










Electrical Rotary Actuator - On/Off and control

- Direct mounting on quarter-turn valves (ball and butterfly valves)
- Manual override in standard
- Adjustable limit switches
- Multi-voltage

Product variants described in the data sheet may differ from the product presentation and description.

Can be combined with

	Type 2651 2/2 or 3/2 way Ball Valve, 2-Piece	▶
	Type 2654 2/2-way ball valve 3-piece	▶
	Type 2657 Ball Valve, manually-operated	▶
	Type 2671 Butterfly valve	▶
	Type 2674 Plastic butterfly valve	▶
	Type TKU001 2/2 way compact flange ball valve	▶
	Type 8804 Ball valve / butterfly valve with electrical rotary actuator	▶

Type description

The electrical rotary actuator type 3003 is a compact and powerful actuator system, which provides a long service life. Materials and components have been chosen for a maintenance-free operation even in aggressive environments and ensure low thermal loading on the actuator. The modular design offers many additional features to be added to the basic device such as extra limit switches, potentiometers and emergency power. With the control actuator version the input signals as well as the output signals (eg. 4-20 mA, 0-20 mA, 0-10 V) can be programmed. Heating resistors and torque limiters are standard features. The housing is made of flame resistant material classified according to UL 94 V0.

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1. General Technical Data

Product properties	
Dimensions	Detailed information can be found in chapter "3. Dimensions" on page 5.
Material	
Cover / Body	Nylon / PA 6.6
Axis, Screws	Stainless steel
Gear unit	Stainless steel and PC
ISO Mounting	acc. to ISO 5211, detailed information can be found in chapter "6.3. Ordering chart" on page 11.
Drive	Inside female star, detailed information can be found in chapter "6.3. Ordering chart" on page 11.
Manual override	Standard (detailed information can be found in the operating instructions)
Weight	
Small motor 10, 20, 35 Nm	1 kg
Large motor 30, 60, 100 Nm	2.1 kg
Optical position indicator	Standard
Performance data	
Torque	10, 20, 35, 60, 100 Nm Detailed information can be found in chapter "6.3. Ordering chart" on page 11.
Position angle	90° (±5°) (special angles on request)
Actuating time (90%)	7...119 sec. Detailed information can be found in chapter "6.3. Ordering chart" on page 11.
Options	Varied rotation times 3 position actuator (for 180° actuators - end positions preset to 0°, 90°, 180°) Position feedback of the open/close actuator versions optionally via: - Potentiometer 1K, 5K, 10K - Analog signal 4...20 mA Emergency power version Additional limit switches
Electrical data	
Operating voltage	15...30 V AC / 50...60 Hz / 12...48 V DC 100...240 V AC / 50...60 Hz / 100...350 V DC
Limit switches	4 adjustable (2 for the motor and 2 additional for feedback), max. 250 V AC/5 A
Power consumption	15 W...45 W Detailed information can be found in chapter "6.3. Ordering chart" on page 11.
Voltage tolerance	±10 %
Linear actuator with analogue input and output signal	
Input	-0...10 V / -4...20 mA / -0...20 mA
Output	-0...10 V / -4...20 mA / -0...20 mA
Motor protection	Electronic torque limiter
Duty cycle	According to IEC34 S4=50 %
Heating resistor	Standard
Process/Port connection & communication	
Electrical connection	Cable plug acc. to EN175301-803 (supply voltage) included Cable glands ISO M20
Approvals and certificates	
Certifications / Conformities	CE, CSA/UL
Environment and installation	
Installation position	Do not mount the actuator upside down, max. mounting angle: 90°
Installation site	Up to max. 2000 m altitude
Ambient temperature	
For actuator Type 3003 Standard	-10 °C...+55 °C
For actuator Type 3003 with electronic emergency reset	-10 °C...+40 °C
Degree of protection	IP66 with cable plug installed

2. Materials

2.1. Chemical Resistance Chart – Bürkert resistApp



Bürkert resistApp – Chemical Resistance Chart

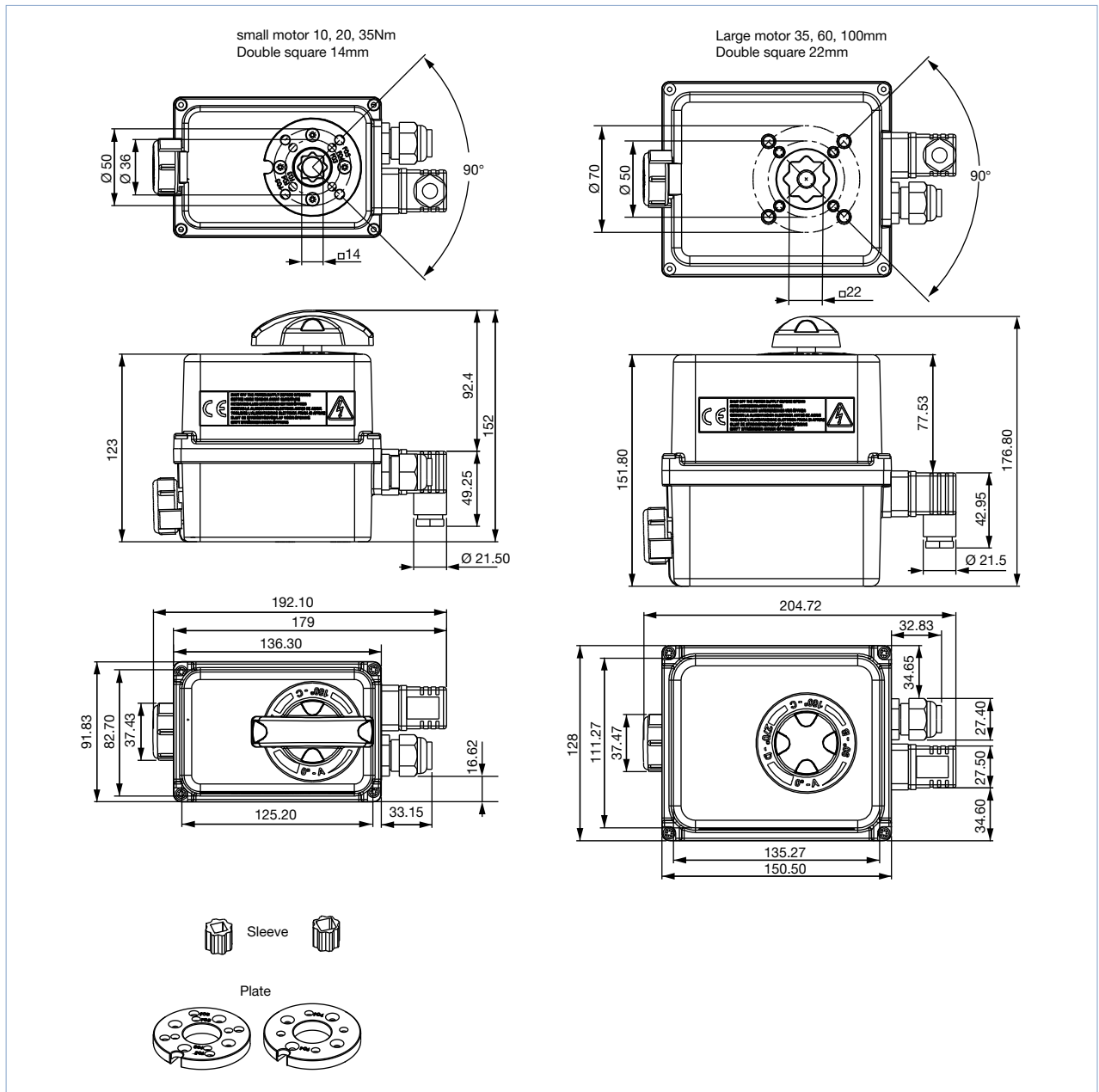
You want to ensure the reliability and durability of the materials in your individual application case? Verify your combination of media and materials on our website or in our resistApp.

[Start Chemical Resistance Check](#)

3. Dimensions

Note:

Dimensions in mm



Square / Star	Depth
14	16
17	19
22	24

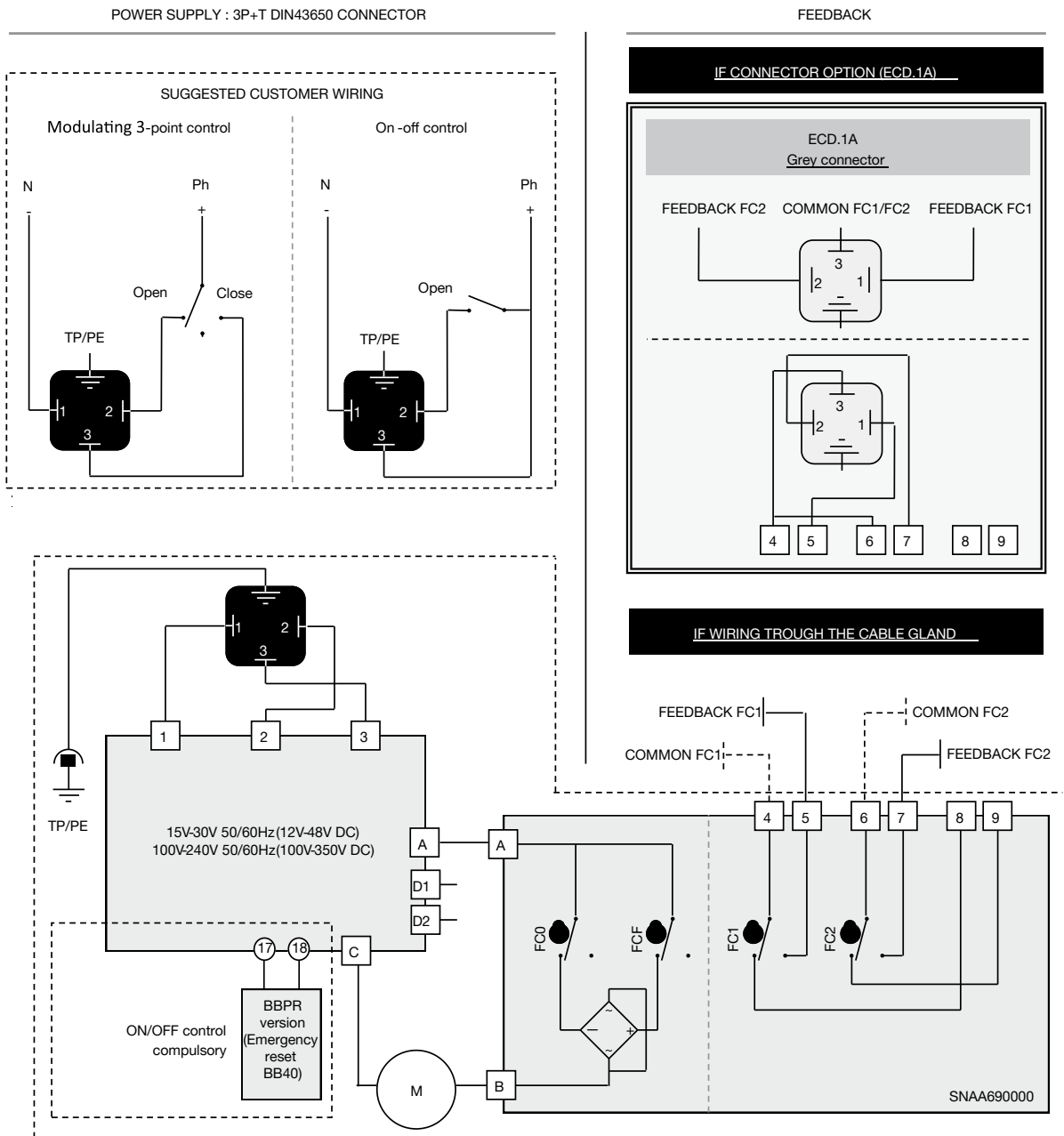
ISO 5211 Flange pattern	Diameter	M threaded	Depth	Screws quantity
F03	36	M5	14.2	4
F04	42	M5	14.2	4
F05	50	M6	14.2/16.4	4
F07	70	M8	16.4	4

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4. Device/Process connections

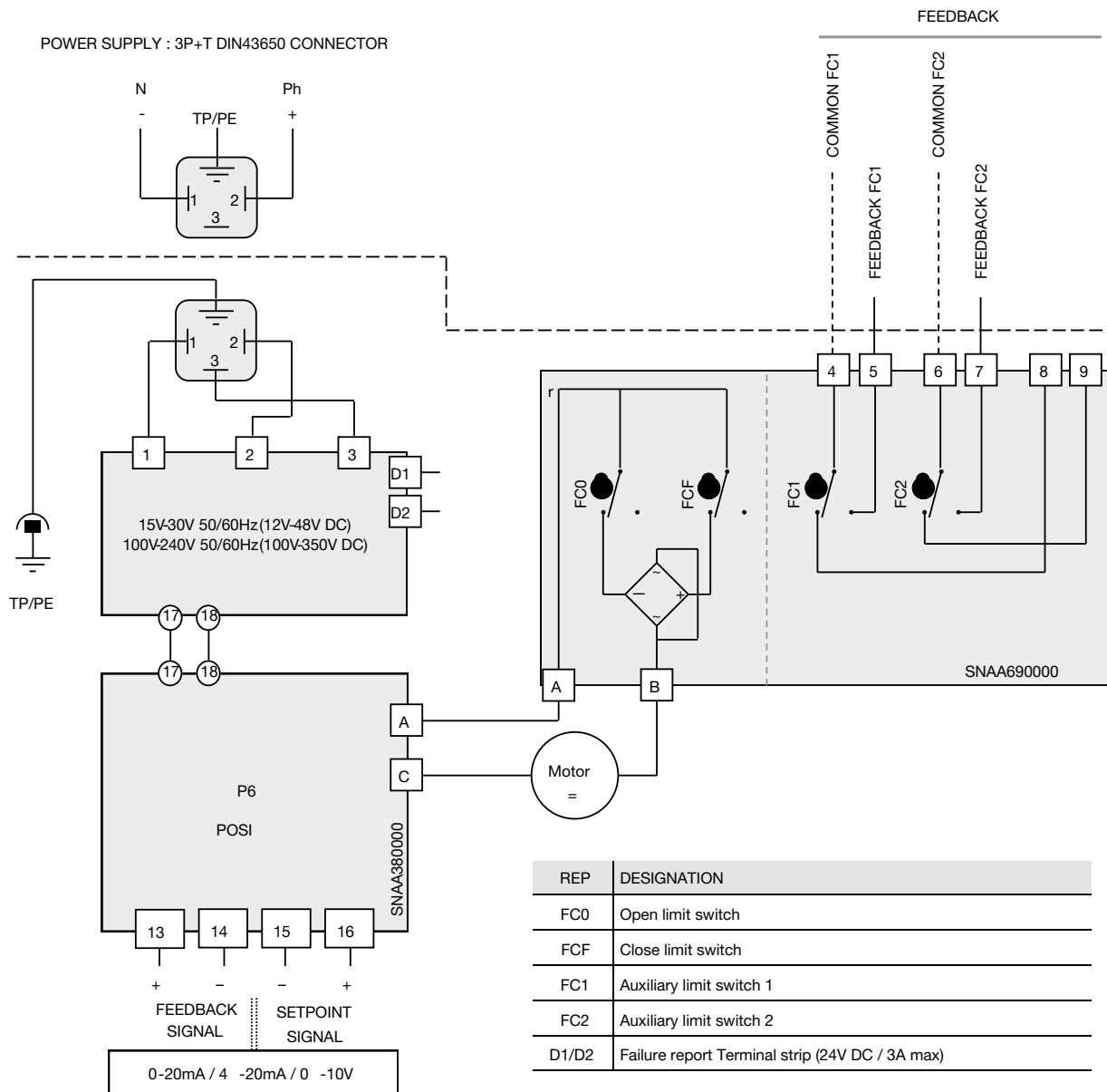
4.1. Electrical connections

Standard actuators for use in on/off & 3-point mode



Symbol	Designation
FC0	Limit switch Open
FCF	Limit switch Close
FC1	Additional limit switch 1
FC2	Additional limit switch 2

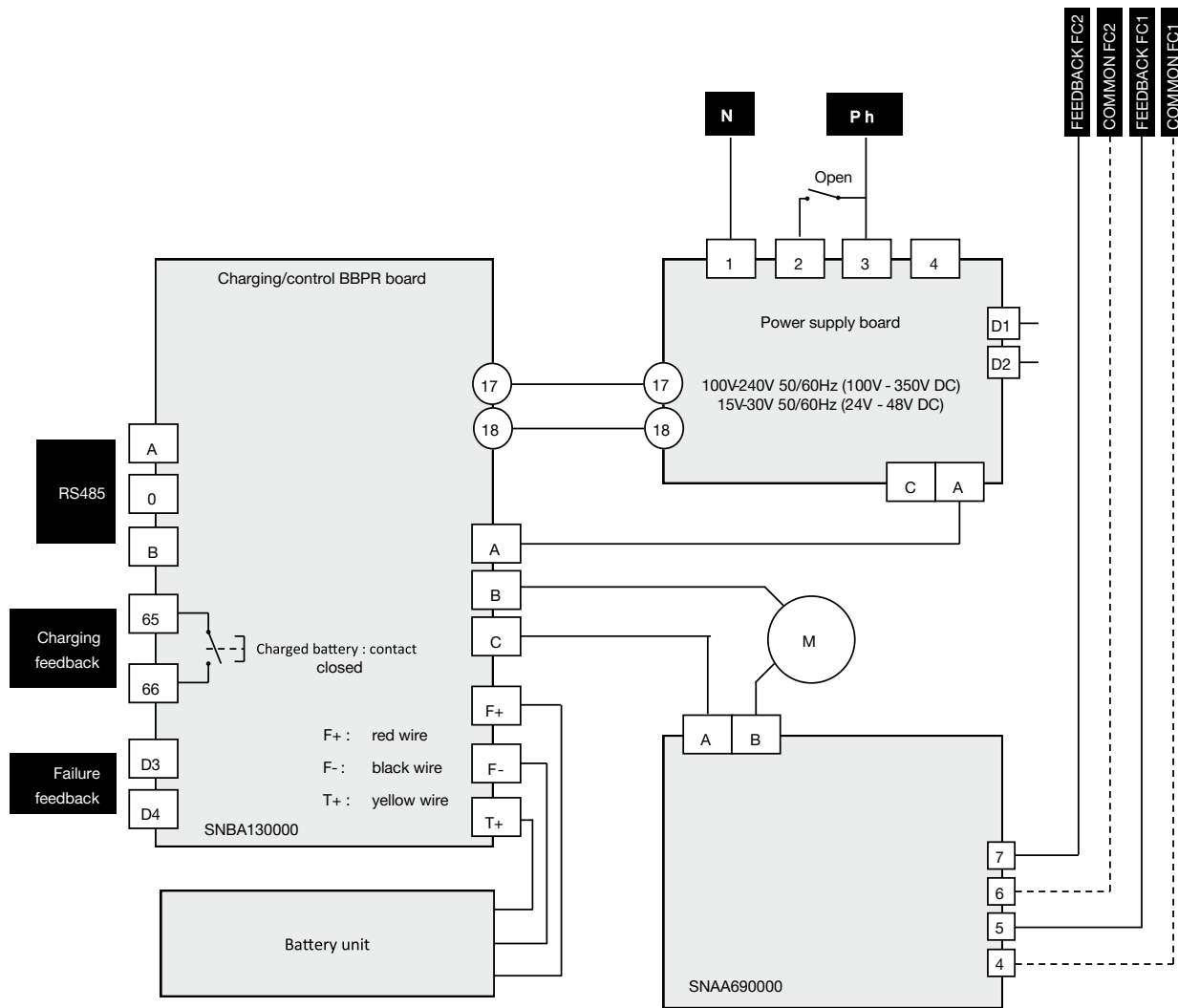
Actuators with analogue input and output signal



The card resolution is 1°
 10 kOhm input impedance if control with voltage (0-10V)
 100 Ohm input impedance if control with current (0-20mA ou 4 -20mA)

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Actuators with emergency reset (BBPR - BB40)



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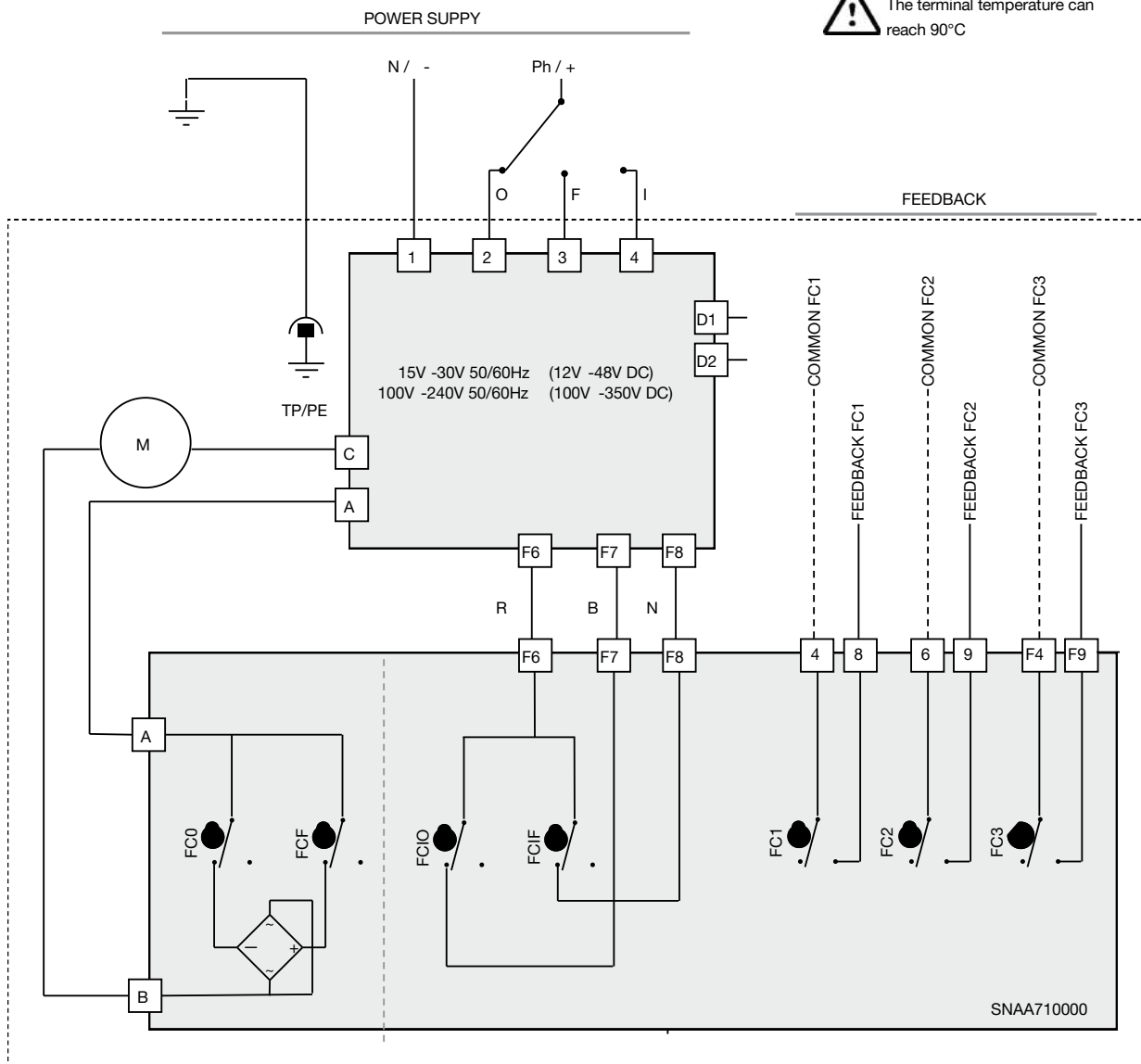
3 position actuators (0°, 90°, 180°)

Note:

The 3-position version allow actuator to be drive and stop in 3 positions. These 3 positions could be between 0° to 180°. In standard actuators are setting in our workshop at 0° 90° 180° that's fit with standard 3 ways ball valve. Others positions still available but customer have to price on the order witch position is request. These 3 positions are controlled by 4 switches (FCO,FCF,FCIO and FCIF) and 3 switches for feed back signal.



The terminal temperature can reach 90°C



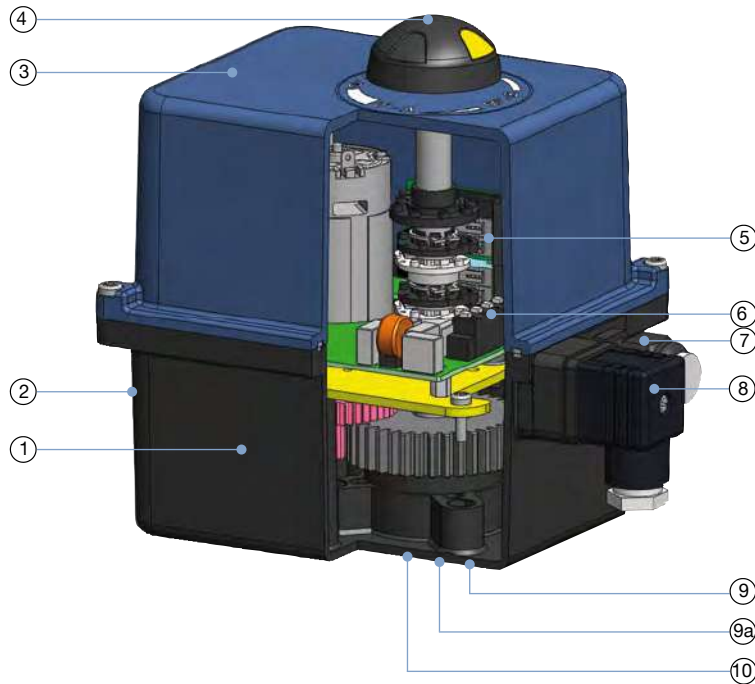
	Terminals		
	6 & 9	4 & 8	F4 & F9
0°	Closed	Open	Closed
inter	Open	Open	Open
180°	Open	Closed	Closed

REP	DESIGNATION	REP	DESIGNATION
FCO	Open limit switch	FC1	Auxiliary limit switch 1
FCF	Close limit switch	FC2	Auxiliary limit switch 2
FCIO	Intermediate open limit switch	FC3	Auxiliary limit switch 3
FCIF	Intermediate close limit switch	D1/D2	Failure report Terminal strip (24V DC / 3A max)

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5. Product design and assembly

5.1. Product assembly



Nr.	Element
1	Body
2	Manual override
3	Cover
4	Visual position indicator
5	Limit switches
6	Terminal block
7	Cable gland
8	Cable plug
9	Connection flange
9.a	Removable flange plate (20 Nm only; other interface according to ISO 5211)
10	Conversion sleeve

6. Ordering information

6.1. Bürkert eShop – Easy ordering and quick delivery




Bürkert eShop – Easy ordering and fast delivery

You want to find your desired Bürkert product or spare part quickly and order directly? Our online shop is available for you 24/7. Sign up and enjoy all the benefits.

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6.2. Bürkert product filter



Bürkert product filter – Get quickly to the right product

You want to select products comfortably based on your technical requirements? Use the Bürkert product filter and find suitable articles for your application quickly and easily.

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6.3. Ordering chart

On/Off version

Torque ^{1.)}	Double square	Con-version sleeve	Mounting flange acc. ISO 5211	90° Rotation time without load	90° Ro-tation time with load ^{2.)}	Power con-sumption	Voltage / frequency	Article no.
[Nm]	[mm]	[mm]		[s]	[s]	[W]	[V / Hz]	
10	14	14/11 and 14/9	F03-05 resp. F04 ^{3.)}	9	11	15	15...30 V AC, 50/60 Hz / 12...48 V DC	300872
20							100...240 V AC, 50/60 Hz / 100...350 V DC	300873
35	22	22/14	F05-F07	6	7	45	15...30 V AC, 50/60 Hz / 12...48 V DC	225192
							100...240 V AC, 50/60 Hz / 100...350 V DC	225193
60	22	22/14	F05-F07	10	12	45	15...30 V AC, 50/60 Hz / 12...48 V DC	236223
							100...240 V AC, 50/60 Hz / 100...350 V DC	20014535
100	22	22/14	F05-F07	19	22	45	15...30 V AC, 50/60 Hz / 12...48 V DC	225194
							100...240 V AC, 50/60 Hz / 100...350 V DC	225195
100	22	22/14	F05-F07	20	23	45	15...30 V AC, 50/60 Hz / 12...48 V DC	225196
							100...240 V AC, 50/60 Hz / 100...350 V DC	225197
100	22	22/17	F05-F07	19	22	45	15...30 V AC, 50/60 Hz / 12...48 V DC	225198
							100...240 V AC, 50/60 Hz / 100...350 V DC	225199

- 1.) For the actuator choice, we recommend a safety torque equal to 1.5 times of the valve maximal torque.
- 2.) Other rotation angles are available on request.
- 3.) Replaceable F04 adapter flange enclosed.

On/Off version - long rotation time

Torque ^{1.)}	Double square	Con-version sleeve	Mounting flange acc. ISO 5211	90° Rotation time without load	90° Ro-tation time with load ^{2.)}	Power con-sumption	Voltage / frequency	Article no.
[Nm]	[mm]	[mm]		[s]	[s]	[W]	[V / Hz]	
35	22	22/14	F05-F07	34	41	45	15...30 V AC, 50/60 Hz / 12...48 V DC	227779
60							100...240 V AC, 50/60 Hz / 100...350 V DC	231039
60	22	22/14	F05-F07	68	79	45	15...30 V AC, 50/60 Hz / 12...48 V DC	20014536
							100...240 V AC, 50/60 Hz / 100...350 V DC	237538
100	22	22/17	F05-F07	110	119	45	15...30 V AC, 50/60 Hz / 12...48 V DC	292429
							100...240 V AC, 50/60 Hz / 100...350 V DC	20014537

- 1.) For the actuator choice, we recommend a safety torque equal to 1.5 times of the valve maximal torque.
- 2.) Other rotation angles are available on request.

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Control version with analogue input and output signal

Torque ^{1.)}	Double square	Con-version sleeve	Mounting flange acc. ISO 5211	90° Rotation time ^{2.)}	Power consumption	Voltage / frequency	Article no.
[Nm]	[mm]	[mm]		[s]	[W]	[V / Hz]	
20	14	14/11 and 14/9	F03-05 resp. F04 ^{3.)}	25	15	15...30 V AC, 50/60 Hz / 12...48 V DC	225199
						100...240 V AC, 50/60 Hz / 100...350 V DC	225200
35	22	22/14	F05-F07	40	45	15...30 V AC, 50/60 Hz / 12...48 V DC	225201
						100...240 V AC, 50/60 Hz / 100...350 V DC	225202
60				79		15...30 V AC, 50/60 Hz / 12...48 V DC	225203
						100...240 V AC, 50/60 Hz / 100...350 V DC	225204
100		22/17		119		15...30 V AC, 50/60 Hz / 12...48 V DC	225205
						100...240 V AC, 50/60 Hz / 100...350 V DC	225206

1.) For the actuator choice, we recommend a safety torque equal to 1.5 times of the valve maximal torque.

2.) Other rotation angles are available on request.

3.) Replaceable F04 adapter flange enclosed.

On/off version with emergency reset via integrated battery: Fail-to-Close/Open adjustable^{1.)}

Torque ^{1.)}	Double square	Con-version sleeve	Mounting flange acc. ISO 5211	90° Rotation time ^{2.)}	Power consumption	Voltage / frequency	Article no.
[Nm]	[mm]	[mm]		[s]	[W]	[V / Hz]	
10	14	14/11 and 14/9	F03-05 resp. F04 ^{4.)}	11	15	15...30 V AC, 50/60 Hz / 24...48 V DC	20014538
						100...240 V AC, 50/60 Hz / 100...350 V DC	20014539
20				12		15...30 V AC, 50/60 Hz / 24...48 V DC	20014540
						100...240 V AC, 50/60 Hz / 100...350 V DC	20014541
35	22	22/14	F05-F07	7	45	15...30 V AC, 50/60 Hz / 24...48 V DC	20014542
						100...240 V AC, 50/60 Hz / 100...350 V DC	20014543
60				12		15...30 V AC, 50/60 Hz / 24...48 V DC	20014544
						100...240 V AC, 50/60 Hz / 100...350 V DC	20014545
100		22/17		23		15...30 V AC, 50/60 Hz / 24...48 V DC	20009903
						100...240 V AC, 50/60 Hz / 100...350 V DC	20014546

1.) Presetting: "Fail-to-Close" --> can be modified to "Fail-to-Open" via bluetooth interface and AXMART® App

2.) For the actuator choice, we recommend a safety torque equal to 1.5 times of the valve maximal torque.

3.) Other rotation angles are available on request.

4.) Replaceable F04 adapter flange enclosed.

On/off version with emergency reset via integrated battery: Fail-to-Close/Open adjustable^{1.)} - long rotation time

Torque ^{1.)}	Double square	Con-version sleeve	Mounting flange acc. ISO 5211	90° Rotation time ^{2.)}	Power consumption	Voltage / frequency	Article no.
[Nm]	[mm]	[mm]		[s]	[W]	[V / Hz]	
35	22	22/14	F05-F07	40	45	15...30 V AC, 50/60 Hz / 24...48 V DC	20014547
						100...240 V AC, 50/60 Hz / 100...350 V DC	20014548
60				79		15...30 V AC, 50/60 Hz / 24...48 V DC	20014549
						100...240 V AC, 50/60 Hz / 100...350 V DC	20014550
100		22/17		119		15...30 V AC, 50/60 Hz / 24...48 V DC	20014551
						100...240 V AC, 50/60 Hz / 100...350 V DC	20014552

1.) Presetting: "Fail-to-Close" --> can be modified to "Fail-to-Open" via bluetooth interface and AXMART® App

2.) For the actuator choice, we recommend a safety torque equal to 1.5 times of the valve maximal torque.

3.) Other rotation angles are available on request.

3 position version (0°, 90°, 180°)

Torque ^{1.)}	Double square	Con-version sleeve	Mounting flange acc. ISO 5211	90° Rotation time ^{2.)}	Power consumption	Voltage / frequency	Article no.
[Nm]	[mm]	[mm]		[s]	[W]	[V / Hz]	
10	14	14/11 and 14/9	F03-05 resp. F04 ^{3.)}	11	15	15...30 V AC, 50/60 Hz / 12...48 V DC	20014553
20				12		100...240 V AC, 50/60 Hz / 100...350 V DC	20014555
35				26		15...30 V AC, 50/60 Hz / 12...48 V DC	267190
	22	22/14	F05-F07	7	45	100...240 V AC, 50/60 Hz / 100...350 V DC	245616
60				12		15...30 V AC, 50/60 Hz / 12...48 V DC	20014558
100				23		100...240 V AC, 50/60 Hz / 100...350 V DC	274694
		22/17				15...30 V AC, 50/60 Hz / 12...48 V DC	267400
						100...240 V AC, 50/60 Hz / 100...350 V DC	20014560
						15...30 V AC, 50/60 Hz / 12...48 V DC	20007828
						100...240 V AC, 50/60 Hz / 100...350 V DC	237126
						15...30 V AC, 50/60 Hz / 12...48 V DC	226161
						100...240 V AC, 50/60 Hz / 100...350 V DC	226162

1.) For the actuator choice, we recommend a safety torque equal to 1.5 times of the valve maximal torque.

2.) Other rotation angles are available on request.

3.) Replaceable F04 adapter flange enclosed.

3 position version (0°, 90°, 180°) - long rotation time

Torque ^{1.)}	Double square	Con-version sleeve	Mounting flange acc. ISO 5211	90° Rotation time ^{2.)}	Power consumption	Voltage / frequency	Article no.
[Nm]	[mm]	[mm]		[s]	[W]	[V / Hz]	
35	22	22/14	F05-F07	40	45	15...30 V AC, 50/60 Hz / 12...48 V DC	20014561
60				79		100...240 V AC, 50/60 Hz / 100...350 V DC	20014562
100				119		15...30 V AC, 50/60 Hz / 12...48 V DC	20014563
		22/17				100...240 V AC, 50/60 Hz / 100...350 V DC	20014565
						15...30 V AC, 50/60 Hz / 12...48 V DC	20014566
						100...240 V AC, 50/60 Hz / 100...350 V DC	20014567

1.) For the actuator choice, we recommend a safety torque equal to 1.5 times of the valve maximal torque.

2.) Other rotation angles are available on request.

Further versions on request

Voltage


Other supply voltages

6.4. Ordering chart accessories

Reducing sleeves

Description	Article no.
Conversion sleeve star/square 14/9 mm	665288
Conversion sleeve star/square 14/11 mm	665289
Conversion sleeve square/square 17/14 mm	665290
Conversion sleeve star/square 17/14 mm	773348
Conversion sleeve star/square 17/11 mm	773343
Conversion sleeve square/square 22/19 mm	773836
Conversion sleeve star/square 22/17 mm	684858
Conversion sleeve star/star 22/14 mm	666684
Conversion sleeve star/square 22/11 mm	773344
Conversion sleeve star/square 27/22 mm	774594
Conversion sleeve square/square 27/19 mm	774279
Conversion sleeve square/square 27/17 mm	774193







Other accessories

Description	Article no.
Flange plate F04 for the "small" drive with 10, 20, 35 Nm	665293 
Key for adjusting the limit switches	679946 

Spare battery for actuators with electronic emergency reset

Note:

- The battery must be replaced after max. 500 charging cycles or after 2 years at the latest. Depending on which condition is reached earlier.
- Additional information for Type 3004: The person who changes the battery must be trained and qualified to do modifications on ATEX products.
- Actuators that do not have an electronic emergency reset when delivered cannot be upgraded with this device at a later date.

Type	Version	Torque [Nm]	Article no.
3003	BB40	10...100	775335 
3003	BB31/33 (old model)	10...100	770051 
3004/5	BB40	25...300	774761 
3004/5	BB40 und 4-20mA Input	25...300	775336 
3004/5	BB40	600...2400	775337 
3004/5	BB31/33 (old model)	25...300	772992 

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