



# Current Transformer



PROCOM®

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## About us :

A vision, by three professionals having a collective experience of more than 50 years, of providing Best of Art, Reliable and Technologically Advance Protection (Pro), Control (Co) and Metering (M) gave birth to MRM *PROCOM*® Pvt.Ltd. The company designs and manufactures micro-processors/DSP based sophisticated systems for protection, controls and measurements of Power Generation and Distribution.

In year 2005 this vision was translated into reality when MRM *PROCOM*® Pvt. Ltd was incorporated/ registered by the Indian Company act and started its operation at a 1000 square feet rented premises in Okhla industrial Estate. Initial Couple of years were Utilized by the company in trying to carve a name of it, as well as, have an in depth understanding of the Generator Market.

By 2008 the company was well established and had earned the trust of the customers. The brand *PROCOM*® was an accepted trade mark. Customer acceptability translated into orders demanding more human, machinery and working area resources. The company moved into a new premise of 3000 sqft. in 2009 another premises of 2500 sqft was hired to enhance the production capacity.

Haryana Government allotted one Acre of Industrial Plot and construction of State of Art g Plant having a covered area of around 40,000 sqft was started. The company shifted to its new premises, at Faridabad in Nov 2012.



And  
In 2010  
manufacturin  
premises, at Faridabad

MRM *PROCOM*® always believed that the quality of its products depends upon the quality of manpower, Production equipment, coupled with strict adherence to Quality System and Procedures. Special emphasis is given to all these. In 2009 *PROCOM*® qualified for ISO-9001 certification.

MRM *PROCOM*® lays very heavy emphasis on the production and testing equipments. We believe that the chain is a strong as its weakest link and hence the production and testing equipments are procured only from well renowned manufactures. All the testing equipment is calibrated at regular intervals. The production is equipped to handle both through hole and SMD technology and is capable of handling both leaded and lead free components. We have installed Fully Automatic Pick and Place Machine from Juki Japan, Stencil printer from Akra, Germany, Reflow of EMS and Wave Soldering machine with Dual wave from EMS. The calibration and testing facilities are also up to date and consists of State of the Art Calibration with reference meter from ZERA and simulator and voltage & current source from Calmet, Multi-Meters from Fluke, oscilloscopes from Tektronix, LCR Meter from HP. A complete EMI/EMC testing facilities is under consideration.

## Current Transformer :

Procom Manufacture Wide Range of LT Current Transformer For Rating Upto 3000A that Includes.

- Rectangular Molded Current Transformer
- Round Molded Current Transformer
- Rasing Cast LT Current Transformer
- Wound Primary Current Transformer
- Core Balance Current Transformer

Various Models are Available to Suit Different Mounting & Busbar Arrangement

## Measuring CT:

- The principal requirements of a measuring CT are that, for primary currents up to 120% or 125% of the rated current, its secondary current is proportional to its primary current to a degree of accuracy as defined by its "Class" and, in the case of the more accurate types, that a specified maximum phase angle displacement is not exceeded.
- A desirable characteristic of a measuring CT is that it should "saturate" when the primary current exceeds the percentage of rated current specified as the upper limit to which the accuracy provisions apply. This means that at these higher levels of primary current the secondary current is less than proportionate. The effect of this is to reduce the extent to which any measuring device connected to the CT secondary is subjected to current Overload.
- On the other hand the reverse is required of the protective type CT, the principal purpose of which is to provide a secondary current proportional to the primary current when it is several, or many, times the rated primary current. The measure of this characteristic is known as the "Accuracy Limit Factor" (A.L.F.).

## Current Transformer

- A protection type CT with an A.L.F. of 10 will produce a proportional current in the secondary winding (subject to the allowable current error) with primary currents up to a maximum of 10 times the rated current.  
With a CT, an increase in the burden will result in an increase in the CT secondary output voltage. This is automatic and necessary to maintain the current to the correct magnitude. Conversely, a reduction in the burden will result in a reduction in the CT secondary output voltage.
- This rise in secondary voltage output with an increase in burden means that, theoretically, with infinite burden as is the case with the secondary load open circuit, an infinitely high voltage appears across the secondary terminals. For practical reasons this voltage is not infinitely high, but can be high enough to cause a breakdown in the insulation between primary and secondary windings or between either or both windings and the core. For this reason, primary current should never be allowed to flow with no load or with a high resistance load connected across the secondary winding.
- When considering the application of a CT it should be remembered that the total burden imposed on the secondary winding is not only the sum of the burden(s) of the individual device(s) connected to the winding but that it also includes the burden imposed by the connecting cable and the resistance of the connections.
- If, for example, the resistance of the connecting cable and the connections is 0.1 ohm and the secondary rating of the CT is 5A, the burden of the cable and connections ( $R I^2$ ) is  $0.1 \times 5 \times 5 = 2.5VA$ . This must be added to the burden(s) of the connected device(s) when determining whether the CT has an adequately large burden rating to supply the required device(s) and the burden imposed by the connections.
- Should the burden imposed on the CT secondary winding by the connected device(s) and the connections exceed the rated burden of the CT the CT may partly or fully saturate and therefore not have a secondary current adequately linear with the primary current.
- The burden imposed by a given resistance in ohms [such as the resistance of a connecting cable] is proportional to the square of the rated secondary current. Therefore, where long runs of cable between CT and the connected device(s) are involved, the use of a 1A secondary CT and a 1A device rather than 5A will result in a 25-fold reduction in the burden of the connecting cables and connections. All burden ratings and calculations are at rated secondary current.

### Technical Data

Standards	: IS270S-1, IEC/EN 60044-1
Accuracy Class	: 1 (0.2 and 0.5 on request)
Rated Burden	: See Product range
Rated Voltage	: 720 V
Rated Frequency	: 50-60 Hz
Secondary current	: 1 and 5A
Security Factor	: FS 5
Temperature Range	: Working : -20 to +55°C, Storage : -50 to +80°C
Insulation Class	: E (Max 120°C)
Test Voltage	: 4kV <sub>eff</sub> , 50Hz 1 min.
Protection Class	: IP 20
Case	: Nylon / Polycarbonate Housing
Rated thermal short circuit current $I_{th}$	: 60 In
Rated surges current	: 2.5 $I_{th}$

### Error Limits in Transformers :

Class	Current error $\pm$ %					Phase angle error $\pm$ crad			
	10	20	50	100	120	10	20	100	120
	% of nominal primary current					% of nominal prim. current			
0.1	0,25	0,2	-	0,1	0,1	0,3	0,24	0,15	0,15
0.2	0,5	0,35	-	0,2	0,2	0,6	0,45	0,3	0,3
0.5	1	0,75	-	0,5	0,5	1,8	1,35	0,9	0,9
1.0	2	1,5	-	1	1	3,6	2,7	1,8	1,8

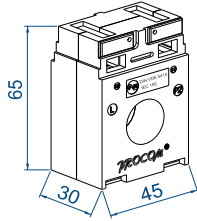
# Current Transformer

## RECTANGULAR MOLDED (CT)

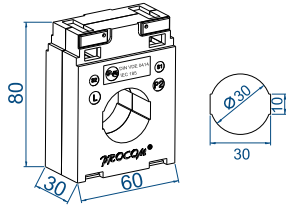
### TYPE - PRO4530R21 Accuracy Class 1.0 (0.5 On Request)

Primary Current	VA Rating	Primary Current	VA Rating
50 (2Pt)	1.25	100	2.5
60 (2Pt)	125	150	3.75
75	1.25	200	3.75

Accessories : Mounting Bracket 2 No.



TYPE - PRO4530R21

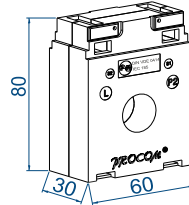


TYPE - PRO6030R30

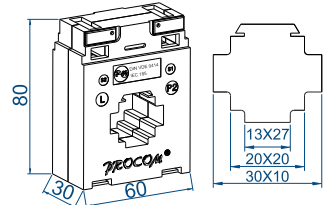
### TYPE - PRO6030R21 Accuracy Class 1.0 (0.5 On Request)

Primary Current	VA Rating	Primary Current	VA Rating
50 (2 Pt)	1.25	100	5
60	1.25	150	5
75	2.5	200	7.5

Accessories : Mounting Bracket 2 No.



TYPE - PRO6030R21



TYPE - PRO6030B3010

### TYPE - PRO6030R30 Accuracy Class 1.0 (0.5 On Request)

Primary Current	VA Rating	Primary Current	VA Rating
60 (2 Pt)	1.25	200	7.5
75	2.5	250	7.5
100	1.25	300	15
150	2.5		

Accessories : Mounting Bracket 2 No.

### TYPE - PRO6030B3010 Accuracy Class 1.0 (0.5 On Request)

Primary Current	VA Rating	Primary Current	VA Rating
75	1.25	250	7.5
100	2.5	300	10
150	5	400	10
200	7.5	500	10

Accessories : Busbar Holder 1 No. , Screw Cap 2 No. , Screw 2 No. Mounting Bracket 2 No.

### TYPE - PRO7030B4010 Accuracy Class 1.0 (0.5 On Request)

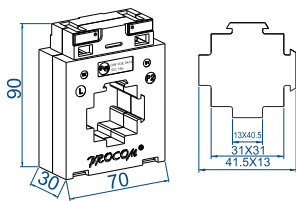
Primary Current	VA Rating	Primary Current	VA Rating
150	2.5	400	10
200	5	500	10
250	7.5	600	10
300	10		

Accessories : Busbar Holder 1 No. , Screw Cap 2 No. , Screw 2 No. Mounting Bracket 2 No.

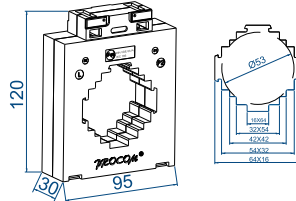
### TYPE - PRO7545B4010 Accuracy Class 1.0 (0.5 On Request)

Primary Current	VA Rating	Primary Current	VA Rating
60	3.75	250	20
75	5	300	20
100	10	400	20
150	15	500	20
200	15	600	20

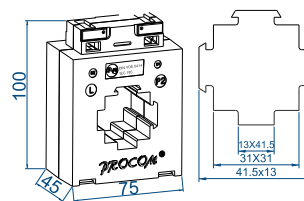
Accessories : Busbar Holder 1 No. , Screw Cap 2 No. , Screw 2 No. Mounting Bracket 2 No.



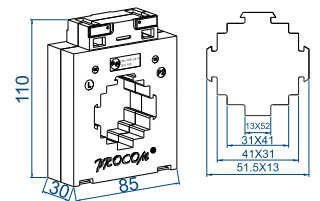
TYPE - PRO7030B4010



TYPE - PRO7030B4010



TYPE - PRO7030B4010



TYPE - PRO8530B5012

### TYPE - PRO9530B6215 Accuracy Class 1.0 (0.5 On Request)

Primary Current	VA Rating	Primary Current	VA Rating
200	2.75	800	15
250	5	1000	20
300	5	1200	20
400	7.5	1250	20
500	15	1500	20
600	15	1600	20
750	15	2000	20

Accessories : Busbar Holder 1 No. , Screw Cap 2 No. , Screw 2 No. Mounting Bracket 2 No.

### TYPE - PRO8530B5012 Accuracy Class 1.0 (0.5 On Request)

Primary Current	VA Rating	Primary Current	VA Rating
150	2.5	500	15
200	7.5	600	15
250	7.5	750	15
300	10	800	15
400	15	1000	20

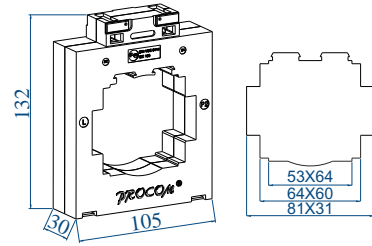
Accessories : Busbar Holder 1 No. , Screw Cap 2 No. , Screw 2 No. Mounting Bracket 2 No.



# Current Transformer

## TYPE - PRO10530B8030 Accuracy Class 1.0 (0.5 On Request)

Primary Current	VA Rating	Primary Current	VA Rating
400	3.75	1200	15
500	75	1250	15
600	10	1500	15
750	10	1600	15
800	15	2000	20
1000	15		



Accessories : Busbar Holder 1 No. , Screw Cap 2 No. , Screw 2 No. Mounting Bracket 2 No.

## CIRCULAR MOLDED CT (CMCT)

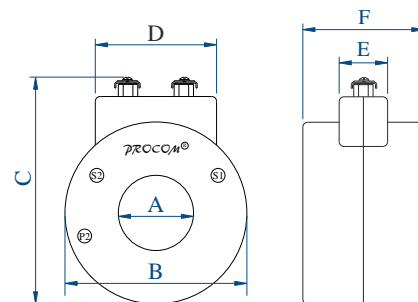
Secondary Current : 5A( CT With 1A Secondary Current, on Request)

CT Ratio Primary / Secondary Current	Dimension (mm)				class 0.5	class 1	class 5
	ID	OD	W	H	PRICE	VA	VA
50/5	31	75	50	96	—	—	5
60/5	31	80	100	96	—	—	5
75/5	31	75	50	96	—	—	5



CT Ratio Primary / Secondary Current	Dimension (mm)				class 0.5	class 1
	ID	OD	W	H	VA	VA
100/5	31	75	50	96	2.5	5
100/5	31	80	100	96	2.5	10/15
150/5	31	75	50	96	5	5
150/5	31	80	100	96	5	15
200/5	31	75	50	96	5 / 10	5 / 15
200/5	43	92	41	113	5	5 / 10 / 15
200/5	58	100	41	121	5	5/10/15
250/5	43	92	41	113	5	5 / 10
250/5	58	100	41	121	5	5 / 10 / 15
300/5	43	92	41	113	5 / 10	5 / 10 / 15
300/5	58	100	41	121	5 / 10	5 / 10 / 15
400/5	43	92	41	113	—	5 / 10
400/5	58	100	41	121	5 / 10	5 / 10
500/5	58	100	41	121	5 / 10 / 15	5 / 10 / 15
600/5	58	100	41	121	5 / 10 / 15	5 / 10 / 15
800/5	72	110	41	131	5 / 10 / 15	5 / 10 / 15
800/5	85	134	30	155	5 / 10 / 15	5 / 10 / 15
1000/5	72	110	41	131	5 / 10 / 15	5 / 10 / 15
1000/5	85	134	30	155	5 / 10 / 15	5 / 10 / 15
1200/5	85	134	30	155	5	10 / 15
1200/5	113	160	40	181	15	15
1500/5	113	160	40	181	15	15
1600/5	113	160	40	181	15	15
1800/5	113	160	40	181	15	15
2000/5	113	160	40	181	15	15
2400/5	130	165	30	186	15	15
2500/5	130	165	30	186	15	15
3000/5	130	165	30	186	15	15
3200/5	150	190	35	211	15	15
4000/5	200	235	35	256	15	15
5000/5	200	235	35	256	15	15

### Dimension Drawing :



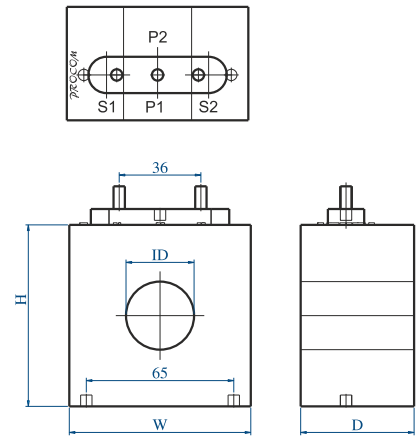
CT Type	A (ID)	B (OD)	C (H)	D	E	F (W)
1.	31	75	96	50	20	50
2.	58	100	121	50	20	41.5
3.	72	110	131	50	20	41
4.	85	134	155	50	20	30
5.	112.5	160	181	50	20	40

# Current Transformer

## RESIN CAST CT

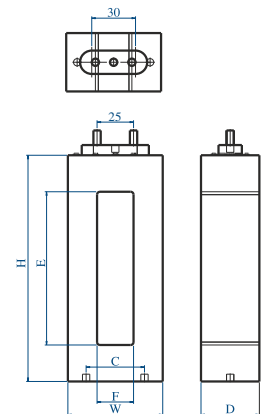
### Resin Cast CT - Ring Type, Circular ID

CT Ratio Primary / Secondary Current	Dimension (mm)				Mounting Hole Distance ( Center to Center ) Screw Size M5	Class 1 VA
	ID	H	W	D		
100/5	30	80	80	45	65	5
100/5	30	90	90	50	65	10
150/5	30	80	80	40	65	5
150/5	30	80	80	50	65	10
200/5	35	80	80	40	65	5 / 10
200/5	35	80	80	50	65	15
250/5	45	90	90	40	65	5/10
250/5	45	90	90	50	65	15
300/5	55	90	90	40	65	5 / 10
300/5	55	90	90	45	65	15
400 /5	55	90	90	35	65	5
400/5	55	90	90	40	65	10
400/5	55	90	90	45	65	15
500/5	55	90	90	35	65	5/10
500/5	55	90	90	40	65	15
600/5	55	90	90	35	65	5 / 10
600/5	55	90	90	40	65	15
800/5	70	105	105	35	85	5
800/5	70	105	105	40	85	10
800/5	70	105	105	45	85	15



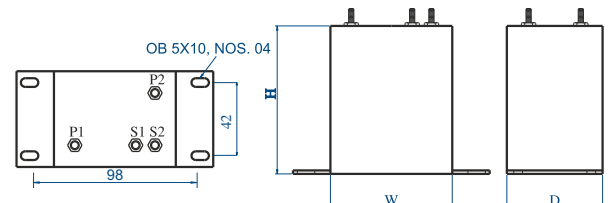
### Resin Cast CT - Rectangular Type, Rectangular ID

CT Ratio Primary / Secondary Current	Dimension (mm)				Mounting Hole Distance ( Center to Center ) Screw Size M5	Class 1 VA
	ID (WXH)	H	W	D		
800/5	105X25	155	65	40	40	10 / 15
1000/5	105X25	155	65	40	40	15
1200/5	105X40	155	80	40	60	15
1500/5	105X40	155	80	40	60	10 / 15
1600/5	105X40	105	80	40	60	5 / 10 / 15
2000/5	155X50	210	90	40	60	5 / 10 / 15
2500/5	155X50	210	90	40	60	5 / 10 / 15
3000/5	155X80	215	130	40	105	5 / 10 / 15
3200/5	155X80	215	130	40	105	5 / 10 / 15
4000/5	155X80	215	130	40	105	15
5000 /5	230X80	310	160	45	115	15
6000/5	230X80	310	160	45	115	15



### Resin Cast CT - Wound Primary

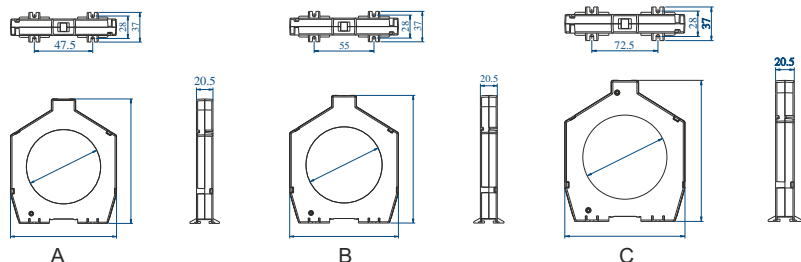
CT Ratio Primary / Secondary Current	Dimension (mm)			Mounting Hole Distance ( Center to Center ) Screw Size M5	Class 1 VA
	H	W	D		
10/5 to 25 /5	85	70	55	42 x 98	5 / 10
25/5 - 60 / 5	155	65	40	42 x 98	5 / 10
60 / 5 - 100 / 5	155	80	40	42 x 98	5 / 10



## CORE BALANCE CT

### TYPE - CBCT

ID	Width (W)	Height (H)	Dimension	Turn
37.5 mm	70 mm	90 mm	A	1000
57 mm	96 mm	116.5 mm	B	1000
92 mm	132 mm	155 mm	C	1000



## Some Definitions used for CT:

### 1) Rated Primary Current :

The value of primary current which appears in the designation of the transformer and on which the performance of the current transformer is based.

### 2) Rated secondary current:

The value of secondary current which appears in the designation of the transformer and on which the performance of the current transformer is based.

Typical values of secondary current are 1 A or 5 A.

### 3) Rated burden:

The apparent power of the secondary circuit in Volt-amperes expressed at the rated secondary current and at a specific power factor (0.8 for almost all standards)

### 4) Rated output:

The value of the apparent power (in volt-amperes at a specified power (factor) which the current transformer is intended to supply to the secondary circuit at the rated secondary current and with rated burden connected to it.

### 5) Accuracy class:

In the case of metering CT s, accuracy class is typically, 0.2, 0.5, 1 or 3.

This means that the errors have to be within the limits specified in the standards for that particular accuracy class.

The metering CT has to be accurate from 5% to 120% of the rated primary current, at 25% and 100% of the rated burden at the specified power factor.

In the case of protection CT s, the CT s should pass both the ratio and phase errors at the specified accuracy class, usually 5P or 10P, as well as composite error at the accuracy limit factor of the CT.

### 6) Accuracy limit factor:

The value of primary current up to which the CT complies with composite error requirements. This is typically 5, 10 or 15, which means that the composite error of the CT has to be within specified limits at 5, 10 or 15 times the rated primary current.

### 7) Instrument security factor (factor of security):

This typically takes a value of less than 5 or less than 10 though it could be much higher if the ratio is very low. If the factor of security of the CT is 5, it means that the composite error of the metering CT at 5 times the rated primary current is equal to or greater than 10%. This means that heavy currents on the primary are not passed on to the secondary circuit and instruments are therefore protected. In the case of double ratio CT's, FS is applicable for the lowest ratio only.

### 8) Core balance CT (CBCT):

The CBCT, also known as a zero sequence CT, is used for earth leakage and earth fault protection. The concept is similar to the RVT. In the CBCT, the three core cable or three single cores of a three phase system pass through the inner diameter of the CT. When the system is fault free, no current flows in the secondary of the CBCT. When there is an earth fault, the residual current (zero phase sequence current) of the system flows through the secondary of the CBCT and this operates the relay. In order to design the CBCT, the inner diameter of the CT, the relay type, the relay setting and the primary operating current need to be furnished.

### 9) Instrument security factor (ISF or Fs):

The ratio of rated instrument limits primary current to the rated primary current. The times that the primary current must be higher than the rated value, for the composite error of a measuring current transformer to be equal to or greater than 10%, the secondary burden being equal to the rated burden. The lower this number is, the more

## Products Range

- Multifunction Meters
- Current Transformers
- Protections Relays
- Din Rail Mounted Relays
- Wiring Harness
- AMF Controllers
- Manual Controllers
- Relay Boards
- Earth Leakage Relays & CBCT
- Battery Charger

## Certificate



**MRM *PROCOM*® Pvt. Ltd.**

An ISO 9001:2008 Certified Organization

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