
 TI8016en	Technical Information	
TRP9- Series (T)	Pendulum Temperature Sensor with BACnet / Modbus RTU communication	

The TRP9- Series (T) is designed to measure temperature in rooms or areas

Professional design suitable for plant or utility rooms

The Sensor is field replaceable

The sensor comes with a 1m connection cable, other lengths available

The sensor operates with low power supply

BACnet MSTP and Modbus RTU on Board

The sensor output is via BACnet MSTP / Modbus RTU communication



Use	<p>In Building Automation System where BACnet MSTP or MODBUS RTU communication protocols are used</p> <p>Used in all common HVAC applications</p> <p>Used in Commercial and Industrial Buildings</p>
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Features	<p>Sensor output via BACnet MSTP / Modbus RTU communication</p> <p>Selectable communication protocol</p> <p>Field Replaceable sensor</p> <p>High Humidity accuracy</p> <p>Modern and practical product design</p> <p>Easy to use, install and maintain</p>
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Product Range	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 12.5%;">Order Codes</th> <th style="width: 12.5%;">Communication system</th> <th style="width: 12.5%;">Cable Length</th> <th style="width: 12.5%;">Power Supply</th> <th style="width: 12.5%;">Measuring Variable</th> <th style="width: 12.5%;">Measuring Units</th> <th style="width: 12.5%;">Protection</th> </tr> </thead> <tbody> <tr> <td>TRP9.BA</td> <td>BACnet MSTP</td> <td rowspan="2" style="text-align: center;">2m</td> <td rowspan="2" style="text-align: center;">AC/DC 24V (±10%)</td> <td rowspan="2" style="text-align: center;">Temperature</td> <td rowspan="2" style="text-align: center;">-40...120°C</td> <td rowspan="2" style="text-align: center;">IP65 to IEC60529</td> </tr> <tr> <td>TRP9.BG</td> <td>Modbus RTU</td> </tr> </tbody> </table>	Order Codes	Communication system	Cable Length	Power Supply	Measuring Variable	Measuring Units	Protection	TRP9.BA	BACnet MSTP	2m	AC/DC 24V (±10%)	Temperature	-40...120°C	IP65 to IEC60529	TRP9.BG	Modbus RTU
Order Codes	Communication system	Cable Length	Power Supply	Measuring Variable	Measuring Units	Protection											
TRP9.BA	BACnet MSTP	2m	AC/DC 24V (±10%)	Temperature	-40...120°C	IP65 to IEC60529											
TRP9.BG	Modbus RTU																

Sensor Specification		Measured	Temperature	
		Sensor Characteristics T	Active	
		Outputs	BACnet MSTP or Modbus RTU communication, RS485	
		Accuracy	see chart, page 4	
		Measuring Range (T) (default)	-40°C...120°C	
Technical Information	Electrical Information	Power Supply	AC/DC 24V (±10%)	
		Frequency	50 / 60 Hz at AC 24V	
		Terminal Clamp	Screw terminal, max. 1.5mm ²	
		Power Consumption	≤ 1W @ AC 24V / DC 24V	
	Mechanical Information	Cable Length	2m	
		Cable Lead Diameter	Ø0.25mm	
		Cable Diameter	4.6mm	
		Sensor Pocket Lengths	100mm	
		Sensor Pocket Diameter	Ø15mm	
		Sensing Element Position	external, top of the sensor pocket	
		Sensor / Housing connection	M12 crew-on connection	
		Color and Materials	Housing Cover	White ABS, RAL9001 (Cream White)
			Housing Bottom	White ABS, RAL9001 (Cream White)
	Lock Screws		US:AISI 304; EU: EN X 6 CrNi 18 10; GER: W.N. 1.3C	
	Lock Nuts		Brass	
	Sensor / Housing connection		Zink alloy - Nickel plated	
	Cable Gland		White ABS, RAL2002 (Vermilion)	
	Gland Rubber Seal		White TBS, RAL9010 (Pure White)	
	Protection Caps		White ABS, RAL2002 (Vermilion)	
	sensor Pocket		US:AISI 304; EU: EN X 6 CrNi 18 10; GER: W.N. 1.3C	
	Cable		Black PVC	
	Environmental Conditions	Operation Temperature	-25°C...+70°C	
		Operation Humidity	<85% r.h., no condensation	
		Transport Temperature	-35°C...+70°C	
		Transport Humidity	< 90% r.h.	
		Storage Temperature	-10°C...+70°C	
		Storage Humidity	< 85% r.h., no condensation	
		Norms and Directives	IP- Rating	IP65 to IEC60529
	Safety Class		III to EN 60 730	
	Product Standard 1		Automatic Electric. Controls for household and similar use	
	Product Standard 2		2009/EN 60 730-1	
	CE Conformities to		2004/108/EG Electromagnetic Compatibility EMV	
	CE Electromagnetic Compatibility Emitted Interference		2000/EN60730-1 Emitted Interference	
	CE Electromagnetic Compatibility Interference resistance		2000/EN60730-1 Interference Resistance	
	RoHS Compatibility		RoHS 3, Directive 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	
Miscellaneous	Accessories	n/a	n/a	
	Shipping & Handling	Minimum Order	1 box with 1 piece	
		Rigid Cardboards Packaging	Rigid Cardboards Packaging	
	Order Notes	Order Code	See Product Range, Page 1, e.g. TRP9.AA	

Modbus Parameters	Address Number	Register Description	
	0...3	Serial Number	actual version
	4	Software Version	actual version
	6	Modbus Address	Default 254, selectable 1...254
	8	Hardware Version	actual version
	11	Baud Rate autodetection	0= OFF ; 1= On
	15	Baud Rate, (if autodetection is OFF)	0= 9600 ; 1= 19.200 ; 2= 38.400 ; 3= 57.600 ; 4= 115.200
	34	Temperature, digital	actual value

BACnet Parameters	Supported BACnet Objects Types		
	analog-value		
	device		
	Supported BACnet Services		
who-is			
i-am			

object-identifier, object-name, object-type, present-value, units, object-list, vendor-id, vendor-name, system-status, confirmed-service, unconfirmed-services

BACnet Parameters	MSTP Objects		
	analog-value		
		BACnet Address	Default 127, selectable 0...127
	AV0	Baud rate autodetection	default 0, 0= OFF ; 1= ON
	AV1	Baud Rate, (if autodetection is OFF)	0= 9600 ; 1= 19.200 ; 2= 38.400 ; 3= 57.600 ; 4= 115.200
	AV2	Humidity Mode	0= Dew Point ; 1= Enthalpy ; 2= Absolute Humidity ; 3= relative humidity
	AV3	Protocol	0= Modbus ; 1= BACnet
	AV4	Temperature	actual value (-40...120°C)
	Device		
		device-identifier	
		device-name	

The function "Baud Rate autodetection" can only be used during the product is been setup. When the product is working with the BAS, the "Baud Rate autodetection" has to be set to 0= OFF and the actual Baud Rate has to be set.

Installation Notes

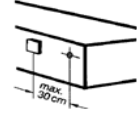
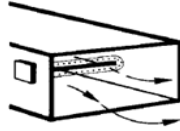
Observe the following general regulation for engineering and implementation:



- All relevant national and heavy power regulation
- Other country specific regulations
- Country-specific regulations
- Local electrical supply authority regulation
- Schematics, cable listings, dispositions, specification and arrangements from the customer or engineering office in charge
- Third party specifications, e.g. general contractors or constructors

Advices

Mounting Advices



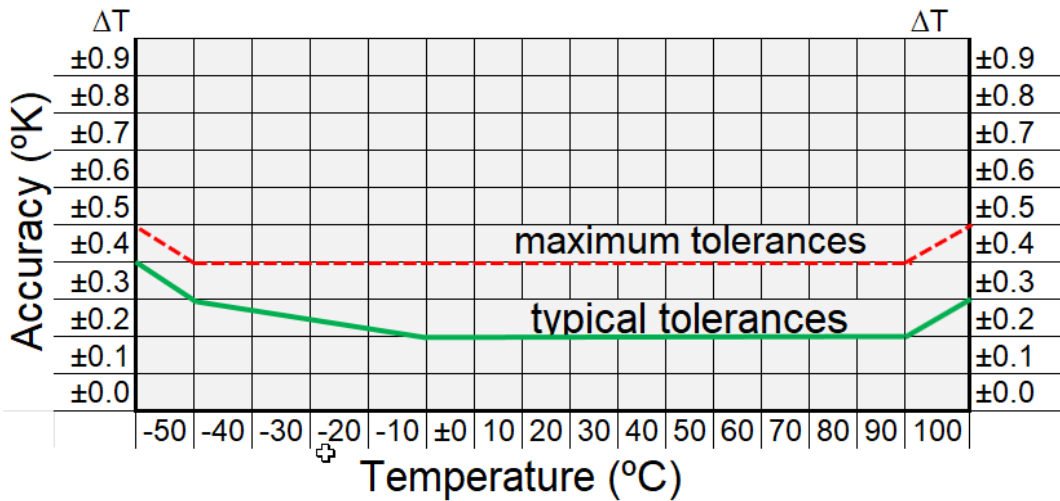
Disposal Notes

The device is considered an electronic device for disposal in terms of the EUROPEAN DIRECTIVE 2012/19/EU.

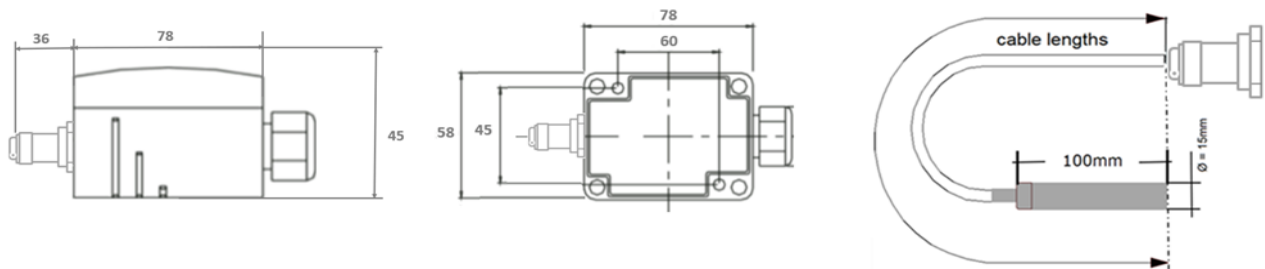


- The device may not be disposed as domestic garbage.
- The device must be disposed through channels provided for this purpose.
- It is mandatory to comply with local currently applying laws and regulations.

Accuracy Curves



Dimensional Drawing



Connections & Settings

Terminals Connection					
T1	T2	T3	T4	T5	T6
UB+	24V AC/DC	GND	RS485 - C-	RS485 - C+	n.A.
				n.A.	n.A.