

한국전기연구소 보호계전기 개발시험필 (O.C.R 외)



ISO9001



KAS9001



1303-2, 1303-3  
1303-4, 1303-5

- 직동식 지시 전기 계기 제2부 : 전류계 및 전압계 (KSC1303-2)
- 직동식 지시 전기 계기 제3부 : 전력계 및 무효 전력계 (KSC1303-3)
- 직동식 지시 전기 계기 제4부 : 주파수계 (KSC1303-4)
- 직동식 지시 전기 계기 제5부 : 역률계 (KSC1303-5)

# MTECH ENC

## Total Catalog

- Digital Power Meter
- Current & Voltage Transformer
- Switch · Board & Panel Meter

# Contents



Digital Power Meter



Current & Voltage Transformer



Switch · Board & Panel Meter

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# Voltage Transformer

## ■ Type Information

P : Potential transformer

S : Single ratio

G : Ground

## ■ Index for Potential Transformer

Item	System Voltage	Voltage Ratio	Class	Burden (VA)	Type	Note
P.T Single Ratio	1.150V	220/110V	1.0	50	PS-1	
				100	PS-2	
		380/110V	1.0	50	PS-1	
				100	PS-2	
		440/110V	1.0	50	PS-1	
				100	PS-2	
		$\frac{380}{\sqrt{3}} / \frac{190}{\sqrt{3}}$	1.0	50	PS-1	
				100	PS-2	
P.T 3 $\phi$ Ratio	1.150V	220 ~ 600/110V	1.0	50VA	PS-10	3P3W
		$\frac{208}{\sqrt{3}} \sim \frac{440}{\sqrt{3}} / \frac{190}{\sqrt{3}} \text{ V}$	1.0	50VA	PS-10	3P4W
G.P.T Single Ratio	1.150V	$\frac{208}{\sqrt{3}} / \frac{110}{\sqrt{3}}$ OR $\frac{190}{\sqrt{3}} / \frac{190}{\sqrt{3}} \text{ V}$	1.0/3.0G	50/100	PG-1	
		$\frac{380}{\sqrt{3}} / \frac{110}{\sqrt{3}}$ OR $\frac{190}{\sqrt{3}} / \frac{190}{\sqrt{3}} \text{ V}$	1.0/3.0G	50/100	PG-1	
		$\frac{440}{\sqrt{3}} / \frac{110}{\sqrt{3}}$ OR $\frac{190}{\sqrt{3}} / \frac{190}{\sqrt{3}} \text{ V}$	1.0/3.0G	50/100	PG-1	

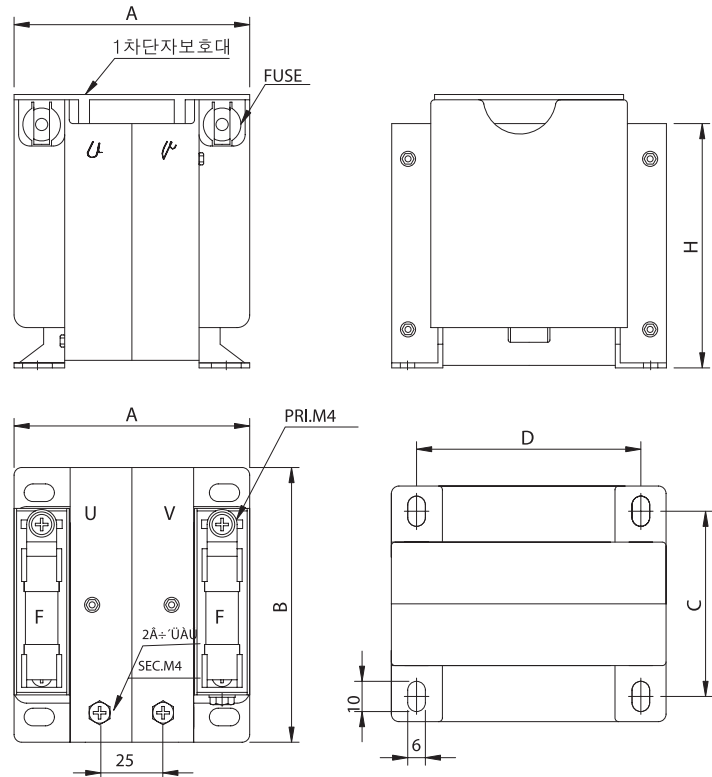
# Voltage Transformer

## P.T (1150V)



고압회로의 전압을 이에 비례하는 낮은 전압으로 변성하여 전압계, 전류계, 주파수계, 역률계, 표시 등의 전원으로 사용한다.

Voltage high-tension circuit it metamorphose at the low-end voltage which is proportionate hereupon and it uses with the all the member of the voltmeter, the amperemeter, frequency total, power factor total and the indication back.



### ■ Rating

구 분	적용범위
최고전압/Max.Voltage	1150V
주파수/Frequency	50/60Hz
계급/Class	1.0%
과전압배수/Over Voltage Factor	1.2Vn Con/1.9Vn 30sec

※50Hz용 제품은 주문생산

### ■ Specification

(Values at 60Hz)

Item	Type	PRI.V	SEC.V	Class(%)	Burden(VA)	치수 / Dimension(mm)				
						A	B	C	D	H
Single Ratio P.T	PS-1	220-440	110	1.0	50	85	111	65	93	115
	PS-2	220-440	110	1.0	100	111	111	91	93	115
	PS-1	208/√3-380/√3	190/√3	1.0	50	85	111	65	93	115
	PS-2	208/√3-380/√3	190/√3	1.0	100	111	111	91	93	115

※상기 품목 외에도 생산 가능함

# Voltage Transformer(3Phase)

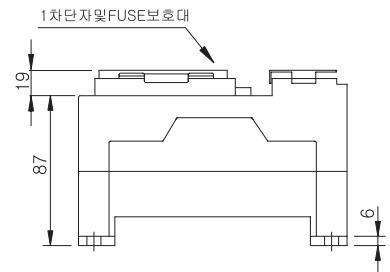
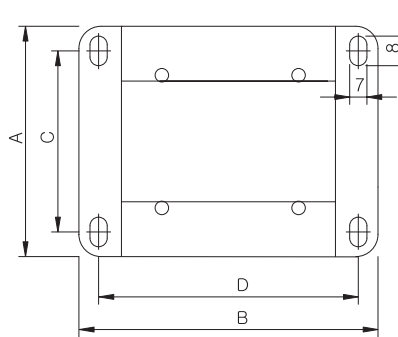
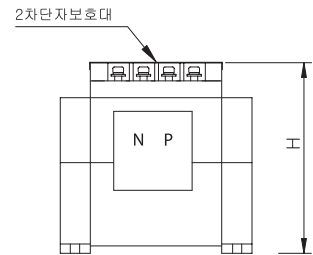
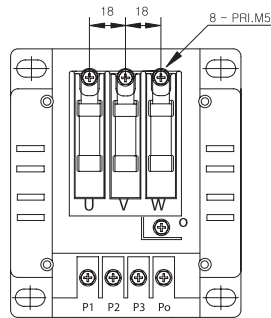
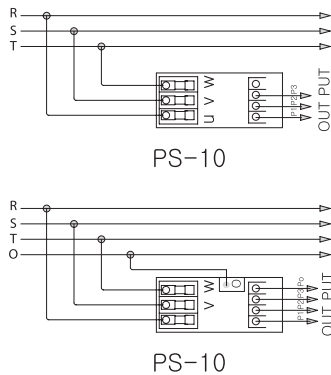
## P.T (1150V)3Phase



고압회로의 전압을 이에 비례하는 낮은 전압으로 변성하여 전압계, 전류계, 주파수계, 역률계, 표시 등의 전원으로 사용한다.

Voltage high-tension circuit it metamorphose at the low-end voltage which is proportionate hereupon and it uses with the all the member of the voltmeter, the amperemeter, frequency total, power factor total and the indication back.

결선도



### ■ Rating

구 분	적용범위
최고전압/Max.Voltage	1150V
주파수/Frequency	60Hz/50Hz
계급/Class	1.0%
상수/Class	3 φ
과전압배수/Over Voltage Factor	1.2Vn Con/1.9Vn 30sec

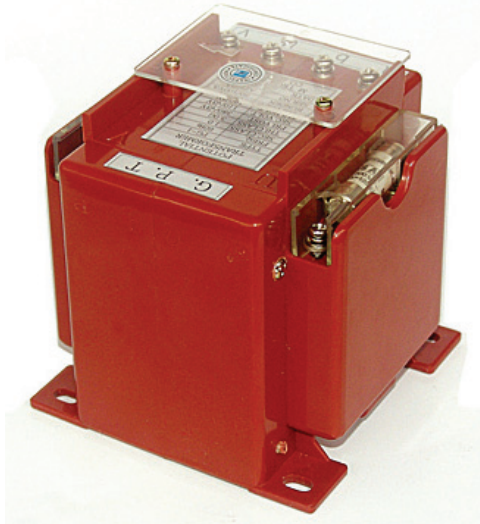
※ 50Hz용 제품은 주문생산

### ■ Specification

Model	1차전압 Pri.Volt	2차전압 Sec.Volt	계급 Class(%)	부담 Burden	치수 / Dimension(mm)				
					A	B	C	D	H
PS- 5(3P3W)	220-600V	110-220V	1.0	21VA	110	152	92	136	105
PS- 5(3P4W)	208 / $\sqrt{3}$ V-440/ $\sqrt{3}$	190 / $\sqrt{3}$ V	1.0	21VA	110	152	92	136	105
PS-10(3P3W)	220-600V	110-220V	1.0	50VA	110	152	92	136	105
PS-10(3P4W)	208 / $\sqrt{3}$ V-440/ $\sqrt{3}$	190 / $\sqrt{3}$ V	1.0	50VA	110	152	92	136	105

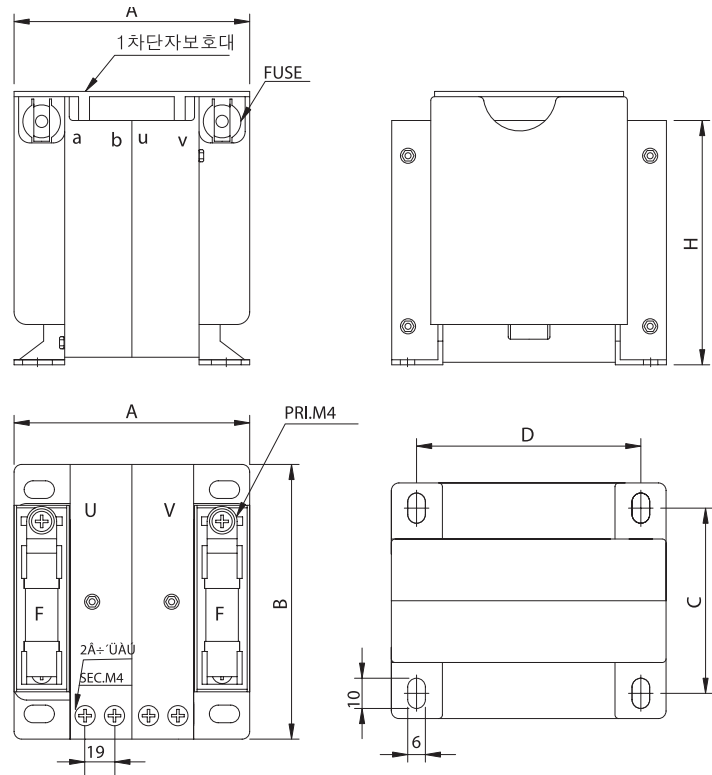
# Voltage Transformer

## G.P.T (1150V)



고압회로의 전압을 이에 비례하는 낮은 전압으로 변성하여 전압계, 전류계, 주파수계, 역률계, 표시 등의 전원으로 사용한다.

Voltage high-tension circuit it metamorphose at the low-end voltage which is proportionate hereupon and it uses with the all the member of the voltmeter, the amperemeter, frequency total, power factor total and the indication back.



### Rating

구 분	적용범위
최고전압/Max.Voltage	1150V
주파수/Frequency	60Hz/50Hz
계급/Class	1.0%
과전압배수/Over Voltage Factor	1.2Vn Con/1.9Vn 30sec

※ 50Hz용 제품은 주문생산

### Specification

Item	Type	PRI.V(V)	SEC.V(V)	TER.V(V)	CLASS(%)		Burden(VA)		치수 / Dimension(mm)				
					SEC	TER	SEC	TER	A	B	C	D	H
Single Ratio G.P.T	PG-1	208 / $\sqrt{3}$	110/ $\sqrt{3}$ or 190/ $\sqrt{3}$	110/3 or 190/3	1.0	3.0G	50	100	111	111	91	93	115
	PG-1	380 / $\sqrt{3}$	110/ $\sqrt{3}$ or 190/ $\sqrt{3}$	110/3 or 190/3	1.0	3.0G	50	100	111	111	91	93	115
	PG-1	440 / $\sqrt{3}$	110/ $\sqrt{3}$ or 190/ $\sqrt{3}$	110/3 or 190/3	1.0	3.0G	50	100	111	111	91	93	115

※ 상기 품목 외에도 생산 가능함




# Voltage Transformer

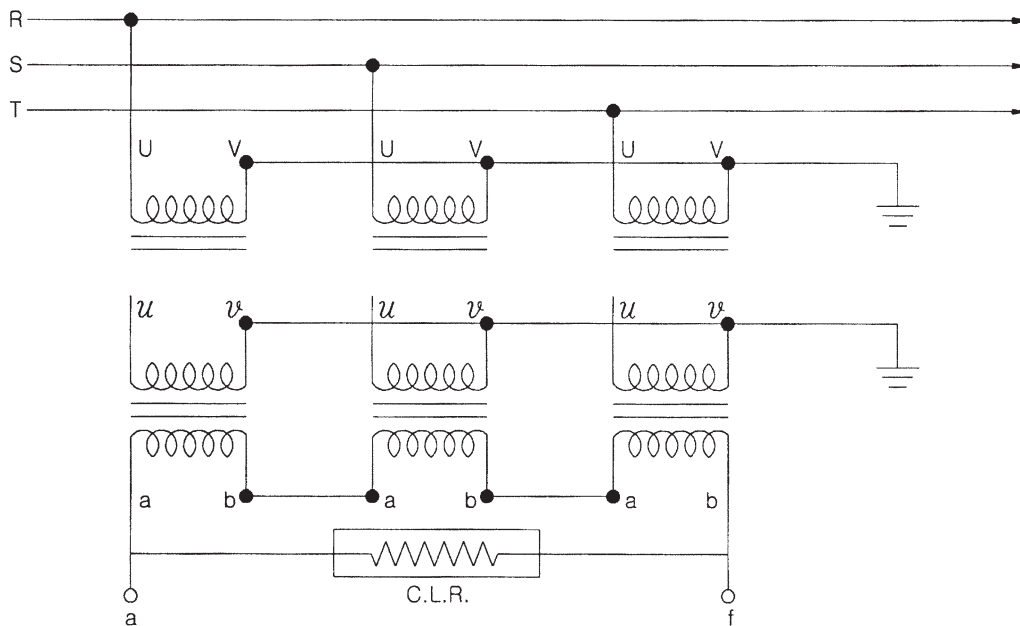
## 접지변압기(Ground Potential Transformer)

본 계기용 접지 변압기는 배전선로에서 지락고장이 발생하였을때 Open delta 측 단자에서 영상전압이 검출되어 접지계전기에 영상전압이 인가되면 계전기가 동작하여 차단기를 동작시킨다.

특별한 규정 없는 한 다음 조건을 만족시킨다.

- 주위 온도  $-5^{\circ}\text{C} \sim +40^{\circ}\text{C}$  이하
- 표고 1000m 이하 지대
- 정격 한류저항기 (C.L.R) 부착
- 심한 진동이나 저습지가 아닌 장소

G.P.T의 결선은 그림과 같이 1차측은 Y결선, 2차측은 Y결선, 3차측  로 결선한다. 또한 1차, 2차, 중앙점과 3차측 f 단자 측을 접지한다.





# Current Transformer

## ■ Type Information

B : Bus-bar  
D : Double ratio  
G : Ground  
R : Ring  
S : Single ratio  
W : Window

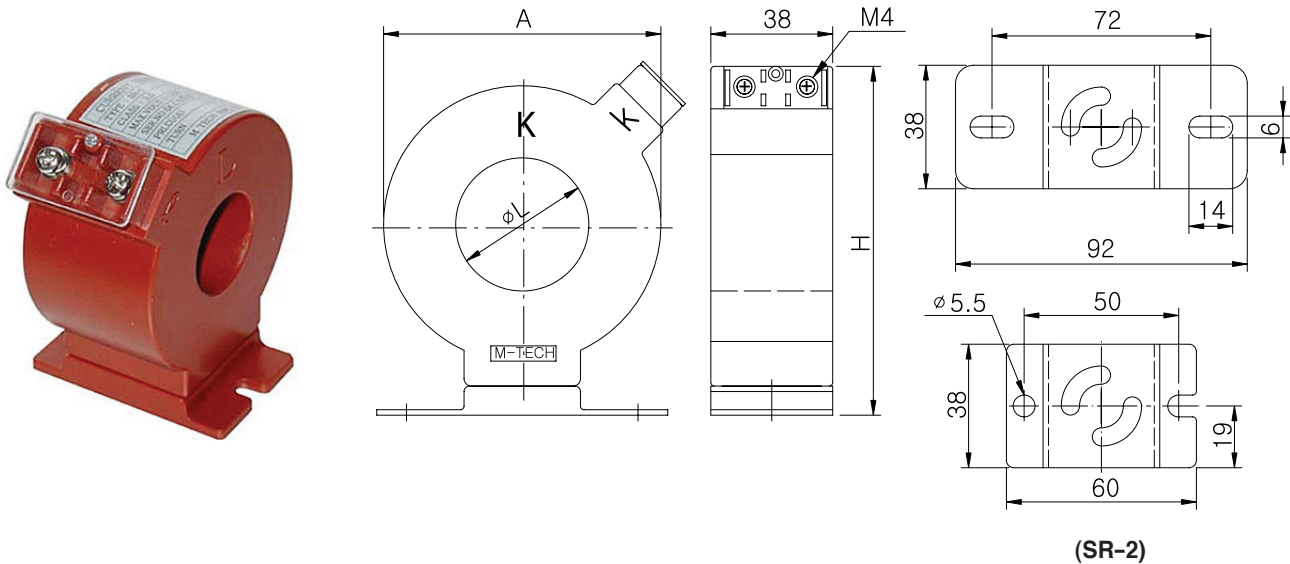
### ■ Index for Potential Transformer

Item	System Voltage	Voltage Ratio	Class	Buden (VA)	Type	Note	Frame
Ring Type Single Ratio C.T	1,150V	5/5 or 1 ~ 300/5 or 1	3.0	5	SR-1	Double ratio C.T 주문사양임 ABS-Resin Type	
		150/5 or 1 ~ 300/5 or 1	1.0	5			
		200/5 or 1 ~ 300/5 or 1		15			
		5/5 or 1 ~ 300/5 or 1		15	SR-2	ABS-Resin Type	
		5/5 or 1 ~ 300/5 or 1		15			
		300/5 or 1 ~ 1200/5 or 1		15, 40	SR-3		
		500/5 or 1 ~ 2000/5 or 1		15, 40	SR-4		
Bus-Bar Type Sing ratio C.T	1,150V	5/5 or 1 ~ 500/5 or 1	1.0	15	SB-2	ABS-Resin Type	
		5/5 or 1 ~ 500/5 or 1	1.0	40	SB-3		
Bus-Bar Type Double ratio C.T	1,150V	5, 10 ~ 75, 150/5 or 1	1.0	5	SB-2		
		5, 10 ~ 150, 600/5 or 1	1.0	15	SB-3		
Window Type Single Ratio C.T	1,150V	100/5 or 1 ~ 500/5 or 1	1.0	15	SW-4	ABS-Resin Type	
		400/5 or 1 ~ 500/5 or 1	1.0	15, 40			
		600/5 or 1 ~ 1000/5 or 1	1.0	15, 40	SW-5		
		1200/5 or 1 ~ 2000/5 or 1	1.0	15, 40	SW-6		
		2500/5 or 1 ~ 3200/5 or 1	1.0	15, 40	SW-7		
		3000/5 or 1 ~ 4000/5 or 1	1.0	15, 40	SW-8		
Window Type Double Ratio C.T	1,150V	100, 200 ~ 150, 300/5 or 1	1.0	5, 15	SW-4	ABS-Resin Type	
		200, 300 ~ 400, 600/5 or 1	1.0	15	SW-5		
		300, 600 ~ 500, 1000/5 or 1	1.0	15	SW-5		
		500, 1000 ~ 1200, 2400/5 or 1	1.0	15, 40	SW-6		
		1200, 2400 ~ 1600, 3200/5 or 1	1.0	15, 40	SW-7		
		1800, 3200 ~ 2000, 4000/5 or 1	1.0	15, 40	SW-8		
Window Type 3P3W 2C.T	1,150V	50/5 or 1 ~ 120/5 or 1	3.0	5, 15	SW-2M1	ABS-Resin Type	100AF
		120/5 or 1 ~ 250/5 or 1	3.0, 1.0	15	SW-2M2		225AF
		250/5 or 1 ~ 400/5 or 1	1.0	15	SW-2M3		400AF
		500/5 or 1 ~ 1200/5 or 1	1.0	15, 40	SW-2M4		800AF
Window Type 3P4W 3C.T	1,150V	50/5 or 1 ~ 120/5 or 1	3.0	5, 15	SW-3M1	ABS-Resin Type	100AF
		120/5 or 1 ~ 250/5 or 1	3.0, 1.0	15	SW-3M2		225AF
		250/5 or 1 ~ 400/5 or 1	1.0	15	SW-3M3		400AF
		500/5 or 1 ~ 1200/5 or 1	1.0	15, 40	SW-3M4		800AF

\* 상기 품목 외에도 생산 가능함

# Current Transformer

## ■ 1150V Ring Type C.T



### ■ Specification(1.0, 3.0 Class)

TYPE	Pri.Cur	Sec.Cur	Burden(VA)	Freq (Hz)
SR-1	5-300	5 or 1	5	50/60
			15	

### ■ Dimension

TYPE	H	L $\phi$	A
SR-1	89	26	68
SR-2	106	39	87
SR-3	120	60	104
SR-4	170	66	130

### ■ Specification(1.0 Class)

TYPE	Pri.Cur	Sec.Cur	Burden(VA)	Freq (Hz)
SR-1	120-300	5 or 1	5	50/60
SR-1	200-300		15	
SR-2	5-300		15	
SR-2	400-800		40	
SR-3	300-1500		40	
SR-4	500-1500		40	

# Current Transformer

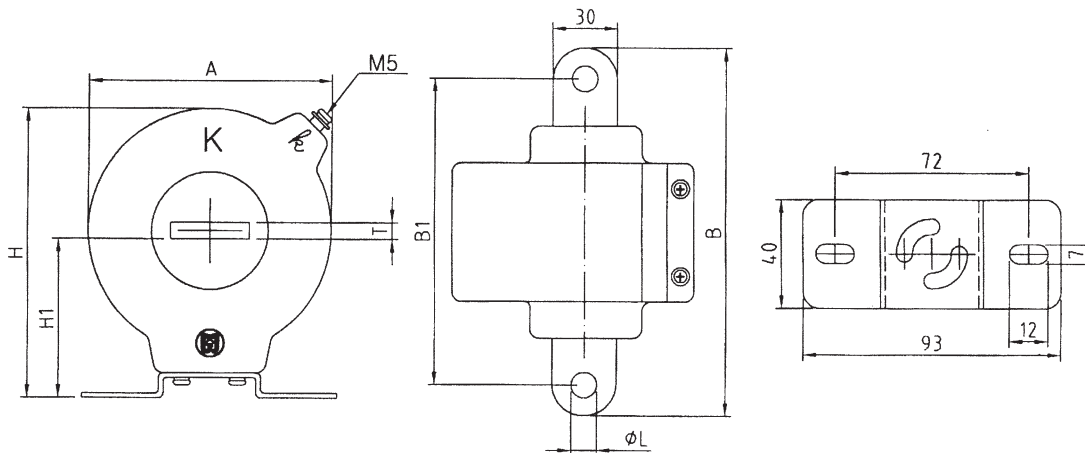
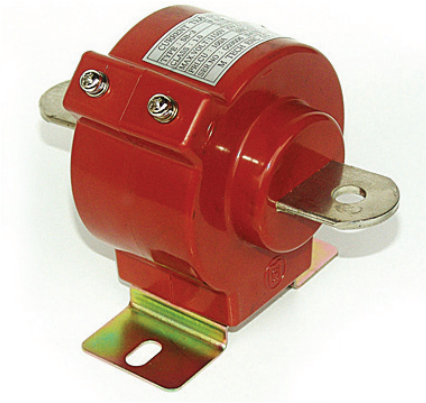
## ■ Primary Turn SR Type

### ■ Primary Turn 수표

Type	SR-1						SR-2				SR-3	
Class	3.0		1.0				1.0				1.0	
Burden	5VA		5VA		15VA		15VA		40VA		40VA	
Primary Sec	AT	Tur	AT	Tur	AT	Tur	AT	Tur	AT	Tur	AT	Tur
5	50	10					100	20	400	80		
10	50	5					100	10	400	40		
15	60	4					120	8	420	28		
20	60	4					100	5	400	20		
25	50	2					100	4	400	16		
30	60	2					120	4	420	14		
40	80	2					120	3	400	10		
50	50	1					100	2	400	8		
60	60	1					120	2	420	7		
75	75	1					150	2	450	6		
100	100	1					100	1	400	4		
120	120	1	120	1			120	1	480	4		
150	150	1	150	1			150	1	450	3		
200	200	1	200	1	200	1	200	1	400	2		
240	240	1	240	1	240	1	240	1	480	2		
250	250	1	250	1	250	1	250	1	500	2		
300	300	1	300	1	300	1	300	1	600	2		
400							400	1	400	1		
500							500	1	500	1	500	1
600							600	1	600	1	600	1
750							750	1	750	1	750	1
800							800	1	800	1	800	1
1000											1000	1
1200											1200	1
1500											1500	1

# Current Transformer

## ■ 1150V Winding Type C.T



### ■ Specification & Dimension(single)

(unit : mm)

Type	Pri.Cur.(A)	Sec.Cur(A)	VA	CLASS(%)	T	φ L	A	B	B1	H	H1	CASE
SB-2	5~150	5 or 1	15	1.0	3	6	82	134	104	100	60	ABS, RESIN
	200~500		15	1.0	6	10						
SB-3	5~150	5 or 1	40	1.0	3	6	92	140	110	110	65	
	200~500		40	1.0	6	10						

\*상기 품목 외에도 생산함.

### ■ Specification & Dimension(Double)

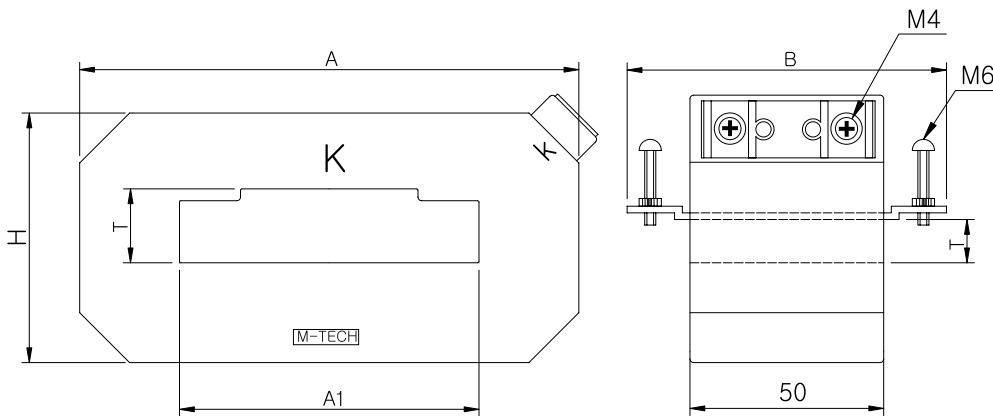
(unit : mm)

Type	Pri.Cur.(A)	Sec.Cur(A)	VA	CLASS(%)	T	φ L	A	B	B1	H	H1	CASE
DB-2	10~200	5 or 1	5	1.0	3	6	82	134	104	100	60	ABS, RESIN
	300~500		5	1.0	6	10						
DB-3	10~200	5 or 1	15	1.0	3	6	92	140	110	110	65	
	300~500		15	1.0	6	10						

\*상기 품목 외에도 생산함.

# Current Transformer

## ■ 1150V Window Type C.T



### ■ Specification & Dimension(single)

(unit : mm)

Type	Pri.Cur.	Sec.Cur(A)	VA	CLASS(%)	A	A1	B	H	T	T1	CASE
SW-4	100~500	5 or 1	5,15	1.0	110	55	77	60	10	14	ABS, RESIN
	400~500		40								
SW-5	600~1000		15,40		130	80	77	68	16	19	
SW-6	1200~2500		15,40		160	104	77	84	30	33	
SW-7	3000~4500		40		190	130	77	100	35	38	
SW-8	3000~4500		40		220	160	112	140	57	60	

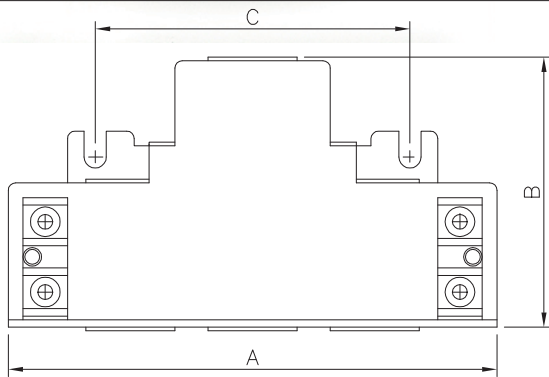
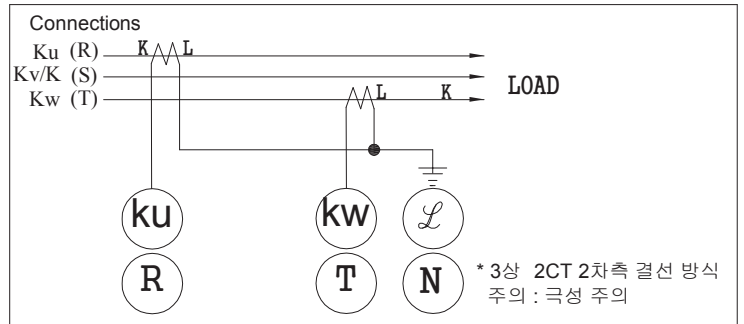
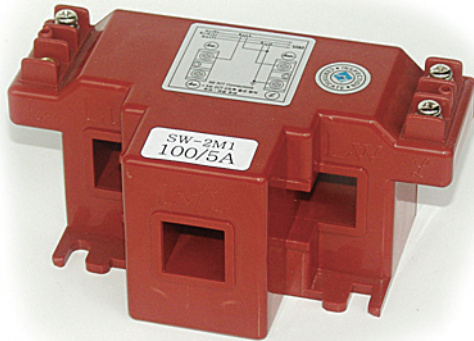
### ■ Specification & Dimension(Double)

(unit : mm)

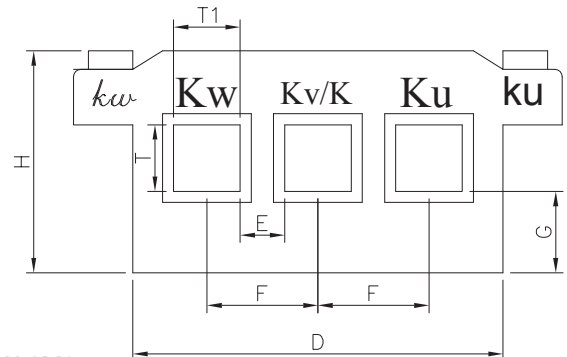
Type	Pri.Cur.(A)	Sec.Cur(A)	VA	CLASS(%)	A	A1	B	H	T	T1	CASE
DW-4	100~500	5 or 1	5	1.0, 3.0	110	55	77	60	10	14	ABS, RESIN
	100~500		15,40	1.0							
DW-5	600~1000		15,40	1.0	130	80	77	68	16	19	
DW-6	1200~2000		15,40	1.0	160	104	77	84	30	33	
DW-7	2000~3000		15,40	1.0	190	130	77	100	35	38	
DW-8	3000~6000		15,40	1.0	220	160	112	140	57	60	

# Voltage Transformer

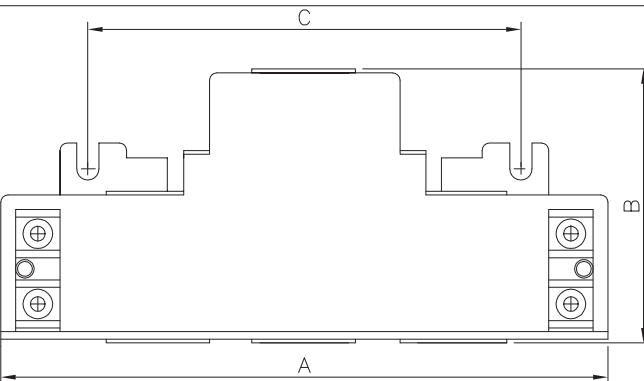
## ■ 1150V Window Type C.T (3P3W 2C.T)



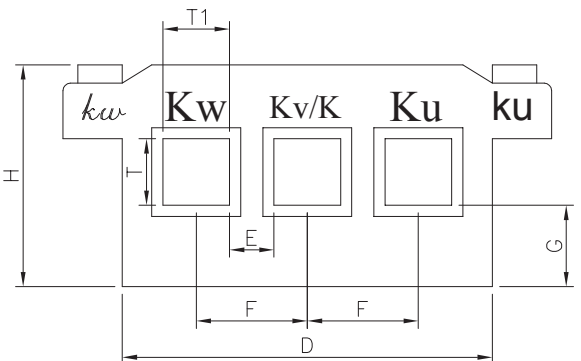
SW-2M1, SW-2M2 , SW-2M3



35-1



SW-2M4, SW-2M5



### Specification & Dimension(single)

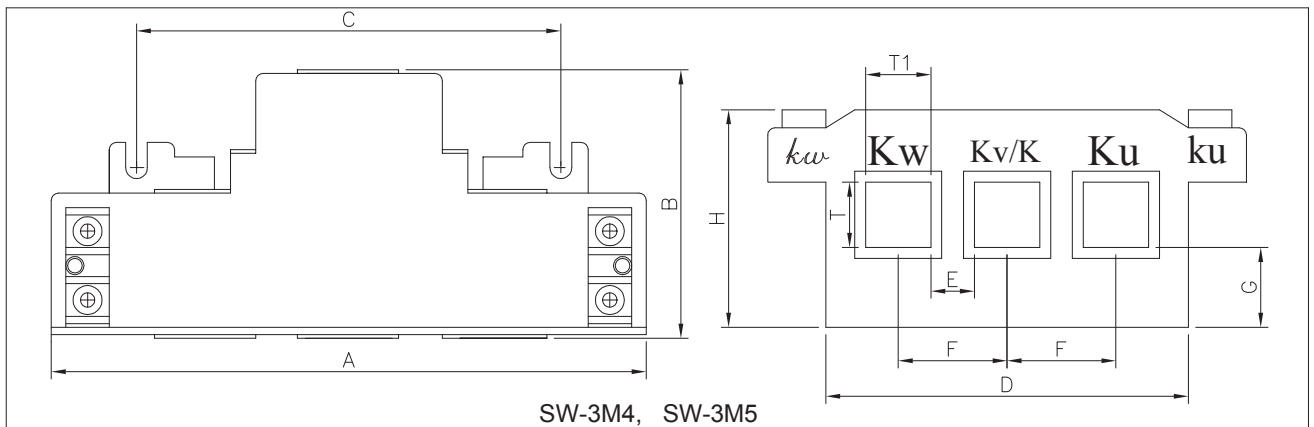
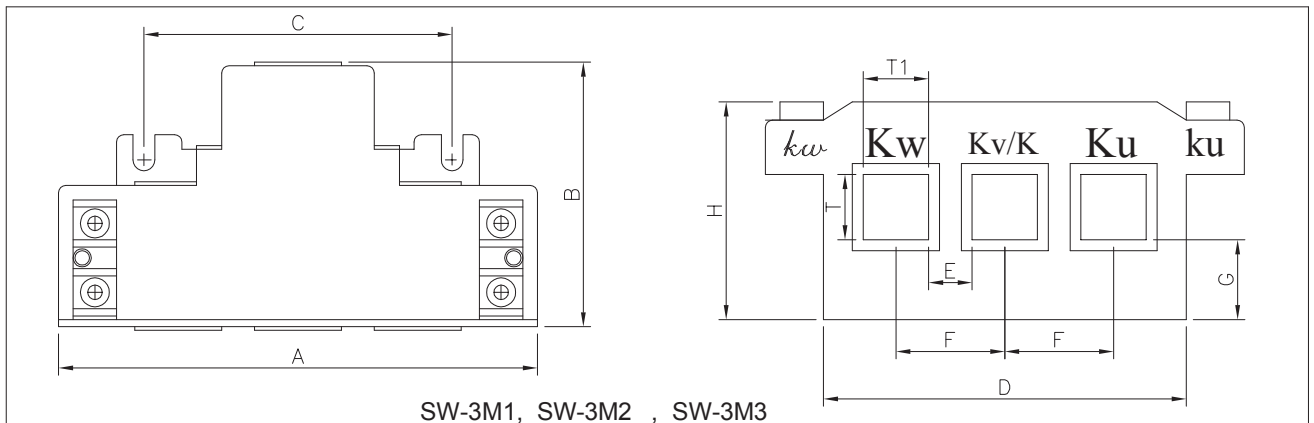
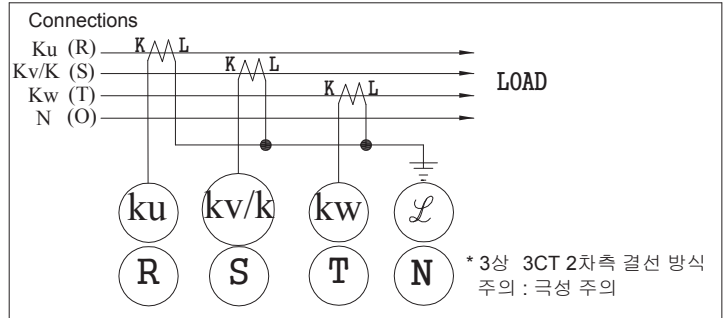
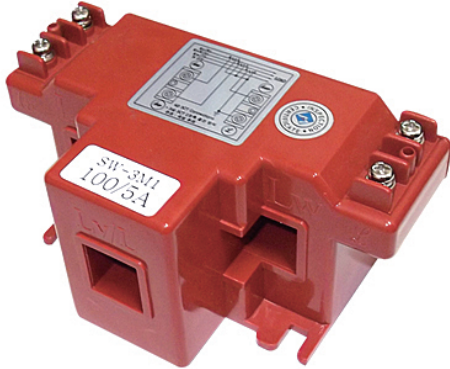
(Unit:mm)

TYPE	Pri.Cur. (A)	Sec.Cur. (A)	MCCB ELCB	VA	CLASS(%)	A	B	C	D	E	F	T	T1	H	G
SW-2M1	50 - 75	5	50AF	2.5	3.0	117	94	66	82	9	25	17	16	60	25
SW-2M2	100 - 150		100AF	5, 15	1.0, 3.0	132	73	85	100	12	30	18	18	60	21.5
SW-2M3	120 - 250		225AF	5, 15	1.0, 3.0	151	73	100	119	14	35	21	21	60	21.5
SW-2M4	300 - 400		400AF	15, 40	1.0	182	66	127	150	18	44	24	26	80	31.5
SW-2M5	500 - 1200		600AF 800AF	15, 40	1.0	262	66	210	230	24	70	28	46	85	29.5

\* 상기 표준사양 외에도 제작함

# Voltage Transformer

## 1150V Window Type C.T (3P4W 3C.T)



Specification & Dimension(single)

(Unit:mm)

TYPE	Pri.Cur. (A)	Sec.Cur. (A)	MCCB ELCB	VA	CLASS(%)	A	B	C	D	E	F	T	T1	H	G
SW-3M1	50 - 75	5	50AF	2.5	3.0	117	94	66	82	9	25	17	16	60	25
SW-3M2	100 - 150		100AF	5, 15	1.0, 3.0	132	73	85	100	12	30	18	18	60	21.5
SW-3M3	120 - 250		225AF	5, 15	1.0, 3.0	151	73	100	119	14	35	21	21	60	21.5
SW-3M4	300 - 400		400AF	15, 40	1.0	182	66	127	150	18	44	24	26	80	31.5
SW-3M5	500 - 1200		600AF 800AF	15, 40	1.0	262	66	210	230	24	70	28	46	85	29.5

\* 상기 표준사양 외에도 제작함



