open ends or connection terminalis not included and as accessory available</p> 

### Warm Up Time

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

Valid from July. 2015. Specification subject to change without notice  
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