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Why is it important to calculate CT Burden (VA)?

Transforming | Measuring | Technology

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Why Is It Important To Calculate CT Burden(VA)?

The formula to calculate CT burden is simple

- Study the output circuit
- (A) Calculate individual burden of instruments
- (B) Calculate burden of connected wire
- Add (A+B)
- Multiply the result by 1.2 to 1.5 as safety factor

(A) Typical burden values of Digital/Analog Meters

Make	Model No.	VA burden
Conzerv (Schneider)	VAF meters, DM 1000 and 3000 series / Multifunction meters for feeders EM 6400 series	< 0.2 VA
Elmeasure	Tiny master TM 7400 / Little Genius Plus LGP series	< 0.2 VA
HPL	Emfis, 3ph multifunction energy meter /Electronic Energy meter SPEM 01 and PPEM 01	< 0.1 VA
HPL	Ebrit Digital panel meters	< 0.5 VA
Rishabh, AE, MECO	Analog panel meter	< 0.75 VA

(B) How to calculate burden of secondary cable?

- For Copper cable

VA = k X L/S

K = 0.5 if is (secondary cable) = 5A

K = 0.02, if is = 1A

Where; L= Length of secondary cable (input/output loop) In meters and S = Cross Section Area of cables In mm^2.

In this case, the CTs are generally in a controlling or metering panel within a small distance from actual meter, and technically it is not necessary to have a large VA.

Type of cubicle	F100 - 200	F300	F400
Cable section (mm^2)	2.5	2.5	2.5
Cable length (input/output loop)	5m	5.7m	5.8m
Power loss due to cable	1.0VA	1.14VA	1.16VA

Test Case for CT 100/5A,

VA = k X L/S

K = 0.5 if is = 5A, L = 5 m, S = 2.5 mm^2.

∴ VA = 0.5X 5/2.5

∴ = 2.5/2.5

B = 1 VA

To take an example, If you connect one analog meter having a 5 meter long secondary lead cable, The total burden will be:
Burden of Meter (A) = 0.75 VA
Burden of 5 meter Cable (B) = 1VA
Total Burden A+B = 0.75+1 = 1.75VA
Multiply the total burden by safety factor 1.2
- 1.2*1.75 = 2.1VA

This means you can use a CT with 2.5VA or 5VA burden.

Conclusion

The CT burden impacts the CT accuracy. If the burden is higher than required, the CT accuracy can fluctuate.

Comprehensive Range of CT/PTs and Multi-Function Meters (MFMs)

Current Transformer Nylon Casing

Metering Type CT'S

- Window Type CT'S
- (Bus Bar)
- WPL Type
- Round ID Type CT'S

Protection Type CT'S

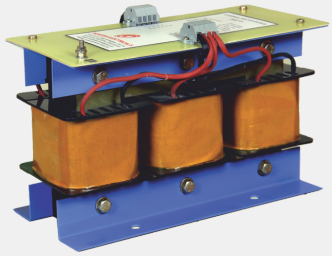
- Nylon Casing- Protective Type Bus Bar

Resin Cast-Round ID

Metering Type CT'S

- Resin Cast - WPL
- Resin Cast - Bus Bar
- Resin Cast - Round ID

Control Transformer



- Single-phase Resin Cast
- Three-phase Resin Cast

Digital Meter

- Energy Meter
- MFM Meter
- VAF Meter
- DPM Meter

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M-90 M.I.D.C Waluj, Aurangabad 431136, Maharashtra, India.

+91-0240 2551555 / 9372862651, 9372862647

sales@newtekelectricals.com
mkt.south@newtekelectricals.com
mkt.west@newtekelectricals.com
mkt.east@newtekelectricals.com
mkt.north@newtekelectricals.com

www.newtekelectricals.com