



Type 3374 Electric Actuator



Application

Electric actuator for plant engineering and HVAC



Fig. 1: Construction with integrated yoke (form B)



Fig. 2: Construction with ring nut (form A)

Special features

The actuator is a linear actuator, which can be combined with Series V2001 and 240 as well as Types 3260 and 3214 Valves.

- Construction with integrated yoke or using an M30x1.5 ring nut including the necessary stem connecting parts
- Available with or without fail-safe action
- Actuator with “actuator stem extends” fail-action tested by the German technical surveillance association TÜV according to DIN EN 14597 in combination with various SAMSON valves
- Motor switched off by torque switches

¹ Not in actuators with positioner and fail-safe action

- Mechanical override ¹
- No maintenance

Versions

- Version with three-step signal
 - Synchronous motor with maintenance-free planetary gear
- Version with positioner
 - Stepper motor with maintenance-free planetary gear
 - All function settings performed using a rotary pushbutton on the actuator
 - Settings made using the TROVIS-VIEW software

Options

- Limit contacts
 - Mechanical
 - Over a relay (version with positioner only)
- Resistance transmitters (version with three-step signal only)
 - Two resistance transmitters with a resistance range from 0 to 1000 Ω
- Special version with three-key operation (version with positioner only)
 - The actuator with positioner is not operated using the rotary pushbutton. Instead, keys on the cover are used for operation.
 - This actuator version can be operated without having to remove the housing cover.
- Communication (version with positioner only)
 - RS-485 module for Modbus RTU communication

Design and principle of operation

The Type 3374 Electric Actuator is linear actuator, which is used in combination with SAMSON valves in industrial plants as well as in heating, ventilation and air-conditioning systems.

Depending on the actuator version, either a three-step signal or continuous signal issued by an electronic controller is used to control the electric actuator. The electric actuator consists of a reversible motor and a maintenance-free planetary gear with

ball screw drive. The motor is switched off by torque switches in the end positions or in case of overload.

- Type 3260 (DN 65 to 80)
- Type 3260 (DN 100 to 150)

Fail-safe action

The Type 3374 Actuator is available with fail-safe action. The actuators with fail-safe action have a spring assembly and an electromagnet. The actuator is moved by the force of the spring to the fail-safe position when the electromagnet is de-energized. The direction of action depends on the actuator version and cannot be reversed.

- **"Actuator stem extends" fail-safe action:**
The actuator stem extends upon supply voltage failure.
- **"Actuator stem retracts" fail-safe action:**
The actuator stem retracts upon supply voltage failure.

Mechanical limit contacts

Mechanical limit contacts consist of two floating changeover switches. Their switching positions can be changed independently from one another by continuously adjustable cam disks.

The floating contacts can be used as either make or break contacts to influence the tasks of control equipment.

Resistance transmitters

The actuator with three-step control signal can optionally be equipped with two resistance transmitters. They each consist of a potentiometer, which is linked to the gear of the actuator over gear wheels. The resistance value, which is proportional to the valve travel, can be used for position feedback.

It is possible to retrofit the resistance transmitter.

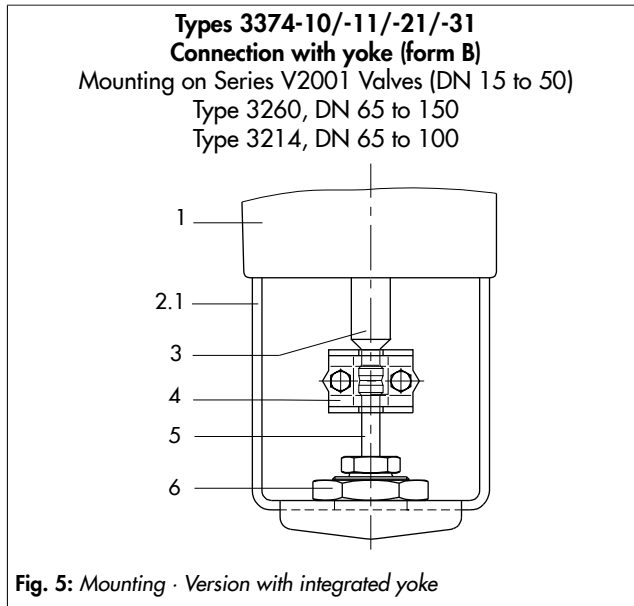
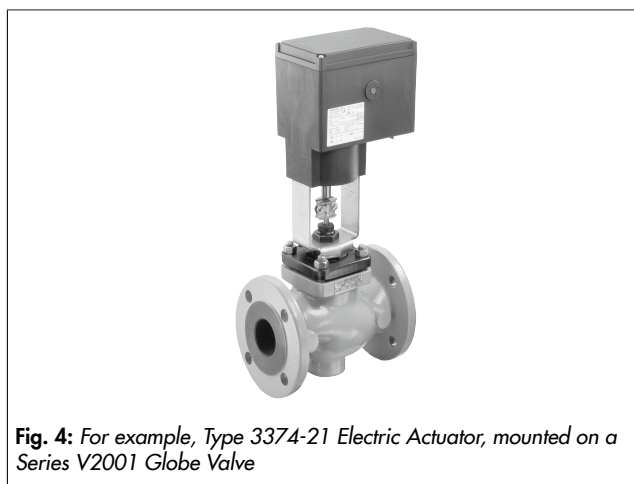
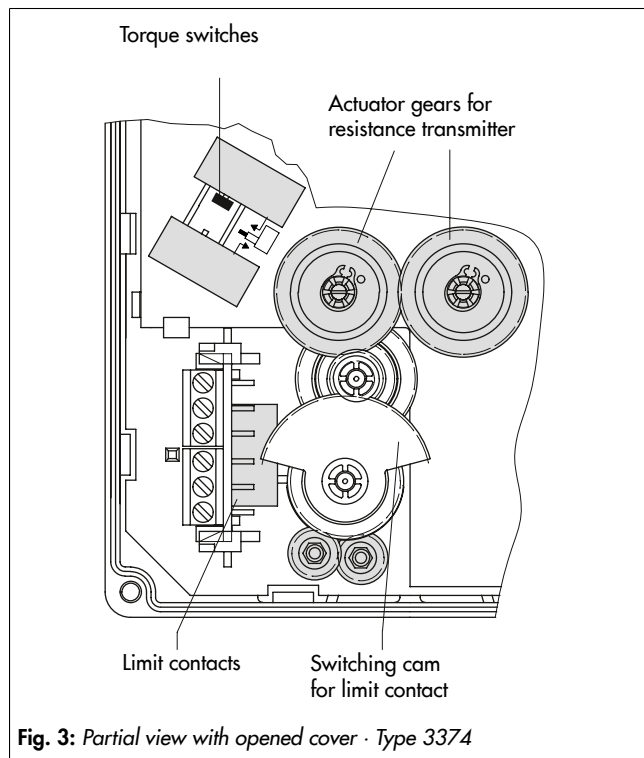


Fig. 5: Mounting · Version with integrated yoke

- 1 Actuator
- 2.1 Actuator yoke
- 3 Actuator stem
- 4 Stem connector
- 5 Plug stem
- 6 Nut

Attachment

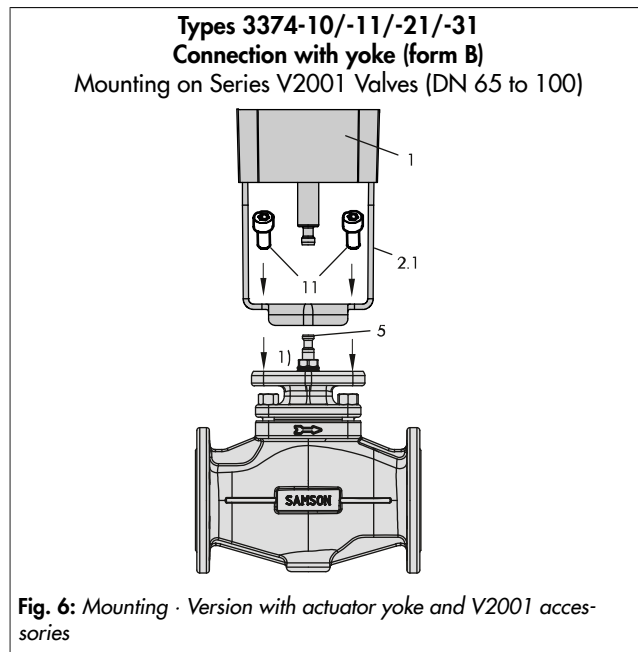
Actuators with an integrated yoke are primarily combined with the following valves:

For mounting on:

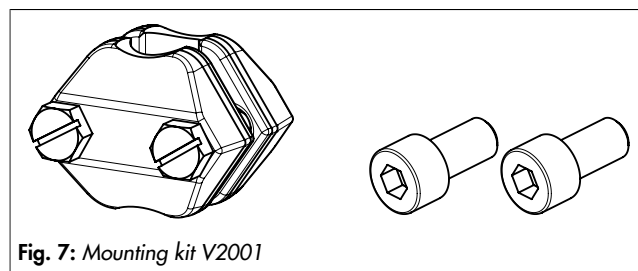
- Series V2001 (DN 15 to 50)
- Type 3214 (DN 65 to 100)

Mounting on Series V2001 Valves (DN 65 to 100)

⇒ See Fig. 6.



- | | |
|-----|---|
| 1 | Actuator |
| 2.1 | Actuator yoke |
| 3 | Actuator stem |
| 5 | Plug stem |
| 1.1 | Screws |
| 1) | A spacer is required here to mount a Type 3323 Three-way Valve (DN 65 to 80). |



i Note

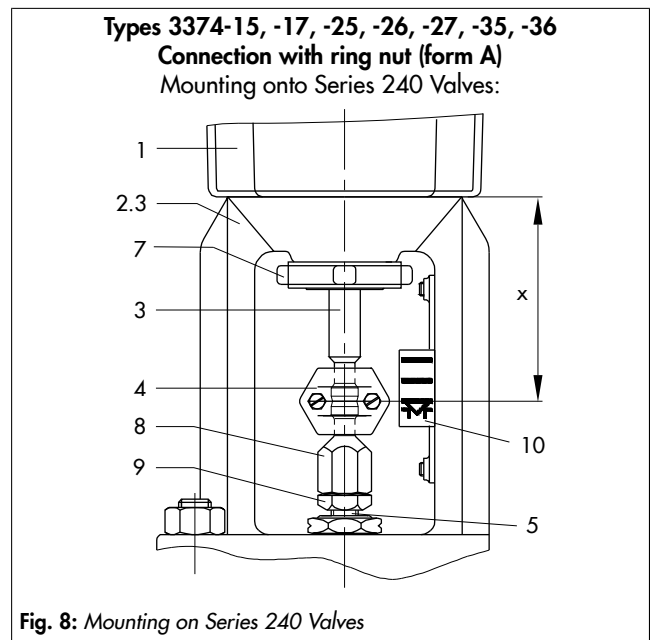
The V2001 mounting kit is not included in the scope of delivery. It is available as an accessory (see "Parts for retrofitting and accessories").

Construction with ring nut (form A)

Actuators with central attachment are primarily combined with valves that have their own yoke:

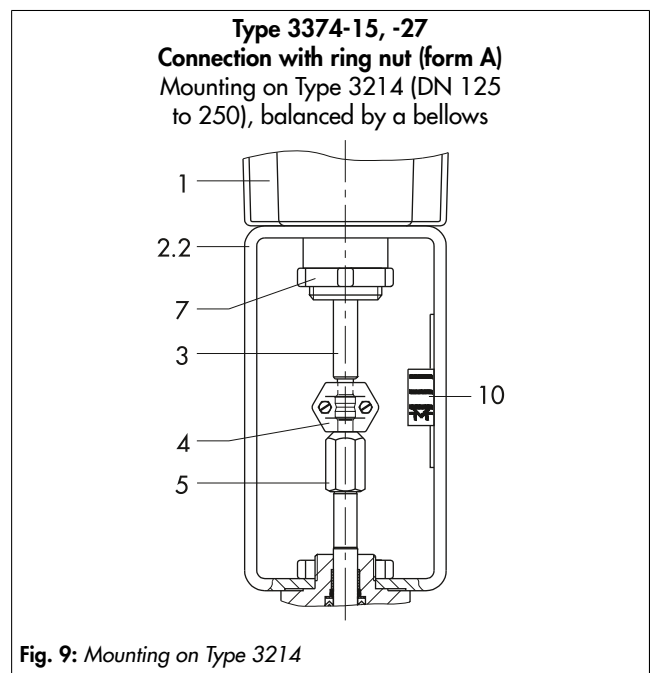
For mounting on:

- Series 240
- Type 3214 balanced by a bellows (DN 125 to 250)
- Type 3260 (DN 65 to 100)
- Type 3260 (DN 100 to 150)



- | | |
|-----|------------------------|
| 1 | Actuator |
| 2.3 | Bonnet |
| 3 | Actuator stem |
| 4 | Stem connector |
| 5 | Plug stem |
| 7 | Ring nut |
| 8 | Stem connector nut |
| 9 | Lock nut |
| 10 | Travel indicator scale |

Mounting on Type 3214 Valve (DN 125 to 250)



- | | |
|-----|------------------------|
| 1 | Actuator |
| 2.2 | Valve yoke |
| 3 | Actuator stem |
| 4 | Stem connector |
| 5 | Plug stem |
| 7 | Ring nut |
| 10 | Travel indicator scale |

Electrical connection

Version with three-step signal

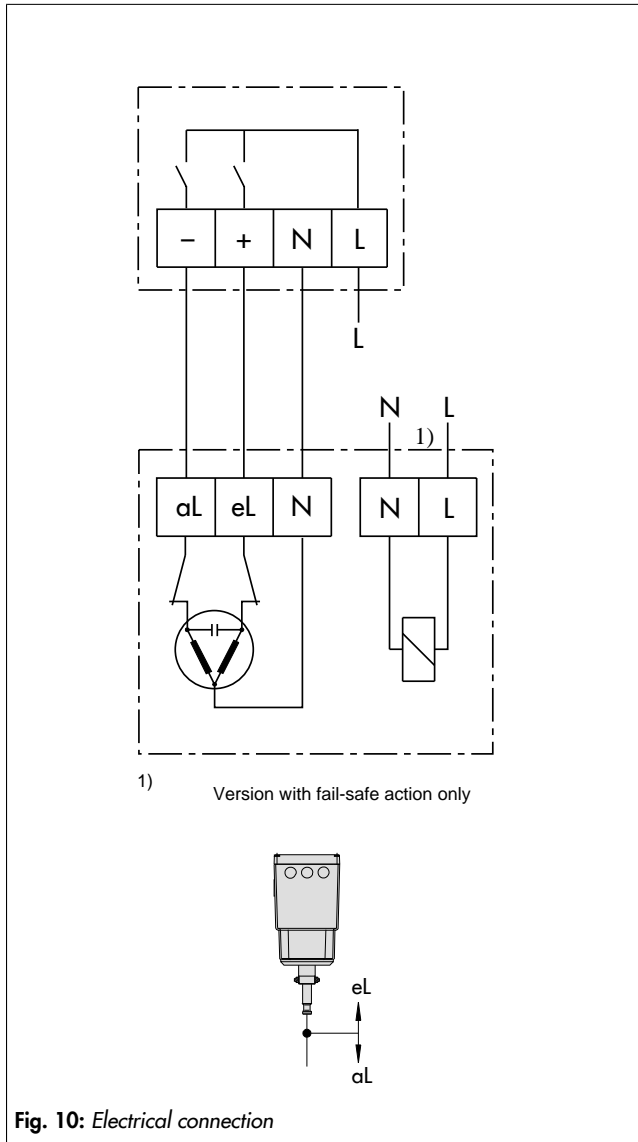


Fig. 10: Electrical connection

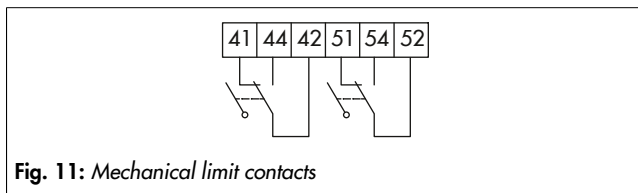


Fig. 11: Mechanical limit contacts

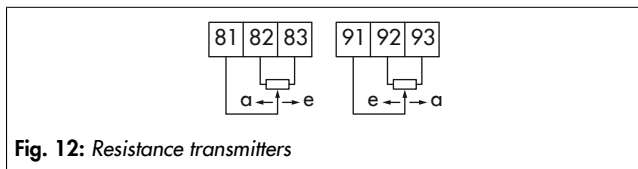


Fig. 12: Resistance transmitters

Version with positioner

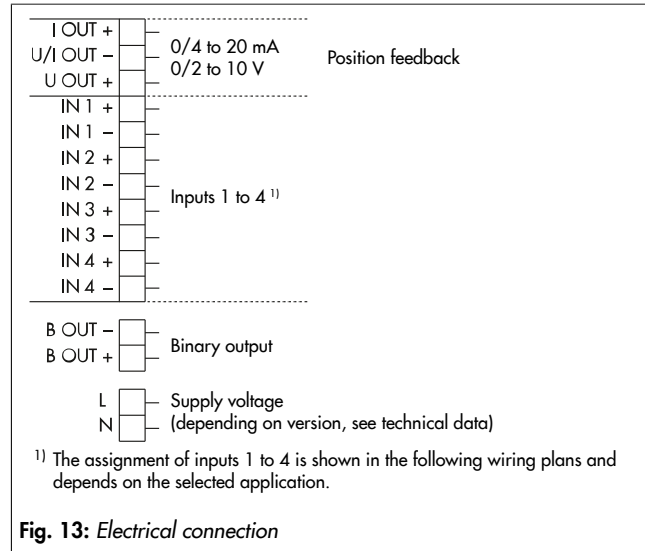


Fig. 13: Electrical connection

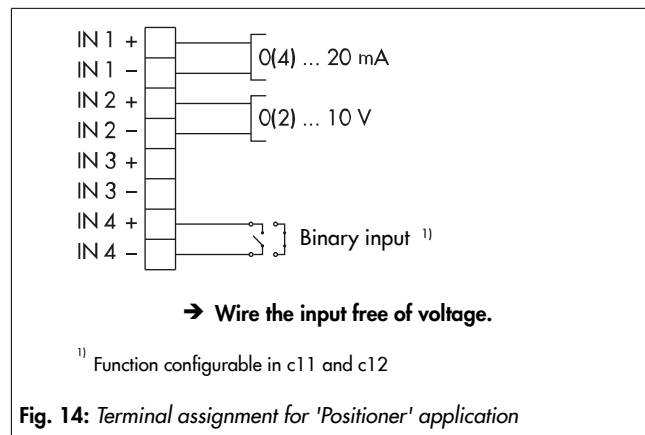


Fig. 14: Terminal assignment for 'Positioner' application

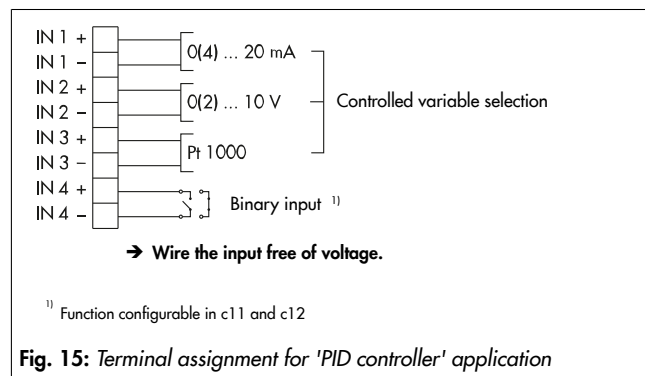


Fig. 15: Terminal assignment for 'PID controller' application

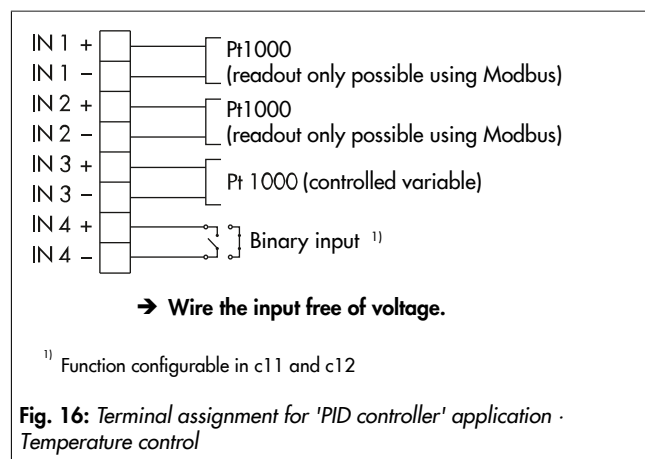
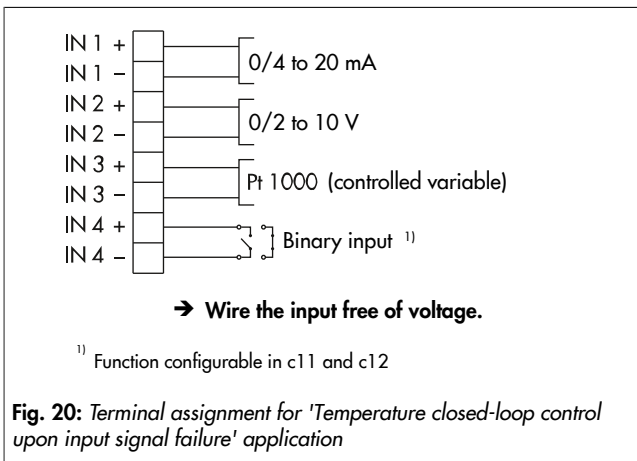
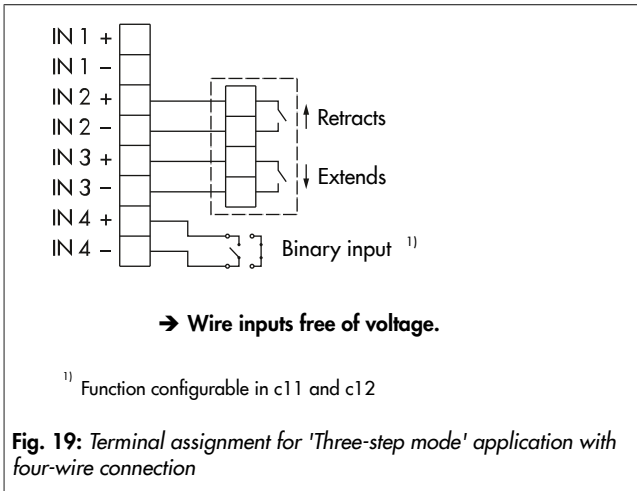
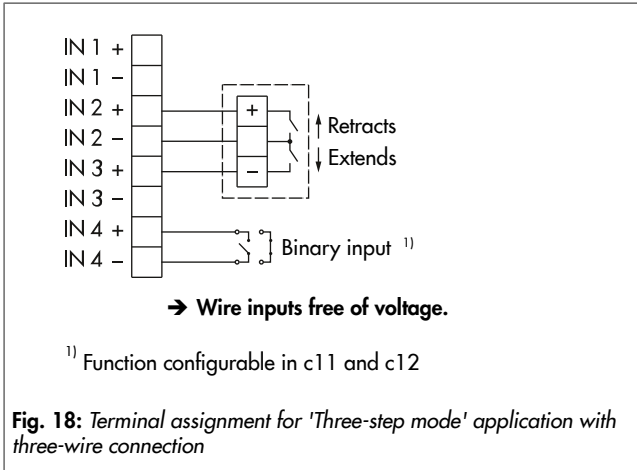
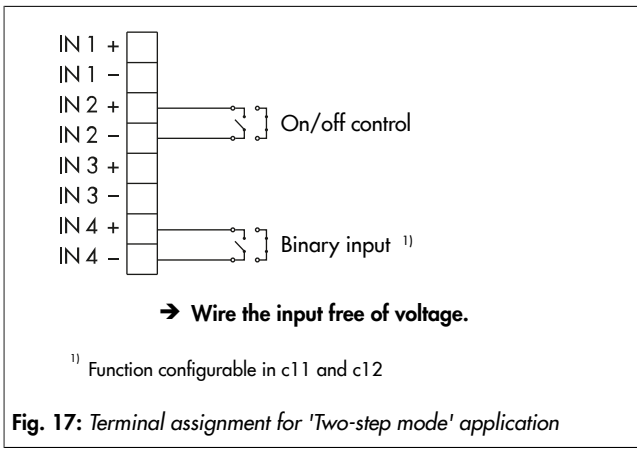
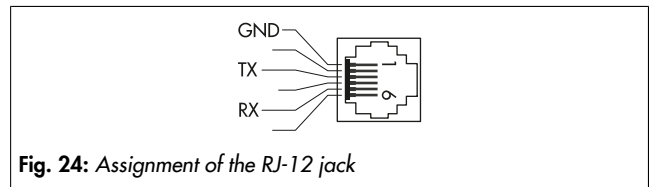
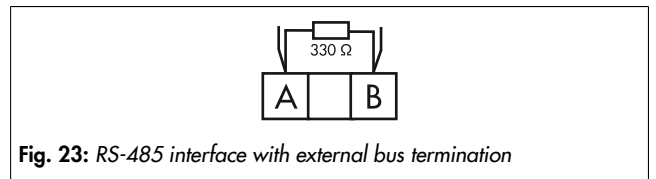
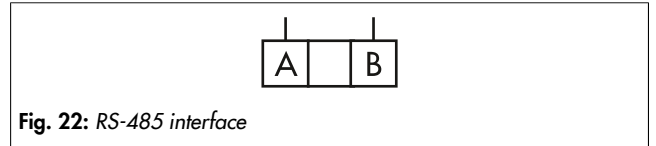
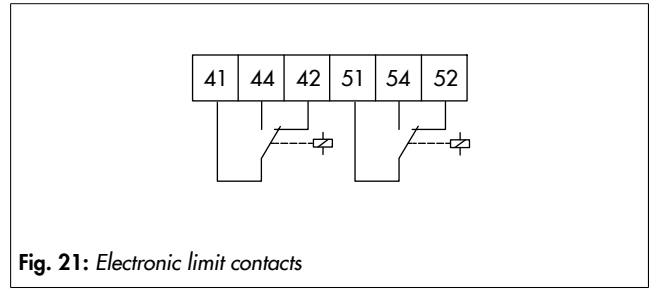


Fig. 16: Terminal assignment for 'PID controller' application - Temperature control




Options:



Technical data

Table 1: Technical data - General

Type 3374	-10	-11	-15	-17	-21	-25	-26	-27	-31	-35	-36
Form ¹⁾	B		A		B	A			B	A	
Fail-safe action	Without				Actuator stem extends				Actuator stem retracts		
Testing according to DIN EN 14597	-				✓				-		
Rated travel in mm	30	15	30		15	30	15	30	15	30	15
Motor switch-off	Torque switches										
Duty type	S1 - 100 % according to EN 60034-1										
Permissible temperature ranges ²⁾											
Ambient	5 to 60 °C										
Storage	-25 to +70 °C										
Material	Housing and cover: Plastic (glass-fiber reinforced PPO)										
Safety											
Degree of protection ³⁾	IP54 according to EN 60529 when blanking plugs are inserted, IP65 with three approved cable glands ⁴⁾ , suspended mounting according to EN 60664-1 not permitted										
Class of protection ³⁾	II according to EN 61140										
Device safety ³⁾	According to EN 61010-1										
Noise immunity	According to EN 61000-6-2 and EN 61326-1										
Noise emission	According to EN 61000-6-3 and EN 61326-1										
Conformity											

1) Form A: with ring nut, form B: with mounted yoke

2) The permissible medium temperature depends on the valve on which the electric actuator is mounted. The limits in the valve documentation apply.

3) Only when the housing cover is attached and fastened

4) Cable glands M20x1.5 with metal nut (A/F 23/24) can be retrofitted (see Parts for retrofitting and accessories for accessories)

Table 2: Technical data · Version with three-step signal

Type 3374		-10	-11	-15	-17	-21	-25	-26	-27	-31	-35	-36
Thrust in kN												
	Extends	2.5	2.5	2.5	5	2	1.8	2	3	2	2.1	2
	Retracts	2.5	2.5	2.5	5	0.5	2.1	0.5	0.5	0.5	1.8	0.5
Nominal thrust of safety spring in kN		-	-	-	-	2	1.8	2	3	0.5	1.8	0.5
Manual override		With hex wrench				With hex wrench only possible when supply voltage is connected Adjustment not possible after fail-safe action has been triggered						
Stroking speed in mm/s												
Standard		0.125			0.1	0.125	0.1	0.125	0.1	0.125	0.1	0.125
Fast		0.25			-	0.25	-	0.25	-	0.25	-	0.25
In the event of fail-safe action		-				1.25						
Transit time in s for rated travel												
Standard		240	120	240	300	120	300	120	300	120	300	120
Fast		120	60	120	-	60	-	60	-	60	-	60
In the event of fail-safe action		-				12	24	12	24	12	24	12
Electrical connection												
Supply voltage		230 V, +10/-15 % 24 V, +10/-15 %										
Power line frequency		50 Hz										
Power consumption in VA												
	Standard	7.5			13	10.5	16	10.5	16	10.5	16	10.5
	Fast	13			-	16	-	16	-	16	-	16
Weight in kg (approx.)		3.2	3.2	3.3	3.3	3.9	5.8	4.0	6.2	3.5	5.8	3.6
Additional equipment												
Limit contacts		Two adjustable limit contacts with mechanical changeover switches; max. 240 V AC, max. 1 A, without contact protection ¹⁾										
Resistance transmitters		Two potentiometers, 0 to 1000 Ω ±15 %, max. 200 mW, usable range approx. 0 to 900 Ω										

1) Contact protection with suitable spark suppression must be fitted for the switching contact. Observe the manufacturer's specifications concerning the connected load to select the appropriate spark suppression. A fuse, which is suitable for the application's circuit, must be used for the short-circuit and overload protection.

Table 3: Technical data · Version with positioner

Type 3374		-10	-11	-15	-17	-21	-25	-26	-27	-31	-35	-36
Thrust in kN												
Standard	Extends	2.5	2.5	2.5	5	2	1.8	2	3	2	2.1	2
	Retracts	2.5	2.5	2.5	5	0.5	2.1	0.5	0.5	0.5	1.8	0.5
Faster motor	Extends	1.25	1.25	1.25	-	-	-	-	-	-	-	-
	Retracts	1.25	1.25	1.25	-	-	-	-	-	-	-	-
Nominal thrust of safety spring (for rated travel) in kN		-	-	-	-	2	1.8	2	3	0.5	1.8	0.5
Manual override		4 mm hex wrench or electric ¹⁾					Electric					
Stroking speed in mm/s												
Standard motor/normal speed		0.25	0.25	0.25	0.125	0.25	0.125	0.25	0.125	0.25	0.125	0.25
Standard motor/fast speed		0.5	0.5	0.5	0.25	0.5	0.25	0.5	0.25	0.5	0.25	0.5
Faster motor/normal speed		0.5	0.5	0.5	-	-	-	-	-	-	-	-
Faster motor/fast speed		1	1	1	-	-	-	-	-	-	-	-
In the event of fail-safe action		-	-	-	-	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Transit time in s for rated travel												
Standard motor/normal speed		120	60	120	240	60	240	60	240	60	240	60
Standard motor/fast speed		60	30	60	120	30	120	30	120	30	120	30
Faster motor/normal speed		60	30	60	-	-	-	-	-	-	-	-
Faster motor/fast speed		30	15	30	-	-	-	-	-	-	-	-
In the event of fail-safe action		-	-	-	-	12	24	12	24	12	24	12
Electrical connection												
Supply voltage; power line frequency		24 V (±15 %), 50 to 60 Hz (tolerance: 47 to 63 Hz) and 24 V DC (±15 %) 100 to 240 V (tolerance: 85 to 264 V), 50 to 60 Hz (tolerance: 47 to 63 Hz)										
Power consumption												
24 V AC in VA												
Standard		12.5		19	18	25	18	25	18	25	18	
Fast		16.5		-	23	-	23	-	23	-	23	
24 V DC in W												
Standard		7.5		13	11.5	17	11.5	17	11.5	17	11.5	
Fast		11		-	15	17	15	17	15	17	15	
100 to 240 V AC in VA												
Standard		13.8 to 20		22	19.8 to 26	28	19.8 to 26	28	19.8 to 26	28	19.8 to 26	
Fast				-								
Duty type		S1 - 100 % according to EN 60034-1										
Additional equipment												
Limit contacts	Mechanical	Two adjustable limit contacts with mechanical changeover switches; Max. 240 V AC, max. 1 A, without contact protection ²⁾										
	Electronic	Two adjustable limit contacts with relay and changeover switches; Max. 240 V AC, max. 1 A, without contact protection ²⁾										
RS-485 module		Module for Modbus RTU communication										

Type 3374	-10	-11	-15	-17	-21	-25	-26	-27	-31	-35	-36
Weight in kg (approx.)	3.5	3.5	3.6	3.6	4.2	5.7	4.3	6.1	3.8	5.7	3.9

1) Special version with handwheel on request

2) Contact protection with suitable spark suppression must be fitted for the switching contact. Observe the manufacturer's specifications concerning the connected load to select the appropriate spark suppression. A fuse, which is suitable for the application's circuit, must be used for the short-circuit and overload protection.

Table 4: Technical data - Positioner

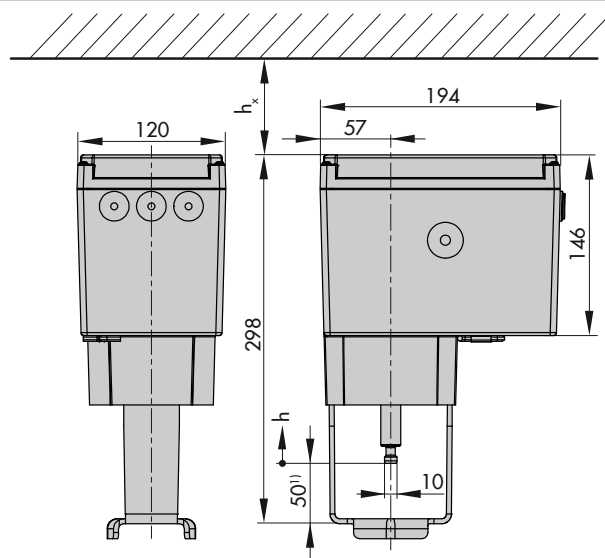
Type 3374		
Input	Current input	0/4 to 20 mA, adjustable, $R_i = 50 \Omega$
	Voltage input	0/2 to 10 V, adjustable, $R_i = 20 k\Omega$
	Pt1000 input ¹⁾	Measuring range: -50 to $+150$ °C, 300 μ A
	Binary input ²⁾	Activation by jumpering the terminals, not galvanically isolated
Output	Current output	0/4 to 20 mA, adjustable; error indication 24 mA
	Resolution	1000 steps or 0.02 mA
	Load	Max. 200 Ω
	Voltage output	0/2 to 10 V, adjustable; error indication 12 V
	Resolution	1000 steps or 0.01 V
	Load	Min. 5 k Ω
	Binary output	Floating, max. 240 V AC, max. 1 A, without contact protection ³⁾
Applications	Positioner	The travel follows the input signal
	PID controller	Fixed set point control
	Two-step mode	Two-step mode, floating binary input for actuation
	Three-step mode	Three-step mode, floating binary input for actuation
	Temperature closed-loop control upon input signal failure	The integrated PID controller uses a fixed set point for closed-loop control after the input signal fails.
Display	Icons for functions, codes and text field; with backlight	
Rotary pushbutton	Operating control for on-site operation to select and confirm codes and values	
Interface	RS-232, for point-to-point connection to communication participants or for memory pen; permanently installed; connection: RJ-12 jack	

1) For PID Controller (PID) and Temperature closed-loop control upon input signal failure (POSF) applications only

2) For two-step mode (2STP) and three-step mode (3STP) applications

3) Contact protection with suitable spark suppression must be fitted for the switching contact. Observe the manufacturer's specifications concerning the connected load to select the appropriate spark suppression. A fuse, which is suitable for the application's circuit, must be used for the short-circuit and overload protection.

Dimensions

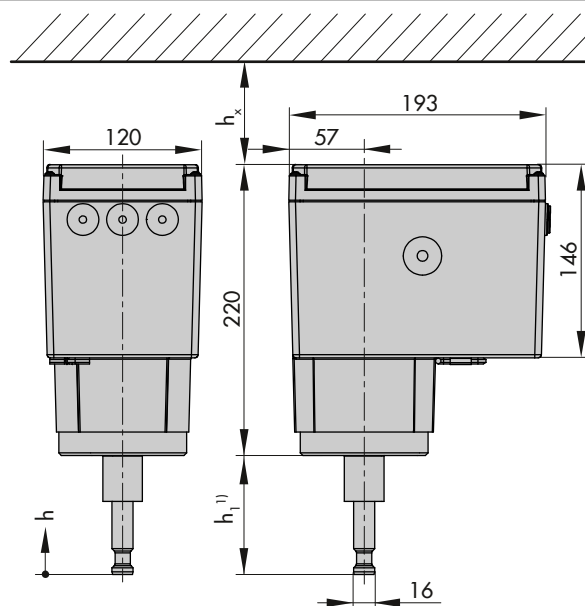


¹⁾ When the actuator stem is fully extended

Fig. 25: Dimensions in mm · Type 3374-10, -11, -21 and -31, version with integrated yoke (form B)

Legend for Fig. 25:

Type 3374	Dimension h	Dimension h _x
-10	30 mm	≥60 mm
-11	15 mm	
-21	15 mm	
-31	15 mm	

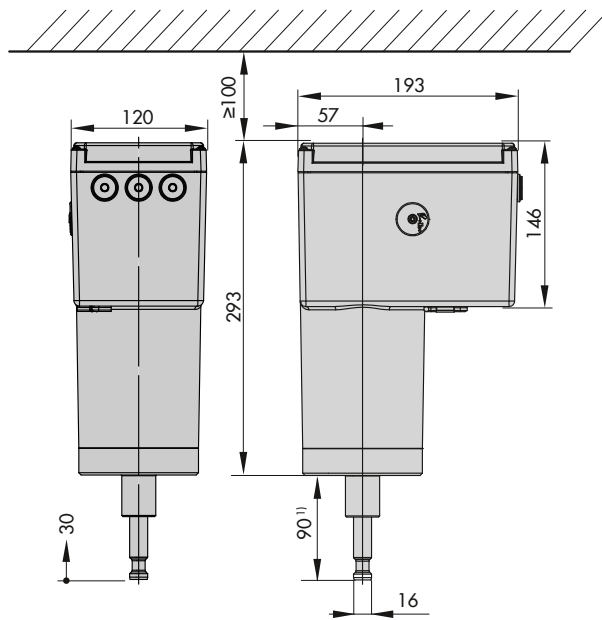


¹⁾ When the actuator stem is fully extended

Fig. 26: Dimensions in mm · Type 3374-15, -17, -26 and -36, version with ring nut (form A)

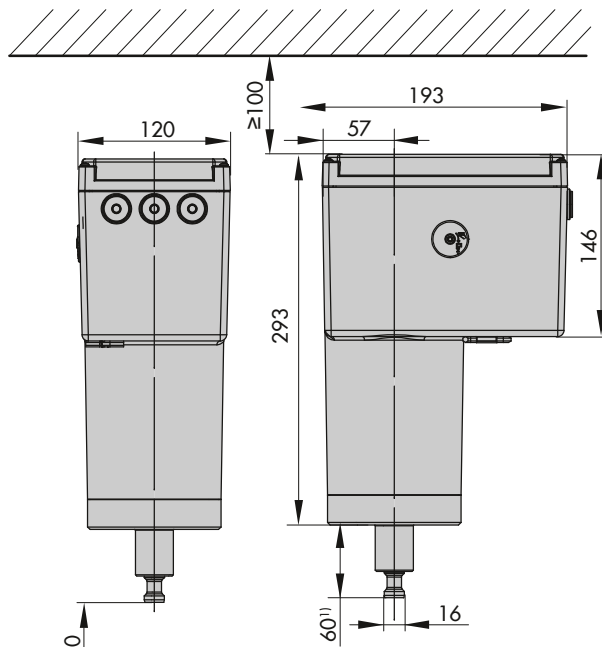
Legend for Fig. 26:

Type 3374	Dimension h	Dimension h ₁	Dimension h _x
-15	30 mm	90 mm	≥100 mm
-17			
-26	15 mm	75 mm	
-36			



¹⁾ When the actuator stem is fully extended

Fig. 27: Dimensions in mm · Type 3374-25 and -27, form A version



¹⁾ When the actuator stem is fully extended

Fig. 28: Dimensions in mm · Type 3374-35, form A version

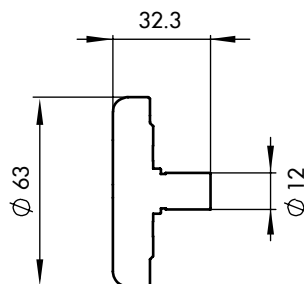


Fig. 29: Dimensions in mm · Handwheel as special version

Parts for retrofitting and accessories

Table 5: Parts for retrofitting and accessories


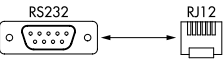

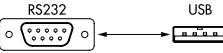
For all versions	
Mechanical limit contacts	Order no. 1402-0898
Set with three cable glands M20x1.5 with metal nut (A/F 23/24)	Order no. 1400-8828
Mounting kit V2001	Order no. 1400-9515
Spacer to mount the actuator on Type 3323 Valve (DN 65 to 80)	Order no. 0340-3031
Yoke to mount the actuator on Type 3260 Valve (DN 65 to 80)	Order no. 1890-8696
Yoke to mount the actuator on Type 3260 Valve (DN 100 to 150)	Order no. 1400-8822
For version with three-step signal	
Basic unit for limit contacts and/or resistance transmitters	Order no. 1400-8829
Resistance transmitters	See Table 6.
Gear wheel for resistance transmitter PCB	Order no. 1992-5885
For version with positioner	
Electronic limit contacts	Order no. 1402-0591
RS-485 module	Order no. 1402-1522
Hardware package consisting of: – Memory pen-64 – Connecting cable RJ-12/D-sub, 9 pin – Modular adapter	Order no. 1400-9998
Memory pen-64	 Order no.: 1400-9753
Connecting cable	 Order no.: 1400-7699
Modular adapter	 Order no.: 1400-7698
USB to RS-232 adapter	 Order no.: 8812-2001
TROVIS-VIEW software (free of charge)	► www.samsongroup.com > DOWNLOADS > Software & Drivers > TROVIS-VIEW

Table 6: Resistance transmitters · Selecting the actuator board ²

Supply voltage		Type 3374	-10	-11	-15	-17	-21	-26	-31	-36	-25	-27	-35
230 V, 50 Hz	Standard	Order no.:	1180-9601				1180-9607						
	Faster motor	Order no.:	1180-9604			–	1180-9610			–			
24 V, 50 Hz	Standard	Order no.:	1180-9603				1180-9609						
	Faster motor	Order no.:	1180-9606			–	1180-9612			–			

² Two gear wheels (order no. 1992-5885) are additionally required for a retrofit; the basic unit (1400-8829) is additionally required for the version without limit contacts and for a retrofit.

Ordering text

Type 3374 Electric Actuator

- **Version with three-step signal**

- Rated travel
15/30 mm
- Fail-safe action
Stem extends/Stem retracts/Without
- Gear version
Normal/Fast
- Supply voltage
230 V, 50 Hz
24 V, 50 Hz

- Additional electrical equipment**

- Two mechanical limit contacts
With/without

- **Version with positioner**

- Rated travel
15/30 mm
- Fail-safe action
Stem extends/Stem retracts/Without
- Gear version
Normal/Fast
- Supply voltage
85 to 264 V, 50/60 Hz
24 V, 50/60 Hz and DC

- Additional electrical equipment**

- Two mechanical limit contacts
Mechanical/electronic/without

Associated Mounting and Operating Instructions

- Type 3374 (version with three-step signal): ▶EB 8331-3
- Type 3374 (version with positioner) ▶EB 8331-4

