

Distribution Systems, Busbar Systems and Switchboards

4NC Current Transformers

General criteria for the selection of current transformers for measuring purposes

Specifications	IEC 60185, DIN VDE 0414 Parts 1 and 2	
Window-type current transformers	The conductor to be measured (busbar or wire) is passed through the window opening and creates the primary circuit of the window-type current transformer. Pin-wound transformer: An economical solution especially for small primary currents of 5 A to 75 A is achieved when the conductor to be measured is threaded through the window opening several times.	
Rated primary current I_{pn}	Current transformers can be continuously loaded with 1.2 times the rated primary current (I_{pn}).	
Rated secondary current I_{sn}	1 A Particularly suitable for longer measuring leads. Power loss only 4 % compared to 5 A current transformers:	5 A 5 A current transformers produce 25 times more power loss on measuring leads than 1 A current transformers. With longer cables these additional power losses increase the burden on the CT. Recommended only for short measuring leads.
Accuracy class	Class 1 Operation measurement, internal metering Current error $\pm 1\%$ at $1 \times I_{pn}$ and $1.2 \times I_{pn}$	Class 3 Coarse measurement Current error $\pm 3\%$ at $0.5 \times I_{pn}$ and $1.2 \times I_{pn}$
Rated burden P_n	The rated burden of transformers is specified in VA. The actual load should be similar to the rated burden; a lower actual load (underburden) increases the overcurrent factor and measuring instruments may be damaged in case of a short-circuit, a higher actual load (overburden) has a negative effect on the accuracy. With a frequency of 60 Hz the rated burden increases to 1.2 times. With $16\frac{2}{3}$ Hz the burden decreases to $\frac{1}{3}$ of the rated burden.	
Maximum voltage of equipment U_m	This is the rms value of the maximum voltage between the conductors of a system. For this voltage the insulation must be rated at normal operating conditions. The 4NC3 and 4NC5 current transformers are suitable for 720 V.	
Rated overcurrent factor FS	The rated overcurrent factor will be expressed by the letters FS and a factor of e.g. FS5 or FS10. When a short-circuit current flows through the primary winding of a current transformer, the load on the measuring instruments connected to the current transformer is the lower the smaller the current factor is.	
Rated short-time thermal current I_{th}	The rated short-time thermal current I_{th} is the rms value of the primary current of a duration of one second, whose heat effect the current transformer can resist without being damaged in case of a short-circuited secondary winding.	
Rated dynamic current I_{dyn}	The rated dynamic current I_{dyn} is the highest instantaneous value of the current at a short-circuit whose force the current transformer can resist without being damaged. The rated dynamic current is specified as peak value.	

Technical data

Specifications	IEC 60185, DIN VDE 0414 Parts 1 and 2	
Rated primary current I_{pn}	50 A ... 4000 A can be used as pin-wound transformer for small currents from 5 A to 75 A.	
Rated secondary current I_{sn}	1 A or 5 A	
Maximum voltage of equipment U_m	720 V	
Frequency	50 Hz up to 60 Hz	
Rated overcurrent factor FS	FS5 (IEC/DIN VDE)	
Rated continuous thermal current	$1.2 \times I_{pn}$	
Rated short-time thermal current I_{th}	$60 \times I_{pn}$	
Rated dynamic current I_{dyn}	$2.5 \times I_{pn}$ or $150 \times I_{pn}$	
Accuracy class	1	
Ambient temperature	+55 °C at $1.0 \times I_{pn}$ +40 °C at $1.2 \times I_{pn}$ -10 °C minimum	
Max. busbar temperature	+120 °C	
Insulation class	E (max. 120 °C continuously)	
Insulation	Moulded plastic housing, halogen-free	
Test voltage	AC 3 kV	
Secondary terminals	4NC5: Double terminals using M 4 captive screws, safe from finger touch to IEC 60 536/DIN VDE 0106 Part 100 4NC3: solid 2 x (2.5 mm ²) 4NC5 2 x (2.5 mm ² ... 6 mm ²) two-wire 2 x (1.5 mm ² ... 4 mm ²) 2 x (1.5 mm ² ... 4 mm ²)	
Same polarity connections	primary → secondary K/P1 → k/S1 (IEC/DIN VDE) L/P2 → l/S2 (IEC/DIN VDE)	
Mounting	optional busbar or foot mounting	

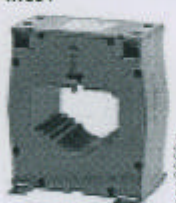
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4NC Current Transformers

4NC5

Classes 1 and 3, from 50 A to 1500 A

Selection and ordering data

	Rated primary current I_{pn}	Burden P_s	DT	4NC5 current transformers Rated secondary current 1 A			4NC5 current transformers Rated secondary current 5 A		
				Order No.	Price 1 unit	PG	DT	Order No.	Price 1 unit
For round conductors with max. diameter 17.5 mm for busbars up to max. \equiv 12 mm x 10 mm				Class 3					
4NC51 nse0265g	50	2.5	A	4NC51 12-0BC20	103	A	4NC51 12-2BC20	103	
	60	2.5	A	4NC51 13-0BC20	103	A	4NC51 13-2BC20	103	
	75	2.5	A	4NC51 15-0BC20	103	A	4NC51 15-2BC20	103	
	100	2.5	A	4NC51 17-0CC20	103	A	4NC51 17-2CC20	103	
	150	2.5	A	4NC51 21-0CC20	103	A	4NC51 21-2CC20	103	
	200	5	A	4NC51 22-0CE20	103	A	4NC51 22-2CE20	103	
	250	5	A	4NC51 23-0CE20	103	A	4NC51 23-2CE20	103	
	For round conductors with max. diameter 28 mm for busbars up to max. \equiv 30 mm x 10 mm \equiv 25 mm x 5 mm				Class 1				
4NC52 nse0267g	200	5	A	4NC52 22-0CE20	103	A	4NC52 22-2CE20	103	
	250	5	A	4NC52 23-0CE20	103	A	4NC52 23-2CE20	103	
	300	5	A	4NC52 24-0CE20	103	A	4NC52 24-2CE20	103	
	400	5	A	4NC52 25-0CE20	103	A	4NC52 25-2CE20	103	
For round conductors with max. diameter 38 mm for busbars up to max. \equiv 50 mm x 10 mm \equiv 40 mm x 5 mm				Class 1					
4NC53 nse0269g	400	5	A	4NC53 25-0CE20	103	A	4NC53 25-2CE20	103	
	500	5	A	4NC53 26-0CE20	103	A	4NC53 26-2CE20	103	
	600	5	A	4NC53 27-0CE20	103	A	4NC53 27-2CE20	103	
	750	5	A	4NC53 28-0CE20	103	A	4NC53 28-2CE20	103	
For round conductors with max. diameter 45 mm for busbars up to max. \equiv 60 mm x 10 mm \equiv 60 mm x 10 mm \equiv 60 mm x 5 mm				Class 1					
4NC54  nse0269g	1000	10	A	4NC54 31-0CH20	103	A	4NC54 31-2CH20	103	
	1250	10	A	4NC54 33-0CH20	103	A	4NC54 33-2CH20	103	
	1500	10	A	4NC54 34-0CH20	103	A	4NC54 34-2CH20	103	