APAQ-HCF

APAQ-HCFX

Cost-optimized Adjustable 2-wire Transmitter for Thermocouple Input

APAQ-HCF is an analog, multirange 2-wire temperature transmitter for in-head mounting in DIN B or larger connection heads.

APAQ-HCF covers 5 different thermocouple types, is continuously adjustable and provides a voltage linear output.

Designed for highest reliability and cost-efficiently manufactured, APAQ-HCF combines attractive pricing with high quality and industrial performance.

The Intrinsically Safe version, APAQ-HCFX, is available with ATEX-Zulassung.

Multirange design

- Adjustable for thermocouple type J, L, T, K and N inputs with continuous range settings.
- Adjustments are made with solder pads and potentiometers.

Cold Junction Compensation

- Automatic compensation for the terminal temperature.

Easy mounting and access

- Flat design gives easy access to terminals and adjustments.
- Large center hole lets the lead wires or an insert tube pass easily.

Safety

- Genuine sensor break detection with selectable upscale or downscale action.
- Excellent EMC performance.

High load capacity

- Only 6.5 V voltage drop over the transmitter allows for high loads in the 4-20 mA output loop.

Industrial design

- The "Low Profile" housing, with its protected electronics, is extremely durable.

Cost-optimized

- High volumes combined with cost-effective design and production contributes to a very attractive pricing.

Adjustments APAQ-HCF/-HCFX

Zero adjustment Adjustable ±10 % of span

Span selection	mV	T/C J *	T/C L *	T/C T *	T/C K *	T/C N *
	10 to 50	186 - 870°C	183 - 855°C	213 - >400°C	246 - 1232°C	319 - >1300°C
	(no gap)	335 - 1566°F	329 - 1540°F	383 - >720°F	443 - 2218°F	574 - >2340°F

*The temperature spans correspond to the mV spans with zero adjustment = 0 % of span

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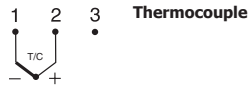
Specifications : APAQ-HCF/-HCFX

Input		
Thermocouples		Selectable, type J, L, T, K and N with ranges within -5 to +55 mV
Input impedance		>5 MΩ
Max. sensor wire resistance		500 Ω (total loop)
Monitoring		
Sensor break detection, selectable		Upscale ~25 mA, downscale ~3 mA
Adjustments		
Zero		±10 % of span
Span, selectable		10 to 50 mV
Span, fine adjustment		±10 %
Output		
Current		4 - 20 mA
Linearity		Voltage linear
Current limitation		~ 25 mA
Permissible load	APAQ-HCF	700 Ω @ 24 VDC, 25 mA
	APAQ-HCFX	620 Ω @ 24 VDC, 25 mA
Temperature		
Ambient, storage		-40 to +100 °C / -40 to +212°F
Ambient, operating	APAQ-HCF	-40 to +85 °C / -40 to +185 °F
	APAQ-HCFX	ATEX:T4 /+85 °C, T5 /+55 °C, T6 /+40 °C;
General data		
Response time 10-90%		≤ 0.2 s
Humidity (non-condensing)		0 to 95 %RH
Intrinsic safety	APAQ-HCFX	ATEX: II 1 G Ex ia IIB T4, T5, T6
Power supply, polarity protected		
Supply voltage	APAQ-HCF	6.5 to 32 VDC
	APAQ-HCFX	8.5 to 30 VDC
Permissible ripple		4 Vp-p @ 50/60 Hz
Accuracy		
Linearity (mA output to mV input)		±0.1 % of mV span
Calibration		±0.1 % of span
Cold Junction Compensation (CJC)		±1.0 °C /±1.8 °F
Temperature influence		±0.6 % of span/25 °C, ±0.7 % of span/50 °F
Temperature influence CJC		±1.25 °C/25 °C, ±2.5 °F/50 °F [1]
Sensor wire influence		0.4 µV/Ω
RFI influence,0.15-1000MHz, 10 V or V/m		±0.2 % of span (typical)
Supply voltage influence		±0.02 % of span/V
Supply ripple influence, 50/60 Hz, 4 Vp-p		±0.05 % of span
Long term stability		±0.1 % of span/year
Housing		
Material / Flammability(UL)		Zinc alloy + ABS / V0
Mounting		DIN B-head or larger
Connection, single/stranded wires		≤2.5 mm², AWG 14
Weight		40 g
Protection, housing with cover/terminals		IP 20 / IP 10

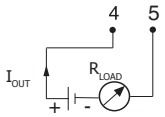
[1] ±2.5 °C/25 °C, ±5.0 °F/50 °F for type T

Input connections



Thermocouple

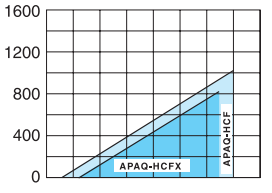
Output connections



Output load diagram

Permissible R_{LOAD} at 25 mA output

R_{LOAD}(Ω)

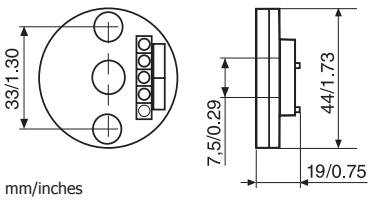


Supply voltage U (VDC)

R_{LOAD}=(U-6.5)/0.025 (APAQ-HCF)

R_{LOAD}=(U-8.5)/0.025 (APAQ-HCFX)

Dimensions



mm/inches

Ordering information

APAQ-HCF	70APHCF001
APAQ-HCFX (ATEX)	70APHCFX01
Head mounting kit	70ADA00011
Rail mounting kit	70ADA00013
Configuration	70CAL00001