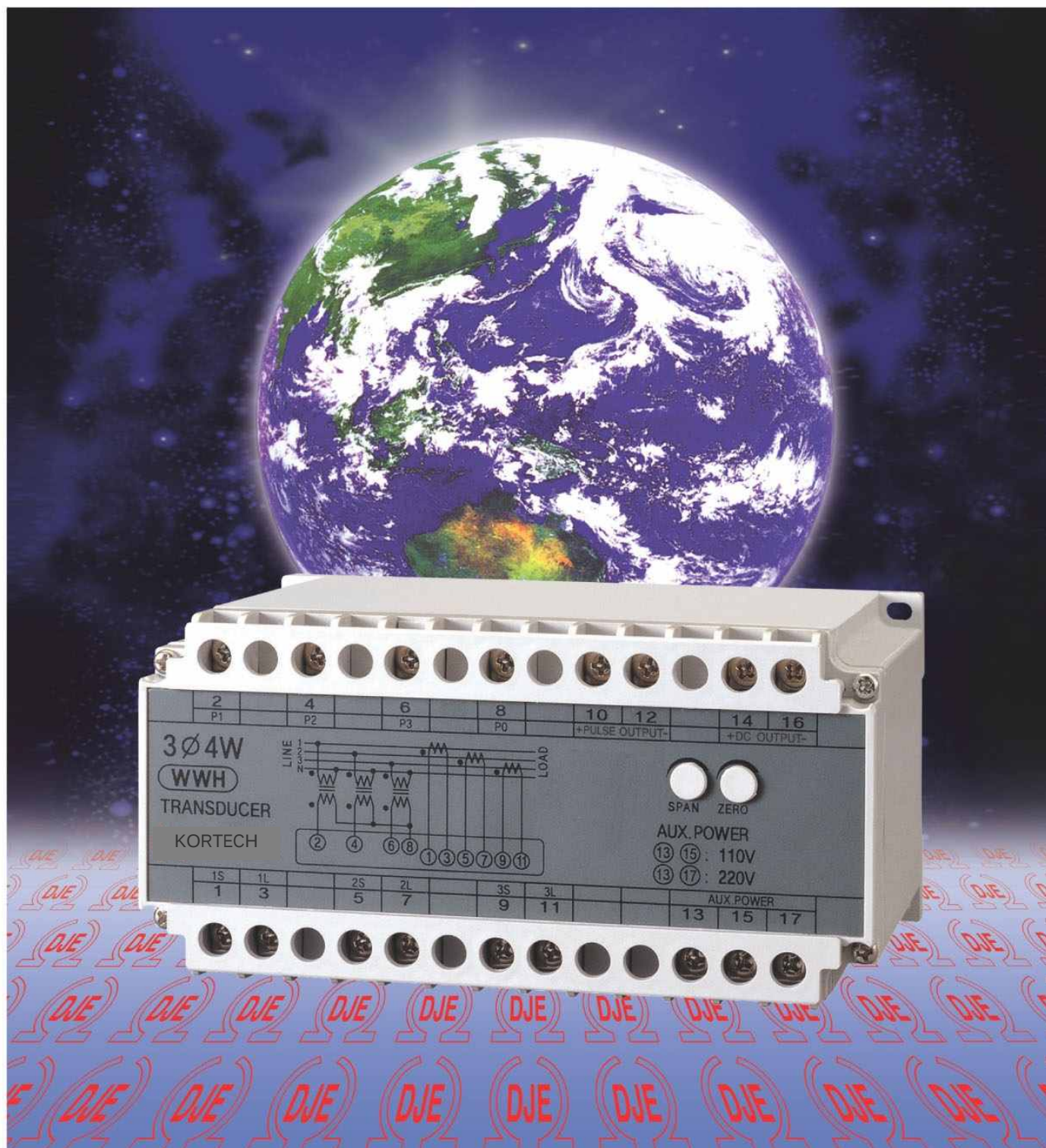


POWER TRANSDUCCERS

DT SERIES



CONTENTS

• AC VOLTAGE	4
• AC CURRENT	6
• WATT	8
• VAR	10
• WATTHOUR	12
• WATT & WATTHOUR	12
• VARHOUR	16
• VAR & VARHOUR	16
• POWER FACTOR	18
• FREQUENCY	20
• DC VOLTAGE	21
• DC CURRENT	22
(DC MILLIVOLTAGE)	
• SIGNAL ISOLATOR	23
• SIGNAL ISOLATOR(4 0/p)	25
• DC CURRENT	26
• RTD	27
• ANALOG TO PULSE	28
• Vo, Ao (PEAK HOLDER)	29
• PULSE TRANSDUCER	30
• POTENTIOMETER	33
• POWER DISTRIBUTOR	34
• CONNECTION DIAGRAM	35
• GENERAL TYPE OF MODEL	37
• OUTLINE DIMENSIONS	38

AC VOLTAGE TRANSDUCER

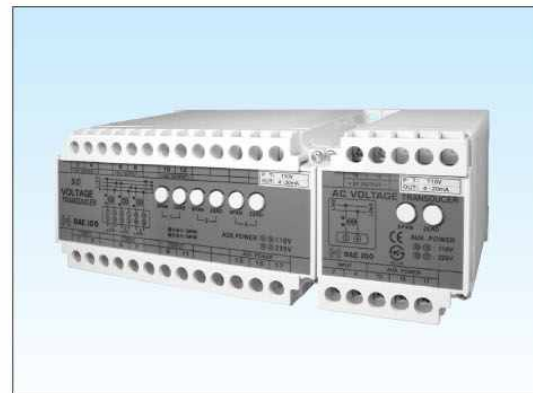
- Average Sensing
- True R.M.S
- 3 in 1 package

Voltage is the most basic AC measurement. Simply, it's the magnitude of the waveform measured across a source or load.

Voltage Transducer is available as average sensing devices calibrated in R.M.S or as true R.M.S units, either with a dc current or voltage output proportional to the input.

SPECIFICATIONS

Full Scale input	0~150V AC or 0~300V AC	
Max. input overload	120% Continuous 150% for 10 seconds	
Input loss	0.5VA or less	
Frequency	50 or 60 Hz	
Output load Required	OUTPUT	LOAD RESISTANCE
	4~20mA	0~600 Ω
	0~1mA	0~10K Ω
	0~5V	5K Ω or more
	1~5V	5K Ω or more
	0~10V	10K Ω or more
Aux power supply	110V or 220V AC $\pm$ 15V 50~60Hz 1.5VA DC Volt $\pm$ 10% 1W	
Temperature Range	Storage	-20°C to +70°C
	Operating	-10°C to 60°C
Operating humidity	20~80%RH (Non-Condensing)	
ACCURACY (at 25°C)	$\pm$ 0.2%	
Temp. influence	$\pm$ 0.01%/°C	
Ripple (peak)	0.25% p-p max	
Response time	0.4sec (0~90%)	
Calibration Adjustment	$\pm$ 10%(span), $\pm$ 10%(zero)	
Insulation resistance	100M Ω or more with 500V DC	
Dielectric Test	2000V AC/1minute	
Isolation	Input/Output/Power/Case	
Mounting	Wall or DIN rail (35mm)	
Size	60(W) $\times$ 75(H) $\times$ 112(D)mm (1 ϕ)	
Case material	ABS Resin	
Weight	Approx. 400g	
Connection page	5	



MODEL CODE

DT - V
1) 2) 3) 4) 5)

1) CONNECTION

- 1 : 1 in 1 packaging (1 ϕ)
- 3 : 3 in 1 packaging (3 ϕ)

2) INPUT

- A : 0~150V (110V)
- B : 0~259V (190V)
- C : 0~300V (220V)
- D : 0~520V (380V) (OPTION)

3) OUTPUT

- 1 : 4~20mA DC
- 2 : 0~1mA DC
- 3 : Specify Current (0~20mA max)
- 4 : 0~5V DC
- 5 : 1~5V DC
- 6 : 0~10V DC
- 7 : Specify Voltage (0~10V max)

4) Sensing type

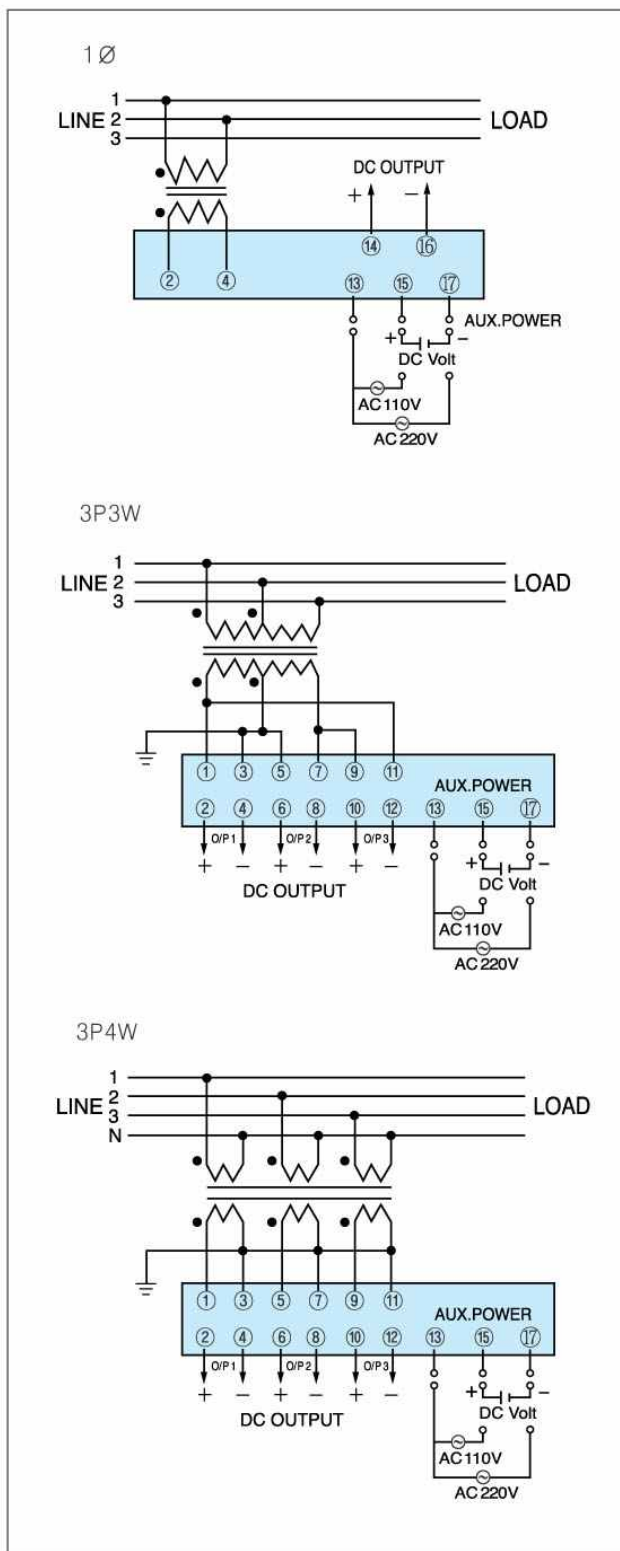
- A : Average Sensing
- B : R.M.S Sensing

5) AUX. POWER

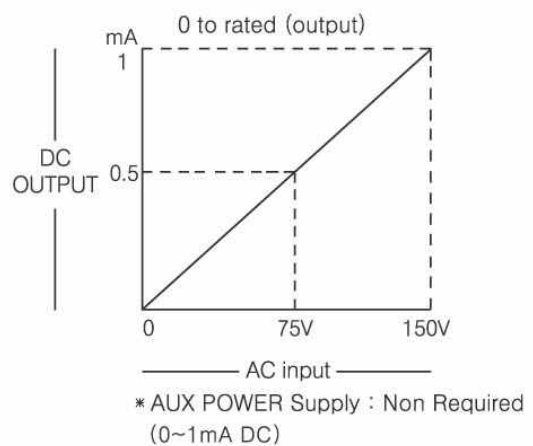
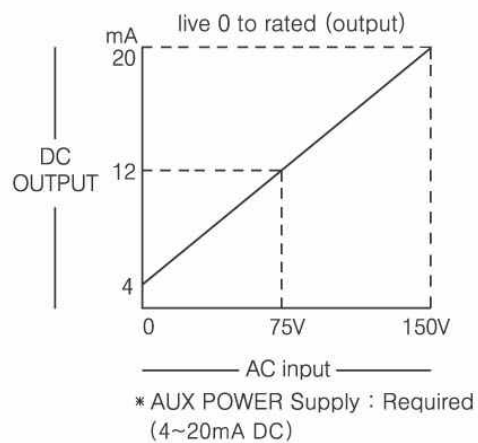
- A : AC 110/220V
- B : AC 115/230V
- C : AC 120/240V
- D : DC 24V
- E : DC 48V
- F : DC 110V
- G : DC 125V
- H : DC 220V

AC VOLTAGE TRANSDUCER

CONNECTION DIAGRAM AC VOLTAGE



IN/OUTPUT OPERATION DIAGRAM



AC CURRENT TRANSDUCER

- Average Sensing
- True R.M.S
- 3 in 1 package
- output limit (30mA max) (option)

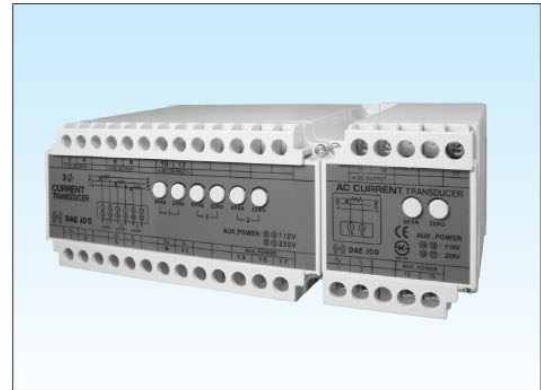
Current is the result of voltage across a circuit or component, and its engineering unit is the ampere.

Current is measured in series with a source or load, or can be inductively monitored with a Current Transformer.

Current Transducer is available as average sensing devices calibrated in R.M.S or as true R.M.S units, either with a dc current or voltage output proportional to the input.

SPECIFICATIONS

Full Scale input	0~1A AC or 0~5A AC	
Max. input overload	120% Continuous 200% for 10 seconds	
Input loss	0.5VA or less	
Frequency	50/60 Hz	
Output load Required	OUTPUT	LOAD RESISTANCE
	4~20mA	0~600 Ω
	0~1mA	0~10K Ω
	0~10V	10K Ω or more
	0~5V	5K Ω or more
	1~5V	5K Ω or more
Aux power supply	110V or 220V AC $\pm$ 15V 50~60Hz 1.5VA DC Volt $\pm$ 10% 1W	
Temperature Range	Storage	-20°C to +70°C
	Operating	-10°C to 60°C
Operating humidity	20~90%RH (Non-Condensing)	
ACCURACY (at 25°C)	$\pm$ 0.2%	
Temp. influence	$\pm$ 0.01%/°C	
Ripple (peak)	0.25% p-p max	
Response time	0.4sec (0~90%)	
Calibration Adjustment	$\pm$ 10%(span), $\pm$ 10%(zero)	
Dielectric Test	2000V AC/1minute Input/Output/Power/Case	
Isolation	Input/Output/Power/Case	
Insulation resistance	100M Ω or more with 500V DC	
Mounting	Wall or DIN rail (35mm)	
Size	60(W) $\times$ 75(H) $\times$ 112(D)mm (1 ϕ)	
Case material	ABS Resin	
Weight	Approx. 400g	
Connection page	7	



MODEL CODE

DT - A
 1) 2) 3) 4) 5)

1) CONNECTION

- 1 : 1 in 1 packaging (1 ϕ)
- 3 : 3 in 1 packaging (3 ϕ)

2) INPUT

- A : 5A (0~5A AC)
- B : 1A (0~1A AC)

3) OUTPUT

- 1 : 4~20mA DC
- 2 : 0~1mA DC
- 3 : Specify Current (0~20mA max)
- 4 : 0~5V DC
- 5 : 1~5V DC
- 6 : 0~10V DC
- 7 : Specify Voltage (0~10V max)
- 8 : Current Limit (about 23mA max)

4) Sensing type

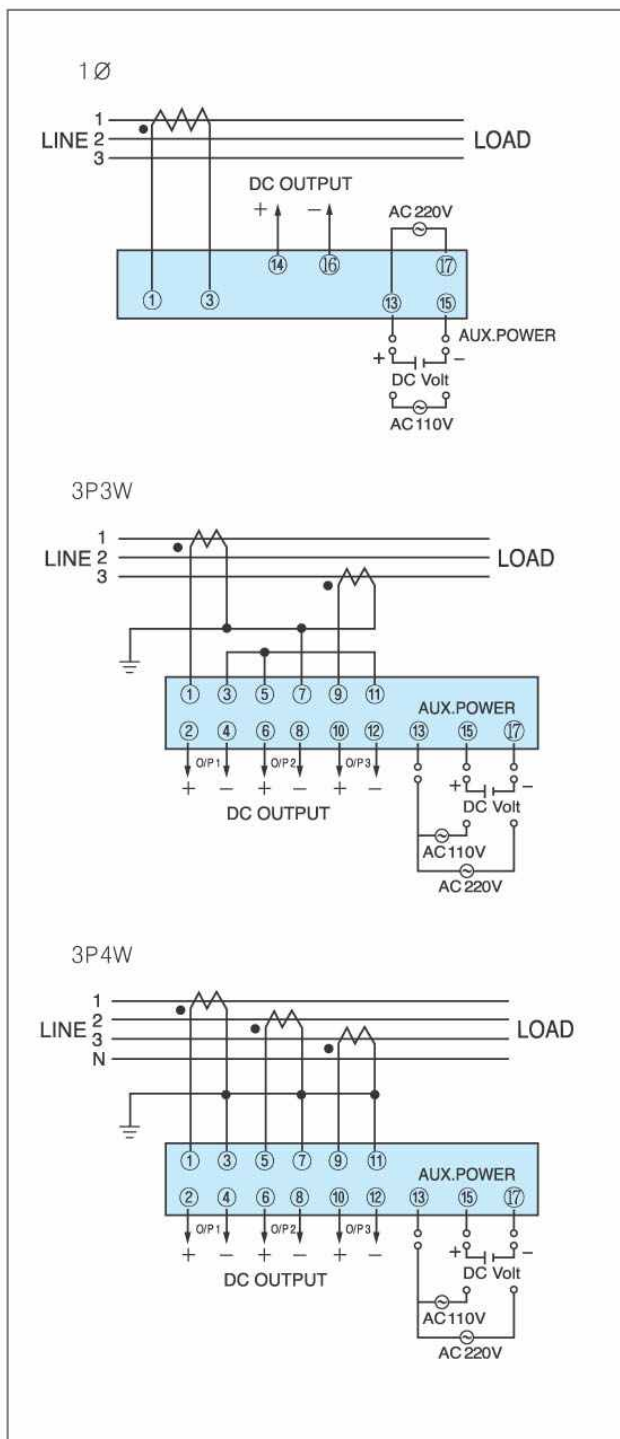
- A : Average Sensing
- B : R.M.S Sensing

5) AUX. POWER

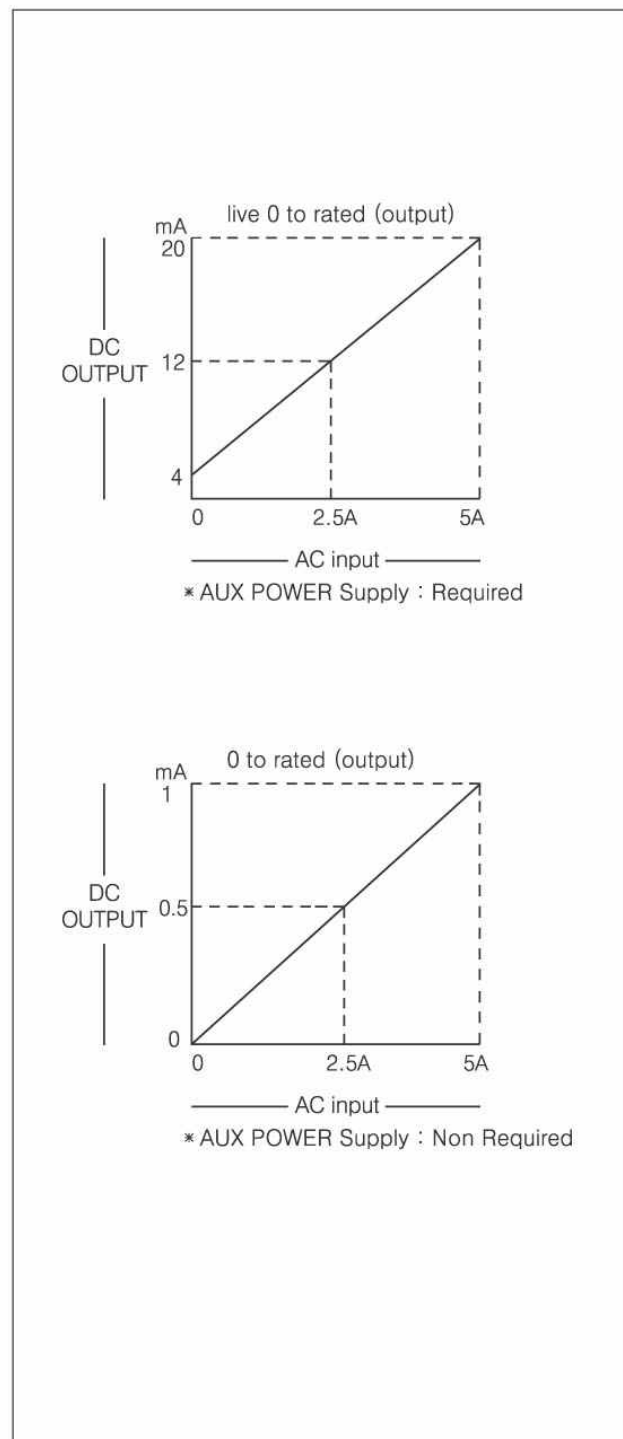
- A : AC 110/220V
- B : AC 115/230V
- C : AC 120/240V
- D : DC 24V
- E : DC 48V
- F : DC 110V
- G : DC 125V
- H : DC 220V

AC CURRENT TRANSDUCER

CONNECTION DIAGRAM AC CURRENT



IN/OUTPUT OPERATION DIAGRAM



WATT TRANSDUCER

- Minimal Space Requirements
- Measure Forward or Reverse Power Flow
- Long Term Stability

Watts (p) are a measure of power or work. In an Ac circuit a watt is measured by multiplying Current times voltage times the cosine of the phase angle between current and voltage ($P=EI\cos\phi$).

Watt Transducers utilize solid state circuitry to provide high-accuracy and long term stability. A precision electronic multiplier allows measurement of true power to within 0.25% of Reading throughout a wide range of input voltage, current and power factor conditions.

SPECIFICATIONS

Voltage input (nominal)		110V or 220V AC
Current input (nominal)		5A or 1A AC
Input loss/Element		V/0.3VA, C/0.5VA
Input operational range		V/0~110%, C/0~120%
Max input over load	Voltage(PT)	150% for 10 second
	Current(CT)	1000% for 10 second
Frequency		50 or 60Hz
Output load Required		OUTPUT LOAD RESISTANCE
		4~20mA 0~600Ω
		0~1mA 0~10KΩ
		0~10V 10KΩ or more
		0~5V 5KΩ or more
		1~5V 5KΩ or more
Aux power supply		110V or 220V AC ±15V 50~60Hz 3.5VA DC Volt ±10% 1.5W
Temperature Range	Storage	-20°C to +70°C
	Operating	-10°C to 60°C
Operating humidity		20~80%RH (Non-Condensing)
ACCURACY (at 25°C)		±0.2%
Temp. influence		±0.01%/ °C
Ripple (peak)		0.25% p-p max
Response time		0.4sec (0~90%)
Calibration Adjustment		±10% (span), ±10% (zero)
Insulation resistance		100MΩ or more with 500V DC
Dielectric Test		2000V AC/1 minute
Isolation		Input/Output/Power/Case
Mounting		Wall or DIN rail (35mm)
Size		150(W) × 75(H) × 112(D)mm
Case material		ABS Resin
Weight		Approx. 920g
Connection page		9



MODEL CODE

DT - W
 1) 2) 3) 4)

1) CONNECTION

12 : 1Phase 2Wire 33 : 3Phase 3Wire
 13 : 1Phase 3Wire 34 : 3Phase 4Wire

2) INPUT

P×W	PT ratio	CT	CAL.Watt Standard	CODE
1×2	110V	5A	500W	A
1×3	110V	5A	1000W	
3×3	220V	5A	2000W	D
	380/110V		1158W	E
	440/110V		1000W	A
	3300/110V			
	6600/110V			
	154KV/110V		961W	G
	22900/110V			
	OTHERS	OTHERS	OTHERS	S
3×4	110V/√3	5A	1000W	H
	208V/√3		2000W	K
	380/√3/190/√3			
	380/√3		4000W	L
	22900/√3/190/√3		1666W	M
	/190/√3		1500W	X
	OTHERS	OTHERS	OTHERS	S

* Effective Range: 0.5~1.2times(of calwatt)

3) OUTPUT

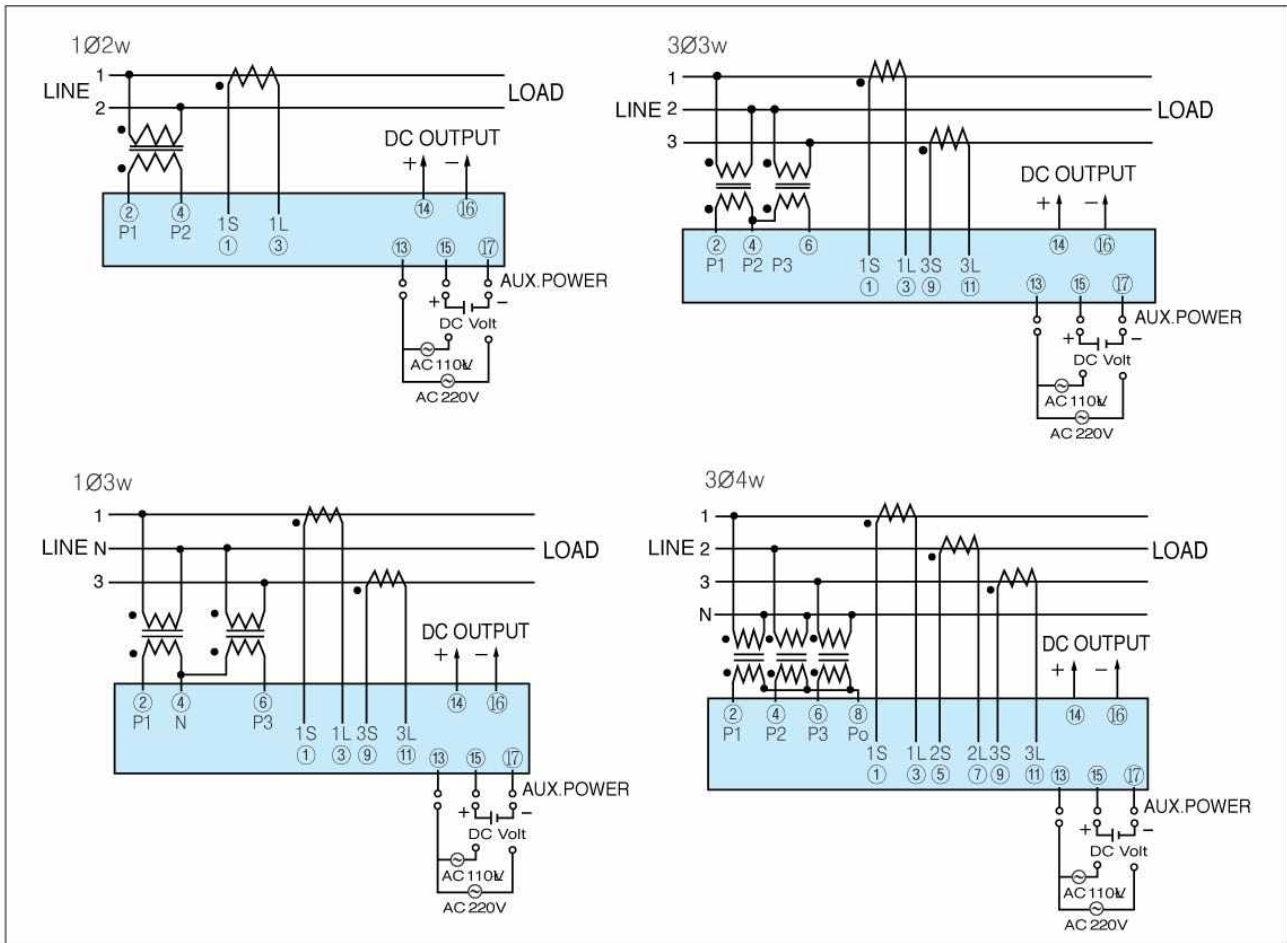
- 1 : 4~20mA DC
- 2 : 0~1mA DC
- 3 : Specify Current (0~20mA max)
- 4 : 0~5V DC
- 5 : 1~5V DC
- 6 : 0~10V DC
- 7 : Specify Voltage (0~10V max)
- 8 : 4~12~20mA DC (±Watt INPUT)
- 9 : -1~0~+1mA DC (±Watt INPUT)
- 10 : Current Limit – about 23mA max
- 11 : Current Limit (±Watt INPUT) – about 23mA max

4) AUX. POWER

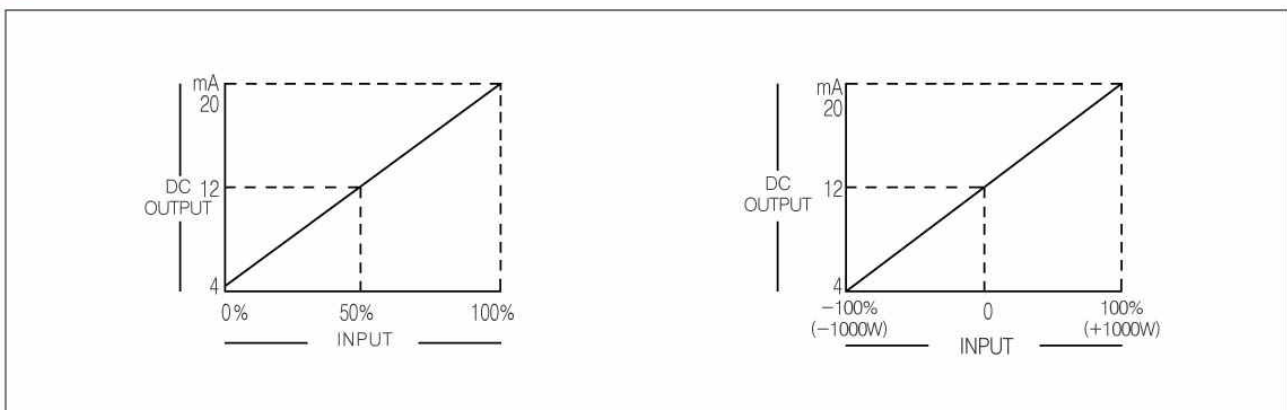
- A : AC 110/220V E : DC 48V
- B : AC 115/230V F : DC 110V
- C : AC 120/240V G : DC 125V
- D : DC 24V H : DC 220V

WATT TRANSDUCER

CONNECTION DIAGRAM



IN/OUTPUT OPERATION DIAGRAM



Output of the Watt Transducer

For a 4~20mA DC output

$$\frac{\text{Measured Watts}}{\text{full scale Watts}} \times 16 + 4 = \text{OUTPUT}$$

Zero offset
Output range

VAR TRANSDUCER

- Minimal Space Requirements
- Measure Forward or Reverse Reactive Power Flow
- Long Term Stability

VARS (Volt-Ampere Reactive) are effectively the opposite of watts. Vars are the product of voltage and current in opposite quadrants.

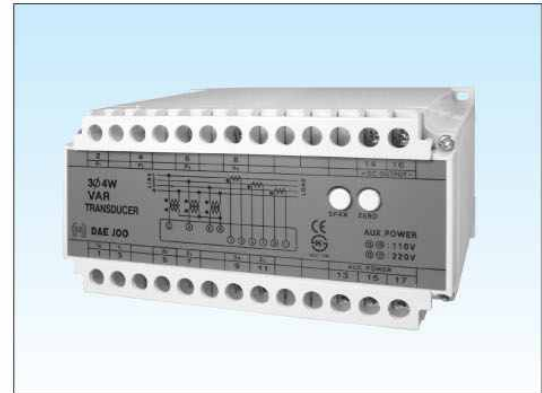
In calculating watts, as the phase angle increases (leading or lagging) the watts decrease.

VARS increase as the phase angle increases.

VAR Transducer provides a Dc output proportional to the input.

SPECIFICATIONS

Voltage input (nominal)		110V or 220V AC
Current input (nominal)		5A or 1A AC
Input loss/Element		V/0.3VA, C/0.5VA
Input operational range		V/0~110%, C/0~120%
Max input overload	Voltage(PT)	150% for 10 second
	Current(CT)	1000% for 10 second
Frequency		50 or 60Hz
Output load Required		OUTPUT LOAD RESISTANCE
		4/12/20mA 0~600Ω
		-1/0/+1mA 0~10KΩ
		-10/0/+10V 10KΩ or more
		-5/0/+5V 5KΩ or more
		1/3/5V 5KΩ or more
Aux power supply		110V or 220V AC ± 15V 50~60Hz 3.5VA DC Volt ± 10% 1.5W
Temperature Range	Storage	-20°C to +70°C
	Operating	-10°C to 60°C
Operating humidity		20~80%RH (Non-Condensing)
ACCURACY (at 25°C)		± 0.2%
Temp. influence		± 0.01%/ °C
Ripple (peak)		0.25% p-p max
Response time		0.4sec (0~90%)
Calibration Adjustment		± 10%(span), ± 10%(zero)
Insulation resistance		100MΩ or more with 500V DC
Dielectric Test		2000V AC/1minute
Isolation		Input/Output/Power/Case
Mounting		Wall or DIN rail (35mm)
Size		150(W) × 75(H) × 112(D)mm
Case material		ABS Resin
Weight		Approx. 920g
Connection page		11



MODEL CODE

DT - R
 1) 2) 3) 4)

1) CONNECTION

12 : 1Phase 2Wire 33 : 3Phase 3Wire
 13 : 1Phase 3Wire 34 : 3Phase 4Wire

2) INPUT

P×W	PT ratio	CT	CAL.Var Standard	CODE
1×2	110V	5A	± 500Var	A
1×3	110V	5A	± 1000Var	
3×3	220V	5A	± 2000Var	D
	380/110V		± 1158Var	E
	440/110V		± 1000Var	A
	3300/110V			
	6600/110V			
	154KV/110V			
	22900/110V		± 961Var	G
	OTHERS	OTHERS	OTHERS	S
3×4	110V/√3	5A	± 1000Var	H
	208V/√3		± 2000Var	K
	380/√3			
	380/√3		± 4000Var	L
	22900/√3/190/√3		± 1666Var	M
	/190/√3		± 1500Var	X
	OTHERS	OTHERS	OTHERS	S

* Effective Product Range: 0.5~1.2times (Of Cal VAR)

3) OUTPUT

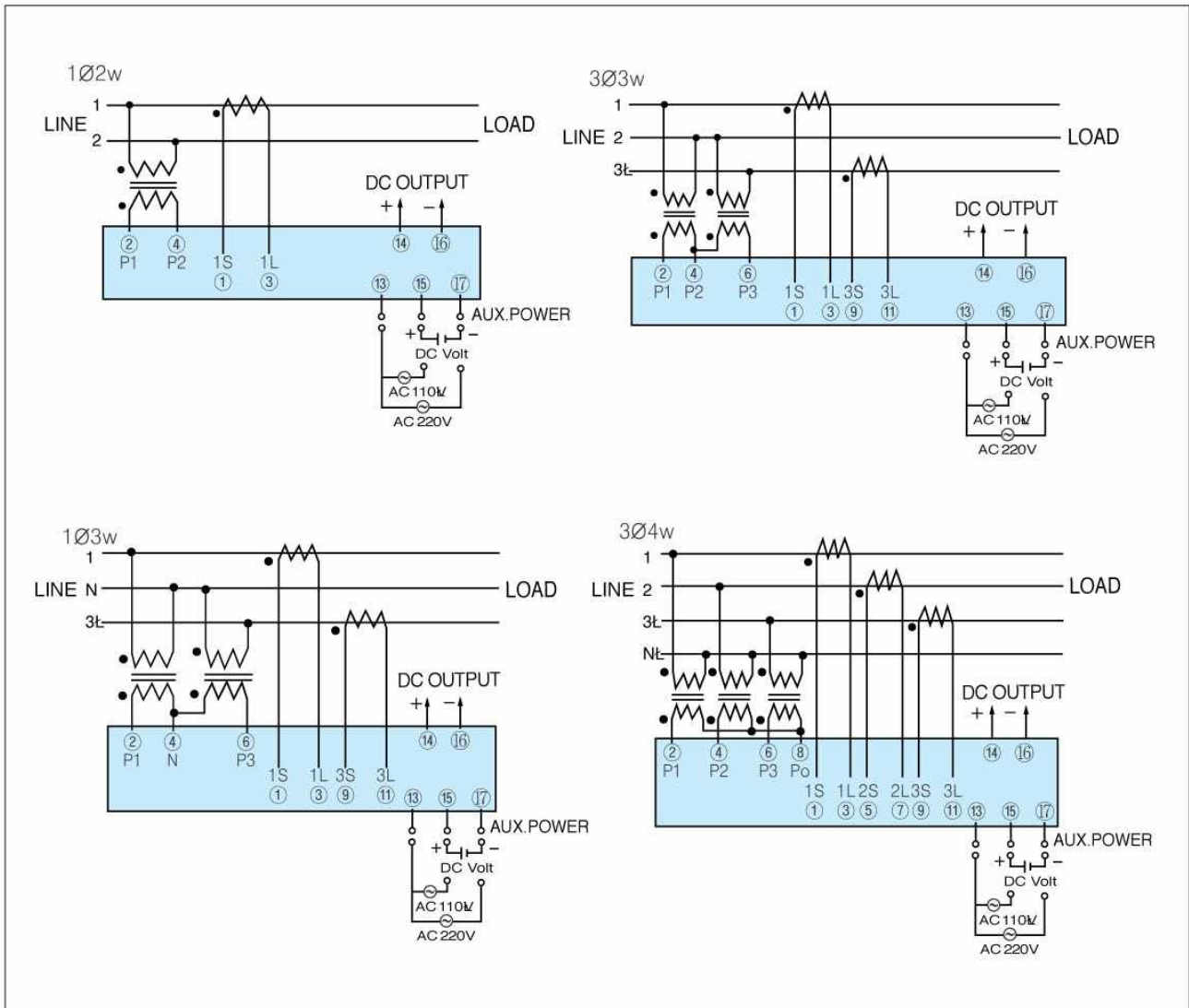
1 : 4/12/20mA DC
 2 : -1/0/+1mA DC
 3 : Specify Current (0~20mA max)
 4 : -5/0/+5V DC
 5 : 1/3/5V DC
 6 : -10/0/+10V DC
 7 : Specify Voltage (± 10V max)

4) AUX. POWER

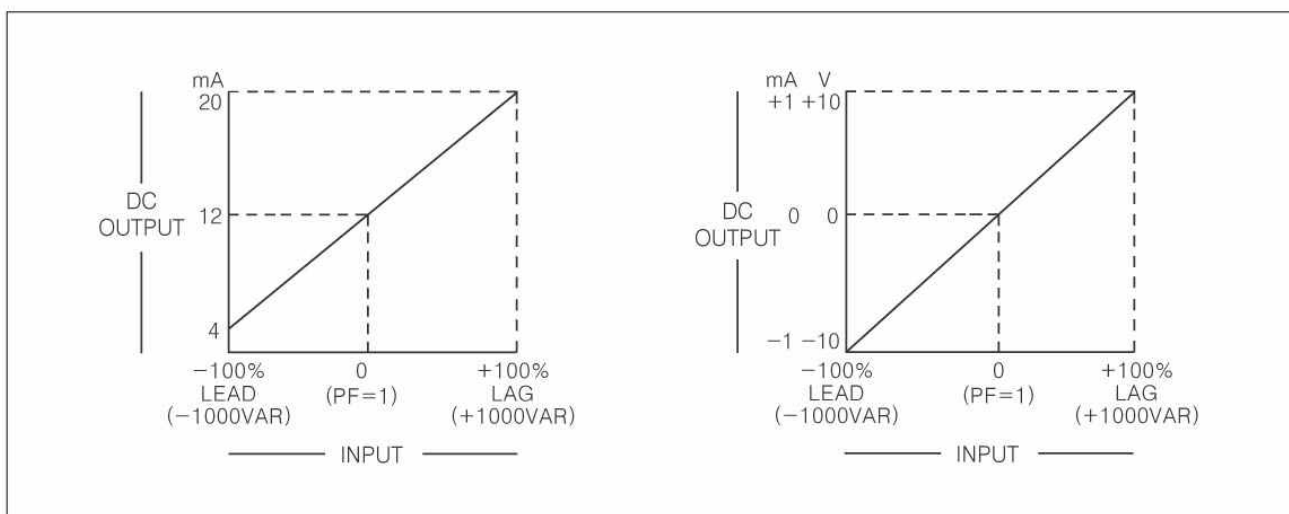
A : AC 110/220V E : DC 48V
 B : AC 115/230V F : DC 110V
 C : AC 120/240V G : DC 125V
 D : DC 24V H : DC 220V

VAR TRANSDUCER

CONNECTION DIAGRAM



IN/OUTPUT OPERATION DIAGRAM



WATT HOUR TRANSDUCER

WATT & WATT HOUR TRANSDUCER

- Minimal space Requirement
- Two output pulse (On request)
- Long term stability

SPECIFICATIONS

Voltage input (nominal)		110V or 220V AC
Current input (nominal)		5A or 1A AC
Input loss/Element		V/0.3VA, C/0.5VA
Input operational range		V/0~110%, C/0~120%
Max. input overload	Voltage(PT)	150% for 10 second
	Current(CT)	1000% for 10 second
Frequency		50 or 60Hz
Output Load Required (Analog)	OUTPUT	LOAD RESISTANCE
	4~20mA	0~600Ω
	0~1mA	0~10KΩ
	0~10V	10KΩ or more
	0~5V	5KΩ or more
	1~5V	5KΩ or more
Output Pulse Characteristic (Pulse)	On Duration	100~200ms
	Output (WH) Mod	Output (WH) Rating
	Relay output (Semiconductor Relay)	120V AC and DC 50mA max
	Open Collector	35V DC 50mA max
Aux power supply		110V or 220V AC ±15V 50~60Hz 4VA DC Volt ±10% 1.7W
Temperature Range	Storage	-20°C to +70°C
	Operating	-10°C to 60°C
Operating humidity		20~80%RH (Non-Condensing)
ACCURACY (at 25°C)		Watt Output : ±0.2% Watt-hour Output : ±0.4%
Temp. influence		0.01%/ °C
Ripple (peak)		0.25% p-p max
Response time		0.4sec (0~90%)
Calibration Adjustment		±10%(span), ±10%(zero)
Insulation resistance		100MΩ or more with 500V DC
Dielectric Test		2000V AC/1minute
Isolation		Input/Output/Power/Case
Mounting		Wall or DIN rail (35mm)
Size		150(W) × 75(H) × 112(D) mm
Case material		ABS Resin
Weight		Approx. 930g
Connection page		14~15

The watt-hour is the number of watts used in an hour. A 60 watt light bulb left on for 1 hour would use 60 watt-hour of energy. Watthours is the engineering units utilities use to bill commercial customers.

Watthour Transducer have a built-in Linear integrator circuit. This circuit accepts signals from watt portions and integrates it with respect to time. This produces a pulsed output via volt free (only Relay output) contracts, resulting in pulse proportional to kilo watt-hour.



Ratio of Kwh/1 Pulse

$$\frac{\text{PT Ratio} \times \text{CT Ratio} \times \text{T/D Calwatt}}{\text{numbr of T/D pulse}} = \text{Kwh/1Pulse}$$

[example]

$$\text{PT ratio : } 3300/110\text{V} = 30$$

$$\text{CT ratio : } 500/5\text{A} = 100$$

- When 1wh/1pulse (1000W/1000P/H)
T/D Cal Watt : 1000W
number of pulse : 1000P/H at Data Label

$$\frac{30 \times 100 \times 1000\text{w}}{1000\text{P/H}} = 3\text{Kwh/1Pulse}$$

- When 1wh/10pulse (1000W/10000P/H)

$$\frac{30 \times 100 \times 1000\text{w}}{10000\text{P/H}} = 0.3\text{Kwh/1Pulse}$$

- When 1Kwh/1pulse (1000W/3000P/H)

$$\frac{30 \times 100 \times 1000\text{w}}{3000\text{P/H}} = 1\text{Kwh/1Pulse}$$

WATTHOUR TRANSDUCER

MODEL CODE

DT — WH
 1) 2) 3) 4) 5)

1) CONNECTION

12 : 1Phase 2Wire 33 : 3Phase 3Wire
 13 : 1Phase 3Wire 34 : 3Phase 4Wire

2) INPUT

P×W	PT ratio	CT	CAL.Watt Standard	CODE
1×2	110V	5A	500W	A
1×3	110V	5A	1000W	
3×3	220V	5A	2000W	D
	380/110V		1158W	E
	440/110V		1000W	A
	3300/110V			
	6600/110V			
	154KV/110V			
	22900/110V		961W	G
	OTHERS	OTHERS	OTHERS	S
3×4	110V/√3	5A	1000W	H
	208V/√3		2000W	K
	380/√3/190/√3			
	380/√3		4000W	L
	22900/√3/190/√3		1666W	M
	/190/√3		1500W	X
	OTHERS	OTHERS	OTHERS	S

3) OUTPUT

1 : 1Watthour / 1 Pulse
 2 : 10Watthour / 1 Pulse
 3 : 1Watthour / 10 Pulse
 *4 : 1Kwhour / 1 Pulse
 *5 : 10Kwhour / 1 Pulse
 *6 : 100Kwhour / 1 Pulse
 *When the ordering you must be announced the PT ratio, CT ratio.

[example]

PT ratio : 22900/√3/190/√3

CT ratio : 50/5A

4) AUX. POWER

A : AC 110/220V
 B : AC 115/230V
 C : AC 120/240V
 D : DC 24V
 E : DC 48V
 F : DC 110V
 G : DC 125V
 H : DC 220V

5) OPTION

T : Two output (only relay output)

WATT & WATTHOUR TRANSDUCER

MODEL CODE

DT — WWH —
 1) 2) 3) 4) 5) 6)

1) CONNECTION

12 : 1Phase 2Wire 33 : 3Phase 3Wire
 13 : 1Phase 3Wire 34 : 3Phase 4Wire

2) INPUT

P×W	PT ratio	CT	CAL.Watt Standard	CODE
1×2	110V	5A	500W	A
1×3	110V	5A	1000W	
3×3	220V	5A	2000W	D
	380/110V		1158W	E
	440/110V		1000W	A
	3300/110V			
	6600/110V			
	154KV/110V			
	22900/110V		961W	G
	OTHERS	OTHERS	OTHERS	S
3×4	110V/√3	5A	1000W	H
	208V/√3		2000W	K
	380/√3/190/√3			
	380/√3		4000W	L
	22900/√3/190/√3		1666W	M
	/190/√3		1500W	X
	OTHERS	OTHERS	OTHERS	S

3) OUTPUT (WATT)

1 : 4~20mA DC
 2 : 0~1mA DC
 3 : Specify Current (0~20mA max)
 4 : 0~5V DC
 5 : 1~5V DC
 6 : 0~10V DC
 7 : Specify Voltage (0~10V max)

4) OUTPUT (Watt hour)

1 : 1Watthour / 1 Pulse
 2 : 10Watthour / 1 Pulse
 3 : 1Watthour / 10 Pulse
 *4 : 1Kwhour / 1 Pulse
 *5 : 10Kwhour / 1 Pulse
 *6 : 100Kwhour / 1 Pulse
 *When the ordering you must be announced the PT ratio, CT ratio.

[example]

PT ratio : 22900/√3/190/√3

CT ratio : 50/5A

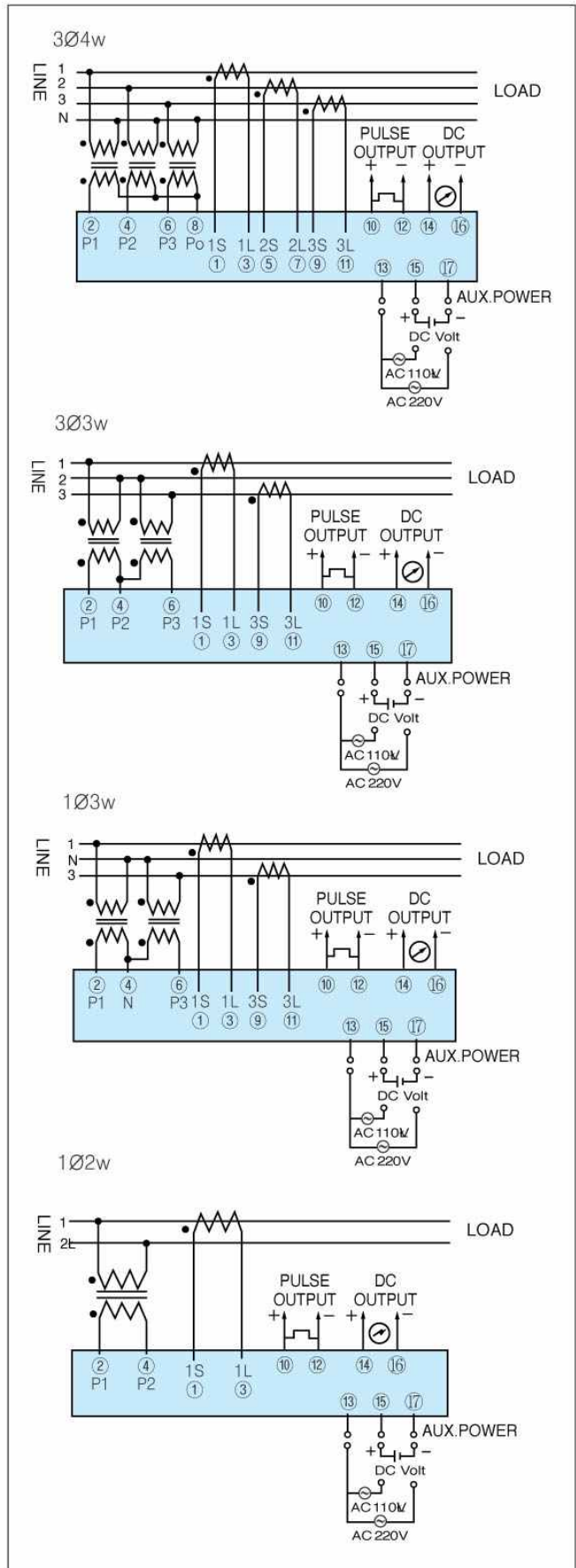
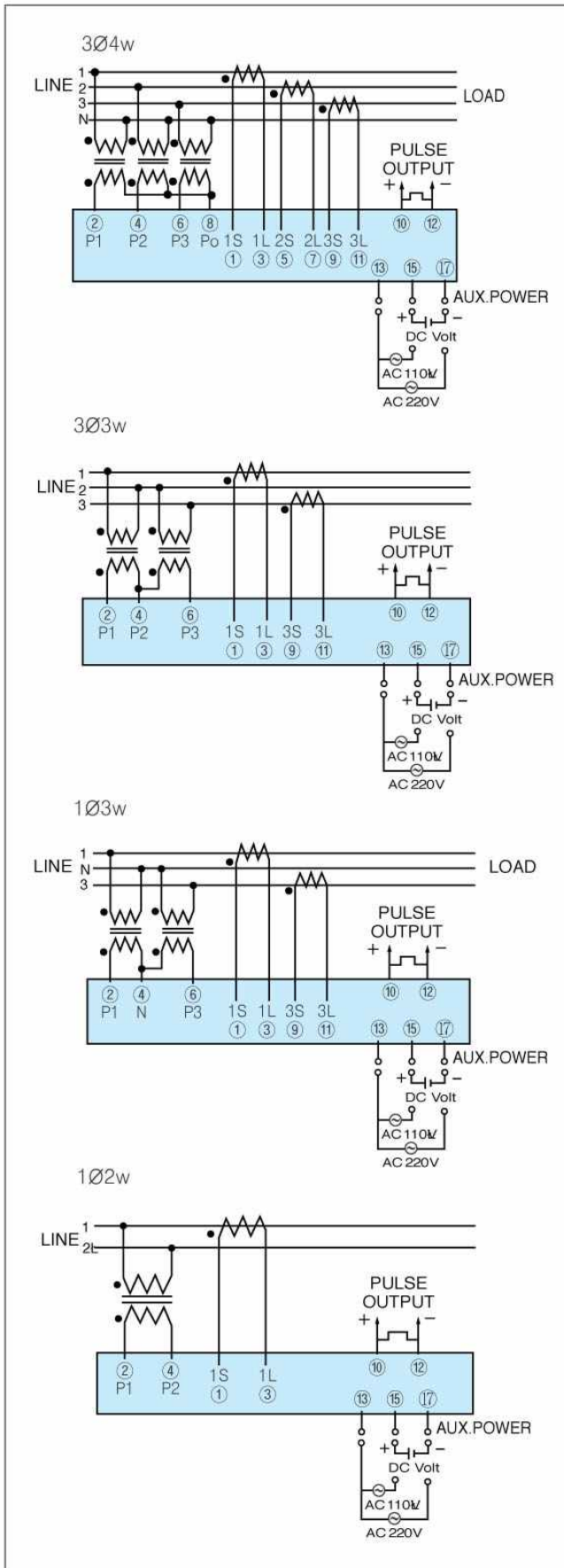
5) AUX. POWER

A : AC 110/220V E : DC 48V
 B : AC 115/230V F : DC 110V
 C : AC 120/240V G : DC 125V
 D : DC 24V H : DC 220V

6) OPTION

T : Two output (only relay output)

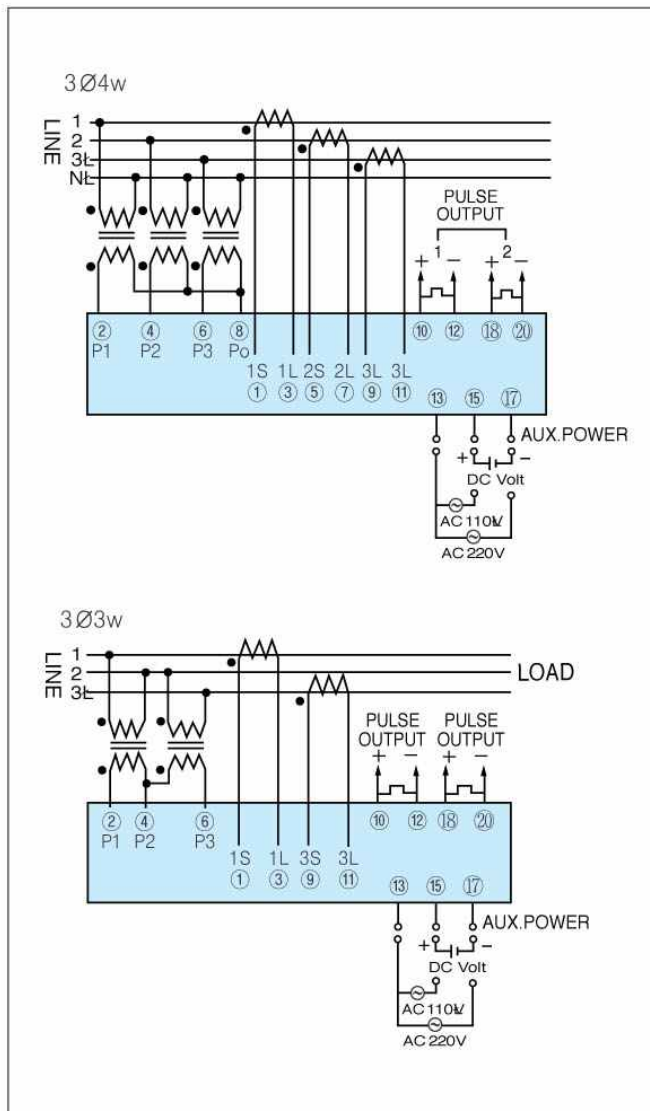
CONNECTION DIAGRAM



WATTHOUR TRANSDUCER VARHOUR TRANSDUCER

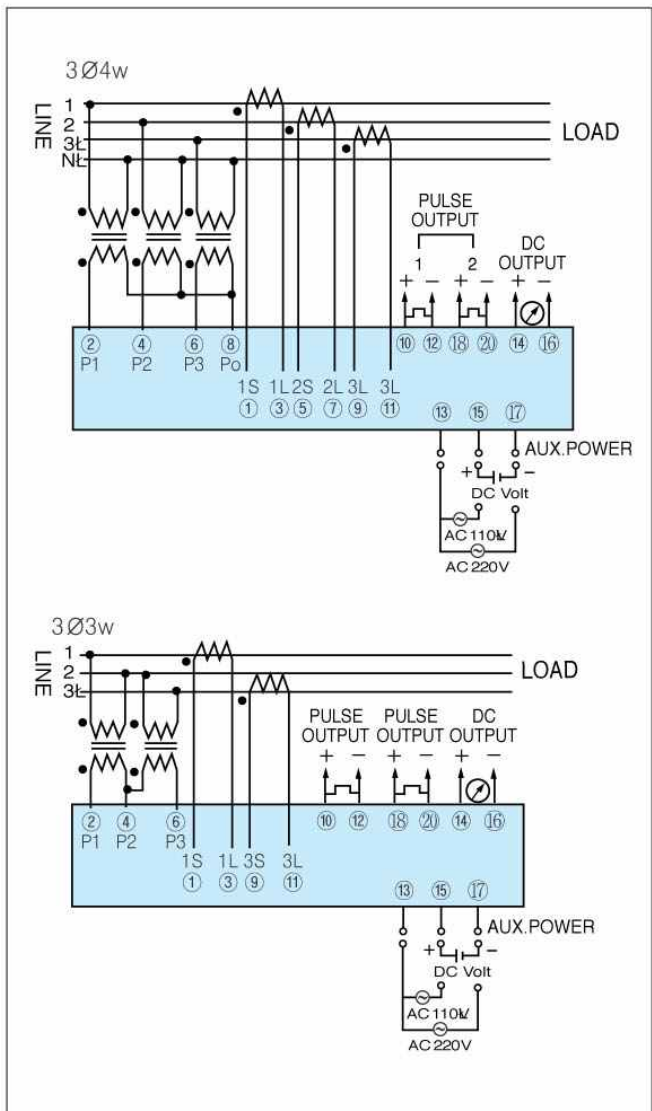
(TWO OUTPUT PULSES)

CONNECTION DIAGRAM



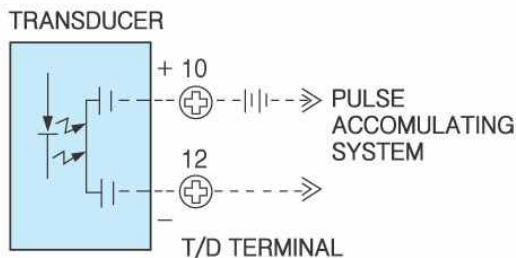
WATT & WATTHOUR TRANSDUCER VAR & VARHOUR TRANSDUCER

(TWO OUTPUT PULSES)

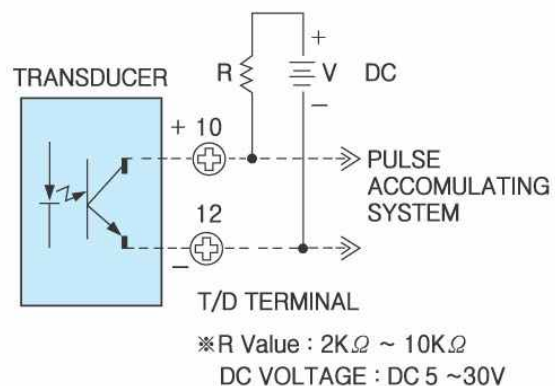


PULSE OUTPUT CONNECTION DIAGRAM

RELAY OUTPUT (Semiconductor Type)
DRY CONTACT



OPEN COLLECTOR OUTPUT (OPTION)



VARHOUR TRANSDUCER VAR & VARHOUR TRANSDUCER

- Minimal space Requirement
- Two output pulse (On request)
- Long term stability

SPECIFICATIONS

Voltage input (nominal)		110V or 220V AC
Current input (nominal)		5A or 1A AC
Input loss/Element		V/0.3VA, C/0.5VA
Input operational range		V/0~110%, C/0~120%
Max. input overload	Voltage(PT)	150% for 10 second
	Current(CT)	1000% for 10 second
Frequency		50 or 60Hz
Output Load Required (Analog)	OUTPUT	LOAD RESISTANCE
	4~20mA	0~600Ω
	0~1mA	0~10KΩ
	0~10V	10KΩ or more
	0~5V	5KΩ or more
	1~5V	5KΩ or more
Output Pulse Characteristic (Pulse)	On Duration	100~200ms
	Output (VARH) Mod	Output Rating
	Relay output (Semiconductor Relay)	120V AC and DC 50mA max
	Open Collector	35V DC 50mA max
Aux power supply		110V or 220V AC ±15V 50~60Hz 4VA DC Volt ±10% 1.7W
Temperature Range	Storage	-20°C to +70°C
	Operating	-10°C to 60°C
Operating humidity		20~80%RH (Non-Condensing)
ACCURACY (at 25°C)		Var Output : ±0.2% Varhour Output : ±0.4%
Temp. influence		±0.01%/°C
Ripple (peak)		0.25% p-p max
Response time		0.4sec (0~90%)
Calibration Adjustment		±10%(span), ±10%(zero)
Insulation resistance		100MΩ or more with 500V DC
Dielectric Test		2000V AC/1minute
Isolation		Input/Output/Power/Case
Mounting		Wall or DIN rail (35mm)
Size		150(W) × 75(H) × 112(D) mm
Case material		ABS Resin
Weight		Approx. 930g
Connection page		14~15

VAR hour Transducers come in the same configurations as Watt, Var and Watthour Transducers, and many have the analog output to indicate var demand in addition to the var hour output.



Ratio of KVARH/1 Pulse

$$\frac{\text{PT Ratio} \times \text{CT Ratio} \times \text{T/D Calvar}}{\text{number of T/D pulse}} = \text{Kvarh/1Pulse}$$

[example]

$$\text{PT ratio : } 3300/110\text{V} = 30$$

$$\text{CT ratio : } 500/5\text{A} = 100$$

- When 1Varh/1pulse

$$\frac{\text{T/D Cal VAR : } 1000\text{Var}}{\text{number of pulse : } 1000\text{P/H}} \text{ at Data Label}$$

$$\frac{30 \times 100 \times 1000\text{VAR}}{1000\text{P/H}} = 3\text{KVarh/1Pulse}$$

- When 1Varh/10pulse (1000VAR/10000P/H)

$$\frac{30 \times 100 \times 1000\text{VAR}}{10000\text{P/H}} = 0.3\text{KVarh/1Pulse}$$

- When 1KVarh/1pulse (1000VAR/3000P/H)

$$\frac{30 \times 100 \times 1000\text{VAR}}{3000\text{P/H}} = 1\text{KVarh/1Pulse}$$

VARHOUR TRANSDUCER

MODEL CODE

DT - RH
 1) 2) 3) 4) 5)

1) CONNECTION

12 : 1Phase 2Wire 33 : 3Phase 3Wire
 13 : 1Phase 3Wire 34 : 3Phase 4Wire

2) INPUT

P×W	PT ratio	CT	CAL.Var Standard	CODE
1×2	110V	5A	500Var	A
1×3	110V	5A	1000Var	
3×3	220V	5A	2000Var	D
	380/110V		1158Var	E
	440/110V		1000Var	A
	3300/110V			
	6600/110V			
	154KV/110V			
	22900/110V		961Var	G
	OTHERS	OTHERS	OTHERS	S
3×4	110V/√3	5A	1000Var	H
	208V/√3		2000Var	K
	380/√3/190/√3			
	380/√3		4000Var	L
	22900/√3/190/√3		1666Var	M
	/190/√3		1500Var	X
	OTHERS	OTHERS	OTHERS	S

3) OUTPUT (only LAG output)

1 : 1Varhour / 1 Pulse
 2 : 10Varhour / 1 Pulse
 3 : 1Varhour / 10 Pulse
 *4 : 1KVarhour / 1 Pulse
 *5 : 10KVarhour / 1 Pulse
 *6 : 100KVarhour / 1 Pulse
 *When the ordering you must be announced the PT ratio, CT ratio.

[example]

PT ratio : 22900/√3/190/√3

CT ratio : 50/5A

4) AUX. POWER

A : AC 110/220V
 B : AC 115/230V
 C : AC 120/240V
 D : DC 24V
 E : DC 48V
 F : DC 110V
 G : DC 125V
 H : DC 220V

5) OPTION

T: Two output (only relay output)

VAR & VARHOUR TRANSDUCER

MODEL CODE

DT - RRH -
 1) 2) 3) 4) 5) 6)

1) CONNECTION

12 : 1Phase 2Wire 33 : 3Phase 3Wire
 13 : 1Phase 3Wire 34 : 3Phase 4Wire

2) INPUT

P×W	PT ratio	CT	CAL.Var Standard	CODE
1×2	110V	5A	500Var	A
1×3	110V	5A	1000Var	
3×3	220V	5A	2000Var	D
	380/110V		1158Var	E
	440/110V		1000Var	A
	3300/110V			
	6600/110V			
	154KV/110V			
	22900/110V		961Var	G
	OTHERS	OTHERS	OTHERS	S
3×4	110V/√3	5A	1000Var	H
	208V/√3		2000Var	K
	380/√3/190/√3			
	380/√3		4000Var	L
	22900/√3/190/√3		1666Var	M
	/190/√3		1500Var	X
	OTHERS	OTHERS	OTHERS	S

3) OUTPUT (VAR)

1 : 4~20mA DC
 2 : 0~1mA DC
 3 : Specify Current (0~20mA max)
 4 : 0~5V DC
 5 : 1~5V DC
 6 : 0~10V DC
 7 : Specify Voltage (0~10V max)

4) OUTPUT (VARHOUR) : (only LAG output)

1 : 1Varhour / 1 Pulse
 2 : 10Varhour / 1 Pulse
 3 : 1KVarhour / 10 Pulse
 *4 : 1KVarhour / 1 Pulse
 *5 : 10KVarhour / 1 Pulse
 *6 : 100KVarhour / 1 Pulse
 *When the ordering you must be announced the PT ratio, CT ratio.

[example]

PT ratio : 22900/√3/190/√3

CT ratio : 50/5A

5) AUX. POWER

A : AC 110/220V E : DC 48V
 B : AC 115/230V F : DC 110V
 C : AC 120/240V G : DC 125V
 D : DC 24V H : DC 220V

6) OPTION

T: Two output (only relay output)

POWER FACTOR TRANSDUCER

- Unbalance Type
- Minimal Space Requirments
- Long Term Stability

The power factor is equal to the cosine of the phase angle.
(PF=Cosine ϕ)

Where ϕ is the phase angle difference between the voltage and current of an AC Power system.

Certain loads create a delay of phase shift between the voltage and current. An inductive load (very common), will cause current to lag voltage.

Power Factor Transducer is designed to precisely measure load power factor between the input voltage and input current.

SPECIFICATIONS

Voltage input, Range		85%~110%
Current input Range		10%~120%
Input loss/Element		V/0.3VA, C/0.5VA
Max input overload	Voltage(PT)	150% for 10 seconds
	Current(CT)	1000% for 10 seconds
Frequency		50 or 60Hz
Output load Required		OUTPUT LOAD RESISTANCE
		4~12~20mA 0~600 Ω
		0~0.5~1mA 0~10K Ω
		0~5~10V 10K Ω or more
		1~3~5V 5K Ω or more
		0~2.5~5V 5K Ω or more
Full Scale input range		0.5(Lead) to 1 to 0.5(Lag)
Aux. power supply		110V or 220V AC $\pm 15V$ 50~60Hz 4VA DC Volt $\pm 10\%$ 1.8W
Temperature Range	Storage	-20°C to +70°C
	Operating	-10°C to 60°C
Operating humidity		20~80%RH (Non-Condensing)
ACCURACY (at 25°C)		$\pm 0.5\%$ ± 1 Degree
Temp. influence		$\pm 0.01\%$
Ripple (peak)		0.25% p-p max
Response time		0.4sec (0~90%)
Calibration Adjustment		$\pm 10\%$ (span), $\pm 10\%$ (zero)
Insulation resistance		100M Ω or more with 500V DC
Dielectric Test		2000V AC/1minute
Isolation		Input/Output/Power/Case
Mounting		Wall or DIN rail (35mm)
Size		150(W) $\times$ 75(H) $\times$ 112(D)mm
Case material		ABS Resin
Weight		Approx. 760g
Connection page		19



MODEL CODE

DT - PF
 1) 2) 3) 4)

1) CONNECTION

12 : 1Phase 2Wire

33 : 3Phase 3Wire

34 : 3Phase 4Wire

2) INPUT

$\cos \phi = 0.5(\text{LEAD}) - 1 - 0.5(\text{LAG})$

A : AC110V (190 $\sqrt{3}$), 208/ $\sqrt{3}$, 5A

B : AC220V (380/ $\sqrt{3}$), 5A

C : AC 63.5V (110/ $\sqrt{3}$), 5A

3) OUTPUT

1 : 4~12~20mA DC

2 : 0~0.5~1mA DC

3 : Specify Current (0~20mA max)

4 : 0~2.5~5V DC

5 : 1~3~5V DC

6 : 0~5~10V DC

7 : Specify Voltage (0~10V max)

4) AUX. POWER

A : AC 110/220V

B : AC 115/230V

C : AC 120/240V

D : DC 24V

E : DC 48V

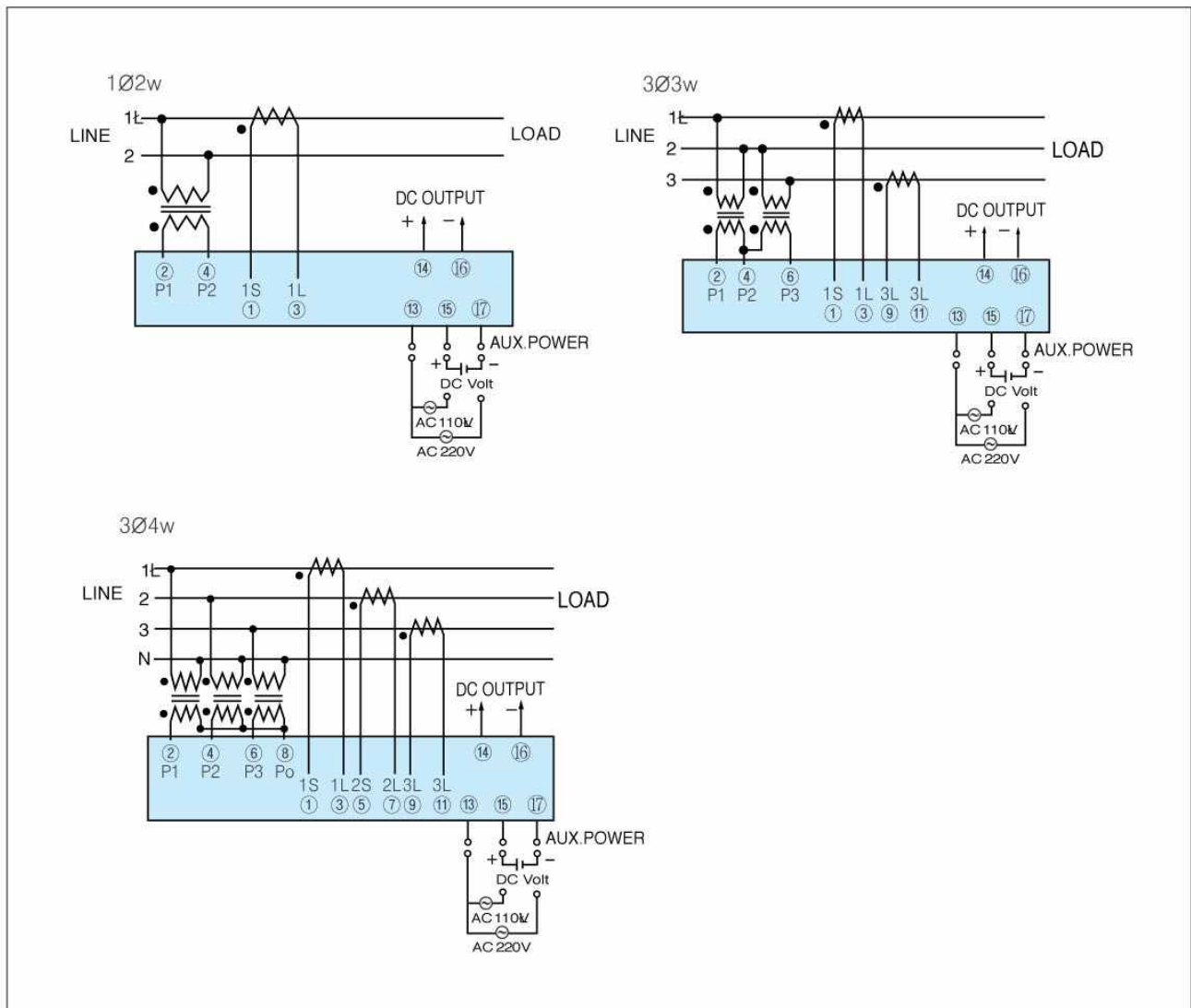
F : DC 110V

G : DC 125V

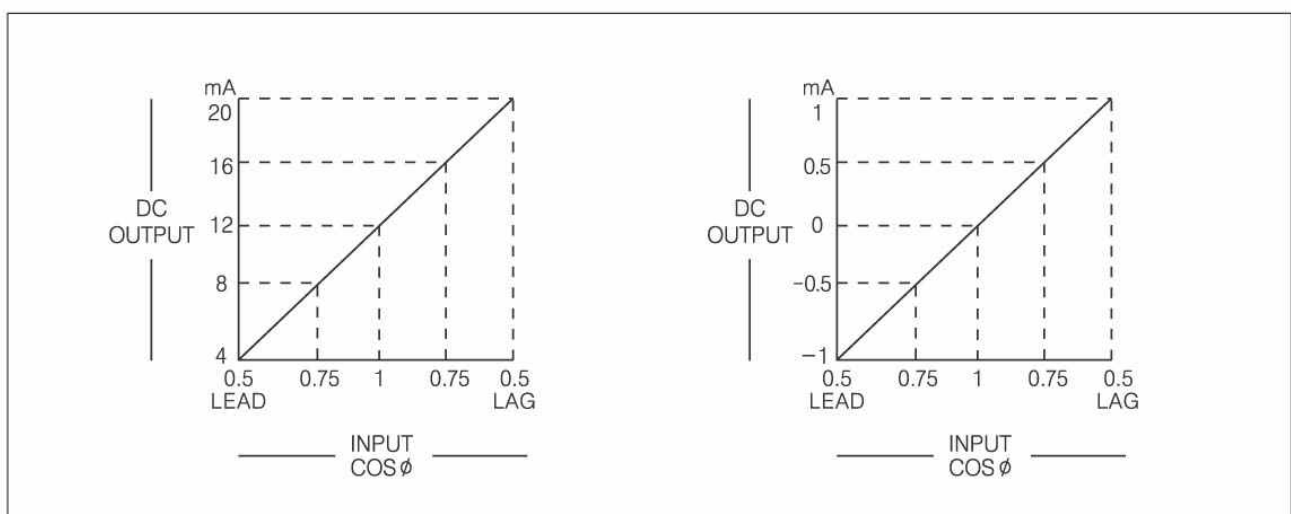
H : DC 220V

POWER FACTOR TRANSDUCER

CONNECTION DIAGRAM



IN/OUTPUT OPERATION DIAGRAM

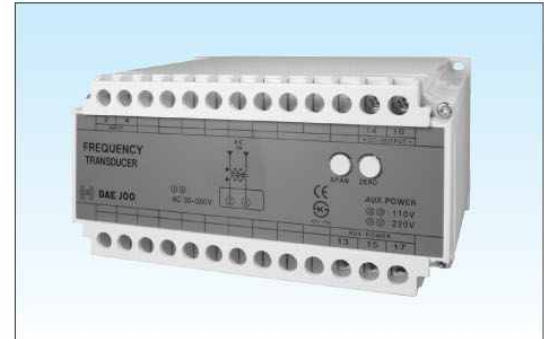


FREQUENCY TRANSDUCER

Frequency is the rate in cycles per second that an AC voltage alternates. Most frequency measurement applications involve power generation or transmission. Typically the voltage output of a generator or the voltage of a transmission line is fed through a potential transformer (PT). The frequency of this voltage is converted by a transducer to a DC control signal (4–12–20mA DC) which is applied to some indicating, logging or controlling instrument.

SPECIFICATIONS

Voltage input Range		AC 30~300V
Frequency input		55~65Hz, 45~55Hz
Input loss		0.1VA
Max input overload		115% Continuously
Output load Required		OUTPUT LOAD RESISTANCE
		4~12~20mA 0~600Ω
		0~0.5~1mA 0~10KΩ
		0~5~10V 10KΩ or more
		0~2.5~5V 5KΩ or more
		1~3~5V 5KΩ or more
Aux. power supply		110V or 220V AC ±15V 50~60Hz 3VA DC Volt ±10% 1.5W
Temperature Range	Storage	-20°C to +70°C
	Operating	-10°C to 60°C
Operating humidity		20~80%RH (Non-Condensing)
ACCURACY (at 25°C)		±0.1%
Temp. influence		±0.01%/°C
Ripple (peak)		±0.25% p-p max
Response time		0.4sec (0~90%)
Calibration Adjustment		±10%(span), ±10%(zero)
Insulation resistance		100MΩ or more with 500V DC
Dielectric Test		2000V AC/1minute
Isolation		Input/Output/Case/Power
Mounting		Wall or Din rail (35mm)
Size		150(W) × 75(H) × 112(D)mm
Case material		ABS Resin
Weight		Approx. 570g



MODEL CODE

DT - F 1) 2) 3)

1) FREQUENCY

A : 55~65Hz (60Hz), AC30~300V
B : 45~55Hz (50Hz), AC30~300V

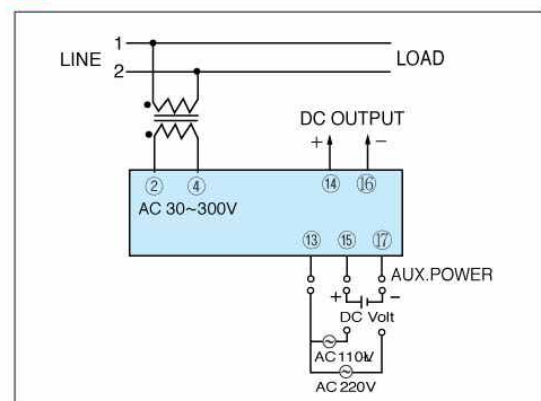
2) OUTPUT

1 : 4~12~20mA DC
2 : 0~0.5~1mA DC
3 : Specify Current (0~20mA max)
4 : 0~2.5~5V DC
5 : 1~3~5V DC
6 : 0~5~10V DC
7 : Specify Voltage (0~10V max)

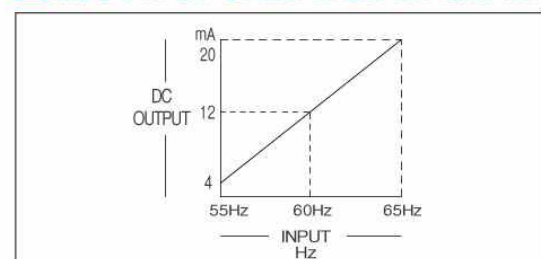
3) AUX. POWER

A : AC 110/220V E : DC 48V
B : AC 115/230V F : DC 110V
C : AC 120/240V G : DC 125V
D : DC 24V H : DC 220V

CONNECTION DIAGRAM



IN/OUTPUT OPERATION DIAGRAM



DC VOLTAGE TRANSDUCER

- Isolation (photo-coupler) type

The dc voltage is a signal conditioning circuit which accepts high level input from a variety of transducers to control a standard signal. The measured value is first converted to a dc Voltage, amplified by an operational amplifier and then chopped to produce a square wave of amplitude proportional to the dc voltage.

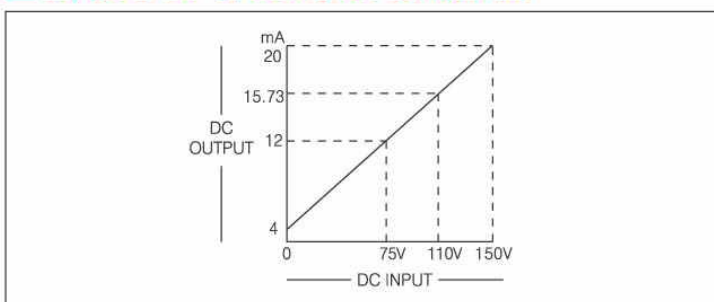
This is photo coupled to a second chopper circuit which converts the square wave back to dc Voltage.

This is then filtered and amplified to produce a load independent dc output proportional to measured input.

SPECIFICATIONS

Full Scale input	0~1000V DC	
Output load Required	OUTPUT	LOAD RESISTANCE
	4~20mA	0~600 Ω
	0~1mA	0~10K Ω
	0~5V	5K Ω or more
	1~5V	5K Ω or more
	0~10V	10K Ω or more
Aux. power supply	110V or 220V AC $\pm$ 15V 4VA, DC Volt $\pm$ 10% 2W	
Temperature	Storage	-20°C to +70°C
Range	Operating	-10°C to 60°C
Operating humidity	20~80%RH (Non-Condensing)	
ACCURACY (at 25°C)	$\pm$ 0.3%	
Temp. influence	$\pm$ 0.01%/°C	
Linearity	$\pm$ 0.02%	
Ripple (peak)	0.2% p-p max	
Response time	0.4sec (0~90%)	
Calibration Adjustment	$\pm$ 10%(span), $\pm$ 10%(zero)	
Insulation resistance	100M Ω or more with 500V DC	
Dielectric Test	1500V AC/1minute	
Isolation	Input/Output/Power/Case	
Mounting	Wall or Din rail (35mm)	
Size	60(W) $\times$ 75(H) $\times$ 112(D)mm	
Case material	ABS Resin	
Weight	Approx. 390g	

IN/OUTPUT OPERATION DIAGRAM



MODEL CODE

DT - DV
1) 2) 3)

1) INPUT

- A : 0~150V
- B : 0~300V
- C : 0~1V
- D : 0~5V
- E : 0~10V
- F : 1~5V
- G : Specify Voltage (0~1000V max)

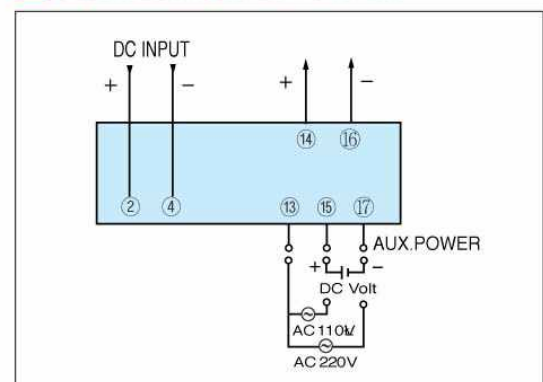
2) OUTPUT

- 1 : 4~20mA DC
- 2 : 0~1mA DC
- 3 : 0~20mA DC
- 4 : Specify Current (0~20mA max)
- 5 : 0~5V DC
- 6 : 1~5V DC
- 7 : 0~10V DC
- 8 : Specify Voltage (0~10V max)

3) AUX. POWER

- A : AC 110/220V
- B : AC 115/230V
- C : AC 120/240V
- D : DC 24V
- E : DC 48V
- F : DC 110V
- G : DC 125V
- H : DC 220V

CONNECTION DIAGRAM



DC MILLIVOLTAGE TRANSDUCER (DC CURRENT WITH SHUNT)

• Isolation (photo-coupler) type

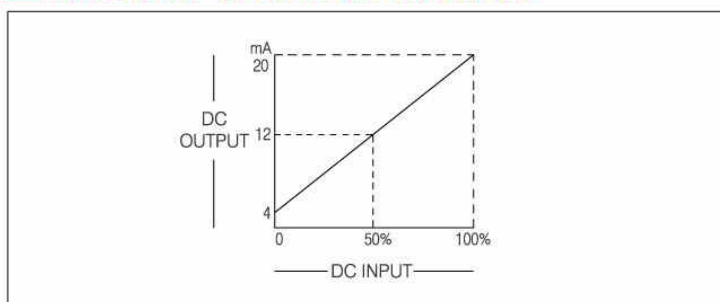
The dc millivoltage is a signal conditioning circuit which accepts low-level inputs from a variety of transducers to control a standard signal. The measured value is first converted to a dc Voltage, amplified by an operational amplifier and then chopped to produce a square wave of amplitude proportional to the dc voltage.

This is photo coupled to a second chopper circuit which converts the square wave back to dc Voltage this is then filtered and amplified to produce a load independent dc output proportional to measured input.

SPECIFICATIONS

Full Scale input	0~999mV DC	
Output load Required	OUTPUT	LOAD RESISTANCE
	4~20mA	0~600Ω
	0~1mA	0~10KΩ
	0~5V	5KΩ or more
	1~5V	5KΩ or more
	0~10V	10KΩ or more
Aux. power supply	110V or 220V AC ±15V 4VA, DC Volt ±10% 2W	
Temperature Range	Storage	-20°C to +70°C
	Operating	-10°C to 60°C
Operating humidity	20~80%RH (Non-Condensing)	
ACCURACY (at 25°C)	± 0.3%	
Temp. influence	±0.01%/°C	
Linearity	±0.02% F.S	
Ripple (peak)	0.2% p-p max	
Response time	0.4sec (0~90%)	
Calibration Adjustment	±10%(span), ±10%(zero)	
Insulation resistance	100MΩ or more with 500V DC	
Dielectric Test	1500V AC/1minute	
Isolation	Input/Output/Power/Case	
Mounting	Wall or Din rail (35mm)	
Size	60(W) × 75(H) × 112(D)mm	
Case material	ABS Resin	
Weight	Approx. 390g	

IN/OUTPUT OPERATION DIAGRAM



MODEL CODE

DT - DMV
1) 2) 3)

1) INPUT

- A : 0~50mV
- B : 0~100mV
- C : 0~10mV
- D : ± 50mV
- E : Specify Voltage (0~999mV max)

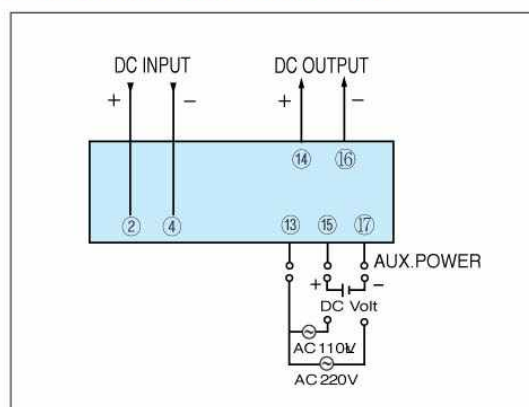
2) OUTPUT

- 1 : 4~20mA DC
- 2 : 0~1mA DC
- 3 : 0~20mA DC
- 4 : Specify Current (0~20mA max)
- 5 : 0~5V DC
- 6 : 1~5V DC
- 7 : 0~10V DC
- 8 : Specify Voltage (0~10V max)

3) AUX. POWER

- A : AC 110/220V
- B : AC 115/230V
- C : AC 120/240V
- D : DC 24V
- E : DC 48V
- F : DC 110V
- G : DC 125V
- H : DC 220V

CONNECTION DIAGRAM



DC SIGNAL ISOLATOR

- Isolation (photo-coupler) type
- One input/Two output

A wide range of isolating Transducers capable of accepting a variety of dc voltage and current inputs and producing an output directly proportional to input.

SPECIFICATIONS

Voltage input Range		DC Voltage (0~10V)
		DC Current (0~50mA)
Output load Required		See Model Code
Aux. power supply		110V or 220V AC $\pm 15V$ 3VA, DC Volt $\pm 10\%$ 2W
Temperature Range	Storage	-20°C~70°C
	Operating	-10°C to 60°C
Operating humidity		20~80%RH (Non-Condensing)
ACCURACY (at 25°C)		$\pm 0.3\%$
Temp. influence		$\pm 0.01\%/^{\circ}C$
Linearity		$\pm 0.02\%$ F.S
Ripple (peak)		0.2% p-p max
Response time		0.4sec (0~90%)
Calibration Adjustment		$\pm 10\%$ (span), $\pm 10\%$ (zero)
Insulation resistance		100M Ω or more with 500V DC
Dielectric Test		1500V AC/1minute
Isolation		Input/Output/Power/Case
Mounting		Wall or Din rail (35mm)
Size		60(W) $\times$ 75(H) $\times$ 112(D)mm
Case material		ABS Resin
Weight		Approx. 390g
Connection page		24



MODEL CODE

DT - ISO -
1) 2) 3) 4)

1) INPUT

A : 4~20mA DC
B : 0~1mA DC
C : 0~10mA DC
D : 0~16mA DC
E : 0~20mA DC
F : 1~5mA DC
G : 2~10mA DC
H : 10~50mA DC
I : Specify Current
1 : 0~10mV DC
2 : 0~100mV DC
3 : 0~1V DC
4 : 0~10V DC
5 : 0~5V DC
6 : 1~5V DC
7 : Specify Voltage

2) OUTPUT

A : 4~20mA DC (0~600 Ω)
B : 0~1mA DC (0~10K Ω)
C : 0~10mA DC (0~1.2K Ω)
D : 0~16mA DC (0~720 Ω)
E : 0~20mA DC (0~600 Ω)
F : 1~5mA DC (0~2.4K Ω)
G : 2~10mA DC (0~1.2K Ω)
H : Specify Current (0~20mA max)
1 : 0~10mV DC (10K Ω or more)
2 : 0~100mV DC (100K Ω or more)
3 : 0~1V DC (1K Ω or more)
4 : 0~10V DC (10K Ω or more)
5 : 0~5V DC (5K Ω or more)
6 : 1~5V DC (5K Ω or more)
7 : Specify Voltage (0~10V max)

3) AUX. POWER

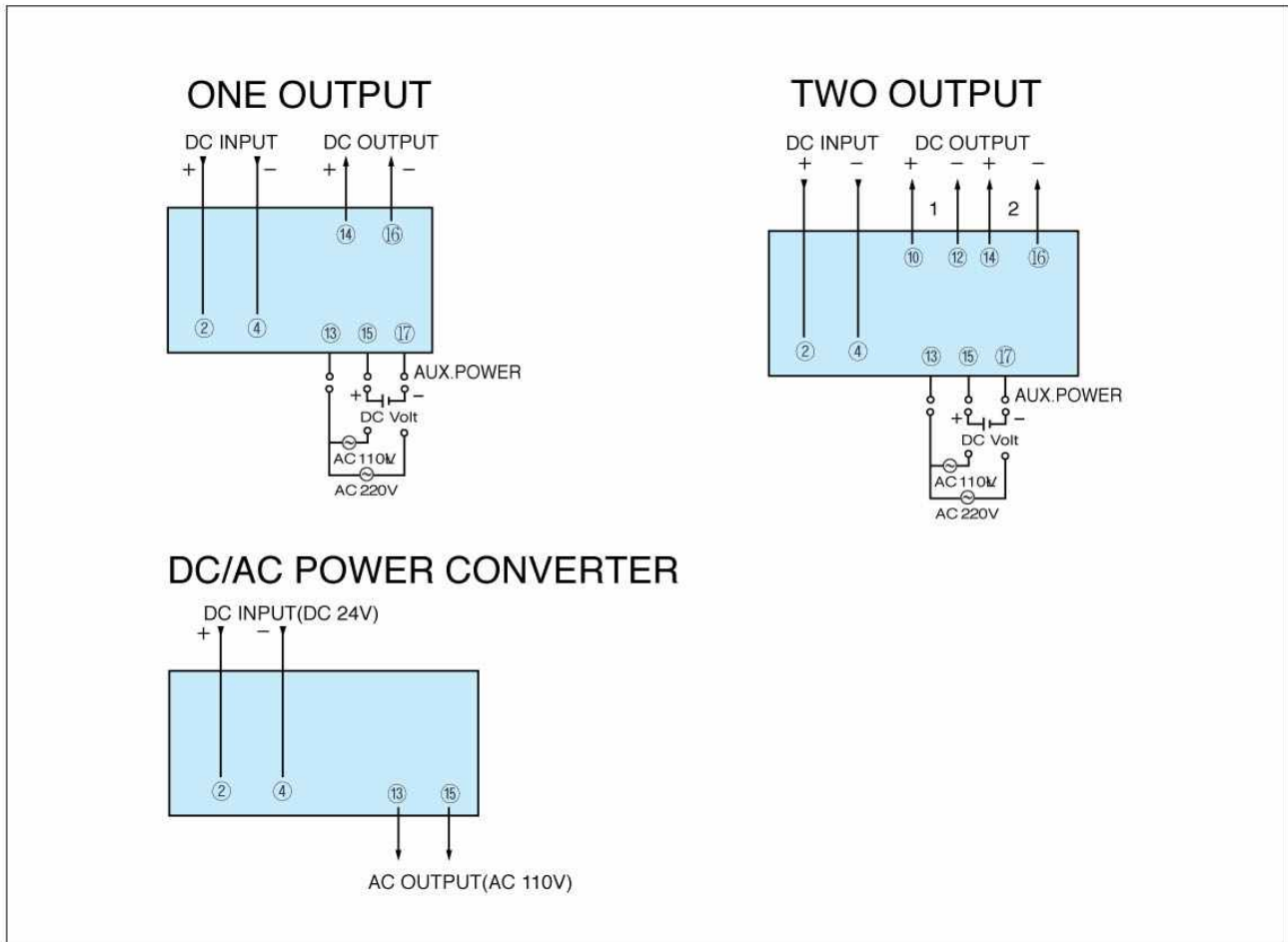
A : AC 110/220V E : DC 48V
B : AC 115/230V F : DC 110V
C : AC 120/240V G : DC 125V
D : DC 24V H : DC 220V

4) OPTION

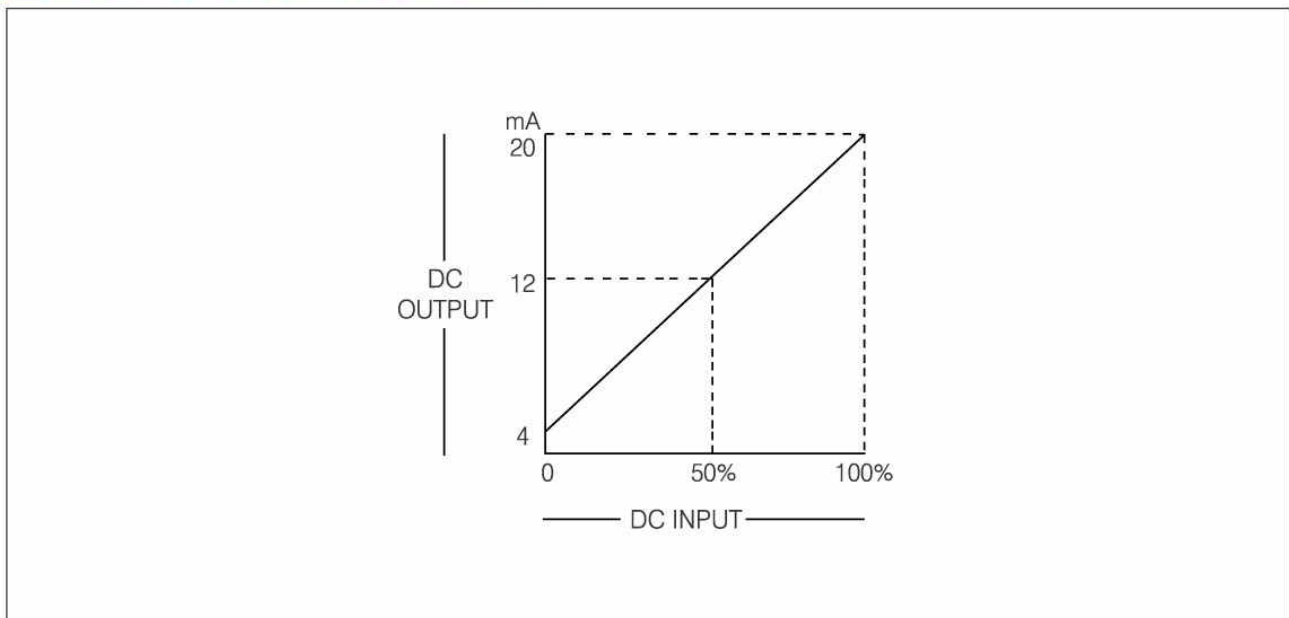
S : ONE OUTPUT
D : TWO OUTPUT (OPTION)

DC SIGNAL ISOLATOR

■ CONNECTION DIAGRAM



■ IN/OUTPUT OPERATION DIAGRAM



DC SIGNAL ISOLATOR

- Isolation (photo-coupler) type
- One input/Four output

A wide range of isolating transducers capable of accepting a variety of dc voltage and current inputs and producing an output directly proportional to input.



MODEL CODE

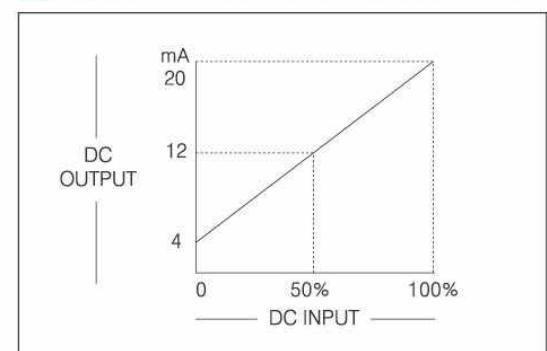
DT - ISO - [] [] [] [] [] []

INPUT			INPUT RESISTANCE	OUTPUT 1		LOAD RESISTANCE	AUX.POWER		OUTPUT2	OUTPUT3	OUTPUT4
A	DC 4~20mA	250Ω	A	DC 4~20mA	0~600Ω	A	AC110/220V	OUTPUT1 과 동일함	OUTPUT1 과 동일함	OUTPUT1 과 동일함	
B	DC 0~1mA	1.5KΩ	B	DC 0~1mA	0~10KΩ	B	AC115/230V				
C	DC 0~10mV	1MΩ	C	DC 1~5V	5KΩ or more	C	AC120/240V				
D	DC 0~100mV	1MΩ	D	DC 0~5V	5KΩ or more	D	DC 24V				
E	DC 0~1V	1MΩ	E	DC 0~10V	10KΩ or more	E	DC 48V				
F	DC 0~5V	1MΩ	F	DC 0~1V	1KΩ or more	F	DC 110V				
G	DC 1~5V	1MΩ	S	Specify current : less than 20mA Specify voltage : less than 10V		G	DC 125V				
H	DC 0~10V	1MΩ				H	DC 220V				
S	Specify current : less than 50mA Specify voltage : less than 300V										

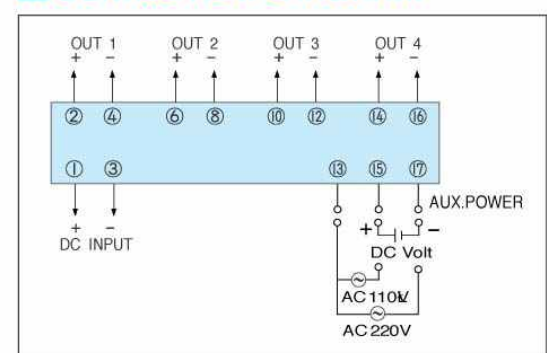
SPECIFICATIONS

Full scale input		DC Voltage (0~10V) DC Current (0~50mA)
Temperature Range	Storage	-20°C ~ 70°C
	Operating	-10°C ~ 60°C
Operating humidity		20~80%RH (Non-condensing)
ACCURACY (at 25°C)		± 0.4%
Temp. influence		± 0.01%/°C
Linearity		± 0.02% F.S
Ripple (peak)		0.2% p-p max
Response time		0.4sec (0~90%)
Calibration ADJ		± 10%(span), ± 10%(zero)
Aux. power supply		110/220V AC ± 15V(7VA), 50/60Hz DC Volt ± 10% 3.5W
Insulation resistance		100MΩ or more with 500V DC
Dielectric Test		1500V AC/ 1minute
Isolation		Input/Output/Power/Case
Mounting		Wall or Din rail (35mm)
Size		150(W) × 75(H) × 112(D)mm
Weight		Approx. 760g

IN/OUT OPERATION DIAGRAM



CONNECTION DIAGRAM



- Isolation(photo-coupler) type
- One input / Two output

The dc current transducers are designed to accept dc current input for measuring the dc big current.

SPECIFICATIONS

Full Scale Input		DC 0~1A
Output load Required		See Model Code
Aux. power supply		110V / 220V AC $\pm$ 15V (4VA) DC Volt $\pm$ 10% (1.5W)
Temperature Range	Storage	-20°C ~ 70°C
	Operating	-10°C ~ 60°C
Operating humidity		20~80%RH (Non-Condensing)
ACCURACY (at 25°C)		$\pm$ 0.3%
Temp. influence		$\pm$ 0.01%/°C
Linearity		$\pm$ 0.02% F.S
Ripple (peak)		0.2% p-p max
Response time		0.4sec (0~90%)
Calibration Adjustment		$\pm$ 10%(span), $\pm$ 10%(zero)
Insulation resistance		100M Ω or more with 500V DC
Dielectric Test		1500V AC/1minute
Isolation		Input / Output / Power / Case
Mounting		Wall or Din rail (35mm)
Size		60(W) $\times$ 75(H) $\times$ 112(D)mm
Case material		ABS Resin
Weight		Approx. 390g



■ **MODEL CODE**

DT-DCA - 1) 2) 3) - 4)

1) INPUT

A : 0 ~ 1A
B : Specify Current (0~1A max)

2) OUTPUT

- A : 4~20mA DC (600Ω)
- B : 0~1mA DC (10KΩ)
- C : 0~20mA DC (600Ω)
- D : 1~5V (5KΩ or more)
- E : 0~5V (5KΩ or more)
- F : 0~10V (10KΩ or more)

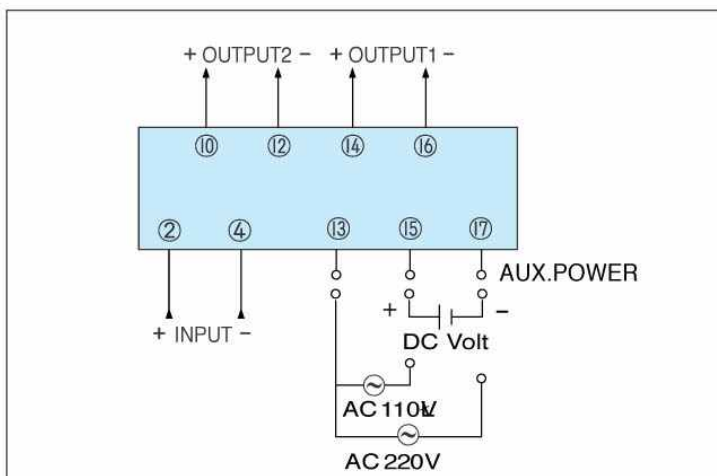
3) AUX. POWER

A : AC 110/220V	E : DC 48V
B : AC 115/230V	F : DC 110V
C : AC 120/240V	G : DC 125V
D : DC 24V	H : DC 220V

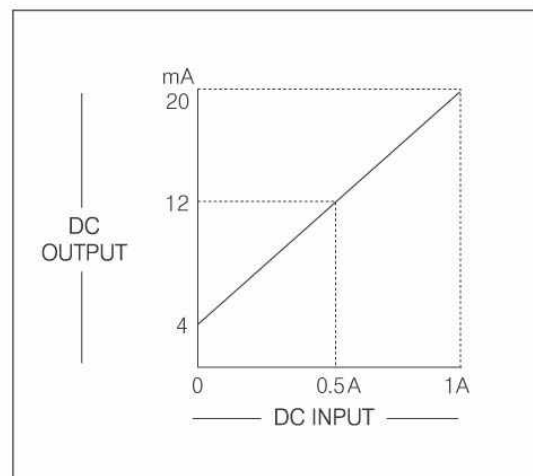
4) OPTION

S : ONE OUTPUT
D : TWO OUTPUT

CONNECTION DIAGRAM



■ IN/OUT OPERATION DIAGRAM



R.T.D TRANSDUCER

- Isolated Linearized RTD Input.

The RTD Transducer accepts from 100 Ω platinum RTDs and provides a linear current and voltage output. Three wire lead compensation is provided, and 3 wire RTDs may be used. Upscale open input protection is provided on the signal leads.

SPECIFICATIONS

Full Scale input	Pt 100 Ω at 0°C, 3 wire(over 50deg)	
Supply Current Pt bulb	DC 2mA	
Output load Required	OUTPUT	LOAD RESISTANCE
	4~20mA	0~600 Ω
	0~1mA	0~10K Ω
	0~5V	5K Ω or more
	1~5V	5K Ω or more
	0~10V	10K Ω or more
Aux. power Supply	110V or 220V AC $\pm$ 15V 4VA, DC Volt $\pm$ 10% 2W	
Temperature Range	Storage	-20°C to +70°C
	Operating	-10°C to 60°C
Operating humidity	Less than 90% RH(Non-Condensing)	
ACCURACY	$\pm$ 0.15% max	
Temp. influence	$\pm$ 0.012%/°C	
Linearity	$\pm$ 0.01% F.S	
Response time	0.5sec (0~90%)	
Isolation	Input/Output/Power/Case	
Insulation resistance	100M Ω or more with 500V DC	
Dielectric Test	1500V AC/1minute Input/Output/Power/Case	
Mounting	Wall or Din Rail (35mm)	
Size	60(W) $\times$ 75(H) $\times$ 112(D)mm	
Case material	ABS Resin	
Weight	Approx. 390g	



MODEL CODE

DT - RTD
1) 2) 3) 4)

1) INPUT

A : 0~50 °C	I : -5~+50 °C
B : 0~100 °C	J : -50~+100 °C
C : 0~150 °C	K : -50~+150 °C
D : 0~200 °C	L : 50~100 °C
E : 0~250 °C	M : 50~150 °C
F : 0~300 °C	N : 100~200 °C
G : 0~400 °C	O : 100~300 °C
H : 0~500 °C	

2) OUTPUT

1 : 4~20mA DC
2 : 0~20mA DC
3 : 0~1mA DC
4 : Specify Current (0~20mA max)
5 : 0~5V DC
6 : 1~5V DC
7 : 0~10V DC
8 : Specify Voltage (0~10V max)

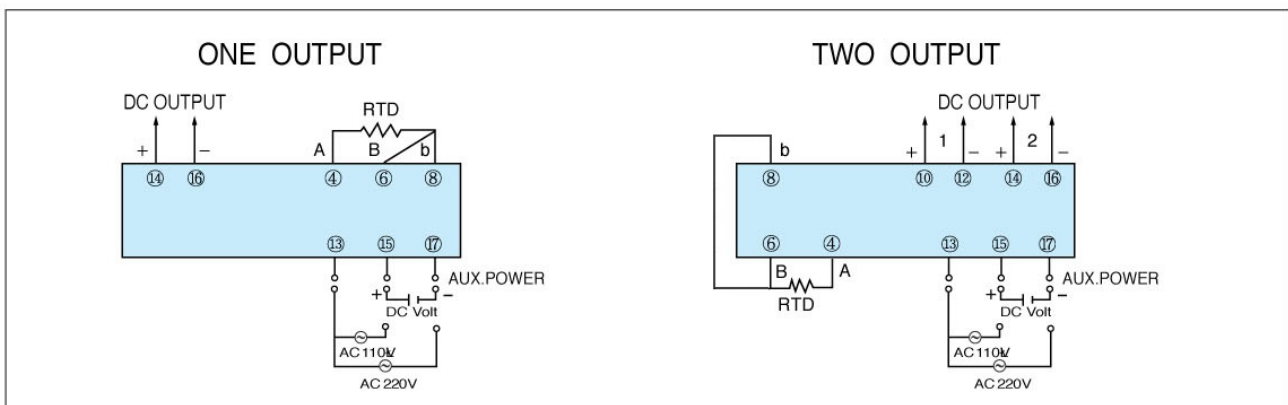
3) AUX. POWER

A : AC 110/220V	E : DC 48V
B : AC 115/230V	F : DC 110V
C : AC 120/240V	G : DC 125V
D : DC 24V	H : DC 220V

4) OPTION

S : ONE OUTPUT
D : TWO OUTPUT

CONNECTION DIAGRAM



ANALOG TO PULSE TRANSDUCER

Accepts input in the form of a process signal derived from transducers and integrates with respect to time, to produce a pulsed output via open Collector and Semiconductor Mos Relay contacts. Typical applications result in pulses proportional to Kilo watt-hours, electromagnetic flow meters and area flow meters, etc.

SPECIFICATIONS

Input		DC Voltage (0~10V) DC Current (0~20mA)
Output Pulse	Onduration	100~200ms
	Frequency	Less than 1KHz
	Open Collector	35V DC, 50mA max
	Photo MOS relay	120V DC, AC, 50mA max
Aux. power supply		110V or 220V AC $\pm 15\%$ 3VA, DC Volt $\pm 10\%$ 1W
Temperature Range	Storage	-20°C to 70°C
	Operating	-10°C to 60°C
Operating humidity		20~80%RH max (Non-Condensing)
ACCURACY (at 25°C)		$\pm 0.3\%$
Temp. influence		$\pm 0.05\%/^{\circ}\text{C}$
Response time		0.4sec (0~90%)
Insulation resistance		100M Ω or more with 500V DC
Dielectric Test		1500V AC/1minute
Mounting		Wall or Din rail (35mm)
Size		60(W) $\times$ 75(H) $\times$ 112(D)mm
Case material		ABS Resin
Weight		Approx. 310g



MODEL CODE

DT - AP
1) 2) 3) 4) 5)

1) INPUT

- 1 : 4~20mA
- 2 : 0~20mA
- 3 : 0~1mA
- 4 : Specify Current
- 5 : 0~5V
- 6 : 1~5V
- 7 : 0~10V
- 8 : Specify Voltage

2) OUTPUT

- A : 100pulse/Hour
- B : 1000pulse/Hour
- C : 10000pulse/Hour
- D : Specify pulse (0~1KHz)

3) OUTPUT TYPE

- 1 : Open Collector
- 2 : Photo Mos Realy(semiconductor)/Dry Contact

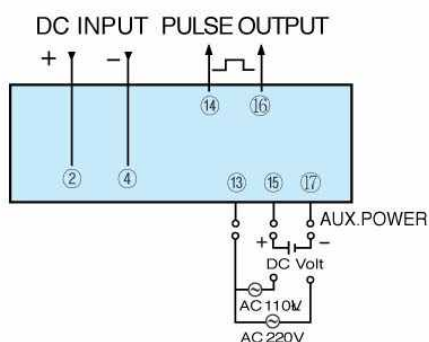
4) AUX. POWER

- A : AC 110/220V
- B : AC 115/230V
- C : AC 120/240V
- D : DC 24V
- E : DC 48V
- F : DC 110V
- G : DC 125V
- H : DC 220V

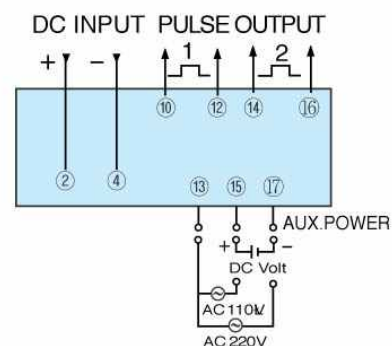
5) NUMBER OF OUTPUT

- 1 : ONE OUTPUT
- 2 : TWO OUTPUT

IN/OUTPUT OPERATION DIAGRAM



ONE OUTPUT



TWO OUTPUT

- *Peak Hold Output*

Vo, Ao peak holder transducers are available measure of ground connection while earth fault.
Transducers hold the maximum value of voltage or current.

SPECIFICATIONS

Full Scale input		AC 0~300V, AC 0~5A	
Input loss		0.5VA or less	
Frequency		50~60Hz	
Output load Required		OUTPUT	LOAD RESISTANCE
		4~20mA	0~600Ω
		0~1mA	0~10KΩ
		0~5V	5KΩ or more
		1~5V	5KΩ or more
		0~10V	10KΩ or more
Aux. power supply		110V or 220V AC±15V 50~60Hz 3.5VA DC Volt ±10% 1.3W	
Temperature Range	Storage	-20°C to +70°C	
	Operating	-10°C to 60°C	
Operating humidity		20~80%RH (Non-Condensing)	
ACCURACY (at 25°C)		±0.5%	
Temp. influence		±0.01%/ °C	
Ripple (peak)		0.25% p-p max	
Response time		0.2sec (0~90%)	
Reset time		20ms or more	
Calibration Adjustment		±10%(span), ±10%(zero)	
Insulation resistance		100MΩ or more with 500V DC	
Dielectric Test		2000V AC/1minute	
Isolation		Input/Output/Power/Case	
Mounting		Wall or Din rail (35mm)	
Size		150(W)×75(H)×112(D)mm	
Case material		ABS Resin	
Weight		Approx. 700g	



MODEL CODE

DT - Vo ☐ 1) ☐ 2) ☐ 3)

DT - A0   
1) 2) 3)

1) INPUT

A : 0~150V (110V)
B : 0~259V (190V)
C : 0~5A

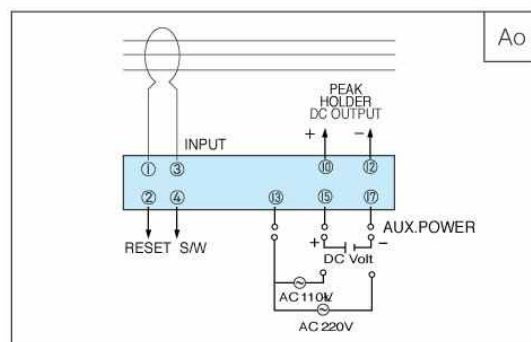
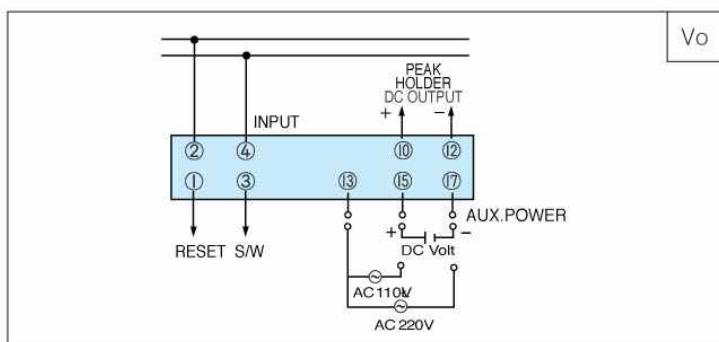
2) OUTPUT (PEAK HOLD OUTPUT)

- 1 : 4~20mA DC
- 2 : 0~1mA DC
- 3 : Specify Current (0~20mA max)
- 4 : 0~5V DC
- 5 : 1~5VDC
- 6 : 0~10V DC
- 7 : Specify Voltage (0~10V max)

3) AUX. POWER

A : AC 110/220V
B : AC 115/230V
C : AC 120/240V
D : DC 24V
E : DC 48V
F : DC 110V
G : DC 125V
H : DC 220V

CONNECTION DIAGRAM



POTENTIOMETER TRANSDUCER

• Isolation (photo-coupler) type

This instrument is a high and accurate converter that receives resistance signals of 3 wires potentiometer and converts them into DC voltage current. Especially, it is widely used for float type water level detector. And mutual interference by Zero adjustment and Span adjustment is hardly occurred.

SPECIFICATIONS

Accuracy	$\pm 0.3\%$ FS (23°C)
Temp. influence	$\pm 0.015\%$ / °C
Isolation type	Photo coupler
Response time	0.4sec (0~90%)
Operating temperature	-10°C~+50°C
Operating humidity	90% RH (Non-Condensing)
Calibration ADJ	ZERO : $\pm 10\%$ SPAN : $\pm 10\%$
Insulation resistance	100M Ω or more (DC 500V)
Aux. power supply	110V or 220V 50/60Hz AC $\pm 15\%$ (4VA) DC Volt $\pm 10\%$ (1.2W)
Dielectric Test	Input-Output Input-Power Output-Power } AC 1500V/ 1minute
Size	60(W) $\times$ 75(H) $\times$ 112(D)mm
Case material	ABS Resin
Weight	Approx. 390g



MODEL CODE

DT - PM -
1) 2) 3)

1) INPUT

A : 0~500 Ω
B : 0~1K Ω
C : 0~5K Ω
D : 0~10K Ω
E : Specify

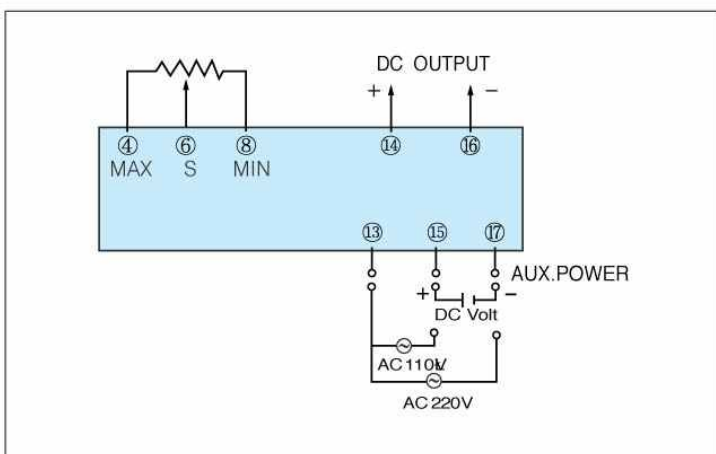
2) OUTPUT

1 : DC 4~20mA (0~600 Ω)
2 : DC 0~1mA (0~10K Ω)
3 : DC 0~20mA (0~600 Ω)
4 : Specify Current (0~20mA max)
5 : DC 1~5V (5K Ω or more)
6 : DC 0~5V (5K Ω or more)
7 : DC 0~10V (10K Ω or more)
8 : Specify Voltage (0~10V max)

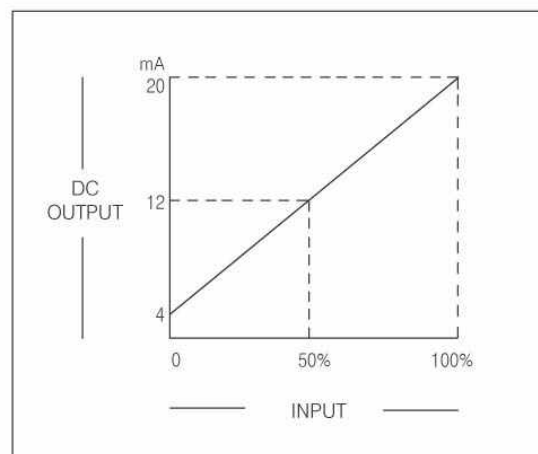
3) AUX. POWER

A : AC 110/220V E : DC 48V
B : AC 115/230V F : DC 110V
C : AC 120/240V G : DC 125V
D : DC 24V H : DC 220V

CONNECTION DIAGRAM



IN/OUTPUT OPERATION DIAGRAM



POWER DISTRIBUTOR

• Isolation (photo-coupler) type

This instrument is a high and accurate converter that provides simultaneously all transmitters such as pressure transmitter, flow transmitter, and level transmitter with power supply and signal conversion.

Also, it contains overcurrent and over voltage protection circuit inside. It is totally isolated between input signal from transmitter and output signal of a converter so it does not need extra isolator when the loop is constructed.

SPECIFICATIONS

Output rating Supply to XTR	24V DC (24~28V DC) 22mA Max (Ripple : Less than 0.1Vp-p)
Temp. influence	$\pm 0.015\% / ^\circ\text{C}$
Isolation type	photo coupler
Accuracy	$\pm 0.3\%$
Response time	0.4sec (0~90%)
Operating temp	$-10^\circ\text{C} \sim +50^\circ\text{C}$
Operating humidity	90% RH (Non-Condensing)
Aux. power supply	110V or 220V 50/60Hz AC $\pm 15\text{V}$ (4VA) DC Volt $\pm 10\%$ (2W)
Insulation resistance	100M Ω or more (DC 500V)
Dielectric Test	Input-Output Input-Power Output-Power } AC 1500V/ 1minute
Signal	DC 4~20mA (input resistance 250 Ω)
Size	60(W) $\times$ 75(H) $\times$ 112(D)mm
Case material	ABS Resin
Weight	Approx. 390g



MODEL CODE

DT - DB -
1) 2) 3) 4)

1) INPUT

A : DC 24~28V
B : Specify

2) OUTPUT

1 : DC 4~20mA (0~600 Ω)
2 : DC 0~1mA (0~10K Ω)
3 : DC 0~20mA (0~600 Ω)
4 : Specify Current (0~20mA max)
5 : DC 0~5V (5K Ω or more)
6 : DC 1~5V (5K Ω or more)
7 : DC 0~10V (10K Ω or more)
8 : Specify Voltage (0~10V max)

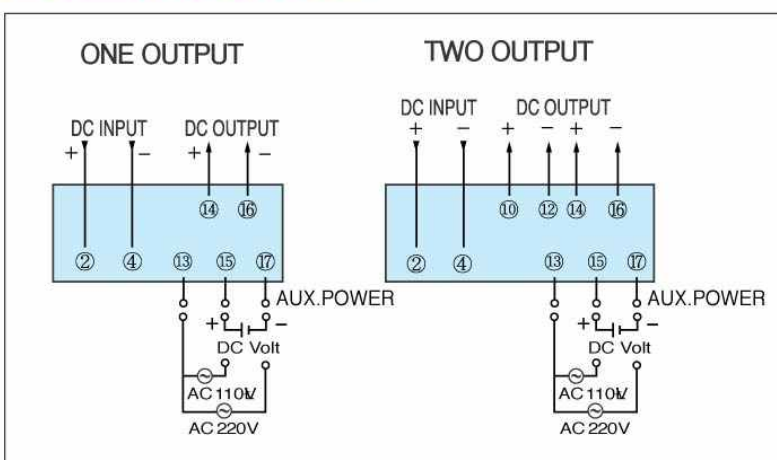
3) AUX. POWER

A : AC 110/220V E : DC 48V
B : AC 115/230V F : DC 110V
C : AC 120/240V G : DC 125V
D : DC 24V H : DC 220V

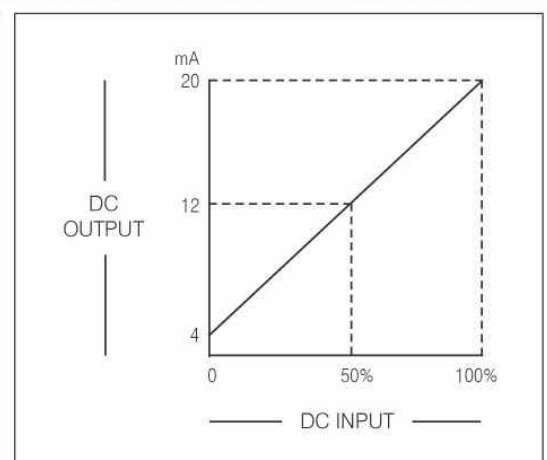
4) OPTION

S : ONE OUTPUT
D : TWO OUTPUT

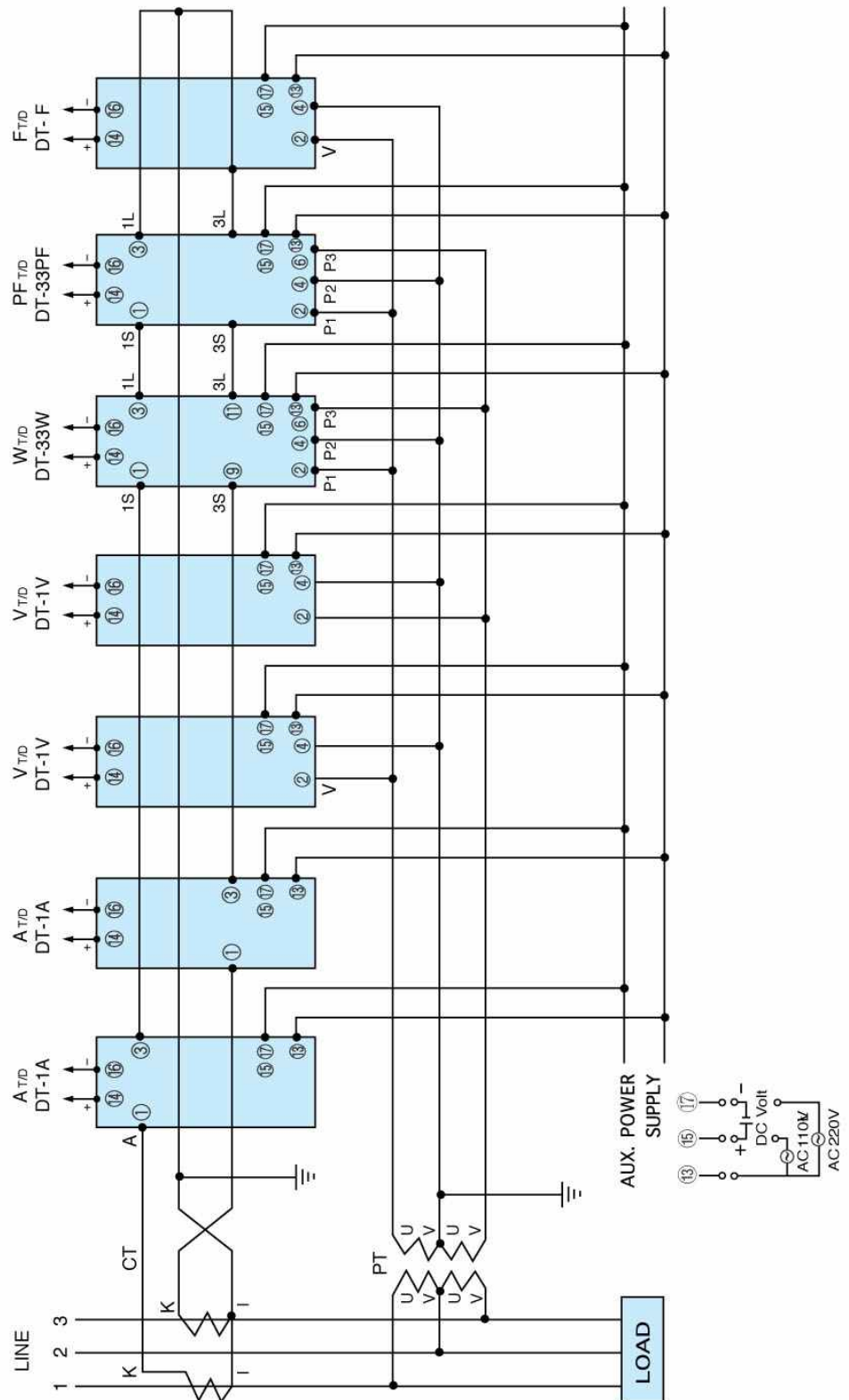
CONNECTION DIAGRAM



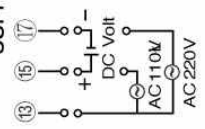
IN/OUTPUT OPERATION DIAGRAM



CONNECTION DIAGRAM 3Ø3W



3 Ø 4W



GENERAL TYPE OF MODEL

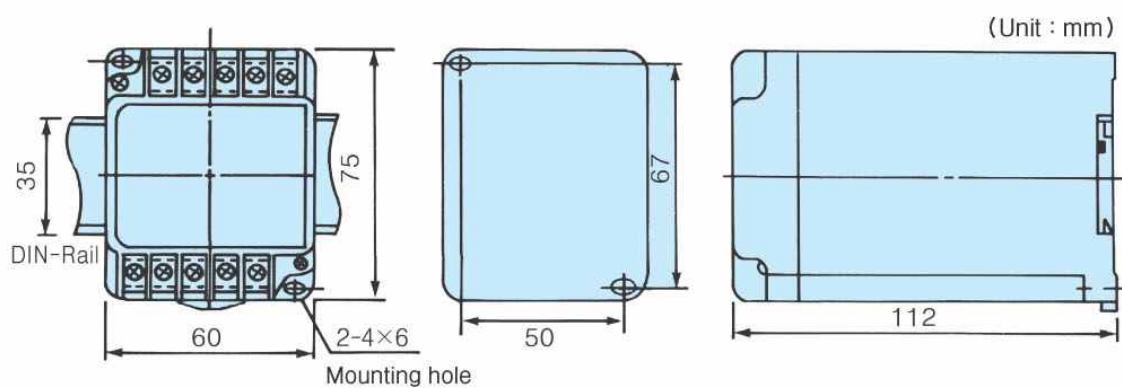
- Common spec
 - Input: 5A
 - Output: DC4~20mA
 - Frequency: 60Hz

DESCRIPTION	PHASE × WIRE	MODEL	INPUT
AC VOLTAGE	1 ϕ	DT - 1V - A1AA DT - 1V - B1AA DT - 1V - C1AA	0~150V (for 110V) 0~259V (for 190V) 0~300V (for 220V)
	3 ϕ	DT - 3V - A1AA DT - 3V - B1AA DT - 3V - C1AA	0~150V (for 110V) 0~259V (for 190V) 0~300V (for 220V)
AC CURRENT	1 ϕ	DT - 1A - A1AA	0~5A
	3 ϕ	DT - 3A - A1AA	
WATT	1 ϕ 2W	DT - 12W - A1A	PT:110V
	1 ϕ 3W	DT - 13W - A1A	PT:110V
	3 ϕ 3W	DT - 33W - G1A DT - 33W - A1A DT - 33W - D1A DT - 33W - E1A	PT:22900/110V (W Adjust: 961W) PT:3300/110,6600/110, 154K/110,440/110 (W Adjust:1000W) PT:220V/ (W Adjust: 2000W) PT:380/110 (W Adjust: 1158W)
	3 ϕ 4W	DT - 34W - M1A DT - 34W - K1A DT - 34W - L1A DT - 34W - H1A	PT:22900/ $\sqrt{3}$ /190/ $\sqrt{3}$ (W Adjust:1666W) PT:380/ $\sqrt{3}$ /190/ $\sqrt{3}$, 208/ $\sqrt{3}$ (W Adjust: 2000W) PT:380/ $\sqrt{3}$ (W Adjust: 4000W) PT:110/ $\sqrt{3}$ (W Adjust: 1000W)
WATTHOUR	3 ϕ 3W	DT - 33WH - A1A DT - 33WH - G1A	PT:3300/110,6600/110,154K/110, 440/110 (1PLUSE/1WH) PT:22900/110V (1PLUSE/1WH)
	3 ϕ 4W	DT - 34WH - M1A DT - 34WH - K1A DT - 34WH - L1A	PT:22900/ $\sqrt{3}$ /190/ $\sqrt{3}$ (1PLUSE/1WH) PT:380/ $\sqrt{3}$ /190/ $\sqrt{3}$,208/ $\sqrt{3}$ (1PLUSE/1WH) PT:380/ $\sqrt{3}$ (1PLUSE/1WH)
WATT & WATTHOUR	3 ϕ 3W	DT - 33WWH - A11A DT - 33WWH - G11A	PT:3300/110,6600/110, 154K/110, 440/110 (1PLUSE/1WH) PT:22900/110V (1PLUSE/1WH)
	3 ϕ 4W	DT - 34WWH - M11A DT - 34WWH - K11A DT - 34WWH - L11A	PT:22900/ $\sqrt{3}$ /190/ $\sqrt{3}$ (1PLUSE/1WH) PT:380/ $\sqrt{3}$ /190/ $\sqrt{3}$,280/ $\sqrt{3}$ (1PLUSE/1WH) PT:380/ $\sqrt{3}$ (1PLUSE/1WH)
VAR	3 ϕ 3W	DT - 33R - G1A DT - 33R - A1A	PT:22900/110V (VAR Adjust: ± 961 VAR) PT:3300/110,6600/110,154K/110,440/110 (VAR Adjust: ± 1000 VAR)
	3 ϕ 4W	DT - 34R - M1A DT - 34R - K1A DT - 34R - L1A	PT:22900/ $\sqrt{3}$ /190/ $\sqrt{3}$ (VAR Adjust: ± 1666 VAR) PT:380/ $\sqrt{3}$ /190/ $\sqrt{3}$,208/ $\sqrt{3}$ (VAR Adjust: ± 2000 VAR) PT:380/ $\sqrt{3}$ (VAR Adjust: ± 4000 VAR)
POWER FACTOR	1 ϕ 2W	DT - 12PF - A1A	PT:110V
	3 ϕ 3W	DT - 33PF - A1A DT - 33PF - B1A	PT:110V PT:220V
	3 ϕ 4W	DT - 34PF - A1A DT - 34PF - B1A	PT:190/ $\sqrt{3}$, 208/ $\sqrt{3}$ PT:380/ $\sqrt{3}$
FREQUENCY	1 ϕ	DT - F - A1A	110/220V (55Hz~60Hz~65Hz)
DC VOLTAGE	DC	DT - DV - A1A	DC 0~150V (for 110V)
DC CURRENT	DC	DT - DmV - A1A	DC 0~50mV (SHUNT 2nd)
RTD	DC	DT - RTD - ☐ 1A	☐ Range of temperature
Vo(Peak Holder)	1 ϕ	DT - VoB1A	PT:0~259V (for 190V)
ISOLATOR	DC	DT - ISO ☐ ☐ ☐	TWO OUTPUT (Option)
ANALOG TO PULSE	DC	DT - AP ☐ ☐	Integrator

■ OUTLINE DIMENSIONS

■ **FIGURE 1**

- 1Ø VOLTAGE
- 1Ø CURRENT
- ANALOG TO PULSE
- DC VOLTAGE
- DC CURRENT(DC mv)
- DC SIGNAL ISOLATOR
- R.T.D



■ **FIGURE 2**

- OTHERS

