Low voltage current transformer

ASK 105.3 and ASK 127.3

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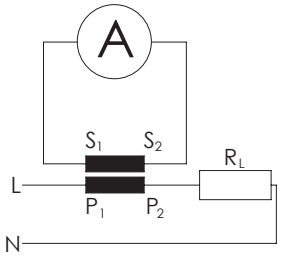
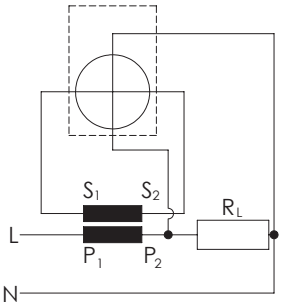
General technical information:

Rated frequency	50 (60) Hz (16 2/3 bis 400 Hz upon request)
Maximum voltage for electrical equipment	$U_m \leq 0{,}72$ kV $U_m \leq 1{,}2$ kV (type CTB)
Isolation class	E, F
Isolation testing voltage	3 kV, 1 min., U_{eff}, 50 Hz ($U_m \leq 0{,}72$ kV) 6 kV, 1 min., U_{eff}, 50 Hz ($U_m \leq 1{,}2$ kV)
Thermal nominal continuous rated current	$I_{CTH} = 1{,}0 \times I_{pr}$ (higher values upon request) $I_{CTH} = 1{,}2 \times I_{pr}$ (types EASK, CTB, ASK 105.3 and ASK 127.3)
Thermal rated short time current	$I_{th} = 60 \times I_{pr}$ 1 sec (max. 100 kA) (types ASK, ASR, EASK, EASR, KBR, KBU, CTB) $I_{th} = 40 \times I_{pr}$ 1 sec (max. 100 kA) (types WSK, KSU, SUSK)
Ratio surge current	$I_{dyn} = 2{,}5 \times I_{th}$
Over current-/limit factor	FS 5 to 10 (exact specification, on the name plate)
Working temperature range	-5°C $\leq \vartheta \leq$ +50°C
Storage temperature range	-25°C $\leq \vartheta \leq$ +70°C
Applied norms	DIN EN 61869/1+2 DIN 42600-1 edition 08/1973 DIN 42600-2 edition 05/1983

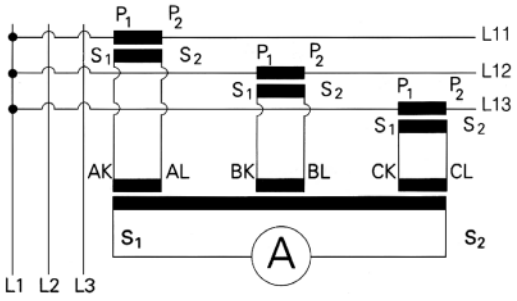
The installation of current transformers and the locked measuring appliancer is only al/owed if the unit is without voltage! The wirering of the current transformers follows under using the following junction diagramms.
While using the current transformer with opened secondary circuit there may be dangereous voltages for man at the secondary connections.
An opened using of the secondary cir-cuit of current transformers is therefo-re not al/owed!
Before an exchange of measure appliancer in the secondary circuit of the current transformer there must be a short-circuit on his secondary connections.



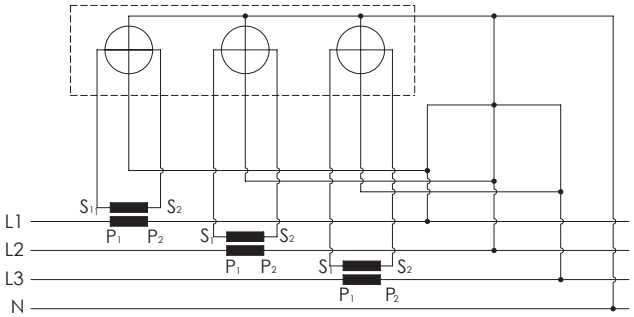
Measuring circuit



Counter circuit single-phase



Summing converter circuit



Counter circuit polyphase

Error limit values of class 0.2...3 according to DIN IEC 61869/2 edition 09/12

Accuracy class	Current error ± Δ_F at					Phase displacement error ± Δ_F at				
	1,2 I_{pr} 1,0 I_n	0,2 I_{pr}	0,1 I_{pr}	0,05 I_{pr}	0,01 I_{pr}	1,2 I_{pr} 1,0 I_n	0,2 I_{pr}	0,1 I_{pr}	0,05 I_{pr}	0,01 I_{pr}
	%	%	%	%	%	min	min	min	min	min
0.2	0.2	0,35		0.75		10	15		30	
0.2s	0.2	0.2		0.35	0.75	10	10		15	30
0.5	0.5	0.75		1.5		30	45		90	
0.5s	0.5	0.5		0.75	1.5	30	30		45	90
1	1	1.5		3		60	90		180	
3	3*									

*at 0,5 I_{pr} and thermal nominal continuous current

Error limit values of the current transformer for protection purposes

Accuracy class	Current error ± F_i at	Phase displacement error ± F_i at
	1,0 I_n and thermal nominal continious current	1,0 I_n and thermal nominal continious current
	%	minutes
5 P...	1	60
10 P...	3	

Total error F_g at nominal rated error limit current and nominal burden class 5P... ≤ 5%
class 10P... ≤ 10%

Permissible current of bus bar dimensions and current values according to DIN 43671

Bus bar cross section	1 bus bar	2 bus bars	3 bus bars
20 x 10	427 A	825 A	1180 A
30 x 05	379 A	672 A	896 A
30 x 10	573 A	1060 A	1480 A
40 x 05	482 A	836 A	1090 A
40 x 10	715 A	1290 A	1770 A
50 x 10	852 A	1510 A	2040 A
60 x 10	985 A	1720 A	2300 A
80 x 10	1240	2110 A	2790 A
100 x 10	1490 A	2480 A	3260 A
Bus bar surface		Clear	

Above mentioned values are applicable for continuous current load at approximately 30°C ambient temperature.

Markings of the current transformers´s connection terminals

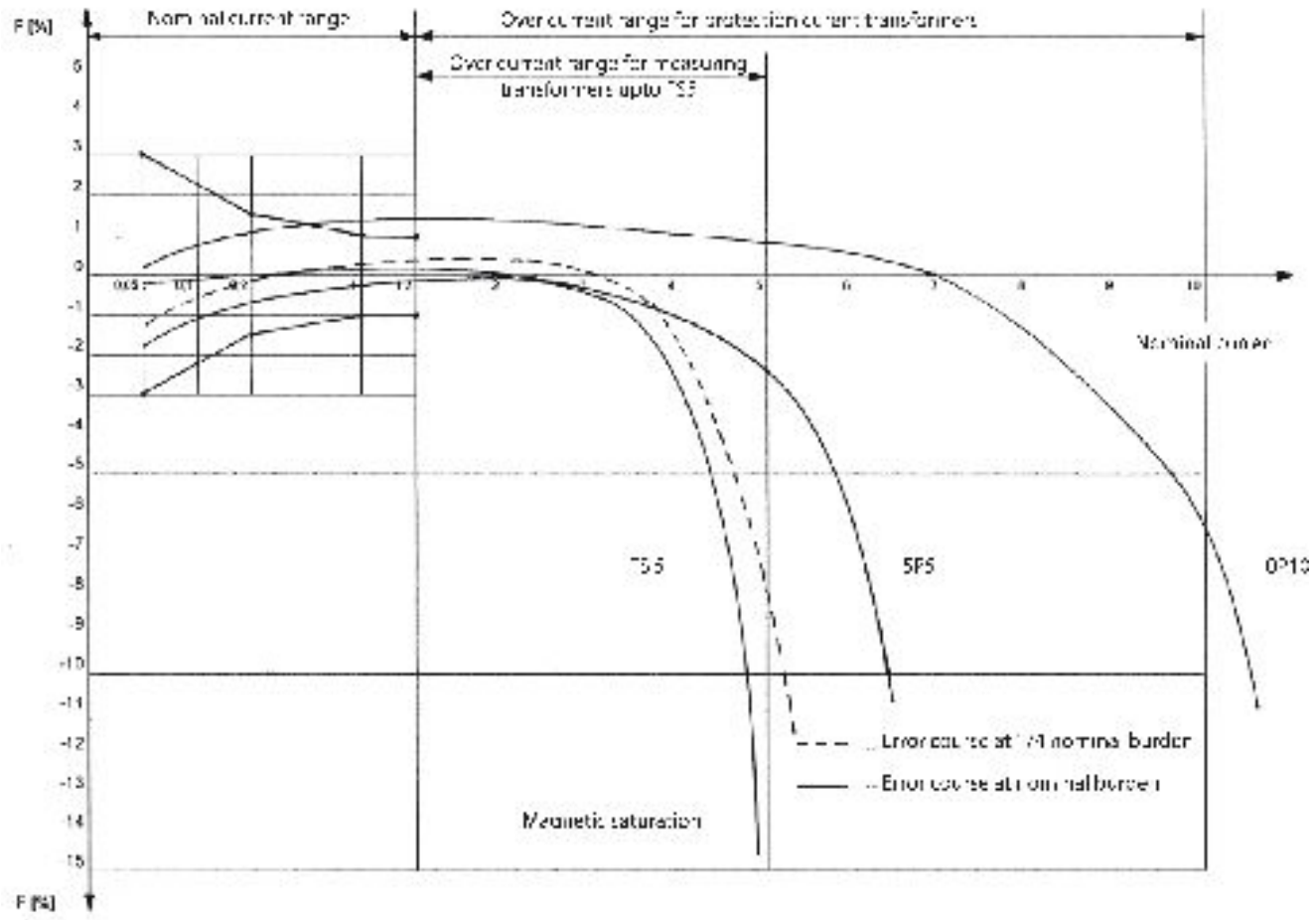
The connections of all primary windings are marked with capital letters „P1“ and „P2“, the connections of all secondary windings are marked with the corresponding lower case letters „s1“ and „s2“.
By current transformers with a multiple secondary tappings the winding end is marked „I“ followed by the prefix „I1“, the tappings with a decreasing number of windings are sequentially numbered to „2“; „3“ etc.

By summation current transformers with a multiple of indipendent primary windings, the terminals of the individual windings are distinguishable from the terminal details „K“ or „L“ set before the capital letters „A“, „B“, „C“…
By summation current transformers which are for the connection of different main transformers, the connection of the main transformer with the highest ratio transmission is made to the lowest terminal pair („AK“-„AL“). The correct order of connection can also be seen from the name plate which bears an infoc rmation of the individual nominal currents.

Example:

Main current transformer 1: 300/5A
Main current transformer 2: 150/5A -> Information on the name plate: $6_A : 3_B : 2_C$
Main current transformer 3: 100/5A

Error curves of low voltage current transformers



Power requirements of measuring units and relays

By application of current transformers, two main demands will be requested from the user:

– high degree of measuring precision in the nominal current range

– protection function in the over current range

For the realization of the demands it is necessary that the assumed nominal power of the current transformer is largely adapted to the actual power requirements of the measuring set up. For the appraisal of the actual power requirements, apart of the own power consumption requirements of the connected measuring units, also the conductor losses must be considered which are connected to the secondary circuit of the transformer measuring conductors.

Own Power consumption requirement of typical measuring units

Current meter soft iron up to 100 mm Ø				0.700	-	1.5	VA	
Rectifier current meter				0.001	-			0.25 VA
Multi range current meter		0.005	-			5.0	VA	
Current recorder		0.300	-			9.0	VA	
Bimetal-current meter				2.500	-			3.0 VA
Power factor meter				0.200	-			5.0 VA
Power factor recorder				3.000	-			12.0 VA
Power factor meter				2.000	-			6.0 VA
Power factor recorder				9.000	-			16.0 VA
Meter				0.400	-			1.0 VA
Relay	N-Relay							14.0 VA
	Over current-Relay	0.200	-			6.0	VA	
	Over current time-Relay			3.000	-			6.0 VA
	Richtungsrelais				-			10.0 VA
	Bimetal-Relay			7.000	-			11.0 VA
	Distance-Relay			1.000	-			30.0 VA
	Differential-Relay	0.200	-			2.0	VA	
				1.000	-			15.0 VA
Current transformer trip switch				5.000	-			150.0 VA
Controler				5.000	-			180.0 VA

Self-consumption of copper lines

$$P_v = \frac{I_s^2 \text{ x } 2 \text{ x } l}{A_{cu} \text{ x } 56} \text{ VA}$$

I_S = Secondary rated current intensity [A]
I = single wire length in meter
A_{cu} = wire cross section in mm²
P_v = power loss of the connection leads

Comment: By joint AC return the half values of P_v are applicable.

Chat for values refering to 5 A

Nominal cross section	1 m	2 m	3 m	4 m	5 m	6 m	7 m	8 m	9 m	10 m
2.5 mm²	0.36	0.71	1.07	1.43	1.78	2.14	2.50	2.86	3.21	3.57
4.0 mm²	0.22	0.45	0.67	0.89	1.12	1.34	1.56	1.79	2.01	2.24
6.0 mm²	0.15	0.30	0.45	0.60	0.74	0.89	1.04	1.19	1.34	1.49
10.0 mm²	0.09	0.18	0.27	0.36	0.44	0.54	0.63	0.71	0.80	0.89

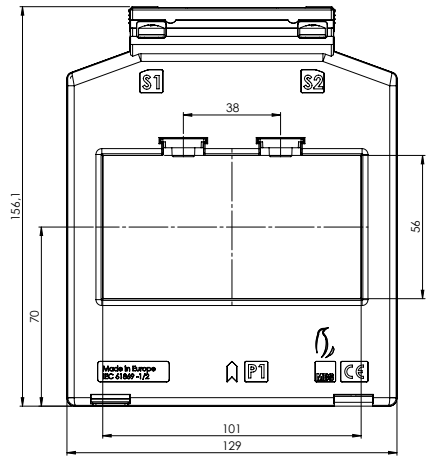
Chat for values refering to 1 A

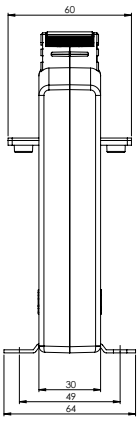
Nominal cross section	10 m	20 m	30 m	40 m	50 m	60 m	70 m	80 m	90 m	100 m
1.0 mm²	0.36	0.71	1.07	1.43	1.78	2.14	2.50	2.86	3.21	3.57
2.5 mm²	0.14	0.29	0.43	0.57	0.72	0.86	1.00	1.14	1.29	1.43
4.0 mm²	0.09	0.18	0.27	0.36	0.45	0.54	0.63	0.71	0.80	0.89
6.0 mm²	0.06	0.12	0.18	0.24	0.30	0.36	0.42	0.48	0.54	0.60
10.0 mm²	0.04	0.07	0.11	0.14	0.18	0.21	0.25	0.29	0.32	0.36

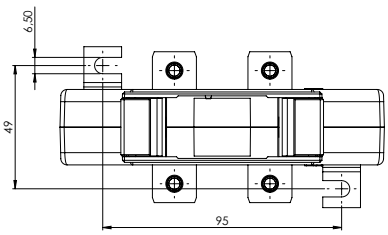
ASK 105.3

Plug-in current transformer

Bus bar 1: 100 x 56 mm
Transformer width: 129 mm
Height: 156 mm
Depth: 30 mm

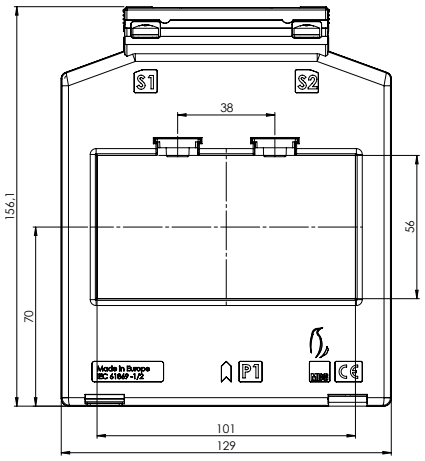


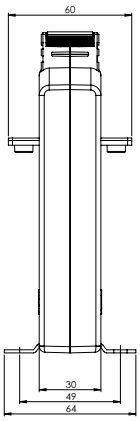


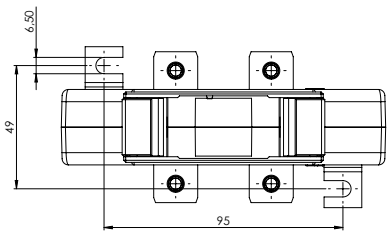


ASK 105.3		Secondary current [A] / Class				
Primary current [A]	Burden [VA]	5A Cl. 1 Art.-no.	5A Cl. 0.5 Art.-no.	5A Cl. 0.5s Art.-no.	5A Cl. 0.2 Art.-no.	5A Cl. 0.2s Art.-no.
400	2.5	1053-10000				
	3,.75	1053-10001				
	5	1053-10002				
500	2.5	1053-10003	1053-10500			
	3.75	1053-10004	1053-10501			
	5	1053-10005	1053-10502			
600	2.5	1053-10006	1053-10503			
	3.75	1053-10007	1053-10504			
	5	1053-10008	1053-10505			
	7.5	1053-10009				
	10	1053-10010				
750	2.5	1053-10011	1053-10506	1053-10600		
	3.75	1053-10012	1053-10507			
	5	1053-10013	1053-10508			
	7.5	1053-10014				
	10	1053-10015				
800	2.5	1053-10016	1053-10509	1053-10601		
	5	1053-10017	1053-10510			
	7,5	1053-10018	1053-10511			
	10	1053-10019				
1000	2.5	1053-10020	1053-10512	1053-10602		
	5	1053-10021	1053-10513	1053-10603		
	7.5	1053-10022	1053-10514	1053-10604		
	10	1053-10023	1053-10515	1053-10605		
1250	2,5	1053-10024	1053-10516	1053-10606		
	5	1053-10025	1053-10517	1053-10607		
	10	1053-10026	1053-10518	1053-10608		
	15	1053-10027				
1500	2.5	1053-10028	1053-10520	1053-10609	1053-10905	
	5	1053-10029	1053-10521	1053-10610	1053-10906	
	10	1053-10030	1053-10522	1053-10611	1053-10907	
	15	1053-10031	1053-10523	1053-10612		
1600	2.5	1053-10032	1053-10524	1053-10613	1053-10908	
	5	1053-10033	1053-10525	1053-10614	1053-10909	
	10	1053-10034	1053-10526	1053-10615	1053-10910	
	15	1053-10035	1053-10527	1053-10616		
2000	2,5	1053-10036	1053-10528	1053-10617	1053-10911	1053-10400
	5	1053-10037	1053-10529	1053-10618	1053-10912	1053-10401
	7.5	1053-10038	1053-10530	1053-10619	1053-10913	
	10	1053-10039	1053-10531	1053-10620	1053-10914	
	15	1053-10040	1053-10532	1053-10621	1053-10915	

Bus bar 1: 100 x 56 mm
Transformer width: 129 mm
Height: 156 mm
Depth: 30 mm



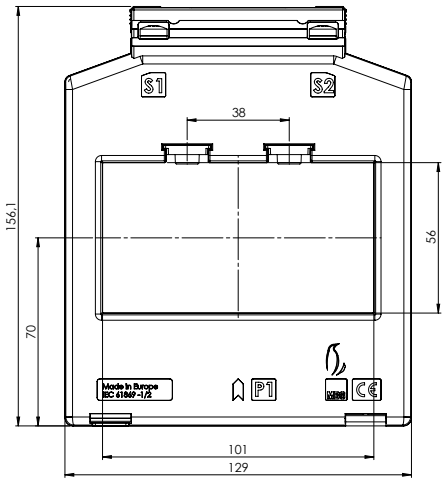


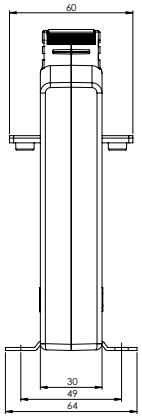


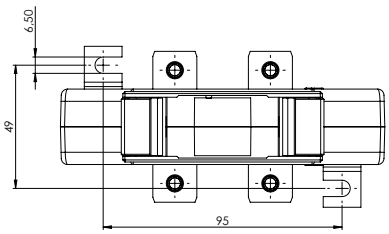
ASK 105.3		Secondary current [A] / Class				
Primary current [A]	Burden [VA]	5A Cl. 1 Art.-no.	5A Cl. 0.5 Art.-no.	5A Cl. 0.5s Art.-no.	5A Cl. 0.2 Art.-no.	5A Cl. 0.2s Art.-no.
2500	2.5			1053-10622	1053-10916	1053-10402
	5	1053-10041	1053-10533	1053-10623	1053-10917	1053-10403
	7.5	1053-10042	1053-10534	1053-10624	1053-10918	1053-10404
	10	1053-10043	1053-10535	1053-10625	1053-10919	1053-10405
	15	1053-10044	1053-10536	1053-10626	1053-10920	
3000	5	1053-10045	1053-10537	1053-10627	1053-10921	1053-10406
	10	1053-10046	1053-10538	1053-10628	1053-10922	1053-10407
	15	1053-10047	1053-10539	1053-10629	1053-10923	1053-10408
4000	2.5	1053-10048				
	5	1053-10049	1053-10540	1053-10630	1053-10924	1053-10409
	10	1053-10050	1053-10541	1053-10631	1053-10925	1053-10410
	15	1053-10051	1053-10542	1053-10632	1053-10926	1053-10411

ASK 105.3		Secondary current [A] / Class				
Primary current [A]	Burden [VA]	1A Cl. 1 Art.-no.	1A Cl. 0.5 Art.-no.	1A Cl. 0.5s Art.-no.	1A Cl. 0.2 Art.-no.	1A Cl. 0.2s Art.-no.
400	2.5	1053-10200				
	3.75	1053-10201				
	5	1053-10202				
500	2.5	1053-10203	1053-10700			
	3.75	1053-10204	1053-10701			
	5	1053-10205	1053-10702			
600	2.5	1053-10206	1053-10703			
	3.75	1053-10207	1053-10704			
	5	1053-10208	1053-10705			
	7.5	1053-10209				
	10	1053-10210				
750	2.5	1053-10211	1053-10706	1053-10800		
	3.75	1053-10212	1053-10707			
	5	1053-10213	1053-10708			
	7.5	1053-10214				
	10	1053-10215				
800	2.5	1053-10216	1053-10709	1053-10801		
	5	1053-10217	1053-10710			
	7.5	1053-10218				
	10	1053-10219				
1000	2,5	1053-10220	1053-10711	1053-10802	1053-10300	
	5	1053-10221	1053-10712	1053-10803	1053-10301	
	7.5	1053-10222	1053-10713	1053-10804		
	10	1053-10223	1053-10714	1053-10805		
1250	2.5	1053-10224	1053-10715	1053-10806	1053-10302	
	5	1053-10225	1053-10716	1053-10807	1053-10303	
	10	1053-10226	1053-10717	1053-10808		
	15	1053-10227	1053-10718			

Bus bar 1: 100 x 56 mm
Transformer width: 129 mm
Height: 156 mm
Depth: 30 mm





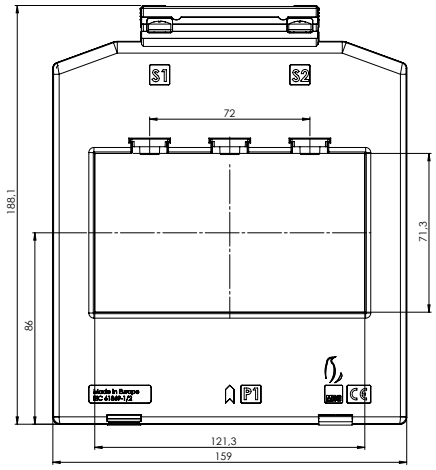


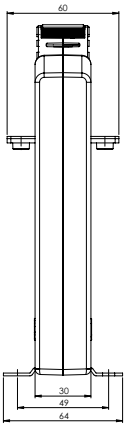
ASK 105.3		Secondary current [A] / Class				
Primary current [A]	Burden [VA]	1A Cl. 1 Art.-no.	1A Cl. 0.5 Art.-no.	1A Cl. 0.5s Art.-no.	1A Cl. 0.2 Art.-no.	1A Cl. 0.2s Art.-no.
1500	2.5	1053-10228	1053-10719	1053-10809	1053-10304	
	5	1053-10229	1053-10720	1053-10810	1053-10305	
	10	1053-10230	1053-10721	1053-10811	1053-10306	
	15	1053-10231	1053-10722	1053-10812		
1600	2.5	1053-10232	1053-10723	1053-10813	1053-10307	
	5	1053-10233	1053-10724	1053-10814	1053-10308	
	10	1053-10234	1053-10725	1053-10815	1053-10309	
	15	1053-10235	1053-10726	1053-10816		
2000	2.5	1053-10236	1053-10727	1053-10817	1053-10310	1053-10100
	5	1053-10237	1053-10728	1053-10818	1053-10311	1053-10101
	7.5	1053-10238	1053-10729	1053-10819	1053-10312	
	10	1053-10239	1053-10730	1053-10820	1053-10313	
	15	1053-10240	1053-10731	1053-10821	1053-10314	
2500	2.5	1053-10241	1053-10732	1053-10822	1053-10315	1053-10102
	5	1053-10242	1053-10733	1053-10823	1053-10316	1053-10103
	7.5	1053-10243	1053-10734	1053-10824	1053-10317	1053-10104
	10	1053-10244	1053-10735	1053-10825	1053-10318	1053-10105
	15	1053-10245		1053-10826	1053-10319	
3000	5	1053-10246	1053-10736	1053-10827	1053-10320	1053-10106
	10	1053-10247	1053-10737	1053-10828	1053-10321	1053-10107
	15	1053-10248	1053-10738	1053-10829	1053-10322	

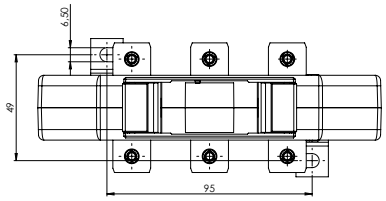
ASK 127.3

Plug-in current transformer

Bus bar 1: 122 x 71 mm
Transformer width: 159 mm
Height: 188 mm
Depth: 30 mm

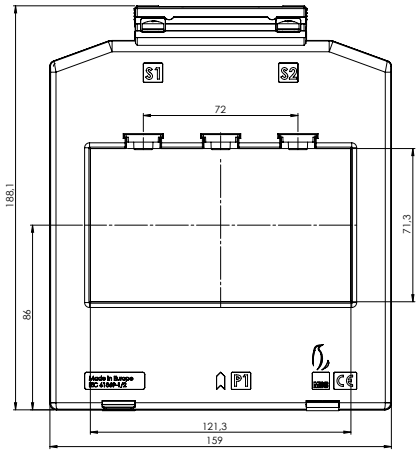


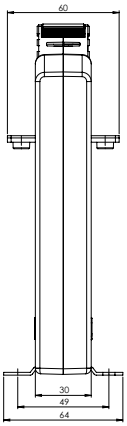


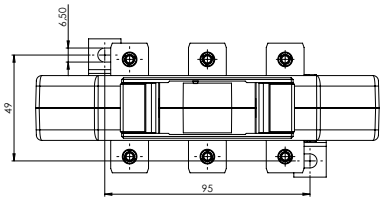


ASK 127.3		Secondary current [A] / Class				
Primary current [A]	Burden [VA]	5A Cl. 1 Art.-no.	5A Cl. 0,5 Art.-no.	5A Cl. 0,5s Art.-no.	5A Cl. 0,2 Art.-no.	5A Kl. 0,2s Art.-no.
400	2,5	1273-10000				
	3,75	1273-10001				
	5	1273-10002				
	7,5					
	10					
500	2,5	1273-10003	1273-10500			
	3,75	1273-10004	1273-10501			
	5	1273-10005				
	10					
600	2,5	1273-10006	1273-10502			
	3,75	1273-10007	1273-10503			
	5	1273-10008	1273-10504			
	10	1273-10009				
750	2,5	1273-10010	1273-10505			
	3,75	1273-10011	1273-10506			
	5	1273-10012	1273-10507			
	7,5	1273-10013	1273-10508			
	10	1273-10014	1273-10509			
800	2,5	1273-10015	1273-10510			
	3,75	1273-10016	1273-10511			
	5	1273-10017	1273-10512			
	7,5	1273-10018	1273-10513			
	10	1273-10019	1273-10514			
1000	2,5	1273-10020	1273-10515			
	5	1273-10021	1273-10516			
	7,5	1273-10022	1273-10517			
	10	1273-10023	1273-10518			
	15	1273-10024	1273-10519			
1250	2,5	1273-10025	1273-10520			
	5	1273-10026	1273-10521			
	10	1273-10027	1273-10522			
	15	1273-10028	1273-10523			
1500	2,5	1273-10029	1273-10524			
	5	1273-10030	1273-10525	1273-10600		
	10	1273-10031	1273-10526	1273-10601		
	15	1273-10032	1273-10527			
1600	2,5	1273-10033	1273-10528			
	5	1273-10034	1273-10529	1273-10602		
	10	1273-10035	1273-10530	1273-10603		
	15	1273-10036	1273-10531			

Bus bar 1: 122 x 71 mm
Transformer width: 159 mm
Height: 188 mm
Depth: 30 mm



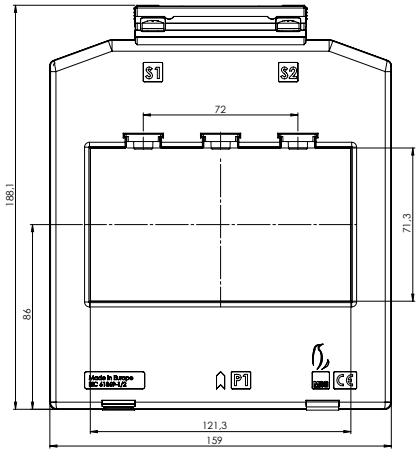


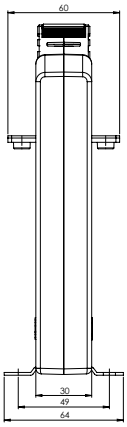


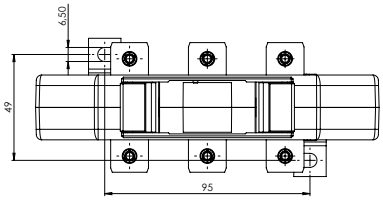
ASK 127.3		Secondary current [A] / Class				
Primary current [A]	Burden [VA]	5A Cl. 1 Art.-no.	5A Cl. 0,5 Art.-no.	5A Cl. 0,5s Art.-no.	5A Cl. 0,2 Art.-no.	5A Cl. 0,2s Art.-no.
2000	2,5	1273-10037	1273-10532			
	5	1273-10038	1273-10533	1273-10604	1273-10900	
	10	1273-10039	1273-10534	1273-10605	1273-10901	
	15	1273-10040	1273-10535	1273-10606		
2500	2,5	1273-10041	1273-10536			
	5	1273-10042	1273-10537	1273-10607	1273-10902	1273-10400
	10	1273-10043	1273-10538	1273-10608	1273-10903	
	15	1273-10044	1273-10539	1273-10609		
3000	2,5	1273-10045	1273-10540			
	5	1273-10046	1273-10541	1273-10610	1273-10904	1273-10401
	10	1273-10047	1273-10542	1273-10611	1273-10905	1273-10402
	15	1273-10048	1273-10543	1273-10612	1273-10906	
4000	5	1273-10049	1273-10544	1273-10613	1273-10907	1273-10403
	10	1273-10050	1273-10545	1273-10614	1273-10908	1273-10404
	15	1273-10051	1273-10546	1273-10615	1273-10909	1273-10405

ASK 127.3		Secondary current [A] / Class				
Primary current [A]	Burden [VA]	1A Cl. 1 Art.-no.	1A Cl. 0,5 Art.-no.	1A Cl. 0,5s Art.-no.	1A Cl. 0,2 Art.-no.	1A Cl. 0,2s Art.-no.
400	2,5	1273-10200				
	3,75	1273-10201				
	5	1273-10202				
	7,5					
	10					
500	2,5	1273-10203	1273-10700			
	3,75	1273-10204				
	5	1273-10205				
	10	1273-10206				
600	2,5	1273-10207	1273-10701			
	3,75	1273-10208	1273-10702			
	5	1273-10209	1273-10703			
	10	1273-10210				
750	2,5	1273-10211	1273-10704			
	3,75	1273-10212	1273-10705			
	5	1273-10213	1273-10706			
	7,5					
	10					
800	2,5	1273-10214	1273-10707			
	3,75	1273-10215	1273-10708			
	5	1273-10216	1273-10709			
	7,5	1273-10217				
	10	1273-10218				

Bus bar 1: 122 x 71 mm
Transformer width: 159 mm
Height: 188 mm
Depth: 30 mm



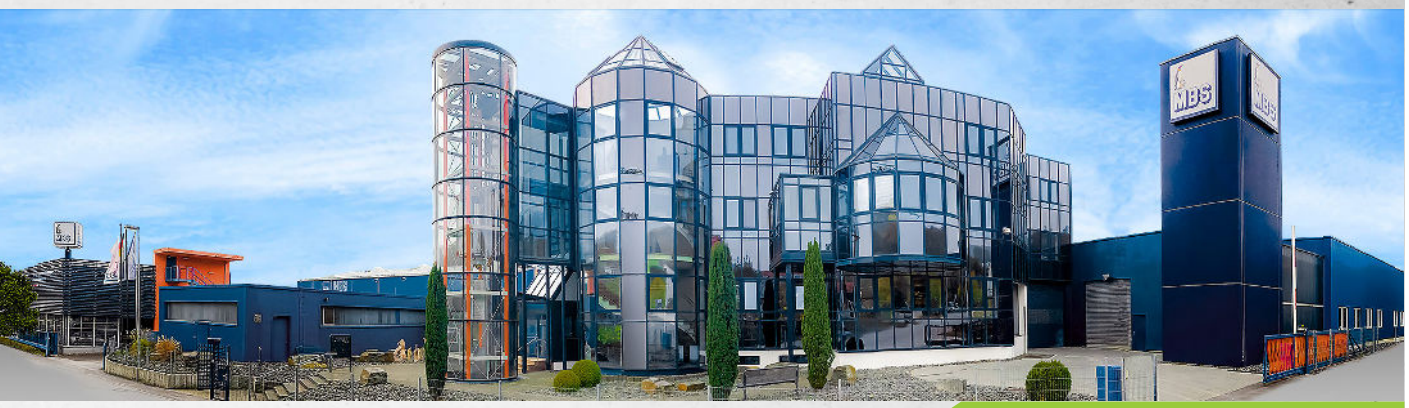




ASK 127.3		Secondary current [A] / Class				
Primary current [A]	Burden [VA]	1A Cl. 1 Art.-no.	1A Cl. 0,5 Art.-no.	1A Cl. 0,5s Art.-no.	1A Cl. 0,2 Art.-no.	1A Cl. 0,2s Art.-no.
1000	2,5	1273-10219	1273-10710			
	5	1273-10220	1273-10711			
	7,5	1273-10221	1273-10712			
	10	1273-10222	1273-10713			
	15	1273-10223				
1250	2,5	1273-10224	1273-10714			
	5	1273-10225	1273-10715			
	10	1273-10226	1273-10716			
	15	1273-10227	1273-10717			
1500	2,5	1273-10228	1273-10718			
	5	1273-10229	1273-10719	1273-10800		
	10	1273-10230	1273-10720	1273-10801		
	15	1273-10231	1273-10721			
1600	2,5	1273-10232	1273-10722			
	5	1273-10233	1273-10723	1273-10802		
	10	1273-10234	1273-10724	1273-10803		
	15	1273-10235	1273-10725			
2000	2,5	1273-10236	1273-10726			
	5	1273-10237	1273-10727	1273-10804	1273-10300	
	10	1273-10238	1273-10728	1273-10805	1273-10301	
	15	1273-10239	1273-10729	1273-10806		
2500	2,5	1273-10240	1273-10730			
	5	1273-10241	1273-10731	1273-10807	1273-10302	1273-10100
	10	1273-10242	1273-10732	1273-10808	1273-10303	
	15	1273-10243	1273-10733	1273-10809		
3000	2,5	1273-10244	1273-10734			
	5	1273-10245	1273-10735	1273-10810	1273-10304	1273-10101
	10	1273-10246	1273-10736	1273-10811	1273-10305	1273-10102
	15	1273-10247	1273-10737	1273-10812	1273-10306	
4000	5	1273-10248	1273-10738	1273-10813	1273-10307	1273-10103
	10	1273-10249	1273-10739	1273-10814	1273-10308	1273-10104
	15	1273-10250	1273-10740	1273-10815	1273-10309	1273-10105

- Current transformers for industry
- Current transformers for tariffs
- Accessories for current transformers
- Medium-voltage transformers

- Bus bar insulators / -supports
- Shunts
- Voltage transformers
- All current sensors
- Measuring transducers
- Energy meters with or without MID approval
- Accessories for energy meters
- Panel board heaters, filter fans, roof fans and control units



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