



TI8010en

**Technical Information****thermokon**  
asia pacific**TRW9- Series (T)****Room Temperature Sensor  
with BACnet / Modbus RTU communication**

The TRW9- Series (T) is designed to measure temperature in rooms or areas

The sensor operates with low power supply

BACnet MSTP and MODBUS RTU on board

The sensor output is either BACnet MSTP or Modbus RTU communication

**USE**

Compatible to all common HVAC DDC and Analog Controls systems, with Building Automation System

Temperature measurement in Rooms and Areas

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

Used in all common HVAC applications

Used in Commercial and Industrial Buildings

**Features**

BACnet / MODBUS address setting over BUS protocol

Modern and practical product design

Easy to use, install and maintain

**Product Range**

Order Codes	Power Supply	Communication system	Temperature Measuring Range	IP Rating
TRW9.AA	AC/DC 24V ( $\pm 10\%$ )	BACnet MSTP	-40...120°C	IP20 to IEC60529
TRW9.AG		Modbus RTU		

Sensor Specification	Sensor Specification	Measured	Temperature
		Sensor Characteristics	Active
		Outputs	BACnet MSTP or Modbus RTU communication, RS485
		Measuring Range (T)	-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 <sup>2</sup>
		Power Consumption	≤ 1W @ AC 24V / DC 24V
	Mechanical Information	Cable Entry	30x15mm, on the backside of the housing
		Sensing Element Position	Inside the housing, bottom of the housing
	Color and Materials	Housing Cover	White ABS, RAL9001 (Cream White)
		Housing Bottom	White ABS, RAL9001 (Cream White)
	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 2011/65/EC
		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	Accessory not included in delivery	TRA0.A (106mmx106mm backplate)
	Shipping & Handling	Minimum Order	1 box with 1 piece
		Package Material	Rigid Cardboards
	Order Notes	Order Code	TRW9.AE

All Information and technical data are subject to alteration

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	
	10	Protocol	0= MODBUS RTU ; 1= BACnet MSTP	
	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	
	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.				
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Installation Notes

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Caution

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

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Caution

50 cm

150 cm

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