

SIMATIC DP, ELECT. SUBMODULE FOR ET200ISP, 4 AI, TC, FOR CONNECTION OF THERMOELEMENTS (VOLTAGE MEASUREMENT)



Figure similar

Input current	
from supply voltage L+, max.	30 mA
Power loss	
Power loss, typ.	0.4 W
Analog inputs	
Number of analog inputs	4
Cycle time (all channels) max.	320 ms; 66 ms basic conversion time x 4 channels with interference frequency suppression 60 Hz, 80 ms basic conversion time x 4 channels with interference frequency suppression 50 Hz
Technical unit for temperature measurement adjustable	Yes
Input ranges	
• Voltage	Yes
• Current	No
• Thermocouple	Yes
• Resistance thermometer	No

• Resistance	No
<b>Input ranges (rated values), voltages</b>	
• -80 mV to +80 mV	Yes
• Input resistance (-80 mV to +80 mV)	1 000 kΩ
<b>Input ranges (rated values), thermocouples</b>	
• Type B	Yes
• Input resistance (Type B)	1 000 kΩ
• Type C	Yes
• Input resistance (Type C)	1 000 kΩ
• Type E	Yes
• Input resistance (Type E)	1 000 kΩ
• Type J	Yes
• Input resistance (type J)	1 000 kΩ
• Type K	Yes
• Input resistance (Type K)	1 000 kΩ
• Type L	Yes
• Input resistance (Type L)	1 000 kΩ
• Type N	Yes
• Input resistance (Type N)	1 000 kΩ
• Type R	Yes
• Input resistance (Type R)	1 000 kΩ
• Type S	Yes
• Input resistance (Type S)	1 000 kΩ
• Type T	Yes
• Input resistance (Type T)	1 000 kΩ
• Type U	Yes
• Input resistance (Type U)	1 000 kΩ
<b>Thermocouple (TC)</b>	
<b>Temperature compensation</b>	
— internal temperature compensation	Yes; via supplied TC sensor module
— external temperature compensation with compensations socket	Yes; via temperature value, acquired by an analog module of the same ET 200iSP station
<b>Characteristic linearization</b>	
• parameterizable	Yes
— for thermocouples	Yes
<b>Cable length</b>	
• shielded, max.	50 m
<b>Analog value generation for the inputs</b>	
Measurement principle	integrating (Sigma-Delta)
Integration and conversion time/resolution per channel	

<ul style="list-style-type: none"> <li>Resolution with overrange (bit including sign), max.</li> </ul>	16 bit
<ul style="list-style-type: none"> <li>Integration time, parameterizable</li> </ul>	Yes
<ul style="list-style-type: none"> <li>Basic conversion time, including integration time (ms) <ul style="list-style-type: none"> <li>— additional conversion time for wire-break monitoring</li> </ul> </li> </ul>	80 ms at 50 Hz; 66 ms at 60 Hz 5 ms
<ul style="list-style-type: none"> <li>Interference voltage suppression for interference frequency <math>f_1</math> in Hz</li> </ul>	50 / 60 Hz
<b>Smoothing of measured values</b>	
<ul style="list-style-type: none"> <li>parameterizable</li> </ul>	Yes; in 4 stages
<ul style="list-style-type: none"> <li>Step: None</li> </ul>	Yes; 1 x cycle time
<ul style="list-style-type: none"> <li>Step: low</li> </ul>	Yes; 4 x cycle time
<ul style="list-style-type: none"> <li>Step: Medium</li> </ul>	Yes; 32 x cycle time
<ul style="list-style-type: none"> <li>Step: High</li> </ul>	Yes; 64 x cycle time
<b>Errors/accuracies</b>	
Linearity error (relative to input range), (+/-)	0.015 %
Temperature error (relative to input range), (+/-)	0.02 %/K
Crosstalk between the inputs, min.	-50 dB
Repeat accuracy in steady state at 25 °C (relative to input range), (+/-)	0.01 %
<b>Operational error limit in overall temperature range</b>	
<ul style="list-style-type: none"> <li>Voltage, relative to input range, (+/-)</li> </ul>	0.15 %
<b>Basic error limit (operational limit at 25 °C)</b>	
<ul style="list-style-type: none"> <li>Voltage, relative to input range, (+/-)</li> </ul>	0.1 %
<b>Interference voltage suppression for <math>f = n \times (f_1 \pm 1 \%)</math>, <math>f_1</math> = interference frequency</b>	
<ul style="list-style-type: none"> <li>Series mode interference (peak value of interference &lt; rated value of input range), min.</li> </ul>	70 dB
<ul style="list-style-type: none"> <li>Common mode interference, min.</li> </ul>	90 dB
<b>Interrupts/diagnostics/status information</b>	
<b>Alarms</b>	
<ul style="list-style-type: none"> <li>Diagnostic alarm</li> </ul>	Yes; Parameterizable
<ul style="list-style-type: none"> <li>Limit value alarm</li> </ul>	Yes; Parameterizable
<b>Diagnostic messages</b>	
<ul style="list-style-type: none"> <li>Diagnostic information readable</li> </ul>	Yes
<b>Diagnostics indication LED</b>	
<ul style="list-style-type: none"> <li>Group error SF (red)</li> </ul>	Yes
<b>Potential separation</b>	
<b>Potential separation analog inputs</b>	
<ul style="list-style-type: none"> <li>between the channels</li> </ul>	Yes
<ul style="list-style-type: none"> <li>between the channels and backplane bus</li> </ul>	Yes

## Standards, approvals, certificates

CE mark Yes

### Highest safety class achievable in safety mode

- Performance level according to ISO 13849-1 none
- SIL acc. to IEC 61508 No

### Use in hazardous areas

- Type of protection acc. to EN 50020 (CENELEC) II2 G (1) GD Ex ib[ia] IIC T4 and I M2 Ex ib[ia] I
- Type of protection acc. to KEMA 04 ATEX 1246

## Dimensions

Width 30 mm

Height 129 mm

Depth 136.5 mm

## Weights

Weight, approx. 230 g

**last modified:** 03/09/2017