

전력/전력량 변환기 (Watt & Watt-hour Transducer)

■ 주요사양 (Specification)

- Accuracy : Watt unit : 0.2% of span
: Watt-hour unit : 0.2% at rated voltage & current
0.4% at rated voltage & 1/20of rated current
- Frequency : 50Hz or 60Hz
- Burden : Voltage : 0.5VA / phase
Current : 1.0VA / phase
- Auxiliary Power : AC 110 / 220V
- Ripple : Watt unit : 0.5% P-P of span
- Response Time : Watt unit : 0.4sec (0~99% for step change)
- Pulse Time : Watt-hour unit : App. 100ms

Output Mode	Circuit	Type	Rated Input(AC)		Output(DC)		Watt-hour unit		Weight (g)	Case Model					
			Voltage	Current	Range	Load Com.	Output	Load							
DC Current / Pulse	1P 2W	TAP – 1W1C	110V or 220V	5A or 1A	0~1mA	< 10kΩ	1 P / 1kWh 10 P / 1kWh 100P / 1kWh 1 P / 10 kWh 1 P / 100kWh	Contact Capacity AC 110V, 1A PF 1.0	≒ 700	TL					
		TAP – 1W2C			4~20mA	< 500Ω									
	1P 3W	TAP – 2W1C			0~1mA	< 10kΩ			≒ 890						
		TAP – 2W2C			4~20mA	< 500Ω									
	3P 3W	TAP – 3W1C	0~1mA		< 10kΩ	≒ 1040									
		TAP – 3W2C	4~20mA		< 500Ω										
DC Voltage / Pulse	3P 4W	TAP – 4W1C	190/√3V		0~1mA	< 10kΩ			1 P / 1kWh 10 P / 1kWh 100P / 1kWh 1 P / 10 kWh 1 P / 100kWh		Contact Capacity AC 110V, 1A PF 1.0	≒ 1040	TL		
		TAP – 4W2C			4~20mA	< 500Ω									
	1P 2W	TVP – 1W1C	110V or 220V		0~1V	> 200Ω						≒ 730			
		TVP – 1W2C			1~5V	> 1kΩ									
		1P 3W			TVP – 2W1C	0~1V								> 200Ω	≒ 890
					TVP – 2W2C	1~5V								> 1kΩ	
3P 3W	TVP – 3W1C	0~1V		> 200Ω	≒ 1040										
	TVP – 3W2C	1~5V		> 1kΩ											
3P 4W	TVP – 4W1C	190/√3V		0~1V	> 200Ω	≒ 1040									
	TVP – 4W2C			1~5V	> 1kΩ										

※ 주문사양에 따라 입력, 출력, 제어전원 및 주파수를 변경하여 제작이 가능합니다.
Order made is available except for standard products. (Input, Output, Auxiliary power, Frequency)

※ 주문 시 VT, CT 및 펄스출력의 비율을 말씀해 주시기 바랍니다.
When the ordering, you must be announced the VT ratio, CT ratio and the ratio of output pulse.

Circuit	ex 1) 3P 3W	ex 2) 3P 4W
Type	: TAP - 3W2C	TAP - 4W2C
VT ratio	: 3300 / 110 V	22900/√3 / 190/√3 V
CT ratio	: 100 / 5A	50 / 5 A
Output : Watt unit	: DC 4~20mA	DC 4~20mA
Watt-hour unit	: 1 pulse / 1kWh	1pulse / 1kWh
Ratio of output pulse	: 600 pulse / 600kWh	2000 pulse / 2000 kWh

※ 주문 시 3600펄스를 초과할 수 없습니다. When the ordering, Please not exceed the 3600 pulse.

■ Operating Area of Input

	Voltage		Current		Frequency		Auxiliary Power (AC)	
Rating	110V	220V	1A	5A	50Hz	60Hz	110V	220V
Range	0~120V	0~240V	0~1.5A	0~7.5A	47~53Hz	57~63Hz	90~130V	180~260V

※ 전압, 전류 및 제어전원의 동작범위는 연속 정격이 아니므로 단시간 동안의 입력값 대비 출력값의 동작 범위입니다.
Operation range of voltage, current and auxiliary power is not continuous rating. Therefore it is operation range of output value compared to input value during a short time.

■ Calibration Watt

(Unit : kW)

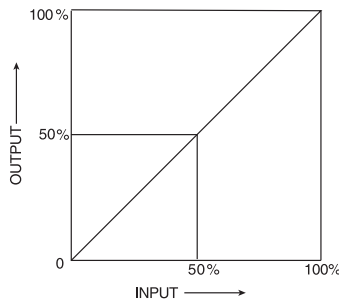
		1P2W	1P3W	3P3W								3P4W				
		110	110	220	380 110	440 110	3300 110	6600 110	22000 110	22900 110	154kV 110	208/ $\sqrt{3}$	380/ $\sqrt{3}$ 190/ $\sqrt{3}$	380/ $\sqrt{3}$	11400/ $\sqrt{3}$ 190/ $\sqrt{3}$	22900/ $\sqrt{3}$ 190/ $\sqrt{3}$
C.T 2'ry A	5A	0.6	1.0	2.0	1.158	1.0	1.0	1.0	1.0	0.961	1.0	2.0	2.0	4.0	1.666	1.666
	1A	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

※ 3상3선식의 표준교정 전력은 1.0kW이고, 3상4선식은 1.666kW 입니다.
The standard calibration Watt of 3P 3W is 1.0kW and that of 3P4W is 1.666kW.

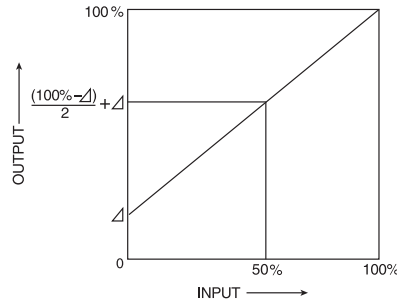
※ 변환기의 교정 전력은 전력계의 교정 전력과 같습니다.
The calibration Watts of transducer is same the calibration of Wattmeter.

■ Input-Output Curve (Watt unit)

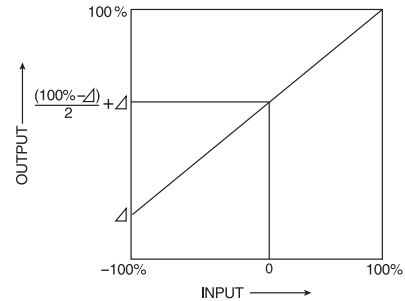
- Output Range : 0~1mA
0~1V



- Output Range : 4~20mA
1~5V

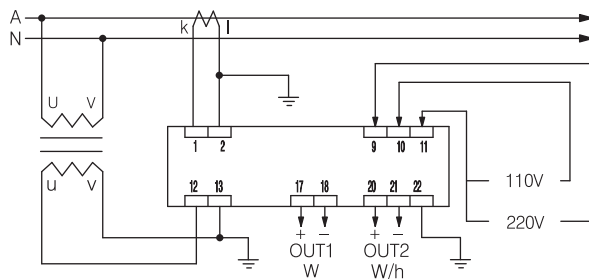


- Output Range : 4~12~20mA
1~3~5V

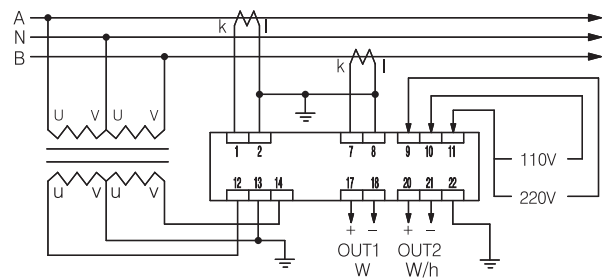


■ 외부 결선 (External Connection)

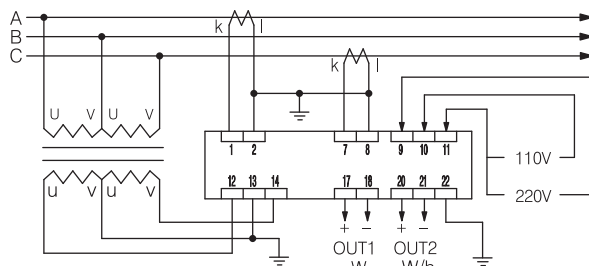
- 1P 2W



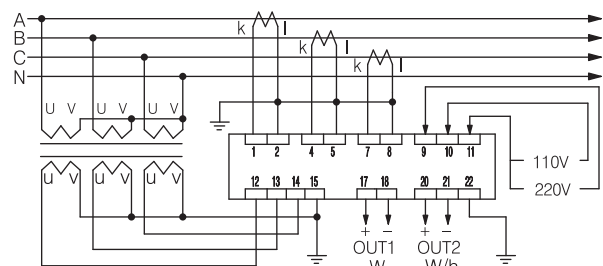
- 1P 3W



- 3P 3W



- 3P 4W



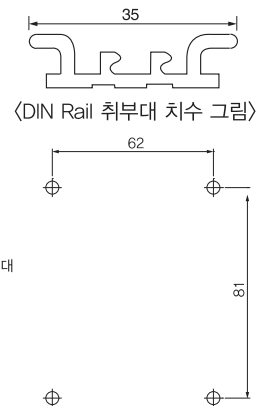
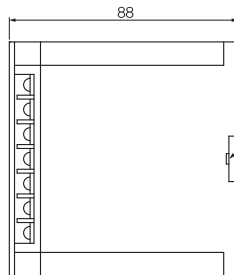
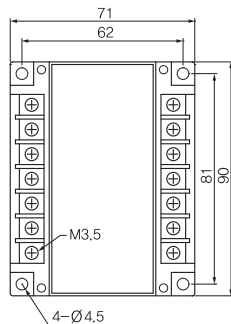
■ 주요성능 (Performance)

- Standard Test Temperature : $23^{\circ}\text{C} \pm 2^{\circ}\text{C}$
- Operating Temperature Range : $0^{\circ}\text{C} \sim 40^{\circ}\text{C}$
- Storage Temperature Range : $-10^{\circ}\text{C} \sim 60^{\circ}\text{C}$
- Operating Humidity : 30~85%, non-condensing
- Color of case : Black (Munsell No N1.5)
- Material of Case : ABS Resin / DIN rail type
- Terminal Screws : M3.5
- Auxiliary Power : AC 110 / 220 V
- Zero Adjustment : $\pm 10\%$ minimum
- Span Adjustment : $\pm 10\%$ minimum
- Influences Affecting Accuracy
 - Temperature : Less than 0.2% from 0 to 50°C
 - Long-term Stability : Less than 0.2% / year non-cumulative
 - Frequency : Less than 0.1% 50Hz or 60Hz
 - External magnetic field : Less than 0.2% 400 A / m
- Overload Current : 1.2 I_n continuous
10 I_n 3 sec.
- Voltage : 1.2 V_n continuous
1.5 V_n 10sec.
- Dielectric Strength : Input terminal to Case AC 2000V 1 minute
Input to Output terminal AC 2000V 1 minute
- Impulse / Surge : $1.2 \times 50\mu\text{s}$, 5kV / 2.5kV 1MHz

■ 외형 치수 (Dimension)

Unit : mm

■ TS Type



〈DIN Rail 취부대 치수 그림〉

■ TL Type

