



# WATTHOUR/WATT TRANSDUCER

## S3-WHW SERIES

### FEATURES

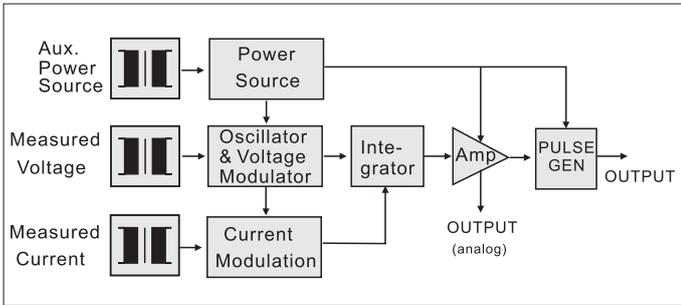
- Accuracy  $\pm 0.2\%$  R.O.
- Watthour, Watt packaged in one case
- Precision measurement even for unbalance system
- Precision measurement even for distorted wave
- High impulse & surge protection (5KV)
- The case can be mounted on a 35mm rail which complies with DIN 46277



### DESCRIPTION

**Model:** S3-WHW-1 1 $\Phi$ 2W, WATTHOUR/WATT  
 S3-WHW-3 3 $\Phi$ 3W, WATTHOUR/WATT  
 S3-WHW-3A 3 $\Phi$ 4W, WATTHOUR/WATT

For kilowatt-hour-measurement, we build in another linear integrator circuit. This circuit accepts signal from Watts portion and integrates with respect to time, to produce a pulse output via volt free contacts, result in pulse proportional to kilowatt-hours.



### OUTPUT

DC Output Range	Load Resistance	Output Resistance	Output Ripple	Response Time
0 ~ 1V	$\cong 1 \text{ K}\Omega$	$\cong 0.05\Omega$	$\cong 0.5\%$ R.O. (peak)	$\cong 400\text{mS}$ 0 ~ 99%
0 ~ 5V				
1 ~ 5V				
0 ~ 10V				
0 ~ 1mA	$\cong 10\text{K}\Omega$	$\cong 20\text{M}\Omega$		
0 ~ 10mA	$\cong 1 \text{ k}\Omega$	$\cong 5\text{M}\Omega$		
0 ~ 20mA	$\cong 500\Omega$			
4 ~ 20mA				

### SPECIFICATION

#### INPUT

Input Range				
Circuit	Amp.	Voltage	Basic KWh	Basic Watt
Single Phase	5 A	110V (120V)	0.5 KWH	0.5 KW
		220V (240V)	1 KWH	1 KW
3-Phase 3-Wire	5 A	110V (120V)	1 KWH	1 KW
		220V (240V)	2 KWH	2 KW
3-Phase 4-Wire	5 A	190V/110V (208/120V)	1.5 KWH	1.5 KW
		380V/220V (416/240V)	3 KWH	3 KW

Max. Input Over Capability same as S3-WD, S3-RD.

#### OUTPUT FOR WATTHOUR

Output Range		Output Mode		
Per 1KWH	100counts	Pulse	Open Collect	SPST Relay Contacts
	1000counts			
	10000counts	DC 15V, 10mA	DC 30V, 100mA	AC 110V, 0.5A DC 24V, 1A

Accuracy ..... WATT  $\pm 0.2\%$  Rated of Output  
 WATTHOUR  $\pm 0.2\%$  Rated of Output  
 Input frequency ..... 50HZ  $\pm 3\text{HZ}$  or 60HZ  $\pm 3\text{HZ}$   
 Input burden .....  $\cong 0.1\text{VA}$  (ampere input)  
 $\cong 0.2\text{VA}$  (voltage input)  
 Aux. power source ..... AC 110 V  $\pm 15\%$ , 50/60HZ  
 AC 220 V  $\pm 15\%$ , 50/60HZ  
 DC 24V, 48V, 110V  $\pm 10\%$   
 Power effect .....  $\cong 0.1\%$  R.O.  
 Power consumption ..... AC  $\cong 9\text{VA}$ , DC  $\cong 7\text{W}$   
 Waveform effect .....  $\cong 0.2\%$  R.O. at distortion factor 15%  
 Electromagnetic balance effect .....  $\cong 0.1\%$  R.O.  
 Mutual interference effect .....  $\cong 0.1\%$  R.O. between element  
 Magnetic field strength .....  $\cong 0.2\%$  R.O. 400A/M  
 Span adjustment range .....  $\cong 5\%$  R.O.  
 Zero adjustment range .....  $\cong 1\%$  R.O.  
 Operating temperature range ..... 0 ~ 60°C  
 Storage temperature range ..... -10 ~ 70°C  
 Temperature coefficient .....  $\cong 100\text{PPM}$ , 25°C  $\pm 10^\circ\text{C}$   
 Max. relative humidity ..... 95%  
 Isolation ..... Input/output/power/case  
 Isolation resistance .....  $\cong 100\text{M}\Omega$ , DC 500 V  
 Dielectric withstand voltage ..... Between input/output/power/case  
 IEC 60688 AC 2.6 KV, 60 HZ, 1 minute  
 Impulse withstand test ..... 5KV, 1.2 x 50  $\mu\text{s}$   
 IEC 61000-4-5 Common mode & differential mode  
 Performance ..... Designed to comply with IEC 60688



## ORDER INFORMATION

**Model** \_\_\_\_\_

S3-WHW-1  
S3-WHW-3  
S3-WHW-3A

S3-WHW-1 for 1Φ2W  
S3-WHW-3 for 3Φ3W  
S3-WHW-3A for 3Φ4W

**Input Current** \_\_\_\_\_

1: 1A  
5: 5A  
0: Option

**Input Voltage** \_\_\_\_\_

1: 110V (120V)  
2: 220V (240V)  
3: 190V/110V (208V/120V)  
4: 380V/220V (416V/240V)  
0: Option

**Input Frequency** \_\_\_\_\_

5: 50HZ ± 3HZ  
6: 60HZ ± 3HZ  
0: Option

**Output Range (Watt)** \_\_\_\_\_

V1: 0 ~ 1V	A1: 0 ~ 1mA
V2: 0 ~ 5V	A2: 0 ~ 10mA
V3: 1 ~ 5V	A3: 0 ~ 20mA
V4: 0 ~ 10V	A4: 4 ~ 20mA

00: Option

**Output Range (per KWH)** \_\_\_\_\_

1: 100 COUNTS	3: 10000 COUNTS
2: 1000 COUNTS	0: Option

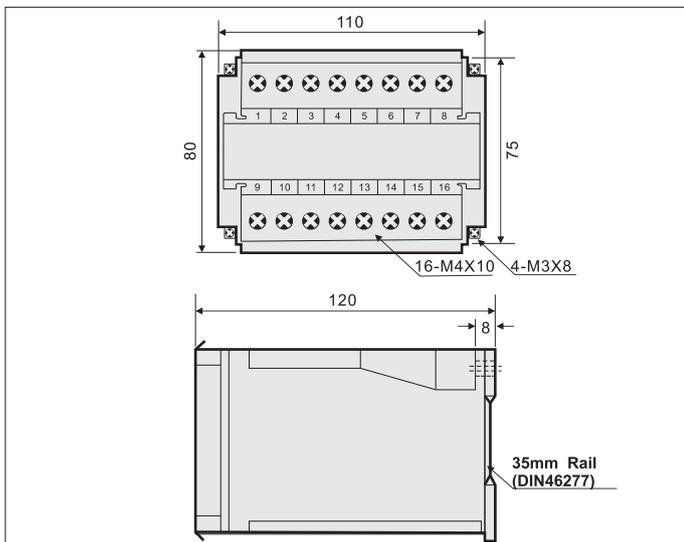
**Output Mode (KWH)** \_\_\_\_\_

P: Pulse  
C: Open collect  
R: Relay contact

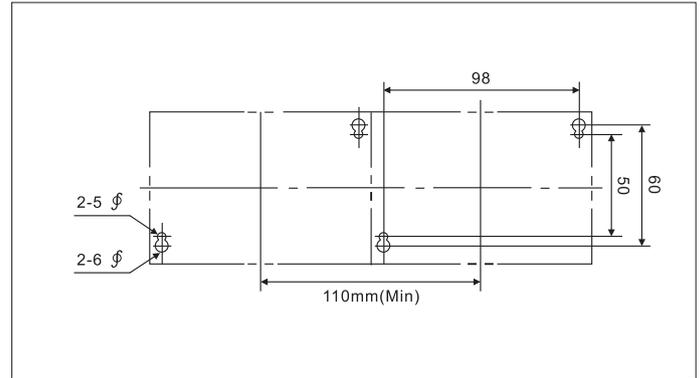
**Aux. Power Source** \_\_\_\_\_

A: AC 110V	C: DC 24V
B: AC 220V	D: DC 48V
0: Option	E: DC 110V

## THE OUTSIDE DIMENSION (UNIT:mm)

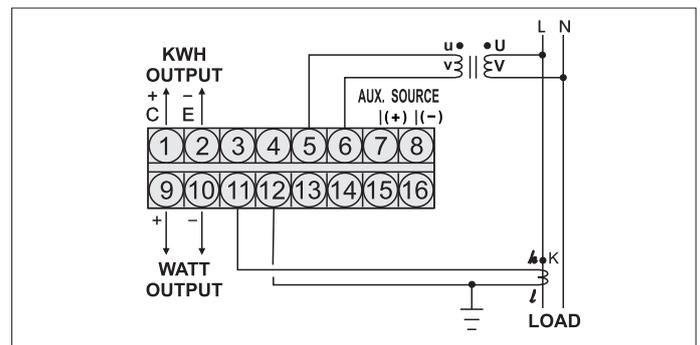


## • PANEL MOUNTING HOLES (UNIT:mm)

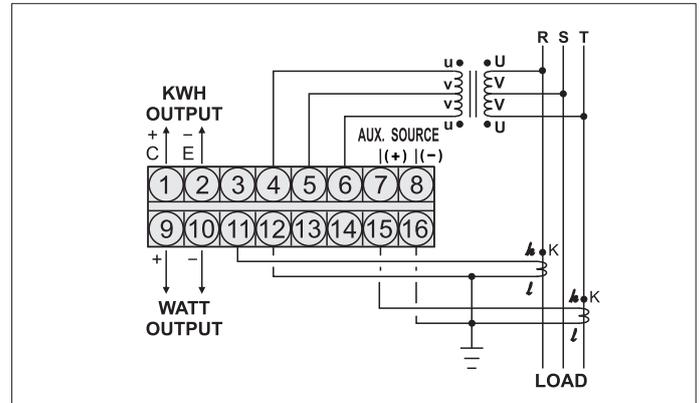


## CONNECTION DIAGRAM

### S3-WHW-1 (1Φ2W)



### S3-WHW-3 (3Φ3W)



### S3-WHW-3A (3Φ4W)

