

TECHNICAL THERMOMETER STRAIGHT TR

TECHNICAL THERMOMETER ANGULAR TU

Description

Thermometers can be used for temperature measurement in any position. Thermometer head can be placed in environment with temperature range -30°C to $+110^{\circ}\text{C}$. The maximum permissible deviation is for TR $\pm 2\%$ and to TU $\pm 2.5\%$ ($L > 60$ mm) or $\pm 4\%$ ($L = 45$ mm) from scale range. Measured temperature must not exceed maximum scale range. Thermometers are manufactured with various stem lengths as shown in the table. The whole measuring system must be placed in measured environment to ensure accurate measurement. Recommended installation depth P is 100 mm, or the whole length of shorter stems. In some cases, especially at pressure bigger than 0,3 MPa or in liquid environment, stem must be placed in thermometer well. Maximum pressure when well is used is 0,6 MPa. Thermometers TR with stem length 45 and 60 mm and thermometers with range $0^{\circ}\text{C} - 350^{\circ}\text{C}$ and $0^{\circ}\text{C} - 450^{\circ}\text{C}$ can be used only with thermometer well. Thermometer consists from head and stem made of stainless steel class 17. Scale is protected by glass.

Installation

When installing, the stem must not be exposed to shock and bends. For installation of TR and TU thermometers can be used thermowells. Thermometers may not be modified for installation ratios.

Storage conditions

Storage areas must be free from chemical or other agents that could interfere with the finished products stored. Thermometers must be handled gently and without major impact. Thermometers must be stored in a dry room with a maximum humidity 70% and a temperature 0°C to 30°C , without sudden temperature changes.

Disposal

Dispose of the TR, TU as follows: Take the product to a scrap yard.

Technical data

Thermometer straight

Type	Ø head [mm]	Scale division [$^{\circ}\text{C}$]	Scale range [$^{\circ}\text{C}$]	Measuring range [$^{\circ}\text{C}$]	Stem length ... L [mm]								
					Ø 8 mm [mat. Stainless steel (AKVS)]						Ø 10 mm [mat. steel class, 11 or AKVS] x*		
					45	60	100	160	250	400	630	1000	1500
TR 60	60	1	$-30 \div +50$	$-20 \div +40$		x	x	x	x				
		1	$0 \div 120$	$20 \div 100$	x	x	x	x	x				
		2	$0 \div 200$	$20 \div 180$	x	x	x	x	x				
		5	$0 \div 350$	$50 \div 300$			x	x	x				
		10	$0 \div 450$	$50 \div 400$			x	x	x				
TR 100	100	1	$-30 \div +50$	$-20 \div +40$		x	x	x	x	x	x	x	x
		1	$0 \div 120$	$20 \div 100$	x	x	x	x	x	x	x	x	x
		2	$0 \div 160$	$20 \div 140$		x	x	x	x	x	x	x	x
		2	$0 \div 200$	$20 \div 180$	x	x	x	x	x	x	x	x	x
		5	$0 \div 350$	$50 \div 300$			x	x	x	x	x	x	x
		10	$0 \div 450$	$50 \div 400$			x	x	x	x	x*	x*	x*
TR 120		1	$-30 \div +50$	$-20 \div +40$		x	x	x	x	x	x	x	x
		1	$0 \div 120$	$20 \div 100$		x	x	x	x	x	x	x	x
		2	$0 \div 200$	$20 \div 180$		x	x	x	x	x	x	x	x
		5	$0 \div 350$	$50 \div 300$			x	x	x	x	x	x	x
		10	$0 \div 450$	$50 \div 400$			x	x	x	x	x*	x*	x*

Thermometer angular

Type	Ø head [mm]	Scale division [°C]	Scale range [°C]	Measuring range [°C]	Stem length L [mm]						
					Ø 8 mm [mat. Stainless steel. (AKVS)]				Ø 10 mm [mat- steel class. 11 or AKVS] x* AKVS only		
					100	160	250	400	630	1000	1500
TU 60	60	1	-30 ÷ +50	-20 ÷ +40	x	x	x	x			
		1	0 ÷ 120	20 ÷ 100	x	x	x	x			
		2	0 ÷ 200	20 ÷ 180	x	x	x	x			
		5	0 ÷ 250	50 ÷ 300	x	x	x	x			
		10	0 ÷ 450	50 ÷ 400	x	x	x	x			
TU 100	100	1	-30 ÷ +50	-30 ÷ +50	x	x	x	x	x	x	x
		1	0 ÷ 120	20 ÷ 100	x	x	x	x	x	x	x
		2	0 ÷ 160	20 ÷ 140	x	x	x	x	x	x	x
		2	0 ÷ 200	20 ÷ 180	x	x	x	x	x	x	x
		5	0 ÷ 350	50 ÷ 300	x	x	x	x	x	x	x
TU 120		10	0 ÷ 450	50 ÷ 400	x	x	x	x	x*	x*	x*
		1	-30 ÷ +50	-20 ÷ +40	x	x	x	x	x	x	x
		1	0 ÷ 120	20 ÷ 100	x	x	x	x	x	x	x
		2	0 ÷ 200	20 ÷ 180	x	x	x	x	x	x	x
		5	0 ÷ 350	50 ÷ 300	x	x	x	x	x	x	x
		10	0 ÷ 450	50 ÷ 400	x	x	x	x	x*	x*	x*

Possible minor faults and their removal

The thermometers may be repaired exclusively by the manufacturer.

Warranty

Provided that the product is installed and used in accordance with the instructions in the installation and operating manual, the manufacturer warrants the product in accordance with the current law, unless otherwise agreed.

The manufacturer will refuse warranty repair if the device has been damaged:

- During transport and storage by the purchaser or his customers
- During assembly or disassembly in the purchaser's or his customer's appliance
- During incompetent handling and installation in another appliance than stated in the manual

Warranty and post-warranty repairs

All repairs are provided exclusively by the manufacturer. Pack the faulty product and ship to the address below:

APATOR POWOGAZ CZECHIA s.r.o.

Havlíčková 919/24

787 01 Šumperk

Czech Republic

Tel.: +420 583 718 261

E-mail: prodej@metra-su.cz

www: www.metra-su.cz