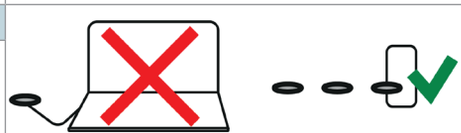
In-head transmitter for thermocouples APAQ-C130

Article number: 809700 1101

The APAQ C130 TC for thermocouples is a head transmitter for installation in resistance thermometers with connection heads in DIN B or larger. The sophisticated product design leaves sufficient space for mounting. It is optimally designed for use in plant and machine construction and is characterized by high accuracy, reliability, long-term stability and its r bust product design. The transmitter is extremely insensitive to external influences such a vibration and EMC interference. Installation and commissioning are particularly user-frienc For example, parameterization can be carried out wirelessly, conveniently and easily via th cell phone app using NFC technology. The monitoring functions such as sensor break mo toring, sensor short-circuit and measuring range monitoring can also be activated via this.

Special features	
Inputs and outputs	**Parametrization**
Input: thermocouples Output: 4 to 20mA, temperature linear output signal	Configuration - wireless via NFC technology Free app for Iphone, Android & Huawei Parameterization templates for fast mass configuration
Accuracy and Long-term stability	
Accuracy: depending on thermocouple Long-term stability max drift of ±0.05°C or ±0.05% of span |year	
Design	**Alarm function**
Robust - vibration and shock resistant design Compact - housing only 10.5 mm high Suitable for DIN B or larger connection heads Large center hole for easy mounting	configurable via app Sensor break monitoring Sensor short circuit Measuring range monitoring

Input Thermocouple

Measuring element	Material / Raw Material	Norm	Maximum configurable measuring range	Min. Span	Accuracy
Type B	Pt30Rh-Pt6Rh	IEC 60584	0 °C to +1820 °C | 32 °F to +3308 °F	+700 °C | +1292 °F	<100 °C: no specification | +100 °C to +400 °C: ±10 °C | >400 °C: ±2 °C / 0,2% [1]
Type E	NiCr-CuNi	IEC 60584	-270 °C to +1000 °C | -454 °F to +1832 °F	+50 °C | +122 °F	±1 °C| ±0,2 % [1]
Type J	Fe-CuNi	IEC 60584	-210 °C to +1200 °C | -346 °F to +2192 °F	+50 °C | +122 °F	±1 °C| ±0,2 % [1]
Type K	NiCr-Ni	IEC 60584	-270 °C to +1300 °C | -454 °F to +2372 °F	+50 °C | +122 °F	±1 °C| ±0,2 % [1]
Type N	NiCrSi-NiSi	IEC 60584	-100 °C to +1300 °C | -148 °F to +2372 °F	+100 °C | +212 °F	±1 °C| ±0,2 % [1]
Type N	NiCrSi-NiSi	IEC 60584	-270 °C to -100 °C | -418 °F to +148 °F	+100 °C | +212 °F	±2 °C [1]
Type R	Pt13Rh-Pt	IEC 60584	-50 °C to +1750 °C | -58 °F to +3182 °F	+300 °C | +572 °F	±2 °C| ±0,2 % [1]
Type S	Pt10Rh-Pt	IEC 60584	-50 °C to +1750 °C | -58 °F to +3182 °F	+300 °C | +572 °F	±2 °C| ±0,2 % [1]
Type T	Cu-CuNi	IEC 60584	-270 °C to +400 °C | -454 °F to +752 °F	+50 °C | +122 °F	±2 °C| ±0,2 % [1]

[1] of span (cold junction compensation error is not included)

Input impedance	>10 MΩ
Max. wire loop resistance	5 kΩ
Cold Junction Compensation	Internal or external

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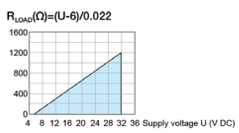
General information about the input	
Zero adjustment	Within measuring range

Output	
Output type	analog, temperature linear for TC
Output signal (mA)	4 to 20
Parametrization / Scaling	Configurable via NFC
Load	818 Ω at 24 VDC
Connection type	2-wire

Output load diagram

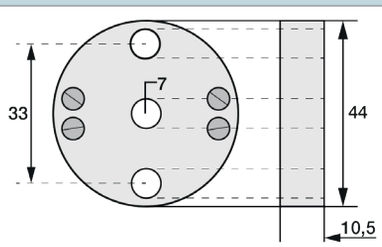
Standard version



Time response	
Closing time / Update time (Inor)	~150 - 300
Heating period	After approx. 20 min. the typical accuracy is reached
Signal attenuation / Ajustable output filtering (Inor)	0,4 to 26 adjustable via App
Measuring cycle	< 1
Sensor monitoring & sensor error	
Sensor break / Short circuit	Upscale (≥21.0 mA) or Downscale (≤3.6 mA)
Sensor failure effects (Inor)	according to NAMUR NE43

Accuracy and stability	
Temperature influence	
TC Type B, E, J, K, R, S, T	see table below
TC Type N (-100...+1300 °C)	±0,01 % < 4000 Ω [2] < ±0,02 % of span per °C
Further data	
Supply voltage influence	<±0.005 % of span per volt
Long-term drift	±0.05 % of span per year

Type	
Dimensions	See drawing
Material | Flammability	PC/ABS + PA, V0/HB, RoHS compliant
Mounting	DIN B-head or larger, DIN rail (with mounting kit)
Connection	Single wires, max. 1,5 mm², AWG 24 to 12
Weight	25
General data	
Isolation	none
Supply Voltage (VDC)	8 to 32, polarity protected



All dimensions in mm

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Ambient conditions				
Ambient Temperatur	Storage	-40 °C to +85 °C | -40 °F to +185 °F	Operating	-40 °C to +85 °C | -40 °F to +185 °F
Humidity	0 to 98 (non-condensing)			
Protection	Housing IP65		Anschlussklemmen IP00	
Vibration	according to IEC 60068-2-6, Test Fc, 10bis2000 Hz, 10 g			
Shock	according to IEC-60068-2-27, test Ea			
Environmental influences	according to IEC 60068-2-31:2008, Test Ec			

EMC	
Standard	Directive: 2014/30/EU | Harmonized standards: EN 61326-1, EN 61326-2-3
Immunity performance	ESD, radiated EMC fields, magnetic fields: Criterion A Burst, conducted RF: Criteria A Overvoltage: standard deviation 1% of span

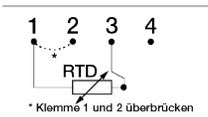
Factory configuration (if not ordered otherwise)			
Input	Pt100, 3-wire, 0 °C to 100 °C	Output (mA)	4 to 20
Sensor control	Upscale (≥21.0 mA)		

Delivery
Transmitter, Instruction manual, individually packed in PE bag

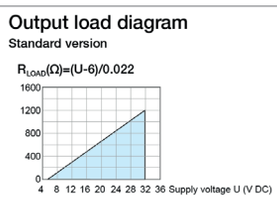
Matching accessories		
Picture	Designation	Order no.
	DIN rail power supply	On request
	Table power supply	On request
	Connection head mounting set	On request
	DIN rail adapter and screws (10 pcs.)	On request

Commissioning

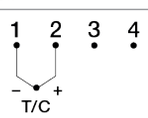
Input



Output

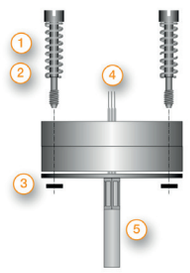


Supply voltage V DC



Mounting

You can mount the APAQ C130 head transmitter in DIN B (or larger) connection heads or on the rail. Mounting is easy because you can easily pull out the sensor cable or the insertion tube through the large center hole Ø 7 mm. The electrical connection is made according to the wiring diagram. We offer mounting material for the installation of the transmitter as accessories. Depending on your requirements, you will find kits for head mounting and top hat rail mounting.
Important: To prevent measuring errors, the connecting screws for fastening the connecting cable must be tightened firmly.



Mounting to a connection head
(1) M4 screw
(2) spring
(3) Lock washer
(4) Wires from measuring insert
(5) MI cable

Mounting on the rail
(1) Place the transmitter on the mounting clip.
(2) Press the transmitter until it snaps firmly onto the clip
(3) Now you can clip one end of the mounting clip onto the rail at an angle.
(4) Then please clip the other end of the clip onto the rail as well.
(5) You can detach the transmitter from the rail if you press the hook on the fastening clip with the screwdriver and lift the clip out of the rail at the same time.

Configuration | Parametrization

Massenparametrierung & Einstellungs-Templates

Before making a configuration of APAQ C130TC you need to do following:
Make sure that you have a mobile device with NFC communication activated.
Download the app INOR Connect to your mobile device.

Required versions:
iOS: iOS 13 or later and Iphone 7 or later Android: Android 4.4 or later

Configuration procedure
Launch the app by clicking on the App icon or holding your mobile device against the transmitter on the part of the device where NFC is located (only possible with Android). Click on “Read Configuration” and hold your mobile device against the transmitter as explained in the first section.
In the app you can edit the following:
Sensor type and number of wire circuits
Measuring range
Upscale or Downscale
sensor control
TAG-number
Password settings
In the configuration window you can enter and change the parameters. The selected configuration is transferred to the transmitter by clicking the "Send to transmitter" button. After the transfer is completed, the transmitter uses the new parameters.

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