LHI indicator

OUTPUTS

Output 1

Type: relay
Contact: SPDT
Contact rating: 3 A at 250 V AC on resistive load.
Action: programmable
- direct (relay energized in alarm condition);
- reverse (relay deenergized in alarm condition).

Output status indication: one red LED marked AL1:
- flashes when the instrument is in alarm condition;
- lights when the instrument is in alarm condition but the alarm condition has been acknowledged;
- Off when no alarm condition is present.

Output 2 (optional)

Type: relay
Contact: SPST (normally open).
Contact rating: 2 A at 250 V AC on resistive load.
Action: programmable
- direct (relay energized in alarm condition);
- reverse (relay deenergized in alarm condition).

Output status indication: one red LED marked AL2:
- flashes when the instrument is in alarm condition;
- lights when the instrument is in alarm condition but the alarm condition has been acknowledged;
- Off when no alarm condition is present.

ALARMS

Type: Process alarm.
Operative mode: programmable as high or low alarm.
Alarm threshold: programmable in engineering units within the readout range.
Hysteresis: from 0.1 % to 10.0% of the readout span.

Alarm reset

- Automatic (see figure 3)
- manual (see figure 4)
- “Silence” function

Note: the “Silence” function is a typical function of the alarm annunciators (see ISA alarm annunciator operational sequence) and it is usually applied to audible alarm indications (horns).
For other details see figure 5.

Stand by (masking) of the alarm

The alarm can be programmed as a masked or standard alarm. Alarm masking puts the alarms in the stand by condition (mask) during instrument power up. The instrument maintains the alarm masking for the duration of the alarm condition.

SPECIAL FUNCTIONS

Logic input

These instruments are equipped with a logic input used to manually reset the alarms.

Maximum and/or minimum data hold

The LHI is able to memorize the maximum and the minimum measured value. This function is automatically enabled at instrument power up and it is always active. By front push-button or serial link it is possible to display the memorized values and/or to delete the old values and start a new memorization period.

LHL - LHI

GENERAL SPECIFICATIONS

Case: self-extinguishing material according to UL 746C standard.

Front protection:
- designed and tested for IP 65 (*) and NEMA 4X (*) for indoor locations (when panel gasket is installed).
- IP 20 for rear of board version.
- (*) Test were performed in accordance with IEC 529, CEI 70-1 and NEMA 250-1991 STD.

Installation:
- panel mounting version by means of tie rods.
- Rear of board version on wall or omega DIN rail.

Rear terminal board: with screw terminals, connection diagram and safety rear cover.

Dimensions: 48 x 48 mm (according to DIN 43700); depth
- 122 mm for models with RS-485.
- 105 mm for models without RS-485

Weight: 250 g. max. (1/2 lb.).

Power supply: (switching mode) from 100 to 240 V AC. 50/60 Hz (+10 % to -15 % of the nominal value) or 24 V DC/AC (+10 % of the nominal value).

Power consumption: 5 W.

Insulation resistance: >100 MΩ according to IEC 1010-1.

Isolation voltage: 1500 V r.m.s. according to IEC 1010-1.

Common mode rejection ratio: 120 dB @ 50/60 Hz.

Normal mode rejection ratio: 60 dB @ 50/60 Hz.

Electromagnetic compatibility and safety requirements: This instrument is marked CE. Therefore, it is conforming to council directives 89/336/EEC (reference harmonized standard EN-50081-2 and EN-50082-2) and to council directives 73/23/EEC and 93/68/EEC (reference harmonized standard EN 61010-1).

Installation category: II.

D/A conversion: dual slope integration.

Sampling time:
- for linear inputs = 250 ms.
- for TC or RTD inputs = 500 ms.

Accuracy: + 0.2% f.s.v. @ 25 °C and nominal power supply voltage.

Operative temperature: from 0 to +50 °C.

Storage temperature: from -20 to +70 °C.

Humidity: from 20% to 85% RH not condensing.

MEASURING INPUTS

All inputs are factory calibrated and selectable by front keyboard.

Thermocouples

Type: B, C, D, E, G, L, J, K, N, Platinel II, R, S, T and U keyboard programmable.

Engineering unit: °C and °F keyboard programmable.

Burn out: Detection of the open input circuit (wires or sensor) with underrange or overrange selectable indication.

Cold junction: automatic compensation for an ambient temperature between 0 and 50 °C.

Cold junction compensation error: 0.1 °C/°C.

Input impedance: > 100 kΩ.

Calibration: according to IEC 584-1.

STANDARD RANGES TABLE

TC type	°C Range	°F
B	0 / 1820	+32 / 3300
C (W5)	0 / 2300	0 / 4170
D (W3)	0 / 2300	0 / 4170
E	-100 / 800	-150 / 1470
G (W)	0 / 2300	0 / 4170
L	-100 / 900	-150 / 1650
J	-100 / 1000	-150 / 1830
K	-100 / 1370	-150 / 2500
N	-100 / 1400	-150 / 2550
Platinel II	-100 / 1400	-150 / 2550
R	-50 / 1760	-60 / 3200
S	-50 / 1760	-60 / 3200
T	-200 / 400	-330 / 750
U	-200 / 600	-330 / 1110

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RTD input

RTD type: Pt 100 3 wire connection.
Calibration: according to DIN 43760
Line resistance: Max 20 Ω/wire with no measurable error.
Engineering unit: °C and °F keyboard programmable.
Burn out: Detection of the sensor open circuit and of one or more wires open circuit.
The instrument shows the short circuit indication when the resistance of the sensor is lower than 15 Ω.
Standard ranges:
- from -200 to 850 °C
- from -330 to 1560 °F

Linear inputs (mA and V)

Type: see table
Read-out: keyboard programmable from -1999 to 4000.
Decimal point: programmable in any position.

STANDARD RANGES TABLE

Input		Impedance	
0 - 20	mA	5	Ω
4 - 20	mA	5	Ω
0 - 60	mV	> 1	MΩ
12 - 60	mV	> 1	MΩ
0 - 5	V	> 400	kΩ
1 - 5	V	> 400	kΩ
0 - 10	V	> 400	kΩ
2 - 10	V	> 400	kΩ

SERIAL INTERFACE
(optional)

Types: RS-485.
Protocol type: MODBUS, JBUS.
Baud rate: programmable from 600 to 19200 BAUD.
Byte format: 8 bit.
Parity: even, odd or none programmable.
Stop bit: one.
Address: from 1 to 255.
Output voltage levels: according to EIA standard.