

Housing forms for optos

DK-SERIES



All components of the DKO mini-coupler are extremely slim: the use of the latest surface-mounted devices (SMD) allows us to keep the width to just 6 mm. The mini-couplers support a wide range of applications relating to the coupling of digital sensor/actuator signals with automation devices and the process field.

DKO optos are designed to pick up and standardise signals of different voltages from the field.

MICROSERIES



The **MICROSERIES** range integrates the product features of the RSS power relay into the world of terminals. The user therefore benefits from the special features of terminals: he retains a free choice of connection system, plug-in cross-connection, standardised marking solutions as well as the space saving advantage typical of relays!

WAVESERIES



Innovative electronic components require a housing or enclosure that reflects their specific functions. They must allow adjustment and operation functions and support electro-mechanical requirements such as heat dissipation or electromagnetic compatibility. A compact design saves space in the control cabinet and reduces assembly costs. Ergonomic design is increasingly important for top-quality opto interfaces.

MCZ-SERIES



The MCZ enclosure is only 6 mm wide and one of the narrowest of its kind. Its outstanding technical features include:

- Tension clamp connection to reduce assembly costs
- Integrated cross-connection in input and output minimizes wiring workload.

PLUGSERIES



The **PLUGSERIES** offers you proven product features from the world of connection systems combined with the performance of the Weidmüller RCL power relay.

The plug-in cross-connection ZQV enables quick and easy bridging of input and output potentials.

Besides a free choice of the connection system, PLUGSERIES products are unique as a result of the Wemid housing material.

JACKPAC®



JACKPAC® integrates basic functions of signal processing such as amplification, isolation and conversion of signals, but also provides protective functions thanks to packaging to IP68 standard that is compatible with field wiring conditions. This allows you to both realise decentralised wiring concepts without having to accept a compromise solution and to optimally use digital input-output components from the IP6X world.

MICROOPTO



The MICROOPTO range of products provide the user with the tried and tested characteristics of terminal blocks. Pluggable cross-connections and harmonised marking solutions packaged in a minimum design width. Best performance within a small footprint.

- 6.1 mm design width
- Pluggable standard cross-connection ZQV 4N
- Housing material made of WEMID (higher thermal stability in comparison with polyamide)

Power Solid State Relays



For many industrial applications, the switching performance of contactors is no longer sufficient for switching loads reliably over long periods. For this reason, heating elements in plastics machinery, to take one example, are synchronized in order to control the heat output. Electro-mechanical components quickly reach the limits of their capacity in this regard. The switching noises from contactors are often a source of disturbance and distraction. This is where Power Solid-State Relays, with their noise-free, wear-free switching function, are right for the job.

Control circuit

The input circuits (control circuit)

Most industrial application cannot be connected directly to an opto, generally requiring voltage regulation by means of series-connected resistances or capacitors.

To obtain exact-as-possible switching points a *Schmitt Trigger* can be used to assign the control signals an unambiguous status (0 - 1) when moving from high to low or low to high, which is then passed on to the opto.

Depending on the design, all Weidmüller opto modules and solid-state relays are equipped with suitable protective devices (varistors, diodes) and filters to protect against interference pulses from the control circuit.

DC input:

An additional reverse-polarity protection diode guarantees protection against the opto being destroyed if the control voltage is incorrectly wired. The switching status of the control circuit is signalled by a status indicator.

AC/DC input:

A rectifier with smoothing capacitor is connected in series for AC control voltages. Reverse polarity protection for DC current is not necessary. The following construction corresponds to a DC circuit.

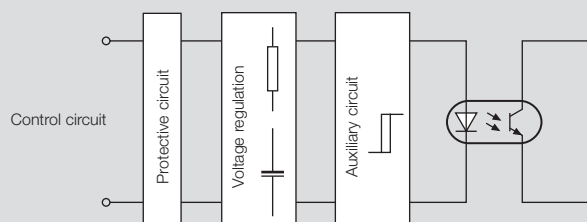
Due to the smoothing capacitor the switching frequency of AC control signals is fundamentally less than half the mains frequency. A higher switching frequency would result in the control signal being constantly switched through in rhythm with the mains frequency.

The advantage of being able to choose between an AC or a DC current input contrasts with the disadvantage that the smoothing capacitor also restricts the switching frequency of the DC control signal.

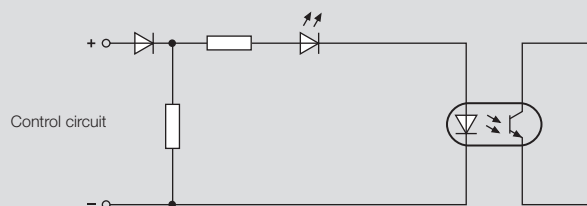
AC input:

The circuit diagram corresponds in principle with an AC/DC circuit. Instead of series resistors it is possible to use capacitors to regulate the voltage in a purely AC operation. In contrast to resistors there is no power loss with capacitors and as a result no heat that needs to be dissipated.

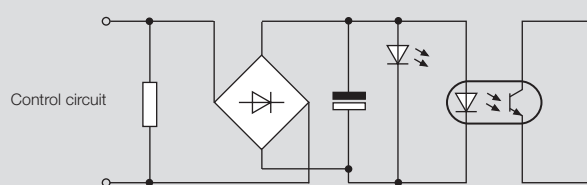
Input configuration



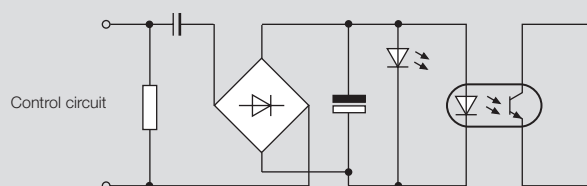
DC input



AC/DC input



AC input



Load circuit

The output circuit (load circuit)

As a rule, an operating voltage range is stated for the rated switching voltage of opto modules and solid state relays (for example 5 ... 48 V DC); it is not permitted to exceed or fall below this value.

The same applies to continuous current. Exceeding this value too often can result in premature wear-out and destruction of the opto semiconductor.

As a direct correlation exists between the current and ambient temperature a derating curve is provided for all opto modules and solid-state relays.

Overvoltages are shunted by protective devices such as diodes or varistors.

To prevent damage caused by current spikes (for example starting or off pulses) some modules are equipped with a *power boost* which is capable of carrying higher levels of current than the maximum stated for a short period of time.

It is possible to connect AC or DC loads subject to the output circuit having corresponding amplifier semiconductors.

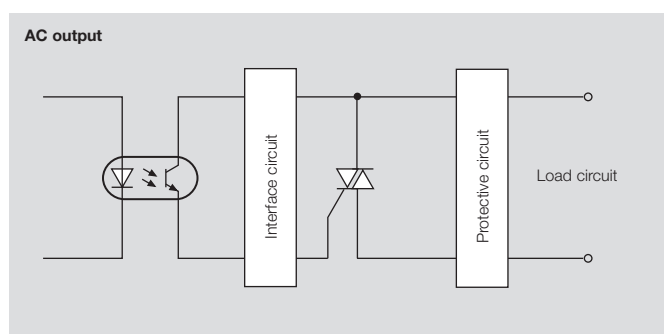
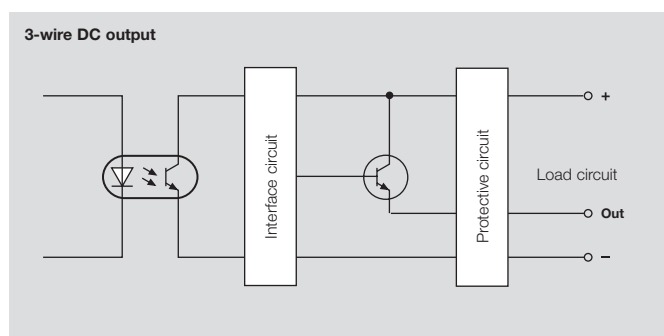
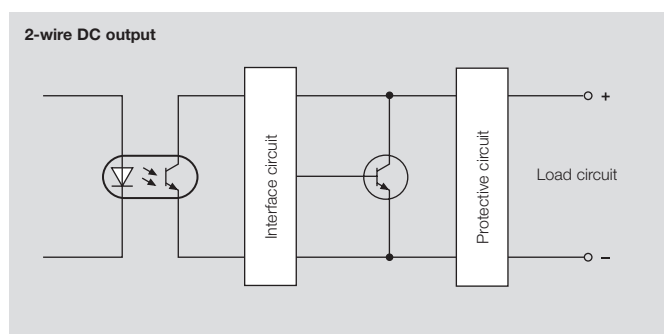
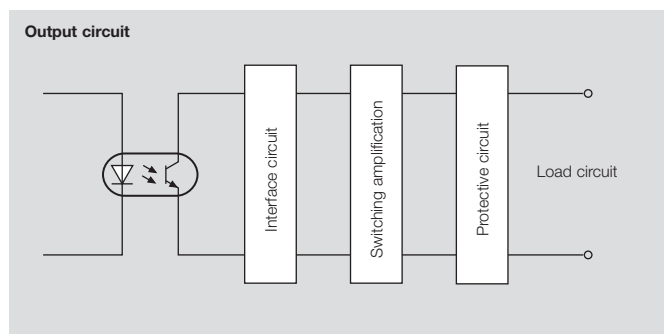
DC output:

With a 2-pole DC output the connection terminals are to be considered in the same manner as with a conventional switch. All that is required is that care is taken to observe the predetermined polarity.

With a 3-pole DC connection an auxiliary voltage assists the output circuit to control the amplifying transistor more precisely. Several applications also require this auxiliary voltage for short-circuit protection in the interface or protective circuitry.

AC output:

To activate AC switching and control devices a semiconductor is connected on the load side of the opto component to switch the AC voltage (TRIAC or thyristor).



Switching amplification

The phototransistor of the opto has a low current and voltage rating. As a consequence, an additional semiconductor element is accessed for larger output loads that is capable of switching the corresponding rated switching voltages and rated switching currents.

Bipolar Transistor (DC)

Used for low currents (0.5 A).

The bipolar transistor has short response times, which makes high switching frequencies possible as a result.

MOSFET (DC)

Used for high load currents (up to 10 A).

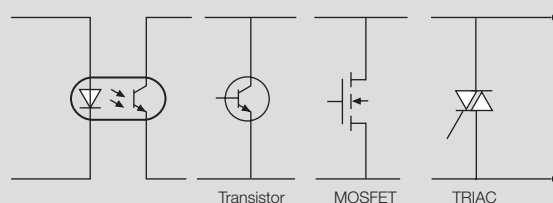
The low contact resistance of the MOSFET create only very small leakage currents ($< 10 \mu\text{A}$) with low power loss.

TRIAC (AC)

A TRIAC combines the functional principle of antiparallel connected thyristors in a single component.

The mode of function of a thyristor is comparable with that of a one-way diode. Therefore, an opposing parallel circuit configuration consisting of two thyristors is used for AC currents.

Switching amplification



Switching diverse loads

The different types of loads resulting from the possible applications (resistive, inductive, capacitive loads) represent a particular challenge for the load circuit arrangements of opto modules and solid-state relays. With reference to the planned application, one should always be aware of what effects the loads will have on the modules and how the corresponding protective devices have to be designed.

Generally speaking, it must be ensured that the power loss at the amplifier semiconductor does not exceed the permitted limit for any length of time. This would lead to overheating and finally to the destruction of the component.

Switching resistive loads

Due to the fact that in resistive loads the amperage in the load circuit and the voltage across the amplifier semiconductor are inversely proportional to one another these do not generally pose a problem. It is sufficient to adhere to the maximum current and voltage ratings of the modules.

Switching glow lamps represents a special case. It is possible that when being switched on that overcurrents 10 to 20 times the operating current can occur due to the low cold resistance. Therefore, the components must be designed to cope with these possible overloads situations which correspond to the effect of capacitive loads.

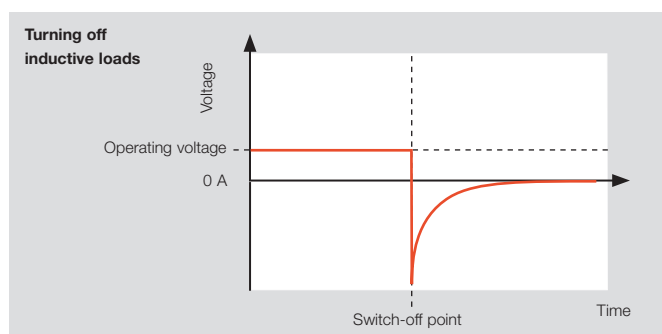
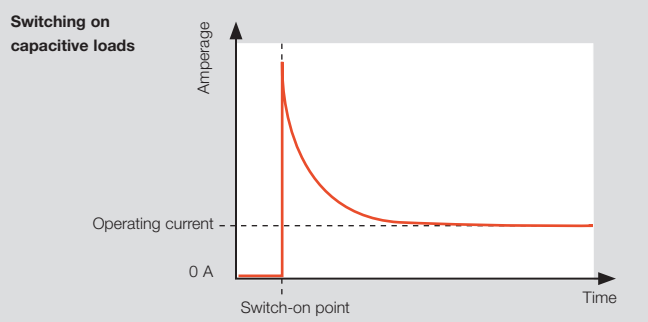
Switching capacitive loads

Capacitive loads occur if there is a capacitor in the load circuit. The effect is similar to a short-circuit at the point of activation and results in a high inrush current.

If this current is not limited it can lead to the destruction of the amplifier semiconductor.

Switching inductive loads

Problems can arise with inductive loads when they are being switched off, in particular when coils are used in the load circuit. The flow of current in the coil builds up a magnetic field that suddenly collapses and creates a high induction voltage. This voltage spike has to be short-circuited via a diode connected in parallel (free-wheeling diode). However, the time required leads to delayed release.



Protective measures

The construction of the opto enables fast and sensitive switching, however, the component is also more prone to interference. For this reason, all Weidmüller opto modules and solid-state relays are equipped with a variety of measures to protect against overloading and interference pulses.

Free-wheeling diodes (DC)

Free-wheeling diodes are used primarily to protect against over-voltages, which occur through self-induction when switching off inductive DC loads (electric motors, relay coils).

Voltage spikes are limited to the equivalent value of the diode forward voltage and excess voltage is discharged via the diode. However, this leads to a delay in the voltage drop and as such also delays the switching operation.

Zener diode / suppressor diode (DC)

These function as normal diodes in the forward conducting direction. In the blocking direction they become low resistant at a certain voltage (breakdown voltage).

High levels of overvoltages can lead to the destruction of the zener diode / suppressor diode.

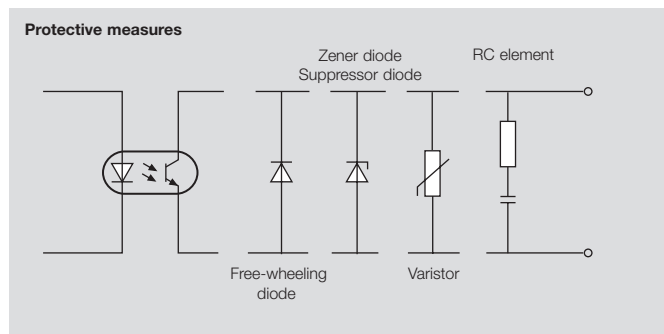
Varistor (AC/DC)

The functional principle of the varistor is also based on a breakdown voltage, but with faster reaction times. This allows higher levels of energy to be shunted, however, these lead to the component aging. This in turn reduces the breakdown voltage over time and increases the leakage current.

RC-element (AC)

The RC element compensates voltage spikes by means of a capacitor. Due to the charging and discharging characteristics interference pulses are filtered out when the voltage is rising and not first when overload is reached.

For this reason, RC elements are used to protect against interference pulses and exclude faulty switching operations.



Optos - DK-SERIES

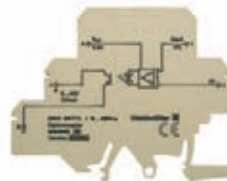
Mini-coupler DKO

- Coupling of digital sensor/actuator signals between PLC and process
- Inexpensive solution for adapting level and potential
- Low input power
- Screw connection system
- 6 mm width
- For mounting on TS 35

5 V DC



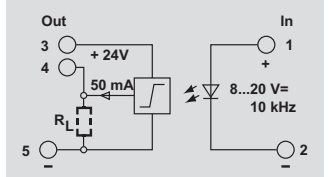
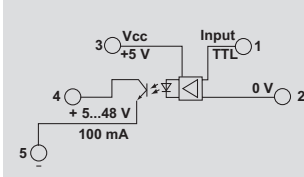
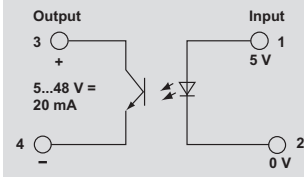
5 V TTL



12 V DC 10 kHz



C



Technical data

Control side

Rated voltage
Power rating
max. input frequency
Nominal auxiliary voltage
Status indicator

5 V DC $\pm 5\%$
50 mW
300 Hz
no
LED green

Load side

Nominal switching voltage
Nominal switching current
Voltage drop at max. load
Switch-on delay/Switch-off delay
Short-circuit-proof/Protective circuit

5...48 V DC
20 mA
 $\leq 1,6$ V
 $\leq 15 \mu\text{s} / \leq 70 \mu\text{s}$
no/diode

General data

Ambient temperature (operational)
Storage temperature
Approvals

-25 °C...+40 °C
-40 °C...+85 °C
CE;

Insulation coordination (EN 50 178)

Standards
Rated voltage
Rated impulse withstand voltage
Clearance and creepage distances for control side - load side
Surge category
Pollution severity

EN 50178
150 V
4.0 kV
 ≥ 4 mm
III
2

5 V TTL
50 μW
3 kHz
5 V
LED green

5...48 V DC
100 mA
 $\leq 1,6$ V
approx. 27 μs /approx. 35 μs
no/diode

-25 °C...+40 °C
-40 °C...+85 °C
CE;

EN 50178
300 V
6.0 kV
 ≥ 5.5 mm
III
2

8...20 V DC
max. 130 mW
max. 10 kHz
no
LED green

24 V DC $\pm 10\%$
50 mA
 ≤ 1 V
1 μs /2.5 μs
no/diode

-25 °C...+40 °C
-40 °C...+85 °C
CE;

EN 50178
300 V
6.0 kV
 ≥ 5.5 mm
III
2

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Screw connection

4 / 0.5 / 4
65 x 6 x 57

Screw connection

4 / 0.5 / 4
77 x 6 x 62

Screw connection

4 / 0.5 / 4
65 x 12 x 57

Note

Ordering data

Connection system

Screw connection

Type	(Qty.=1)	Order No.
DKO 35 5VDC		8018630000

Type	(Qty.=1)	Order No.
DKO DK5 5VTTTL		8228650000

Type	(Qty.=1)	Order No.
DKO 35 12VDC 10KHZ		8184030000

Note

Input at bottom

Input at bottom

Input at bottom

Accessories

Note

End plate
AP DKT4 0687560000

End plate
AP DK 5 PA BE: 4036780000

End plate
AP DKT 4: 0687560000

Mini-coupler DKO

- Coupling of digital sensor/actuator signals between PLC and process
- Inexpensive solution for adapting level and potential
- Low input power
- Screw connection system
- 6 mm width
- For mounting on TS 35

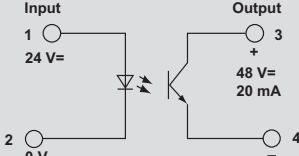
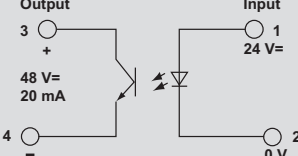
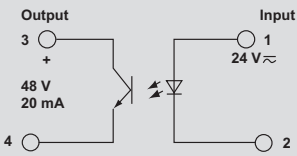
24 V UC



24 V DC 3 kHz



24 V DC 3 kHz



Technical data

Control side

Rated voltage
Power rating
max. input frequency
Nominal auxiliary voltage
Status indicator

24 V UC $\pm 10\%$
280 mVA / 230 mW
10 Hz at DC
no
LED green

Load side

Nominal switching voltage
Nominal switching current
Voltage drop at max. load
Switch-on delay/Switch-off delay
Short-circuit-proof/Protective circuit

5...48 V DC
20 mA
 ≤ 1 V
 ≤ 15 ms bei DC/ ≤ 25 ms bei DC
no/diode

General data

Ambient temperature (operational)
Storage temperature
Approvals

-25 °C...+40 °C
-40 °C...+85 °C
CE;

Insulation coordination (EN 50 178)

Standards
Rated voltage
Rated impulse withstand voltage
Clearance and creepage distances for control side - load side
Surge category
Pollution severity

EN 50178
300 V
4.0 kV
 ≥ 4 mm
III
2

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Screw connection

4 / 0.5 / 4
65 x 6 x 57

Note

Screw connection

4 / 0.5 / 4
65 x 6 x 57

Screw connection

4 / 0.5 / 4
65 x 6 x 57

Ordering data

Connection system

Screw connection

Type	(Qty.=1)	Order No.
DKO 35 24VUC		8008150000

Type	(Qty.=1)	Order No.
DKO 35 24VDC 3KHZ E:U		8028300000

Type	(Qty.=1)	Order No.
DKO 35 24VDC 3KHZ E:O		8215640000

Note

Input at bottom

Input at bottom

Input at top

Accessories

Note

End plate
AP DKT4 0687560000

End plate
AP DKT4 0687560000

End plate
AP DKT4 0687560000

Optos - DK-SERIES

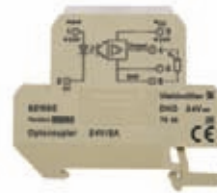
Mini-coupler DKO

- Coupling of digital sensor/actuator signals between PLC and process
- Inexpensive solution for adapting level and potential
- Low input power
- Screw connection system
- 6 mm width
- For mounting on TS 35

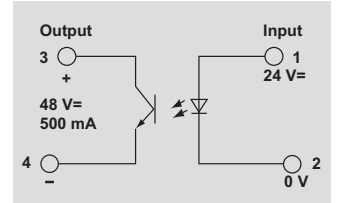
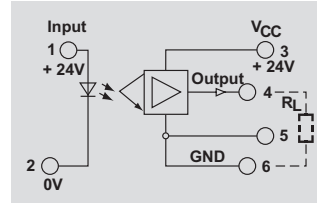
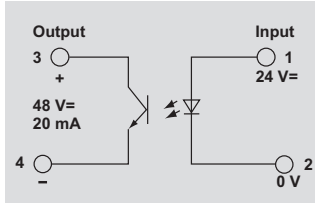
24 V DC 3 kHz



24 V DC 100 Hz



24 V DC 200 Hz



Technical data

Control side	
Rated voltage	24 V DC ±10%
Power rating	max. 204 mW
max. input frequency	3 kHz
Nominal auxiliary voltage	no
Status indicator	LED green
Load side	
Nominal switching voltage	5...48 V DC
Nominal switching current	20 mA
Voltage drop at max. load	≤ 900 mV
Switch-on delay/Switch-off delay	approx. 50 µs/approx. 80 µs
Short-circuit-proof/Protective circuit	no/diode
General data	
Ambient temperature (operational)	-25 °C...+40 °C
Storage temperature	-40 °C...+85 °C
Approvals	CE;
Insulation coordination (EN 50 178)	
Standards	EN 50178
Rated voltage	300 V
Rated impulse withstand voltage	4.0 kV
Clearance and creepage distances for control side - load side	≥ 4 mm
Surge category	III
Pollution severity	2

24 V DC ±10%
max. 204 mW
3 kHz
no
LED green
5...48 V DC
20 mA
≤ 900 mV
approx. 50 µs/approx. 80 µs
no/diode
-25 °C...+40 °C
-40 °C...+85 °C
CE;
EN 50178
300 V
4.0 kV
≥ 4 mm
III
2

24 V DC ±10%
max. 290 mW
100 Hz
no
LED green
24 V DC ±10%
2 A
2 ms/7 ms
yes/varistor
-25 °C...+40 °C
-40 °C...+85 °C
CE;
EN 50178
300 V
4.0 kV
≥ 3 mm
III
2

24 V DC ±10%
145 mW
200 Hz
no
LED green
5...48 V DC
500 mA
≤ 800 mV
approx. 40 µs/approx. 65 µs
no/diode
-25 °C...+40 °C
-40 °C...+85 °C
CE;
EN 50178
300 V
4.0 kV
≥ 4 mm
III
2

Dimensions	
Clamping range (rating- / min. / max.)	mm²
Length x width x height	mm
Note	

Screw connection	
4 / 0.5 / 4	
65 x 6 x 57	

Screw connection	
4 / 0.5 / 4	
65 x 12 x 57	

Screw connection	
4 / 0.5 / 4	
65 x 6 x 57	

Ordering data

Connection system	
Screw connection	
Note	

Type	(Qty.=1)	Order No.
DKO 35 24VDC 3KHZ E:U		8248790000
Input at bottom		

Type	(Qty.=1)	Order No.
DKO 35 24VDC E:U		8181990000
Input at bottom		

Type	(Qty.=1)	Order No.
DKO 35 24VDC E:U		8019590000
Input at bottom		

Accessories

Note	
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End plate	
AP DKT4 0687560000	

End plate	
AP DKT4 0687560000	

End plate	
AP DKT4 0687560000	

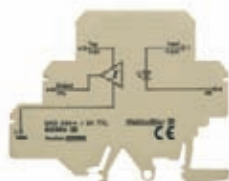
Mini-coupler DKO

- Coupling of digital sensor/actuator signals between PLC and process
- Inexpensive solution for adapting level and potential
- Low input power
- Screw connection system
- 6 mm width
- For mounting on TS 35

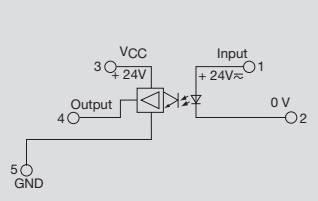
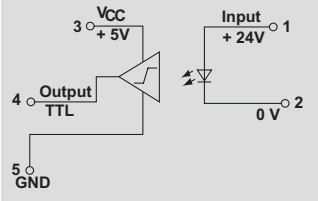
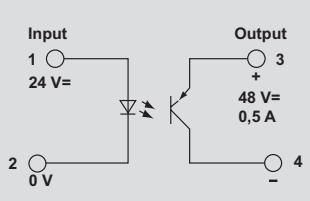
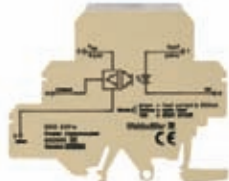
24 V DC 200 Hz



24 V DC 50 kHz



24 V UC



Technical data

Control side

Rated voltage
Power rating
max. input frequency
Nominal auxiliary voltage
Status indicator

Load side

Nominal switching voltage
Nominal switching current
Voltage drop at max. load
Switch-on delay/Switch-off delay
Short-circuit-proof/Protective circuit

General data

Ambient temperature (operational)
Storage temperature
Approvals

Insulation coordination (EN 50 178)

Standards
Rated voltage
Rated impulse withstand voltage
Clearance and creepage distances for control side - load side
Surge category
Pollution severity

24 V DC $\pm 10\%$
max. 145 mW
200 Hz
no
LED green

5...48 Vdc
500 mA
 ≤ 800 mV
approx. 40 μ s/approx. 65 μ s
no/diode

-25 °C...+40 °C
-40 °C...+85 °C
CE;

EN 50178
300 V
4.0 kV
 ≥ 4 mm

III
2

24 V DC $\pm 20\%$
max. 112 mW
50 kHz
no
LED green

5 VTTL
8 mA, fan out = 20 LS-TTL

1 μ s/2.5 μ s
no/diode

-25 °C...+40 °C
-25 °C...+85 °C
CE;

EN 50178
300 V
4.0 kV
 ≥ 5.5 mm

III
2

24 V DC $\pm 20\%$
max.: 220 mVA / 195 mW
 ≤ 10 Hz
no
LED *

24 V DC $\pm 20\%$
2 A

2 ms/7 ms
yes/

-25 °C...+50 °C
-40 °C...+85 °C
CE;

EN 50178
300 V
6.0 kV
 ≥ 5.5 mm

III
2

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note

Screw connection

4 / 0.5 / 4
65 x 6 x 57

Screw connection

4 / 0.5 / 4
77 x 6 x 62

Screw connection

4 / 0.5 / 4
77 x 6 x 62

* Status indicator: green = OK, yellow = partial short circuit, blinking red = short circuit

Ordering data

Connection system

Screw connection

Type	(Qty.=1)	Order No.
DKO 35 24VDC E:O		8215630000

Input at top

Type	(Qty.=1)	Order No.
DKO DK5 24VDC 50KHZ		8228640000

Input at top

Type	(Qty.=1)	Order No.
DKO DK5 24VUC		8228630000

Input at bottom

Accessories

Note

End plate
AP DKT4 0687560000

End plate
AP DK 5 PA BE: 4036780000

End plate
AP DK 5 PA BE: 4036780000

Optos - DK-SERIES

Mini-coupler DKO

- Coupling of digital sensor/actuator signals between PLC and process
- Inexpensive solution for adapting level and potential
- Low input power
- Screw connection system
- 6 mm width
- For mounting on TS 35

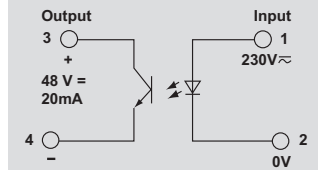
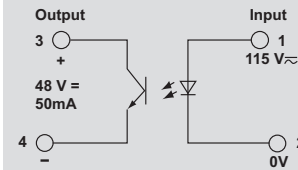
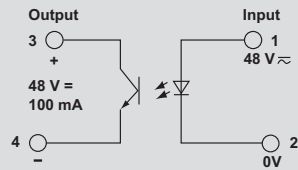
48 V UC



115 V UC



230 V UC



Technical data

Control side

Rated voltage
Power rating
max. input frequency
Nominal auxiliary voltage
Status indicator

48 V UC $\pm 20\%$
max.: 155 mVA / 135 mW
3 kHz
no
LED green

Load side

Nominal switching voltage
Nominal switching current
Voltage drop at max. load
Switch-on delay/Switch-off delay
Short-circuit-proof/Protective circuit

5...48 V DC
100 mA
 $\leq 1,6$ V
5 ms/15 ms
no/diode

General data

Ambient temperature (operational)
Storage temperature
Approvals

-25 °C...+50 °C
-40 °C...+85 °C
CE;

Insulation coordination (EN 50 178)

Standards
Rated voltage
Rated impulse withstand voltage
Clearance and creepage distances for control side - load side
Surge category
Pollution severity

EN 50178
300 V
4.0 kV
 ≥ 4 mm

115 V UC $+5\%/-15\%$
390 mVA / 350 mW
AC: 5 Hz / DC: 20 Hz
no
LED green

5...48 V DC
50 mA
 $\leq 1,6$ V
17.4 ms/27.4 ms
yes/diode

-25 °C...+40 °C
-40 °C...+85 °C
CE;

EN 50178
300 V
6.0 kV
 ≥ 5.5 mm

230 V UC $+5\%/-15\%$
395 mVA / 370 mW
AC: 5 Hz / DC: 20 Hz
no
LED green

5...48 V DC
20 mA
 $\leq 1,6$ V
20 ms/20 ms
no/diode

-25 °C...+50 °C
-40 °C...+85 °C
CE;

EN 50178
300 V
6.0 kV
 ≥ 5.5 mm

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Screw connection

4 / 0.5 / 4
65 x 6 x 57

Screw connection

4 / 0.5 / 4
65 x 6 x 57

Screw connection

4 / 0.5 / 4
65 x 6 x 57

Note

Ordering data

Connection system

Screw connection

Type	(Qty.=1)	Order No.
DKO 35 48VUC		8025910000

Type	(Qty.=1)	Order No.
DKO 35 115VUC		8077860000

Type	(Qty.=1)	Order No.
DKO 35 230VUC		8008160000

Note

Input below

Input at bottom

Input at bottom

Accessories

Note

End plate
AP DK 4: 0687560000

End plate
AP DKT 4: 0687560000

End plate
AP DKT4 0687560000

Optos - MCZ-SERIES

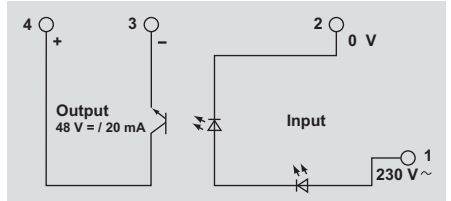
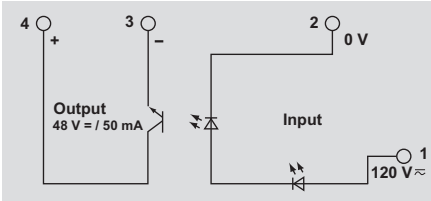
MiniConditioner MCZ O

- Universal interface between control and sensor/actuator
- Tension clamp connection system
- Plug-in cross-connection
- Width 6mm

120 V UC



230 V AC



Technical data

Control side

Rated voltage
Power rating
max. input frequency
Nominal auxiliary voltage
Status indicator

Load side

Nominal switching voltage
Nominal switching current
Voltage drop at max. load
Switch-on delay/Switch-off delay
Short-circuit-proof/Protective circuit

General data

Ambient temperature (operational)
Storage temperature
Approvals

Insulation coordination (EN 50 178)

Standards
Rated voltage
Rated impulse withstand voltage
Clearance and creepage distances for control side - load side
Surge category
Pollution severity

120 V UC +5/-15 %
350 mW / 400 mVA
AC: 5 Hz duty factor 1:2, DC: 20 Hz duty factor 1:2
no
LED green

5...48 V DC
50 mA
≤ 1,6 V
≤ 30 ms / ≤ 40 ms
no /Integrated free-wheel diode

-25 °C...+40 °C
-40 °C...+60 °C
CSA;cURus;CE;

EN 50178
300 V
6.0 kV
≥ 5.5 mm
III
2

230 V AC +5 %/ -15 %
2,3 VA
AC: 5 Hz duty factor 1:2
no
LED green

5...48 V DC
20 mA
≤ 1,6 V
≤ 30 ms / ≤ 40 ms
no /Integrated free-wheel diode

-25 °C...+40 °C
-40 °C...+85 °C
CSA;cURus;CE;

EN 50178
300 V
6.0 kV
≥ 5.5 mm
III
2

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note

Tension clamp connection

1.5 / 0.5 / 1.5
91 x 6 x 64

Tension clamp connection

1.5 / 0.5 / 1.5
91 x 6 x 64

Ordering data

Connection system

Tension clamp connection

Type	Qty.	Order No.
MCZ O 120VUC	10	8421060000

Type	Qty.	Order No.
MCZ O 230VAC	10	8421380000

Note

Accessories

Note

End plate AP MCZ 1.5: 8389030000
for cross-connectors and markers - refer to MCZ Series accessories

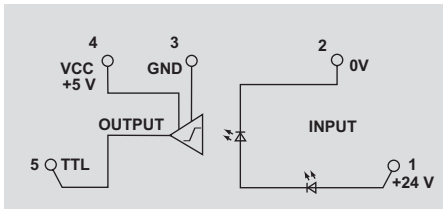
End plate AP MCZ 1.5: 8389030000
for cross-connectors and markers - refer to MCZ Series accessories

MiniConditioner MCZ O

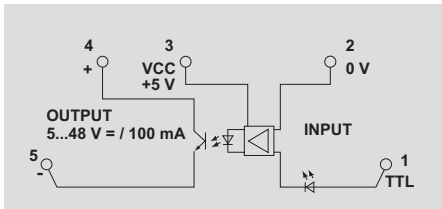
Module can be used as an universal interface:

- Between control and actuator, to convert signals from 24 Vdc to 5 VTTL
- Between control and actuator, to convert signals from 5 VTTL to 5...48 Vdc

24 V DC / 5 V TTL



5 V TTL / 5...48 V DC



Technical data

Control side		
Rated voltage	24 V DC ±16 %	5 V TTL
Power rating	112 mW	10 mW
max. input frequency	100 kHz duty factor 1:2, 50 kHz duty factor 1:10	2.4 kHz
Nominal auxiliary voltage	no	5 V
Status indicator	LED green	LED green
Load side		
Nominal switching voltage	5 V TTL(4.75...5.25 V)	5...48 V DC
Nominal switching current	8 mA, fan out = 20 LS-TTL	100 mA
Voltage drop at max. load		≤ 1,8 V
Switch-on delay/Switch-off delay	1 µs (at 20 V DC) / 2.5 µs (at 28 V DC)	/
Short-circuit-proof/Protective circuit	no /diode	no /diode
General data		
Ambient temperature (operational)	-25 °C...+40 °C	-25 °C...+50 °C
Storage temperature	-40 °C...+60 °C	-40 °C...+85 °C
Approvals	CSA;cURus;CE;	CSA;cURus;CE;
Insulation coordination (EN 50 178)		
Standards	EN 50178	EN 50178
Rated voltage	300 V	300 V
Rated impulse withstand voltage	6.0 kV	6.0 kV
Clearance and creepage distances for control side - load side	≥ 5.5 mm	≥ 5.5 mm
Surge category	III	III
Pollution severity	2	2

Dimensions		Tension clamp connection
Clamping range (rating- / min. / max.)	mm²	1.5 / 0.5 / 1.5
Length x width x height	mm	91 x 6 x 64
Note		

Ordering data

Connection system		Type	Qty.	Order No.	Type	Qty.	Order No.
Tension clamp connection		MCZ O 24VDC	10	8324610000	MCZ O 5VTTL	10	8398940000
Note							

Accessories

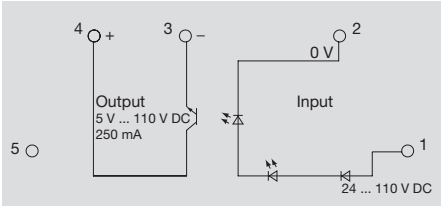
Note	End plate AP MCZ 1.5: 8389030000 for cross-connectors and markers - refer to MCZ Series accessories	End plate AP MCZ 1.5: 8389030000 for cross-connectors and markers - refer to MCZ Series accessories
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Optos - MCZ-TRAK-SERIES

MCZ O TRAK

- Module for rail industry applications
- Meets requirements of EN 50155
- Power fluctuations -30 %/+25 %
- Operating temperature -25...+70 °C (85 °C / 10 min.) as per EN 50155
- Condensation permissible

24 V DC TRAK



Technical data

Control side	
Rated voltage	24...110 V DC -30/+25%
Power rating	10 Hz
max. input frequency	no
Nominal auxiliary voltage	LED green
Status indicator	
Load side	
Nominal switching voltage	5...137.5 V DC
Nominal switching current	250 mA @ 50 °C ;180 mA @ 70 °C
Voltage drop at max. load	≤ 1.7 V
Switch-on delay/Switch-off delay	10 ms /50 ms
Short-circuit-proof/Protective circuit	/Varistor, integral free-wheel diode
General data	
Ambient temperature (operational)	+85°C for 10 minutes ; -25 °C...+70 °C
Storage temperature	-40 °C...+85 °C
Approvals	CE;
Insulation coordination (EN 50 178)	
Standards	EN 50178
Rated voltage	300 V
Rated impulse withstand voltage	6.0 kV
Clearance and creepage distances for control side - load side	≥ 5.5 mm
Surge category	III
Pollution severity	2

24...110 V DC -30/+25%
10 Hz
no
LED green
5...137.5 V DC
250 mA @ 50 °C ;180 mA @ 70 °C
≤ 1.7 V
10 ms /50 ms
/Varistor, integral free-wheel diode
+85°C for 10 minutes ; -25 °C...+70 °C
-40 °C...+85 °C
CE;
EN 50178
300 V
6.0 kV
≥ 5.5 mm
III
2

Dimensions	
Clamping range (rating- / min. / max.)	mm²
Length x width x height	mm
Note	

Tension clamp connection	
1.5 / 0.5 / 1.5	
91 x 6 x 64	

Ordering data

Connection system	
Tension clamp connection	
Note	

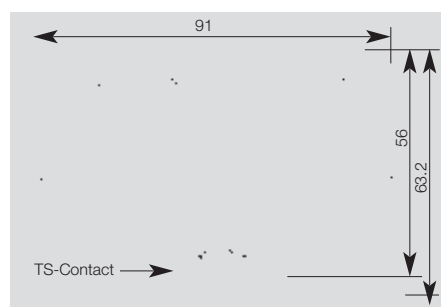
Type	Qty.	Order No.
MCZ O TRAK 24.110VDC	10	8820710000
Note		

Accessories

Note	
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End plate AP MCZ 1.5: 8389030000 for cross-connectors and markers - refer to MCZ Series accessories
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MCZ accessories



Ordering data

End plate

Type	Qty	Order No.
AP MCZ 1.5	50	8389030000



Ordering data

	No. of poles
Plug-in cross-connection, yellow	2
Plug-in cross-connection, yellow	3
Plug-in cross-connection, yellow	4
Plug-in cross-connection, yellow	10
Plug-in cross-connection, yellow	20
Plug-in cross-connection, red	2
Plug-in cross-connection, red	3
Plug-in cross-connection, red	4
Plug-in cross-connection, red	10
Plug-in cross-connection, red	20
Plug-in cross-connection, blue	2
Plug-in cross-connection, blue	3
Plug-in cross-connection, blue	4
Plug-in cross-connection, blue	10
Plug-in cross-connection, blue	20
Plug-in cross-connection, black	2
Plug-in cross-connection, black	3
Plug-in cross-connection, black	4
Plug-in cross-connection, black	10
Plug-in cross-connection, black	20

Type	Qty	Order No.
ZQV 4N / 2 GE	60	1758250000
ZQV 4N / 3 GE	60	1762630000
ZQV 4N / 4 GE	60	1762620000
ZQV 4N / 10 GE	20	1758260000
ZQV 4N / 20 GE	20	1909020000
ZQV 4N / 2 RT	60	1793950000
ZQV 4N / 3 RT	60	1793980000
ZQV 4N / 4 RT	60	1794010000
ZQV 4N / 10 RT	20	1794040000
ZQV 4N / 20 RT	20	1909150000
ZQV 4N / 2 BL	60	1793960000
ZQV 4N / 3 BL	60	1793990000
ZQV 4N / 4 BL	60	1794020000
ZQV 4N / 10 BL	20	1794050000
ZQV 4N / 20 BL	20	1909100000
ZQV 4N / 2 SW	60	1793970000
ZQV 4N / 3 SW	60	1794000000
ZQV 4N / 4 SW	60	1794030000
ZQV 4N / 10 SW	20	1794060000
ZQV 4N / 20 SW	20	1909120000



Ordering data

Marker

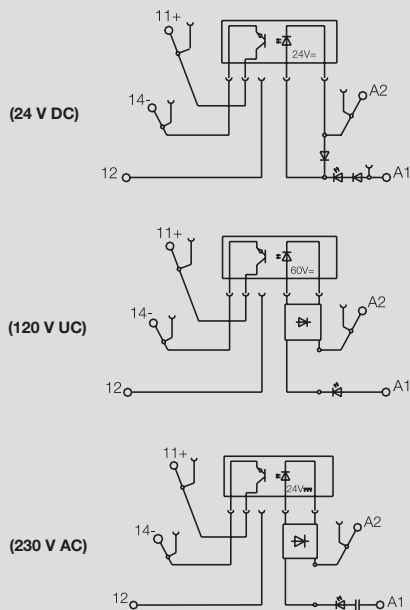
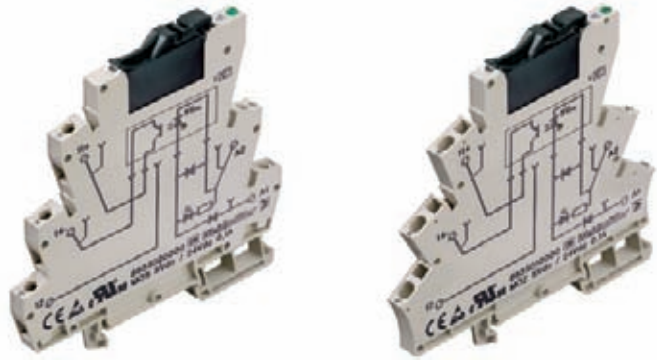
Type	Qty	Order No.
WS10/6	200	1060960000

Optos - MICROSERIES

MOS / MOZ 3...48 V DC / 0.1 A

Universal interface between control and sensor/actuator

- Plug-in cross-connection ZQV 4N
- Interchangeable solid-state relay
- 6.1 mm wide
- Screw or tension clamp connection
- For mounting on TS 35



Load side	
Nominal switching voltage	3...48 V DC
Nominal switching current	0.1 A
Voltage drop at max. load	≤ 1 V
Leakage current	≤ 1 mA
Short-circuit-proof/Protective circuit	no/Integrated free-wheel diode
General data	
Ambient temperature (operational)	-25 °C...+50 °C
Storage temperature	-40 °C...+60 °C
Approvals	CE; cULus;
Insulation coordination (EN 50 178)	
Standards	EN 50178
Rated voltage	300 V
Rated impulse withstand voltage	4.0 kV
Clearance and creepage distances for control/load side	≥ 5.5 mm
Surge category	III
Pollution severity	2
Dimensions	
	Screw connection
Clamping range (rating- / min. / max.)	mm ² 2.5 / 0.5 / 4
Length x width x height	mm 93 / 6.1 / 92
Note	
Cross-connectors and markers - refer to MICROSERIES accessories	

Ordering data

Control side	5 V DC / 24 V DC 0.1 A	24 V DC / 24 V DC 0,1 A	120 V UC / 24 V DC 0,1 A	230 V AC / 24 V DC 0,1 A
Rated voltage	5 V DC ±20%	24 V DC ±20 %	120 V UC + 10 % / -15 %	230 V AC ±10%
Power rating	55 mW ±10 %	140 mW	340 mW / 0.4 VA	1.7 VA
max. input frequency	10 Hz	300 Hz	DC: 10 Hz / AC: 3 Hz	3 Hz
Switch-on delay	< 6,5 ms	35µs	< 6.5 ms	< 6.5 ms
Switch-off delay	< 10 ms	355µs	< 10 ms	< 10 ms

Ordering data
Complete module

Screw connection	Type	MOS 5Vdc / 24Vdc 0,1A	MOS 24Vdc / 24Vdc 0.1A	MOS 120Vuc / 24Vdc 0.1A	MOS 230Vac / 24Vdc 0.1A
Order No.		8633020000	8607340000	8607690000	8607710000
Tension clamp connection	Type	MOZ 5Vdc / 24Vdc 0.1A	MOZ 24Vdc / 24Vdc 0,1A	MOZ 120Vuc / 24Vdc 0.1A	MOZ 230Vac / 24Vdc 0.1A
Order No.		8633010000	8607360000	8607730000	8607750000

Ordering data
Spare relay, pluggable

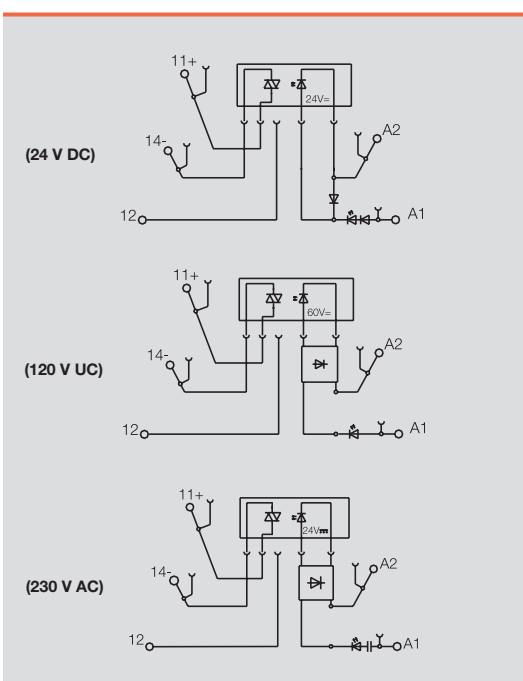
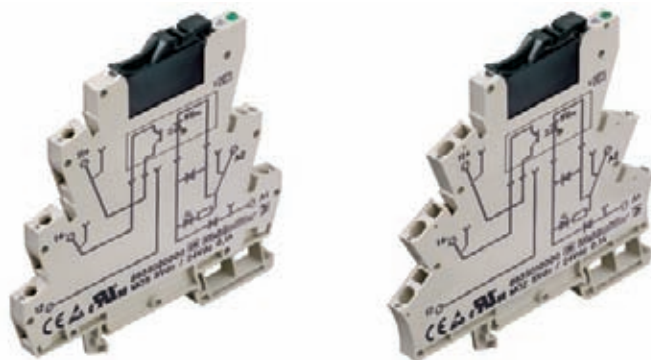
Type	SSS Relais 5V/24V 0,1ADC	SSS Relais 24V/24V 0,1Adc	SSS Relais 60V/24V 0,1Adc	SSS Relais 24V/24V 0,1Adc
Order No.	4064320000	4061180000	4061230000	4061180000

Note				
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MOS / MOZ 24...240 V AC / 1 A

Universal interface between control and sensor/actuator

- Plug-in cross-connection ZQV 4N
- Interchangeable solid-state relay
- 6.1 mm wide
- Screw or tension clamp connection
- For mounting on TS 35



Load side	
Nominal switching voltage	24...240 V AC
Nominal switching current	1 A
Voltage drop at max. load	approx. 1.6 V
Leakage current	≤ 20 µA
Short-circuit-proof/Protective circuit	no/Integrated free-wheel diode
General data	
Ambient temperature (operational)	-25 °C...+50 °C
Storage temperature	-40 °C...+60 °C
Approvals	CE; cULus;
Insulation coordination (EN 50 178)	
Standards	EN 50178
Rated voltage	300 V
Rated impulse withstand voltage	4.0 kV
Clearance and creepage distances for control/load side	≥ 5.5 mm
Surge category	III
Pollution severity	2
Dimensions	
Clamping range (rating- / min. / max.)	mm ²
	2.5 / 0.5 / 4
Length x width x height	mm
	93 / 6.1 / 92
Note	
Cross-connectors and markers - refer to MICROSERIES accessories	

Ordering data

Control side	24 V DC / 230 V AC 1 A	120 V UC / 230 V AC 1 A	230 V AC / 230 V AC 1 A	
Rated voltage	24 V DC ±20 %	120 V UC + 10 % / -15 %	230 V UC ±10 %	
Power rating	250 mW ± 15 %	0.4 VA ±15%	1,7 VA ± 20%	
max. input frequency	3 Hz	3 Hz	3 Hz	
Switch-on delay	< 11 ms	< 11 ms	< 20 ms	
Switch-off delay	< 11 ms	< 11 ms	< 20 ms	

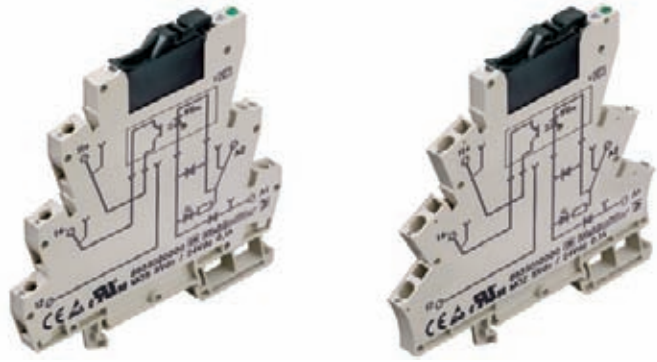
Ordering data				
Complete module				
Screw connection	Type	MOS 24Vdc/ 230VAC 1A	MOS 120Vuc / 230VAC 1A	MOS 230Vuc/ 230VAc 1A
	Order No.	8652010000	8651930000	8651990000
Tension clamp connection	Type	MOZ 24Vdc/ 230VAC 1A	MOZ 120Vuc / 230VAC 1A	MOZ 230Vuc/ 230VAC 1A
	Order No.	8652020000	8651950000	8651970000
Ordering data				
Spare relay, pluggable				
	Type	SSS Relais 24V/230V 1Aac	SSS Relais 60V/230V 1Aac	SSS Relais 24V/230V 1Aac
	Order No.	4061210000	4061220000	4061210000
Note				

Optos - MICROSERIES

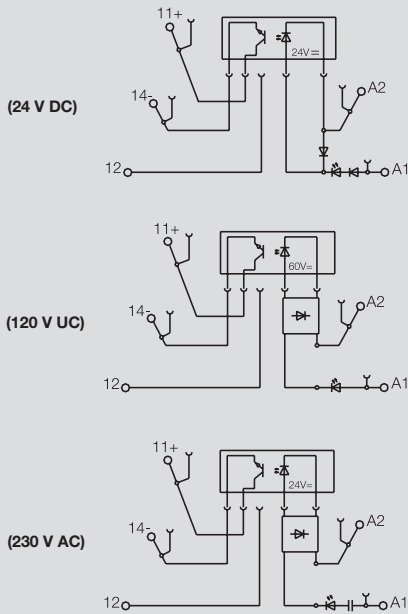
MOS / MOZ 3...33 V DC / 2 A

Universal interface between control and sensor/actuator

- Plug-in cross-connection ZQV 4N
- Interchangeable solid-state relay
- 6.1 mm wide
- Screw or tension clamp connection
- For mounting on TS 35



C



Load side

Nominal switching voltage	3...33 V DC
Nominal switching current	2 A
Voltage drop at max. load	≤ 120 mV
Leakage current	≤ 1 mA
Short-circuit-proof/Protective circuit	no/Integrated free-wheel diode

General data

Ambient temperature (operational)	-25 °C...+50 °C
Storage temperature	-40 °C...+60 °C
Approvals	CE; cULus;

Insulation coordination (EN 50 178)

Standards	EN 50178
Rated voltage	300 V
Rated impulse withstand voltage	4.0 kV
Clearance and creepage distances for control/load side	≥ 5.5 mm
Surge category	III
Pollution severity	2

Dimensions

		Screw connection	Tension clamp connection
Clamping range (rating- / min. / max.)	mm ²	2.5 / 0.5 / 4	1.5 / 0.5 / 2.5
Length x width x height	mm	93 / 6.1 / 92	94 / 6.1 / 91

Note

Cross-connectors and markers - refer to MICROSERIES accessories

Ordering data

Control side

Rated voltage	5 V DC ±20%
Power rating	55 mW ±10 %
max. input frequency	300 Hz
Switch-on delay	< 55 µs
Switch-off delay	< 1 ms

5 V DC / 24 V DC 2 A

5 V DC ±20%
55 mW ±10 %
300 Hz
< 55 µs
< 1 ms

24 V DC / 24 V DC 2 A

24 V DC ±20 %
140 mW
300 Hz
< 55 µs
< 1.2 ms

120 V UC / 24 V DC 2 A

120 V UC + 10 % / -15 %
340 mW / 0.4 VA
DC: 10 Hz / AC: 3 Hz
< 6.5 ms
< 10 ms

230 V AC / 24 V DC 2 A

230 V AC ±10%
1.7 VA
3 Hz
< 6.5 ms
< 10 ms

Ordering data

Complete module

Screw connection	Type	MOS 5Vdc / 24Vdc 2A	MOS 24Vdc / 24Vdc 2A	MOS 120Vuc / 24Vdc 2A	MOS 230Vac / 24Vdc 2A
Order No.		8633000000	8607350000	8607700000	8607720000
Tension clamp connection	Type	MOZ 5Vdc / 24Vdc 2A	MOZ 24Vdc / 24Vdc 2A	MOZ 120Vuc / 24Vdc 2A	MOZ 230Vac / 24Vdc 2A
Order No.		8632990000	8607370000	8607740000	8607760000

Ordering data

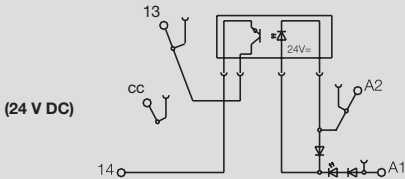
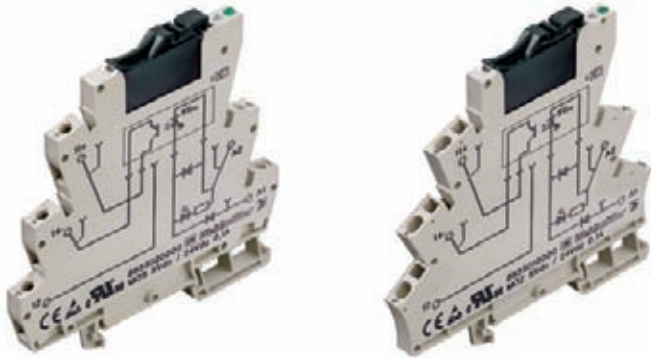
Spare relay, pluggable

Type	SSS Relais 5V/24V 2ADC	SSS Relais 24V/24V 2Adc	SSS Relais 60V/24V 2Adc	SSS Relais 24V/24V 2Adc
Order No.	4064310000	4061190000	4061200000	4061190000

Note

MOS / MOZ actuator version 3...33 V DC / 2 A

- Universal interface between control and sensor/actuator
- Plug-in cross-connection ZQV 4N
 - Interchangeable solid-state relay
 - 6.1 mm wide
 - Screw or tension clamp connection
 - For mounting on TS 35
 - 24 V DC actuator version:
Bridgeable, potential-free connection of actuators on output



Load side	
Nominal switching voltage	3...33 V DC
Nominal switching current	2 A
Voltage drop at max. load	≤ 120 mV
Short-circuit-proof/Protective circuit	no/Integrated free-wheel diode
General data	
Ambient temperature (operational)	-25 °C...+50 °C
Storage temperature	-40 °C...+60 °C
Approvals	CE; cULus;
Insulation coordination (EN 50 178)	
Standards	EN 50178
Rated voltage	300 V
Rated impulse withstand voltage	4.0 kV
Clearance and creepage distances for control/load side	≥ 5.5 mm
Surge category	III
Pollution severity	2

Ordering data

Control side		24 V DC ACT
Rated voltage		24 V DC ±20 %
Power rating		140 mW ±10 %
max. input frequency		
Switch-on delay		< 55 µs
Switch-off delay		< 1,2 ms

Ordering data				
Complete module				
Screw connection	Type	MOS 24Vdc / 24Vdc ACT		
	Order No.	8676250000		
Tension clamp connection	Type	MOZ 24Vdc / 24Vdc ACT		
	Order No.	8676230000		
Ordering data				
Spare relay, pluggable				
	Type	SSS Relais 24V/24V 2Adc		
	Order No.	4061190000		
Note				

Optos – MICROSERIES

Plug-in solid-state relay

SSS Relay

Switching current 100 mA

SSS Relay

Switching current 2 A

SSS Relay

Switching current 1 A



Technical data

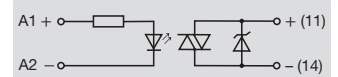
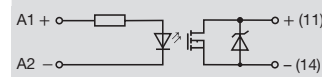
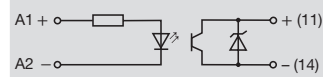
Input	
Nominal control voltage	
Control voltage	min / max
Control current at $U_{IN} = 24\text{ V}$	
Drop-out voltage	
Control circuit resistance	
Output	
Switching voltage	
Switching/continuous current at $U_A > 5\text{ V DC}$	
Conducting-state voltage	
Insulation	
Test voltage between control/switching circuit	
Other data	
Operating temperature range	
Storage temperature range	
Weight	
Approvals	
* Ambient temperature 20 °C	
Wiring diagram	

24 V DC	60 V DC
16 V DC / 30 V DC	52 V DC / 72 V DC
7 mA $\pm$ 10 %	2.8 mA $\pm$ 10 %
10 V DC	40 V DC
approx. 4 k Ω	approx. 20 k Ω
Bipolar transistor	
3 ... 48 V DC	
100 mA DC	
< 1 V DC	
2.5 kV	
-20 °C ... +60 °C	
-40 °C ... +70 °C	
3.65 g	
UL US	

24 V DC	60 V DC
18 V DC / 30 V DC	35 V DC / 72 V DC
7 mA $\pm$ 10 %	3.0 mA $\pm$ 10 %
10 V DC	20 V DC
approx. 3,2 k Ω	approx. 16 k Ω
MOS-FET	
3 ... 33 V DC	
2 A DC	
< 120 mV DC	
2.5 kV	
-20 °C ... +60 °C	
-40 °C ... +70 °C	
3.65 g	
UL US	

24 V DC	60 V DC
18 ... 30 V DC	35 ... 72 V DC
3.1 mA $\pm$ 10 %	3.1 mA $\pm$ 10 %
20 V DC	20 V DC
20 k Ω	20 k Ω
TRIAC	
24 ... 240 V AC	
1 A AC	
< 1 V AC	
2.5 kV	
-20 °C ... +60 °C	
-40 °C ... +70 °C	
3.65 g	
UL US	

For further data, see also
<http://em.tycoelectronics.com>



Ordering data

Nominal control voltage	5 V DC
	24 V DC
	60 V DC

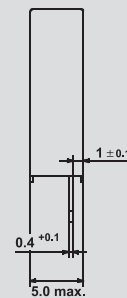
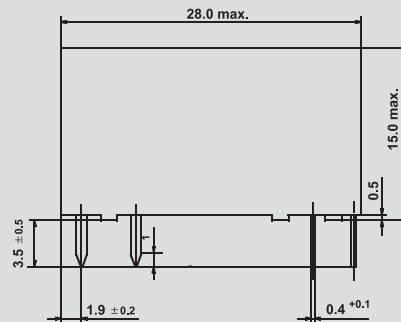
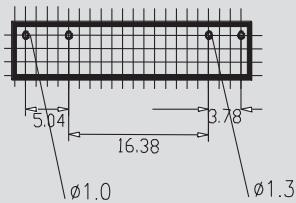
Type	Order No.
SSS Relais 5 V/24 V 0,1 A DC	4064320000
SSS Relais 24 V/24 V 0,1 A DC	4061180000
SSS Relais 60 V/24 V 0,1 A DC	4061230000

Type	Order No.
SSS Relais 5 V / 24 V 2 A DC	4064310000
SSS Relais 24 V/24 V 2 A DC	4061190000
SSS Relais 60 V/24 V 2 A DC	4061200000

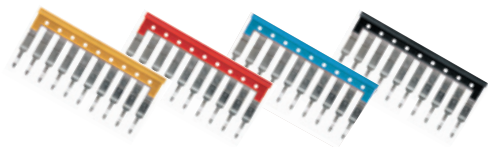
Type	Order No.
SSS Relais 24 V/230 V 1 A AC	4061210000
SSS Relais 60 V/230 V 1 A AC	4061220000

Dimensions

Printing details



Accessories



Plug-in cross-connection

Type	No. of poles	Qty	Order No.
yellow			
ZQV 4N / 2 GE	2	60	1758250000
ZQV 4N / 3 GE	3	60	1762630000
ZQV 4N / 4 GE	4	60	1762620000
ZQV 4N / 10 GE	10	20	1758260000
ZQV 4N / 20	20	20	1909020000
red			
ZQV 4N / 2 RT	2	60	1793950000
ZQV 4N / 3 RT	3	60	1793980000
ZQV 4N / 4 RT	4	60	1794010000
ZQV 4N / 10 RT	10	20	1794040000
ZQV 4N / 20 RT	20	20	1909150000
blue			
ZQV 4N / 2 BL	2	60	1793960000
ZQV 4N / 3 BL	3	60	1793990000
ZQV 4N / 4 BL	4	60	1794020000
ZQV 4N / 10 BL	10	20	1794050000
ZQV 4N / 20 BL	20	20	1909100000
black			
ZQV 4N / 2 SW	2	60	1793970000
ZQV 4N / 3 SW	3	60	1794000000
ZQV 4N / 4 SW	4	60	1794030000
ZQV 4N / 10 SW	10	20	1794060000
ZQV 4N / 20 SW	20	20	1909120000

General data – MICROSERIES

Technical data

Conductor		Tension clamp connection	Screw connection
Solid H07V-U	mm ²	0.5 ... 2.5	0.5 ... 4.0
Stranded H07V-K	mm ²	0.5 ... 2.5	0.5 ... 2.5
"f" with wire end ferrules to DIN 46228-1	mm ²	0.5 ... 1.5	0.5 ... 1.5
"f" with wire end ferrules with plastic collar	mm ²	0.5 ... 1.5	0.5 ... 1.5
Max. clamping range	mm ²	0.13 ... 2.5	0.13 ... 4.0
Plug gauge to IEC 60947-1	size	A 2	A 3

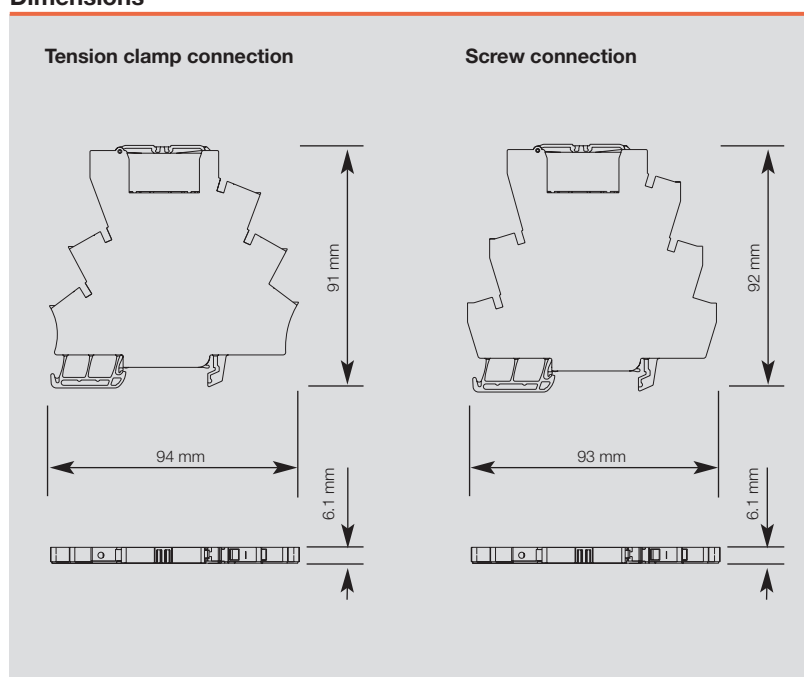
General technical data

Nominal torque	-	0.6
Continuous current for 2-pole cross-connection	A	10
Continuous current for multi-pole cross-connection	A	10
Stripping length	mm	10
Ingress protection class	IP 20	IP 20
Housing material	Wemid	Wemid
UL 94 flammability rating	V-0	V-0
Nominal current	A	6
Nominal voltage	V	250

Other accessories

Type		Qty	Order No.
Base only			
MRZ 24VDC 1CO BASIS		10	8826000000
MRS 24VDC 1CO BASIS		10	8826010000
MRZ 120VUC 1CO BASIS		10	8826020000
MRS 120VUC 1CO BASIS		10	8826030000
MRZ 230VAC 1CO BASIS		10	8826040000
MRS 230VAC 1CO BASIS		10	8826050000
Markers			
WS 12/6	12 x 6 mm	200	1061160000
Labels, Lasermark			
LM MT 300 15/6 ge	484 labels / sheet	10	1686360000
Screwdriver			
SD 0,6 x 3,5 x 100		10	9008330000

Dimensions

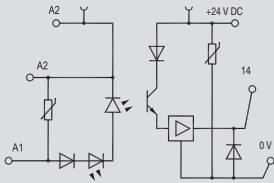


Optokoppler - MICROOPTO

For high switching frequency up to 100kHz

- Only 6 mm width
- Pluggable cross-connection
- Mount onto TS35

12...28 V DC 100 kHz



A special interior circuit in the opto module **MICROOPTO 100 kHz** ensures that rapidly transmitted signals are isolated from one another and that they can be transferred practically without delay. This allows switching frequencies up to 100 kHz to be achieved.

Comprehensive suppressor circuits safeguard the module against conducted transients and voltage spikes

Technical data

Control side

Rated voltage
Power rating
Making voltage
Dropout voltage
max. input frequency
Status indicator
Protective circuit

12 V DC...28 V DC
0.08...0.3 W
> 70 % U_{Nom}
< 12 V
100 kHz
LED green
Varistor, reverse polarity protection

Load side

Solid-state type
Nominal switching voltage
Nominal switching current
Voltage drop at max. load
Leakage current
Short-circuit-proof/Protective circuit
Switch-on delay/Switch-off delay
Continuous current
Pulse loading, max. current/Fuse
Load category

Bipolar transistor
24 V DC
50 mA
 ≤ 1.5 V
< 20 μ A
no /Varistor, reverse polarity protection
< 1 μ s / < 3 μ s
50 mA
0.6 A (20 ms)
LC A

General data

Ambient temperature (operational)
Storage temperature
UL 94 flammability class
Humidity

-20 °C...+60 °C
-40 °C...+80 °C
V-0
5...95 % RH
 $T_H = 40$ °C, no condensation
CE; cULus in preparation
EN 50178, IEC 62314, UL508

Insulation coordination (EN 50 178)

Rated voltage
Rated impulse withstand voltage
Clearance and creepage distances for control side - load side
Surge category
Pollution severity

300 V
2.5 kV
> 3 mm
III
2

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Screw connection

2.5 / 0.5 / 4
90 x 6.1 x 98

Note

Ordering data

Connection system

Screw connection

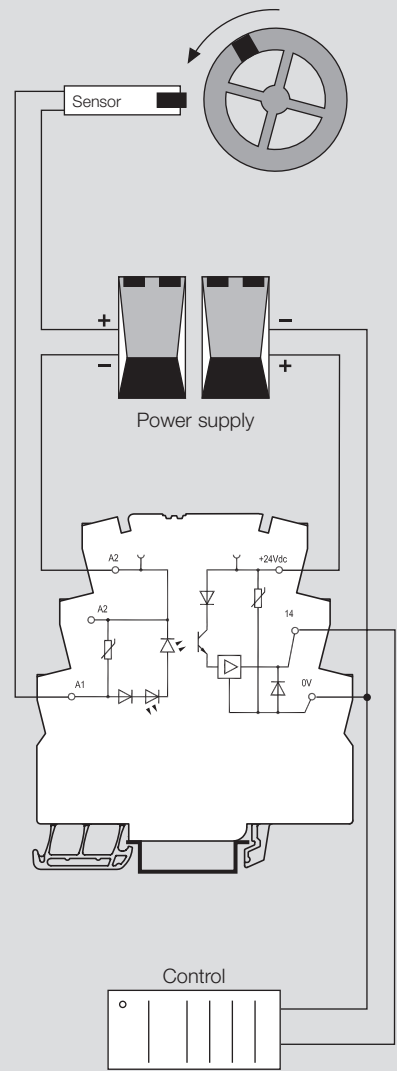
Type	Qty.	Order No.
MOS 12-28VDC 100kHz	1	8937990000

Note

Accessories

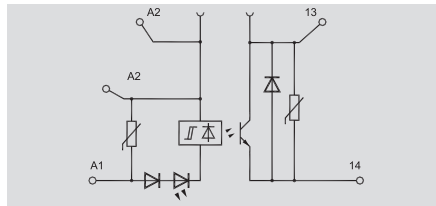
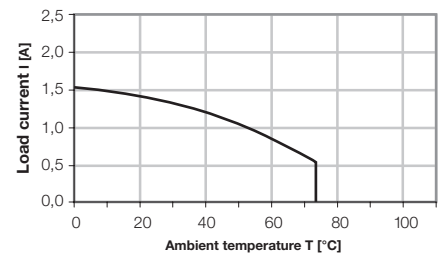
Note

For example rotational speed measurement



For DC loads up to 300 V DC and 1 A

- Only 6 mm width
- Plug-in cross-connection
- Power Boost: 20 A / 20 ms, 5 A / 1 sec

12...300 V DC 1 A

The solid-state relay **MICROOPTO 300 V DC** has been developed as a switching amplifier for high inductive loads up to 300 V DC and 1 A in motor brakes and contactors.

A power boost in the load circuit compensates transient overloads (20 A for 20 ms / 5 A for 1 s) such as making or breaking spikes. Additional protective circuits counter higher overloads.

Technical data**Control side**

Rated voltage	24 V DC ±20 %
Power rating	0.26 W
Making voltage	19.6 V DC
Dropout voltage	< 12 V
max. input frequency	100 Hz
Status indicator	LED green
Protective circuit	Varistor, reverse polarity protection

Load side

Solid-state type	MOS-FET
Nominal switching voltage	12...300 V DC
Nominal switching current	1 A
Voltage drop at max. load	< 1 V
Leakage current	< 100 µA
Short-circuit-proof/Protective circuit	Powerboost 20 A / 20 ms, 5 A / 1 sec / varistor
Switch-on delay/Switch-off delay	< 0.2 ms / < 0.3 ms
Continuous current	1 A
Pulse loading, max. current/Fuse	27 A (10 ms) / LC A

General data

Ambient temperature (operational)	-20 °C...+60 °C
Storage temperature	-40 °C...+80 °C
UL 94 flammability class	V-0
Humidity	5...95 % RH
	T _{th} = 40 °C, no condensation
Approvals	CE; cULus in preparation
Standards	EN 50178, IEC 62314, UL508

Insulation coordination (EN 50 178)

Rated voltage	300 V
Rated impulse withstand voltage	2.5 kV
Clearance and creepage distances for control side - load side	> 3 mm
Surge category	III
Pollution severity	2

Dimensions

Clamping range (rating- / min. / max.)	mm²
Length x width x height	mm

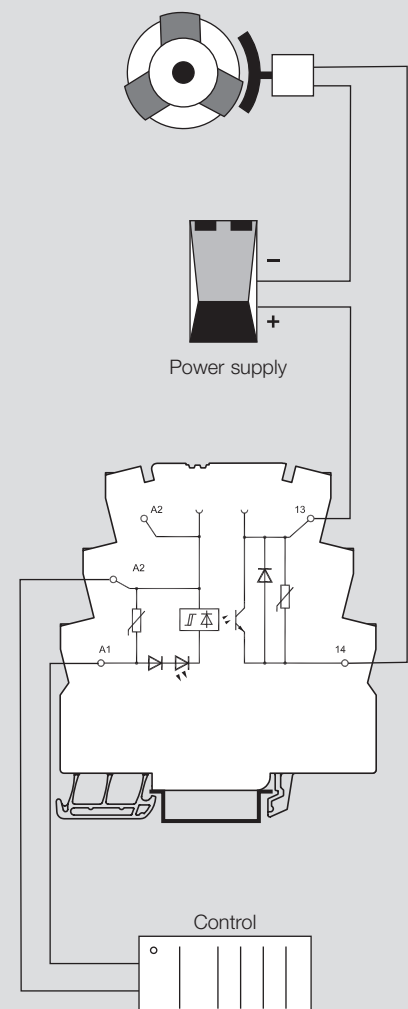
Note**Screw connection**

2.5 / 0.5 / 4
90 x 6.1 x 98

Ordering data**Connection system**

Screw connection

Type	Qty.	Order No.
MOS 24VDC/12-300VDC 1A	1	8937830000

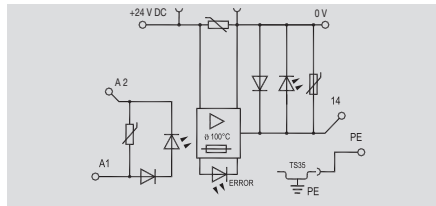
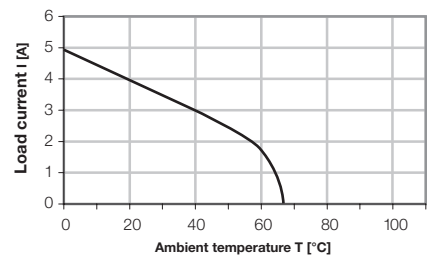
Note**Accessories****Note****Example: motor brake**

Solid-state relay - MICROOPTO

For direct connection of actuators up to 24 V DC, 2 A

- Only 6 mm width
- Pluggable cross-connection
- PE connection integrated in mounting rail
- Fault indication via LED

8...30 V DC 2 A



The solid-state relay **MICROOPTO ACTOR** has been especially designed as a switching amplifier for actuators up to 24 V DC and 2A with inductive loads such as solenoid valves and contactors. 3-wire actuators can be connected directly to the module.

This is short-circuit proof and protected against application-related transients and spikes by extensive protective circuitry.

Technical data

Control side

Rated voltage
Power rating
Making voltage
Dropout voltage
max. input frequency
Status indicator
Protective circuit

24 V DC $\pm 20\%$
0.12 W
 $> 70\% U_{Nom}$
 < 12 V
100 Hz
Fault indication LED red, status LED green
Varistor, reverse polarity protection

Load side

Solid-state type
Nominal switching voltage
Nominal switching current
Voltage drop at max. load
Leakage current
Short-circuit-proof/Protective circuit
Switch-on delay/Switch-off delay
Continuous current
Pulse loading, max. current/Fuse
Load category

Intelligent POWER MOS-FET
8...30 V DC
2 A
 < 100 mV
 < 100 μ A
yes (12 h) /varistor
 < 0.2 ms $> / < 0.5$ ms
2 A
/
LC A

General data

Ambient temperature (operational)
Storage temperature
UL 94 flammability class
Humidity

-20 $^{\circ}$ C... $+60$ $^{\circ}$ C
 -40 $^{\circ}$ C... $+80$ $^{\circ}$ C
V-0
5...95 % RH
 $T_H = 40$ $^{\circ}$ C, no condensation
CE; cULus in preparation
EN 50178, IEC 62314, UL508

Insulation coordination (EN 50 178)

Rated voltage
Rated impulse withstand voltage
Clearance and creepage distances for control side - load side
Surge category
Pollution severity

300 V
2.5 kV
 > 3 mm
III
2

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Screw connection

2.5 / 0.5 / 4
90 x 6.1 x 98

Note

Ordering data

Connection system

Screw connection

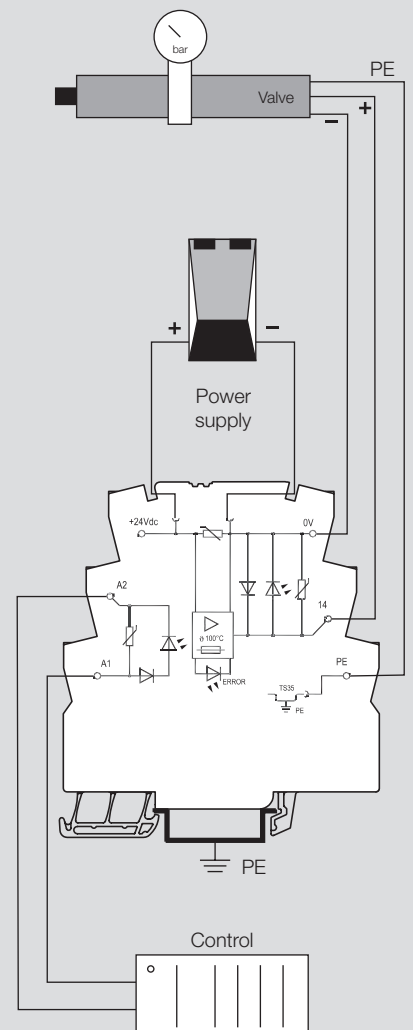
Type	Qty.	Order No.
MOS 24VDC/8-30VDC 2A	1	8937970000

Note

Accessories

Note

Example: pneumatic valve



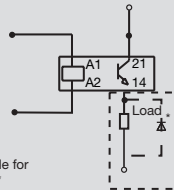
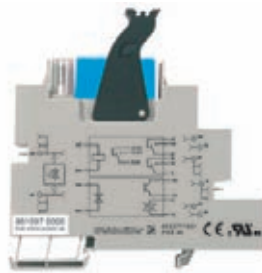
Optos - PLUGSERIES

POS / POZ

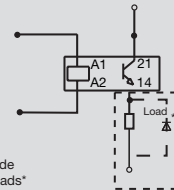
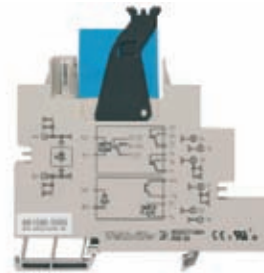
Universal interface between control and sensor

- Plug-in cross-connection ZQV 2.5N
- Interchangeable solid-state relay
- Screw or tension spring connection
- For mounting on TS 35

24 V DC / 24 V DC 2.5 A



24 V DC / 24 V DC 5 A



Technical data

Control side

Rated voltage
Power rating
Nominal auxiliary voltage
Status indicator

Load side

Nominal switching voltage
Nominal switching current
Voltage drop at max. load
Switch-on delay/Switch-off delay
Short-circuit-proof/Protective circuit

General data

Ambient temperature (operational)
Storage temperature
Approvals

Insulation coordination (EN 50 178)

Standards
Rated voltage
Rated impulse withstand voltage
Clearance and creepage distances for control side - load side
Surge category
Pollution severity

15 V DC...30 V DC
250 mW
no
green LED

0...30 V DC
2.5 A
≤ 0,4 V
2ms/18ms
no /Integrated free-wheel diode

-40 °C...+50 °C
-40 °C...+ 50 °C
CE; cURus;

EN 50178
300 V
2.5 kV_{eff}
8 mm
III
2

15 V DC...30 V DC
250 mW
no
green LED

0...30 V DC
5 A
≤ 0,3 V
2ms/18ms
no /Integrated free-wheel diode

-40 °C...+50 °C
-40 °C...+ 50 °C
CE; cURus;

EN 50178
300 V
2.5 kV_{eff}
8 mm
III
2

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note

Screw connection

2.5 / 0.5 / 2.5
92 x 15.3 x 95

Tension clamp connection

2.5 / 0.5 / 2.5
92 x 15.3 x 87

Screw connection

2.5 / 0.5 / 2.5
92 x 15.3 x 95

Tension clamp connection

2.5 / 0.5 / 2.5
92 x 15.3 x 87

Ordering data

Connection system

Screw connection
Tension clamp connection

Type

POS 24VDC/24VDC 2A
POZ 24VDC/24VDC 2A

Qty.

10
10

Order No.

8610840000
8610920000

Type

POS 24VDC/24VDC 5A
POZ 24VDC/24VDC 5A

Qty.

10
10

Order No.

8610900000
8610970000

Note

Spare SSR 8576340000

Spare SSR 8576350000

Accessories

Note

Cross-connectors and markers - see
PLUGSERIES accessories

Cross-connectors and markers - see
PLUGSERIES accessories

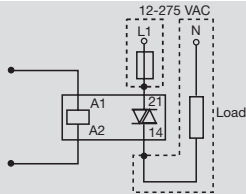
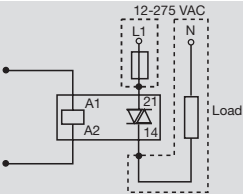
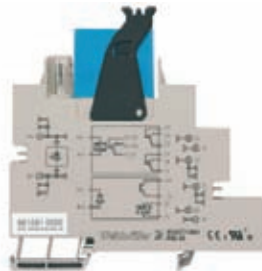
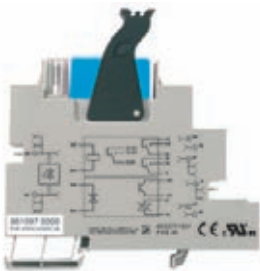
POS / POZ

Universal interface between control and sensor

- Plug-in cross-connection ZQV 2.5N
- Interchangeable solid-state relay
- Screw or tension spring connection
- For mounting on TS 35

24 V DC / 230 V AC 2 A

24 V DC / 230 V AC 4 A



Technical data

Control side	
Rated voltage	15 V DC...30 V DC
Power rating	250 mW
Nominal auxiliary voltage	no
Status indicator	green LED
Load side	
Nominal switching voltage	12...275 V AC
Nominal switching current	2 A
Voltage drop at max. load	≤ 1 V
Switch-on delay/Switch-off delay	12ms /20ms
Short-circuit-proof/Protective circuit	no /RC element
General data	
Ambient temperature (operational)	-40 °C...+50 °C
Storage temperature	-40 °C...+ 50 °C
Approvals	CE;cURus;
Insulation coordination (EN 50 178)	
Standards	EN 50178
Rated voltage	300 V
Rated impulse withstand voltage	4.0 kV _{eff}
Clearance and creepage distances for control side - load side	8 mm
Surge category	III
Pollution severity	2

Control side	
Rated voltage	15 V DC...30 V DC
Power rating	250 mW
Nominal auxiliary voltage	no
Status indicator	green LED
Load side	
Nominal switching voltage	12...275 V AC
Nominal switching current	2 A
Voltage drop at max. load	≤ 1 V
Switch-on delay/Switch-off delay	12ms /20ms
Short-circuit-proof/Protective circuit	no /RC element
General data	
Ambient temperature (operational)	-40 °C...+50 °C
Storage temperature	-40 °C...+ 50 °C
Approvals	CE;cURus;
Insulation coordination (EN 50 178)	
Standards	EN 50178
Rated voltage	300 V
Rated impulse withstand voltage	4.0 kV _{eff}
Clearance and creepage distances for control side - load side	8 mm
Surge category	III
Pollution severity	2

Control side	
Rated voltage	15 V DC...30 V DC
Power rating	250 mW
Nominal auxiliary voltage	no
Status indicator	green LED
Load side	
Nominal switching voltage	12...275 V AC
Nominal switching current	3 A (4 A at 20°C)
Voltage drop at max. load	≤ 1,1 V
Switch-on delay/Switch-off delay	12ms /20ms
Short-circuit-proof/Protective circuit	no /RC element
General data	
Ambient temperature (operational)	-40 °C...+50 °C
Storage temperature	-40 °C...+ 50 °C
Approvals	CE;cURus;
Insulation coordination (EN 50 178)	
Standards	EN 50178
Rated voltage	300 V
Rated impulse withstand voltage	4.0 kV _{eff}
Clearance and creepage distances for control side - load side	8 mm
Surge category	III
Pollution severity	2

Dimensions	
Clamping range (rating- / min. / max.)	mm²
Length x width x height	mm
Note	

Screw connection	Tension clamp connection
2.5 / 0.5 / 2.5	2.5 / 0.5 / 2.5
92 x 15.3 x 95	92 x 15.3 x 87
Note	

Screw connection	Tension clamp connection
2.5 / 0.5 / 2.5	2.5 / 0.5 / 2.5
92 x 15.3 x 95	92 x 15.3 x 87
Note	

Ordering data

Connection system	
Screw connection	
Tension clamp connection	
Note	

Type	Qty.	Order No.
POS 24VDC/230VAC 2A	10	8610860000
POZ 24VDC/230VAC 2A	10	8610930000
Spare SSR 8576370000		

Type	Qty.	Order No.
POS 24VDC/230VAC 4A	10	8610910000
POZ 24VDC/230VAC 4A	10	8610980000
Spare SSR 8576360000		

Accessories

Note

Cross-connectors and markers - see PLUGSERIES accessories

Cross-connectors and markers - see PLUGSERIES accessories

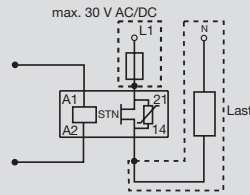
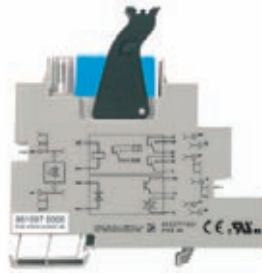
Optos - PLUGSERIES

POS / POZ

Universal interface between control and sensor

- Plug-in cross-connection ZQV 2.5N
- Interchangeable solid-state relay
- Screw or tension spring connection
- For mounting on TS 35

24 V DC / 24 V UC 1 A



Technical data

Control side

Rated voltage
Power rating
Nominal auxiliary voltage
Status indicator

Load side

Nominal switching voltage
Nominal switching current
Voltage drop at max. load
Switch-on delay/Switch-off delay
Short-circuit-proof/Protective circuit

General data

Ambient temperature (operational)
Storage temperature
Approvals

Insulation coordination (EN 50 178)

Standards
Rated voltage
Rated impulse withstand voltage
Clearance and creepage distances for control side - load side
Surge category
Pollution severity

15 V DC...30 V DC
250 mW
no
green LED

0...30 V UC
1 A
≤ 0,9 V
5ms/12ms
no /Integrated free-wheel diode

-40 °C...+50 °C
-40 °C...+ 50 °C
CE; cURus;

EN 50178
300 V
4,0 kV_{eff}
8 mm
III
2

Dimensions

Clamping range (rating- / min. / max.) mm²
Length x width x height mm

Note

Screw connection

2.5 / 0.5 / 2.5
92 x 15.3 x 95

Tension clamp connection

2.5 / 0.5 / 2.5
92 x 15.3 x 87

Ordering data

Connection system

Screw connection
Tension clamp connection

Note

Type

POS 24VDC/24VUC 1A
POZ 24VDC/24VUC 1A

Qty.

10
10

Order No.

8610890000
8610960000

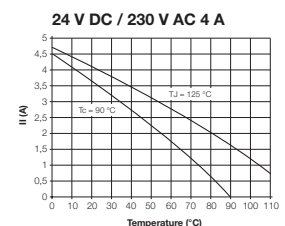
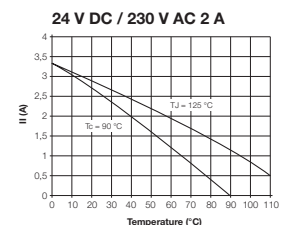
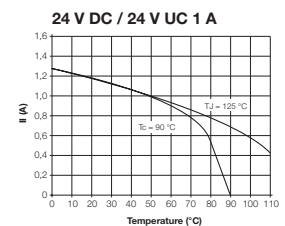
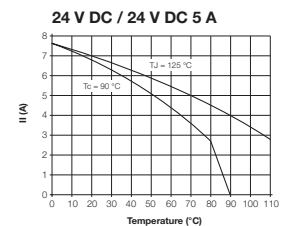
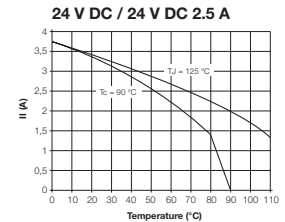
Spare SSR 8576380000

Accessories

Note

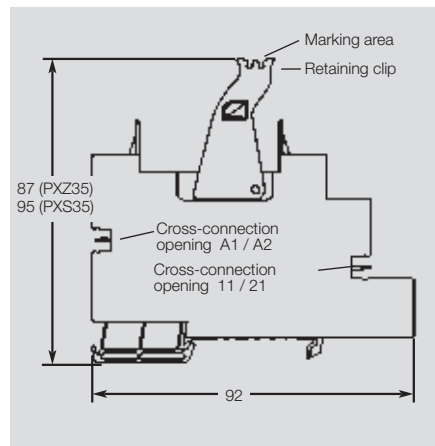
Cross-connectors and markers - see
PLUGSERIES accessories

Derating curves



Accessories

PLUGSERIES



Technical data

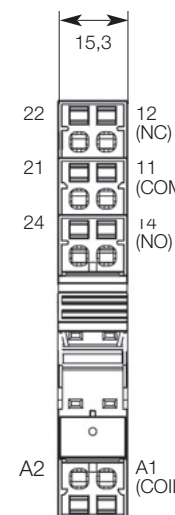
Base without relay	
Nominal current	16 A
Nominal voltage	250 V
Dielectric strength coil/contact	> 4 kV
Ingress protection class	IP 20
Nominal cross-section	2.5 mm ²
Stripping length	8 mm
	10 mm
Ambient temperature	-40 °C ... +60 °C
UL 94 flammability rating	V-0

screw connection
tension clamp connection

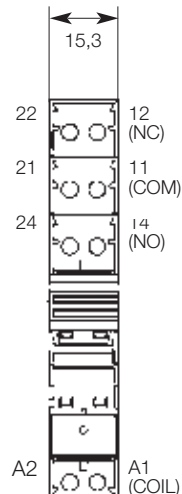
Ordering data

Base for mounting on TS 35 rail		Type	Qty	Order No.
Screw connection		PXS35	10	8533771001
Tension clamp connection		PXZ35	10	8536691001
Retaining clip		PRC	100	8536700000
LED indicator with free-wheel diode				
6 ... 24 V DC		PLED 24 V DC	20	8536710000
red LED, 6 ... 24 V DC		PLED 24 V DC red	20	8611010000
48 ... 60 V DC		PLED 48 V DC	20	8536720000
115 V DC		PLED 115 V DC	20	8536730000
12 ... 24 V AC		PLED 24 V AC	20	8536750000
115 V AC		PLED 120 V AC	20	8536760000
230 V AC		PLED 230 V AC	20	8536780000
RC combination, 120 ... 230 V AC/DC		PLRC 200 nF/200 Ω	20	8566530000
Plug-in cross-connections				
2-pole	black	ZQV 2.5N/4-2SW	60	1784270000
	red	ZQV 2.5N/4-2RT	60	1784280000
	blue	ZQV 2.5N/4-2BL	60	1784290000
Markers				
	10 x 5 mm	WS 10/5	200	1060860000
	15 x 5 mm	WS 15/5	96	1609880000

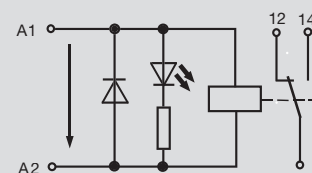
Tension clamp connection



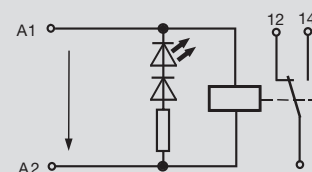
Screw connection



DC-Version



AC-Version



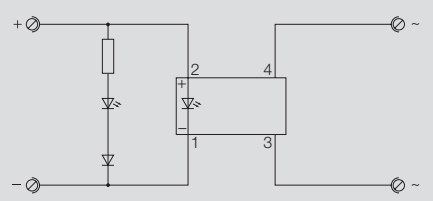
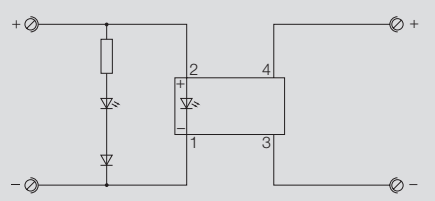
Optos - RSO-SERIES

RSO 30

- Plug-in connections
- DC output up to 3 A @ 5...60 V DC
- AC output up to 3 A @ 24...240 V AC
- 11 mm wide

RSO 30-DV/SC

RSO 30-DV/SA



Technical data

Control side		
Rated voltage		5...24 V DC ± 20%
Power rating		no
Nominal auxiliary voltage		no
Status indicator		LED green
Load side		
Nominal switching voltage		2...60 V DC
Nominal switching current		3 A
Voltage drop at max. load		1.6 V
Switch-on delay/Switch-off delay		0.1 ms / 0.75 ms
Short-circuit-proof/Protective circuit		no /
General data		
Ambient temperature (operational)		-25 °C...+40 °C
Storage temperature		-40 °C...+85 °C
Approvals		CE;
Insulation coordination (EN 50 178)		
Standards		EN 50178
Rated voltage		300 V
Rated impulse withstand voltage		4.0 kV
Clearance and creepage distances for control side - load side		≥ 8 mm
Surge category		III
Pollution severity		2

Dimensions		
Clamping range (rating- / min. / max.)	mm²	2.5 / 0.5 / 2.5
Length x width x height	mm	80 x 11 x 50
Note		

Ordering data

Connection system	Type	Qty.	Order No.
	RSO 30/DV 5-24V CC/SC	20	9443100000
Note			

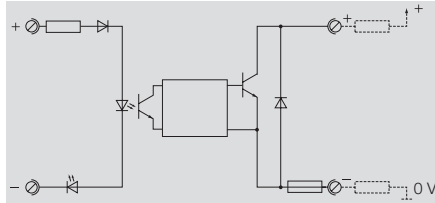
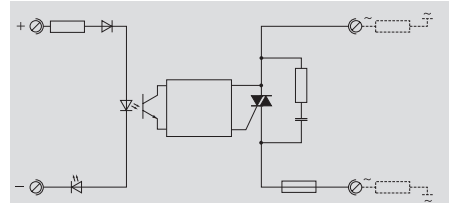
Accessories

Note

RSO 31

- Plug-in connections
- DC output up to 3 A @ 5...60 V DC
- AC output up to 3 A @ 24...240 V AC
- 12.5 mm wide
- Plug-in fuse in output circuit

RSO 31 -ODC/F

**RSO 31 -OAC/F**

Technical data

Control side

Rated voltage

Power rating

Nominal auxiliary voltage

Status indicator

Load side

Nominal switching voltage

Nominal switching current

Voltage drop at max. load

Switch-on delay/Switch-off delay

Short-circuit-proof/Protective circuit

General data

Ambient temperature (operational)

Storage temperature

Approvals

Insulation coordination (EN 50 178)

Standards

Rated voltage

Rated impulse withstand voltage

Clearance and creepage distances for control side - load side

Surge category

Pollution severity

Dimensions

Clamping range (rating- / min. / max.)

Length x width x height

Note

Ordering data

Connection system

Type	Qty.	Order No.
RSO31-ODC24/F	20	9430820000

Note

Accessories

Note

Type	Qty.	Order No.
RSO31-OAC24/F	20	9430320000

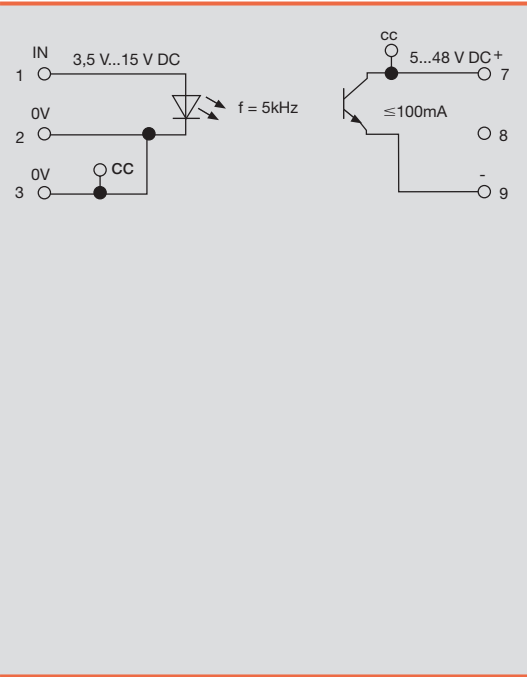
Weidmüller

Optos - WAVESERIES

Output voltage 5-48 V DC
wide input range



C



Load side		
Nominal switching voltage	5 V DC ... 48 V DC	
Nominal switching current	100 mA	
Voltage drop at max. load		
Short-circuit-proof/Protective circuit	no/Varistor, integral free-wheel diode	
General data		
Ambient temperature (operational)	-25 °C...+60 °C	
Storage temperature	-40 °C...+85 °C	
Approvals	CSA;cURus;CE;	
Insulation coordination (EN 50 178)		
Standards	EN 50178	
Rated voltage	300 V	
Rated impulse withstand voltage	6.0 kV	
Clearance and creepage distances for control/load side	≥ 5.5 mm	
Surge category	III	
Pollution severity	2	
Dimensions		
Clamping range (rating- / min. / max.)	mm²	1.5 / 0.5 / 2.5
Length x width x height	mm	72 / 22.5 / 92.4
Note		
Cross-connectors and markers - refer to WAVESERIES accessories		

Ordering data

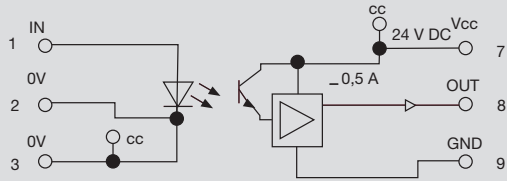
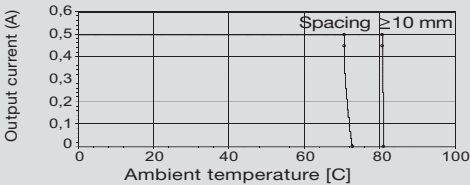
Control side		3.5-15 V DC 5 KHZ			
Rated voltage		3.5 V DC...15 V DC			
Power rating		32 ... 375 mW			
Nominal auxiliary voltage		no			
Status indicator		LED green in output			

Ordering data					
Complete module					
Screw connection	Type	WOS1 3.5-15VDC 5KHZ			
	Order No.	8275390000			
Tension clamp connection	Type				
	Order No.				
Ordering data					
Spare relay, pluggable					
	Type				
	Order No.				
Note					

Output voltage 24 V DC 0.5 A
short-circuit-proof and protected
against overload



Derating curve



Load side		
Nominal switching voltage	12 V DC ... 24 V DC... 28 V DC	
Nominal switching current	500 mA	
Voltage drop at max. load		
Short-circuit-proof/Protective circuit	Yes/max. 96 h/Varistor, reverse polarity protection	
General data		
Ambient temperature (operational)	-25 °C...+60 °C	
Storage temperature	-40 °C...+85 °C	
Approvals	CSA;cURus;CE;	
Insulation coordination (EN 50 178)		
Standards	EN 50178	
Rated voltage	300 V	
Rated impulse withstand voltage	6.0 kV	
Clearance and creepage distances for control/load side	≥ 5.5 mm	
Surge category	III	
Pollution severity	2	
Dimensions		
Clamping range (rating- / min. / max.)	mm²	1.5 / 0.5 / 2.5
Length x width x height	mm	72 / 22.5 / 92.4
Note		
Cross-connectors and markers - refer to WAVESERIES accessories		

Ordering data

Control side	12 V UC / 24 V DC 0,5 A	15-60 V DC 1 kHz	115 V UC / 24 V DC 0,5 A	230 V UC / 24 V DC 0,5 A
Rated voltage	10 V DC...12 V DC...14 V DC	15 V DC...60 V DC	115 V UC, max. 130 V UC	230 V UC, max. 250 V UC
Power rating	0.18 VA / 0.14 W	21 ... 246 mW	0.16 VA / 0.23 W	2.6 VA / 0.4 W
Nominal auxiliary voltage	no	no	no	no
Status indicator	LED green in output	LED green in output	LED green in output	LED green in output

Ordering data		12 V UC / 24 V DC 0,5 A		15-60 V DC 1 kHz		115 V UC / 24 V DC 0,5 A		230 V UC / 24 V DC 0,5 A	
Complete module		WOS1 12VUC		WOS1 15-60VDC 1KHZ		WOS1 115VUC		WOS1 230VUC	
Screw connection	Type	8275500000		8237730000		8235180000		8275380000	
Tension clamp connection	Type								
	Order No.								
Ordering data									
Spare relay, pluggable									
	Type								
	Order No.								
Note									

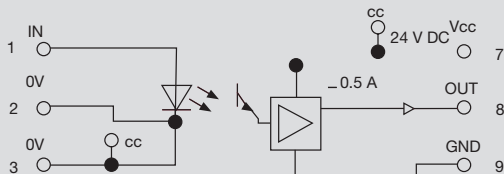
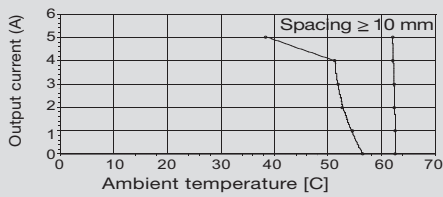
Optos - WAVESERIES

Output voltage 24 V DC 5 A
short-circuit-proof and protected
against overload
Note

- LED red: hard short-circuit, LED on permanently. The output cuts out and does not switch on again automatically. Reset by briefly interrupting the power supply/input voltage.
- Overload: LED pulsing, approx. 2 s on, approx. 30 s off. Device switches on again after removing the overload.
- Low load: LEDs on permanently, output is switched through.



Derating curve

**Load side**

Nominal switching voltage	19.2 V DC ... 24 V DC ... 28.8 V DC
Nominal switching current	5 A
Voltage drop at max. load	
Short-circuit-proof/Protective circuit	Yes/max. 96 h/Varistor, reverse polarity protection

General data

Ambient temperature (operational)	-25 °C...+50 °C
Storage temperature	-40 °C...+85 °C
Approvals	CSA;cURus;CE;

Insulation coordination (EN 50 178)

Standards	EN 50178
Rated voltage	300 V
Rated impulse withstand voltage	6.0 kV
Clearance and creepage distances for control/load side	≥ 5.5 mm
Surge category	III
Pollution severity	2

Dimensions

		Screw connection	Tension clamp connection
Clamping range (rating- / min. / max.)	mm²	1.5 / 0.5 / 2.5	
Length x width x height	mm	92.4 / 22.5 / 112.4	

Note

Cross-connectors and markers - refer to WAVESERIES accessories

Ordering data**Control side**

Rated voltage	24 V UC ±10 %
Power rating	0.39 VA / 0.32 W
Nominal auxiliary voltage	no
Status indicator	LED green in output

24 V UC / 24 V DC 5 A

Rated voltage	24 V UC ±10 %
Power rating	0.39 VA / 0.32 W
Nominal auxiliary voltage	no
Status indicator	LED green in output

115 V UC / 24 V DC 5 A

Rated voltage	115 V UC, max. 130 V UC
Power rating	0.35 VA / 0.32 W
Nominal auxiliary voltage	no
Status indicator	LED green in output

230 V UC / 24 V DC 5 A

Rated voltage	230 V UC, max. 250 V UC
Power rating	2.7 VA / 0.4W
Nominal auxiliary voltage	no
Status indicator	LED green in output

Ordering data**Complete module**

Screw connection	Type	WOS2 24VUC
	Order No.	8275190000
Tension clamp connection	Type	
	Order No.	

WOS2 24VUC

8275190000

WOS2 115VUC

8296250000

WOS2 230VUC

8275220000

Ordering data**Spare relay, pluggable**

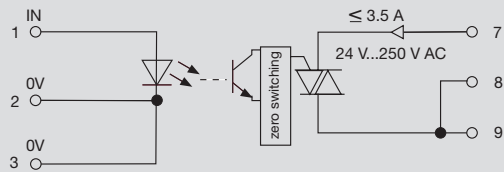
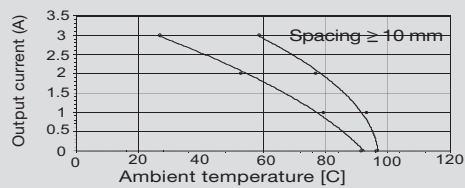
	Type	
	Order No.	

Note

Output voltage 230 V AC 3.5 A



Derating curve



Load side

Nominal switching voltage	24 V AC ... 250 V AC
Nominal switching current	3.5 A
Voltage drop at max. load	1.6 V
Short-circuit-proof/Protective circuit	no/RC combination with resistor

General data

Ambient temperature (operational)	-25 °C...+50 °C
Storage temperature	-40 °C...+85 °C
Approvals	CSA;cURus;CE;

Insulation coordination (EN 50 178)

Standards	EN 50178
Rated voltage	300 V
Rated impulse withstand voltage	6.0 kV
Clearance and creepage distances for control/load side	≥ 5.5 mm
Surge category	III
Pollution severity	2

Dimensions

		Screw connection	Tension clamp connection
Clamping range (rating- / min. / max.)	mm²	1.5 / 0.5 / 2.5	
Length x width x height	mm	92.4 / 22.5 / 112.4	

Note

Cross-connectors and markers - refer to WAVESERIES accessories

Ordering data

Control side

Rated voltage	
Power rating	
Nominal auxiliary voltage	
Status indicator	

15-60 V UC / 230 V AC 3.5 A

15 V UC...60 V AC/ 66 V DC
0.31 VA / 0.33 W
no
LED green in output

115 V UC / 230 V AC 3,5 A

115 V UC, max. 130 V UC
0.44 VA / 0.82 W
no
LED green in output

230 V UC / 230 V AC 3,5 A

230 V UC, max. 250 V UC
2.7 VA / 0.75W
no
LED green in output

Ordering data

Complete module

Screw connection	Type
Order No.	
Tension clamp connection	Type
Order No.	

WOS2 15-60VAC 66VDC
8275440000

WOS2 115VUC
8259950000

WOS2 230VUC
8275400000

Ordering data

Spare relay, pluggable

Type	
Order No.	

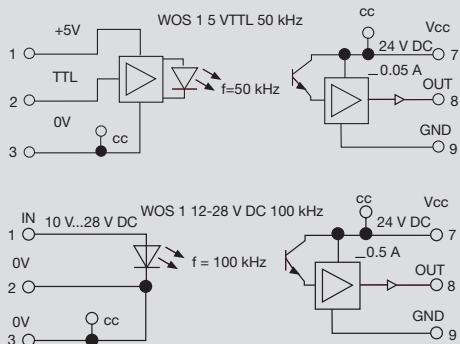
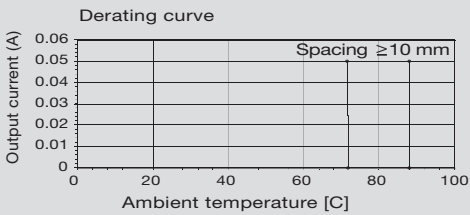
Note

Optos - WAVESERIES

for high switching frequency up to 100kHz



C



Load side		
Nominal switching voltage	21.6 V DC ... 24 V DC ... 26.4 V DC	
Nominal switching current	50 mA	
Voltage drop at max. load		
Short-circuit-proof/Protective circuit	no/Varistor, reverse polarity protection	
General data		
Ambient temperature (operational)	-25 °C...+60 °C	
Storage temperature	-40 °C...+85 °C	
Approvals	CSA;cURus;CE;	
Insulation coordination (EN 50 178)		
Standards	EN 50178	
Rated voltage	300 V	
Rated impulse withstand voltage	6.0 kV	
Clearance and creepage distances for control/load side	≥ 5.5 mm	
Surge category	III	
Pollution severity	2	
Dimensions		
Clamping range (rating- / min. / max.)	mm²	1.5 / 0.5 / 2.5
Length x width x height	mm	72 / 22.5 / 92.4
Note		
Cross-connectors and markers - refer to WAVESERIES accessories		

Ordering data

Control side	5 V TTL 50 KHZ	12-28 V DC 100 KHZ		
Rated voltage	5 V TTL	12 V DC...28 V DC		
Power rating	65 mW	190 mW		
Nominal auxiliary voltage	5 V	no		
Status indicator	LED green in output	LED green in output		

Ordering data				
Complete module				
Screw connection	Type	WOS1 5VTTL 50KHZ	WOS1 12-28VDC 100KHZ	
	Order No.	8275210000	8275450000	
Tension clamp connection	Type			
	Order No.			
Ordering data				
Spare relay, pluggable				
	Type			
	Order No.			
Note				

