Plug-in Signal Conditioners K-UNIT

DC ALARM

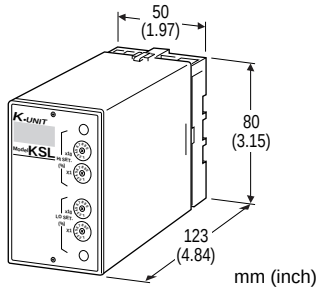
(rotary switch adjustments)

Functions & Features

- Providing relay contact closures at preset DC input levels
- Dual (Hi/Lo) trip
- Rotary switch setpoint adjustments
- Enclosed relays
- Relays can be powered 110 V DC
- High-density mounting

Typical Applications

- Annunciator
- Various alarm applications



MODEL: KSL-[1][2]-[3]/CE

ORDERING INFORMATION

- Code number: KSL-[1][2]-[3]/CE

Specify a code from below for each [1] through [3].
(e.g. KSL-62-H/CE)

- Special input range (For codes Z & 0)

[1] INPUT

Current

A: 4 – 20 mA DC (Input resistance 250 Ω)
A1: 4 – 20 mA DC (Input resistance 50 Ω)
B: 2 – 10 mA DC (Input resistance 500 Ω)
C: 1 – 5 mA DC (Input resistance 1000 Ω)
D: 0 – 20 mA DC (Input resistance 50 Ω)
E: 0 – 16 mA DC (Input resistance 62.5 Ω)
F: 0 – 10 mA DC (Input resistance 100 Ω)
G: 0 – 1 mA DC (Input resistance 1000 Ω)
H: 10 – 50 mA DC (Input resistance 100 Ω)
J: 0 – 10 μA DC (Input resistance 1000 Ω)
K: 0 – 100 μA DC (Input resistance 1000 Ω)
GW: -1 – +1 mA DC (Input resistance 1000 Ω)
FW: -10 – +10 mA DC (Input resistance 100 Ω)
Z: Specify current (See INPUT SPECIFICATIONS)

Voltage

1: 0 – 10 mV DC (Input resistance 10 kΩ min.)
15: 0 – 50 mV DC (Input resistance 10 kΩ min.)
16: 0 – 60 mV DC (Input resistance 10 kΩ min.)
2: 0 – 100 mV DC (Input resistance 100 kΩ min.)
3: 0 – 1 V DC (Input resistance 1 MΩ min.)
4: 0 – 10 V DC (Input resistance 1 MΩ min.)
5: 0 – 5 V DC (Input resistance 1 MΩ min.)
6: 1 – 5 V DC (Input resistance 1 MΩ min.)
4W: -10 – +10 V DC (Input resistance 1 MΩ min.)
5W: -5 – +5 V DC (Input resistance 1 MΩ min.)
0: Specify voltage (See INPUT SPECIFICATIONS)

[2] OUTPUT

2: Relay; N.O. or make contact
3: Relay; N.C. or break contact

[3] POWER INPUT

AC Power

G: 200 V AC
H: 220 V AC
J: 240 V AC

DC Power

S: 12 V DC
R: 24 V DC

GENERAL SPECIFICATIONS

Construction: Plug-in
Connection: M3.5 screw terminals
Housing material: Flame-resistant resin (black)
Isolation: Input to output to power
Setpoint adjustments: 10-position rotary switches (front); 0 – 99 % independently; 1 % increments
Hysteresis (deadband): 1 – 2.5 %
Front LEDs: Red lights turn on when the coils are energized.
Power ON timer: Relays de-energized for approx. 2 seconds after power is turned on.

INPUT SPECIFICATIONS

■ **DC Current**:
Shunt resistor attached to the input terminals (0.5 W)
Specify input resistance value for code Z.
■ **DC Voltage**: -30 – +30 V DC
Span: Min. 10 mV, max. 30 V
Offset: Max. 1.5 times span
•**Input resistance**
Span 10 – 100 mV : ≥ 10 kΩ
Span 0.1 – 1 V : ≥ 100 kΩ
Span ≥ 1 V : ≥ 1 MΩ

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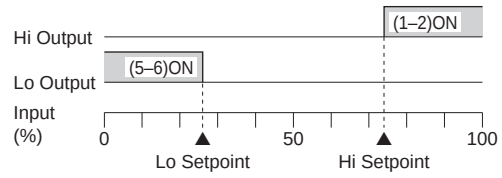
OUTPUT SPECIFICATIONS

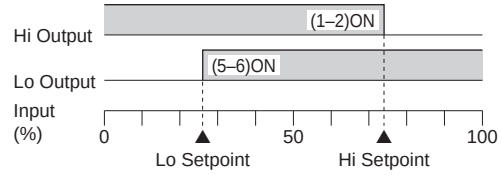
■ **Relay Contact:** 120 V AC @0.5 A (cos ø = 1)
240 V AC @0.5 A (cosø=1)
30 V DC @0.5 A (resistive load)
Maximum switching voltage: 380 V AC or 125 V DC
Maximum switching power: 120 VA or 30 W (≤ 0.5 A)
Minimum load: 5 V DC @10 mA
Mechanical life: 5 × 10^7 cycles
For maximum relay life with inductive loads, external protection is recommended.

Alarm Trip Operation Terminal No. in parentheses

•Output Code : 2



•Output Code : 3



Trip Operation in Power Failure

•Output Code : 2: both relays turn OFF
•Output Code : 3: both relays turn ON

INSTALLATION

Power input
• **AC**: Operational voltage range: rating ±10 %, 50/60 ±2 Hz, approx. 2 VA
•**DC**: Operational voltage range: rating ±10 %, ripple 10 %p-p max., approx. 2 W (80 mA at 24 V)
Operating temperature: -5 to +55°C (23 to 131°F)
Operating humidity: 30 to 90 %RH (non-condensing)
Mounting: Surface or DIN rail
Weight: 400 g (0.88 lb)

PERFORMANCE in percentage of span

Setpoint accuracy: ±0.5 %
Trip point repeatability: ±0.05 %
Temp. coefficient: ±0.02 %/°C (±0.01 %/°F)
Response time: ≤ 0.5 sec. (0 – 100 % at 90 % setpoint)
Line voltage effect: ±0.1 % over voltage range
Insulation resistance: ≥ 100 MΩ with 500 V DC
Dielectric strength: 2300 V AC @1 minute (input to output to power to ground)

STANDARDS & APPROVALS

CE conformity:
EMC Directive (2004/108/EC)
EMI EN 61000-6-4: 2007
EMS EN 61000-6-2: 2005
Low Voltage Directive (2006/95/EC)
EN 61010-1: 2001
Installation Category II
Pollution Degree 2
Input or output to power: Reinforced insulation (300 V)
Input to output: Basic insulation (300 V)

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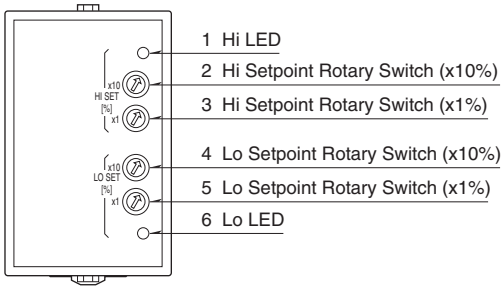
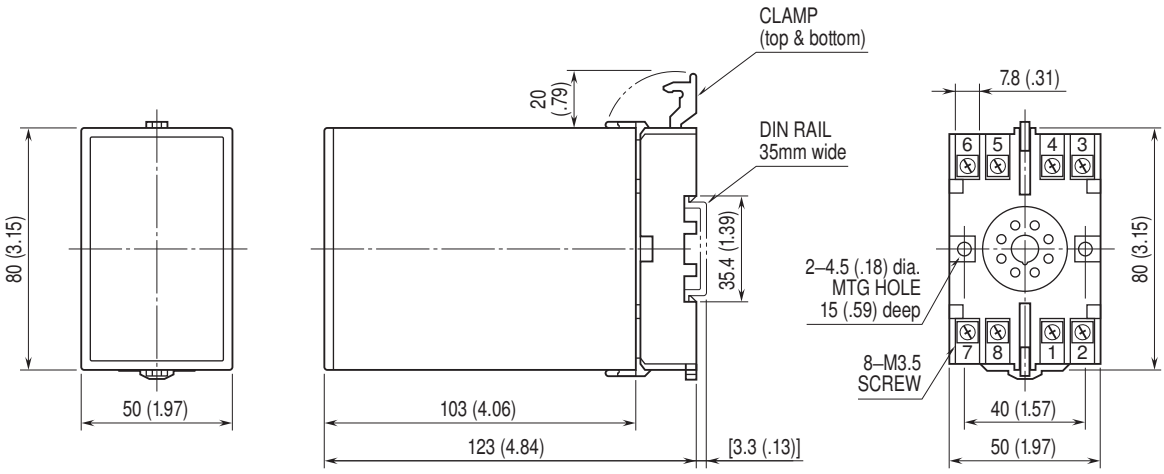
EXTERNAL VIEW



DIMENSIONS unit: mm (inch)

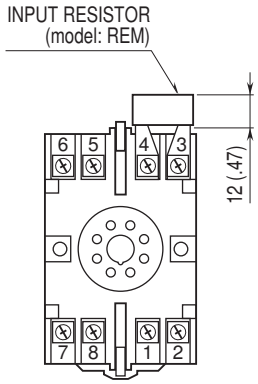
■**OUTPUT CODE: 2, 3**



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

TERMINAL ASSIGNMENTS unit: mm (inch)

• **Output Code 2, 3**



Input shunt resistor attached
for current input.

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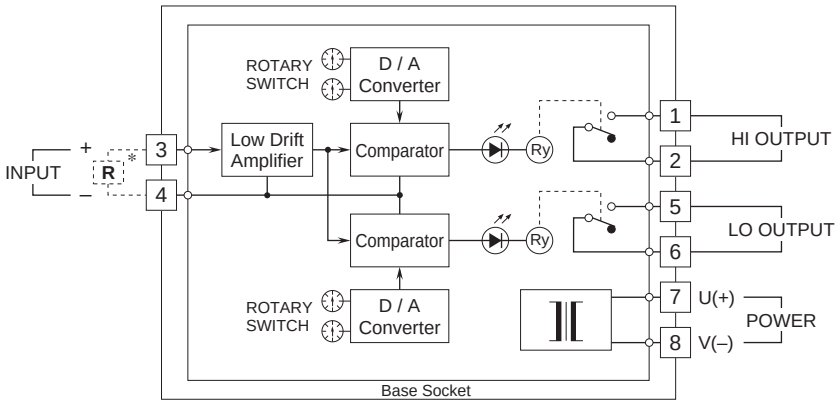
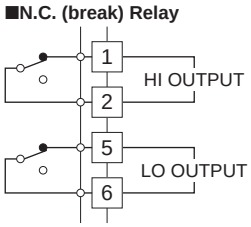
SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM

- **Output Code 2, 3**

■N.O. (make) Relay



■N.C. (break) Relay



*Input shunt resistor attached for current input.

⚠ Specifications are subject to change without notice.

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