APAQ-LR / APAQ-LC

Multirange
2-wire DIN Rail Temperature Transmitters



APAQ-LR and APAQ-LC are two multirange 2-wire temperature transmitters for DIN rail mounting.

APAQ-LR is used for Pt100 input, and APAQ-LC for different thermocouple inputs.

Designed for highest reliability and cost-efficiently manufactured, the APAQ-L transmitters combine attractive pricing with high quality and excellent industrial performance.

Main features

Multirange design
- *Reduced inventory costs.*
- *APAQ-LR for Pt100 input with selectable measurement ranges.*
- *APAQ-LC for T/C J, L, T, K, and N inputs with continuous range adjustment.*

Accurate measurements
- *Temperature linear 4-20 mA output for Pt100 input.*

Space saving and simple mounting
- *Only 17.5 mm / 0.7 inch wide.*
- *Quick mounting on DIN rail.*

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

High load capacity
- *Only 6.5 V voltage drop over the transmitter allows for high loads.*

Competitive pricing

5 year limited warranty

Description

APAQ-LR and APAQ-LC are analog, 2-wire, DIN rail transmitters with selectable ranges for Pt100 and selectable types and ranges for thermocouple input.

The compact housing snaps onto a 35 mm DIN rail and is equipped with rugged terminals for easy and safe wire connections.

APAQ-LR is adjustable for different Pt100 ranges and has a temperature linear 4-20 mA output.

APAQ-LC covers 5 different thermocouple types, is continuously adjustable and has a voltage linear 4-20 mA output.

The selection of measuring ranges and thermocouple types is made with internal solder pads. The fine adjustment is made with potentiometers in the front.

APAQ-LR and APAQ-LC are covered by a 5 year limited warranty.

Specifications

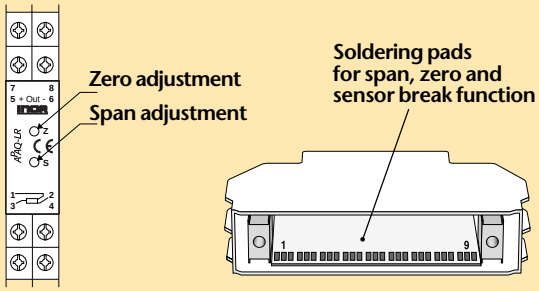
Input	APAQ-LR	APAQ-LC
Pt100 (α = 0.00385), 3-wire connection	Adjustable to specific ranges within:	
	-50 to +550 °C / -60 to +1120 °F	
Thermocouples		Selectable, type J, L, T, K and N with
		ranges within -5 to +55 mV
Sensor current	~ 1 mA	
Input impedance		>5 MΩ
Max. sensor wire resistance	15 Ω/wire	500 ý (total loop)
Monitoring		
Sensor break detection, selectable	Upscale ~25 mA, downscale ~ 3 mA	Upscale ~25 mA, downscale ~ 3 mA
Adjustments		
Zero	-50 to +50 °C / -60 to +120 °F	±10 % of span
Span, selectable	50 to 500 °C / 100 to 1000 °F	10 to 50 mV
Span, fine adjustment	±10 % (± 5% for 600/800/1000°F)	±10 %
Output		
Current	4 - 20 mA	4 - 20 mA
Linearity	Temperature linear	Voltage linear
Current limitation	~ 25 mA	~ 25 mA
Permissible load *See load diagram*	700 Ω @ 24 VDC, 25 mA	700 Ω @ 24 VDC, 25 mA
Temperature		
Ambient, storage	-20 to +70 °C / -4 to +158°F	-20 to +70 °C / -4 to +158°F
Ambient, operating	-20 to +70 °C / -4 to +158°F	-20 to +70 °C / -4 to +158°F
General data		
Response time 10-90%	≤ 0.2 s	≤ 0.2 s
Humidity (non-condensing)	0 to 95 %RH	0 to 95 %RH
Power supply, polarity protected		
Supply voltage	6.5 to 32 VDC	6.5 to 32 VDC
Permissible ripple	4 Vp-p @ 50/60 Hz	4 Vp-p @ 50/60 Hz
Accuracy		
Linearity	±0.1 % of span	±0.1 % of span
Calibration	±0.1 % of span	±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	±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 [2]
Sensor wire influence	±0.005 °C/Ω / ±0.009 °F/Ω [1]	0.5 µV/Ω
RFI influence,0.15-1000MHz, 10 V or V/m	±0.2 % of span(typical)	±0.2 % of span(typical)
Supply voltage influence	±0.02 % of span/V	±0.02 % of span/V
Supply ripple influence, 50/60 Hz, 4 Vp-p	±0.05 % of span	±0.05 % of span
Long term stability	±0.1 % of span/year	±0.1 % of span/year
Housing		
Material / Flammability(UL)	PC + Glassfibre / VO	PC + Glassfibre / VO
Mounting	Rail acc. to DIN EN 50022, 35 mm	Rail acc. to DIN EN 50022, 35 mm
Connection, single/stranded wires	≤ 1.5 mm², AWG 16	≤ 1.5 mm², AWG 16
Weight	55 g	55 g
Protection, housing / terminals	IP 20 / IP 20	IP 20 / IP 20

[1] Per wire, with equal resistance
[2] ±2.5 °C/25 °C, ±5.0 °F/50 °F for type T

The User Instructions must be read prior to adjustment and/or installation.

Range adjustments APAQ-LR

Zero adjustment	-50 to +50 °C	-60 to +120 °F
Span selection	50 °C	100 °F
	100 °C	200 °F
	150 °C	300 °F
	200 °C	400 °F
	300 °C	600 °F
	400 °C	800 °F
	500 °C	1000 °F

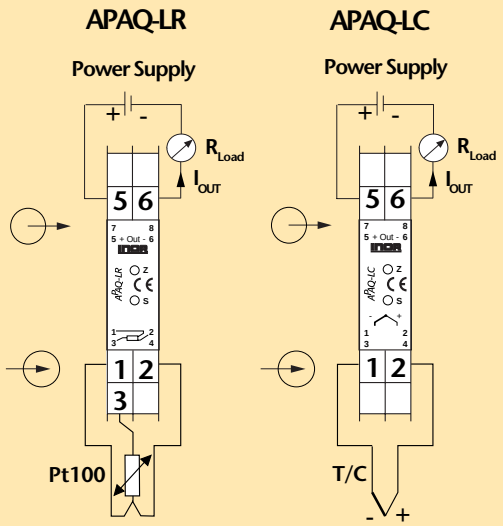


Range adjustments APAQ-LC

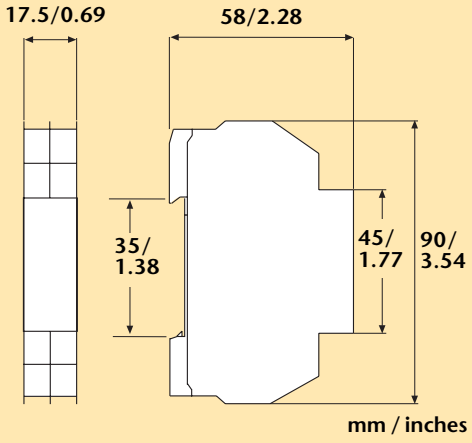
Zero adjustment	Adjustable ±10 % of span				
Span selection	mV	T/C J *	T/C L *	T/C T *	T/C K *	T/C N *
	10 to 50	186 - 870°C	183 - 855°C	213 - >400°C	246 - 1232°C	319 - >1300°C
	(no gap)	335 - 1566°F	329 - 1540°F	383 - >720°F	443 - 2218°F	574 - >2340°F

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

Connections

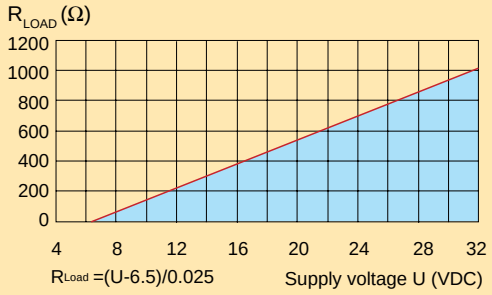


Dimensions



Output load diagram

Permissible R_{Load} at 25 mA output



Ordering table

Transmitter	Part No.
APAQ-LR, Pt100 transmitter	70APLR0001
APAQ-LC, T/C transmitter	70APLC0001

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