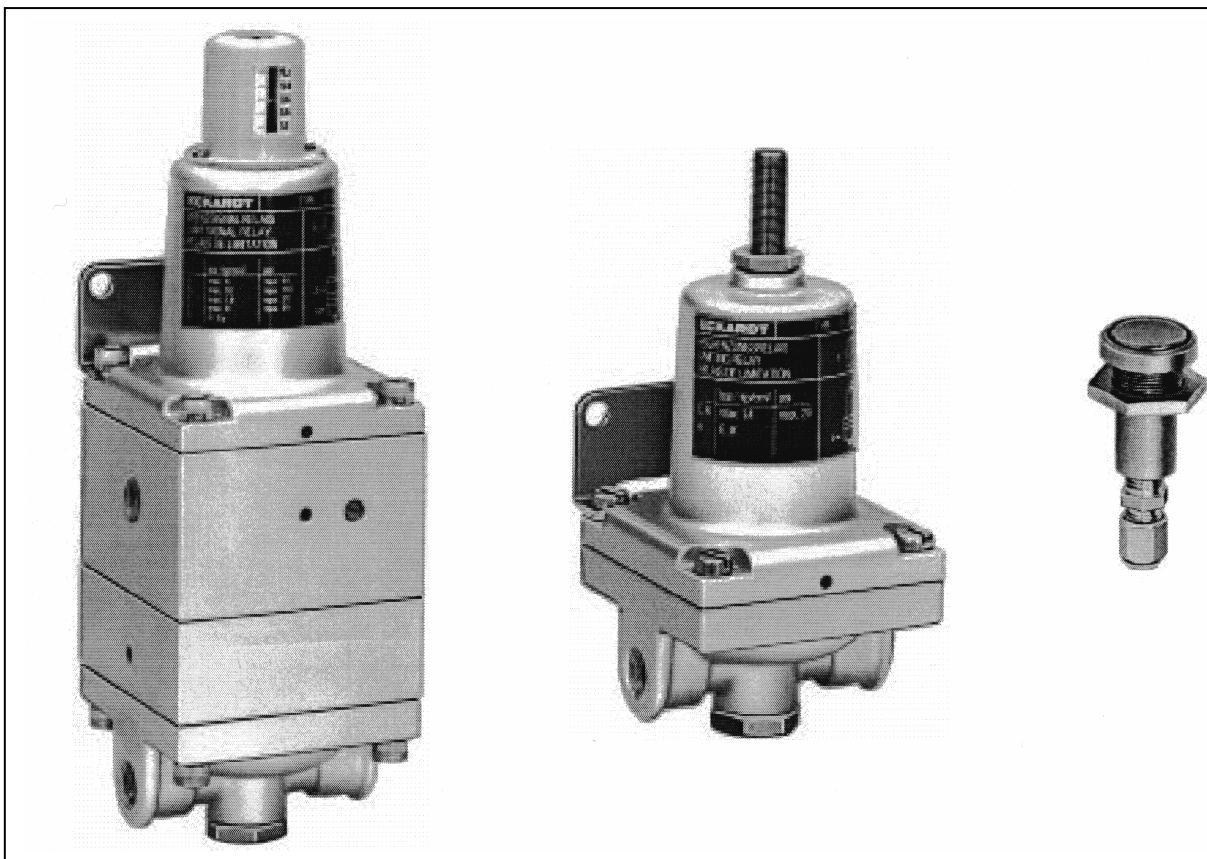


PS953 Pneumatic Signal Selection Relay



In different areas of process control there are problems which can easily be solved with special pneumatic limit signal, time or computing relays. For instance: signal monitoring, signal selection, signal adaption, safety control, etc.

SIGNAL SELECTOR RELAYS

- Signal selector Relay with mechanical or pneumatic set-point adjustment for pressure and pressure-difference

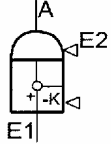
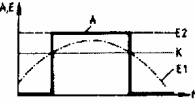
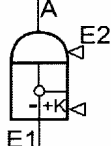
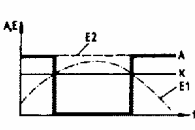
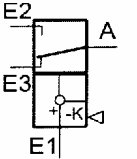
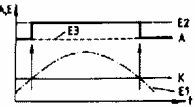
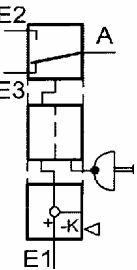
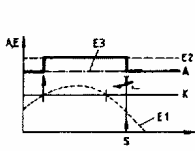
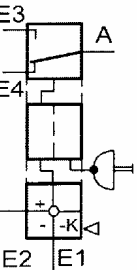
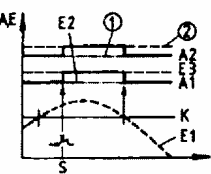
RELAYS FOR CONTROL APPLICATIONS

- Lock-in Relay
- Limiting Relay
- Changeover Relay

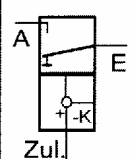
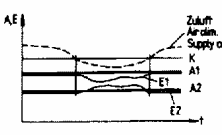
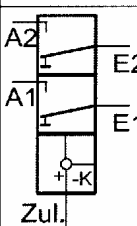
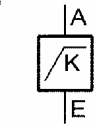
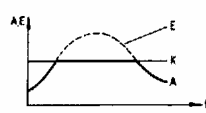
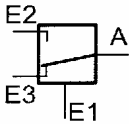

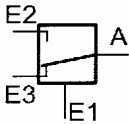
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ECKARDT

SIGNAL SELECTOR 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 setpoint			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 setpoint.	-111
Three-way signal selector relay, mechanical set-point (0.2 - 1 bar), with self-latch, change-over if setpoint is exceeded, reversing manual	<p style="text-align: center;">without electr. switch</p> 		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

RELAYS FOR CONTROL APPLICATIONS

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 is sealed off.	-210
Limiting relay for max. pressure			The output signal cannot exceed a variable, mechanically adjusted setpoint	-410
Change-over relay	pneum. conn. 1/8-NPT 		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.	-611
	pneum. conn. 1/4-NPT 			-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 IEC 654/1
 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 acc. to DIN 40 050

Materials

Housing Aluminium, 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 and -210 and change-over relay PS953-613 with internal thread 1/4-NPT)

1) For Tube fittings see Product Specifications PSS E009001 A-(en)

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

MODEL CODES

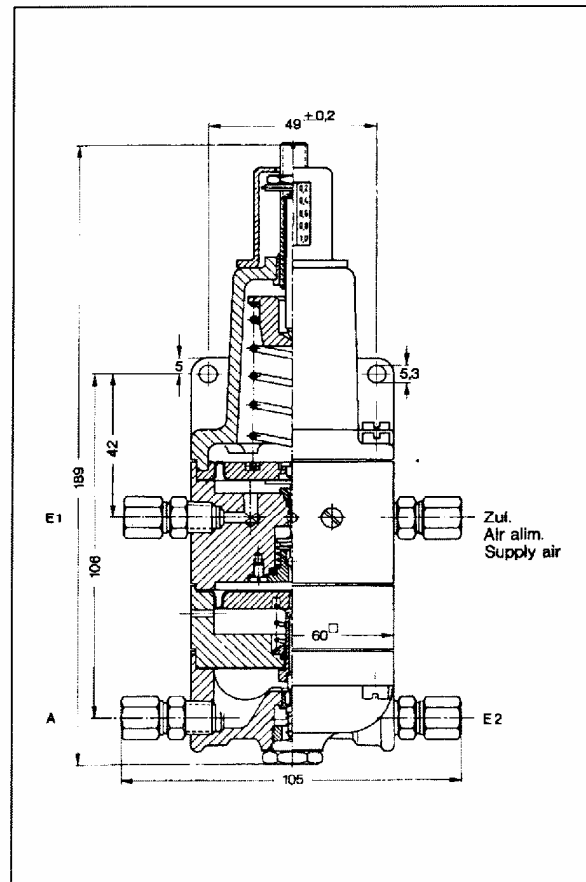
Pneumatic Signal Selection Relay	PS953
Function	
Signal selector relay, mechanical setpoint change-over if setpoint is exceeded	-100
Signal selector relay, mechanical setpoint change-over if setpoint is drops	-101
Three-way signal selector relay, mech. setpoint change-over if setpoint is exceeded, reversing if setpoint is drops	-111
Three-way signal selector relay, mech.setpoint (0.2-1.0 bar) with self-latch, change-over if setpoint is exceeded reversing manual (a)	-112
Three-way signal selector relay, mech.setpoint (0-1.0 bar) with self-latch, change-over if setpoint is exceeded, reversing manual (a)	-114
Lock-in relay single-action	-200
Lock-in relay double-action	-210
Limiting relay for max. pressure	-410
change-over relay pneum. conn. 1/8 - 27 NPT	-611
change-over relay pneum. conn. 1/4 - 18 NPT	-613
Options	
Push-button valve for venting pneum. signal lines (only for -112/114)	-A
Example:	PS953 -100
Footnotes	
(a) with Option - A	Tube fittings see EOO9001

**PS953-100 Signal selector relay,
mechanical setpoint change-over if setpoint is exceeded**
**PS953-101 Signal selector relay,
mechanical setpoint change-over if setpoint is drops**

Technical data

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. 1 000 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 at Δp = 1 bar	1 500 l/h
Weight	2.0 kg

Dimensions in mm



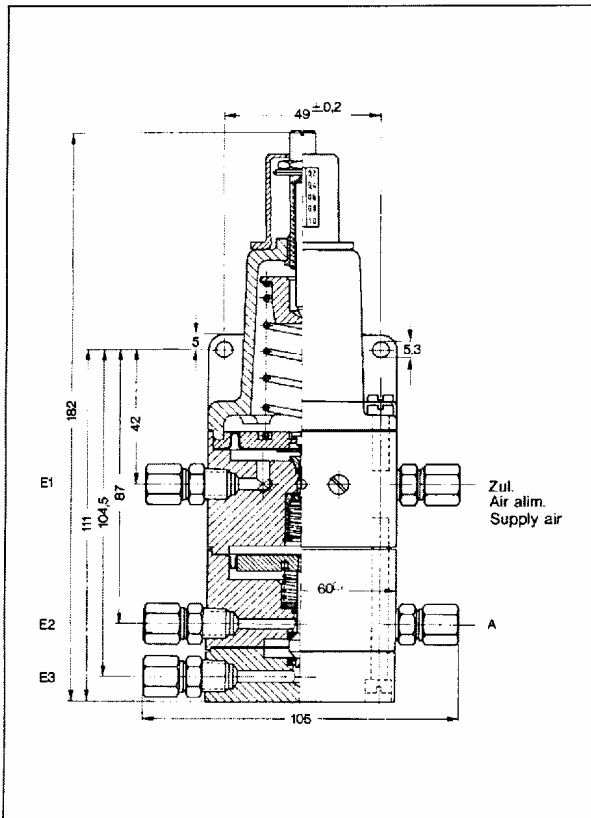
Dimensional drawing shows tube fittings 1/8-NPT for pipe 6 x 1.
These are not supplied with the relays, but must be ordered separately.

PS953-111 Three-way signal selector relay,

mech. setpoint change-over if setpoint is exceeded, reversing if setpoint is drops

Technical Data

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⁾	0 to 6 bar / 0 to 90 psi / 0 to 600 kPa
Input E2 ¹⁾ }	
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
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 } Δp = 1 bar
Air exhaust	
Weight	1.0 kg



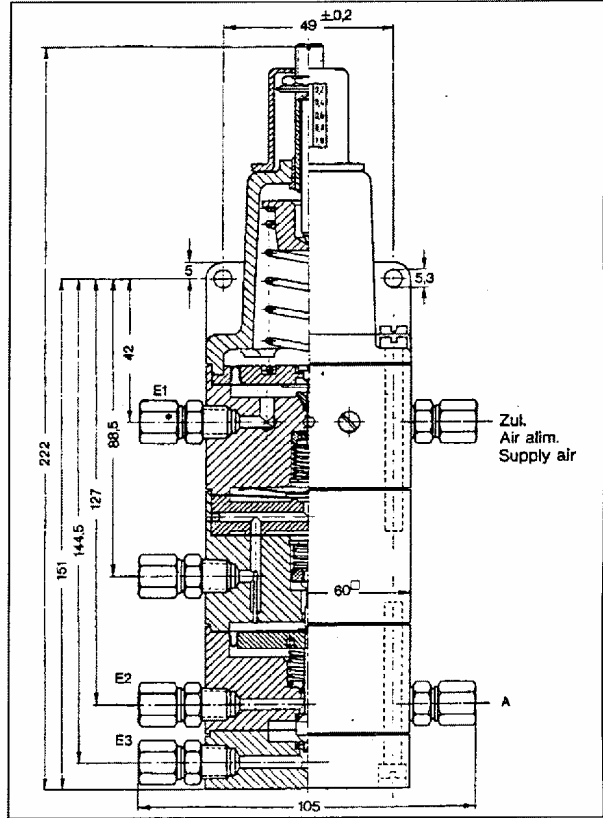
PS953-112 Three-way signal selector relay,

mech.setpoint (0.2-1.0 bar) with self-latch, change-over if setpoint is exceeded reversing manual

Technical Data

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⁾	0 to 6 bar / 0 to 90 psi / 0 to 600 kPa
Input E3 ¹⁾ }	
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
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 } Δp = 1 bar
Air exhaust	
Weight	1.1 kg

Dimensions in mm



1) Flow direction reversible

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

PS953-114 Three-way signal selector relay,

mech. setpoint (0 - 1.0 bar) with self-latch, change-over if setpoint is exceeded, reversing manual

Technical data

Input E3 ¹⁾ }	0 to 6 bar / 0 to 90 psi
Input E4 ¹⁾ }	/ 0 to 600 kPa
Output A ¹⁾	according to switch position, E3 or E4
Input E1 }	0.2 to 1 bar / 3 to 15 psi
Input E2 }	/ 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

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

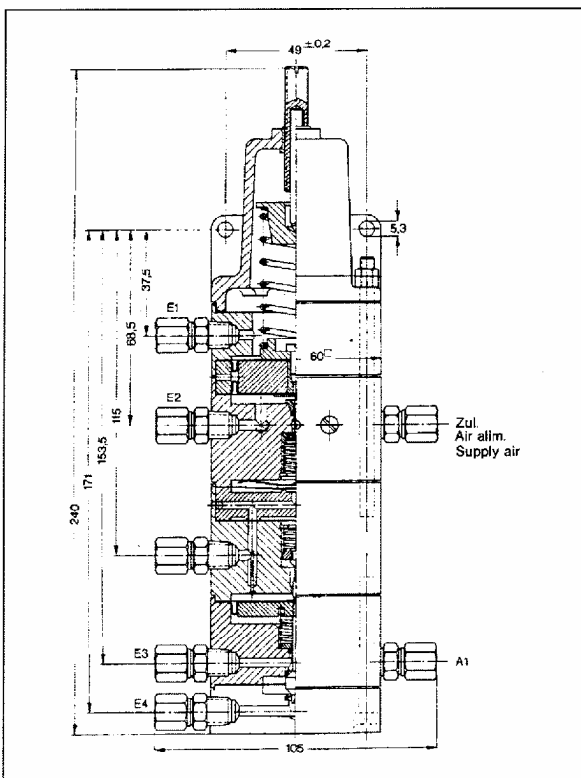
Supply air dependency ≤ 0.3 %/0.1 bar

Air consumption 0 / 200 l/h

Air delivery 3 000 l/h } Δp = 1 bar

Air exhaust 3 000 l/h }

Weight 1.4 kg Dimensions in mm



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

1) Flow direction reversible

PS953-200 Lock-in relay, single-action
PS953-210 Lock-in relay, double-action

PS953-611 Change-over relay, pneum. connections 1/8-NPT
PS953-613 Change-over relay, pneum. connections 1/4-NPT

Technical data

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 ≤ 0.5 %/10 K
 Supply air dependency ≤ 0.3 %/0.1 bar
 Air consumption 0 / 100 l/h
 Max. air throughput
 at Δp = 1 bar 15 000 l/h
 Pneum. connections internal thread 1/4-NPT
 Weight 1.4 kg

Technical data

Input E1 0 to 0.2 bar / 0 to 3psi
 / 0 to 20 kPa or
 1 to 1.4 bar / 15 to 20 psi
 / 100 to 140 kPa
 max. 6 bar / 90 psi / 600 kPa
 Input E2 ¹⁾ } 0 to 6 bar / 0 to 90 psi
 Input E3 ¹⁾ } / 0 to 600 kPa
 Output A ¹⁾ according to switch position,
 E2 or E3

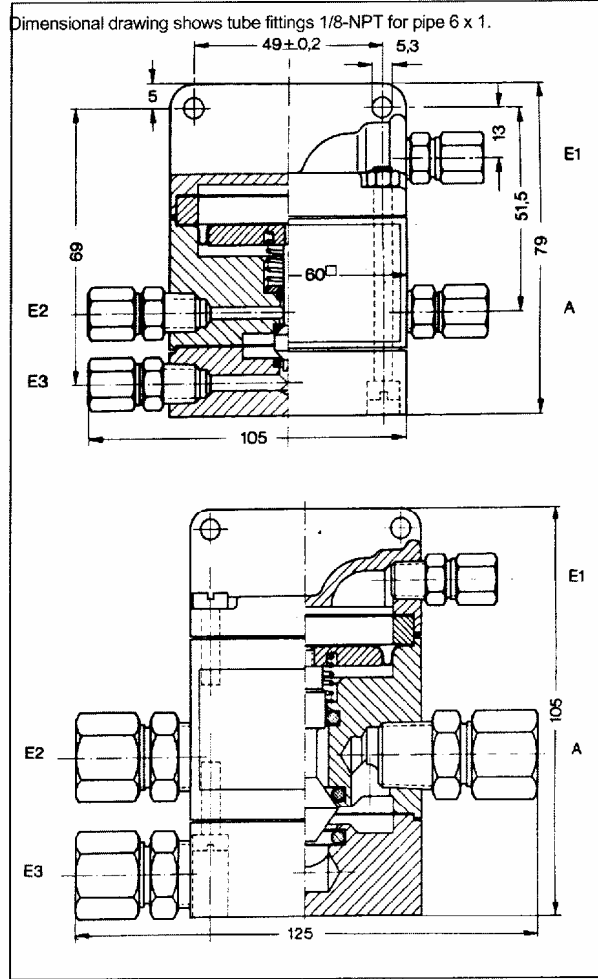
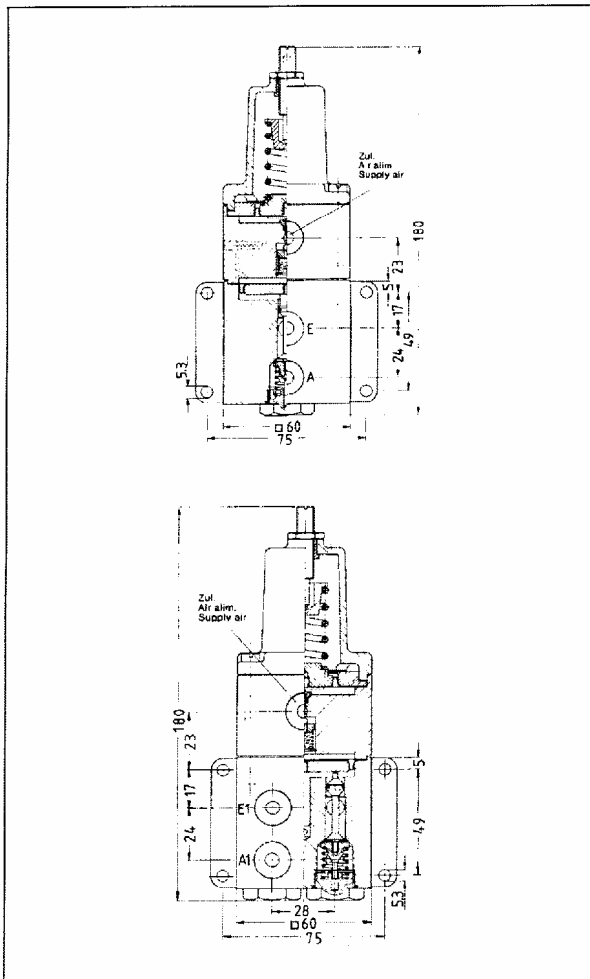
PS953-611

Air delivery 3 000 l/h
 Air exhaust 3 000 l/h } Δp = 1 bar
 Weight 0.4 kg

PS953-613

Air delivery 30 000 l/h
 Air exhaust 30 000 l/h } Δp = 1 bar
 Weight 0.5 kg

Dimensions in mm



1) Flow direction reversible

These are not supplied with the relays, but must be ordered separately.

PS953-410 Limiting relay for max. pressure

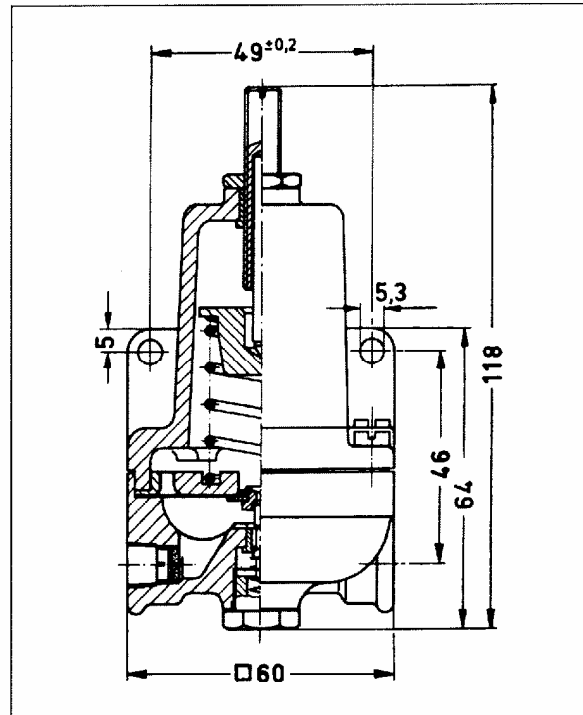
Dimensions in mm

Technical data

Input E	0 to 1.4 bar / 0 to 20 psi / 0 to 140 kPa
Output A	= input E up to adjusted cut-off point
Cut-off point adjustment K equivalent to	0.2 to 1.4 bar / 3 to 20 psi / 0 to 140 kPa
Cut-off repeatability	< 1.5 %

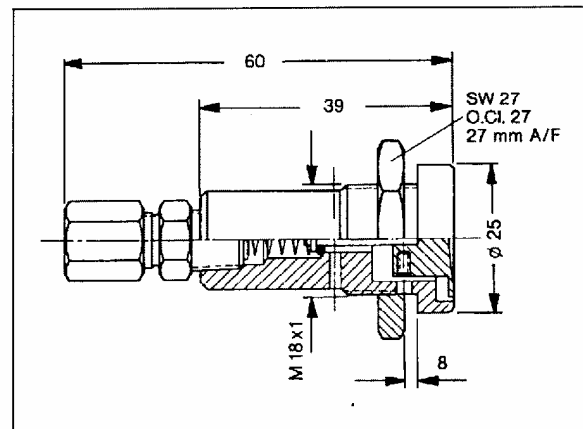
If the air consumption of the control element rises above 100 l/h, a "Booster relay, Model Code PC191-100", see PSS EIO4332 A-(en), should also be used.

Temperature effect	≤ 0.5 %/10 K
Air consumption	10 l/h
Air delivery	3 000 l/h
Air exhaust	1 800 l/h
	} Δp = 1 bar
Weight	0.4 kg



PS953 Option -A Push-button valve
for venting pneum. signal lines

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



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

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