

**S12-400-  
S12-100-  
S91-100-**



**ELECTROMECHANICAL IMPULSE SWITCHES –  
POLE POSITION S.**

**18**

# Electromechanical impulse switches

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**1- AND 2-POLE ELECTROMECHANICAL IMPULSE SWITCHES S12**  
**2-POLE ELECTROMECHANICAL IMPULSE MULTICIRCUIT SWITCHES SS12**

# POLE POSITION S

When we introduced the first ELTAKO impulse switches in 1949, they were already standing in the pole position in Europe and since then we have defended this position time and again with innovative

products, highest quality, best possible service and attractive prices. Then, impulse switches were also called impulse relays, step switches or latching relays.



S12-100-230V

Technical data page 18-7.

## S12-100-/200-/110-

### 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 5-6 W only.

Contacts 1 NO, 2 NO, 1 NO + 1 NC.

Contact gap 3 mm. Spacing of control connections/contact > 6 mm.

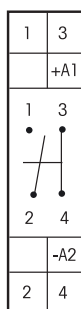
**Devices for 25 A XS12, page 18-5.**

**Retrofittable auxiliary contact KM12, page 18-3.**

**The pin-compatible ES12DX-UC, ES12-200-UC and ES12-110-UC electronic impulse switches can also be used.**

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

<b>S12-100-12V</b>	1 NO 16 A	EAN 4010312100455	<b>24,80 €/pc.</b>
<b>S12-100-230V</b>	1 NO 16 A	EAN 4010312100479	<b>24,80 €/pc.</b>
<b>S12-100-8V, 24V, 12V DC, 24V DC</b>	1 NO 16 A		<b>26,70 €/pc.</b>
<b>S12-200-12V</b>	2 NO 16 A	EAN 4010312100530	<b>31,00 €/pc.</b>
<b>S12-200-230V</b>	2 NO 16 A	EAN 4010312100554	<b>31,60 €/pc.</b>
<b>S12-200-8V, 24V, 12V DC, 24V DC</b>	2 NO 16 A		<b>33,10 €/pc.</b>
<b>S12-110-12V</b>	1 NO + 1 NC 16 A	EAN 4010312100493	<b>31,00 €/pc.</b>
<b>S12-110-230V</b>	1 NO + 1 NC 16 A	EAN 4010312100516	<b>31,60 €/pc.</b>
<b>S12-110-8V, 24V, 12V DC, 24V DC</b>	1 NO + 1 NC 16 A		<b>33,10 €/pc.</b>



SS12-110-230V

Technical data page 18-7.

## SS12-110-

### Impulse multicircuit switch, 1+1 NO contacts 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 5-6 W.

Contact gap 3 mm. Spacing of control connections/contact > 6 mm.

**The ESR12DDX-UC electronic impulse switch can also be used.**

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

<b>SS12-110-12V</b>	1 + 1 NO 16 A	EAN 4010312101346	<b>33,10 €/pc.</b>
<b>SS12-110-230V</b>	1 + 1 NO 16 A	EAN 4010312101124	<b>33,10 €/pc.</b>

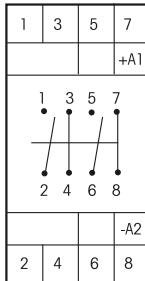


## ELECTROMECHANICAL 16 A IMPULSE SWITCHES 1-POLE S09, 4-POLE S12 AND AUXILIARY CONTACT KM12



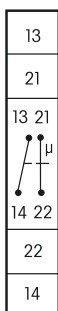
S09-230V

Technical data page 18-7.



S12-220-230V

Technical data page 18-7.



### S09-

#### 1 NO contact 16 A/230 V AC

Modular devices for DIN 60715 TH35 rail mounting with manual control and switch position indicator.  
Only ½ module = 9 mm wide, 55 mm deep.  
Control power demand 5 W. For impulse control.  
Contact gap 3 mm.

<b>S09-12V</b>	1 NO 16 A	EAN 4010312104187	<b>25,40 €/pc.</b>
<b>S09-230V</b>	1 NO 16 A	EAN 4010312104200	<b>25,40 €/pc.</b>

### S12-400-/310-/220-

#### 4-pole 16 A/250 V AC

Modular devices for DIN 60715 TH35 rail mounting with manual control and switch position indicator, for impulse control.  
2 modules = 36 mm wide, 55 mm deep.  
Time on: **impulse control only**. Control power demand 12-15 W.  
Contacts: 4 NO, 3 NO + 1 NC, 2 NO + 2 NC. Contact gap 3 mm.

**Devices for 25 A XS12, page 18-5.**

**Retrofittable auxiliary contact KM12.**

<b>S12-400-230V</b>	4 NO 16 A	EAN 4010312104484	<b>47,10 €/pc.</b>
<b>S12-310-230V</b>	3 NO + 1 NC 16 A	EAN 4010312100639	<b>47,10 €/pc.</b>
<b>S12-220-230V</b>	2 NO + 2 NC 16 A	EAN 4010312100592	<b>47,10 €/pc.</b>

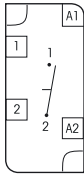
### KM12

#### Contact module, 1 NO contact and 1 NC contact 4 A/250 V AC

Retrofittable to the left of all impulse switches S12 and XS12 as well as switching relays and installation contactors R12 and XR12.  
½ module = 9 mm wide.

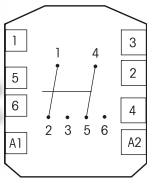
<b>KM12</b>	Auxiliary contact 1 NO + 1 NC, 4 A	EAN 4010312901243	<b>16,60 €/pc.</b>
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## 1- AND 2-POLE IMPULSE SWITCHES S91 AND S81



S91-100-230V

Technical data page 18-7.  
Mounting accessory, see chapter Z.



S81-002-230V

Technical data page 18-7.  
Mounting accessory, see chapter Z.

### S91-100-

#### 1 NO contact 10 A/250 V AC

Built-in devices for installation and surface mounting. With manual control and switch position indicator.  
50 mm long, 26 mm wide, 32 mm deep.

Time on 100%. Control power demand 4–5 W. Contact gap 2 mm.

**The ES61-UC electronic impulse switch 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.**

<b>S91-100-230V</b>	1 NO 10 A	EAN 4010312103531	<b>25,50 €/pc.</b>
<b>S91-100-12V</b>	1 NO 10 A	EAN 4010312103517	<b>25,50 €/pc.</b>
<b>S91-100-8V</b>	1 NO 10 A	EAN 4010312103500	<b>25,50 €/pc.</b>

### S81-002-

#### 2 CO contacts 10 A/250 V AC

Built-in devices for installation and surface mounting.

With manual control and switch position indicator.

50 mm long, 42 mm wide, 32 mm deep.

Time on 100%. Control power demand 5 W. Contact gap 2 mm.

<b>S81-002-230V</b>	2 CO 10 A	EAN 4010312103333	<b>30,90 €/pc.</b>
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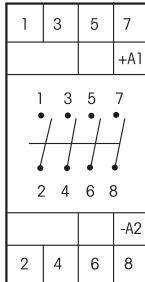


## 1-, 2- AND 4-POLE ELECTROMECHANICAL 25A IMPULSE SWITCHES XS12



XS12-110-230V

Technical data page 18-7.



XS12-400-230V

Technical data page 18-7.

### XS12-100-/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 5-6 W.

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

Contact gap 3 mm.

**Retrofittable auxiliary contact KM12, page 18-3.**

<b>XS12-100-230V</b>	1 NO 25 A	EAN 4010312101513	<b>29,70 €/pc.</b>
<b>XS12-200-230V</b>	2 NO 25 A	EAN 4010312101605	<b>35,00 €/pc.</b>
<b>XS12-110-230V</b>	1 NO + 1 NC 25 A	EAN 4010312101551	<b>35,00 €/pc.</b>

### XS12-400-/310-/220-



#### 4-pole 25 A/250 V AC

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

2 modules = 36 mm wide, 55 mm deep.

Time on: **impulse control only**. Control power demand 12-15 W.

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

Contact gap 3 mm.

**Retrofittable auxiliary contact KM12, page 18-3.**

<b>XS12-400-230V</b>	4 NO 25 A	EAN 4010312101650	<b>49,50 €/pc.</b>
<b>XS12-310-230V</b>	3 NO + 1 NC 25 A	EAN 4010312101704	<b>49,50 €/pc.</b>
<b>XS12-220-230V</b>	2 NO + 2 NC 25 A	EAN 4010312101759	<b>49,50 €/pc.</b>

## SWITCH POSITIONS OF ELECTROMECHANICAL IMPULSE SWITCHES COMPARABLE ELECTRONIC TYPES

CONTACTS	TYPE	CONTACTS	TYPE
<p>1 NO contact</p>	<p><b>S12-100-</b> <b>XS12-100-</b> <b>S91-100-</b></p>	<p>2 CO contacts</p>	<p><b>S81-002</b></p>
<p>2 NO contacts</p>	<p><b>S12-200-</b> <b>XS12-200-</b></p>		
<p>1 NO contact + 1 NC contact</p>	<p><b>S12-110-</b> <b>XS12-110-</b></p>		
<p>Multicircuit switch 1+1 NO contacts</p>	<p><b>SS12-110-</b></p>		
<p>4 NO contacts</p>	<p><b>XS12-400-</b></p>		
<p>3 NO contacts + 1 NC contact</p>	<p><b>XS12-310-</b></p>		
<p>2 NO contacts + 2 NC contact</p>	<p><b>XS12-220-</b></p>		

Comparable electronic types	
<b>ES12DX-UC</b>	replaces terminal compatible the <b>S12-100-</b> , all control voltages
<b>ES12-200-UC</b>	replaces terminal compatible the <b>S12-200-</b> , all control voltages
<b>ES12-110-UC</b>	replaces terminal compatible the <b>S12-110-</b> , all control voltages
<b>ESR12DDX-UC</b>	replaces the <b>SS12-110-</b> , all control voltages
<b>ES61-UC</b>	replaces the <b>S91-100-</b> , all control voltages
<b>ESR61M-UC</b>	replaces <b>S81-</b> , <b>SS81-</b> and <b>GS81-</b> , all control voltages

Type	S09/S12/SS12	S91/S81	XS12
<b>Contacts</b>			
Contact material/contact gap	AgSnO <sub>2</sub> /3 mm	AgSnO <sub>2</sub> /2 mm	AgSnO <sub>2</sub> /3 mm <sup>1)</sup>
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	16 A/250 V AC 10 A/400 V AC	10 A/250 V AC 6 A/400 V AC	25 A/250 V AC 16 A/400 V AC
Incandescent lamp and halogen lamp load <sup>2)</sup> 230 V	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 ≤ 140 A/10 ms <sup>3)</sup>	I on ≤ 70 A/10 ms <sup>3)</sup>	I on ≤ 140 A/10 ms <sup>3)</sup>
HQL and HQL non compensated	500 W	-	500 W
Max. switching current DC1: 12 V/24 V DC	8 A	8 A	12 A
Life at rated load cos φ = 1 or incandescent lamps 1000 W at 100/h	> 10 <sup>5</sup>	> 10 <sup>5</sup>	> 10 <sup>5</sup>
Life at rated load, cos φ = 0.6 at 100/h	> 4x10 <sup>4</sup>	> 4x10 <sup>4</sup>	> 4x10 <sup>4</sup>
Max. operating cycles	10 <sup>3</sup> /h	10 <sup>3</sup> /h	10 <sup>3</sup> /h
Switch position indication	yes	yes	yes
Manual control	yes	yes	yes
Maximum conductor cross-section	6 mm <sup>2</sup>	4 mm <sup>2</sup>	6 mm <sup>2</sup>
Two conductors of same cross-section	2.5 mm <sup>2</sup>	1.5 mm <sup>2</sup>	2.5 mm <sup>2</sup>
Screw head	slotted/crosshead, pozidriv	slotted/crosshead, pozidriv	slotted/crosshead, pozidriv
Type of enclosure/terminals	IP50/IP20	IP50/IP20	IP50/IP20
<b>Solenoid</b>			
Time on at rated voltage 1- and 2-pole, without S09	100% <sup>4)</sup>	100%	100% <sup>4)</sup>
Time on at rated voltage 4-pole as well as S09	impulse control	-	impulse control
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 to 1.1 x rated voltage	0.9 to 1.1 x rated voltage
Coil power loss AC+ DC ±20%	1- and 2-pole 5 - 6 W; 4-pole 12 - 15 W	S81: 5 W S91: 2.5 W	1- and 2-pole 5 - 6 W; 4-pole 12 - 15 W
Min. command duration	50 ms	50 ms	50 ms
Max. parallel capacitance (length) of single control lead at 230 V AC	0.06 μF (approx. 200 m)	0.06 μF (approx. 200 m)	0.06 μF (approx. 200 m)
Max. voltage induced at the control inputs	0.2 x rated voltage	0.2 x rated voltage	0.2 x rated voltage
Glow lamps in parallel with the 230 V control switches	5 mA	5 mA	5 mA
With 1 μF/250 V AC capacitor in parallel with coil	10 mA	10 mA	10 mA
With 2.2 μF/250 V AC capacitor in parallel with coil	15 mA	15 mA	15 mA

\* EVG = electronic ballast units; KVG = conventional ballast units

<sup>1)</sup> Contact distance of the NC contacts 1.2 mm.

<sup>2)</sup> For lamps with 150 W max.

<sup>3)</sup> 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.

<sup>4)</sup> Whenever several impulse switches are continuously energised make sure there is adequate ventilation and, in addition, a ventilation clearance of approx. half a module. Use the DS12 spacer as necessary.

To comply with DIN VDE 0100-443 and DIN VDE 0100-534, a Type 1 or Type 2 surge protection device (SPD) must be installed.