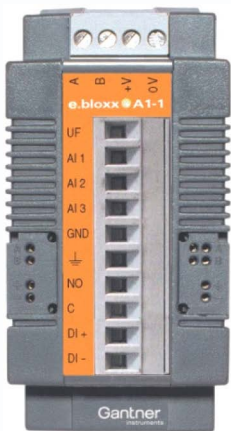


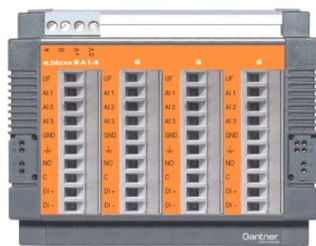


E Series - e.bloxx A1 Universal Measurement Module

Gantner
instruments



e.bloxx A1-1



e.bloxx A1-4

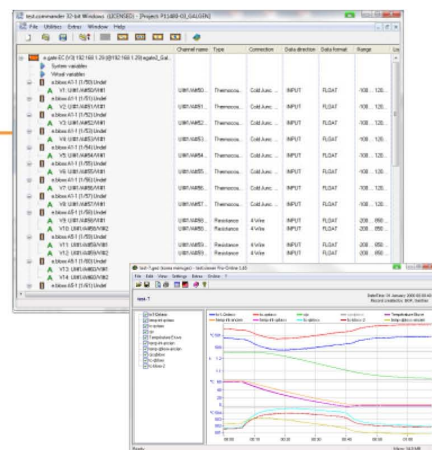
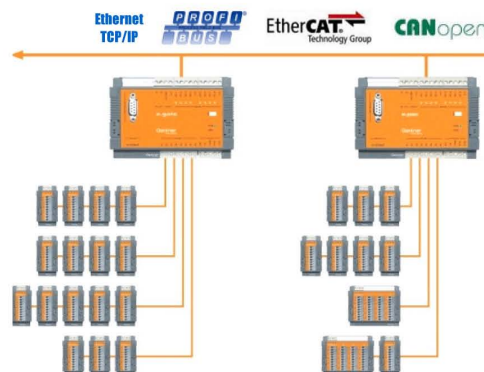
Most important features:

- **Accuracy 0.01**
- **1 or 4 universal analog inputs**
Voltage, current, resistance, Potentiometer, Pt100, Pt1000, thermocouples, bridges
- **High accuracy digitalisation**
19 bit ADC, 1000 Hz sample rate
- **1 digital input per channel**
Status, tare, reset peak hold
- **1 solid state relay output per channel**
Status, alarm, limit value, tolerance band
- **Signal conditioning**
Linearisation, digital filtering, averaging, scaling, minimum/maximum, arithmetic, alarm
- **RS 485 fieldbus interface**
Profibus-DP, Modbus-RTU, ASCII as well as connectable to any e.series Test Controller
- **Galvanic isolation**
of I/O-signals, power supply and interface
Isolation voltage 500 VDC
- **Electromagnetic Compatibility**
according EN 61000-4 and EN 55011
- **Power supply 10...30 VDC**
- **DIN rail mounting (EN50022)**

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 easily connect to the wide variety of field devices used in today's test beds. Sample rates up to 1000 Hz and resolutions up to 19 bit are possible depending on the module and signal type used. Standardised communication protocols (Profibus-DP and Modbus-RTU) allow the e.bloxx family to work with a wide variety of application hardware and software.

Adding an e.series Test Controller dramatically increases the system's throughput and connectivity options. An e.series Test Controller is a data concentrator, communication gateway, and optionally a Programmable Automation Controller (PAC) with 100Mbps Ethernet, Profibus-DP, EtherCAT, or CANopen.



Specifications

Analog Inputs

Number of analog inputs	16		
Accuracy	0.01 % typical 0.02 % in controlled environment ¹ 0.05 % in industrial area ² 0.003 % typical (within 24 h)		
Repeatability	0.003 % typical (within 24 h)		
Measurement	Range	Accuracy	Resolution
Voltage	±10 V	±2 mV	40 µV
	±1 V	±0.2 mV	4 µV
	±100 mV	±20 µV	0.4 µV
	±10 mV	±10 µV	0.04 µV
Current	4-20 mA	±4 µA	80 nA
(internal shunt 100 W)	±20 mA	±4 µA	80 nA
Resistance	4 kΩ	±1 Ω	0.05 Ω
(2, 3 and 4 wire)	2 kΩ	±0.6 Ω	0.03 Ω
Potentiometer			
Permitted resistance	1 k to 10 k		
RTD (2, 3 and 4 wire)			
Pt100 (-200 to +850 °C)		±0.5 °C	0.1 °C
Pt100 (-200 to +250 °C)		±0.2 °C	0.01 °C
Pt1000 (-200 to +850 °C)		±1 °C	0.1 °C
Pt1000 (-200 to +140 °C)		±0.3 °C	0.01 °C
Thermocouples			
Type B:	better than ±5 °C		
Type E, J, K, L, T, U	better than ±1 °C		
Type N	better than ±2 °C		
Type R, S	better than ±3 °C		
Bridge	±1000 mV/V ±1 mV/V 50 µV/V		
(Supply 5 VDC/120 W)	±200 mV/V	±200 µV/V	10 µV/V
	±20 mV/V	±20 µV/V	1 µV/V
	±8 mV/V	±8 µV/V	0.4 µV/V
	±2 mV/V	±2 µV/V	0.1 µV/V
Input resistance	> 10 MΩ		
Common mode voltage	500 V permanent		
Linearity deviation	0.01 % of the final value		
Signal to noise ratio	voltage measurement		
	1 kHz	90 dB	
	1 Hz	120 dB	
Temperature influence			
on zero 1	µV / 10 K		
on sensitivity	0.02 % / 10 K		
Long-time drift	1 µV / 24 h; 0.1 µA / 24 h 2.5 µV / 8000 h; 0.25 µA / 8000 h		

Analog/Digital Conversion

Resolution	19 bit
Sample rate	1000 samples/sec for voltage, current potentiometer, bridge 10 samples/sec for resistance, RTD 5 samples/sec for thermocouples
Conversion method	Sigma-Delta
Filter	Anti-aliasing Bessel filter 4th ord. 200 Hz variable digital low pass filter 1st order averaging, sliding averaging

¹ according to EN 61326: 1997, appendix B

² according to EN 61326: 1997, appendix A

Digital In/output

Input	Status, tare, reset
Input voltage	max. 30 VDC
Input current	max. 1.5 mA
Upper switching threshold	> 10 V (high)
Lower switching threshold	< 2.0 V (low)
Output	Solid State Relay output
Contact	Opto – MOSFET
Nominal load	60 VDC / 100 mA (ohmic load)
Galvanic isolation	500 V Potentiometer

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
Galvanic isolation	500 V

Power Supply

Power supply	10 to 30 VDC overvoltage and overload protection
Power consumption	
e.bloxx A1-1	approx. 1.5 W
e.bloxx A1-4	approx. 6 W
Influence of the voltage	0.001 %/V

Mechanical

Case	Aluminium and ABS
Dimensions (W x H x D) and weight	
e.bloxx A1-1	45 x 90 x 83 mm, 160 g
e.bloxx A1-4	104 x 90 x 83 mm, 500 g
Protective system	IP20
Mounting	DIN EN-Rail

Environmental

Operating temperature	-20 °C to +60 °C
Storage temperature	-40 °C to +85 °C
Relative humidity	5 % to 95 % at 50 °C non condensing

Warm Up Time

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