

Current Transformers for Electronic Watthour Meters with DC-tolerance

The GREWIN GWTAD series of current transformers for electronic watthour meters with DC-tolerance are designed for applications where AC current signals or half wave rectified DC current signals must be transformed accurately into a lower current signal appropriate for micro-processor based circuits.

A new TA model can be designed and manufactured to meet the specific design challenges of the client's specific application. The following models are only a small sampling of the many different products which have been and are currently being manufactured.

FEATURES

- Low cost • More than 10 standard sizes
- Terminal: PCB Mounted or Lead

APPLICATIONS

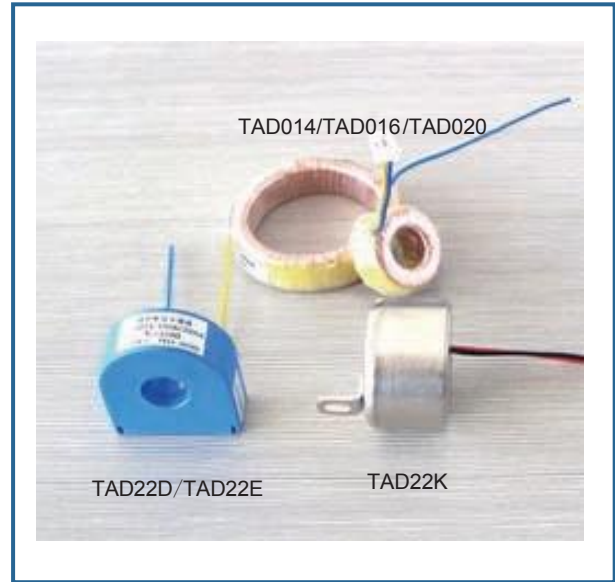
- Electronic watthour meters according to IEC 62053 -21, -23 must have a tolerance to DC current

SPECIFICATIONS

- Case Material: PBT Resin UL flame retardant rating 94-V0
- Construction: Epoxy Encapsulated housing
- Isolation Voltage: 2500 Vrms for 1 minute
- Insulation Resistance: 1000 M Ohms @ 500 Vdc
- Surge Withstand: 5000V (1.2/50µs standard shock wave)
- Operating Temperature: -25 to +55°C, -40 to +85°C Optional
- Frequency: 50 to 400 Hz • RoHS compliant • CE compliant
- Accuracy Class: Compliant IEC 60044-1, Class 0.1, 0.2

PERFORMANCES

| Model | IN [Arms] | I _{max} [Arms] | I _{ref} [Arms] | Accuracy class | F(İDC,max) | R _{cu} [Ω] | R _b [Ω] | ID (mm) | L x W xH (mm) | Pin /Lead |
|-----------------------|-----------|-------------------------|-------------------------|----------------|------------|---------------------|--------------------|---------|----------------|-----------|
| GWTAD014-5(20)A/2mA | 5 | 20 | 15 | 0.2 | < 3% | 120±10% | 12.5 | 5.0 | 26/26/16 | L |
| GWTAD014-10(40)A/4mA | 10 | 40 | 30 | 0.2 | < 3% | 120±10% | 12.5 | 5.0 | 26/26/16 | L |
| GWTAD016-10(60)A/4mA | 10 | 60 | 45 | 0.2 | < 3% | 110±10% | 12.5 | 9.5 | 28.5/28.5/16.5 | L |
| GWTAD016-20(80)A/8mA | 20 | 80 | 60 | 0.2 | < 3% | 110±10% | 12.5 | 9.5 | 28.5/28.5/16.5 | L |
| GWTAD020-20(100)A/8mA | 20 | 100 | 75 | 0.2 | < 3% | 90±10% | 12.5 | 13.5 | 35.5/35.5/14.3 | L |
| GWTAD020-20(120)A/8mA | 20 | 120 | 85 | 0.2 | < 3% | 90±10% | 12.5 | 13.5 | 35.5/35.5/14.3 | L |
| GWTAD22D-10(60)A/4mA | 10 | 60 | 45 | 0.2 | < 3% | 110±10% | 12.5 | 8.0 | 29.7/18.8/30 | P/L |
| GWTAD22D-20(80)A/8mA | 20 | 80 | 60 | 0.2 | < 3% | 110±10% | 12.5 | 8.0 | 29.7/18.8/30 | P/L |
| GWTAD22E-20(100)A/8mA | 20 | 100 | 75 | 0.2 | < 3% | 90±10% | 12.5 | 12.8 | 36.7/14.2/39 | P/L |
| GWTAD22K-20(80)A/8mA | 20 | 80 | 60 | 0.2 | < 3% | 105±10% | 12.5 | 8.0 | 39.0/22.2/39 | L |



EXPLANATION OF TABLE:

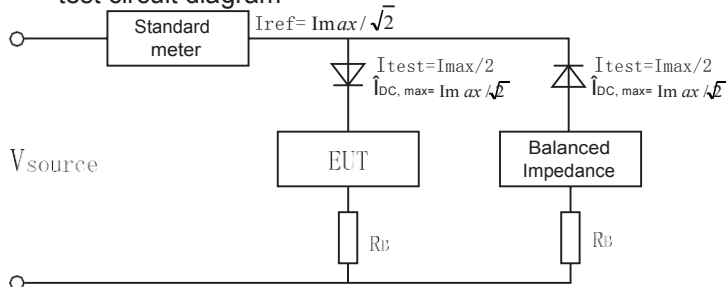
IN: rated primary current

I_{max}: maximum continuous operating AC primary current with defined errors

I_{ref}: reference current = $I_{max} / \sqrt{2}$

İ_{DC, max}: half wave rectified DC amplitude without saturation

Half wave rectification (Direct current and even harmonic) test circuit diagram



for Class 1 meter (IEC 62053 -21, -23): F(İDC, max) < 3%

φ(I): max. phase error for I < I_{max}

F(I): max. amplitude error for I < I_{max}

R_{cu}: winding resistance

R_b: burden resistor

U_b: output voltage across burden resistor R_b at IN

ID: diameter of centre hole

LE: maximum length of component in mm

W: maximum width of component in mm

H: maximum thickness of component in mm

The left diagram is meter even harmonic test. Half wave current contains DC, fundamental wave and even harmonic, should be tested in 0.5 I_{max} state. To get this test state, we need to decrease the AC current I_{ref} through standard meter to $I_{max} / \sqrt{2}$ and $\cos\phi = 1$. Test result: The error of grade 1 meter should be no more than 3%, the error of grade 2 meter should be no more than 6%.

Address: HeXi Distr, 300222 Tianjin China.

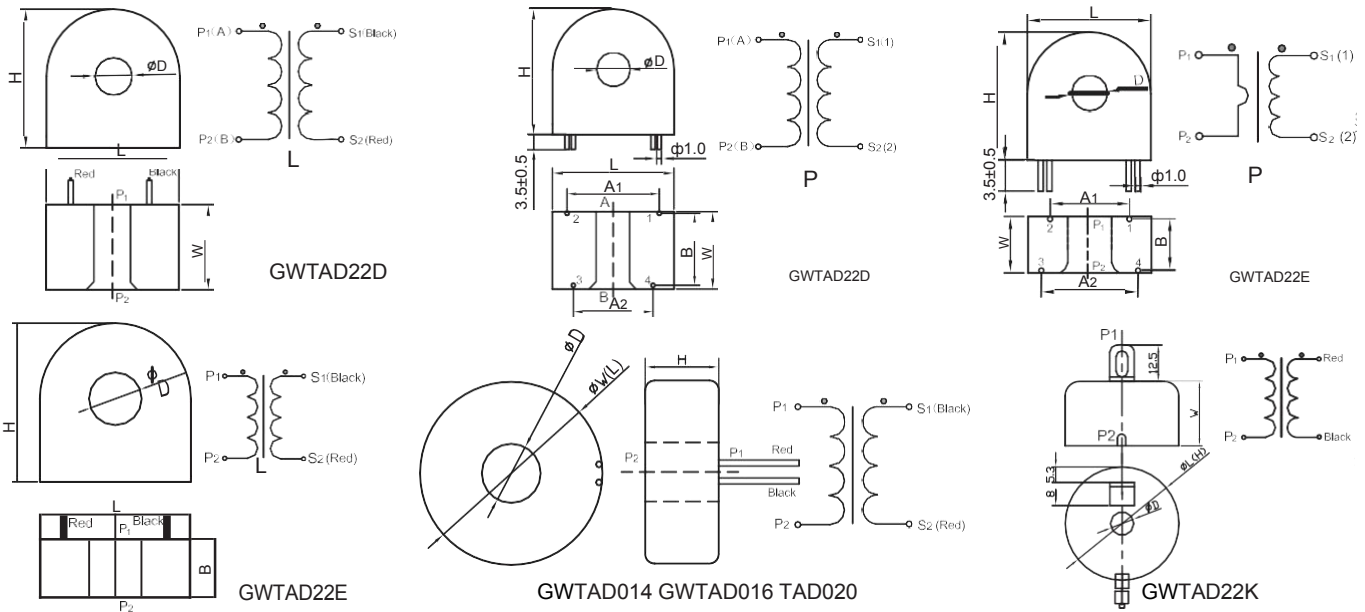
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OUTLINE DRAWINGS



OUTLINE DIMENSIONS

Unit:mm (inch)

| Model | L | W | H | A1 | A2 | B | D |
|----------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| GWTAD014 | 26.0(1.024) | 26.0(1.024) | 16.0(0.63) | ---- | ---- | ---- | 5.0(0.197) |
| GWTAD016 | 28.5(1.122) | 28.5(1.122) | 16.5(0.650) | ---- | ---- | ---- | 9.5(0.374) |
| GWTAD020 | 35.5(1.398) | 35.5(1.398) | 14.3(0.563) | ---- | ---- | ---- | 13.5(0.531) |
| GWTAD22D | 29.5(1.161) | 19.0(0.748) | 30.0(1.181) | 22.0(0.866) | 19.0(0.748) | 17.5(0.689) | 8.0(0.315) |
| GWTAD22E | 36.7(1.445) | 14.2(0.559) | 38.5(1.516) | 25.2(0.992) | 32.8(1.291) | 11.5(0.453) | 12.8(0.504) |
| GWTAD22K | 39.0(1.535) | 22.2(0.874) | 39.0(1.535) | ---- | ---- | ---- | 8.0(0.315) |

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