e.bloxx A4TC

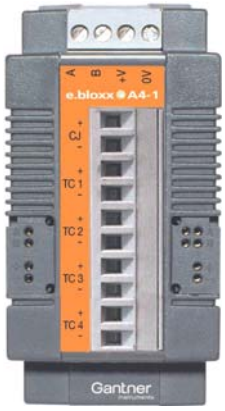
Multi-Channel Thermocouple and mV Module

Ethernet TCP/IP

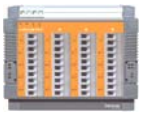
The e.bloxx series is designed for industrial and experimental test systems requiring precise high speed measurement of electrical, thermal, and mechanical quantities in engine and component test beds.

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 5000 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.

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 USB ports.



e.bloxx A4-1TC



e.bloxx A4-4 TC

4 or 16 analog, high speed, galvanic isolated channels

Thermocouple and ± 80 mV (100 samples/sec with 4 active channels)

Cold junction compensation

CJC per terminal strip (special terminal block required)

Dynamic linearization

Optimised linearization for the types B, E, J, K, L N, R, S, T, U

Signal conditioning

Linearization, digital filter, averaging, scaling, minimum/maximum, arithmetic, alarm

RS 485 fieldbus interface

Profibus-DP, Modbus-RTU, ASCII

Order Information

Product	Article No.
e.bloxx A4-1TC	245074
e.bloxx A4-4TC	245175
Accessories	
Configuration Software	
ICP 100	633214
Cold Junction Compensation	
e.bloxx Terminal CJC	111874
Interface Converter	
RS232 / RS485	
ISK 200	236314
ISK 101	689326

Additional Features

- Accuracy 0.01 %
- ADC resolution and internal calculation accuracy of 19 bits
- Measuring rate 100 samples/sec per channel (4 active channels)
- Linearization, scaling, and data formatting

- Data transmission up to 1.5 Mbps
- Up to 32 modules on a single two wire RS-485 interface
- PC-Software (ICP 100) for easy configuration of the modules

- Galvanic isolation of I/O-signals, power supply, and communication interface
- Power supply 10 to 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

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e.bloxx A4TC Technical Data

Analog Input

Accuracy	0.01 % typical
	0.02 % in controlled environment[1]
	0.05 % in industrial area[2]
Repeatability	0.003 % typical (within 24 h)

Measurement	Range	Accuracy	Resolution
Voltage	±80 mV	±30 µV	0.4 µV
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		

Input resistance	> 10 MΩ
Common Mode Voltage	100 V permanent
Linearity deviation	0.01 % of the final value
Signal to noise ration	100 dB
Temperature influence	
on zero point	1µV / 10 K
on sensitivity	0.01 % / 10 K
Long-time drift	1 µV / 24 h

Analog/Digital Conversion

Resolution	19 bit
Sample rate	100 samples/sec (4 active channels)
	400 samples/sec (1 active channel)
Conversion method	Sigma-Delta
Filter	variable digital low pass filter 1st order averaging

Communication Interface

Standard	RS 485, 2-wire
Data format	8E1
Protocols	ASCII, Modbus RTU, Profibus-DP Local-Bus
Baud rate	
ASCII and ModBus	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 A4-1TC	approx. 1.5 W
e.bloxx A4-4TC	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 A4-1TC	45 x 90 x 83 mm (1.77 x 3.54 x 3.27 in), 160 g (0.35 lb)
e.bloxx A4-4TC	104 x 90 x 83 mm (4.10 x 3.54 x 3.27 in), 500 g (1.1 lb)
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.

[1] according to EN 61326: 1997, appendix B
[2] according to EN 61326: 1997, appendix A

Valid from January 2008. Specification subject to change without notice.
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