

## Application

Electric actuator for plant engineering and HVAC



The actuator is a linear actuator with or without fail-safe action available either in a version with a three-step signal or a version with digital positioner. It can be combined with SAMSON Series V2001 and Series 240 Valves as well as Type 3260 and Type 3214 Valves.

### Special features

- Actuator optionally available with either integrated yoke (Fig. 1) or using an M30 x 1.5 ring nut (Fig. 2) including the necessary stem connecting parts
- Actuator with fail-action "actuator stem extends" tested by the German Technical Inspectorate (TÜV) according to DIN EN 14597 in combination with various SAMSON valves
- Motor switched off by torque-dependent limit contacts
- Mechanical override<sup>1)</sup>
- Thrust up to 2.5 kN
- No maintenance required

### Three-step version

- Power supply:
  - 230 V/24 V with 50/60 Hz or
  - 120 V/60 Hz
- Synchronous motor with maintenance-free planetary gear
- Additional electrical equipment:
  - Mechanical limit contacts
  - Resistance transmitters

### Version with digital positioner

- Power supply:
  - 24 V with 47 to 63 Hz and DC
  - 85 to 264 V with 47 to 63 Hz
- Stepper motor with maintenance-free planetary gear
- All function settings performed using a rotary pushbutton on the actuator
- Backlit LCD
- Additional electrical equipment:
  - Mechanical limit contacts
  - Electronic limit contacts
  - RS-485 module for Modbus-RTU communication
- Settings performed in TROVIS-VIEW

<sup>1)</sup> Not in versions with positioner and fail-safe action



## Principle of operation

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-dependent limit contacts or in case of overload.

Actuators with an integrated yoke (Fig. 5a) are primarily combined with the following valves:

- V2001
- Type 3260 in DN 65 to 150
- Type 3214 in DN 65 to 100
- Type 3214 balanced by a diaphragm, DN 125 to 250

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

Series 240 (Fig. 5b)

- Type 3214 balanced by a bellows, DN 125 to 250 (Fig. 5c)

## Fail-safe action

The Type 3374 Electric Actuator is available optionally with fail-safe action:

**Actuator stem extends:** Upon power supply failure, the actuator stem extends

**Actuator stem retracts:** Upon power supply failure, the actuator stem retracts

## Additional electrical equipment

### Mechanical limit contacts

The mechanical limit contacts can be adjusted independently from one another. They are actuated by continuously adjustable cam disks.

### Electronic limit contacts

The electronic limit contacts consist of relays with change-over contacts. In contrast to the mechanical limit contacts, the electronic limit contacts no longer function after a power supply failure. The relays are de-energized and the contacts change to the idle state.

### Resistance transmitters

The resistance transmitter is linked to the gear and produces a resistance signal between approx. 0 and 1000  $\Omega$  (usable range 0 to 800  $\Omega$ ) proportional to the valve travel.

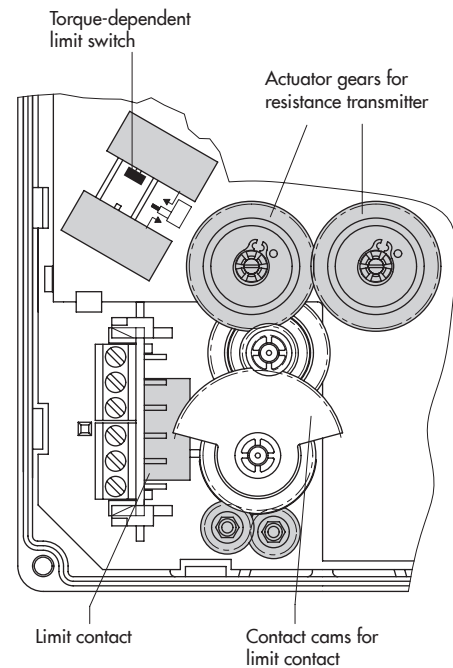
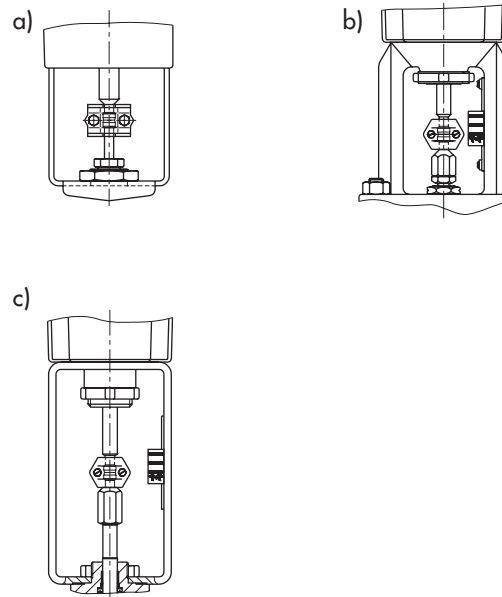


Fig. 4: Partial view with opened cover



With integrated yoke for

- a) Series V2001, Type 3260 (DN 65 to 150)  
Type 3214 (DN 65 to 100)

With central attachment for

- b) Series 240
- c) Type 3214 (DN 125 to 250)  
Series 240 (Type 3241 and Type 3244)

Fig. 5: Attachment to various valves

## 1. Three-step version

**Table 1:** Technical data

Type 3374		-10	-11	-15	-21	-26	-31	-36
Version with		Yoke		Ring nut	Yoke	Ring nut	Yoke	Ring nut
Fail-safe action		Without			Extends		Retracts	
Rated travel	mm	30	15	30	15			
Transit time for rated travel								
Standard	s	240	120	240	120			
Fast	s	120	60	120	60			
In the event of fail-safe action	s	-			12			
Stroking speed								
Standard	mm/s	0.125						
Fast	mm/s	0.25						
In the event of fail-safe action	mm/s	-			1.25			
Thrust	Retracts	2.5 kN			0.5 kN			
	Extends	2.5 kN			2 kN			
Power supply		230 V (+10/-15 %), 50 Hz 230 V (+10/-15 %), 60 Hz 24 V (+10/-15 %), 50 Hz 24 V (+10/-15 %), 60 Hz 120 V (90 to 132 V), 60 Hz						
Power consumption	VA	7.5/13 <sup>2)</sup>			10.5/16 <sup>2)</sup>			
Motor switch-off		Torque-dependent						
Degree of protection		IP 54 according to EN 60529, IP 65 with cable glands (can be retrofitted) <sup>1)</sup> Suspended mounting not permitted						
Overvoltage category		II according to EN 60664						
Design and testing		According to EN 61010						
Class of protection		II according to EN 61140						
Noise immunity		According to EN 61000-6-2, EN 61326						
Noise emission		According to EN 61000-6-3, EN 61326						
Manual override		Hex wrench · Adjustment not possible after fail-safe action has been triggered.						
Weight	kg (approx.)	3.2	3.3	3.9	4.0	3.5	3.6	
Materials		Housing and cover: Plastic (glass-fiber reinforced PPO)						
<b>Additional electrical equipment</b>								
Limit contacts		Two travel-dependent, adjustable changeover switches, max. 250 V AC, 1 A						
Resistance transmitters		0 to 1000 Ω, (0 to 900 Ω at rated travel) max. permissible current 1 mA						

<sup>1)</sup> Cable glands M20 x 1.5 with metal nut SW 23/24 (order no. 1400-8828)

<sup>2)</sup> Actuator with faster motor

## 2. Version with digital positioner


**Table 2: Technical data · Without fail-safe action**

Type 3374		-10	-11	-15
Type of connection		With yoke		With ring nut
Travel	mm	30	15	30
Travel limitation		Between 10 and 100 % of the rated travel		
Manual override		4 mm hex wrench		
<b>Electrical connection</b>				
Power supply		24 V ( $\pm 15\%$ ), 47 to 63 Hz and 24 V DC ( $\pm 15\%$ ) 85 to 264 V, 47 to 63 Hz		
<b>Power consumption</b>		<b>Speed level: Normal · Fast</b>		
24 V	AC	12.5 VA · 16.5 VA		
	DC	7.5 W · 11 W		
85 to 264 V	AC	13.8 to 20 VA		
<b>Transit time in s · Stroking speed in mm/s</b>				
Standard version	Standard	120 · 0.25	60 · 0.25	120 · 0.25
	Fast	60 · 0.5	30 · 0.5	60 · 0.5
Actuator with faster motor	Standard	60 · 0.5	30 · 0.5	60 · 0.5
	Fast	30 · 1.0	15 · 1.0	30 · 1.0
<b>Thrusts in kN (Standard version · Version with faster motor)</b>				
Extends		2.5 · 1.25	2.5 · 1.25	2.5 · 1.25
Retracts		2.5 · 1.25	2.5 · 1.25	2.5 · 1.25
<b>Weight</b>				
kg (approx.)		3.5	3.5	3.6

**Table 3: Technical data · With fail-safe action**

Actuator	Type 3374	-21	-26	-31	-36
Type of connection		With yoke	With ring nut	With yoke	With ring nut
Fail-safe action		Extends		Retracts	
Travel	mm	15		15	
Travel limitation		Between 10 and 100 % of the rated travel			
Manual override		-			
<b>Electrical connection</b>					
Power supply		24 V ( $\pm 15\%$ ), 47 to 63 Hz and 24 V DC ( $\pm 15\%$ ) 85 to 264 V, 47 to 63 Hz			
<b>Power consumption</b>		<b>Speed level: Normal · Fast</b>			
24 V	AC	18 VA · 23 VA			
	DC	11.5 W · 15 W			
85 to 264 V	AC	19.8 to 26 VA			
<b>Transit time in s · Stroking speed in mm/s</b>					
Standard		60 · 0.25	60 · 0.25	60 · 0.25	60 · 0.25
Fast		30 · 0.5	30 · 0.5	30 · 0.5	30 · 0.5
Upon fail-safe action		12 · 1.25	12 · 1.25	12 · 1.25	12 · 1.25
<b>Thrusts in kN</b>					
Thrust (stem extends)		2	2	2	2
Thrust (stem retracts)		0.5	0.5	0.5	0.5
Nominal thrust of safety spring		2	2	0.5	0.5
<b>Weight</b>					
kg (approx.)		4.2	4.3	3.8	3.9

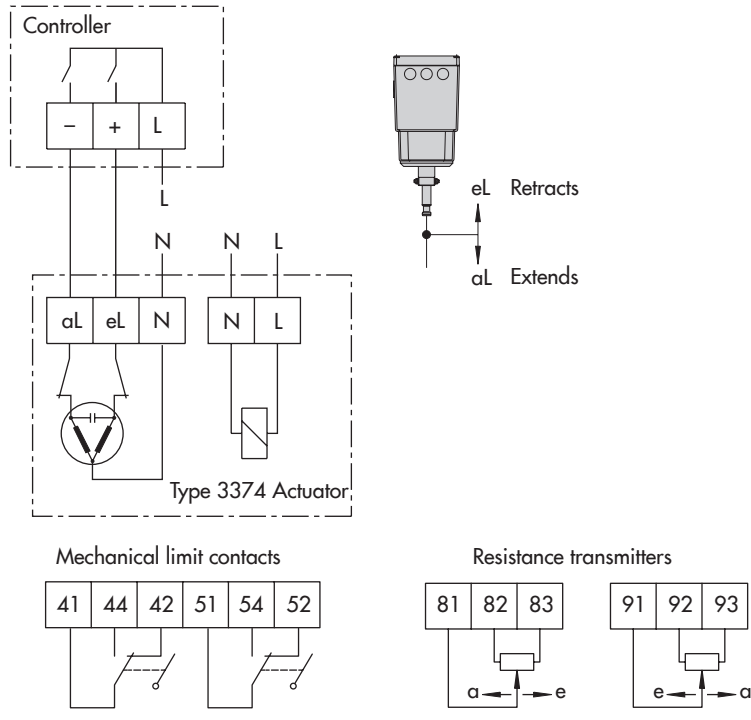
**Table 4: Common technical data**

Type 3374-xx		
Input signal	Current input	0/4 to 20 mA, adjustable · $R_i = 50 \Omega$
	Voltage input	0/2 to 10 V, adjustable · $R_i = 20 \text{ k}\Omega$
	Pt 1000 input	Measuring range: $-50$ to $150 \text{ }^\circ\text{C}$ , $300 \mu\text{A}$
	Binary input	By bridging the terminals, not galvanically isolated
Position feedback	Current	0/4 to 20 mA, adjustable · Error message 24 mA
		Resolution
	Load	Max. $200 \Omega$
	Voltage	0/2 to 10 V, adjustable · Error message 12 V
		Resolution
Load	Minimum $5 \text{ k}\Omega$	
Binary input	Open-circuit voltage: $10 \text{ V}$ ; short-circuit current: $5 \text{ mA}$ By bridging the terminals, not galvanically isolated	
Binary output	Floating, max. $230 \text{ V AC/1 A}$	
Applications	Positioner	The travel follows the input signal
	PID controller	Fixed set point control
	Two-step mode	Two-step behavior, control over binary input
	Three-step mode <sup>1)</sup>	Three-step behavior, control over binary input
	Temperature closed-loop control upon input signal failure <sup>1)</sup>	The integrated PID controller uses a fixed set point for closed-loop control when the input signal is missing.
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	Standard	RS-232 · For point-to-point connection to communication participants or for memory pen · Permanently installed · Connection: RJ-12 connector socket
Motor switch-off	By torque-dependent limit contacts	
Degree of protection acc. to EN 60529	IP 54 with cable entries, IP 65 with cable glands (can be retrofitted) <sup>2)</sup> Suspended mounting not permitted according to EN 60664	
Overtoltage category	II according to EN 61010	
Design and testing	According to EN 61010	
Class of protection	II according to EN 61140	
EMC	According to EN 61000-6-2, EN 61000-6-3 and EN 61326	
Degree of contamination	2 according to EN 61010	
Noise immunity	According to EN 61000-6-2	
Noise emission	According to EN 61000-6-3	
Mechanical environmental conditions	Class 1M2 according to EN 60721-3-1:1998	
	Class 2M1 according to EN 60721-3-2:1998	
	Class 3M4 according to EN 60721-3-3:1998	
	Class 4M4 according to EN 60721-3-4:1998	
Permissible temperatures <sup>3)</sup>	Ambient	$5$ to $60 \text{ }^\circ\text{C}$
	Storage	$-25$ to $+70 \text{ }^\circ\text{C}$
Humidity	$5$ to $95 \%$ relative humidity, no dew formation	
Compliance		
Additional electrical equipment		
Limit contacts	Mechanical	Two adjustable limit contacts with changeover switches; $230 \text{ V AC/1 A}$ · Without contact protection
	Electronic	Two adjustable limit contacts with relay and changeover switches; $230 \text{ V AC/1 A}$ · Without contact protection
RS-485 module (order no. 1402-1522)	Module for Modbus-RTU communication	

<sup>1)</sup> Application only available in Type 3374, revision 3

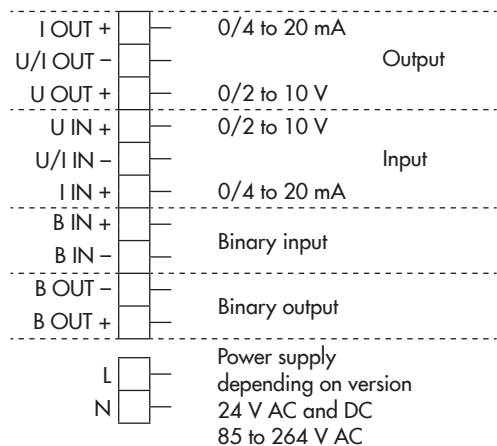
<sup>2)</sup> Cable glands M20 x 1.5 with metal nut SW 23/24 (order no. 1400-8828)

<sup>3)</sup> The permissible medium temperature depends on the valve on which the electric actuator is mounted. The limits in the valve documentation apply.

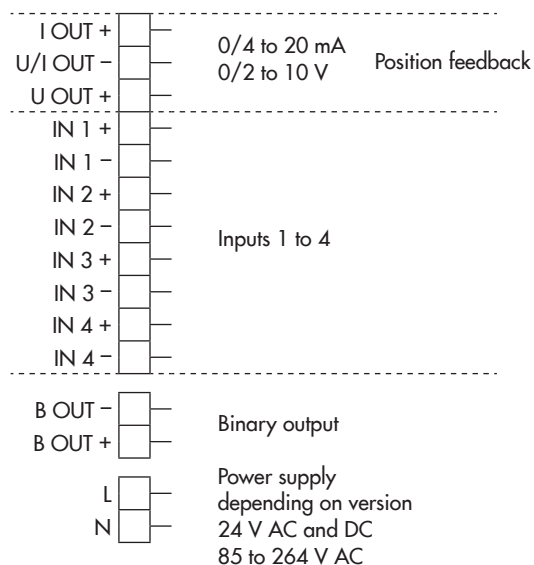


**Fig. 6:** Electrical connection · Three-step version

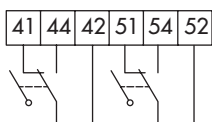
**For actuators with firmware version 2.xx (revision 2)**



**For actuators with firmware version 3.xx (revision 3)**



**Mechanical limit contacts**



**Electronic limit contacts**



Depending on the selected application, connect the wires to the terminals as follows:

Positioner:

Input	Terminal
Current: 0/4 to 20 mA	IN 1 +/IN 1 -
Voltage: 0/2 to 10 V	IN 2 +/IN 2 -
Binary signal	IN 4 +/IN 4 -

PID Controller and Temperature closed-loop control upon input signal failure

Input	Terminal
Current: 0/4 to 20 mA	IN 1 +/IN 1 -
Voltage: 0/2 to 10 V	IN 2 +/IN 2 -
Pt 1000	IN 3 +/IN 3 -
Binary signal	IN 4 +/IN 4 -

Three-step mode:

Input	Terminal
Three step signal:	
Retracts	IN 2 + IN 2 -
Extends	IN 3 + IN 3 -
Binary signal	IN 4 +/IN 4 -

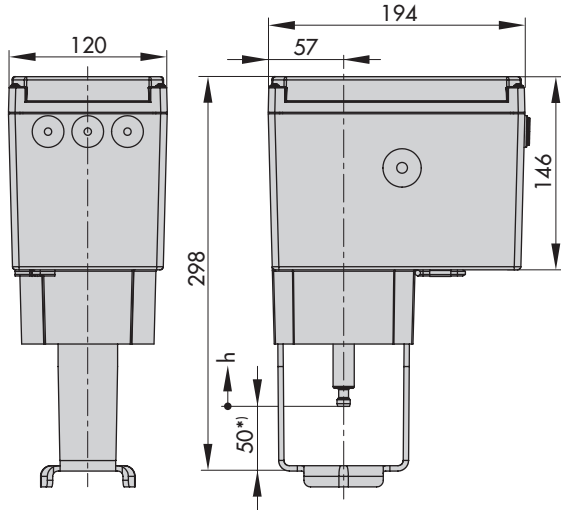
Two-step mode:

Input	Terminal
Open-closed	IN 2 +/IN 2 -
Binary signal	IN 4 +/IN 4 -

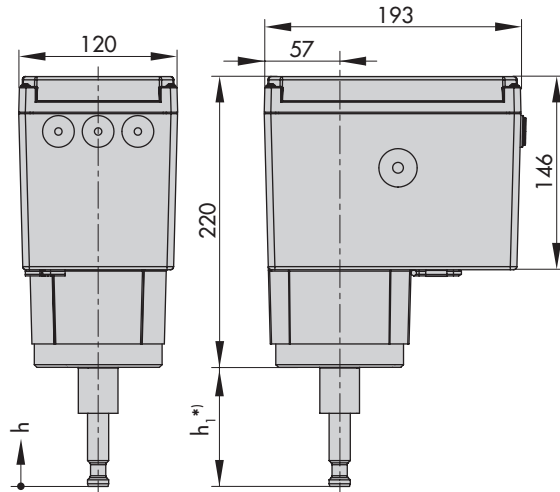
Fig. 7: Electrical connection · Version with digital positioner

Dimensions in mm

Type 3374-10/-11/-21/-31



Types 3374-15/-26/-36



\*) When actuator stem is fully extended

Type 3374	Dimension h	Dimension h <sub>1</sub>
-10	30	–
-11	15	–
-21	15	–
-31	15	–
-15	30	90
-26	15	75
-36	15	75

Ordering text · Three-step version

Electric actuator           Type 3374- ...  
 Rated travel                15/30 mm  
 Version with fail-safe action   Actuator stem extends or retracts only with 15 mm travel  
 Power supply                230 V/50 or 60 Hz,  
                                       24 V/50 or 60 Hz or  
                                       120 V/60 Hz

Additional electrical equipment  
 Two mechanical limit contacts  
 Two resistance transmitters   0 to 1000 Ω

Ordering text · Version with digital positioner

Electric actuator           Type 3374- ...  
 Rated travel                15/30 mm  
 Version with fail-safe action   With/without  
 Gear version                Standard or actuator with faster motor  
 Power supply                24 V, 50/60 Hz and DC  
                                       85 to 264 V, 50/60 Hz

Additional electrical equipment  
 Two limit contacts            Mechanical/electronic

List of documentation

- Mounting and operating instructions
- for Type 3374, revision 2: ► EB 8331-4 (rev. 2)
  - for Type 3374, revision 3: ► EB 8331-4 (rev. 3)

Specifications subject to change without notice



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