

**R12-400-
R12-100-
R91-100-**



19

**ELECTROMECHANICAL SWITCHING RELAYS
AND INSTALLATION CONTACTORS – POLE
POSITION R**

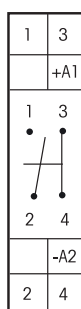
Electromechanical switching relays and installation contactors

1-, 2- and 4-pole electromechanical switching relays R12	19 - 2
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Technical data electromechanical switching relays and installation contactors	19 - 5

1-, 2- AND 4-POLE ELECTROMECHANICAL SWITCHING RELAYS R12



R12-110-230V



Technical data page 19-5.

R12-100-/200-/110-/020-

1- and 2-pole 16 A/250 V AC

Modular devices for DIN 60715 TH35 rail mounting with manual control and switch position indicator.

1 module = 18 mm wide, 55 mm deep.

100% time on. Control power demand 1.9 W.

Contacts: 1 NO, 2 NO, 1 NO + 1 NC, 2 NC (closed-circuit current relay, 230 V only).

Contact gap 3 mm.

Contact/contact test voltage 2000 V and control connections/contact test voltage 4000 V.

25 A devices XR12, page 19-4. Retrofittable auxiliary contact KM12, page 18-3.

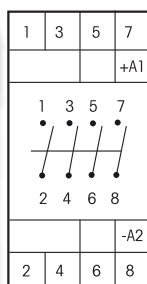
The pin-compatible ER12DX-UC, ER12-200-UC and ER12-110-UC electronic switching relays can also be used.

The universal control voltage UC covers the voltage ranges of 8 to 253 V AC at 50-60 Hz and 10 to 230 V DC.

R12-100-12V	1 NO 16 A	EAN 4010312200421	23,90 €/pc.
R12-100-230V	1 NO 16 A	EAN 4010312200445	23,90 €/pc.
R12-100-8V, 24V, 12V DC, 24V DC	1 NO 16 A		25,90 €/pc.
R12-200-12V	2 NO 16 A	EAN 4010312200506	30,10 €/pc.
R12-200-230V	2 NO 16 A	EAN 4010312200520	30,10 €/pc.
R12-200-8V, 24V, 12V DC, 24V DC	2 NO 16 A		32,10 €/pc.
R12-110-12V	1 NO + 1 NC 16 A	EAN 4010312200469	30,10 €/pc.
R12-110-230V	1 NO + 1 NC 16 A	EAN 4010312200483	30,10 €/pc.
R12-110-8V, 24V, 12V DC, 24V DC	1 NO + 1 NC 16 A		32,10 €/pc.
R12-020-230V	2 NC 16 A	EAN 4010312201572	30,00 €/pc.



R12-400-230V



Technical data page 19-5.

R12-400-/310-/220-

4-pole 16 A/250 V AC

Modular devices for DIN 60715 TH35 rail mounting with manual control and switch position indicator.

2 modules = 36 mm wide, 55 mm deep.

100% time on. Control power demand 4 W.

Contacts: 4 NO, 3 NO + 1 NC, 2 NO + 2 NC.

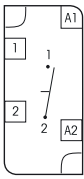
Contact gap 3 mm.

Contact/contact test voltage 2000 V and control connections/contact test voltage 4000 V.

25 A devices XR12, page 19-4. Retrofittable auxiliary contact KM12, page 18-3.

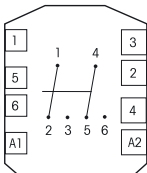
R12-400-230V	4 NO 16 A	EAN 4010312200643	45,70 €/pc.
R12-310-230V	3 NO + 1 NC 16 A	EAN 4010312200605	45,70 €/pc.
R12-220-230V	2 NO + 2 NC 16 A	EAN 4010312200568	45,70 €/pc.

1- OR 2-POLE ELECTROMECHANICAL SWITCHING RELAYS R91 AND R81



R91-100-230V

Technical data page 19-5.



R81-002-230V

Technical data page 19-5.

R91-100-



1 NO contact 10 A/250 V AC

Built-in devices for installation and surface mounting.
50 mm long, 26 mm wide, 32 mm deep.
Time on 100%. Control power demand 4–5 W.
Contact gap 2 mm.
Contact/contact test voltage 2000 V and control connection/contact test voltage 4000 V.
The ER61-UC electronic switching relay can also be used.
The universal control voltage UC covers the voltage ranges of 8 to 253 V AC at 50–60 Hz and 10 to 230 V DC.

R91-100-230V	1 NO 10 A	EAN 4010312203125	24,80 €/pc.
R91-100-12V	1 NO 10 A	EAN 4010312203101	24,80 €/pc.
R91-100-8V	1 NO 10 A	EAN 4010312203095	28,00 €/pc.

R81-002-



2 CO contacts 10 A/250 V AC

Built-in devices for installation and surface mounting.
50 mm long, 42 mm wide, 32 mm deep.
Time on 100%. Control power demand 5 W.
Contact gap 2 mm.
Contact/contact test voltage 2000 V and control connection/contact test voltage 4000 V.

R81-002-230V	2 CO 10 A	EAN 4010312203040	30,00 €/pc.
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Comparable electronic types	
ER12DX-UC	replaces terminal compatible the R12-100-, all control voltages
ER12-200-UC	replaces terminal compatible the R12-200-, all control voltages
ER12-110-UC	replaces terminal compatible the R12-110-, all control voltages
ER61-UC	replaces the R91-100-, all control voltages
ESR61M-UC	replaces partially the R81, all control voltages

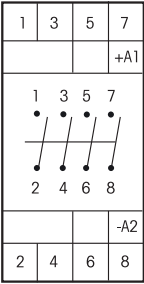
Recommended retail prices excluding VAT.

1-, 2- AND 4- POLE 25A ELECTROMECHANICAL INSTALLATION CONTACTORS XR12



XR12-110-230V

Technical data page 19-5.



XR12-400-230V

Technical data page 19-5.

XR12-100-/200-/110-



1- and 2-pole, 25 A/250 V AC

Modular devices for DIN 60715 TH35 rail mounting with manual control and switch position indicator.
1 module = 18 mm wide, 55 mm deep.
100% time on. Control power demand 1.9 W.
Contacts 1 NO, 2 NO, 1 NO + 1 NC.
Contact gap 3 mm.
Contact/contact test voltage 2000 V and control connection/contact test voltage 4000 V.
Retrofittable auxiliary contact KM12, page 18-3.

XR12-100-230V	1 NO 25 A	EAN 4010312201206	28,30 €/pc.
XR12-200-230V	2 NO 25 A	EAN 4010312201305	33,30 €/pc.
XR12-110-230V	1 NO + 1 NC 25 A	EAN 4010312201251	33,30 €/pc.

XR12-400-/310-/220-



4-pole, 25A/250V AC

Modular devices for DIN 60715 TH35 rail mounting with manual control and switch position indicator.
2 modules = 36 mm wide, 55 mm deep.
100% time on. Control power demand 4 W.
Contacts: 4 NO, 3 NO + 1 NC, 2 NO + 2 NC.
Contact gap 3 mm.
Contact/contact test voltage 2000 V and control connection/contact test voltage 4000 V.
Retrofittable auxiliary contact KM12, page 18-3.

XR12-400-230V	4 NO 25 A	EAN 4010312201374	47,10 €/pc.
XR12-310-230V	3 NO + 1 NC 25 A	EAN 4010312201428	47,10 €/pc.
XR12-220-230V	2 NO + 2 NC 25 A	EAN 4010312201473	47,10 €/pc.

TECHNICAL DATA **ELECTROMECHANICAL SWITCHING RELAYS AND INSTALLATION CONTACTORS**

Type	R12	R81/R91	XR12
Contacts			
Contact material/contact gap	AgSnO ₂ /3 mm	AgSnO ₂ /2 mm	AgSnO ₂ /3 mm ¹⁾
Spacing of control connections/contact	> 6 mm	> 6 mm	> 6 mm
Test voltage contact/contact	2000 V	2000 V	2000 V
Test voltage control connections/contact	4000 V	4000 V	4000 V
Rated switching capacity	16A/250V AC 10A/400V AC	10A/250V AC 6A/400V AC	25A/250V AC 16A/400V AC
Incandescent lamp and halogen lamp load 230 V ²⁾	2300 W	2300 W	2300 W
Fluorescent lamp load with KVG* in lead-lag circuit or non compensated	2300 VA	2300 VA	3600 VA
Fluorescent lamp load with KVG* shunt-compensated or with EVG*	500 VA	500 VA	1000 VA
Compact fluorescent lamps with EVG* and energy saving lamps ESL	I _{on} ≤ 140A/10 ms ³⁾	I _{on} ≤ 70A/10 ms ³⁾	I _{on} ≤ 140A/10 ms ³⁾
HQL and HQI non compensated	500 W	-	500 W
Max. switching current DC1: 12V/24V DC	8 A	8 A	12 A
Life at rated load, cos φ = 1 or incandescent lamps 1000W at 100/h	> 10 ⁵	> 10 ⁵	> 10 ⁵
Life at rated load, cos φ = 0.6 at 100/h	> 4x10 ⁴	> 4x10 ⁴	> 4x10 ⁴
Max. operating cycles	10 ³ /h	10 ³ /h	10 ³ /h
Closing time	10-20 ms	10-20 ms	10-20 ms
Opening time	5-15 ms	5-15 ms	5-15 ms
Switch position indication	yes	yes	yes
Manual control	yes	yes	yes
Maximum conductor cross-section	6 mm ²	4 mm ²	6 mm ²
Two conductors of same cross-section	2.5 mm ²	1.5 mm ²	2.5 mm ²
Screw head	slotted/crosshead, pozidriv	slotted/crosshead, pozidriv	slotted/crosshead, pozidriv
Type of enclosure/terminals	IP50/IP20	IP50/IP20	IP50/IP20
Solenoid System			
Time on	100% ⁴⁾	100%	100% ⁴⁾
Max./min. temperature at mounting location	+50°C/-5°C	+50°C/-5°C	+50°C/-5°C
Control voltage range	0.9 to 1.1 x rated voltage	0.9 bis 1.1 x rated voltage	0.9 to 1.1 x rated voltage
Coil power loss AC+DC ±20%	1- and 2-pole: 1.9 W 4-pole: 4 W	R81: 5 W R91: 2,5 W	1- and 2-pole: 1,9 W 4-pole: 4 W
Total power loss with continuous excitation at rated voltage and rated contact load	1-pole: 4 W, 2-pole: 6 W 4-pole: 12 W	1-pole: 7 W 2-pole: 9 W	1-pole: 4 W, 2-pole: 6 W 4-pole: 12 W
Max. parallel capacitance (length) of control lead	0.06 μF (ca. 200 m)	0.06 μF (ca. 200 m)	0.06 μF (ca. 200 m)
Max. voltage induced at the control inputs	0.2 x rated voltage	0.2 x rated voltage	0.2 x rated voltage

* EVG = electronic ballast units; KVG = conventional ballast units. ¹⁾ Contact distance of the NC contacts 1.2 mm. ²⁾ Contact spacing of NC contacts 1.2 mm. ³⁾ A 40-fold inrush current must be calculated for electronic ballast devices. For steady loads of 1200 W or 600 W use the current-limiting relay SBR12 or SBR61. See chapter 14, page 14-8. ⁴⁾ Whenever several impulse switches are continuously energised make sure there is adequate ventilation as a function of the calculated power loss.

To comply with DIN VDE 0100-443 and DIN VDE 0100-534, a Type 2 or Type 3 surge protection device (SPD) must be installed.