

## Plug-in Signal Conditioners K-UNIT

### DC INPUT LIMIT ALARM

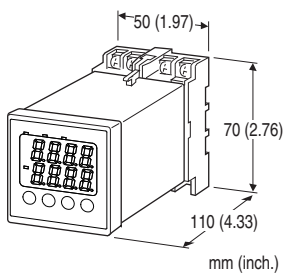
(digital adjustments; dual alarm trip; w/o burnout)

#### Functions & Features

- Providing relay contact closures at preset DC input levels
- Dual (Hi/Lo) trip
- Front digital displays
- Programmable with front keys
- Alarm relay switching delay time 999 sec. max.

#### Typical Applications

- Various alarm applications



## MODEL: KS2V3-61-[1][2]

### ORDERING INFORMATION

- Code number: KS2V3-61-[1][2]
- Specify a code from below for each of [1] and [2].  
(e.g. KS2V3-61-R/Q)
- Specify the specification for option code /Q  
(e.g. /SET)

### INPUT

Voltage

**6:** 1 - 5 V DC

(Use a resistor module for current input)

### OUTPUT

**1:** Relay; SPDT or transfer contact

### [1] POWER INPUT

AC Power

**M2:** 100 - 240 V AC (Operational voltage range 85 - 264 V,  
47 - 66 Hz)

DC Power

**R:** 24 V DC

(Operational voltage range 24 V  $\pm$ 10 %, ripple 10 %p-p max.)

### [2] OPTIONS

blank: none

/Q: Options other than the above (specify the specification)

### SPECIFICATIONS OF OPTION: Q

EX-FACTORY SETTING

/SET: Preset according to the Ordering Information Sheet  
(No. ESU-3603)

### RELATED PRODUCTS

- Resistor module (model: REM)  
500  $\Omega$  for 2 - 10 mA DC  
250  $\Omega$  for 4 - 20 mA DC  
100  $\Omega$  for 10 - 50 mA DC

## GENERAL SPECIFICATIONS

**Construction:** Panel flush mounting, plug-in  
**Connection:** M3.5 screw terminals  
**Screw terminal:** Chromated steel  
**Housing material:** Flame-resistant resin (gray)  
**Isolation:** Input to SET1 to SET2 to power  
**Time constant for the input filter (P-dF):** 0.0 to 900.0 sec. (0 - 63 %)  
**Alarm relay switching delay time (P-d1, P-d2):** 1 to 999 sec.; programmable independently for each setpoint  
**Programming:** Front key  
**Setpoint adjustment (ST1, ST2):** -5 to +105 %; programmable independently for each setpoint  
**Deadband (hysteresis) (HYS1, HYS2):** 0 - 102 %; programmable independently for each setpoint  
**Power ON delay (P-d0):** 0 to 20 sec.  
**Read rate:** 0.5 sec.  
**Alarm mode (P-A1, P-A2):** Programmable independently for each setpoint; See Table below.

Param. Code (P-A1) (P-A2)	Alarm Modes			
	Trip Operation	Set Value	Latching Hold*	Relay & LED Behavior in Tripped Conditions
0	No alarm	----	----	----
1	High	Absolute value	Without	LED ON Coil energized
2	Low	Absolute value	Without	LED ON Coil energized
3	High	Absolute value	With	LED ON Coil energized
4	Low	Absolute value	With	LED ON Coil energized
5	High	Absolute value	Without	LED ON Coil de-energized
6	Low	Absolute value	Without	LED ON Coil de-energized
7	High	Absolute value	With	LED ON Coil de-energized
8	Low	Absolute value	With	LED ON Coil de-energized

\*Without latching hold function, the unit is tripped upon starting operation when the unit is set to Low alarm.  
 With the function, the unit is NOT tripped until the temperature goes once above and then below the setpoint.

## DISPLAY

**Display:** 4 digits of 10 mm (.39") height, 7-segment LED  
**Scaling range:** -1999 to 9999 counts  
**Measured Value (PV)/Alarm (SET1) display:** Red LEDs  
**Alarm (SET2) parameter display:** Green LEDs  
**PV display at abnormal input:** Over range or under range displayed  
**Front LEDs**  
**Power indicator:** Green LED turns on while the power is turned on.  
**Measured Value (PV) indicator:** Green LED turns on when PV display is set.

**Alarm SET1 indicator:** Red LED turns on when the Alarm SET1 is in tripped conditions.

**Alarm SET2 Indicator:** Red LED turns on when the Alarm SET2 is in tripped conditions.

**Engineering unit indication:** Sticker label attached;  
 DC, AC, W, °C, °F, V, mV, A, mA, %, kW, mW, kV, kA, kvar, Mvar, var, m, mm, kg, kg/h, kPa, MPa, N·m, Nm<sup>3</sup>/h, m<sup>3</sup>/h, m<sup>3</sup>/sec, m/sec, l/min, %RH, l, l/h, t/h, rpm, ppm, pH, Pa.

## INPUT SPECIFICATIONS

■ **DC Voltage:** -5 - +105 %  
**Input resistance:** ≥ 1 MΩ

## OUTPUT SPECIFICATIONS

■ **Relay Contact:** SPDT relays  
 220 V AC @3 A (cos φ = 1)  
 30 V DC @3 A (resistive load)  
 Caution: N.O. and N.C. contacts could be conductive at the same time. DO NOT connect both contacts at the same time.  
**Maximum switching voltage:** 220 V AC or 30 V DC  
**Maximum switching power:** 660 VA or 90 W  
**Minimum load:** 10 V DC @1 mA  
**Mechanical life:** 2 × 10<sup>7</sup> cycles with no loads  
 For maximum relay life with inductive loads, external protection is recommended.

## INSTALLATION

### Power consumption

#### •AC:

Approx. 3.1 VA at 100 V  
 Approx. 4.1 VA at 200 V  
 Approx. 4.8 VA at 264 V

#### •DC: Approx. 1.7 W

**Operating temperature:** -10 to +55°C (14 to 131°F)

**Operating humidity:** 30 to 90 %RH (non-condensing)

**Mounting:** Panel flush mounting with attached mounting bracket, surface or DIN rail

**Weight:** 200 g (0.44 lb)

## PERFORMANCE

**Display accuracy:** ±0.5% FS ±1 digit

**Setpoint accuracy:** Display accuracy ± 0.1 % FS

**Trip point repeatability:** Included in the setpoint accuracy

**Line voltage effect:** Included in the display accuracy

**Insulation resistance:** ≥ 100 MΩ with 500 V DC

**Dielectric strength:** 1500 V AC @1 minute

(input to SET1 or SET2 to power)

500 V AC @1 minute (SET1 to SET2)

## STANDARDS & APPROVALS

### EU conformity:

EMC Directive

EMI EN 61000-6-4

EMS EN 61000-6-2

Low Voltage Directive

EN 61010-1

Installation Category II (power)

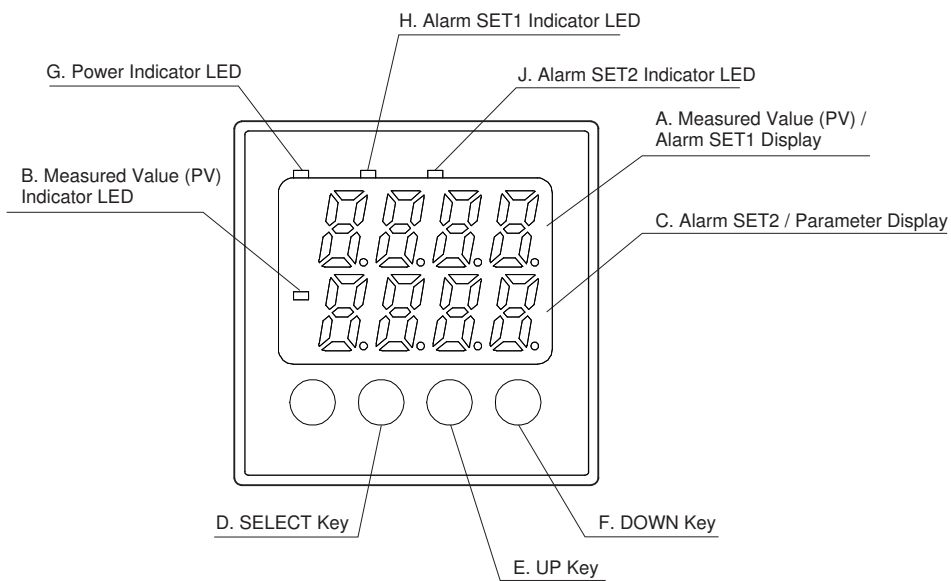
Measurement Category II (output)

Pollution Degree 2

Input to output to power: Basic insulation (300 V)

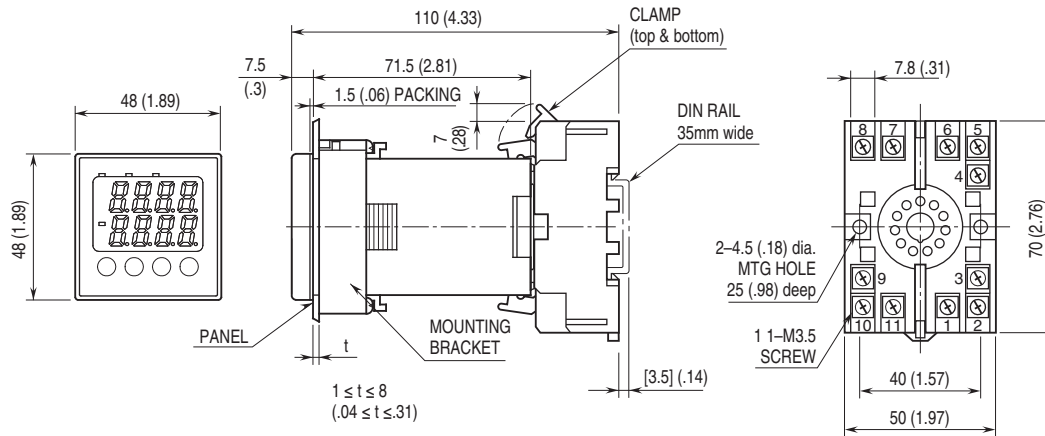
RoHS Directive

## EXTERNAL VIEW



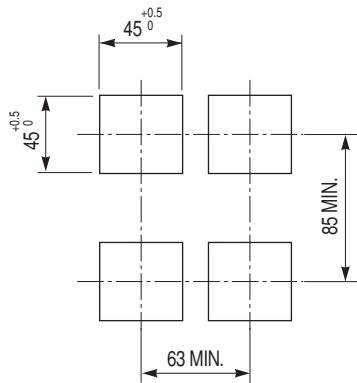
Ref.	Component Name	Function
A	Measured Value (PV) / Alarm SET1 Display	Displaying either of Measured Value (PV) or Alarm Setpoint Value (SET1)
B	Measured Value (PV) Indicator LED	LED turns on when the Measured Value (PV) is displayed.
C	Alarm SET2 / Parameter Display	Displaying either of Alarm Setpoint Value (SET2) or parameter type code.
D	SELECT Key	Used for confirming current setpoints and switching between parameter blocks.
E	UP Key	Pressing the key increases display values. They change continuously when it is kept pressed.
F	DOWN Key	Pressing the key decreases display values. They change continuously when it is kept pressed.
G	Power Indicator LED	LED turns on while the power is turned on.
H	Alarm SET1 Indicator LED	LED turns on when the Alarm SET1 is in tripped conditions.
J	Alarm SET2 Indicator LED	LED turns on when the Alarm SET2 is in tripped conditions.

**EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS** unit: mm [inch]

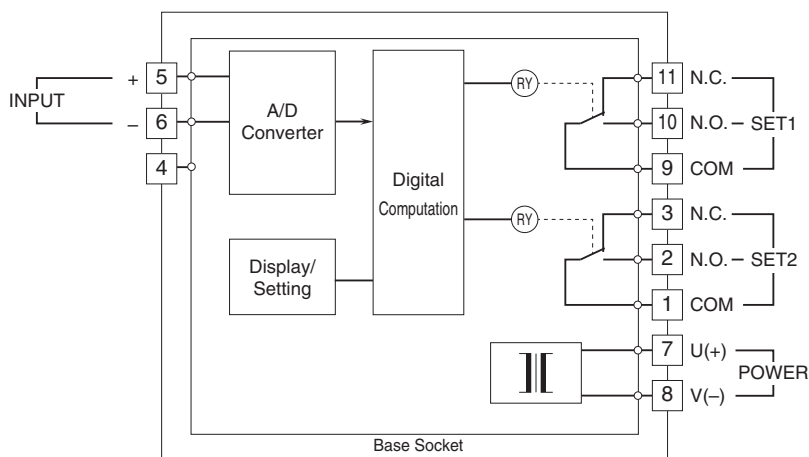


**PANEL CUTOUT** unit: mm

■ PANEL CUTOUT



**SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM**



Specifications are subject to change without notice.