e.rack A6-16 *slimline*

Carrier Frequency Bridge Unit

The e.rack slimline 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.

The e.rack slimline is a low profile rack mount design, and easily connects 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 unit and signal type used. Standardized communication protocols (Profibus-DP and Modbus-RTU) allow the e.rack slimline family to work with a wide variety of application hardware and software (including e.bloxx).

All of this measurement power is housed in a 1 unit (1U) 19" rack for unparalleled density. With the addition of an e.series controller (e.gate, e.pac, etc.) even the most sophisticated applications can be achieved with ease.

16 universal bridge inputs

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

1 analog output per channel

± 10 V, user configurable (e.g. maximum, envelope curve, etc.)

Signal conditioning

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

RS 485 fieldbus interface

Profibus-DP, Modbus-RTU, ASCII

Order Information

Product	Article No.
e.rack A6-16 *slimline*	438381
Accessories	
Configuration Software	
ICP 100	633214
Input plug series 423 8 pole	423 8P
Interface Converter RS232 / RS485	
ISK 101	689326

Additional Features

- Accuracy 0.05 %
- Transducer connection in 3, 4, 5, and 6 lead connection (excitation sense)
- Wide measurement range 2.5, 100, and 1000 mV/V
- Frequency range 0 to 100 Hz (-3 dB)
- ADC resolution and internal calculation accuracy of 19 bits (500 samples/sec)

- Data transmission up to 1.5 Mbps
- PC-Software (ICP 100) for easy configuration of the modules
- Compatible with all e.series controllers (e.gate, e.pac, etc.)

- Galvanic isolation of I/O signals, power supply, and communication interface
- Electromagnetic Compatibility according to EN 61000-4 and EN 55011

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e.rack A6-16 *slimline* Technical Data

Analog Inputs

Number of analog inputs	16
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 half and full bridge
Cable length	max. 250 m
Repeatability	0.005 % typical (within 24 h)
Transducer excitation Uexc	±2.5 Veff
Min. transducer resistance	175 Ω
Measuring range	±2.5 mV/V
Temperature influence	
on zero (TC0)	10 µV/V / 10 K
on sensitivity (TCC)	0.05 % / 10K
noise voltage at 10 Hz	0.2 µV/V input related
Measuring range	±100 mV/V
Temperature influence	
on zero (TC0)	20 µV/V / 10 K
on sensitivity (TCC)	0.05 % / 10K
noise voltage at 10 Hz	4 µV/V input related
Measuring range	±1000 mV/V
Temperature influence	
on zero (TC0)	50 µV/V / 10 K
on sensitivity (TCC)	0.05 % / 10K
noise voltage at 10 Hz	10 µV/V input related
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

A/D Conversion / Signal Conditioning

Resolution ADC	19 bit
Sample rate	500 samples/sec
Sample method	Sigma-Delta
Filter	Variable digital low-pass filter 5th order Averaging
Signal conditioning	Tare, minimum, maximum, envelope curve, arithmetic, limits

Analog Outputs

Output voltage	±10.2 V, freely scalable
Max. load resistance	> 5 kΩ
Resolution DAC	16 bit
Frequency range	0 to 100 Hz (-3 dB)
Signal source	each 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
Long time drift	1 mV / 48 h
Linearity deviation	0.01 %

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
Galvanic isolation	500 V

Power Supply

Power supply	10 to 30 VDC over voltage and overload protection
Power consumption	approx. 50 W
Influence of the voltage	0.001 %/V

Mechanical

Type	19” Standard, 1 unit
Dimensions (W x H x D)	
Basic housing	423 x 44 x 280 mm (16.65 x 1.73 x 11.02 in)
incl. plugs and assembly flange	483 x 44 x 335 mm (19.02 x 1.73 x 13.19 in)
Protection system	IP20

Environmental

Operating temperature	-20 °C to +55 °C
Storage temperature	-30 °C to +55 °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 October 2006. Specification subject to change without notice.
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