



Electric actuator VRX • VSX • VTX

Facteur de marche 50% Duty cycle	Indice de protection IP68 Enclosure protection	25Nm ∨ 1000Nm
Système de sécurité FAIL SAFE Security system	Positionnement POSI Positioning	3 POSITIONS
	ATEX	Anticondensation intégrée  Anticondensation heater

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 **valpes**
A WATTS Brand

Description

Electric actuators, aluminium housing and polyamide UL94V0 or aluminium (option) cover with manual override by external shaft or hand wheel, for torques from 25 to 300Nm and in accordance with CE-ROHS-REACH Directives.

VRX • VSX • VTX



Version	Page / External ref
standard VRX • VSX	3
standard VTX	7
VRX • VSX with FAILSAFE security unit	10
VRX • VSX with positioning solution	13
VRX • VSX 3-position	16
Version of VRX • VSX • VTX for every marine application: 15-year warranty high durability coating ¹⁾	—
Pulse control (500ms) ¹⁾	—

¹⁾ On request.

Series	ATEX marking			
	Zone	Gas	Dust	
VRX/VSX Standard	II 2 G D	Ex d IIB T6 Gb	Ex tb IIIC T80°C Db	LCIE 06 ATEX 6006X
VRX/VSX 400V / GS2	II 2 G D	Ex d IIB T5 Gb	Ex tb IIIC T95°C Db	LCIE 15 ATEX 3012X
VTX	II 2 G D	Ex d IIB T5 Gb	Ex tb IIIC T90°C Db	LCIE 15 ATEX 3012X

VRX • VSX technical datas

Visual position indicator	Modular (VRX) et spherical (VSX)
Control	On-Off or 3-modulating points
Voltages	15V to 30V AC (50/60Hz) & 12V to 48V DC • 100V to 240V AC (50/60Hz) & 100V to 350V DC • 400V 3-phase (50/60Hz)
Duty cycle	Service S4 - 50% (IEC34 standard)
Torque limiter	Software
Serial connection	RS485
Number of starts / hour ²⁾	150
Feedback relay	Failure (torque, temperature ...)
Anti-condensation heater	Self-regulated
Drive nut	Star
Removable adaptation plates (ISO5211)	VRX: F05-F07 • VSX: F07-F10
Number of limit switches	4 adjustable switches (5A max.)
Secured manual override	Decutching system and external shaft (VRX) • wheel (VSX)
Mechanical travel stops	90° (180° et 270° versions without mechanical travel stops)
Electric connection	2 ISO M20
Temperature	-20°C à +70°C (FAILSAFE actuators: -10°C to +40°C)
Enclosure	IP68
Weight	VRX: 4Kg to 4,4Kg • VSX: 6Kg to 6,4Kg
Warranty ³⁾	3-year warranty or 50 000 actuations

²⁾ Recommended use, see instructions notice.

³⁾ Tested on testing bench in the worst conditions (maximal torque and duty rating).

Options

Card with two extra limit switches (EFC.2)
100 / 1000 / 5000 / 10000 Ohms feedback potentiometer (EPR.B) ⁴⁾
0-10V, 0-20mA or 4-20mA transmitter (EPT.C) ⁵⁾
10 meters 72 hours IP68 tightness (IP10 • VSX only)

⁴⁾ Specify the model.

⁵⁾ Only for a travel time higher or equal to 10s



Please consider 1.5 safety factor (and 2.0 safety factor for POSI version) when sizing the actuator

Standard range

Code	Star drive nut Connection	Torque	Voltage supplies	Power	Operating time
VRX25.70A.G00	17 F05/F07	25Nm	100V to 240V 50/60Hz (100V to 350V DC)	45W	7s
VRX25.70B.G00	17 F05/F07	25Nm	15V to 30V 50/60Hz (12V to 48V DC)	45W	7s
VRX45.70A.G00	17 F05/F07	45Nm	100V to 240V 50/60Hz (100V to 350V DC)	45W	15s
VRX45.70B.G00	17 F05/F07	45Nm	15V to 30V 50/60Hz (12V to 48V DC)	45W	15s
VRX75.70A.G00	17 F05/F07	75Nm	100V to 240V 50/60Hz (100V to 350V DC)	45W	20s
VRX75.70B.G00	17 F05/F07	75Nm	15V to 30V 50/60Hz (12V to 48V DC)	45W	20s
VSX100.90A.G00	22 F07/F10	100Nm	100V to 240V 50/60Hz (100V to 350V DC)	45W	15s
VSX100.90B.G00	22 F07/F10	100Nm	15V to 30V 50/60Hz (12V to 48V DC)	45W	15s
VSX150.90A.G00	22 F07/F10	150Nm	100V to 240V 50/60Hz (100V to 350V DC)	45W	30s
VSX150.90B.G00	22 F07/F10	150Nm	15V to 30V 50/60Hz (12V to 48V DC)	45W	30s
VSX300.90A.G00	22 F07/F10	300Nm	100V to 240V 50/60Hz (100V to 350V DC)	45W	60s
VSX300.90B.G00	22 F07/F10	300Nm	15V to 30V 50/60Hz (12V to 48V DC)	45W	60s

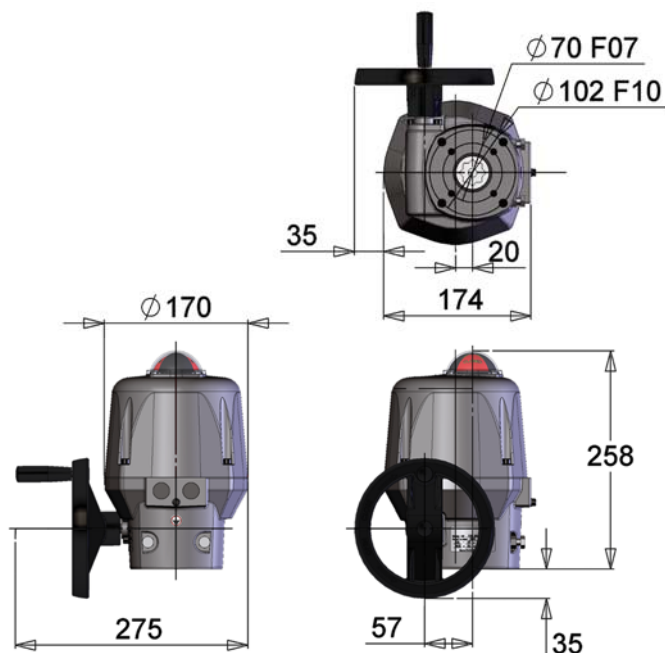
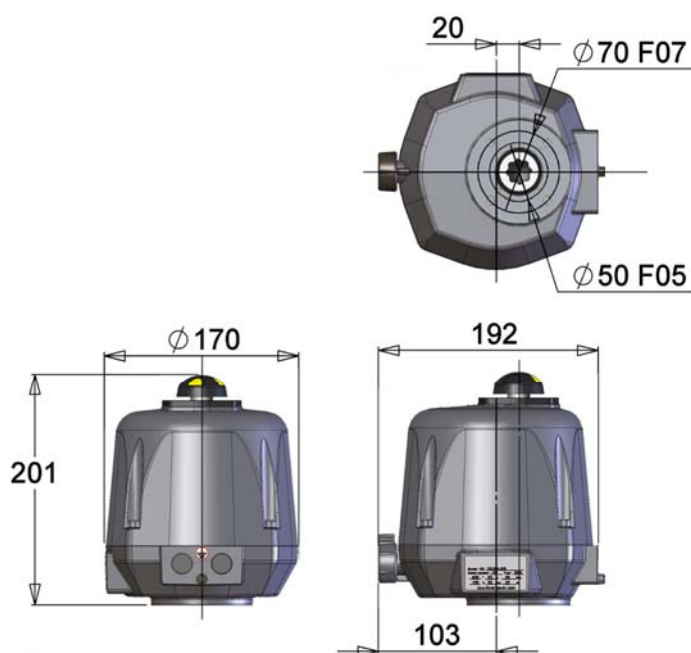
400V 3-phase range

Code	Star drive nut Connection	Torque	Voltage supplies	Power	Operating time
VRX25.709.R00	17 F05/F07	25Nm	400V TRI	52W	10s
VRX45.709.R00	17 F05/F07	45Nm	400V TRI	52W	10s
VRX75.709.R00	17 F05/F07	75Nm	400V TRI	52W	15s
VSX100.909.R00	22 F07/F10	100Nm	400V TRI	135W	10s
VSX150.909.R00	22 F07/F10	150Nm	400V TRI	135W	20s
VSX300.909.R00	22 F07/F10	300Nm	400V TRI	135W	35s

Dimensions

Type : VRX

Type : VSX



Please consider 1.5 safety factor (and 2.0 safety factor for POSI version) when sizing the actuator

400V 3-phase VRX-VSX range electric wiring

Rep.	Designation	Rep.	Designation	Rep.	Designation
FC0	Open limit switch	H4	Motor supply indication	S5	Poussoir d'arrêt
FCF	Close limit switch	H5	Control supply indication	S6	Poussoir d'ouverture
FC1	Auxiliary limit switch 1	KM1	Opening switch	S7	Poussoir de fermeture
FC2	Auxiliary limit switch 2	KM2	Closing switch	H	Résistance de réchauffage
F1 / F2	Thermal switch	M	Motor		

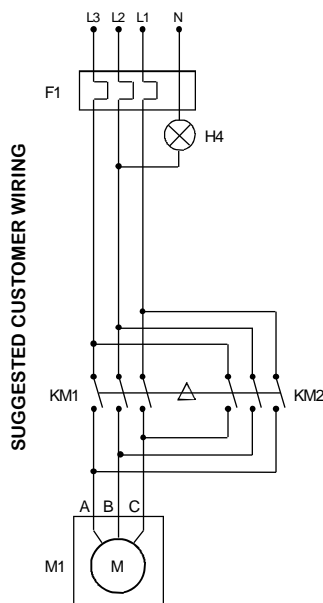


II 2 G D Ex d IIB T5 Gb Ex tb IIIC T95°C Db LCIE 06 ATEX 6006X

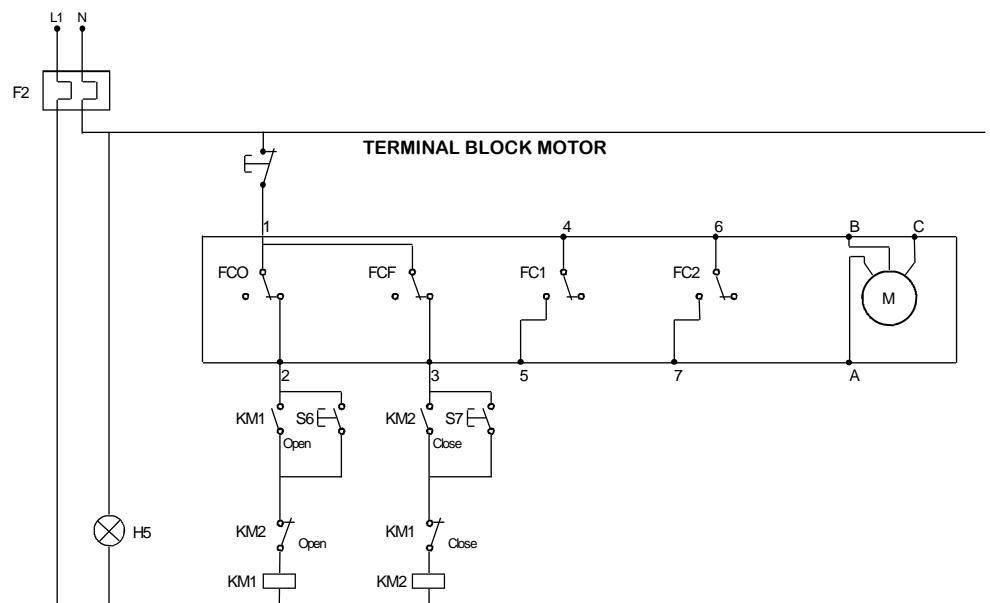


The terminal temperature can reach 90°C
The used wires must be rigid (feedback voltages : 4 to 250V AC/DC)

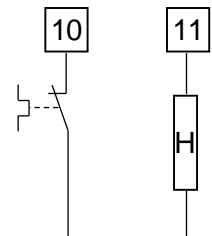
ALIMENTATION (400V 3-phase 50/60Hz)



COMMAND (230V AC)



ERT.B



The motor power supply is wired on bistable three-phase relay (not delivered)
If working inverted, invert 2 phases of motor

Description

Electric actuators, aluminium housing, with manual override by hand wheel, for torques from 600 to 1000mN and in accordance with CE-ROHS-REACH Directives.



Technical datas VTX

Visual position indicator	Spherical
Control	3-modulating points
Voltages	230V AC (50/60Hz) • 400V 3-phase 50Hz
Duty cycle	Service S4 - 50% (IEC34 standard)
Torque limiter	Mecanical
Number of starts / hour ¹⁾	50
Feedback relay	Failure (torque)
Anti-condensation heater	Self-regulated
Drive nut	Star 36
Removable adaptation plates (ISO5211)	F10-F12
Number of limit switches	4 adjustable switches (5A max.)
Secured manual override	Wheel
Mechanical travel stops	90° ± 5° (180° et 270° versions without mechanical travel stops)
Electric connection	2 ISO M20
Temperature	-20°C to +63°C
Enclosure	IP68
Weight	25Kg
Warranty ²⁾	3-year warranty or 50 000 actuations

¹⁾ Recommended use, see instructions notice.

²⁾ Tested on testing bench in the worst conditions (maximal torque and duty rating).

Options

Card with two extra limit switches (EFC.2)
100 / 1000 / 5000 / 10000 Ohms feedback potentiometer (EPR.B) ³⁾
0-10V, 0-20mA or 4-20mA transmitter (EPT.C)

³⁾ Specify the model.



Please consider 1.5 safety factor (and 2.0 safety factor for POSI version) when sizing the actuator

VTX range

Code	Star drive nut Connection	Torque	Voltage supplies	Power	Operating time
VTX600.A08.G00	36 F10/F12	600Nm	230V AC 50/60Hz	250W	38s
VTX600.A09.R00	36 F10/F12	600Nm	400V TRI 50Hz	250W	38s
VTX1000.A08.G00	36 F10/F12	1000Nm	230V AC 50/60Hz	250W	38s
VTX1000.A09.R00	36 F10/F12	1000Nm	400V TRI 50Hz	250W	38s

Dimensions



Please consider 1.5 safety factor when sizing the actuator

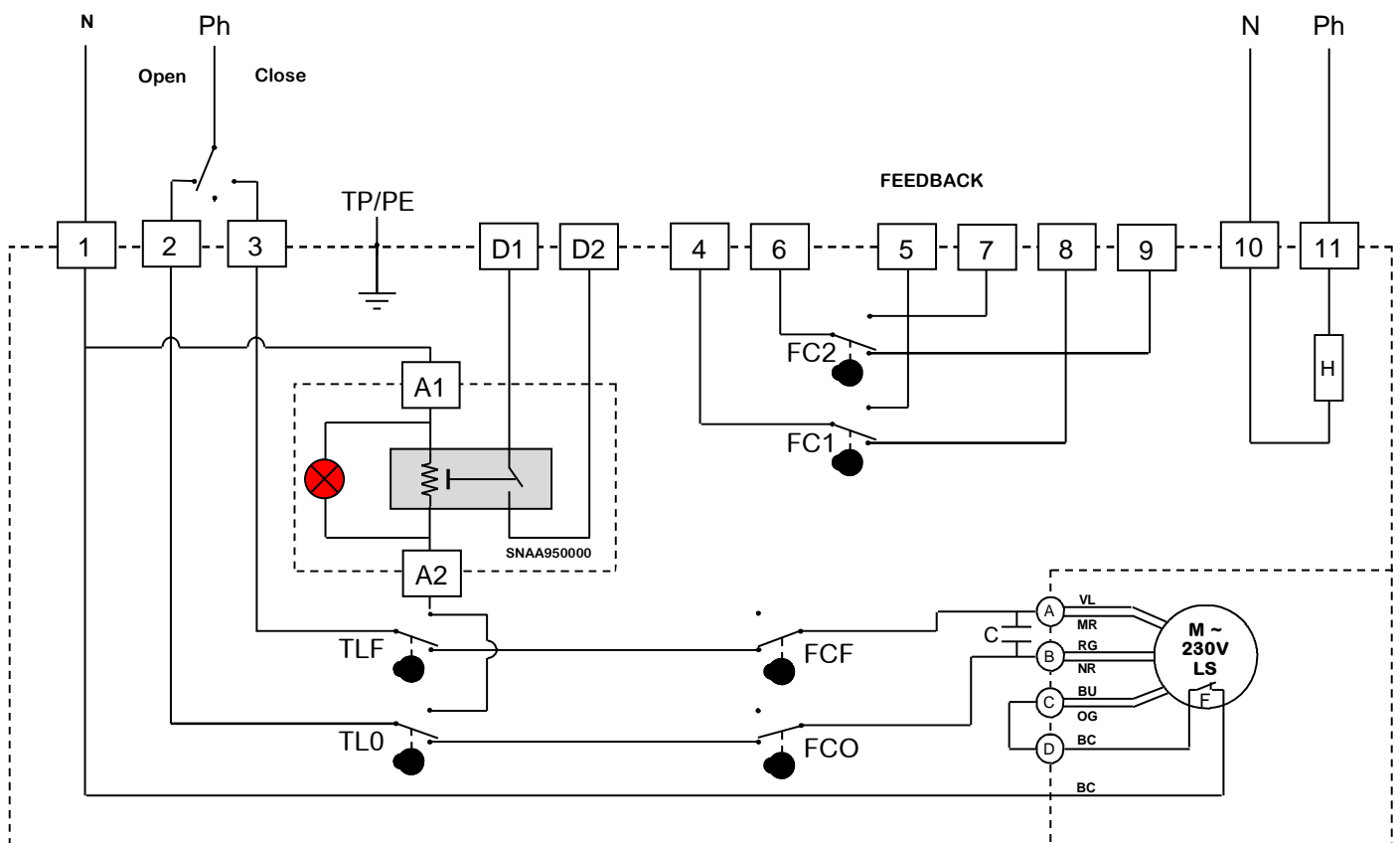
VTX 230V electric wiring

Rep.	Designation	Rep.	Designation	Rep.	Designation
FCO	Open limit switch	FCF	Close limit switch	TLO	Torque switch : opening
FC1	Auxiliary limit switch 1	FC2	Auxiliary limit switch 2	TLF	Torque switch : closing
C	Capacitor	F	Motor thermoswitch	H	Anti-condensation heater
M	Motor	VL	Purple	MR	Brown
RG	Red	NR	Black	BU	Blue
OG	Orange	BC	White	D1/D2	Failure report Terminal strip (230V AC max / 5 A)



The terminal temperature can reach 90°C
 The used wires must be rigid (feedback voltages : 4 to 250V AC/DC)

POWER SUPPLY AND COMMAND

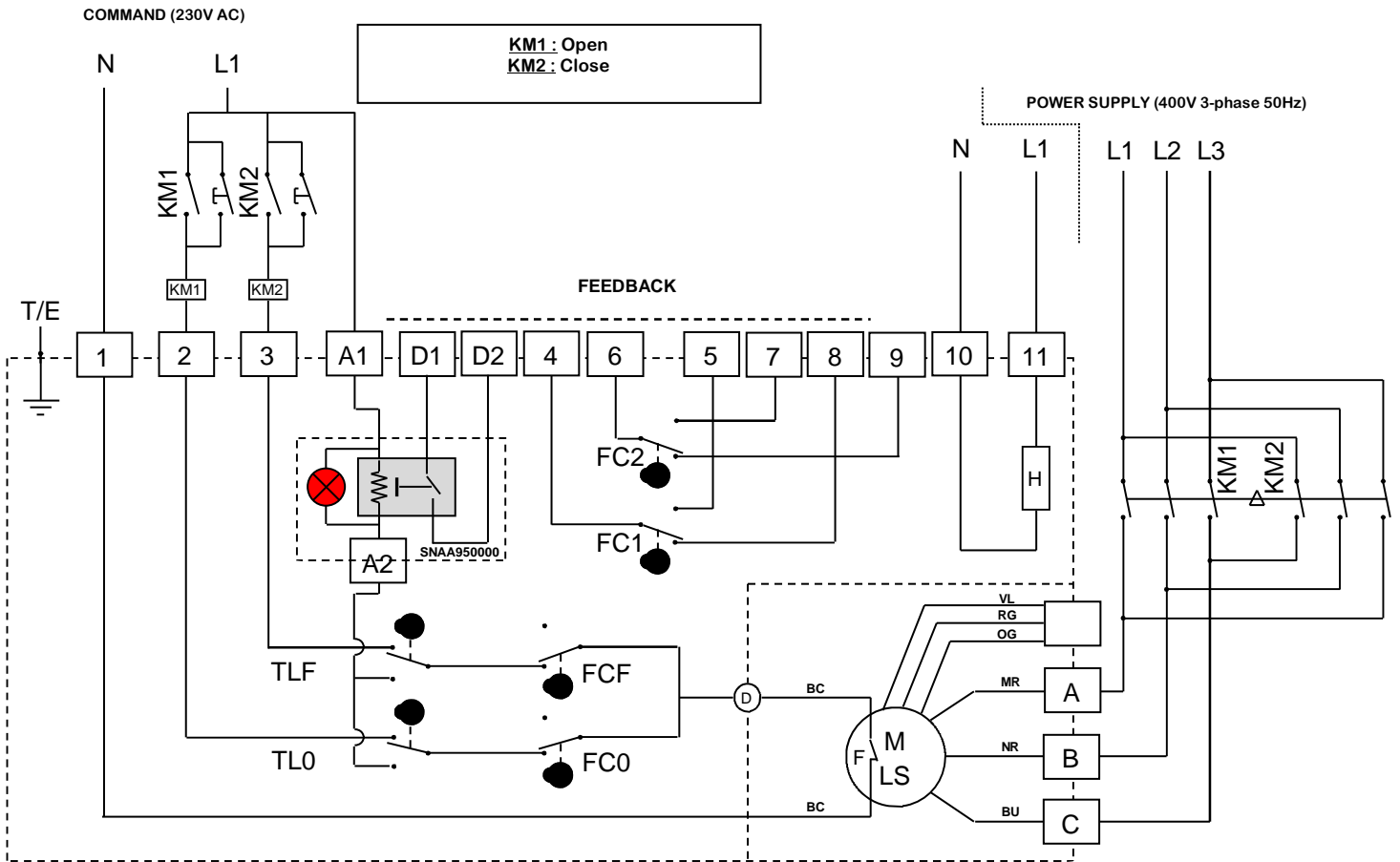


VTX 400V 3-phase electric wiring

Rep.	Designation	Rep.	Designation	Rep.	Designation
FCO	Open limit switch	FCF	Close limit switch	TLO	Torque switch : opening
FC1	Auxiliary limit switch 1	FC2	Auxiliary limit switch 2	TLF	Torque switch : closing
BC	White	F	Motor thermoswitch	H	Anti-condensation heater
M	Motor	VL	Purple	MR	Brown
RG	Red	NR	Black	BU	Blue
OG	Orange	D1/D2	Failure report Terminal strip (230V AC max / 5 A)		



The terminal temperature can reach 90°C
The used wires must be rigid (feedback voltages : 4 to 250V AC/DC)



The motor power supply is wired on bistable three-phase relay (not delivered)
If working inverted, invert 2 phases of motor

VRX and VSX FAILSAFE actuators

Description

Failsafe ATEX actuators integrate battery pack monitored by electronic board in the actuator. Its function is to relay in case of power supply failure on terminal PIN 1, 2 and 3 of the actuator. The failsafe actuators can be set on different position like normally open (NO) or normally close (NC) depends on customer application.

The electronic board monitors the battery pack and check the status of battery (cycle load and failure). If a battery failure is detected, a contact on PIN 66 and 66 switch off. If customer use this contact he could be aware that there is a failure on battery in the actuator without remove cover and plan the replacement.

Failsafe option required ON/OFF mode.



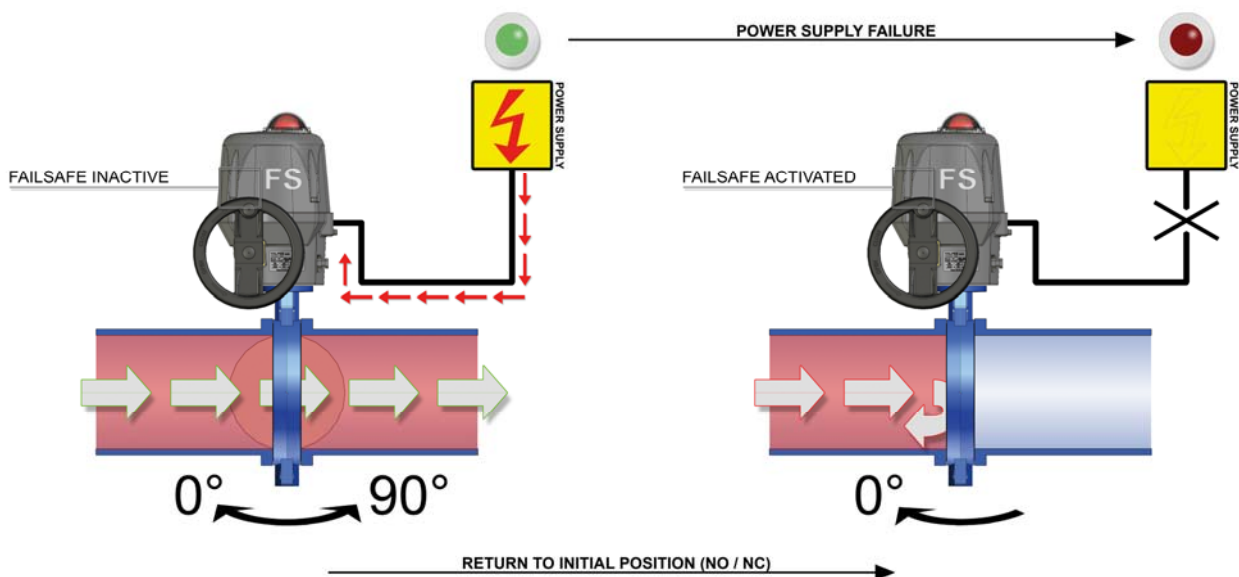
VRX and VSX FAILSAFE models

II 2 G D Ex d IIB T5 Gb Ex tb IIIC T95°C Db LCIE 06 ATEX 6006X

Advantages

- All in one: no additional wiring required
- Cost effective
- Battery gauge active 24H/24H
- Power shut off after 2 mn to avoid battery discharging
- Quick and easy replacement of the battery
- 2 initial position settings: “normally open” or “normally closed”
- Battery failure feedback relai

Working principle



Please consider 1.5 safety factor (and 2.0 safety factor for POSI version) when sizing the actuator

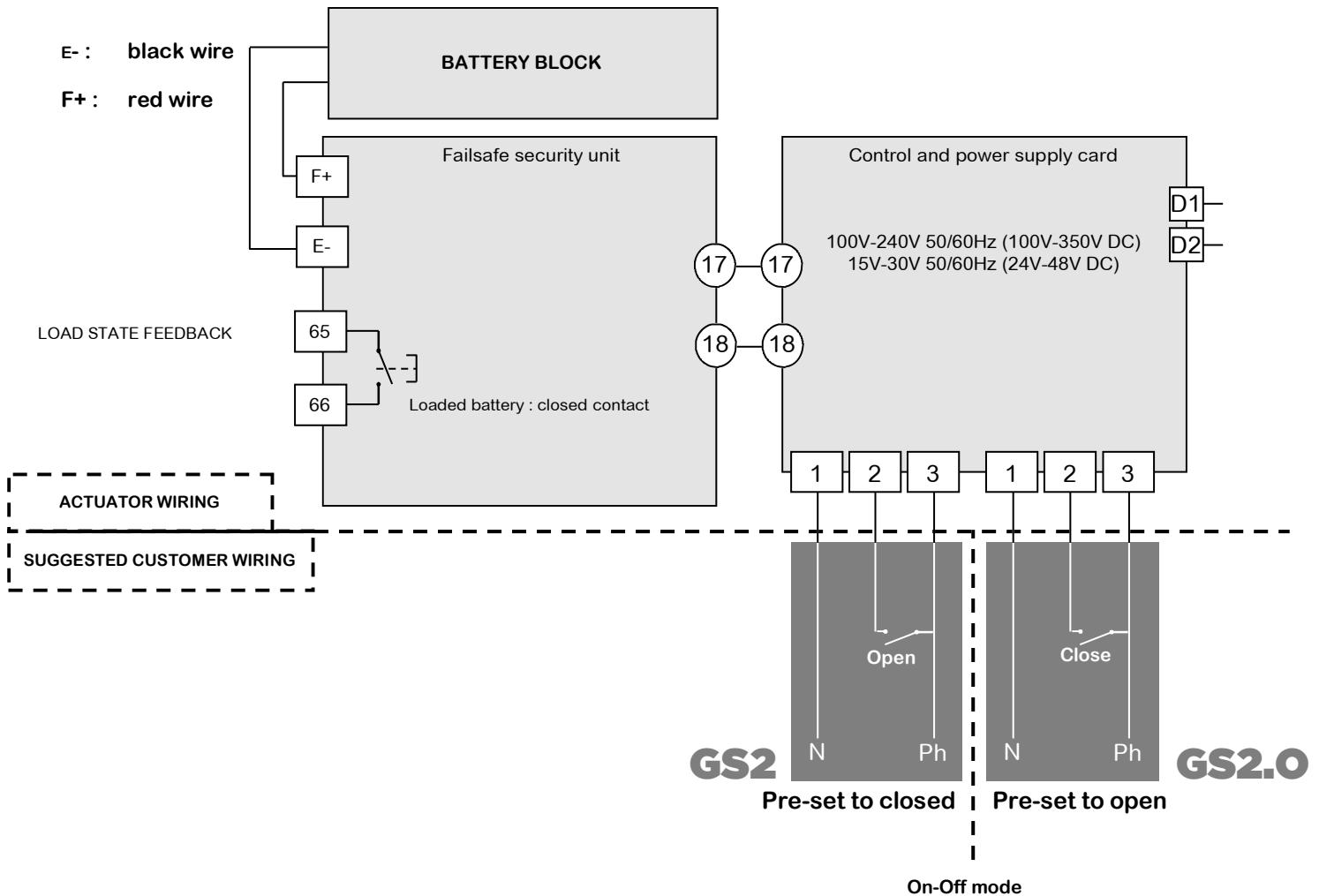
VRX and VSX FAILSAFE range

Code	Star drive nut Connection	Torque	Voltage supplies	Power	Operating time
VRX25.70A.GS2	17 F05/F07	25Nm	100V to 240V 50/60Hz (100V to 350V DC)	45W	7s
VRX25.70B.GS2	17 F05/F07	25Nm	15V to 30V 50/60Hz (12V to 48V DC)	45W	7s
VRX45.70A.GS2	17 F05/F07	45Nm	100V to 240V 50/60Hz (100V to 350V DC)	45W	15s
VRX45.70B.GS2	17 F05/F07	45Nm	15V to 30V 50/60Hz (12V to 48V DC)	45W	15s
VRX75.70A.GS2	17 F05/F07	75Nm	100V to 240V 50/60Hz (100V to 350V DC)	45W	20s
VRX75.70B.GS2	17 F05/F07	75Nm	15V to 30V 50/60Hz (12V to 48V DC)	45W	20s
VSX100.90A.GS2	22 F07/F10	100Nm	100V to 240V 50/60Hz (100V to 350V DC)	45W	15s
VSX100.90B.GS2	22 F07/F10	100Nm	15V to 30V 50/60Hz (12V to 48V DC)	45W	15s
VSX150.90A.GS2	22 F07/F10	150Nm	100V to 240V 50/60Hz (100V to 350V DC)	45W	30s
VSX150.90B.GS2	22 F07/F10	150Nm	15V to 30V 50/60Hz (12V to 48V DC)	45W	30s
VSX300.90A.GS2	22 F07/F10	300Nm	100V to 240V 50/60Hz (100V to 350V DC)	45W	60s
VSX300.90B.GS2	22 F07/F10	300Nm	15V to 30V 50/60Hz (12V to 48V DC)	45W	60s



Please consider 1.5 safety factor (and 2.0 safety factor for POSI version) when sizing the actuator

VRX and VSX FAILSAFE actuators electric wiring



The terminal temperature can reach 90°C
The two functioning modes « pre-set to closed » and « pre-set to open » are two different products (pre-set in factory) and can't be interchangeable.

VRX and VSX POSI actuators

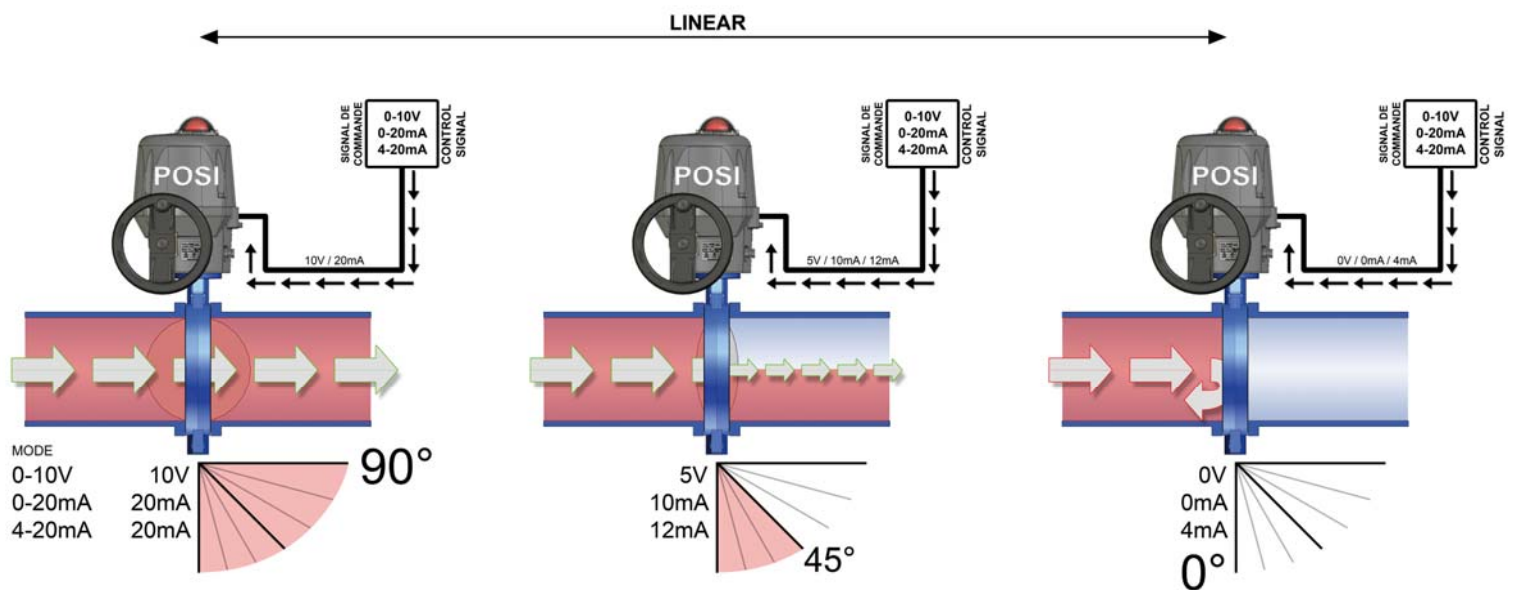
Description

Actuator ATEX series with advanced and friendly positioning solution, allowing the control of a valve with a signal: 0-10V, 4-20mA or 0-20mA. For applications like dosing, modulating, flow control, filling up (increases the accuracy in the last stage), mixing...

Advantages

- All in one: no additional wiring required
- Cost effective
- Microprocessor base
- Secured process (memorization loops)
- Self configurable (0-20mA/4-20mA/0-10V)
- Reversible (exemple : 20-4mA)
- Training mode
- Anti condensation heater
- Electronic torque limiter
- Failure feedback relay
- Rotation up to 180° or 270° (on request)
- Preset from factory

Working principle



Please consider 1.5 safety factor (and 2.0 safety factor for POSI version) when sizing the actuator

VRX and VSX POSI actuators

Various control types (control signal on terminals N°15 and N°16)

On request, our cards can be set in factory. The consign and the feedback signal can have different forms (current or voltage). Without any information from the customer, the cards are set for current 4-20mA (control + feedback signal).

Control in 0-10V modes:

In case of outside event, absence of control signal (accidental wires cut for example) but in presence of power, the actuator will travel to defined position (open or closed valve).

In standard our actuators will close themselves in absence of control signal but there are other possibilities on request.

Control in 4-20mA mode:

In case of outside event, absence of control signal (accidental wires cut for example) but in presence of power, the actuator will stay in its position.

In the both cases, when the control signal is restored, the actuator reach automatically the position corresponding to control signal value.

VRX and VSX POSI range

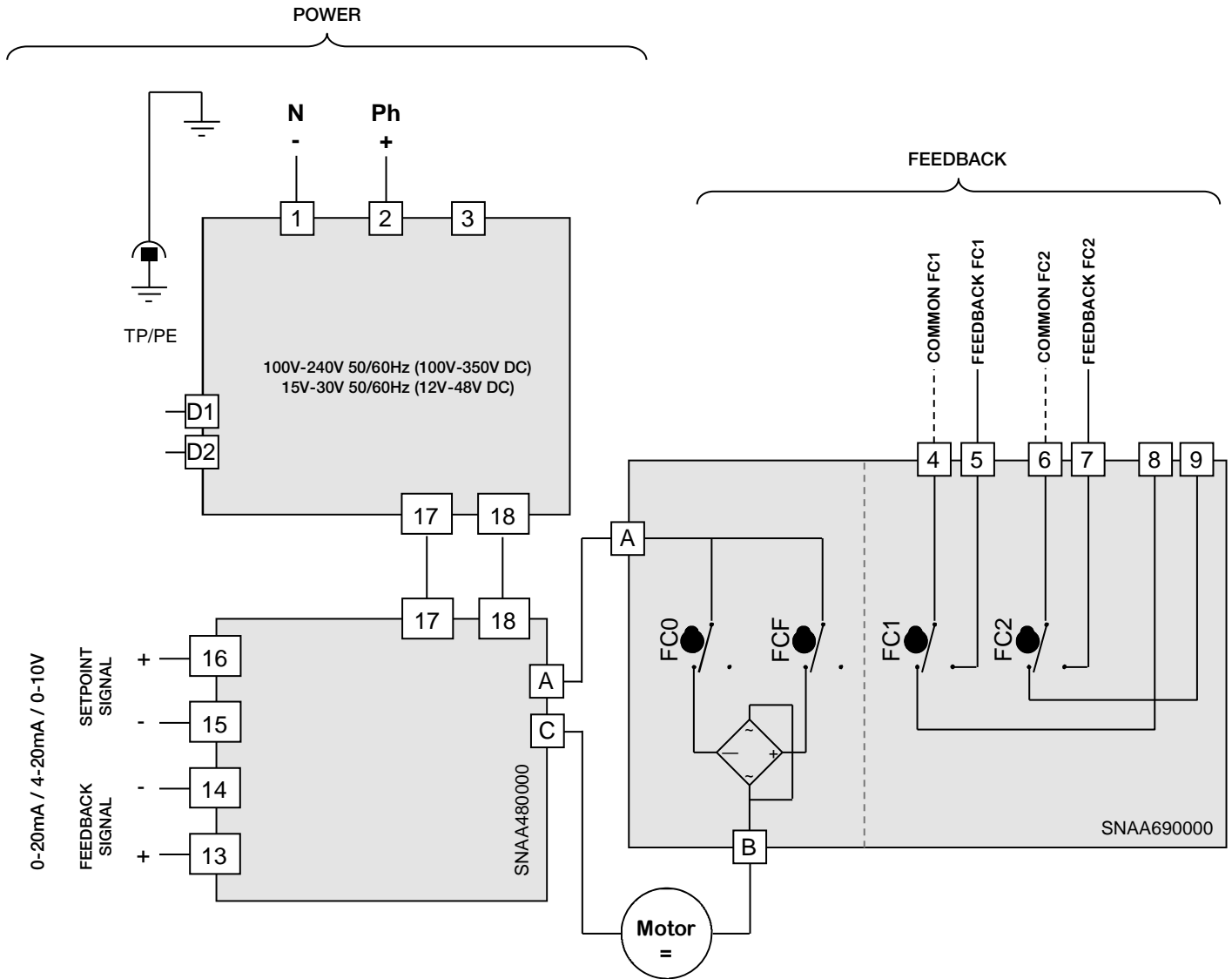
Code	Star drive nut Connection	Torque	Voltage supplies	Power	Operating time
VRX25.70A.GP5	17 F05/F07	25Nm	100V to 240V 50/60Hz (100V to 350V DC)	45W	15s
VRX25.70B.GP5	17 F05/F07	25Nm	15V to 30V 50/60Hz (12V to 48V DC)	45W	15s
VRX45.70A.GP5	17 F05/F07	45Nm	100V to 240V 50/60Hz (100V to 350V DC)	45W	15s
VRX45.70B.GP5	17 F05/F07	45Nm	15V to 30V 50/60Hz (12V to 48V DC)	45W	15s
VRX75.70A.GP5	17 F05/F07	75Nm	100V to 240V 50/60Hz (100V to 350V DC)	45W	20s
VRX75.70B.GP5	17 F05/F07	75Nm	15V to 30V 50/60Hz (12V to 48V DC)	45W	20s
VSX100.90A.GP5	22 F07/F10	100Nm	100V to 240V 50/60Hz (100V to 350V DC)	45W	15s
VSX100.90B.GP5	22 F07/F10	100Nm	15V to 30V 50/60Hz (12V to 48V DC)	45W	15s
VSX150.90A.GP5	22 F07/F10	150Nm	100V to 240V 50/60Hz (100V to 350V DC)	45W	30s
VSX150.90B.GP5	22 F07/F10	150Nm	15V to 30V 50/60Hz (12V to 48V DC)	45W	30s
VSX300.90A.GP5	22 F07/F10	300Nm	100V to 240V 50/60Hz (100V to 350V DC)	45W	60s
VSX300.90B.GP5	22 F07/F10	300Nm	15V to 30V 50/60Hz (12V to 48V DC)	45W	60s



Please consider 1.5 safety factor (and 2.0 safety factor for POSI version) when sizing the actuator

VRX and VSX POSI actuators electric wiring

Rep.	Designation	Rep.	Designation
FC0	Open limit switch	FC1	Auxiliary limit switch 1
FCF	Close limit switch	FC2	Auxiliary limit switch 2
D1/D2	Failure report Terminal strip (24V DC / 3A max)		



- 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 or 4-20mA)



- The terminal temperature can reach 90°C
- The used wires must be rigid (feedback voltages : 4 to 250V AC/DC)
- For a use with a long wiring, the induction current generated by the wires mustn't be higher than 1mA
- La tension de pilotage doit être de type T.B.T.S. (Très Basse Tension de Sécurité)
- No common earth/ground connexion between the control (input and output signal) and the alimentation. (Type 0-20 or 4-20mA : 5V DC max.)

VRX and VSX 3-position actuators

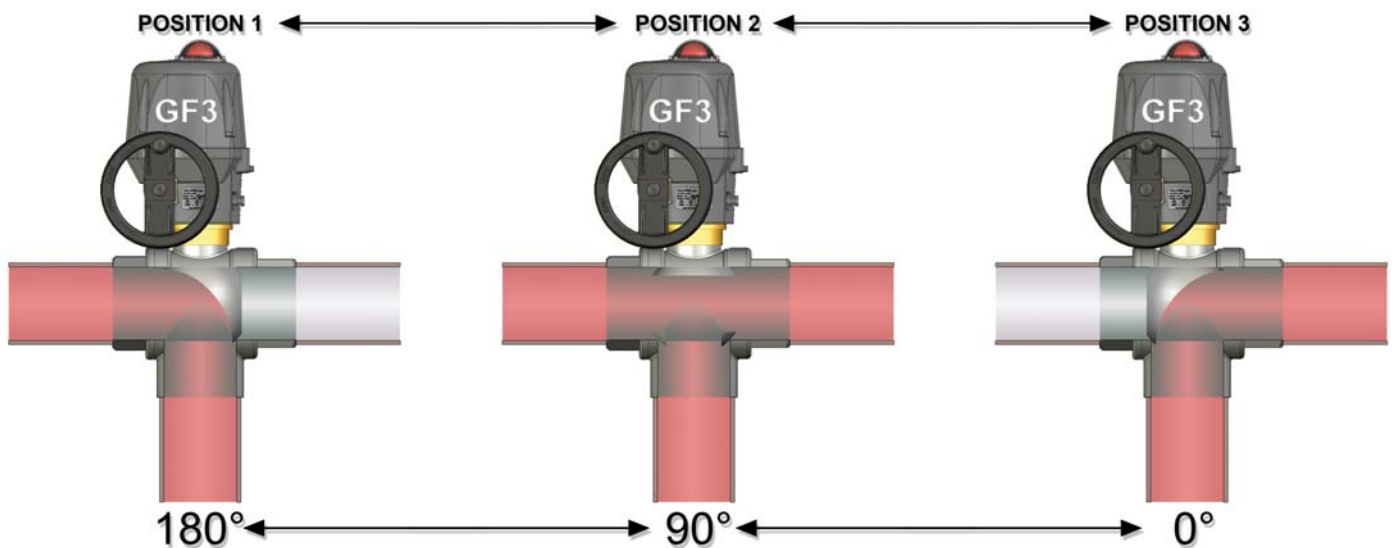
Description

ATEX actuator series with 3rd position card, allowing an intermediate position of the actuator between 0° and 90° (or 0° and 180°, or 0° and 270°). Can be used to stop the actuator at 90° in case of a 180° 3-way valve. Or for any other application which requires a partial opening before full closing

Advantages

- All in one: no additional wiring required
- Cost effective
- Quick and easy setup
- 7 limit switches
- Anti condensation heater
- Electronic torque limiter
- Failure report
- Rotation up to 180° (or 270° on request)
- Preset from factory

Working principle

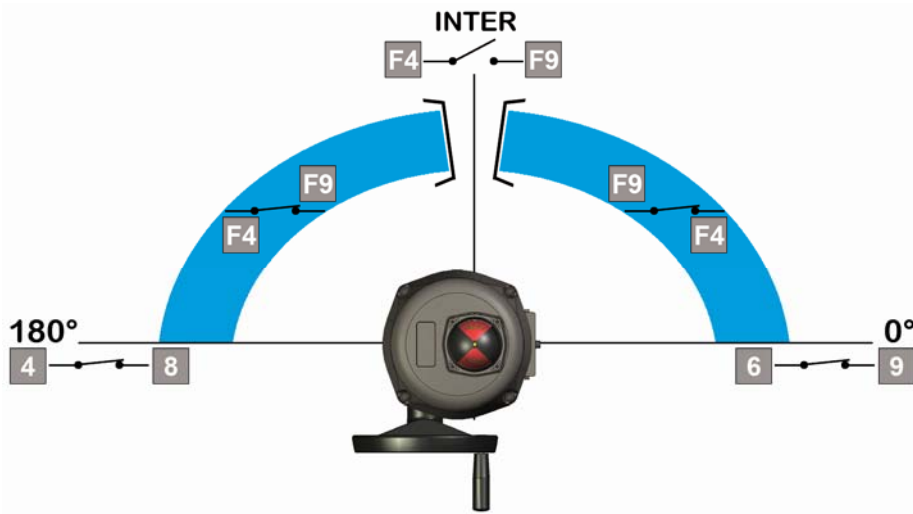


Please consider 1.5 safety factor (and 2.0 safety factor for POSI version) when sizing the actuator

VRX and VSX 3-position actuators

GF3 option 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 which position is requested. These 3 positions are driven by 4 switches (FCO,FCF,FCIO and FCIF) and 3 switches for feed back signal Switches FC1,FC2 are NO contact (close the circuit in extreme position) and FC3 is a NC contact (open the circuit in intermediate position).



Code	Star drive nut Connection	Torque	Voltage supplies	Power	Operating time
VRX25.70A.GF3	17 F05/F07	25Nm	100V to 240V 50/60Hz (100V to 350V DC)	45W	7s
VRX25.70B.GF3	17 F05/F07	25Nm	15V to 30V 50/60Hz (12V to 48V DC)	45W	7s
VRX45.70A.GF3	17 F05/F07	45Nm	100V to 240V 50/60Hz (100V to 350V DC)	45W	15s
VRX45.70B.GF3	17 F05/F07	45Nm	15V to 30V 50/60Hz (12V to 48V DC)	45W	15s
VRX75.70A.GF3	17 F05/F07	75Nm	100V to 240V 50/60Hz (100V to 350V DC)	45W	20s
VRX75.70B.GF3	17 F05/F07	75Nm	15V to 30V 50/60Hz (12V to 48V DC)	45W	20s
V SX100.90A.GF3	22 F07/F10	100Nm	100V to 240V 50/60Hz (100V to 350V DC)	45W	15s
V SX100.90B.GF3	22 F07/F10	100Nm	15V to 30V 50/60Hz (12V to 48V DC)	45W	15s
V SX150.90A.GF3	22 F07/F10	150Nm	100V to 240V 50/60Hz (100V to 350V DC)	45W	30s
V SX150.90B.GF3	22 F07/F10	150Nm	15V to 30V 50/60Hz (12V to 48V DC)	45W	30s
V SX300.90A.GF3	22 F07/F10	300Nm	100V to 240V 50/60Hz (100V to 350V DC)	45W	60s
V SX300.90B.GF3	22 F07/F10	300Nm	15V to 30V 50/60Hz (12V to 48V DC)	45W	60s



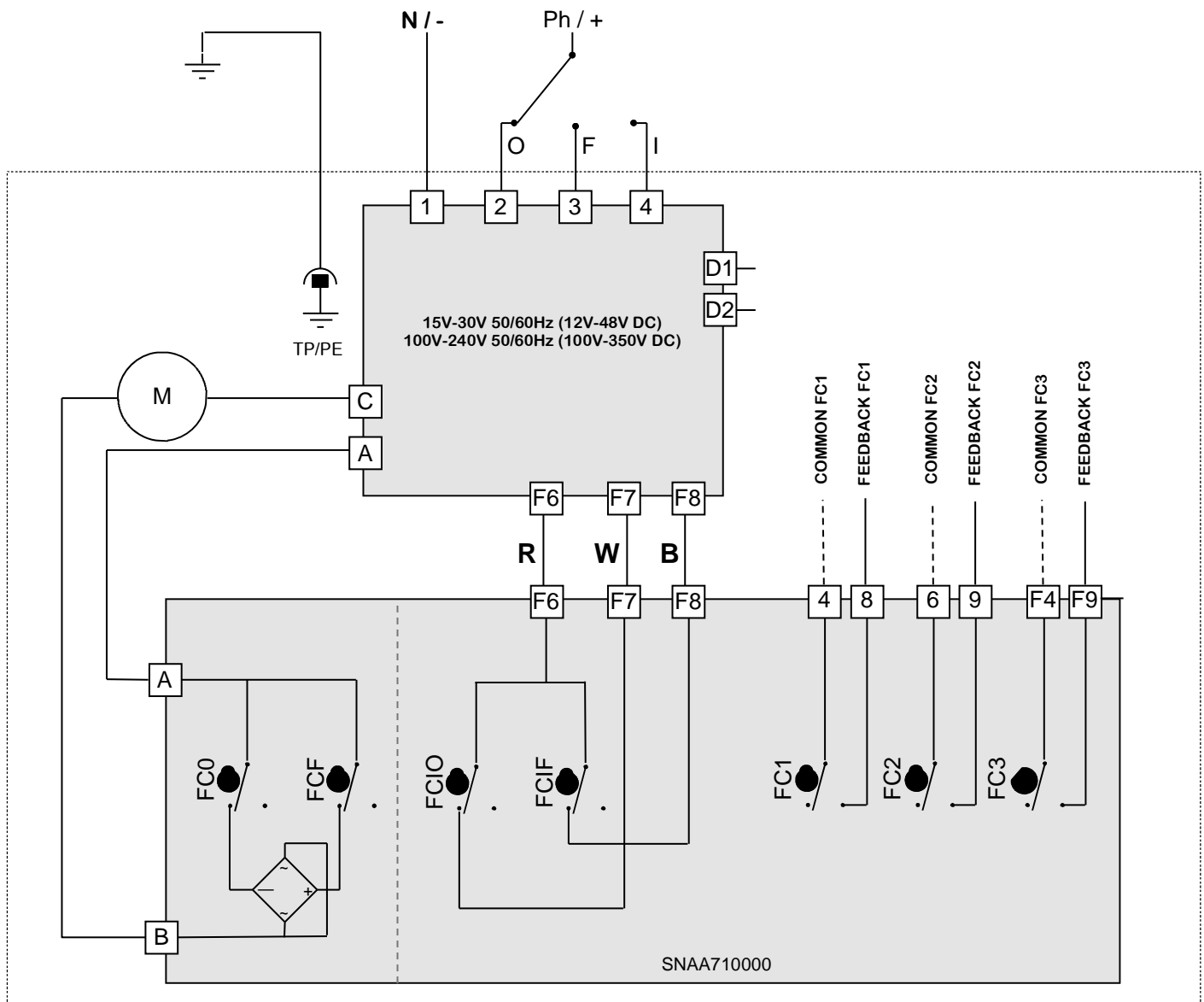
Please consider 1.5 safety factor (and 2.0 safety factor for POSI version) when sizing the actuator

VRX and VSX 3-position actuators electric wiring

Rep.	Designation	Rep.	Designation
FC0	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	R	Red
W	White	B	Black
D1/D2	Failure report Terminal strip (24V DC / 3A max)		



The terminal temperature can reach 90°C
The used wires must be rigid (feedback voltages : 4 to 250V AC/DC)



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