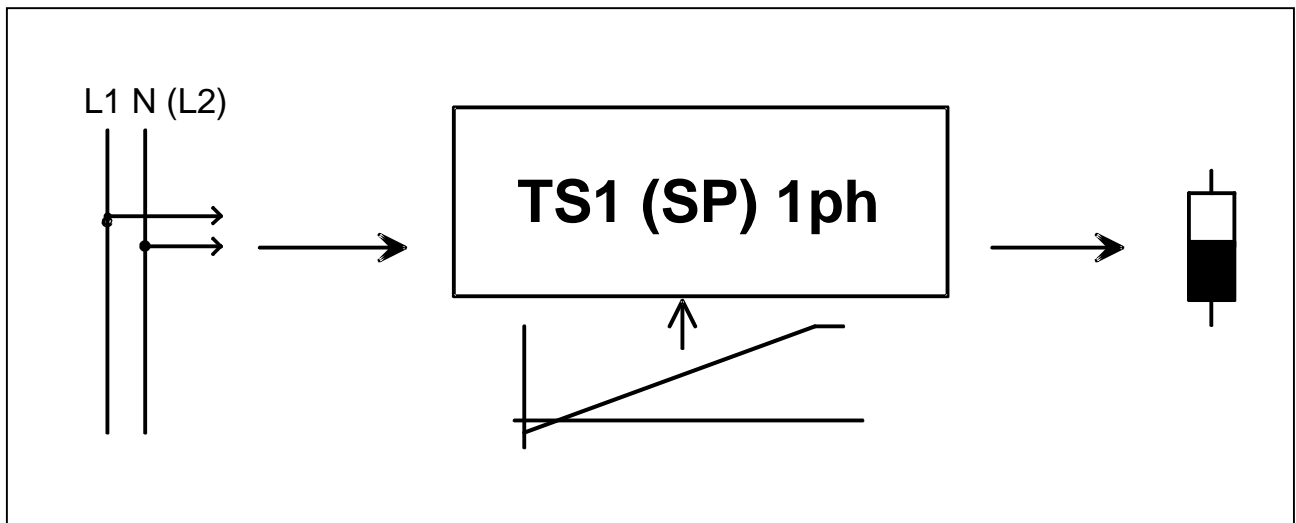


Power Thyristor TS1 (SP) 1ph

Instruction for installation



Contents:

Page:

1.	General descriptions	2
2.	Installation	3
3.	Set-up of Thyristor TS1 (SP) 1ph	4
4.	Terminal connections	5
5.	Basic circuit	6
6.	Arrangement of types	7
7.	Mechanical data	7
8.	Technical data	8

1. General Descriptions

Tyristors are more and more used where increased resistive and inductive loads have to be controlled. By means of the modular and compact construction as well as the control by a continuous action control signal, these Power Thyristors are becoming a perfect actuator for industrial power control.

The power unit of the Thyristor is made of two anti-parallel connected Thyristors, the insulated heat sink and the control electronics.

Explanation of types:

TS1 1ph A.C. Regulator with phase angle control for single-phase systems

TS1 SP 1ph A.C. Regulator with oscillation package single-phase systems

Power Supply:

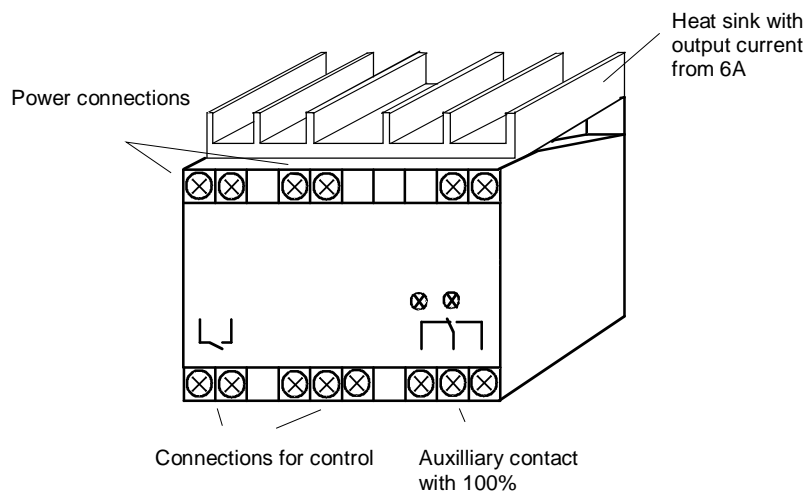
Different mains voltages are adjusted to maximum of power without causing any on-load voltage problems.

Construction:

The Thyristors correspond to the VDE 0558 Part 1 and VDE 0160 Table 4.

The Thyristor TS1 (SP) 1ph is integrated in a plastic housing (ABS). The main component of the Thyristor consist of the

Power unit with heat sink and the Thyristor wiring as well as of the **Control unit** with starter and control electronics.



2. Installation: Thyristor TS1 (SP) 1ph

A sufficient cooling (e.g. forced-air cooling) is of paramount importance. Temperature is not allowed to exceed 50°C. The device has to be mounted on a vertical area, so that a sufficient air circulation is guaranteed. Moreover, the Thyristor has to be installed in dry rooms.

Further on-site conditions:

- Protection against dust and humidity
- Protection against aggressive atmosphere
- Free of vibrations

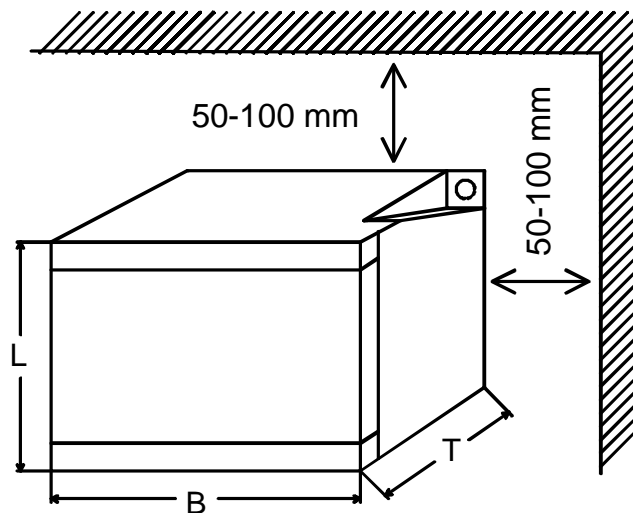
In order to avoid any interferences of the cooling, no further components should be installed around the Thyristor within a distance from 50 to 100mm.

Wiring:

Power supply (L1, N (L2)) must be produced via a fail-save circuit breaker with the common backups.

The wiring for the power supply and the control unit must be done in separate channels or protection tube.

During the electrical installation procedure, the general VDE-regulations (VDE 0100, VDE 0113, VDE 160) must be observed, accordingly.



3. Set-up of Thyristor

First of all, all electrical connections should be set-up, according to the attached circuit diagrams: L1, N(L2), T1, T2.

According to the VDE-regulations, the Thyristors must be connected to the supply net in that way, that they can be separated from the net by means of corresponding clearing instruments (e.g. main switch, contactor, protective power-switch).

Cabling:

The net and consumer lead wires as well as the control circuit must be lead in separate cables.

In order to avoid any interferences, it is advisable to wire the electronic signal lines separated from the load leads and/or the contactor control circuit and to twist the coming and going wires of the signal line.

Protection:

The net protection depends on the recommended respectively the used conductor cross section and must be made according to DIN 57100 Part 430/VDE 0100 Part 430/6.81.

4. Terminal Connections

Control voltage:

L1 – L2 (N): 230VAC/50 Hz
Optional: on request any control voltage can be realised

L1 – N: External power supply
(optional, not necessary, on request any control voltage can be realised)

Power output:

T1 – T2: Load connection

Activation:

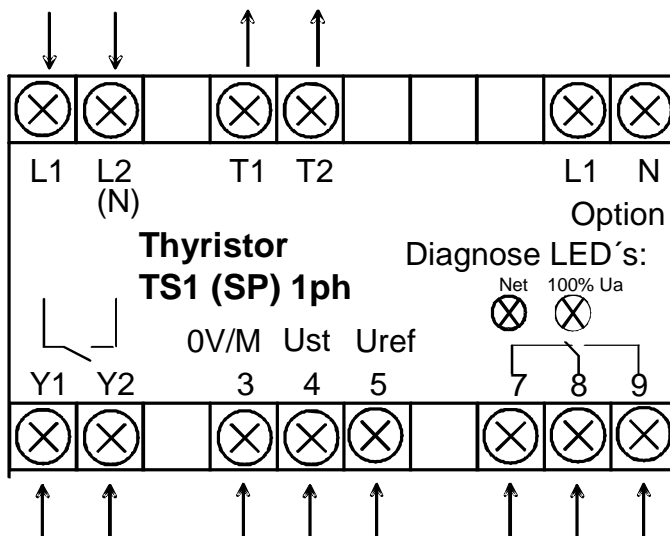
Y1 – Y2 Activated: closed
Stand by: open

Control:

3 – 4 Setpoint signal 0 – 10V DC
5 Reference voltage 10V DC/20mA
(Power supply for potentiometer control)

Switch Output:

7 – 8 – 9 Switch output (activation is made upon reach of output voltage)



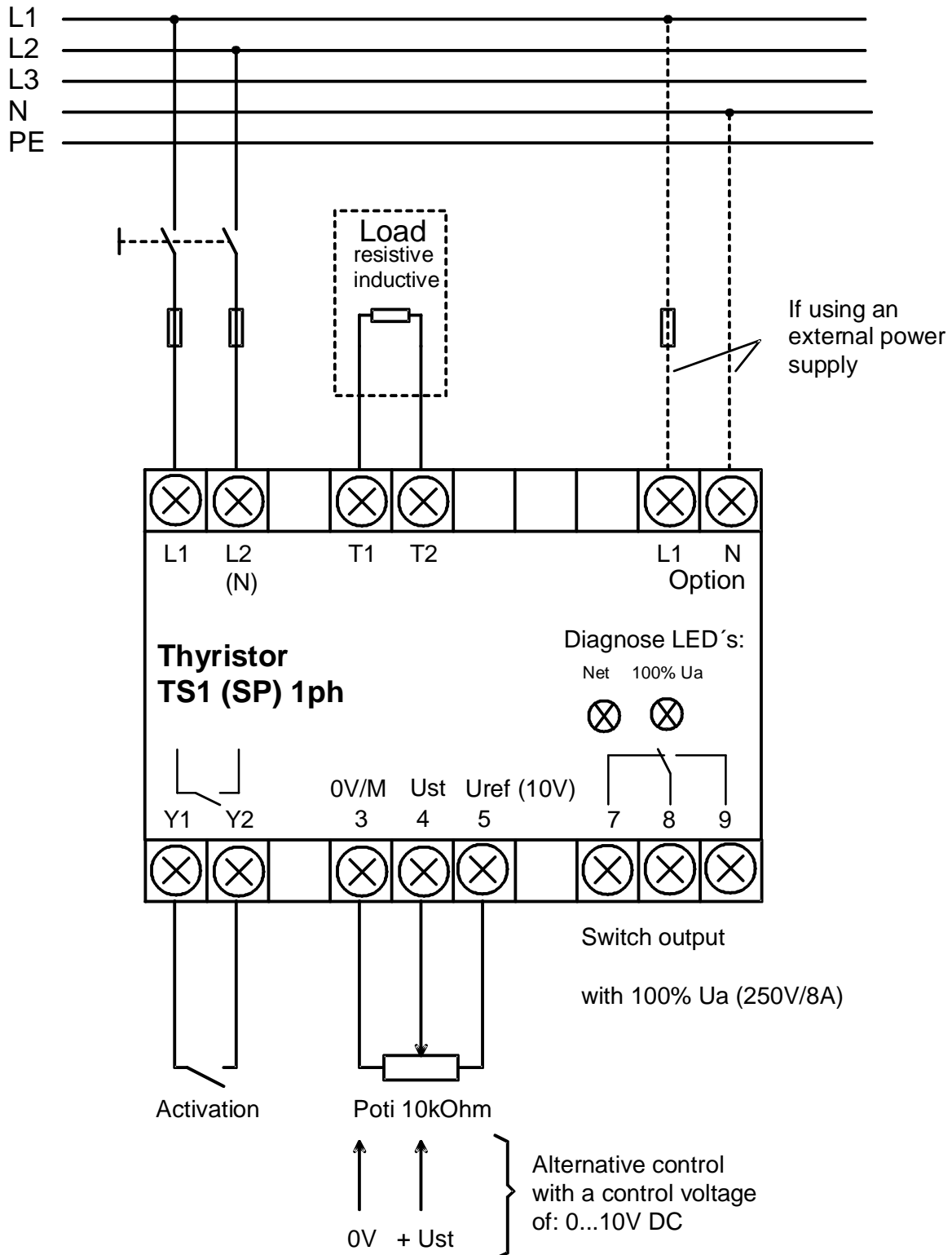
Optional connection (not necessary)
e.g. for special voltage

Meaning of LED's:

Net: Operation voltage available
Ready for operation

100%: Device has reached its full
exitation

5. Basic Circuit

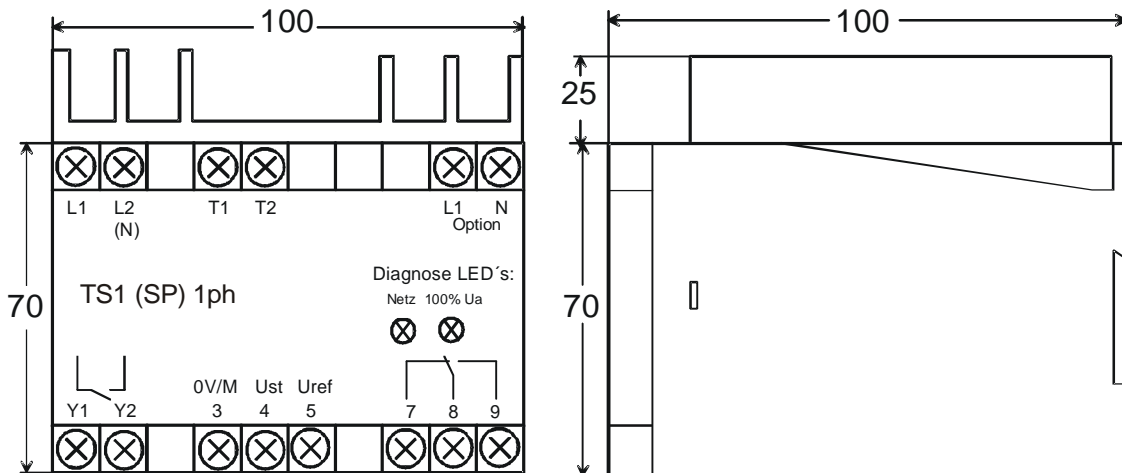
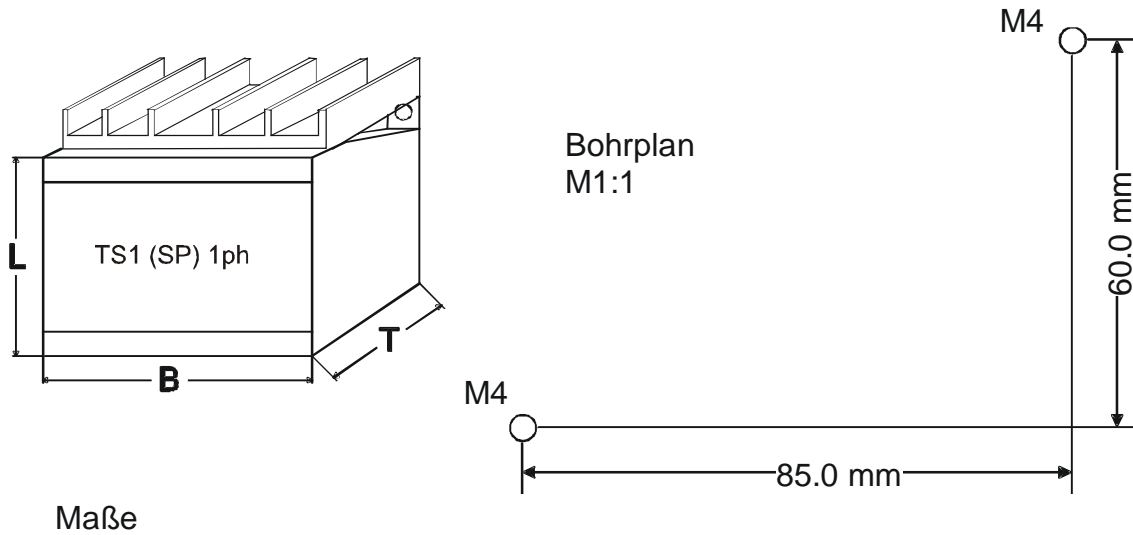


6. Types Available

Type	Maximum Motor Current [A]	Recommended Semiconductor Fuse [A]	Wire protection [A]	Recommended Cross Section [mm ²]
TS1 (SP) 1ph 2A	2	2	6	1,5
TS1 (SP) 1ph 4A	4	4	6	1,5
TS1 (SP) 1ph 6A	6	6	10	1,5
TS1 (SP) 1ph 8A	8	6	10	2,5
TS1 (SP) 1ph 10A	10	8	16	2,5
TS1 (SP) 1ph 12A	12	10	16	2,5

The aforementioned loading capacity values are valid for an ambient temperature of max. 40°C and an installation height of max. 1000m as well as for a nominal operating voltage of 400V AC.

7. Mechanical Data



8. Technical Data

Mains voltage:	230V AC
Frequency:	45Hz to 65Hz, self-synchronised
Secondary voltage (optionally):	24V AC/DC
Inputs:	0...10V or 0...20mA or potentiometer 10k Ω
Ambient temperature:	Operation: 0... 45°C, Storage: -10°C to 70°C
Protection class:	IP 40 Clamps IP20 (VBG 4)
Weathering resistance:	Humidity class FDIN 40040
Vibration resistance:	4g
Housing:	ABS (Terulan) 877 T, UL 94 HB
Weight:	0,35kg
Mounting:	DIN-rail system or on mounting plates screwable
CE-sign:	According to European low voltage directive 73/23/EEC and EMV directive 89/336 EWG for industrial applications