

Field-mounted Two-wire Signal Conditioners 6-UNIT

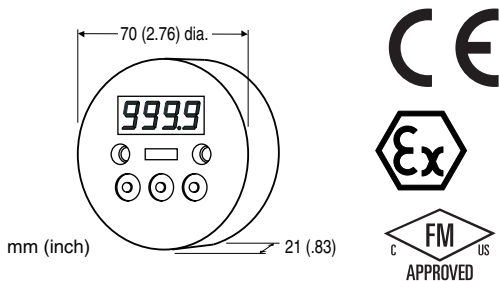
4-DIGIT LOOP POWERED INDICATOR

(intrinsically safe)

Functions & Features

- 4-digit LED display
- No external power source needed
- Scaling, linearization and other configurations selectable via three front control buttons
- Mountable on top of the Two-wire Universal Temperature Transmitter (model: 27HU)

Note: Differences between the 6DV and the 6DVI exist only in safety parameters. Refer to the relevant section for more information.



MODEL: 6DVI-[1]

ORDERING INFORMATION

- Code number: 6DVI-[1]

Specify a code from below for [1].

- (e.g. 6DVI-2)
- Use Ordering Information Sheet (No. ESU-4221). Factory standard setting will be used if not otherwise specified.
- Specify the country in which the product is to be used with the Safety Approval code 2.

[1] SAFETY APPROVAL

- 1: FM intrinsically safe
- 2: ATEX intrinsic safety

RELATED PRODUCTS

- DIN rail mounting adaptor (model: A-34)
- Mounting spacer (model: A-6)

GENERAL SPECIFICATIONS

Connection: Euro terminal

Applicable wire size: 0.14 - 1.5 mm² (AWG26 - 16), stripped length 6 mm

Housing material: Flame-resistant resin (black)

Linearization: Proportional, SQRT ($X^{1/2}$), RT32 ($X^{3/2}$), RT52 ($X^{5/2}$), user's linearization table (max. 21 calibration points) (Default setting: Proportional)

A/D conversion: Dual-slope integration

Security: Protecting settings

Scaling: Programming via the front buttons

DISPLAY

LED: 8 mm (.3") 7-segment, red

Number of display digits: 4

Scaling range: -1999 to 9999 counts

Offset range: -1999 to 9999 counts

Decimal point position: 10⁻¹, 10², 10³ or none

Polarity sign: Minus (-) sign added automatically according to the computation result

Over-range warning: All segments dark except the top ones that blink with the input exceeding the display/measurable range; or the bottom ones that blink with the input below the range.

Read rate: 2.5/s

Engineering unit indication: Sticker label attached

DC, AC, W, °C, °F, V, mV, A, mA, %, kW, mW, kV, kA, psi, K, bar, barg, Nl/min, kvar, Mvar, var, m, mm, kg, kg/h, kPa, MPa, N·m, Nm³/h, m³/h, m³/sec, m/sec, kgf/cm², l/min, %RH, l, l/h, t/h, rpm, ppm, pH, Pa

INPUT SPECIFICATIONS

■ **DC Current:** 4 - 20 mA DC

Measurable range: 3.75 - 23 mA DC

Maximum input current: Refer to 'Safety Parameters.'

Voltage drop: Approx. 3.7 V with 4 mA

Approx. 4.0 V with 20 mA (Equivalent input impedance: Approx. 200 Ω)

(The minimum required supply voltage to the 2-wire transmitter added with the indicator's voltage drop at the maximum input current must be within the output voltage range of the 2-wire transmitter's excitation supply.)

INSTALLATION

Operating temperature: Refer to the 'Safety Parameters' section.

Operating humidity: 0 to 95 %RH (non-condensing)

Weight: 65 g (2.3 oz)

PERFORMANCE

Accuracy: ±0.01 mA

Temp. coefficient: ±0.015 %/°C (±0.008 %/°F) at 4 - 20 mA input

HOW TO CALCULATE ACCURACY AGAINST SCALE

Example 1: 4 - 20 mA input, Scale 0 - 100

Accuracy = 0.01 mA ÷ (20 - 4) mA × 100 = 0.063 %

Display Error = (100 - 0) × 0.063 % = ±0.063 digits

Example 2: 10 - 20 mA input, Scale 100 - 1000

Accuracy = 0.01 mA ÷ (20 - 10) mA × 100 = 0.1 %

Display Error = (1000 - 100) × 0.1 % = ±0.9 digits

STANDARDS & APPROVALS

Refer to the manuals to comply with the standards.

EU conformity:

ATEX Directive (for ATEX intrinsic safety)

Ex ia EN 60079-11

EMC Directive

EMI EN 61000-6-4

EMS EN 61000-6-2

RoHS Directive

EN 50581

Safety approval:

FM: Intrinsically safe

Class I, Div. 1, Groups A, B, C and D

Class I, Zone 0, AEx ia IIC (US)

Class I, Zone 0, Ex ia IIC (Canada)

T4 and T5

(Class 3600)

(Class 3610)

(ANSI/ISA 60079-0)

(ANSI/ISA 60079-11)

(CAN/CSA-C22.2 E60079-0)

(CAN/CSA-C22.2 E60079-11)

ATEX: Intrinsic safety

⊕ II 1G, Ex ia IIC; T4, T5, Ga

(EN 60079-0)

(EN 60079-11)

SAFETY PARAMETERS

Operating temperature

Temp. class: Operating temperature

T4: -40 to +85°C

T5: -40 to +60°C

Intrinsic safety Ex data

Ui: (Vmax) 28 V DC

Ii: (Imax) 120 mA DC (Max. current allowed for the safety approval; Not to guarantee the product's performance.)

Pi: (Pmax) 0.84 W

Cl: 1.0 nF

Li: 0 mH

DISPLAY DESCRIPTIONS

■ DISPLAY DIGITS

The decimal point position may shift according to the required number of digits for the integer section, even when more than one decimal places have been specified.

However, when the number of decimal places is set to 3, the '0' in the integer section is not shown in order to secure the number of effective digits, as explained in the table below.

The '0' is displayed when the number of decimal places is set to 2, though the number of effective digits in this case is reduced by 1 digit compared from the 3 decimal places.

Select appropriately for the application. Refer to 'Programming Procedure' for how to choose decimal point positions.

DECIMAL	VALUE	DATA DISPLAY
3	-1.000 thr . -1.999	<i>-1000 ... -1999</i>
	-0.001 thr . -0.999	<i>-001 ... -999</i>
2	-1.00 thr . -1.99	<i>-100 ... -199</i>
	-0.01 thr . -0.99	<i>-001 ... -099</i>

■ ERROR INDICATION

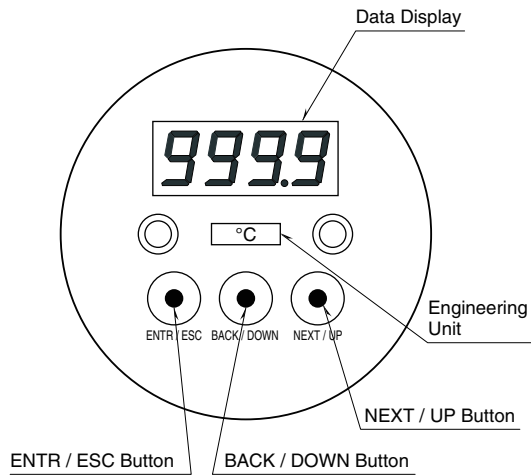
The data display blinks when an abnormality is detected.

The unit display backlight also blinks.

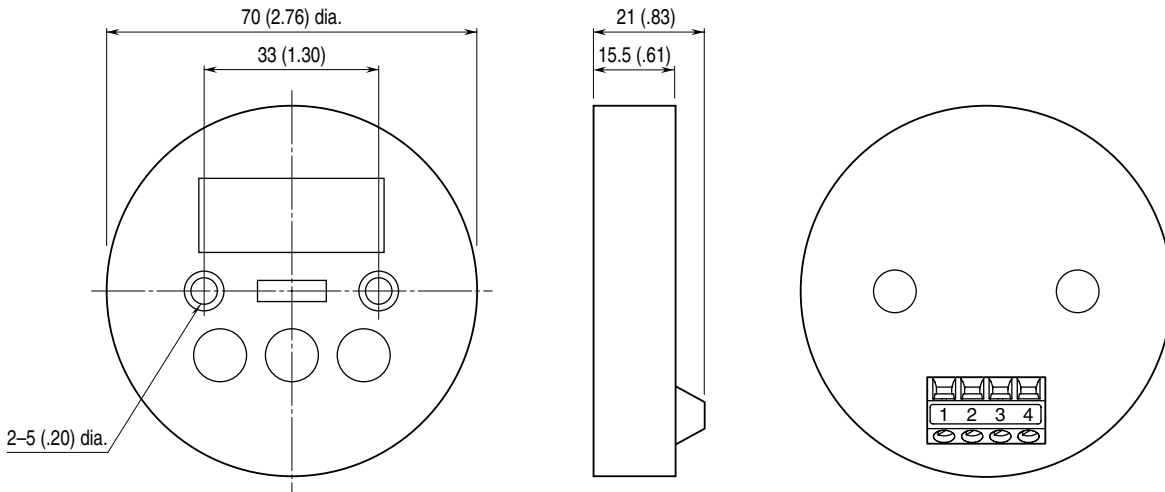
When the setting error or the security code error occurs, press ENTR / ESC button once to cancel the error status and proceed to set again.

ERROR TYPE	DATA DISPLAY
Over-scale	<i>----</i>
Under-scale	<i>----</i>
Setting error	<i>Err</i>
Security code error	<i>Err</i>

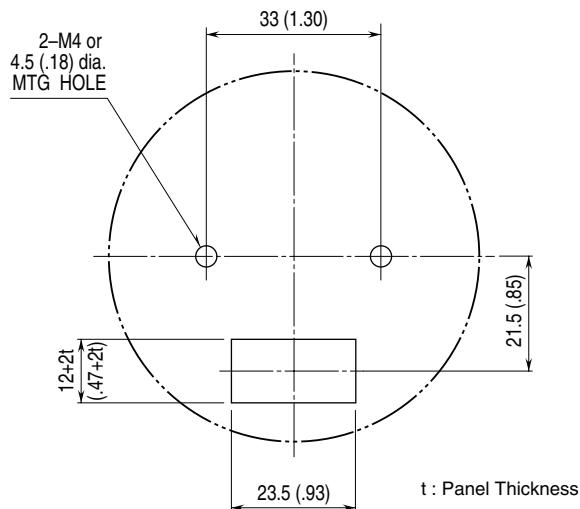
EXTERNAL VIEW



EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)

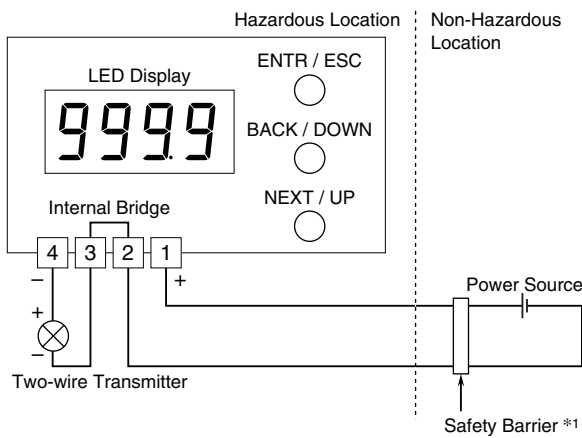
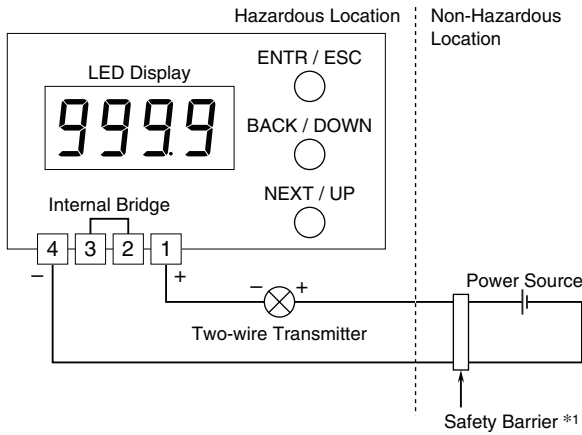


MOUNTING REQUIREMENTS unit: mm (inch)

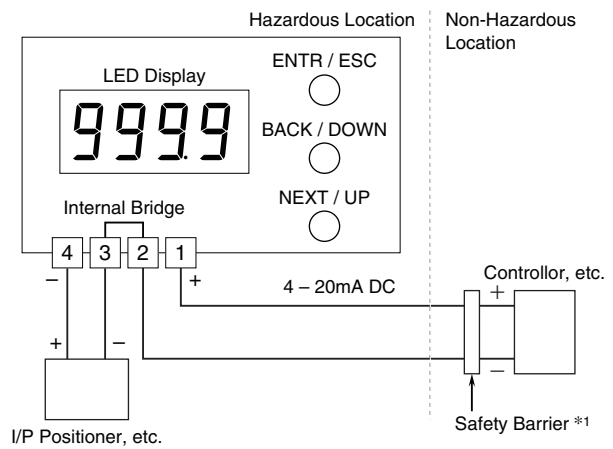
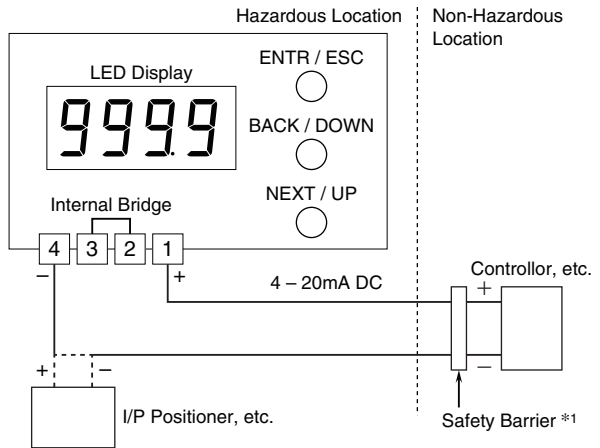


CONNECTION DIAGRAM

■ 2-WIRE CONNECTION EXAMPLE



■ 4-WIRE CONNECTION EXAMPLE



*1. A safety barrier must be installed.

The safety barrier must meet the Ex-data of this unit and must be approved for the hazardous location.



Specifications are subject to change without notice.