



Q.bloxx A127

Module for Measuring Electrical Power



The Q.series has been designed for the demanding measurements found in today's industrial measuring and testing environments. Applications range from single, stand-alone solutions to networked, multi-channel systems in real-world areas such as component testing, engine testing, process performance testing, materials testing and structural monitoring.

The range and flexibility of the modules allows for an optimized solution for each and every measurement and control point:

- Dynamic signal acquisition up to 100 kHz per channel
- inputs and outputs for all types of signals and sensors
- Galvanic isolation (up to 1200V) of inputs and outputs
- Multi-channel, High-density packaging
- Intelligent signal conditioning on every channel.

All modules connect to a Q.series test controller (Q.gate, Q.pac, or Q.station) for synchronization and buffering, and data exchange between the test controller and automation system is handled via Ethernet TCP/IP, EtherCAT, Profibus-DP, CANopen, or through additional industrial fieldbus standards.

Key Features:

- **4 high galvanic isolated input channels**
2 inputs for voltage measurement
measuring ranges ± 40 V; ± 120 V, ± 400 V, ± 1200 V

2 inputs for current measurement via shunt resistors
measuring ranges ± 80 mV; ± 240 mV, ± 800 mV, ± 2400 mV
- **Fast high accuracy digitalization**
24 bit ADC, 100 kHz sample rate per channel
- **Signal conditioning**
linearization, digital filter, average, scaling,
min/max storage, RMS, alarm, power, and efficiency calculation
- **RS485 fieldbus interface**
up to 48 Mbps: LocalBus
up to 115.2 kbps: Modbus-RTU, ASCII
- **Connectable to any Test Controller**
e.g. Q.station, Q.gate, or Q.pac
- **Galvanic isolation**
channel to channel to power supply and to interface
isolation voltage 1200 VDC / 858 VACrms
test voltage 5 kVDC over 1 minute
- **Electromagnetic Compatibility**
according EN 61000-4 and EN 55011
- **Categories**
1000 V CAT II and 600 V CAT III
- **Power supply 10...30 VDC**
- **DIN rail mounting (EN 60715)**

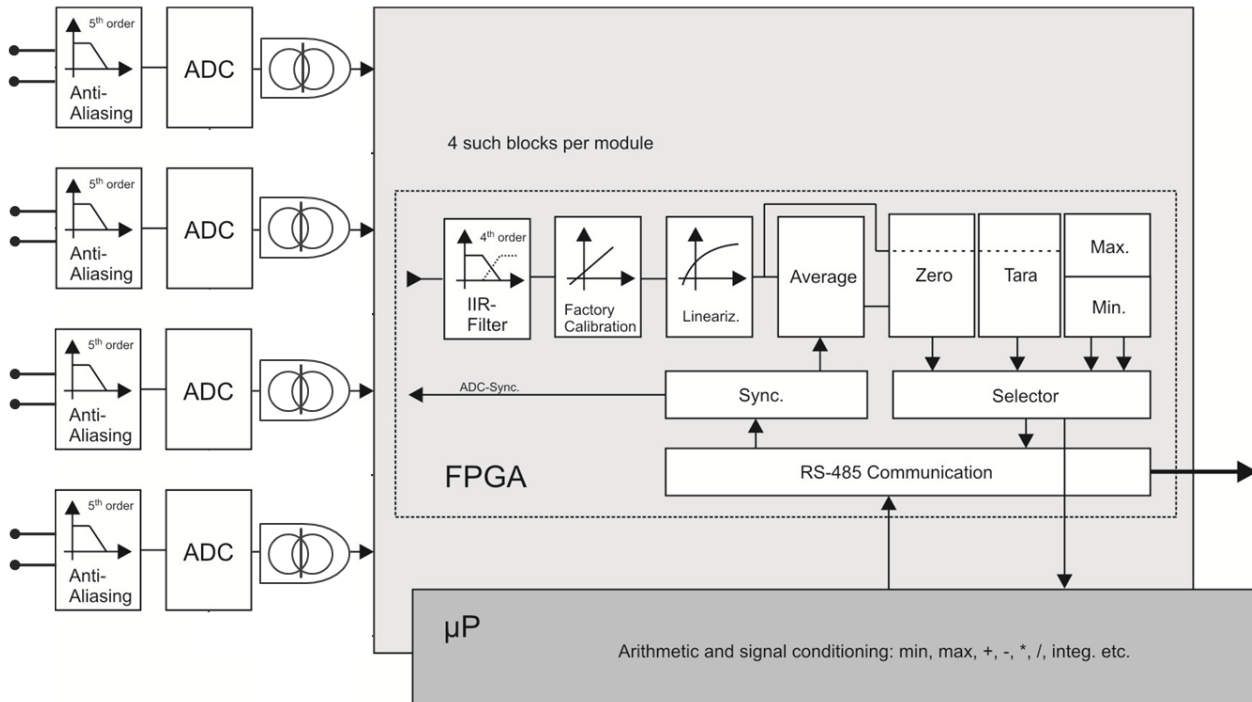




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Block Diagram



Analog Inputs			
Number	4		
Accuracy	0.01 % typical		
	0.025 % 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)		
Isolation voltage	1200 VDC permanent, channel to channel to power supply to interface ³		
Input resistance	>10 MΩ		
Signal-noise-ratio	> 100 dB at 100 Hz		
Measurement Voltage Channel 1 and 3	Range	max. Deviation	Resolution
	±1200 V	±300 mV	6 mV
	±400 V	±100 mV	2 mV
	±120 V	±30 mV	600 µV
	±40 V	±10 mV	200 µV
Long term drift	<10 mV / 24 h; <100 mV / 8000 h		
Temperature influence	on zero	on sensitivity	
	<50 mV / 10 K	<0,025 % / 10 K	

¹ according EN 61326: 2006, appendix B

² according EN 61326: 2006, appendix A

³ High Voltage lifetime (TDD B E Model): Time to fail approx. 4 years at 1200 VDC and 60 °C permanent



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Measurement current via Shunt (internal on request) or Hall Sensor Channel 2 and 4	Range	max. Deviation	Resolution
	±2400 mV	±600 µV	12 µV
	±800 mV	±200 µV	4 µV
	±240 mV	±60 µV	1.2 µV
	±80 mV	±20 µV	0.4 µV
Long term drift	<20 µV / 24 h; <200 µV / 8000 h		
Temperature influence	on zero	on sensitivity	
	<50 µV / 10 K	<0.02% / 10 K	
Analog/Digital-Conversion			
Resolution	24 bit		
Sample rate	100 kHz each channel		
Conversion method	Sigma-Delta (group delay time 380 µs)		
Anti-aliasing filter	20 kHz, 3 rd order per channel		
Digital filter	IIR, low pass, high pass, band pass, 4 th order, 1 Hz up to 10 kHz in steps 1, 2, 5		
Averaging	configurable or automated according the selected data rate		
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		
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		



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 well and permanent connected to earth (PE).
- Only plugs and connectors with a sufficient protection against contact may be used. All parts must be approved and certificated up to 1200 VDC.
- During installation, the whole system must be without voltage and safely be disconnected from the mains.
- All relevant safety regulations have to be considered.

Base is the European Standard EN61010-1

The Q.bloxx EC module A123 can be used in the following categories:

1000 V CAT II

600 V CAT III

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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