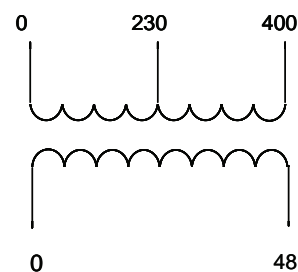


## Single phase safety and insulating transformers

### Single phase safety transformers

Primary voltage 230, 400V. Secondary voltage 0-48V. Thermal class B. DIN rail

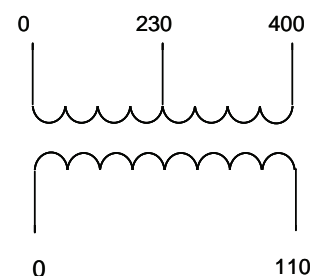
Type	Description	Code No.	Power (VA)	Dimensions LxHxP (mm)	Weight (kg)	Packaging (pcs)
TRANSF 1f0-48V 30VA TH	Single phase safety trans. 0-48V 30VA	003801871	30	90 x 96 x 106	1,35	1
TRANSF 1f0-48V 40VA TH	Single phase safety trans. 0-48V 40VA	003801872	40	90 x 96 x 106	1,35	1
TRANSF 1f0-48V 50VA TH	Single phase safety trans. 0-48V 50VA	003801873	50	90 x 96 x 106	1,40	1
TRANSF 1f0-48V 63VA TH	Single phase safety trans. 0-48V 63VA	003801874	63	90 x 106 x 106	1,70	1
TRANSF 1f0-48V 75VA TH	Single phase safety trans. 0-48V 75VA	003801875	75	90 x 106 x 106	1,80	1
TRANSF 1f0-48V 100VA TH	Single phase safety trans. 0-48V 100VA	003801876	100	90 x 116 x 106	2,25	1
TRANSF 1f0-48V 160VA TH	Single phase safety trans. 0-48V 160VA	003801877	160	126 x 113 x 135	3,65	1
TRANSF 1f0-48V 200VA TH	Single phase safety trans. 0-48V 200VA	003801878	200	126 x 113 x 135	3,80	1
TRANSF 1f0-48V 250VA TH	Single phase safety trans. 0-48V 250VA	003801879	250	126 x 123 x 135	4,80	1
TRANSF 1f0-48V 300VA TH	Single phase safety trans. 0-48V 300VA	003801880	300	126 x 123 x 135	5,00	1



### Single phase insulating transformers

Primary voltage 230, 400V. Secondary voltage 0-110V. Thermal class B. DIN rail

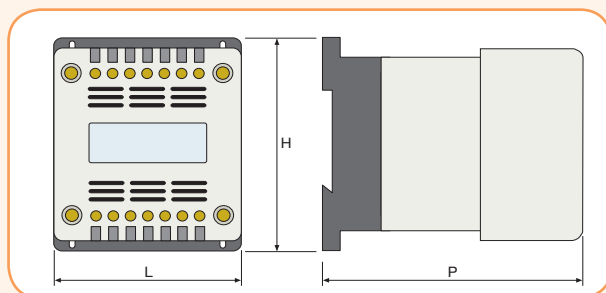
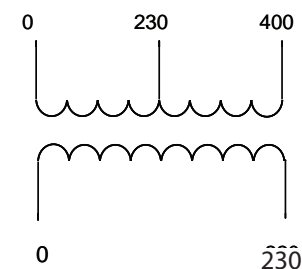
Type	Description	Code No.	Power (VA)	Dimensions LxHxP (mm)	Weight (kg)	Packaging (pcs)
TRANSF 1f0-110V 30VA TH	Single phase insulating trans. 0-110V 30VA	003801881	30	90 x 96 x 106	1,35	1
TRANSF 1f0-110V 40VA TH	Single phase insulating trans. 0-110V 40VA	003801882	40	90 x 96 x 106	1,35	1
TRANSF 1f0-110V 50VA TH	Single phase insulating trans. 0-110V 50VA	003801883	50	90 x 96 x 106	1,40	1
TRANSF 1f0-110V 63VA TH	Single phase insulating trans. 0-110V 63VA	003801884	63	90 x 106 x 106	1,70	1
TRANSF 1f0-110V 75VA TH	Single phase insulating trans. 0-110V 75VA	003801885	75	90 x 106 x 106	1,80	1
TRANSF 1f0-110V 100VA TH	Single phase insulating trans. 0-110V 100VA	003801886	100	90 x 116 x 106	2,25	1
TRANSF 1f0-110V 160VA TH	Single phase insulating trans. 0-110V 160VA	003801887	160	126 x 113 x 135	3,65	1
TRANSF 1f0-110V 200VA TH	Single phase insulating trans. 0-110V 200VA	003801888	200	126 x 113 x 135	3,80	1
TRANSF 1f0-110V 250VA TH	Single phase insulating trans. 0-110V 250VA	003801889	250	126 x 123 x 135	4,80	1
TRANSF 1f0-110V 300VA TH	Single phase insulating trans. 0-110V 300VA	003801890	300	126 x 123 x 135	5,00	1



### Single phase insulating transformers

Primary voltage 230, 400V. Secondary voltage 0-230V. Thermal class B. DIN rail

Type	Description	Code No.	Power (VA)	Dimensions LxHxP (mm)	Weight (kg)	Packaging (pcs)
TRANSF 1f0-230V 30VA TH	Single phase insulating trans. 0-230V 30VA	003801891	30	90 x 96 x 106	1,35	1
TRANSF 1f0-230V 40VA TH	Single phase insulating trans. 0-230V 40VA	003801892	40	90 x 96 x 106	1,35	1
TRANSF 1f0-230V 50VA TH	Single phase insulating trans. 0-230V 50VA	003801893	50	90 x 96 x 106	1,40	1
TRANSF 1f0-230V 63VA TH	Single phase insulating trans. 0-230V 63VA	003801894	63	90 x 106 x 106	1,70	1
TRANSF 1f0-230V 75VA TH	Single phase insulating trans. 0-230V 75VA	003801895	75	90 x 106 x 106	1,80	1
TRANSF 1f0-230V 100VA TH	Single phase insulating trans. 0-230V 100VA	003801896	100	90 x 116 x 106	2,25	1
TRANSF 1f0-230V 160VA TH	Single phase insulating trans. 0-230V 160VA	003801897	160	126 x 113 x 135	3,65	1
TRANSF 1f0-230V 200VA TH	Single phase insulating trans. 0-230V 200VA	003801898	200	126 x 113 x 135	3,80	1
TRANSF 1f0-230V 250VA TH	Single phase insulating trans. 0-230V 250VA	003801899	250	126 x 123 x 135	4,80	1
TRANSF 1f0-230V 300VA TH	Single phase insulating trans. 0-230V 300VA	003801900	300	126 x 123 x 135	5,00	1



## Single phase safety and insulating transformers IP20 DIN rail mounted

Technical data	
Primary voltage	0 - 230V - 400V +/- 15V (50-60 Hz)
Thermal class	F
Cable section	10 mm <sup>2</sup>
Protection	IP20
Fixing	on DIN rail
Standard	EN 61558-1
Service type	Continuous
Protection index	IP 20

### Technical parameters for insulating transformers. Thermal class F. Fixed on DIN rail.

Fall secondary windings power (VA)	No-load losses $\Delta P$ (W)	Losses (short circuit) $\Delta P$ (W)	$U_{cc}$ ( $\cos \varphi=1$ ) (%)	Efficiency ( $\cos \varphi=1$ ) (%)
30	7,6	4,2	11,0	0,89
40	7,8	5,0	9,0	0,88
50	8,0	6,0	8,0	0,88
63	8,0	7,0	7,8	0,86
75	8,2	7,2	7,5	0,85
100	8,3	9,1	7,2	0,83
160	8,2	14,8	6	0,92
200	8,3	15,2	5,7	0,92
250	9,3	17	5,3	0,92
300	9,4	18,3	5,0	0,91

### Generally about transformers

The transformers must be protected against possible overloads and short circuits. Our transformers belong to the non-short-circuit-proof type and so they must be protected using external fuses. Rated current of the suggested fuse is always indicated on our labels. However the protection can be also obtained using Miniature Circuit Breakers - ETIMAT. Selected protection of the input winding of the transformer must be chosen taking into account that at the starting phase of the transformer, a high value of inrush current is generated, a value that can reach 25 times the value of the input rated current, for about 10 milliseconds. Hence, time delay fuses (T or aM type) or MCB - ETIMAT having D or K characteristic must be used for a correct protection. The protection of the secondary side can be realized using fuses of F or gG type, or MCB - ETIMAT having B or C characteristic. Here below there is a table with all the suggested protection fuses for the input and output windings (all the values are in Ampere):

### General rules for choosing a transformers protection

Fall secondary windings power (VA)	Rated value of aM or T fuse for secondary side protection (A)				Rated value of aM or T fuse for primary side protection (A)	
	Voltage $U_2$ 24V	Voltage $U_2$ 48V	Voltage $U_2$ 110V	Voltage $U_2$ 220V	Voltage $U_1$ 230V	Voltage $U_1$ 400V
30	1,25	0,63	0,315	0,16	0,5	0,5
50	2,0	1,0	0,4	0,2	1,0	0,5
75	3,15	1,6	0,63	0,315	1,0	1,0
100	4,0	2,0	1,0	0,5	1,0	1,0
150	6,0	3,15	1,25	0,63	1,0	1,0
200	8,0	4,0	2,0	1,0	1,0	1,0
250	10,0	6,0	2,0	1,0	2,0	1,0
300	12,0	6,0	2,5	1,25	2,0	1,0
400	16,0	8,0	4,0	2,0	4,0	2,0
500	20,0	10,0	4,0	2,0	4,0	2,0
630	25,0	12,0	6,0	3,15	4,0	2,0
800	32,0	16,0	6,3	4,0	4,0	4,0
1000	40,0	20,0	10,0	5,0	10,0	6,0
1600	63,0	32,0	12,0	6,0	10,0	10,0
2500	100,0	50,0	20,0	10,0	16,0	10,0

### Transformer thermal class

Thermal class	Over temperature °C
A	75
E	90
B	95
F	115
H	140

The above over temperature values are referred to an ambient temperature of 25°C

**Thermal class:** The transformers have some level of power loss that causes a rising in the temperature of the metallic parts and of the windings. High temperatures cause deterioration of the materials and shorten the "average life" of the transformer itself. For this reason the international standards define some thermal classes, with a maximum over temperature value for each one. The thermal classes established by EN 61558 standard are.

**Rated power:**

It is the value resulting from the rated secondary winding voltage multiplied by the rated secondary current. In case of a n-phases transformers, it is the value corresponding to n times the result of rated secondary voltage multiplied by rated secondary current. If a transformer is used in a non-continuous work cycle, its power can be lower.