

DS NET Hardware

DS NET ACC2 MULTI-PURPOSE INPUT EXPANSION MODULE

Black line



19 inch



MAIN FEATURES

- **2 universal analog input channels**
voltage, current, resistance, potentiometer, Pt100, Pt1000, thermocouples, measuring bridges, IEPE-sensors
- **High accuracy digitalization**
24 bit ADU, 100 kHz sample rate per channel
- **1 digital in and output per channel**
input: state, tare, memory reset
output: state alarm, threshold
- **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
Isolation voltage 500 VDC
- **Electromagnetic Compatibility**
according EN 61000-4 and EN 55011
- **Accuracy class 0,01**

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ANALOG INPUTS			
Number	2		
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)		
VOLTAGE MEASUREMENT			
	RANGE	MAX ERROR	RESOLUTION
	±60 V	±12 mV	7.2 µV
	±10 V	±2 mV	1.2 µV
	±1 V	±0.2 mV	120 nV
	±100 mV	±20 µV	12 nV
Input resistance	>10 MΩ (@ range ±10 V = 1 MΩ; ±75 V = 3 MΩ)		
Noise voltage	50 µVpp (in range ±10 V)		range ±10 V
Long term drift	<1 µV/24 h		
Acceptable common mode voltage	500 V permanent		
Temperature influence	On zero	On sensitivity	
	<1 µV/10 K	<0.05 %/10 K	
Signal-noise-ratio	bandwidth 1 kHz: > 90 dB (in range ±10 V)	bandwidth 1 Hz: > 120 dB (in range ±10 V)	
CURRENT MEASUREMENT			
	RANGE	MAX ERROR	RESOLUTION
	0...25 mA	±5 µA	3.0 nA
Long term drift	<0.1 µA/24 h		
Acceptable common mode voltage	500 V permanent		
Temperature influence	On zero	On sensitivity	
	<0.1 µA / 10 K	<0.03 % / 10 K	
RESISTANCE MEASUREMENT			
	RANGE	MAX ERROR	RESOLUTION
Resistance, 2-wire	100 kΩ	±100 Ω	12 mΩ
Resistance, 2- and 4-wire*	4 kΩ	±1 Ω	0.5 mΩ
Resistance, 2- and 4-wire*	400 Ω	±0.1 Ω	48 µΩ
Pt100, 2- and 4-wire*	-200 up to +850°C	±0.5°C	0.2 m°C
Pt1000, 2- and 4-wire*	-200 up to +850°C	±1°C	0.2 m°C
Linearity error	0.05% of full scale in range 100 kΩ		

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BRIDGE MEASUREMENT			
Accuracy class	0.05		
Bridge Type	full bridge, half bridge, 5-/6-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
Temperature influence	on zero	on sensitivity	
	<10 μ V/V/10 K	<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	on sensitivity	
	<1 μ V/10 K	<0.02%/10 K	
IEPE SENSOR MEASUREMENT			
	RANGE	MAX ERROR	RESOLUTION
	± 10 V	± 10 mV	1.2 μ V
Supply	Constant current 4 mA		
Minimum input frequency	2 Hz		
Limit frequency	10 kHz		
Temperature influence	on zero	on sensitivity	
	<10 μ V/10 K	0.05 %/10 K	
ANALOG/DIGITAL CONVERSION			
Resolution	24 bit		
Sample rate	100 kHz		
Conversion method	Sigma-Delta (group delay time 380 μ s)		
Filter	FIR, low pass, band pass or high pass, configurable order 2, 4 or 6 continuously selectable from 0.1 Hz up to 50 kHz, automated sample reduction for lower frequencies		

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DIGITAL IN/OUTPUTS	
Number	2 (1 digital I/O per channel)
Input	state, tare, reset
Input voltage	max. 30 VDC
Input current	max. 0.5 mA
Upper threshold	>10 V (high)
Lower threshold	<2.0 V (low)
Output	state, alarm
Contact	open drain p-channel MOSFET
Load	30 VDC / 100 mA (ohmic load)
Isolation voltage	500 V
POWER SUPPLY	
Power supply	10 up to 30 VDC, overvoltage and overload protection
Power consumption	approx. 2 W
Influence of the voltage	<0.001 %/V
Isolation voltage	500 V
ENVIRONMENTAL	
Operating temperature	-20°C up to +60°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

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.