



## IP3312-Bxxx | 4-channel analog input thermocouple

The IP3312 analog input module permits four thermocouples to be directly connected. The module's circuit can operate thermocouple sensors using the 2-wire technique. Linearisation over the full temperature range is realised with the aid of a microprocessor. The temperature range can be selected freely. The error LEDs indicate a broken wire. Compensation for the cold junction is made through a temperature measurement in the connecting plugs. This means that standard extension leads can be connected. The IP3312 can also be used for mV measurement.

The module is quite versatile, but the default values are selected in such a way that in most cases it is not necessary to perform configuration. The input filter and associated conversion times can be set within a wide range; several data output formats may be chosen. If required, the inputs can be scaled differently. Automatic limit monitoring is also available. Parameterisation may be carried out either via the fieldbus or, using the KS2000 software tool, through the configuration interface. The parameters are stored in the module. For the temperature compensation a PT1000 element is needed. Beckhoff offers a connector with temperature compensation (ZS2000-3712).

Technical data	IP3312-Bxxx
Number of inputs	4
Connection method	screw type M12, 2-wire connection for thermocouple
Sensor types	types J, K, L, B, E, N, R, S, T, U (default setting type K), mV measurement
Measuring range	depending on sensor type; preset value is type K, -100...+1370 °C
Resolution	0.1 °C per digit
Measuring error	< ±0.5 % (relative to full scale value)
Conversion time	approx. 250 ms (configurable up to 70 ms)
Nominal voltage	24 V DC (-15 %/+20 %)
Input filter	5 variations, configurable
Current consumption from Us (without sensor current)	see documentation
Power supply connection	feed: 1 x M8 male socket, 4-pin; downstream connection: 1 x M8 female socket, 4-pin
Bit width in the process image	input: 4 x 16 bit data, optional: 4 x 8 bit control/status
Electrical isolation	channels/control voltage: 500 V, between the channels: no, control voltage/fieldbus: depends on the bus system
Operating/storage temperature	0...+55 °C/-25...+85 °C
Vibration/shock resistance	conforms to EN 60068-2-6/EN 60068-2-27
EMC immunity/emission	conforms to EN 61000-6-2/EN 61000-6-4
Protect. class/installation pos.	IP 65/66/67 (conforms to EN 60529)/variable
Approvals	CE, UL

Accessories	
ZS2000-3712	M12 plug (5-pin/straight) for thermocouples with temperature compensation element, screw type connection