Instruction Manual

WDP-35C
WDP-40C

DIGITAL SCALING METER

Thank you very much for purchasing Watanabe products. Be sure to read this manual before using this product. Please make sure that the specifications meet your requirements according to the display item.
We believe that this product will meet your requirements, as we manufacture our products based on strict quality control standards. If any trouble is noticed, such as damage caused during transportation, please contact our company or your sales representative as soon as possible.

1. Outline

This product is a digital scaling meter equipped with a scaling function which directly reads input signals in units of any physical quantity or chemical quantity.
This product is standardly equipped with functions to change the location of the decimal point, zero blanking, data hold, zero fixed negative display range, zero fixed least significant digit display, and reduce the number of digits.
Each digit of the model number indicated on the product refers to the following functions.

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Number of Digits	
±3 1/2 digits ±1999	35
± 4 digits ±9999	40

Outer Dimensions	
36(H)×72(H)×126.5(D) mm	C

Color of Characters	
Red (Standard)	R
Green	G

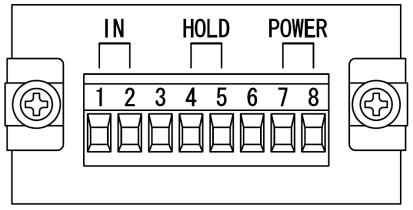
Power Supply Voltage	
AC100V ±10%	1
AC200V ±10%	2
DC24V ±10%	3
AC110V ±10%	4
AC220V ±10%	5

Additional Functions 1	
None (Standard)	N
Built-in true RMS value circuit (AC input only)	C
Frequency input/Tachogenerator	D
Frequency input/Voltage pulse	P
Frequency input/Open collector	T
0 fixed negative range display	G
Absolute value display	H

Additional Functions 2	
None (Standard)	N
Variable sampling rate	A
Variable sampling rate & 0 fixed 100 digit display	K

Range number

2. Connection Methods



Input: INPUT (1) HI, (2) LO
Pay attention not to mistake the polarity between terminals (1) and (2) to connect the measurement input, when DC is used as the input signal.
((1) HI .... +, (2) LO .... -)
When AC is used as the input signal, terminal (2) is the GND side.

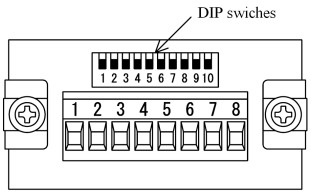
Data hold: HOLD (5) HOLD, (6) COM
When a hold signal is applied between terminals (4) and (5), the contents displayed immediately after will be held (active "L"). The contact signal and the open collector signal can be used for the input signal. In this case, terminal (5) is the emitter side.

Power: POWER (7) U (+), (8) V (-)
Connect the power supply between terminals (7) and (8).
When the power supply of the product is DC24V, connect the power so that terminal (7) is "+", and terminal (8) is "-".

3. Setting of Display Mode

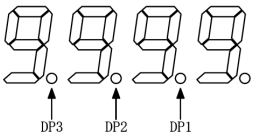
The internal DIP switches are preset at the time of shipment for the decimal point (DP1-3) and zero blanking, according to the scaling display contents. However, when resetting is required, and/or setting of the zero fixed 10^0 digit (least significant digit), reducing number of digits, and zero fixed negative display range, perform the following procedure.

1) Remove the panel on the back side of the meter.



2) When setting the decimal point, zero blanking, zero fixed negative display range, zero fixed 10^0 digit, and reducing the number of digits, turn ON the applicable dip switch number on the back side of the product.

(1) Setting the decimal point



DIP Switch ON	Decimal Point Lighting Position
6	DP3
7	DP2
8	DP1

(2) Setting the zero blanking

DIP Switch ON	Zero Blanking	
	WDP-35C	WDP-40C
1	0 0 0 → 0	0 0 0 0 → 0
2	0 0 0 → 0 0	0 0 0 0 → 0 0
3	0 0 0 → 0 0 0	0 0 0 0 → 0 0 0
4	−	0 0 0 0 → 0 0 0 0
All OFF	0 0 0 →	0 0 0 0 →

* When the 2nd and 3rd digits light faintly during zero blanking, turn ON or OFF dip switch No. 4 from the current position (WDP-35C only).

(3) Setting the zero fixed negative display range
To display zero at all times when inputting the range to display a negative value, turn ON dip switch No. 5.

(4) Setting of zero fixed 100 digit
When fixing the 100 digit (least significant digit) to zero regardless of the input signal, turn on dip switch No. 9.

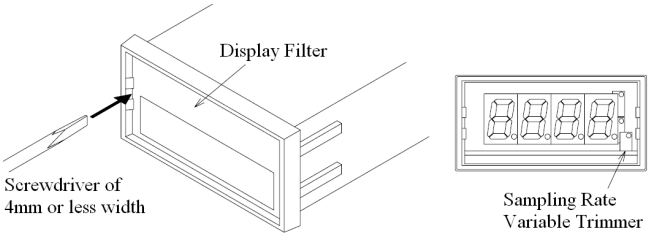
(5) Setting for reducing the number of digits
When reducing the scale display to 1/10, turn ON dip switch No.10.

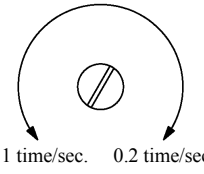
4. Adjustment of Sampling Rate

In products with the variable sampling rate (option) specification, the update interval of the display can be changed within the range of about 1 time/sec. to 0.2 times/sec. by the sampling rate variable trimmer on the front side of the product (function is set to about 1 time/sec. at the time of shipment).

1) Remove the display filter on the front side of the meter.

2) Turn the sampling rate variable trimmer on the front of the product to adjust the update interval of the display.

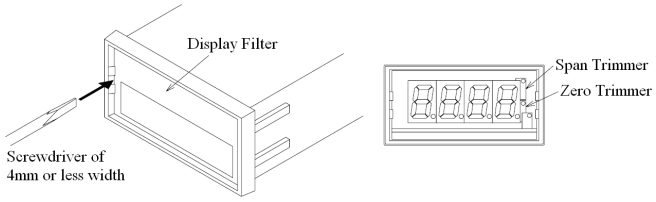




5. Scaling

Since the scaling has already been calibrated at the time of shipment, it is not necessary to operate the internal trimmer as long as the product is used per the specification. When it is necessary to change the scaling, adjust the trimmers per the following procedure. However, in this case, use a signal source and measuring device with an accuracy of 10 times more than the accuracy of this product, and wait 30 minutes or more after turning ON the power, before making the adjustment.

1. Insert a screwdriver in the slits located on the right and left sides of the display frame on the front side of the meter, and remove the display filter.



2. Perform a zero span adjustment of the product.
   Example: Input: 4-20 mA, Display: 0-1200

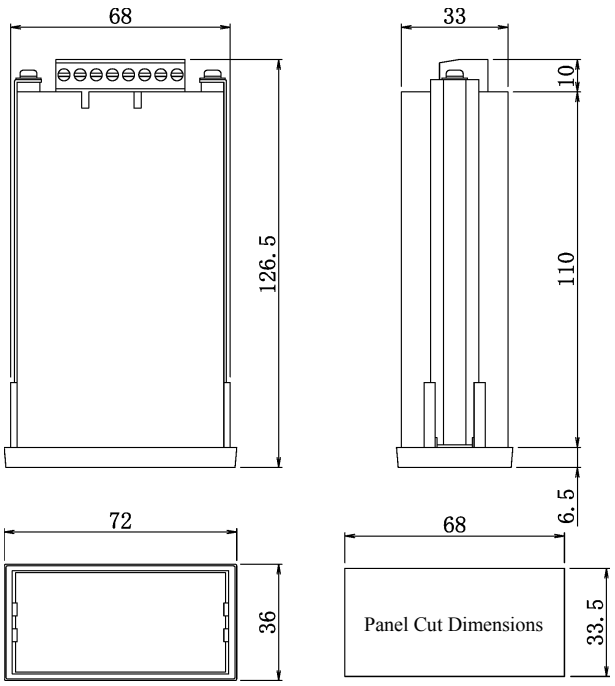
   (1) While 4 mA is input into the product, turn the zero trimmer (Z) on the front of the product until 0 is displayed.

   (2) Input 20 mA into the product, and turn the span trimmer (S) on the front of the product until the required value (1200 for this example) is displayed in this state.

   (3) Input 4 mA again into the product, and confirm that 0 is displayed. If 0 is not displayed, repeat the above steps (1) and (2) to adjust the value.

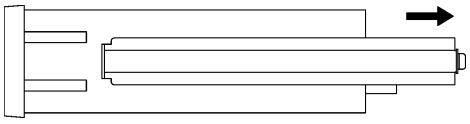
   (4) Attach the display filter to its original position to use the meter.

6.Outer Dimensions and Panel Cut Dimensions

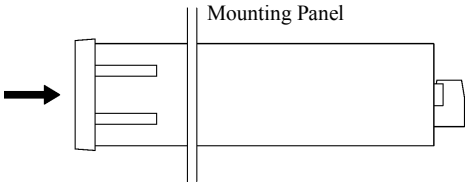


7. Mounting Method

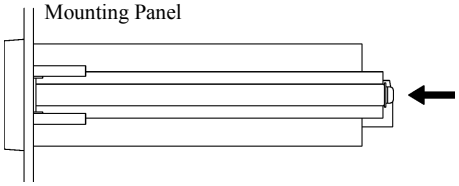
1. Remove the screws fixing the mounting bracket, and pull off the mounting bracket.



2. While the mounting bracket is removed, insert the meter into the hole cut in the panel from the front side of the panel.



3. After inserting the mounting bracket into the grooves on both sides of the product, firmly tighten the removed fixing screws.



8. Precautions

1. Installation
   1) Install this product in a location which satisfies the conditions of -5 to 50 °C, and 90% or less relative humidity (no condensation and not freezing).
   2) When installing the meter in locations where there is excessive dust, metal powder and etc., install the meter in a dustproof designed cabinet, and perform heat reduction measures.
   3) Avoid vibrations and shocks as much as possible, as it may cause failure of the product.

2. Wiring
   1) Do not wire the power line or input signal lines near noise sources, relay drive lines, or high frequency lines.
   2) Do not bundle the wiring with lines where this overlapping noise, or do not store in the same duct.

3. Power Supply
   1) Note that if the power supply voltage fluctuates beyond the rated voltage range, it will cause abnormal operation or failure of the product.
   2) Do not use a power supply in which a spike like noise occurs when the power is turned ON/OFF.
   3) When using a direct current power supply, pay attention to the polarity. If the wiring is incorrectly connected, there is a possibility of causing damage to the product.

4. Warming-up
   Although this products starts operating at the same time the power is turned ON, it will take about 30 minutes after the power is turned ON to satisfy the overall performance.

9. Warranty

The quality warranty period of this product is for one year after delivery. If trouble occurs under normal operating conditions within this period, contact our company or your sales representative. We will take back the product for repair free of charge, or replace it with a new product.
In addition, Watanabe Electric Industries assumes not responsibility for the use of disassembled or modified products, or products which have been used in abnormal conditions.
For failures or repair, contact our company with the detailed contents of the trouble.

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