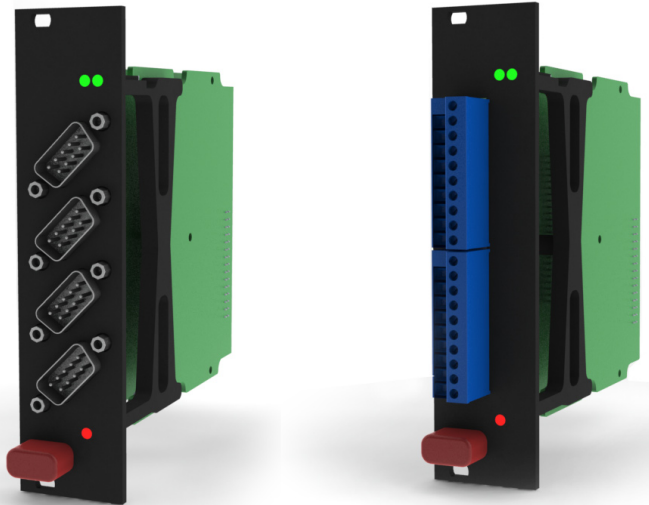


DS NET Hardware

DS NET BR4 MULTIPLE INPUT EXPANSION MODULE

Black line

19 inch



MAIN FEATURES

- **4 universal analog input channels**
voltage, current, resistance, potentiometer, Pt100, Pt1000, thermocouples, measuring bridges
- **Fast high accuracy digitalization**
24 bit ADU, 10 kHz sample rate per channel
- **Signal conditioning**
16 virtual channels, linearization, digital filter, average, scaling, min/max storage, RMS, arithmetic, alarm
- **Galvanic isolation**
of I/O-signals, power supply and interface
- **Electromagnetic Compatibility**
according EN 61000-4 and EN 55011

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ANALOG INPUTS			
Number of channels	4		
Accuracy	0.01 % typical 0.02 % 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)		
Input resistance	>10 M Ω		
Isolation voltage	500 V		
VOLTAGE MEASUREMENT			
	RANGE	MAX ERROR	RESOLUTION
	± 10 V, ± 1 V, ± 100 mV	± 2 mV, ± 0.2 mV, ± 20 μ V	1.2 μ V, 120 nV, 12 nV
Input resistance	>10 M Ω (@ range ± 10 V = 1 M Ω ; ± 75 V = 3 M Ω)		
Noise voltage	<50 μ V _{SS}		range ± 10 V
Long term drift	<1 μ V/24 h		
Acceptable common mode voltage	500 V permanent		
Temperature influence	on zero: <1 μ V/10 K	on sensitivity: <0,05 %/10 K	
Signal-noise-ratio	on zero: <1 μ V/24 h	on sensitivity: >120 dB at 1 Hz	
CURRENT MEASUREMENT			
	RANGE	MAX ERROR	RESOLUTION
	0...25 mA	± 5 μ A	3.0 nA
Long term drift	<0.1 μ A/24 h		
Acceptable common mode voltage	500 V permanent		
Temperature influence	on zero: <0.1 μ A / 10 K	on sensitivity: <0.03 % / 10 K	
RESISTANCE / RTD MEASUREMENT			
	RANGE	MAX ERROR	RESOLUTION
Resistance, 2-wire	100 k Ω	± 100 Ω	12 m Ω
Resistance, 2- and 4-wire*	4 k Ω	± 1 Ω	0.5 m Ω
Resistance, 2- and 4-wire*	400 Ω	± 0.1 Ω	48 μ Ω
Pt100, 2- and 4-wire*	-200 up to +850°C	$\pm 0 \pm 0.5$ °C	0.2 m°C
Pt1000, 2- and 4-wire*	-200 up to +850°C	$\pm 1 \pm 1$ °C	0.2 m°C
Linearity error	<0.05% of full scale in range 100 k Ω		

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BRIDGE MEASUREMENT		
Accuracy class	0.05	
Bridge Type	full bridge, half bridge, 3-/4-wire connection, quarter bridge with completion terminal	
Sensor resistance	>100 Ω	
Supply	2.5 V	
Measurement range	± 2.5 mV/V, ± 50 mV/V, ± 500 mV/V	
Long term drift	< 1 mV/V/24h	
Temperature influence	on zero: <10 μ V/V/10 K	on sensitivity: <0.05 %/10 K
THERMOCOUPLE MEASUREMENT		
	WHOLE RANGE	-100°C...UPPER LIMIT
Type B	better than $\pm 5^\circ\text{C}$	better than $\pm 2.5^\circ\text{C}$
Type E, J, K, L, T, U	better than $\pm 1^\circ\text{C}$	better than $\pm 0.5^\circ\text{C}$
Type N	better than $\pm 2^\circ\text{C}$	better than $\pm 1^\circ\text{C}$
Type R, S	better than $\pm 3^\circ\text{C}$	better than $\pm 1.5^\circ\text{C}$
Input resistance	> 10 M Ω	
Acceptable common mode voltage	500 V permanent	
Temperature influence	on zero: <1 μ V/10 K	on sensitivity: <0.02%/10 K

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ANALOG/DIGITAL CONVERSION	
Resolution	24 bit
Sample rate	10 kHz
Conversion method	Sigma-Delta
Filter	IIR, low pass or high pass 4th order; adjustable from 1 Hz to 1 kHz in steps: 1, 2, 5; automatic sample rate reduction for low frequencies
POWER SUPPLY	
Power supply	10 up to 30 V _{DC} , overvoltage and overload protection
Power consumption	approx. 2 W
Influence of the voltage	<0.001 %/V
ENVIRONMENTAL	
Operating temperature	-20°C up to +50°C
Storage temperature	-40°C up to +85°C
Relative humidity	5 % up to 95 % at 50°C, non condensing
Vibration	MIL-STD 810F 514.5, procedure I
Shock	MIL-STD 810F 516.5, procedure I
MECHANICAL	
Case	Aluminum
Dimensions (W x H x D)	(27 x 120 x 105) mm
Weight	approx. 200 g
Mounting	DIN EN-rail
CONNECTION	
Standard	20 pin screw terminal
Option	4 DSUB 9 pin connectors

¹ according EN 61326: 1997

² according EN 61326: 1997

Warm up time

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