

# OPTIMA Compact Failsafe & Feedback Actuators

DN10-DN32

## Application

Proportional 0-10V modulating 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.

0-10V feedback signal for indication of stem position of the PICV.

## Features - Feedback Actuators type MO

- Feedback signal 0-10V
- Self calibrating stroke
- Simple snap-on installation
- LC-Display for status indication (position, control voltage and error-code)
- Manual operation for maintenance and installation
- EQ% characterization
- The actuator is short-circuit-proof and protected against polarity reversal
- Plug-in cable for supply voltage and control signal
- Small outer dimensions
- Removable halogen free cable
- IP 54 protection
- Noise level < 30 db(A)

## Features - Feedback Actuators type FRS

- Feedback signal 0-10V
- Self calibrating stroke
- 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 halogen free cable
- Auto zero detection
- IP 54 protection
- Noise level < 30 db(A)
- Voltage and Current analog inputs



## Features - Failsafe Actuators Type MO

- Same features as feedback actuators Type MO with additional:
  - Failsafe system (Rechargeable battery)
  - Failsafe function to open or close the valve upon power failure
  - Failsafe running time is 15 sec/mm

## Approvals

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



# OPTIMA Compact Failsafe & Feedback Actuators

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## Feedback Actuator Type M0

### Technical data

<b>Supply voltage:</b>	24V AC/DC
<b>Protection class:</b>	IP 54 acc. EN60529
<b>Frequency:</b>	50/60 Hz AC or DC
<b>Control signal:</b>	0-10V DC
<b>Input impedance:</b>	>100 k Ohm (DC 0-10V)
<b>Force:</b>	>125N (200 N on request)
<b>Stroke:</b>	Auto calibration
<b>Ambient conditions:</b>	Temperature 0°C - 50°C Humidity 5-95% r.F.
<b>Audible noise rating:</b>	< 30 db(A)
<b>Cable length:</b>	1.0 m, Halogen free
<b>Weight:</b>	0.15 kg



### Operation Data

Item no.	Valve Dim.	Control signal	Running time (50 Hz)	Supply voltage	Power Consumption	Feedback signal
53-1979	DN10-DN32	DC 0-10V	15 s/mm	24V AC -10% /+20% 24V DC +/- 20%	1.4W (2.6 VA)	0-10V

## Failsafe Actuator Type M0

### Technical data

<b>Supply voltage:</b>	24V AC/DC
<b>Protection class:</b>	IP 54 acc. EN60529
<b>Frequency:</b>	50/60 Hz or DC
<b>Control signal:</b>	0-10V DC
<b>Input impedance:</b>	>100 k Ohm (DC 0-10v)
<b>Force:</b>	>125N (200 N on request)
<b>Stroke:</b>	Auto calibration
<b>Ambient conditions:</b>	Temperature 0°C - 50°C Humidity 5-95% r.F.
<b>Audible noise rating:</b>	< 30 db(A)
<b>Cable length:</b>	1.0 m, Halogen free
<b>Weight:</b>	0.15 kg



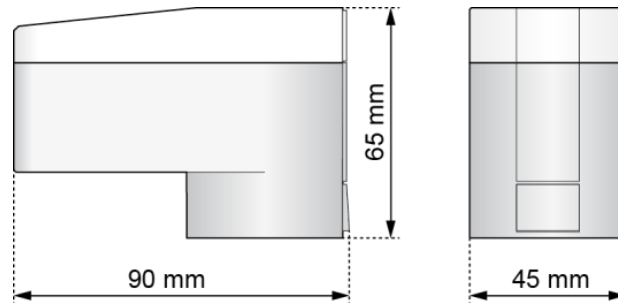
### Operation Data

Item no.	Valve Dim.	Control signal Function	Running time (50 Hz)	Supply voltage	Power Consumption	Feedback signal
53-1980	DN10-DN32	DC 0-10V Fail Safe Open	15 s/mm	24V AC -10% /+20% 24V DC +/- 20%	1.4W (2.6 VA) 2.6W / 3.8 VA (Temporary)	0-10V
53-1981	DN10-DN32	DC 0-10V Fail Safe Close	15 s/mm	24V AC -10% /+20% 24V DC +/- 20%	1.4W (2.6 VA) 2.6W / 3.8 VA (Temporary)	0-10V

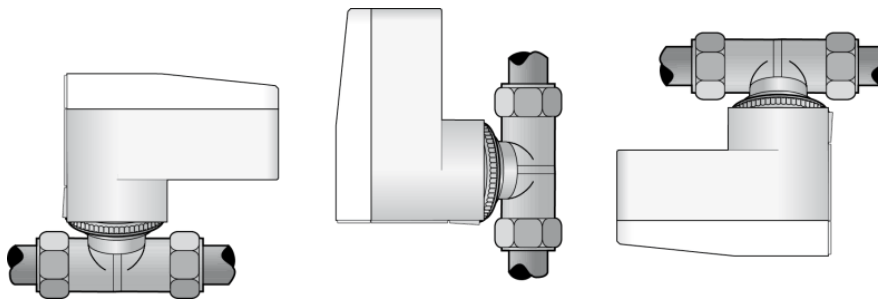
# OPTIMA Compact Failsafe & Feedback Actuators

DN10-DN32

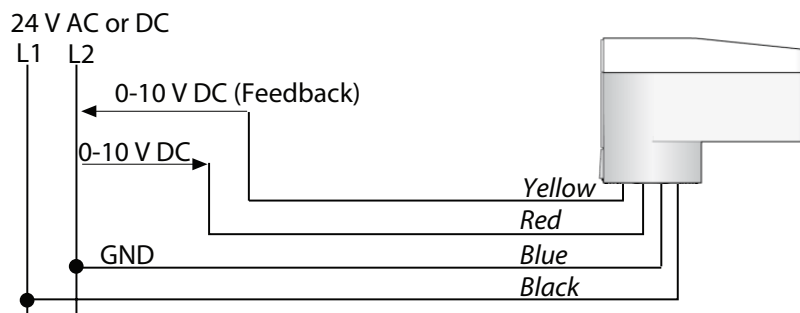
Dimensions actuator Type M0



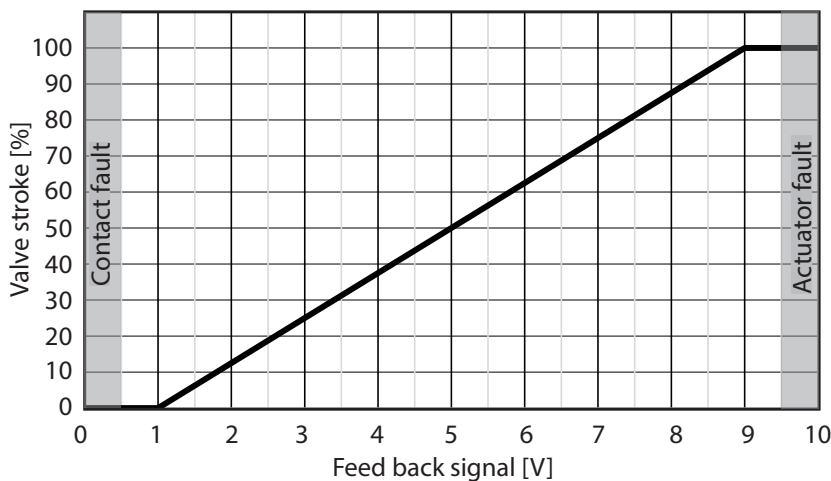
Installation positions for actuator Type M0 IP54 (All directions)



Wiring diagram actuator Type M0



Feedback signal actuator Type M0



Feed back signal

Voltage	Description
< 0.5 V	No contact/Lost wire
1 - 9 V	Voltage proportional to valve stroke
1 V	Fully closed valve
9 V	Fully open valve
> 9.5 V	Internal actuator fault



# OPTIMA Compact Failsafe & Feedback Actuators

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Configuration actuator Type FRS

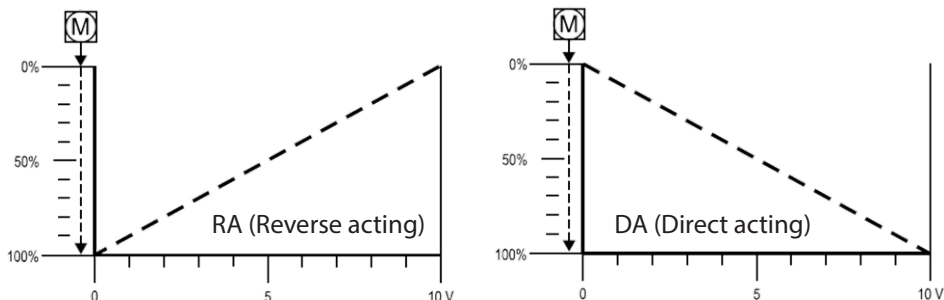
## Dip switch 1-2-3

Control signal range  
Factory setting 0-10V

	OFF	NO					
1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			0...10 VDC	0...20 mA	0...5 VDC	5...10 VDC	2...10 VDC
							4...20 mA
			DA		RA		
			LIN		Eq%		
			VDC		mA		

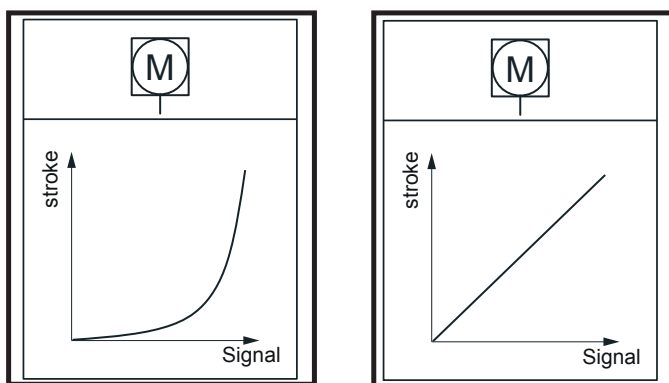
## Dip switch 4

Stem action  
Factory setting RA (Reverse acting)



## Dip switch 5

Actuator characterization  
Factory setting EQ%



EQ% characterization

Linear characterization

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