

# Thyro-S

THYRISTOR SWITCH  
SECURE, FAST, ECONOMIC AND  
COMMUNICATION-ENABLED

The digital, communication-enabled thyristor switch Thyro-S is equipped for an extended application field with numerous advanced functions supporting the system features of the user.

As a connection ready thyristor switch with secure optional behaviour and load monitoring, it switches electric loads, e.g. current, voltage, power. It can be connected to bus systems, used as standalone operation, or used in combination with all established 2-point process controllers, PLC or computer systems.

Owing to simple mounting, quick commissioning and safe operating, the Thyro-S can be integrated easily into the wide field of applications in today's process technology, e.g.:

- » Automotive industry (e.g. paint drying equipment)
- » Chemical industry (pipe trace heaters, pre-heating equipment)
- » Furnace construction (industrial, diffusion, drying)
- » Glass processing (drying coatings)
- » Machine building industry (extruders, plastic presses)
- » Packaging industry (shrink tunnels)
- » Printing machines (IR drying)

## KEY FEATURES

In addition to wear-free operation and high efficiency further features of this product series include:

- » Simple handling and small space requirements
- » Rated voltages 230 V, 400 V, 500 V



- » Rated currents 16 A - 280 A
- » Integrated semiconductor fuse
- » Standard system interface for connection to an optional bus module (e.g. for PROFIBUS DP, Modbus RTU, CANopen, DeviceNet)
- » LED status display
- » Operating modes 1:1, as well as 1:2, 1:3, 1:5 (e.g. for commissioning)
- » Logical signal control of 24 V (> 3 V) or standard system interface
- » Secure isolation between control and power sections
- » 3-phase design by connecting two Thyro-S units
- » Isolation between control and power sections
- » UL approval of UL 508 A (100,000 A S.C.C.R.)
- » Quality standards in accordance with ISO 9001
- » CE-compliant

## additional for H RL1 type

- » external electronic power supply 24 V AC/DC
- » load monitoring
- » alarm relay

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TYPE SERIES AND TECHNICAL  
DATA (EXCERPT)

| Thyro-S 1S<br>H1, H RL1         | Current<br>(A)   | Unit rating<br>(kW)                             |  |       | Power<br>loss<br>(W) | Dimensions (mm) |     |     | Weight<br>(kg)<br>approx.      |
|---------------------------------|--|---|--|-------|----------------------|-----------------|-----|-----|--------------------------------|
|                                 |  | 230 V   | 400 V  | 500 V |                      | W               | H   | D   |                                |
|                                 | 16   | 3.7   | 6.4  | 8     | 30                   | 45              | 121 | 127 | 0.7                            |
|                                 | 30   | 6.9   | 12   | 15    | 47                   | 45              | 121 | 127 | 0.7                            |
|                                 | 45   | 10  | 18   | 22.5  | 52                   | 52              | 190 | 182 | 1.7                            |
|                                 | 60   | 14  | 24   | 30    | 80                   | 52              | 190 | 182 | 1.7                            |
|                                 | 100  | 23  | 40   | 50    | 105                  | 75              | 190 | 190 | 1.9                            |
|                                 | 130  | 30  | 52   | 65    | 150                  | 125             | 320 | 237 | 4                              |
|                                 | 170  | 39  | 68   | 85    | 210                  | 125             | 320 | 237 | 4                              |
| ...F...                         | 280  | 64  | 112  | 140   | 330                  | 125             | 370 | 237 | 5                              |
| <b>RATED VOLTAGE</b>            |  |   |  |       |                      |                 |     |     |                                |
|                                 | 230 V - 57 % + 10 %;   |   | for H1   |       |                      |                 |     |     |                                |
|                                 | 230 V - 15 % + 10 %;   |   | > 99 V for H RL1 with additional<br>24V electronic power supply  |       |                      |                 |     |     |                                |
|                                 | 400 V - 57 % + 10 %;   |   | for H 1  |       |                      |                 |     |     |                                |
|                                 | 400 V - 15 % + 10 %;   |   | > 172 V for H RL1 with additional<br>24V electronic power supply |       |                      |                 |     |     |                                |
|                                 | 500 V - 57 % + 10 %;   |   | for H 1  |       |                      |                 |     |     |                                |
|                                 | 500 V - 15 % + 10 %;   |   | > 215 V for H RL1 with additional<br>24V electronic power supply |       |                      |                 |     |     |                                |
| <b>NETWORK FREQUENCY</b>        |  |   |  |       |                      |                 |     |     |                                |
|                                 | of all types ranging from 47 Hz to 63 Hz   |   |  |       |                      |                 |     |     |                                |
|                                 | max. frequency change 5% per half-wave   |   |  |       |                      |                 |     |     |                                |
| <b>LOAD TYPE</b>                |  |   |  |       |                      |                 |     |     |                                |
|                                 | ohmic load   |   |  |       |                      |                 |     |     |                                |
| <b>OPERATING MODES</b>          |  |   |  |       |                      |                 |     |     |                                |
|                                 | <b>name</b>  | <b>load signal (for digital set point = ON)</b> |  |       |                      |                 |     |     |                                |
|                                 | 1:1  | = all full-waves (default setting) *            |  |       |                      |                 |     |     |                                |
|                                 | 1:2  | = every 2nd full wave cycle*                    |  |       |                      |                 |     |     |                                |
|                                 | 1:3  | = every 3rd full wave cycle*                    |  |       |                      |                 |     |     |                                |
|                                 | 1:5  | = every 5th full wave cycle*                    |  |       |                      |                 |     |     | * without direct current ratio |
| <b>DIGITAL SET POINT INPUTS</b> |  |   |  |       |                      |                 |     |     |                                |
|                                 | set point 1 logical input DC 0 ... 24 V $R_i > 3,3 \text{ k}\Omega$ ON > 3 V                                     |   |  |       |                      |                 |     |     |                                |
|                                 | set point 2 system interface, connection to controlling automation system via optional<br>bus module is possible |   |  |       |                      |                 |     |     |                                |
| <b>RELAY OUTPUT</b>             |  |   |  |       |                      |                 |     |     |                                |
|                                 | 1 changeover contact   |   |  |       |                      |                 |     |     |                                |
| <b>AMBIENT TEMPERATURE</b>      |  |   |  |       |                      |                 |     |     |                                |
|                                 | 35 °C external fan cooling (F-type, with integrated fan)   |   |  |       |                      |                 |     |     |                                |
|                                 | 45 °C passive convection cooling   |   |  |       |                      |                 |     |     |                                |
|                                 | operation at higher temperature is possible with reduced current limits:   |   |  |       |                      |                 |     |     |                                |
|                                 | temperature range up to 55 °C : rated current - 2 % / °C   |   |  |       |                      |                 |     |     |                                |
|                                 | with UL applications max. 40 °C  |   |  |       |                      |                 |     |     |                                |

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## AEG Power Solutions GmbH

Emil-Siepmann-Str. 32  
D-59581 Warstein-Belecke  
Germany

Phone: +49 2902 763 520  
Fax: +49 2902 763 1201

powercontroller@aegps.com  
www.aegps.com

**AEG**  
POWER SOLUTIONS