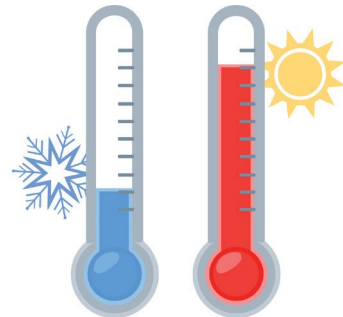
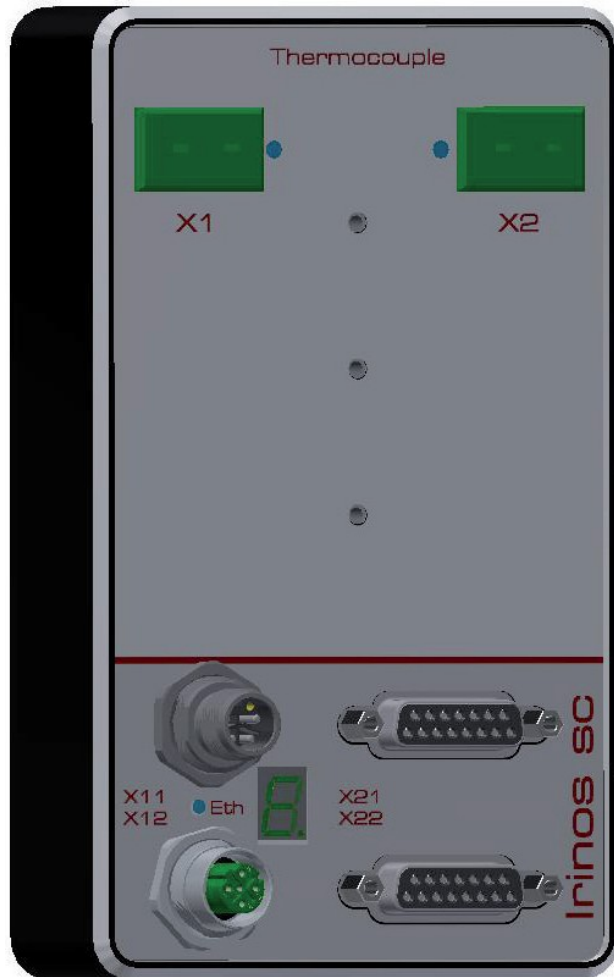


Irinos SC-TEMP

Temperature measurement for the Irinos system via thermocouples



- Direct connection of thermocouples
- Integrated precision cold-junction compensation
- Very high measurement accuracy and stability
- Each measurement channel is individually galvanically isolated
- Measurement rate approx. 4 Hz per measurement channel
- Can be cascaded with other Irinos boxes via the SCLink interface



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Irinos SC-TEMP

Accurate and stable measured values

The measurement electronics of the Irinos SC-TEMP box ensure precise and reliable temperature measurement using thermocouples.

A crucial quality feature in temperature measurement using thermocouples is what is known as cold-junction compensation. This compensates for fluctuations in measured values caused by temperature changes in the measurement electronics or at the connector (i.e. fluctuations in the ambient temperature).

In the Irinos-Box SC-TEMP, this has been implemented in such a way that the remaining fluctuations are typically $< 0.02^{\circ}\text{C}$ per $^{\circ}\text{C}$ change in ambient temperature. As a result, they can usually be disregarded in practice.

As the thermocouple probes are connected directly to the Irinos-Box SC-TEMP, the temperature value is digitised directly at the sensor cable. This minimises the potential for interference with the temperature signal.

Factory calibration

All temperature inputs are pre-calibrated at the factory (2-point calibration at 20°C and 50°C). It is not necessary for the user to calibrate the Irinos-Box.

As well as simplifying commissioning, this also allows for the seamless replacement of an Irinos Box with an identical model.

High measurement speed

Temperature measurement takes place at a sampling rate of approx. 4 Hz per channel. When using suitable thermocouples, the workpiece temperature can therefore be measured in a matter of seconds.

Integrated fault detection

An integrated fault detection system identifies and reports sensor or cable problems.

In the event of a single erroneous measurement, the reading is discarded by the measurement electronics. Repeated erroneous measurements are signalled via an error bit.

The sensor status can also be read channel by channel via an LED directly on the Irinos box.



Irinos SC-TEMP

Cascading

Several Irinos boxes from the SC series can be cascaded together via the SCLink interface. It makes no difference whether these are additional Irinos boxes of the SC-TEMP type or Irinos boxes for other measurement inputs (e.g. for incremental encoders).

The SCLink interface handles data exchange between the Irinos boxes, their time synchronisation and the supply of power. Cascading is achieved via a single connection cable. A maximum of 12 Irinos boxes can thus be connected in a daisy-chain configuration to form a complete measurement system.

The number of Irinos boxes is irrelevant when reading out the measured values on the PC. Cascading merely changes the number of available channels. The PC always communicates with the system via a single Ethernet connection.

Electrical isolation

Each Irinos box features multiple levels of galvanic isolation.

The galvanic isolation of the supply voltage ensures that external interference cannot reach the measurement electronics.

Additional galvanic isolation of the SCLink interface, which is required for cascading multiple Irinos boxes, enables particularly robust communication. Furthermore, this prevents ground loops or similar interference effects that may occur in practice.

In the case of the Irinos Box SC-TEMP, each temperature measurement channel is also galvanically isolated. This prevents mutual interference between the respective measurement channels.

Labelling

The measurement inputs can be labelled using an optional labelling tray. The labelling tray can hold 8 plastic labelling plates, as is standard in control cabinet construction. The labelling plates can be printed on using most commercially available printing systems.



Irinos SC-TEMP

Technical data

Inputs for Type K thermocouples	
Connectable thermocouples	○ Type K (nickel-chromium-nickel) ○ Others on request
Number of channels	2, directly plugged in
Connectors	Miniature thermocouple connector, 1 wide contact, 1 narrow contact
Channel configuration	Independent input channels, galvanically isolated
Calibration	All channels are factory-calibrated (2-point calibration at 20°C and 50°C). No calibration of the measurement inputs by the user is required.
Measurement speed	Approx. 4 measurements/s, regardless of the
number of channels. Measurement range	-200 to +300°C
Temperature coefficient	Typically < 0.02°C per °C change in ambient temperature Max. 0.05°C per °C change in ambient temperature (within the measurement range 20°C to 50°C)
Resolution	0.01°C
Power supply	
Rated voltage	24 V DC ± 10 %
Connector on the master box (type - EPI)	Optionally M12 L-coded with pinout in accordance with the industry standard or via DSUB on the SCLink interface.
Reverse polarity protection	Yes Power
consumption	≤ 4 watts Version
	Galvanically
isolated	
Cascading	When cascading several Irinos boxes, the power is supplied via the SCLink interface (no separate power supply required).
Power is supplied via a power supply unit from the Irinos series, e.g. IR-PU.	



Irinos SC-TEMP

Ethernet interface on the master box (type -EPI)

Connector	M12 D-coded (industry standard)
Speed	100 Mbit/s (auto cross-over detection)
Maximum cable length	100 m, recommended: < 30 m

Housing

Design	Designer housing: black anodised aluminium, rear plate natural anodised, front panel with front film
Dimensions	160 x 98 x 33 mm (H x W x D)
Protection rating	IP65 when connected with suitable mating connectors (housing and communication connectors); thermocouple sockets comply with the manufacturer's standard IP40.
Standard mounting	2 M4 threaded sleeves on the rear
Mounting accessories	○ Adapter for top-hat rail mounting ○ Flange plate for quick-change mounting, e.g. on a steel plate. ○ Mounting bracket for 40 mm Item profile ○ Mounting stand for 40 mm Item profile
Labelling	Option to label the measurement inputs using label holders (accessories).

Miscellaneous

Temperature range	Operation: 0 – +50 °C / Storage: -20 – +70 °C
Status indicator	7-segment display for showing the box number or an error. Expansion Easy daisy-chaining of 12 Irinos boxes via the SCLink interface. This allows expansion to up to 96 probes. Can be combined with other measurement inputs, e.g. inductive probes, incremental encoders, analogue inputs and digital inputs/outputs.
PC communication	Ethernet. A DLL is available (Windows) for easy integration into PC software. Alternatively, access is possible via a Telnet-like interface.



Irinos SC-TEMP

Ordering information

Two different basic types are available: the Master Box and the Slave Box. A Master Box is essentially a Slave Box with an additional Ethernet interface and a connection for the power supply. A system consists of exactly one Master Box and optional Slave Boxes.

828-3026 **IR-TEMP-2-TCK-MINIJACK-EPI**

Irinos SC-TEMP boxes for thermocouples

Item No.	Description
	2-channel Type K thermocouple , measuring range -200 to +300 °C, including Ethernet interface for direct connection to a PC, power supply via M12 L-coded connector
828-3027	IR-TEMP-2-TCK-MINIJACK-IL 2-channel Type K thermocouple , measuring range -200 to +300 °C, without Ethernet interface (suitable only as an add-on box for cascading)

Accessories for labelling and mounting

Item No.	Description
828-5040	IR-MIPL-8-ABB179 Label holder for 8 ABB179 labels 828-5081 IR-MIPL-8-COLOR Labelling holder with 8 coloured labelling areas for laser/engraving labelling
828-5041	IR-MHRM-1 Mounting adapter for top-hat rail mounting
828-5042	IR-MFFM-1 Mounting flange for quick-change mounting 828-
5043	IR-MITEM-40 Mounting bracket for Item profile 40 mm
828-5044	IR-MWIP-40 Mounting stand for Item 40 mm profile

Accessories: Power supply unit (1 required per system)

Type	Europe (Schuko plug)	USA / Mexico (NEMA)	India (Type D)
Power 30 W	828-5046	828-5100	828-5082
Power 80 W	828-5083		828-5088



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Irinos SC-TEMP

Accessories: Ethernet cable

Item no.	Description
828-5050	Ethernet cable IR-CETH-RJ45-M12-010 Length 1 m, Cat5e, 1 x RJ45, 1 x M12 SpeedCon D-coded
828-5051	Ethernet cable IR-CETH-RJ45-M12-020 Length 2 m, Cat5e, 1 x RJ45, 1 x M12 SpeedCon D-coded
828-5052	Ethernet cable IR-CETH-RJ45-M12-050 Length 5 m, Cat5e, 1 x RJ45, 1 x M12 SpeedCon D-coded
828-5053	Ethernet cable IR-CETH-RJ45-M12-100 Length 10 m, Cat5e, 1 x RJ45, 1 x M12 SpeedCon D-coded
828-5054	Ethernet cable IR-CETH-RJ45-M12-150 Length 15m, Cat5e, 1 x RJ45, 1 x M12 SpeedCon D-coded
828-5076	Ethernet cable IR-CETH-RJ45-M12-200 Length 20 m, Cat5e, 1 x RJ45, 1 x M12 SpeedCon D-coded



The boxes are connected via the SCLink interface using ILink cables. **Please note the maximum total cable length (20m).**

Accessory: ILink connection cable for cascading multiple Irinos boxes	
Item no.	Description
828-5055	ILink connection cable IR-ILINK-002-IP40 Length 0.2 m, protection class IP40
828-5056	ILink connection cable IR-ILINK-010-IP40 Length 1 m, protection class IP40
828-5057	ILink connection cable IR-ILINK-020-IP40 Length 2 m, protection class IP40
828-5058	ILink connection cable IR-ILINK-030-IP40 Length 3 m, protection class IP40
828-5059	ILink connection cable IR-ILINK-050-IP40 Length 5 m, protection class IP40
828-5060	ILink connection cable IR-ILINK-100-IP40 Length 10 m, protection class IP40
828-5061	ILink connection cable IR-ILINK-002-IP65 Length 0.2 m, protection class IP65
828-5062	ILink connection cable IR-ILINK-010-IP65 Length 1 m, protection class IP65
828-5063	ILink connection cable IR-ILINK-020-IP65 Length 2 m, protection class IP65
828-5064	ILink connection cable IR-ILINK-030-IP65 Length 3 m, protection class IP65
828-5065	ILink connection cable IR-ILINK-050-IP65 Length 5 m, protection class IP65
828-5066	ILink connection cable IR-ILINK-100-IP65 Length 10 m, protection class IP65
828-5079	ILink connection cable IR-ILINK-150-IP65 Length 15 m, protection class IP65
828-5077	ILink connection cable IR-ILINK-200-IP65 Length 20 m, protection class IP65

Unused SCLink sockets (DSUB sockets) on the Irinos boxes can be sealed to IP65 using the following protective cap:

Accessory: Protective cap for SCLink interface	
Item no.	Description
828-7020	DSUB15 socket protective cap, IP65, screw-on

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