

4-digit LED Loop Powered Indicator 6DV Series

- 4-20 mA input loop powered
- No external power source required
- Scaling & linearization selectable via the front control buttons
- IP65 field enclosure, aluminium or stainless steel
- ATEX Zone 0, FM Class I, II, III, Division 1 approvals



M-System's model 6DV is a 4-digit, 8-mm-high (0.3 in.), 7-segment red LED display. The bright LED, together with the backlighted unit indicator, provides an excellent legibility in a wide range of environments. The model 6DV-B is housed in an aluminium enclosure. Stainless steel housing is optional.

INPUT LOOP POWERED

The indicator is powered from a two-wire current loop (4 to 20 mA), requiring no external power source. The maximum voltage drop caused by inserting the 6DV into the loop is only 4.0 V at 20 mA. It is ideal for use as a remote indicator added to a current loop between a field sensor/transmitter and a monitoring/control room, without worrying about needing a power source or about loaded impedance on the loop.

PROGRAMMABLE FEATURES

The front three control buttons are used to program the LED module.

The display range is programmable from -1999 to 9999 and the decimal point is also selectable (10^{-1} , 10^{-2} , 10^{-3} or without decimals).

Other programmable functions include input signal calibration, offset setting and linearization. Standard process linearization functions such as square root extractor (orifice, venturi), $X^{3/2}$ (rectangular weir) and $X^{5/2}$ (triangular/v-notch weir) are pre-programmed, and a 21-point table is also programmable for any special user's needs.

MOUNTING OPTIONS

The 6DV can be mounted on top of a head-mount type transmitter (e.g. M-System's 27 Series), inside a field enclosure (See next page). DIN rail mounting is also available using the A-34 DIN rail adaptor.



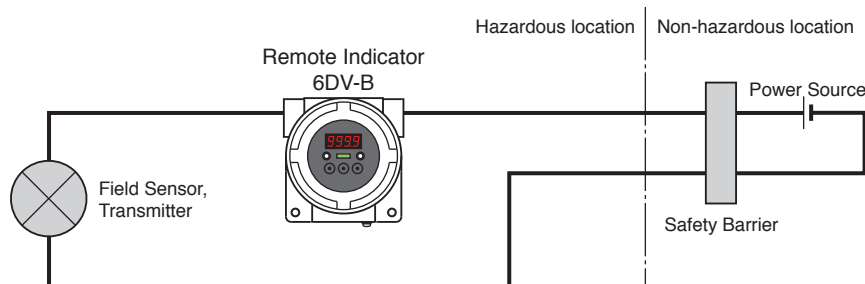
HAZARDOUS LOCATIONS

The 6DV designed for intrinsic safety and the 6DV-B including the explosion-proof (flameproof) enclosure (NEMA 4X, IP65) are most suitable for use in an explosive atmosphere in chemical and petrochemical industries. A pipe mounting bracket is optional for the 6DV-B for easy installation.

For M-System product information and downloadable data sheets, visit On-Line Signal Conditioners Data Library at: <http://www.m-system.co.jp/mssenglish/index.htm>.

TWO-WIRE LOOP APPLICATION EXAMPLE

The 6DV-B can be inserted in a two-wire loop as a remote indicator without needing an extra power source.



SPECIFICATIONS

MECHANICAL

Indicator Module

Electrical connection: Terminal block

Applicable wire size:

AWG26 to 16 (0.14 to 1.5 mm²)

Indicator housing material:

Flame-resistant resin (black)

Field Enclosure

Degree of protection: NEMA 4X, IP65

Wiring conduit:

1/2 NPT, M20 x 1.5, PG 13.5

Enclosure material:

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.

DISPLAY

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

Number of display digits: 4

Scaling range: -1999 to 9999

Offset range: -1999 to 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.

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

Engineering unit display:

Unit label included; LED backlight provided

INPUT

Input: 4-20 mA dc

Measurable range: 3.75-23 mA dc

Maximum input current: 100 mA, 23 mA with explosion-proof type

Voltage drop:

Approx. 3.7 V with 4 mA

Approx. 4.0 V with 20 mA

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)

Approved: Refer to the data sheet.

Operating humidity:

0 to 95% RH (non-condensing)

PERFORMANCE

Accuracy: ±0.01 mA

Temp. coefficient:

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

Dielectric strength:

1500 Vac @1 minute

(input to outdoor enclosure)

How to Calculate Accuracy Against Scale

Eg. 1: 4-20 mA input, Scale 0 to 100

$$\text{Accuracy} = \frac{0.01}{(20 - 4)} \times 100 = 0.063\%$$

$$\text{Display error} = (100 - 0) \times 0.063\% = \pm 0.063 \text{ digit}$$

Eg. 2: 10-20 mA input, Scale 100 to 1000

$$\text{Accuracy} = \frac{0.01}{(20 - 10)} \times 100 = 0.1\%$$

$$\text{Display error} = (1000 - 100) \times 0.1\% = \pm 0.9 \text{ digit}$$

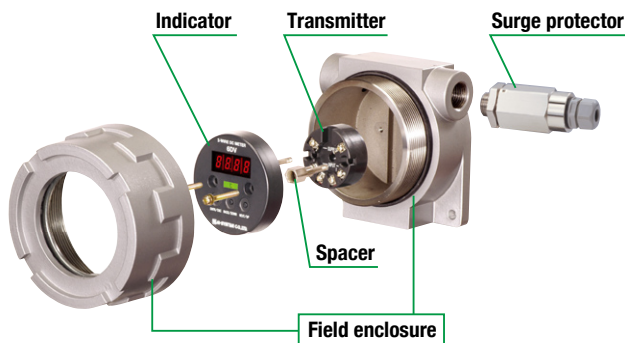
STANDARDS & APPROVALS

Refer to the data sheet.

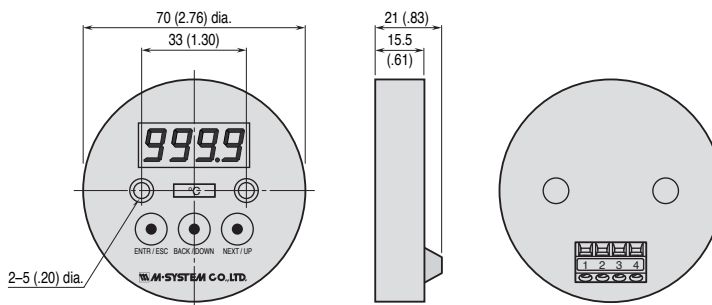
RELATED PRODUCTS

- DIN rail mounting adaptor (model: A-34)
- Mounting spacer (model: A-6)
- Surge protector (model: MD6x-24)

MOUNTING OPTIONS – Adding a transmitter and a surge protector



EXTERNAL DIMENSIONS mm (inch)



Your local representative: