

*** SPARE PART*** SIMATIC DP, ELECTRONIC MODULE
ANALOG, FOR ET 200B, W=160MM, 8AI (THERMOCOUPLES) OR
4AI (PT100); 12 BIT

Supply voltage

Rated value (DC)	
• 24 V DC	Yes; Value at $t < 0.5$ s: 35 V
permissible range, lower limit (DC)	18.5 V
permissible range, upper limit (DC)	30.2 V

Input current

Current consumption, typ.	80 mA; Logic
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Power loss

Power loss, typ.	2 W
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Hardware configuration

Rack	
• required terminal block	TB8

Analog inputs

Number of analog inputs	8; 8 voltage inputs/thermocouples or 4 Pt100, Ni100
permissible input voltage for voltage input (destruction limit), max.	32 V

Input ranges

• Voltage	Yes
• Thermocouple	Yes
• Resistance thermometer	Yes
• Resistance	Yes

Input ranges (rated values), voltages

• -1 V to +1 V	Yes
• Input resistance (-1 V to +1 V)	10 Ω
• -250 mV to +250 mV	Yes
• Input resistance (-250 mV to +250 mV)	10 Ω
• -500 mV to +500 mV	Yes
• Input resistance (-500 mV to +500 mV)	10 Ω
• -80 mV to +80 mV	Yes
• Input resistance (-80 mV to +80 mV)	10 Ω

Input ranges (rated values), thermocouples

• Type E	Yes
• Type J	Yes

• Type K	Yes
• Type L	Yes
• Type N	Yes
• Type R	Yes
• Type T	Yes
• Type U	Yes
Input ranges (rated values), resistance thermometer	
• Ni 100	Yes
• Pt 100	Yes
Input ranges (rated values), resistors	
• 0 to 150 ohms	Yes
• 0 to 300 ohms	Yes
• 0 to 48 ohms	Yes
• 0 to 600 ohms	Yes
Characteristic linearization	
• Parameterizable	
— for thermocouples	Type E, J, K, L, N, T, U
— for resistance thermometer	Pt100 (standard), Ni100 (standard)
Cable length	
• shielded, max.	100 m
Analog value generation for the inputs	
Measurement principle	Integrating voltage/time conversion
Integration and conversion time/resolution per channel	
• Resolution with overrange (bit including sign), max.	12 bit; Two's complement
• Integration time, parameterizable	Yes; 2,5 / 16,67 / 20 / 100 ms
• Basic conversion time, including integration time (ms)	8 / 35 / 42 / 200
— additional conversion time for wire-break monitoring	10 / 10 / 10 / 10 ms
• Interference voltage suppression for interference frequency f1 in Hz	10 / 50 / 60 / 400 Hz
Encoder	
Connection of signal encoders	
• for voltage measurement	Yes
• for resistance measurement with two-wire connection	Yes
• for resistance measurement with four-wire connection	Yes
Errors/accuracies	
Linearity error (relative to input range), (+/-)	0.05 %
Temperature error (relative to input range), (+/-)	0.005 %/K

Crosstalk between the inputs, min.	50 dB; At 50/60 Hz
Repeat accuracy in steady state at 25 °C (relative to input area), (+/-)	0.05 %
Operational error limit in overall temperature range	
• Voltage, relative to input area, (+/-)	1 %; At 80 mV; +/-0.6 % from 250 to 1000 mV
• Resistance, relative to input area, (+/-)	1 %
Basic error limit (operational limit at 25 °C)	
• Voltage, relative to input area, (+/-)	0.6 %; at 80 mV; +/-0.4% from 250 to 1000 mV
• Resistance, relative to input area, (+/-)	0.6 %
Interference voltage suppression for $f = n \times (f_1 \pm 1 \%)$, f_1 = interference frequency	
• Series mode interference (peak value of interference < rated value of input range), min.	40 dB
• Common mode interference, min.	70 dB; $U_{pp} < 3 \text{ V}$
Interfaces	
PROFIBUS DP	
• Transmission rate, max.	12 Mbit/s
Protocols	
Bus protocol/transmission protocol	PROFIBUS DP
Interrupts/diagnostics/status information	
Alarms	
• Diagnostic alarm	Yes; Parameterizable
• Limit value alarm	Yes; Parameterizable, channels 0 and 2
Diagnostic messages	
• Overrange	Yes; Overrange
• Wire-break in signal transmitter cable	Yes; For Pt 100, Ni 100, R, +/- -80 mV, thermocouples type E, J, K, L, N, T, U (parameterizable)
Diagnostics indication LED	
• RUN LED	Yes
• Bus fault BF (red)	Yes
Potential separation	
between electronic block and PROFIBUS DP	Yes
Potential separation analog inputs	
• Potential separation analog inputs	No
Permissible potential difference	
between the inputs (UCM)	max. +/- 1 V
Between the inputs and MANA (UCM)	max. +/- 1 V
Degree and class of protection	
Degree of protection acc. to EN 60529	IP20
Ambient conditions	
Ambient temperature during operation	

• horizontal installation, min.	0 °C
• horizontal installation, max.	60 °C; 40°C for other mountings
Air pressure acc. to IEC 60068-2-13	
• permissible range, min.	795 hPa
• permissible range, max.	1 080 hPa
Relative humidity	
• Operation, min.	15 %
• Operation, max.	95 %; RH class 2 in accordance with IEC 1131-2
Vibrations	
• Operation, tested according to IEC 60068-2-6	Yes; IEC 68, Part 2-6; 10 to 57 Hz; (constant amplitude 0.075 mm); 57 to 150 Hz; (constant acceleration 1 g)
Shock test	
• tested according to IEC 60068-2-27	Yes; IEC 68, Part 2-27; half-sine, 15 g, 11 ms
Connection method	
Inputs/outputs	Screw-type and spring-loaded terminals, permanent wiring; 3 and 4-wire connection
Dimensions	
Width	160 mm; EB and TB
Height	130 mm; EB and TB
Depth	60 mm; EB and TB
Weights	
Weight, approx.	550 g; EB and TB
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