

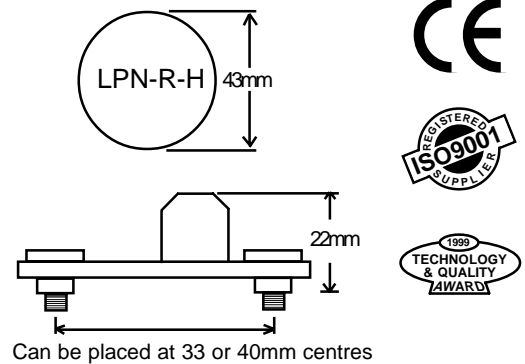
LPN-R-H Rev 1, In Head RTD Transmitter.

Programmable, Head mount, Linearised,
3 Wire RTD Input to 4~20mA Output
Loop Powered Transmitter.

Features.

- Field Programmable.
- Pt100 RTD Standard Input.
- High Accuracy.
- Linear With Temperature
- LED Indication of Loop Current.
- Low Cost.
- Easy to Install.
- Available Standard or Special Calibration.
- Reverse Polarity Protection.
- Corrosion Proofed Circuit Board
& Components by Isonel 642. (Except Terminals)

LPN-R-H Enclosure Dimensions.



Ordering Information.

LPN-R-H-X Standard Industrial Head Mount, Upscale Sensor Break, Pt100, 0~100C Input.

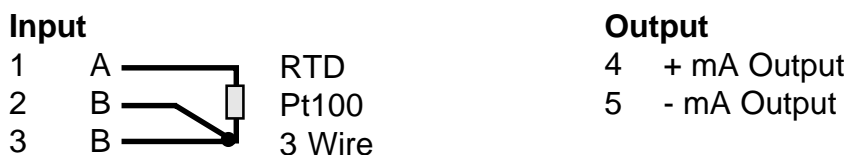
Specifications.

RTD Input.	Pt100 DIN (3 Wire type). Other Types of RTD Available. Eg. JIS Pt100, Pt250, Pt500, Pt1000, CU10, CU100, Ni100 or Specify.
Sensor Current.	0.5mA Nominal.
Lead Wire Resistance.	5Ω/Wire max.
Zero Range	-100C to 100C. (-165 to 210F)
Span Range	30C to 600C. (55 to 1080F)
Output	2 wire 4~20mA. (Loop Powered.)
Power Supply.	10~40Vdc. (Loop Powered).
Supply Voltage Sensitivity.	<±0.005%/V FSO.
Output Load Resistance	700Ω @ 24Vdc. (50Ω/V above 10Vdc.)
Maximum Output Current	Limited to <26mA Typical.
Sensor Fail	-Upscale -Downscale
	23mA Min. Typical. 3.8mA Max. Typical.
Response time	200msec Typical. (From 10 to 90 % 50msec Typical.)
Accurate to	<±0.1% FSO Typical.
Linearity & Repeatability.	<±0.1% FSO Typical.
Ambient Drift.	<±0.01%/C FSO Typical
RFI Immunity.	<1% Effect FSO Typical.
Operating Temperature.	0~70C.
Storage Temperature.	-20~80C.
Operating Ambient Humidity.	90% RH Max. Non-condensing.

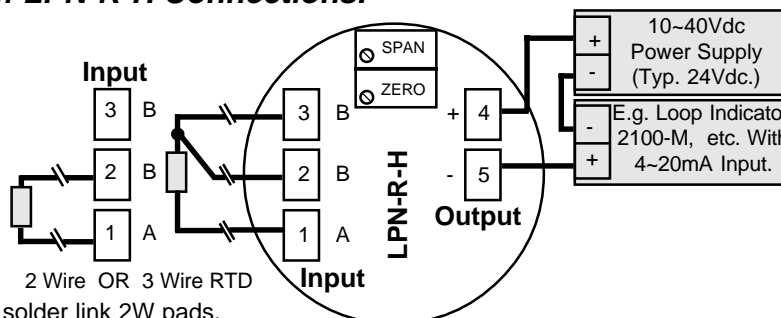
Note 1. Specifications based on Standard Calibration Unit, unless otherwise specified.

Note 2. Due to ongoing research and development, designs, specifications, and documentation are subject to change without notification. No liability will be accepted for errors, omissions or amendments to this specification.

Terminations.



Examples of LPN-R-H Connections.



For 2 Wire RTD solder link 2W pads.

Quality Assurance Programme.

The modern technology and strict procedures of the ISO9001 Quality Assurance Programme applied during design / development, production and final inspection grant the long term reliability of the instrument.

LPN-R-H Programming.

The Zero and Span can be set within the following values, as shown in the tables.
Refer to PCB Layout for positions of solder pads on the LPN-R-H.

Solder Pad	Zero (C)	Zero (F)
A	From -105 to -55C	From -165 to 65F
B	From -55 to -5C	From -65 to 25F
C	From -5 to 45C	From 25 to 115F
D	From 45 to 100C	From 115 to 210F

Solder Pad	Span (C)	Span (F)
1	From 30 to 65C	From 55 to 115F
2	From 65 to 135C	From 115 to 245F
3	From 135 to 280C	From 245 to 505F
4	From 280 to 600C	From 505 to 1080F

E.g. 1. If a range of -50~50C is required.

Zero = -50C.

Span = 50--50 = 100C

Solder Link 'B' LPN-R-H

Solder Link '2' LPN-R-H

E.g. 2. If a range of 200~600F is required.

Zero = 200F.

Span = 600-200 = 400F

Solder Link 'D' LPN-R-H

Solder Link '3' LPN-R-H

Note 1. Once the range has been programmed calibrate the LPN-R-H using the trimpots.

Calibrate 0% = 4.00mA using the ZERO trimpot. Calibrate 100% = 20.00mA using the SPAN trimpot.

Repeat Zero and Span calibrations until readings are correct. Check 50% = 12.00mA±0.016mA (±0.1% linearity)

Note 2. If the range cannot be attained using the solder pads shown in the tables above, try the next solder pad closest to the value you require.

Note 3. On the LPN-R-H any modified solder pads need to be coated with nail varnish or similar, to protect from corrosion.

Upscale / Downscale Drive 'B' Selection for Sensor Break.

Solder Link BOTH positions marked 'DS' for DOWNSCALE, or BOTH positions marked 'US' for UPSCALE.

Two Wire '2W'.

For 2 wire inputs, Solder Link the position marked '2W'.

The Proper Installation & Maintenance of LPN-R-H.

Location of LPN-R-H Solder Pads.

Note: This is looking at the
BOTTOM of the LPN-R-H board.

MOUNTING.

- (1) Mount in a clean environment in an approved industrial head.
- (2) Do not subject to vibration or excess temperature or humidity variations.
- (3) Avoid mounting in cabinets with power control equipment.
- (4) To maintain compliance with the EMC Directives the LPN-R-H is to be mounted in a fully enclosed metal head. The head must be properly earthed, with appropriate input / output entry points, filtering, and cabling.

WIRING.

- (1) All cables should be good quality overall screened INSTRUMENTATION CABLE with the screen earthed at one end only.
- (2) Signal cables should be laid a minimum distance of 300mm from any power cables.
- (3) For 2 wire current loops Austral Standard Cables B5102ES is recommended. For three wire transmitters and RTD's Austral Standard Cables B5103ES is recommended.
- (4) It is recommended that you do not ground current loops and use power supplies with ungrounded outputs.
- (5) Lightning arrestors should be used when there is a danger from this source.
- (6) Refer to diagrams for connection information.

RTD'S.

- (1) Avoid locating the RTD where it will be in a direct flame.
- (2) Locate it where the average temperature will be measured. It should be representative of the mass.
- (3) Immerse the RTD far enough so that the measuring point is entirely in the temperature to be measured; nine to ten times the diameter of the protection tube is recommended. Heat that is conducted away from the measuring point causes a lower reading.

COMMISSIONING.

- (1) Once all the above conditions have been carried out and the wiring checked apply power to the LPN-R-H loop and allow five minutes for it to stabilize.
- (2) Due to differences in cable resistance in the RTD legs or errors within the RTD itself a small Zero error may occur (usually less than 0.5°C). To remove this error use a calibration standard RTD at the same immersion depth and adjust the Zero trimpot on the top of the LPN-R-H enclosure with a small screwdriver, until the two levels agree. (Clockwise to increase the output reading and anticlockwise to decrease the output reading)

MAINTENANCE.

- (1) Check RTD's in place - with a calibration RTD at the same immersion depth.
- (2) Do it regularly - at least once every 6 months.
- (3) Replace defective protection tubes - even if they look good they may not be air or gas tight.
- (4) Check cables entering the RTD sensor head.
- (5) Keep rotary switches clean and free of oxidation of contact points.

