Field-mounted Two-wire Signal Conditioners *6-UNIT*

4-DIGIT LOOP POWERED INDICATOR
(outdoor enclosure, explosion-proof)

MODEL **6DV-B**

MODEL & SUFFIX CODE SELECTION

6DV–B–❑❑❑❑❑

MODEL

SAFETY APPROVAL*1

0 : None
3 : FM explosion-proof
4 : CENELEC flameproof (ATEX)
8 : TIIS flameproof *2

TERMINAL BLOCK

0 : None *3
T : Incorporated

WIRING CONDUIT*1

0 : G 1/2
1 : 1/2 NPT
2 : M20 × 1.5
3 : PG 13.5

MOUNTING BRACKET

0 : Without
1 : With

OPTIONS

/S : Stainless steel enclosure *3

*1 : Confirm selectable combinations of approval and wiring conduit types in the table below.
*2 : CE not available
*3 : TIIS approval not selectable

■SELECTABLE WIRING CONDUITS SPECIFIC TO EACH APPROVAL

'N' marked combinations are not selectable.

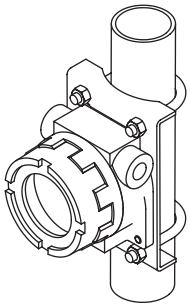
WIRING CONDUIT \ APPROVAL	0	3	4	8
0	Y	N	N	Y
1	Y	Y	Y	N
2	Y	N	Y	N
3	Y	N	N	N

ORDERING INFORMATION

Specify code number and variables (e.g. 6DV-B-0T01/S). Use Ordering Information Sheet (No. ESU-4220). 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 4.

RELATED PRODUCTS

- Cable gland (model: BX-E-SXY)
- Stopping plug (model: BX-E-SBP)



Functions & Features

- 4-digit LED display
- No external power source needed
- Scaling, linearization and other configurations selectable via three front control buttons
- Stainless steel enclosure optional

GENERAL SPECIFICATIONS

Environmental protection: NEMA 4X, IP65
Wiring conduit: See 'Model & Suffix Code.'
Electrical connection: Terminal block
Applicable wire size: AWG26-16 (0.14 – 1.5 mm²)
Materials
Indicator housing: Flame-resistant resin (black)
Enclosure: Diecast aluminium standard; stainless steel casting optional (equivalent to type 316); silver color, epoxy resin coated
Mounting bracket assembly: Stainless steel 304
Applicable pipe: 1 1/2" min.; 2" max.
Isolation: Input to outdoor enclosure
Input configuration: Dual-slope integration
Scaling: Software programming via the control buttons on the top
Linearization: Proportional, SQRT ($X^{1/2}$), RT32 ($X^{3/2}$), RT52 ($X^{5/2}$), user's linearization table (max. 21 calibration points)
Program lock: Prevents button controls

DISPLAY

LED: 8 mm (.3") 7-segment, red
Number of display digits: 4
Scaling range: -1999 – 9999
Offset range: -1999 – 9999
Decimal point position: 10^{-1}, 10^{-2}, 10^{-3}, or no decimal point
Polarity sign: Minus (–) sign added automatically according to the computation result
Read rate: 2.5/s
Over-range warning: All segments dark except the top ones that blinks with the input exceeding the display/measurable range; or the bottom ones that blinks with the input below the range.
Engineering unit display: Unit label included; LED backlight provided

INPUT

■**DC CURRENT**: 4 – 20mA DC
Measurable range: 3.75 – 23mA DC
Maximum input current: 100mA*
Voltage drop**: Approx. 3.7V with 4mA
Approx. 4.0V with 20mA
*Limited up to 23mA for explosion-proof approvals.
**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
Non-approved: : -40 to +85°C (-40 to +185°F)
CENELEC (ATEX) & FM: T6, -40 to +80°C (-40 to +176°F)
TIIS: T6, -20 to +60°C (-4 to +140°F)
Dimensions: Refer to the External Dimensions.
Weight: Approx. 1.3 kg (2.9 lbs), aluminum
Approx. 4.0 kg (8.8 lbs), stainless steel
Approx. 2.0 kg (4.4 lbs), TIIS flameproof

PERFORMANCE

Accuracy: ±0.01mA
Temp. coefficient: ±0.015%/°C (±0.008%/°F) at 4 – 20mA input
Dielectric strength: 1500V AC @1 minute (input to outdoor enclosure)

■HOW TO CALCULATE ACCURACY AGAINST SCALE

Example 1 (4 – 20mA input, Scale 0 – 100)

Accuracy = 0.01mA ÷ (20 – 4)mA × 100 = 0.063%
Display Error = (100 – 0) × 0.063% = ±0.063 digits

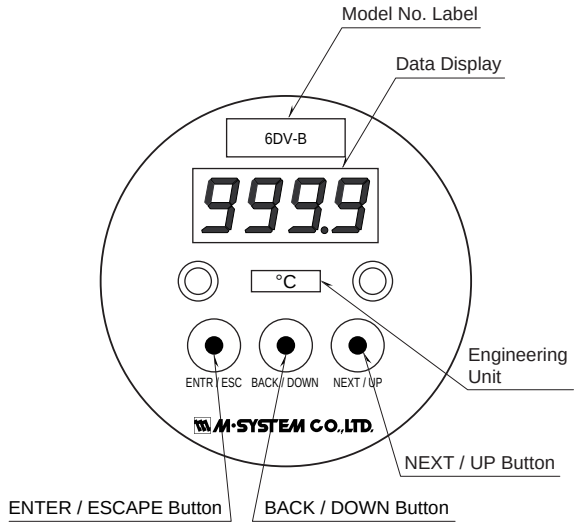
Example 2 (10 – 20mA input, Scale 100 – 1000)

Accuracy = 0.01mA ÷ (20 – 10)mA × 100 = 0.1%
Display Error = (1000 – 100) × 0.1% = ±0.9 digits

STANDARDS & APPROVALS

CE conformity: EMC Directive (89/336/EEC)
EMI EN61000-6-4
EMS EN61000-6-2
Safety approval
FM: Explosion-proof and Dust-ignition proof
Class I, Div. 1, Groups B, C and D
Class II, Div. 1, Groups E, F and G
Class III, Div. 1
T6 (Class 3615)
CENELEC: Flameproof (ATEX)
Ⓔx II 2G, EEx d IIC; T6
(EN50018 - 2000)
TIIS: Flameproof
Ex d IIC T6

TOP VIEW



ENTER / ESCAPE Button
ENTER: Used to call up the program menu and to apply parameter changes. Press for longer than 2 seconds.
ESCAPE: Used to cancel menu selections and to cancel parameter changes. Push for a brief period.
BACK / DOWN Button: Used to select a menu item or to decrease parameter values.
NEXT / UP Button: Used to select a menu item or to increase parameter values.

•How to Reset All Parameters to the Factory Setting
Turn off the power supply to the 6DV. In pressing all the three control buttons at once, turn it on. When a message appears on the data display, press ENTER. If you want to cancel the procedure, turn the power supply off.

Specifications subject to change without notice.

■ 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.

DECIMALS	VALUE	DISPLAY
3	-1.000 to -1.999	-1.000 to -1.999
	-0.001 to -0.999	-.001 to -.999
2	-1.00 to -1.99	- 1.00 to - 1.99
	-0.01 to -0.99	-0.01 to -0.99

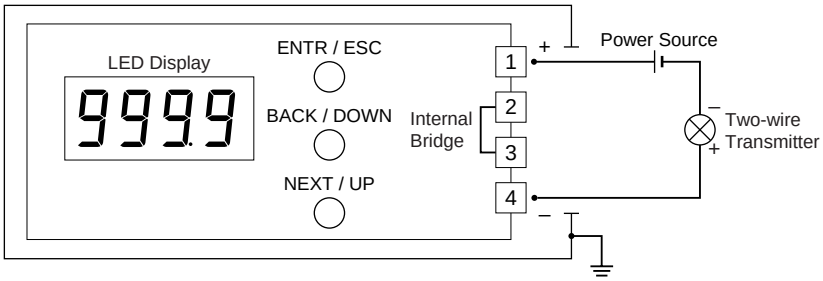
■ ERROR INDICATION

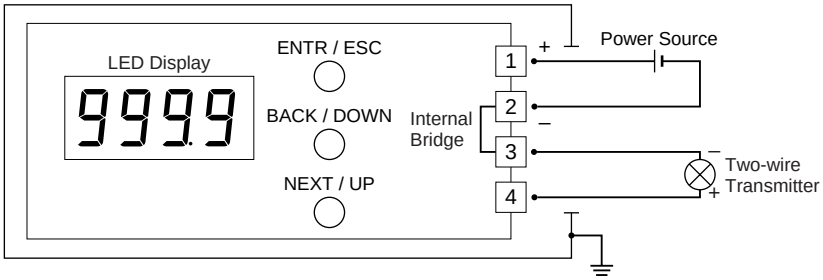
The data display blinks when an abnormality is detected. The unit display backlight also blinks.
When the setting error or the security code error occurs, press ESCAPE key once to cancel the error status and proceed to set again.

ERROR TYPE	DATA DISPLAY
Over-scale	----
Under-scale	----
Setting error	Err
Security code error	Err

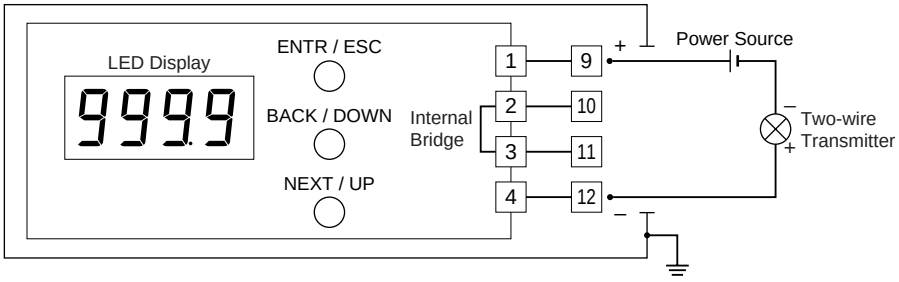
CONNECTION DIAGRAM

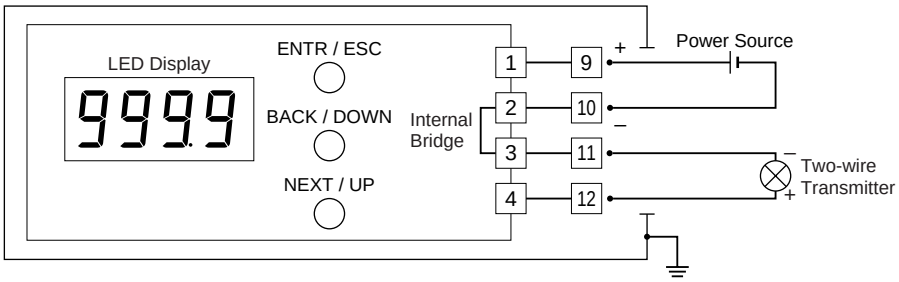
■WITHOUT TERMINAL BLOCK



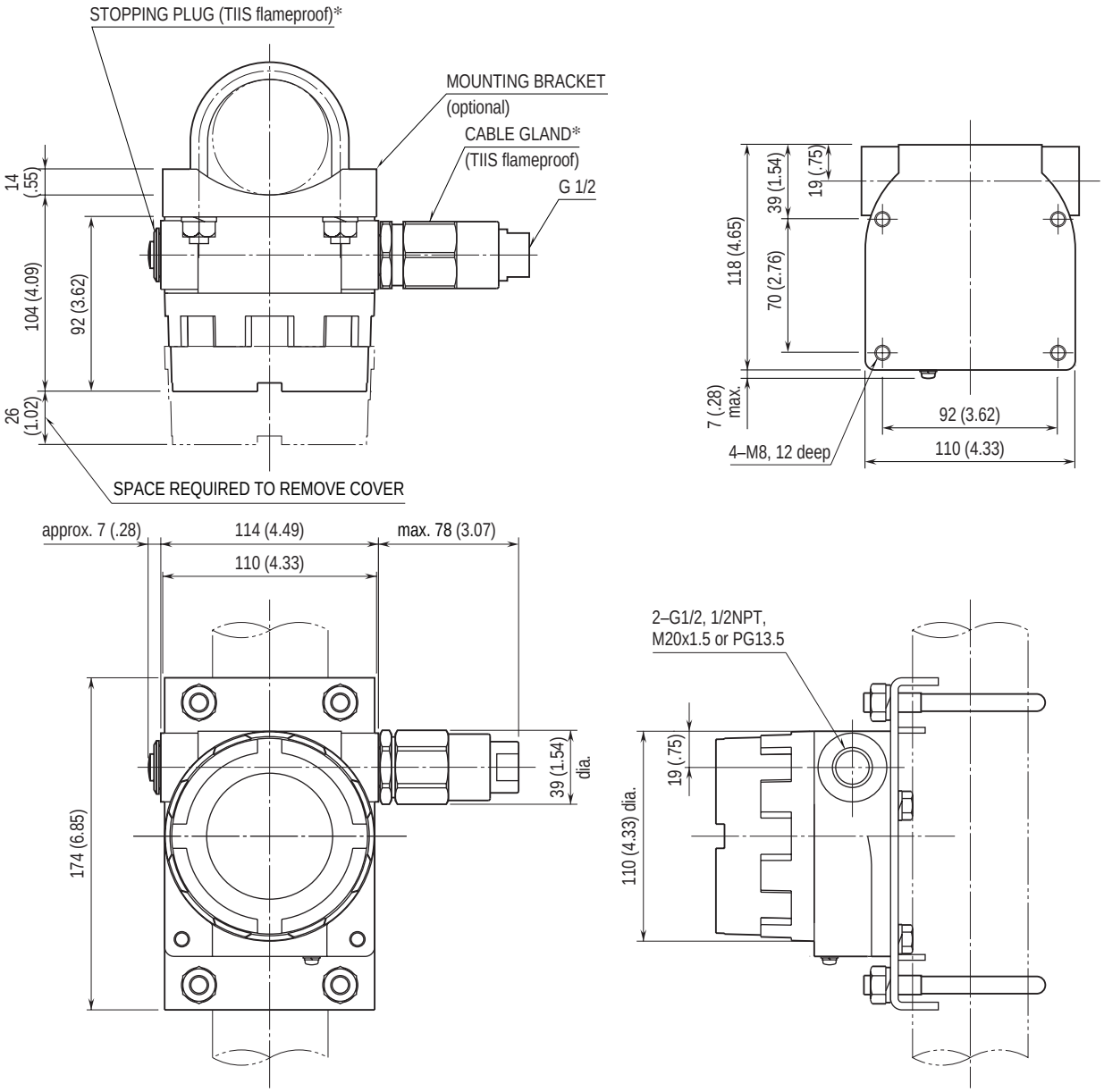


■WITH TERMINAL BLOCK





EXTERNAL DIMENSIONS mm (inch)



*Two cable glands and one plug are provided with TIIS flameproof type.
Use them according to the field wiring requirements.

PROGRAMMING PROCEDURE