

## General



MST, MTS or MET – the right transformer for every application. Transformers are used to reduce the supply voltage to a value suitable for control and isolation systems. Murrelektronik offers the right transformer for every application. Power supplies are already designed to accept the future European norm voltage of 230 V AC or three phase 400 V AC.

Power rating: 40...5000 VA  
 Temperature range: T40/T60 (Isolation class B)  
 Mounting: DIN-rail/key-hole  
 Touch protection: EN 60529 (IP20)

### Control transformers (EN 61558-2-2)

Switchable transformers for applications with inductive loads and low saturation voltage. Doubled or increased isolation between input and output circuit is not necessary.

#### Advantage

- earthed and not earthed function choosable
- less saturation voltage when switching inductive loads
- correction of mains voltage possible
- damping of interferences via cable
- easy voltage and isolation testing

### Isolation transformers (EN 61558-2-4)

For applications with high demands such as doubled or increased isolation between the circuits.

#### EN 61558-2-4

The output voltage must exceed 50 V AC or 120 V DC

Isolation resistance: between input and output = 5 MΩ

Voltage resistance: (increased isolation) 4200 V AC

### Safety transformers (EN 61558-2-6)

Transformers with high demanding isolation between circuits. The idle- and tested output voltage of 50 V AC or 120 V DC should not exceed. SELV-circuit can be achieved by using a safety transformer.

#### EN 61558-2-6

The output voltage cannot exceed 50 V AC or 120 V DC

Isolation resistance: between input and output = 5 MΩ

Voltage resistance: (increased isolation) 4200 V AC

### Advantage of Murrelektronik Transformers:

#### ■ Approval for the world market

Transformer specification, as well as certifications UL and cUL meet the international standard and can be obtained anywhere in the world.

#### ■ Flexible and universal

A transformer can be used in many applications in connection with multiple windings. Herewith storage costs and the quantity of parts will be reduced.

#### ■ Customer orientated solutions

Customized input and output voltages (multiple voltages) are available on request. Those special editions are also UL and cUL certified.

#### ■ Time and cost savings through quick mounting

DIN-rail mounting reduces installation time. Labor intensive and uncomfortable fitting of drill patterns will be dropped, which saves time and costs.

## Advice on overload and short-circuit protection for transformers

As shown in EN 61558 the required galvanic isolation between input and output sides of a transformer must remain intact even when subjected to short-circuit and overloading. Protection is required in the form of a fuse or thermal switch for both the primary and secondary sides. If a short-circuit is created by an inrush on the

primary side, the secondary side fusing must be protected and for no more than the max. nominal current allowed to pass.

**Inrush current:** Worst case current during a current surge

**Short-circuit current:** Min. input current when a short-circuit occurs on the output.

### Serie MTS

Power	Input 230 V			Input 400 V		
	Nom. current	Inrush current	Short-circ. current	Nom. current	Inrush current	Short-circ. current
40 VA	0.24 A	1.61 A	1.83 A	0.14 A	0.93 A	1.06 A
63 VA	0.35 A	2.01 A	2.84 A	0.21 A	1.16 A	1.64 A
100 VA	0.54 A	3.48 A	5.22 A	0.32 A	2.00 A	3.00 A
160 VA	0.84 A	6.76 A	9.95 A	0.49 A	3.90 A	5.75 A
250 VA	1.30 A	9.42 A	17.92 A	0.75 A	8.12 A	10.35 A

### Serie MST

Power	Input 230 V			Input 400 V		
	Nom. current	Inrush current	Short-circ. current	Nom. current	Inrush current	Short-circ. current
40 VA	0.24 A	1.61 A	1.83 A	0.135 A	1.00 A	1.05 A
63 VA	0.34 A	2.01 A	2.84 A	0.195 A	1.16 A	1.64 A
100 VA	0.53 A	3.48 A	5.23 A	0.31 A	2.00 A	3.00 A
160 VA	0.82 A	6.87 A	10.13 A	0.47 A	3.97 A	5.85 A
200 VA	0.97 A	10.3 A	15.5 A	0.56 A	5.97 A	8.95 A
250 VA	1.22 A	13.3 A	21.0 A	0.70 A	7.68 A	12.14 A
320 VA	1.52 A	17.7 A	28.4 A	0.88 A	10.23 A	16.41 A
400 VA	1.95 A	23.0 A	43.0 A	1.10 A	13.3 A	24.9 A
500 VA	2.40 A	28.1 A	54.0 A	1.40 A	16.3 A	31.2 A
630 VA	2.95 A	37.4 A	77.7 A	1.70 A	21.6 A	45.0 A
800 VA	3.76 A	51.0 A	118.0 A	2.17 A	29.5 A	68.3 A
1000 VA	4.73 A	66.0 A	148.0 A	2.72 A	38.1 A	85.6 A

### Serie MET

Power	Input 230 V (240 V)			Input 400 V (415 V)		
	Nom. current	Inrush current	Short-circ. current	Nom. current	Inrush current	Short-circ. current
30 VA	0.17 A	1.25 A	1.44 A	0.097 A	0.77 A	0.85 A
50 VA	0.27 A	2.53 A	3.3 A	0.152 A	1.43 A	1.88 A
63 VA	0.33 A	3.56 A	4.77 A	0.19 A	2.03 A	2.71 A
100 VA	0.51 A	5.97 A	8.79 A	0.29 A	3.59 A	5.18 A
250 VA	1.22 A	16.3 A	2.75 A	0.7 A	9.2 A	15.5 A
500 VA	2.3 A	35.5 A	74.8 A	1.36 A	20.8 A	43.1 A
630 VA	2.98 A	44.2 A	113.2 A	1.71 A	27.1 A	67.0 A
800 VA	3.75 A	55.9 A	135.0 A	2.15 A	32.4 A	78.9 A
1000 VA	4.64 A	67.31 A	213.1 A	2.68 A	38.8 A	121.3 A
1500 VA	6.9 A	85.0 A	358.1 A	3.97 A	50.0 A	201.5 A
2000 VA	9.2 A	142.2 A	334.8 A	5.28 A	79.9 A	192.1 A
3000 VA	13.6 A	209.9 A	623.9 A	7.85 A	139.1 A	374.1 A
4000 VA	18.64 A	337.0 A	807.5 A	10.32 A	186.7 A	480.8 A
5000 VA				12.86 A	254.2 A	700.3 A

## Isolation class T 40/B



### MTS

Single-phase control and isolation transformers, isolation class T 40/B.  
 Safety transformers isolation class T 40/B.  
 Touch protected transformers with screw terminals.  
 Right angle foot brackets for screw and DIN-rail mounting.  
 Input voltage: 230/400 V AC  
 Output voltage: 24 V AC or 230 V AC  
 Nominal power rating: 40 VA ... 250 VA  
 Ambient temperature: 40 °C

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## Isolation class T 40/B



### MTS

Single-phase control and isolation transformers, isolation class T 40/B.  
 Safety transformers isolation class T 40/B.  
 Touch protected transformers with screw terminals.  
 DIN-rail mounting.  
 Input voltage: 230/400 V AC  
 Output voltage: 24 V AC or 230 V AC  
 Nominal power rating: 40 VA ... 1000 VA  
 Ambient temperature : 40 °C

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## Isolation class T 60/B



### MET

Single-phase control and isolation transformers, isolation class T 60/B.  
 Safety transformers isolation class T 60/B.  
 Touch protected transformers with screw terminals.  
 DIN-rail mounting.  
 Input voltage: 230, 400, 240/415 V AC  
 Output voltage: 24, 230, 110/240 V AC  
 Nominal power rating: 30 VA ... 5000 VA  
 Ambient temperature : 60 °C

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Single-phase

Control, isolation and safety transformers to EN 61558

Touch protected to EN 60529 (IP20)

Isolation class T 40/B

Approvals:

## MTS

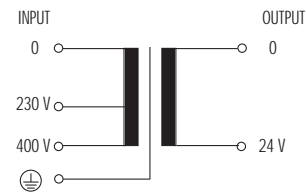
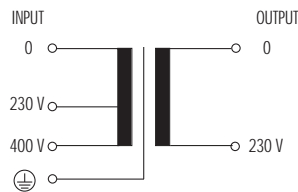
Input voltage 230/400 V AC  
Output voltage 230 V AC



## MTS

Input voltage 230/400 V AC  
Output voltage 24 V AC SELV

### Circuit diagram

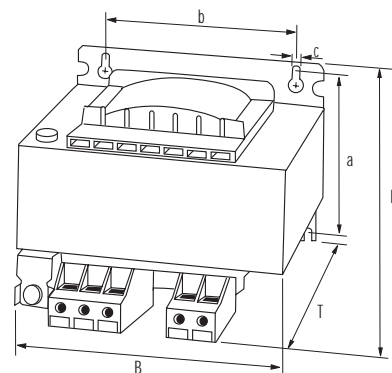


Ordering data	Art.-No.	Art.-No.
Nominal power rating		
40 VA	86300	86320
63 VA	86301	86321
100 VA	86302	86322
160 VA	86303	86323
200 VA	86304	86324
250 VA	86305	86325
320 VA	86306	86326
400 VA	86307	86327
500 VA	86308	86328
630 VA	86309	86329
800 VA	86310	86330
1000 VA	86311	86331

### Technical data

Input voltage	230/400 V AC	
Output voltage	230 V AC	24 V AC SELV
Frequency	50/60 Hz	
Transformer specification	EN 61558-2-4 and EN 62041 category 0	EN 61558-2-6 and EN 62041 category 0
Test voltage	prim./sec. 4 kV AC	
Isolation class	T 40/B	
Temperature range	-20...+40 °C, no condensation	
Mounting method	key-hole mounting	

### Dimension drawing/Dimensions (mm)



	H x B x T	a x b x c	Ø	Weight
40 VA	80 x 66 x 78	53 x 50 x 4.8	4.8 x 8.1	0.8 kg
63 VA	73 x 78 x 87	47.5 x 56 x 4.8	4.8 x 8.1	1.15 kg
100 VA	83 x 84 x 92	65.5 x 64 x 4.8	4.8 x 8.1	2.0 kg
160 VA	92 x 96 x 102	75.5 x 84 x 5.8	5.8 x 9	2.65 kg
200 VA	92 x 96 x 102	75.5 x 84 x 5.8	5.8 x 9	2.85 kg
250 VA	106 x 96 x 102	84 x 84 x 5.8	5.8 x 9	3.45 kg
320 VA	92.5 x 120 x 120	74.5 x 90 x 5.8	5.8 x 9	4.15 kg
400 VA	104.5 x 120 x 120	86.5 x 90 x 5.8	5.8 x 9	5.15 kg
500 VA	108 x 135 x 132	87 x 104 x 5.8	5.8 x 9	6.5 kg
630 VA	112 x 150 x 145	90 x 122 x 7.0	7.0 x 10	7.7 kg
800 VA	129 x 144 x 142	107 x 122 x 7.0	7.0 x 10	10.1 kg
1000 VA	129 x 174 x 158	102 x 135 x 7.0	7.0 x 10	12.3 kg

### Notes

For other voltages on request.

## Single-phase

Control, isolation and safety transformers to EN 61558

Touch protected to EN 60529 (IP20)

Isolation class T 60/B

Approvals:



### MET

Input voltage 230 V AC  $\pm 5\%$   
Output voltage 230 V AC



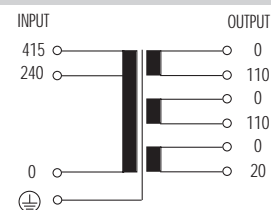
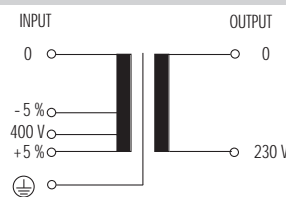
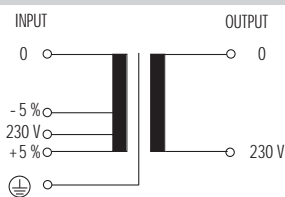
### MET

Input voltage 400 V AC  $\pm 5\%$   
Output voltage 230 V AC

### MET

Input voltage 240/415 V AC  
Output voltage 110/240 V AC

### Circuit diagram



### Ordering data

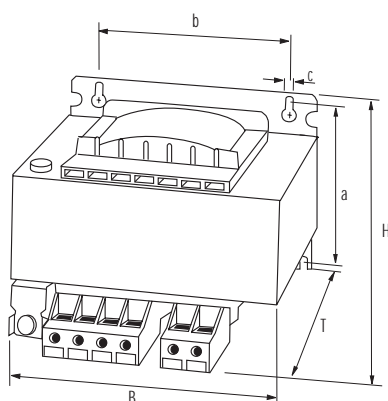
	Art.-No.	Art.-No.	Art.-No.
Nominal power rating			
30 VA	86210	86211	
50 VA	86230	86231	86235
63 VA	86250	86251	86255
100 VA	86000	86001	86005
250 VA	86010	86011	86015
500 VA	86020	86021	86025
630 VA	86030	86031	86035
800 VA	86040	86041	86045
1000 VA	86050	86051	86055
1500 VA	86060	86061	
2000 VA	86070	86071	
3000 VA	86090	86091	
4000 VA		86111	
5000 VA		86131	

### Technical data

Input voltage	230 V AC $\pm 5\%$	400 V AC $\pm 5\%$	240/415 V AC
Output voltage	230 V AC	230 V AC	110/240 V AC
Frequency	50/60 Hz		
Transformer specification	EN 61558-2-4 and EN 62041 category 0		
Test voltage	prim./sec. 4 kV AC		
Isolation class	T 60/B, up to 2000 VA T40/B		
Temperature range	-20...+60 °C, up to 2000 VA +40 °C, no condensation		
Mounting method	key-hole mounting, up to 2000 VA with long-hole mounting		

### Dimension drawing/Dimensions

(mm)



	H x B x T	a x b x c	Ø	Weight
30 VA	53 x 66 x 81	42 x 50 x 4.8	4.8 x 8	0.65 kg
50 VA	59.5 x 78 x 90	47.5 x 56 x 4.8	4.8 x 8	1.15 kg
63 VA	68 x 78 x 90	56 x 56 x 4.8	4.8 x 8	1.6 kg
100 VA	80 x 84 x 95	65 x 64 x 4.8	4.8 x 8	2.1 kg
250 VA	92.4 x 120 x 122	74.4 x 90 x 5.8	5.8 x 12	4.5 kg
500 VA	107 x 150 x 148	83.5 x 122 x 7	7 x 15	6.8 kg
630 VA	129 x 150 x 144	107 x 122 x 7	7 x 15	8.2 kg
800 VA	117 x 174 x 160	92 x 135 x 7	7 x 15	11.2 kg
1000 VA	137 x 174 x 160	112 x 135 x 7	7 x 15	14.8 kg
1500 VA	168 x 174 x 160	142 x 135 x 7	7 x 15	21 kg
2000 VA	195 x 250 x 168	174 x 200 x 7	7 x 13	24 kg
3000 VA	195 x 250 x 193	174 x 200 x 7	7 x 13	30 kg
4000 VA	195 x 250 x 208	174 x 200 x 7	7 x 13	32 kg
5000 VA	195 x 250 x 219	174 x 200 x 7	7 x 13	40 kg

Single-phase

Control, isolation and safety transformers to EN 61558

Touch protected to EN 60529 (IP20)

Isolation class T 60/B

Approvals:

**MET**

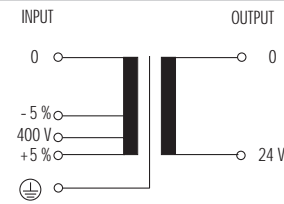
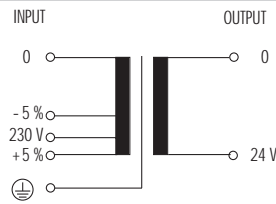
Input voltage 230 V AC  $\pm 5\%$   
Output voltage 24 V AC SELV



**MET**

Input voltage 400 V AC  $\pm 5\%$   
Output voltage 24 V AC SELV

**Circuit diagram**

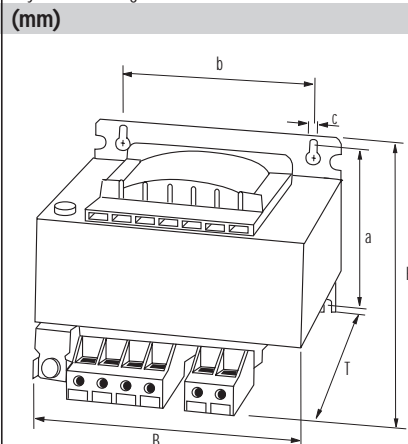


Ordering data	Art.-No.	Art.-No.
Nominal power rating		
30 VA	86213	86214
50 VA	86233	86234
63 VA	86253	86254
100 VA	86003	86004
250 VA	86013	86014
500 VA	86023	86024
630 VA	86033	86034
800 VA	86043	86044
1000 VA	86053	86054

**Technical data**

Input voltage	230 V AC $\pm 5\%$	400 V AC $\pm 5\%$
Output voltage	24 V AC SELV	
Frequency	50/60 Hz	
Transformer specification	EN 61558-2-6 and EN 62041 category 0	
Test voltage	prim./sec. 4 kV AC	
Isolation class	T 60/B	
Temperature range	-20...+60 °C, no condensation	
Mounting method	key-hole mounting	

**Dimension drawing/Dimensions**



	H x B x T	a x b x c	Ø	Weight
30 VA	53 x 66 x 81	42 x 50 x 4.8	4.8 x 8	0.65 kg
50 VA	59.5 x 78 x 90	47.5 x 56 x 4.8	4.8 x 8	1.15 kg
63 VA	68 x 78 x 90	56 x 56 x 4.8	4.8 x 8	1.6 kg
100 VA	80 x 84 x 95	65 x 64 x 4.8	4.8 x 8	2.1 kg
250 VA	92.4 x 120 x 122	74.4 x 90 x 5.8	5.8 x 12	4.5 kg
500 VA	107 x 150 x 148	83.5 x 122 x 7	7 x 15	6.8 kg
630 VA	129 x 150 x 144	107 x 122 x 7	7 x 15	8.2 kg
800 VA	117 x 174 x 160	92 x 135 x 7	7 x 15	11.2 kg
1000 VA	137 x 174 x 160	112 x 135 x 7	7 x 15	14.8 kg