

The e.bloxx series is designed for industrial and experimental test systems requiring precise high speed measurement of electrical, thermal and mechanical quantities in engine- and component test beds.

All units are based on a clean modular design and all have a wide variety of field device connection possibilities. Sample rates up to 1000 Hz and resolutions up to 19 bit are possible depending on the module and signal type used. Standardized communication protocols (Profibus-DP and Modbus-RTU) allow the e.bloxx family to work with a wide variety of application hardware and software.

With the addition of an e.gate the data throughput and connectivity options increase dramatically. The e.gate is a data concentrator and communication gateway, with 100 Mbps Ethernet and 12 Mbps Profibus-DP ports standard.

Universal bridge input

Strain gauge full-, half- and quarter bridges, inductive bridges, LVDT etc.

6 digital inputs and 4 digital outputs

Definition of the functionality (e.g. tare, reset, frequency measurement, counter, alarm, limit value, tolerance band, ect.)

2 analog outputs

± 10 V, each variable signal selectable, e.g. net and envelope curve

Signal conditioning in real-time

Linearization, digital filter, scaling, taring, minimum/maximum store, run/hold, envelope curve, arithmetic, alarm, limit value, tolerance band

RS 485 fieldbus interface

Profibus-DP, Modbus-RTU, ASCII

Order Information

Product

e.bloxx A6-2CF

Accessories

Configuration Software

ICP 100

Terminal for connection of

Single Strain Gauges

B14 120 Ω

B14 350 Ω

B14 700 Ω

Interface Converter

RS232 / RS485

ISK 200

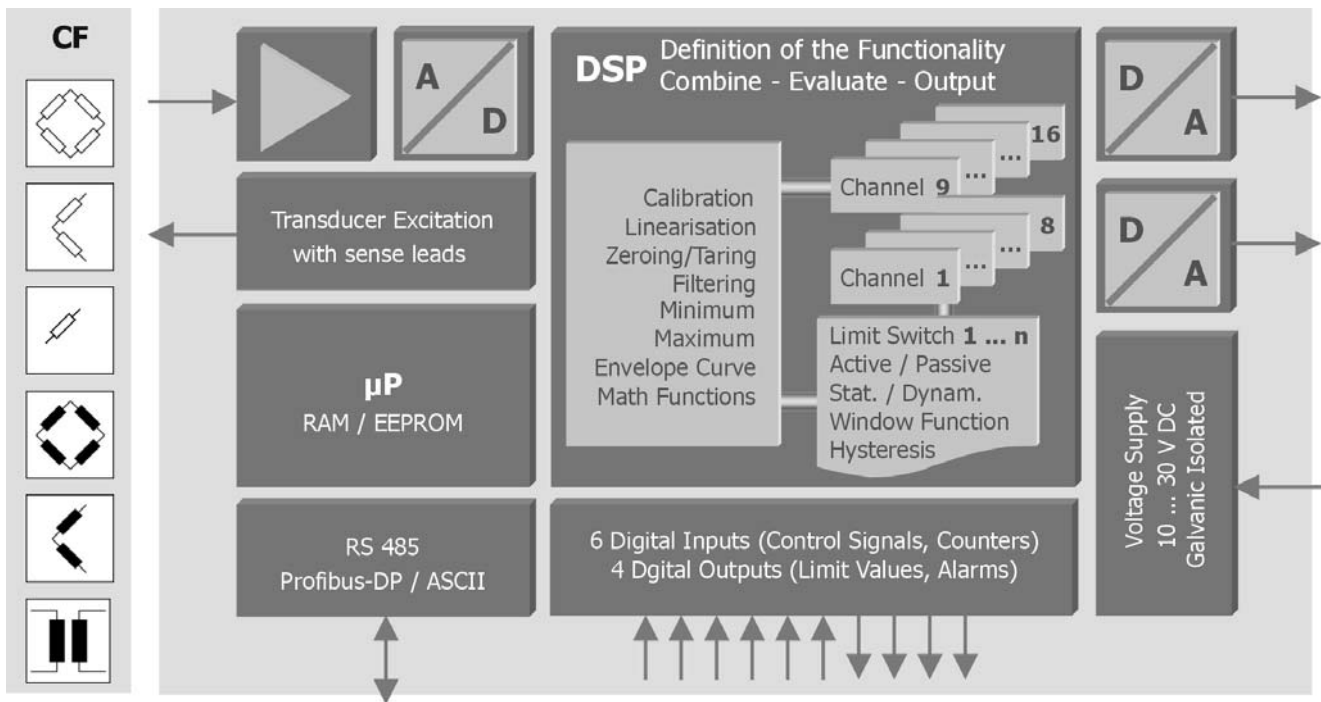
ISK 101

Repeater / Converter IRK 100

Additional Features

- Accuracy 0.05 %
- Transducer connection in 3-, 4-, 5- and 6-lead connection
- Wide measurement range 2.5 to 1,250 mV/V
- Frequency range 0 to 1000 Hz (-3 dB)
- ADC-resolution and conditioning accuracy 19 bit at 5000 samples/sec
- Data transmission up to 1.5 Mbps
- Up to 127 modules at one two wire line via RS-485 interface
- ICP 100 software for easy configuration of the modules
- Galvanic isolation of I/O-signals, power supply and communication interface
- Power supply 10...30 VDC
- DIN rail mounting (EN 50022 rail)
- Pluggable screw terminals for field, power and communication connections
- Electromagnetic Compatibility according to EN 61000-4 and EN 55011

Blockdiagram



Analog Input

Accuracy	0.05 % typical 0.1 % in controlled Environment ¹ 0.5 % in industrial area ²		
Carrier frequency	4800 Hz		
Connectable sensors	Strain gauges, inductive, LVDT, piezoresistive, potentiometric, half- and full bridge, single strain gauges with terminal B14		
Connection technique	with or without sense leads		
Cable length	max. 250 m		
Repeatability	0.005 % typical (within 24 h)		
Transducer excitation U _{exc}	±5.0 V _{eff}	±2.5 V _{eff}	±1.0 V _{eff}
Min. perm. transducer resistance	350 Ω	175 Ω	70 Ω
Measuring range (dep. on U _{exc})	at U _{exc} ±5,0 V _{eff}		
Low	±2.5 mV/V	±5.0 mV/V	±12.5 mV/V
Medium	±50 mV/V	±100 mV/V	±250 mV/V
High	±250 mV/V	±500 mV/V	±1,250 mV/V
Temperature influence in range	low	medium	high
on zero (TC0)	10 µV/V / 10 K	20 µV/V / 10 K	50 µV/V / 10 K
on sensitivity (TCC)	0.05 % / 10K	0.05 % / 10 K	0.05 % / 10 K
Noise voltage in range (related to the Input)	low	medium	high
at 0 ... 10 Hz	0.2 µV/V	4 µV/V	10 µV/V
at 0 ... 1,000 Hz	2 µV/V	40 µV/V	100 µV/V
Input resistance	> 10 MΩ		
Long time drift	1 µV/V / 48 h		
Common mode voltage	100 V permanent		
Linearity deviation	0.02 % of final value		

Signal Conditioning

Resolution ADC	19 bit
Sample rate	5,000 samples/sec
Sample method	Sigma-Delta
Accuracy	19 bit
Real time performance	
Signal conditioning	0.2 ms
Arithmetic	1 ms
Linearization of transducers	
Characteristic curve	8 points
Input Mode	Edit
	Import (e.g. from Excel)
	Teach in
Zero balance	
Balancing time	over entire measurement range approx. 200 ms, non-volatile memory (secured against power failure)
Tare	
Balancing time	over entire measurement range ca. 1 ms, selectable volatile or non-volatile memory
Low pass filter	
	Bessel 4 th order 0.1 Hz up to 1,000 Hz (-3 dB) adjustable in steps
Peak value store	
Refresh time	Minimum, maximum 0.5 ms
Delete time	0.3 ms
Momentary value	
Refresh time	run/hold 0.5 ms
Envelope curve	
Slew time constant	free selectable
Limit switch	
Function	Switching threshold, tolerance band, hysteresis (2-point-control), all can switch actively or passively, logical combination
Signal to be processed	selectable (Gross, net, min/max, peak-peak, envelope curve, math. calculation)
Reference signal	selectable Constant value, conditioned signal, pre-set value
Response time	1 ms per channel
Hysteresis	selectable
Conditioning	
	Formula generator e. g. peak-to-peak value, envelope curve, run/hold, scaling, addition, mul- tiplication, subtraction, Division

Complex coherences can easily be indicated by using combinations of measured values, conditioned values and I/O-signals.

Analog Outputs

Number	2
Output voltage	± 10.2 V, freely scalable
Max. load resistance	> 5 k Ω
Resolution DAC	16 bit
Frequency range	0 to 1,000 Hz (-3 dB)
Signal source	each output can be controlled with a measurement or a conditioned signal (variable)
Temperature influence	
on zero (TC0)	2 mV / 10 °K
on sensitivity (TCC)	0.05 % / 10 °K
Noise voltage for ranges	
0 ... 10 Hz	2 mV
0 ... 1,000 Hz	10 mV
Long time drift	
Linearity deviation	1 mV / 48 h 0.01 %

Digital Inputs

Number	6, active circuit (high/low)
Function	6 x status Tare, reset, run/hold a.s.o. or single counter, 5 x status or up/down, quadrature, 4 x status max. 50 kHz 32 Bit or Frequency measurement , 5 x status Time base 0,01 to 10 s
Input voltage	max. 30 VDC
Input current	max. 6 mA
Higher switching threshold	> 10 V (high)
Lower switching threshold	< 2.0 V (low)

Digital Outputs

Number	4
Output	Process or host controlled
Reaction time	1 ms per channel
Type of output	Open Collector
Output voltage	max. 30 V
Output current	max. 100 mA

Communication Interface

Standard	RS 485, 2-wire
Data format	8E1
Protocols	ASCII, Modbus-RTU, Profibus-DP Local-Bus
Baud rate	
ASCII and ModBus-RTU	19.2; 38.4; 57.6; 93.75; 115.2 kBaud
Profibus-DP	19.2; 93.75; 187.5; 500; 1500 kBaud
Local-Bus	19.2; 38.4; 57.6; 93.75; 115.2; 187.5; 500; 1500 kBaud
Connectable devices	up to 32 without repeater up to 127 with repeater
Galvanic isolation	500 V

Power Supply

Power supply	10 to 30 VDC overvoltage and overload protection
Power consumption	approx. 1.5 W
Influence of the voltage	0.001 % / V

Mechanical

Case	Aluminium and ABS
Dimensions (W x H x D) and weight	45 x 90 x 83 mm, 160 g
Mounting	DIN EN-Rail

Environmental

Operating temperature	-20 °C to +60 °C
Storage temperature	-30 °C to +60 °C
Relative humidity	0 % to 95 % at 50 °C non condensing

Warm Up Time

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

¹ according to EN 61326: 1997, appendix B

² according to EN 61326: 1997, appendix A