





Transformers Star-Delta connections.

How do you do that?



Transformers - Star-Delta connections: how do you do that?



Circuit diagram - explanation

The three windings in the three-phase transformers in our SPT range are not yet connected. This allows you – as the user – to arrange the circuitry in line with the relevant application.



You can opt for a star or delta connection on both the primary side (PRI) or the secondary side (SEC) of the transformer. There are therefore 4 potential connection options:

	PRI (input)		SEC (output)		
Star	Y	3x400V + N	Dreieck	Δ	3x230V
Star	Y	3x400V + N	Stern	Y	3x400V + N
Delta	Δ	3x230V	Dreieck	Δ	3x230V
Delta	Δ	3x230V	Stern	Y	3x400V + N

These four connection options are illustrated on the next page.

In order to complete the circuit you must make the connections identified with a stippled line on the diagram.

Question: What cable section should be used to make this connection?

Answer: The same section as the cable used on the PRI or SEC side respectively.

The letters on the wiring diagram match the letters on the other terminals, which must be connected in turn.

Tip: Make sure that, with the star connection, you also connect the **neutral point (N - neutral conductor)** by connecting the lowercase letters **x-y-z (SEC)** or **u-v-w (PRI) together.** Experience teaches that this is sometimes forgotten.







Caution: the connections you are to make are indicated with stippled lines. (----)

The label

You will now observe that the label provides a summary of these instructions.

The connections you are to make are indicated with stippled lines.



The options for the primary side (PRI) are shown on the left below: Connect either as delta: 3×230 V, or as star 3×400 V + N.

The options for the secondary side (SEC) are shown on the right below: Connect either as delta: 3 x 230V, or as star 3 x 400V + N The currents (in Amperes, A) are also shown.

What about energy efficiency?

This SPT three-phase isolating transformer is available in both the classic version and an energy-efficient version (the SPT/BTE series)





And what about the SPT/D series?

With the SPT/D isolating transformer we have already connected the primary winding as a delta 400V. Without a neutral conductor (Neutral). This in contrast to the standard SPT series where only 230 V delta is possible.

Note the '/D'' in the article number.

The SPT/D series is often used with a 3 x 400V IT network.



Only two options are therefore available:

PRI (input)			SEC (output)		
Delta	Δ	3x400V	Dreieck	Δ	3x230V
Delta	Δ	3x400V	Stern	Y	3x400V + N

This (SEC) connection must similarly be made using the same cable section as that used on the SEC side.

The letters on the terminals match the letters on the other terminals, which must be connected in turn.

Tip: Make sure that, with the star connection, you also connect the neutral point (N - neutral conductor) by connecting together the lowercase letters x-y-z (SEC). Experience teaches that this is sometimes forgotten.

Here again the label provides a summary of the connection instructions, with the connections you are to make, indicated with stippled lines (SEC). In the case of the SPT/D series the primary (PRI) is already connected in delta.



The primary side (PRI) is shown on the left below:

Delta: 3 x 400V (without a neutral conductor) - no connections to make.

The options for the secondary side (SEC) are shown on the right below): Connections to be made as indicated by the stippled line: Either in delta: 3 x 230V, or in star 3 x 400V + N The currents (in amperes, A) are also shown.

What about energy efficiency?

This SPT/D three-phase 400V PRI isolating transformer is available in both the classic version and an energy-efficient version (the SPT/D/ BTE series)





Example of wiring







erea · energy · engineering

Need advice about the details of your project? Our committed and experienced staff stand ready to assist.

EREA Energy Engineering

Ruggeveldstraat 1 2110 Wijnegem BELGIUM

tel. + 32 3 355 16 00 fax + 32 3 355 16 01

www.erea.be

