VRX•VSX
Electric actuator

valpes
A WATTS Brand

CE

UK Installation and Operation Manual

25Nm – 300Nm | Indice de protection IP68 Enclosure protection | Facteur de marche 50% Duty cycle | Anticondensation intégrée – Anticondensation heater | Système de sécurité FAIL SAFE Security system | Positionnement POSI Positioning | 3 POSITIONS

LCIE 06 ATEX 6006 X • II 2 G D Ex d IIB T6 Gb • Ex tb IIIC T80°C Db
400V & FAILSAFE : II 2 G D Ex d IIB T5 Gb • Ex tb IIIC T95°C Db

Valpes.com

Index

This product meets the European Directive 2012/19/UE about electrical and electronic equipment (DEEE). It mustn't be mixed with common waste. Please, recycle or dispose of them according to your country laws.

DESCRIPTION

These electric actuators have been designed to perform the control of a valve with 90° rotation. Please consult us for any different application. We cannot be held responsible if the mentioned actuators are used for any other purpose.

TRANSPORT AND STORAGE

- The forwarding agents being held as responsible for damages and delays of the delivered goods, the consignees are obliged to express if applicable their reserves, prior to accept the goods. The goods delivered directly ex works are subject to the same conditions.
- The transport to the place of destination is carried out by using rigid packing material.
- The products must be stored in clean, dry, and ventilated places, preferably on appropriate palettes or shelves. Actuators should not be stored upside down.

MAINTENANCE

- Maintenance is ensured by our factory. If the supplied product does not work, please check the wiring according to the electric diagram as well as the power supply of the electric actuator in question.
- For any question, please contact our after-sales service.
- To clean the outside of the actuator, use a lint and soapy water. DO NOT USE ANY CLEANING PRODUCT WITH SOLVENT OR ALCOHOL.
- Before any intervention on the actuator or around the actuator, to avoid any electrostatic discharge, the apparatus shall be cleaned with a damp cloth

WARRANTY

- Valpes products are thoroughly tested and set in factory.
- These products are 3-year warranty from the manufacturing site delivery date or 50,000 actuations against all types of manufacturing and material faults (operating time and model class according to standard CEI34).
- The said guarantee covers solely replacement or – at the full sole discretion of Valpes - repair, free of charge, of those components of the goods supplied which in the sole view of Valpes present proven manufacturing defects.
- This warranty excludes any damage due to normal product usage or friction and does not include any modified or unauthorized repair for which Valpes will not accept any request for damage (either direct or indirect) compensation (for full details see our website).
- The guarantee does not cover the consequences of breakdown and excludes any payments for indemnities. The accessories, consumables (batteries…) and adaptations are excluded from the guarantee. In the case where a customer has not proceeded to payments within the agreed period, our guarantee will be suspended until the delayed payments have been received and with the consequence that this suspension will not prolong the guarantee period in any case.
- All sales subject to the Valpes terms to be found on www.valpes.com

RETURN OF GOODS

- When the actuator receives his actuator, he must check its conformity according to its definition.
- The acceptance of the goods by the purchaser disclaims the supplier of all responsibility if the purchaser discovers any non-conformity after the date of acceptance. In such case, the repair cost will be borne by the purchaser who will also exclusively bear all financial consequences of any resulting damages. Returned goods will only be accepted if our prior agreement has been given to this procedure : the goods must be sent free of all cost and being shipped solely and in their original packing. The returned goods will be credited to the purchaser with a reduction of 40% on the unit's price charged in accordance with the original invoice of the returned goods.

SAFETY INSTRUCTIONS (To be read prior to the installation of the product)

- The electric power supply must be switched-off before any intervention on the electric actuator (i.e. prior demounting its cover or manipulating the manual override knob). The operator must also be sure that no explosive atmosphere is present around the actuator before any maintenance operation.
- Heat flow from the valve and pipes: it is the responsibility of the user to consider the influence of radiated heat on the final installation because the electrical actuator is certified for a specific ambient temperature range.
- Any intervention must only be carried out by a qualified electrician or other person instructed in accordance with the regulations of electric engineering, safety, and all other applicable directives.
- Strictly observe the wiring and set-up instructions as described in the manual: otherwise, the proper working of the actuator can not be guaranteed anymore. Verify that the indications given on the identification label of the actuator fully correspond to the characteristics of the electric supply.

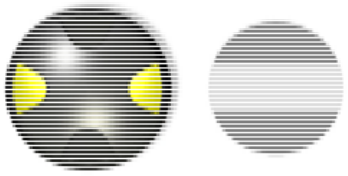
MOUNTING INSTRUCTIONS (To be read prior to the installation of the product)

- Do not mount the actuator less than 30 cm from an electromagnetic disturbance source.
- Do not mount the actuator « upside down ».
- Do not position the equipment so that it is difficult to operate the disconnecting device.
- Respect all safety rules during fitting, dismantling and porting of this apparatus.
- WARNING – DO NOT OPEN WHEN ENERGIZED
- WARNING – DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT
- WARNING – POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS

Position indicator

VRX model

Modular position indicator with three removable position markers (3 yellow + 2 black), adjustable according the type of valve to be actuated.

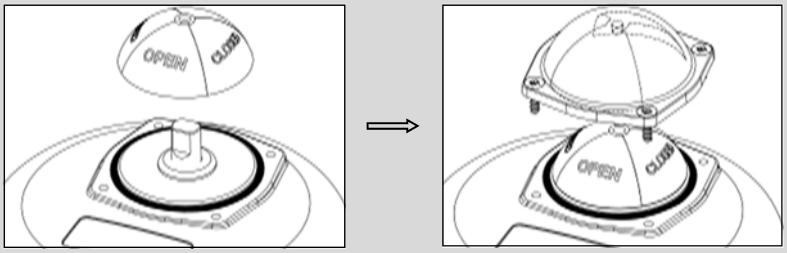
Valve	0°	90°	180°
2-way: 0° = closed 90° = open			
3-way (L) :			
3-way (T) : Ex : T1			

VSX model

2- position spherical indicator

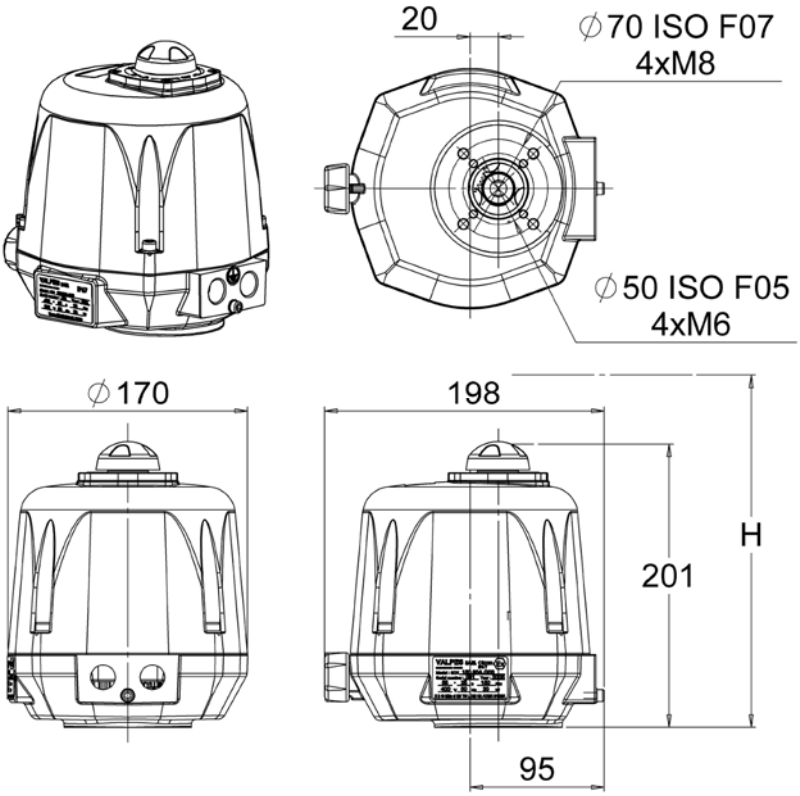
Sense of window for standard mounting:

Mounting of the position indicator (appendix p.44 mark 1) : mount the seal ring and the indicator then the window with the 4 screws M4.



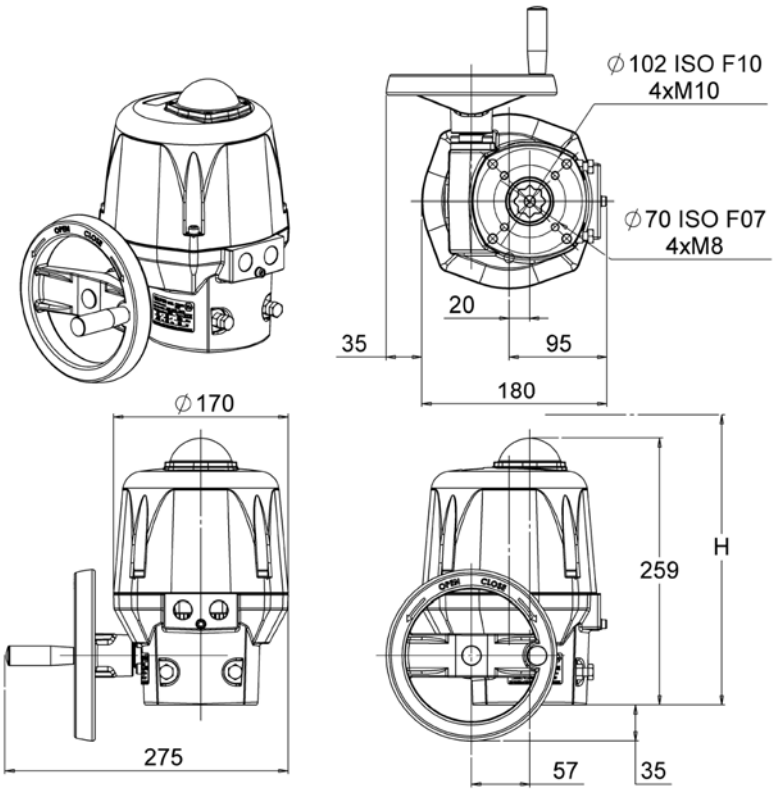
Dimensions

VRX models



Square / Star	17mm	
Drive depth	19mm	
ISO5211 connection	F05	F07
Diameter	50mm	70mm
M threated	M6	M8
Depth	15mm	17mm
Screw number	4	4
Screws maximal length (+ valve connection plate height)	10mm	12mm

VSX models

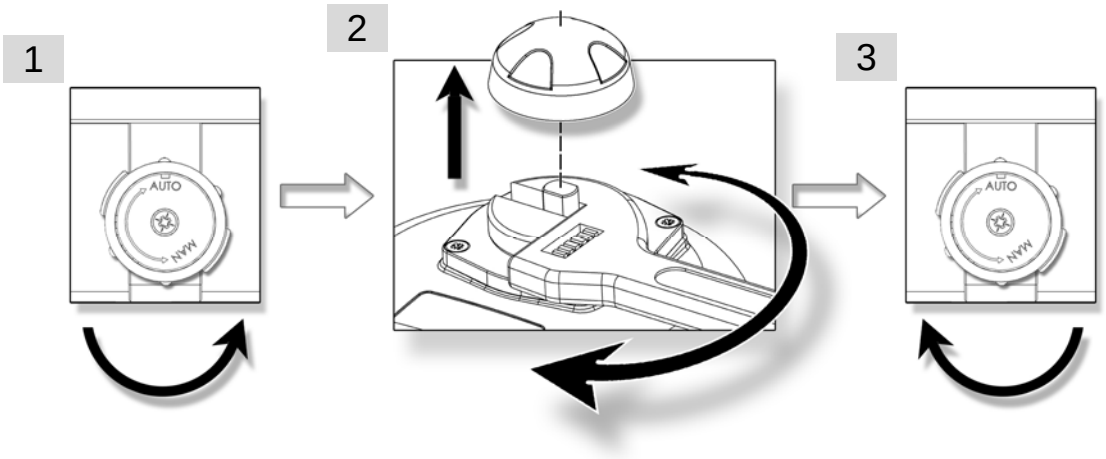


Square / Star	22mm	
Drive depth	25mm	
ISO5211 connection	F07	F10
Diameter	70mm	102mm
M threated	M8	M10
Depth	19mm	24mm
Screw number	4	4
Screws maximal length (+ valve connection plate height)	14mm	16mm

Manual override

The priority functioning mode of this actuator is electric. Be sure than the power supply is switched off before using the manual override.

VRX models



1. Turn the knob to position MAN (counter-clockwise) and hold it in position.
2. Turn the outgoing drive shaft of the actuator with the help of an adjusting spanner.
3. In order to re-engage the reduction, release the knob (spring return).

VSX models

No declutching is required, the hand wheel has simply to be turned (appendix p.44 mark 10).

Do not dismantle the mechanical stops.

Mounting on valve

The actuator is set to its closed position in our factory.
Do not mount the actuator less than 30 cm from an electromagnetic disturbance source.
Do not mount the actuator « upside down ».

VRX :
Possible fixations : F05 (4xM6 with Ø50) and F07 (4xM8 with Ø70), star 17, depth 19mm.
Necessary height above the valve for the mounting of the actuator : H=300mm.

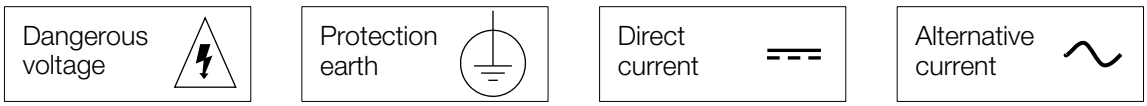
VSX :
Possible fixations : F07 (4xM8 with Ø70) and F10 (4xM8 with Ø102), star 22, depth 25mm.
Necessary height above the valve for the mounting of the actuator : H=360mm.

Mounting and dismantling of the cover
For the wiring and setting of the actuator, it is necessary to remove the cover.
Mounting of the cover (appendix p.44 mark 2) : make sure that the seal ring (appendix p.44 mark 7) is correctly placed in its position, mount the cover and tighten the 4 screws M6 (appendix p.44 mark 3, torque : max. 6Nm).

In case of loss and replacement of the screws, see the table p.44 for the specifications.

Electric wiring

Warnings



- Use only one relay for one actuator.
- As stipulated in the applicable regulation, the connection to earth contact is compulsory for devices with working voltages exceeding 42V.
- The actuator is being always under power, it must be connected to a disconnection system (switch, circuit breaker) to ensure the actuator's power cut. The latter must be closed to the actuator, easy to reach and marked as being the disconnecting device for the equipment.
- The temperature of the terminal can reach 90 °C.
- To optimize the installation security, please connect the failure feedback signal (D1 and D2).
- In case of long cables, please note the induction current shall not exceed 1mA.
- The actuator can tolerate temporary overvoltage of the electrical grid up to ± 10 % of its nominal system operating voltage.
- The selection of the cables and cable glands: the maximal operating temperature of the cables and cable-glands must be at least 110 °C.
- It is necessary to connect all actuators to an electrical cabinet. The power supply cables must have the RATED diameter for the maximum current supported by the actuator and comply with IEC 60227 or IEC 60245 standards.
- The auxiliary limit switches must be connected with rigid wires. If the applied voltage is higher than 42V, the user must foresee a fuse in the power supply line.
- The feedback switches must be powered with the same voltage. The reinforced insulation of the motor control allows voltages up to 250V AC/DC.

Electric wiring: instructions

The caps placed on M20x1.5 openings (appendix p.44 mark 16) must be replaced by ATEX and IP68 certified connection glands. The unused threaded opening must be closed with ATEX and IP68 certified caps.

SUPPLY AND CONTROL WIRING

- Ensure that the voltage indicated on the actuator ID label corresponds to the voltage supply.
- Connect the wires to the connector in accordance with the required control mode. (see diagram p. 32/33)
- To ensure the correct functioning of the anti condensation heater, the actuator must be always supplied

WIRING OF THE FEEDBACK SIGNAL

Our actuators are equipped with two simple limit switch contacts normally set either in open position, either in closed position (see wiring diagram DSBL0470 (230V) and DSBL0497&DSBL0498 (400V) inside the cover). As per factory setting, the white cam is used to detect the open position (FC1) and the black cam is used to detect the closed position (FC2).

The auxiliary limit switches must be connect with rigid wires. If the applied voltage is higher than 42V, the user must foresee a fuse in the power supply line.

- Unscrew the right cable gland and insert the cable.
- Remove 25mm of the cable sheath and strip each wire by 8mm.
- Connect the wires to the terminal strip in accordance with the diagram 32/33
- Tighten the ATEX and IP68 cable gland (Ensure that it's well mounted to guaranty the proofness).

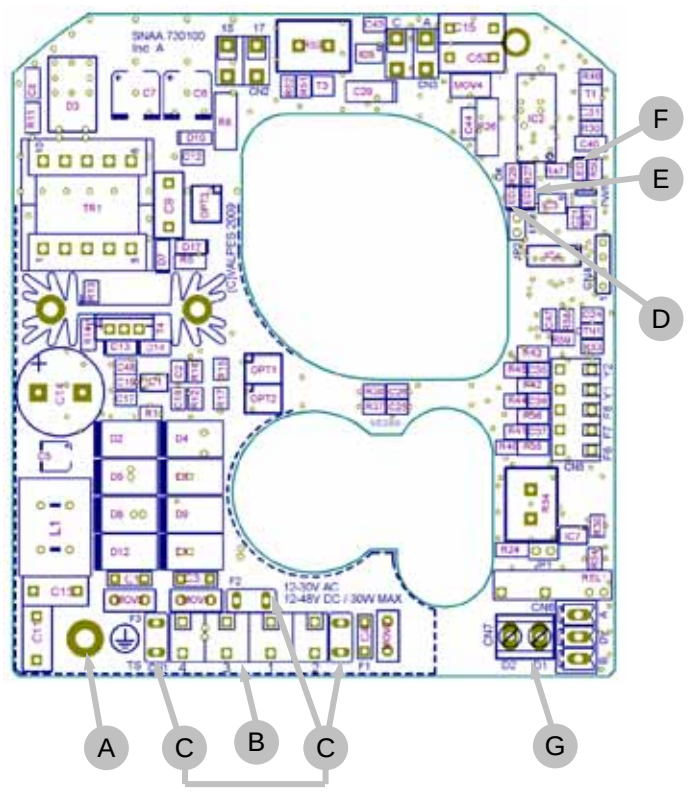
SETTING OF END LIMIT SWITCHES

The actuator is pre-set in our factory. Do not touch the two lower cams in order to avoid any malfunctioning or even damage to the actuator.

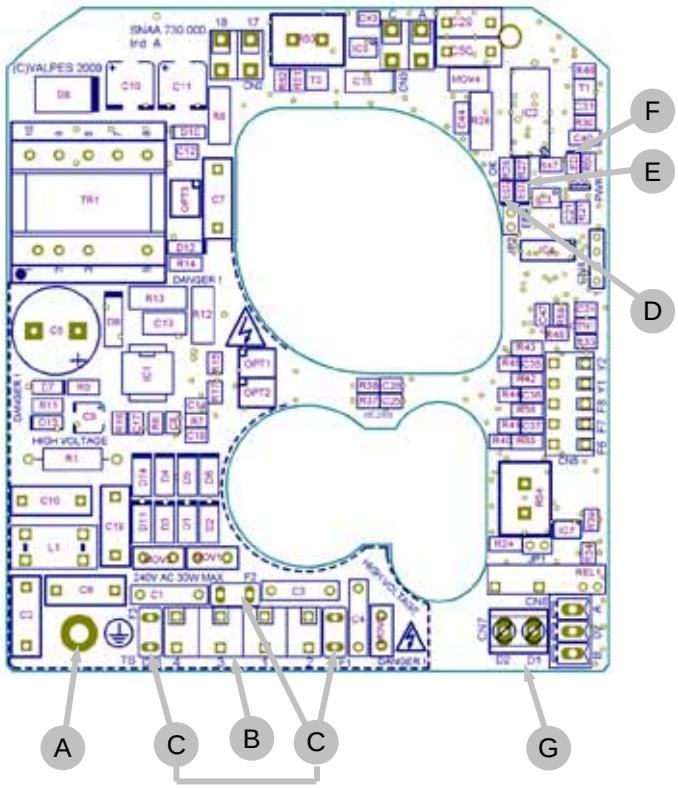
- To adjust the position of the auxiliary contacts, make rotate the two superior cams by using the appropriate wrench.
- Re-mount the cover and fasten the four screws.

Electronic boards

SNAA730100
15V-30V 50/60Hz (12V-48V DC)



SNAA730000
100V-240V 50/60Hz (100V-350V DC)



Rep.	Designation	Rep.	Designation
A	Earth screw	E [2]	LED 3 : Detected failure
B	Pilot and power supply terminals	F	LED 1 : Power presence
C [1]	Card protection fuses	G	Failure report terminal strip (24V DC / 3A max)
D	LED 2 : microprocessor ok		

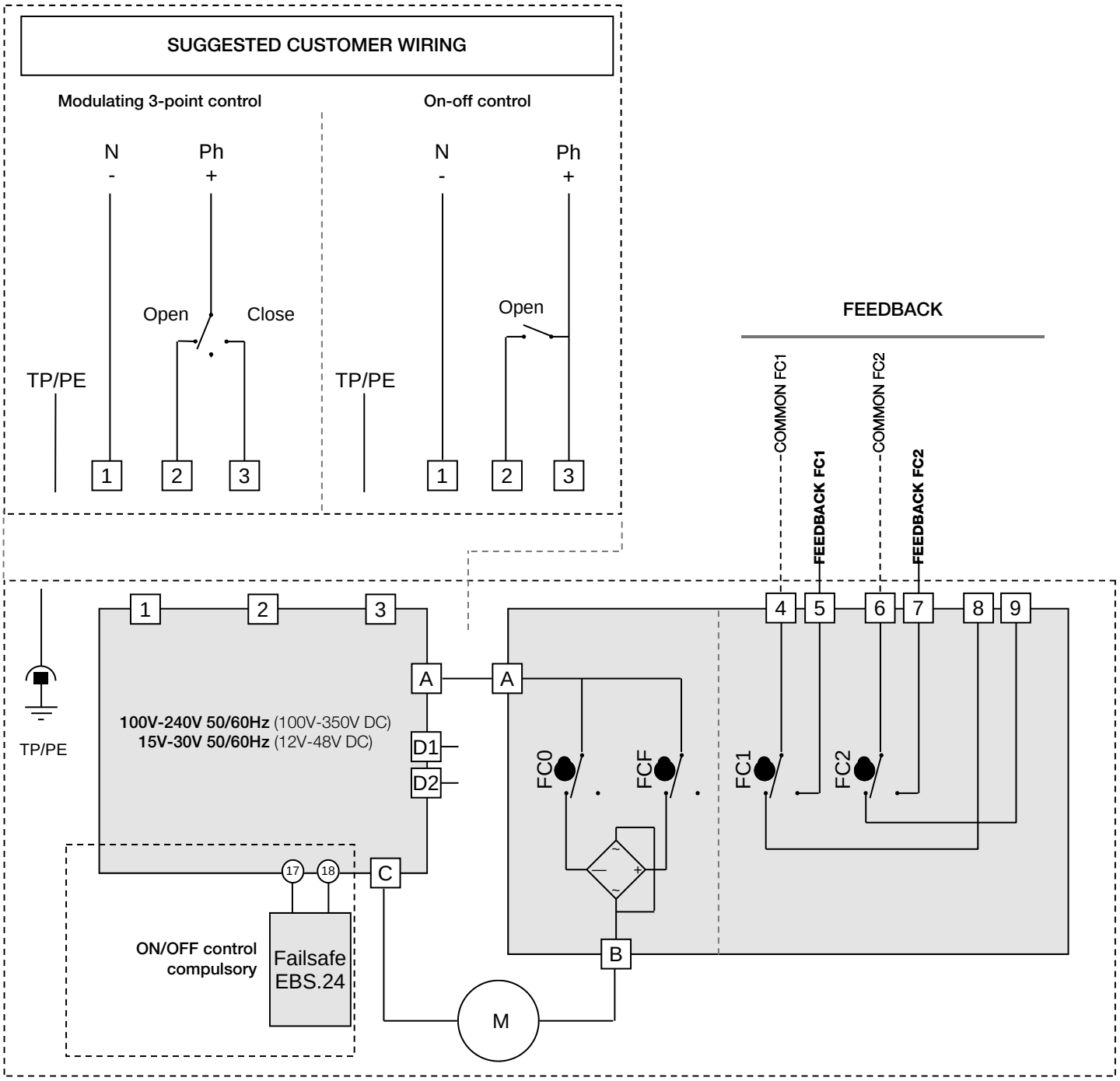
[1] **Fuses for multivolt card :**
- Card SNAA730100 : 5A / T 125V (Littelfuse 39615000000)
- Card SNAA730000 : 3,15A / T 250V (Multicomp MST 3,15A 250V)

[2] **Possible defects : limitation of current, thermic limitation or program error**
=> check that the valve torque is not superior to the maximum torque stand by the actuator
=> check that the actuator do not exceed the duty cycle indicated (possible overheat)
To re-start the actuator, reverse the sense of rotation or switch the power off and on.

Multivolt electric diagram

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

Rep.	Designation	Rep.	Designation
FCO	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)		
	II 2 G D Ex d IIB T6 Gb Ex tb IIIC T80 °C Db LCIE 06 ATEX 6006X		

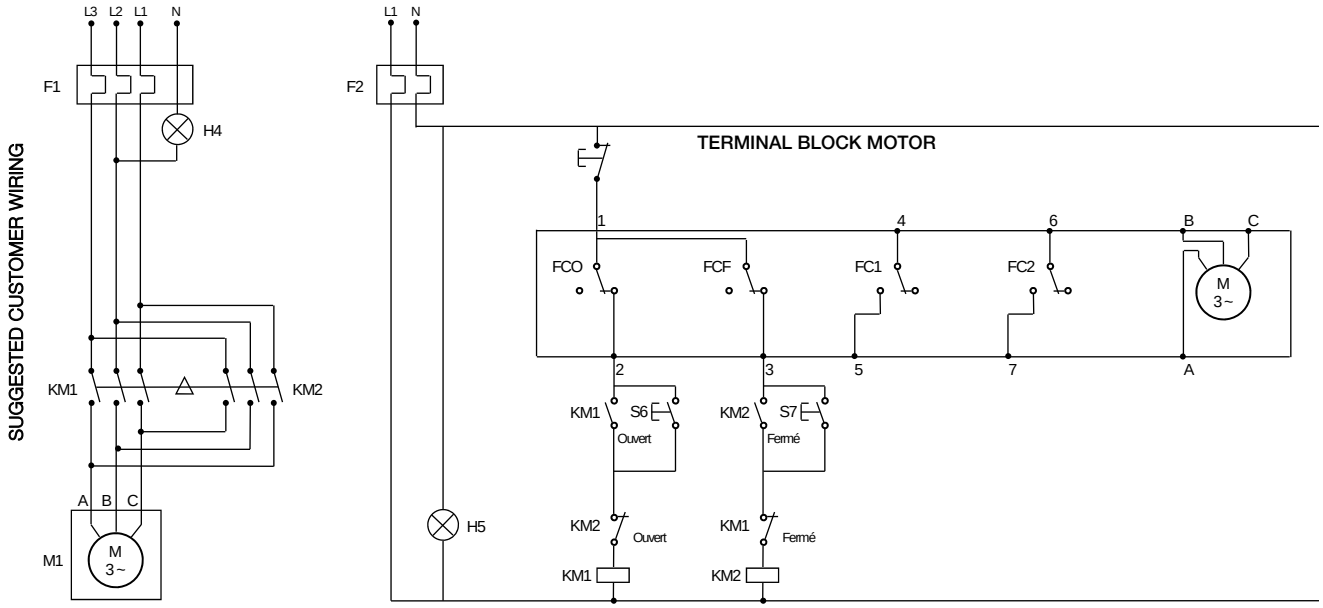


3-phase 400V electric diagram

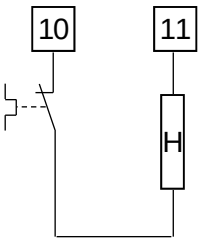
- The terminal temperature can reach 90 °C
- The used wires must be rigid (feedback voltages: 4 to 250V AC/DC)

Rep.	Designation	Rep.	Designation	Rep.	Designation
FC0	Open limit switch	H4	Motor supply indication	S5	Stop button
FCF	Close limit switch	H5	Control supply indication	S6	Opening button
FC1	Auxiliary limit switch 1	KM1	Opening switch	S7	Closing button
FC2	Auxiliary limit switch 2	KM2	Closing switch	H	Heating resistor
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				

POWER SUPPLY (400V 3-phase 50/60Hz) **CONTROL (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

FAILSAFE: description

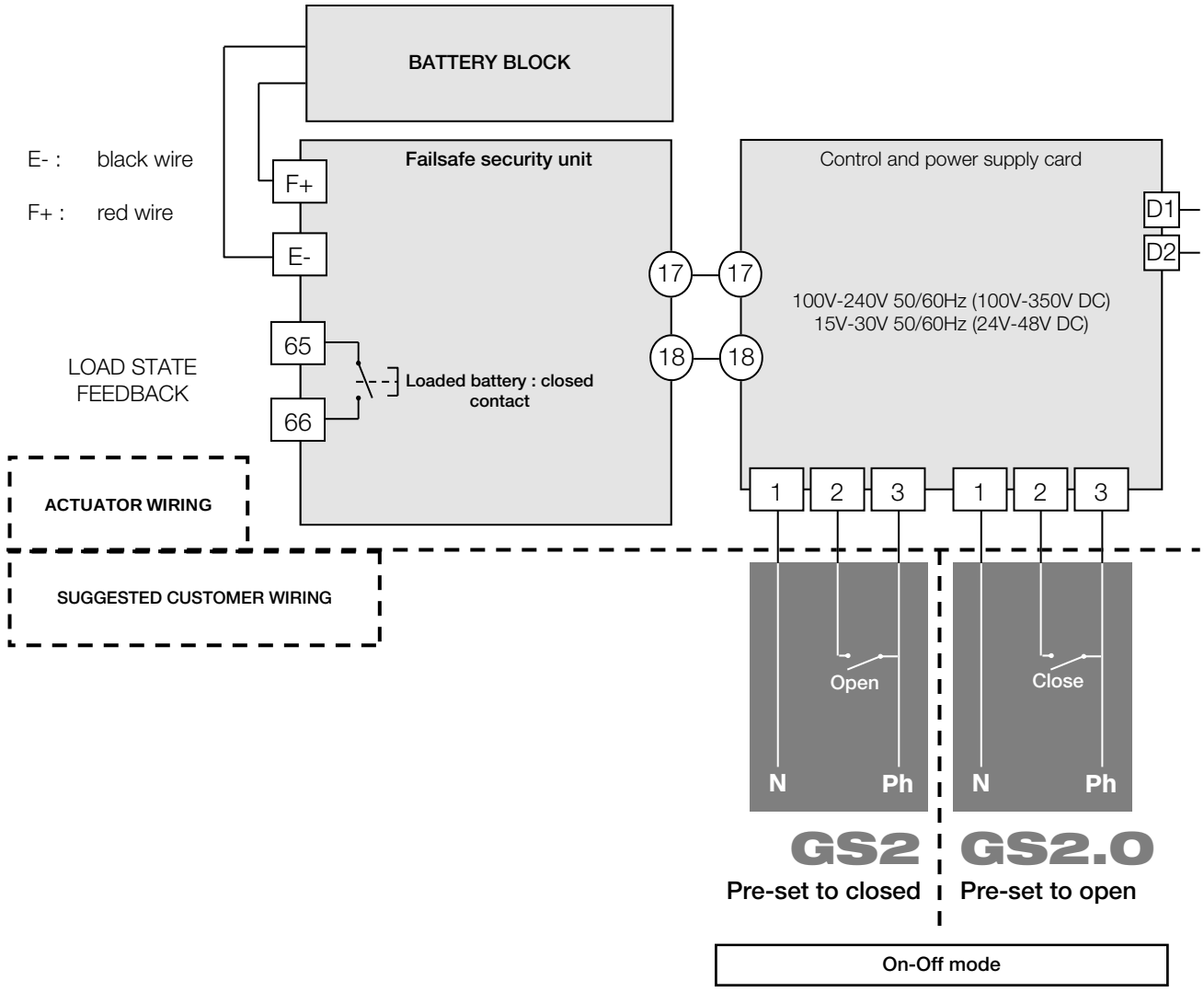
Failsafe actuators integrate battery pack monitored by electronic board in the actuator. Its function is to relay in case of power supply failure on terminal PIN 1, 2 and 3 of the actuator. The failsafe actuators can be set on different position like normally open (NO) or normally close (NC) depends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

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

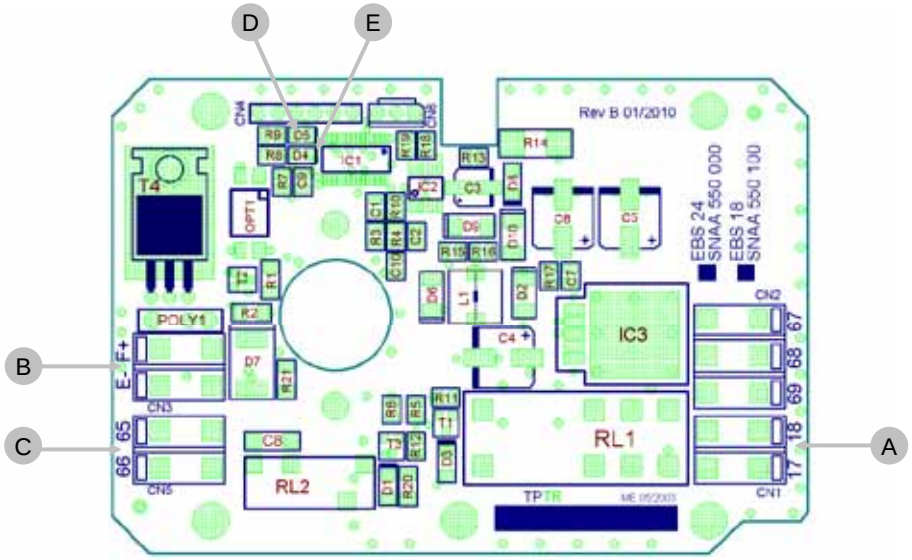
FAILSAFE: warning

- The terminal temperature can reach 90 °C
- The used wires must be rigid (feedback voltages: 4 to 250V AC/DC)
- 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.
- Following a power failure, the Failsafe unit will reset after 3 minutes..

FAILSAFE: electric diagram



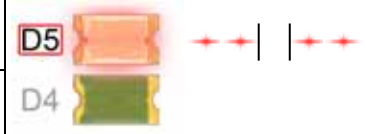
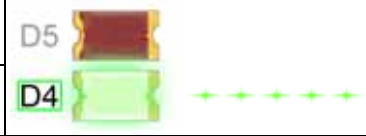
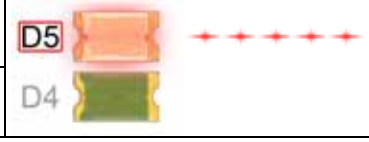
FAILSAFE: electronic board



Rep.	Designation
A	24V DC terminal strip
B	Block battery terminal strip
C	State feedback terminal strip (load or battery failure)
D	Green LED
E	Red LED

Voltage	24V DC
Rates current	0,8A
Maximal current	2,4A
Initial loading time	14h max.
Load state feedback relay	24V DC - 1A max
Temperature	-20 °C to +40 °C

FAILSAFE: led meaning

Color	Code	Status	
Red		Blinks/off/Blinks...	Battery disconnected or out of service
Green		Off	
Red		Blinks	Battery loading cycle in progress (max 14h)
Green		On	
Red		Off	Battery loading cycle finished
Green		On	
Red		Off	Actuator electrical supply during 3 minutes (failure mode)
Green		Blinks rapidly	
Red		Blinks rapidly	Microcontroller failure
Green		Off	

POSI: description

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.

POSI: wiring instructions

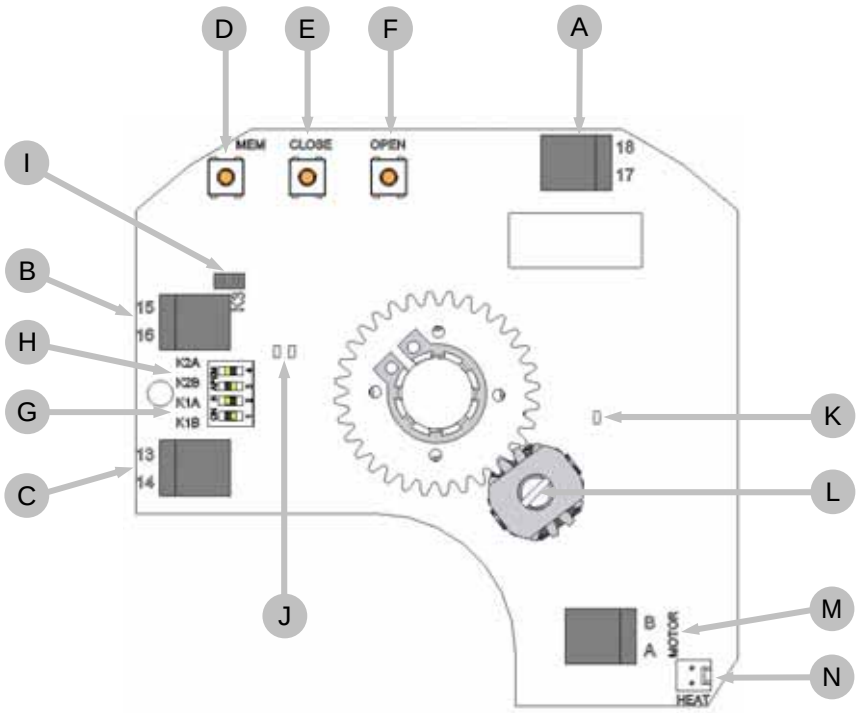
- Actuator pre-set in factory.
- In order to avoid electromagnetic perturbations, it is compulsory to use shielded cables (cables longer than 3m).

- Unscrew the right gland and pass the cable.
- Connect the input signal between terminals 15 and 16
  Terminal 15 is the negative polarity (-) and terminal 16 is the positive polarity (+).
- Connect the output signal between terminals 13 and 14.
  Terminal 13 is the positive polarity (+) and terminal 14 is the negative polarity (-).
- Tighten the cable gland (Ensure that it's well mounted to guaranty the proofness).

The feedback must be connect with rigid wires. If the applied voltage is higher than 42V, the user must foresee a fuse in the power supply line.
Factory setting : by default, 4-20mA input and output signals with normal rotation sense.
To proceed to a new setting of the card : please see page 39, "Parameter selection sequence".
To check the proper operation of the card : please see page 39, "Normal operating mode".

POSI: electronic board

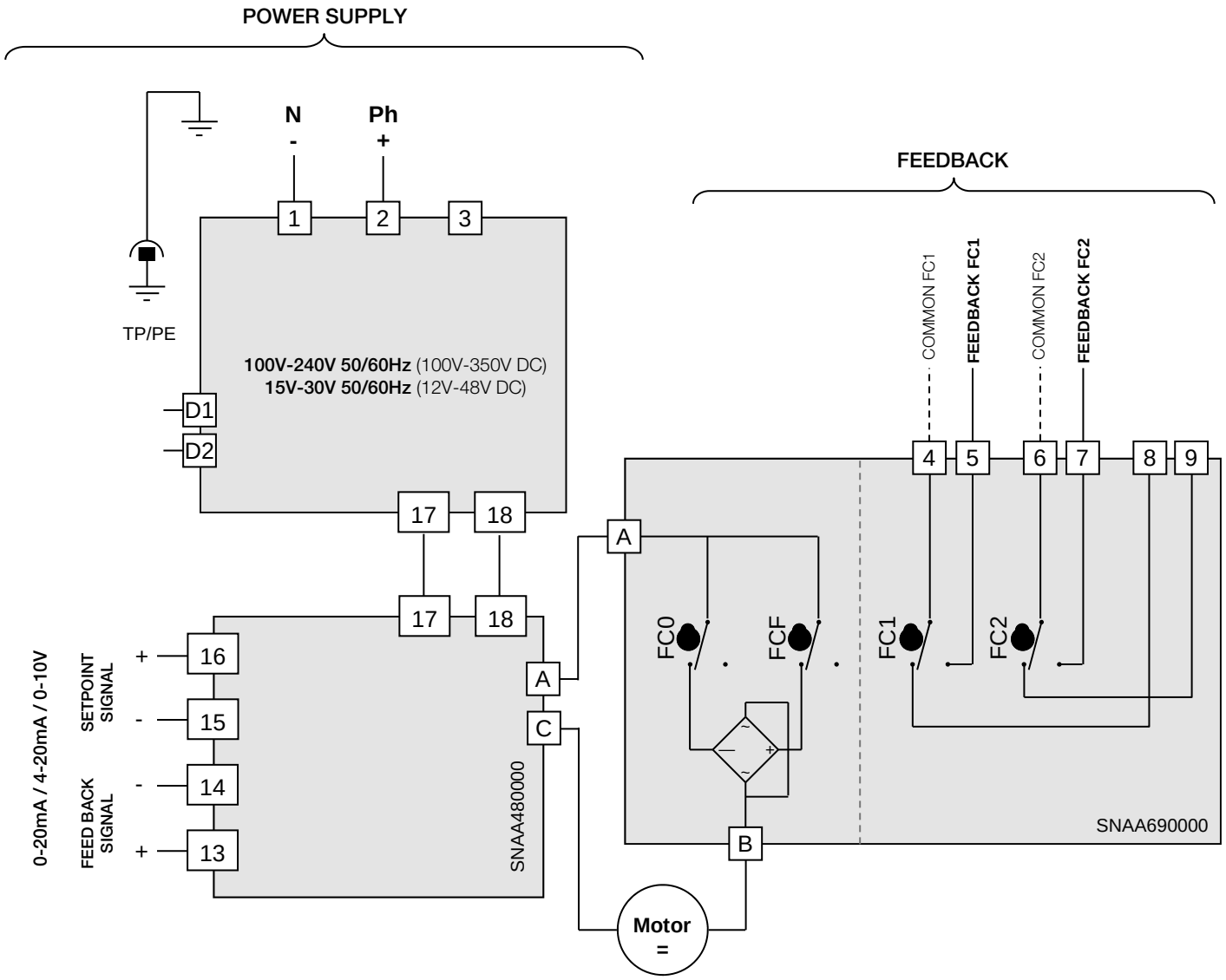
P5 positioning board 4-20mA / 0-10V
(0-20mA on request)



Rep.	Designation	Rep.	Designation
A	24V AC/DC power supply terminal trip	H	K2 shunt
B	Instruction terminal trip	I	K3 shunt
C	Feed back terminal trip	J	Green and red LEDs
D	Adjustment button MEM	K	Yellow LED : power supply indication
E	Adjustment button CLOSE	L	Potentiometer
F	Adjustment button OPEN	M	Motor connexion
G	K1 shunt	N	Heating resistor connector

POSI: electric diagram

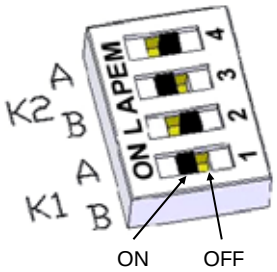
Rep.	Designation	Rep.	Designation
FC0	Open limit switch	FC1	Auxiliary limit switch 1
FCF	Close limit switch	FC2	Auxiliary limit switch 2
D1/D2	Failure report Terminal strip (24V DC / 3A max)		

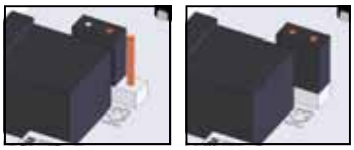


- The card resolution is 1°
- 10 kOhm input impedance if control with voltage (0-10V) and 100 Ohm input impedance if control with current (0-20mA or 4-20mA)

- 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 power supply wiring, the induction current generated by the wires mustn't be higher than 1mA.
- The control voltage must be S.E.L.V. (Safety Extra Low Voltage).
- No common earth/ground connexion between the control (input and output signal) and the alimentation. (Type 0-20 or 4 -20mA : 5V DC max.)

POSI: parameter selection sequence





1 Shunts positioning K1, K2 and K3

Position the shunts as follows (before modification, switch off the card):

Setpoint signal		Output signal	Schunt K1		Schunt K2		Schunt K3
			A	B	A	B	
0-10V		0-10V	**ON**	OFF	**ON**	OFF	OFF
0-10V		0-20mA	**ON**	OFF	OFF	**ON**	OFF
0-10V		4-20mA	**ON**	OFF	OFF	**ON**	**ON**
4-20mA		0-10V	OFF	**ON**	**ON**	OFF	OFF
4-20mA		0-20mA	OFF	**ON**	OFF	**ON**	OFF
4-20mA		4-20mA	OFF	**ON**	OFF	**ON**	**ON**
4-20mA	With closing if no setpoint signal	0-10V	OFF	**ON**	**ON**	OFF	OFF
4-20mA		0-20mA	OFF	**ON**	OFF	**ON**	OFF
4-20mA		4-20mA	OFF	**ON**	OFF	**ON**	**ON**

Selection of the flow direction of the valve

2.1 Normal flow direction (by default)

- Press the **OPEN** button and apply the operating voltage to the card while keeping this button pressed.
- The **green LED** lights up. Release the OPEN button.
- Disconnect the card.

2.2 Inverse flow direction

- Press the **CLOSE** button and apply the operating voltage to the card while keeping this button pressed.
- The **red LED** lights up. Release the CLOSE button.
- Disconnect the card.

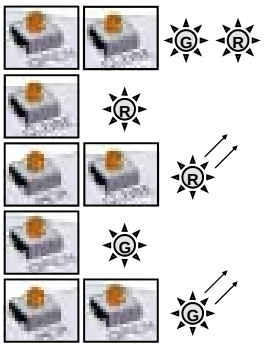
3 Selection of the type of input control signal

3.1 Voltage control signal 0-10V

- Press the **MEM** button and apply the operating voltage to the card while keeping this button pressed.
- The **red LED** will light up 3 times. Release this button.
- Disconnect the card.

3.2 Current control signal 4-20mA (by default)

- Press the **MEM and CLOSE** buttons and apply the operating voltage to the card while keeping these buttons pressed.
- The **red LED** will light up 3 times. Release these buttons.
- Disconnect the card.



4 Learning mode

- Press the **OPEN and CLOSE** buttons and apply the operating voltage to the card while keeping these buttons pressed.
- The **2 LED** will light up. Release these buttons and the **2 LED** will extinguish. The card is now in the learning mode.
- Press the **CLOSE** button to put the valve in its closed position. The **red LED** will light up.
- Store this selected closed position by pushing **MEM + CLOSE**, the **red LED** will light up 2 times as a confirmation of acknowledgement.
- Press the **OPEN** button to put the valve in its open position. The **green LED** will light up.
- Store this selected open position by pushing **MEM + OPEN**, the **green LED** will light up 2 times as a confirmation of acknowledgement.
- Now, the positions selected have been stored. Disconnect the card.

NORMAL OPERATING MODE

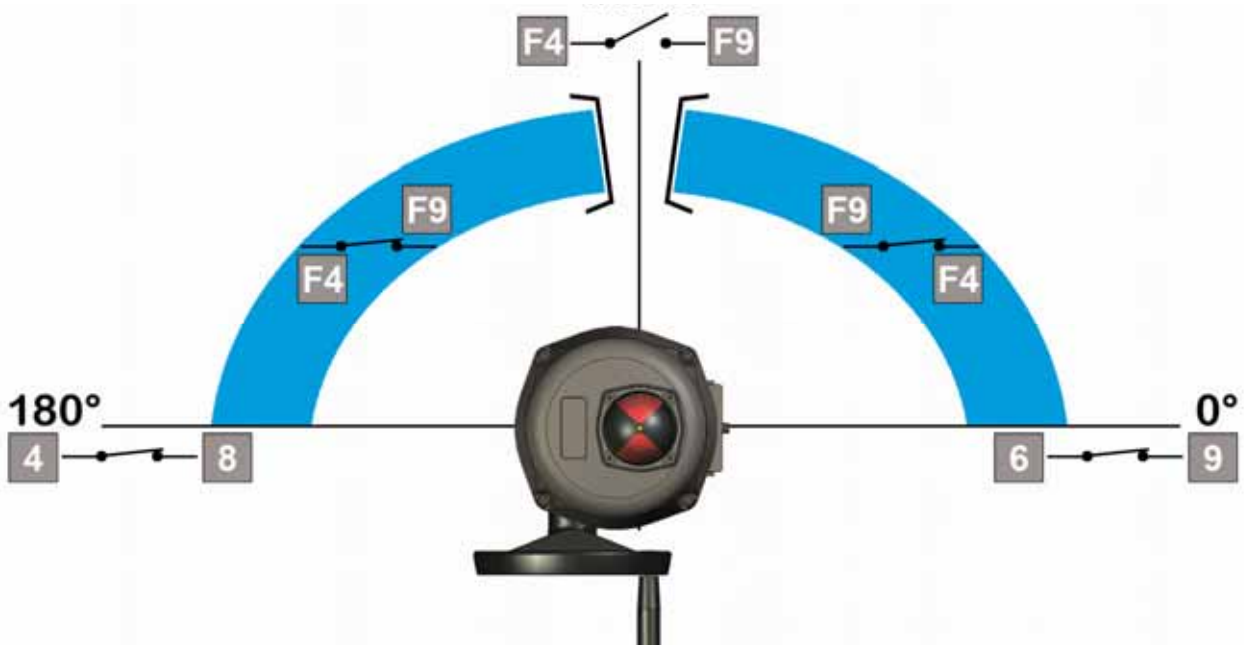
- Apply the operating voltage to the card. The **green LED** will light up 3 times.
- Under normal operating conditions, the **green LED** will light up when the drive motor opens the valve, and the **red LED** will light up when the drive motor closes it.
- If **both LED** remain extinguished, it means that the drive motor has not been triggered.

- In the case of an over torque, the motor stops and the **2 LED** lights then together to indicate the action of the torque limiter. To re-start it, you must either reverse the sense of rotation, either switch the power off and on.

3 positions: description

Actuator with a third position
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 witch position is request.
These 3 positions are controlled 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).

3 positions: contacts state

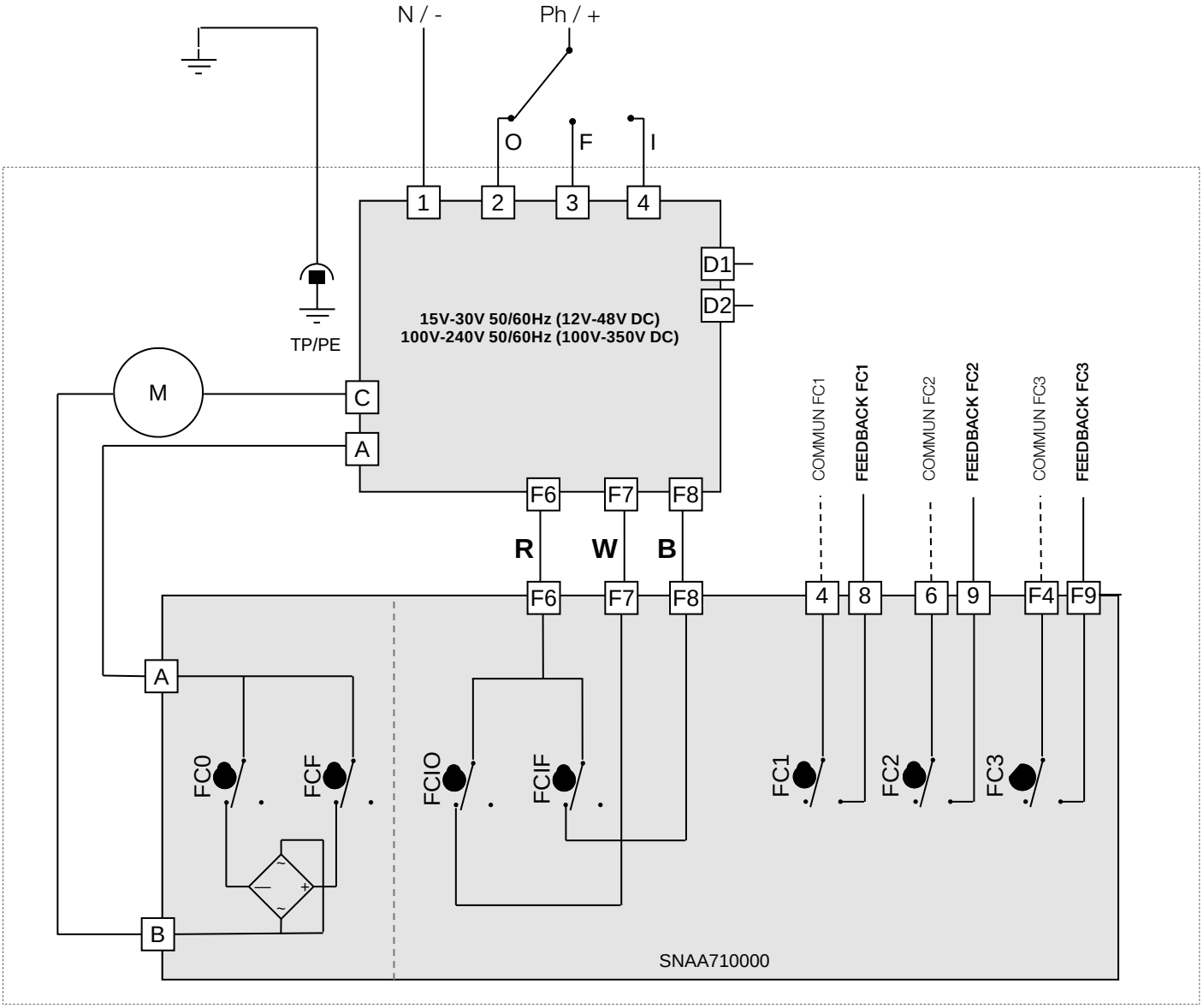


	Terminals		
	6 & 9	4 & 8	F4 & F9
0°	Closed	Open	Closed
inter	Open	Open	Open
180°	Open	Closed	Closed

3 positions: electric diagram

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)



Technical data

	VRX25	VRX45	VRX75

Location

Materials	Housing: Aluminium + EPOXY paint Drive : Steel + Zn treatment Shaft and screws : Stainless steel
Sealing	IP68 ATEX : II 2 G D Ex d IIB T6 Gb Ex tb IIIC T80 °C Db LCIE 06 ATEX 6006 X 400V & GS2 : Ex d IIB T5 Gb - Ex tb IIIC T95 °C Db
Environment	Both inside and outside (wet environments possible)
Operating temperature	-20 °C to +70 °C (FAILSAFE GS2 : -20 °C to +40 °C)
Operating altitude	Up to 2000m
Hygrometry	maximum relative humidity 80% for temperatures up to 31 °C decreasing linearly to 50% relative humidity at 40 °C
Pollution degree	Applicable POLLUTION DEGREE of the intended environment is 2 (in most cases).
Weight	4Kg to 4,4kg

Mechanical data

Nominal torque	20Nm	35Nm	60Nm
Maximum torque	25Nm	45Nm	75Nm
Operating time (90°)	7s 400V : 10s • POSI : 15s	15s 400V : 10s	20s 400V : 15s
Angular range	90° (180°-270° on request)		
Duty cycle	50%		
Drive ISO5211	Star 17mm (depth 19mm) F05 (depth 15mm) • F07 (depth 17mm)		
Screws maximal length	F05 : valve connection plate height + 10mm F07 : valve connection plate height + 12mm		
Manual control	Outgoing shaft		

Electrical data

Voltages[1)]	15V to 30V AC 50/60Hz or 100V to 240V AC 50/60Hz 12V to 48V DC (FAILSAFE : 24V to 48V DC) or 100V to 350V DC 400V 3-phase 50/60Hz
Overvoltage category[2)]	TRANSIENT OVERVOLTAGES up to the levels of OVERVOLTAGE CATEGORY II
Power	45W (400V : 52W)
Insulation motor class	Class B 400V motors and class F for the others
Torque limiter	Electronical
Number of feedback switches	2 (4 on request)
Limit switches maximum voltage	4 à 250V AC/DC (Overvoltage category II)
Limit switches maximum current	1mA to 5A max
Inrush current	Circuit breaker D curve, nominal current according the number of actuators
Anticondensation heaters	10W

1) The actuator tolerates voltage fluctuation of the electrical grid up to ± 10 % of its nominal system operating voltage
2) The actuator tolerates temporary overvoltages of the electrical grid

Technical data

	VSX100	VSX150	VSX300

Location

Materials	Housing: Aluminium + EPOXY paint Drive : Steel + Zn treatment Shaft and screws : Stainless steel
Sealing	IP68 ATEX : II 2 G D Ex d IIB T6 Gb Ex tb IIIC T80 °C Db LCIE 06 ATEX 6006 X 400V & GS2 : Ex d IIB T5 Gb - Ex tb IIIC T95 °C Db
Environment	Both inside and outside (wet environments possible)
Operating temperature	-20 °C to +70 °C (FAILSAFE GS2 : -20 °C to +40 °C)
Operating altitude	Up to 2000m
Hygrometry	maximum relative humidity 80% for temperatures up to 31 °C decreasing linearly to 50% relative humidity at 40 °C
Pollution degree	Applicable POLLUTION DEGREE of the intended environment is 2 (in most cases).
Weight	6Kg to 6,4kg

Mechanical data

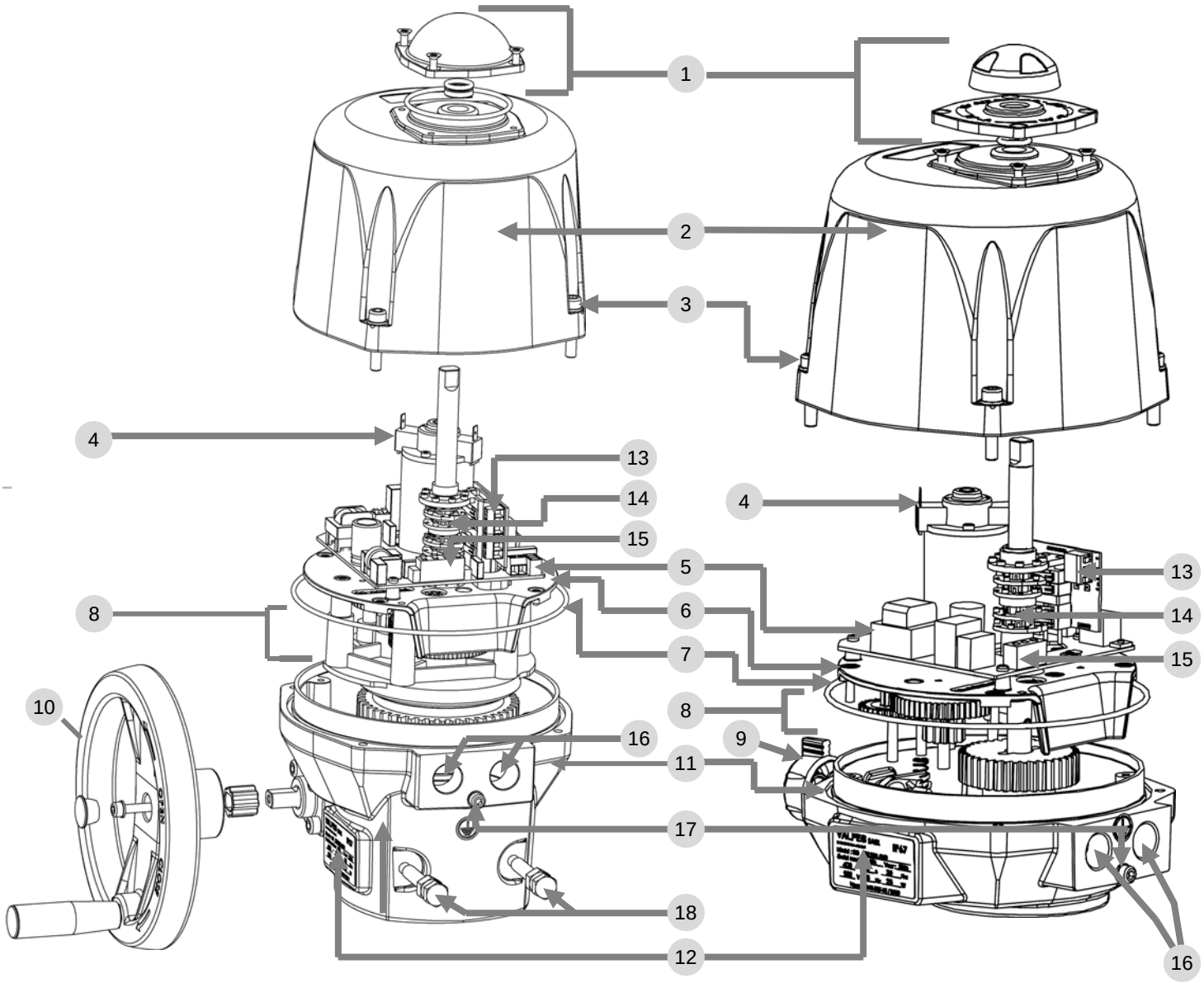
Nominal torque	75Nm	125Nm	250Nm
Maximum torque	100Nm	150Nm	300Nm
Operating time (90°)	15s 400V : 10s	30s 400V : 20s	60s 400V : 35s
Angular range	90° (180°-270° on request)		
Duty cycle	50%		
Drive ISO5211	Star 22mm (depth 25mm) F07 (depth 19mm) • F10 (depth 24mm)		
Screws maximal length	F07 : valve connection plate height + 14mm F10 : valve connection plate height + 16mm		
Manual control	Wheel		

Electrical data

Voltages[1)]	15V to 30V AC 50/60Hz or 100V to 240V AC 50/60Hz 12V to 48V DC (FAILSAFE : 24V to 48V DC) or 100V to 350V DC 400V 3-phase 50/60Hz
Overvoltage category[2)]	TRANSIENT OVERVOLTAGES up to the levels of OVERVOLTAGE CATEGORY II
Power	45W (400V : 135W)
Insulation motor class	Class B 400V motors and class F for the others
Torque limiter	Electronical
Number of feedback switches	2 (4 on request)
Limit switches maximum voltage	4 à 250V AC/DC (Overvoltage category II)
Limit switches maximum current	1mA to 5A max
Inrush current	Circuit breaker D curve, nominal current according the number of actuators
Anticondensation heaters	10W

1) The actuator tolerates voltage fluctuation of the electrical grid up to ± 10 % of its nominal system operating voltage
2) The actuator tolerates temporary overvoltages of the electrical grid

Actuators description



Part	Description	Part	Description
1	Position indicator	10	Wheel
2	Cover	11	Housing
3	CHC M6 x 30 Class 12.9	12	Identification label
4	Motor	13	Auxiliary limit switch terminal
5	Pilot and power supply board	14	Cams
6	Gear box plate	15	Pilot and power supply terminal
7	O ring	16	M20x1,5 Threated holes
8	Gear box	17	Earth screw
9	Clutch knob	18	Mechanical end stops

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