

# AC CURRENT TRANSDUCER

TA-1 system Single phase, average sensing  
 TA-3 system Three phase, average sensing  
 TA-1T system Single phase, True rms sensing  
 TA-3T system Three phase, True rms sensing

These current transducers are available as average sensing devices calibrated in rms or as true rms units, either with a DC output proportional to the input. This output signal enables several receivers to be operated simultaneously—such as indicators, recorders, alarm units etc. The input current can be connected via a C.T. or directly.

## FEATURES

- High accuracy  $\pm 0.2\%$  R.O.
- Precision measurement even for distorted waves
- High immunity to external noise
- Wide selection of input and output range
- Quick and easy mounting

## SPECIFICATION

**Accuracy:**  $\pm 0.2\%$  R.O.  
 ( $\pm 0.1\%$  R.O. Option)

**Temp. coefficient:** 100ppm at  $23^\circ\text{C} \pm 3^\circ\text{C}$   
 (Option 60ppm at  $23^\circ\text{C} \pm 3^\circ\text{C}$ )

**Temp. range:**  $-20^\circ\text{C}$  to  $60^\circ\text{C}$ ,  
 Operating  $0 \sim 50^\circ\text{C}$

**Humidity range:** Up to 95% RH

**Isolation:** Input/output/power/case

**Dielectric test:** DIN-IEC 688. 2K Vrms  
 50/60 Hz, 1min. Between terminal to terminal.  
 2.8K Vrms/1min. Between terminal to case.

**Surge test:** DIN-IEC 255-4, ANSI C37.  
 90a/1974 5KV (1.2 $\times$ 50us)

**Insulation resistance:** 100M $\Omega$  or more, DC 500V

**Housing material:** Steel sheet

**Mounting:** Wall mounting

**Power supply:** AC 115/230V  $\pm 15\%$ , 50/60Hz,  
 or 3VA

**Self-powered:** Not available on 4-20mA  
 and 1-5 VDC outputs

## INPUT

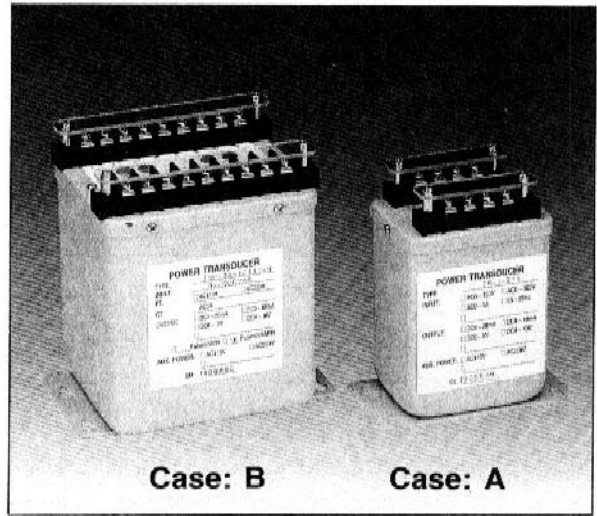
**AC input:**  $0 \sim 1\text{A}$ ,  $0 \sim 5\text{A}$

**Frequency:** 45Hz $\sim$ 65Hz

**Burden:**  $\leq 0.2\text{VA}$  (TA-1, TA-1T)  
 $\leq 0.6\text{VA}$  (TA-3)

**Response sensitivity:**  $\leq 0.5\%$  of measuring range end value

**Overload capacity:** 3 $\times$ rated continuous  
 10 $\times$ rated 10 sec  
 50 $\times$ rated 1 sec  
 80 $\times$ rated 0.5 sec



## OUTPUT

**Output variables:** DC voltage or current

**Ripple:**  $< 0.5\%$  p-p max.

**Response time:**  $< 0.4$  sec. or less

**Zero adjustment:**  $\pm 5\%$  minimum

**Span adjustment:**  $\pm 10\%$  minimum

**DC current:**  $0 \sim 20\text{mA}$  (max.)

Output	Load resistance	Load voltage 12V $R = \frac{12\text{V}}{\text{Output current}}$ (R = load resistance)
4 ~ 20mA	$\leq 6000\Omega$	
0 ~ 20mA	$\leq 6000\Omega$	
0 ~ 10mA	$\leq 12000\Omega$	
0 ~ 5mA	$\leq 24000\Omega$	
0 ~ 1mA	$\leq 12\text{K}\Omega$	

**DC voltage:**  $0 \sim 12\text{V}$  (max.)

Output	Load resistance	Load capacity 10mA $R = \frac{\text{Output voltage}}{10\text{mA}}$
0 ~ 10V	$\geq 10000\Omega$	
0 ~ 5V	$\geq 5000\Omega$	
0 ~ 1V	$\geq 1000\Omega$	

## CODE NUMBER

**Model—Input/Output/Power**  
**example:** TA-3-251

**Input:** AC  $0 \sim 5\text{A}$

**Output:** DC  $0 \sim 1\text{mA}$

**Power:** AC 115/230V

## ORDERING INFORMATION

**TA-1** -     
**TA-1T** -     
**TA-3** -     
**TA-3T** -

### MODEL

**TA-1:** 1 $\phi$ , average  
**TA-1T:** 1 $\phi$ , true rms  
**TA-3:** 3 $\phi$ , average  
**TA-3T:** 3 $\phi$ , true rms

### INPUT

**1:** AC 0~1A  
**2:** AC 0~5A  
**Y:** Option (0~10A max.)

### OUTPUT

**1:** DC 4~20mA  
**2:** DC 0~20mA  
**3:** DC 0~10mA  
**4:** DC 0~5mA  
**5:** DC 0~1mA  
**A:** DC 0~10V  
**B:** DC 0~5V  
**C:** DC 1~5V  
**D:** DC 0~1V  
**Y:** Option (0~20mA, 0~12V max.)

### POWER SUPPLY

**1:** AC 115/230V  $\pm$ 15%  
**Y:** Option

## SELF-POWERED MODE AC CURRENT TRANSDUCER (Option)

**Model:** TAN-1 (1 $\phi$ ), TAN-3 (3 $\phi$ )  
**AC Input:** 0~1A, 0~5A, 0~10A  
**DC Output:** 0~1mA

## ORDERING INFORMATION

**TAN-1** -    
**TAN-3** -

### MODEL

**TAN-1:** 1 $\phi$ , average  
**TAN-3:** 3 $\phi$ , average

### INPUT

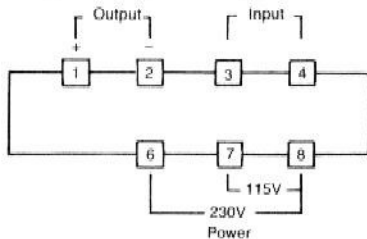
**1:** AC 0~1A  
**2:** AC 0~5A  
**Y:** Option (0~10A max.)

### OUTPUT

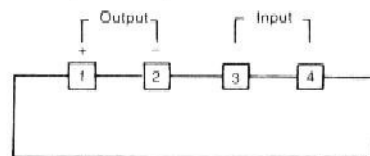
1. DC 0~1mA (only)

## CONNECTION DIAGRAMS

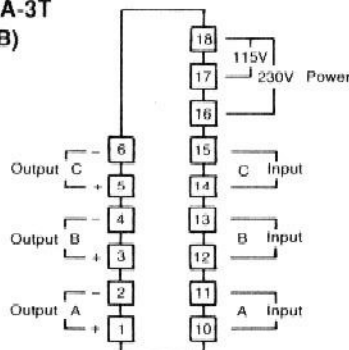
Model: TA-1, TA-1T (CASE A)



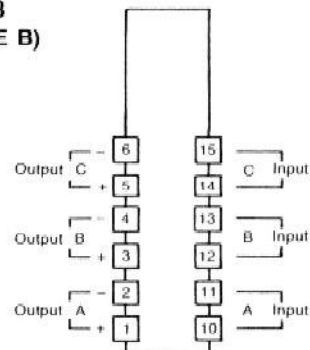
Model: TAN-1 (CASE A)



Model: TA-3, TA-3T (CASE B)



Model: TAN-3 (CASE B)



# AC VOLTAGE TRANSDUCER

TV-1 system	Single phase, average sensing
TV-3 system	Three phase, average sensing
TV-1T system	Single phase, True rms sensing
TV-3T system	Three phase, True rms sensing

These voltage transducers are available as average sensing devices calibrated in rms or as true rms units, either with a DC output proportional to the input. This output signal enables several receivers to be operated simultaneously—such as indicators, recorders, alarm units etc. The input voltage can be connected via a P.T. or directly.

## FEATURES

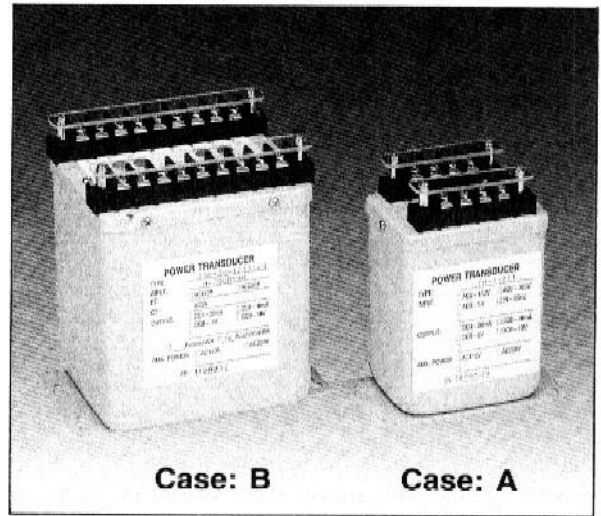
- High accuracy  $\pm 0.2\%$  R.O.
- Precision measurement even for distorted waves
- High immunity to external noise
- Wide selection of input and output range
- Quick and easy mounting

## SPECIFICATION

<b>Accuracy:</b>	$\pm 0.2\%$ R.O. ( $\pm 0.1\%$ R.O. Option)
<b>Temp. coefficient</b>	100ppm at $23^{\circ}\text{C} \pm 3^{\circ}\text{C}$ (Option 60ppm at $23^{\circ}\text{C} \pm 3^{\circ}\text{C}$ )
<b>Temp. range:</b>	$-20^{\circ}\text{C}$ to $+60^{\circ}\text{C}$ , Operating $0-50^{\circ}\text{C}$
<b>Humidity range:</b>	Up to 95% RH
<b>Isolation:</b>	Input/output/power/case
<b>Dielectric test:</b>	DIN-IEC 688. 2K Vrms 50/60 Hz, 1min. Between terminal to terminal. 2.8K Vrms/1min, Between terminal to case.
<b>Surge test:</b>	DIN-IEC 255-4, ANSI C37. 90a/1974 5KV ( $1.2 \times 50\mu\text{s}$ )
<b>Insulation resistance:</b>	100M $\Omega$ or more, DC 500V
<b>Housing material:</b>	Steel sheet
<b>Mounting:</b>	Wall mounting
<b>Power supply:</b>	Standard AC 115/230V $\pm 15\%$ 50/60Hz, 3VA
<b>Self-powered:</b>	Powered system voltage within $\pm 15\%$ to ensure system accuracy

## INPUT

<b>AC input:</b>	0-150V, 0-300V, 0-600V
<b>Frequency:</b>	45Hz-65Hz
<b>Burden:</b>	$\leq 0.1\text{VA}$ (TV-1, TV-1T) $\leq 0.3\text{VA}$ (TV-3)
<b>Response sensitivity:</b>	$\leq 0.5\%$ of measuring range end value
<b>Overload capacity:</b>	1.25 $\times$ rated continuous 2 $\times$ rated for 10 sec 4 $\times$ rated for 5 sec or 600V rms continuous



## OUTPUT

**Output variables:** DC voltage or DC current  
**Ripple:**  $< 0.5\%$  p-p. max.  
**Response time:**  $< 0.4$  sec. or less  
**Zero adjustment:**  $\pm 5\%$  minimum  
**Span adjustment:**  $\pm 10\%$  minimum

**DC current:** 0-20mA DC (max)

Output	Load resistance	Load voltage 12V $R = \frac{12V}{\text{Output current}}$ (R = load resistance)
4-20mA	$\leq 600\Omega$	
0-20mA	$\leq 600\Omega$	
0-10mA	$\leq 1200\Omega$	
0-5mA	$\leq 2400\Omega$	
0-1mA	$\leq 12K\Omega$	

**DC voltage:** 0-12V DC

Output	Load resistance	Load capacity 10mA $R = \frac{\text{Output voltage}}{10\text{mA}}$ (R: load resistance)
0-10V	$\geq 1000\Omega$	
0-5V	$\geq 500\Omega$	
1-5V	$\geq 500\Omega$	
0-1V	$\geq 100\Omega$	

## CODE NUMBER

**Model—Input/Output/Power**  
**example:** TV-1-111  
**Input:** AC 0-150V  
**Output:** DC 4-20mA  
**Power:** AC 115/230V

## ORDERING INFORMATION

- TV-1** — □ □ □  
**TV-1T** — □ □ □  
**TV-3** — □ □ □  
**TV-3T** — □ □ □

### MODEL

- TV-1:** 1 $\phi$ , average  
**TV-1T:** 1 $\phi$ , true rms  
**TV-3:** 3 $\phi$ , average  
**TV-3T:** 3 $\phi$ , true rms

### INPUT

- 1:** AC 0~150V  
**2:** AC 0~300V  
**3:** AC 0~600V  
**Y:** Option (0~600V max.)

### OUTPUT

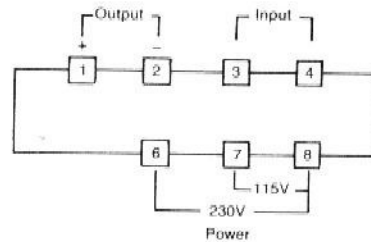
- 1:** DC 4~20mA  
**2:** DC 0~20mA  
**3:** DC 0~10mA  
**4:** DC 0~5mA  
**5:** DC 0~1mA  
**A:** DC 0~10V  
**B:** DC 0~5V  
**C:** DC 1~5V  
**D:** DC 0~1V  
**Y:** Option (0~20mA or 12V max.)

### POWER SUPPLY

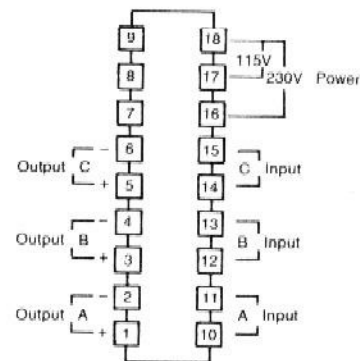
- 1:** AC 115/230V  $\pm 15\%$ , 50/60Hz  
**2:** Self Powered (output 0~1mA DC only)  
**Y:** Option

## CONNECTION DIAGRAMS

Model: TV-1, TV-1T (CASE A)

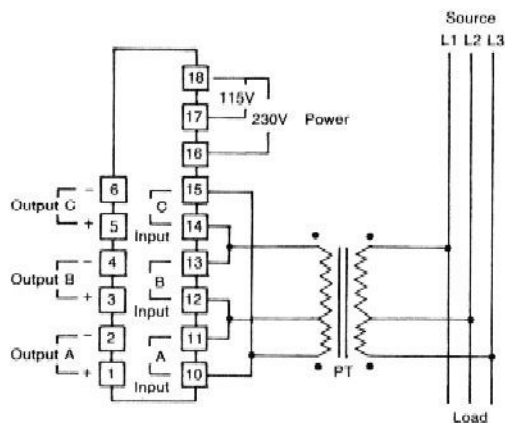


Model: TV-3, TV-3T (CASE B)



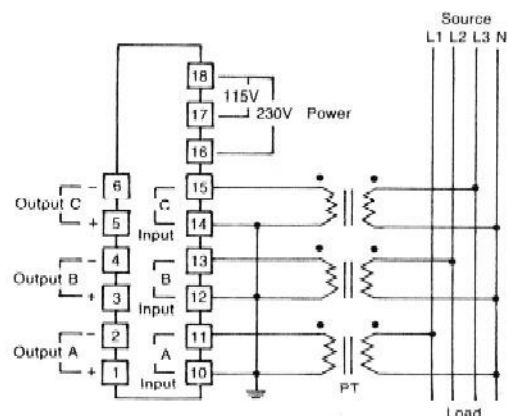
### 3 $\phi$ 3-WIRE VOLTAGE TRANSDUCER CONNECTION

Model: TV-3, TV-3T (CASE B)



### 3 $\phi$ 4-WIRE VOLTAGE TRANSDUCER CONNECTION

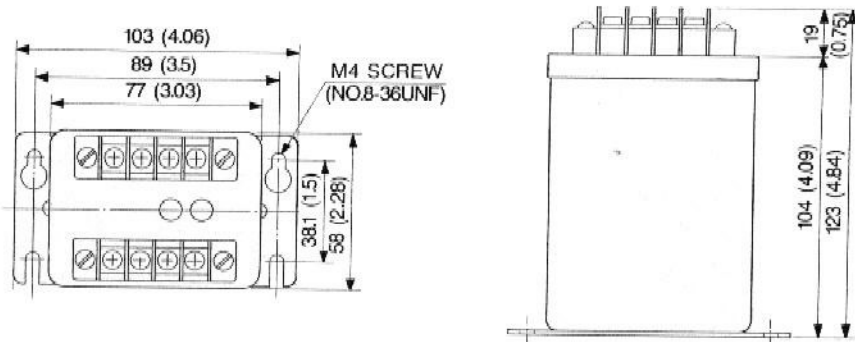
Model: TV-3, TV-3T (CASE B)



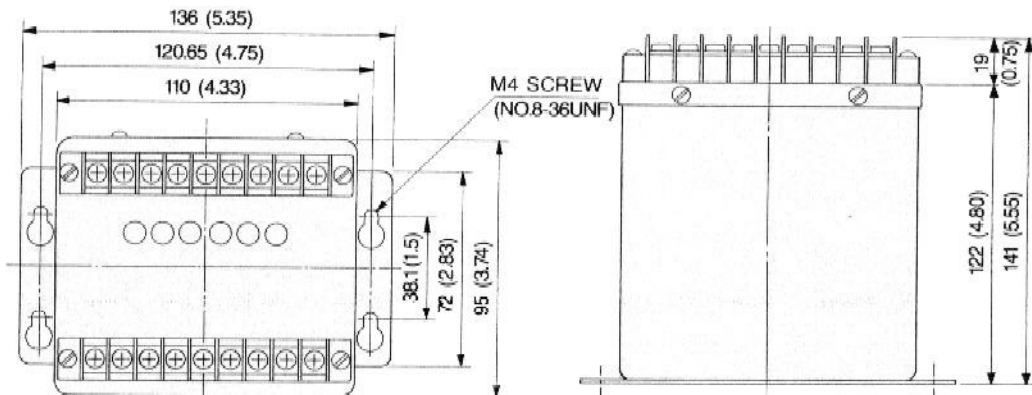
# CASE DIMENSIONS

millimeters(inches)

## Case: A



## Case: B



## Case: C

