

# WATT or VAR TRANSDUCERS

## PRECISION AC WATT OR VAR TRANSDUCER *MODELS GW5, GV5*

ACCURATE TO 0.2% OF READING

### FEATURES

- Accurate regardless of variations in voltage, current, power factor, or load.
- Available with 1, 2, 2 1/2 or 3 element configurations. Provides bi-directional operation. (Except for 4-20mA output models)
- Accuracy maintained over wide temperature range, calibration traceable to NIST.

### APPLICATIONS

- Equipment monitoring for process control.
- Integration into energy management systems, or a variety of sub-metering applications.
- Measurement using direct-connection, current transformers, and/or potential transformers.



### SINGLE PHASE, TWO WIRE MODELS WITH INTERNAL SENSOR (ONE ELEMENT)

AC INPUTS		F.S. WATTS OR VARS	STANDARD OUTPUTS MODEL GW5- OR GV5-									
VOLTS	AMPS		0-±1mAdc*	0-±1mAdc	0-±10Vdc*	0-±10Vdc	4-20mAdc	4-20mA*	4-12-20mA	4-12-20mA*	0-±5Vdc*	0-±5Vdc
0-150	0-1	100	103A	103B	103C	103D	103E	103EG	103EM	103EMG	103CX5	103X5
	0-5	500	001A	001B	001C	001D	001E	001EG	001EM	001EMG	001CX5	001X5
	0-10	1K	010A	010B	010C	010D	010E	010EG	010EM	010EMG	010CX5	010X5
	0-20	2K	019A	019B	019C	019D	019E	019EG	019EM	019EMG	019CX5	019X5
0-300	0-1	200	104A	104B	104C	104D	104E	104EG	104EM	104EMG	104CX5	104X5
	0-5	1K	002A	002B	002C	002D	002E	002EG	002EM	002EMG	002CX5	002X5
	0-10	2K	011A	011B	011C	011D	011E	011EG	011EM	011EMG	011CX5	011X5
	0-20	4K	020A	020B	020C	020D	020E	020EG	020EM	020EMG	020CX5	020X5
0-600	0-1	500	105A	105B	105C	105D	105E	105EG	105EM	105EMG	105CX5	105X5
	0-5	2K	003A	003B	003C	003D	003E	003EG	003EM	003EMG	003CX5	003X5
	0-10	4K	012A	012B	012C	012D	012E	012EG	012EM	012EMG	012CX5	012X5
	0-20	8K	021A	021B	021C	021D	021E	021EG	021EM	021EMG	021CX5	021X5

Highlighted models, (5A), can be used with current transformers.

\*Denotes self-powered unit, limiting input voltage ranges to:

85-135 for 150Vac models

200-280 for 300Vac models

380-550 for 600Vac models

All others require 85-135Vac instrument power, 60Hz

Add suffix "-22" for 230Vac Instrument Power (60Hz)

Optional 50ms Output Response to 90% Add Suffix "W"

### ORDERING INFORMATION

Example: Self-Powered, Single-Phase,  
120V, 5A Input with ±5Vdc Output  
Proportional to ±500 Vars.  
**GV5-001CX5**

### 50 HERTZ MODELS

Add suffix "-50" to part number.

### THREE PHASE, THREE WIRE MODELS WITH INTERNAL SENSOR (TWO ELEMENT)

AC INPUTS		F.S. WATTS OR VARS	STANDARD OUTPUTS MODEL GW5- OR GV5-									
VOLTS	AMPS		0-±1mAdc*	0-±1mAdc	0-±10Vdc*	0-±10Vdc	4-20mAdc	4-20mA*	4-12-20mA	4-12-20mA*	0-±5Vdc*	0-±5Vdc
0-150	0-1	200	120A	120B	120C	120D	120E	120EG	120EM	120EMG	120CX5	120X5
	0-5	1K	004A	004B	004C	004D	004E	004EG	004EM	004EMG	004CX5	004X5
	0-10	2K	013A	013B	013C	013D	013E	013EG	013EM	013EMG	013CX5	013X5
	0-20	4K	022A	022B	022C	022D	022E	022EG	022EM	022EMG	022CX5	022X5
0-300	0-1	400	121A	121B	121C	121D	121E	121EG	121EM	121EMG	121CX5	121X5
	0-5	2K	005A	005B	005C	005D	005E	005EG	005EM	005EMG	005CX5	005X5
	0-10	4K	014A	014B	014C	014D	014E	014EG	014EM	014EMG	014CX5	014X5
	0-20	8K	023A	023B	023C	023D	023E	023EG	023EM	023EMG	023CX5	023X5
0-600	0-1	800	122A	122B	122C	122D	122E	122EG	122EM	122EMG	122CX5	122X5
	0-5	4K	006A	006B	006C	006D	006E	006EG	006EM	006EMG	006CX5	006X5
	0-10	8K	015A	015B	015C	015D	015E	015EG	015EM	015EMG	015CX5	015X5
	0-20	16K	024A	024B	024C	024D	024E	024EG	024EM	024EMG	024CX5	024X5

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# WATT or VAR TRANSDUCERS

## PRECISION AC WATT OR VAR TRANSDUCER MODELS GW5, GV5

ACCURATE TO 0.2% OF READING



### THREE PHASE, FOUR WIRE MODELS WITH INTERNAL SENSOR (THREE ELEMENT)

AC INPUTS		F.S. WATTS OR VARS	STANDARD OUTPUTS MODEL GW5- OR GV5-									
VOLTS	AMPS		0-±1mAdc*	0-±1mAdc	0-±10Vdc*	0-±10Vdc	4-20mAdc	4-20mA*	4-12-20mA	4-12-20mA*	0-±5Vdc*	0-±5Vdc
0-150 L-N	0-1	300	125A	125B	125C	125D	125E	125EG	125EM	125EMG	125CX5	125X5
	0-5	1.5K	007A	007B	007C	007D	007E	007EG	007EM	007EMG	007CX5	007X5
	0-5	1.5K	7.5A	7.5B	7.5C	7.5D	7.5E	7.5EG	7.5EM	7.5EMG	7.5CX5	7.5X5
	0-10	3K	016A	016B	016C	016D	016E	016EG	016EM	016EMG	016CX5	016X5
	0-20	6K	025A	025B	025C	025D	025E	025EG	025EM	025EMG	025CX5	025X5
0-300 L-N	0-1	600	126A	126B	126C	126D	126E	126EG	126EM	126EMG	126CX5	126X5
	0-5	3K	008A	008B	008C	008D	008E	008EG	008EM	008EMG	008CX5	008X5
	0-5	3K	8.5A	8.5B	8.5C	8.5D	8.5E	8.5EG	8.5EM	8.5EMG	8.5CX5	8.5X5
	0-10	6K	017A	017B	017C	017D	017E	017EG	017EM	017EMG	017CX5	017X5
	0-20	12K	026A	026B	026C	026D	026E	026EG	026EM	026EMG	026CX5	026X5

NOTE: PART NUMBER 7.5 and 8.5 DENOTE 2 1/2 ELEMENT UNIT.

Highlighted models, (5A), can be used with current transformers.

Voltage specifications are **line-to-neutral voltage**.

\*Denotes self-powered unit, limiting input voltage ranges to:

85-135 for 150Vac models

200-280 for 300Vac models

380-550 for 600Vac models

All others require 85-135Vac Instrument power, (60Hz)

Add suffix "-22" for 230Vac Instrument power (60Hz)

Optional 50ms Output Response to 90%-add suffix "W"

**50 HERTZ MODELS**-Add suffix "-50" to part number.

#### ORDERING INFORMATION

Example: Self-Powered, Three-Phase, Four-Wire, 120V,  
5A Input with ±5Vdc Output, Proportional to ±1500 Watts.  
**GW5-007CX5**

#### ORDERING INFORMATION

Example: Self-Powered, Three-Phase, Four Wire, 120V,  
5A Input with ±1mAdc Output, Proportional to ±1500 VAR.  
**GV5-007A**

### SPECIFICATIONS

#### INPUT

Voltage..... See Tables

Current..... See Tables

Frequency Range ..... GW5 ..... 58-62Hz

GV5 ..... 60Hz

Optional 50Hz ..... GW5 ..... 48-52Hz

GV5 ..... 50Hz

Power Factor..... Any

#### Burden

Voltage..... <0.1VA/phase

Current..... <0.28VA/phase

#### Overload

Voltage.. (cont.).. 150Vac Range ..... 175Vac

300Vac Range ..... 350Vac

600Vac Range ..... 600Vac

Current.. (cont.).. 0-1, 5, 10Aac Ranges ..... 2 X F.S.

0-20Aac Range..... 20A

Transient .. 0-1Aac Range..... 20A ..... 10s/hr

0-5, 10, 20A Ranges.... 50A ..... 10s/hr

0-1Aac Range..... 100A ..... 1s/hr

0-5, 10, 20A Ranges.... 250A ..... 1s/hr

Dielectric Test....(Input/Output/Case)..... 1800Vac (RMS)

Surge..... Withstands IEEE SWC test

#### OUTPUT

GV5 ..... + = Lagging/ - = Leading

**ACCURACY** ..... ± 0.2% RDG. .... ± 0.04% F.S.

Includes combined effects of voltage, current, load and power factor.

Output Ripple..... < 0.5% F.S.

Output Loading (Ω)

0-1mAdc..... 0-10K

0-10Vdc..... 2K min.

4-20mAdc ..... 0-500

0-5Vdc..... 2K min.

Response Time....(99%) ..... <400ms

50ms Response to 90% ..... Add suffix "W"

Field Adjustable Cal. .... ± 2%

Temperature Effect .... (-20°C to +65°C) ..... ±0.005%/°C

Operating Humidity..... 0-95% non-condensing

Instrument Power...(Std.) ..... 85-135Vac, 60Hz, 7VA

"-22" Option ..... 230Vac, 50/60Hz, ±15%

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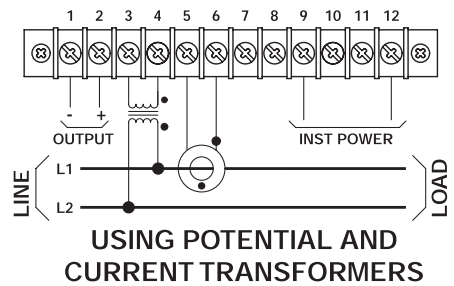
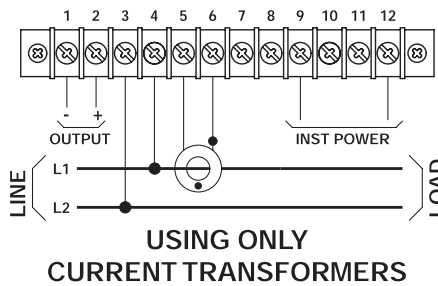
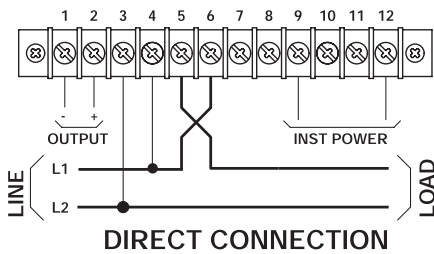
WATT or VAR TRANSDUCERS

# WATT or VAR TRANSDUCERS

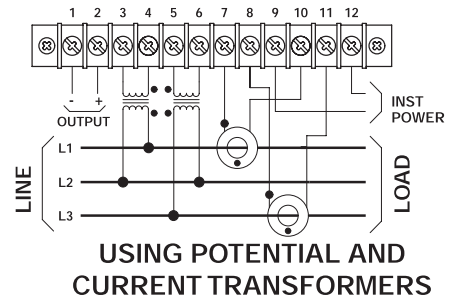
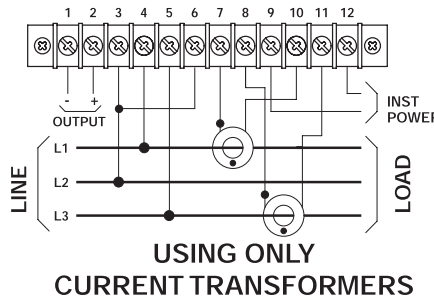
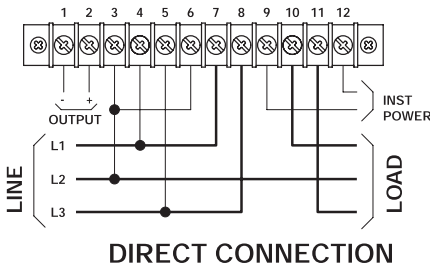
## CONNECTION DIAGRAMS/DIMENSIONS

MODELS GW5, GV5

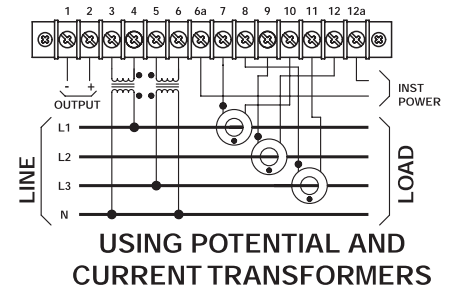
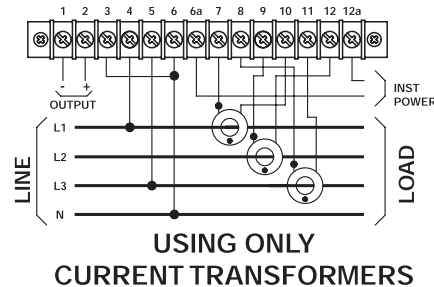
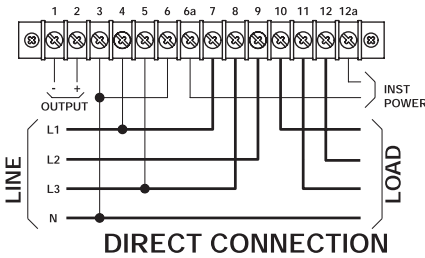
### SINGLE-PHASE CONNECTIONS (ONE ELEMENT)



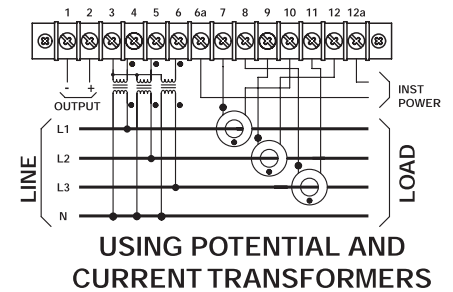
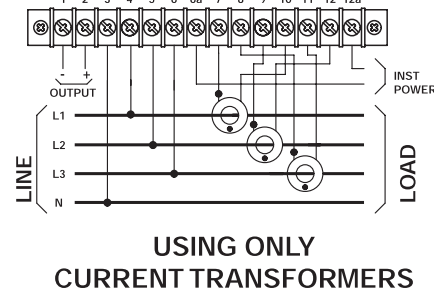
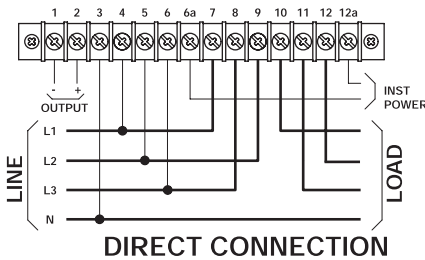
### THREE-PHASE, THREE-WIRE CONNECTIONS (2 ELEMENT)



### THREE-PHASE, FOUR-WIRE CONNECTIONS (2 1/2 ELEMENT)



### THREE-PHASE, FOUR-WIRE CONNECTIONS (THREE ELEMENT)



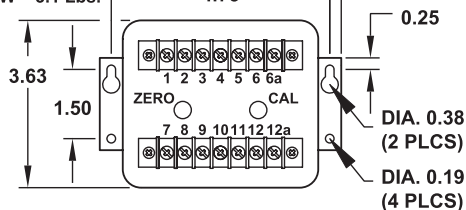
### DIMENSIONS

CASE HEIGHT 5.38"

1PH 2W 2.3 Lbs.

3PH 3W 2.7 Lbs.

3PH 4W 3.1 Lbs.



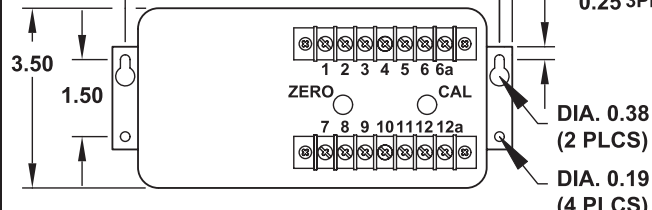
GW5 & GV5 Models with 1mA, 5V, or 10V Outputs

CASE HEIGHT 5.88"

1PH 2W 2.4 Lbs.

3PH 3W 3.3 Lbs.

0.25 3PH 4W 4.4 Lbs.



All GW5 & GV5 Models with 4-20mA Outputs

All Dimensions In Inches

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# WATT / VAR TRANSDUCERS

## PRECISION WATT/VAR TRANSDUCER

MODEL GWV5

ACCURATE TO 0.2% OF READING

### FEATURES

- Available in 1, 2, or 3 element configurations. Some models provide bi-directional operation.
- Accuracy maintained over wide temperature range.
- Calibration traceable to NIST.

### APPLICATIONS

- Integration into energy management systems, or a variety of sub-metering applications.
- Measurement using direct-connection, current transformers, and/or potential transformers.

### SINGLE AND THREE-PHASE MODELS WITH INTERNAL SENSOR

INPUTS		F.S. WATT/ VAR	PHASE	NO. OF ELEMENTS	STANDARD OUTPUTS (WATT AND VAR) MODEL GWV5-								
AC VOLTS	AC AMPS				±1mAdc*	±1mAdc	±10Vdc*	±10Vdc	4-20mA	4-20mA*	4-12-20mA	±5Vdc*	±5Vdc
0-150	0-5	500	1P-2W	1	001A	001B	001C	001D	001E	001EG	001EM	001CX5	001X5
0-150	0-5	1000	3P-3W	2	004A	004B	004C	004D	004E	004EG	004EM	004CX5	004X5
0-150 L-N	0-5	1500	3P-4W	3	007A	007B	007C	007D	007E	007EG	007EM	007CX5	007X5
0-300	0-5	1000	1P-2W	1	002A	002B	002C	002D	002E	002EG	002EM	002CX5	002X5
0-300	0-5	2000	3P-3W	2	005A	005B	005C	005D	005E	005EG	005EM	005CX5	005X5
0-300 L-N	0-5	3000	3P-4W	3	008A	008B	008C	008D	008E	008EG	008EM	008CX5	008X5
0-600	0-5	2000	1P-2W	1	003A	003B	003C	003D	003E	003EG	003EM	003CX5	003X5
0-600	0-5	4000	3P-3W	2	006A	006B	006C	006D	006E	006EG	006EM	006CX5	006X5

GWV5 Transducers can be used with current transformers.

Potential transformers can be used on 150V models.

\*Denotes self-powered unit, limiting input voltage ranges to:

85-135 For 150Vac Models

200-280 For 300Vac Models

380-550 For 600Vac Models

Standard units require 85-135Vac instrument power, (60Hz)

50Hz Models - Add suffix "-50"

50ms Output Response to 90% - Add suffix "W"

230Vac Instrument Power - Add suffix "-22"

### ORDERING INFORMATION

Example: Three-Phase, Three Wire  
120V, 5A Input with 0-1mA Output.  
GWV5-004B



### SPECIFICATIONS

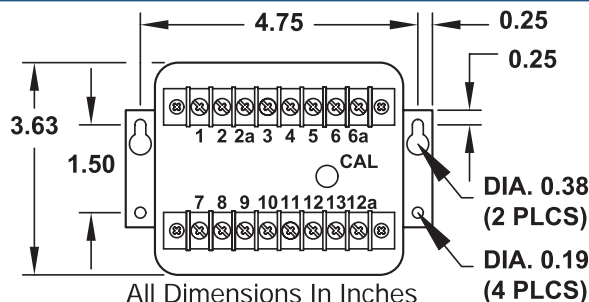
#### INPUT

Voltage..... See Table  
Current..... 0-5Aac  
Frequency..... 60Hz standard, 50Hz optional  
Power Factor..... Any  
Burden  
Voltage..... <0.1VA/phase  
Current..... <0.28VA/phase  
Overload  
Voltage (cont.) ..... 175V, 350V, 600V  
Current (cont.) ..... 10A  
Dielectric Test....(Input/Output/Case)..... 1800Vac  
Surge..... Withstands IEEE SWC test  
Instrument Power (std.) ..... 85-135Vac, 60Hz, 7.5VA  
Option "-22" ..... 230Vac, 50/60Hz, ±15%

#### OUTPUT

Vars ..... + = Lagging/ - = Leading  
**ACCURACY** ..... ± 0.2% Rdg. .... ± 0.05% F.S.  
Includes combined effects of voltage, current, load and power factor  
Output Watts, Var..... See Table  
Output Loading (Ω)  
±1mAdc..... 0-10K  
±10Vdc, ±5Vdc ..... >2K  
4-20mAdc..... 0-500  
Response Time..... (99%) ..... <400ms  
50ms Response to 90%..... Add suffix "W"  
Field Adjustable Cal. .... ± 2% min.  
Temperature Effect ..... -20°C to +60°C  
Watt..... ±0.005%/°C  
Var..... ±0.009%/°C  
Operating Humidity..... 0-95% non-condensing

### CASE DIMENSIONS



CASE HEIGHT 6.50"  
1PH 2W 2.6 Lbs.  
3PH 3W 3.0 Lbs.  
3PH 4W 3.5 Lbs.

All Dimensions In Inches

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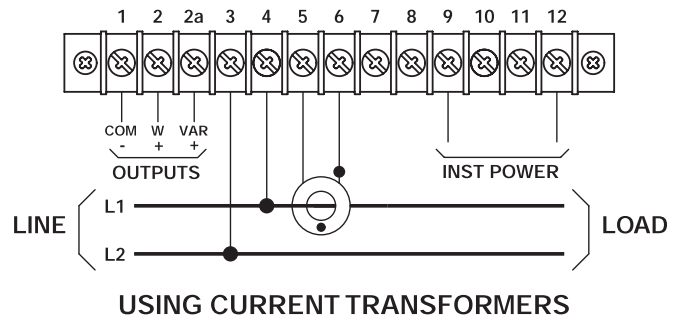
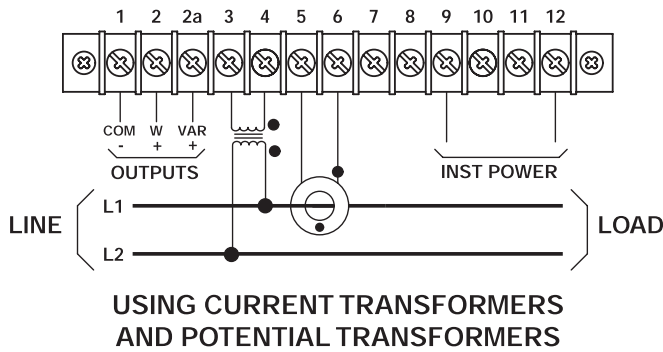
# WATT / VAR TRANSDUCERS

## CONNECTION DIAGRAMS

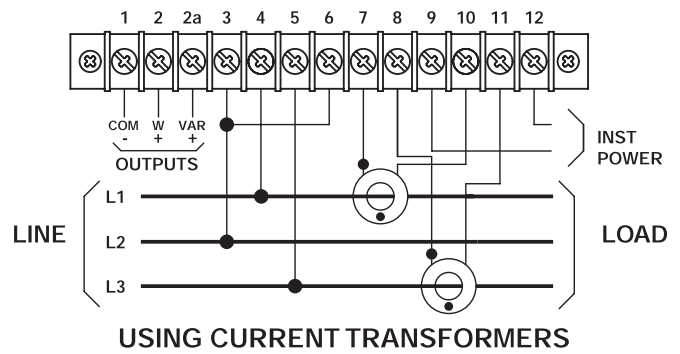
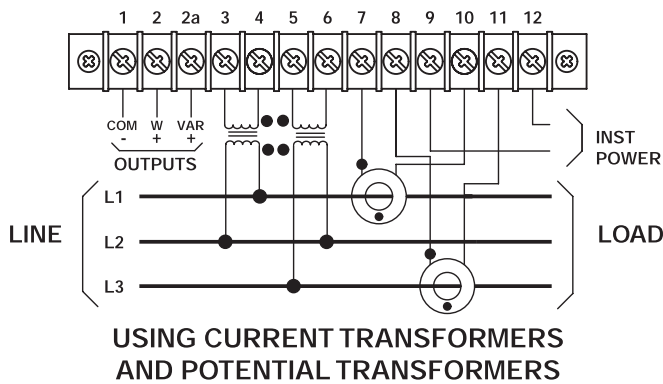
MODEL GWV5

WATT / VAR TRANSDUCERS

### SINGLE-PHASE, TWO WIRE CONNECTIONS



### THREE-PHASE, THREE WIRE CONNECTIONS



### THREE-PHASE, FOUR WIRE CONNECTIONS (3 ELEMENTS)

