



## Cost-optimized Adjustable 2-wire Transmitter for Pt100 Input

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

**The 4-20 mA output is temperature linearized.**

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

**The Intrinsically Safe version, APAQ-HRFX, is available with ATEX approval.**

### Multirange design

- Adjustable for different Pt100 ranges in both °C and °F.
- Adjustments are made with solder pads and potentiometers.

### Temperature linear output

- Fully temperature linear 4-20 mA output offers accurate Pt100 measurements.

### Adjustments APAQ-HRF/-HRFX

<b>Zero adjustment</b>	-50 to +50 °C	-60 to +120 °F
<b>Span selection</b>		
°C	50	100
°F	100	200
	150	200
	300	400
	400	600
	800	1000

### 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.

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## Specifications : APAQ-HRF/-HRFX

### Input

Pt100 ( $\alpha = 0.00385$ ), 3-wire connection	Adjustable to specific ranges within: -50 to +550 °C / -60 to +1120 °F
Sensor current	~1.1 mA
Max. sensor wire resistance	15 $\Omega$ / wire

### Monitoring

Sensor break detection, selectable	Upscale ~25 mA, downscale ~3 mA
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### Adjustments

Zero	-50 to +50 °C / -60 to +120 °F
Span, selectable	50 to 500 °C / 100 to 1000 °F
Span, fine adjustment	$\pm 10\%$ ( $\pm 5\%$ for 600 / 800 / 1000 °F)

### Output

Current	4 - 20 mA
Linearity	Temperature linear
Current limitation	~ 25 mA
Permissible load	APAQ-HRF 700 $\Omega$ @ 24 VDC, 25 mA APAQ-HRFX 620 $\Omega$ @ 24 VDC, 25 mA

### Temperature

Ambient, storage	-40 to +100 °C / -40 to +212°F
Ambient, operating	APAQ-HRF -40 to +85 °C / -40 to +185 °F APAQ-HRFX ATEX:T4 /+85 °C, T5 /+55 °C, T6 /+40 °C

### General data

Response time 10-90%	$\leq 0.2$ s
Humidity (non-condensing)	0 to 95 %RH
Intrinsic safety	APAQ-HRFX ATEX: II 1 G EEx ia IIB T4, T5, T6

### Power supply, polarity protected

Supply voltage	APAQ-HRF 6.5 to 32 VDC APAQ-HRFX 8.5 to 30 VDC
Permissible ripple	4 Vp-p @ 50/60 Hz

### Accuracy

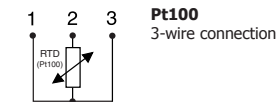
Linearity	$\pm 0.1\%$ of span
Calibration	$\pm 0.1\%$ of span
Temperature influence	$\pm 0.6\%$ of span/25 °C, $\pm 0.7\%$ of span/50 °F
Sensor wire influence	$\pm 0.005$ °C/ $\Omega$ / $\pm 0.009$ °F/ $\Omega$ <sup>1)</sup>
RFI influence, 0.15-1000MHz, 10 V or V/m	$\pm 0.2\%$ of span (typical)
Supply voltage influence	$\pm 0.02\%$ of span/V
Supply ripple influence, 50/60 Hz, 4 Vp-p	$\pm 0.05\%$ of span
Long term stability	$\pm 0.1\%$ of span/year

### Housing

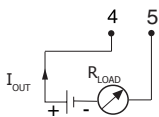
Material / Flammability(UL)	Zinc alloy + ABS / V0
Mounting	DIN B-head or larger
Connection, single/stranded wires	$\leq 2.5$ mm <sup>2</sup> , AWG 14
Weight	40 g
Protection, housing with cover/terminals	IP 20 / IP 10

<sup>1)</sup> Per wire, with equal resistance

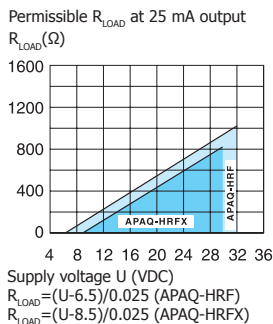
### Input connections



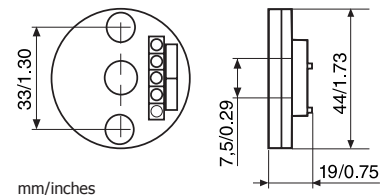
### Output connections



### Output load diagram



### Dimensions



### Ordering information

APAQ-HRF	70APHRF001
APAQ-HRFX (ATEX)	70APHRFX01
Head mounting kit	70ADA00011
Rail mounting kit	70ADA00013
Configuration	70CAL00001