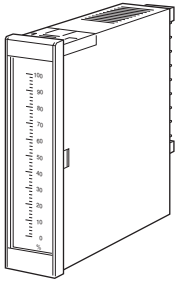


Bargraph Indicators 48 Series

BARGRAPH INDICATOR

Functions & Features

- Displaying a process variable in graphic bargraph of 101 LED segments
- Clear LED
- High-density mounting



MODEL: 48V-[1][2][3][4]-[5]

ORDERING INFORMATION

- Code number: 48V-[1][2][3][4]-[5]
- Specify a code from below for each of [1] through [5].
(e.g. 48V-2RRVA-R)
- Special input range (For codes Z & 0)
 - Scale (e.g. 0 - 100 %)

[1] BARGRAPHS

- 1: Single
- 2: Dual

[2] LED COLOR

- R: Red
- Y: Amber
- G: Green
- Dual (left/right)
- RR: Red / Red
- YY: Amber / Amber
- GG: Green / Green
- RY: Red / Amber
- RG: Red / Green
- YR: Amber / Red
- YG: Amber / Green
- GR: Green / Red
- GY: Green / Amber

[3] MOUNTING DIRECTION

- V: Vertical
- H: Horizontal

[4] INPUT

Current

- A: 4 - 20 mA DC (Input resistance 10 Ω)
- B: 2 - 10 mA DC (Input resistance 20 Ω)
- C: 1 - 5 mA DC (Input resistance 39 Ω)
- D: 0 - 20 mA DC (Input resistance 10 Ω)
- E: 0 - 16 mA DC (Input resistance 12 Ω)
- F: 0 - 10 mA DC (Input resistance 20 Ω)
- G: 0 - 1 mA DC (Input resistance 200 Ω)
- H: 10 - 50 mA DC (Input resistance 3.9 Ω)
- Z: Specify current (See INPUT SPECIFICATIONS)

Voltage

- 3: 0 - 1 V DC (Input resistance 100 k Ω)
- 4: 0 - 10 V DC (Input resistance 330 k Ω)
- 5: 0 - 5 V DC (Input resistance 250 k Ω)
- 6: 1 - 5 V DC (Input resistance 250 k Ω)
- 0: Specify voltage (See INPUT SPECIFICATIONS)

[5] POWER INPUT

AC Power

- K: 85 - 132 V AC
(Operational voltage range 85 - 132 V, 47 - 63 Hz)
- L: 170 - 264 V AC
(Operational voltage range 170 - 264 V, 47 - 63 Hz)

DC Power

- R: 24 V DC
(Operational voltage range 24 V \pm 15 %, ripple 10 %p-p max.)

GENERAL SPECIFICATIONS

Construction: Panel flush mounting

Connection: M3 screw terminals (torque 0.6 N·m)

Screw terminal: Chromated brass

Housing material: ABS resin

Isolation: Input 1 to input 2 to power

Scale plate: Aluminium (white scale & characters on black base)

Scale

• **Characters including decimal points:**

- Max. 6 charac. (48V-1, vertical mount.)
- Max. 4 charac. (48V-2, vertical mount.)
- Max. 4 charac. (48V-1, horizontal mount.)
- Max. 4 charac. (48V-2, horizontal mount.)

• **Divisions:** 22 - 54.9

• **Engineering unit:**

- Max. 8 charac. (48V-1, vertical mount.)
- Max. 5 charac. (48V-2, vertical mount.)
- Max. 8 charac. (48V-1, horizontal mount.)

Max. 3 charac. (48V-2, horizontal mount.)

If there is only one engineering unit with dual bargraph type, the position and maximum number of characters for single type are applied.

Bargraph: 101-segment LED, 100 mm (3.96") long, 1.5 mm (.06") wide

INPUT SPECIFICATIONS

■ **DC Current:** 0 – 50 mA DC; input resistor incorporated

Minimum span: 1 mA

0 % input: 0 mA DC

■ **DC Voltage:** 0 – 10 V DC

Minimum span: 1 V

0 % input: 0 V DC

INSTALLATION

Power consumption

• **AC:** Approx. 3.5 VA (single) or 5.5 VA (dual)

• **DC:** Approx. 2 W (single) or 4 W (dual)

Operating temperature: 0 to 50°C (32 to 122°F)

Operating humidity: 40 to 80 %RH (non-condensing)

Mounting: Panel flush mounting

Weight:

290 g (0.64 lb) for 48V-1, DC powered

320 g (0.71 lb) for 48V-1, AC powered

340 g (0.75 lb) for 48V-2, DC powered

370 g (0.82 lb) for 48V-2, AC powered

PERFORMANCE in percentage of span

Accuracy: $\pm 1\%$ ± 1 digit

Response time: 0.5 sec.

Insulation resistance: $\geq 50\text{ M}\Omega$ with 500 V DC

(input or power to ground)

Dielectric strength:

2000 V AC @1 minute (input or power to ground)

1500 V AC @ 1 minute (input to AC power)

500 V AC @ 1 minute (input to DC power)

500 V AC @ 1 minute (input 1 to input 2)

STANDARD SCALE & UNIT EXAMPLES

■ DIVISIONS

Number of divisions depends upon the scale range.

■ STANDARD SCALES & DIVISIONS (example)

	Pattern 1		Pattern 2		Pattern 3		Pattern 4		Pattern 5	
Span of Scale Range	1.1 ≤ SPAN < 1.3		1.3 ≤ SPAN < 2.0		2.0 ≤ SPAN < 2.6		2.6 ≤ SPAN < 5.5		5.5 ≤ SPAN < 11.0	
Standard Divisions	22 through 25.9		26 through 39.9		40 through 51.9		26 through 54.9		27.5 through 54.9	
Ratio	20		20		20		10		5	
Standard Scales	1.1 —	1.29 —	1.3 —	1.99 —	2 —	2.59 —	2.6 —	5.49 —	5.5 —	10.9 —
	1 —	1.2 —	1.2 —	1.8 —	1.5 —	2.5 —	2.5 —	5 —	5 —	10 —
	.8 —	1 —	.9 —	1.5 —	1 —	2 —	2 —	4.5 —	4 —	9 —
	.6 —	.8 —	.6 —	1.2 —	.5 —	1.5 —	1.5 —	4 —	3 —	8 —
	.4 —	.6 —	.4 —	.9 —	1 —	1 —	1 —	3.5 —	2 —	7 —
	.2 —	.4 —	.3 —	.6 —	.5 —	.5 —	.5 —	3 —	1 —	6 —
	0 —	.2 —	.2 —	.3 —	0 —	0 —	0 —	2.5 —	0 —	5 —
		0 —	0 —	0 —	0 —	0 —	0 —	2 —	0 —	4 —
								1.5 —	0 —	3 —
								1 —	0 —	2 —
							.5 —	0 —	1 —	
							0 —	0 —	0 —	
	22 div.	25.9 div.	26 div.	39.9 div.	40 div.	51.9 div.	26 div.	54.9 div.	27.5 div.	54.9 div.

Engineering unit: %, °C, Nm³/h, m³/h, t/h, km³/h, kg/h, l/h, Pa, kPa, abs, ppm, pH, psi, kg/cm²G, N/m², N/cm², lb/h, J, kJ, NI, m³, lbs, Ω, μΩ, 1°

Span of Scale Range = (Full Scale – Zero Scale) × 10ⁿ

where n = integer (Determine 'n' so that the span of scale range is 1.1 or greater than 1.1, and smaller than 11.0.)

[Example 1] Scale range 0 to 100

Span of Scale Range = (100 – 0) × 10⁻¹ = 10

Span of 10 falls into Pattern 5 according to the above table. Number of divisions is calculated from the Span of Scale Range multiplied by the ratio (10 × 5).

The scale range 0 to 100 is provided with 50 divisions.

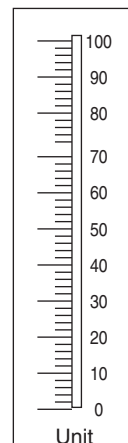
[Example 2] Scale range -10 to +10

Span of Scale Range = (10 – (-10)) × 10⁻¹ = 2

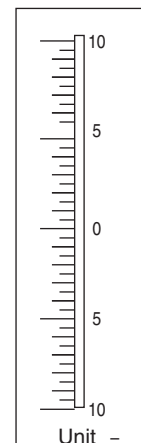
Span of 2 falls into Pattern 3 according to the above table. Number of divisions is calculated from the Span of Scale Range multiplied by the ratio (2 × 20).

The scale range -10 to +10 is provided with 40 divisions.

Example 1



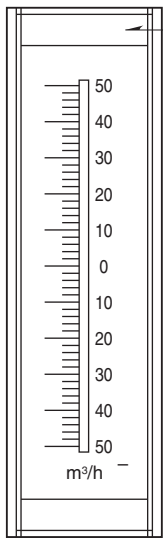
Example 2



EXTERNAL VIEW

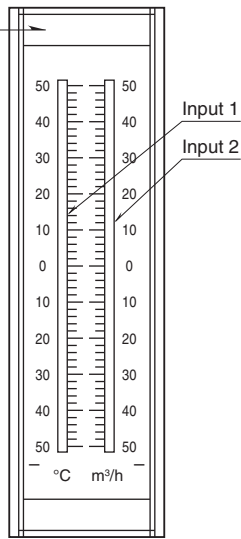
VERTICAL MOUNTING

Single



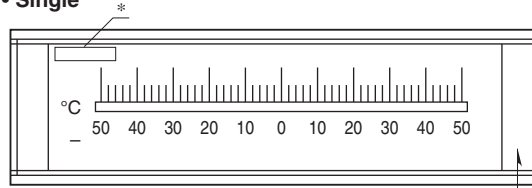
Tag No.
Label

Dual



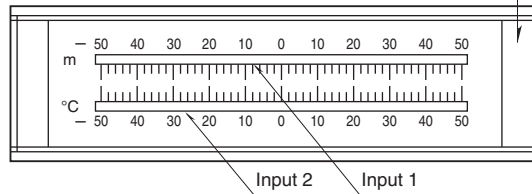
HORIZONTAL MOUNTING

Single



Tag No.
Label

Dual

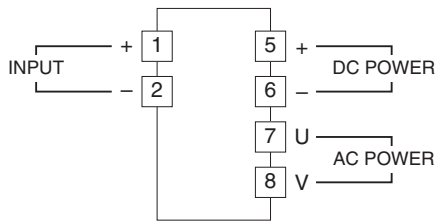


*Engineering units longer than 3 characters are indicated here.

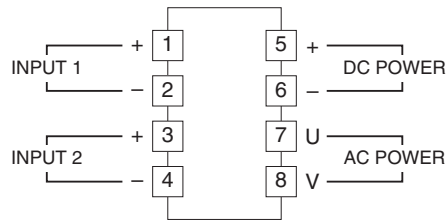
Remark: If there is only one engineering unit with dual bargraph type, the position and maximum number of characters for single bargraph type are applied.

CONNECTION DIAGRAM

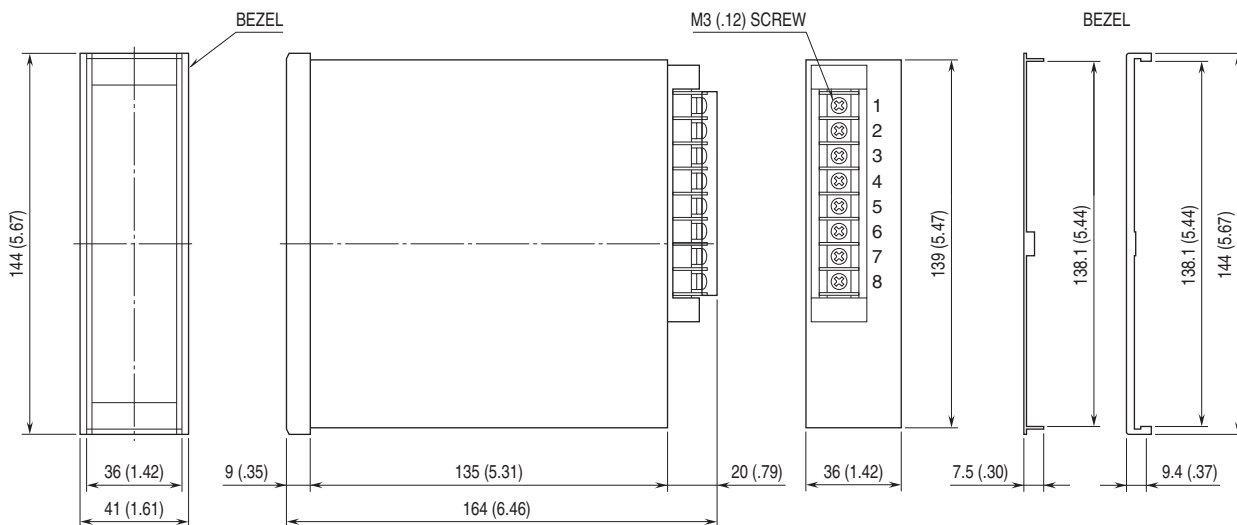
48V-1



48V-2



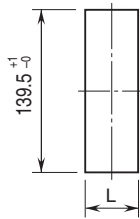
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm [inch]



PANEL CUTOUT unit: mm

■ VERTICAL MOUNTING

Panel thickness: 1.6 – 5.5 mm



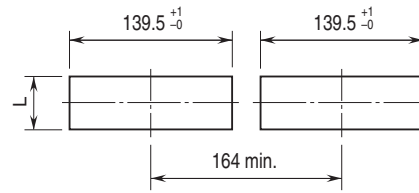
$$L = (38 \times n)^{+1}_{-0}$$

(n: number of units)

- Note 1. A bezel is required between units for high-density mounting.
- Note 2. Observe at the minimum of 5 cm above and below the units for heat dissipation.

■ HORIZONTAL MOUNTING

Panel thickness: 1.6 – 5.5 mm



$$L = 38 \times (n-1) + 36.5^{+1}_{-0}$$

(n: number of units)

- Note 1. A bezel is required between units for high-density mounting.



Specifications are subject to change without notice.