



# Pressure and float switches



[WWW.OEZ.COM](http://WWW.OEZ.COM)



## CONTENTS



**■ PRESSURE SWITCHES AND ACCESSORIES ..... 2**

TSA .....	2
PTS .....	7



**■ FLOAT SWITCHES AND ACCESSORIES ..... 10**

PSA .....	10
PPS .....	12

## PRESSURE SWITCHES TSA



- For switching especially of 3-phase electrical circuits (AC-3 10 A/ 400 V) in accordance with pressure changes in pressure tanks.
- In conjunction with pump or compressor, serves to maintain pressure in pressure tanks for household water systems within required range.
- Easily adjustable cut-in and cut-out pressures
- Long operating life
- Can be installed in any position.
- Allows for easier start-up of compressor motor using versions of pressure switches with air-relief valve. Possibly allows use of compressor motor with lower power.
- Can save on need for additional switching element by using pressure switches with switching levers.
- Can be used for regulating such non-corrosive media as water, oil or air. Suitable for use in damp and wet environments (resistant to spraying water) and adequately protected against dust.
- Using model with switching lever eliminates the need to disconnect the circuit for other switching elements.
- Air-relief valve permits easier start-up of compressor motor, possibly allowing use of a compressor motor with lower power.
- Relief valve releases compressed air between compressor and pressure tank; motor starts up much more easily at next start-up.

### Pressure switches standard

Maximum cut-out pressure (MPa)	Pressure connection medium = mounting	Type	Product code	Weight [kg]	Packing [pcs]		
0.55	screw G 1/4"	TSA3S05S/0,08 ÷ 0,15	09068	0.55	1		
		TSA3S05S/0,12 ÷ 0,23	08350	0.55	1		
		TSA3S05S/0,15 ÷ 0,30	08353	0.55	1		
		TSA3S05S/0,20 ÷ 0,35	08356	0.55	1		
		TSA3S05S/0,27 ÷ 0,44	08362	0.55	1		
		TSA3S05S/0,33 ÷ 0,46	08366	0.55	1		
	union nut G 1/4"	TSA3S05M/0,08 ÷ 0,15	09069	0.55	1		
		TSA3S05M/0,12 ÷ 0,23	08351	0.55	1		
		TSA3S05M/0,15 ÷ 0,30	08354	0.55	1		
		TSA3S05M/0,20 ÷ 0,35	08357	0.55	1		
		TSA3S05M/0,27 ÷ 0,44	08363	0.55	1		
		TSA3S05M/0,33 ÷ 0,46	08367	0.55	1		
		1	screw G 1/4"	TSA3S10S/0,40 ÷ 0,60	38451	0.55	1
				TSA3S10S/0,50 ÷ 0,70	09071	0.55	1
TSA3S10S/0,58 ÷ 0,86	08380			0.55	1		
TSA3S10S/0,65 ÷ 0,90	09072			0.55	1		
union nut G 1/4"	TSA3S10M/0,40 ÷ 0,60		38452	0.55	1		
	TSA3S10M/0,50 ÷ 0,70		09074	0.55	1		
	TSA3S10M/0,58 ÷ 0,86		08381	0.55	1		
	TSA3S10M/0,65 ÷ 0,90		09075	0.55	1		

### Pressure switches with switching lever

Maximum cut-out pressure (MPa)	Pressure connection medium = mounting	Type	Product code	Weight [kg]	Packing [pcs]		
0.55	screw G 1/4"	TSA3P05S/0,08 ÷ 0,15	10054	0.55	1		
		TSA3P05S/0,12 ÷ 0,23	08857	0.55	1		
		TSA3P05S/0,15 ÷ 0,30	08858	0.55	1		
		TSA3P05S/0,20 ÷ 0,35	08859	0.55	1		
		TSA3P05S/0,27 ÷ 0,44	08860	0.55	1		
		TSA3P05S/0,33 ÷ 0,46	08849	0.55	1		
	union nut G 1/4"	TSA3P05M/0,08 ÷ 0,15	10055	0.55	1		
		TSA3P05M/0,12 ÷ 0,23	08352	0.55	1		
		TSA3P05M/0,15 ÷ 0,30	08355	0.55	1		
		TSA3P05M/0,20 ÷ 0,35	08359	0.55	1		
		TSA3P05M/0,27 ÷ 0,44	08846	0.55	1		
		TSA3P05M/0,33 ÷ 0,46	08848	0.55	1		
		1	union nut G 1/4"	TSA3P10S/0,40 ÷ 0,60	38453	0.55	1
				TSA3P10S/0,50 ÷ 0,70	10049	0.55	1
TSA3P10S/0,58 ÷ 0,86	08866			0.55	1		
TSA3P10S/0,65 ÷ 0,90	10048			0.55	1		
nut G 1/4"	TSA3P10M/0,40 ÷ 0,60		38454	0.55	1		
	TSA3P10M/0,50 ÷ 0,70		10052	0.55	1		
	TSA3P10M/0,58 ÷ 0,86		08854	0.55	1		
	TSA3P10M/0,65 ÷ 0,90		10051	0.55	1		

## PRESSURE SWITCHES TSA



### Pressure switches with air-relief valve

Maximum cut-out pressure (MPa)	Pressure connection medium = mounting	Type	Product code	Weight [kg]	Packing [pcs]
0.55	screw G 1/4"	TSA3V05S/0,08 ÷ 0,15	08884	0.55	1
		TSA3V05S/0,12 ÷ 0,23	08885	0.55	1
		TSA3V05S/0,15 ÷ 0,30	08887	0.55	1
		TSA3V05S/0,20 ÷ 0,35	08888	0.55	1
		TSA3V05S/0,27 ÷ 0,44	08889	0.55	1
		TSA3V05S/0,33 ÷ 0,46	08892	0.55	1
	union nut G 1/4"	TSA3V05M/0,08 ÷ 0,15	08880	0.55	1
		TSA3V05M/0,12 ÷ 0,23	08881	0.55	1
		TSA3V05M/0,15 ÷ 0,30	08358	0.55	1
		TSA3V05M/0,20 ÷ 0,35	08364	0.55	1
		TSA3V05M/0,27 ÷ 0,44	08883	0.55	1
		TSA3V05M/0,33 ÷ 0,46	08884	0.55	1
1	screw G 1/4"	TSA3V10S/0,40 ÷ 0,60	38455	0.55	1
		TSA3V10S/0,50 ÷ 0,70	10108	0.55	1
		TSA3V10S/0,58 ÷ 0,86	08844	0.55	1
		TSA3V10S/0,65 ÷ 0,90	10110	0.55	1
	union nut G 1/4"	TSA3V10M/0,40 ÷ 0,60	38456	0.55	1
		TSA3V10M/0,50 ÷ 0,70	11337	0.55	1
		TSA3V10M/0,58 ÷ 0,86	08382	0.55	1
		TSA3V10M/0,65 ÷ 0,90	11731	0.55	1

### Pressure switches with switching lever and air-relief valve

Maximum cut-out pressure (MPa)	Pressure connection medium = mounting	Type	Product code	Weight [kg]	Packing [pcs]	
0.55	screw G 1/4"	TSA3K05S/0,08 ÷ 0,15	10196	0.55	1	
		TSA3K05S/0,12 ÷ 0,23	08916	0.55	1	
		TSA3K05S/0,15 ÷ 0,30	08923	0.55	1	
		TSA3K05S/0,20 ÷ 0,35	08757	0.55	1	
		TSA3K05S/0,27 ÷ 0,44	08924	0.55	1	
		TSA3K05S/0,33 ÷ 0,46	08761	0.55	1	
		union nut G 1/4"	TSA3K05M/0,08 ÷ 0,15	08910	0.55	1
	TSA3K05M/0,12 ÷ 0,23		08911	0.55	1	
	TSA3K05M/0,15 ÷ 0,30		08912	0.55	1	
	TSA3K05M/0,20 ÷ 0,35		08360	0.55	1	
	TSA3K05M/0,27 ÷ 0,44		08365	0.55	1	
	TSA3K05M/0,33 ÷ 0,46		08914	0.55	1	
	1		union nut G 1/4"	TSA3K10S/0,40 ÷ 0,60	38457	0.55
		TSA3K10S/0,50 ÷ 0,70		10085	0.55	1
TSA3K10S/0,58 ÷ 0,86		08871		0.55	1	
TSA3K10S/0,65 ÷ 0,90		10083		0.55	1	
nut G 1/4"		TSA3K10M/0,40 ÷ 0,60	38458	0.55	1	
		TSA3K10M/0,50 ÷ 0,70	10114	0.55	1	
		TSA3K10M/0,58 ÷ 0,86	08383	0.55	1	
TSA3K10M/0,65 ÷ 0,90	10115	0.55	1			

### TSA accessories


Adaptable water-supply unit base

PTS

page 7

# PRESSURE SWITCHES TSA

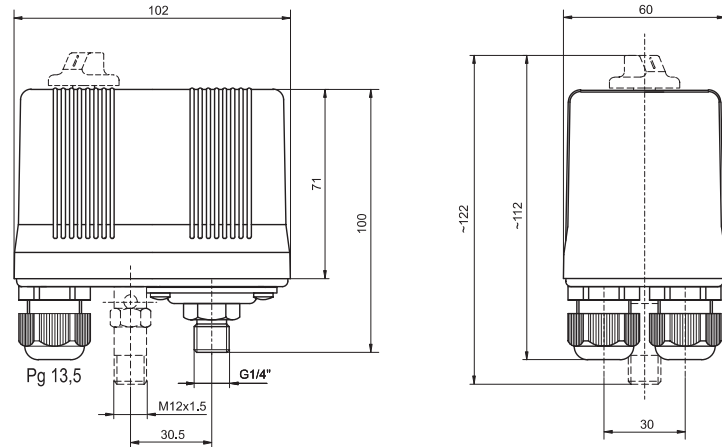
## Specification

<b>Type</b>		<b>TSA</b>	
Standards		EN 60 947-4-1, EN 60 730-2-6	
Approval marks			
Main circuit (contact load)	arrangement <sup>1)</sup>	03	
	rated insulation voltage	$U_i$ 500 V a.c.	
	rated operating voltage	$U_e$ 400 V a.c.	
	AC-3	rate current $I_n$ 10 A	
		switching capacity at 400 V a.c. 4 kW	
		switching frequency 120 operations/hour	
		electrical life 200,000 operations	
		mechanical life 500,000 operations	
	connection of	Cu conductors	$1 \div 2.5 \text{ mm}^2$
		cable – diameter	$6 \div 12 \text{ mm}$
Pressure circuit	rated pressure	1 MPa	
	medium	type temperature Non-corrosive gasses and liquids $0 \div 55 \text{ }^\circ\text{C}$	
	pressure connection medium = mounting	screw-on (TSA3...S...)	G 1/4"
		with union nut (TSA3...M...)	G 1/4"
	set point tolerance	$\pm 10 \%$	
Other specifications	degree of protection	IP54	
	ambient temperature	$-10 \text{ to } 55 \text{ }^\circ\text{C}$	
	installation position	any	

<sup>1)</sup> Each numeral successively indicates number of make and break contacts; if reversibility is needed, we recommend using a TSA pressure switch to control the circuit of the contactor coil with shut-off contacts (e.g. S25-13), which switches the device.

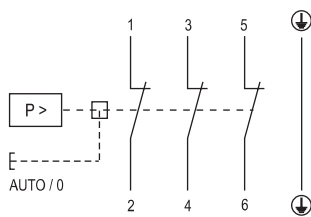
## Dimensions

TSA

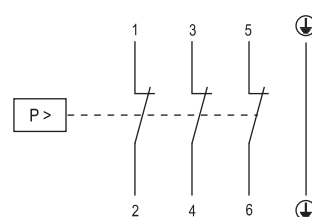


## Diagram

TSA3S..., TSA3V...



TSA3P..., TSA3K...

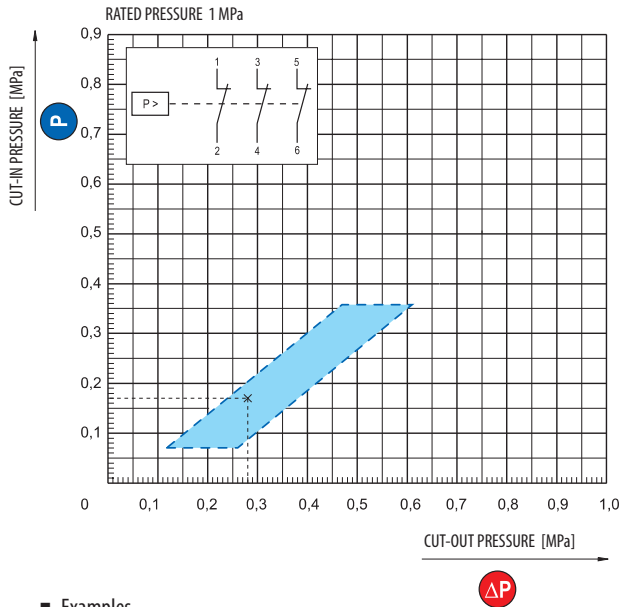


## PRESSURE SWITCHES TSA

### Setting the pressure

- Pressure diagrams define adjustment range of pressure switches.
- If point of intersection for desired cut-in and cut-out pressures lies within blue area, then setting to required pressure is possible.

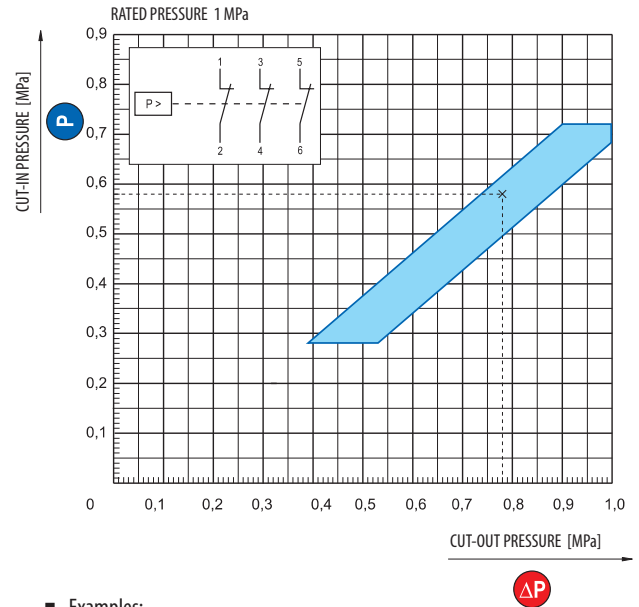
Pressure diagram for TSA3...05...



■ Examples

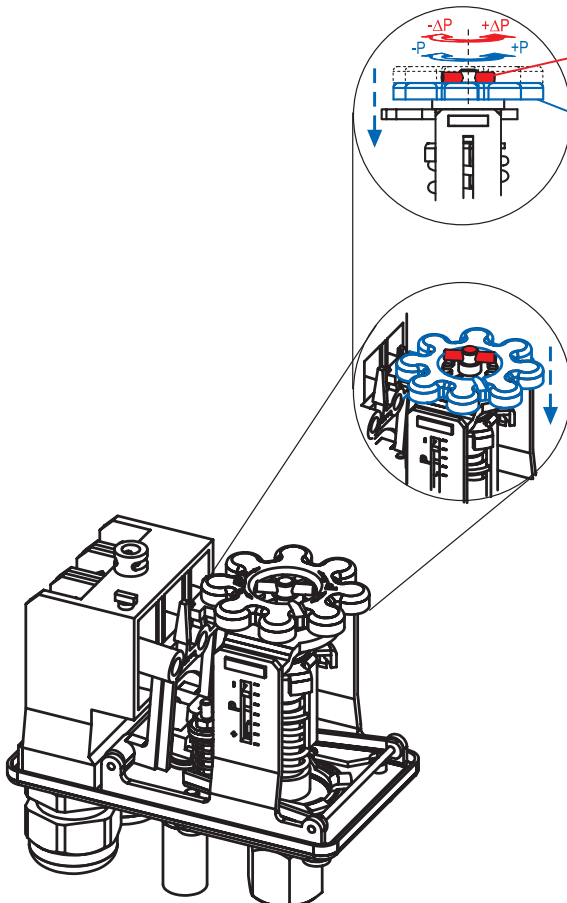
- Cut-in pressure 0.17 MPa and cut-out pressure 0.28 MPa **can be set**.
- Cut-in pressure 0.15 MPa and cut-out pressure 0.20 MPa **cannot be set**.

Pressure diagram for TSA3...10...



■ Examples:

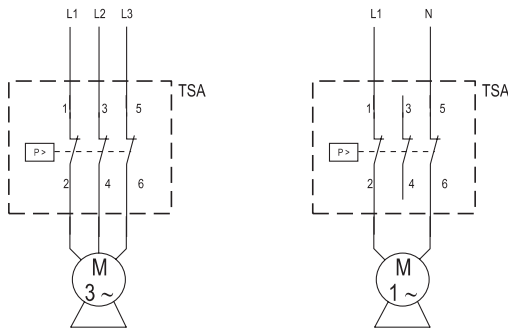
- Cut-in pressure 0.58 MPa and cut-out pressure 0.78 MPa **can be set**.
- Cut-in pressure 0.5 MPa and cut-out pressure 0.6 MPa **cannot be set**.



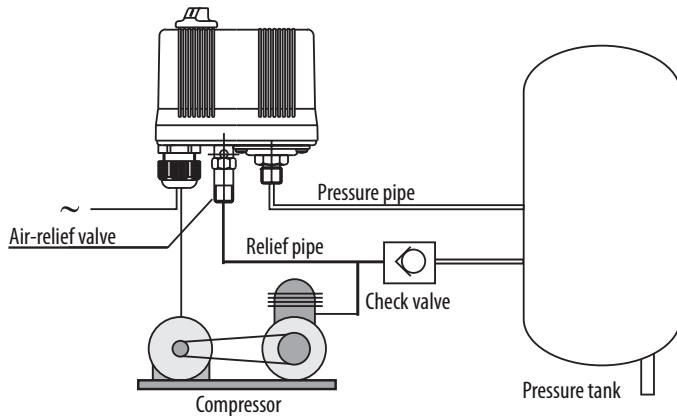
- ⊖  $\Delta P$  Cut-out pressure is set by means of the metal pin, by turning it in direction  $+\Delta P$  or  $-\Delta P$  while pressing down but not turning the plastic dial.
- ⊖  $P$  Cut-in pressure is set by pressing down the plastic dial while turning it in direction  $+P$  or  $-P$ .

## PRESSURE SWITCHES TSA

### Connection of single-phase and three-phase electric motors

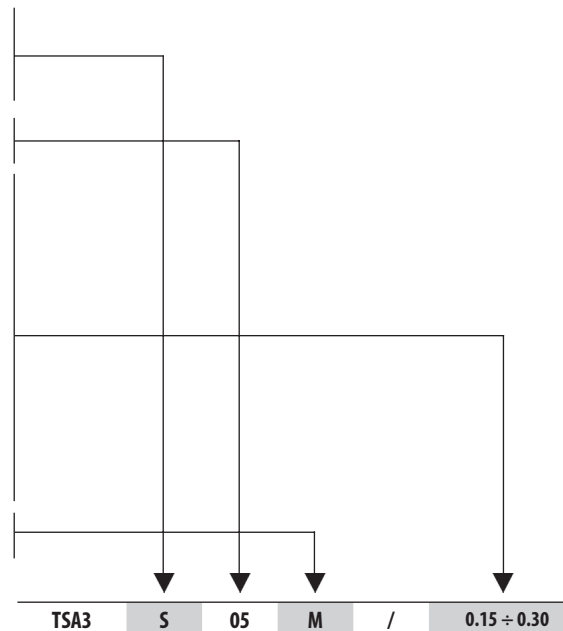


### Connection of pressure switch with air-relief valve



### Method for identifying TSA3 pressure switches

<b>Accessories</b>	without accessories; standard		<b>S</b>
	with switching lever		<b>P</b>
	with air-relief valve		<b>V</b>
	with switching lever and air-relief valve		<b>K</b>
<b>Pressure</b>	model with maximum cut-out pressure	0.55 MPa	<b>05</b>
		1 MPa	<b>10</b>
	pressure setting for model <b>05</b> [MPa]	commonly supplied	<b>0.08 ÷ 0.15</b>
			<b>0.12 ÷ 0.23</b>
			<b>0.15 ÷ 0.30</b>
			<b>0.20 ÷ 0.35</b>
			<b>0.27 ÷ 0.44</b>
			<b>0.33 ÷ 0.46</b>
	pressure setting for model <b>10</b> [MPa]	chosen from pressure diagram	<b>... ..</b>
		commonly supplied	<b>0.40 ÷ 0.60</b>
		<b>0.50 ÷ 0.70</b>	
		<b>0.58 ÷ 0.86</b>	
		<b>0.65 ÷ 0.90</b>	
	chosen from pressure diagram	<b>... ..</b>	
<b>Pressure connection</b>	screw G 1/4"		<b>S</b>
<b>medium = mounting</b>	union nut G 1/4"		<b>M</b>



### Product identification for ordering

TSA3 S 05 M / 0.15 ÷ 0.30

### Units of pressure measurement and their conversions

1 Pa	= 10 <sup>-6</sup> MPa	= 10 <sup>-5</sup> bar	= 9.87 x 10 <sup>-6</sup> atm	= 7.5 x 10 <sup>-3</sup> Torr
1 MPa	= 10 <sup>6</sup> Pa	= 10 bar	= 9.87 atm	= 7.5 x 10 <sup>3</sup> Torr
1 bar	= 10 <sup>5</sup> Pa	= 0.1 MPa	= 0.987 atm	= 750 Torr
1 atm	= 101.3 x 10 <sup>3</sup> Pa	= 0.1013 MPa	= 1.013 bar	= 760 Torr
1 Torr	= 133.3 Pa	= 0.1333 x 10 <sup>-3</sup> MPa	= 1.333 x 10 <sup>-3</sup> bar	= 1.316 x 10 <sup>-3</sup> atm



## ADAPTABLE WATER-SUPPLY UNIT BASE

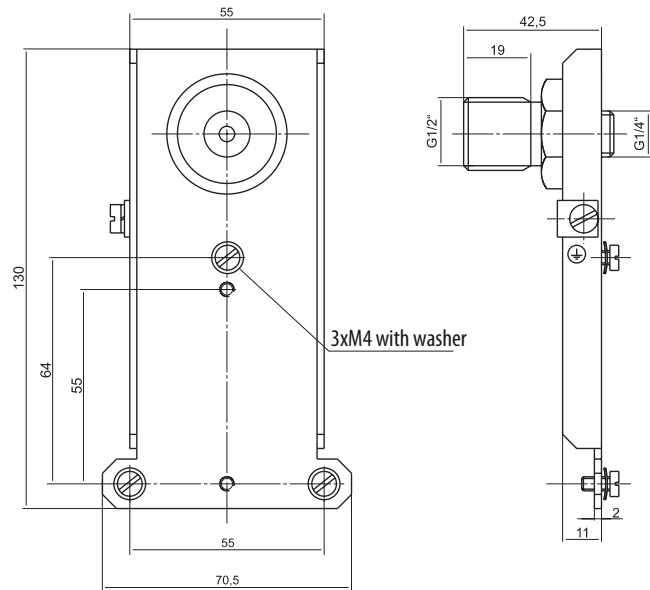


- Accessory for: TSA
- Flexibly provides for mechanically connecting TSA pressure switch (model with nuts) and insulation box for S11-SM1-M motor starter, to which is affixed its SM1 motor starter. Adding the electrical connection cable and plastic bushings completes water-supply unit.
- Water-supply unit serves as controller and circuit breaker unit for a compressor motor or pump.

### Adaptable water-supply unit base

Type	Product code	Weight [kg]	Packing [pcs]
PTS	09067	0.23	1

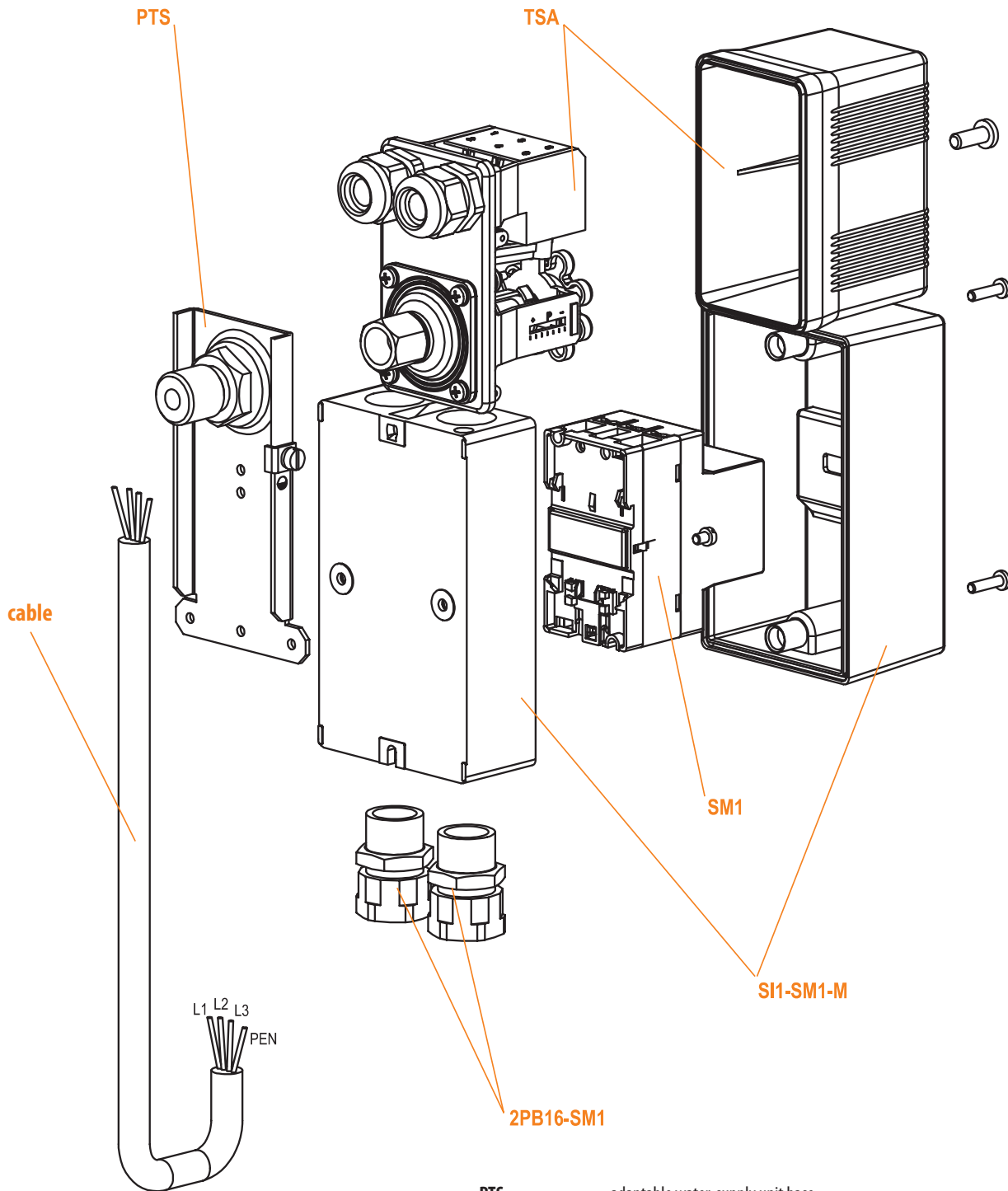
### Dimensions



## ADAPTABLE WATER-SUPPLY UNIT BASE

### Adaptable water-supply unit assembly

- By purchasing the following components, it is possible to assemble and connect a water-supply unit that includes the TSA pressure switch and SM1 motor starter. This replaces the previously supplied VRSM water-supply unit and serves as a controller and circuit breaker unit for a compressor motor or pump:

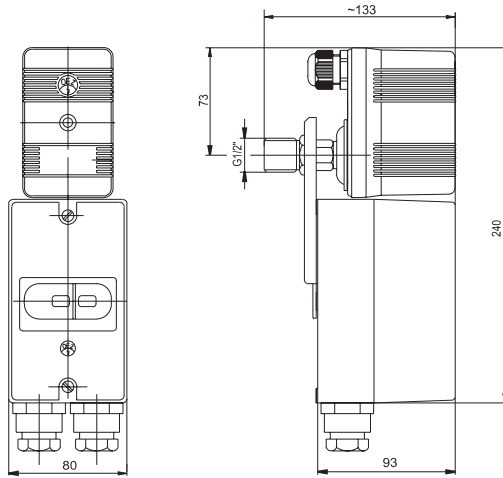
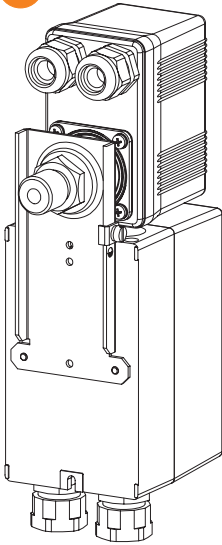


- PTS** – adaptable water-supply unit base
  - TSA** – pressure switch with union nut G1/4"
  - SI1-SM1-M** – insulation box for SM1 motor starter (degree of protection IP55)
  - SM1** – motor starter
  - 2PB16-SM1** – 2 plastic bushings for SI1-SM1-M insulation box
- Electrical connecting cable for TSA and SM1 (Cu conductor cross section 1÷ 2.5 mm<sup>2</sup>)

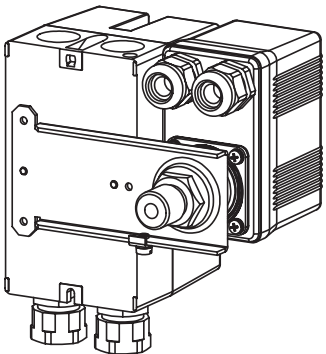
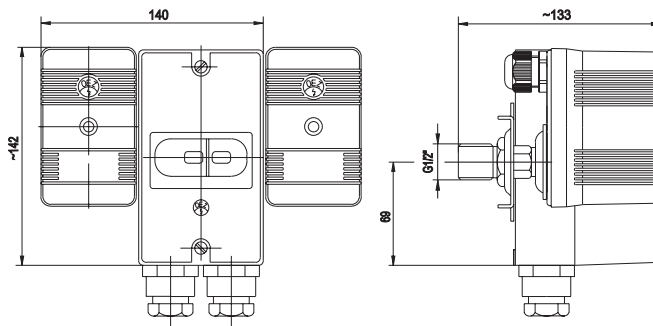
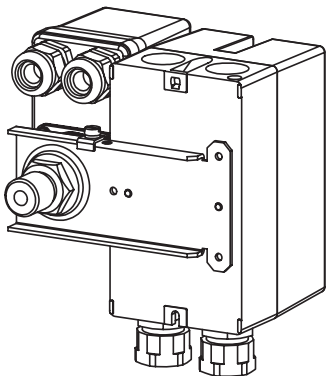
## ADAPTABLE WATER-SUPPLY UNIT BASE

### Water-supply unit assembly – dimensions

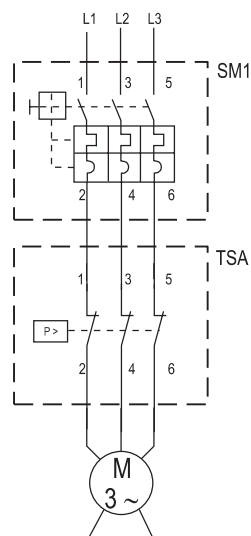
1



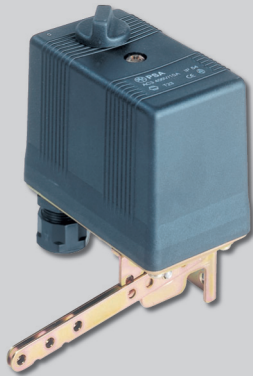
2



### Wiring diagram



## FLOAT SWITCHES PSA



- For switching especially of 3-phase electrical circuits (AC-3 10 A/ 400 V) in accordance with a change in fluid level.
- In conjunction with a pump, e.g., may be used to maintain fluid levels within a fixed range.
- Suitable for use in damp and wet environments (resistant to spraying water) and adequately protected against dust.
- Can save on need for additional switching element by using pressure switches with switching levers.
- Able to switch on electrical circuit at switching lever's lower position and turn off at upper position, or vice versa.


### Float switches

Model	Type	Product code	Weight [kg]	Packing [pcs]
Standard	<b>PSA3S</b>	08388	0.43	1
With switching lever	<b>PSA3P</b>	08389	0.43	1

### PSA accessories

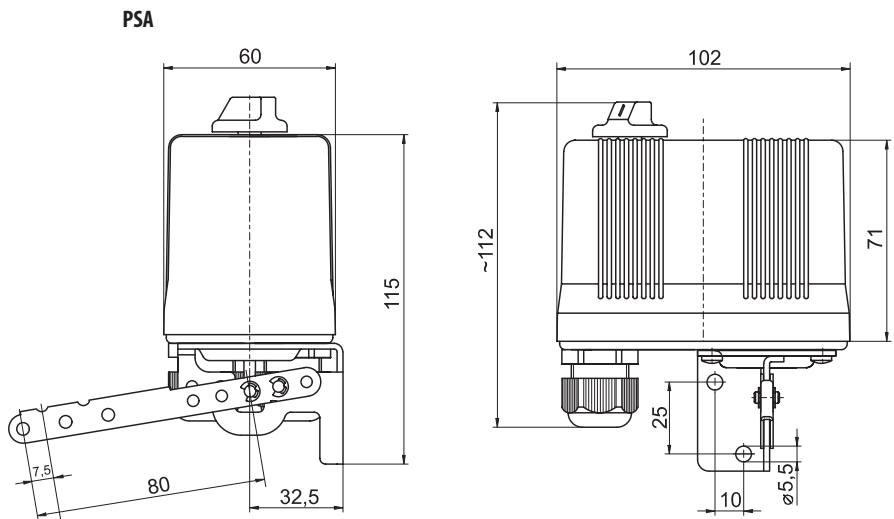
Mounting elements	<b>PPS</b>	page 12
-------------------	------------	---------

### Specification

Type	PSA		
Standards	EN 60 947-4-1		
Approval marks			
Main circuit (contact load)	arrangement <sup>1)</sup>	30 or 03	
	rated insulation voltage	$U_i$ 500 V a.c.	
	rated operating voltage	$U_e$ 400 V a.c.	
	A-3	rate current	$I_n$ 10 A
		switching capacity at 400 V a.c.	4 kW
		switching frequency	120 operations/hour
		electrical life	200,000 operations
	connection of	mechanical life	500,000 operations
		Cu conductors	1 ÷ 2.5 mm <sup>2</sup>
		cable – diameter	6 ÷ 12 mm
Other specifications	min. difference in fluid levels	30 mm	
	medium	type	Non-corrosive gasses and liquids
		temperature	0 ÷ 55 °C
	mounting	2 screws, 5 mm	
	degree of protection	IP54	
	ambient temperature	-10 to 55 °C	
	installation position	vertical	

<sup>1)</sup> Each numeral successively indicates number of make and break contacts; arrangement of contacts can be changed by adjusting position of switching lever's fulcrum.

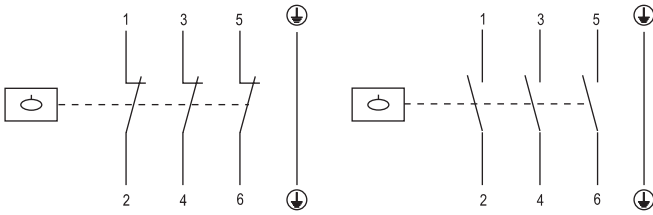
### Dimensions



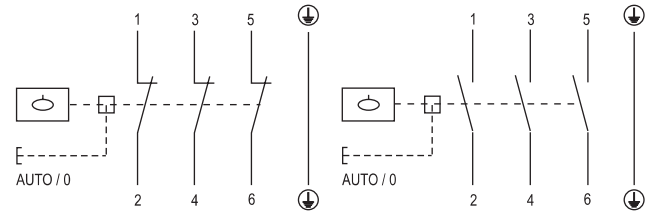
## FLOAT SWITCHES PSA

### Diagram

PSA3S...<sup>1)</sup>

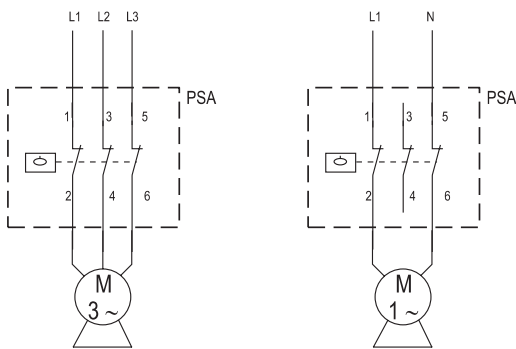


PSA3P...<sup>1)</sup>



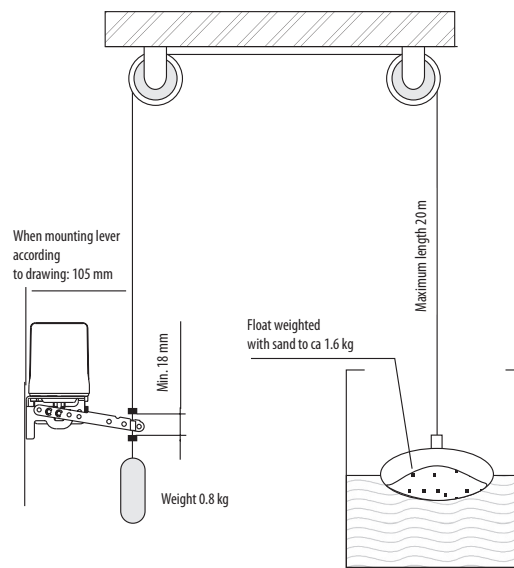
<sup>1)</sup> Arrangement of contacts can be changed with position of lever's fulcrum.

### Connection of single-phase and three-phase electric motors



### Installation with PPS accessories

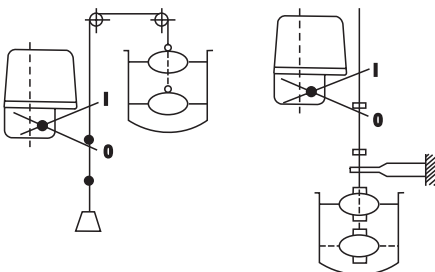
- Glass float can be substituted with, e.g., a plastic bottle.



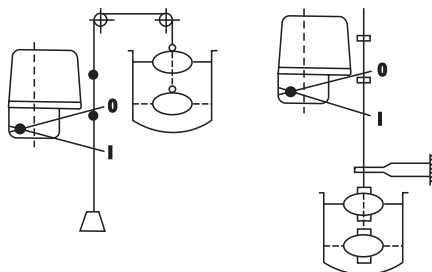
### Examples of use and installation

- Float switches switch electrical circuits in accordance with changes in fluid levels.
- Switching on and off can be set by adjusting position of switching lever's fulcrum.

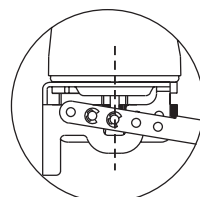
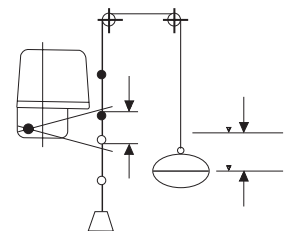
**1** Positioning switching lever sets switching on (I) to upper lever position and switching off (0) to lower position.



**2** Positioning switching lever sets switching on (I) to lower lever position and switching off (0) to upper position.

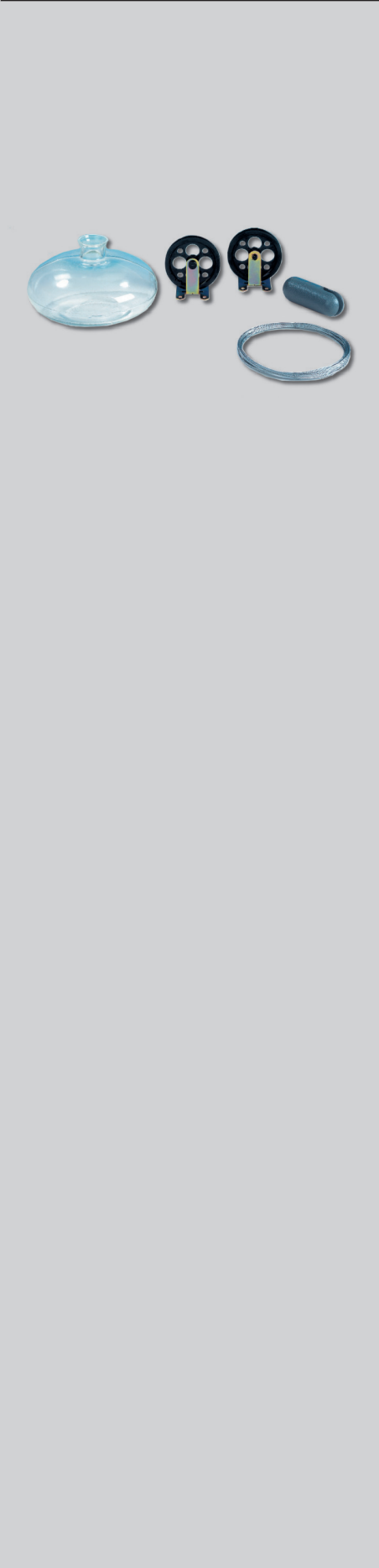


**3** Position of cable clips on cable determines magnitude of change in fluid level.



Detailed view of PSA switching lever fulcrum  
(position corresponds to fig. 2)

## MOUNTING ELEMENTS



- Accessories for: PSA
- Together with float switch, enable assembling functional part of a device for regulating fluid levels.
- One set contains: 208 mm glass float, 0.8 kg weight, 2 pulleys with brackets, 4 cable clips, fastener, cable in length of 5, 10, 15 or 20 m.

### Float switches

Cable length [m]	Type	Product code	Weight [kg]	Packing [pcs]
5	<b>PPS05</b>	00963	2.1	1
10	<b>PPS10</b>	00964	2.1	1
15	<b>PPS15</b>	00965	2.1	1
20	<b>PPS20</b>	00966	2.1	1

**■ OEZ s.r.o.**

Šedivská 339  
561 51 Letohrad  
Czech Republic  
tel.: +420 465 672 379  
fax: +420 465 672 398  
e-mail: [oeztrade.cz@oez.com](mailto:oeztrade.cz@oez.com)  
[www.oez.com](http://www.oez.com)

**■ OEZ s.r.o.**

Trade Office Prague  
Podnikatelská 547  
190 11 Prague 9  
Czech Republic  
tel.: +420 257 181 710  
fax: +420 257 181 717  
e-mail: [oeztrade.cz@oez.com](mailto:oeztrade.cz@oez.com)  
[www.oez.com](http://www.oez.com)

**OEZ**®

[WWW.OEZ.COM](http://WWW.OEZ.COM)

Any changes reserved