

Frese OPTIMA Compact Actuators HO-series DN15-DN300

Application

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

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

Suitable for OPTIMA Compact (DN40-DN300) and OPTIMA Compact HCR (DN15-DN80).

With protection class IP 54 or IP 65 it is suitable for marine and industrial applications.



Features

- Self calibrating stroke
- Supply voltage 24V or 230V
- Input signal 0(4)-20 mA, 0(2)-10 V or 3-point control
- Linear or EQ% characterization available on the same actuator
- Small outer dimensions
- Feedback signal, 0-10V DC as standard. (Feedback signal 0(4)-20 mA as accessory)
- Protection class IP 54 or IP 65
- Manual operation handle on the actuator
- For direct mounting on valves.

Approvals

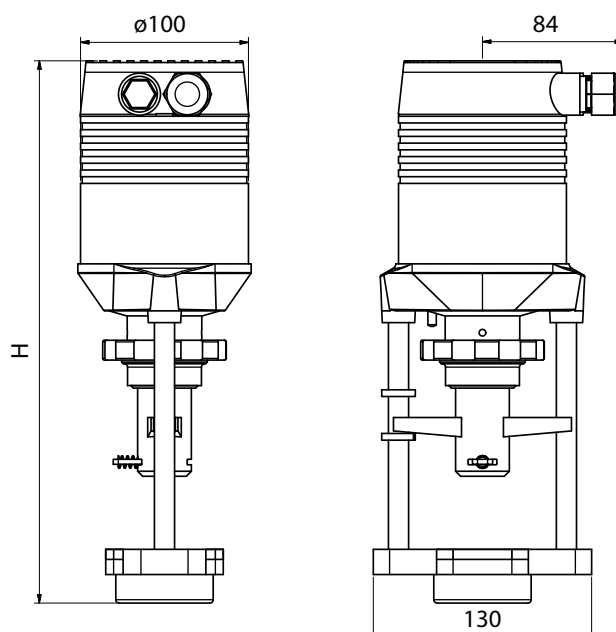
- Conforms to: EMC directive 2014/30/EU
- Low voltage directive 2014/35/EU



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Technical data

Characteristics:	Motoric, modulating
Control signal:	0(2)-10 V & 0(4)-20 mA 3-point
Feedback signal	0-10V DC & 0(4)-20mA (Accessory)
Control signal impedance:	Min. 77 k Ω , 0(2)-10V) 500 Ω , 0(4)-20 mA)
Actuating force/max stroke:	500 N / 20 mm 1100 N / 40/43 mm 2500 N / 48 mm
Ambient operating conditions:	0°C to 60°C
Manual operation:	Manual handle
Cable:	Not included
Holes for cable glands:	M20x1,5 & M16x1,5



Dimension & Weight:

Type	OPTIMA Compact Valve dimension	OPTIMA Compact HCR Valve dimension	Dimension H [mm]	Weight [kg]
58-8922 & 58-8932 58-8923 & 58-8933	DN40-DN50	DN15-DN40	343 (24V) 368 (230V)	2.5
58-8920 & 58-8930 58-8921 & 58-8931	DN50-DN200	DN50-DN80	381 (24V) 406 (230V)	4.0
58-8924 & 58-8934 58-8925 & 58-8935	DN250-DN300	-	670	8.6

Types and Operation Data:

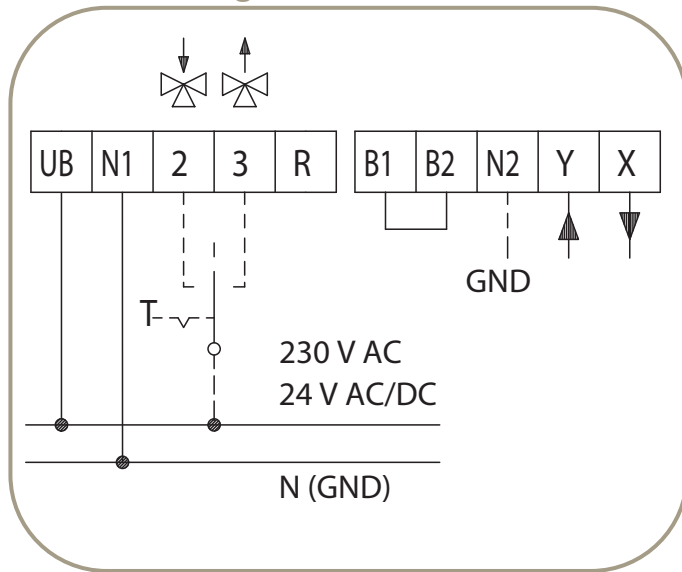
Type	Protection Class	Stroke (max)	Running time	Supply voltage	Power Consumption
58-8922	IP 54	20 mm	38-240 sec	24V AC +/-10% 24V DC +/- 10%	6 VA
58-8923	IP 54	20 mm	38-240 sec	230V AC +6% /- 10%	12 VA
58-8920	IP 54	40 mm (DN100/125) 43 mm (DN150/200)	160-240 sec	24V AC +/-10% 24V DC +/- 10%	6 VA
58-8921	IP 54	40 mm (DN100/125) 43 mm (DN150/200)	160-240 sec	230V AC +6% /- 10%	12 VA
58-8924	IP 54	48 mm	120-240 sec	24V AC +/-10% 24V DC +/- 10%	18 VA
58-8925	IP 54	48 mm	120-240 sec	230V AC +6% /- 10%	25 VA
58-8932	IP 65	20 mm	38-240 sec	24V AC +/-10% 24V DC +/- 10%	6 VA
58-8933	IP 65	20 mm	38-240 sec	230V AC +6% /- 10%	12 VA
58-8930	IP 65	40 mm (DN100/125) 43 mm (DN150/200)	160-240 sec	24V AC +/-10% 24V DC +/- 10%	6 VA
58-8931	IP 65	40 mm (DN100/125) 43 mm (DN150/200)	160-240 sec	230V AC +6% /- 10%	12 VA
58-8934	IP 65	48 mm	120-240 sec	24V AC +/-10% 24V DC +/- 10%	18 VA
58-8935	IP 65	48 mm	120-240 sec	230V AC +6% /- 10%	25 VA

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Accessories:

Type	Type	Item no.
	PCB for mA feedback signal	07-2939

Connection diagram:

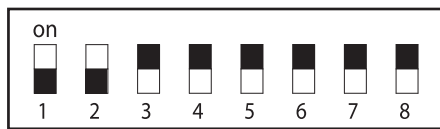


Terminal	Function
UB	System potential 24 V AC/DC or 230V AC
N1	System neutral
2	Decrease (3-point control)
3	Increase (3-point control)
R	Response signal during manual mode
B1/B2	Binary input/Frost protection function
N2*	Zero potential of signals X, Y, R
Y	Input signal 0(2)-10VDC / 0(4)-20 mA
X	Feedback signal 0-10V <i>Feedback 0(4)-20 mA (with PCB accessory)</i>

(*) When the zero potentials of signals X, Y and R are identical to the zero potential of the supply voltage, it is possible to bridge terminals N1 and N2. When the actuator is in continuous mode at 230 V, N2 must be connected. When the actuator is in 3-point mode at 230 V, N2 must be connected if you wish to use X or R at the same time.

Actuator Dip-switch settings:

58-8922 & 58-8932
58-8923 & 58-8933



Dip-switch factory setting
(Black is position of Dip-switch)

Dip-Switch	on	off
S1	Feedback signal characteristic line	Feedback signal characteristic line
S2	Input signal characteristic line	Input signal characteristic line
S3	Input signal (Y) 0 ... 10 V DC or 0 ... 20 mA	Input signal (Y) 2 ... 10 V DC or 4 ... 20 mA
S4	Hysteresis 0.15 V	Hysteresis 0.5 V
S5	Auto test on *	Auto test off
S6	Actuator closes the valve when power is back after failure or lost signal	Actuator opens the valve when power is back after failure or lost signal
S7, S8	S7 and S8 are used to set the actuating time (1.9... 12 s/mm)	

*) Every 10 days the actuator makes an anti-stick routine. Moves quickly to the position defined by S6 and back to normal position defined by the input signal

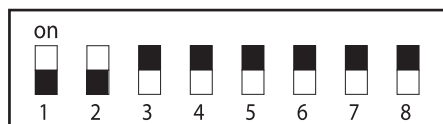
Dip-switch setting of actuator speed
S7 & S8



Frese OPTIMA Compact Actuators HO-series DN15-DN300

Actuator Dip-switch settings:

58-8920 & 58-8930
58-8921 & 58-8931

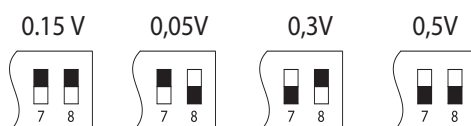


Dip-switch factory setting
(Black is position of Dip-switch)

Dip-Switch	on	off
S1	Feedback signal characteristic line 	Feedback signal characteristic line
S2	Input signal characteristic line 	Input signal characteristic line
S3	Input signal (Y) 0 ... 10 V DC or 0 ... 20 mA	Input signal (Y) 2 ... 10 V DC or 4 ... 20 mA
S4	Actuating time 4s/mm	Actuating time 6 s/mm
S5	Auto test on *	Auto test off
S6	Actuator closes the valve when power is back after failure or lost signal	Actuator opens the valve when power is back after failure or lost signal
S7, S8	S7 and S8 are used to set the hysteresis (0.15...0.5V)	

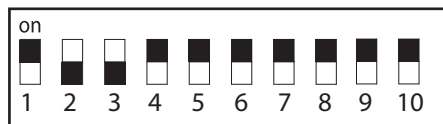
*) Every 10 days the actuator makes an anti-stick routine. Moves quickly to the position defined by S6 and back to normal position defined by the input signal

Dip-switch setting hysteresis
S7 & S8



Actuator Dip-switch settings:

58-8924 & 58-8934
58-8925 & 58-8935

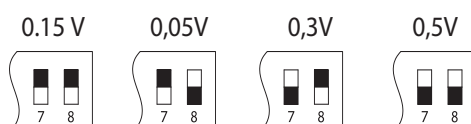


Dip-switch factory setting
(Black is position of Dip-switch)

Dip-Switch	on	off
S1	Ready for operation	-
S2	Feedback signal characteristic line 	Feedback signal characteristic line
S3	Input signal characteristic line 	Input signal characteristic line
S4	Input signal (Y) 0 ... 10 V DC or 0 ... 20 mA	Input signal (Y) 2 ... 10 V DC or 4 ... 20 mA
S5	Actuating time 2.5 s/mm	Actuating time 5 s/mm
S6	Auto test on *	Auto test off
S7	Actuator closes the valve when power is back after failure or lost signal	Actuator opens the valve when power is back after failure or lost signal
S8, S9	The hysteresis (0.05 ... 0.5 V) is set using S8 and S9.	
S10	Input signal (Y) in mA	Input signal (Y) in V

*) Every 10 days the actuator makes an anti-stick routine. Moves quickly to the position defined by S7 and back to normal position defined by the input signal

Dip-switch setting hysteresis
S8 & S9

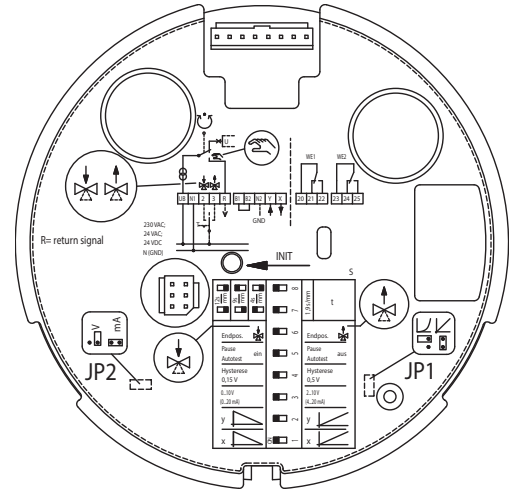


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Jumper settings:

58-8922 & 58-8932
58-8923 & 58-8933

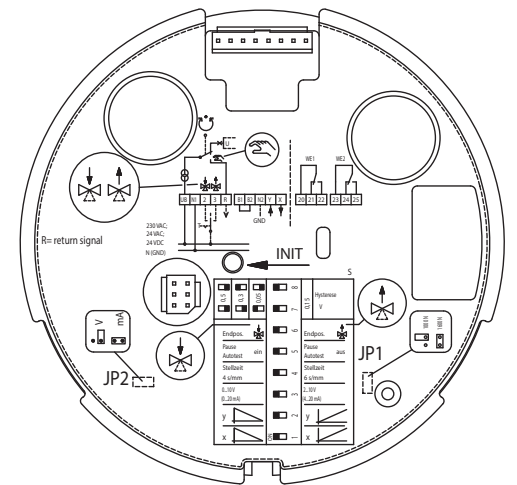
JP1	Characteristic linear		Characteristic EQ% (LOG)	
JP2	Input signal (Y) in mA		Input signal (Y) in V	



Jumper settings:

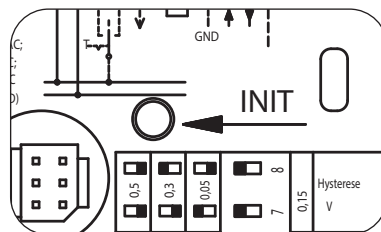
58-8920 & 58-8930
58-8921 & 58-8931

JP1	Actuating force 1600N		Actuating force 1100N	
JP2	Input signal (Y) in mA		Input signal (Y) in V	

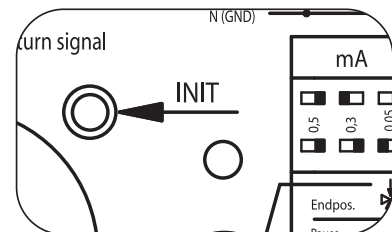


Commissioning:

After the actuator is mounted on the valve the button **INIT** must be pushed down for 2 seconds to start the calibration process



58-8922 & 58-8932
58-8923 & 58-8933
58-8920 & 58-8930
58-8921 & 58-8931



58-8924 & 58-8934
58-8925 & 58-8935

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