1 PHASE PRE-CIRCUIT TRANSFORMER

VTG

Version with sheet steel desktop housing

25 VA … 1.5 kVA

TYPICAL APPLICATIONS

1 phase pre-circuit transformer according to IEC/EN61558-2-13 (autotransformer) for general applications without the need of a galvanic isolation, e.g. for transforming typical mains voltage to other voltages needed by tools, machinery or other devices.

VT pre-circuit transformers and other autotransformers do not provide any electrical protection due to the lack of galvanic isolation between input and output windings.

1phase autotransformer according to EN61558-2-13

Voltage range: 115 V / 230 V

Power range: 25 VA ... 1.5 kVA

EN61558-2-13

SPECIFICATIONS

VTG transformers are operation-ready out of the box, e.g. to transform power supply for a 115 V device, typically used in North America. To operate this device in Germany, please order VTG indexed „D". Example:

- Operating voltage 230V / mains plug „Schuko" type
- Output voltage: 115V with socket „USA" type
- Appropriate VTG type VTG050 **D**

VTG transforms 115 volts to 230 volts and vice versa! VTG type transformers are built in a stable sheet steel housing (degree of protection IP20).

Input: Power cord is attached to the housing - antikink protected. Output: Short circuit protection (fuse). Protection class I.

Ordering information:

Description Power **Version**

e.g. VTG 150 B

Version	Input		Output	
	Plug type	Voltage V	Socket type	Voltage V
A	Schuko	230	Schuko	230
B	Swiss	230	USA	115
C	USA	115	Swiss	230
D	Schuko	230	USA	115
E	USA	115	Schuko	230

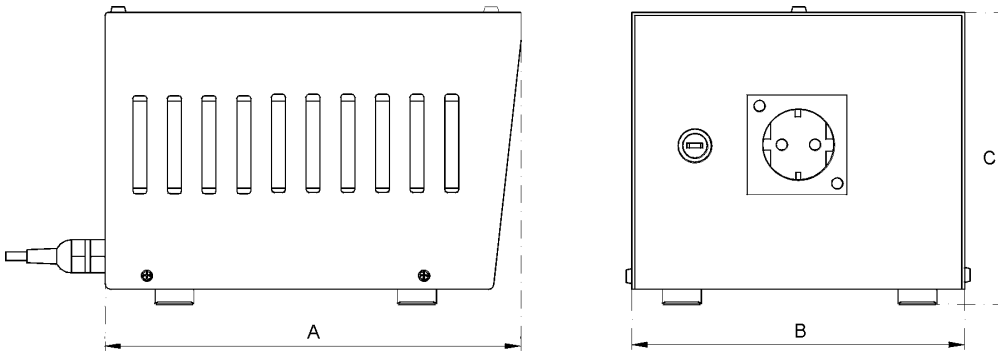
TECHNICAL DATA

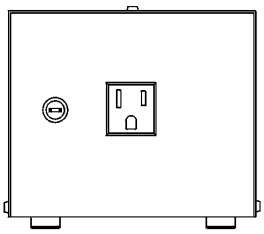
Description	1 phase autotransformer according to IEC/EN61558-2-13
Voltage range	115/ 230V
Frequency	50/ 60 Hz
Power range	25 VA … 1.5 kVA
Important transformer features	Completely vacuum impregnated
	No galvanic isolation
Protection class	I
Connections	Input: wire with plug Output: Socket with fuse (250V; G delay fuse according to IEC127)
Other data	**For use in dry rooms only!** Sheet steel housing, powder-coated (Standard RAL7035); degree of protection: IP20;

VTG

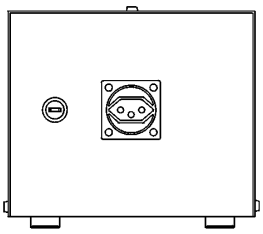
STANDARD TYPES

25 VA ... 1.5 kVA

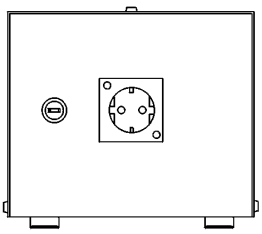




Front view
US version

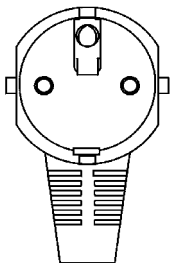


Front view
Swiss version



Front view
German version

Power VA	Output delay fuse G in A 115V	230V	Dimensions A	B approx. mm	C	Copper weight KG	Total weight KG	Type and ordering no.
25	0.2	0.1	145	115	95	0.07	1.10	VTG002
50	0.4	0.2	145	115	95	0.10	1.60	VTG005
75	0.63	0.315	145	115	95	0.15	1.70	VTG007
100	0.8	0.4	190	140	120	0.25	2.10	VTG010
150	1.25	0.63	190	140	120	0.30	2.65	VTG015
250	2.0	1.0	190	140	120	0.40	4.35	VTG025
350	3.15	1.6	190	140	120	0.50	5.40	VTG035
500	4.0	2.0	190	140	120	0.75	6.15	VTG050
1000	8.0	4.0	265	208	204	1.40	10.20	VTG100
1500	12.5	6.3	265	208	204	2.50	13.40	VTG150



Note: Schuko type plugs are used with versions „A“ and „D“. N=zero conductor is always connected to the left plug contact (front view - see drawing). All users have to make sure that the left contact is connected to the power supply zero conductor!

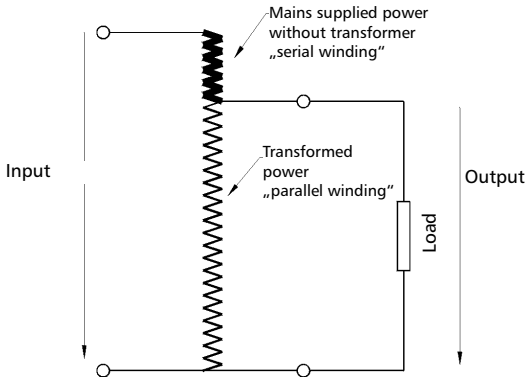
USE OF 1 PHASE AND 3 PHASE AUTOTRANSFORMERS

INFO

Autotransformers do not provide galvanic isolation. Electroconductive connection between input and output winding.

If difference between input voltage and output voltage is small...:

...mains power may be higher
...transformed power is lower
...size can be reduced (core, copper winding)



Please note:

Equation: Regarding input/ output „upper" or „lower voltage" is independant, voltage related only

For 3 phase autotransformers value of phase voltage is important.

Example shows 90% power saving compared isolating transformers. Identical equation works with 3 phase transformers.

Standard circuit design of 3 phase autotransformers is Yan0.

Max. load at neutral wire is approx. max. 10% of nominal current (phase current). If 100% neutral wire load is requested, circuit design Zan0 is manufactured (Note: Yan0 design can be used in certain circumstances, if neutral wire at input provides full load and transformer star point is permanently connected to load.

Please don´t hesitate to contact us for further informations.

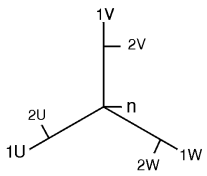
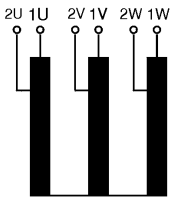
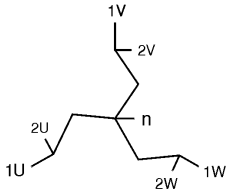
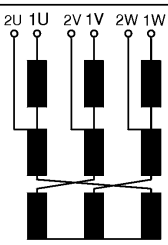
Equation to calculate the requested size:

Example: 1 phase autotransformer
Input voltage 440 V | Output voltage 400 V
„Rated power" needed for application: 5 kVA

$$P_{Size} = P_{load} \times \left(1 - \frac{U_{lower\ voltage}}{U_{upper\ voltage}}\right)$$

$$P_{Size} = 5KVA \times \left(1 - \frac{400V}{440V}\right)$$

$$P_{Size} = 0{,}45KVA$$

Description		Schematic	Circuit diagram	Star point
Code	Circuit design			
0	Yan0			Approx. 10% load
0	Zan0			100% load