

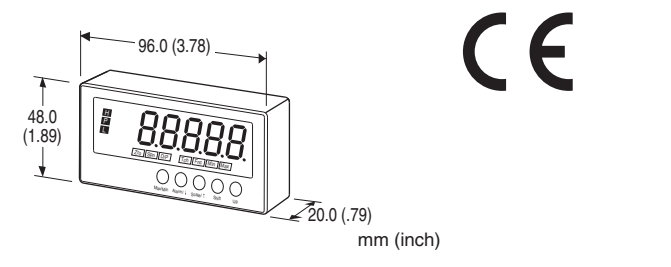
Digital Panel Meters 47NL Series

RTD INPUT DIGITAL PANEL METER

(4 digit, LED display type)

Functions & Features

- 4 digit RTD input digital panel meter
- Moving average function to suppress the display flickering
- Max. and Min. value display
- Photo MOSFET relay alarm output



MODEL: 47NLR-[1][2]-R[3]

ORDERING INFORMATION

- Code number: 47NLR-[1][2]-R[3]
- Specify a code from below for each of [1] through [3].
(e.g. 47NLR-4R-R/Q)
- Specify the specification for option code /Q
(e.g. /SET)

[1] INPUT

- 1: JPt 100 (JIS'89)
- 3: Pt 100 (JIS'89)
- 4: Pt 100 (JIS'97, IEC)
- 5: Pt 50 Ω (JIS'81)
- 7: Pt 1000

[2] DISPLAY COLOR

- R: Red
- YR: Orange
- G: Green
- B: Blue
- W: White

POWER INPUT

DC Power

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

[3] OPTIONS

- blank: none
- /Q: With options (specify the specification)

SPECIFICATIONS OF OPTION: Q

EX-FACTORY SETTING

- /SET: Preset according to the Ordering Information Sheet
(No. ESU-9565)

GENERAL SPECIFICATIONS

- Construction:** Panel mount type
- Degree of protection:** IP66; Applicable to the front of the panel meter mounted according to the specified panel cutout. Only screw mounting conforms.
- Connection:** Screwless spring terminal
- Applicable wire size:** 0.2 to 0.5 mm², stripped length 6 mm
- Housing material:** Flame-resistant resin (gray)
- Isolation:** Input to alarm output to power
- Burnout:** Upscale standard; downscale optional by programming
- Setting:** (Front button)
 - Alarm setpoint
 - Deadband (hysteresis)
 - Moving average
 - Others
 (Refer to the operating manual for details)
- Averaging:** None or moving average
- Lockout setting:** Prohibiting certain operations; protecting settings

DISPLAY

- Display:** 16 mm (.63) high, 4 digits, 7-segment LED
- Display range:** -9999 to 9999
- Minimum display/setting scale:** 0.1°C or 1°F
- Decimal point position:** 10⁻¹ or none
- Zero indication:** Higher-digit zeros are suppressed.
- Over-range indication:** 'S.ERR' and 'Min' or 'Max' blinking when the input signal is out of the usable range.
- Burnout indication:** 'B.ERR' and function status 'Min' or 'Max' are displayed and blinking.
- Alarm status indication**
 - L indicator:** Green turns on when the L alarm is tripped.
 - H indicator:** Red turns on when the H alarm is tripped.
 - P indicator:** Amber turns on when none of the other alarms is tripped.
 Only 'P' turns on when no-alarm is selected with alarm setpoint.
- Function indicators:**
 - Zro, Spn, D/P, Tch, Fnc, Min, Max
 - Display mode status and operation status, amber ON or blink

Engineering unit indication: Sticker label attached
 DC, AC, mV, V, kV, μ A, mA, A, kA, mW, W,
 kW, var, kvar, Mvar, VA, Hz, Ω , k Ω , M Ω ,
 cm, mm, m, m/sec, mm/min, cm/min, m/min,
 m/h, m/s², inch, l, l/s, l/min, l/h, m³, m³/sec,
 m³/min, m³/h, Nm³/h, N·m, N/m², g, kg, kg/h,
 N, kN, Pa, kPa, MPa, t, t/h, °C, °F, %RH, J,
 kJ, MJ, rpm, sec, min, pH, %, ppm, etc.

Burnout response: ≤ 10 sec.
Line voltage effect: ± 0.1 % over voltage range
Insulation resistance: ≥ 100 M Ω with 500 V DC
Dielectric strength: 1500 V AC @ 1 minute (input to alarm output to power to ground)

STANDARDS & APPROVALS

EU conformity:
 EMC Directive
 EMI EN 61000-6-4
 EMS EN 61000-6-2
 RoHS Directive

INPUT SPECIFICATIONS

■ **RTD:** 3-wire RTDs
Maximum leadwire resistance: 60 Ω per wire
Sensing current:
 JPt 100 (JIS '89): 0.5mA
 Pt 100 (JIS '89): 0.5mA
 Pt 100 (JIS '97, IEC): 0.5mA
 Pt 50 Ω (JIS '81): 0.5mA
 Pt 1000: 0.05mA

Temperature Range

RTD		CONFORMANCE RANGE	USABLE RANGE
JPt 100 (JIS '89)	°C	-200 to +500	-230 to +530
	°F	-328 to +932	-382 to +986
Pt 100 (JIS '89)	°C	-200 to +650	-230 to +680
	°F	-328 to +1202	-382 to +1256
Pt 100 (JIS '97, IEC)	°C	-200 to +850	-230 to +880
	°F	-328 to +1562	-382 to +1616
Pt 50 Ω (JIS '81)	°C	-200 to +649	-230 to +679
	°F	-328 to +1202	-382 to +1256
Pt 1000	°C	-200 to +850	-230 to +880
	°F	-328 to +1562	-382 to +1616

OUTPUT SPECIFICATIONS

■ **Alarm Output:** Photo MOSFET Relay
 Rating: 26.4 V DC @ 100 mA (resistive load)
 ON resistance: ≤ 5 Ω

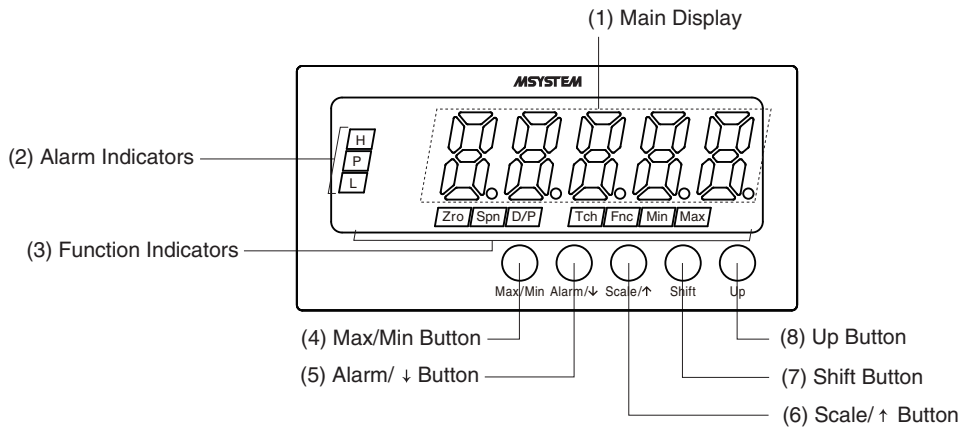
INSTALLATION

Power consumption
 • DC: 0.7 W max.
Operating temperature: -10 to +55°C (14 to 131°F)
Operating humidity: 10 to 90 %RH (non-condensing)
Mounting: Magnet or screw mounting
Weight: 85 g (3.0 oz)

PERFORMANCE

Accuracy
Display: $\pm 1^\circ\text{C} \pm 1$ digit ($\pm 2^\circ\text{F} \pm 1$ digit)
Temp. coefficient: ± 0.015 %/°C (± 0.008 %/°F)
Response time: ≤ 0.5 sec.
 (alarm output: 0 - 100 % at 90 % setpoint)

EXTERNAL VIEW



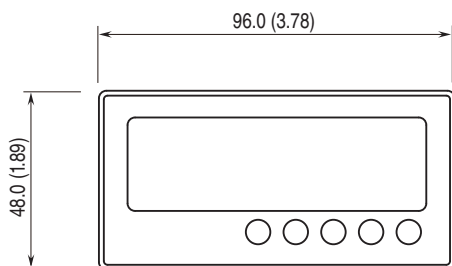
COMPONENT IDENTIFICATION

No.	COMPONENT	FUNCTION
(1)	Main display	Indicates present values, setting values and status of the unit.
(2)	Alarm indicators	Indicates the comparison result between alarm setting values and present values.
(3)	Function indicators	Indicates the status in each setting mode.
(4)	Max/Min button	Used to switch the main display to show the present values, maximum values or minimum values.
(5)	Alarm/↓ button	Used to check the alarm setpoints, to move on to the alarm and other setting modes; or to shift through setting items in each setting mode.
(6)	Scale/↑ button	Used to move on to the initial and other setting modes; or to shift through setting items in each setting mode.
(7)	Shift button	Used to move on to the setting standby status of each setting mode or to shift through display digits in each setting item.
(8)	Up button	Used to change setting values or to select setting values.

Note: Refer to the operating manual for details on each function.

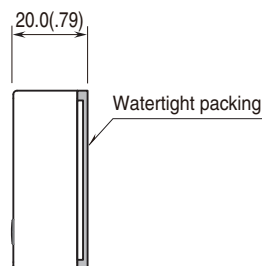
EXTERNAL DIMENSIONS & TERMINAL ASSIGNMENTS unit: mm (inch)

FRONT VIEW

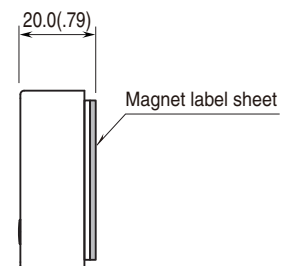


SIDE VIEW

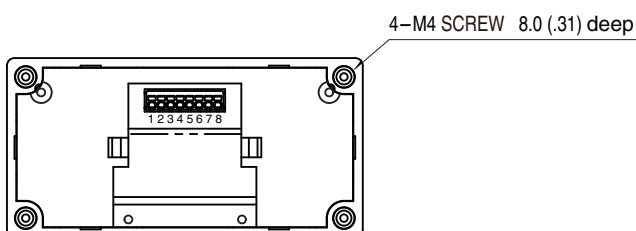
• SCREW MOUNTING



• MAGNET MOUNTING



REAR VIEW



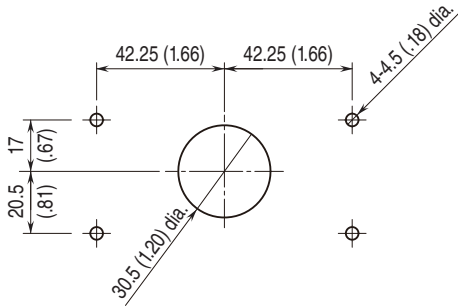
MOUNTING REQUIREMENTS unit: mm (inch)

■ PANEL MOUNTING

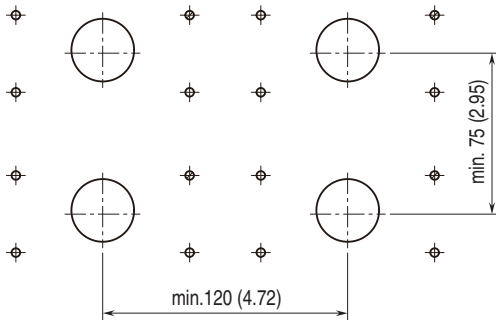
(Conform to degree of protection IP66)

Panel cutout must be such as M-System specified. Use watertight packing and unit fixing screws included in the product package.

• Single Mounting unit: mm (inch)



• Clustered Mounting unit: mm (inch)



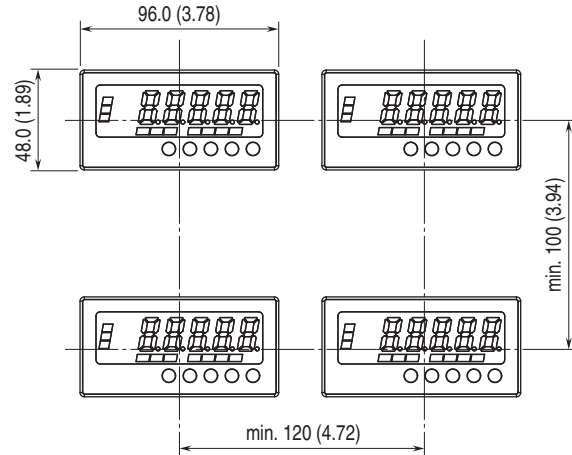
Panel thickness: 1.0 to 3.2 mm

■ MAGNET MOUNTING

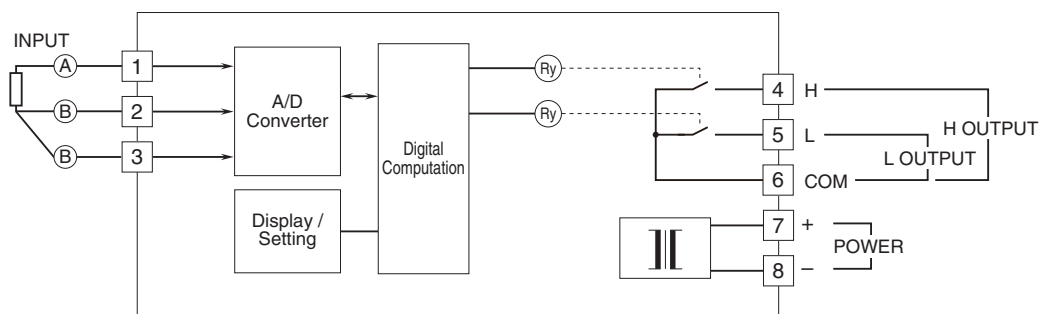
(Not conform to degree of protection IP66)

Panel cutout is not required. Use magnet sheet and stopper included in the product package.

• Clustered Mounting unit: mm (inch)



SCHEMATIC CIRCUITRY & CONNECTION DIAGRAM



Specifications are subject to change without notice.