

# CR-TEC Engineering



Automated Valve Solutions

## ER PREMIER *FASTSTOP*

Electric Actuators

Installation and Operation Manual



89 lb-in  
⇓  
177 lb-in

**IP65**  
Enclosure protection

**30%**  
Duty cycle

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## INSTRUCTIONS AND SECURITY

### 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 in contradiction to this advice.

### 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.

### MAINTENANCE

- Maintenance is ensured by our factory. If the supplied unit does not work, please check the wiring according to the electric diagram as well as the power supply of the concerned electric actuator.
- 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 CLEANING PRODUCT WITH SOLVENT OR ALCOHOL**

### 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).
- 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.



- Do not mount the actuator « upside down ».

**Risks:**

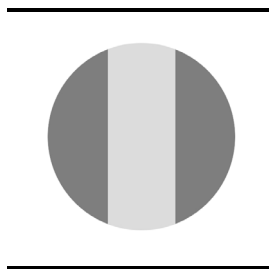
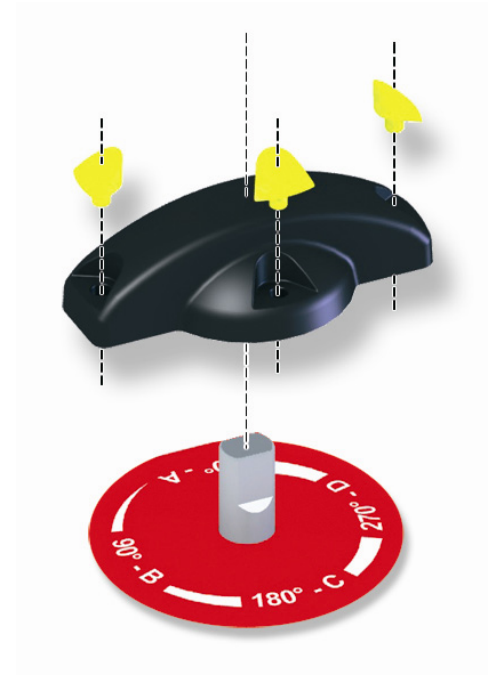
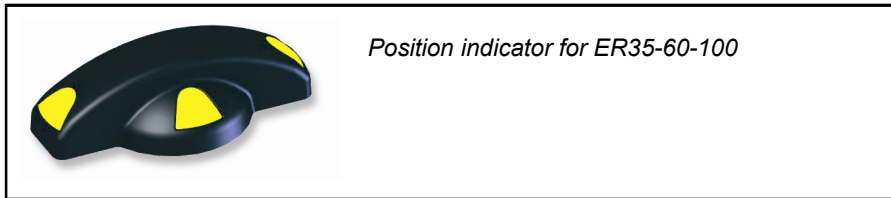
**Declutching mechanism failure**

**Possible flow of the grease on the electronic board**

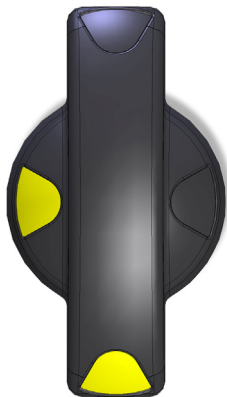
- Do not mount the actuator less than 30 cm of a electromagnetic disturbances source.

## MODULAR POSITION INDICATOR

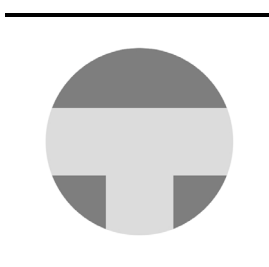
- Modular position indicator with three removable position markers (3 yellow + 2 black), adjustable according the type of valve to be actuated



2 ways valve in closed position

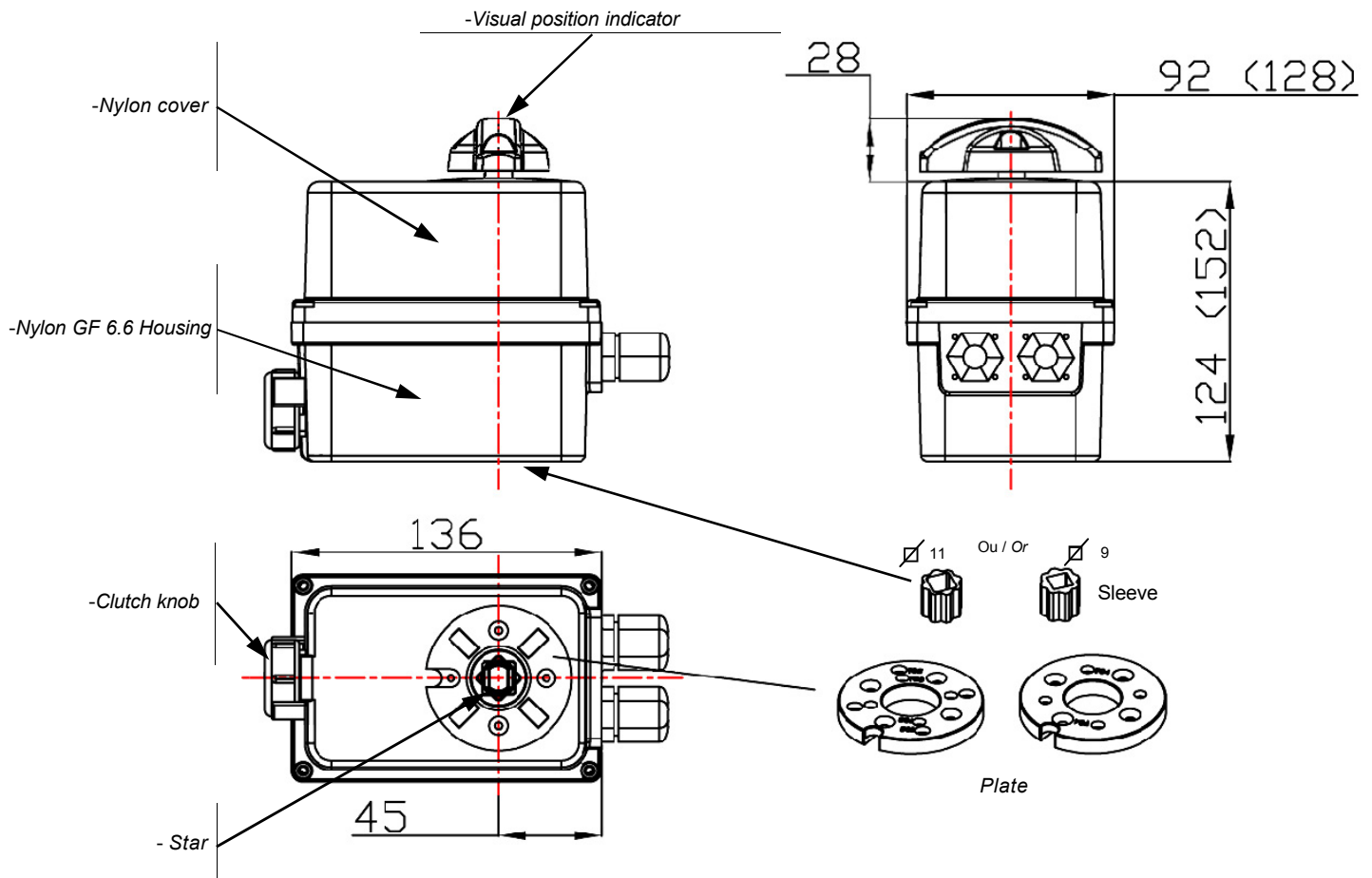


3 ways L type valve



3 ways T type valve

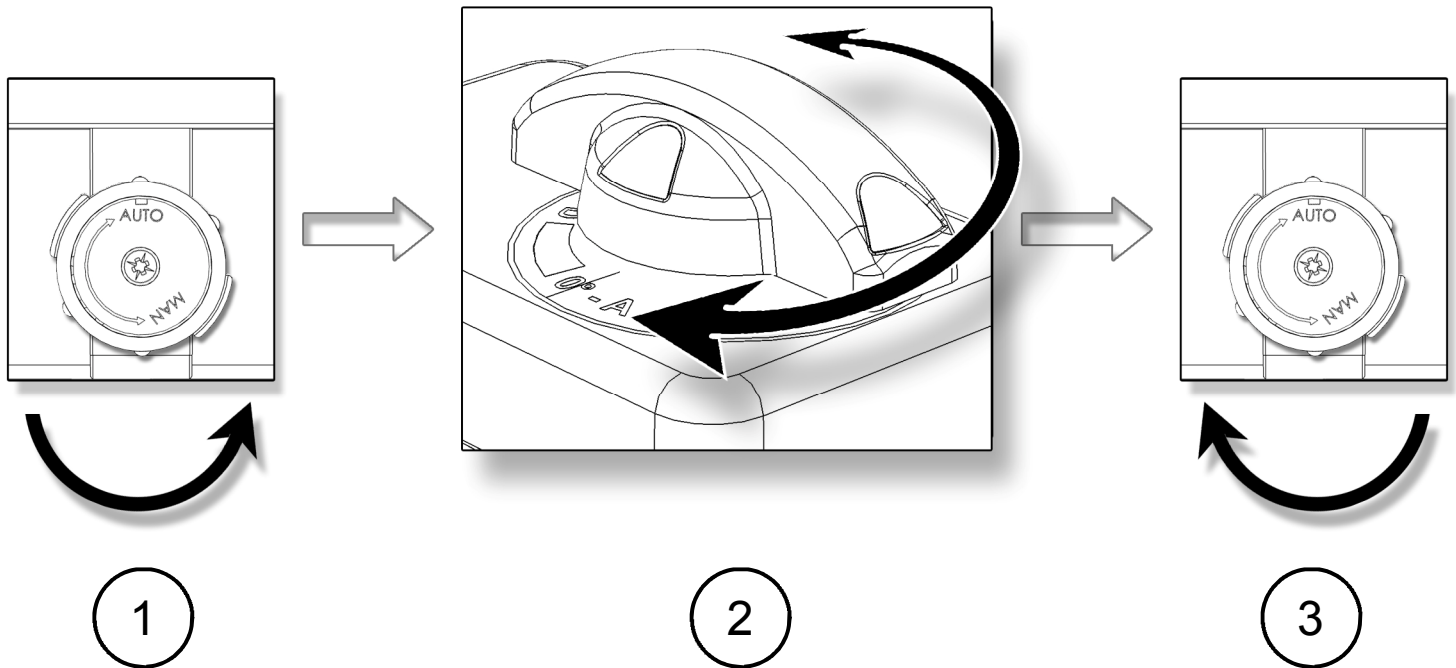
## DIMENSIONS



Square / Star drive nut	Depth
14	16

ISO F flange	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

## EMERGENCY MANUAL OVERRIDE



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

1. Turn the knob to position MAN (counter-clockwise) and hold it in position.
2. Turn the actuator handle.
3. In order to re-engage the reduction, release the knob (spring return).

## ELECTRIC WIRING INSTRUCTIONS

Used symbols :



**Danger : risk of electric shock**



**Earth protection**



**Direct voltage**



**Alternating voltage**

- The actuator is always powered, so it must be connected to a disconnection system (switch, circuit breaker) to ensure the actuator power cut.
- The terminal temperature can reach 90°C
- For a use with a long power supply wiring, the induction current generated by the wires mustn't be higher than 1mA



### RESPECT SAFETY INSTRUCTIONS

Our cable glands are designed for cables with a diameter between 7mm and 12mm.

- Remove the position indicator, unscrew the four screws and take off the cover.

### 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.

### 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 DSBA0436). 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 13
- Tighten the 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, fasten the four screws and attach the position indicator.

## **ELECTRIC WIRING**

### **INSTRUCTIONS - DIN Electrical Connector**

#### **Wiring the electrical connector:**

1. Remove the connector screw first, and then use a flat screwdriver to pry apart the two connector halves. Note that the screw placed in the connector locks the two halves together.
2. The center terminal is an optional ground that is normally used with AC current, and not normally used with DC current.
3. When used with a solenoid valve, the polarity for the power connections is not important. The two power wires can each be connected to either of the side terminals. With electric motor actuators, the polarity should be observed for both AC and DC operation.
4. Place the connector on the electric motor actuator or solenoid valve coil and hold in place with the supplied screw.
5. There are two different types of connectors that you may be using, ½" NPT Conduit and Lead Wire. If you are using the Lead Wire type, a jacketed multi-conductor wire is recommended. A rubber grommet is compressed around the jacketed conductor to make a seal. If a tight seal is not important, then any type of wiring can be used.



# ELECTRIC WIRING

## ER 12-24V DC Faststop

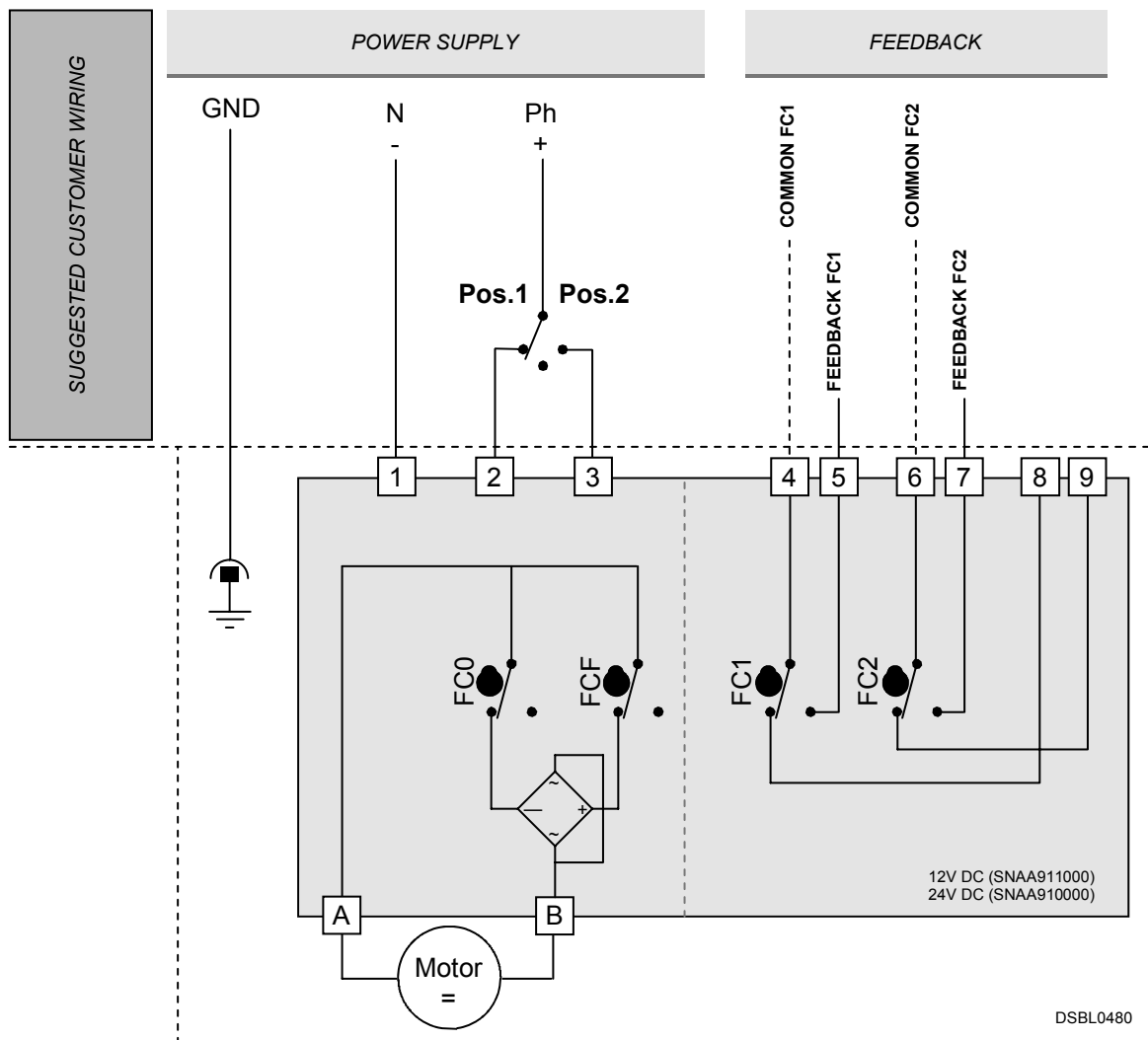
Travel in 1 Direction



The terminal temperature can reach 90°C

The used wires must be rigid (feedback voltages : 4 to 250V AC/DC)

REP	DESIGNATION		
FC0	Open limit switch	FC1	Auxiliary limit switch 1
FCF	Close limit switch	FC2	Auxiliary limit switch 2



# ELECTRIC WIRING

## ER 12-24V DC Faststop

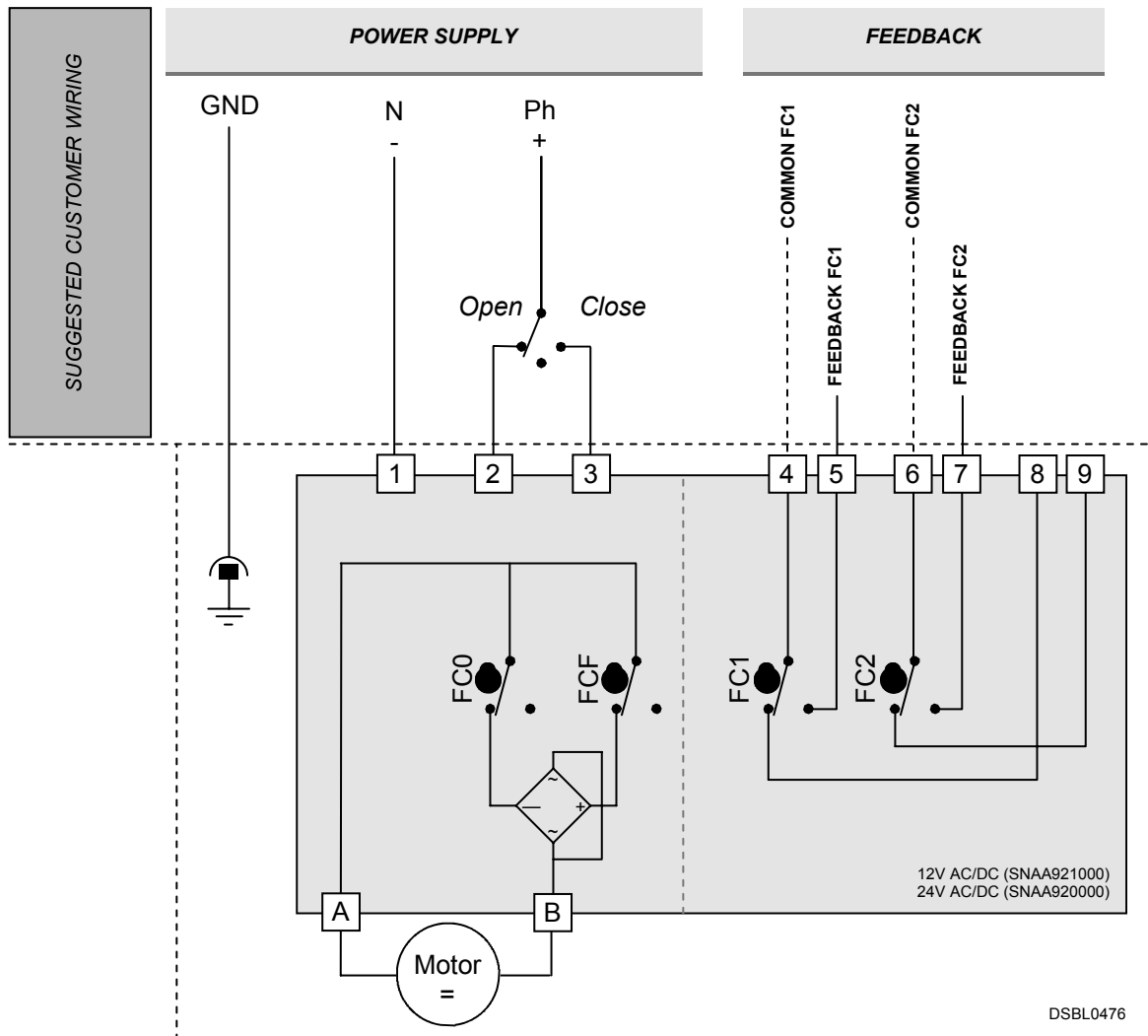
Travel in 2 Directions



The terminal temperature can reach 90°C

The used wires must be rigid (feedback voltages : 4 to 250V AC/DC)

REP	DESIGNATION		
FC0	Open limit switch	FC1	Auxiliary limit switch 1
FCF	Close limit switch	FC2	Auxiliary limit switch 2



# TECHNICAL DATA

<b>TECHNICAL DATA</b>		
Type (1/4 turn electric actuator)	ER10	ER20
IP protection (EN60529)	IP65 dusttight, water spraying « flow <12.5 L/min »)	
Corrosion resistance (outdoor and indoor use)	Plastic : PA6.6 FV 30% et / and Nylon UL94V0 Raw material : 304L Stainless Steel or Steel + Zn treatment	
Temperature	-10°C to +55°C	
Hydrometry	< 81% to 31°C (88°F) with lineary decrease down to 50% at 40°C (according EN61010-1)	
Pollution degree	Class 2	
Altitude	0 to 2000m	
Weight	1.3 Kg	
<b>MECHANICAL DATA</b>		
Nominal torque	10Nm	20Nm
1/4 operating time (± 1s)	3s (12V) 1.5s (24V)	6s (12V) 3.5s (24V)
Mounting actuator base (ISO5211)	Star 14 mm F03-F04-F05	
Rotation angle	90° (others on request)	
Mechanical end stops	90° +/- 5°	
Manual override	—	
Direction of rotation	Anticlockwise to open	
<b>ELECTRICAL DATA</b>		
Voltage (± 10%)	12/24V AC/DC	
Frequency	50/60Hz	
Power	17W (1A) cos φ = 0.75	22W (1.2A) cos φ = 0.75
Overvoltage category	Category II	
Torque limiter	Electric	
Duty rating (CEI34)	30%	
Limit switches maximal voltage	4V to 250V AC/DC (Overvoltage category II)	
Limit switches maximal current	10mA to 5A max	
Electrical wiring	2 ISO M20 gland	

# **CR-TEC Engineering Inc.**

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