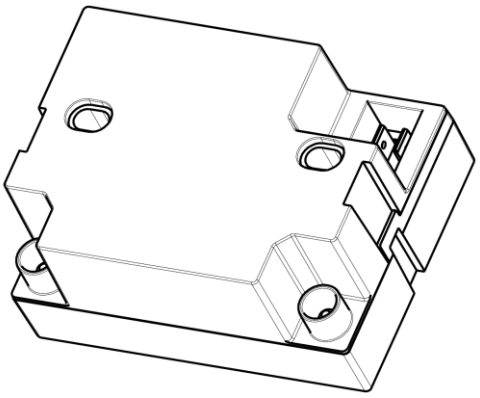
ELECTRONIC IGNITION TRANSFORMERS
TCDxFxx 12/24V$_{DC}$ SERIES



DESCRIPTION
The peculiarity of these ignition transformers series is the overall dimension which is reduced besides they are suitable to equip gas forced draught burners and light or heavy oil burners in domestic and industrial applications. The working principle function is based on a high frequency oscillator; the voltage generated by the oscillator is then increased by means of a transformer with ferrite nucleus, reaching output voltage values up to 17 kV.

FEATURES
Followings are the main features of these ranges of transformers:
- 33% duty cycle on 3 min or 100% duty cycle;
- overall dimensions and fixing systems compatible with other ignition devices available on the market;
- fixing systems compatible with TC and TD series devices produced by Brahma S.p.A.;
- high efficiency and ignition power;
- low consumption;
- single pole or double-pole high voltage output option;
- the transformer can be switched on by the control unit via enable input (Enable option);
- automatic overtemperature protection by integrated ntc probe;
- **in oil and gas burners the safety of ignition transformers depends on the control unit.**

APPROVALS
The transformers comply with the applicable immunity requirements of the EMC 2014/35/EU directive, with reference to the standards EN IEC 61000-6-2:2019 and EN 50498:2010. Electromagnetic emission requirements should be tested on the final product.

CONSTRUCTION
The working principle based on the use of a high frequency electronic oscillator has enabled to develop a device with limited dimensions and weight, but with high ignition power.
The electronic circuit and the transformer with ferrite nucleus are bathed in a special kind of resin with very good thermal conductivity and a specific coefficient of expansion, which ensures high resistance to temperature variations and to the overload due to protracted working.

DEVICE DENOMINATIONS
The transformers of these series are available in different versions as regards:
- the number of poles
- the type of connection
- fixing of high voltage cables

on this subject, see the following scheme:

TR.EL. TCD X F X X X

- **X** → **not indicated**: standard; **E**: Enable option;
- **X** → **not indicated**: With terminal; **V**: Screw;
- **X** → **S**: permanent operation (100% duty-cycle); **A**: non-permanent operation (33% duty-cycle);
- **F** → **F**: supply with fast-on (Fig. 2);
- **X** → **1**: single pole; **2**: double poles;

Example: TR.EL. TCD2FA is a transformer type *TCD*:
- double poles (*2*)
- supply socket with fast-on (F)
- non-permanent operation (*A*)
- fixing with cylindrical terminal ( )

ПРОМЭЛЕКТРОНИКА / sales@prom-elec.com

TECHNICAL DATA

Supply voltage V	12				24			
Model	**TCD1xAx**	**TCD2xAx**	**TCD1xSx**	**TCD2xSx**	**TCD1xAx**	**TCD2xAx**	**TCD1xSx**	**TCD2xSx**
Number of poles	1	2	1	2	1	2	1	2
Output peak voltage kV (1)	16	2x12	17	2x12	17	2x13	17	2x13
Rated output voltage kV (4)	4.8	2x3.5	3.2	2x2.2	8	2x4.6	4.6	2x3.5
Output peak current mA (2)	73	57	66	52	70	53	75	59
Rated output current mA (2)	31	27	21	17	47	38	31	23
Output voltage frequency kHz (1)	8	8	8	8	8	8	8	8
Output voltage frequency kHz (2)	10	12	7	10	10	10	10	10
Consumption W (3)	29	28	8	8	41	45	18	18

NOTES
(1) 30 pF load output.
(2) Short circuit output.
(3) 5 mm spark gap.
(4) No-load output.

- **Supply voltage:** 12-24VDC
- **Recommended protection fuse according to EN 60127:** F6.3A 250V
- **Duty cycle:**
  100% (permanent operation)
  33% in 3 min (non permanent operation)
- **Operating temperature range:** -20 … +60 °C
- **Protection degree:** depends on wiring
- **Winding class:** F
- **Recommended distance between the electrodes:** 3÷5 mm
- **Max. ignition cable length:** 1.5 m
- **Max supply power cord length:** 20m (2.5mm^2)
- **Weight:** 250 g approx.

OVERALL DIMENSIONS

Fig.1 shows the main overall dimensions of the transformers. To fix the transformers, screws type M4 or M5 should be used; the oval holes enable a variation of the fixing wheel base between 57.6 mm and 63.2 mm.

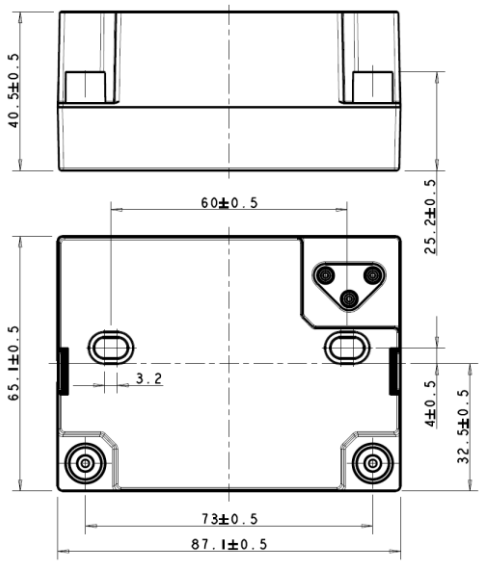


Fig. 1

CONNECTION

The transformers can be provided with a power supply cable equipped with female terminals of 6.35x0.8 dimensions (for socket of Fig.2); cable length and termination type depend on customer's request.

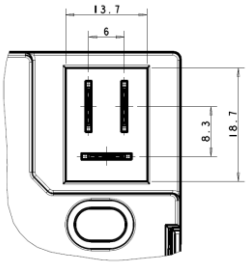


Fig. 2

The connection of high voltage cables can be carried out by means of a cylindrical terminal with 4 mm diameter as shown in Fig. 3 or of a screw (Fig. 4). All connectors, including the ones complete with cable, can be supplied on request. More detailed information on high voltage cables provided with cylindrical terminal is available in the PC…/PD… series technical data (see www.brahma.it).

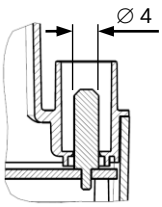


Fig. 3

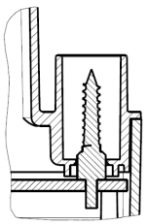


Fig. 4

ENABLE OPTION

In standard versions ground terminal (⏚) is used for connecting the secondary winding of the transformer to the burner, in transformer with enable option the third terminal (EN) is used to enable the transformer operations through the connection with the control equipment (Fig.6).
The other two power supply terminals are connected directly to the source, in this way the equipment doesn't supply the necessary current for the transformer operations, because few milliamperes via the enable signal will be sufficient to start up the transformer.
The signal applied to EN terminal must have the same voltage value as the positive terminal and the transformer will operate only if the EN input terminal is powered.
The secondary winding of transformers with enable option is internally connected to the negative terminal.

INSTALLATION

- The device can be mounted in any position.
- Respect the polarity of connections as shown in fig. 5 and fig. 6.
- The power supply conductors should have a section suitable for the transformer absorption and a reduced length;
- The transformer should be protected with a fuse on the positive terminal connection (see technical data).
- Respect the applicable national and European standards (e.g. EN 60335-1 / EN 60335-2-102) regarding electrical safety.
- Check the cables before operating the transformer. Incorrect wiring can damage the transformer and affect the system safety.
- Avoid putting high voltage cables next to other cables.
- Ensure a protection degree suitable to the application.
- Ensure a good connection from ground terminal (⏚) and the metallic casing of the burner if standard version transformer is operated. Connect the negative terminal (-) to the metallic casing of the burner if transformer with enable option is operated, to allow the closure of the discharging circuit.

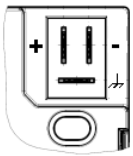


Fig. 5

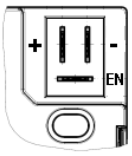
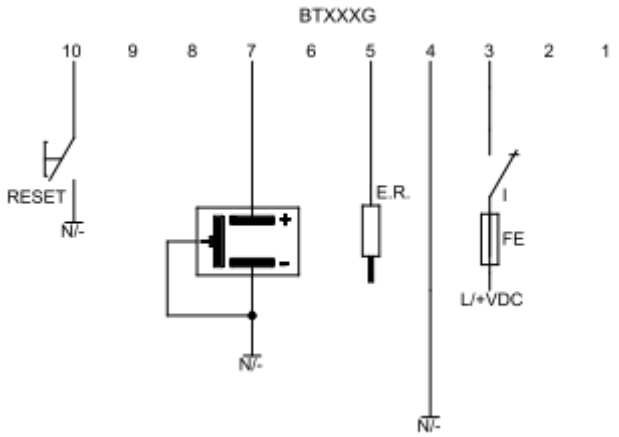


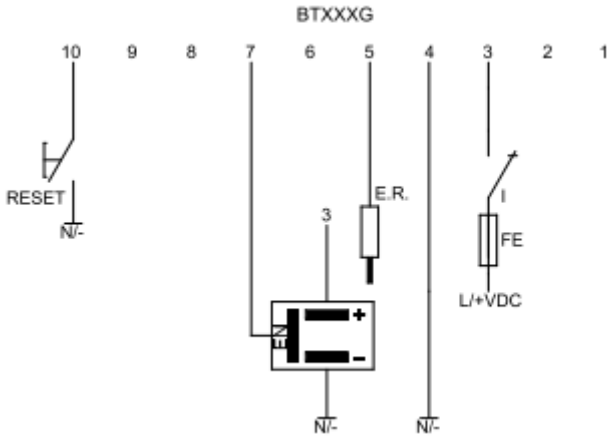
Fig. 6

The connection diagrams of the transformer in the various types of use are shown below.

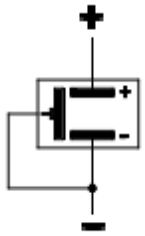
1) Connection with Brahma BTxxxG equipment and standard version transformers, without Enable option (TCDxFxx)



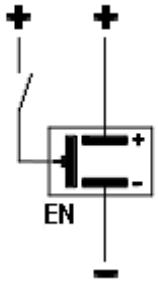
2) Connection with Brahma BTxxxG equipment and transformer with Enable option (TCDxFxx_E)



3) Stand-alone connections of standard versions (TCDxFxx)



4) Stand-alone connections of transformers with enable option (TCDxFxx_E)



NOTES FOR THE DISPOSAL OPERATION

The device contains electronic components and it must not be disposed of as a domestic waste. For the disposal operation refer to the local rules concerning special waste.

ATTENTION ->Company Brahma S.p.A. declines any responsibility for any damage resulting from the Customer's interfering with the device.

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