

JUMO GmbH & Co. KG
 Delivery address: Mackenrodtstraße 14,
 36039 Fulda, Germany
 Postal address: 36035 Fulda, Germany
 Phone: +49 661 6003-0
 Fax: +49 661 6003-607
 E-mail: mail@jumo.net
 Internet: www.jumo.net

JUMO Instrument Co. Ltd.
 JUMO House
 Temple Bank, Riverway
 Harlow - Essex CM20 2DY, UK
 Phone: +44 1279 63 55 33
 Fax: +44 1279 63 52 62
 E-mail: sales@jumo.co.uk
 Internet: www.jumo.co.uk

JUMO Process Control, Inc.
 8 Technology Boulevard
 Canastota, NY 13032, USA
 Phone: 315-697-JUMO
 1-800-554-JUMO
 Fax: 315-697-5867
 E-mail: info@jumo.us
 Internet: www.jumo.us



Thyristor power switches

with integrated cooling body
 to be snapped on a DIN rail or for screw connection

Brief description

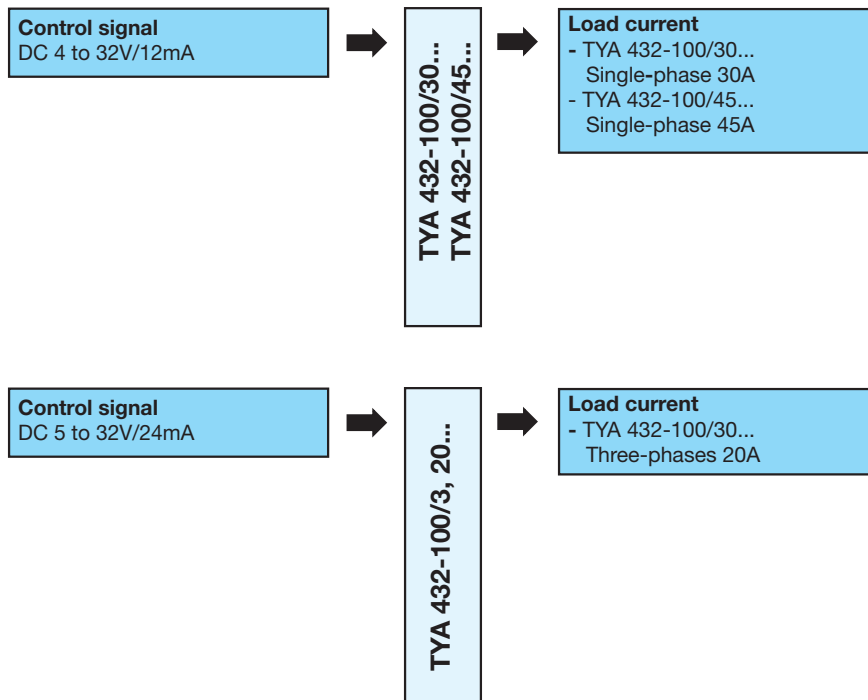
Thyristor power switches are required for contactless switching of alternating current consumers. Typical applications include the switching of ohmic inductive consumers subject to a large number of duty cycles, in particular encountered in industry, such as, for instance, plastic packaging industry, air conditioning and heat engineering as well as heat treatment plants. The control and power sections are electrically isolated by optocouplers. The control signal section is compatible with the JUMO controller logic outputs. The power section functions as a zero voltage switch, i.e. independent of the point in time when the control signal changes, switching always takes place at zero voltage. In this manner power failures are reduced. The input status is indicated by an LED.



TYA 432-100/
30, 265 (660)

TYA 432-100/45, 660

Block diagram



TYA 432-100/3, 20, 660

Special features

- Load currents 3x20A, 30A and 45A (max.)
- Load currents 265 V and 660V (max.)
- Control voltage 4...32V DC
- Underwriters Laboratories Inc. (UL) approval

Approvals/Approval marks (see Technical Data)



Technical data

Load circuit

Type	TYA 432-100/30, 265	TYA 432-100/30, 660	TYA 432-100/45, 660	TYA 432-100/3, 20, 660
Load voltage	24...265V _{eff}	42...660V _{eff}		
Load current (maximum)	30A _{eff} (T _u =25°C)	45A _{eff} (T _u =25°C)		20A _{eff} (T _u =25°C)
Load current (minimum)	150mA _{eff}			
Fuse maximum load integral I ² · t (t=10ms)	1800A ² · s		6600A ² · s	1800A ² · s
Frequency	45...65Hz			
Peak blocking voltage	650V _s	1200V _s		
Leakage current	<3mA _{eff}			
cos φ	>0.5 at 230V AC	>0.5 at 600V AC		

Control

Type	TYA 432-100/30, 265	TYA 432-100/30, 660	TYA 432-100/45, 660	TYA 432-100/3, 20, 660
Control signal range	4...32V DC			5...32V DC
Switch-on voltage	3.8V DC			4.7V DC
Switch-off voltage	1.2V DC			
Input current	12mA at 32V DC			24mA at 32V DC
Response delay	1 · period duration			<1 · period duration

General characteristics

Type	TYA 432-100/30, 265	TYA 432-100/30, 660	TYA 432-100/45, 660	TYA 432-100/3, 20, 660
Operating mode	Zero point control			
Electrical isolation	between the control and power section by means of optocouplers; insulation voltage 4kV _{eff}			
Permissible ambient temperature	-30...+70°C			
Electrical connection	by means of screw terminals; load / control (max. cross section) □ 2x2.5mm ² / 2x2.5mm ² □ 25mm ² / 4.0mm ² □ 2x2.5mm ² / 2x2.5mm ²			
Casing	PBT FR	Crustan SK641-FR, PBT		PBT
Protection type	IP20			
Weight	200g		360g	380g

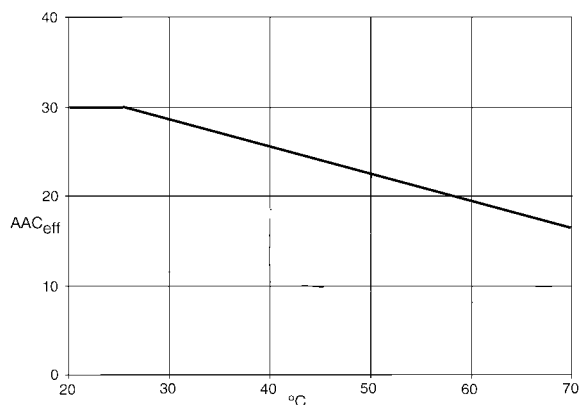
Approvals/Approval marks

Approval marks	Inspection authority	Certificates/certification numbers	Inspection basis	valid for
c UL us	Underwriters Laboratories	E223137	UL 60730-2-9	all instrument versions

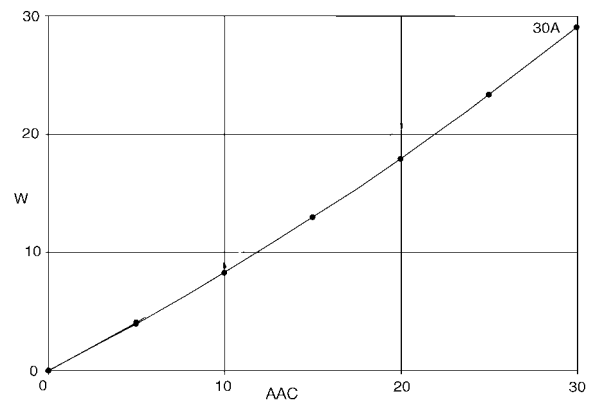
Reduction characteristic curves

Type 432-100/30, 265 (660)

Permissible load current depending on the ambient temperature

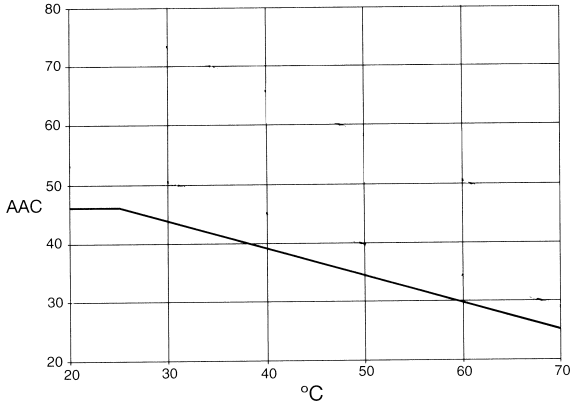


Power loss depending on the load current

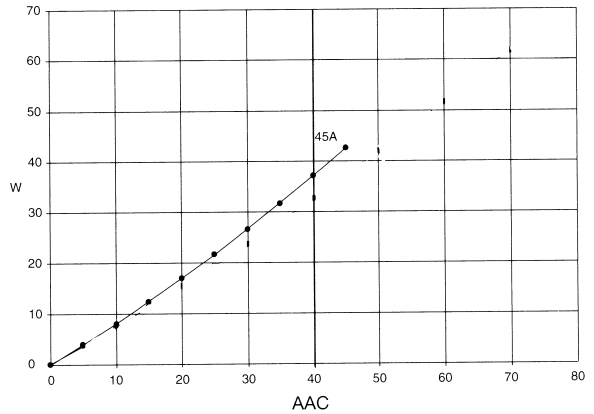


Type 432-100/45, 660

Permissible load current depending on the ambient temperature



Power loss depending on the load current

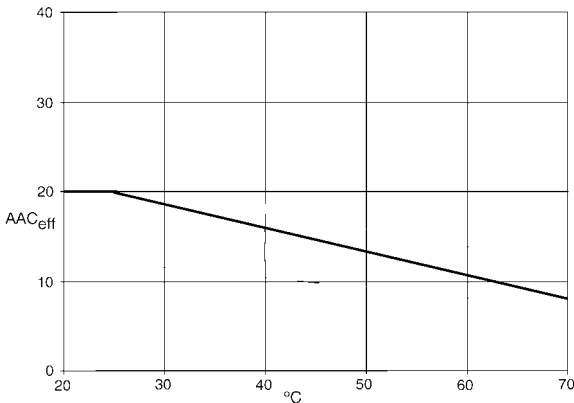


Note!

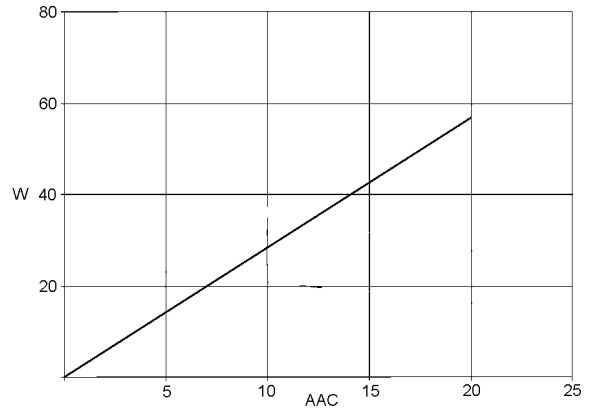
Ensure that the lamellae of the cooling body are vertically aligned to allow the heat to be dissipated through natural convection. Do not install any heat sensitive components and devices close to the power switch.

Type 432-100/3, 20, 660

Permissible load current depending on the ambient temperature

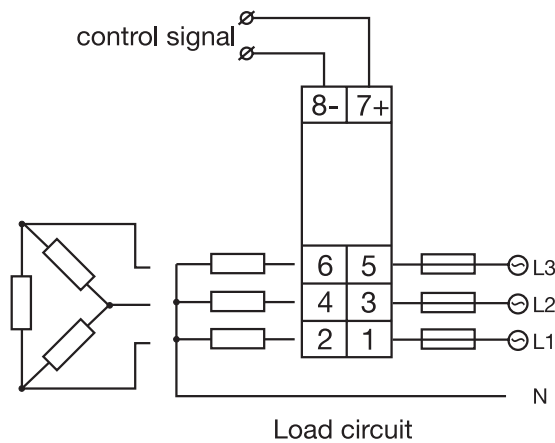
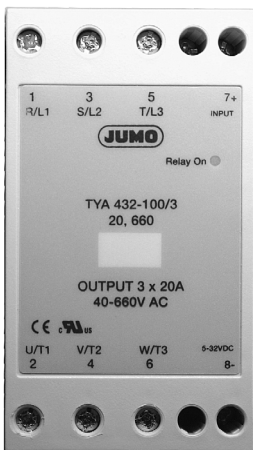


Power loss depending on the load current



Connection diagram

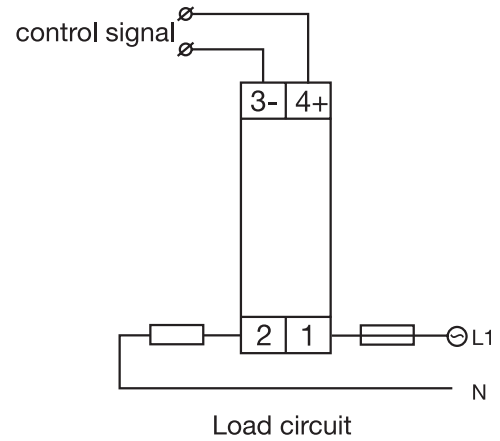
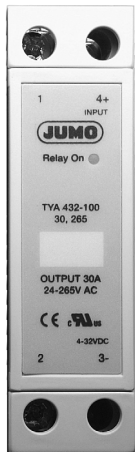
TYA 432-100/3, 20, 660



Connection diagram

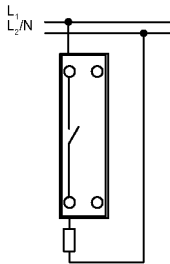
TYA 432-100/30, 265 (660)

TYA 432-100/45, 660

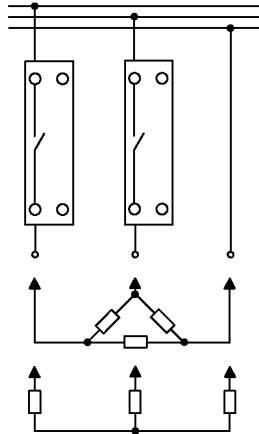


Circuit variants

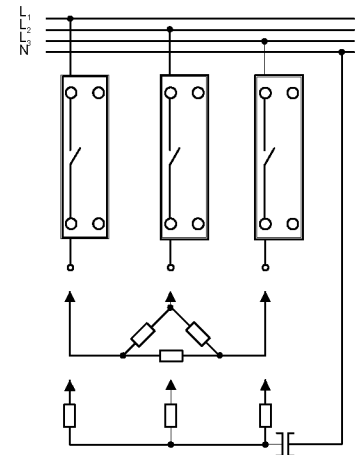
1 pole solid state relay in a 1 phase application phase neutral conductor, phase phase



Two 1 pole solid state relays in a 3 phase application delta and star (low power consumption)



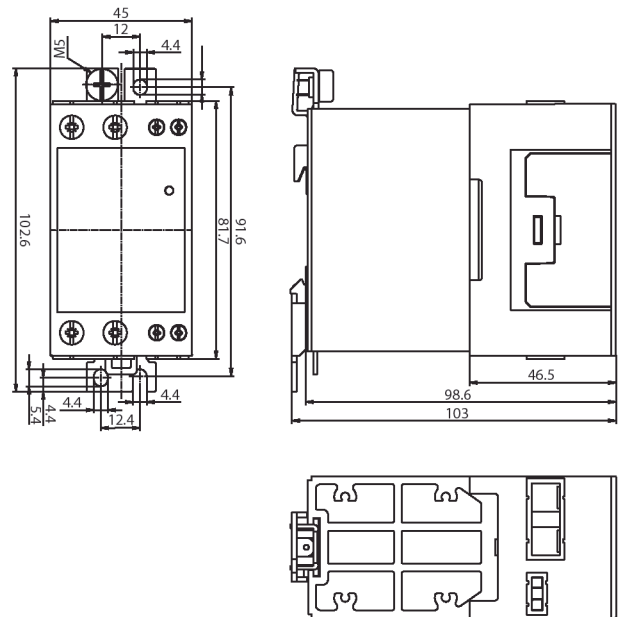
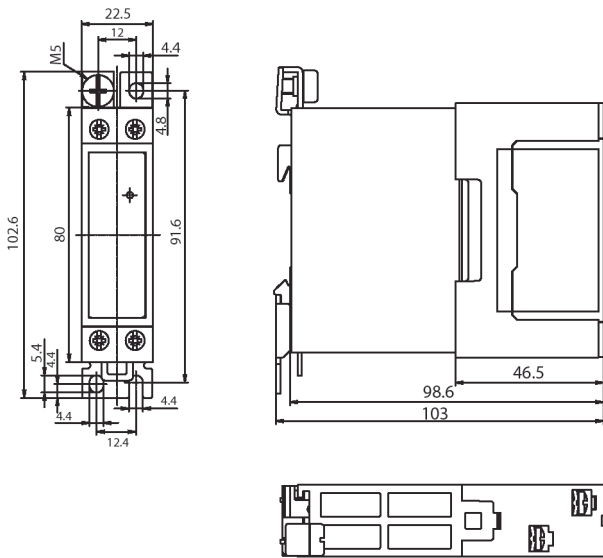
Three 1 pole solid state relays in a 3 phase application delta, star, star with zero conductor



Dimensions

Type: TYA 432-100/30, 265 (660)

Types: TYA 432-100/3 20, 660 and TYA 432-100/45, 660



Minimum spacing for tightly packed installations:

Horizontal: 22.5mm

Vertical: 120mm

Order details

Type	Load voltage	Load current	Sales No.
TYA 432-100/30, 265	24...265V _{eff}	30A _{eff}	70/00408538
TYA 432-100/30, 660	42...660V _{eff}	30A _{eff}	70/00418274
TYA 432-100/45, 660	42...660V _{eff}	45A _{eff}	70/00408540
TYA 432-100/3, 20, 660	42...660V _{eff}	20A _{eff}	70/00427435

In order to ensure trouble-free operation and to guarantee a higher degree of availability of applications with thyristor power switches, we recommend to use fuses featuring a very good switch-off capability (e. g. from Ferraz).