

APAQ



## APAQ C130<sup>TC</sup> Programmable 2-wire Transmitter for Thermocouple



APAQ C130<sup>TC</sup> is a modern transmitter with high reliability and great performance. External influences such as ambient temperature, vibration, moisture and EMC interference have minimal influence on the measurement result, thanks to the robust design.

What characterizes APAQ C130<sup>TC</sup> is simplicity. You can easily configure the transmitters wirelessly via NFC with your smartphone or tablet. There is no need for expensive configuration tools or fixed workstations for transmitter configuration.

### Measurements with Thermocouple

APAQ C130<sup>TC</sup> accepts inputs from the most common Thermocouple sensors.

### Temperature linear output

Fully temperature linear 4-20 mA output.

### Compact design for easy installation

The head-mounted variant is only 10.5 mm high and can easily be installed in all DIN B connection heads.

### Reliable over time

Minimal drift of  $\pm 0.05^{\circ}\text{C}$  or  $\pm 0.05\%$  of span / year reduces the need for calibration.

### Designed for harsh conditions

Rugged design tested for 10 g vibrations.

### Mounting, wiring and testing

APAQ C130<sup>TC</sup> is designed to fit inside connection heads type DIN B or larger. The large centre hole, dia. 7 mm / 0.28 inch, the robust terminals and the low height greatly simplify the mounting and wiring.

### Wireless configuration

Configure APAQ C130<sup>TC</sup> wirelessly with your smartphone without power supply and cables

## Specifications

### Input TC

TC type B - Pt30Rh-Pt6Rh (IEC 60584)	0...+1820 °C / +32...+3308 °F
TC type E - NiCr-CuNi (IEC 60584)	-270...+1000 °C / -454...+1832 °F
TC type J - Fe-CuNi (IEC 60584)	-210...+1200 °C / -346...+2192 °F
TC type K - NiCr-NiAl (IEC 60584)	-270...+1300 °C / -454...+2372 °F
TC type N - NiCrSi-NiSi (IEC 60584)	-270...+1300 °C / -454...+2372 °F
TC type R - Pt13Rh-Pt (IEC 60584)	-50...+1750 °C / -58...+3182 °F
TC type S - Pt10Rh-Pt (IEC 60584)	-50...+1750 °C / -58...+3182 °F
TC type T - Cu-CuNi (IEC 60584)	-270...+400 °C / -454...+752 °F
Input impedance	>10 MΩ
Maximum wire loop resistance	In-head transmitter (including TC sensor): 5 kΩ
Cold Junction Compensation (CJC)	Internal or fixed

### Monitoring

Sensor break indication	Upscale ( $\geq 21.0$ mA) or downscale ( $\leq 3.6$ mA) action
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### Output

Output signal	4...20 mA, temperature linear
NAMUR compliance	Current limitations and failure currents acc. to NAMUR NE 43
Adjustable filtering level	0.4 to 26 sec.
Permissible load, see load diagram	818 Ω @ 24 VDC

### General data

Isolation	Not galvanically isolated
Power supply, polarity protected	6...32 VDC

### Environment conditions

Ambient temperature	Storage and operation	-40...+85 °C / -40...+185 °F
Humidity		0...98 % RH (non-condensing)
Vibrations		Acc. to IEC 60068-2-6, test Fc, 10...2000 Hz, 10 g
Rough Handling		Acc. to IEC 60068-2-31:2008, test Ec
EMC	Standards	Directive: 2014/30/EU Harmonized standards: EN 61326-1, EN 61326-2-3
	Immunity performance	ESD, Radiated EM-field, Magnetic Fields: Criteria A Burst, conducted RF: Criteria A Surge: standard deviation 1 % of span 2011/65/EU and 2015/863/EU Harmonized standard: EN IEC 63000 China RoHS 2
RoHS, China RoHS Directive:		

### Accuracy and stability

Accuracy	(Maximum of)
TC type R, S, T	$\pm 2.0$ °C or $\pm 0.2$ % of span / $\pm 3.6$ °F or $\pm 0.2$ % of span
TC type B (<100 °C / <212 °F)	not specified
TC type B (100 °C...400 °C / 212 °F...752 °F)	$\pm 10$ °C / $\pm 18$ °F
TC type B (>400 °C / >752 °F)	$\pm 2.0$ °C or $\pm 0.2$ % of span / $\pm 3.6$ °F or $\pm 0.2$ % of span
TC type E, J, K	$\pm 1$ °C or $\pm 0.2$ % of span / $\pm 1.8$ °F or $\pm 0.2$ % of span
TC type N (-100...+1300 °C)	$\pm 1$ °C or $\pm 0.2$ % of span / $\pm 1.8$ °F or $\pm 0.2$ % of span
TC type N (-270...-100 °C)	$\pm 2.0$ °C / $\pm 3.6$ °F

CJC accuracy	Typical $\pm 1$ °C / $\pm 1.8$ °F (max $\pm 3$ °C / $\pm 5.4$ °F) within ambient temperature range
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Warm-up time	After a max. 20 minutes the accuracy specifications are reached (due to the internal cold junction)
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Min. span	
TC type B	700 °C / 1260 °F
TC type R, S,	300 °C / 540 °F
TC type E, J, K, T	50 °C / 90 °F
TC type N	100 °C / 180 °F

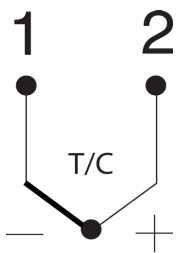
Temperature influence	
TC type B, E, J, K, R, S, T	$\pm 0.02$ % of span per °C / $\pm 0.012$ % of span per °F
TC type N (-100...+1300 °C)	$\pm 0.02$ % of span per °C / $\pm 0.012$ % of span per °F
TC type N (-270...-100 °C)	$\pm 0.2$ % of span per °C / $\pm 0.12$ % of span per °F

Supply voltage influence	$< \pm 0.005$ % of span per V
Long-term stability	$\pm 0.05$ % of span per year

### Housing

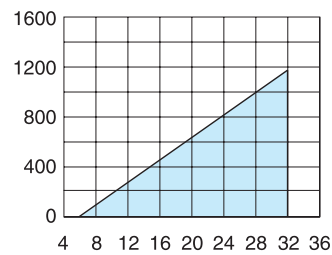
Material, Flammability (UL)	PC/ABS + PA, V0
Mounting	DIN B-head or larger, DIN rail (with mounting kit)
Connection	Single/stranded wires, Max. 1.5 mm <sup>2</sup> , AWG 24...12
Weight	25 g / 0.06 lb
Protection, housing / terminals	IP 65 / IP 00

### Input connections



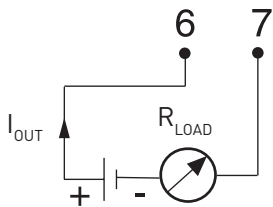
### Output load diagram

$$R_{LOAD} (\Omega) = (U-6)/0.022$$

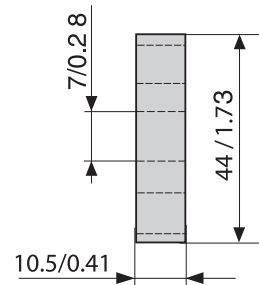
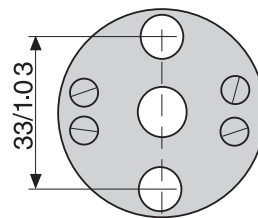


Supply voltage U (V DC)

### Output connections



### Dimensions



mm/inches

### Ordering information

APAQ C130 <sup>TC</sup>	70C1300211
Head mounting kit	70ADA00017
DIN-rail Adapter + Screw (10 pcs)	70ADA00027