



Application

Electric actuator for plant engineering and HVAC

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 (Fig. 1) or using an M30 x 1.5 ring nut (Fig. 2) including the necessary stem connecting parts
- Available with or without fail-safe action
- Actuator with fail-action "actuator stem extends" 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
- Mechanical override ¹⁾
- No maintenance

¹⁾ Not in actuators with positioner and fail-safe action

Versions

- Three-step version
 - 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

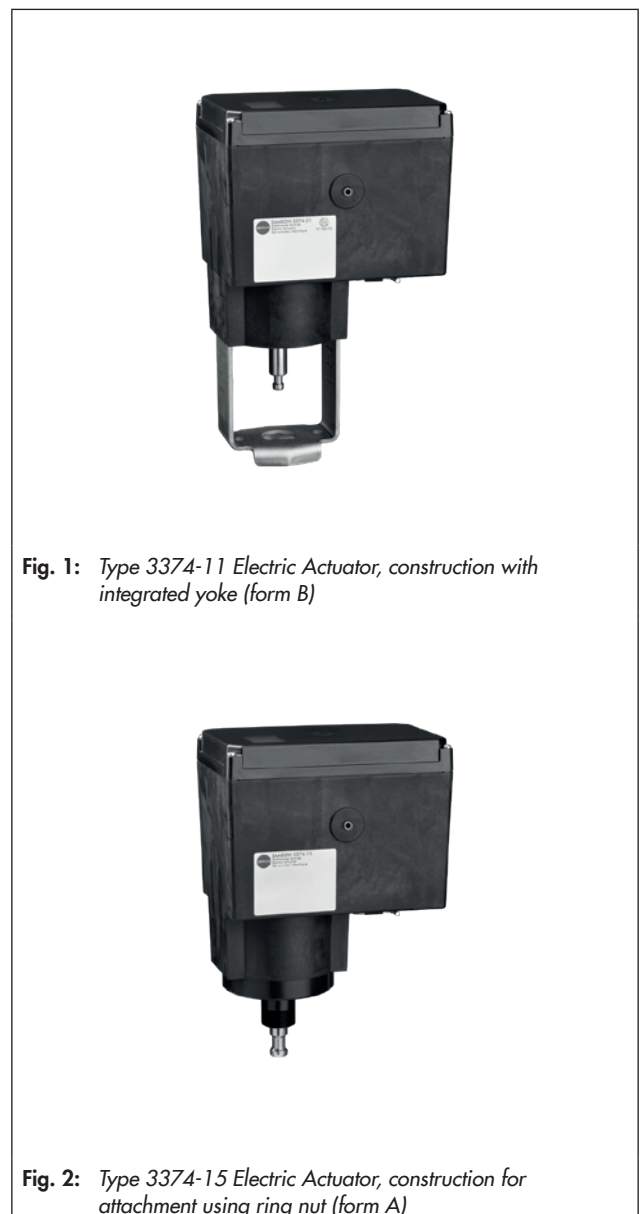


Fig. 1: Type 3374-11 Electric Actuator, construction with integrated yoke (form B)

Fig. 2: Type 3374-15 Electric Actuator, construction for attachment using ring nut (form A)

Options

- Limit contacts
 - Mechanical
 - Over a relay (version with positioner only)
- Resistance transmitters
 - Two resistance transmitters with a resistance range from 0 to 1000 Ω
- Special version with three-key operation
 - 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
 - RS-485 module for Modbus RTU communication (actuator versions with positioner)

Design and 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 switches or in case of overload.

The Type 3374 Actuator with 15 mm travel is available with or without fail-safe action:

- **Fail-safe action "actuator stem extends":**
Upon supply voltage failure, the actuator stem extends.
- **Fail-safe action "actuator stem retracts":**
Upon supply voltage failure, the actuator stem retracts.
- **Limit contacts**
 - **Mechanical limit contacts**
Two 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 changeover 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 0 and 1000 Ω (usable range approx. 0 to 900 Ω) proportional to the valve travel.

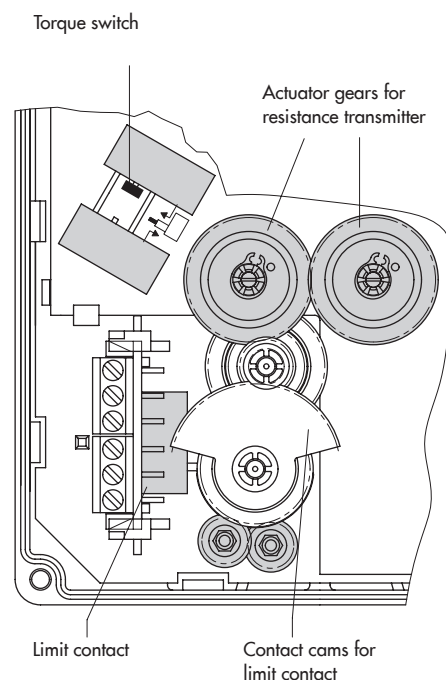


Fig. 3: Partial view with opened cover

Mounting

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

- Series 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:

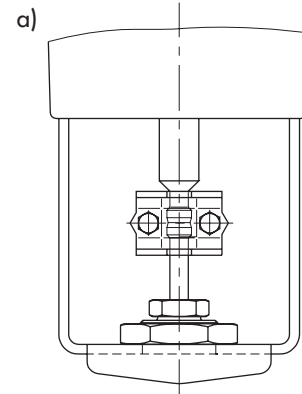
- Series 240 (Fig. 5b)
- Type 3214 balanced by a bellows, DN 125 to 250 (Fig. 5c)



Fig. 4: Type 3374-21 Electric Actuator, mounted on a Series V2001 Globe Valve

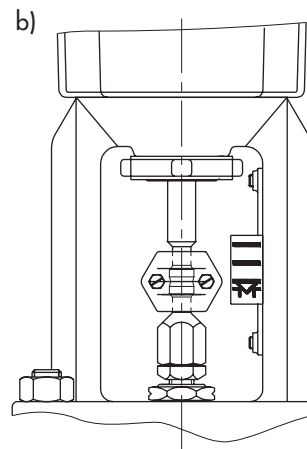
a) With integrated yoke

- Series V2001 Valve (form B)
- Type 3260 Valve, DN 65 to 150 (form B)



b) With central attachment

- Series 240 Valve (form A)



c) With central attachment

- Type 3214 Valve, DN 125 to 250 (form A)
- Series 240 Valve (form A)

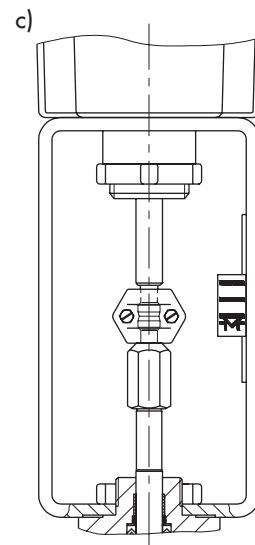
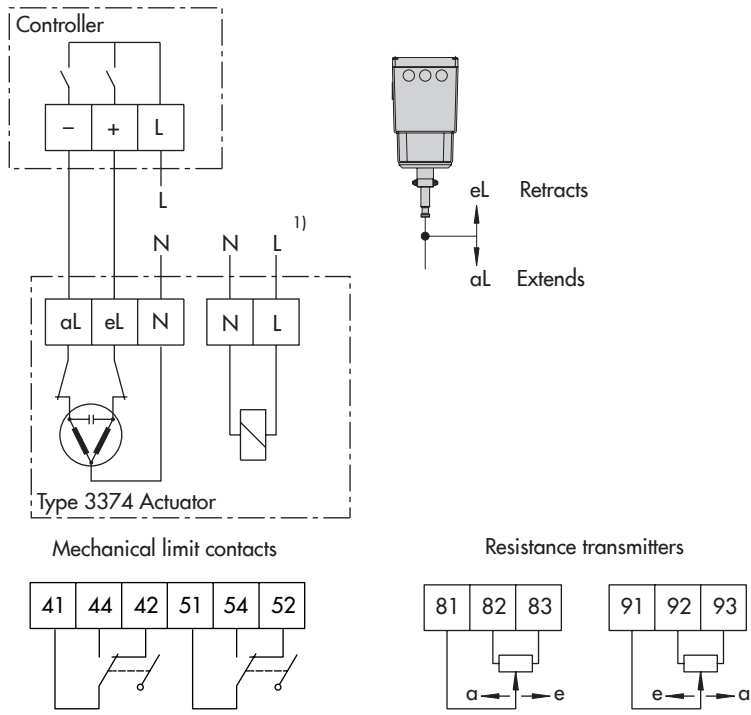


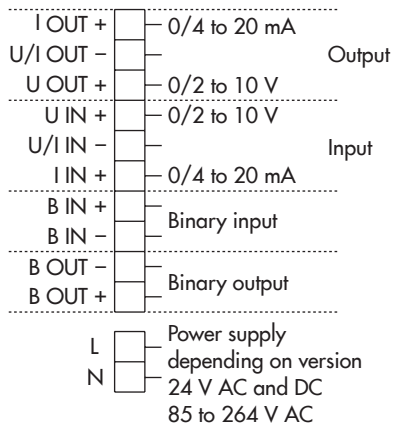
Fig. 5: Attachment to various valves



1) L and N terminal for solenoid (actuator with fail-safe action only)

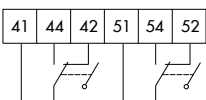
Fig. 6: Electrical connection · Three-step version

For actuators with firmware version 2.xx

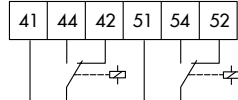


Options:

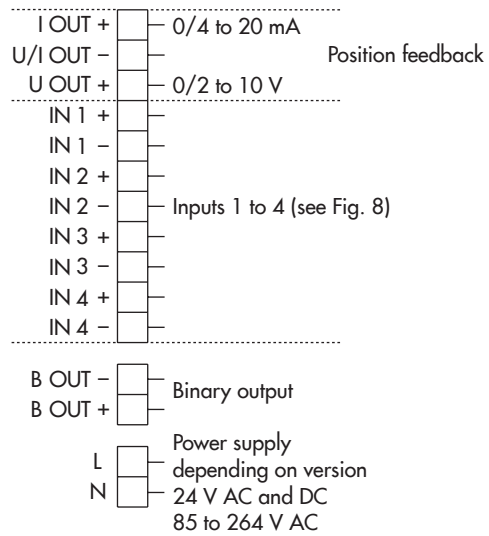
Mechanical limit contacts



Electronic limit contacts



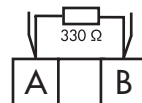
For actuators with firmware version 3.xx and higher



RS-485 interface



RS-485 interface with external bus termination



RJ-12 jack

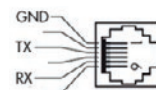
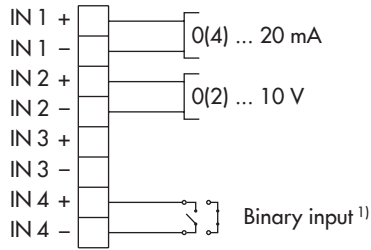


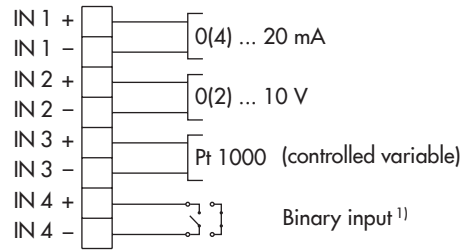
Fig. 7: Electrical connection · Version with digital positioner

Application: Positioner (POS)



→ Wire the input free of voltage.

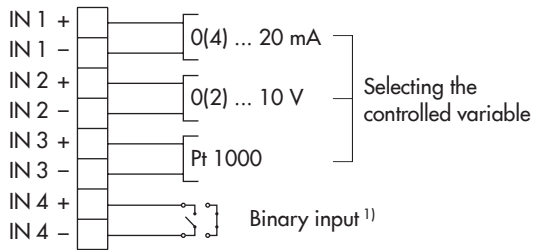
Application: Temperature closed-loop control upon input signal failure (POSF)



→ Wire the input free of voltage.

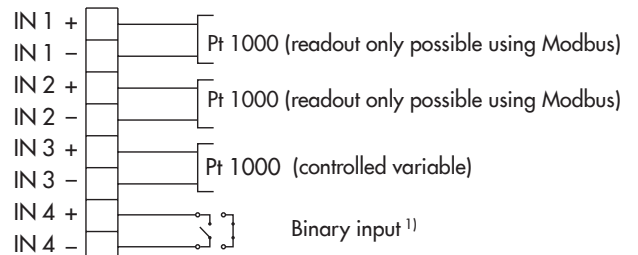
Application: PID controller

General PID control



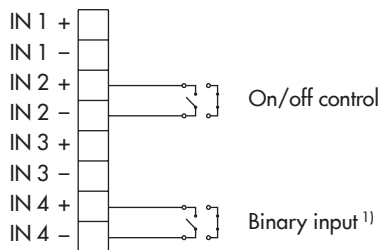
→ Wire the input free of voltage.

Temperature control



→ Wire the input free of voltage.

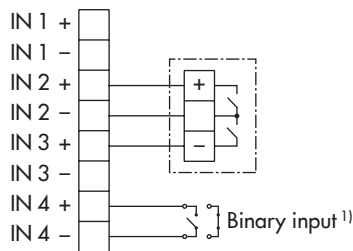
Application: Two-step mode (2STP)



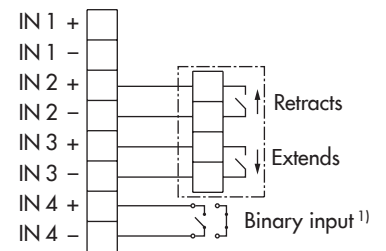
→ Wire all the inputs free of voltage.

Application: Three-step mode (3STP)

Three-wire connection



Four-wire connection



→ Wire all the inputs free of voltage.

¹⁾ Function configurable in c11 and c12

Fig. 8: Terminal assignment depending on the application selected

Technical data

Table 1: Technical data for three-step version

Type 3374	-10	-11	-15	-17	-21	-26	-31	-36
Mounted using	Yoke		Ring nut		Yoke	Ring nut	Yoke	Ring nut
Form	B		A		B	A	B	A
Fail-safe action	Without				Extends		Retracts	
Rated travel in mm	30	15	30		15			
Handwheel	4 mm hex wrench, adjustment not possible after fail-safe action has been triggered							
Electrical connection								
Supply voltage in V	230 (+10/-15 %) 24 V (+10/-15 %)							
Power line frequency in Hz	50 or 60			50	50 or 60			
Duty type	S1 - 100 % according to EN 60034-1							
Power consumption in VA	7.5/13 ¹⁾			13	10.5/16 ¹⁾			
Transit time in s for rated travel								
Standard	240	120	240	300	120			
Fast	120	60	120	-	60			
In the event of fail-safe action (approx.)	-				12			
Stroking speed in mm/s								
Standard	0.125			0.1	0.125			
Fast	0.25			-	0.25			
In the event of fail-safe action (approx.)	-				1.25			
Thrust in kN								
Retracts	2.5			5	0.5			
Extends	2.5			5	2			
Weight [kg]								
Approx.	3.2		3.3	3.3	3.9	4.0	3.5	3.6
Additional electrical equipment								
Limit contacts	Two travel-dependent, adjustable changeover switches, max. 250 V AC, 1 A							
Resistance transmitters	Two resistance transmitters; 0 to 1000 Ω ±15 %, max. 200 mW usable range approx. 0 to 900 Ω							

¹⁾ Actuator with faster motor

Table 2: Technical data for versions with positioner (without fail-safe action)

Type 3374	-10	-11	-15	-17
Mounted using	Yoke		Ring nut	
Form	B		A	
Rated travel in mm	30	15	30	
Limited travel range	Between 10 and 100 % of the rated travel			
Manual override	4 mm hex wrench or electric			
Electrical connection				
Supply voltage	24 V (±15 %), 47 to 63 Hz and 24 V DC (±15 %) 85 to 264 V, 47 to 63 Hz			
Duty type	S1 - 100 % according to EN 60034-1			
Power consumption	Speed level: Normal · Fast			
At 24 V	AC	12.5 VA · 16.5 VA		19 VA · (-)
	DC	7.5 W · 11 W		13 W · (-)
At 85 to 264 V	AC	13.8 to 20 VA		22 VA · (-)

Type 3374		-10	-11	-15	-17	
Transit time in s for rated travel · Stroking speed in mm/s						
Standard version	Standard	120 · 0.25	60 · 0.25	120 · 0.25	240 · 0.125	
	Fast	60 · 0.5	30 · 0.5	60 · 0.5	120 · 0.25	
Actuator with faster motor	Standard	60 · 0.5	30 · 0.5	60 · 0.5	–	
	Fast	30 · 1.0	15 · 1.0	30 · 1.0	–	
Thrust in kN (standard version · Version with faster motor)						
		Extends	2.5 · 1.25	2.5 · 1.25	2.5 · 1.25	5 · (-)
		Retracts	2.5 · 1.25	2.5 · 1.25	2.5 · 1.25	5 · (-)
Weight [kg]						
		Approx.	3.5	3.5	3.6	3.6

Table 3: Technical data for versions *with positioner (with fail-safe action)*


Type 3374		-21	-26	-31	-36	
Mounted using		Yoke	Ring nut	Yoke	Ring nut	
Form		B	A	B	A	
Fail-safe action		Extends		Retracts		
Rated travel in mm		15				
Limited travel range		Between 10 and 100 % of the rated travel				
Handwheel		Electric				
Electrical connection						
Supply voltage		24 V (±15 %), 47 to 63 Hz and 24 V DC (±15 %) 85 to 264 V, 47 to 63 Hz				
Duty type		S1 - 100 % according to EN 60034-1				
Power consumption		Speed level: Normal · Fast				
At 24 V	AC	18 VA · 23 VA				
	DC	11.5 W · 15 W				
At 85 to 264 V AC	AC	19.8 to 26 VA				
Transit time in s for rated travel · Stroking speed in mm/s						
		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
In the event of fail-safe action (approx.)			12 · 1.25	12 · 1.25	12 · 1.25	12 · 1.25
Thrust in kN						
		Extends	2	2	2	2
		Retracts	0.5	0.5	0.5	0.5
In the event of fail-safe action (approx.)			2	2	0.5	0.5
Weight [kg]						
		Approx.	4.2	4.3	3.8	3.9

Table 4: Technical data for versions *with positioner (with and without fail-safe action)*

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 · $R_i = 20 k\Omega$	
	Pt 1000 input	Measuring range: -50 to +150 °C, 300 μ A	
	Binary input	By jumpering the terminals (floating), not galvanically isolated	
Position feedback	Current	0/4 to 20 mA, adjustable · Error message 24 mA	
		Resolution	1000 steps or 0.02 mA
		Load	Max. 200 Ω
	Voltage	0/2 to 10 V, adjustable · Error message 12 V	
		Resolution	1000 steps or 0.01 V
Load	Minimum 5 k Ω		
Binary input		Open-circuit voltage: 10 V; short-circuit current: 5 mA By jumpering the terminals, not galvanically isolated	
Binary output (floating)	Firmware 2.0x	Galvanically isolated · Max. 24 V DC/50 mA · No short-circuit protection · Reversible polarity	
	Firmware 3.1x	Max. 230 V AC/1 A	
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 when there is no input signal.	
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	
Additional electrical equipment			
Limit contacts	Mechanical	Two adjustable limit contacts with changeover switches; 230 V AC/1 A · Without contact protection	
	Electronic	Two adjustable limit contacts with relay and changeover switches; 230 V AC/1 A · Without contact protection	
RS-485 module		Module for Modbus RTU communication	

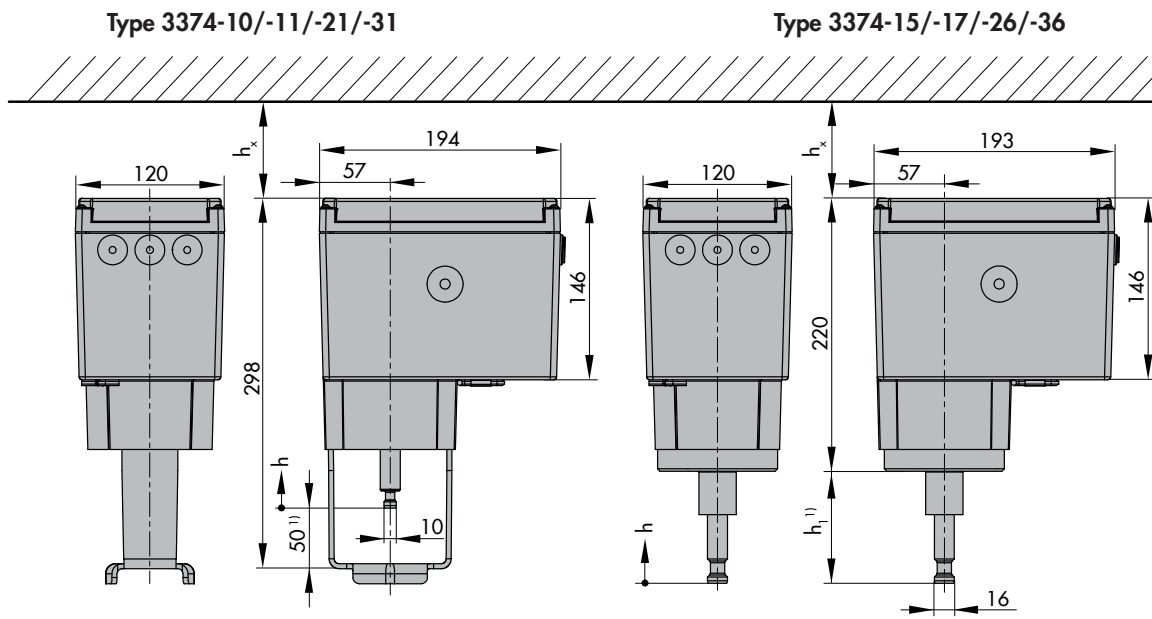
¹⁾ Application available in firmware 3.1x and higher

Table 5: Technical data · For all versions

Type 3374-xx	
Device safety	
Degree of protection	IP 54 acc. to EN 60529, (IP 65 with three cable glands ¹⁾) Suspended mounting position not approved according to EN 60664
Class of protection	II according to EN 61140
Device safety	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	
Other information	
Motor switch-off	By torque switches
Materials	Housing and cover: Plastic (glass-fiber reinforced PPO)
Permissible temperature ranges ²⁾	Ambient 5 to 60 °C
	Storage -25 to +70 °C
Humidity	5 to 95 % relative humidity, no dew formation

¹⁾ Cable glands M20x1.5 with metal nut (SW 23/24)

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



Type 3374	Dimension h	Dimension h ₁	Dimension h _x
-10	30	-	≥60
-11	15		
-21	15		
-31	15		
-15	30	90	≥100
-17	30	90	
-26	15	75	
-36	15	75	

1) When the actuator stem is fully extended

Fig. 9: Dimensions in mm

Accessories

For all versions	Order no.
Set with three cable glands M20x1.5 with metal nut (SW 23/24)	1400-8828
Mechanical limit contacts	1402-0898
For version with three-step signal	
Basic unit for limit contacts and/or resistance transmitters	1400-8829
Resistance transmitter	See Table 6
Gear wheel for resistance transmitter PCB	1992-5885
For version with digital positioner	Order no.
Electronic limit contacts	1402-0591
Hardware package consisting of: <ul style="list-style-type: none"> - Memory pen-64 - Connecting cable - Modular adapter 	1400-9998
Memory pen-64	1400-9753
Connecting cable RJ-12/D-sub, 9 pin	1400-7699
Modular adapter D-sub 9-pin/RJ-12 for memory pen	1400-7698
USB to RS232 adapter	8812-2001
RS-485 module	1402-1522
Software	
TROVIS-VIEW (free of charge)	► www.samsongroup.com > Service & Support > Downloads > TROVIS-VIEW

Table 6: Resistance transmitters · Selecting the actuator board ^{1) 2)}

Type 3374		-10	-11	-15	-17	-21	-26	-31	-36
Supply voltage	230 V, 50 Hz	Standard	Order no. 1180-9601			Order no. 1180-9607			
		Faster motor	Order no. 1180-9604		-	Order no. 1180-9610			
	230 V, 60 Hz	Standard	Order no. 1180-9637		-	Order no. 1180-9643			
			Order no. 1180-9603			Order no. 1180-9609			
	24 V, 50 Hz	Faster motor	Order no. 1180-9606		-	Order no. 1180-9612			
		Standard	Order no. 1180-9639		-	Order no. 1180-9645			

¹⁾ For retrofit, additionally two gear wheels (order no. 1992-5885) necessary

²⁾ The basic unit (1400-8829) is additionally required for the version without limit contacts and for a retrofit.

Ordering text

Type 3374-... Electric Actuator

– Three-step version

Rated travel

15/30 mm

Fail-safe action

Stem extends/Stem retracts/Without

Gear version

Standard/Fast

Supply voltage:

230 V, 50 or 60 Hz or

24 V, 50 or 60 Hz

Additional electrical equipment

Two mechanical limit contacts

With/without

Two resistance transmitters

With/without

– Version with digital positioner

Rated travel

15/30 mm

Fail-safe action

Stem extends/Stem retracts/Without

Gear version

Standard/Fast

Supply voltage:

85 to 264 V, 50/60 Hz

24 V, 50/60 Hz and DC

Additional electrical equipment

Two limit contacts

Mechanical/electronic/without

Associated mounting and operating instructions

- Type 3374
(three-step version): ▶ **EB 8331-3**
- Type 3374
(positioner, firmware 2.0x): ▶ **EB 8331-4 (firmware 2.0x)**
- Type 3374
(positioner, firmware 3.1x): ▶ **EB 8331-4 (firmware 3.1x)**