

# Hat rail transmitter for thermocouples APAQ-R130

Article number: 809700 2101

The APAQ R130 TC for thermocouples is a DIN rail transmitter for installation on standard DIN rails according to DIN EN50022. The sophisticated product design leaves sufficient space for mounting. It is optimally designed for use in plant and machine construction and characterized by high accuracy, reliability, long-term stability and its robust product design. The transmitter is extremely insensitive to external influences such as vibration and EMC interference. Installation and commissioning are particularly user-friendly. For example, parameterization can be carried out wirelessly, conveniently and easily via the cell phone app using NFC technology. The monitoring functions such as sensor break monitoring, sensor short-circuit and measuring range monitoring can also be activated via this.

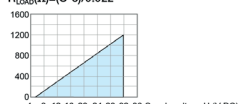
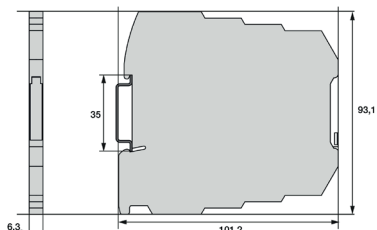


Special features	
Inputs and outputs	Parametrization
Input: thermocouples Output: 4 to 20mA, temperature linear output signal	Configuration - wireless via NFC technology Free app for Iphone, Android & Huawei Parameterization templates for fast mass configuration
Accuracy and Long-term stability	
Accuracy: depending on thermocouple Long-term stability max drift of $\pm 0.05^{\circ}\text{C}$ or $\pm 0.05\%$ of span  year	
Design	Alarm function
Robust - vibration and shock resistant design Suitable for hat rails according to DIN EN50022 Compact housing design Facilitated 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: $\pm 10^{\circ}\text{C}$   >400 °C: $\pm 2^{\circ}\text{C}$ / 0,2% <sup>1)</sup>
Type E	NiCr-CuNi	IEC 60584	-270 °C to +1000 °C   -454 °F to +1832 °F	+50 °C   +122 °F	$\pm 1^{\circ}\text{C}$   $\pm 0,2\%$ <sup>1)</sup>
Type J	Fe-CuNi	IEC 60584	-210 °C to +1200 °C   -346 °F to +2192 °F	+50 °C   +122 °F	$\pm 1^{\circ}\text{C}$   $\pm 0,2\%$ <sup>1)</sup>
Type K	NiCr-Ni	IEC 60584	-270 °C to +1300 °C   -454 °F to +2372 °F	+50 °C   +122 °F	$\pm 1^{\circ}\text{C}$   $\pm 0,2\%$ <sup>1)</sup>
Type N	NiCrSi-NiSi	IEC 60584	-100 °C to +1300 °C   -148 °F to +2372 °F	+100 °C   +212 °F	$\pm 1^{\circ}\text{C}$   $\pm 0,2\%$ <sup>1)</sup>
Type N	NiCrSi-NiSi	IEC 60584	-270 °C to -100 °C   -418 °F to +148 °F	+100 °C   +212 °F	$\pm 2^{\circ}\text{C}$ <sup>1)</sup>
Type R	Pt13Rh-Pt	IEC 60584	-50 °C to +1750 °C   -58 °F to +3182 °F	+300 °C   +572 °F	$\pm 2^{\circ}\text{C}$   $\pm 0,2\%$ <sup>1)</sup>
Type S	Pt10Rh-Pt	IEC 60584	-50 °C to +1750 °C   -58 °F to +3182 °F	+300 °C   +572 °F	$\pm 2^{\circ}\text{C}$   $\pm 0,2\%$ <sup>1)</sup>
Type T	Cu-CuNi	IEC 60584	-270 °C to +400 °C   -454 °F to +752 °F	+50 °C   +122 °F	$\pm 2^{\circ}\text{C}$   $\pm 0,2\%$ <sup>1)</sup>
<sup>1)</sup> of span (cold junction compensation error is not included)					
Input impedance		>10 M $\Omega$			
Max. wire loop resistance		5 k $\Omega$			
Cold Junction Compensation		Internal or external			

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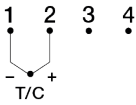
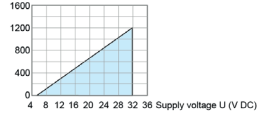
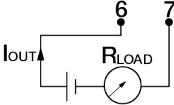
General information about the input		
Zero adjustment	Within measuring range	
Output		
Output type	analog, temperature linear for TC	<b>Output load diagram</b> Standard version $R_{load}(U)=(U-6)/0.022$ 
Output signal (mA)	4 to 20	
Parametrization / Scaling	Configurable via NFC	
Load	818 Ω at 24 VDC	
Connection type	2-wire	
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 <sup>2)</sup> < ±0,02 % of span per °C	
Influence of the sensor cable		
Thermocouples and Voltage	Negligible	
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	V0/HB, RoHS compliant	
Mounting	35 mm hat rail according to DIN 50022 / EN 60715	
Connection	Single wires, max. 1,5 mm², AWG 16	
Weight	40	
General data		
Isolation	none	
Supply Voltage (VDC)	8 to 32, polarity protected	All dimensions in mm





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 IP20		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
	<div><p><b>Output load diagram</b> Standard version</p><p><math>R_{LOAD}(Ω) = (U - 6) / 0.022</math></p></div> <p>Supply voltage V DC</p> 



Mounting	
<p>You can easily mount the APAQ R130 hat rail transmitter on 35mm hat rails according to DIN EN50022. The mounting is easy because you can fix the transmitter on the rail without any tools.</p> <p>Mounting material for the installation of the transmitter is available as accessory.</p> <p>Important: To prevent measuring errors, the connecting screws for fastening the connecting cable must be tightened firmly.</p>	<div></div> <p>Mounting and dismounting of the transmitter</p> <p>(1) Fix the upper part of the transmitter on the rail</p> <p>(2) Then press the lower part of the transmitter onto the rail. The electrical connection is made according to the wiring diagram</p> <p>(4) To remove the transmitter, use a screwdriver and bend the latch downwards</p>
Configuration   Parametrization	
<div></div> <p><b>Massenparametrierung &amp; Einstellungs-Templates</b></p> <p>Before making a configuration of APAQ C130TC you need to do following:</p> <p>Make sure that you have a mobile device with NFC communication activated.</p> <p>Download the app INOR Connect to your mobile device.</p> <p>Required versions:</p> <p>iOS: iOS 13 or later and Iphone 7 or later    Android: Android 4.4 or later</p>	<p>Configuration procedure</p> <p>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.</p> <p>In the app you can edit the following:</p> <ul style="list-style-type: none"><li>Sensor type and number of wire circuits</li><li>Measuring range</li><li>Upscale or Downscale</li><li>sensor control</li><li>TAG-number</li><li>Password settings</li></ul> <p>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.</p>

