

FIELD DEVICES – ***POSITIONERS***

Product Specifications

08.2019

PSS EIO4331 A-(en)

PC191 Pneumatic Selector Relays

PS953 Pneumatic Change over and Lock-In Relays



These Pneumatic Relays (Selection, Change Over and Lock-In) are designed for valve positioner hook up system and for safety (fail modus) definition. These Relays are a concentrate of several decade of experience in designing and producing "best in class" pneumatic instruments.

SELECTOR RELAYS

- Minimum selection
- Maximum selection

LOCK-IN RELAYS

- Single acting
- Double acting

CHANGE OVER RELAYS

- By exceeding set point
- By below set point
- Change Over from 0 to a given pressure
- Change Over between two given pressures
- With or without self-latch function

For all Relays

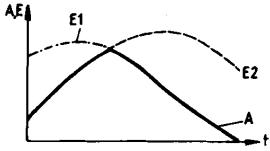
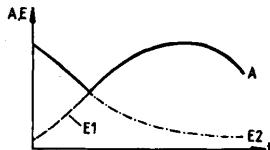
- EAC (CU TR) certified

Equipment should be installed, operated, serviced, and maintained only by qualified personnel.

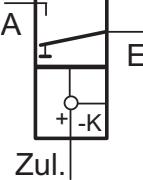
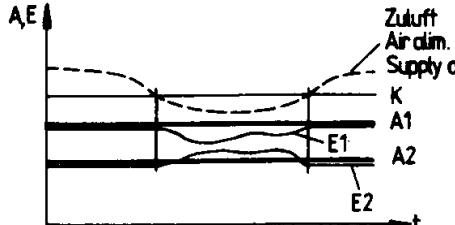
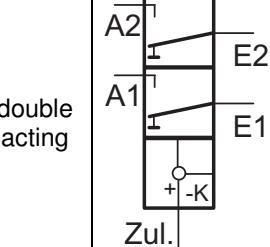
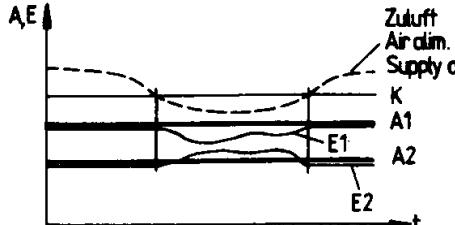
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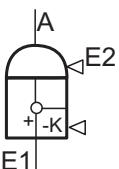
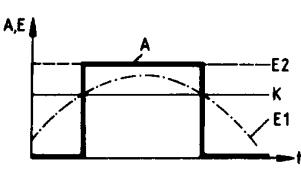
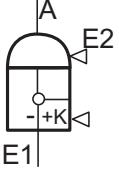
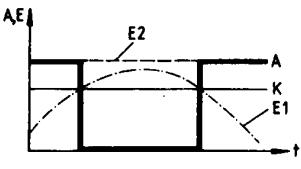
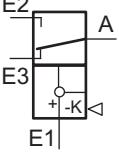
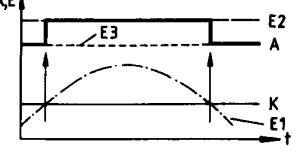
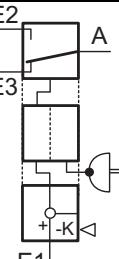
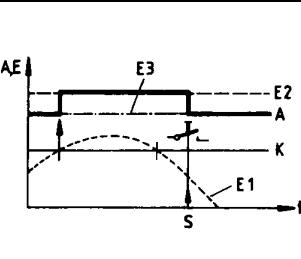
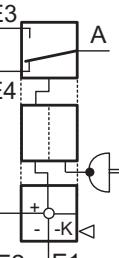
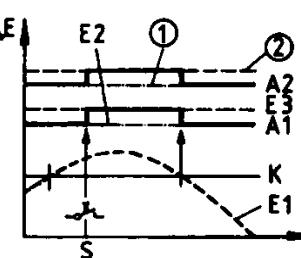
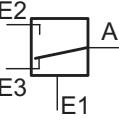
PC191 Pneumatic Selector Relays

Version	Function diagram	Application	Model Code PC191
Min.-selector relay 2 inputs Input E1, E2		Selection of lowest input pressure	-101
Max.-selector relay 2 inputs Input E1, E2		Selection of highest input pressure and simultaneously increase in airflow rate	-102

PS953 Pneumatic Lock-In Relays

Version	Symbol	Function diagram	Application	Model Code
Lock-in Relay	single acting 		If the supply air pressure drops below the mechanically adjusted setpoint (safety limit), the output line to the final control element is sealed off.	-200
	double acting 		If the supply air pressure drops below the mechanically adjusted setpoint (safety limit), both output lines to the final control element are sealed off.	-210

PS953 Pneumatic Change-Over Relays

Version	Symbol	Function diagram	Application	Model Code	
Signal selector relay mechanical set-point change-over if setpoint is exceeded			Signal pressure passes to output when mechanically adjusted setpoint is exceeded by pilot pressure	-100	
Signal selector relay, mechanical setpoint, change-over if pilot pressure drops below set-point.			Signal pressure passes to output while pilot pressure remains below mechanically adjusted set-point	-101	
Three-way signal selector relay, mechanical set-point, change-over if setpoint is exceeded, reversing if setpoint pilot pressure drops below setpoint			Change-over takes place when mechanically adjusted setpoint is exceeded, reversing when pilot pressure falls below set-point	-111	
Three-way signal selector relay, mechanical set-point (0.2 to 1 bar), with self-latch, change-over if setpoint is exceeded, reversing manual	without electr. switch			Changeover takes place when mechanically adjusted setpoint is exceeded. Reversing takes place on venting by a push-button valve Optional Feature -A	-112
Three-way signal selector relay for pressure difference, mechanical setpoint (0 - 1 bar) with self-latch, change-over if setpoint is exceeded, reversing manual				For single pressure difference. When pressure difference E2 - E1 exceeds the mechanically adjusted setpoint K, the output switched over from E4 to E3. Reversion takes place on venting by push-button valve optional feature -A.	-114
Change-over relay			Changeover of output results when pilot pressure E1 jumps from min. range 0 to 0.2 bar up to max. range 1 to 1.4 bar. The reverse effect takes place with a sharply dropping pressure change.	-613	

Version	Application	Model Code
Push-button valve	for venting pneumatic signal lines	Option -A

GENERAL TECHNICAL DATA

Local conditions

Location class D1 acc. to IEC654/1
 Ambient temperature range . -25 to +70 °C
 Storage temperature range. . -30 to +70 °C
 Admissible rel. humidity ≤ 75 %, no condensation
 permissible
 Protection class IP 53

Materials

Housing Aluminum, finish
 Internal components Al, St, Brass, Silicone,
 Polyamid, Neopren,
 Perbunan, PTFE

Mounting

Type of mounting for wall mounting with
 mounting angles
 Mounting orientation. vertical
 Pneumatic connections internal thread 1/8-NPT ¹⁾
 (except lock-in relays
 PS953-200, -210, and -613
 with internal thread 1/4-NPT)

1) For Tube fittings see Product Specifications PSS EOO9001 A-(en)

Technical data obtained from measurements made under standard
 reference conditions. Supply air 1.4 bar / 20 psi / 140 kPa.

MODEL CODES

Pneumatic Selector Relay

	PC191	
Minimum pressure selection out of 2 inputs	-101	
Maximum pressure selection out of 2 inputs	-102	

Pneumatic Change Over Relay

	PS953	
When pneumatic set point is exceeded, output changes from 0 to input pressure 1	-100	
When pneumatic drops below set point, output changes from input pressure 1 to 0.....	-101	
When pneumatic set point is exceeded, output changes from input pressure 1 to pressure 2	(b) -111	
When pneumatic set point is exceeded, output changes from input pressure 1 to pressure 2, with self-latch function	(a) -112	
When pneumatic difference between two signals is exceeded, output changes from input pressure 1 to pressure 2, with self-latch function	(a) -114	
Lock-in relay, single action	-200	
Lock-in relay, double action	-210	
When pneumatic setpoint changes from 0 bar to over 1 bar, output changes from pressure 1 to pressure 2	-613	

Options

Pushbutton to release latched position	-A
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(a) With Option - A

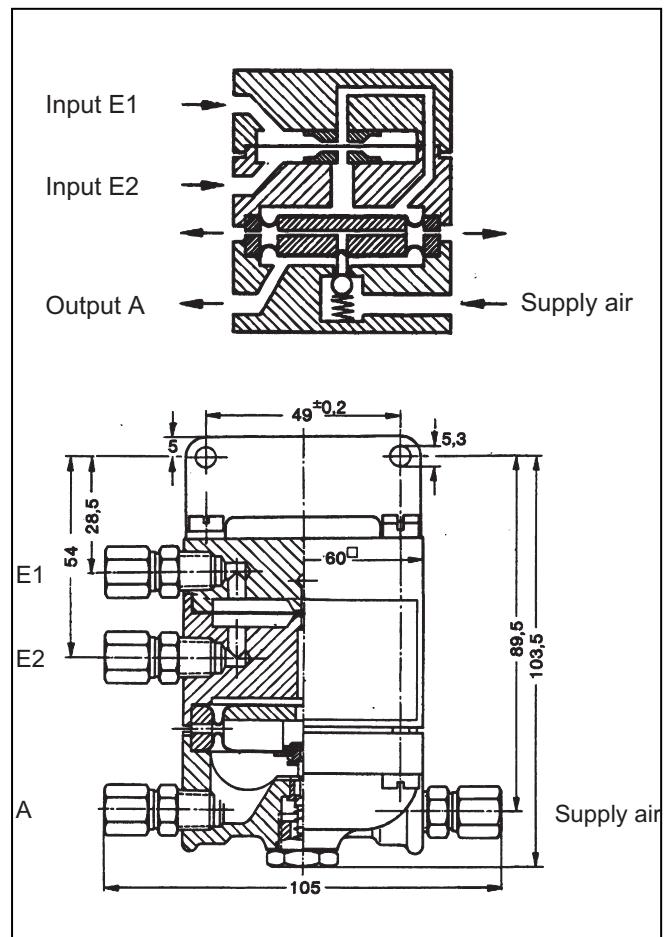
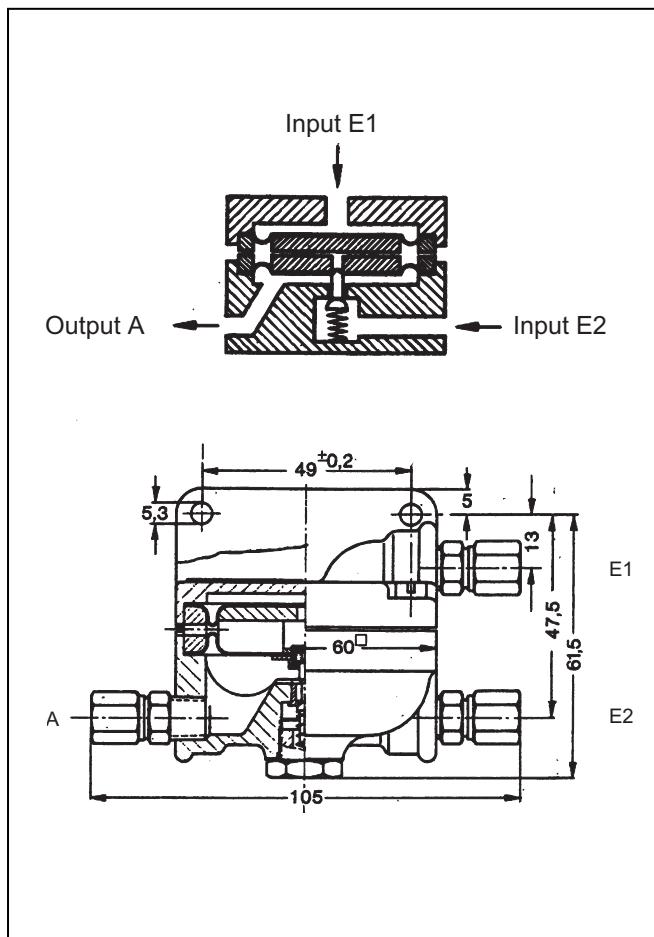
(b) For input / output up to 6 bar, order ECEP EP 0226

**PC191-101 Minimum Pressure Selection
1 out of 2 inputs**

Min. pressure difference
between E1 and E2 ± 4 mbar
Weight 0.3 kg
Input Pressure 1 and 2 max 6 bar (90 psi)
Supply air max 6 bar (90 psi)
Air consumption 10 l/h
Air delivery 3 000 l/h
Air exhaust 1 800 l/h at $\Delta p = 1$ bar

**PC191-102 Maximum Pressure Selection
1 out of 2 inputs**

Min. pressure difference
between E1 and E2 ± 4 mbar
Weight 0.5 kg
Input Pressure 1 and 2 max 6 bar (90 psi)
Supply air max 6 bar (90 psi)
Air consumption 10 l/h
Air delivery 3 000 l/h
Air exhaust 1 800 l/h at $\Delta p = 1$ bar

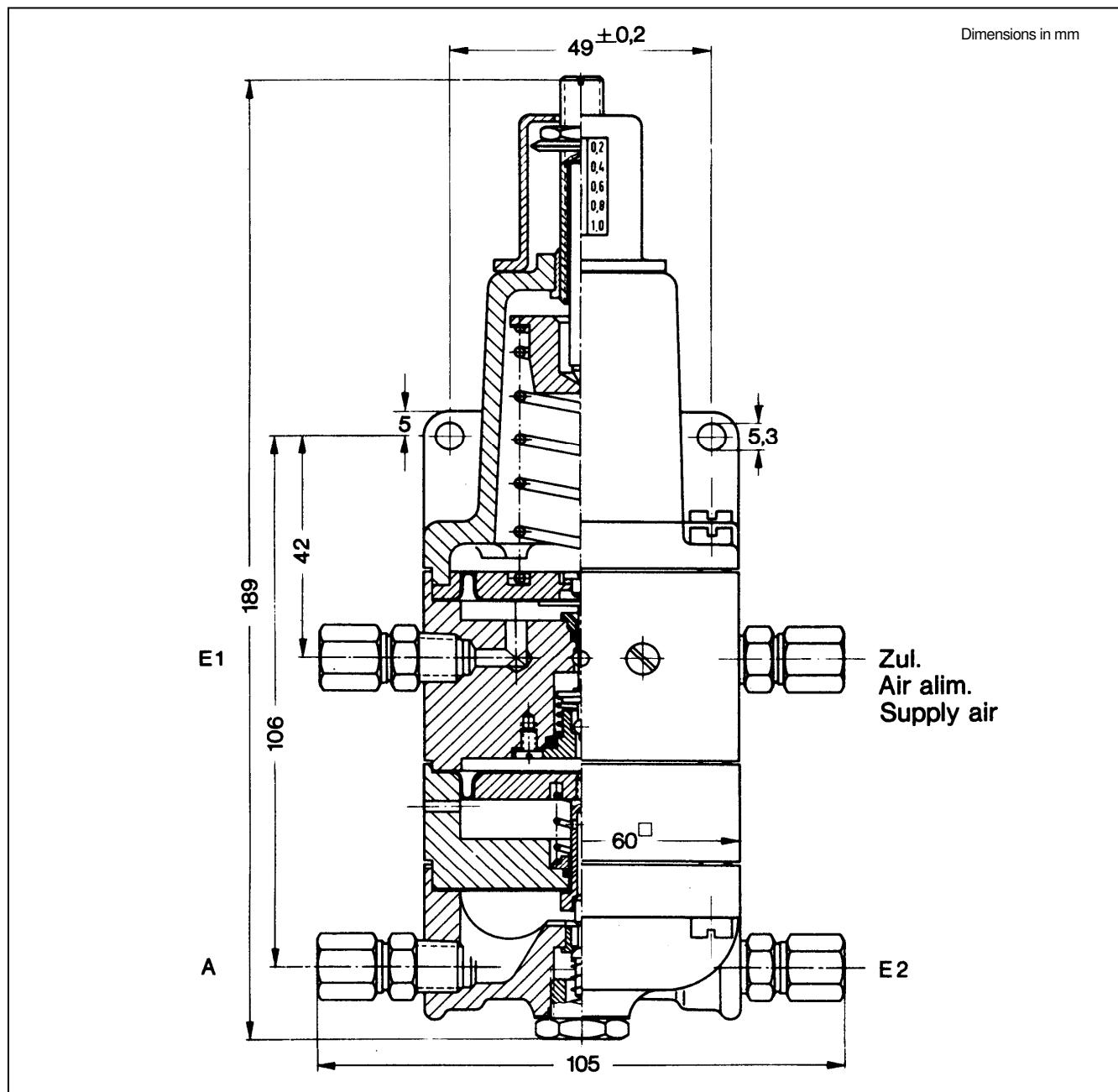


**PS953-100 Signal selector relay,
mechanical setpoint change-over if setpoint is exceeded**

**PS953-101 Signal selector relay,
mechanical setpoint change-over if setpoint drops
below setpoint**

Pilot pressure E1	0.2 to 1 bar / 3 to 15 psi / 20 to 100 kPa, max. 6 bar / 90 psi / 600 kPa
Input E2.	0 to max. 10 bar / 0 to max. 150 psi / 0 to max. 1000 kPa
Output A	according to switch position, E2, or zero
Supply air	1.4 ± 0.1 bar / 20 ± 1.4 psi / 140 ± 10 kPa, to max. 6 bar / 90 psi / 600 kPa

Setpoint adjustment K equivalent to	0.2 to 1 bar / 3 to 15 psi / 20 to 100 kPa, max. 1.4 bar / 20 psi / 140 kPa
Switching hysteresis.	< 2 % of final value
Temperature effect.	≤ 0.5 % / 10 K
Supply air dependency.	≤ 0.3 % / 0.1 bar
Air consumption.	0 / 100 l/h
Max. air throughout.	1500 l/h at $\Delta p = 1$ bar
Weight	2 kg



Dimensional drawing shows tube fittings 1/8-NPT for pipe 6 x 1. These are not supplied with the relays and must be ordered separately.

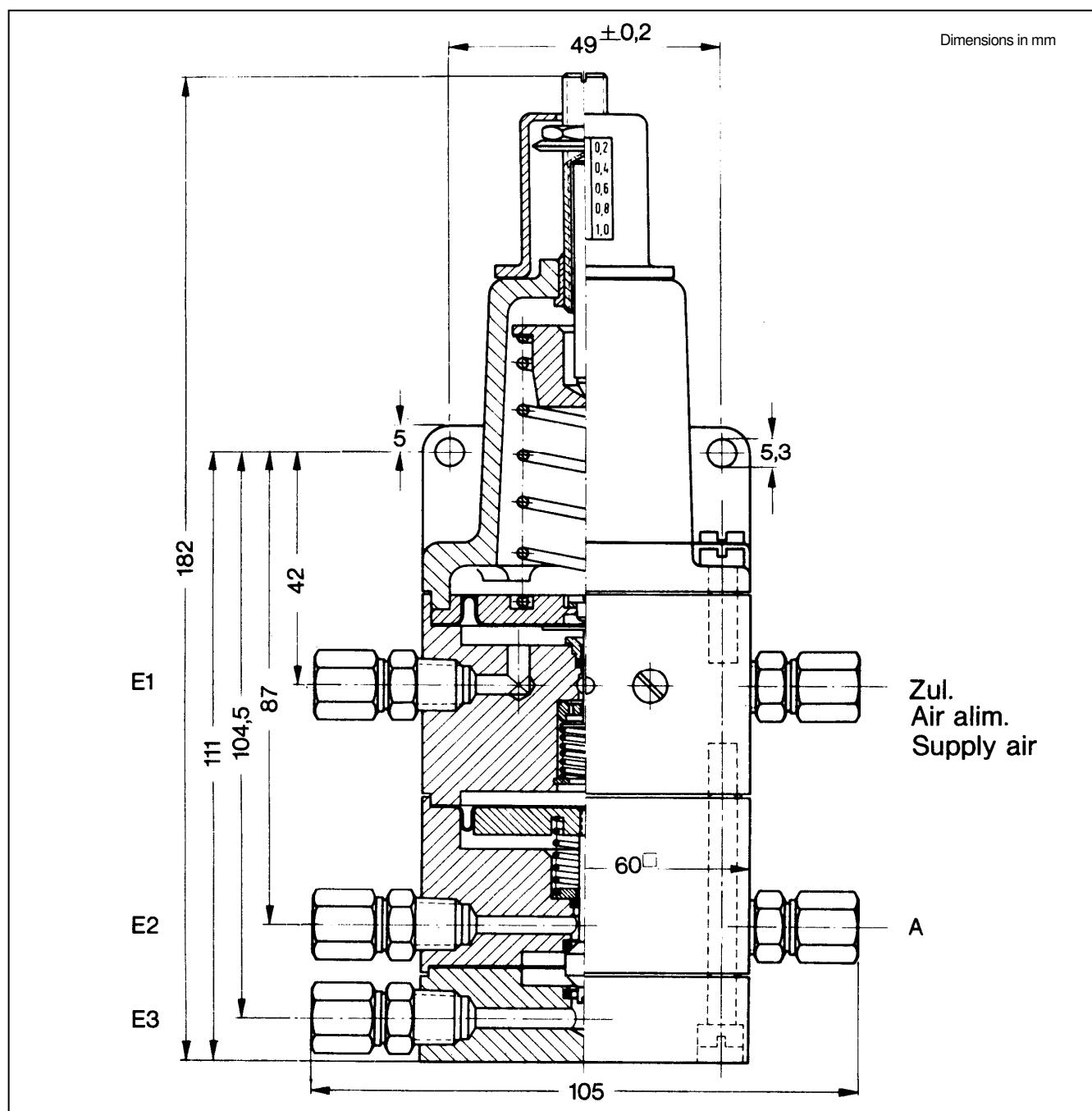
SPECIFICATIONS

**PS953-111 Three-way signal selector relay,
mech. setpoint change-over if setpoint is exceeded,
reversing if setpoint is drops**

Pilot pressure E1	0.2 to 1 bar / 3 to 15 psi/ 20 to 100 kPa, max. 6 bar / 90 psi / 600 kPa
Input E2 ¹⁾ , E3 ¹⁾	0 to 6 bar / 0 to 90 psi / 0 to 600 kPa
Output A ¹⁾	according to switch position, E2 or E3
Supply air	1.4 ± 0.1 bar / 20 ± 1.4 psi / 140 ± 10 kPa, to max. 6 bar / 90 psi / 600 kPa

1) Flow direction reversible

Setpoint adjustment K equivalent to	0.2 to 1 bar / 3 to 15 psi / 20 to 100 kPa, max. 1.4 bar / 20 psi / 140 kPa
Switching hysteresis	5 to 6 % due to snap-action changeover
Temperature effect	≤ 0.5 % / 10 K
Supply air dependency	≤ 0.3 % / 0.1 bar
Air consumption	0 / 200 l/h
Air delivery	3 000 l/h at $\Delta p = 1$ bar
Air exhaust	3 000 l/h at $\Delta p = 1$ bar
Weight	1 kg



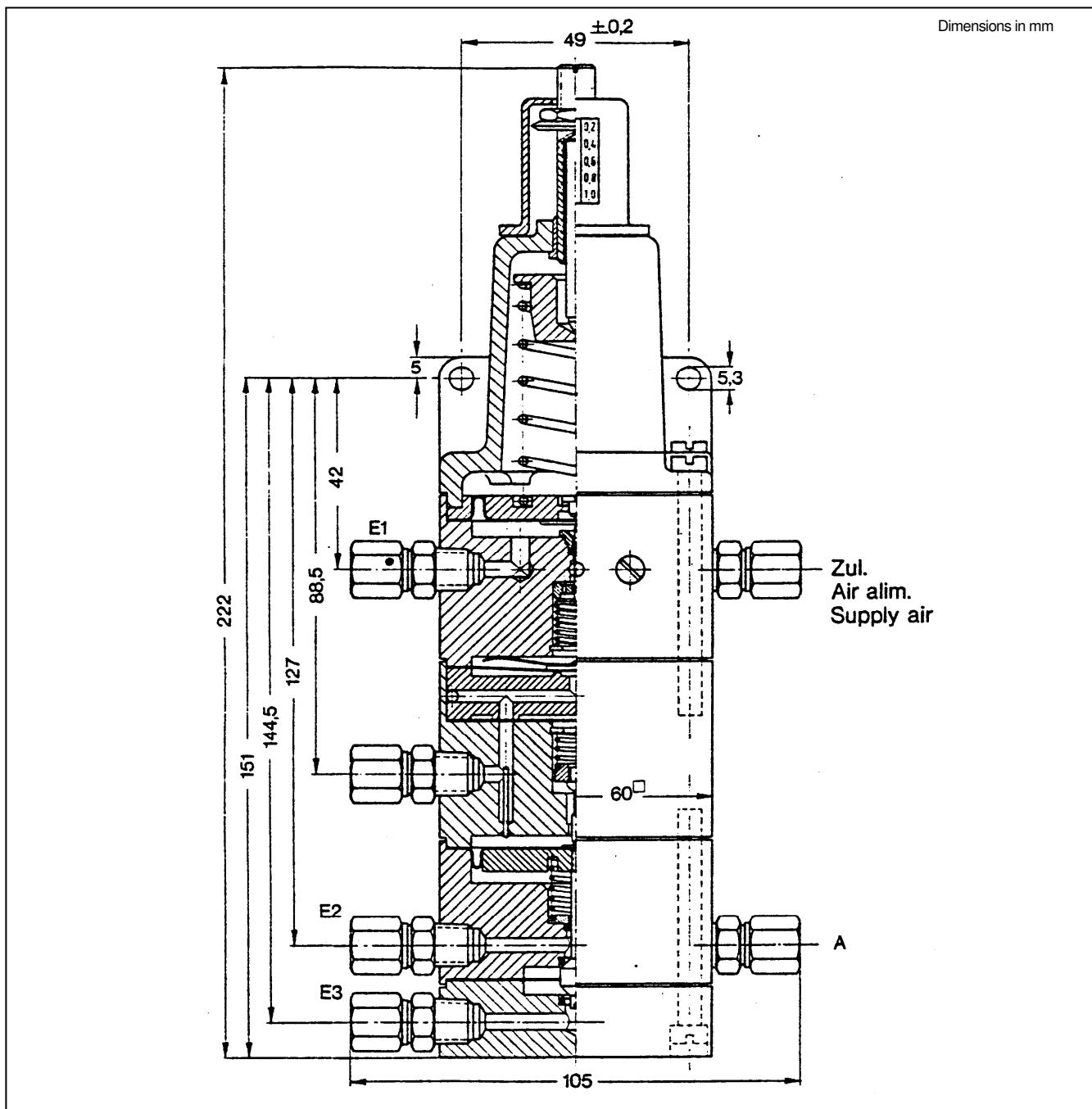
Dimensional drawing shows tube fittings 1/8-NPT for pipe 6 x 1. These are not supplied with the relays and must be ordered separately.

**PS953-112 Three-way signal selector relay,
mech.setpoint (0.2-1 bar) with self-latch,
change-over if setpoint is exceeded, reversing manual**

Pilot pressure E1	0.2 to 1 bar / 3 to 15 psi / 20 to 100 kPa, max. 6 bar / 90 psi / 600 kPa
Input E2 ¹⁾ , E3 ¹⁾	0 to 6 bar / 0 to 90 psi / 0 to 600 kPa
Output A ¹⁾	according to switch position, E2 or E3
Supply air	1.4 ± 0.1 bar / 20 ± 1.4 psi / 140 ± 10 kPa, to max. 6 bar / 90 psi / 600 kPa

1) Flow direction reversible

Setpoint adjustment K equivalent to	0.2 to 1 bar / 3 to 15 psi / 20 to 100 kPa, max. 1.4 bar / 20 psi / 140 kPa
Switching hysteresis	5 to 6 % due to snap action changeover
Temperature effect	≤ 0.5 % / 10 K
Supply air dependency	≤ 0.3 % / 0.1 bar
Air consumption	0 / 200 l/h
Air delivery	3 000 l/h at $\Delta p = 1$ bar
Air exhaust	3 000 l/h at $\Delta p = 1$ bar
Weight	1.1 kg



Dimensional drawing shows tube fittings 1/8-NPT for pipe 6 x 1. These are not supplied with the relays and must be ordered separately.

**PS953-114 Three-way signal selector relay,
mech. setpoint (0 to 1 bar) with self-latch, change-over if
setpoint is exceeded, reversing manual**

Input E3¹⁾, E4¹⁾ 0 to 6 bar / 0 to 90 psi /
0 to 600 kPa
Output A¹⁾ according to switch position,
E3 or E4
Input E1¹⁾, E2¹⁾ 0.2 to 1 bar / 3 to 15 psi /
20 to 100 kPa,
max. 6 bar / 90 psi / 600 kPa
Supply air 1.4 ± 0.1 bar / 20 ± 1.4 psi /
140 ± 10 kPa, to max. 6 bar /
90 psi / 600 kPa

1) Flow direction reversible

Setpoint adjustment K
equivalent to 0 to 1 bar / 0 to 15 psi /
0 to 100 kPa,

max. 1.4 bar / 20 psi /
140 kPa

Switching hysteresis 5 to 6 % due to snap action
changeover

Temperature effect ≤ 0.5 % / 10 K

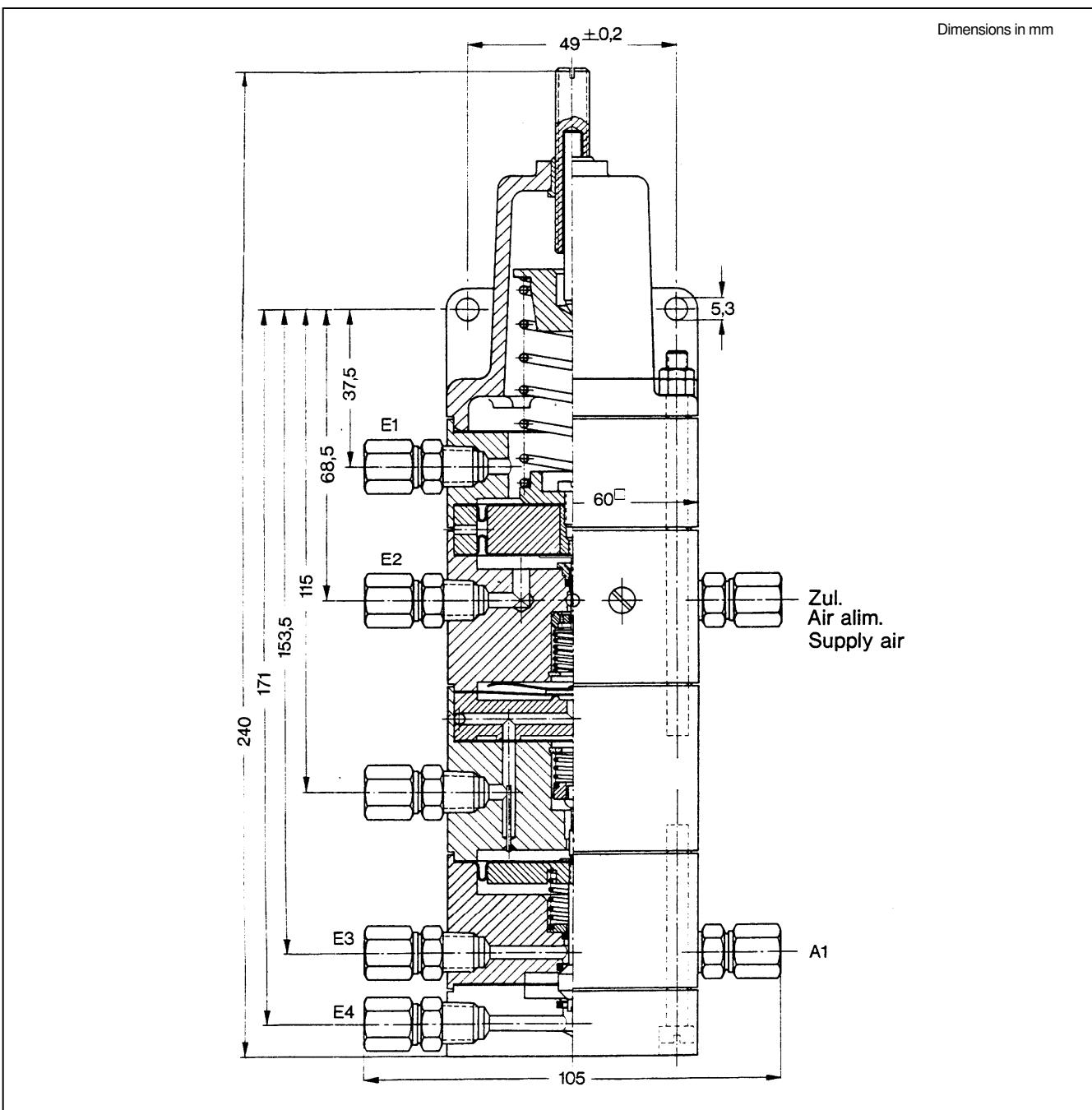
Supply air dependency ≤ 0.3 % / 0.1 bar

Air consumption 0 / 200 l/h

Air delivery 3 000 l/h at $\Delta p = 1$ bar

Air exhaust 3 000 l/h at $\Delta p = 1$ bar

Weight 1.4 kg



Dimensional drawing shows tube fittings 1/8-NPT for pipe 6 x 1. These are not supplied with the relays and must be ordered separately.

**PS953-200 Lock-in relay,
single-action**

**PS953-210 Lock-in relay,
double-action**

Input E max. 10 bar / max. 150 psi /

max. 1 000 kPa

Output A locked or connected to input

Supply air =

Pilot pressure max. 6 bar / 90 psi / 600 kPa

Setpoint adjustment K

equivalent to 1 to 6 bar / 15 to 90 psi /

100 to 600 kPa

Switching hysteresis 3 % of setpoint

Temperature effect $\leq 0.5\% / 10 \text{ K}$

Supply air dependency $\leq 0.3 \% / 0.1 \text{ bar}$

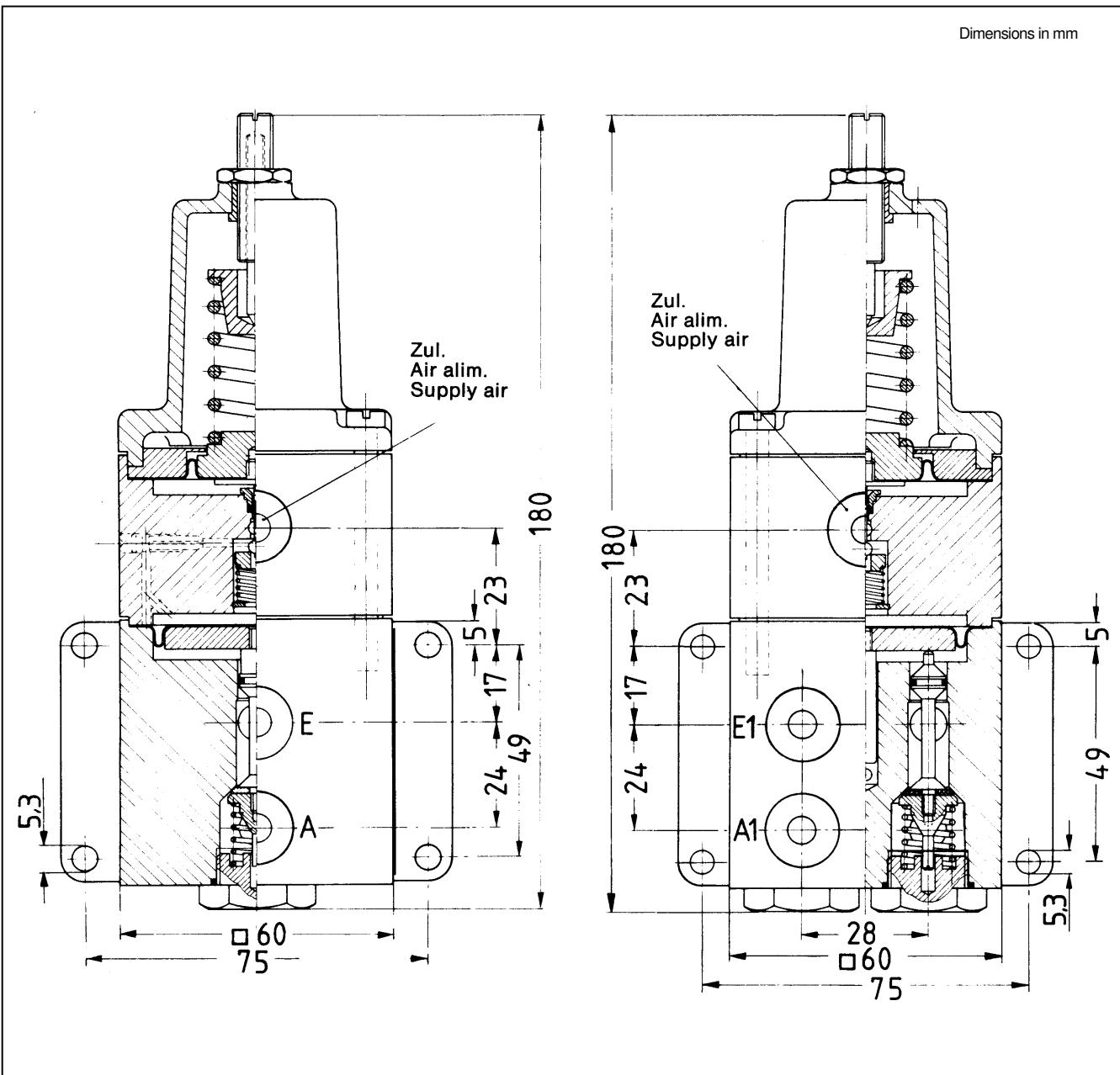
Air consumption 0 / 100 l/h

Max. air throughout 15 000 l/h at $\Delta p = 1 \text{ bar}$

Cv 0.25

Pneum. connections internal thread 1/4-NPT

Weight 1.4 kg

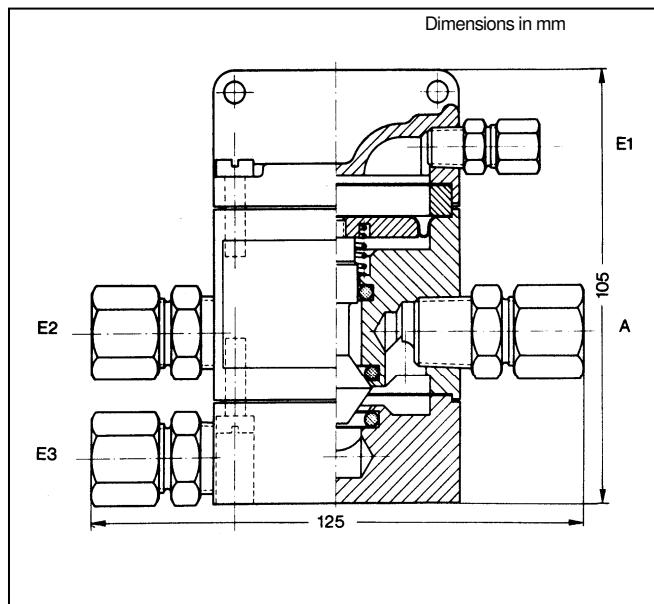


PS953-613 Change-over relay,

pneum. connections 1/4-NPT (and 1/8 NPT for Input E1)

Input E1	switches E2 to A at pressure0: 0 to 0.2 bar / 0 to 3 psi / 0 to 20 kPa or switches E3 to A at pressure1: 1 to 1.4 bar / 15 to 20 psi / 100 to 140 kPa, max. 6 bar / 90 psi / 600 kPa
Input E2 ¹⁾ , E3 ¹⁾	0 to 6 bar / 0 to 90 psi / 0 to 600 kPa
Output A ¹⁾	according to switch position, E2 or E3
Air delivery	30 000 l/h at $\Delta p = 1$ bar
Air exhaust	30 000 l/h at $\Delta p = 1$ bar
Pneum. connections	internal thread 1/4-NPT
Weight	0.5 kg

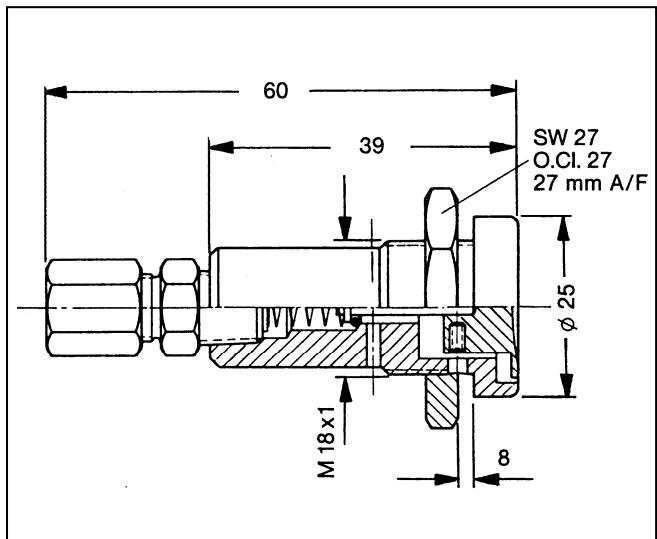
1) Flow direction reversible



Dimensional drawing shows tube fittings 1/4-NPT (and 1/8 NPT for input E1).
These are not supplied with the relays and must be ordered separately.

PS953 Option -A Push-button valve

for venting pneum. signal lines

Push-button valve for panel mounting
Option -A. push to open

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