LPI-B: 2 Wire Bridge Transmitter.

Features.

- **Field Programmable Bi-Polar Input Ranges.**
- **Isolated Input to Output 2.0kVDC.**
- **High Accuracy.**
- **40~200mV Output Test Signal.**
- **LED Indication of Loop Current.**
- **Selectable 3 Second Input Damping.**
- **Low Cost.**
- **Easy to Install.**
- **Compact DIN Rail Mount Enclosure.**
- **Available Standard or Special Calibration.**
- **Reverse Polarity Protection.**

Other LPI- models include:
LPI-D :DC;
LPI-F :Frequency;
LPI-K :Resistance;
LPI-N :Differential Pt100 RTD;
LPI-P :Potentiometer;
LPI-pH :pH Levels, IP67 Encl;
LPI-R :Pt100 RTD;
LPI-T :Thermocouple;
LPI-DO2 :DO2, LCD Display;
LPI-ORP :ORP, LCD Display;
LPI-pH :pH, LCD Display.

Ordering Information.

LPI-B-X   Standard 0~20mV Input; Programmable Input Range Calibration.

LPI-B- ☐ -Special Range   Special Programmable Input Range Calibration.
   IR

INPUT RANGES			
mV	IR	mV	IR
0~1mV	1	0~200mV	21
0~2mV	2	0~500mV	22
0~3mV	3	0~750mV	23
0~4mV	4	0~1000mV	24
0~5mV	5	2~6mV	25
0~6mV	6	5~10mV	26
0~8mV	7	15~20mV	27
0~10mV	8	30~35mV	28
0~12mV	9	30~40mV	29
0~15mV	10	30~45mV	30
0~20mV	11	30~60mV	31
0~25mV	12	50~80mV	32
0~30mV	13	100~200mV	33
0~35mV	14	-2~4mV	34
0~40mV	15	-4~6mV	35
0~50mV	16	-5~7mV	36
0~60mV	17	-10~20mV	37
0~75mV	18	-50~70mV	38
0~80mV	19	-100~300mV	39
0~100mV	20	-200~800mV	40
Special Input Range			Z

Ordering Examples.

LPI-B-8   LPI-B; 0~10mV Input; Loop Powered 4~20mA Output.
LPI-B-26   LPI-B; 5~10mV Input; Loop Powered 4~20mA Output.

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.
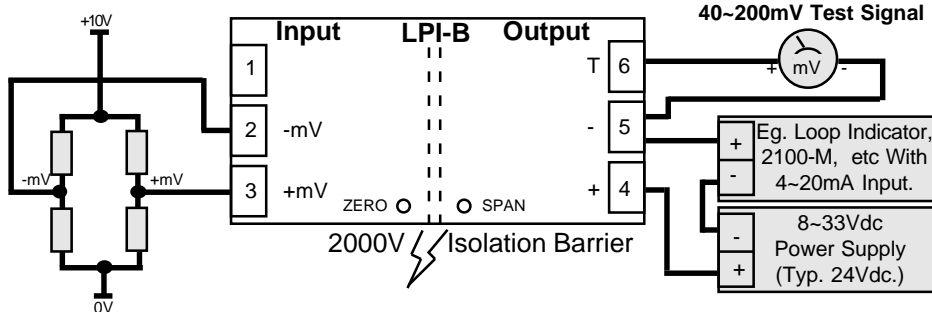
LPI-B Specifications.

Input	-mV	Field Programmable: 1~1000mVdc and Bipolar.
		Minimum Input Resistance = 1MΩ.
		Maximum Over-range = 30Vdc Continuous.
		3 Second Input Damping Selectable With S3-1.
Output	-mA	2 wire 4~20mA. (Loop Powered.)
	-mV Test	40~200mV ±1% @ 4~20mA. Other Test Voltages Available. e.g. 1~5V.
		Note. mV Test Increases Power Supply & Decreases Load Resistance.
Power Supply		8~33Vdc.
Supply Voltage Sensitivity		<±0.005%/V FSO.
Output Load Resistance		800Ω @ 24Vdc. (50Ω/V Above 8Vdc.)
Maximum Output Current		Limited to <28mA.
Accurate to		<±0.1% FSO Typical.
Linearity & Repeatability		<±0.1% FSO Typical.
Ambient Drift		<±0.02%/C FSO Typical.
Noise Immunity		125dB CMRR Average. (2.0kVac RMS Limit.)
EMC Compliances		Emissions EN 55022-A. Immunity EN 50082-1, <1% Effect FSO Typical.
Isolation Test Voltages		2000Vac/dc Input to Output for 1min.
Response Time		200msec Typical. (10 to 90% 50msec Typical.)
Operating Temperature		0~70C.
Storage Temperature		-20~80C.
Operating Humidity		5~85%RH Max. Non-Condensing.
Dimensions and Construction		L=79, W=22.5, H=85mm. Polyamide Thermoplastic Rail Mount Enclosure.

Examples of Input Connection.

Note: Only use precision regulated power supply for bridge power supply.

Terminations.

Input	1	NC
	2	-mV
	3	+mV
Output	4	+mA
	5	-mA
	6	mV TEST

Enclosure Dimensions.
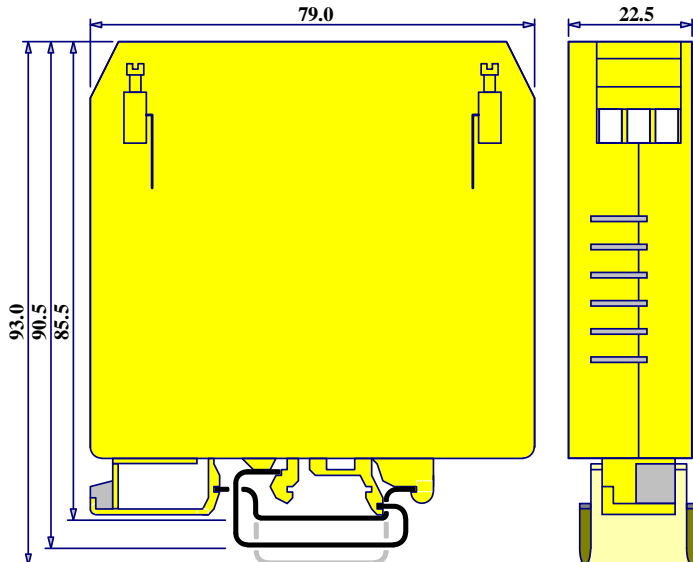
Maximum Load Vs Power Supply.
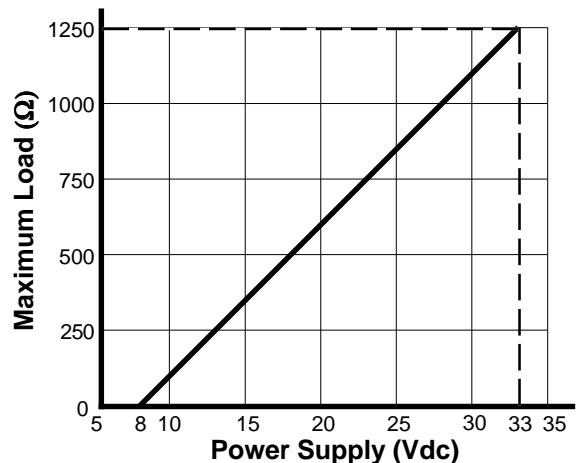
LPI-B Input Programming.

If the input range is not listed in the programming table, use the following formulae to work out the Zero and Span DIP switch settings for gain.

$$\text{Span Gain} = \frac{60 \times \text{Pregain}}{(\text{Signal High} - \text{Signal Low})}$$

$$\text{Zero Gain} = \frac{5 \times \text{Signal Low}}{\text{Pregain}}$$

EFFECTIVE INPUT RANGE (i.e. Signal High - Signal Low.)	S3-2	S3-3	Pregain
1mV <= Range <= 10mV	0	0	1
10mV < Range <= 100mV	0	1	10
100mV < Range <= 1000mV	1	1	100

If Zero gain is: 1/ -ve Put S3-4 ON (Positive Offset)
                  2/ +ve Put S3-4 OFF (Negative Offset)

Notes: (a) Enter ranges as their mV value. eg. Enter 100mV as 100.
        (b) Use the same pregain value in both the Span and Zero gain formulae.
        (c) Enter the Zero or Span gain value into the appropriate Zero or Span DIP switch.

Gain Value	1	2	4	8	16	32
DIP Switch No.	1	2	3	4	5	6

So if a gain value of 28 is required, put DIP switch No's 3, 4, 5 OFF (ie, gains of 4 + 8 + 16 = 28) and all the other DIP switches ON. Dip switches are accessed by seperating the two halves of the LPI-B enclosure
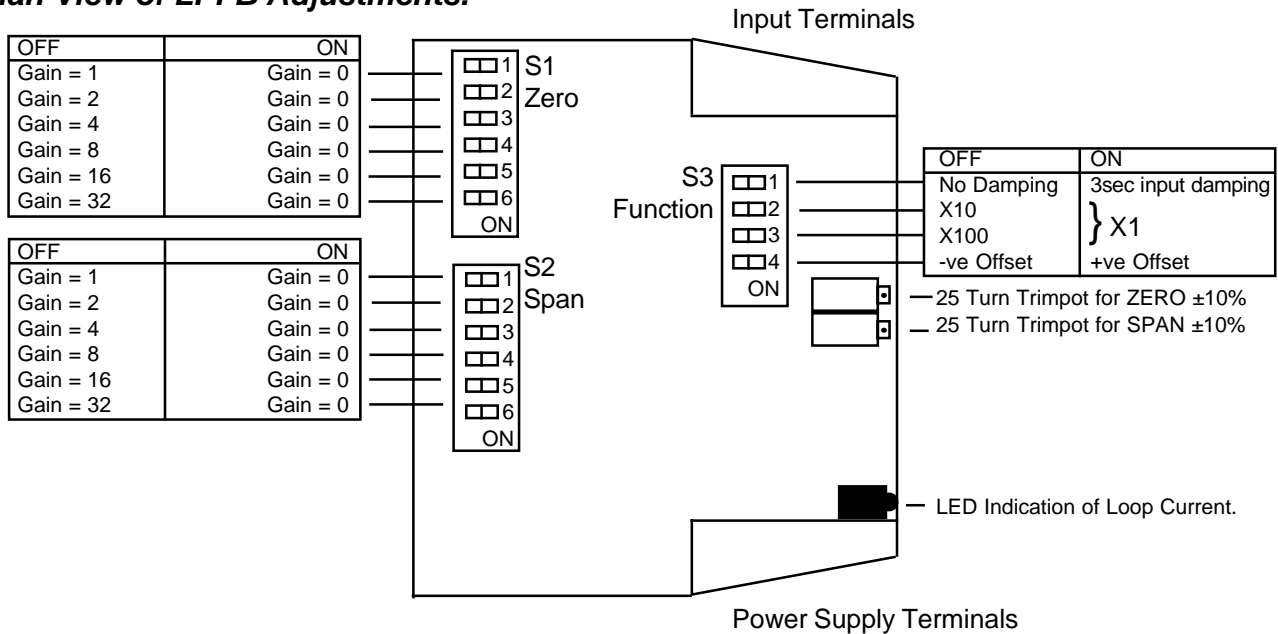
LPI-B Input Range Programming Table.

Notes: 1/ Switch status 1 = ON, 0 = OFF, X = DON'T CARE.
        2/ Input ranges with '*' beside them require more adjustment with the Span trimpot.

INPUT RANGE	S1-Zero 1	2	3	4	5	6	S2-Span 1	2	3	4	5	6	S3-Function 1	2	3	4
0~1mV	1	1	1	1	1	1	1	1	0	0	0	0	0	0	1	X
0~2mV	1	1	1	1	1	1	1	0	0	0	0	1	0	0	1	X
0~3mV	1	1	1	1	1	1	1	1	0	1	0	1	0	0	1	X
0~4mV	1	1	1	1	1	1	0	0	0	0	1	1	0	0	1	X
0~5mV	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	X
0~6mV	1	1	1	1	1	1	1	0	1	0	1	1	0	0	1	X
0~8mV*	1	1	1	1	1	1	1	1	1	0	1	1	0	0	1	X
0~10mV	1	1	1	1	1	1	1	0	0	1	1	1	0	0	1	X
0~12mV	1	1	1	1	1	1	1	0	1	1	0	0	0	1	1	X
0~15mV	1	1	1	1	1	1	1	1	1	0	1	0	0	1	1	X
0~20mV	1	1	1	1	1	1	1	0	0	0	0	1	0	1	1	X
0~25mV	1	1	1	1	1	1	1	1	1	0	0	1	0	1	1	X
0~30mV	1	1	1	1	1	1	1	1	0	1	0	1	0	1	1	X
0~35mV	1	1	1	1	1	1	0	1	1	1	0	1	0	1	1	X
0~40mV	1	1	1	1	1	1	0	0	0	0	1	1	0	1	1	X
0~50mV	1	1	1	1	1	1	1	1	0	0	1	1	0	1	1	X
0~60mV	1	1	1	1	1	1	1	0	1	0	1	1	0	1	1	X
0~75mV	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	X
0~80mV*	1	1	1	1	1	1	1	1	1	0	1	1	0	1	1	X
0~100mV	1	1	1	1	1	1	1	0	0	1	1	1	0	1	1	X
0~200mV	1	1	1	1	1	1	1	0	0	0	0	1	1	1	1	X
0~500mV	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	X
0~750mV	1	1	1	1	1	1	1	1	1	0	1	1	1	1	1	X
0~1000mV	1	1	1	1	1	1	1	0	0	1	1	1	1	1	1	X
2~6mV	1	0	1	0	1	1	0	0	0	0	1	1	0	0	0	0
5~10mV	0	1	1	0	0	1	1	1	0	0	1	1	0	0	0	0
10~15mV	1	0	1	1	0	0	1	1	0	0	1	1	0	0	0	0
10~20mV	1	0	1	1	0	0	1	0	0	1	1	1	0	0	0	0
10~30mV	0	1	0	1	1	1	1	0	0	0	0	1	0	1	0	0
30~45mV	0	0	0	0	1	1	1	1	1	0	1	0	0	1	0	0
30~60mV	0	0	0	0	1	1	1	1	0	1	0	1	0	1	0	0
50~80mV	0	1	1	0	0	1	1	1	0	1	0	1	0	1	0	0
100~200mV	1	0	1	1	0	0	1	0	0	1	1	1	0	1	0	0
-2~4mV	1	0	1	0	1	1	1	0	1	0	1	1	0	0	0	1
-4~6mV	1	1	0	1	0	1	1	0	0	1	1	1	0	0	0	1
-6~6mV	0	0	1	1	1	1	1	0	1	1	0	0	0	1	0	1
-10~20mV	0	1	0	1	1	1	1	1	0	1	0	1	0	1	0	1
-60~60mV	0	0	1	1	1	1	1	0	1	1	0	0	1	1	0	1
-100~300mV	0	1	0	1	1	1	0	0	0	0	1	1	1	1	0	1
-200~800mV	1	0	1	0	1	1	1	0	0	1	1	1	1	1	0	1

S3-3 column note (vertical text): SET TO '1' FOR 3sec DAMPING. SET TO '0' FOR NO DAMPING.

Plan View of LPI-B Adjustments.

Input Terminals

OFF	ON
Gain = 1	Gain = 0
Gain = 2	Gain = 0
Gain = 4	Gain = 0
Gain = 8	Gain = 0
Gain = 16	Gain = 0
Gain = 32	Gain = 0

S1 Zero

OFF	ON
Gain = 1	Gain = 0
Gain = 2	Gain = 0
Gain = 4	Gain = 0
Gain = 8	Gain = 0
Gain = 16	Gain = 0
Gain = 32	Gain = 0

S2 Span

S3 Function

OFF	ON
No Damping	3sec input damping
X10	} X1
X100	
-ve Offset	+ve Offset

— 25 Turn Trimpot for ZERO ±10%
— 25 Turn Trimpot for SPAN ±10%

— LED Indication of Loop Current.

Power Supply Terminals

The Proper Installation & Maintenance of LPI-B.

All power and signals must be de-energised before connecting any wiring, or altering any Jumpers or Dip Switches.

MOUNTING.
(1) Mount in a clean environment in an electrical cabinet on DIN or EN mounting rail.
(2) Draft holes must have minimum free air space of 20mm. Foreign matter must not enter or block draft holes.
(3) Do not subject to vibration or excess temperature or humidity variations.
(4) Avoid mounting in cabinets with power control equipment.
(5) To maintain compliance with the EMC Directives the LPI-B is to be mounted in a fully enclosed steel cabinet. The cabinet must be properly earthed, with appropriate input / output entry points 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 and 2 wire voltage signals or 2 wire current signals, Austral Standard Cables B5102ES is recommended. For 3 wire transmitters 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.

COMMISSIONING.
(1) Once all the above conditions have been carried out and the wiring checked apply power to the LPI-B loop and allow five minutes for it to stabilize.
(2) Take a low (approx 10%) and high (approx 90%) reading of the variable being measured by the transducer supplying the signal to the LPI-B, and ensure that this agrees with the level being indicated by the PLC or indicator, etc, that the LPI-B is connected into. Adjust for any difference using the Zero & Span Pots in the top of the LPI-B enclosure with a small screw driver, until the two levels agree. (Clockwise to increase the output reading and anti-clockwise to decrease the output reading.)

MAINTENANCE.
(1) Repeat (2) of Commissioning.
(2) Do it regularly - at least once every 12 months.

LPI-B 010212.p65