#### **∏** TI8030en

#### **Technical Information**

#### TPI9- Series (T)

### Pipe Temperature Sensor with BACnet / Modbus RTU communication



The TPI9- Series (T) is designed to measure temperature directly, without thermowell,

in water pipes

Use

The sensor operates with low power supply

BACnet MSTP and MODBUS RTU on board

The sensor output is via BACnet MSTP / Modbus RTU communication



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

Temperature measurement in water pipes

Used in all common HVAC applications

Used in Commercial and Industrial Buildings

Sensor output via BACnet MSTP / Modbus RTU communication

Selectable communication protocol

Modern and practical product design

Easy to use, install and maintain

	Type Code	Power Supply	Output	Measuring Ranges	Max. Waterflow	Max. Pressure Rating	Immersion Pocket Dimensions	Sensor Tip Dimension
	TPI9.AA		BACnet MSTP	50, 5000	28m/s		ø4x50mm	ø4x42mm
	TPI9.GA			-5050°C	11m/s		ø6x100mm	ø4x20mm
Range	TPI9.BA			050°C	7m/s		ø6x150mm	
Product Range	TPI9.CA	V (±10%)		050 C	6m/s	PN40	ø6x200mm	
	TPI9.AG	AC/DC 24V (±10%)	Modbus RTU	2080°C	28m/s	Z	ø4x50mm	ø4x42mm
	TPI9.GG			2080 G	11m/s		ø6x100mm	ø4x20mm
	TPI9.BG			0100°C*	7m/s		ø6x150mm	ø4x20mm
	TPI9.CG			0100 C	6m/s		ø6x200mm	

\*default setting

_	Sensor Specification	Measured	Temperature
ition		Sensor Characteristics H/T	Active
Specification		Outputs	BACnet MSTP or Modbus RTU communication, RS485
pec		Accuracy	see Page 4
S		Measuring Range (T)	-40°C120°C
	Electrical Information	Power Supply	AC/DC 24V (±10%)
		Frequency	50 / 60 Hz at AC 24V
		Terminal Clamp	Screw terminal, max. 1.5mm²
		Power Consumption	≤ 1W @ AC 24V / DC 24V
	Mechanical Information	Immersion Rod Diameter	Ø6mm
		Immersion Rod Length	see page 1
		Cable Entry	M16, Ø6Ø8mm cables
		Sensing Element Position	external, top of the immersion rod
	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
		Cable Gland	Red ABS, RAL2002 (Vermilion)
		Gland Rubber Seal	White TBS, RAL9010 (Pure White)
		Protection Caps	Red ABS, RAL2002 (Vermilion)
u		Immersion Rod	US:AISI 304; EU: EN X 6 CrNi 18 10; GER: W.N. 1.30
nati	Environmental Conditions	Operation Temperature	-25°C+70°C
chnical Information		Operation Humidity	<85% r.h., no condensation
直		Transport Temperature	-35°C+70°C
hnic		Transport Humidity	< 90% r.h.
Tec		Storage Temperature	-10°C+70°C
		TDI9-Series (T)	< 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
		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
S	Accessories	Mounting Kit, Included in delivery	n.a.
anie	Shipping & Handling	Minimum Order	1 box with 2 pieces, multiple of 2 pieces
Miscellanies		Package Material	Rigid Cardboards
Mis	Order Notes	Order Code	See Product Range, Page 1, e.g. TPI9.AA

	Address Number		Register Description	
	0.	3	Serial Number	actual version
	4		Software Version	actual version
neters	6		Modbus Address	Default 254, selectable 1254
s Parar	8		Hardware Version	actual version
Modbus Parameters	10	0	Protocol	0= MODBUS RTU; 1= BACnet MSTP
	11	1	Baud Rate autodetection	0= OFF; 1= On
	15	5	Baud Rate, (if autodetection is OFF)	0= 9600 ; 1= 19.200 ; 2= 38.400 ; 3= 57.600 ; 4= 115.200
	34	4	Temperature, digital	actual value
	Supported BACnet Object	ts Types		
	analoç	g-value		
	device	е		
	Supported BACnet Servic	ces		

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

**BACnet Parameters** 

ana	log-va	lue

analog-value		
	BACnet Address	Default 127, selectable 0127
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 (-40120°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**



All relevant national and heavy power regulations

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

Observe the following general regulation for engineering and implementation:

#### **Mounting Advices**

Advices





#### **Disposal Notes**

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

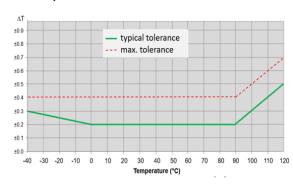


The device may not be disposed as domestic garbage.

The device must be disposed through channels provided for this purpose.

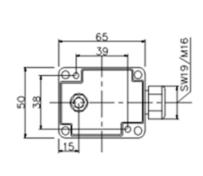
It is mandatory to comply with local currently applying laws and regulations.

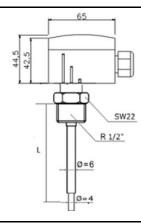
#### **Temperature**



## **Dimensional Drawing**

**Accuracy Curves** 





# Connections & Settings

Terminals						
T1 T2			Т3	T4	T5	T6
UB+	24V AC/DC	GND	RS485 - C-	RS485 - C+	n.A.	n.A.