



Q Series - Q.bloxx A127 Module for Measuring Electrical Power

Gantner
instruments



Most important features:

- **4 voltage 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 digitalisation**
24 bit ADC, 50 kHz sample rate per channel with 4 active channels,
100 kHz sample rate per channel with 2 active channels
- **Signal conditioning**
linearisation, 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.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 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
- **Power supply 10...30 VDC**
- **DIN rail mounting (EN 60715)**

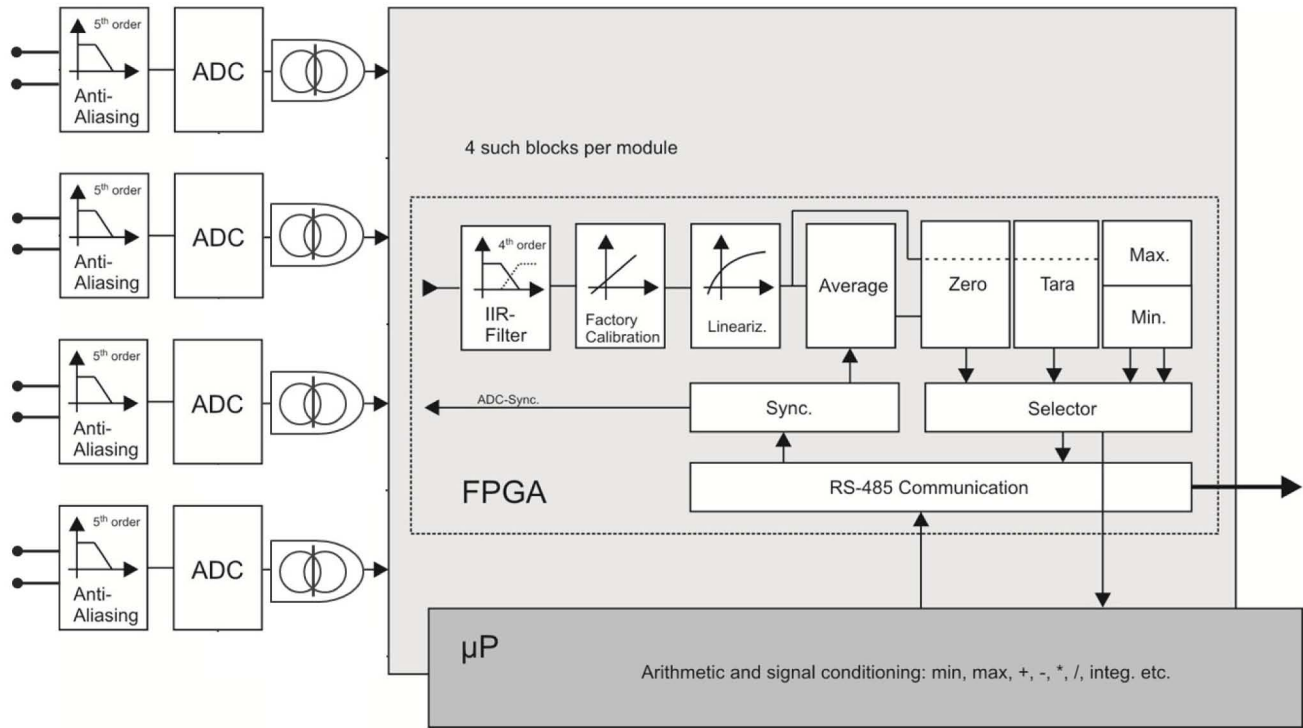
The Q.series has been designed for demanding measurements found in today's most industrial measuring and testing environments. The range of applications starts from single stand-alone solutions up to networked multi-channel applications in the field of component testing, engine testing, process performance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

The range and flexibility of the modules allows an optimised 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.



Block Diagram



Specifications

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	Range	max. Deviation	Resolution
Channel 1 and 3	±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

Measurement current via Shunt or Hall sensor	Range	max. Deviation	Resolution
Channel 2 and 4	±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	50 kHz at 4 active channels, 100 kHz at 2 active channels		
Conversion method	Sigma-Delta (group delay time 380 µs)		
Anti-aliasing filter	20 kHz, 3rd order per channel		
Digital filter	IIR, low pass, high pass, band pass, 4th 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 125 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 the installation, the complete system be switched off and safely unplugged.
- All relevant safety regulations have to be considered.

Base is the European Standard EN61010-1

Warm Up Time

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

Valid from March 2012. Specification subject to change without notice