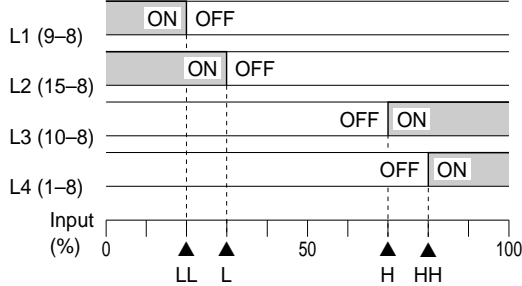


OUTPUT

Alarm Trip Operation Example with quad N.O. contacts (LL, L, H, HH); Terminal No. in parentheses



Trip Operation in Power Failure

- **Output code 2:** All relays turn OFF.
- **Output code 3:** All relays turn ON.
- **Output code 5:** Terminals 15 – 8, 1 – 8 turn ON.

- **Relay Contact:** 120V AC @1A (cosφ=1)*
240V AC @0.5A (cosφ=1)*
30V DC @1A (resistive load)*
Electrical life 10⁵ cycles (rate 30/min.)
- Maximum switching voltage:** 380V AC or 125V DC
- Maximum switching power:** 100VA or 30W*
- Minimum load:** 5V DC @10mA
- Mechanical life:** 5 × 10⁷ cycles
- *Limited within 0.5A for CE.

INSTALLATION

Power input

- AC:** Operational voltage range 85 – 264V;
47 – 66 Hz, approx. 11VA
- DC:** Operational voltage range for R: 24V ±10%
or P: 85 – 150V;
approx. 8W (ripple 10% p-p max.)

- Operating temperature:** -5 to +55°C (23 to 131°F)
- Operating humidity:** 30 to 90% RH (non-condensing)
- Mounting:** Surface or DIN rail
- Dimensions:** W72×H80×D132 mm (2.83"×3.15"×5.20")
- Weight:** 500 g (1.1 lbs)

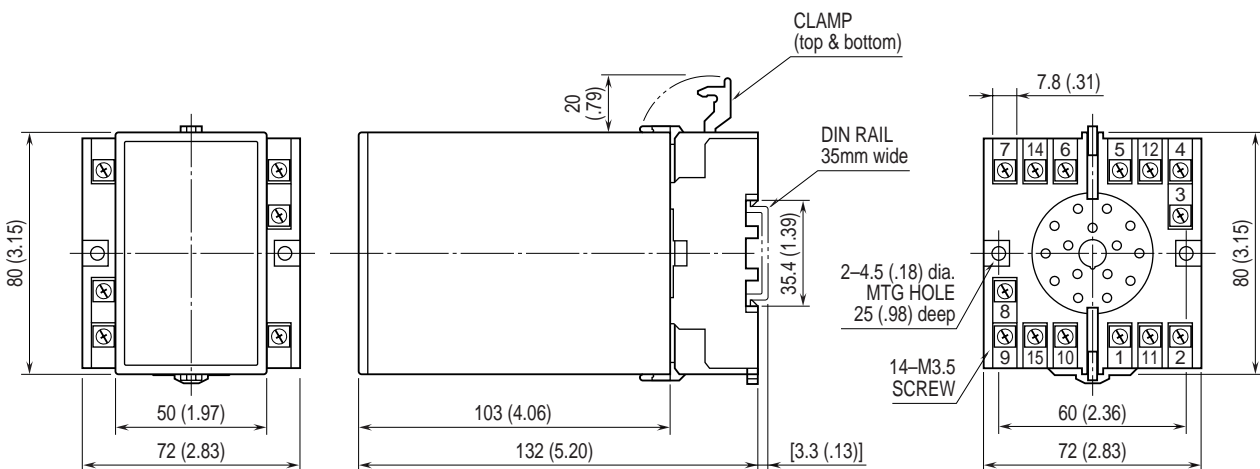
PERFORMANCE in percentage of FS input

- Setpoint accuracy (trip point accuracy):**
±(0.1% of FS + 1 digit)
- Display accuracy:** ±(0.1% of FS + 1 digit)
- Temp. coefficient:** ±0.015%/°C (±0.008%/°F)
- Response time:** ≤1.5 seconds (0 – 100% at 90% setpoint)
- Excitation:** Set value ±250mV
- Line voltage effect:** ±0.1% over voltage range
- Insulation resistance:** ≥100MΩ with 500V DC
- Dielectric strength:** 2000V AC @1 minute
(input to output to power to ground)

STANDARDS & APPROVALS

- CE conformity:** EMC Directive (89/336/EEC)
EMI EN61000-6-4
EMS EN61000-6-2
Low Voltage Directive (73/23/EEC)
Installation category II
Pollution degree 2
Max. operating voltage 300V
Input to output to power – Basic insulation

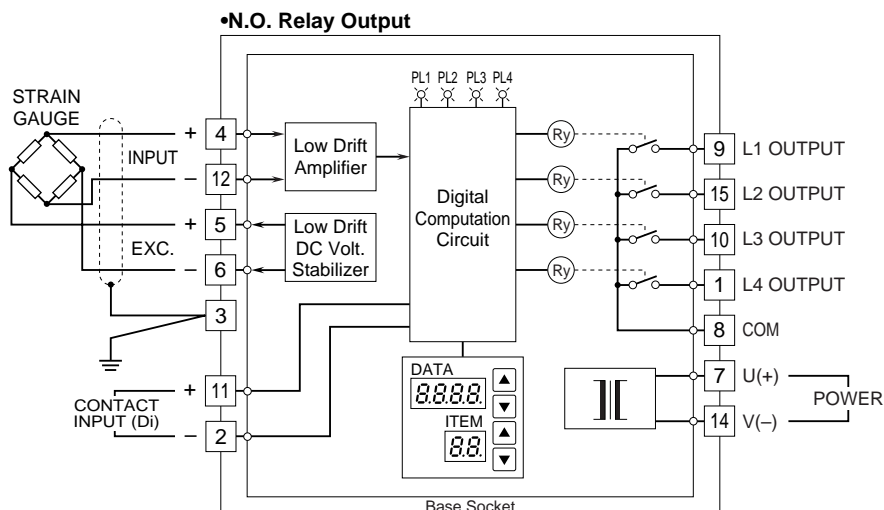
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS mm (inch)



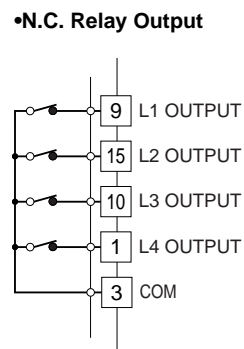
•When mounting, no extra space is needed between units.

SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

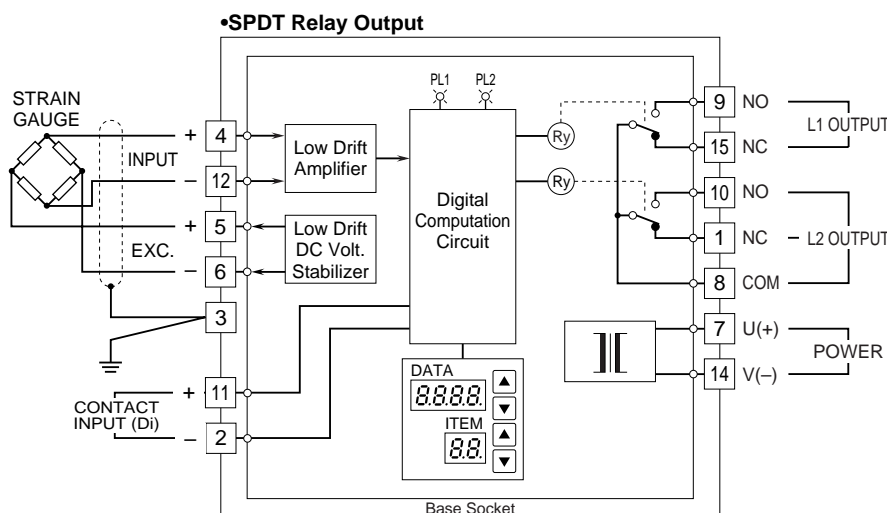
■ OUTPUT SUFFIX CODE: 2



■ OUTPUT SUFFIX CODE: 3

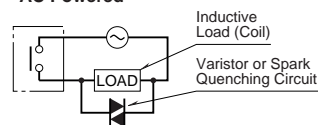


■ OUTPUT SUFFIX CODE: 5

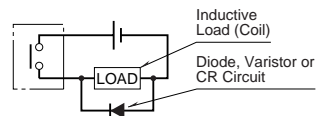


■ Relay Protection

•AC Powered



•DC Powered

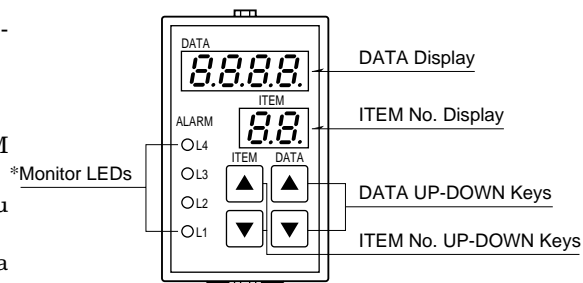


FRONT PANEL CONFIGURATION & PROGRAMMING

■ PROGRAMMING PROCEDURE

1. Press ITEM UP or DOWN key until ITEM display indicates "01".
2. Press DATA UP or DOWN key and choose "1" or "2" on DATA display.
 - 1 : Only alarm setpoints are modifiable.
 - 2 : All parameters are modifiable.
3. Press ITEM UP or DOWN key until ITEM display shows the ITEM No. you need to change.
4. Press DATA UP or DOWN key and choose a DATA No. or value you need on Data display.
5. Repeat above 3 and 4. (Entered data is stored when you move to a new ITEM.)
6. Press ITEM UP or DOWN key until ITEM display indicates "01".
7. Press DATA UP or DOWN key and choose "0" on the display.
8. Press ITEM UP or DOWN key until ITEM display indicates "P". DATA display shows process input. (You can now check data setting by choosing ITEM No.)

Note : DO NOT press UP and DOWN keys simultaneously.



*L3 or L4 does not turn on for dual output type.

| ITEM | MDF. CODE | DATA | CONTENTS | DEFAULT SETTING |
|------|-----------|--|---|-------------------------|
| P | N/A | -1999 – 9999 | Process input display in engineering unit (as set in ITEM 07/08) | — |
| L1 | 1, 2 | -1999 – 9999 | L1 alarm setpoint in engineering unit | Quad: 20.0 Dual: 20.0 |
| L2 | 1, 2 | -1999 – 9999 | L2 alarm setpoint in engineering unit | Quad: 30.0 Dual: 80.0 |
| L3 | 1, 2 | -1999 – 9999 | L3 alarm setpoint in engineering unit *1 | Quad: 70.0 |
| L4 | 1, 2 | -1999 – 9999 | L4 alarm setpoint in engineering unit *1 | Quad: 80.0 |
| 01 | | 0, 1, 2 | Modification code 0 : Data indication only. 1 : Only ITEM L1 – L4 are modifiable. 2 : All parameters are modifiable. | 1 |
| 02 | N/A | 0 – 99 | Status indication (“0” is normally indicated.) 0: Normal 1: Memory error 10: Out of input range -15 – 115% | |
| 03 | N/A | 0, 1, 2 | Input range code 0 : S1 (0.0 – 3.0mV/V) 1 : S2 (0.0 – 10.0mV/V) 2 : S3 (0.0 – 30.0mV/V) | User specified |
| 04 | N/A | 0, 1, 2 | Output range code 0 : 2 (Quad N.O.) 1 : 3 (Quad N.C.) 2 : 5 (Dual SPDT) | User specified |
| 05 | 2 | 0.1 – 12.0 | Excitation voltage (V) | 1.0V |
| 06 | 2 | 0.010 – 3.000 0.010 – 9.999 0.10 – 30.0 | Sensor sensitivity S1 : 0.0 – 3.0mV/V S2 : 0.0 – 10.0mV/V S3 : 0.0 – 30.0mV/V Used when adjusting the sensor sensitivity by its rating value. Set ITEM 07 before 06. | 3.000 9.999 30.00 |
| 07 | 2 | -19.99 – 30.00 -19.99 – 99.99 -19.99 – 300.0 | 0% input voltage S1 : -19.99 – 30.00mV S2 : -19.99 – 99.99mV S3 : -19.99 – 300.0mV Sensor's zero adjustment. Approximate offset voltage. | |
| 08 | 2 | -19.99 – 30.00 -19.99 – 99.99 -19.99 – 300.0 | 100% input voltage S1 : -19.99 – 30.00mV S2 : -19.99 – 99.99mV S3 : -19.99 – 300.0mV Used when adjusting the sensor sensitivity with an actual load. Set ITEM 07 before 08. | |
| 09 | 2 | 10.0 – 100.0 | Load ratio (%) Used when adjusting the sensor sensitivity with an actual load. | 100.0 |
| 10 | 2 | -199.9 – 999.9 | Tare adjustment (%) | 0.0 |
| 11 | N/A | -15.0 – 115.0 | Input indicated in % (of the range set in ITEM 06/07/08) | — |
| 12 | 2 | -19.99 – 99.99 | Zero adjustment (%) (fine adj. of the value set in ITEM 06/07/08) | 0.00 |
| 13 | 2 | 0.000 – 9.999 | Gain adjustment (fine adj. of the value set in ITEM 06/07/08) | 1.000 |
| 14 | 2 | -199.9 – 999.9 | Display range scaling 0% *2 | 0 |
| 15 | 2 | -199.9 – 999.9 | Display range scaling 100% *2 | 100 |
| 16 | 2 | 0, 1, 2, 3 | Decimal point position 0 : ____ 1 : ____ 2 : ____ 3 : ____ | 1 |
| 17 | 2 | 0, 1, 2, 3, 4 | Moving average (sampling cycle: 200 msec.) 0 : No 1 : 4 samples 2 : 8 samples 3 : 16 samples 4 : 32 samples | 0 |
| 18 | 2 | 0, 1, 2, 3 | Contact input function 0: Tare adjustment 1: Peak hold 2: Valley hold 3: Sample hold | |
| 19 | 2 | 0, 1 – 60 | Power-saving mode 0 : Continuous display 1 – 60 : Time before display turned off (minutes) | 10 |
| 20 | 2 | 10 – 99 | Power ON-delay time (seconds) | 10 |
| 21 | 2 | 0 – 99 | Alarm ON-delay time (seconds) | 0 |
| 22 | 2 | 0, 1 | L1 trip operation (0 : Lo, 1 : Hi) | Quad: 0 Dual: 0 |
| 23 | 2 | 0, 1 | L2 trip operation (0 : Lo, 1 : Hi) | Quad: 0 Dual: 1 |
| 24 | 2 | 0, 1 | L3 trip operation (0 : Lo, 1 : Hi) *1 | Quad: 1 |
| 25 | 2 | 0, 1 | L4 trip operation (0 : Lo, 1 : Hi) *1 | Quad: 1 |
| 26 | 2 | 0, 1 | L1 coil at alarm (0 : Energized, 1 : De-energized) | 0 |
| 27 | 2 | 0, 1 | L2 coil at alarm (0 : Energized, 1 : De-energized) | 0 |
| 28 | 2 | 0, 1 | L3 coil at alarm (0 : Energized, 1 : De-energized) *1 | 0 |
| 29 | 2 | 0, 1 | L4 coil at alarm (0 : Energized, 1 : De-energized) *1 | 0 |
| 30 | 2 | 1 – 9999 | L1 hysteresis (deadband) in engineering unit | 1.0 |
| 31 | 2 | 1 – 9999 | L2 hysteresis (deadband) in engineering unit | 1.0 |
| 32 | 2 | 1 – 9999 | L3 hysteresis (deadband) in engineering unit *1 | 1.0 |
| 33 | 2 | 1 – 9999 | L4 hysteresis (deadband) in engineering unit *1 | 1.0 |
| 34 | N/A | — | Version No. indication | — |

*1: Quad alarm trip type only

*2: Of the range set in ITEM 06/07/08. ITEM 14 < ITEM 15.

Specifications subject to change without notice.