INSTRUCTION MANUAL
DIGITAL PANEL METER
MODEL AL-512 SERIES

Caution

(1) The application of voltage or current exceeding its maximum allowable value to the input terminals may result in instrument damage.
(2) The supply of power out of its allowable range may cause fire, electric shock or instrument failure.
(3) The content of this manual may subject to change without prior notice for product improvement.
(4) This manual is carefully prepared. However, if any question arises, or any mistake, omission or suggestion is found in the content of this manual, contact your nearest our sales agent.

1. Outline

The Model AL-512 digital panel meter is a process monitor which has an extremely thin 3-1/2 digit LED display unit and also does not require a power supply (driven by a 4 to 20mA signal).
It is provided with the display having a maximum of 1999 and the scaling function by which the input signal can be converted to any process variable for its display. In addition, wiring can be easily conducted by the use of a screw terminal board.

2. Before operation

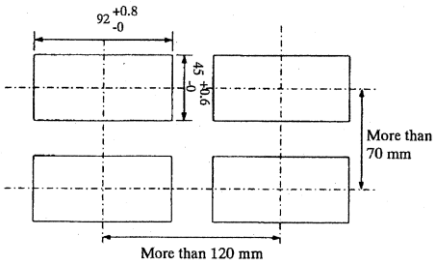
2.1. Accessory check

The following accessories are attached to one Model AL-512 digital panel meter.
Instruction manual One copy
Screw terminal cover 1 pc.
If any question may arise on these accessories, please contact your nearest Watanabe sales agent or Watanabe directly

2.2. Mounting

2.2.1. Panel cutout dimensions

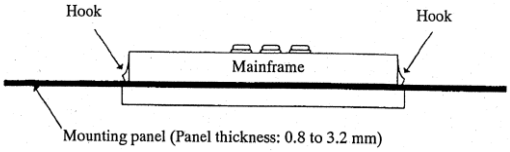
Prior to mounting the meter, make the cutout through the panel as shown in the following figure.



Panel cutout dimensions

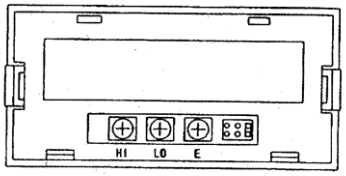
2.2.2. Mounting

For mounting the meter, insert it in the panel cutout from the front of the panel while pushing the hooks on both sides of the case in the case. (See the following figure.)



Mounting diagram

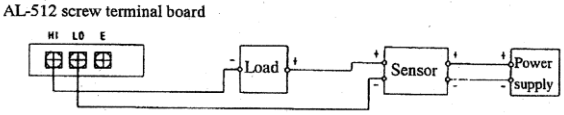
2.3. Terminals



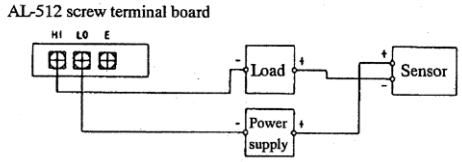
Terminal name	Description
HI	Terminal on which the +side of a 4 to 20 mA input signal is connected.
LO	Terminal on which the -side of a 4 to 20 mA input signal is connected.
E	Grounding terminal

2.4. Connection examples

Example of connecting ordinary sensor



Example of connecting 2-wire sensor

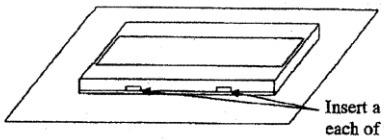


*The Model AL-512 meter produces a voltage drop of about 5.3V (at an input of 20mA).
For this reason, conduct wiring in consideration of the impedance in the entire circuit.
*If this meter is used at a noisy location, ground the E (earth) terminal.

3. Functions

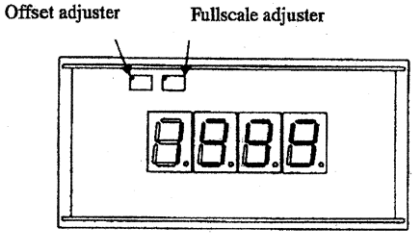
3.1. Scaling adjustment

First, remove the front panel of this meter by referring to the following figure. Then, turn the Offset adjuster (see the following figure) until the desired value is displayed (setting range: ± 200) with an input signal of 4mA applied to the input terminals on the meter.
Next, turn the Fullscale adjuster (see the following figure) until the desired value is displayed (setting range: 100 to 1999) with an input signal of 20mA applied to the input terminals.



Insert a screwdriver in each of the holes at the bottom of the meter, then turn it in the hole until the front panel is removed.

Removing the front panel

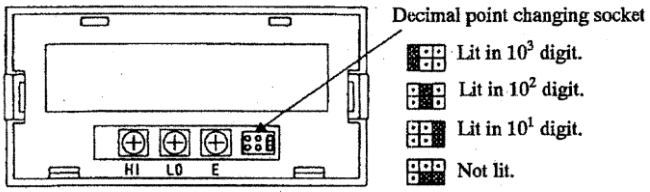


Removing of scaling adjusters

*Prior to conducting scaling adjustment, allow more than 20 minutes for the meter to warm up.

3.2 Decimal point setting

Prior to factory shipment, the decimal point of this meter is so set that its position corresponding to the 10^1 digit is lit, change the position of the decimal point by referring to the following figure.



Setting position of decimal point changing socket.

4. Calibration

In order to calibrate the meter, a current generator with an accuracy of ±0.01% or more is required. This calibration is conducted in the same manner as 3.1 Scaling adjustment.

5. Specifications

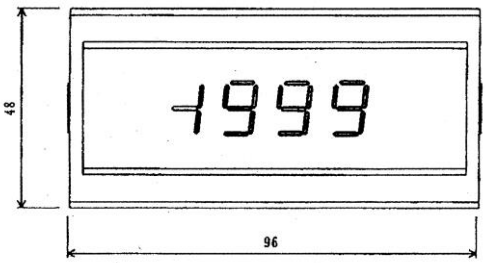
Model	Measuring range	Display	Max. allowable input current
AL-512	4 to 20mA DC	Offset;±200 Fullscale; 100 to 1999	±50mA

Accuracy: ±(0.1% of FS +1 digit)(23℃±5℃ and 35 to 85% RH)

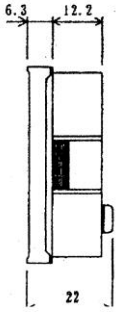
Measurement function	: Measurement of instrumentation signal(4 to 20mA DC)
Operation	: Double integral type
Maximum display	: 1999
Sampling speed	: 2.5 times／sec.(TYP)
Noise rejection ratio	: NMR 40dB (TYP)
Temperature characteristics	: Offset displayed-value: ±0.3 digit/℃ Fullscale displayed-value: ±0.3 digit/℃
Overrange warning	:For an input of more than 1999, “1” is displayed in the most significant digit and the lower 3 digits go out.
Variable span of fullscale	: 100 to 1999
Variable span of offset	: ±200
Voltage drop	: 5V at an input of 4mA(TYP) 5.3V at an input of 20mA(TYP)
Display	: 7-segment LEDs (Red light emitting diode numeric elements) Character height, 14.2mm
Polarity display	: ” - “ is automatically displayed when the computation result is minus.
External control	: None
Operating temperature /humidity range	: 0 to 50℃/ 35 to 85%RH
Power supply	: None (Driven by input signal)
Dielectric strength	: Between input terminal (LO) and E terminal; For 1 min. at 500V DC
Dimensions	: 96(W)×48(H)×22(D)mm
Weight	: Approx 55g
Accessory	: Screw terminal cover 1 pc. Instruction manual 1 copy
Conformity standard	: EN61326-1 EN IEC 63000

6. Dimensions

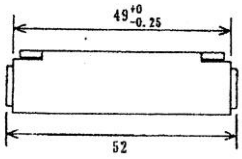
Front:



Side:



Terminal cover:



7. Warranty and After Sales Service

7.1 Warranty

The warranty lasts for one year from the date of delivery. If this product fails during this period and the reason is considered to be clearly.

The manufacturer warrants to the original retail customer its indicator to be free of defects in material and workmanship for use under normal care and will repair or replace any

7.2 After Sales Service

Under strict quality control measures, this product was manufactured, tested, inspected and shipped. Should a defect in manufacture or Workmanship be identified, please return the product to our distributor or directly to us. It would be highly appreciated if you could give a detailed account of the fault and enclose it with the product.

watanabe
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