Frese OPTIMA Compact actuators DN10-DN32

Application

Proportional 0-10V or 3-position modulating or On/Off control of Frese OPTIMA Compact valves in heating, ventilating and air conditioning systems.

The actuator can be mounted on the valve by hand and without the need of a specific tool.

Due to the compact design of the actuator, it is particularly suitable for installations where space is limited.

Features motoric actuators

- Nominal stroke on proportional 0-10V actuator up to 5.5 mm. Presetting from factory 2.5 or 5.5 mm
- 3-position or 0..10 V DC control signal. Other control signals can be selected by use of dip switches
- Direct assembly with union nut to the neck of the valve. No tools required
- Bi-color LED for status and diagnostic
- Linear or EQ% characterization available on the same actuator
- The actuator is short-circuit-proof and protected against polarity reversal
- Plug-in cable for supply voltage and control signal
- Small outer dimensions
- Removable cable
- Auto zero detection
- IP 43 protection
- Voltage and Current analog inputs

Features thermic actuators

- Self calibrating stroke on proportional 0-10V actuator
- On/Off or 0..10 V DC control signal
- Simple snap-on installation
- Small outer dimensions
- Cable included
- First-Open function
- IP 54 protection
- Power consumption 1 - 1.2 W

Approval

- Conforms to: EMC directive 2004/108/EC
- Low voltage directive 2006/95/EC

CE

Frese OPTIMA Compact actuators DN10-DN32

Technical data motoric actuators

Supply voltage: See "Types and Operation data
Protection class: IP 43 acc. EN60529
Frequency: 50/60 Hz
Input impedance: > 100 k Ohm (DC 0...10v)
Force: >120N
Stroke: 2.5 - 5.0 - 5.5mm (Dip switches)
Ambient conditions: Temperature 0°C...50°C
Humidity 10-90% r.F.
Cable length: 1.5 m
Weight: 215 g

Types and Operation Data

Types	Valve Dim.	Control signal	Running time (50 Hz)	Supply voltage	Power Consumtion	Parallel operation No. of actuator
53-1180	DN10-DN32	DC 0..10 V 5.5mm	8 s/mm	AC/DC 24 V +/- 15%	2.5 VA	Max. 4
53-1181	DN10-DN32	3 - position/On/Off	13 s/mm	AC 24 V +/- 15%	2.5 VA	Max. 4
53-1182	DN10-DN32	3 - position/On/Off	13 s/mm	AC 230 V +/- 10%	6.5 VA	Max. 4
53-1183	DN10-DN32	DC 0..10 V 2.5 mm	8 s/mm	AC/DC 24 V +/- 15%	2.5 VA	Max. 4

Technical data thermic actuators

Characteristics: Thermic actuators, NC
Protection class: IP 54 to EN 60529
Frequency: 50/60 Hz
Control signal: 0-10V DC or On/Off
Force: 100 N
Stroke: 2.5 - 5.0 - 5.5 mm
Running time: 120 s 0-10V/180 s On/Off
Ambient conditions: 0°C...60°C
Cable length: 1.0 m
Weight: 100 g

Types and Operation Data

Types	Valve Dim.	Control signal	Running time (50 Hz)	Supply voltage	Power Consumtion	For valve stroke
48-5525	DN10-DN20	On/Off	180 s	AC/DC 24 V	1 W	2.5 mm
48-5526	DN10-DN20	On/Off	180 s	AC 230 V	1 W	2.5 mm
48-5527	DN10-DN32	On/Off	180 s	AC/DC 24 V	1.2 W	5.0-5.5 mm
48-5528	DN10-DN32	On/Off	180 s	AC 230 V	1.2 W	5.0-5.5 mm
48-5529	DN10-DN32	DC 0..10 V	30 s/mm	AC 24 V	1.2 W	2.5-5.0-5.5 mm

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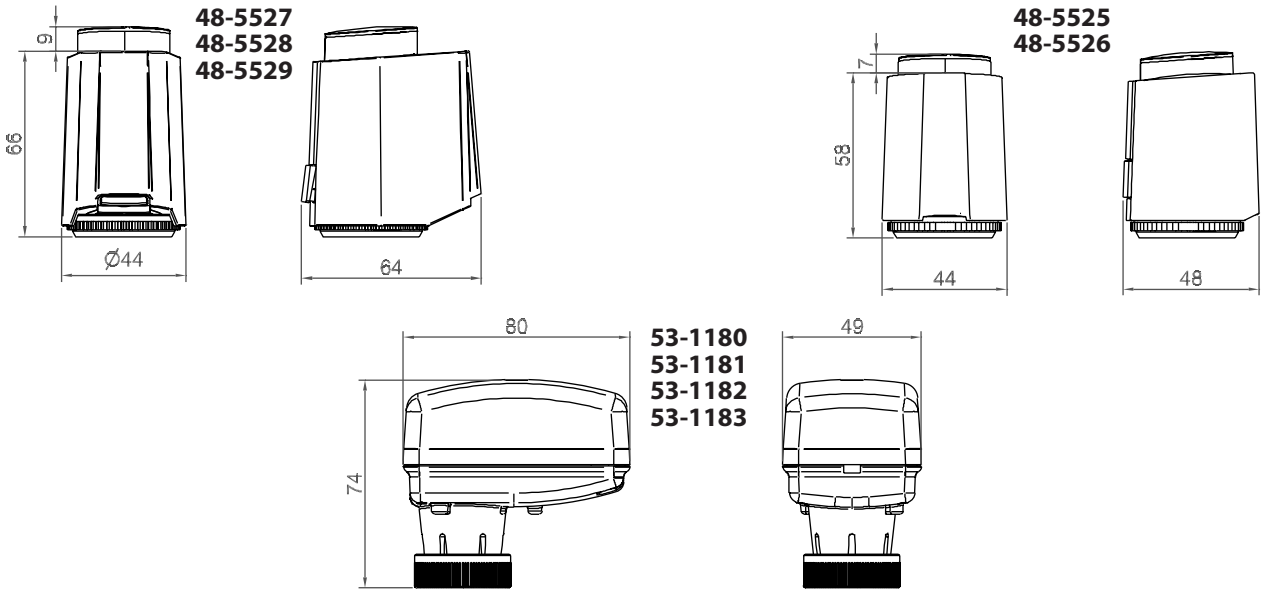
Dimensions



Combination matrix: Frese OPTIMA Compact DN10-15-20-25-32 / Actuators

Frese OPTIMA Compact can be combined with both thermic actuators and motoric actuators.

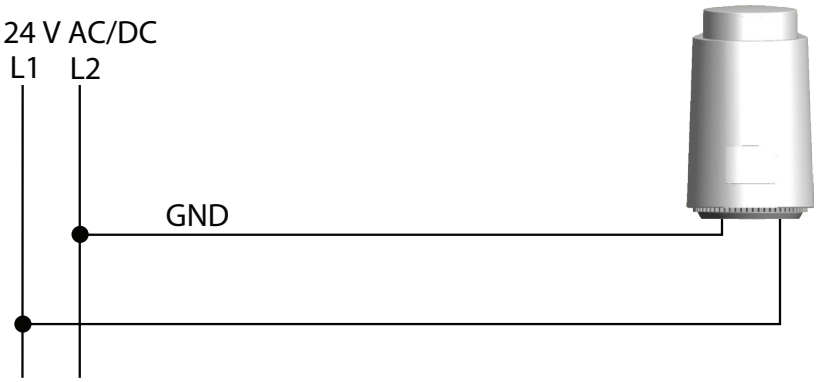
The design of the valve. combined with the Frese actuator. produces a perfect control characteristic that utilises the full control range of the system.

					Thermic Actuators					Motoric Actuators			
					On/Off				0.....10V	0.....10V		3-pos	
Male/Male ISO 228	Type	Stroke	Flow l/h	Dim	24 V 2.5mm	230V 2.5mm	24V 5.0 - 5.5mm	230V 5.0 - 5.5mm	24V 2.5 - 5.0 - 5.5 mm	24V 2.5 mm	24V 5.0 - 5.5mm	24V	230V
	DN10 M/M LOW 2.5	2.5	30-200	DN10	•	•			•	•		•	•
	DN10 M/M LOW 5.0	5.0	65-370	DN10			•	•	•		•	•	•
	DN15 M/M LOW 2.5	2.5	30-200	DN15	•	•			•	•		•	•
	DN15 M/M LOW 5.0	5.0	65-370	DN15			•	•	•		•	•	•
	DN15 M/M HIGH 2.5	2.5	100-575	DN15	•	•			•	•		•	•
	DN20 M/M HIGH 2.5	2.5	100-575	DN20	•	•			•	•		•	•
	DN20 M/M HIGH 5.0	5.0	220-1330	DN20			•	•	•		•	•	•
	DN25 M/M 5.5	5.5	600-3609	DN25			•	•	•		•	•	•
	DN32 M/M 5.5	5.5	550-4001	DN32			•	•	•		•	•	•
Female/Female ISO 7/1	Type	Stroke	Flow l/h	Dim									
	DN15 F/F LOW 2.5	2.5	30-200	DN15	•	•			•	•		•	•
	DN15 F/F LOW 5.0	5.0	65-370	DN15			•	•	•		•	•	•
	DN15 F/F HIGH 2.5	2.5	100-575	DN15	•	•			•	•		•	•
	DN20 F/F HIGH 2.5	2.5	100-575	DN20	•	•			•	•		•	•
	DN20 F/F HIGH 5.0	5.0	220-1330	DN20			•	•	•		•	•	•
	DN25 F/F 5.5	5.5	600-3609	DN25			•	•	•		•	•	•
	DN32 F/F 5.5	5.5	550-4001	DN32			•	•	•		•	•	•

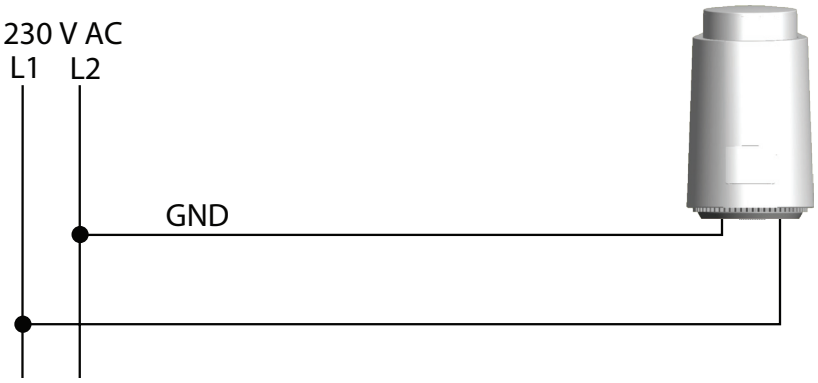
Frese OPTIMA Compact actuators DN10-DN32

Connection diagrams thermic actuators

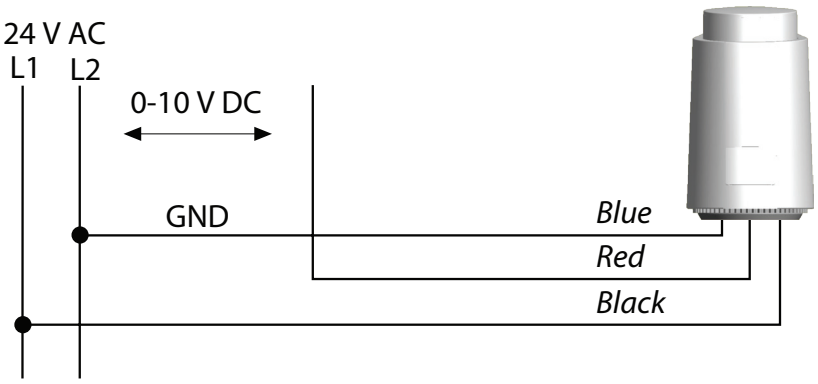
48-5525 & 48-5527
On/Off 24V



48-5526 & 48-5528
On/Off 230V



48-5529
0-10V 24V

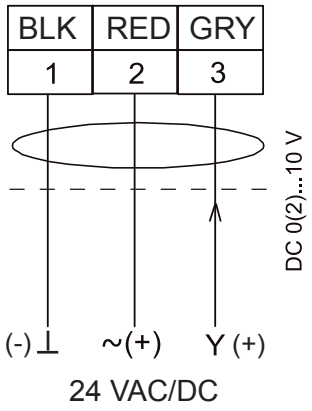


Frese OPTIMA Compact actuators DN10-DN32

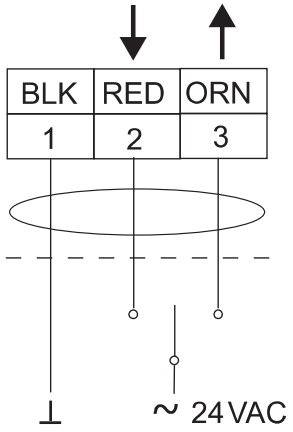
Connection diagrams motoric actuators

53-1180
0-10V, 24V, 5.5 mm

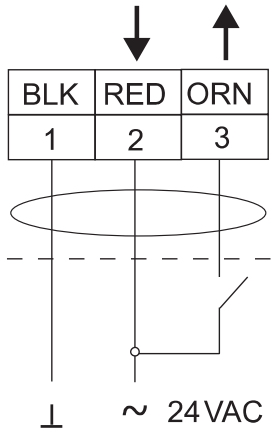
53-1183
0-10V, 24V, 2.5 mm



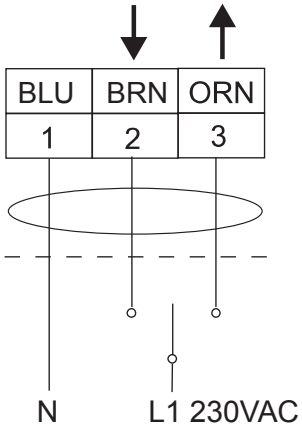
53-1181
3-position 24V



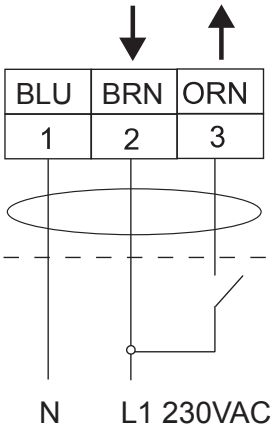
53-1181
On/Off 24V



53-1182
3-position 230V



53-1182
On/Off 230V



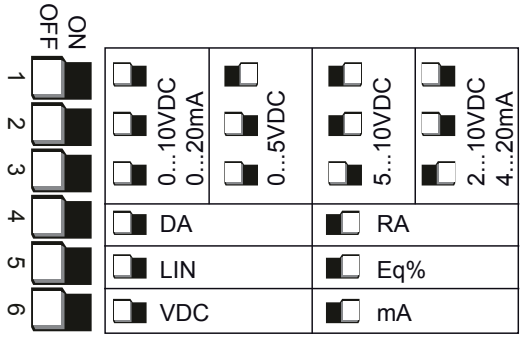
Frese OPTIMA Compact actuators DN10-DN32

Configuration motoric actuators

53-1180 & 53-1183

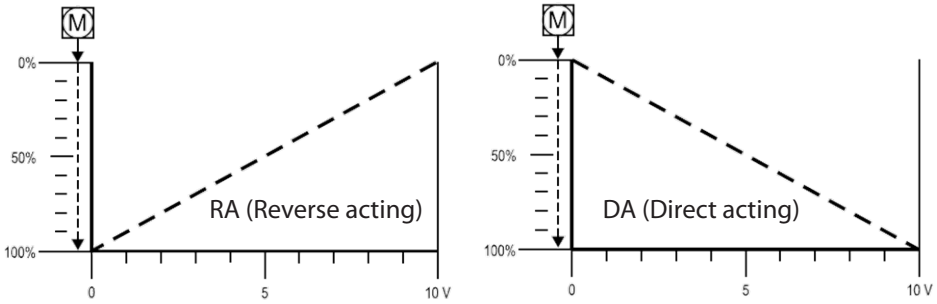
Dip switch 1-2-3

Control signal range
Factory setting 0-10V



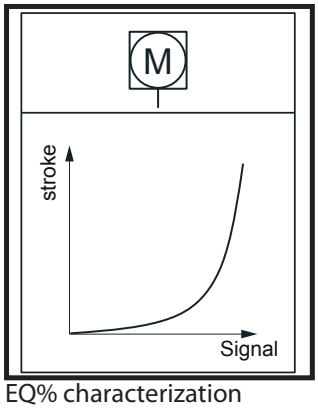
Dip switch 4

Stem action
Factory setting RA (Reverse acting)

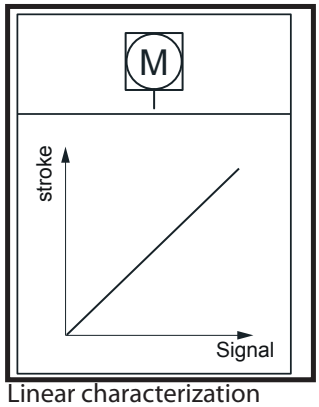


Dip switch 5

Actuator characterization
Factory setting EQ%

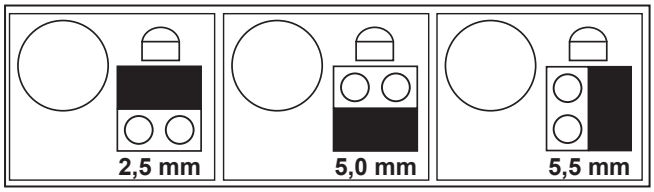


EQ% characterization



Linear characterization

The actuator stroke can be selected via the Jumper and can be set to 2.5mm - 5.0mm or 5.5 mm



53-1180
Factory setting 5.5 mm

53-1183
Factory setting 2.5 mm

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