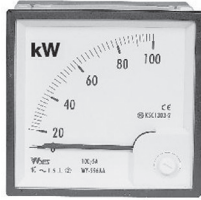


4. 배전반용 전력계 (Panel & Switch-board Watt Meter)



TYPE : WY-R □ □W



TYPE : WY-S □ □W



TYPE : WY-SH96 □ □



TYPE : WY-W □ □W

● Specifications

- 1 Phase 2 Wire Watt meter (1상 2선식 전력계)

Type	Size(mm)	Input		Oper. Prin.	Class (%)	Burden(VA)		Weight (g)	Dimen.	Transducer		
		Volt	Curr.			Volt	Curr.					
WY-R06W1	60×60	110V or 220V	5A or 1A	 	±2,5	0,5	0,5	630	Refer to Page 220	Ext.		
WY-R08W1	80×80				±1,5			660				
WY-R10W1	100×80							670				
WY-S47W1	47×47							600				
WY-S72W1	72×72			610								
WY-S96W1	96×96			 				680				
WY-SH96W1								Refer to Page 221	Int.			
WY-SH96W1T									Ext.			
WY-W08W1	80×80			 				750	Ext.			
WY-W11W1	110×110			 				760		Int.		
WY-W11W1T		Ext.										

※ Ext. : 변환기 별도 외부형(External Transducer Type), Int. : 변환기 내부 일체형(Internal Transducer Type)

- 1 Phase 3 Wire Watt meter (1상 3선식 전력계)

Type	Size(mm)	Input		Oper. Prin.	Class (%)	Burden(VA)		Weight (g)	Dimen.	Transducer	
		Volt	Curr.			Volt	Curr.				
WY-R06W2	60×60	110V	5A or 1A	 	±2,5	0,5	0,5	630	Refer to Page 220	Ext.	
WY-R08W2	80×80				±1,5			660			
WY-R10W2	100×80							670			
WY-S47W2	47×47							600			
WY-S72W2	72×72			610							
WY-S96W2	96×96			±1,5	 			680	Refer to Page 221	Int.	
WY-SH96W2								80×80		750	Ext.
WY-SH96W2T											Ext.
WY-W08W2	110×110			 	760			Int.			
WY-W11W2								Ext.			
WY-W11W2T											

※ Ext. : 변환기 별도 외부형(External Transducer Type), Int. : 변환기 내부 일체형(Internal Transducer Type)

- 1P 2W 전력계(W)

$$\text{Calibrating Watt} = \frac{\text{최대눈금치 (Max. scale)}}{(\text{P.T ratio}) \times (\text{C.T ratio})}$$

- Example

$$\text{Calibrating Watt} = \frac{12\text{kW}}{100\text{V} \times 100/5\text{A}} = 0.6\text{kW}$$

- 1P 3W 전력계(W)

$$\text{Calibrating Watt} = \frac{\text{최대눈금치 (Max. scale)}}{(\text{P.T ratio}) \times (\text{C.T ratio})}$$

- Example

$$\text{Calibrating Watt} = \frac{20\text{kW}}{100\text{V} \times 100/5\text{A}} = 1.0\text{kW}$$

교류전력계 Watt Meter (KW)



- 3 Phase 3 Wire Watt meter (3상 3선식 전력계)
- 3 Phase 3 Wire Watt meter (3상 3선식 전력계)

Type	Size (mm)	Input		Oper. Prin.	Class (%)	Burden(VA)		Weight (g)	Dimen.	Trans-ducer	Remarks											
		Volt	Curr.			Volt	Curr.				Volt,	Curr.										
WY--R06W3	60×60	110V or 220V	5A or 1A		±2,5	0,5	0,5	730	Refer to Page 220	Ext.	Un	Un										
WY--R08W3	80×80				1,5			760														
WY--R10W3	100×80							770														
WY--S47W3	47×47				±1,5			700														
WY--S72W3	72×72							710					Refer to Page 221	Int.								
WY--S96W3	96×96							750														
WY--SH96W3								780		Ext.												
WY--SH96W3T																						
WY--W08W3	80×80									Int.												
WY--W11W3	110×110																					
WY--W11W3T				800				Ext.														

※ Ext. : 변환기 별도 외부형(External Transducer Type), Int. : 변환기 내부 일체형(Internal Transducer Type)

- 3 Phase 4 Wire Watt meter (3상 4선식 전력계)
- 3 Phase 4 Wire Watt meter (3상 4선식 전력계)

Type	Size(mm)	Input		Oper. Prin	Class (%)	Burden(VA)		weight (g)	Dimen.	Trans-ducer	Remarks	
		Volt	Curr.			Volt	Curr.				Volt.	Curr.
WY-R06W4	60×60	190/ $\sqrt{3}$ V or 380/ $\sqrt{3}$ V	5A or 1A		±2,5	0,5	0,5	760	Refer to Page 220	Ext.	B	Un
WY-R06W4U								Un				
WY-R08W4	80×80							790			B	
WY-R08W4U								Un				
WY-R10W4	100×80				800			B				
WY-R10W4U					Un							
WY-S47W4	47×47				730			B				
WY-S47W4U					Un							
WY-S72W4	72×72				±1,5			740	B			
WY-S72W4U								Un				
WY-S96W4	96×96			850				Refer to Page 221	Int.	B		
WY-S96W4U										Ext.	B	
WY-SH96W4										Int.	Un	
WY-SH96W4T										Ext.	Un	
WY-SH96W4U	80×80			900					Ext.	B		
WY-SH96W4UT										Un		
WY-W08W4	110×110								920	Int.	B	
WY-W08W4U											Ext.	
WY-W11W4								Int.			Un	
WY-W11W4T								Ext.			Un	
WY-W11W4U												
WY-W11W4UT												

※ Ext. : 변환기 별도 외부형(External Transducer Type), Int. : 변환기 내부 일체형(Internal Transducer Type)

- 3P 3W 전력계(W)

$$\text{Calibrating Watt} = \frac{\text{최대눈금치 (Max. scale)}}{(\text{P.T ratio}) \times (\text{C.T ratio})}$$

- Example

$$\text{Calibrating Watt} = \frac{600\text{kW}}{3300/110\text{V} \times 100/5\text{A}} = 1.0\text{kW}$$

- 3P 4W 전력계(W)

$$\text{Calibrating Watt} = \frac{\text{최대눈금치 (Max. scale)}}{(\text{P.T ratio}) \times (\text{C.T ratio})}$$

- Example

$$\text{Calibrating Watt} = \frac{600\text{kW}}{3300/110\text{V} \times 100/5\text{A}} = 1.66\text{kW}$$

PANEL BOARD METER

교류전력계 Watt Meter (KW)



· Full Scale Watts Table (Standard)

(Unit : kW)

phase x wire	1P2W	1P3W	3P3W								3P4W					
	P.T rat.	110	110	220	$\frac{380}{110}$	$\frac{440}{110}$	$\frac{3300}{110}$	$\frac{6600}{110}$	$\frac{22000}{110}$	$\frac{22900}{110}$	$\frac{154kv}{110}$	$208/\sqrt{3}$	$\frac{380/\sqrt{3}}{190/\sqrt{3}}$	$380/\sqrt{3}$	$\frac{11400/\sqrt{3}}{190/\sqrt{3}}$	$\frac{22900/\sqrt{3}}{190/\sqrt{3}}$
	callbra. C.T rat	0.6	1	2.0	1.158	1.0	1.0	1.0	1.0	0.96	1.0	2.0	2.0	4.0	1.666	1.666
5/5	0.6	1	2	4	4	30	60	200	200	1400	2	4	4	100	200	
10/5	1.2	2	4	8	8	60	120	400	400	2800	4	8	8	200	400	
15/5	1.8	3	6	12	12	90	180	600	600	4200	6	12	12	300	600	
20/5	2.4	4	8	16	16	120	240	800	800	5600	8	16	16	400	800	
25/5	3.0	5	10	20	20	150	300	1000	1000	7000	10	20	20	500	1000	
30/5	3.6	6	12	24	24	180	360	1200	1200	8400	12	24	24	600	1200	
40/5	4.8	8	16	32	32	240	480	1600	1600	11.2M	16	32	32	800	1600	
50/5	6.0	10	20	40	40	300	600	2000	2000	14.0	20	40	40	1000	2000	
60/5	7.2	12	24	48	48	360	720	2400	2400	16.8	24	48	48	1200	2400	
75/5	9.0	15	30	60	60	450	900	3000	3000	21.0	30	60	60	1500	3000	
80/5	9.6	16	32	64	64	480	960	3200	3200	22.4	32	64	64	1600	3200	
100/5	12.0	20	40	80	80	600	1200	4000	4000	28.0	40	80	80	2000	4000	
120/5	14.4	24	48	96	96	720	1440	4800	4800	33.6	48	96	96	2400	4800	
150/5	18.0	30	60	120	120	900	1800	6000	600	42.0	60	120	120	3000	6000	
200/5	24.0	40	80	160	160	1200	2400	8000	8000	56.0	80	160	160	4000	8000	
250/5	30.0	50	100	200	200	1500	3000	10M	10M	70.0	100	200	200	5000	10M	
300/5	36.0	60	120	240	240	1800	3600	12	12	84.0	120	240	240	6000	12	
400/5	48.0	80	160	320	320	2400	4800	16	16	112.0	160	320	320	8000	16	
500/5	60.0	100	200	400	400	3000	6000	20	20	140.0	200	400	400	10M	20	
600/5	72.0	120	240	480	480	3600	7200	24	24	168.0	240	480	480	12	24	
750/5	90.0	150	300	600	600	4500	9000	30	30	210.0	300	600	600	15	30	
800/5	96.0	160	320	640	640	4800	9600	32	32	224.0	320	640	640	16	32	
1000/5	120.0	200	400	800	800	6000	12M	40	40	280.0	400	800	800	20	40	
1200/5	144.0	240	480	960	960	7200	14.4	48	48	336.0	480	960	960	24	48	
1500/5	180.0	300	600	1200	1200	9000	18.0	60	60	420.0	600	1200	1200	30	60	
2000/5	240.0	400	800	1600	1600	12M	24.0	80	80	560.0	800	1600	1600	40	80	
2500/5	300.0	500	1000	2000	2000	15	30.0	100	100	700.0	1000	2000	2000	50	100	

· C.T 2'nd at 1A (Full Scale Watts Table)

(Unit : kW)

Phase	1P2W	1P3W	3P3W								3P4W				
P.T rat.	110	110	220	$\frac{380}{110}$	$\frac{440}{110}$	$\frac{3300}{110}$	$\frac{6600}{110}$	$\frac{22000}{110}$	$\frac{22900}{110}$	$\frac{154kv}{110}$	$208/\sqrt{3}$	$\frac{380/\sqrt{3}}{190/\sqrt{3}}$	$380/\sqrt{3}$	$\frac{11400/\sqrt{3}}{190/\sqrt{3}}$	$\frac{22900/\sqrt{3}}{190/\sqrt{3}}$
C.T rat.	0.12	0.2	0.4	0.232	0.2	0.2	0.2	0.2	0.192	0.2	0.4	0.4	0.8	0.333	0.333
5/1	0.6	1	2	4	4	30	60	200	200	1400	2	4	4	100	200
10/1	1.2	2	4	8	8	60	120	400	400	2800	4	8	8	200	400

※ CT 2차 전류가 1A 일경우 5A Calibrating Watt의 1/5값 입니다.

When the current of CT 2'nd is 1A, it is 1/5 Value of 5A Calibrating Watt.

● Description

- 본 계측기는 Transducer 형으로 유효전력을 측정하는 계기로 변환기 (Transducer)를 계기내부 또는 외부에 부착 사용한다.
- 동작 전압의 범위는 정격전압의 $\pm 10\%$ 이내입니다.
- SPECIFICATION 이외의 계측기는 정격 2차 전압 110V, 정격 2차 전류 5A인 VT 와 C.T 를 연결하여 사용하십시오. 그리고 주문시 VT 비, C.T 비와 최대 눈금치를 명시하여 주십시오.
- WY-W11W type 의 전력계는 transducer box 를 내장하고 있으며, WY-R□□, WY-S□□, WY-W08W type 의 전력계는 외부에 transducer box 를 연결하여 사용하십시오.
- 3상 4선식의 정격전압은 선간전압 $/\sqrt{3}$ 으로 표시합니다.
- VT 와 C.T 를 사용할 경우의 교정 전력 Calibrating watt = 최대 눈금치/(VT비)×(C.T비)
- 1상 2선식 계기의 표준교정 전력은 600W 로 교정되어 있습니다.
- 1상 3선식 계기의 표준교정 전력은 3상 3선식과 같이 1.0kW 로 교정되어 있습니다.
- 3상 3선식 계기의 표준교정 전력은 1.0kW 로 교정되어 있습니다.
- 3상 4선식 계기의 표준교정 전력은 1.666kW 로 교정되어 있습니다.

● External T/D & Internal T/D 의 제품 구성도

External T/D



Internal T/D



※ 계측기와 T/D는 제조 번호가 일치하도록 설치 하십시오.
Install the manufacture's serial number of meter and T/D unitedly.

● Description

- The type of operating principle of these meters are the transducer type meters measure active power. Transducer is used with the transducer type attached inside or outside.
- Operating voltage range is $\pm 10\%$ of rated voltage
- For other voltage and/or current ratings higher than listed on the Specification. use external current transformer and / or external potential transformer with a 110V / 5A instrument, when ordering, specify the full scale value desired, VT ratio and C.T ratio.
- In case of the WY-W11W type of watt meters, transducer box is self-contained and the WY-R□□W, WY-S□□W, WY-W08W type of watt meters are provided with on external transducer box.
- Rating voltage of 3phase 4wire is at phase voltage, ($/\sqrt{3}$)
- When using P.T and C.T, calibrating will be as follows.
Calibrating watts = Full scale watts / (VT ratio)×(C.T ratio)
- The standard calibration watt of the meter for single phase 2wire was calibrated the 600W.
- The standard calibration watt of the meter for single phase 3wire was calibrated the 1.0kW as the meter for 3phase 3wire.
- The standard calibration watt of the meter for 3phase 3wire was calibrated the 1.0kW.
- The standard calibration watt of the meter for 3phase 4wire was calibrated the 1.666kW

HV / CT
고압변류기

HV / VT · MOF
고압변압기

LV / CT
저압변류기

LV / VT
저압변압기

RELA Y
보호계전기

E L D
능률검보기

G F R
지락계전기

Z C T
영용변류기

M E T E R
지시전기계기

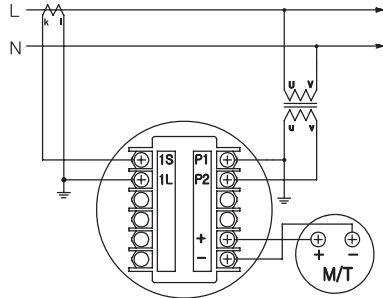
S P D
서지보호기

S H U N T
선타

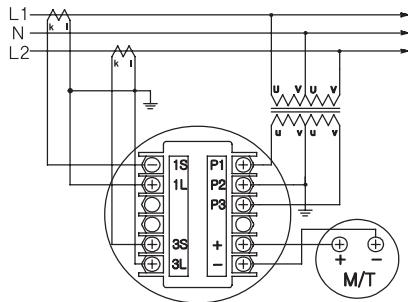
● Outside Connection Diagram

· With Ext. Transducer

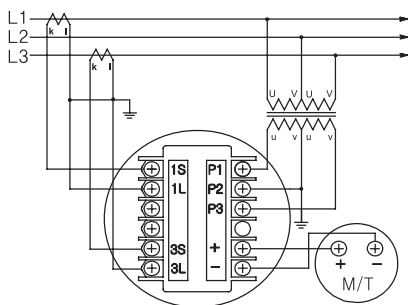
(WY-R□□W, WY-S□□W, WY-W08W)



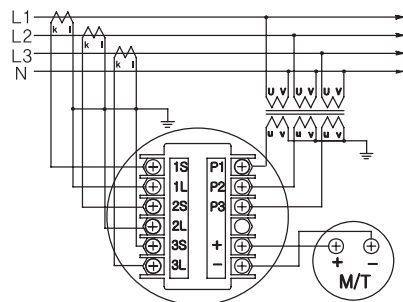
1상2선식
1 Phase 2Wire
Watt Meter



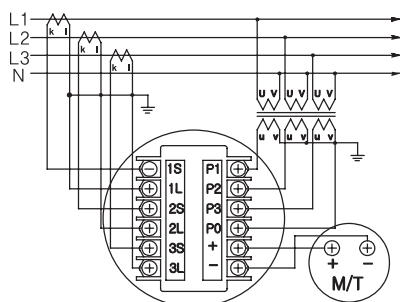
1상3선식
1 Phase 3Wire
Watt Meter



3상3선식
3 Phase 3Wire
Watt Meter



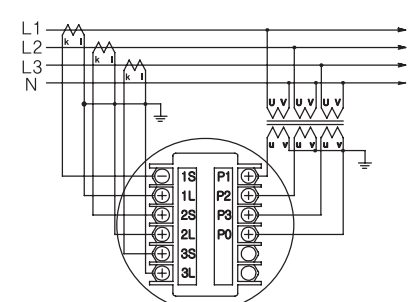
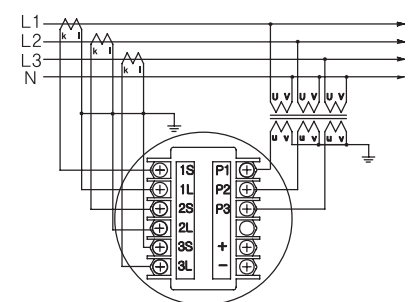
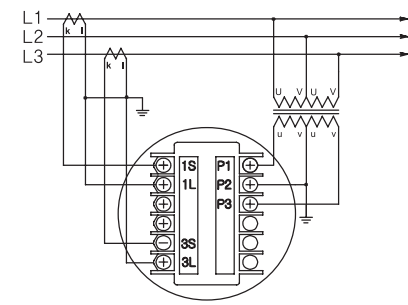
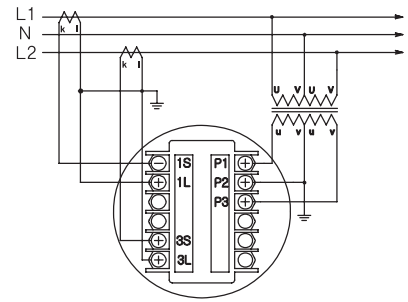
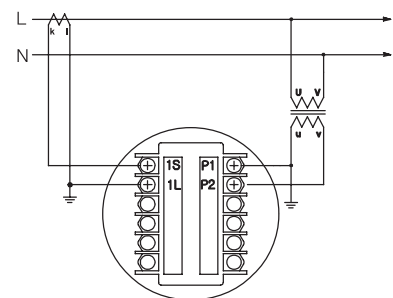
3상4선식
3 Phase 4Wire
Watt Meter
Voltage Balance



3상4선식
3 Phase 4Wire
Watt Meter
Unbalance Type

· Int. Transducer

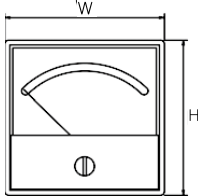
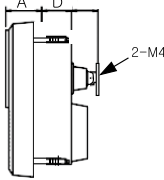
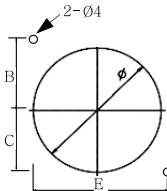
(WY-W11W, WY-SH96)



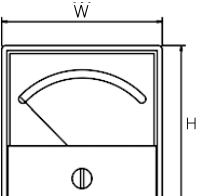
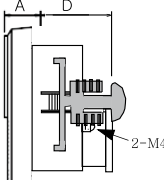
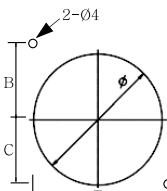
● Dimension

· WY-R Type Dimension

(Unit = mm)

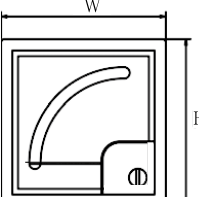
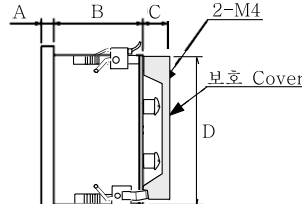
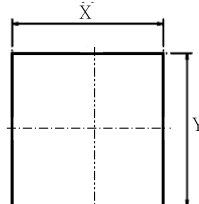
Front view   									
Rear view 	Type	W	H	D	A	B	C	E	Ø
	WY-R08	80	80	36	15	34	30	64	65
	WY-R10	100	80	36	15	36	28	80	65

· WY-R Type Dimension

Front view   									
Rear view 	Type	W	H	D	A	B	C	E	Ø
	WY-R05	51	51	35	14	18	18	36	44
	WY-R06	60	60	35	14	24	24	48	54

· WY-S Type Dimension

(Unit = mm)

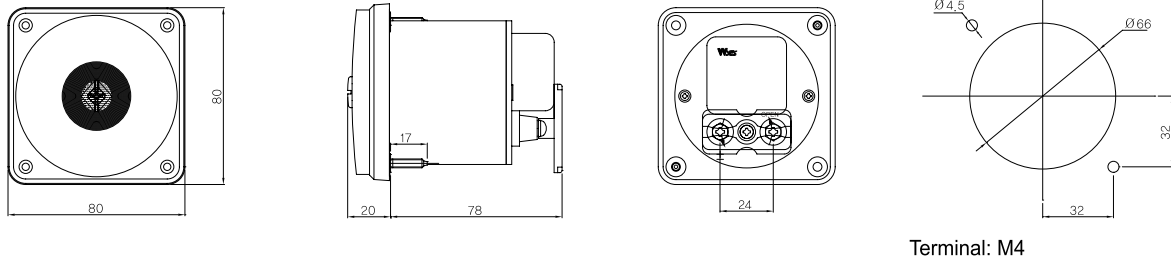
Front view   									
Rear view 	Type	W	H	D	A	B	C	X	Y
	WY-S47	48	48	44	5	44	12	44,5	44,5
	WY-S72	72	72	67	5	44	22	68	68
	WY-S96, SH96	96	96	91	5	44	22	92	92

· Mounting Introduction

WY-S47, WY-S96		WY-S72		WY-SH96	
					

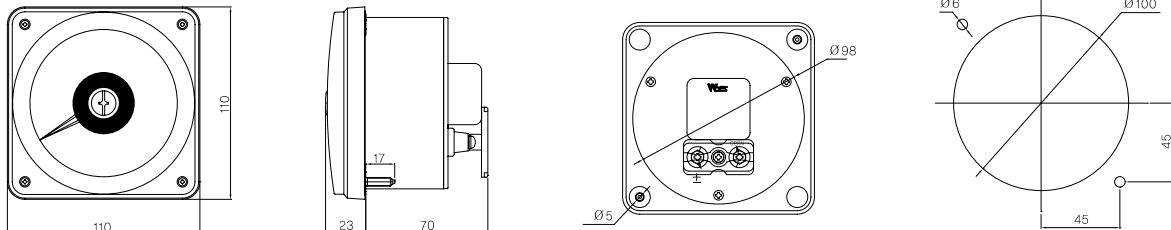
● Dimension

· WY-W08 Type Dimension



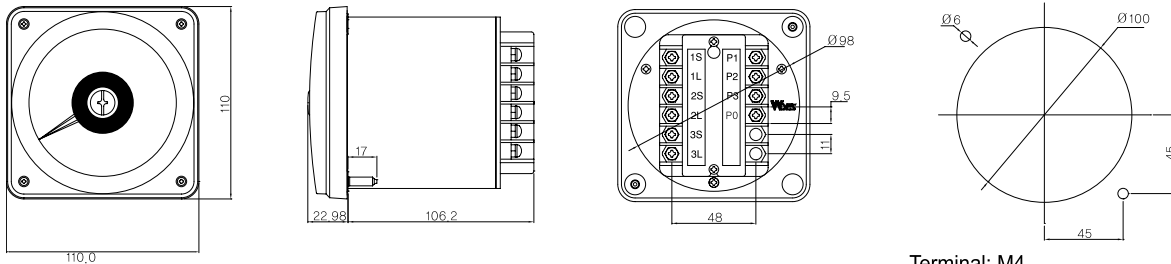
Terminal: M4

· WY-W11 A, V Type Dimension



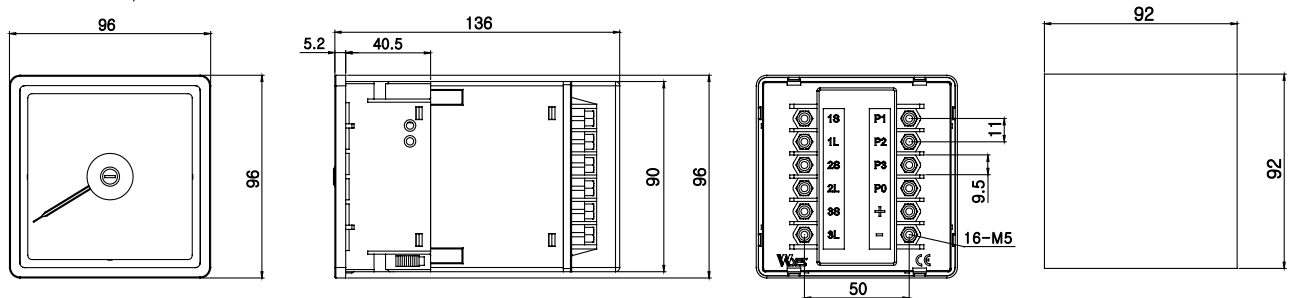
Terminal: M4

· WY-W11 KW, var, PF Type Dimension



Terminal: M4

· WY-SH96 KW, var PF Dimension



● 외부 변환기 사용

R, S, W08 타입의 Watt, var, Hz PF 계측기는 외부에 우측과 같은 변환기 (T/D) 를 사용합니다.

● External Transducers (For meter)

The Transducer for meter is used with the Watt, var and PF meter, etc., of the R type and S type or W08 type which is external transducer.

