

Current Transformers for Electronic Watthour Meters

Current Transformers for Electronic Watthour Meters with DC-tolerance

The YUANXING TAD 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(I _{DC,max})	R _{cu} [Ω]	R _b [Ω]	ID (mm)	L x W x H (mm)	Pin /Lead
TAD014-5(20)A/2mA	5	20	15	0.2	< 3%	120±10%	12.5	5.0	26/26/16	L
TAD014-10(40)A/4mA	10	40	30	0.2	< 3%	120±10%	12.5	5.0	26/26/16	L
TAD016-10(60)A/4mA	10	60	45	0.2	< 3%	110±10%	12.5	9.5	28.5/28.5/16.5	L
TAD016-20(80)A/8mA	20	80	60	0.2	< 3%	110±10%	12.5	9.5	28.5/28.5/16.5	L
TAD020-20(100)A/8mA	20	100	75	0.2	< 3%	90±10%	12.5	13.5	35.5/35.5/14.3	L
TAD020-20(120)A/8mA	20	120	85	0.2	< 3%	90±10%	12.5	13.5	35.5/35.5/14.3	L
TAD22D-10(60)A/4mA	10	60	45	0.2	< 3%	110±10%	12.5	8.0	29.7/18.8/30	P/L
TAD22D-20(80)A/8mA	20	80	60	0.2	< 3%	110±10%	12.5	8.0	29.7/18.8/30	P/L
TAD22E-20(100)A/8mA	20	100	75	0.2	< 3%	90±10%	12.5	12.8	36.7/14.2/39	P/L
TAD22K-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:

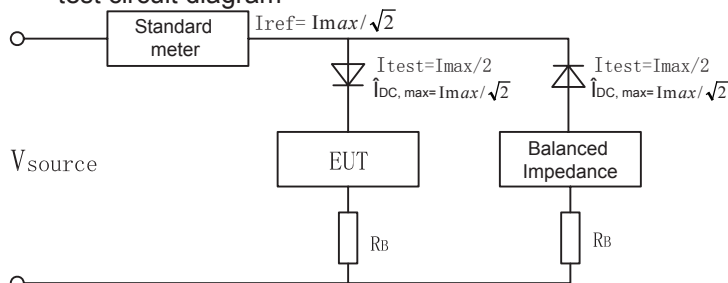
IN: rated primary current

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

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

I_{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(I_{DC, 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 I_N

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%.

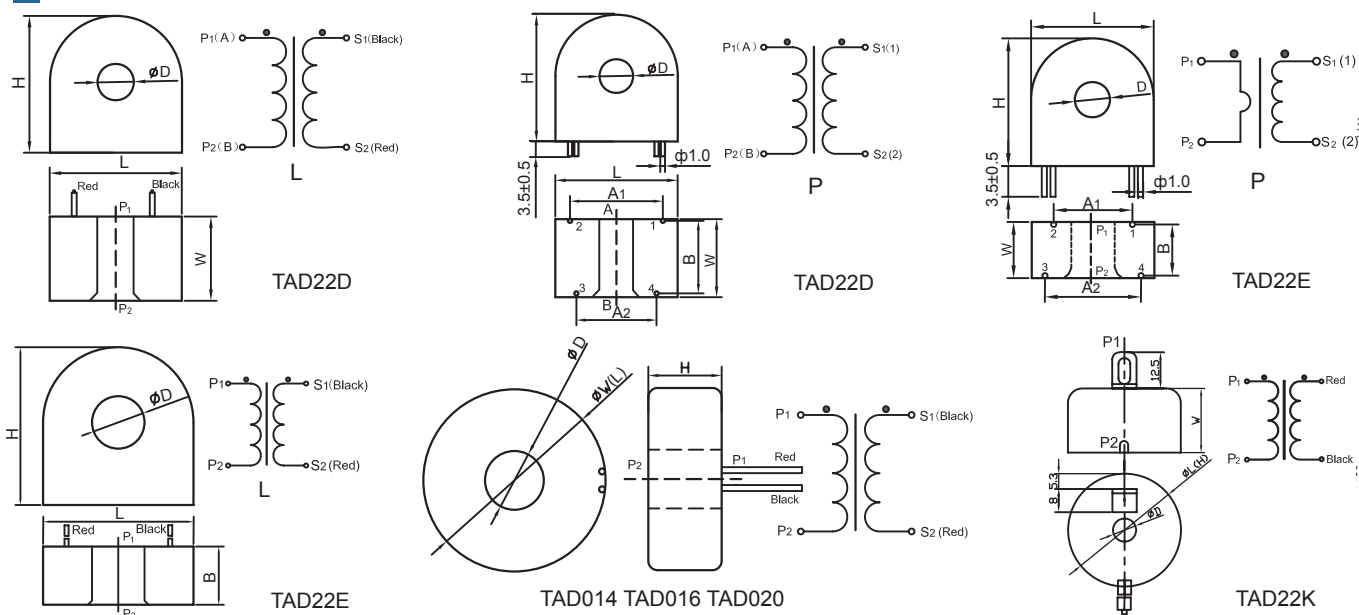
SHANDONG YUANXING Electronics Co.,Ltd.

Phone: +86-533-381-8450
Fax: +86-533-381-8724

NO.39, QIXIN AVENUE, ZHANGDIAN,
ZIBO, SHANDONG, CHINA 255095

www.yuanxing.net
sales@yuanxing.net

OUTLINE DRAWINGS



OUTLINE DIMENSIONS

Unit:mm (inch)

Model	L	W	H	A1	A2	B	D
TAD014	26.0 (1.024)	26.0 (1.024)	16.0 (0.63)	-----	-----	-----	5.0 (0.197)
TAD016	28.5 (1.122)	28.5 (1.122)	16.5 (0.650)	-----	-----	-----	9.5 (0.374)
TAD020	35.5 (1.398)	35.5 (1.398)	14.3 (0.563)	-----	-----	-----	13.5 (0.531)
TAD22D	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)
TAD22E	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)
TAD22K	39.0 (1.535)	22.2 (0.874)	39.0 (1.535)	-----	-----	-----	8.0 (0.315)

Single turn
primary
Measurement

Wound
primary

Without DC
Immunity

With DC
Immunity

Steady
Protection

Transient
Protection

Passive for
Fault Recording

Active for
Fault Recording

Motor
Protection