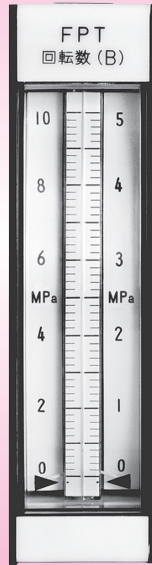
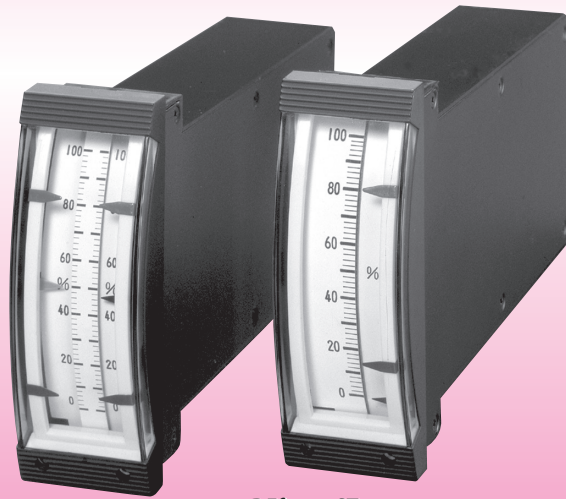


DEF-17W



DEF-15W



DEF-100nWT

DEF-100nST

*DEF-15S.D.W DEF-17S.W*

*Indicating Meter for Instrumentation*

*DEF-100N*

*Indicating Meter for Special Instrumentation*

**東洋計器株式会社**

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## Contents

### **Indicating Meters for Instrumentation DEF-15S, DEF-15W, DEF-17S, DEF-17W**

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### **Indicating Meter for Special Instrumentation DEF-100N□□**

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# Indicating Meter for Instrumentation

- ◆ DEF-15S (Single-pointer type)
- ◆ DEF-17S (Single-pointer type)
- ◆ DEF-15W (Two facing pointers type)
- ◆ DEF-17W (Two facing pointers type)

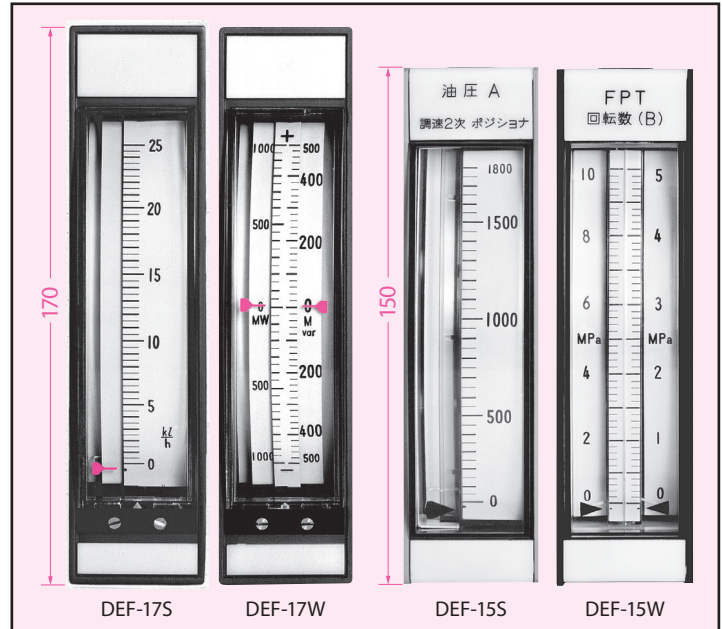
## [Overview]

This meter has the optimal structure and characteristics to function as an indicator for various process control systems such as power, petroleum, chemical, metal and paper plants. A state-of-the-art instrument panel receiver with an elegant, stately design and extensive functionality; this highly reliable product makes control station quality even higher.

## Features

- Comparative measurements for measurement control of series such as directed standard values and measurement values can be conducted with ease because the DEF - 15W and DEF - 17W are integrated in a pair meter structure.
- Optimal for system display panels and graphic monitoring panels. Appropriate for areas with dense instrumentation as very little space is required for installation.
- Two or more units can be neatly connected.
- Tag plates are attached to the top and bottom to display information such as measuring point name and tag number.
- The scale is brighter, larger and easier to read, making it easy to perform a series of control operations.
- Parts such as the zero-point adjuster and the scale plate can be replaced because the meter unit can be easily removed from the front side.

( DEF-15S only )  
( DEF-15W only )



## Specifications

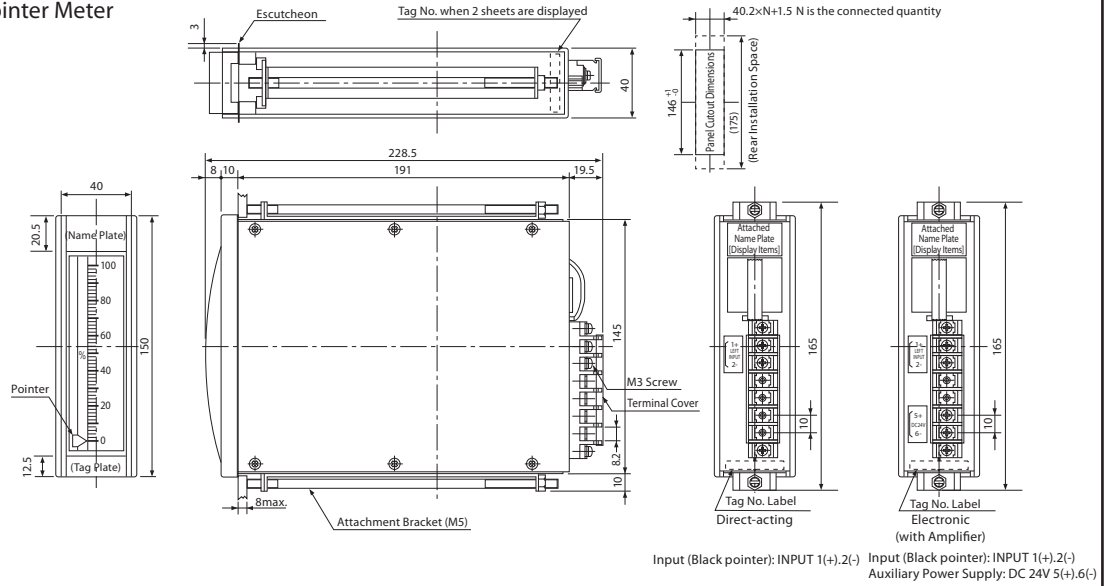
Circuit System	1) Direct-acting - Input signal is applied directly to the coil. 2) Electronic - Direct current amplification is performed for the input signal of the DC voltmeter and internal resistance is increased (DC voltmeter only).		
Input Signal and Input Resistance	Input Signal		Input Resistance
	DC	Direct-acting	Electronic
	4~20mA	50Ω±20%	
	10~50mA	20Ω±20%	
	1~5V	8kΩ±20%	1MΩ or above
	0~10V	20kΩ±20%	1MΩ or above
	-10~0~+10	40kΩ±20%	
	Inputs other than those indicated above can be manufactured upon request.		
Tolerance	±1% (Dependent on maximum scale value or span)		
Scale Length	15 type: 100mm 17 type: 100mm		
Pointer	15S: Single-pointer (Black) 15W: Two facing pointers (Black) 17 type: Lance-shaped tip knife edge, red coating is standard (Fluorescent)		
Scale Plate	White base, black scale, black characters		
Thermal Behavior	Less than 1% for 10 degrees		
Power Supply	Auxiliary power supply is required for electronic DC voltmeters Voltage is DC 24V±2V, approx. 20mA (per component)		
Influence of Variation of Auxiliary Power Supply of Electronic DC Voltmeter	Less than 0.2% for 10%		
Ambient Temperature and Humidity	-10°~50°, 40%~85%RH		
Mounting Posture	Perpendicular installation, vertical (Designate installation angles when mounting at an incline)		
Insulation Resistance	More than 20MΩ at 500V mega (Between earth and input or power terminal)		
Dielectric Strength	AC 2000V for 1 minute (50/60Hz)		
Face Casing Coating	Standard: Black (7.5BG4/1.5 available upon request)		
Weight	15S: 1.3kg, 15D: 1.5kg, 15W: 1.5kg 17S: 0.9kg, 17W: 1.1kg		
Name Plate	Affixed to the inside of the case (Material: tetrone film)		
Shape Dimensions	According to P3 / P4 outside dimensions.		
Scale Division	According to P5 scale division table.		
Tag Plate Entry Examples	According to P5 entry examples.		
Other	According to JISC 1102.		

## Ordering Guide

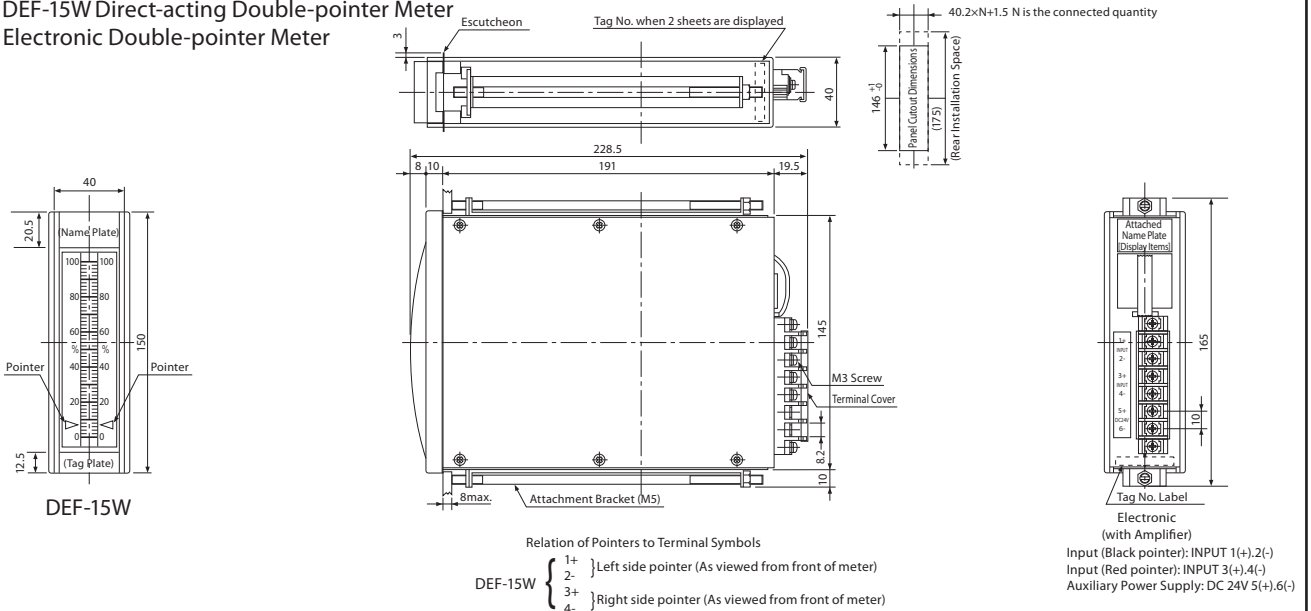
- **Model Name**
  - DEF-17S Direct-acting single-pointer (Left side only)
  - DEF-15S Direct-acting single-pointer (Left side only)
  - DEF-17W Direct-acting double-pointer (Two facing pointers type)
  - DEF-15W Direct-acting double-pointer (Two facing pointers type)
  - DEF-17S Electronic single-pointer (Left side only)
  - DEF-15S Electronic single-pointer (Left side only)
  - DEF-17W Electronic double-pointer (Two facing pointers type)
  - DEF-15W Electronic double-pointer (Two facing pointers type)
- **Input Signal**
- **Scale Specifications**
- **Coating Color**
- **Tag Plate Entry Characters**
- **Mounting Posture**

## Outside / Dimensional Diagram

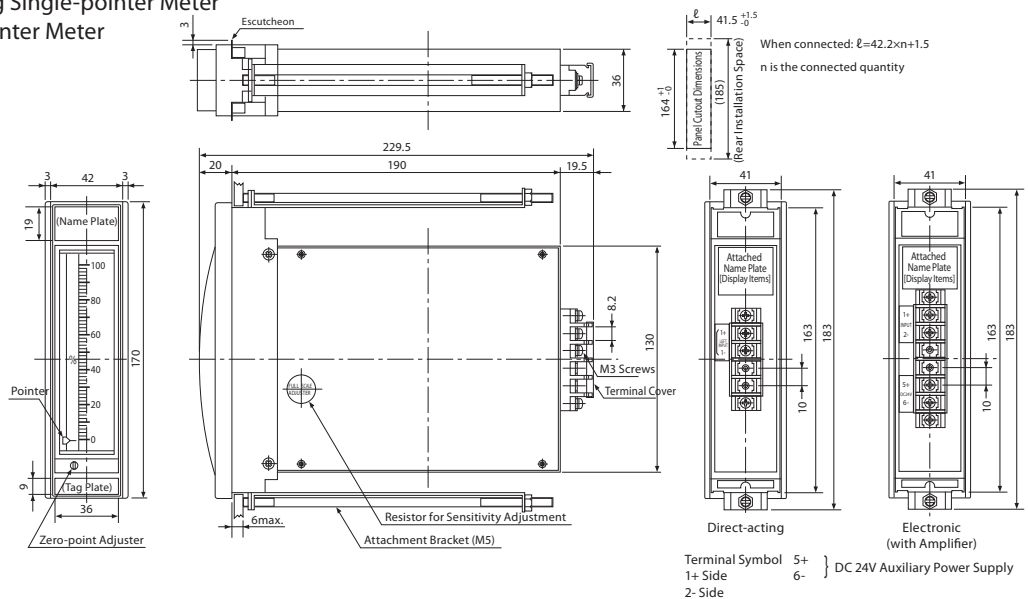
### DEF-15S Direct-acting Single-pointer Meter and Electronic Single-pointer Meter



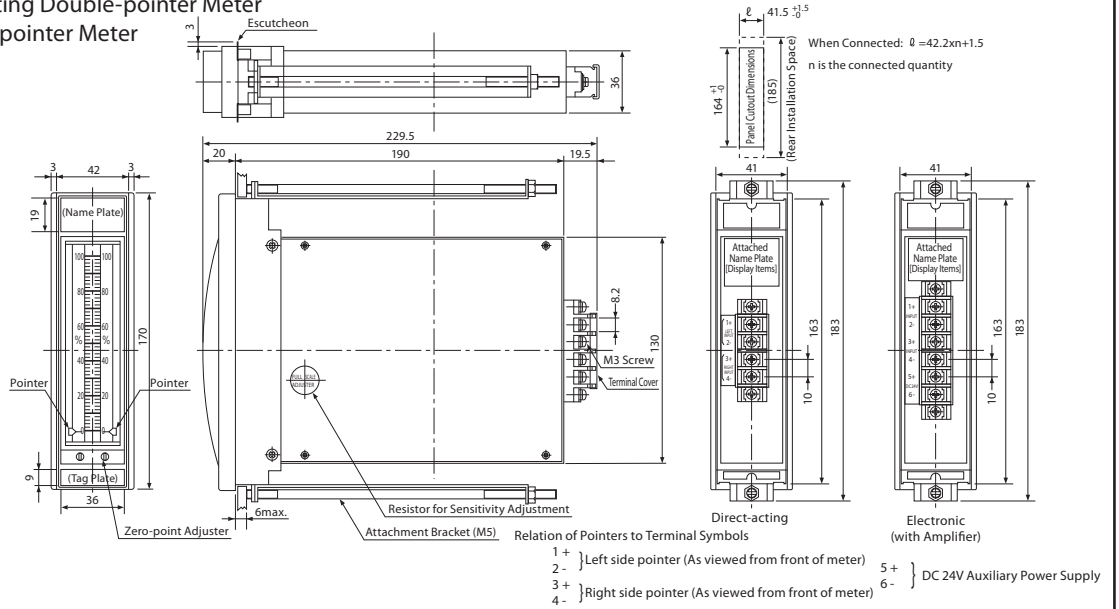
### DEF-15W Direct-acting Double-pointer Meter and Electronic Double-pointer Meter



### DEF-17S Direct-acting Single-pointer Meter and Electronic Single-pointer Meter

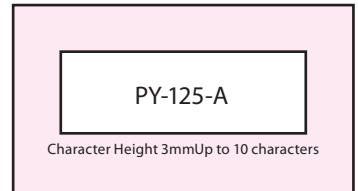
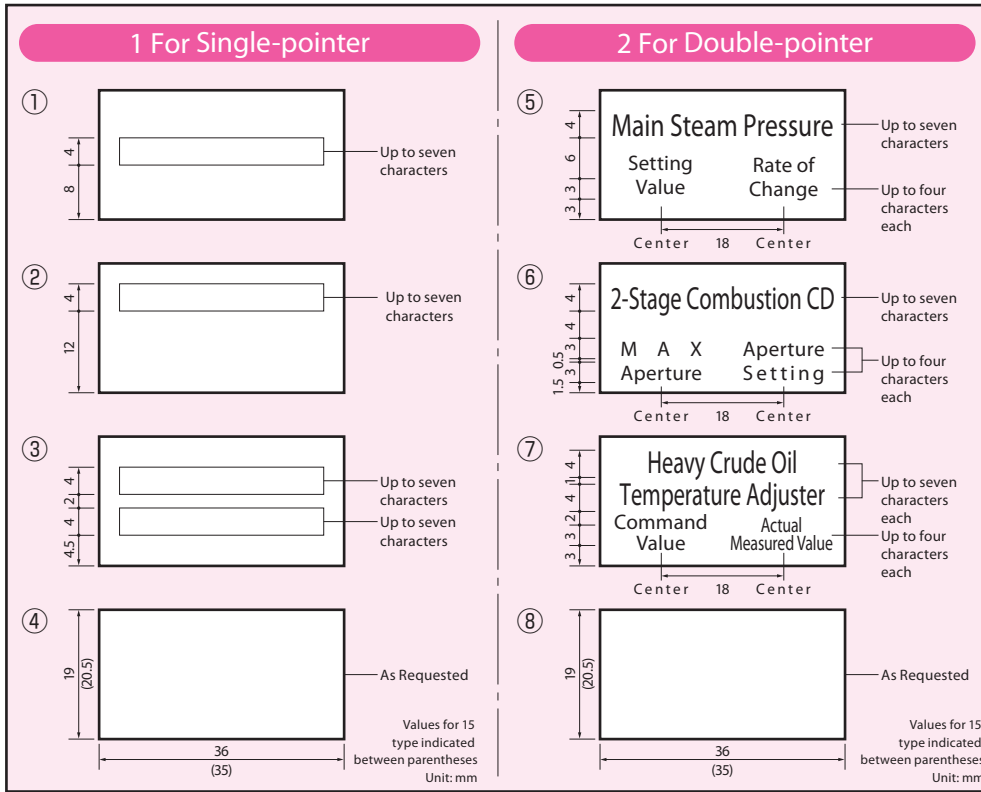


**DEF-17W Direct-acting Double-pointer Meter and Electronic Double-pointer Meter**

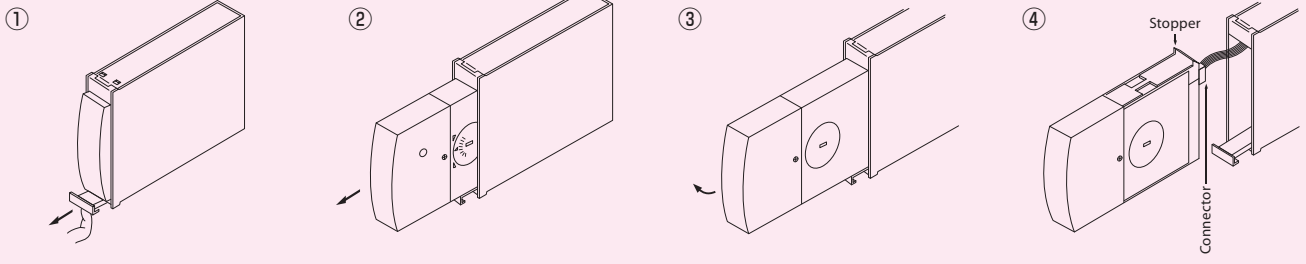


**Measuring Point Name Plate Entry Examples**

**Tag No. Plate Entry Example**

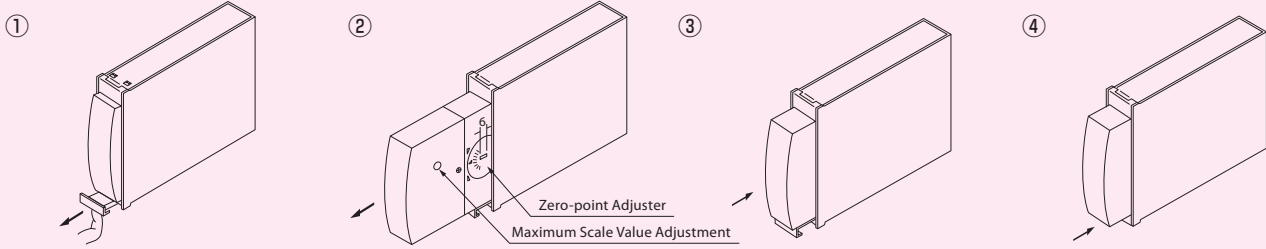


**[Removing the Meter]**



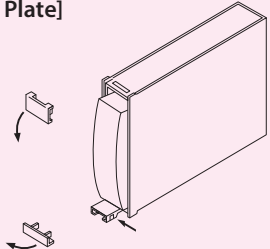
1. Hook your finger on the bottom part of the name plate and pull it out. First the name plate comes out, then the meter unit comes out until it protrudes by approx. 7mm. At this point the clamping mechanism is released. The name plate will not come out any further, but be careful because the meter unit may pop out if it is facing downward.
2. The meter unit can be completely removed, but the last part has a stopper on it, so remove the unit by pulling up and towards yourself.
3. The meter unit and meter frame can be completely separated by pulling out the connector.
4. Insert the connector followed by the main unit to install the meter unit. After pushing in the meter unit part-way, push in the name plate, then push in the meter unit the rest of the way until you hear it lock into place with a click. The name plate and meter unit can be pushed into place in any order, but make sure afterwards that the meter unit does not come out when pulled on.

**[Adjusting Zero-point]**



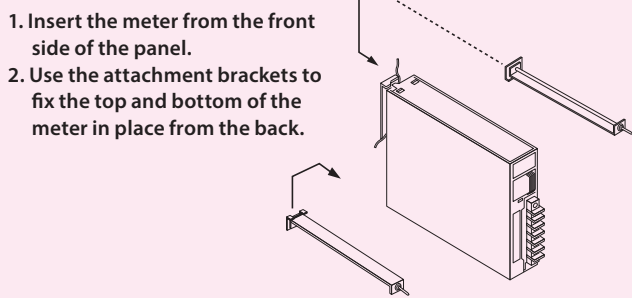
1. Hook your finger on the bottom part of the name plate and pull it out. First the name plate comes out, then the meter unit comes out until it protrudes by approx. 7mm. At this point the clamping mechanism is released. The name plate will not come out any further, but be careful because the meter unit may pop out if it is facing downward.
2. Adjust zero-point after pulling the meter unit out into a position where the adjustment can be carried out. Adjust zero-point on the side face by turning the circular plate printed with [ZERO ADJ]. This is on the same side as the [▷◁] symbols in the same color as the pointer. Turn the plate using a screwdriver that fits inside the groove properly. Using an inappropriate size may break the groove.
3. After adjusting zero-point, push in the meter unit part-way, push in the name plate, then push in the meter unit the rest of the way until you hear it lock into place with a click. The name plate and meter unit can be pushed into place in any order, but make sure afterwards that the meter unit does not come out when pulled on.

**[Replacing the Name Plate]**



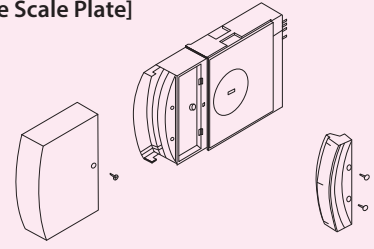
1. The upper name plate can be removed by hooking your finger around the upper part and pulling towards you.
2. The lower name plate can be removed by hooking your finger around the lower part and pulling it out, then pushing an object such as a screwdriver into the tab on the side and pulling out and towards you. It can be easily removed by simply pulling out one of the tabs.
3. Both the upper and lower nameplates can be attached by pushing them in.

**[Attaching the Meter]**



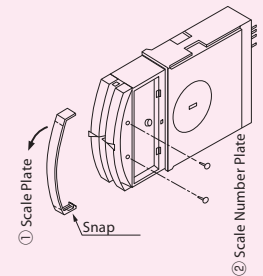
1. Insert the meter from the front side of the panel.
2. Use the attachment brackets to fix the top and bottom of the meter in place from the back.

**[Replacing the Scale Plate]**



1. Pull the meter unit out from the meter frame.
2. Take out the two screws and remove the cover.
3. Take out the two screws and replace the scale plate cassette.
4. Do not touch the pointer when attaching the cassette or cover.

**[For the EF-15W]**



1. Pull the meter unit out from the meter frame.
2. Take out the two screws and remove the cover.
3. Replace the left and right scale number plates (2) after removing the scale plate (1).
4. Do not touch the pointer when replacing the cassette or attaching the cover.

# Indicating Meter for Special Instrumentation

## Model Name Format

**DEf-100N**

T...Vertical Type Y...Horizontal Type  
 S...Single-pointer W...Double-pointer (Facing)  
 Improved Model  
 Meter Front Dimensions 100 x 36mm  
 DC Ammeter or Voltmeter  
 (Including Reception Meter)

## Features

- This instrument panel meter can be densely mounted, enabling smaller panels.
- Standard product includes a set pointer.
- Multiple meters can be installed in a series.
- Terminals are separated for a configuration that protects against short-circuits.
- Equipped with an escutcheon to protect against light leakage from the back face of the panel edges when installed in a series.

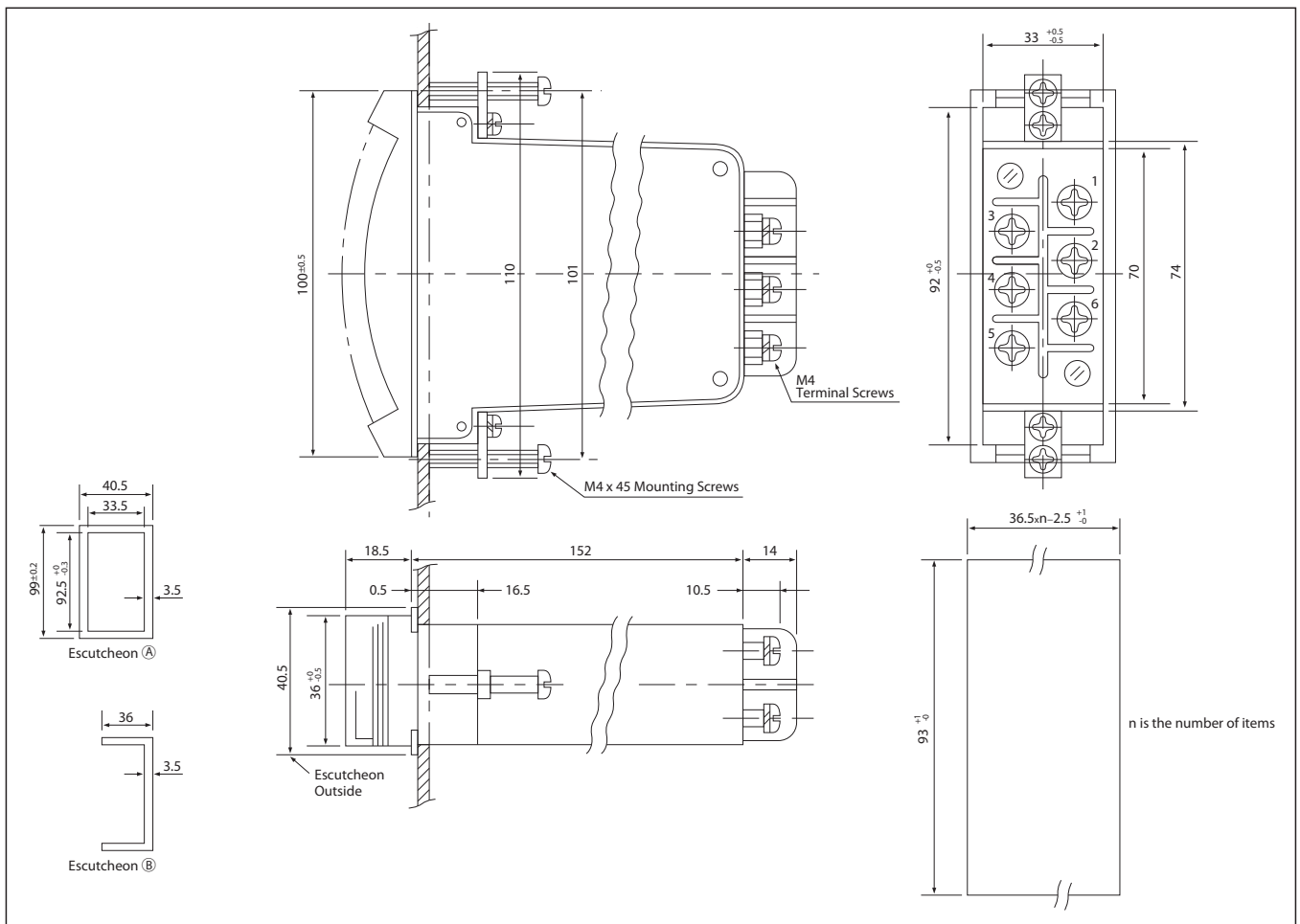
## Specifications

Product Name		Specifications		Note
1	Item	Edgewise Type Meter		
2	Model Name	Vertical Type	DEF-100N ST	Vertical direction scale face with a single-pointer
			DEF-100N WT	Vertical direction scale face with a double-pointer
		Horizontal Type	DEF-100N SY	Horizontal direction scale face with a single-pointer
			DEF-100N WY	Horizontal direction scale face with a double-pointer
3	Shape Dimensions	Display 100x36mm		
4	Weight	DEF-100N ST(Y)		0.4kg or less
		DEF-100N WT(Y)		0.45kg or less
5	Operating Principles	Movable coil		
6	Movable Part Support	Pivot support method		
7	Method	DC voltage or current		
8	Measurement Type	Minimum	DC 1V or DC 200μA	If the input signal exceeds the maximum value, it will be routed to the series resistor or the externally attached shunt (Except in the DEF-100N D, where up to 150V is built in.)
		Maximum	DC 500V or DC 5A	
9	Limit of Input Signal	Munsell N1.5 (standard black)		Munsell 7.5BG 4/1.5 and N4 (gray) can be manufactured upon request.
10	Cover color	1.5 Class (Standard)		
11	Class	Vertical (Standard)		Specify whether it will be installed on a flat or inclined surface. For inclined surfaces, specify the angle from a flat surface.
12	Installation Location	DEf-100N ST (Y) Black lance shape (Standard)		Wand-type or fluorescent color available upon request. In this case, the scale plate is flat.
		DEf-100N WT (Y) Black lance shape (Standard)		Red or fluorescent color available upon request.
13	Shape and Coating Color of Pointer	Included		The meter cover can be removed and a movable set pointer can be installed upon request.
14	Set Pointer	67mm		
15	Scale Length Scale / Colored Line or Band	Single scale for single-pointer is standard; standard color for scale lines and numbers is black.		1. A double-scale is available upon request for the DEF-100N ST (Y). In this case, the pointer is a rod and the scale plate is flat. 2. A colored line or band can be displayed on the scale upon request.
		Can be installed directly on panels with a thickness of 15mm or lower.		A dedicated escutcheon is required to install multiple meters stacked in a series. (This is a standard accessory.)
17	Includes Variable Resistance for Span Adjustment	Attached to the back face of the meter in standard product.		Rotate to the right to increase the value.

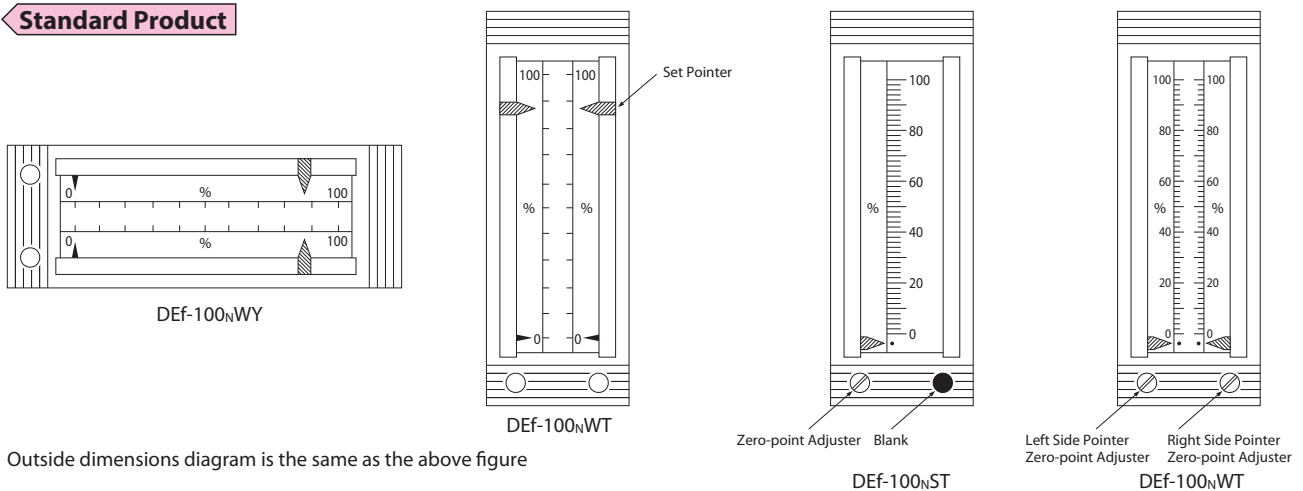
## Main Part Materials and Processing

Part Name	Material	Processing	
1 Cover	Transparent polycarbonate (Fire-resistant)	The resin surface has an anti-static finish processed by Colcoat	
2 Base	Polycarbonate resin (Fire-resistant)	Color is black	
3 Lid	Sheet iron	Black, coated after chromate treatment	
4 Plastic Packaging	Black neoprene rubber	Affixed to the lid with rubber glue	
5 Escutcheon	Phosphor copper	Black coating or dependent on specifications	
6 Scale Plate	Colored aluminum board	Baked-on acrylic resin coating (White is standard)	
7 Pointer	Lance Shape	Aluminum board	Black alumite treated pointer part
	Rod	Aluminum pipe	Organic fluorescent coating or black coating for needle tip
8 Terminal	Brass M4 screws installed in brass bar for 4mm product	Nickel plating	
9 Name Plate	Yupo sticker paper (Display label)	Attached with glue	
	Tetrone film (FS ADJ.)		
	Paper (Seal)		

## Outside / Dimensional Diagram



## Standard Product



Outside dimensions diagram is the same as the above figure



## Connection Diagram

Model Name	Ammeter		Voltmeter	
	Direct Measurement	With Externally Connected Shunt	Direct Measurement	With Externally Connected Series Resistor
DEF-100nST DEF-100nSY				
DEF-100nWT DEF-100nWY				
Amplifier Included Common to Each Type	<p>Connect the terminals for ①, ②, ③ and ④ of the ammeter and voltmeter as shown in the above figure, then connect ⑤ and ⑥ to the external auxiliary power supply.</p> <p>External Auxiliary Power Supply</p>			

## Input Signal and Internal Resistance (Maximum Scale Value Unique to Meter)

Voltmeter		Ammeter		Note
Input Signal	Internal Resistance	Input Signal	Internal Resistance	
0 ~ 60 mV	6 Ω	0 ~ 200 μA	1 kΩ	<ol style="list-style-type: none"> <li>If the ammeters exceeds 5 A, the product has a 60mV meter with an externally attached shunt.</li> <li>If the voltmeter exceeds 500V, an externally attached series resistor is included. (Except for the DEF-100nD meter, which has an externally attached series resistor when exceeding 150V.)</li> <li>Internal resistance of zero-center meters               <ol style="list-style-type: none"> <li>The value for voltmeters is the same as for zero-left meters.</li> <li>The sum maximum value for ammeters is the same as for the corresponding zero-left meter.</li> </ol> </li> <li>Shunts and series resistors can be externally attached upon request, even for the range of input signals on the left.</li> <li>Tolerance for all internal resistance values is within ±30%.</li> </ol>
-10 ~ +10 V	20 kΩ	0 ~ 300 μA	400 Ω	
0 ~ 1 V	1 kΩ	0 ~ 500 μA	400 Ω	
0 ~ 1.5 V	1.5 kΩ	0 ~ 1 mA	160 Ω	
0 ~ 3 V	3 kΩ	0 ~ 2 mA	160 Ω	
0 ~ 5 V	5 kΩ	0 ~ 10 mA	6 Ω	
0 ~ 7.5 V	7.5 kΩ	0 ~ 20 mA	3 Ω	
0 ~ 10 V	10 kΩ	0 ~ 30 mA	2 Ω	
0 ~ 15 V	15 kΩ	0 ~ 50 mA	1.2 Ω	
0 ~ 20 V	20 kΩ	0 ~ 75 mA	0.8 Ω	
0 ~ 25 V	25 kΩ	0 ~ 100 mA	0.6 Ω	
0 ~ 30 V	30 kΩ	0 ~ 200 mA	0.3 Ω	
0 ~ 50 V	50 kΩ	0 ~ 300 mA	0.2 Ω	
0 ~ 75 V	75 kΩ	0 ~ 500 mA	0.12 Ω	
0 ~ 100 V	100 kΩ	0 ~ 750 mA	0.08 Ω	
0 ~ 150 V	150 kΩ	0 ~ 1 A	0.06 Ω	
0 ~ 200 V	200 kΩ	0 ~ 2 A	0.03 Ω	
0 ~ 250 V	250 kΩ	0 ~ 3 A	0.02 Ω	
0 ~ 300 V	300 kΩ	0 ~ 5 A	0.012 Ω	
0 ~ 500 V	500 kΩ			
1 ~ 5 V	5 kΩ	1 ~ 5 mA	120 Ω	<ol style="list-style-type: none"> <li>The meter which has an input signal of 1-5V with a resistance of 1MΩ comes with an amplifier and requires a DC24V auxiliary power supply.</li> <li>Current consumption is 20mA for one circuit (40mA for two circuits).</li> <li>Specify the input signal and internal resistance value as an input signal of 1 - 5V with a resistance of 25kΩ is optional.</li> </ol>
1 ~ 5 V	25 kΩ	2 ~ 10 mA	20 Ω	
1 ~ 5 V	1 MΩ	4 ~ 20 mA	5 Ω	
		10 ~ 50 mA	2.5 Ω	



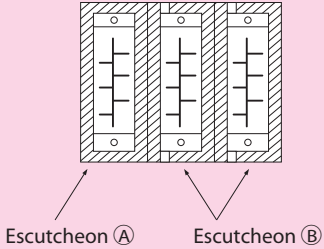
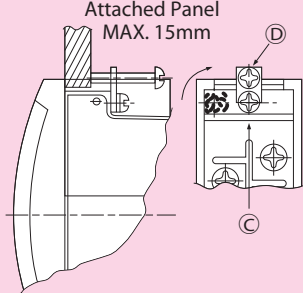
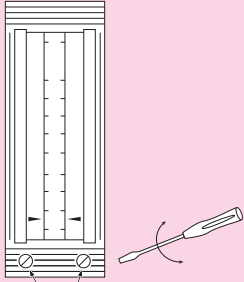
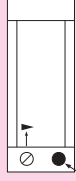
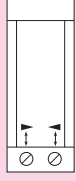
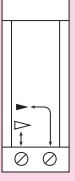
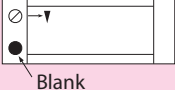

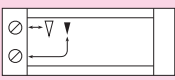
## Usage Conditions

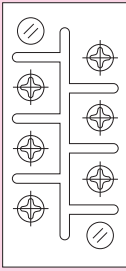
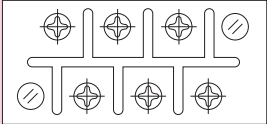
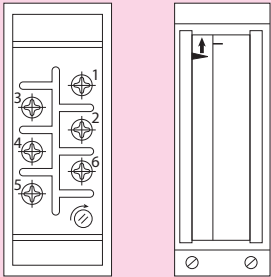
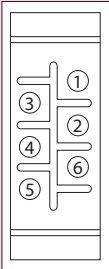
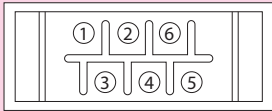
Item	Specifications	Note
1	Ambient Temperature -10°C~+55°C	No stipulated temperature range for use of the JIS C 1102.
2	Storage Temperature -20°C~+60°C	The cover warps at 80°C.
3	Ambient Humidity 40%~90%RH	1. Anti-humidity processing can be applied upon request for environments with over 90% humidity. 2. Use a commercially available anti-static finish if using the product at 40% humidity or lower, as this humidity level will deteriorate the effectiveness of the cover's anti-static processing.
4	Hazardous Gas Not included	Processing can be performed upon request to counteract low density caused by corrosive gases such as sulfuric acid gas.
5	Vibration 0.5g or below	
6	Installation Location According to rules or against position indicated on meter Within 3 degrees	
7	Warm-up At least 15 minutes after turning on meter	
8	External Magnetic Field Degree of geomagnetism	
9	Attached Panel As indicated on meter	For Fe or NFe

## Performance

Item	Performance		Note	
	Conditions	Standard Specification Value		
1	Tolerance	Against maximum scale value	Within ±1.5%	1. Percentage of the sum of the absolute value of the of upper and lower limits of the scale for zero-center meters 2. Percentage of the upper limit value of the effective measurement range for extended scales
2	Adjustable Range of Variable Resistance	Against maximum value	±5% or above	
3	Friction	Against scale length	Within 0.6%	
4	Influence of Posture	Against scale length	Within 2%	
5	Zero Point Fault	Against scale length	Within 0.6%	
6	Response Time	Time needed to reach $2/3$ scale	4 sec. or below	
7	Pointer Overshoot	Scale overshoots $2/3$	Less than 40%	
8	Influence of Overheating	Against maximum scale value	Within ±1.5%	
9	Influence of Temperature	Against maximum scale value	Within 1.5%	
10	Influence of External Magnetic Field	Against maximum scale value	Within 3%	
11	Continuous Overload	Against maximum scale value	±1.5%	
12	Momentary Overload		Must not cause extreme thermal or mechanical breakage.	An error will not be detected even if JIS C 1102 is overloaded by double.
13	Insulation Resistance	Between terminal and case	10MΩ or above	
14	Voltage Test	Between terminal and case Between terminals on double-pointer meters	50 / 60Hz 2000V for one minute 50 / 60Hz 1000V for one minute	Attached amplifier is 1000V for 1 minute (DEF-100nD is 500V for 1 minute)
15	Shock	Friction Influence of Posture Tolerance	Within 0.6% of scale length Within 2% of scale length Within maximum scale value ±1.5%	
16	Vibration	Friction Influence of Posture Tolerance	Within 0.6% of scale length Within 2% of scale length Within maximum scale value ±1.5%	

# Instruction Manual (1)

Item	Instructions	Diagrams and Examples																							
<p style="text-align: center;">1</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Mounting</p>	<p>(1) Make mounting holes according to the panel cutout pictured in the outside dimensions diagram.</p> <p>(2) The materials of the attached panel are as indicated on the label of the meter.</p> <p>(3) An error within 0.3% of the maximum value occurs when the panel materials are incorrect.</p> <p>(4) Insert the escutcheons between the panel face and the meter's mounting area when installing the meter on the panel.</p> <p>Use Escutcheon (A) for the edge and (B) between meters when installing multiple units in tandem. Use the escutcheons to prevent the leakage of light from the underside of the panel due to gaps in the meter mounting.</p> <p>(5) To install the meter onto the panel, first position the attachment bracket in the position of the thin line in the figure. Next, put the meter into the panel, loosen screw (C), tighten (C) in the position of the thick line, then use setscrew (D) to affix the meter tightly to the panel face. A panel up to 15mm thick can be installed.</p> <p>(6) Escutcheon (A)                      Escutcheon (B)</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>	<p style="text-align: center;">Diagrams and Examples</p> <div style="display: flex; justify-content: space-between;"> <div data-bbox="986 197 1166 226"> <p><b>Label Specification</b></p> </div> <div data-bbox="1214 197 1358 226"> <p><b>Panel Material</b></p> </div> </div> <div style="margin-top: 10px;"> <p><span style="border: 1px solid black; padding: 2px;">Fe</span>      →      <b>Steel Panel</b></p> <p><span style="border: 1px solid black; padding: 2px;">NFe</span>     →      <b>Nonferrous Metal Panel</b></p> </div> <div style="text-align: center; margin-top: 20px;">  <p>Escutcheon (A)                      Escutcheon (B)</p> </div> <div style="text-align: center; margin-top: 20px;">  <p>Attached Panel MAX. 15mm</p> </div>																							
<p style="text-align: center;">2</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Adjusting Zero-point</p>	<p>Be sure to check the zero-point of the pointer before passing an electric current through the meter.</p> <p>If the pointer is deviating, adjust it using the following procedure.</p> <p>(1) For meters with a value from 0 to maximum, adjust the zero-point adjuster on the front by using a 3 to 3.6mm flat-head screwdriver to rotate the pointer left or right.</p> <p>(2) For meters without a 0 scale (expanded scale meters), such as the 4 - 20mA meter, apply electricity equivalent to the minimum scale value and adjust the zero-point adjuster by rotating the pointer left or right with a screwdriver to match the minimum scale value.</p> <p>(3) The relationship between the zero-point adjuster and the pointer is as listed in the table.</p> <table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th>Model Name</th> <th>Zero-point Adjuster</th> <th>Pointer</th> </tr> </thead> <tbody> <tr> <td rowspan="2">DEF-100nST</td> <td>Left</td> <td>Left</td> </tr> <tr> <td>Right Blank</td> <td>None</td> </tr> <tr> <td rowspan="2">DEF-100nWT</td> <td>Left</td> <td>Left (L)</td> </tr> <tr> <td>Right</td> <td>Right (R)</td> </tr> <tr> <td rowspan="2">DEF-100nSY</td> <td>Upper</td> <td>Upper</td> </tr> <tr> <td>Lower Blank</td> <td>Lower None</td> </tr> <tr> <td rowspan="2">DEF-100nWY</td> <td>Upper</td> <td>Upper (UPPER)</td> </tr> <tr> <td>Lower</td> <td>Lower (LOWER)</td> </tr> </tbody> </table> <div style="margin-top: 10px;"> <p>(B) ..... Black                      (L) ..... Left Side</p> <p>(R) ..... Red                         (R) ..... Right Side</p> <p>(UPPER) ..... Upper Side</p> <p>(LOWER) ..... Lower Side</p> </div>	Model Name	Zero-point Adjuster	Pointer	DEF-100nST	Left	Left	Right Blank	None	DEF-100nWT	Left	Left (L)	Right	Right (R)	DEF-100nSY	Upper	Upper	Lower Blank	Lower None	DEF-100nWY	Upper	Upper (UPPER)	Lower	Lower (LOWER)	<div style="text-align: center; margin-bottom: 20px;">  <p>Zero-point Adjuster</p> </div> <p>Edgewise Meter (T)</p> <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>DEF-100nST</p> </div> <div style="text-align: center;">  <p>DEF-100nWT</p> </div> <div style="text-align: center;">  <p>DEF-100nDT</p> </div> </div> <p style="text-align: center; margin-top: 10px;">Blank</p> <p>Horizontal Type (Y)</p> <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>DEF-100nSY</p> </div> <div style="text-align: center;">  <p>DEF-100nWY</p> </div> <div style="text-align: center;">  <p>DEF-100nDY</p> </div> </div> <p style="text-align: center; margin-top: 10px;">Blank</p>
Model Name	Zero-point Adjuster	Pointer																							
DEF-100nST	Left	Left																							
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<p>3</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Maximum Value of Adjustment</p>	<p>(1) A variable resistor for maximum value adjustment is installed on the back face of this meter and can be adjusted by rotating left or right with a flat-head screwdriver.</p> <p>The relationship between the pointer and the maximum adjuster is as indicated in the table when viewing the meter from the back face.</p> <table border="1" data-bbox="288 371 912 645"> <thead> <tr> <th>Model Name</th> <th>Maximum Adjuster</th> <th>Pointer</th> </tr> </thead> <tbody> <tr> <td rowspan="2">DEf-100nST</td> <td>Lower Right</td> <td>Left</td> </tr> <tr> <td>None</td> <td>None</td> </tr> <tr> <td rowspan="2">DEf-100nWT</td> <td>Lower Right</td> <td>Left (L)</td> </tr> <tr> <td>Upper Left</td> <td>Right (R)</td> </tr> <tr> <td rowspan="2">DEf-100nSY</td> <td>Upper Right</td> <td>Upper</td> </tr> <tr> <td>None</td> <td>None</td> </tr> <tr> <td rowspan="2">DEf-100nWY</td> <td>Upper Right</td> <td>Upper (UPPER)</td> </tr> <tr> <td>Lower Left</td> <td>Lower (LOWER)</td> </tr> </tbody> </table> <p>(2) Rotating to the right when adjusting will increase the pointer indication, while rotating left will decrease it. The adjustable range is approximately 5% or more of the maximum scale value.</p> <p>(3) If an error is discovered, adjusting the maximum value with the zero-point adjuster will break down the linearity of the scale and result in overall error. In such cases, thoroughly investigate the source of the error and request repairs or replacement if the meter is the cause.</p>	Model Name	Maximum Adjuster	Pointer	DEf-100nST	Lower Right	Left	None	None	DEf-100nWT	Lower Right	Left (L)	Upper Left	Right (R)	DEf-100nSY	Upper Right	Upper	None	None	DEf-100nWY	Upper Right	Upper (UPPER)	Lower Left	Lower (LOWER)	<p>Edgewise Meter (T)</p>  <p>Horizontal Type (Y)</p>  
Model Name	Maximum Adjuster	Pointer																							
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DEf-100nWY	Upper Right	Upper (UPPER)																							
	Lower Left	Lower (LOWER)																							
<p>4</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Scale Calibration</p>	<p>(1) Terminal connection fittings are fastened with M-4 screws. Up to two connection fittings can be installed.</p> <p>(2) A separation board is installed between each terminal to prevent contact by metal pieces in between the terminals of the meter or between those of the meter and those of adjacent meters, which could cause a short-circuit.</p> <p>(3) The relationship between the pointer and the terminal layout is as indicated in the chart.</p> <table border="1" data-bbox="288 1442 912 1715"> <thead> <tr> <th>Model Name</th> <th>Terminal Number</th> <th>Pointer and Power Supply</th> </tr> </thead> <tbody> <tr> <td>DEf-100nST</td> <td>① + ② -</td> <td>Left</td> </tr> <tr> <td rowspan="2">DEf-100nWT</td> <td>① + ② -</td> <td>Left (L)</td> </tr> <tr> <td>③ + ④ -</td> <td>Right (R)</td> </tr> <tr> <td>DEf-100nSY</td> <td>① + ② -</td> <td>Upper</td> </tr> <tr> <td rowspan="2">DEf-100nWY</td> <td>① + ② -</td> <td>Upper (UPPER)</td> </tr> <tr> <td>③ + ④ -</td> <td>Lower (LOWER)</td> </tr> <tr> <td>Attached Amplifier Common to All Types</td> <td>⑤ + ⑥ -</td> <td>Auxiliary Power Supply</td> </tr> </tbody> </table>	Model Name	Terminal Number	Pointer and Power Supply	DEf-100nST	① + ② -	Left	DEf-100nWT	① + ② -	Left (L)	③ + ④ -	Right (R)	DEf-100nSY	① + ② -	Upper	DEf-100nWY	① + ② -	Upper (UPPER)	③ + ④ -	Lower (LOWER)	Attached Amplifier Common to All Types	⑤ + ⑥ -	Auxiliary Power Supply	<p>Edgewise Meter (T)</p>  <p>Horizontal Type (Y)</p> 	
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<p>5</p> <p style="writing-mode: vertical-rl; transform: rotate(180deg);">Scale Calibration</p>	<p>(1) Test tolerance according to the method in item 6 when calibrating the scale during periodic inspections, etc.</p> <p>(2) Regular periodic inspections should be carried out once every 3 to 12 months depending on frequency of operation.</p>																								

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~Promotion of Environmental Issues~

Our company is fully committed to not using hazardous materials in our products.

All of our main products are manufactured without the use of the six hazardous materials prescribed in the RoHS directives.

Please consult us about the compatibility of each product.

Products that comply with the RoHS directives are distinguished by a label containing the "Ro" mark.

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#### Safety Precautions

- Only allow this product to be handled by people with sufficient knowledge and skill to ensure proper use.
- Carefully review any connection diagrams before soldering to ensure correctly soldered connections.
- Fully tighten screws. Loose screws may cause overheating or burnout.  
Mount the terminal cover after completing connections.
- Do not use if the specified rating is exceeded. Doing so may lead to malfunction or injury.
- Do not touch live parts of the product. Disconnect circuits during maintenance or inspections.

ISO 9001 Registration No. JSAQ 1492

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