



FER
HYDRAULIK s.r.l.

PRESSOSTATI DRUCKSCHALTER PRESSURE SWITCHES



K7



K51

Esecuzione standard con vite di regolazione



K51 P

Esecuzione con pomolo di regolazione



Edition 01/2009



TECNICAL CATALOGUE



"K4" adjustable pressure switches permit opening or closing of an electric circuit upon reaching predetermined pressure value. The preset pressure is found by rotating the external screw located at the centre of the instrument clockwise to increase and vice-versa to decrease the pressure set point value. Mechanical stops protect both the spring and the micro-switch, from over pressurization. The main characteristic of this series is that this miniature pressure switch can be totally dismantled.

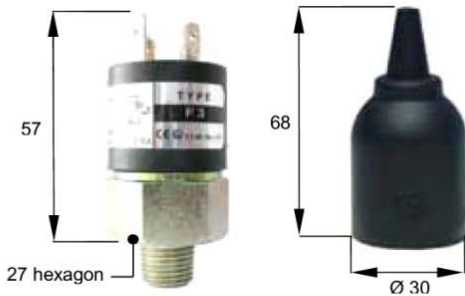
Technical features:

- Body:** 24 mm hexagonal in zinc-plated carbon steel
- Assembly:** in every position
- Working temperature:** from - 20°C to + 80°C
- Switching frequency:** 200 cycles/min
- Switching accuracy:** ± 5% of the pressure settled to 20°C
- Operating point:** adjustable through an external screw
- Fixed hysteresis value:**
 - membrane execution ~ 10% of the settled value
 - piston execution ~ 15% of the settled value
- Weight:** 0,06 Kg
- Mechanical life:** 10⁶ cycles at 70 bar (1000 psi) at 20°C
- Electric Features:**
 - Maximum load: 2 Ampère at 48 Volt AC
 - 1 Ampère at 48 Volt DC
 - (see dedicated page)
 - Electric protection according to DIN 40050: IP54 with P1 rubber cup protection
- Warranty:** see dedicated page
- Spare parts:** see dedicated page
- Also available:**
 - **K4X** with fluid connection port made in AISI 316 stainless steel
 - **K4L** body in brass
 - Seals in Viton, EPDM, PTFE



HOW TO ORDER

K4											
Switching pressure range	Execution	P Max	Type of electric contact	Type of Electric Connection	Hydraulic Connection	Body Material	Seal Type	Preset value	Condition	Protection Cap	
Bar		Bar						Bar			
R	0,2>2,5	Membrane	25	A Normally Open	F Fast-on 6.3 mm	0 1/8" BSP	X AISI316L	V VITON	Indicate the value if you want the pressure switch already preset in factory	D means down pressure setting	Accessory on request essential to protect the instrument from dirt, moisture and for to have the IP54 protection
S	1>12	Membrane	25			1 1/4" BSP					
SP	1>12	Piston	300	C Normally Closed	O Screw connection	2 1/8"BSPT	L BRASS	T PTFE	E EPDM		
T	5>50	Membrane	200			3 M10x1					
TP	5>50	Piston	300	4 1/8"NPT	If omitted means zinc plated	5 1/4"NPT	If omitted means zinc plated	U means up pressure setting			
V	10>100	Piston	300								
Z	20>200	Piston	300	6 1/4"BSPT							
Y	50>400	Piston	600								



Execution with P2 electric connection



Execution with M2 electric connection



Execution with M3 electric connection

"F3" adjustable pressure switches allow the commutation of a micro-switch with exchange contacts once a preset pressure value is reached. The preset pressure regulation is effected on the regulation knob inside the instrument and interceptable through a 2mm hexagonal key.

Technical Features

Body: 27 mm hexagonal in zinc-plated carbon steel

Assembly: in every position

Switching accuracy: $\pm 4\%$ of the pressure settled to 20°C

Fixed hysteresis value:

- membrane execution $\sim 10\%$ of the settled value
- piston execution $\sim 15\%$ of the settled value

Weight: 0,08 Kg:

Working temperature: from - 20°C to + 80°C

Operating point: adjustable through an internal screw

Switching frequency: 90 cycles/min

Mechanical life: 10^6 cycles at 70 bar (1000 psi) at 20°C

Electric features:

- Maximum load: 0.5 Ampère at 250 Volt AC
0.15 Ampère at 110 Volt DC (see dedicated page)
- Electric protection according to DIN40050:
IP65 for M2 and M3 execution
IP54 for P2 execution
- Electric contact according to DIN 43650
- Exchange contacts NO and NC

Warranty: see dedicated page

Spare parts: see dedicated page

Also available:

- F3X with fluid connection port made in AISI 316 stainless steel
- Seals in Viton, EPDM, PTFE
- Micro-switches with gold plated contact

CE Ex II 3 G/D EEx e T6



HOW TO ORDER

Type	Switching Pressure range Bar	Execution	P Max Bar	Hydraulic Connection	Body Material	Seal Type	Type of microswitch	Preset value Bar	Condition	Type of Electric Connection
F30	0.2>2.5	Membrane	10	$\frac{1}{4}$ " BSP Male	X AISI316L L BRASS if omitted means standard execution	V VITON T PTFE E EPDM If omitted means NBR	G Gold plated contacts if omitted means standard contacts	Indicate the value if you want the pressure switch already preset in factory	D means down pressure setting U means up pressure setting	P2 fast-on 6.3 mm and rubber cup protection M2 16x16 connector M3 30x30 connector
F31	1>10	Membrane	25							
F33	5>50	Piston	300							
F35	10>100	Piston	300							
F37	30>250	Piston	300							
F39	100>400	piston	600							

ADJUSTABLE PRESSURE SWITCH SERIE F3S



Execution with P2 electric connection



Execution with M2 electric connection



Execution with M3 electric connection

"F3S" adjustable pressure switches allow the commutation of a micro-switch with exchange contacts once a preset pressure value is reached. The preset pressure regulation is effected on the regulation knob inside the instrument and interceptable through a 2mm hexagonal key. The **"F3S"** execution is provided with a bigger diameter membrane that allows an excellent working operation at low pressure.

Technical Features

- Body:** 40x40mm square in anodized aluminium
- Assembly:** in every position
- Switching accuracy:** $\pm 3\%$ of the pressure settled to 20°C
- Fixed hysteresis value:** $\sim 7\%$ of the settled value
- Weight:** 0,1 Kg:
- Working temperature:** from - 20°C to + 80°C
- Operating point:** adjustable through an internal screw
- Switching frequency:** 90 cycles/min
- Mechanical life:** 10^6 cycles at 70 bar (1000 psi) at 20°C

Electric features:

- Maximum load: 0.5 Ampère at 250 Volt AC
0.15 Ampère at 110 Volt DC (see LED page)
- Electric protection according to DIN40050:
IP65 for M2 and M3 execution
IP54 for P2 execution
- Electric contact according to DIN 43650
- Exchange contacts NA and NC

Warranty: see dedicated page

Spare parts: see dedicated page

Also available:

- **F3SX** with fluid connection port made in AISI 316L stainless steel
- Seals in Viton, EPDM, PTFE
- Micro-switches with gold plated contact

CE Ex II 3 G/D EEx e T6



HOW TO ORDER

F3S.										
Type	Switching Pressure range	Execution	P Max	Hydraulic Connection	Body Material	Seal Type	Type of microswitch	Preset value	Condition	Type of Electric Connection
	Bar		Bar					Bar		
F3S1	0.05>0.5	Membrane	10	$\frac{1}{4}$ " BSP Female	X AISI316L	V VITON	G Gold plated contacts	Indicate the value if you want the pressure switch already preset in factory	D means down pressure setting	P2 fast-on 6.3 mm and rubber cup protection
F3S2	0.1>1	Membrane	10		P PVC	T PTFE				
F3S3	0.5>5	Membrane	15		if omitted means standard execution	E EPDM	if omitted means standard contacts			
F3S4	1>10	Membrane	15		if omitted means NBR	U means up pressure setting				
									M3 30x30 connector	

ADJUSTABLE PRESSURE SWITCH - K6 - KR6 SERIES

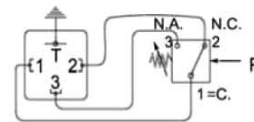


Adjustable electro-mechanical pressure switch, with exchange contacts, suitable for application where it is not necessary to modify frequently the intervention point. The regulation screw, interceptable with a 2mm hexagonal key in the executions KR6 and K6/M3, is situated inside the instrument, protected by an upper cap or a connector against accidental manumissions. Concerning the execution K6/M12, the intervention point can be pre-settled in factory, following the request of the Customer, or in alternative the Customer can adjust the value removing the four screws on the top of the instrument.

Technical features:

- Body:** 30x30 mm square in nickel-plated brass
- Assembly:** in every position
- Working temperature:** from - 20°C to + 80°C
- Switching frequency:** 90 cycles/min
- Switching accuracy:** ± 4% of the pressure settled to 20°C
- Operating point:** adjustable through an internal screw protected by a cap
- Fixed hysteresis value:**
 - membrane execution ~ 10% of the settled value
 - piston execution ~ 14% of the settled value
- Weight:** 0,00 stone 0,40 libbre
- Electric connection type:** 30x30 connector or M12x1 connector
- Mechanical life:** 10⁶ cycles at 70 bar 20°C
- Electric Features:**
 - Maximum load: 0.5 Ampère at 250 Volt AC
0.15 Ampère at 110 Volt DC (see dedicated page)
 - Exchange contacts NA and NC
 - Electric connection according to: DIN 43650 for the M3 execution
IEC60947-5-2 for the M12 execution
 - Electric protection according to DIN 40050: IP65
- Warranty:** see dedicated page
- Spare parts:** see dedicated page
- Also available:**
 - Seals in Viton, EPDM, PTFE
 - Microswitches with gold plated contacts (instead of silver-plated as in the standard execution)

CE Ex II 3 G/D EEx eT6



HOW TO ORDER

K...		/		/		/		...	
Type	Switching Pressure Range	Execution	P Max	Hydraulic Connection	Seal Type	Microswitches Type	Preset Value	Conditions	Electric connection
	Bar		Bar	Only			Bar		
K60	KR60	0.2 > 2	Membrane	25	1/4" BSPT male	V VITON	Indicate the value if needed	D means down pressure setting	M3 30x30 connector
K61	KR61	1 > 15	Membrane	25		T PTFE			
K63	KR63	4 > 40	Piston	200		E EPDM			
K64	KR64	15 > 150	Piston	300		if omitted means silver plated contacts			
K65	KR65	25 > 250	Piston	300		if omitted means NBR			
								U means up pressure setting	M12 M12 connector

"K7" adjustable pressure switches allow the commutation of a micro-switch with exchange contact. The preset pressure is adjustable through a regulated screw put inside the instrument and protected by an external closure plug. Of compact and economical construction, the "K7" pressure switch is suitable for systems not requiring a constant alteration of the operating point, conversely, the possibility to block the protection plug can avoid unwanted or unintentional changes of the same value.

Mechanical stops protect both the spring and the microswitch from over pressurization

Technical features:

Body: 36 mm hexagonal in zinc-plated carbon steel

Assembly: in every position

Protection cap : in nylon charged with fiber glass

Operating point: adjustable through an internal screw protected by a security cap

Working temperature: from - 20°C to + 80°C

Switching frequency: 120 cycles/min

Switching accuracy: ± 3% of the pressure settled to 20°C

Fixed hysteresis value: ~ 15% of the settled value

Weight: 0,2 Kg

Mechanical life: 10⁶ cycles at 70 bar (1000 psi) at 20°C

Electric Features:

- Maximum load: 5 Ampère at 250 Volt AC
0.25 Ampère a 125 Volt DC (see dedicated page)
- Exchange contacts NO and NC
- Electric connection according to DIN 43650
- Electric protection according to DIN 40050: IP65

Warranty: see dedicated page

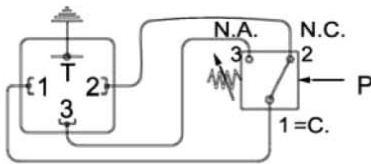
Spare parts: see dedicated page

Also available:

- **K7X** with fluid connection port in AISI 316 stainless steel
- Seals in Viton, EPDM, PTFE
- Micro switches with gold plated contacts (instead of silver-plated as in the standard execution)
- Adaptor type K7RID for flange fixing (see adaptors page)
- Electric connector with light signal of insertion



K7



II 3 G/D EEx eT6

HOW TO ORDER

HOW TO ORDER										
K7.										
Type	Switching pressure range	Execution	P max	Hydraulic Connection	Body Material	Seal Type	Microswitches Type	Preset value	Condition	Electric connection
	Bar		Bar	Only				Bar		
K71	1 > 12	Membrane	25	1/4" BSP male	X AISI316L	V VITON	G Gold plated contacts	Indicate the value if you want the pressure switch already preset in factory	D means down pressure setting	M4 Electric connector with light signal of insertion
K73	5 > 50	Piston	300		If omitted means tropicalized carbon steel	T PTFE				
K75	15 > 150	Piston	350			If omitted means NBR	E EPDM			
K77	30 > 300	Piston	400		U means up pressure setting		If omitted means standard connector			

K9 standard execution:



Also available with micro-switch in according to **ATEX II 2G EEx dIIC T6** standard:



“K9” adjustable pressure switches activate a microswitch once a preset pressure value is reached. The preset pressure is set by rotating the external nut clockwise to increase and vice-versa to decrease the value. The nut is supplied with a locking device to stop the instrument once the pressure value is reached. Mechanical stops protect both the spring and the microswitch from over-pressurization.

Technical features

Body: 32 mm hexagonal in zinc-plated carbon steel

Metal ring: Ø 40 mm in anodised aluminium

Assembly: in every position

Working temperature: from - 20°C to + 80°C

Switching frequency: 120 cycles/min

Operating point: adjustable through an external metal ring

Switching accuracy: ± 2% of the pressure settled to 20°C

Fixed hysteresis value: ~ 15% of the settled value

Weight: 0,4 Kg

Mechanical life: 10⁶ cycles at 70 bar (1000 psi) at 20°C

Electric Features:

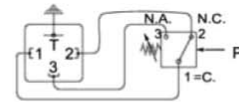
- Maximum load: 5 Ampère at 250 Volt AC
0.25 Ampère at 125 Volt DC (see dedicated page)
- Exchange contacts NO and NC
- Electric connection according to DIN 43650
- Electric protection according to DIN 40050: IP65

Warranty: see dedicated page

Spare parts: see dedicated page

Also available:

- Seals in Viton
- Micro switches with gold plated contacts (instead of silver-plated as in the standard execution)
- Adaptor type K7RID for flange fixing (see adaptors page)



HOW TO ORDER

HOW TO ORDER									
<u>K9.</u>			/						
Type	Switching pressure range	Execution	P Max	Seal Type	Hydraulic Connection	Microswitches Type	Preset value	Condition	
	Bar		Bar		Only		Bar		
K93	2 > 40	Piston	200	V VITON	1/4" BSP male	G Gold plated contacts	Indicate the value if you want the pressure switch already preset in factory	D means down pressure setting	
K94	5 > 100	Piston	300						
K95	20 > 200	Piston	400	E EPDM		if omitted means standard contacts			U means up pressure setting
K97	30 > 300	Piston	600						
K99	40 > 400	Piston	600						



F5



F5--P

"F5" pressure switches activate a microswitch once a preset pressure value is reached. The preset pressure, in the standard execution, is set by rotating the internal screw located at the center of the instrument. The internal screw is accessible by removal of the protection cap, screwing clockwise allow to increase and vice-versa to decrease the value. In the "F5-P" execution is necessary to rotate the regulation knob on the top of the instrument. Mechanical stops protect both the spring and microswitch from over pressurization.

With a compact and economical construction, the F5 is suitable for system not requiring a constant alteration of the operating set, conversely, the possibility to lock the protection plug can avoid unwanted or unintentional changes of the same value.

Technical features:

Body: 30x30 mm square in anodised aluminium

Assembly: in every position

Working temperature: from - 20°C to + 80°C

Switching frequency: 120 cycles/min

Operating point: adjustable through an internal screw protected by a safety cap

Switching accuracy: ± 3% of the end of scale at 20°C

Fixed hysteresis value: ~ 15% of the end of scale at 20°C

Weight: 0,15 Kg

Mechanical life: 10⁶ cycles at 70 bar at 20°C

Electric Features:

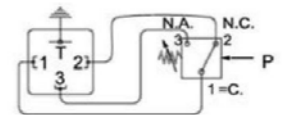
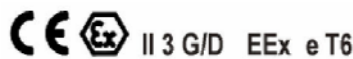
- Maximum load: 5 Ampère at 250 Volt AC
0.1 Ampère at 250 volt DC (see dedicated page)
- Exchange contacts NO and NC
- Electric connection according to DIN 43650
- Electric protection according to DIN 40050: IP65

Warranty: see dedicated page

Spare parts: see dedicated page

Also available:

- Seals in Viton
- Micro switches with gold plated contacts (instead of silver-plated as in the standard execution)
- Connector M12 according to IEC60947-5-2
- Electric connector M4 with light signal of insertion



HOW TO ORDER

Type	Switching Pressure Range	Execution	P max	Hydraulic Connection	Seal Type	Type of Microswitches	Preset Value	Condition	Type of Execution	Electric Connection
	Bar		Bar	Unica			Bar			
F53	5 > 50	Piston	300	1/4" BSP female	V VITON	G Gold plated contacts	Indicate the value if you want the pressure switch already preset in factory	D means falling pressure setting	P execution with adjustable knob	M4 Electric connector with light signal of insertion
F55	15 > 150	Piston	350		if omitted means NBR	if omitted means standard contacts		U means rising pressure setting	If omitted means standard version	M12 Connector M12x1
F57	30 > 300	Piston	400		If omitted means standard connector					



K5

Standard with regulation screw



K5 P

Execution with regulation knob

"K5" adjustable pressure switches activate a microswitch once preset value is reached. The pressure is set by rotating a graduated knob or, for the economical version, by a setscrew located on top of the unit. Both systems are supplied with a device permits locking the desired set pressure. Mechanical stops protect both the spring and the microswitch from over pressurization.

Technical Features:

- Body :** square 40x40mm in anodized aluminium
- Assembly:** in every position with 1/4" BSPF threaded port or Cetop flanged without needs adaptors
- Working temperature:** from - 20°C to + 80°C
- Switching frequency:** 120 cycles/min
- Switching accuracy:** ± 2% of the pressure settled to 20°C
- Fixed hysteresis value:** ~ 15% of the preset value
- Weight:** 0,35 Kg
- Mechanical life:** 10⁶ cycles at 70 bar at 20°C

Electric Features:

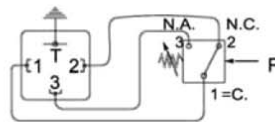
- Maximum load: 5 Ampère at 250 Volt AC
0.25 Ampère at 125 Volt DC (see dedicated page)
- Exchange contact NO and NC
- Electric connection according to DIN 43650
- Electric protection according to DIN 40050: IP65

Warranty: see dedicated page

Spare parts: see dedicated page

Also available :

- Seal in Viton
- Microswitch with gold plated contact
- Cetop modular manifold type "B6" and "B10" for attachment to electrovalves Cetop 3 and 5 (see adapters page)
- Electric connector with light signal of insertion



CE Ex II 3 G/D EEx e T6

HOW TO ORDER

HOW TO ORDER										
Type	Switching pressure range	Execution	P Max	Hydraulic connection	Seal Type	Type of Microswitch	Preset value	Condition	Type of Execution	Type of electric connection
	Bar		Bar	Only			Bar			
K53	2 > 40	Piston	200	1/4" BSP female or connection to a Cetop panel without any adaptors	V VITON	G Gold plated contact	Indicate the value if you want the pressure switch already preset in factory	D means down pressure setting U means up pressure setting	P execution with adjustable knob	M4 Connector with light signal of insertion
K54	5 > 100	Piston	300							
K55	20 > 200	Piston	400							
K57	30 > 300	Piston	500							
K59	40 > 400	Piston	600							
					If omitted means PTFE	If omitted means standard contacts			If omitted means standard version	If omitted means standard connector

Technical features B6 and B10:

Material: anodised aluminium

Maximum working pressure: 350 bar

Standard equipment:

- screws to fix the pressure switch
- dowel to close the pressure ports not in use
- O-ring for seal

Dimension:

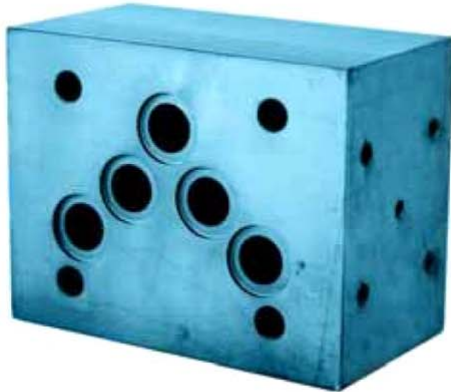
- B6 70 x 45 x 44 mm
- B10 90 x 70 x 50 mm

Weight:

- B6 0.37 Kg
- B10 0.8 Kg



B6



B10

Manifolds for the modular connection to the electrovalves CETOP 3 or 5 for the K5 series

Technical features K7RID:

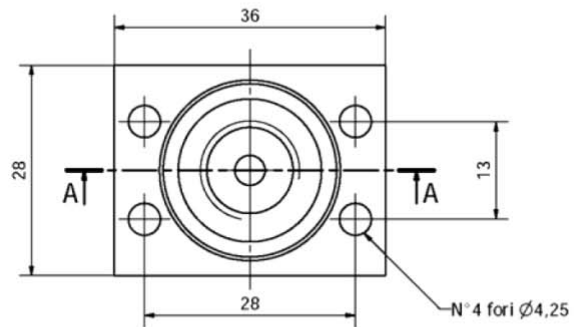
Material: zinc-plated carbon steel

Maximum working pressure: 350 bar

Standard equipment:

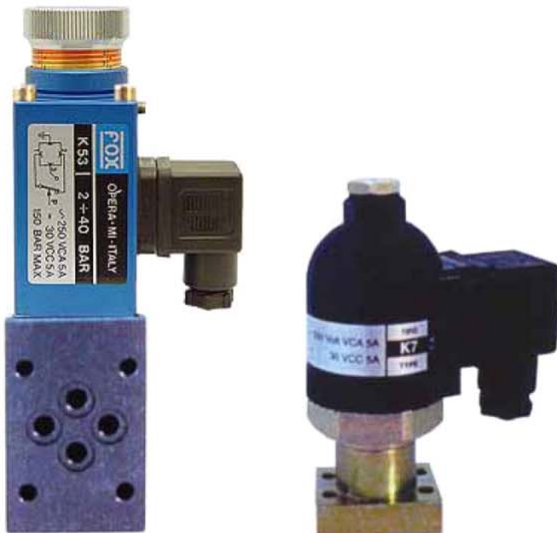
- socket head screws M4x16
- O-ring for seal

Weight: 0.07 Kg



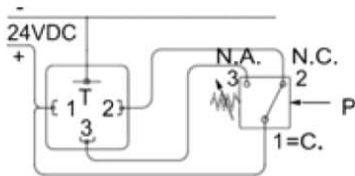
K7RID

Adaptor for K7 and K9





X5



“X5” electronic pressure switches permit the actuation of an electronic micro-switch upon reaching a value of pressure predetermined and to the regulation of the hysteresis value. The operating point of minimum and maximum pressure is found working on two trimmer put on the top of the instrument, protected by a plug -rotating it in hourly sense the point of intervention is increased and vice versa it decreases. The instrument, totally solid state, is completely deprived of electromechanical or dynamic parts

Technical features:

Body: 30x30 mm square in anodised aluminium

Assembly: in every position

Maximum dimension

(L =width max, H =height max): L 70mm x H 100mm

Fluid connection port: in AISI 316L stainless steel with ceramic sensor and incorporate seal in NBR

Working temperature: from - 20°C to + 70°C

Switching frequency: 120 cycles/min

Operating point: adjustable through an internal potentiometer protected by a safety cap

Switching accuracy: ± 1,5% of the pressure settled to 20°C

Hysteresis value: adjustable gap between 2% and 45% of the preset value

Weight: 0,2 Kg

Mechanical life: 5x10⁶ cycles at 20°C

Electric Features:

- Maximum load: 1 Ampère at 24 Volts DC (see dedicated page)
- Exchange contacts NO and NC
- Electric connection according to DIN 43650
- Electric protection according to DIN 40050: IP65
- Standard power supply: 24 VDC (on request 12 VDC)
- Medium consumption: 20 mA

Warranty: see dedicated page

Spare parts: see dedicated page

Also available:

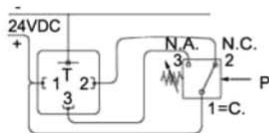
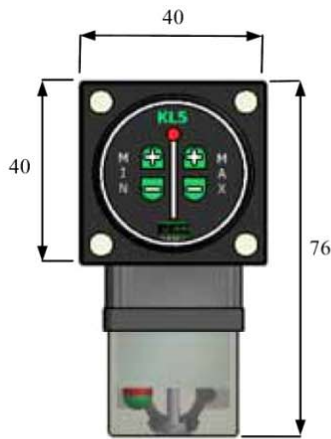
- **M4** execution with electric connectors with light signal of insertion

HOW TO ORDER

Type	Switching pressure range	P max	Hydraulic Connection	Max. Pressure Preset value	Min. Pressure Preset value	Type of execution	Type of Electric Connection
	Bar	Bar	Only	Bar	Bar		
X50	0.15 > 2	7	1/4" BSP female	Indicate the value if you want the pressure switch already preset in factory	Indicate the value if you want the pressure switch already preset in factory	12V special execution if omitted means standard execution	M4 Electric connector with light signal of insertion If omitted means standard connector
X51	2 > 15	50					
X53	5 > 45	200					
X55	10 > 160	350					
X57	30 > 360	500					
X59	70 > 500	600					



KL5



“KL5” electronic pressure switches permit the actuation of an electronic micro-switch upon reaching a predetermined pressure setting and to the continuous regulation of the hysteresis value. The right hand lever mounted on the instrument that is rotated forward to increase and reverse to decrease controls the maximum set point. The minimum set point of pressure hysteresis is adjustable by rotating the left hand lever of the instrument. The instrument completely solid state, it is totally without electromechanical or dynamic parts.

Technical features:

- Body:** in anodised aluminium
- Fluid connection port:** in AISI 316L stainless steel
- Assembly:** in every position
- Maximum dimension (L =width max, H =height max):** L 76mm x H 81mm
- Working temperature:** from - 20°C to + 80°C
- Switching frequency:** 200 cycles/min
- Switching accuracy:** ± 1% of the pressure settled to 20°C
- Hysteresis value:** adjustable gap between the 2% and the 95% of the settled value
- Weight:** 0,3 Kg
- Mechanical life:** 10x10⁶ cycles at 20°C
- Electric Features:**
 - Standard power supply: 24 V DC +/-10% (on request 12 V DC)
 - Electric connection according to DIN 43650
 - Electric protection according to DIN 40050: IP65
 - Maximum contact load: 2 Ampère at 24 Volts DC
 - Medium consumption : 20 mA
 - Involatile memory: EEPROM
- Warranty:** see dedicated page
- Spare parts:** see dedicated page
- On request:** execution for working pressure until 700 bar with regulatione range -1>0 bar



HOW TO ORDER						
KL5. / 1 / 2 / 3						
Type	Switching pressure range Bar	P max Bar	Hydraulic Connection Unica	P max Preset value Bar	P min Preset value Bar	Type of execution
KL50	0 > 4	15	1/4" BSP female or connection to a Cetop panel without any adaptors	Indicate the value if you want the pressure switch already preset in factory	Indicate the value if you want the pressure switch already preset in factory	12V special execution M12 with M12x1 electric connection if omitted means standard execution
KL52	0 > 20	50				
KL55	10 > 200	500				
KL59	0 > 400	600				

“KLV5” electronic pressure switches permit the regulation of n.2 operating point with adjustable hysteresis. Simple and intuitive in the programming, the KLV5 is equipped by rotating display and hydraulic connection that permit to set easily the connector M12x1 in the most suitable position. It permit also a perfectly visibility of the display in every application. It is possible to activate a password protection to provide protection from unauthorised program modifications.

Technical features:

Body: in stainless steel

Fluid connection port: in stainless steel with ceramic sensor and incorporate NBR seal

Assembly: in every position

Maximum dimension

(L =width max, H =height max): L 60 mm x H 93 mm

Display: n° 4 digits of 7.6 mm

Working temperature: from - 20°C to + 80°C

Switching frequency: 200 cycles/min

Switching accuracy: 0.5% of the final value

Range of the adjustment: from 1% to 100% of the end of scale value

Hysteresis value: adjustable gap between 1% and 100% of the settled value

Weight: 0,35 Kg

Mechanical life: 10x10⁶ cycles at 20°C

Electric Features:

- Power supply: 12 > 30 VDC
- Electric connection M12x1 (4pin)
- Electric protection according to CEI EN 60529:IP65
- Maximum contact load: 0.5 Ampère at 24 Volts DC
- Medium consumption: <50 mA, without load current
- Interference emission and interference immunity according to EN 61.326
- protected against overvoltage and pole reversal

Warranty: see dedicated page

Spare parts: see dedicated page

Operative instruction : see dedicated page

Note : M12 connector not include



27 hexagon

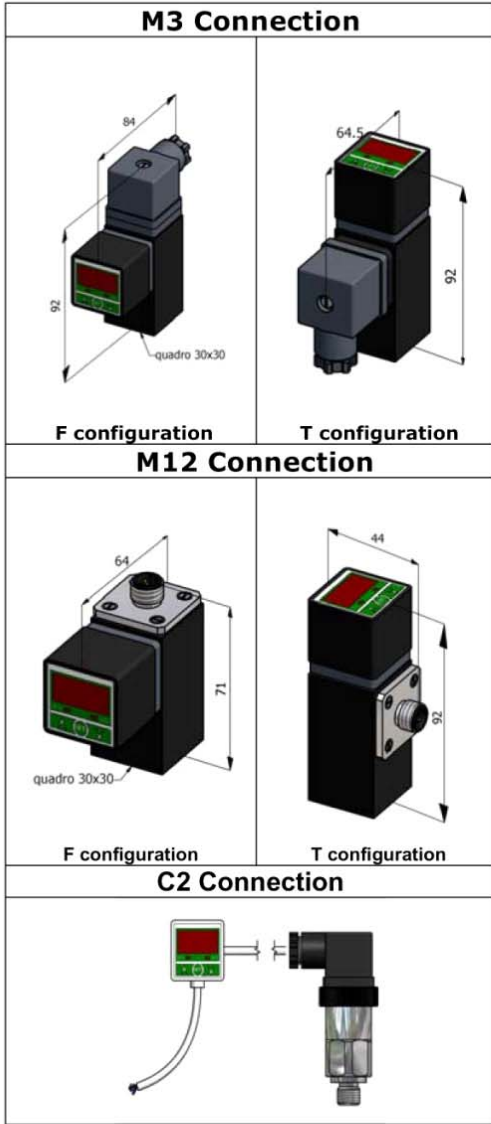
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KLV5

II 3 G/D EEx e T6

HOW TO ORDER

HOW TO ORDER							
Type	Switching pressure range	P max	Hydraulic Connection	Max P1 Preset value	Min.P1 preset value	Max P2 Preset value	Min.P2 preset value
	Bar	Bar	Only	Bar	Bar	Bar	Bar
KLV52	0 > 20	40	1/4" BSP male with seal according to DIN 3852-E	Indicate the value if you want the pressure switch already preset in factory	Indicate the value if you want the pressure switch already preset in factory a	Indicate the value if you want the pressure switch already preset in factory	Indicate the value if you want the pressure switch already preset in factory
KLV54	0 > 160	320					
KLV59	0 > 400	800					



Technical Features:

- Body:** square 30x30 in anodized aluminium
- Spare parts:** see dedicated page
- Contact fluid parts :** in nickel plated brass or on demand in AISI316L
- Mounting position:** in every position
- Working temperature:** from - 20°C to + 70°C
- Switching accuracy:** < ± 2% F.S ± 1 digit (a 20°C)
- Hysteresis value:** adjustable between 2% and 45% of setting pressure or automatically settled at 3% of the end scale
- Zero thermal drift:** < 3% of end scale from 0 °C to + 70 °C
- Weight:** 0.3 Kg
- Mechanical life:** 2x10⁶ cycles at 20°C
- Electric features:**
 - Standard power supply: 12-24 VDC
 - Electric connection in accordance with DIN 43650 for M3 connector
 - in accordance with IEC 60947-5-2 for M12 connection
 - Electric connection in according to: CEI EN 60529: IP 65
 - Stocking temperature : from - 25 °C to + 90 °C
 - Input impedance: 100 Ohm
- Warranty:** see dedicated page
- Note:** connector M12 female not included



M12

ELECTRIC CONNECTION			
Execution	M3	C2	M12
Power Supply	12-24 VDC	12-24 VDC	24V
Alimentation +	Pin 1	MARRONE	Pin 1
GND	Pin T	BLU	Pin 3
OUT1 PNP 80mA	Pin 2	NERO	Pin 4
OUT2 PNP 80mA	Pin 3	BIANCO	Pin 2

IMPORTANT : for C2 execution connect the transducer before connect power supply of FL5 instrument

HOW TO ORDER

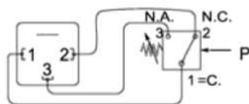
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Type	Regulation Range	P max	Hydraulic connection	OUT1		OUT2		Type of connection	Configuration
				Preset Pmax	Preset Pmin	Preset Pmax	Preset Pmin		
	Bar	Bar	Standard	Bar		Bar			
FL50.1	0 > 2	7.5	¼"BSP Female (M3 – M12)	Indicate the value if needed	Indicate the value if needed	Indicate the value if needed	Indicate the value if needed	C2 With 2 mt. of wire M3 30x30 connector M12 12X1 connector	F Display in front of instrument T Display in top of instrument
FL50	0 > 5	12							
FL51	0 > 10	25							
FL52	0 > 20	50							
FL54	0 > 100	200	¼"BSP Male (C2)	Indicate the value if needed	Indicate the value if needed	Indicate the value if needed	Indicate the value if needed	C2 With 2 mt. of wire M3 30x30 connector M12 12X1 connector	F Display in front of instrument T Display in top of instrument
FL55	0 > 160	400							
FL59	0 > 400	600							

"KZ2" piston type differential pressure switches allow a micro-switch actuation upon reaching of a value between two pressures. The switch point is reached by sliding the DIN-housing forward to increase the differential ration and backward to decrease the different pressure value. It can work with different types of fluids and gas without presence of dirty or impurities. We recommend the use of filters before the instrument. The hydraulic connections provide n.2 input in-line for the high and low pressure. Mechanical stops protect the instrument from over pressurization and inversions of the pressures values.



KZ2



Technical features:

- Body:** 30x30mm square in anodised aluminium
- Assembly:** in every position
- Maximum dimension (L =width max, H =height max):** L 65mm x H 90mm
- Hydraulic connections:** ½" BSP female
- Working temperature:** from - 20°C to + 80°C
- Switching frequency:** 60 cycles/min
- Switching accuracy:** ± 5% of the pressure settled to 20 °C
- Fixed hysteresis value:** ~ 20% of the maximum working pressure
- Weight:** 0,25 Kg
- Mechanical life:** 10⁶ cycles at 20°C

Electric Features:

- Electric connection: according to DIN 43650
- Electric protection: according to DIN 40050: IP65
- Exchange electric connections
- Maximum load on the electric contacts:
 - alternate current until 48 Volt – 1 Ampère
 - direct current until 48 Volt – 0.5 Ampère

Warranty: see dedicated page

Spare parts: see dedicated page

Also available:

- **KZ2X** with body in AISI316L stainless steel
- Seals in Viton, PTFE

HOW TO ORDER

HOW TO ORDER							
<u>KZ2.</u>			/				
Type	Working range	Differential adjustment range P2 (max) – P1 (min)	P max	Body Material	Hydraulic connection	Differential setting	Condition
	Bar	Bar	Bar		Only	Bar	
KZ21	1.5 > 5	1 – 2	200	X AISI316L L BRASS If omitted means anodised aluminium	½" BSP female	Indicate the value if you want the pressure switch already preset in factory	D means down pressure setting U means up pressure setting
KZ23	3 > 10	2 – 4	200				
KZ25	10>30	3 – 7	200				
KZ27	20>50	4 – 8	200				



Electric connection P2



Electric connection M2



Electric connection M3

"W3" adjustable vacuum switches allow a micro-switch commutation once a preset vacuum value is reached. The operating point is found by adjusting the external screw located at the center of the instrument, rotating the screw clockwise to decrease and vice-versa to increase the value. Mechanical stops protect both the spring and the micro-switch from over pressurization.

Technical Features :

Body : 40x40mm square in anodized aluminium

Assembly: in every position

Maximum dimension (L =width max, H =height max):

- P2 execution: L 55mm x H 72 mm
- M2 execution: L 65mm x H 75 mm
- M3 execution: L 55mm x H 85mm

Hydraulic connection : ¼" BSP female

Working temperature: from -20° C to + 80°C

Switching frequency: 90 cycles/min

Switching accuracy: ± 7% of the pressure settled to 20° C

Fixed hysteresis value: ~ 15% of the settled value

Weight: 0.1 Kg

Mechanical life: 10⁶ cycles at 20°C

Electric Features:

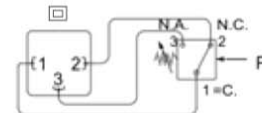
- Electric connection according to DIN 43650
- Electric protection according to DIN 40050: IP54
- Exchange electrical contact
- Maximum load on the electric contacts:
 - alternate current to 125 Volt – 3 Ampère
 - direct current to 125 Volt – 0.25 Ampère

Warranty: see dedicated page

Spare parts: see dedicated page

Also Available :

- **W3X** with body in AISI 316 stainless steel
- Seals in Viton, PTFE



HOW TO ORDER

HOW TO ORDER								
Type	Switching pressure range	P max	Hydraulic connection	Body material	Seal type	Preset	Conditions	Type of Electric Connection
	Bar	Bar	Only			Bar		
W31	- 0.05 > - 0.5	10	¼" BSP female	X AISI316L	V VITON	Indicate the value if you want the pressure switch already preset in factory	D means down pressure setting	P2 Fast-on connection
W32	- 0.15 > - 0.8	10		if omitted means anodized aluminium	T PTFE			if omitted means NBR
								M3 connector 30x30

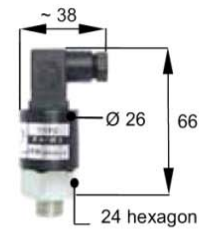
Execution with P2 electric connection



Execution with P3 electric connection



Execution with M2 electric connection



Execution with M3 electric connection



"WF4" adjustable vacuum switches allow a micro-switch commutation once a preset pressure value is reached. Working on the central screw in the P2 execution or intercepting the regulator dowel put inside the instrument using a 2mm hexagonal screw, rotating the operating point in hourly sense to increase and vice-versa to decrease. Mechanical stops protect both the spring and the micro-switch from over pressurization.

Technical features:

Body: 24 mm hexagonal in zinc-plated carbon steel

Assembly: in every position

Working temperature: from - 25°C to + 85°C

Switching frequency: 90 cycles/min

Switching accuracy: ± 4% of the pressure settled to 20°C

Operating point: adjustable through an internal screw

Fixed hysteresis value:
~ 15% of the settled value

Weight: 0,05 Kg

Mechanical life: 10⁶ cycles at 70 bar (1000 psi) at 20°C

Electric Features:

- Maximum load: 0.5 Ampère at 250 Volt AC (see dedicated page)
- Exchange contacts NO and NC
- Electric connection according to DIN 43650 for M2 and M3
- Electric protection according to DIN 40050:
 - IP65 for M2/M3 execution
 - IP54 for P2 and P3 execution

Warranty: see dedicated page

Spare parts: see dedicated page

Also available:

- **F4X** with fluid connection port made in AISI 316 stainless steel
- Seals in Viton, PTFE



II 3 G/D EEx e T6

HOW TO ORDER

WF4											
Type	Regulation range	P Max	Body material	Hydraulic Connection	Type of Seal	Type of microswitch	Preset Value	Condition	Type of Electric Connection	Protection Cup	
WF4	-0.15>-0.8	10	X AISI316L if omitted means body in brass	1 ¼" BSP 2 ⅛"BSPT	V VITON T PTFE if omitted means NBR	G Golden Contact If omitted means standard contact	Indicate the value if you want the pressure switch already preset in factory	D means down pressure setting U means up pressure setting	P2 Connection with screw P3 Connection with Fast-on M2 16x16 connector M3 30x30 connector	P1 Rubber cup protection only on request necessary to protect the instrument from dirt and moisture (only for P2 and P3 execution)	

SERIES	ELECTRIC CONNECTION	ELECTRIC PROTECTION	COMMUTATION TYPE
Legend	Connector referred to the according to DIN 43650	According to CEI EN 60529	Micro-switch with exchange electric contact NO and NC
K4	Fast-on da 6,3mm	IP 54 if installed with protection cap	Simple mechanical contact NO o NC Max. AC 48V – 2A Max. DC 48V – 1A
	Screw ends.		
F4	Screw ends	IP 54 if installed with protection cap	Micro-switch MN-S3
	Connector 16x16	IP 65	
	Connector 30x30		
F3-F3S	Fast-on of 6,3mm	IP 54 if installed with protection cap	Micro-switch MN-S3
	Connector 30x30	IP 65	
KR6	Connector 30x30	IP 65	Micro-switch MN-S3
K7	Connector 30x30	IP 65	Micro-switch MB-A3
K9	Connector 30x30	IP 65	Micro-switch MB-A3
F5	Connector 30x30	IP 65	Micro-switch MB-A3
K5	Connector 30x30	IP 65	Micro-switch MB-A3

SPARE PARTS:	
	M2 CONNECTOR TYPE
	M3 CONNECTOR TYPE
	M4 CONNECTOR TYPE <i>With led lighting</i>
	M5 CONNECTOR TYPE
	B2 CONTACT TYPE
	B3 CONTACT TYPE
	MICRO-SWITCH MB-A3: <i>F5, K5, K7, K9, W3</i>
	MICROSWITCH MN-S3: <i>F4, F3, F3S, KR6</i>

Electric connection of all series without pressure:

Pin n°1 – comune
 Pin n°2 – NC
 Pin n°3 – NO

Note* The micro-switches are warranted by the constructor for 1.000.000 of life cycles without electric load on contacts.
 When electric load increase the number of life cycles decrease.

MICRO-SWITCH ELECTRIC FEATURES						
	MB-A3	MN-S3	MB-A3	MN-S3	MB-A3	MN-S3
Voltage	Resistite load		Incandescend lamp load		Inductive load	
Volt	Ampère		Ampère		Ampère	
DC						
30	5	3	2	1	3	1
50	1	0,6	0,4	0,2	1	0,6
75	0,75		0,3	0,15	0,75	0,4
125	0,5	0,25	0,2	0,1	0,03	0,002
250	0,25	0,01	0,1	0,05	0,03	0,001
AC						
125	5	3	0,5	0,3	5	3
250	5	0,5	0,5	0,05	5	0,5