C-Tork Actuator

Compact lightweight electric actuator

The CT electric actuators are designed to drive ball and butterfly valves with ISO5211 mounting pad, providing a quarter turn motion.
In combination with **RuB** valves are used in wastewater treatment plants, power plants, refineries, mining processes, food factories and in the fluid automated control in HVAC.

The CT family provides the following output torques:

Model	Nominal Torque
CT1	8 Nm (70.8 lb-in)
CT2	11 Nm (97.3 lb-in)
CT3	22 Nm (194.7 lb-in)
CT4	40 Nm (354 lb-in)

2 YEARS WARRANTY

Technical features & benefits:

- **Direct ISO 5211 mount on valves.**
  Requires no separate linkage because the CT Series Actuators are ready for direct attachment to ISO5211 mounting pad.

- **Compact package with perfect shaft alignment.**
  Smaller actuator footprint enables installation in confined spaces; direct mount on ball valves reduces the mounting space requirement.

- **Several voltage ratings available.**
  Available with the most common power supplies around the globe.

- **Fire retardant plastic with high IP ratings enclosure.**
  Provides a high degree of protection from dust, splashing water, rough handling and tough environments.

- **Auxiliary Switches.**
  Provides line voltage capable switch up to 1 A Resistive.

- **Special models available.**
  The CT family fits the customer needs extending the application coverage on request.

Key Codes:

CT	X	X	X	X	X	X		
							Option:	R = Anti-condensation Resistance
								FO = Failsafe Valve Open
								FC = Failsafe Valve Close
						Auxiliary Switches:		0 = No Micro
								1 = 1 Aux. Switch
								2 = 2 Aux. Switches
					Manual Override:			M = Manual Override
								N = No Manual
				Control Type:				A = 2 Points
								B = 3 Points
								C = 2 and 3 Points
								D = Prop. 0 - 10 Vdc
								E = Prop. 2 - 10 Vdc
								F = Prop. 0 - 20 mA
								G = Prop. 4 - 20 mA
			Power Supply:					A = 230Vac 50/60 Hz *
								B = 110Vac 50/60 Hz *
								C = 24Vac 50/60 Hz *
								D = 24Vdc
								E = 12Vdc
								F = 24Vac/dc
								G = 100 - 230Vac
								H = 230Vac 60 Hz **
								I = 110Vac 60Hz **
								L = 24Vac 60Hz **
	Model:							CT1 = 8Nm (70.8 lb-in)
								CT2 = 11Nm (97.3 lb-in)
								CT3 = 22Nm (194.7 lb-in)
								CT4 = 40Nm (354 lb-in)

Note: * Not valid for CT4 (50 Hz only), ** Valid for CT4 only

Ask for additional information on the whole range of **BONOMI** INDUSTRIES products and consult with your supplier for special applications.
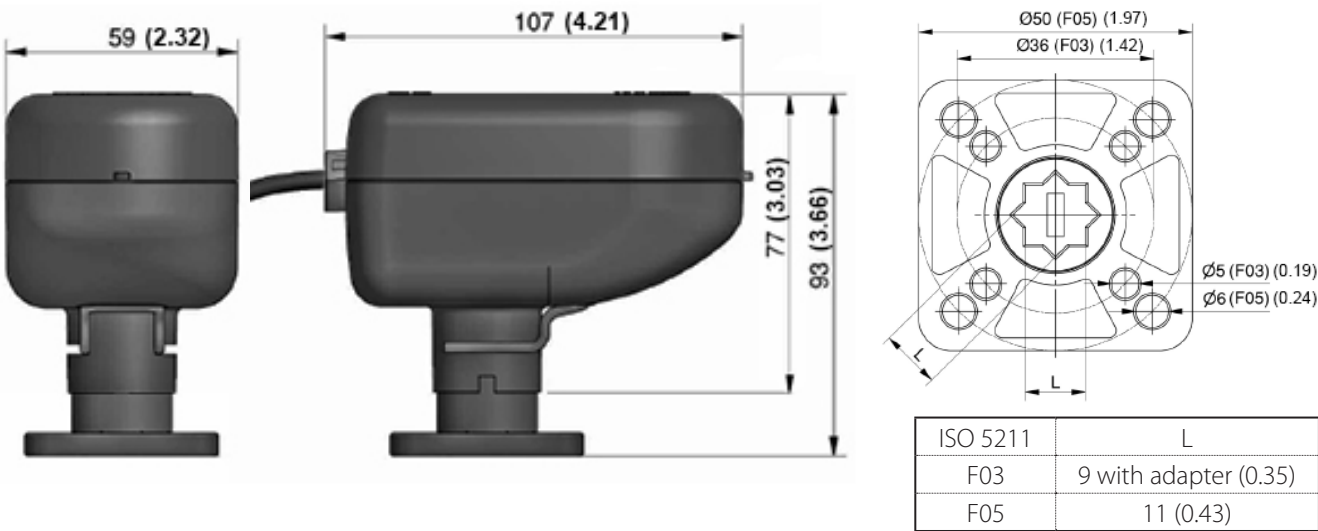
CT1 - 8Nm (70.8 lb-in)

Ordering Codes

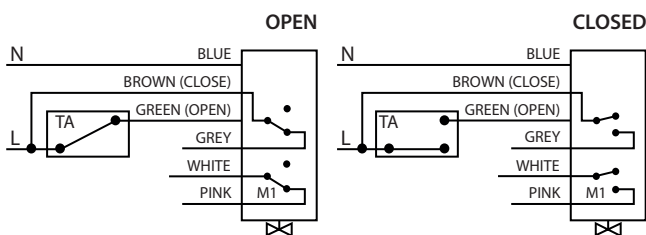| Code	Power supply	Control Type	Running time (0°-90°)	Feedback type
CT1AAN1	230 Vac 50/60 Hz	2 Points	45 sec @ 50Hz / 38 sec @ 60Hz	1 microswitch & 1 output phase
CT1BAN1	110 Vac 50/60 Hz	2 Points	45 sec @ 50Hz / 38 sec @ 60Hz	
CT1CAN1	24 Vac 50/60 Hz	2 Points	45 sec @ 50Hz / 38 sec @ 60Hz	
CT1ABN1	230 Vac 50/60 Hz	3 points	35 sec @ 50Hz / 30 sec @ 60Hz	
CT1BBN1	110 Vac 50/60 Hz	3 points	35 sec @ 50Hz / 30 sec @ 60Hz	
CT1CBN1	24 Vac 50/60 Hz	3 points	35 sec @ 50Hz / 30 sec @ 60Hz	
CT1DCN0	24V DC	2/3 Points	60 sec.	2 output phases
CT1FDN0	24V DC / AC ± 20% 50/60 Hz	Modulating 0-10Vdc	60 sec.	2 -10 Vdc

Optional models on request:

- 5Nm with 15 sec running time, Vac only
- Vdc 2/3 points 30 sec running time
- 12 Vdc power supply, 2/3 points 60 secs running time
- Different Input signal on modulating: 0(2)-10 Vdc, 0(4)-20 mA
- Modbus Communication
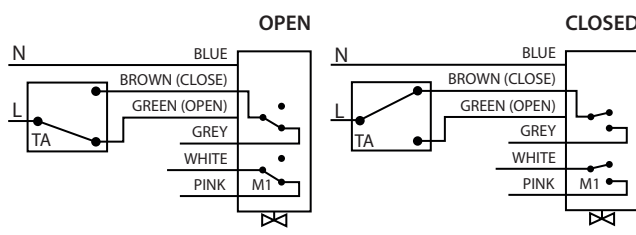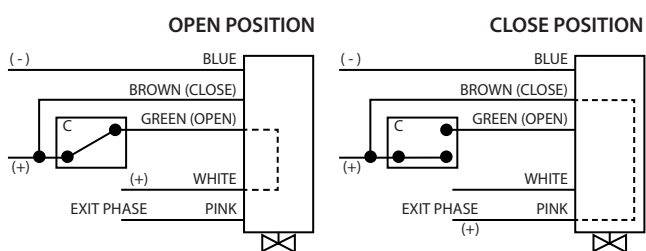- On/Off 3 positions (0°, 45° and 90°)

Dimensions mm (inches)

ISO 5211	L
F03	9 with adapter (0.35)
F05	11 (0.43)

Wiring diagrams

Vac models 2 points control

OPEN

N — BLUE
BROWN (CLOSE)
L — TA — GREEN (OPEN)
GREY
WHITE
PINK — M1

CLOSED

N — BLUE
BROWN (CLOSE)
L — TA — GREEN (OPEN)
GREY
WHITE
PINK — M1

Vac models 3 points control

ISO 9001

OPEN

N — BLUE
BROWN (CLOSE)
L — TA — GREEN (OPEN)
GREY
WHITE
PINK — M1

CLOSED

N — BLUE
BROWN (CLOSE)
L — TA — GREEN (OPEN)
GREY
WHITE
PINK — M1

Vdc models 2 points control

OPEN POSITION

(-) — BLUE
BROWN (CLOSE)
C — GREEN (OPEN)
(+)
(+) — WHITE
EXIT PHASE — PINK

CLOSE POSITION

(-) — BLUE
BROWN (CLOSE)
C — GREEN (OPEN)
(+)
WHITE
EXIT PHASE — PINK
(+)

Vdc models 3 points control

OPEN POSITION

(-) — BLUE
BROWN (CLOSE)
C — GREEN (OPEN)
(+)
(+) — WHITE
EXIT PHASE — PINK

CLOSE POSITION

(-) — BLUE
BROWN (CLOSE)
C — GREEN (OPEN)
(+)
WHITE
EXIT PHASE — PINK
(+)

Proportional models

24V AC ~ + RED

24V DC ⊥ − BLACK

Positioning signal
0-10V DC / 2-10V DC
0-20 mA / 4-20V mA
+ GREEN
− WHITE

Feedback signal
2-10V DC
+ PINK
− YELLOW

Technical specification

	2 points Vac	3 points Vac	2/3 points Vdc	Modulating
Position indicator	Rotating arrow, indicating the position of the sphere			
Power supply	230 V - 50/60 Hz		24Vdc	24V DC / AC ± 20% 50/60 Hz
	24 V - 50/60 Hz			
	110 V - 50/60 Hz		12Vdc	
Power cable length	80 cm (31.5 inches) (other sizes on request)			
Operating time (90°) and related starting torque	45 sec @ 50Hz / 38 sec @ 60Hz	35 sec @ 50Hz / 30 sec @ 60Hz	60 sec	60 sec
Absorbed power	3.9 VA		2 VA	3.5 W
Electrical capacity of the additional microswitch	1 A resistive - 250V		Not available	
Maximum noise (1 meter away)	40 dB (A)			
Operating ambient temperature	+5 °C ÷ +50°C (41°F ÷ 122°F)			
Degree of protection	IP 54 (Equivalent to NEMA3)			
Insulation class	Ⅱ - double insulation ▫			
Outer shell material	Polyamide PA 6 - 30% glass fibers			
Certification	CE			

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CT2 - 11Nm (97.3 lb-in)

Ordering Codes

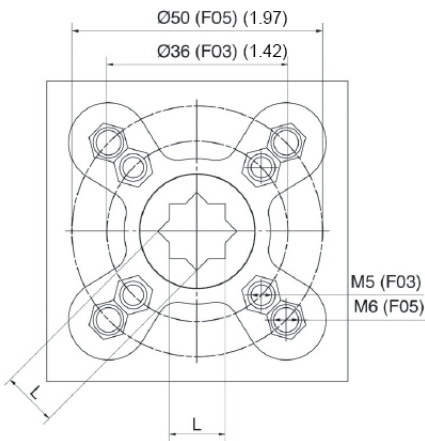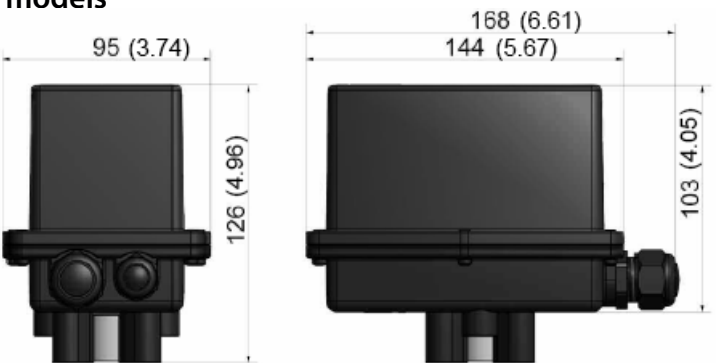| Code	Power supply	Control Type	Running time (0°-90°)	Feedback type
CT2ACM2	230 Vac - 50/60 Hz	2/3 Points	35 sec @ 50Hz / 30 sec @ 60Hz	2 x Free auxiliary switches
CT2BCM2	110 Vac - 50/60 Hz	2/3 Points	35 sec @ 50Hz / 30 sec @ 60Hz	2 x Free auxiliary switches
CT2CCM2	24 Vac - 50/60 Hz	2/3 Points	35 sec @ 50Hz / 30 sec @ 60Hz	2 x Free auxiliary switches
CT2DCN2	24V DC	2/3 Points	12 sec.	2 x Free auxiliary switches
CT2ADN0	230 Vac - 50/60 Hz	Modulating 0-10Vdc	35 sec @ 50Hz / 30 sec @ 60Hz	2 output phases
CT2FDN0	24V DC / AC ± 20% 50/60 Hz	Modulating 0-10Vdc	15 sec.	2 -10 Vdc
CT2GCM2FC	100-230 Vac	2/3 Points	15 sec.	2 x Free auxiliary switches

Optional models on request:

- 12 Vdc power supply
- Optional speed: - Vac only : 12 sec or 4 sec (5Nm)
  - Vdc only : 8 sec and 5 sec (11Nm); 3 sec (8Nm); 1 sec (5Nm)
- Proportional models: 0(2)-10 Vdc, 0(4)-20 mA, Modbus
- Electronic fail safe (see pag 11)
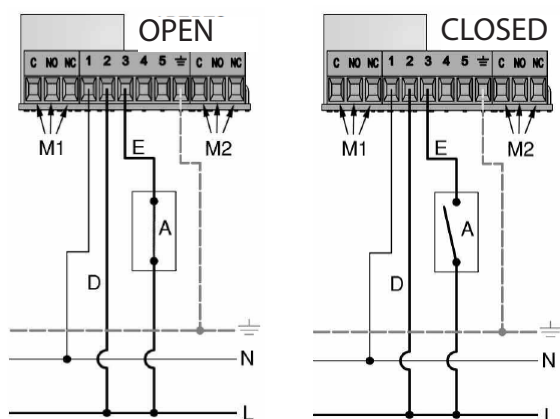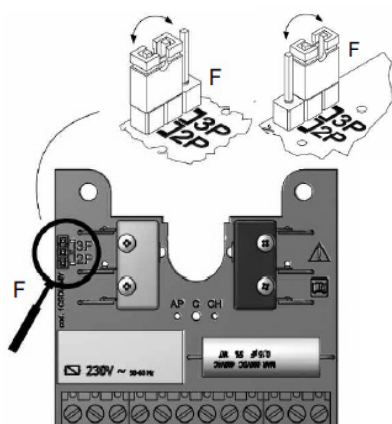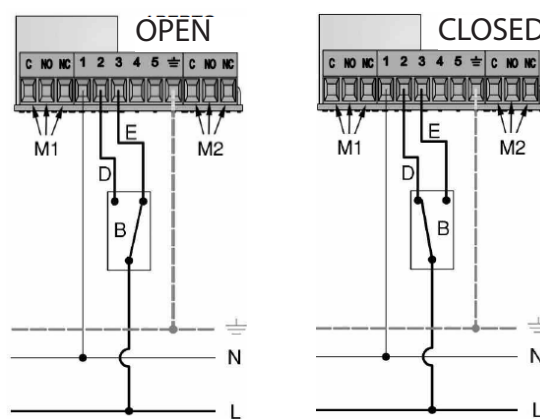
Dimensions mm (inches)

Vac models

Vdc models

ISO 5211	L
F03	9 with adapter (0.35)
F05	11 (0.43)

Wiring diagrams

2 points control

OPEN | CLOSED
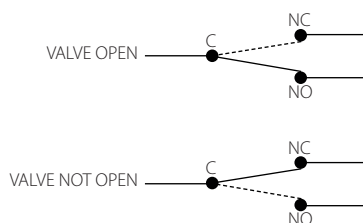
3 points control

OPEN | CLOSED
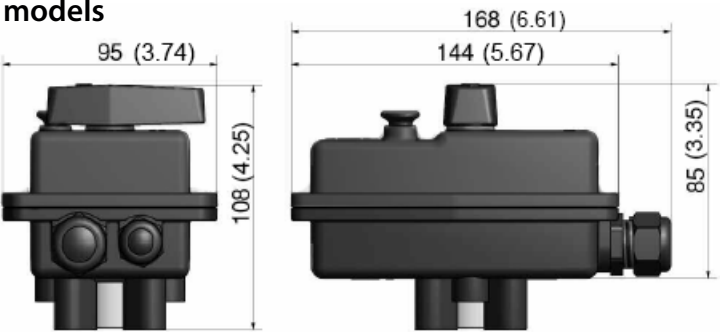
Vac models: Move the jumper to have the desired electrical connection.
Vdc models: No jumper change is needed

Auxiliary switches

M1 (additional opening microswitch)

VALVE OPEN — C — NC / NO

VALVE NOT OPEN — C — NC / NO

M2 (additional closing microswitch)

VALVE CLOSED — C — NC / NO

VALVE NOT CLOSED — C — NC / NO

Technical specification

	ALL IN ONE - 2/3 points Vac	ALL IN ONE - 2/3 points Vdc
Position indicator and manual override	Manual lever with arrow indicating the position of the sphere	Not available
Power supply	230 V - 50/60 Hz	24Vdc
	110 V - 50/60 Hz	
	24 V - 50/60 Hz	12Vdc
Electric connections	Via terminal board inside the actuator	
Operating time (90°)	35 sec @ 50Hz 30 sec @ 60Hz	12 sec
Absorbed power	6 VA (230 V)	0.3A (24Vdc)
	6 VA (110 V)	
	7.5 VA (24 V)	0.5A (12 Vdc)
Maximum current supported by the additional microswitches	1 A resistive	Not available
Maximum noise (1 meter away)	35 dB (A) standard version	47 dB (A) standard version
Operating ambient temperature	-10 °C ÷ +50°C (14°F ÷ 122°F)	
Degree of protection	IP 67 (Equivalent to NEMA6)	
Outer casing	Characterized by a ribbed shape made of glass-filled "polyarylamide" technopolymer, particularly robust and impermeable to humidity	
Certification	CE	

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CT3 - 22Nm (194.7 lb-in)

Ordering Codes

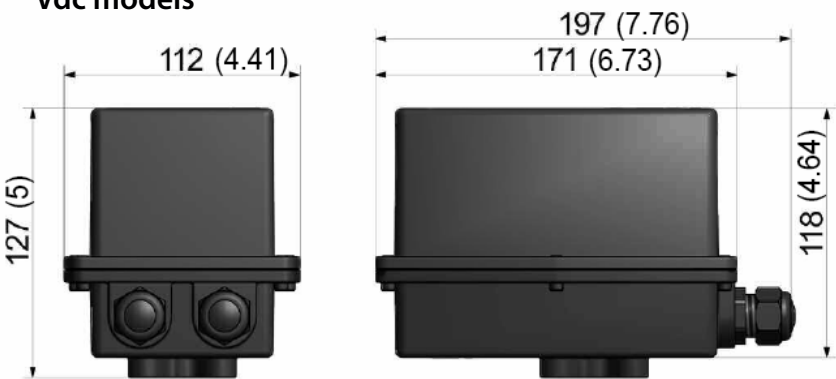| Code	Power supply	Control Type	Running time (0°-90°)	Feedback type
CT3ACM2	230 Vac - 50/60 Hz	2/3 Points	45 sec @ 50Hz 38 sec @ 60Hz	2 x Free auxiliary switches
CT3BCM2	110 Vac - 50/60 Hz	2/3 Points	45 sec @ 50Hz 38 sec @ 60Hz	
CT3CCM2	24 Vac - 50/60 Hz	2/3 Points	45 sec @ 50Hz 38 sec @ 60Hz	
CT3DCN2	24V DC	2/3 Points	30 sec.	
CT3ADN0	230 Vac - 50/60 Hz	Modulating 0-10Vdc	45 sec @ 50Hz 38 sec @ 60Hz	2 output phases
CT3FDN0	24V DC / AC ± 20% 50/60 Hz	Modulating 0-10Vdc	30 sec.	2 -10 Vdc

Optional models on request:

• 12 Vdc power supply
• Optional speed: - Vac only : 9 sec
                 - Vdc only: 10 sec

• Proportional models: 0(2)-10 Vdc, 0(4)-20 mA, Modbus
• Electronic fail safe (see pag 11)

Dimensions mm (inches)
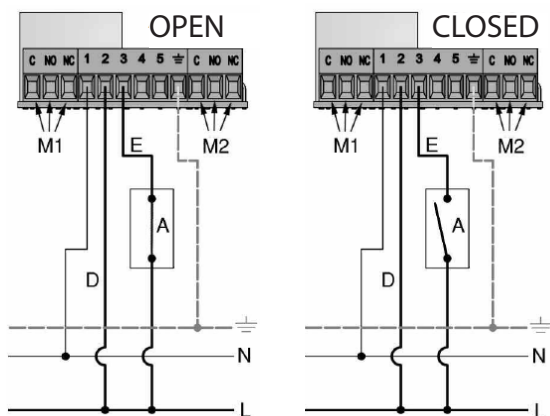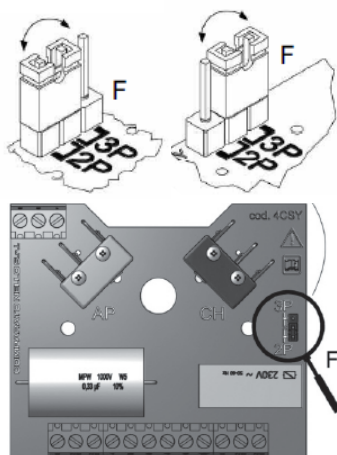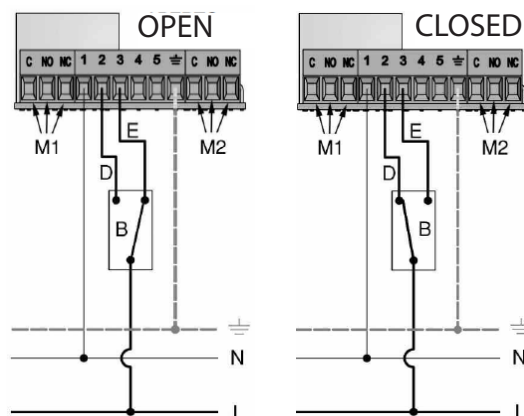
Vac models

Vdc models

ISO 5211	L
F03	9 with adapter (0.35)
F05	11 (0.43)

Wiring diagrams

2 points control

OPEN

C NO NC 1 2 3 4 5 ⏚ C NO NC

M1 E M2

A

D

N

L

CLOSED

C NO NC 1 2 3 4 5 ⏚ C NO NC

M1 E M2

A

D

N

L

3 points control

OPEN

C NO NC 1 2 3 4 5 ⏚ C NO NC

M1 E M2

D

B

N

L

CLOSED

C NO NC 1 2 3 4 5 ⏚ C NO NC

M1 E M2

D

B

N

L

F

F

Vac models: Move the jumper to have the desired electrical connection.
Vdc models: No jumper change is needed

cod. 4CSY

AP   GH

F

Auxiliary switches

M1 (additional opening microswitch)

VALVE OPEN — C

NC

NO

VALVE NOT OPEN — C

NC

NO

M2 (additional closing microswitch)

VALVE CLOSED — C

NC

NO

VALVE NOT CLOSED — C

NC

NO

Technical specification

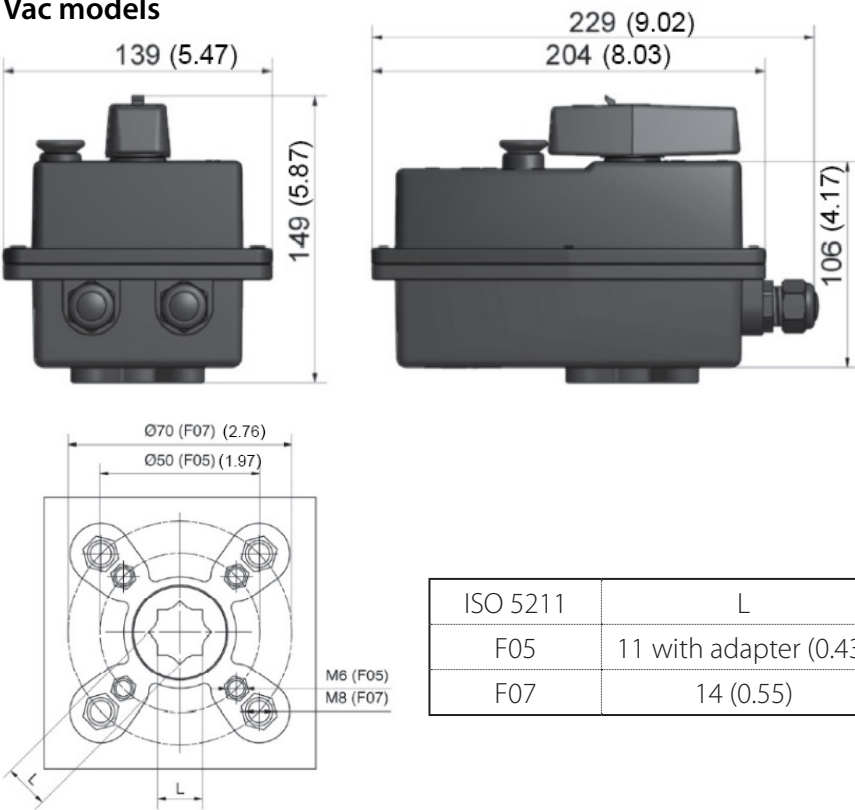|	ALL IN ONE - 2/3 points Vac	ALL IN ONE - 2/3 points Vdc
Position indicator and manual override	Manual lever with arrow indicating the position of the sphere	Not available
Power supply	230 V - 50/60 Hz	24Vdc
	110 V - 50/60 Hz	
	24 V - 50/60 Hz	12Vdc
Electric connections	Via terminal board inside the actuator	
Operating time (90°)	45 sec	30 sec
Absorbed power	5 VA (230 V)	0.25 A (24Vdc)
	5 VA (110 V)	
	6 VA (24 V)	0.4 A (12 Vdc)
Maximum current supported by the additional microswitches	1 A resistive	
Maximum noise (1 meter away)	42 dB (A) standard version	52 dB (A) standard version
Operating ambient temperature	-10 °C ÷ +50°C (14°F ÷ 122°F)	
Degree of protection	IP 67 (Equivalent to NEMA6)	
Outer casing	Characterized by a ribbed shape made of glass-filled "polyarylamide" technopolymer, particularly robust and impermeable to humidity	
Certification	CE	

CT4 - 40Nm (354 lb-in)

Ordering Codes

Code	Power supply	Control Type	Running time (0°-90°)	Feedback type
CT4ACM2	230 Vac 50 Hz	2/3 Points	55 sec.	2 x Free auxiliary switches
CT4BCM2	110 Vac 50 Hz	2/3 Points	55 sec.	
CT4CCM2	24 Vac 50 Hz	2/3 Points	55 sec.	
CT4HCM2	230 Vac 60Hz	2/3 Points	45 sec.	
CT4ICM2	110 Vac 60Hz	2/3 Points	45 sec.	
CT4LCM2	24 Vac 60Hz	2/3 Points	45 sec.	
CT4HDN0	230 Vac 60 Hz	Modulating 0-10Vdc	45 sec.	2 output phases
CT4FDN0	24V DC / AC ± 20% 50/60 Hz	Modulating 0-10Vdc	45 sec.	2 -10 Vdc

Optional models on request:

- 24Vdc and 12 Vdc power supply
- Optional speed: - Vac only : 14 sec and 32 sec
- Proportional models: 0(2)-10 Vdc, 0(4)-20 mA, Modbus
- Electronic fail safe (see pag 11)

Dimensions mm (inches)

Vac models

139 (5.47)   149 (5.87)

229 (9.02)   204 (8.03)   106 (4.17)

Ø70 (F07) (2.76)
Ø50 (F05) (1.97)
M6 (F05)
M8 (F07)

ISO 5211	L
F05	11 with adapter (0.43)
F07	14 (0.55)

Wiring diagrams

2 points control

OPEN   CLOSED

3 points control

OPEN   CLOSED
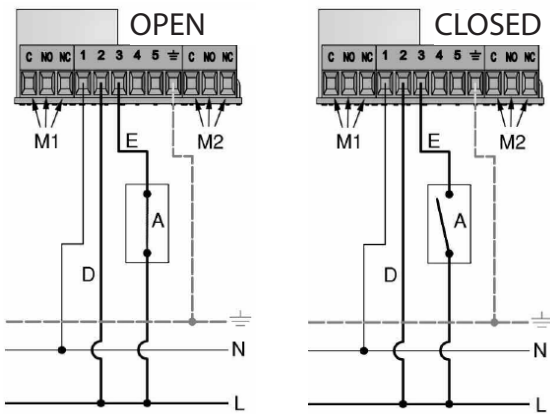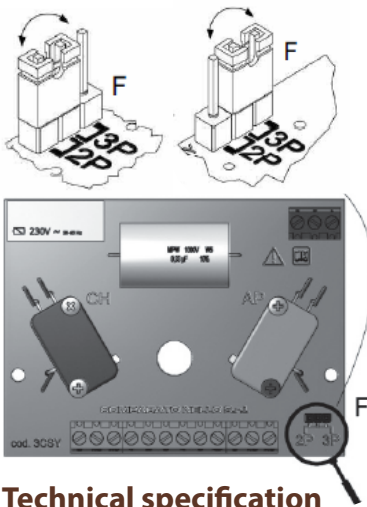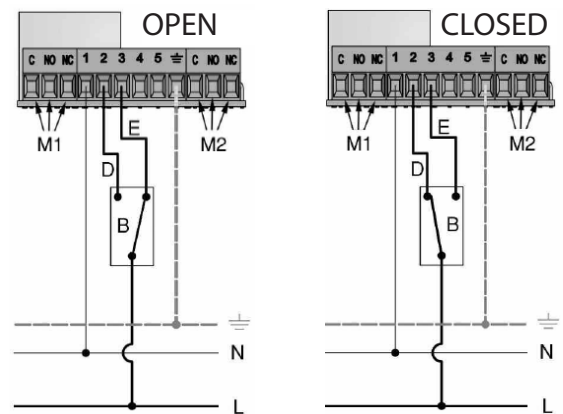
Vac models: Move the jumper to have the desired electrical connection.

Auxiliary switches

M1 (additional opening microswitch)

VALVE OPEN — C — NC / NO

VALVE NOT OPEN — C — NC / NO

M2 (additional closing microswitch)

VALVE CLOSED — C — NC / NO

VALVE NOT CLOSED — C — NC / NO
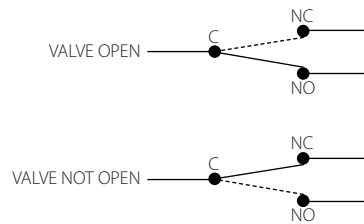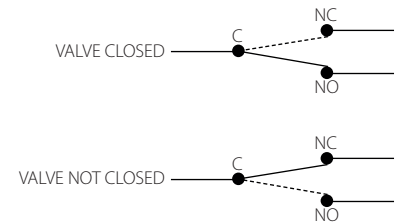
Technical specification

	ALL IN ONE - 2/3 points
Position indicator and manual override	Manual lever with arrow indicating the position of the sphere
Power supply	230 V - 50 Hz
	110 V - 50 Hz
	24 V - 50 Hz
Electric connections	Via terminal board inside the actuator
Operating time (90°)	55 sec @ 50Hz 45 sec @ 60 Hz
Maximum absorbed power (standard version 55sec)	13 VA (230 V)
	11 VA (110 V)
	12 VA (24 V)
Maximum current on the output phase at terminals 4 and 5	1 A resistive
Maximum current supported by the additional microswitches	1 A resistive
Maximum noise (1 meter away)	50 dB (A) standard version
Operating ambient temperature	-10 °C ÷ +50°C (14°F ÷ 122°F)
Degree of protection	IP 67 (Equivalent to NEMA6)
Outer casing	Characterized by a ribbed shape made of glass-filled "polyarylamide" technopolymer, particularly robust and impermeable to humidity
Certification	CE

Super capacitors electronic Fail Safe actuators

Using the SuperCaps technology the CT2, CT3 and CT4 actuators can store the necessary energy to drive open or close the valve in a safety position during an electrical power supply interruption. Fail safe open or close position in valves is crucial to prevent serious damages in critical applications such as coils freezing or steam exchangers overpressure. By default they are all provided with a 2-10 Vdc feedback, two auxiliary switches and 1m cable lenght.

Ordering Codes

Code	Torque (Nm)	Power supply
CT2FCM2Fx	11	24Vdc - 24V 50/60 Hz
CT2GCM2Fx	11	100...240V 50/60 Hz
CT3FCM2Fx	22	24Vdc - 24V 50/60 Hz
CT3GCM2Fx	22	100...240V 50/60 Hz
CT4FCM2Fx	40	24Vdc - 24V 50/60 Hz
CT4GCM2Fx	40	100...240V 50/60 Hz

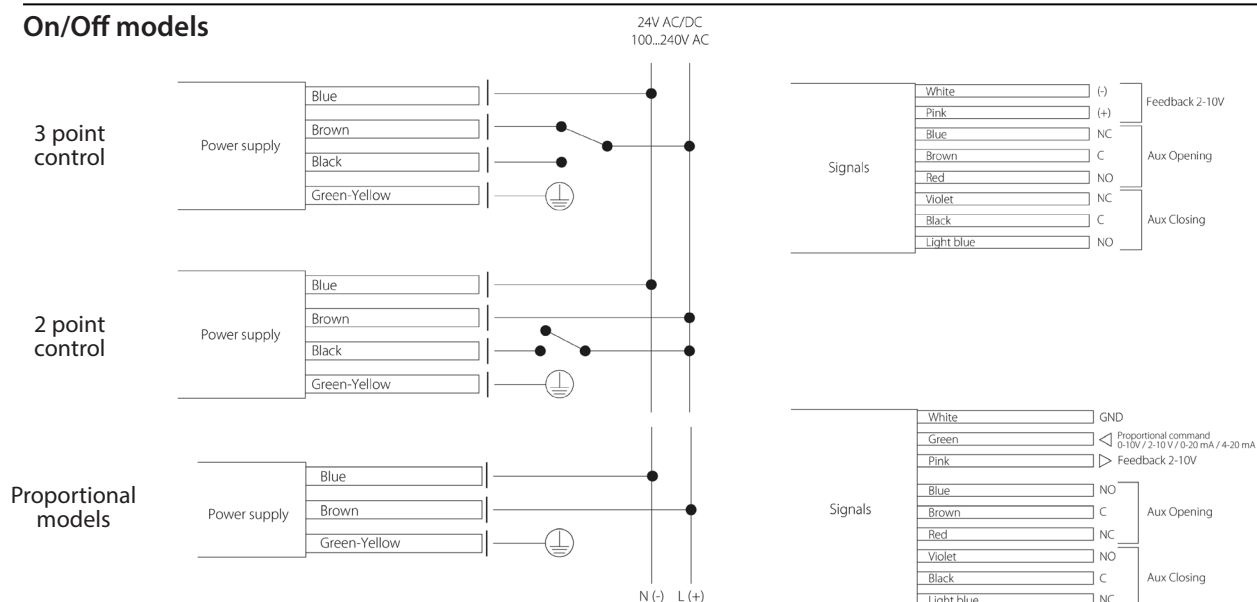**Note:** X=O for Fail safe valve open; C for Fail Safe valve close X

Technical specification - Fail safe Models

	CT2	CT3	CT4
Available power supply	24Vdc - 24V 50/60 Hz - 100...240V 50/60Hz		
Max. Running power consumption	10W	25W	25W
Power supply cable	1 m (40 in.) length AWG20		
Signal cable	1 m (40 in.) length AWG24		
Auxiliary switches rating	max 30V DC - 0.1 A	max 30V DC - 0.1 A	max 30V DC - 0.1 A
Nominal Torque	11 Nm	22 Nm	40 Nm
Available control type	On/off 3&2 points - proportional		
Valve position feedback	2 -10V DC		
Manual Override	Manual lever with arrow indicating the position of the sphere		
Running Speed (90°)	30s		
Fail safe speed(90°)	20 s	26 s	30 s
Max Noise	45 dB (A)	60 dB (A)	65 dB (A)
Degree of protection	IP67		
SuperCaps recharging time	15 min (90°)	15 min (90°)	50 min (90°)
Operating ambient temperature	-10°C ÷ 50°C (14°F ÷ 122°F)		
Certification	CE		

Wiring diagrams

On/Off models

3 point control

Power supply
- Blue
- Brown
- Black
- Green-Yellow

24V AC/DC
100...240V AC

Signals
White	(-)	Feedback 2-10V
Pink	(+)	
Blue	NC	Aux Opening
Brown	C	
Red	NO	
Violet	NC	Aux Closing
Black	C	
Light blue	NO	

2 point control

Power supply
- Blue
- Brown
- Black
- Green-Yellow

Proportional models

Power supply
- Blue
- Brown
- Green-Yellow

Signals
White	GND
Green	Proportional command 0-10V / 2-10 V / 0-20 mA / 4-20 mA
Pink	Feedback 2-10V
Blue	NO	Aux Opening
Brown	C	
Red	NC	
Violet	NO	Aux Closing
Black	C	
Light blue	NC	

N (-) L (+)

Valves combination

s.64 Low Torque	code	size	ΔP	CT1 - 8Nm	CT2 - 11Nm	CT3 - 22Nm	CT4 - 40Nm
	S64FxxA	1"		●	●		
	S64GxxA	1 ¼"	0 ÷ 6 Bar	●	●		
	S64HxxA	1 ½"	(0 ÷ 87 PSI)	●	●		
	S64IxxA	2"		●	●		
	code	size	ΔP	CT1 - 8Nm	CT2 - 11Nm	CT3 - 22Nm	CT4 - 40Nm
	S64FxxA	1"		●	●		
	S64GxxA	1 ¼"	6 ÷ 16 Bar	●	●		
	S64HxxA	1 ½"	(87 ÷ 232 PSI)	●	●		
	S64IxxA	2"			●		

s.64	code	size	ΔP	CT1 - 8Nm	CT2 - 11Nm	CT3 - 22Nm	CT4 - 40Nm
	S64Dxx	1/2"		●	●		
	S64Exx	3/4"		●	●		
	S64Fxx	1"	0 ÷ 15 Bar	●	●		
	S64Gxx	1 ¼"	(0 ÷ 217PSI)		●		
	S64Hxx	1 ½"					●
	S64Ixx	2"					●
	code	size	ΔP	CT1 - 8Nm	CT2 - 11Nm	CT3 - 22Nm	CT4 - 40Nm
	S64Dxx	1/2"		●	●		
	S64Exx	3/4"		●	●		
	S64Fxx	1"	15 ÷ 40 Bar	●	●		
	S64Gxx	1 ¼"	(217 ÷ 580 PSI)			●	
	S64Hxx	1 ½"					●
	S64Ixx	2"					●

s.65	code	size	ΔP	CT1 - 8Nm	CT2 - 11Nm	CT3 - 22Nm	CT4 - 40Nm
	S65Dxx	1/2"		●	●		
	S65Exx	3/4"	0 ÷ 16 Bar	●	●		
	S65Fxx	1"	(0 ÷ 232 PSI)	●	●		
	S65Gxx	1 ¼"		●	●		

s.134	code	size	ΔP	CT1 - 8Nm	CT2 - 11Nm	CT3 - 22Nm	CT4 - 40Nm
	134Dxx	1/2"		●	●		
	134Exx	3/4"		●	●		
	134Fxx	1"	0 ÷ 14 Bar			●	
	134Gxx	1 ¼"	(0 ÷ 203 PSI)			●	
	134Hxx	1 ½"					●
	134Ixx	2"					●

s.73 & s.76	code	size	ΔP	CT1 - 8Nm	CT2 - 11Nm	CT3 - 22Nm	CT4 - 40Nm
	S73Dxx	1/2"			●		
	S73Exx	3/4"				●	
	S73Fxx	1"	0 ÷ 16 Bar			●	
	S73Gxx	1 ¼"	(0 ÷ 232 PSI)				●
	S73Hxx	1 ½"					●
	S73Ixx	2"					●
	code	size	ΔP	CT1 - 8Nm	CT2 - 11Nm	CT3 - 22Nm	CT4 - 40Nm
	S76Dxx	1/2"		●	●		
	S76Exx	3/4"		●	●		
	S76Fxx	1"	0 ÷ 16 Bar	●	●		
	S76Gxx	1 ¼"	(0 ÷ 232 PSI)				●
	S76Hxx	1 ½"					●
	S76Ixx	2"					●

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