

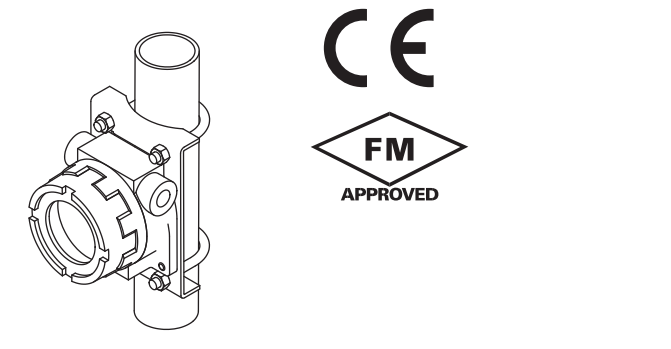
## Digital Panel Meters 43 Series

### LOOP POWERED DIGITAL METER

(explosion-proof; outdoor enclosure; process meter)

#### Functions & Features

- Loop powered -1999 to 9999 compact digital meter
- No external power source needed
- Optional stainless steel enclosure



### MODEL:43AL1-B-[1][2][3][4][5]

#### ORDERING INFORMATION

- Code number: 43AL1-B-[1][2][3][4][5]
- Specify a code from below for each of [1] through [5].  
(e.g. 43AL1-B-0001/S/Q)
- Specify the specification for option code /Q  
(e.g. /SET)

#### [1] SAFETY APPROVAL

- 0: None
  - 3: FM explosion-proof
  - 8: TIIS flameproof (CE not available)
- Confirm selectable combinations of approval and wiring conduit types in the table.

#### [2] TERMINAL BLOCK

- 0: None (Connection to the rear of digital meter module)  
(TIIS approval not selectable)
- T: Incorporated

#### [3] WIRING CONDUIT

- 0: G 1/2
  - 1: 1/2 NPT
  - 2: M20 × 1.5
  - 3: PG 13.5
- Confirm selectable combinations of approval and wiring conduit types in the table.

#### [4] MOUNTING BRACKET

- 0: Without
- 1: With

#### [5] OPTIONS (multiple selections)

##### Enclosure Materials

- Blank:** Diecast aluminium enclosure
- /S:** Stainless steel enclosure  
(TIIS flameproof approval not selectable)

##### Other Options

- blank:** none
- /Q:** Option other than the above (specify the specification)

#### ■ SELECTABLE WIRING CONDUITS SPECIFIC TO EACH APPROVAL 'N' marked combinations are not selectable.

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

#### SPECIFICATIONS OF OPTION: Q

##### EX-FACTORY SETTING

- /SET:** Preset according to the Ordering Information Sheet  
(No. ESU-9426)

#### RELATED PRODUCTS

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

#### PACKAGE INCLUDES...

- **Cable gland:** Two provided for TIIS flameproof type  
**Model No.:** BX-E-EXP  
**Cable entries:** Elastomeric sealing rings  
**Wiring conduit size:** G 1/2  
**Material:** Chrome-plated brass (entry)  
CR (sealing ring)  
**Applicable wire size:** 8 - 12 dia.
- **Stopping plug:** One provided for TIIS flameproof type  
**Model No.:** BX-E-SBP  
**Wiring conduit size:** G 1/2  
**Material:** Diecast aluminium (plug)  
NBR (O-ring)
- **Mounting screws**  
Bolt (M8 x 15): 4 pcs.  
Spring washer for M8: 4 pcs.  
Material: Stainless steel 304
- **Mounting bracket assembly (option)**

- Mounting bracket: 1 pcs.
- M10 U-bolt: 2 pcs.
- Nut for M10: 4 pcs.
- Spring washer for M10: 4 pcs.
- Material:** Stainless steel 304
- Applicable pipe:** 1 1/2" min.; 2" max.
- **Engineering unit label (1)**

## GENERAL SPECIFICATIONS

- Degree of protection:** NEMA 4X, IP66/IP67
- Wiring conduit:** See 'Ordering information.'
- Connection:**
  - **Without terminal block :** Screwless spring terminal in Digital meter
  - **With Terminal block :** Euro terminal
- Applicable wire size:** 1.0 to 1.3 mm<sup>2</sup>, stripped length 8 mm
- **With Terminal block :** Euro terminal
- Applicable wire size:** 0.2 to 4 mm<sup>2</sup>, stripped length 8 mm
- Materials**
  - **Meter housing:** Flame-resistant resin (gray)
  - **Enclosure:** Diecast aluminium standard; stainless steel casting optional (equivalent to type 316); silver color, epoxy resin coated
  - **Isolation:** Input to FE (Functional Earth) to outdoor enclosure
  - **A/D conversion:**  $\Sigma - \Delta$
  - **Sampling rate:** 10 times/sec. (100 msec.)
  - **Averaging:** None or moving average
  - **Setting:** (Front button)
    - Scaled range
    - Moving average

## DISPLAY

- Display:** 4 digits of 10.2 mm (.4") height, 7-segment, red LED
- Display range:** -1999 to 9999
- Scaling range for measurement range:** -1999 to 9999 counts
- Decimal point position:** 10<sup>-1</sup>, 10<sup>-2</sup>, 10<sup>-3</sup> or none
- Zero indication:** Higher-digit zeros are suppressed.
- Over-range indication:** '-1999' or '9999' blinking for display values out of the display range. 'S.ERR' blinks surpassing the permissible range.
- Engineering unit indication:** Sticker label attached  
 DC, AC, mV, V, kV,  $\mu$ A, mA, A, kA, mW, W, kW, var, kvar, Mvar, VA, Hz,  $\Omega$ , k $\Omega$ , M $\Omega$ , cm, mm, m, m/sec, mm/min, cm/min, m/min, m/h, m/s<sup>2</sup>, inch, l, l/s, l/min, l/h, m<sup>3</sup>, m<sup>3</sup>/sec, m<sup>3</sup>/min, m<sup>3</sup>/h, Nm<sup>3</sup>/h, N·m, N/m<sup>2</sup>, g, kg, kg/h, N, kN, Pa, kPa, MPa, t, t/h, °C, °F, %RH, J, kJ, MJ, rpm, sec, min, pH, %, ppm, etc.

## INPUT SPECIFICATIONS

- **DC Current**
  - **Current range:** 3.75 to 22 mA DC
  - **Voltage drop:** Approx. 3.5 V with 4 mA; approx. 3.7 V with 20 mA (Equivalent input impedance: Approx. 185  $\Omega$ ) (Use of the unit causes voltage drop. For 2-wire transmitter, be sure that the voltage by which 2-wire transmitter can operate is ensured including the voltage drop by other devices and wiring resistance.)

## INSTALLATION

- Operating temperature**
  - **No safety approval:** -40 to +70°C (-40 to +158°F)
  - **FM approval:**
    - 40 to +70°C (T5)
    - 40 to +60°C (T6)
  - **TIIS approval:** -20 to +60°C (T6)
- Weight:**
  - Unit
    - Approx. 1.5 kg (3.3 lb), aluminium
    - Approx. 4.0 kg (8.8 lb), stainless steel
    - Approx. 2.0 kg (4.4 lb), TIIS flameproof
  - Mounting bracket assembly (option)
    - Approx. 0.78 kg (1.72 lb)

## PERFORMANCE

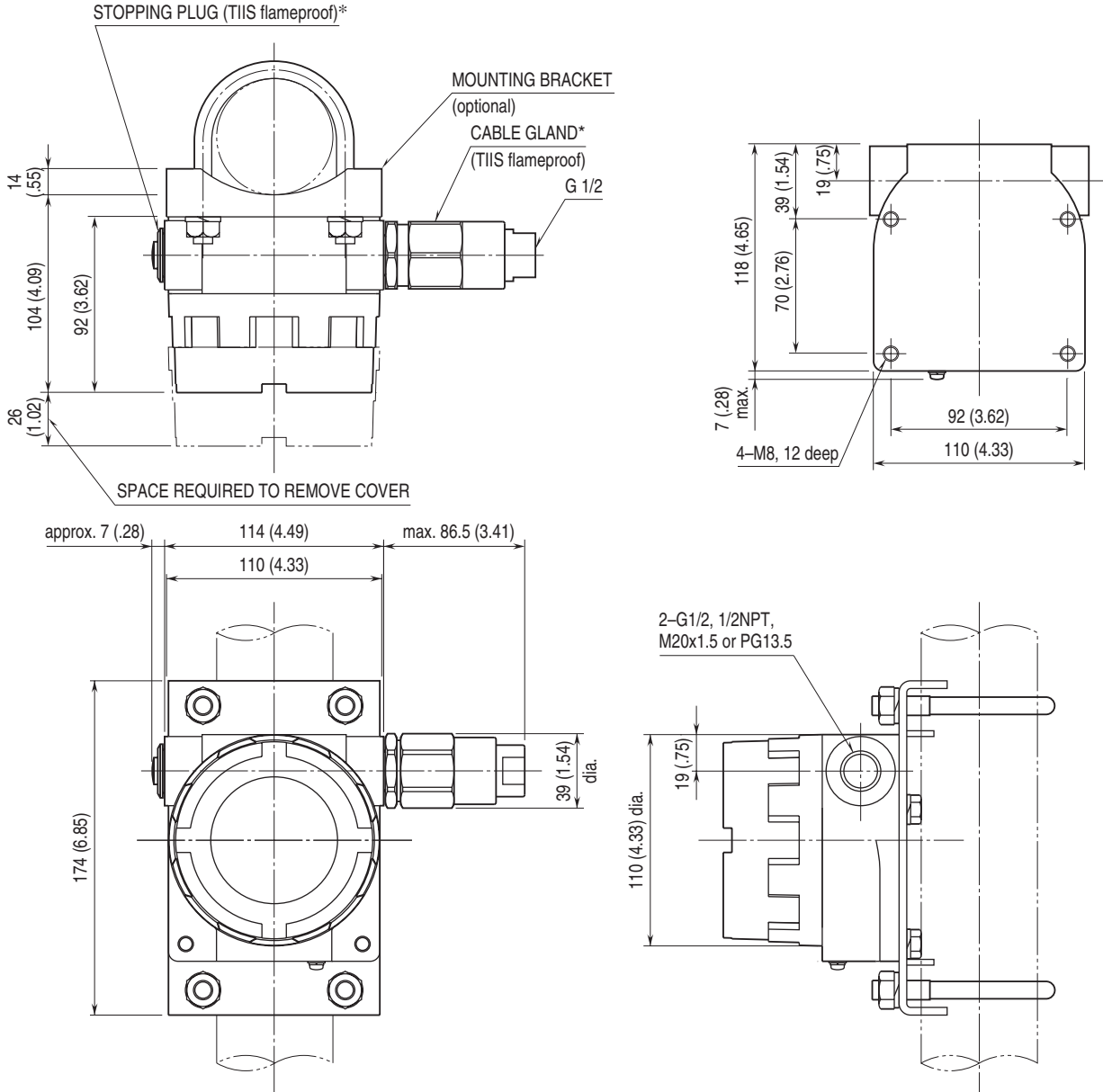
- **Accuracy:**  $\pm 0.1\%$  rdg  $\pm 1$  digit  $\times$  scaling-multiple (When the scaling-multiple is less than 1, rounded up to 1.)
- **Temp. coefficient:**  $\pm 0.3$  digits  $\times$  scaling-multiple/°C (When the scaling-multiple is less than 1, rounded up to 1.)
- **Scaling-multiple =** | (Display Scaling Value B - Display Scaling Value A)  $\div$  (default Display Scaling Value B - default Display Scaling Value A) |
- **Dielectric strength:** 1500 V AC @ 1 minute (input to enclosure; when FE (Functional Earth) is not connected to the enclosure.)
- 500 V DC @ 1 minute (input to FE (Functional Earth))

## STANDARDS & APPROVALS

- **EU conformity:**
  - EMC Directive
    - EMI EN 61000-6-4
    - EMS EN 61000-6-2
  - RoHS Directive
- **Safety approval:**
  - FM: Explosion-proof and Dust-ignition proof
    - Class I, Division 1, Groups B, C and D
    - Class II, Division 1, Groups E, F and G
    - Class III, Division 1
    - T5 and T6

(Class 3615)  
 TIIS: Flameproof  
 Ex d IIC T6

## EXTERNAL DIMENSIONS unit: mm [inch]

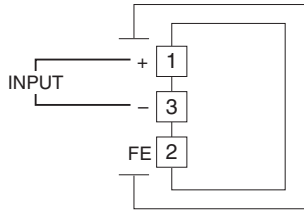


\*Two cable glands and one plug are provided with TIIS flameproof type.  
 Use them according to the field wiring requirements.

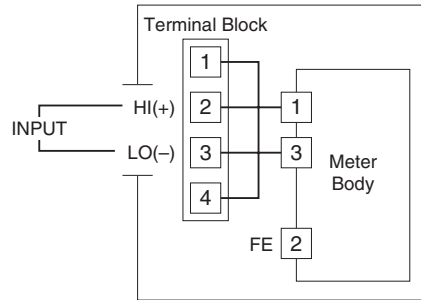
## CONNECTION DIAGRAM

### ■ WITHOUT TERMINAL BLOCK

(Connection to the rear of meter module)



### ■ TERMINAL BLOCK INCORPORATED



Specifications are subject to change without notice.