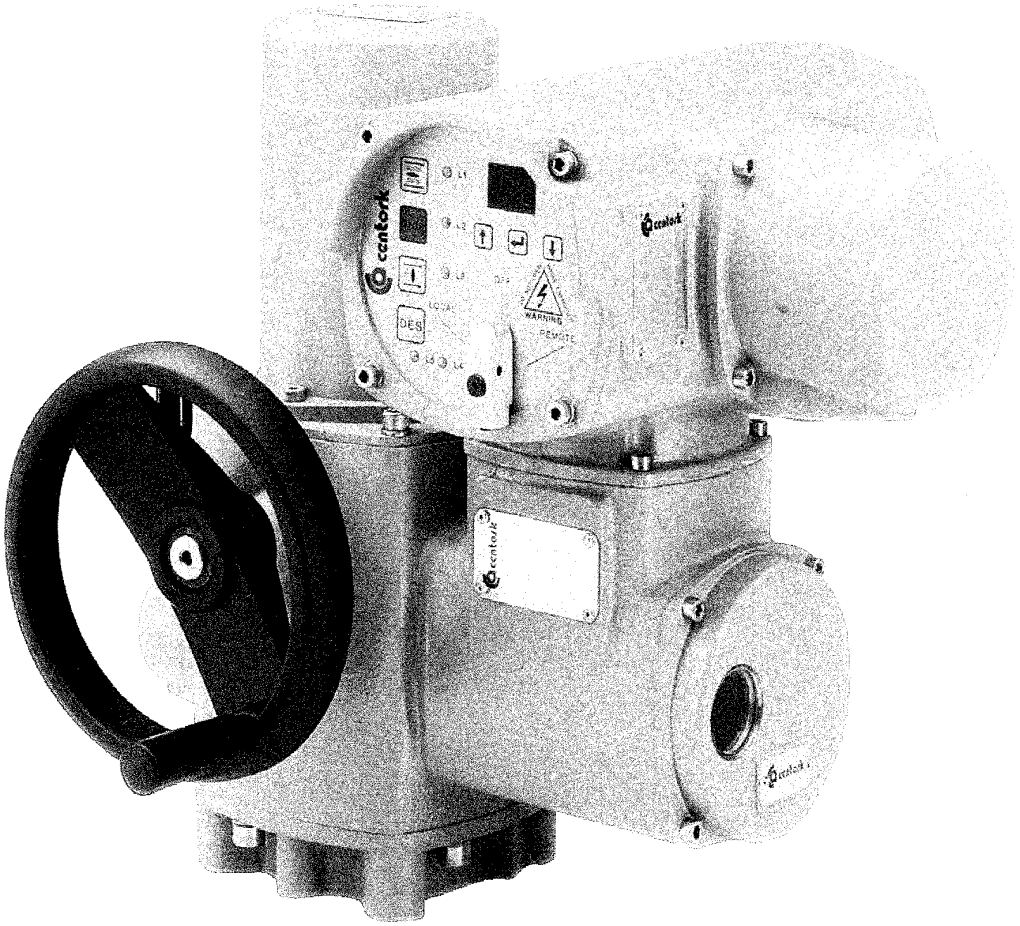
CENTRONIK USERS MANUAL
ON/OFF DUTY



centork
VALVE CONTROL

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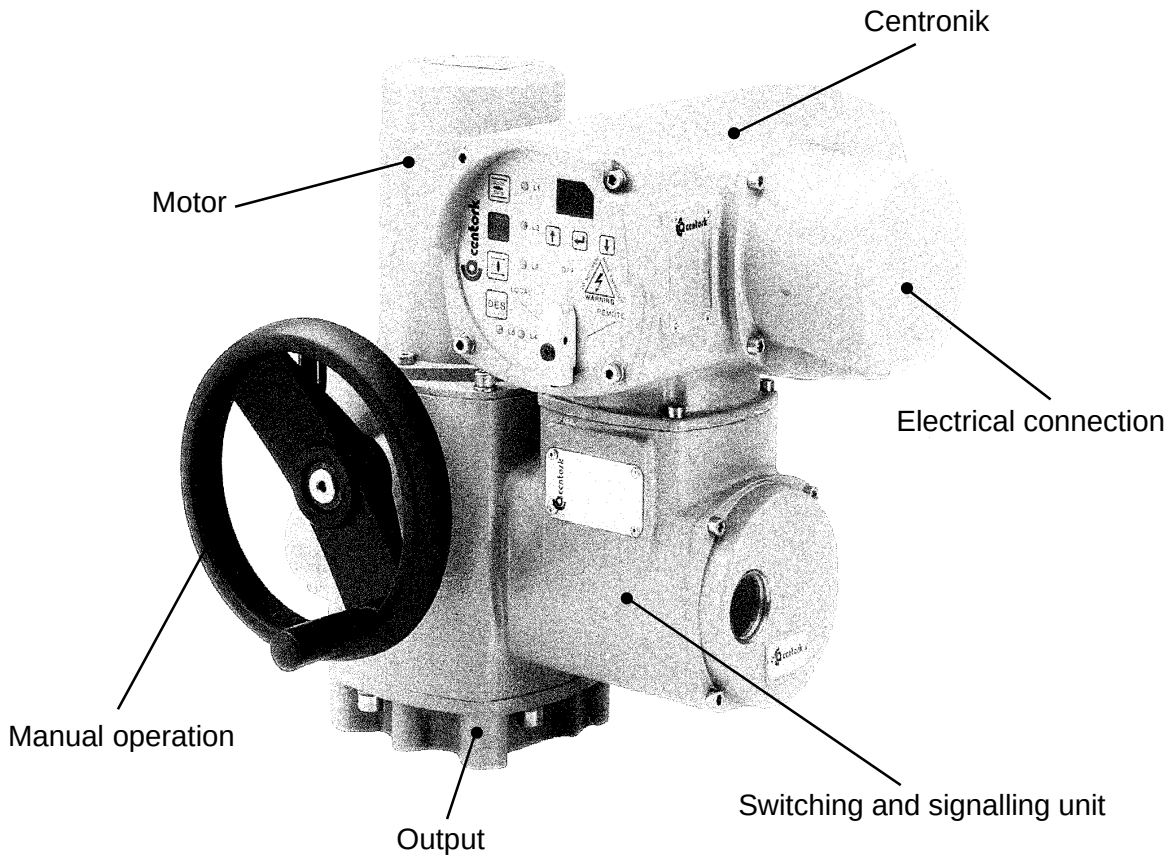
CAUTION

Electric actuators are high value devices. In order to prevent damage in their handling, setting and use, it is essential to follow all the points in this manual.

The actuator is an electrical device, therefore you should take into account the EN 60204, Directive 73/ 23/EEC safety standards.

The centork electric actuators must be handled with care and caution.



1. CENTRONIK ELECTRIC ACTUATORS DESCRIPTION.

The CENTRONIK is an electronic module able to control any CENTORK electric actuator's operation.
The unit consists of several PCBs containing a microprocessor, so the unit should be handled very carefully.
The CENTRONIK has two main operating modes selectable by the front panel selector: LOCAL and REMOTE.
In the OFF position, the actuator remains connected but does not work.
In the LOCAL mode, the CENTRONIK only follows the front panel push buttons operation. In the REMOTE mode, the operation is made via the remote inputs.

The CENTRONIK unit is part of a complete CENTORK ELECTRIC ACTUATOR. All the points stated in the «Electric actuators installation and maintenance manual» should be followed.
Both «CENTRONIK users manual» and «Electric actuators installation and maintenance manual» are supplied together.

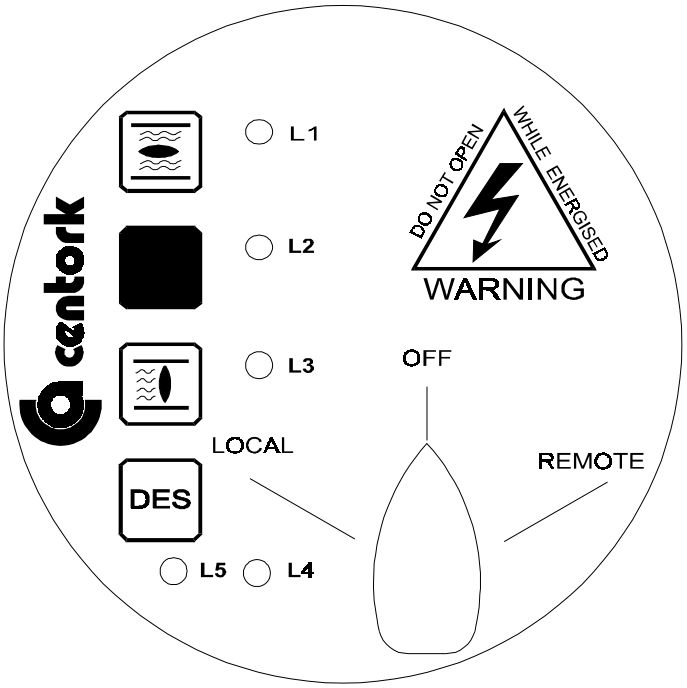
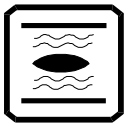


Fig. 1

In the front panel (fig 1), the user will find the following described items:

Open pushbutton

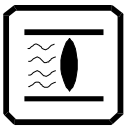


Is represented by this symbol. This is the pushbutton used to make the actuator run in the Open direction in LOCAL mode.

Stop pushbutton

Is represented by this symbol. This is the pushbutton used to stop any Open/Close operation in LOCAL mode.

Close pushbutton



Is represented by this symbol. This is the pushbutton used to make the actuator run in the Close direction in LOCAL mode

DES pushbutton

Is represented by this symbol. This is the pushbutton we will have to use to enable the actuator movement, after a torque dependant stop, in the same direction it stopped . Note that the actuator will stop as soon as the CENTRONIK detects shaft movement.

LED L1

Red:	The actuator has arrived to the OPEN position.
Red blinking:	The actuator is running in the OPEN direction.
Yellow blinking:	Failure, both FRC1 and FRA1 are switched.

LED L2

Yellow:	Blinker failure stop.
Red:	Overtemperature stop (TRM).
Red blinking:	Overtemperature happened and has dissapeared.

LED L3

Green:	The actuator has arrived to the CLOSE position.
Green blinking:	The actuator is running in the CLOSE direction.
Yellow blinking:	Failure, both FRC1 and FRA1are switched.

LED L4

Red:	Torque dependant stop in OPEN direction.
Green:	Torque dependant stop in CLOSE direction.
Yellow blinking:	Failure, both FPC1 and FPA1 are switched.

LED L5

Green:	Correct phase connection.
Red:	Phase missing.

2. ELECTRIC CONNECTION

CAUTION 

When handling electric equipment, take into account the safety standards (EN 60204, Direc. 73/23/EEC).

Check that the type of current, voltage and frequency suits the actuator according to motor nameplate.

When dismounting the electric connection cover, we find, inside this cover, the electric connection diagram for each actuator.

The IP67 degree of protection, IP68 (on request), is only guaranteed if the correct cable glands are used.

CAUTION

Do not attempt to lever off the cover with a screw driver as this will damage the «O» ring seal.
The wiring scheme fixed in the cover is particular to each actuator and must not be interchanged with any other actuator.

Types of connection:

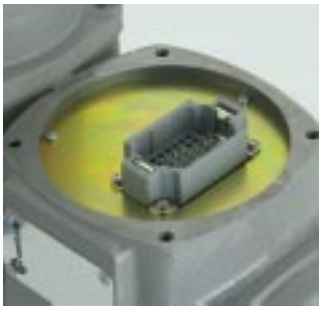
1- Plug-socket connectors with screws :

a) Unscrew the attachment plate from the connection cover.
b) Feed the cable(s) through the cable glands[1] .
c) With a suitable screwdriver, connect the cables for the control signals according to the electric connection diagram.
d) Connect the 3 phases L1, L2, L3 to the connections 1, 2 and 3 (for clockwise rotation). Connect the earth cable to the earth connection of the plug.
e) Once you have checked that the connections have been carried out properly, screw the attachment plate back to the connection cover respecting the direction of the connectors.
f) Close the connection cover and check the proper connection, the state of the o-ring seal and the proper installation of the latter, greasing it slightly. Fasten the 4 screws crosswise.
g) Tighten cable glands to ensure enclosure IP67 (IP68 on request).

2- Terminals connection :

a) Feed the cable(s) through the cable glands[1].
b) With a suitable screwdriver, connect the cables for the control signals according to the electric connection diagram.
c) Connect the 3 phases L1, L2, L3 to the connections U1, V1 and W1 (for clockwise rotation). Connect the earth cable to the earth connection.
d) Once you have checked that the connections have been properly carried out, close the connection cover and check the proper connection, the state of the o-ring seal and the proper installation of the latter, greasing it slightly. Fasten the 4 screws crosswise.
e) Tighten cable glands to ensure enclosure IP67 (IP68 on request).

3- Plug-socket connectors with crimp :



a) Unscrew the attachment plate from the connection cover.
b) Feed the cable(s) through the cable glands[1].
c) With a suitable crimping tool, connect the cables to the control signals according to the electric connection diagram.
d) Connect the 3 phases L1, L2, L3 to the connections 1, 2 and 3 (for clockwise rotation). Connect the earth cable to the earth connection of the plug.
e) Once you have checked that the connections are properly done, screw the attachment plate back to the connection cover respecting the direction of the connectors.
f) Close the connection cover and check the proper connection, the state of the o-ring seal and the proper installation of the latter, greasing it slightly. Tighten the 4 screws crosswise.
g) Tighten cable glands to ensure enclosure IP67 (IP68 on request).

[1] The cable glands are not supplied with the Standard version.

CAUTION

CENTORK actuators are provided with thermoswitches mounted in the windings of the motor. The protection of the motor is only achieved with a proper connection for these thermostats. Centork guarantee for the motor is not valid if this connection is not properly done.

In the case of 1NA+1NC double microswitches, only the same potential can be connected through both circuits. For different potentials, two double microswitches must be used.

3. SETTING PROCEDURE

The standard configuration of a CENTRONIK programmable electronic control unit is :

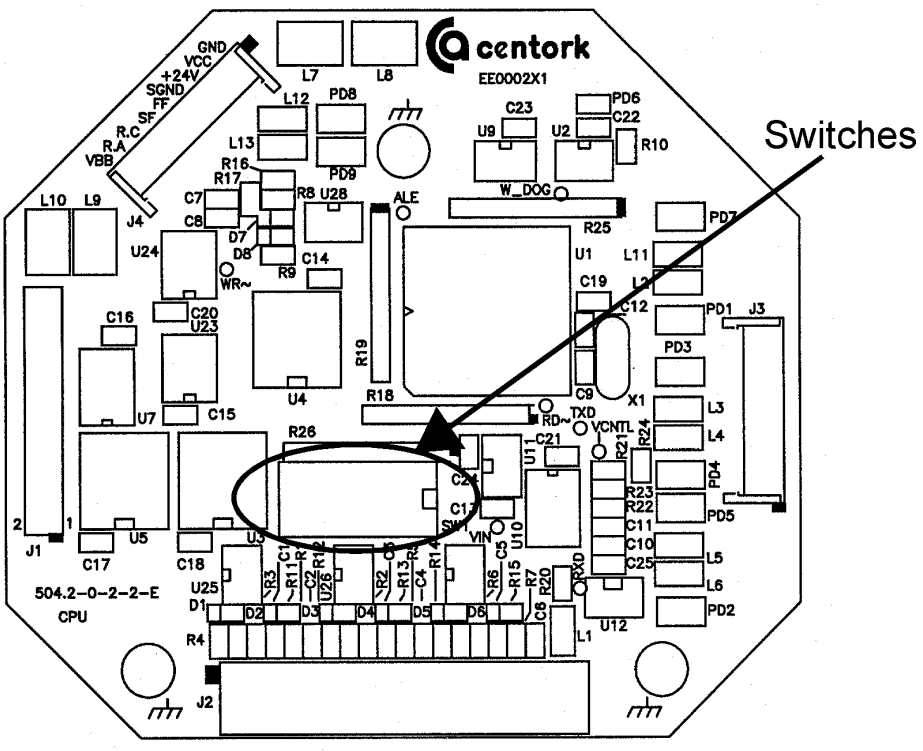
1- Operation mode 1
2- Direction to close OFF (Clockwise)
3- Digital outputs / relays configuration N.5 (Mode 4)
4- Remote Mode selection ON (Remote Parallel)

Only if needed, the programation of the CENTRONIK is made as follows:

CAUTION

This is a sensible electronic device. Manipulation of setting switches should be made very carefully, in a way that other electronic components are not damaged.

1- With the selector in the OFF position, take off the front cover of the unit.
2- In the PCB, the setting switches are located as indicated in the next figure



3- The meaning of the switches and the different combinations are described in the following tables:

SW1	SW2	SW3	Operation modes
OFF	OFF	OFF	free
ON	OFF	OFF	Mode 1
OFF	ON	OFF	Mode 2
ON	ON	OFF	Mode 3
ON	ON	ON	Test Mode

SW4	Direction to close
OFF	Clockwise
ON	Anti-clockwise

SW5	SW6	SW7	Config. Dig out./relays
OFF	OFF	OFF	Nº 1 - Mode0
ON	OFF	OFF	Nº 2 - Mode1
OFF	ON	OFF	Nº 3 - Mode2
ON	ON	OFF	Nº 4 - Mode3
OFF	OFF	ON	Nº 5 - Mode4
ON	OFF	ON	free - Mode5
OFF	ON	ON	free - Mode6
ON	ON	ON	Test Mode

SW8	Remote Mode Selection
OFF	Remote Serial
ON	Remote Paralel

Factory default

Description of the operation modes:

- Mode1 :

  This is the Open by limit switching and Close by torque switching operation.

- Mode2 :

  This is the Open and Close by limit switching operation.

- Mode3 :

  This is the Open and Close by torque switching operation.

- Test Mode :

  This is not an operation mode. It is a test program to control the correct operation of the control hardware. Note that some internal connections have to be done before running the program.

CAUTION  **THIS TEST PROGRAM SHOULD BE RUN ONLY UNDER THE AUTORISATION OF CENTORK.**

The remote outputs configuration depends on the mode chosen.
As standard, the CENTRONIK is not supplied with output relays.
If the CENTRONIK is equiped with relays, the outputs will be potential free contacts.If it is not, the outputs will give 24 V_{DC} with a maximun load capacity of 100 mA.

The remote output modes are described next:

OUTPUTS	CONFIGURATIONS				
	Nº 1	Nº 2	Nº 3	Nº 4	Nº 5
OUTPUT 1	Valve open	Torque open	Valve open	Valve open	Valve open
OUTPUT 2	Valve close	Torque close	Torque close	Valve close	Valve close
OUTPUT 3	LOCAL	LOCAL	LOCAL	Torque open	Torque op./cl.
OUTPUT 4	REMOTE	REMOTE	REMOTE	Torque close	Motor temp.
OUTPUT 5	FAILURE	FAILURE	FAILURE	FAILURE	FAILURE

Once the connections and programming are made, the switching and signalling unit will have to be adjusted as explained in the «Electric actuators installation and manteinance manual».

CAUTION  **Note that in the operation modes 1 and 3, the FRC limit switches will have to be set to operate shortly before reaching the end CLOSED position. If not, the incorrect indications of the CENTRONIK unit could cause malfunction in the process.**

4. REMOTE INPUTS

To operate the CENTRONIK remotely, the remote input should be connected to the common input following the corresponding wiring diagram (see technical sheets).

5. OPERATION ON/OFF DUTY

For LOCAL operation, set the front panel selector on the LOCAL position and use the front panel buttons to OPEN, CLOSE and STOP the actuator.

For REMOTE operation, set the front panel selector an the REMOTE position and after wiring remote switches as indicated, use remote switches to operate the actuator.

The CENTRONIK can also be operated by a serial line. These are the communication's characteristics:

- Transmission speed: 9600 BPS.
- Character format: 1 start bit, 8 data bits, parity even y 1 stop bit.

The communication protocol used is an adapted ADPL-10 version.
For more information about the characteristic of the protocol used such as message format, message sequency and data format refer to the 'Centronik operation. Serial line' brochure.

The CENTRONIK software, has a «movement detection» function. If during the next 6 seconds after the last order no shaft movement is detected the unit will stop the operation. After correcting the problem, the Stop pushbutton should be pressed to reset the unit.

The unit also incorporates a phase missing and an inverse phase connection detection system. Both of them are indicated in the front panel.

Every CENTRONIK is provided with two main fuses. If needed, they should be changed as follows:

1- Unscrew the electrical connection cover.
2- Unscrew the correspondant fuseholder and change the fuse. Standrad 20 x 5 mm 500 mA normal blow fuses are used.
3- Screw both fuseholder and electrical connection back. Check the proper connection, the state of the o-ring seal and the proper instalation of the latter, grasing it slightly. Fasten the 4 screws crosswise.
4- Tighten cable glands to ensure enclosure IP67 (IP68 on request).

CAUTION  **Make sure a proper ground (GND) connection of the unit is done.**

Notes :

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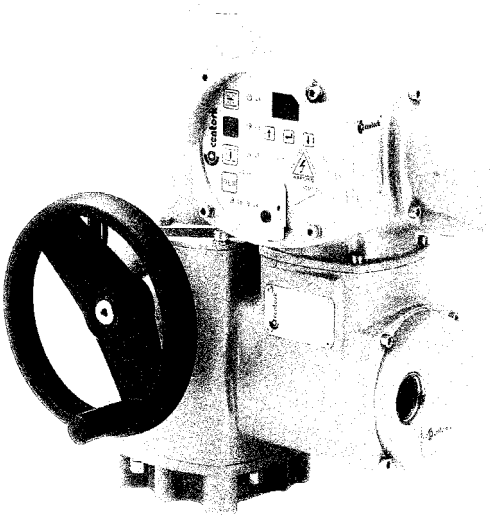

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