

LV Current Transformers

Solutions that are **Designed**, **Manufactured** and **Delivered** for all your Metering and Protection Applications



APPLICATIONS

"*elmex*" Current Transformers are available for various combinations of Burden and class of accuracy for various applications.

The Insulating materials used are complying with requirements of IEC: 60085 for Insulation Class-E (or better).

Metering	Protection	Revenue	Core Balance
Indication	Summation	Auxiliary	Interposing
Neutral Displacement	Differential Protection	Meters & UPS Manufacturers	Motor/Power Control Centre

CONSTRUCTION

"elmex" Low Voltage Current Transformers are designed for supplying to Measuring Instruments and Protective Devices. These are suitable for System Voltage 415V/660V/1000 V and frequency 50/60 Hz. Basic construction is in three different Groups as under, meeting various application requirements.

POLYCARBONATE ENCAPSULATED

RESIN ENCAPSULATED

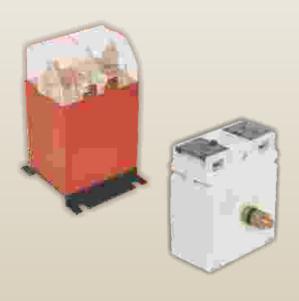
TAPE INSULATED

CONFIGURATION

Wound Primary Type (WPL)

(CT having Two or more number of Primary turns)

- ✓ Preffered for Rated Primary current below 100A.
- ✓ Offered for higher Accuracy with lower Burdens (viz. 5VA/Class-1.0 or 2.5VA/Class-0.5 for metering) for lower primary current.
- Available in Resin cast and Polycarbonate casing.



Window/ Plug - In Type (BPL)

(CT having an opening of suitable size is provided in the centre for Primary conductor)

- ✓ Preffered when Rated Primary current is above 100A and above.
- ✓ Economic design
- ✓ Available in Resin cast and Polycarbonate casing.



GENERAL SI	PECIFICATIONS			
Highest System Voltage: 720V (max.), 50/60 Hz.	Insulation Class: E (Offered B on request)			
Basic Insulation Level: 0.72/4.0kV	Average ambient: -20°C to +45 °C			
Rated Primary Current: 1A to 7000A	Connections: (S1-S2) Two brass terminals of M5 size			
Rated Secondary Current: 5A or 1A	Applicable Standard: IEC-61869-2 / IS-2705			
Short - time Thermal Current (Ith.): 60xIn	Standard Burden: 1.25, 2.5, 3.75, 5, 7.5, 10, 15, 20, 30, 40,60VA			
Dynamic Current (Idyn.): 2.5 x Ith.	Instrument Security Factor: 5 or Less			
Class of Accuracy				
0.2S, 0.5S for tariff (revenue)	3.0, 5.0 for Indication purpose			

0.2, 0.5 for Precise measurement and laboratory

5P/10P for Protection and PS for Special protection

1.0 for General Metering

CHARACTERISTIC

A Current Transformer converts an alternating current generally very high in a proportion to its transformation ratio. Measuring CT's convert the primary current, at the class of accuracy, as designed over a current range from 1 to 120 % (as the case may be) of its rated primary current. The design of Measuring CT requires CT to perform within the limits of error as given by the standard specifications, when connected to its rated burden. Measuring CT advantageously saturates above the normal working range to protect an instrument connected against damages by limiting the secondary current during the fault that may appear in the system.

Measuring Transformer

A transformer intended to supply indicating & measuring instruments, integrated meters and other similar apparatus.

Current Transformer

An Instrument Transformer in which the secondary current, in normal condition of use, is substantially proportional to the primary current and differs in phase by an angle which is approximately zero for an appropriate direction of connections.

Rated Primary Current

The value of primary current intended to measure and on which the performance of the current transformer is based.

Rated Secondary Current

The value of secondary current which is of use in normal condition and on which the performance of the current transformer is based.

Rated Transformation Ratio

The ratio of the rated primary current to the rated secondary current.

Current Error (Ratio Error)

The error which a transformer introduces into the measurement of a current and which arises from the fact that actual transformation ratio is not equal to the rated transformation ratio.

The current error is expressed in percentage and is given by the formula:

Current error (%) = (Ka . Is - Ip) x 100 / Ip

Where,

Ka=rated transformation ratio

Ip= actual primary current

Is= actual secondary current when Ip is flowing under the conditions of measurement

Phase Displacement

The difference in phase between the primary and secondary current vectors, the direction of the vectors being so chosen that the angle is zero for a perfect transformer. The phase displacement is said to be positive when the secondary current vector leads the primary current vector. It is usually expressed in minutes.

Accuracy Class

A designation assigned to a current transformer, the errors of which remain within specified limit under prescribed conditions of use.

Burden

The impedance of the secondary circuit in ohms and power factor. It is usually expressed as apparent power (in VA), at the rated secondary current and at a specified power factor.

Rated Burden

The impedance of the secondary circuit on which the accuracy requirements of the specifications are based. Standard value of burdens are as given in general specifications.

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.

Highest System Voltage

The highest r.m.s. line to line voltage which can be sustained under normal operating conditions at any point of time on the system. It excludes voltage variation due to fault condition and sudden disconnection of a heavy load.

Rated Insulation Level

The combination of voltage values, which characterizes the insulation of a transformer with regard to its capability to withstand dielectric stresses even during fault condition.

Rated Short-time Thermal Current (Ith.)

The r.m.s. value of the primary current which the current transformer will withstand for a rated time without suffering harmful effects, the secondary winding being short-circuited.

Rated Dynamic Current (Idyn.)

The peak value of the primary current which a current transformer will withstand, without being damaged electrically or mechanically by the resulting electromagnetic forces, the secondary winding being short-circuited.

Rated Continuous Thermal Current

The value of current which can be permitted to flow continuously in the primary winding, without the temperature rise exceeding the specified values for a given class of insulation, the secondary windings being connected to the rated burden.

Instrument Security Factor (ISF)

The ratio of rated instrument limit primary current to the rated primary current. The safety of the apparatus connected to the transformer is more when the value of ISF is small.

GUIDELINES FOR RATED BURDEN AND LIMITS OF PERMISSIBLE ERROR

INSTRUMENT BURDEN*			Limi	its of ra	itio erro	or & ph	ase disp	laceme:	nt as pe	r IEC:	61869-2	2**	
Type of Instrument	VA	Accuracy Class				± Phase displacement - Minutes at % of Rated Current shown below							
Moving iron ammeter	1.0		1	5	20	50	100	120	1	5	20	100	120
Bimetal instruments (/5A)	3.0	0.2		0.75	0.35		0.2	0.2		30	15	10	10
Wattmeter	5.5	0.5		1.5	0.75		0.5	0.5		90	45	30	30
Power factor meter	4.0	1.0		3.0	1.5		1.0	1.0		180	90	60	60
Current transducer	0.5	0.2S	0.75	0.35	0.2		0.2	0.2	30	15	10	10	10
Power transducer	0.5	0.5S	1.5	0.75	0.5		0.5	0.5	90	45	30	30	30
kWh-meter	2.5	3.0				3.0		3.0					
Trivector meter	5.0	5.0				5.0		5.0					

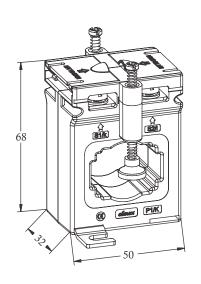
	Lead Burden of a respective wire size used for connection [VA] **											
For CT having Secondary Current 1 Amp For CT having Secondary Cross						Secondary	Current 5 Aı	np				
Section mm ²	Distance between CT and Measuring Instrument / Device in meters											
ШШ	2 x 2	2 x 4	2 x 6	2 x 8	2 x 10	2 x 15	2 x 20	2 x 2	2 x 4	2 x 6	2 x 8	2 x 10
1.5	0.053	0.106	0.159	0.213	0.266	0.399	0.532	1.33	2.66	3.99	5.32	6.65
2.5	0.032	0.064	0.095	0.12	0.16	0.24	0.32	0.79	1.59	2.40	3.19	3.99
4.0	0.02	0.039	0.059	0.079	0.099	0.148	0.19	0.495	0.99	1.485	1.98	2.48
6.0	0.013	0.026	0.04	0.053	0.066	0.099	0.132	0.33	0.66	0.99	1.32	1.65

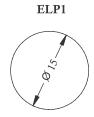
^{*}The actual burden is normally declared by the manufacturer

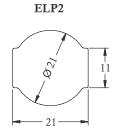
^{**}Given data are for guidelines only

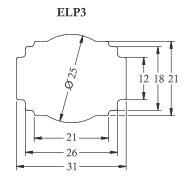
Advantages of **Polycarbonate Encapsulated CTs** Superior Aesthetics and Consistency of Dimensions Multiple Conductor Compatibility: Suitable for different size of Bus bars/conductors in the same CT Multiple Mounting Options: Suitable For Bus-Bar Mounting as well as Panel Mounting Fire Retardant Embossed terminal Markings: Eliminates the risk of marking stickers peeling off Robust Construction: High Mechanical strength resulting in increased safety during transit Option of Terminal sealing: Provides protection from power theft Manufactured with State-of-Art processes complying to ISO:14001 and RoHS directive

Ease for traceability

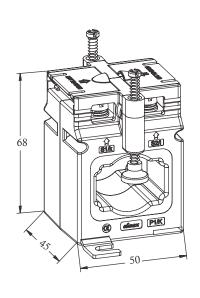


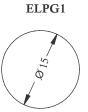


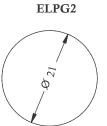


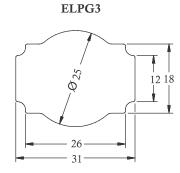


ТҮРЕ	ELP					
CAT. NO.	ELP1 (E1 15.4)	ELP2 (E2 21.4)	ELP3 (E3 31.4)			
RATING	40 - 300 A	50 - 300 A	75 - 600 A			
BUS SIZE	15 Ø	20x10	30x10 / 25x10			

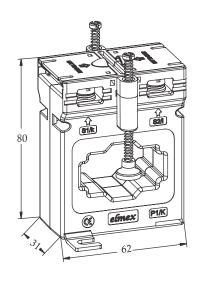


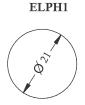


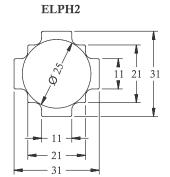


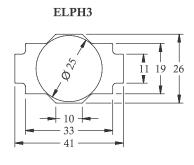


TYPE	ELPG					
CAT. NO.	ELPG1 (EG 15.4)	ELPG2 (EG 21.4)	ELPG3 (EG 31.4)			
RATING	25 - 150 A	25 - 600 A	50 - 600 A			
BUS SIZE	15 Ø	21 Ø	30x10 / 25x10			

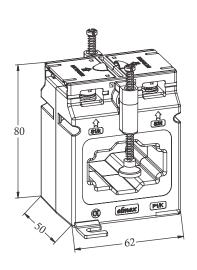


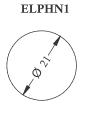


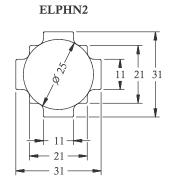


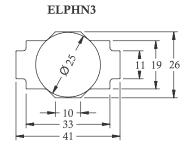


TYPE	ELPH					
CAT. NO.	ELPH1 (EH 21.3)	ELPH2 (EH 31.3)	ELPH3 (EH 41.3)			
RATING	30 - 600 A	40 - 600 A	100 - 800 A			
BUS SIZE	21 Ø	30x10 / 20x20	40x10 / 30x15			

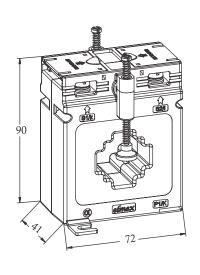


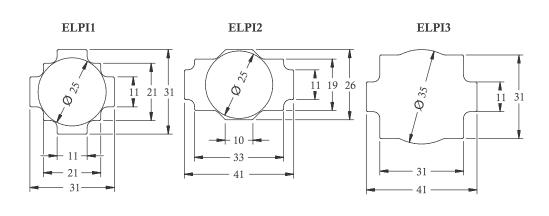




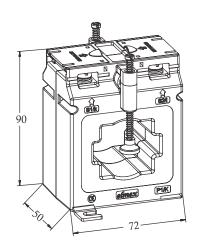


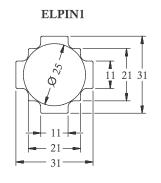
TYPE	ELPHN					
CAT. NO.	ELPHN1 (EHN 21.5)	ELPHN2 (EHN 31.5)	ELPHN3 (EHN 41.5)			
RATING	25 - 600 A	30 - 800 A	75 - 800 A			
BUS SIZE	21 Ø	30x10 / 20x20	40x10 / 30x15			

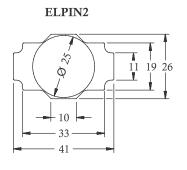


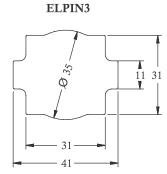


TYPE		ELPI	
CAT. NO.	ELPI1 (EI 31.4)	ELPI2 (EI 41.4)	ELPI3 (EI 41.4N)
RATING	50 - 800 A	50 - 800 A	150 - 500 A
BUS SIZE	30x10 / 20x20	40x10 / 30x15	40x10 / 2(30x10)

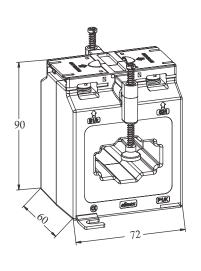


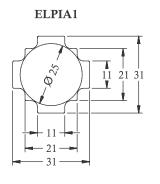


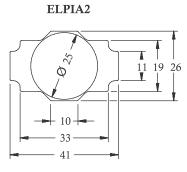


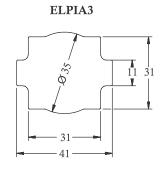


TYPE	ELPIN					
CAT. NO.	ELPIN1 (EIN 31.5)	ELPIN2 (EIN 41.5)	ELPIN3 (EIN 41.5N)			
RATING	30 - 800 A	50 - 1000 A	125 - 500 A			
BUS SIZE	30x10 / 20x20	40x10 / 30x15	40x10 / 2(30x10)			

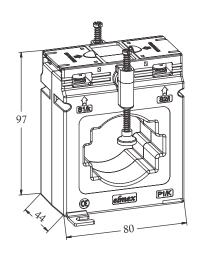


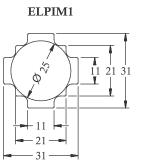


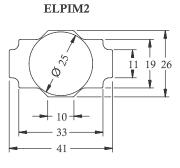


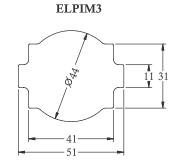


TYPE	ELPIA					
CAT. NO.	ELPIA1 (EIA 31.6)	ELPIA2 (EIA 41.6)	ELPIA3 (EIA 41.6N)			
RATING	50 - 800 A	50 - 800 A	125 - 500 A			
BUS SIZE	30x10 / 20x20	40x10 / 30x15	40x10 / 2(30x10)			

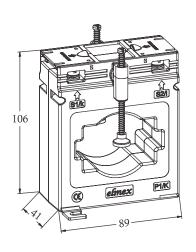


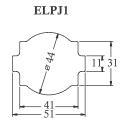


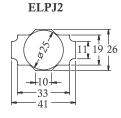


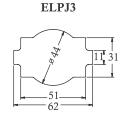


TYPE	ELPIM					
CAT. NO.	ELPIM1 (EIM 31.4)	ELPIM2 (EIM 41.4)	ELPIM3 (EIM 51.4)			
RATING	50 - 600 A	75 - 1000 A	100 - 1000 A			
BUS SIZE	30x10 / 20x20	40x10 / 30x15	50x10 / 2(40x10)			



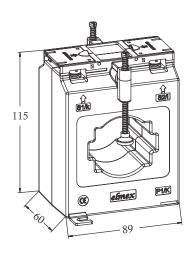


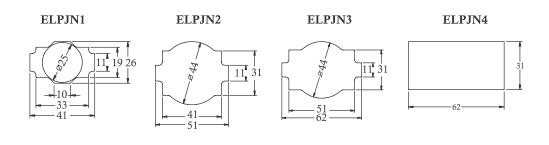




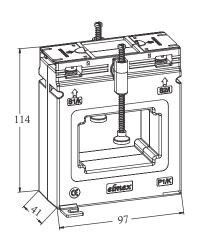
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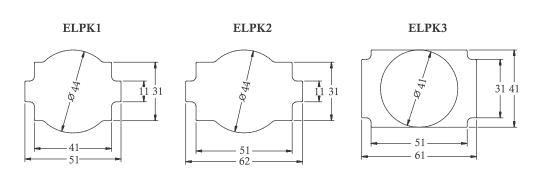
ТҮРЕ	ELPJ			
CAT. NO.	ELPJ1 (EJ 41.4)	ELPJ2 (EJ 51.4)	ELPJ3 (EJ 62.4)	ELPJ4 (EJ 62*2.4)
RATING	50 - 1000 A	75 - 1000 A	100 - 1000 A	200 - 2000 A
BUS SIZE	40x10 / 30x15	50x10 / 2(40x10)	60x10 / 2(50x10)	2(60x10)



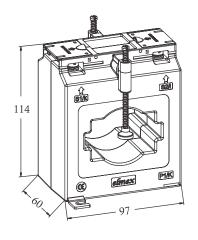


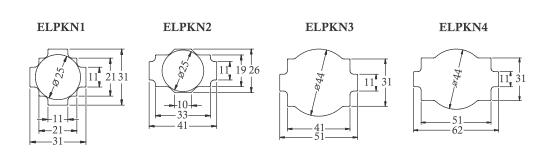
ТҮРЕ	ELPJN			
CAT. NO.	ELPJN1 (EJN 41.6)	ELPJN2 (EJN 51.6)	ELPJN3 (EJN 62.6)	ELPJN4 (EJN 62*2.6)
RATING	100 - 1000 A	100 - 1250 A	200 - 1500 A	200 - 2000 A
BUS SIZE	40x10 / 30x15	50x10 / 2(40x10)	60x10 / 2(50x10)	2(60x10)



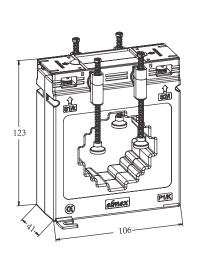


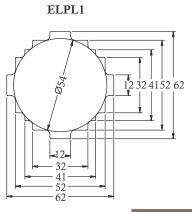
TYPE	ELPK		
CAT. NO.	ELPK1 (EK 51.4)	ELPK2 (EK 62.4)	ELPK3 (EK 61*2.4)
RATING	100 - 1250 A	100 - 1600 A	150 - 1600 A
BUS SIZE	50x10 / 2(40x10)	60x10 / 2(50x10)	2(60x10) / 2(50x15)

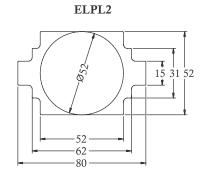




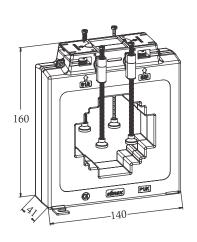
TYPE	ELPKN			
CAT. NO.	ELPKN1 (EKN 31.6)	ELPKN2 (EKN 41.6)	ELPKN3 (EKN 51.6)	ELPKN4 (EKN 62.6)
RATING	50 - 600 A	50 - 1000 A	100 - 1250 A	100 - 1600 A
BUS SIZE	30x10 / 20x20	40x10 / 30x15	50x10 / 2(40x10)	60x10 / 2(50x10)

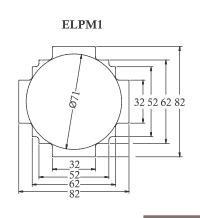


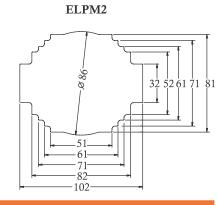




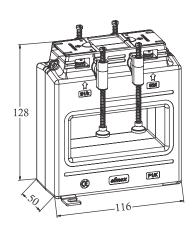
ТҮРЕ	ELPL		
CAT. NO.	ELPL1 (EL 62.4)	ELPL2 (EL 80.4)	
RATING	200 - 2000 A	200 - 2000 A	
BUS SIZE	60x10 / 2(50x10) / 2(40x15)	80x12 / 2(60x10) / 3(50x10)	

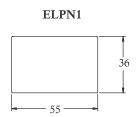


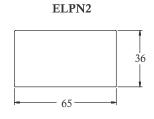




TYPE	ELPM		
CAT. NO.	ELPM1 (EM 82*2.4)	ELPM2 (EM 102*2.4)	
RATING	200 - 2500 A 300 - 4000 A		
BUS SIZE	2(80x10) / 3(60x12) / 3(50x10)	2(100x10) / 3(80x10) / 3(70x12) / 4(60x10)	

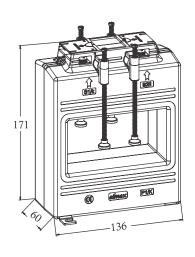




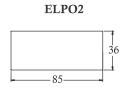


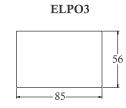
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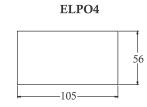
TYPE	ELPN		
CAT. NO.			ELPN3 (EN 85*2.5)
RATING	300 - 1500 A	300 - 2000 A	300 - 2500 A
BUS SIZE	2(50x10)	2(60x10)	2(80x10)



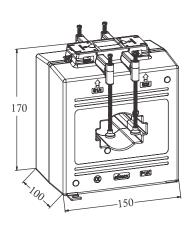


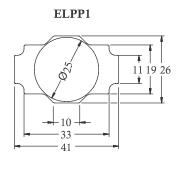


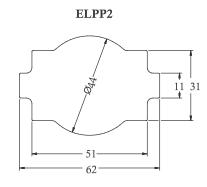




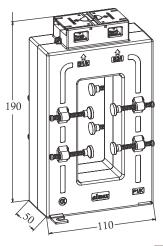
TYPE	ELPO			
CAT. NO.	ELPO1 (EO 65*2.6)	ELPO2 (EO 85*2.6)	ELPO3 (EO 85*3.6)	ELPO4 (EO 105*3.6)
RATING	250 - 1500 A	300 - 3000 A	400 - 3200 A	300 - 5000 A
BUS SIZE	2(60x10)	2(80x10)	3(80x10)	3(100x10)

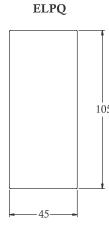


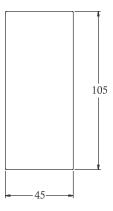


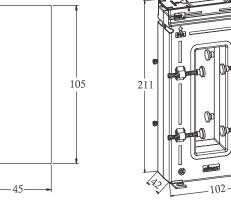


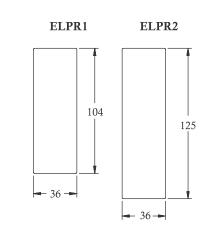
TYPE	ELPP		
CAT. NO.	ELPP1 (EP 41.10)	ELPP2 (EP 62.10)	
RATING	60 - 800 A	100 - 2000 A	
BUS SIZE	40x10 / 30x15 / 25 Ø	60x10 / 2(50x10)	





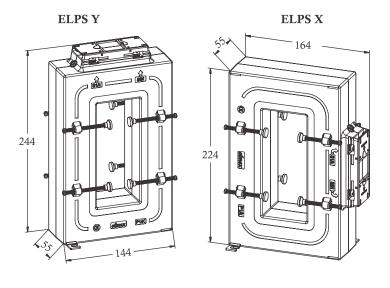


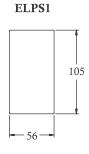


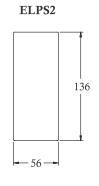


ТҮРЕ	ELPQ
CAT. NO.	ELPQ (EQ 105*2.5)
RATING	250 - 1600 A
BUS SIZE	2(100x12)

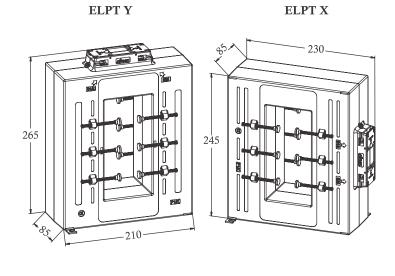
ТҮРЕ	ELPR		
CAT. NO.	ELPR1 (ER 105*2.4)	ELPR2 (ER 125*2.4)	
RATING	300 - 2000 A	300 - 2500 A	
BUS SIZE	2(100x10)	2(120x10)	

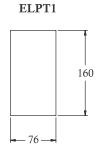


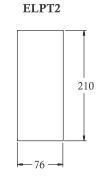




ТҮРЕ	ELPS		
CAT. NO.	ELPS1 X/Y (ES 105*3.5)	ELPS2 X/Y (ES 136*2.5)	
RATING	250 - 5000 A	250 - 5000 A	
BUS SIZE	3(100x10)	3(130x10)	

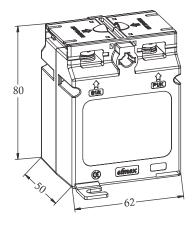






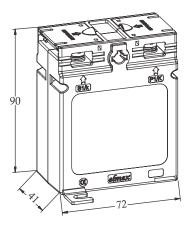
TYPE	ELPT		
CAT. NO.	ELPT1 X/Y (ET 160*4.8)	ELPT2 X/Y (ET 210*4.8)	
RATING	600 - 7500 A	600 - 7500 A	
BUS SIZE	4(150x10)	4(200x10)	

EWPHN



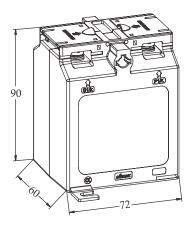
ТҮРЕ	EWPHN
CAT. NO.	EWPHN (EAW 62/5)
RATING	1 - 40 A

EWPA



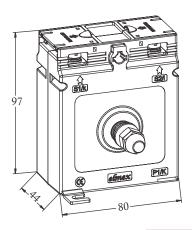
ТҮРЕ	EWPA
CAT. NO.	EWPA (EAW 72/4)
RATING	1 - 40 A

EWPIA



ТҮРЕ	EWPIA
CAT. NO.	EWPIA (EAW 72/6)
RATING	1 - 40 A

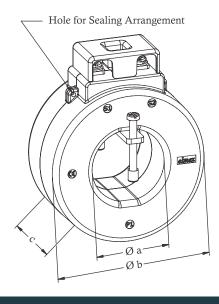
EWPB



ТҮРЕ	EWPB
CAT. NO.	EWPB (EBW 80/44)
RATING	30 - 150 A

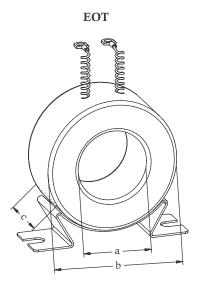
POLYCARBONATE ENCASED RING TYPE - EOP

EOPX/A-F



Polycarbonate Encased Ring Type: (EOP)				
CAT. NO.	Rating	Inner Dia.	Outer Dia.	Ax. Ht
EOPX	30 TO 150 A	25	75	
EOPA	50 TO 200 A	30	80	41
EOPB	150 TO 400 A	40	90	44
EOPC	300 TO 600 A	60	105	44
EOPD	600 TO 1000 A	70	110	40
EOPE	800 TO 2000 A	95	145	40
EOPF	800 TO 3200 A	110	160	40

TAPE INSULATED RING TYPE - EOT

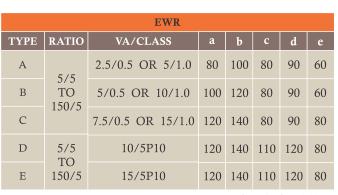


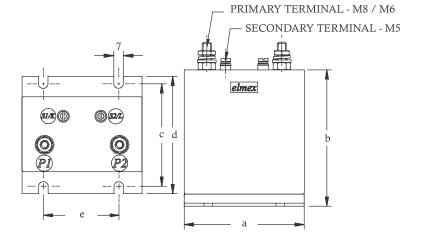
Tape Insulated Ring Type: (EOT)				
CAT. NO.	Rating	Inner Dia.	Outer Dia.	Ax. Ht
EOT 30	50 TO 200 A	30	80	45
EOT 40	100 TO 300 A	40	90	45
EOT 55	300 TO 600 A	55	105	45
EOT 70	600 TO 800 A	70	110	45
EOT 90	800 TO 1500 A	90	145	45
EOT 110	1200 TO 3200 A	110	160	45

Note: • The actual dimensions shall be as per custom requirements or as given in quotation

- The leads provided are 150 mm long
- Mounting clamp can be provided on request

RESIN CAST WOUND PRIMARY TYPE - (WPL)





TOLERANCE ± 2.00 mm

TAPE INSULATED/RESIN CAST WINDOW TYPE - BPL

EOR				
ТҮРЕ	RATIO RECOMMENDED	a	ь	c
A	100/5 TO 300/5	25/30	80	110
В	100/5 TO 500/5	25-50	100	130
С	250/5 TO 800/5	30-60	110	140
D	250/5 TO 1200/5	30-70	120	150
E	400/5 TO 1500/5	40-80	130	160
F	500/5 TO 2000/5	40-90	150	180
G	600/5 TO 3000/5	50-100	160	190
Н	800/5 TO 4000/5	50-115	175	205
I	1000/5 TO 5000 /5	70-140	210	240
J	1000/5 TO 6000/5	70-200	270	300

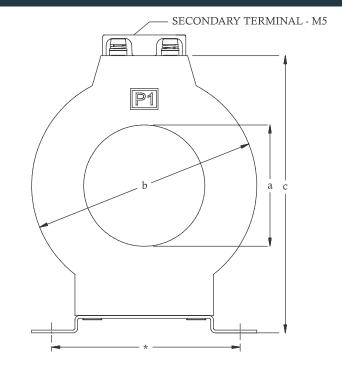
TOLERANCE \pm 2.00 mm

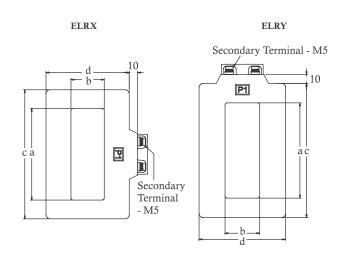
MOUNTING DIMENSIONS			
TYPE	NO. OF SLOTS		
LIFE	2*	4	
A-E	80	80x60	
F-G	100	100x60	
H-J	120	120x60	

Note:-
For CT's having depth 50 mm or below, two slots are
provided and above 50 mm four slots are provided as given
in table.

ELT / ELR - A TO L				•	4			
TYPE	RATIO	VA	CLASS	a	b	С	d	
SUITABLE FOR ALUMINIUM BUSBAR								
A	500/5 TO 1000/5	15	0.5	80	45	140	105	
В	1200/5 TO 1600/5	15	0.5	105	45	170	110	
С	1800/5 TO 2500/5	15	0.2	105	65	170	130	
D	3000/5 TO 4000/5	25	0.2	130	85	195	150	
Е	4500/5 TO 5000/5	30	0.2	170	85	245	160	
F	6000/5	40	0.2	210	85	285	160	
SUITABLE FOR COPPER BUSBAR								
G	500/5 TO 1000/5	15	0.5	45	45	115	115	
Н	1200/5 TO 1600/5	15	0.5	55	45	125	115	
I	1800/5 TO 2500/5	15	0.2	85	45	150	110	
J	3000/5 TO 3500/5	20	0.2	105	45	180	120	
K	4000/5 TO 4500/5	30	0.2	105	65	180	140	
L	5000/5 TO 6000/5	40	0.2	130	65	210	145	

TOLERANCE ± 2.00 mm





"elmex" RANGE OF CURRENT TRANSFORMERS

Window / Plug In Type Polycarbonate Encapsulated: (Bar/Cable through) - (BPL)

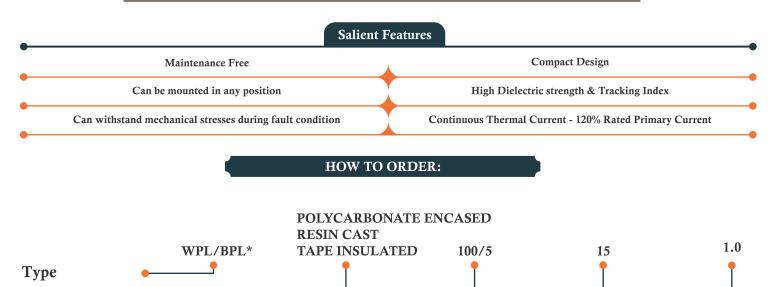
Application	RING	ТҮРЕ	RECTANGULAR		
	CT Ratio	Туре	CT Ratio	Туре	
Metering	30/5 TO 3200/5	EOPX/A - F	25/5 TO 7000/5	ELP - ELPT	
Protection	30/3 10 3200/3	EOPA/A-F	23/3 10 /000/3		

Wound Primary Type: (WPL))			
POLYCARBONATE ENCASED (Metering)			RESIN ENCAPSULATED (Metering & Protection)			
CT Ratio	VA/Class	Туре	CT Ratio VA/Class		Туре	
	5 / 0.5 OR 10 / 1.0	EWPHN	5/5 TO 100/5	2.5 / 0.5 OR 5 / 1.0	EWRA	
5/5 TO 40/5	7.5 / 0.5 OR 15 / 1.0	EWPA	3/3 10 100/3	5 / 0.5 OR 10 / 1.0	EWRB	
			50/5 TO 150/5	7.5 / 0.5 OR 1 5 / 1.0	EWRC	
	10 / 0.5 OR 20 / 1.0	EWPIA	30/3 10 130/3	10 / 5P10	EWRD	
30/5 TO 150/5	7.5 / 0.5 OR 15 / 1.0	EWPB		15 / 5P10	EWRE	

Window / Plug In Type Tape / Resin Encapsulated: (Bar/Cable through) - (BPL)

Application	RING TYPE			RECTANGULAR		
	CT Ratio	Tape	Resin	CT Ratio	Tape	Resin
Metering	100/5 TO 6000/5	ЕОТА - Ј	EORA - J	400 /5 TO 7000 /5	ELTA - L	ELRA - L
Protection	150/5 TO 6000/5	EOTD - J	EORD - J	400/5 TO 7000/5		

Note: All types can also be supplied with 1 Amp rated secondary currents



* In case of BPL inner dimensions are essentially required.

Construction

Burden (VA)

Ratio

Class

For Differential Protection CT (Class-PS), please specify Minimum Knee Point Voltage (Vk), Maximum Winding Resistance corrected at 75 °C (RCT) and Permissible Exciting Current (Iex) at Vk or part thereof. Alternatively formula for Vk may be given.

- Mounting clamp and Terminal block for Tape Insulated CT can be offered on request.
 Third party Type Test Reports can be furnished on request.
- Terminal sealing arrangement for Resin CT can be offered on request.

 Custom requirements other than standard can be offered on request.





RESIN ENCAPSULATED CURRENT TRANSFORMERS













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