CW/CQ AC WATT / VAR Transducer

**FEATURE**
- Measuring Watt, Var or Watt & Var
- 1P2W, 1P3W, 3P3W, 3P4W Balanced or Unbalanced systems
- Precision measurement even for distorted wave
- Output range programmable by dip-switch
- Low output ripple
- High impulse & Surge protection
- High stability & low cost

**SPECIFICATION**

**INPUT: Watt / Var**

<table>
<thead>
<tr>
<th>Connection</th>
<th>AC Input Voltage</th>
<th>Current</th>
<th>Basic Ref. Value</th>
<th>Input Burden</th>
</tr>
</thead>
<tbody>
<tr>
<td>1P2W</td>
<td>110V or 120V</td>
<td>5A (1A**</td>
<td>Watt or Var</td>
<td>±0.10VA or ±0.15VA</td>
</tr>
<tr>
<td></td>
<td>220V or 240V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1P3W</td>
<td>220V or 110V</td>
<td>5A (1A**</td>
<td>Watt or Var</td>
<td>±0.10VA or ±0.15VA</td>
</tr>
<tr>
<td></td>
<td>380V or 416V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3P3W</td>
<td>110V or 120V</td>
<td>5A (1A**</td>
<td>Watt or Var</td>
<td>±0.10VA or ±0.15VA</td>
</tr>
<tr>
<td></td>
<td>220V or 240V</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3P4W</td>
<td>190V<del>110V or 208V</del>240V</td>
<td>5A (1A**</td>
<td>Watt or Var</td>
<td>±0.10VA or ±0.15VA</td>
</tr>
<tr>
<td></td>
<td>380V or 416V</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**OUTPUT: Watt or Var O/P Programming by Dip Switch inside**

<table>
<thead>
<tr>
<th>Output Range</th>
<th>Load Resistance</th>
<th>Output Resistance</th>
<th>Output Ripple</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 ~ 1 V / 0 ~ 0.5 ~ 1 V</td>
<td>≥ 100 ohm</td>
<td>≤ 0.001 ohm</td>
<td>≤0.2% of F.S.</td>
</tr>
<tr>
<td>0 ~ 5 V / 0 ~ 2.5 ~ 5 V</td>
<td>≥ 500 ohm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 ~ 10 V / 0 ~ 5 ~ 10 V</td>
<td>≥ 1000 ohm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 ~ 5 V / 1 ~ 3 ~ 5 V</td>
<td>≥ 600 ohm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-1 ~ 0 ~ +1 V</td>
<td>≥ 100 ohm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-5 ~ 0 ~ +5 V</td>
<td>≥ 500 ohm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-10 ~ 0 ~ +10 V</td>
<td>≥ 1000 ohm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 ~ 1 mA / 0 ~ 0.5 ~ 1 mA</td>
<td>0 ~ 15K ohm</td>
<td>20M ohm</td>
<td></td>
</tr>
<tr>
<td>0 ~ 5 mA</td>
<td>0 ~ 3000 ohm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 ~ 10 mA / 0 ~ 5 ~ 10 mA</td>
<td>0 ~ 1500 ohm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 ~ 20 mA / 0 ~ 10 ~ 20</td>
<td>0 ~ 750 ohm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 ~ 20 mA / 4 ~ 12 ~ 20</td>
<td>0 ~ 750 ohm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-1 ~ 0 ~ +1 mA</td>
<td>0 ~ 11K ohm</td>
<td>20M ohm</td>
<td></td>
</tr>
<tr>
<td>-5 ~ 0 ~ +5 mA</td>
<td>0 ~ 2200 ohm</td>
<td></td>
<td></td>
</tr>
<tr>
<td>-10 ~ 0 ~ +10 mA</td>
<td>0 ~ 1100 ohm</td>
<td>6M ohm</td>
<td></td>
</tr>
<tr>
<td>-20 ~ 0 ~ +20 mA</td>
<td>0 ~ 550 ohm</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Adjustment**

Watt / Var / Watt & Var:

**Accuracy:** ±0.2% of F.S.

**Waveform effect:** ±0.2% of F.S. at 30% distortion

**Max. input over capability:**
- Voltage: 1.5 x rated continuous
- 2 x rated for 10 seconds
- 4 x rated for 2 seconds
- Current: 3 x rated continuous
- 10 x rated for 10 seconds
- 50 x rated for 1 second

**Input frequency:**
- 50 Hz ±3 Hz, 60 Hz ±3 Hz

**Response time:** ≤ 250 m-sec.

**Span adjustment:** ±5% of F.S. (or ±20% of F.S. specify)

**Zero adjustment:** ±2% of F.S. (or ±20% of F.S. specify)

**Output load effect:** Current output ≤ 0.1% of F.S.

**Power supply:**
- AC 115/230V ±15%, 50/60 Hz
- AC 380 or 415V ±15%, 50/60 Hz
- Option: DC 24V, 48V, 110V, 220V ±10%

**Self Powered:** Interior connection from input volt
- Working volt: ±15% rated of input voltage
- Voltage out: ≤ 0.05% of F.S.

**Power consumption:** ≤ 4VA

**Panel Mounting Holes**

**Dimensions**

- **Top View**
- **Front View**
- **Side View**

**Isolation:**
- Input / Output / Power / Case
- IEC 414, BS 5458
- IEC 529 (IP50)

**Mutual interference effect:** ≤ 0.1% of F.S. between each element

**Operating field strength:** 400ATM ≤ 0.2% of F.S.

**Operating temperature:** 0 ~ 60 °C

**Operating relative humidity:** 20 ~ 95%RH, non-condensing

**Temperature coefficient:** ≤ 100 PPM/°C

**Storage temperature:** IEC 414, IEC 688:1992, ANSI C37.90a
- Between Input / Output / Power / Case
- AC 4KV, 50/60Hz, 1 min.

**Surge test:**
- IEC 255-4, ANSI C37.90a
- 6KV, 1.2 x 50 usec.
- Common mode & differential mode

**Performance:**
- Designed it comply with IEC 688

**Mounting:**
- Wall or DIN rail (EN 50022)

**Weight:** Under 650g
### OUTPUT RANGE PROGRAMMING

A summary of various output ranges and their associated jumpers and switch settings is provided. The table lists different ranges of current, voltage, and resistance, each with specific jumper settings for each range.

#### CONNECTION DIAGRAM

1. **Watt / Var / Watt & Var - 1Φ2W ( Unbalanced )**
   - Diagram showing connections for a single-phase, two-wire system.
2. **Watt / Var / Watt & Var - 3Φ3W ( Unbalanced Load )**
   - Diagram for a three-phase, three-wire system with unbalanced load.
3. **Watt / Var / Watt & Var - 3Φ4W ( Unbalanced )**
   - Diagram for a three-phase, four-wire system with unbalanced load.
4. **Watt / Var / Watt & Var - 3Φ3W ( balanced Load )**
   - Diagram for a three-phase, three-wire system with balanced load.
5. **Watt / Var / Watt & Var - 3Φ4W ( balanced Load )**
   - Diagram for a three-phase, four-wire system with balanced load.

### ORDERING INFORMATION

A detailed ordering table is provided, listing various code combinations, input types, connection types, and output specifications. The table includes columns for code, input type, input range, input frequency, output, and auxiliary power. Specific instructions and notes are also included, such as the selection of output voltage ranges and the interpretation of certain codes.