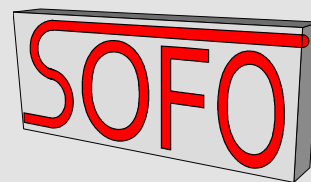


# SOFO® Compatible Thermocouples



- Measurement resolution 0.2 °C
- Operating temperature  $-50^{\circ}\text{C} \div 80^{\circ}\text{C}$ 
  - Embeddable or surface mountable
- Insensitive to corrosion and vibrations
  - No calibration required
  - SOFO system compatible
- Suitable for building site conditions
  - Waterproof

SMARTEC SA

Via Pobietto 11  
CH-6928 Manno  
Switzerland

Tel: +41 91 610 18 00  
Fax: +41 91 610 18 01  
E-mail: [smartec@smartec.ch](mailto:smartec@smartec.ch)  
Internet: [www.smartec.ch](http://www.smartec.ch)

## Description

Thermocouple are metal resistance thermometers that change their electrical resistance dependent on temperature.

The change in electrical resistance under temperature influence is caused by the conduction mechanism of the metals. The freely moving electrons in the atomic grid are the basis for the conductivity of metals. Their quantity and movement energy are temperature-dependent. In thermocouples two wires of different materials are joined at the point of measurement. When these so-called thermo conductors are joined with copper conductors this transition point is known as the reference junction.

The contact potential measured at the reference junction is directly proportional to the temperature difference between measurement point and reference junction.

The contact potential proportional to temperature is obtained by deducting the contact potential arising at the reference junction. For reasons of simplicity the reference junction temperature is usually set to zero, since all thermocouples then have a contact potential of 0 mV and thereby the voltage at the measurement point is equal to the total voltage.

To read thermocouples standard acquisition modules (ADAM) are required. Each ADAM 4018 module is able to connect up to 6 thermocouples.

One SOFObus-ADAM Bridge is also required to connect ADAM module to the SOFO reading unit and to store automatically measurements in a single database.

## Performances

Measurement resolution	0.2 °C
Accuracy	0.1% for voltage input
Calibration	Not required
Switching time	< 1 s

## Technical characteristics

Diameters	5 mm connecting cable ; 10 mm thermocouple ; 25 mm gland nut
Length	0.2 m — 100 m
Mass	< 30 g/m
Operating temperature	-50°C ÷ 80°C
Required hardware	-ADAM 4018: 6-channel A/D and Thermocouple input. SOFObus-Adam Bridge
Options for manual reading	Mini connector and manual reading unit