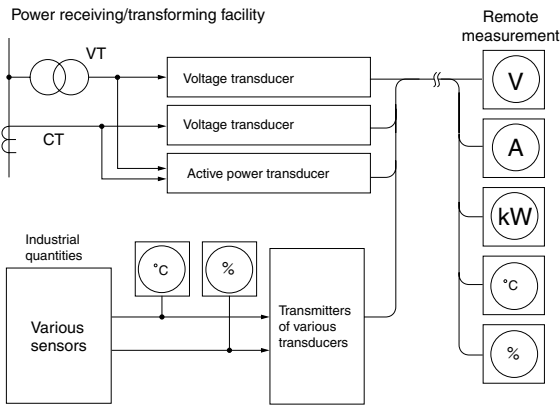
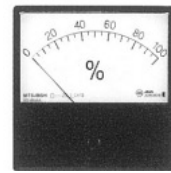


# Receiving Indicators

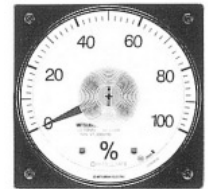
Receiving indicators indicate the quantity measured when an electrical signal is received from the transmitter of a detector of a power/instrumentation transducer. Receiving indicators are used to measure industrial quantities, including remote measurements.



- Measurement of pressure, temperature, speed, rpm and other industrial quantities
- Telemetry measurement (remote measurement) in combination with transducers  
( Refer to p.151 onward of this catalog regarding the transducers to be used with receiving indicators. )



YM-8NRI



LM-110NRI

## Specifications

### DC indicators

		Rectangular indicators						Wide-angle indicators			
		Y-2N Series			Y-N Series			L-N Series			
Size (width × height)	mm	64×60	85×75	100×85	82×82	102×102	122×122	80×80	110×110		
Model name		YM-206NRI	YM-208NRI	YM-210NRI	YM-8NRI	YM-10NRI	YM-12NRI	LM-80NRI	LM-110NRI		
Operation principle		Movable coil			Movable coil			Movable coil			
Accuracy (grade)		2.5			2.5			1.5	2.5		
Scale length	(mm)	55	70	85	70	90	100	124	175		
Weight	(kg)	0.07	0.1	0.1	0.1	0.15	0.3	0.3	0.4		
Indicator rating and delivery period classification	DC current	Indicator rating	Delivery period	Internal resistance (Ω)							
		100μA	△	2000Ω			2000Ω		5000Ω	—	
		200μA	△	1200Ω			1200Ω		5000Ω	—	
		300μA	△	1000Ω			1000Ω		1550Ω	920Ω	
		500μA	△	730Ω			730Ω		780Ω	580Ω	
		1mA	Note 1 ○	200Ω			200Ω		250Ω	180Ω	
		5mA	○	8Ω			8Ω		50Ω	8Ω	
		10mA	○	2Ω			2Ω		25Ω	6Ω	
		20mA	○	0.8Ω			0.8Ω		0.8Ω	3Ω	
		±0.5mA	Note 1 ○	200Ω			200Ω		250Ω	180Ω	
	±1mA	○	100Ω			100Ω		125Ω	90Ω		
	DC voltage	Zero-suppressed	1~5mA	○	10Ω			10Ω		25Ω	50Ω
			2~10mA	○	4Ω			4Ω		5Ω	15Ω
4~20mA			○	1Ω			1Ω		5Ω	10Ω	
10~50mA			○	2Ω			2Ω		3Ω	4Ω	
Indicator rating			Delivery period	Consumption current (approx. mA)							
1, 3, 5, 10, 15V	○	1mA			1mA		1mA	1mA			
30, 50, 60, 100V	○	1.25mA			1.25mA		1.25mA	1.25mA			
Zero-suppressed	1~5V	○	1.25mA			1.25mA		1.25mA	1.25mA		
Page with outer dimensions drawing		35			36			37			

**Note 1.** A 500Ω internal resistance indicator can also be manufactured for models with indicator ratings of 1mA and ±0.5mA.

Please specify an internal resistance of 500Ω.

**Note 2.** In the case of scales with units of electricity (A, V, W, var, cosφ, Hz), AC/DC and three-phase circuit symbols are not displayed. For receiving indicators, the symbol for the quantity input is displayed.

### Delivery period classification

Symbol	◎Standard product	○Quasi-standard product	△Special product
Reference delivery period	Immediate delivery	Within 20 days	21 to 60 days

- Remarks**
- (1) With a zero-suppressed indicator, the zero point of the needle is suppressed mechanically to eliminate the zero point. Zero-suppressed indicators can be manufactured for values of 20% or lower of the maximum rating of the indicator.
  - (2) For cases when the indicator input is DC voltage, an indicator with an adjustment resistor, where the adjustment resistor is added internally to the indicator, can be manufactured. (This type can be used in combination with specific scales.)
    - The range of adjustment by the adjustment resistor is ±5% to ±20% with respect to the maximum scale value.
    - The adjustment resistor is mounted on the rear face (i.e., face with terminals) of the indicator.
  - (3) rpm detectors and other industrial quantity detectors are to be prepared by the customer.
  - (4) Please make sure to read the "Safety Precautions" (pp.5-8) and the "Selection Precautions" (p.9) to assist in selecting the model and use specifications suited to the application.

## ● AC indicators

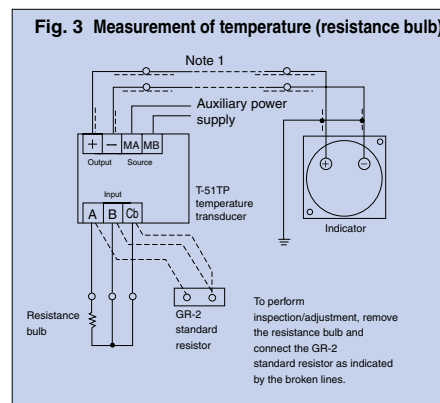
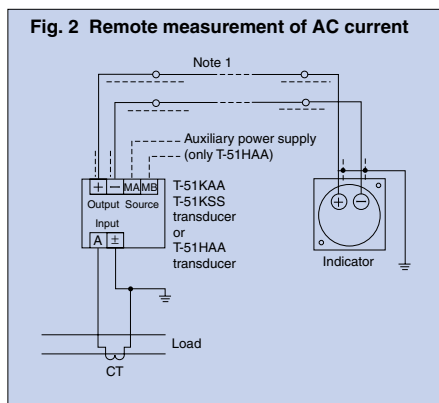
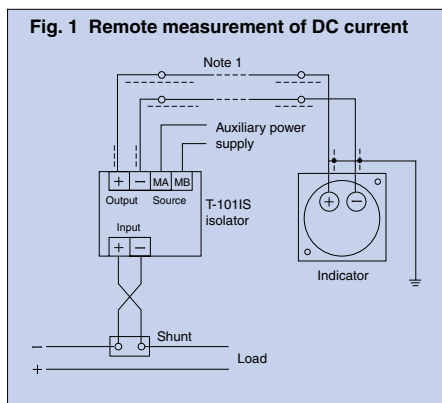
	Rectangular indicators						Wide-angle indicators		
	Y-2N Series			Y-N Series			L-N Series		
Size (width X height) mm	64X60	85X75	100X85	82X82	102X102	122X122	80X80	110X110	
Model name	YR-206NRI	YR-208NRI	YR-210NRI	YR-8NRI	YR-10NRI	YR-12NRI	LR-80NRI	LR-110NRI	
Operation principle	Rectifier			Rectifier			Rectifier		
Accuracy (grade)	2.5			2.5			2.5	1.5	
Scale length (mm)	55	70	85	70	90	100	124	175	
Indicator rating and delivery period classification	AC current	Indicator rating	Delivery period	Consumption current, consumption VA, or voltage drop					
		200, 300 $\mu$ A	$\Delta$	—	1.7V	1.7V	1.7V	—	
		500 $\mu$ A, 1, 3, 5mA	$\Delta$	1.4V	1.4V	1.4V	1.4V	1.4V	
		10, 20, 30, 50, 75mA	$\Delta$	1.2V	1.2V	1.2V	1.2V	1.2V	
	AC voltage	100, 200, 500mA	$\Delta$	0.06VA	0.06VA	0.06VA	0.06VA	0.06VA	
		1, 3A	$\circ$	0.06VA	0.06VA	0.06VA	0.06VA	0.06VA	
		5, 10, 15, 20A	$\circ$	0.1VA	0.1VA	0.1VA	0.1VA	0.1VA	
		5, 10, 30, 50V	$\circ$	1mA	1mA	1mA	1mA	1mA	
75, 100V	$\circ$	1mA	1mA	1mA	1mA	1mA			
150V	$\circ$	2mA	2mA	2mA	2mA	2mA			
300V	$\circ$	2mA	2mA	2mA	2mA	2mA			
Page with outer dimensions drawing	35			36			37		

**Remarks** (1) Industrial quantity detectors are to be prepared by the customer.  
 (2) Please make sure to read the "Safety Precautions" (pp.5-8) and the "Selection Precautions" (p.9) to assist in selecting the model and use specifications suited to the application.

### Delivery period classification

Symbol	$\odot$ Standard product	$\circ$ Quasi-standard product	$\Delta$ Special product
Reference delivery period	Immediate delivery	Within 20 days	21 to 60 days

## ■ Connection examples



**Note 1.** Use a shielded wire or twisted wire for connecting the transducer or other components to the indicator.

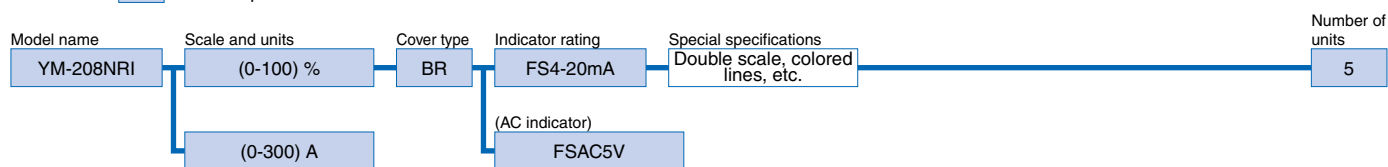
## ● Scale units of receiving indicators (representative examples)

Element	Scale units	Element	Scale units	Element	Scale units	Element	Scale units		
DC/AC current	A	Active power	kW	Percent	%	Speed	meters/minute		
	kA		MW		Temperature		$^{\circ}$ C	meters/second	
DC/AC voltage	V	Reactive power	kvar	Length	centimeters	Revolutions	$\text{min}^{-1}$		
	kV		Mvar		meters		m	Pressure	MPa
Frequency	Hz	Power factor	$\cos\phi$	Weight	kilograms	Flow rate	L/min		
					tons		t	Concentration	ppm

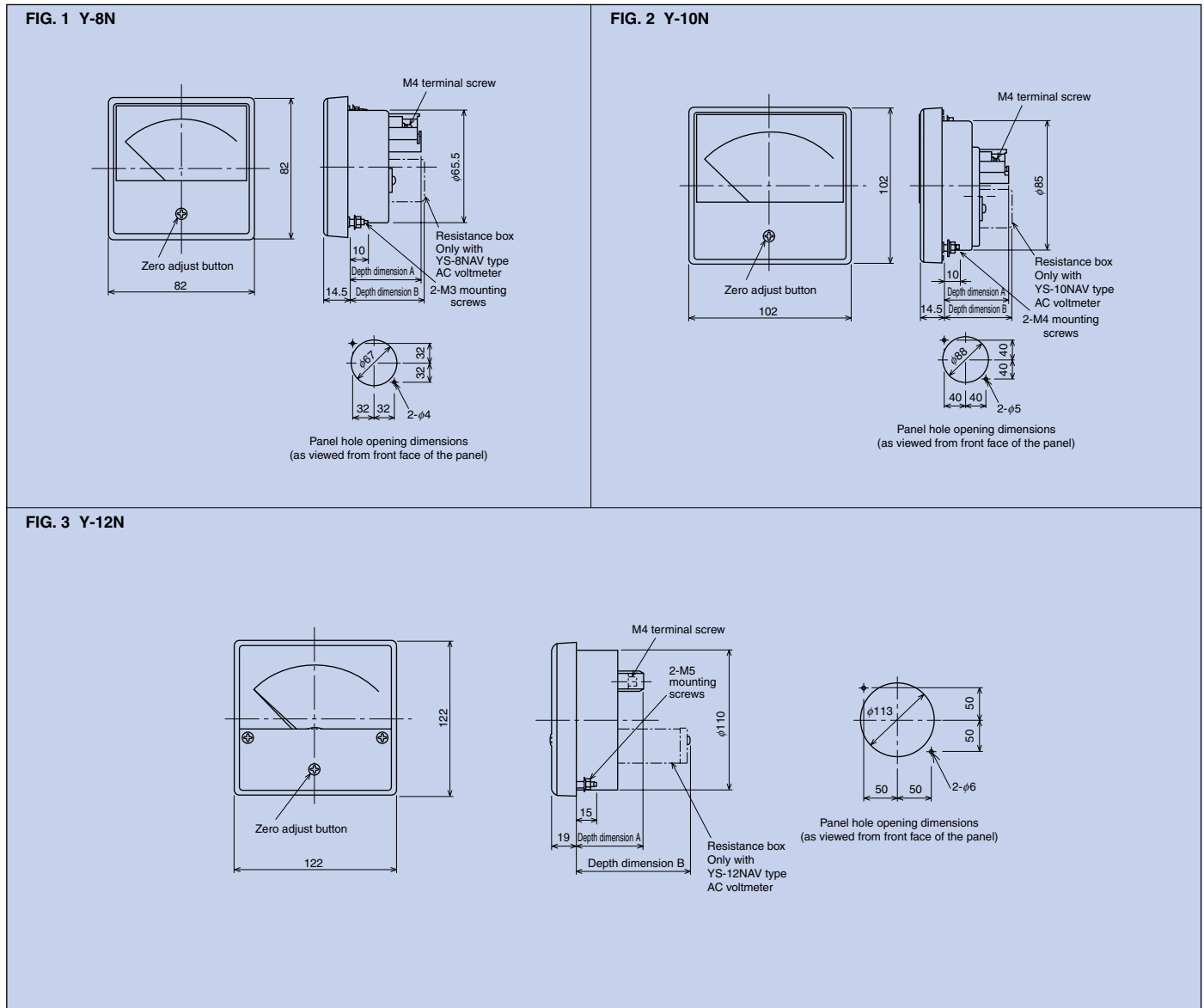
Models with various types of units besides the above can also be manufactured.

## ■ Ordering method

The items in    must be specified.



## Rectangular indicators (Y-N Series)



### ● Depth dimension details

Indicator type		Y-8N			Y-10N			Y-12N			
		Type name	A dimension	B dimension	Type name	A dimension	B dimension	Type name	A dimension	B dimension	
DC	Ammeters	YM-8NDA	41	—	YM-10NDA	41	—	YM-12NDA	50	—	
	Voltmeters	YM-8NDV	41	—	YM-10NDV	41	—	YM-12NDV	50	—	
AC	Ammeters	YS-8NAA	41	—	YS-10NAA	41	—	YS-12NAA	50	—	
		Uniform scale	YR-8NAA	41	—	YR-10NAA	41	—	YR-12NAA	50	—
	Voltmeters	YS-8NAV	41	43	YS-10NAV	41	43	YS-12NAV	50	85	
		Uniform scale	YR-8NAV	41	—	YR-10NAV	41	—	YR-12NAV	50	—
	Wattmeters	YP-8NW	41	—	YP-10NW	41	—	YP-12NW	100	—	
	Varmeters	YP-8NVAR	41	—	YP-10NVAR	41	—	YP-12NVAR	100	—	
	Power-factor meters	Balanced	YP-8NPF	81	—	YP-10NPF	81	—	YP-12NPF	50	Note
		Unbalanced	YP-8NPFU	41	—	YP-10NPFU	41	—	YP-12NPFU	100	—
Frequency meters	YP-8NF	81	—	YP-10NF	81	—	YP-12NF	50	—		
Receiving indicators	DC indicators	YM-8NRI	41	—	YM-10NRI	41	—	YM-12NRI	50	—	
	AC indicators	YR-8NRI	41	—	YR-10NRI	41	—	YR-12NRI	50	—	

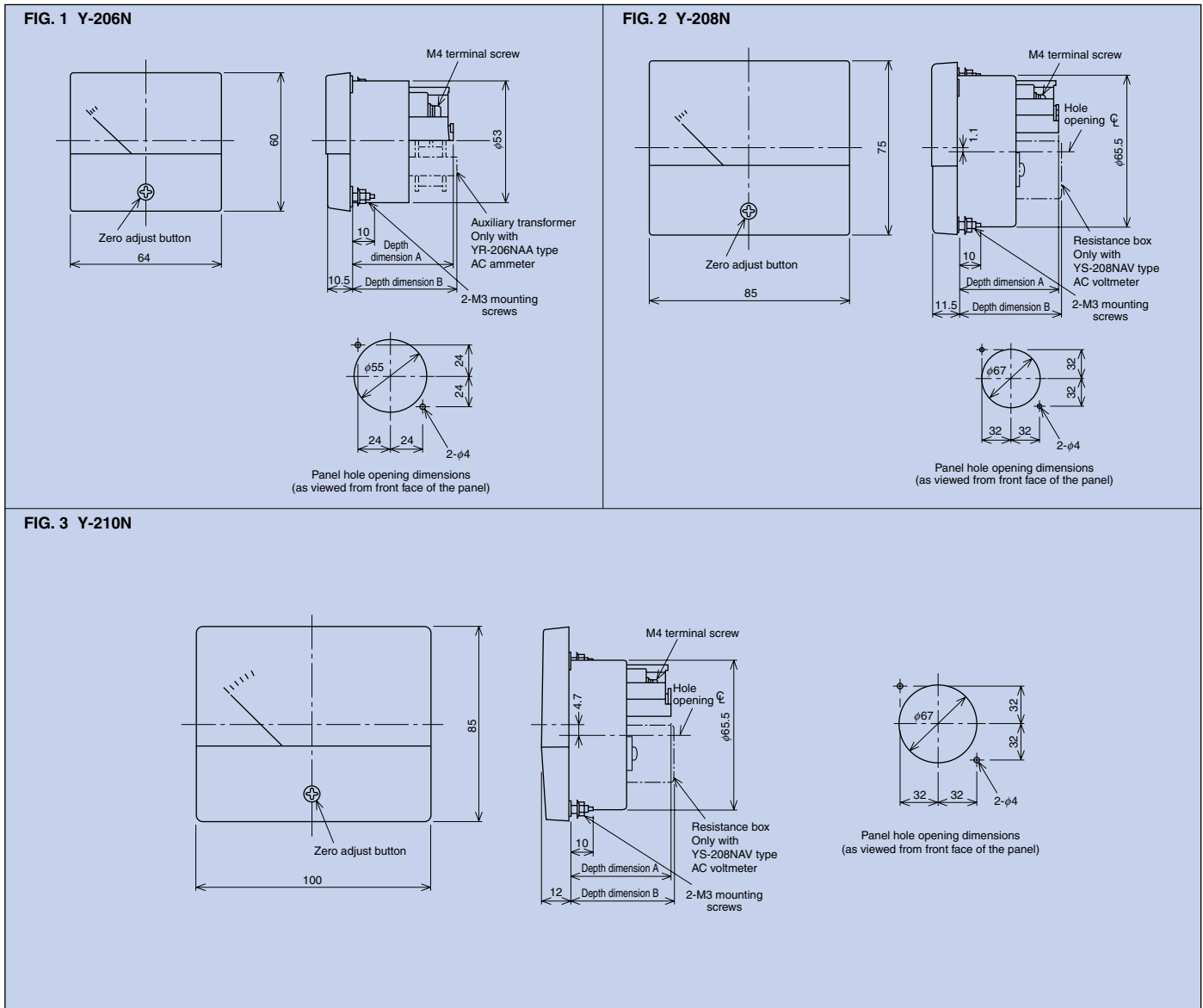
**Note.** 100mm in the case of a model for 1-phase 2-wire systems.



# Outer Dimension Drawings

(Refer to the specification tables regarding models other than the Y-2N series, Y-N series, and L-N series.)

## Rectangular indicators (Y-2N Series)



### ● Depth dimension details

Indicator type	Y-206N			Y-208N			Y-210N				
	Type name	A dimension	B dimension	Type name	A dimension	B dimension	Type name	A dimension	B dimension		
DC	Ammeters	YM-206NDA	43	—	YM-208NDA	43	—	YM-210NDA	43	—	
	Voltmeters	YM-206NDV	43	—	YM-208NDV	43	—	YM-210NDV	43	—	
AC	Ammeters	YS-206NAA	43	—	YS-208NAA	43	—	YS-210NAA	43	—	
		Uniform scale	YR-206NAA	43	44	YR-208NAA	43	—	YR-210NAA	43	—
	Voltmeters	YS-206NAV	43	—	YS-208NAV	43	45	YS-210NAV	43	45	
		Uniform scale	YR-206NAV	43	—	YR-208NAV	43	—	YR-210NAV	43	—
	Wattmeters	YP-206NW	43	—	YP-208NW	43	—	YP-210NW	43	—	
	Varmeters	YP-206NVAR	43	—	YP-208NVAR	43	—	YP-210NVAR	43	—	
	Power-factor meters	Balanced	YP-206NPF	43	—	YP-208NPF	43	—	YP-210NPF	43	—
		Unbalanced	YP-206NPFU	43	—	YP-208NPFU	43	—	YP-210NPFU	43	—
Frequency meters	YP-206NF	83	—	YP-208NF	83	—	YP-210NF	83	—		
Receiving indicators	DC indicators	YM-206NRI	43	—	YM-208NRI	43	—	YM-210NRI	43	—	
	AC indicators	YR-206NRI	43	—	YR-208NRI	43	—	YR-210NRI	43	—	

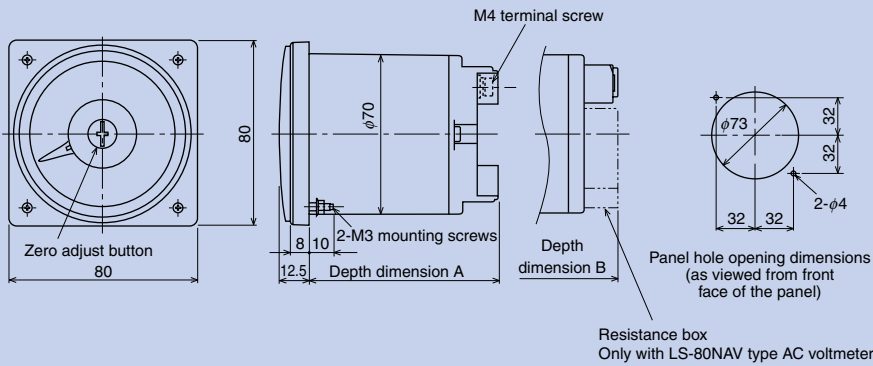


# Outer Dimensional Drawings

(Refer to the specification tables regarding models other than the Y-2N series, Y-N series, and L-N series.)

## Wide-angle indicators (L-N Series)

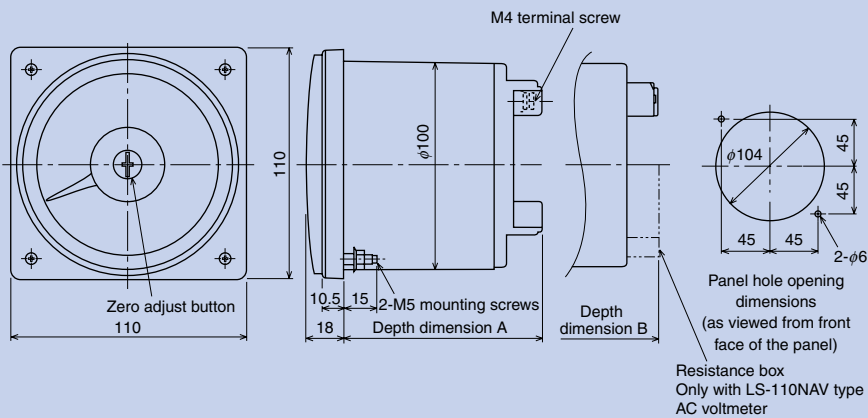
FIG. 1 L-80N



●Depth dimension details

Indicator type		L-80N			
		Type name	A dimension	B dimension	
DC	Ammeters	LM-80NDA	81	—	
	Voltmeters	LM-80NDV	81	—	
AC	Ammeters	LS-80NAA	—	81	
	Uniform scale	LR-80NAA	81	—	
	Voltmeters	LS-80NAV	—	81	
	Uniform scale	LR-80NAV	81	—	
	Wattmeters	LP-80NW	81	—	
	Varmeters	LP-80NVAR	81	—	
	Power-factor meters	Balanced	LP-80NPF	92	—
		Unbalance	LP-80NPFU	81	—
Frequency meters		LP-80NF	92	—	
Receiving indicators	DC indicators	LM-80NRI	81	—	
	AC indicators	LR-80NRI	81	—	




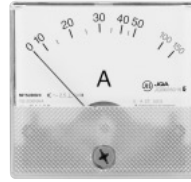
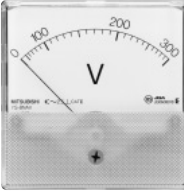
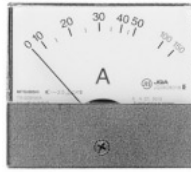





FIG. 2 L-110N



●Depth dimension details

Indicator type		L-110N			
		Type name	A dimension	B dimension	
DC	Ammeters	LM-110NDA	92	—	
	Voltmeters	LM-110NDV	92	—	
AC	Ammeters	LS-110NAA	—	92	
	Uniform scale	LR-110NAA	92	—	
	Voltmeters	LS-110NAV	—	92	
	Uniform scale	LR-110NAV	92	—	
	Wattmeters	LP-110NW	100	—	
	Varmeters	LP-110NVAR	100	—	
	Power-factor meters	Balanced	LP-110NPF	92	—
		Unbalance	LP-110NPFU	100	—
Frequency meters		LP-110NF	92	—	
Receiving indicators	DC indicators	LM-110NRI	92	—	
	AC indicators	LR-110NRI	92	—	

## Covers

Cover specification	Classification	Y-2N Series	Y-N Series	L-N Series
B design cover (Munsell N 1.5 semi-gloss)	◎			
G design cover (all transparent)	○			—
F design cover <sup>Note 1</sup> (special color coating)	△			
Cover with red needle (can be manufactured for B, G, and F designs)	○			

**Remarks** The B design cover is standard specification. The G and F design covers and covers with red needles can be manufactured if required.

**Note 1.** When ordering the F-design cover, please use F as the cover code and specify the color coating. Munsell 7.5BG 4/1.5 will be used for orders with no color coating specified.

## Cover codes

Cover specifications	Without red needle	With red needle
B design	B	BR*1
G design	G	GR
F design	F	FR

**Remarks** For the Y-N Series, a B cover with two red needles (BRR cover) can be manufactured depending on the model (please inquire for details).

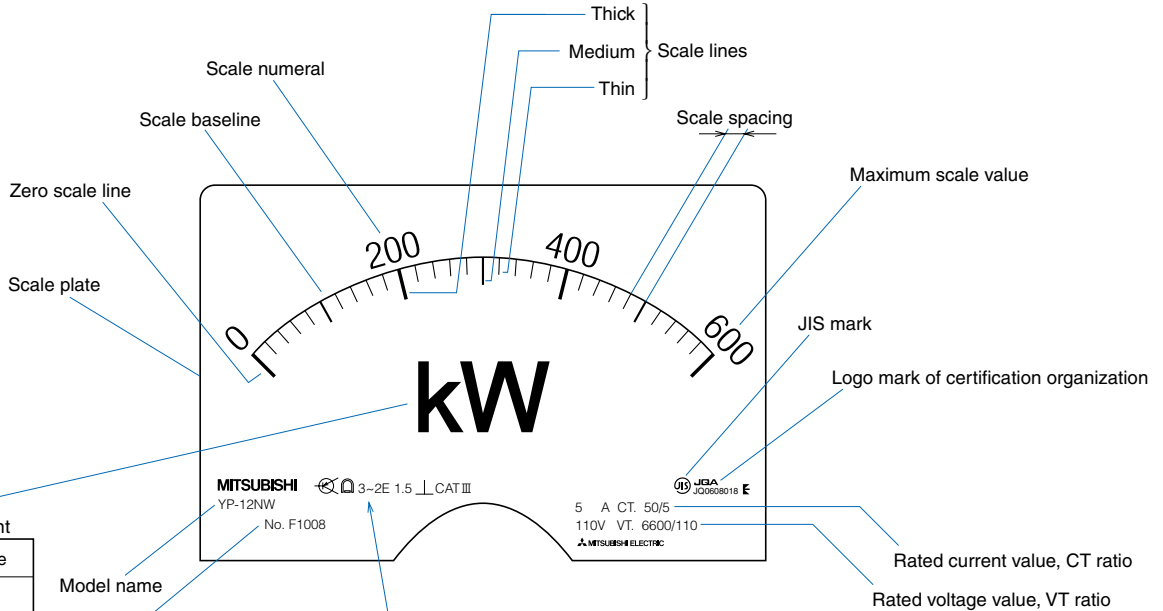
## Accessories

Nuts for mounting screws are provided with all models. T-150 and other special accessories are indicated in the specification columns of the respective indicator types.

# Mechanical Indicators

## Common Specifications

### Scale plate components and items indicated



#### Unit of measurement

Item	Code
Ampere	A
Volt	V
Watt	W
Var	var
Power factor	cos $\phi$ or cos $\psi$
Hertz	Hz
Prefix	
Mega $10^6$	M
Kilo $10^3$	k
Milli $10^{-3}$	m

Model name  
Serial number

⊗ 3~2E 1.5 ⊥ CAT III

#### Auxiliary symbols

Item	Symbol
Shunt	
Serial resistor	
Accessory	

#### Operation principle

Item	Symbol
Permanent magnet/movable coil	
Movable iron core	
Bimetal	
Electronic device in measurement circuit	
Electronic device in auxiliary circuit	
Rectifier	

#### Type of measurement and number of elements measured

Item	Symbol
DC circuit	
AC circuit	
3-phase AC circuit	3~
Single element for 3-wire circuit	3-1E
Two elements for unbalanced load 3-wire circuit	3~2E
Two elements for unbalanced load 4-wire circuit	3N~2E
Three elements for unbalanced load 4-wire circuit	3N~3E

#### Accuracy class

Class index	Code
Class 0.5	0.5
Class 1	1
Class 1.5	1.5
Class 2.5	2.5
Class 5	5
Class 1.5 in the case where the base value corresponds to the span	1.5
Class 2.5 in the case where the base value corresponds to the span	2.5

#### Mounting attitude

Item	Symbol
Instrument used with scale plate set vertically	
Instrument used with scale plate set horizontally	
Instrument used with scale plate set at a position inclined from the horizontal surface (example: 60°)	

#### Measurement category

Classification	Code
Measurement category III	CAT III

## Scale plate indications

The following tables show the scales, including numerals, colored lines, bands and colors, used as standard specifications. Red, blue, green and yellow are used for the colored lines/bands.

	Y-2N Series	Y-N Series	L-N Series
Standard scale			
Expanded scale (expanded by 3 times)			
Positive/Negative scale			
Single scale with double stamp			
Double scale with double stamp			
Colored lines Colored bands			

**Remarks** (1) See the "Standard Scale Diagrams" on pp.31 to 34 regarding the scale division with respect to the maximum scale value.  
 (2) Special scales can also be manufactured.