

Thyristor switches

thyroswitch

Monitoring



Recording

Optimizing



thyroswitch thyristor switches enable capacitors to be connected and disconnected quickly and without wear and tear. Unlimited switching frequency, no peak inrush current when switching on, rapid out-compensation, no noise formation are just some of the advantages of this technology.

thyroswitch 3P

Thyristor switch with three thyristors, each of which can switch alone or together..



thyroswitch 2P

3-phase thyristor switch with two thyristors.

thyroswitch 2P

Current

70 – 115 A

3-phase thyristor switch with two thyristors

- Highlights**
- Unlimited switching frequency without load on capacitors
 - No peak inrush current when switching on capacitors
 - Low operating delay
 - Compensation almost in real-time
 - No operating noise

An overall view of **technical details** can be found on page 138.
The **housing dimensions** are listed on page 140.

The 3-phase thyristor switch **thyroswitch 2P** is a compact unit ready for connection and enables tuned and detuned capacitors to be connected and disconnected quickly and with no wear and tear. thyroswitch offers significant advantages over conventional standard protections. Among other things, load on the capacitors is reduced by controlled switching, which increases their working life. When switched on, there is no peak inrush current, wear and tear on the switch contacts does not occur.

The thyroswitch is controlled via the **multicomp** reactive

power controller or directly via the machine control. The thyroswitch 2P has two thyristors which switch phases L1 and L3. Phase L2 is connected, but not switched on. If the switch-on procedure is activated via a reactive power controller or a control, there is a voltage comparison between the capacitor voltage and the mains voltage. If there is a slight difference, the stage is switched on.

Specifications

DEVICE TYPE	ARTICLE NUMBER	VOLTAGE in V	FREQUENCY in Hz	CURRENT in A
thyroswitch 2ph-400-50-90	V108-10-0001	400	50	90*
thyroswitch 2ph-400-60-90	V108-10-0002	400	60	90
thyroswitch 2ph-400-50-115	V108-10-0003	400	50	115*
thyroswitch 2ph-400-60-115	V108-10-0004	400	60	115
thyroswitch 2ph-500-50-70	V108-10-0005	500	50	70*
thyroswitch 2ph-500-60-70	V108-10-0006	500	60	70
thyroswitch 2ph-120-50-90	V108-10-0007	120	50	90
thyroswitch 2ph-120-60-90	V108-10-0008	120	60	90
thyroswitch 2ph-120-50-115	V108-10-0009	120	50	115
thyroswitch 2ph-120-60-115	V108-10-0010	120	60	115
thyroswitch 2ph-240-50-90	V108-10-0011	240	50	90
thyroswitch 2ph-240-60-90	V108-10-0012	240	60	90
thyroswitch 2ph-240-50-115	V108-10-0013	240	50	115
thyroswitch 2ph-240-60-115	V108-10-0014	240	60	115

* Standard

thyroswitch 3P

Current

70 – 100 A

3-phase thyristor switch with three thyristors

- Highlights**
- Unlimited switching frequency without load on capacitors
 - No peak inrush current when switching on capacitors
 - Low operating delay
 - Compensation almost in real-time
 - No operating noise

An overall view of **technical details** can be found on page 139.
The **housing dimensions** are listed on page 141.

The thyristor switch **thyroswitch 3P** combines functional features already distinguished in the thyroswitch 2P: fast and wear and tear-free connecting and disconnecting of capacitors, unlimited switch frequency with low switch delay and compensation almost in real-time. The device generates no operating noise whatsoever and has a compact construction ready for connection.

thyroswitch 3P has three thyristors, each of which can switch alone or together. If the switch-on procedure is activated via a reactive power controller or a control, there is a voltage comparison between the capacitor voltage and the mains voltage. If there is a slight difference, the stage is switched on.

Specifications

DEVICE TYPE	ARTICLE NUMBER	VOLTAGE in V	FREQUENCY in Hz	CURRENT in A
thyroswitch 3ph-690/400-50-100	V108-20-0001	690/400 Y/Δ	50	100*
thyroswitch 3ph-690/400-60-100	V108-20-0002	690/400 Y/Δ	60	100
thyroswitch 3ph-690/500-50-70	V108-20-0003	690/500 Y/Δ	50	70
thyroswitch 3ph-690/500-60-70	V108-20-0004	690/500 Y/Δ	60	70
thyroswitch 3ph-400/230-50-100	V108-20-0005	400/230 Y/Δ	50	100*
thyroswitch 3ph-400/230-60-100	V108-20-0006	400/230 Y/Δ	60	100
thyroswitch 3ph-240/140-50-100	V108-20-0007	240/140 Y/Δ	50	100
thyroswitch 3ph-240/140-60-100	V108-20-0014	240/140 Y/Δ	60	100

* Standard

thyroswitch Technical details

DEVICE TYPE		thyroswitch 2P
INPUT	Control input	10 – 30 V DC max. 30 mA 180 – 260 V AC 50/60 Hz max. 20 mA
	Fuse protection	Max. 6 A
POWER SUPPLY	Auxiliary voltage	230 V AC 50/60 Hz max. 18 VA
	Fuse protection	Max. 6 A
LOAD CIRCUIT	Connection voltage U_N	400/500 V 50/60 Hz (type-dependent → Table)
	Load current	70/90/115 A (type-dependent → Table)
	Power dissipation	70 A type approx. 2.2 W pro A 90/115 A type approx. 2.1 W pro A
FIELD OF APPLICATION	Creepage distances from control input to power circuit	> 10.5 mm for SELV voltages
	Rated voltage	$U_N \pm 10\%$
	Harmonics voltage	DIN EN 61000-2-4 Klasse 3 THD Max. 10%
CLOSING DELAY: SWITCH-OFF TIME > 5s	Input	DC: 0 up to max. 20 ms AC: 10 up to max. 30 ms
RECLOSURE DELAY CHOPPING OPERATION	Input	DC: 0 up to max. 33 ms AC: 10 up to max. 43 ms
ELECTRICAL SAFETY	Standards and amendments	
	Protection class	I
	Clearances	EN61010:2001 for contamination degree II Measurement category III
AMBIENT CONDITIONS	Mode of protection	IP 10
	Standards and amendments	DIN EN 60721-3-3/A2 (3K5 + 3Z11) EC 721-3-3 (3K5 + 3Z11)
	Air humidity, non-condensing	5% bis 95%
	Operating temperature	-5 °C to +55 °C → observe performance restriction depending on ambient temperature.
INSTALLATION	Storage temperature	25 °C to +70 °C
	Installation position	Vertical or horizontal
HOUSING	Cooling clearances	Minimum 50 mm to the fan and Minimum 150 mm to the heat sink outlet
	Sizes in mm (H x W x D)	220 x 105 x 185 mm 220 x 105 x 198 mm (type 115 A)
WEIGHT		Approx. 2900 g Approx. 3600 g (type 115 A)

thyroswitch

3P

10 – 30 V DC | 3 inputs each max. 30 mA

Max. 6 A

230 V AC $\pm 10\%$ | 50/60 Hz | max. 35 VA

Max. 6 A

 Δ 400 V/50 Hz | Υ 690 V/50 Hz

Max. 100 A

70 A type approx 3 x 1.1 W pro A

100 A type approx 3 x 1.05 W pro A

> 10.5 mm for SELV voltages

 $U_N \pm 10\%$

DIN EN 61000-2-4 Klasse 3 | THD Max. 10%

0 up to max. 20 ms

0 up to max. 33 ms

I

EN61010:2001 for contamination degree II

Measurement category III

IP 10

DIN EN 60721-3-3/A2

(3K5 + 3Z11)

IEC 721-3-3 (3K5 + 3Z11)

5% to 95%

-5°C to +55°C

-25°C to +70°C

Vertical or horizontal

Minimum 50 mm to the fan and

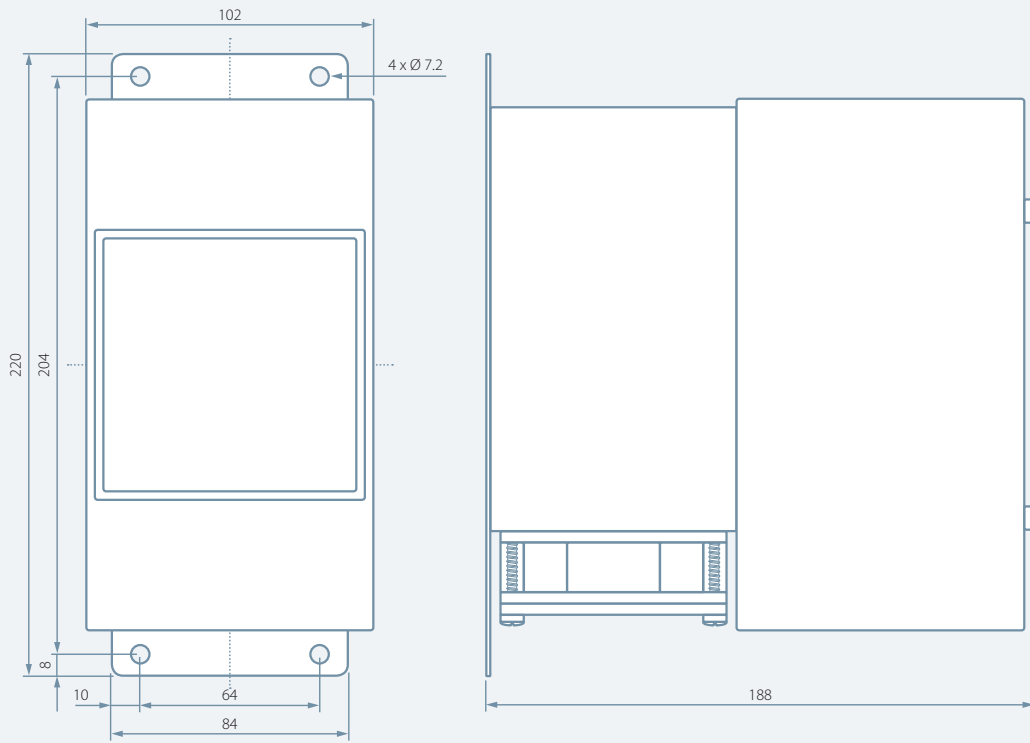
Minimum 150 mm to the heat sink outlet

220 x 182 x 188 mm

Approx. 204.59 oz

thyroswitch dimensions

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