



DS302en

**Data Sheet**

TPS1-Series (T)

**Pipe Surface Temperature Sensor  
with Active Output**

The TPS1-Series (T) is designed to measure temperature on pipes surfaces

The sensor operates with low voltage power supply

In accordance with RESET® and WELL Building Standard™ Reading

Parameter settings via NFC technology

The temperature sensor output is active

**Use**

- Compatible to all common HVAC DDC and Analog Controls systems, with/without Building Automation System
- Used in all common HVAC applications
- Used in Commercial and Industrial Buildings

**Features**

- Sensor with active output
- Sensor outputs 0–10 V or 4–20 mA
- Different immersion lengths for all common air duct and water pipe sizes
- Reading/Parameter settings via NFC technology
- Professional and practical product design
- Cover/bottom housing connected with magnets and screws
- Firmware updates via service connector
- Easy to use, install and maintain

**Product Range**

Order Code	Output	Power Supply	Sensor Accuracy	Temperature Ranges	Sensor Shape	Cable Length	Protection
TPS1G.DA	0–10 V	AC/DC 24 V (±10 %)	±0.2 °C between 0 °C to +50 °C	-20 °C to +80 °C (default) Free selectable via NFC -40 °C to +135 °C	Copper plate 30 mm x 34 mm, R = 23 mm	2 m	IP65 to IEC60529
TPS1G.DD	4–20 mA						

<b>Sensor Specification</b>	<b>Sensor Specification</b>	Measured	Temperature
		Sensor Characteristics	Active
		Sensing Element	PT1000 Class A
		Sensor Output (s)	0–10 V or 4–20 mA
		Output Load	
		0–10 V output	Min. load 5 kΩ @ AC/DC 24 V
		4–20 mA output	Max. load 500 Ω @ DC 24 V
		Accuracy	±0.2 °C between 0 °C to +50 °C
		Default Measuring Range	–20 °C to +80 °C
		Maximum Measuring Range	Free selectable via NFC –40 °C to +135 °C
<b>Technical Information</b>	<b>Electrical Information</b>	Power Supply	AC/DC 24 V (±10 %)
		Frequency	50/60 Hz at AC 24 V
		Terminal Clamp	Screw terminal, max. 1.5 mm <sup>2</sup>
		Power Consumption	
		Type with 0–10 V output	≤1 W
	Type with 4–20 mA output	≤1 W	
	<b>Mechanical Information</b>	Immersion Rod Diameter	Ø6 mm
		Immersion Rod Length	See product range, page 1
		Cable Entry	M16, Ø6–Ø8 mm cables
		Sensing Element Position	External, top of the immersion rod
	<b>Materials and Colours</b>	Housing Cover	ABS, white
		Housing Bottom	ABS, white
		Cable Gland	M16 × 1.5 mm , white
		Gland Rubber Seal	TPS, natural
	<b>Environmental Conditions</b>	Flammability Standard	UL 94 class HB; IEC 60707; ISO 9770
		Operation Temperature	–25 °C to +70 °C
		Operation Humidity	100 % RH, with condensation
		Transport Temperature	–35 °C to +70 °C
		Transport Humidity	<90 % RH
		Storage Temperature	–10 °C to +70 °C
		Storage Humidity	<85 % RH, no condensation
	<b>Norms and Directives</b>	IP-Rating	IP65 in accordance with IEC60529
		REACH Regulation	Regulation (EC) No. 1907/2006
		Product Safety	Safety class III, in accordance with EN IEC 60730-1
		Product Standard	Automatic electrical controls for household and similar use in accordance with EN IEC 60730-1:2022
		CE marking in accordance with Directive	2014/30/EU Electromagnetic Compatibility (EMC)
		EMC Emissions, in accordance with	EN IEC 60730-1:2022
		EMC Immunity, in accordance with	EN IEC 60730-1:2022
		RoHS Compliance, in accordance with	Directive 2011/65/EU, as amended by (EU) 2015/863
		Operation Climatic Condition	IEC 60 721-3-3
Operation Mechanical Condition		IEC 60 721-3-2 to class2M2	
Transport to Climatic Condition		IEC 60 721-3-2	
Transport Mechanical Condition		IEC 60 721-3-2 to class2M2	
Storage Climatic Condition		IEC 60 721-3-1	
Storage Mechanical Condition		IEC 60 721-3-1 to class2M2	
<b>Miscellaneous</b>	<b>Accessories</b>	Mounting Kit, included in delivery	UUK0.A & TPK0.A
		Accessory not included in delivery	Thermowell
	<b>Shipping &amp; Handling</b>	Minimum Order	1 box with 2 pieces, multiple of 2 pieces
		Package Material	Rigid cardboard packaging
	<b>Order Notes</b>	Order Code	See product range, page 1, e.g. TPS1G.DA

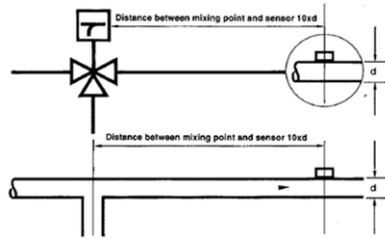
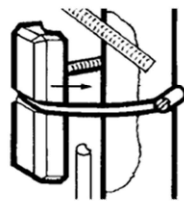
**Installation Notes**

Observe the following general regulation for engineering and installation:



- All relevant national and local electrical installation codes
- Other country-specific regulations
- Comply with all local safety regulations, schematics, cable listings, dispositions, specifications, and arrangements from the engineering office in charge

**Mounting Advices**



**Disposal Notes**



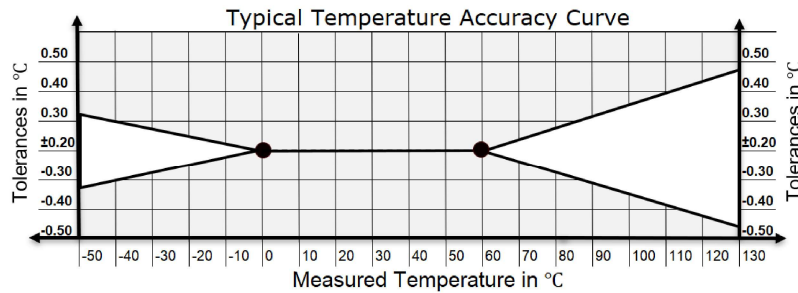
The device is considered an electronic device for disposal in terms of the European Directive 2012/19/EU  
 The device may not be disposed as domestic garbage  
 The device must be disposed through channels provided for this purpose  
 It is mandatory to comply with local currently applying laws and regulations

**NFC Setting**

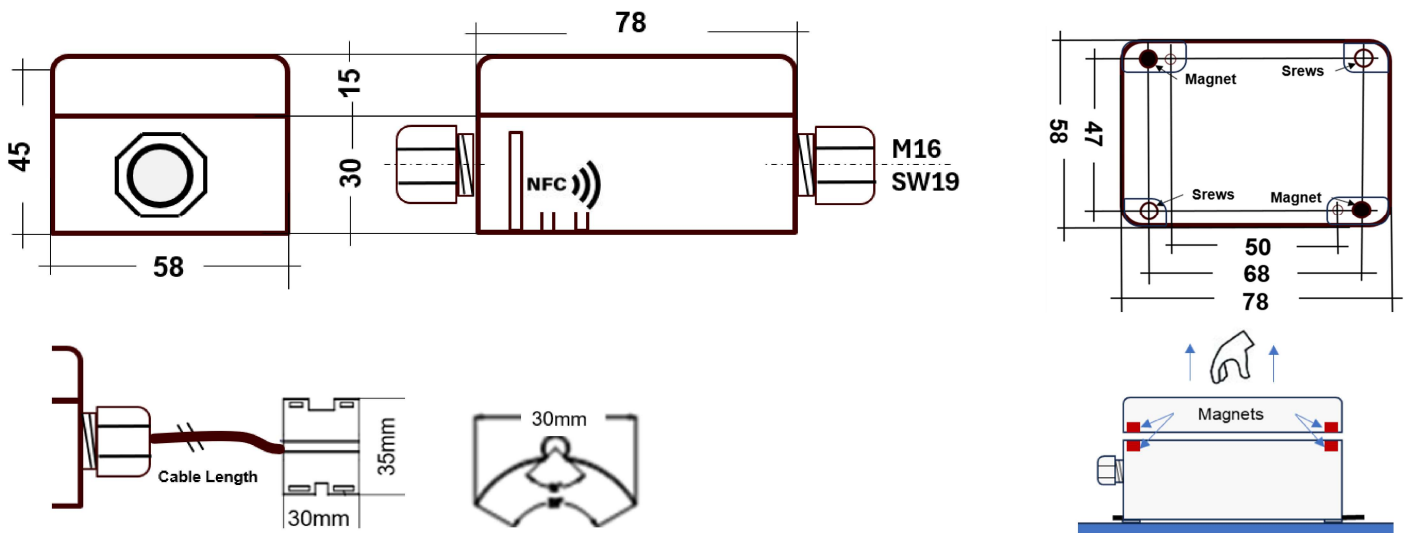


All devices marked with the NFC Logo can be parameterized via the Gruner AP NFC APP  
 The NFC APP is available on the Gruner AP Website, <https://www.grunerasiapacific.com/>  
 Hold your NFC-capable Android phone to the NFC Logo, the installed APP will start automatically  
**Commissioning Note:** The sensor will reach its specified accuracy after 1 hour of being powered up

**Accuracy Curves**



**Dimensional Drawing**



**Connections**

Terminal Connections		
S1	S2	S3
UB+ 24V	GND	Temperature