

OPTIMA Compact Actuators

SI-series DN40-DN200

Application

Proportional 4-20 mA or 0-10 V or 3 position modulating control of Frese OPTIMA Compact valves in heating, ventilating and air conditioning systems.

Due to the self adaption of stroke length, the actuator provides full utilization of the Frese OPTIMA Compact valve modulation.

Suitable for Frese OPTIMA Compact PICV valves (DN40-DN200).

Due to the high IP 54 protection it is suitable for marine and industrial applications.



Features

- Self calibrating stroke
- 4-20 mA, 0-10 V or 3 position control
- Linear or EQ% characterization available on the same actuator
- Small outer dimensions
- Feedback signal, 0-10V DC (Not for 3-position control)
- IP 54 protection
- Manual operation handle on the actuator
- For direct mounting on valves. No adjustments or adapter required
- Position indicator and status indication per LED
- Forced control, Z-mode

Approvals

- Conforms to: EMC directive 2014/30/EU
- Low voltage directive 2014/35/EU



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Technical data

Characteristics:	Motoric, modulating
Supply Voltage Frequenz AC:	45 - 65 Hz
Protection class:	IP 54 to EN 60529
Control signal:	4-20 mA or 0-10 V
Feedback signal	0-10V DC (max 1 mA) Not for 3-position control
Control signal impedance:	Min. 100 k Ω (0-10V) 500 Ω (4-20 mA)
Actuating force:	200 N - DN40-DN50 (Threaded) 800 N - DN50-DN80 (Flanged) 1100 N - DN100-DN200 (Flanged)
Ambient operating conditions:	Temperature 5°C to 55°C Humidity max. 95 % RH (non-condensing)
Manual operation:	Manual handle
Cable:	Not included
Holes for cable glands:	2 x M20 & 1 x M25
Weight:	1.90 kg



Types and Operation Data: 0-10 V & 4-20 mA

Type	Valve Dimension	Control Signal	Stroke	Running time	Supply voltage	Power Consumption
58-8901	DN40-DN50	4-20 mA / 0-10 V	15 mm	30 sec	24 V AC +/-20% 24V DC +20% /- 15%	3.8 W (*8 VA)
58-8902	DN50-DN80	4-20 mA / 0-10 V	20 mm	30 sec	24 V AC +/-20% 24V DC +20% /- 15%	3.8 W (*8 VA)
58-8903	DN100-DN200	4-20 mA / 0-10 V	40 mm (DN100/125) 43 mm (DN150/200)	120 sec	24 V AC +/-20% 24V DC +20% /- 15%	4.5 W (*9.5 VA)

*) Max consumption - for transformer sizing

Types and Operation Data: 3-position

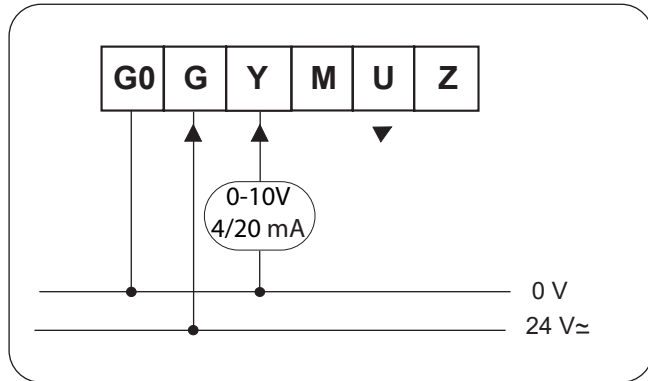
Type	Valve Dimension	Control Signal	Stroke	Speed	Supply voltage	Power Consumption
58-8908	DN40-DN50	3-position 230 V	15 mm	0,5 mm/ sec	230 V AC	3.5 W (*6 VA)
53-1290	DN50-DN80	3-position 230 V	20 mm	0,66 mm/ sec	230 V AC	3.5 W (*8 VA)
53-1293	DN100-DN200	3-position 230 V	40 mm (DN100/125) 43 mm (DN150/200)	0,33 mm/ sec	230 V AC	3.75 W (*8 VA)
53-1291	DN50-DN80	3-position 24 V	20 mm	0,66 mm/ sec	24 V AC/DC	3.5W (*8 VA)
53-1294	DN100-200	3-position 24 V	40 mm (DN100/125) 43 mm (DN150/200)	0,33 mm/ sec	24 V AC/DC	4.5W (*7 VA)

*) Max consumption - for transformer sizing

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Connection diagrams: 0-10 V & 4-20 mA



Terminal	Function
G0	System neutral
G	System potential 24 V AC/DC
Y	Input signal 0-10VDC / 4-20 mA
M	Measuring, neutral (Feedback reference)
U	Feedback signal 0-100% (0-10V)
Z	Positioning signal forced control

Forced control, Z-mode

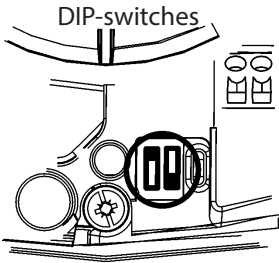
		Z-mode			
		No function	Fully open	Fully closed	Overriding input signal "Y" by 0-1000 Ω
Connections					
	Function				
		EQ% or linear characteristic			EQ% or linear characteristic
		Contact "Z" not connected. Valve follows positioning signal "Y"	Contact "Z" is connected directly to "G", positioning signal "Y" has no impact	Contact "Z" is connected directly to "G0", positioning signal "Y" has no impact	Contact "Z" is connected to "M" via resistor "R", starting point at 50 Ω, end point at 900 Ω, positioning signal "Y" has no impact

OPTIMA Compact Actuators

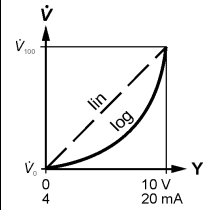
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Dip-switch settings

Linear or EQ% characteristic



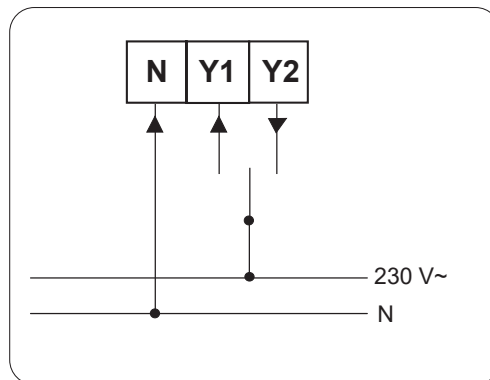
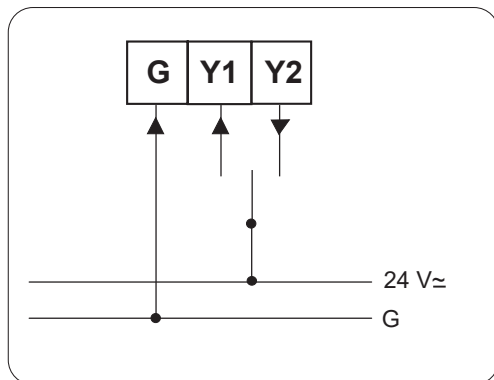
	Input signal "Y"	Feedback signal "U"	Flow characteristic
ON	(*) DC 4-20 mA	DC 0-10V	LIN = Linear
OFF	DC 0-10V	DC 0-10V	(*) LOG = EQ%



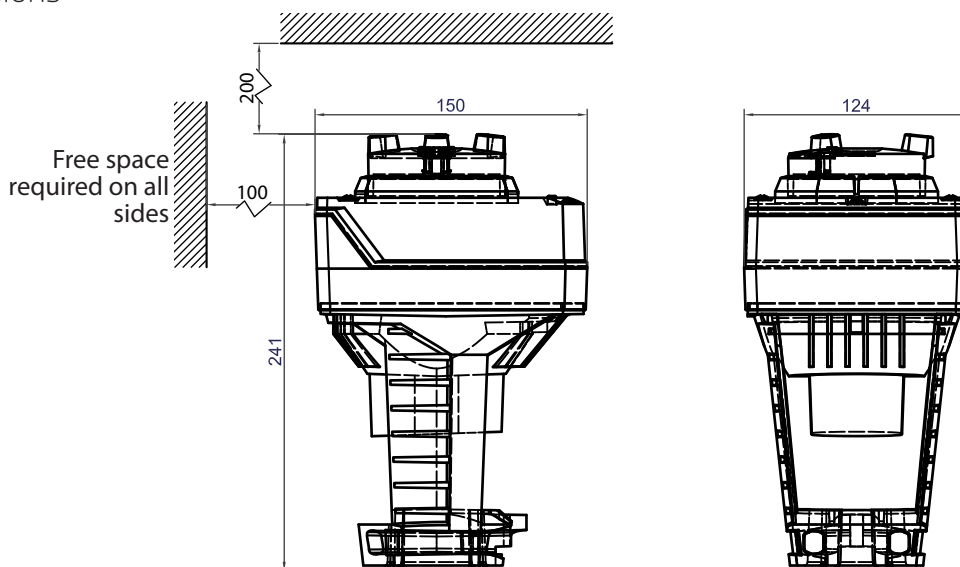
(*) Factory setting: Input signal = **4-20 mA**, Flow characteristic = **EQ%**

Please note: Frese OPTIMA Compact valve design has a linear control characteristic. Because of the independent characteristic, the actuator setting can be used to change the valve response from linear to logarithmic (EQ%)

Connection diagrams: 3-position



Dimensions



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