

**HD POWER TRANSDUCER SERIES**

**W&WATTHOUR TRANSDUCER**

MODEL HDWWH -

**MODEL & SUFFIX CODE SELECTION**

MODEL **HDWWH** — [ ] [ ] [ ]

■ **PHASE & WIRE**

1	1 P 2 W
2	1 P 3 W
3	3 P 3 W
4	3 P 4 W

■ **VOLTAGE & AMPERE**

P x W	P.T ratio	CT	CODE
1P2W	110V	5A	A
	220V	5A	B
1P3W	110V	5A	A
	220V	5A	B
3P3W	380V/110V	5A	C
	440V/110V	5A	A
	3300V/110V		
	6600V/110V		
	154kV/110V		
	22900V/110V	5A	D
3P4W	208/√3V	5A	A
	380/√3/190/√3V	5A	A
	380/√3V	5A	B
	22900/√3/190/√3V	5A	C

■ **OUTPUT**

\* **ANALOG OUTPUT**

A	DC 4-20mA
B	DC 0-1mA
C	DC 0-10mA
D	DC 0-20mA
E	DC 1-5mA
O	Spec Order
1	DC 0-10mV
2	DC 0-100mV
3	DC 0-1V
4	DC 0-10V
5	DC 0-5V
6	DC 1-5V
O	Spec Order

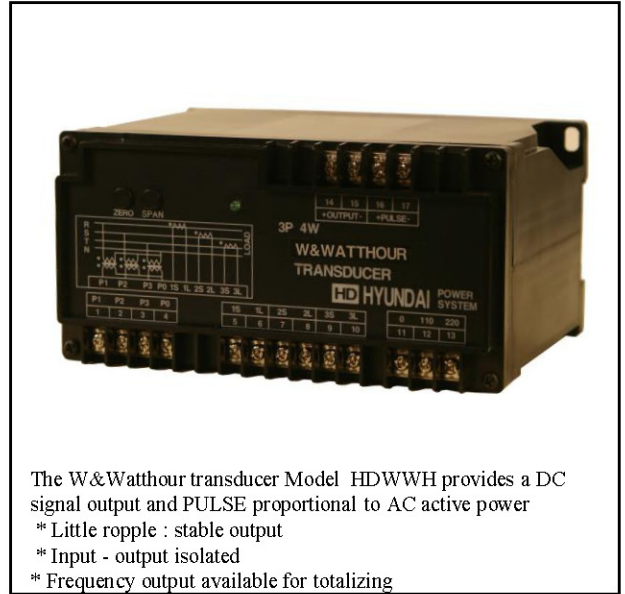
\* **PULSE OUTPUT**

\* **PULSE MODE**

A	open collector
B	voltage pulse
C	relay contact

\* **PULSE RANGE**

1	1Wh/1pulse
2	1kWh/1pulse
O	Spec Order



The W&Watt hour transducer Model HDWWH provides a DC signal output and PULSE proportional to AC active power

- \* Little ripple : stable output
- \* Input - output isolated
- \* Frequency output available for totalizing

**Adjustments :** zero and span ±5%  
Over-range output = 0-120%

**PERFORMANCE**

**Accuracy :** 0.1% or 0.25%  
**Temp. coefficient :** 0.03%/C  
**Insulation resistance :** 100Mohm or more with 500V DC  
**Response time :** 0.4sec(400ms)  
**Line Voltage effect :** 0.1% with 10% change  
**Ripple :** 0.25% p-p max. (100/120Hz)  
**Dielectric strength :** 2000V AC 1minute  
 input/output/power  
**Surge withstand Voltage :** 1.2/50µsec, ±5KV  
 (INPUT to OUTPUT to GROUND)

**INSTALLATION**

**Operating temperature :** -5 to +55C  
**Operating humidity :** 20-80%RH(non-condensing)  
**Mounting :** Wall or DIN rail  
**Power supply :** AC 110V or 220V (-15/+10%)  
 50/60Hz, 2VA  
**Size :** W75 H150 D113mm  
**Weight :**

**INPUT & OUTPUT**

■ **INPUT**

- \* Voltage Side ( PT side )  
**Operational range :** 0-110%  
**Permissible over range :** 150% for 10 seconds  
 120% continuously
- \* Current Side ( CT side )  
**Operational range :** 0-120%  
**Permissible over range :** 1000% for 5 seconds  
 150% for 10 seconds  
 120% continuously

**Frequency :** 60 or 50Hz

**ORDERING INFORMATION**

Specify code number and variables

- \* **Code number :** HDWWH-phase/wire-voltage/ampere  
 -Analog output-pulse mode-pulse range  
 ex: HDWWH-4AAA1
- \* **special output range :** code 0  
 A = -10~20mA, V = -10~12V  
 Pulse range : 0 - 10Hz

**GENERAL SPECIFICATIONS**

**Construction :** DIN housings Terminal access on front face  
**Housing material :** plastic(black)  
**Wiring :** 3.0M screw terminals  
**Isolation :** AC input/DC output/power

■ INPUT RANGE

1-PHASE/2-WIRE

MODEL CODE	INPUT		STANDARD RANGE			BURDEN (VA)	
			WATT	WATTHOUR		VOLTAGE	CURRENT
	Open-collector	Relay-contact		Voltage-pulse			
A	110V 1A	100W	1Count /Wh	1Count /Wh	10Count /Wh	0.22VA	0.5VA
	110V 5A	500W					
B	220V 1A	200W	1Count /Wh	1Count /Wh	10Count /Wh	0.44VA	0.5VA
	220V 5A	1000W					

1-PHASE/3-WIRE

MODEL CODE	INPUT		STANDARD RANGE			BURDEN (VA)	
			WATT	WATTHOUR		VOLTAGE	CURRENT
	Open-collector	Relay-contact		Voltage-pulse			
A	110V 1A	200W	1Count /Wh	1Count /Wh	10Count /Wh	0.22VA /phase	0.5VA /phase
	110V 5A	1000W					

3-PHASE/3-WIRE

MODEL CODE	INPUT		STANDARD RANGE			BURDEN (VA)	
			WATT	WATTHOUR		VOLTAGE	CURRENT
	Open-collector	Relay-contact		Voltage-pulse			
A	110V 1A	200W	1Count /Wh	1Count /Wh	10Count /Wh	0.22VA	0.5VA
	110V 5A	1000W				/phase	/phase
B	220V 1A	400W	1Count /Wh	1Count /Wh	10Count /Wh	0.44VA	0.5VA
	220V 5A	2000W				/phase	/phase
C	110V 1A	232W	1Count /Wh	1Count /Wh	10Count /Wh	0.22VA	0.5VA
	110V 5A	1158W				/phase	/phase
D	110V 1A	192W	1Count /Wh	1Count /Wh	10Count /Wh	0.22VA	0.5VA
	110V 5A	961W				/phase	/phase

3-PHASE/4-WIRE

MODEL CODE	INPUT		STANDARD RANGE			BURDEN (VA)	
			WATT	WATTHOUR		VOLTAGE	CURRENT
	Open-collector	Relay-contact		Voltage-pulse			
A	190/√3V 1A	400W	1Count /Wh	1Count /Wh	10Count /Wh	0.22VA	0.5VA
	190/√3V 5A	2000W				/phase	/phase
B	380/√3V 1A	800W	1Count /Wh	1Count /Wh	10Count /Wh	0.44VA	0.5VA
	380/√3V 5A	4000W				/phase	/phase
C	190/√3V 1A	333W	1Count /Wh	1Count /Wh	10Count /Wh	0.22VA	0.5VA
	190/√3V 5A	1666W				/phase	/phase

HOW TO DETERMINE WATTAGE RANGE

Measuring Wattage(W) = PT ratio × CT ratio × STANDARD RANGE[W]

Check that the required calibration range is within the available range in the table, specify this range when ordering.

[example]

3-phase/3-wire, PT 3300/110V, CT 250/5A

Measuring wattage = 3300/110 × 250/5 × 1000w = 150KW

■ HOW TO DETERMINE PULSE

$$\text{Calibration Range [W]} = \frac{\text{Measuring Wattage}}{\text{PT ratio} \times \text{CT ratio}}$$

Check that the required calibration range is within the available range in the table

WATTHOUR PULSE RANGE

• pulse ratio = Calibration WATT range / 1hour

[example] 3-phase / 3-wire 110V . 5A . 1000W  
pulse range = 1000 pulse / 1hour

WATTHOUR PULSE RATIO RANGE

1 pulse ratio = PT ratio × CT ratio × Wh

[example] 3-phase / 3-wire 110V . 5A  
PT : 3300V/110V CT : 250A/5A

1 pulse ratio = 30 (PT ratio) × 50 (CT ratio) × Wh  
= 1500Wh

■ OUTPUT

DC Current : 0-20mA DC

Minimum span : 1mA

zero bias : max. 1.5 Times of span

LOAD resistance

OUTPUT	LOAD RESISTANCE	IMPEDANCE
4-20mA	0-600 Ω	5M Ω or more
0-20mA	0-600 Ω	
0-16mA	0-750 Ω	
0-10mA	0-1200 Ω	
0-1mA	0-12k Ω	
0-5mA	0-2400 Ω	

DC Voltage : 0-12V DC

Minimum span : 5mV

zero bias : max. 1.5 Times of span

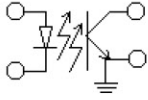
OUTPUT	LOAD RESISTANCE	IMPEDANCE
0-10mV	10k Ω or more	10 Ω
0-100mV	100k Ω or more	100 Ω
0-1V	1k Ω or more	1 Ω or less
0-10V	10k Ω or more	
0-5V	5k Ω or more	
1-5V		

\* for other ranges within 0-12V, use equation  
R = E/I where : R = load resistance (Ω)  
E = full-scale output (V)  
I = 1 mA

**OUTPUT**

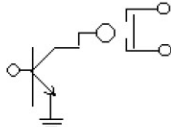
**\* MODE**

A. Open collector



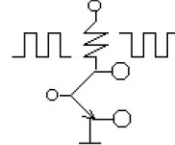
Min 1 V DC 100mA  
Max 20V DC 100mA

B. Relay contact



Relay Capacity  
100V, 0.1 A

C. Voltage pulse

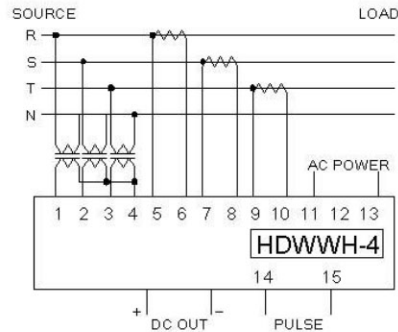
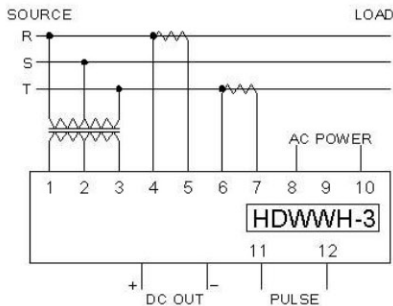
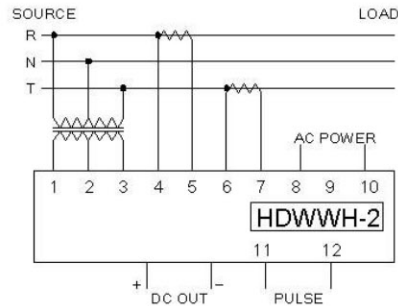
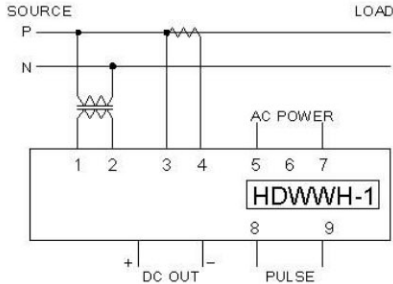


High +15V 5mA  
Low 0V

\* **ON duration** : 250 msec. [ min, 50msec., max. wattinput range/1hour x 1/2 sec

\* **Frequency range** : 0 - 2,777Hz

**CONNECTION DIAGRAM**



**DIMENSION & INSTRUCTIONS**

