



TI8014en

Technical Information**thermokon**
asia pacific

TRC9- Series (T)

**Ceiling Temperature Sensor
with BACnet / Modbus RTU communication**

The TRC9- Series (H&T) is designed to measure temperature in rooms or areas

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**

In Building Automation System where BACnet MSTP or MODBUS RTU communication protocols are used

Temperature measurement in rooms

Used in all common HVAC applications

Used in Commercial and Industrial Buildings

Features

Sensor output via BACnet MSTP / Modbus RTU communication

Selectable communication protocol

Field Replaceable sensor

Modern and practical product design

Easy to use, install and maintain

Product Range

Order Codes	Power Supply	cable length	Communication system	Measuring Variable	Measuring Units	Protection
TRC9.BA	AC/DC 24V (±10%)	2m	Modbus RTU	Temperature	-40...120°C	IP20 to IEC60529
TRC9.BG						

Sensor Specification	Sensor Specification	Measured	Temperature	
		Sensor Characteristics	Active	
		Outputs	BACnet MSTP or Modbus RTU communication, RS485	
		Temperature	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	
		Sensing Element Position	external, top of the sensor pocket	
		Sensor Housing	Ø30mmx37mm	
		Sensor / Housing connection	M12 screw-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. 1.301	
	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)	
	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	IP20 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. TRC9.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		
	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

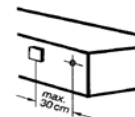
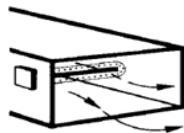
Observe the following general regulation for engineering and implementation:



- 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



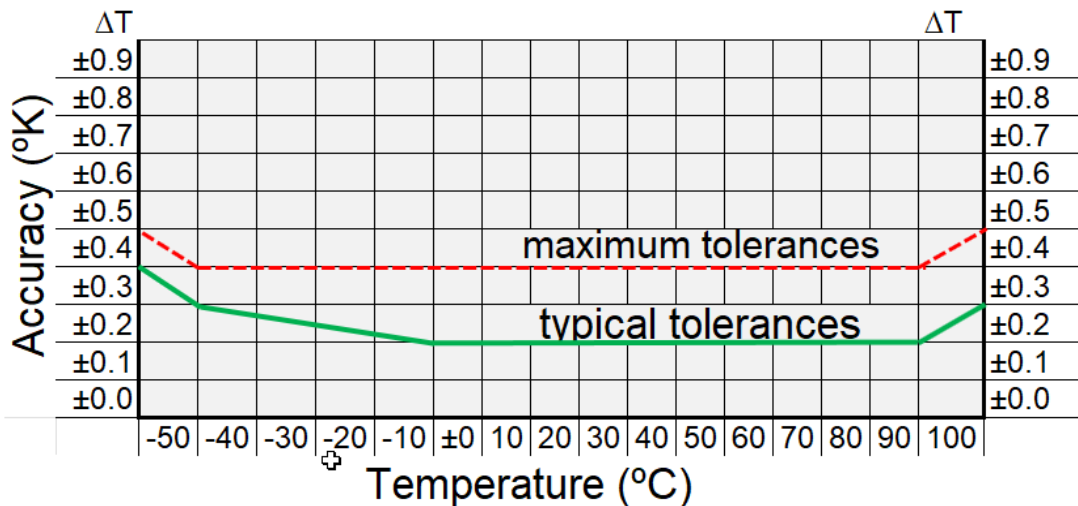
Disposal Notes

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

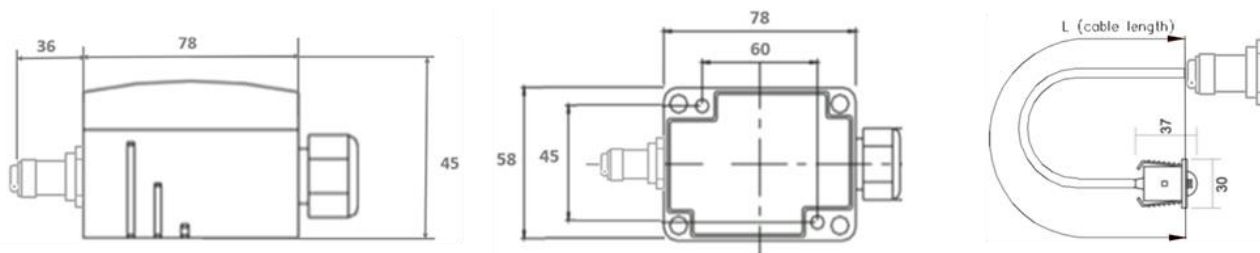


- The device may not be disposed as domestic garbage.
- The device must be disposed through channels provided for this purpose.
- It is mandatory to comply with local currently applying laws and regulations.

Accuracy Curve



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.