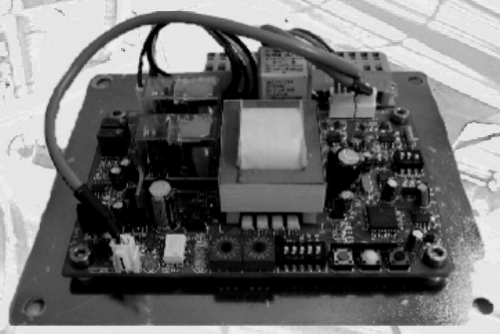
centork
VALVE CONTROL

Remote Positioner Controller
RPC
for Electric actuator



Installation and maintenance user's manual

INTRODUCTION

CENTORK Remote Position Controller RPC is a high value device. In order to prevent damage in their handling, setting and use it is essential to follow and observe all the points in this user manual, operate under actuators' and Remote Position Controller RPC's designated use, and observe the health and safety rules, standards and directives.

Remote Position Controller RPC must be handled with care and caution. It is delivered, by CENTORK, with the following documentation:

- Remote Position Controller RPC
- Installation and maintenance user manual
- Wiring diagram

In case any of this documentation is not available, contact with your distributor or CENTORK Valve Control S.L..

This pictogram advises and remarks activities, procedures and notes related to safety or a correct operation of this quarter turn actuator. Non observance of these notes might lead to consequential damage.

IMPORTANT NOTE
The contents in this manual is subject to change due to improvements without individual notice

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1 GENERAL DESCRIPTION

1.1 Remote Position Controller RPC

CENTORK Remote Position Controller RPC is the local actuator controller, using 12bit A/D converter and 8 bits Microprocessor, this electronic device controls actuator operation, moving to open and close direction, according to the input signal from main controller. This device has been designed to control electric actuator for general purpose industrial valve. Other applications should be consulted CENTORK before.

After positioning the actuator, the RPC detects the current position of the actuator and transmits feedback output signal (4-20mA) about current position to the main controller (OUTPUT).

1.2 Features

Model	RPC
Power :	110V/220VAC (10% tolerance), 50/60Hz 4VA Max (Changeable by DIP switch)
Input signal:	4-20mA DC, 2~10VAC, 0~5VAC, 0~10VAC, 1~5VAC Input resistance: 250 Ohm,
Feedback signal:	100 ~ 10Kohm Exaction: 2.3VDC
Output signal:	4~20-mA DC
Load resistance:	750 Ohm Max.
Control output :	Relay contact 250VAC 10A Max (Inductive load)
Number of output contact:	2 (Open and close contact)
Delay time adjustment:	0.5 ~ 8 sec
Dead band adjustment:	0.1 ~ 4.5% (1 step 0.3%, total 15 steps)
Resolution:	Min. 1/1000
Position conversation accuracy : 0.5 ~ 1.5% (Depends on installation)	
Ambient temperature:	-10ºC ~ +60ºC
Ambient humidity:	90% RH Max (Non-condensate)
Dielectric strength:	1500V AC 1Min (Input to output, Power to Ground)
Insulation resistance:	Min. 500VDC 30Mohm
Vibration & Shock (X, Y, Z):	10g (6g based on RMF, Frequency: 0.2 ~ 34Hz, 30Min
LED signal:	See table

LED	SIGNAL
Yellow on	Power on
Yellow Flicker	Auto setting
Green on	Open
Red on	Close
Red on	Card Manual mode
Red	Flicker Failure in either signal, CT, wiring

2 SAFETY INSTRUCTIONS

The scope of this manual is to enable a competent user to install, operate, adjust and inspect a CENTORK RPC Remote Position Controller. These instructions must be observed, otherwise a safe operation of the actuator is no longer warranted.

⚠ **As electric device, during electrical operation certain parts inevitably carry lethal voltages and currents (ELECTRICAL RISKS). Work on the electrical system or equipment must only be carried out by a skilled electrician himself or by specially instructed personnel, in accordance with the applicable electrical engineering rules, health and safety Directives and any other national legislation applicable.**

⚠ **Under no circumstances should any modification or alteration be carried out on the RPC Remote Position Controller as this could very well invalidate the conditions which the device was designed.**

3 TRANSPORT AND STORAGE

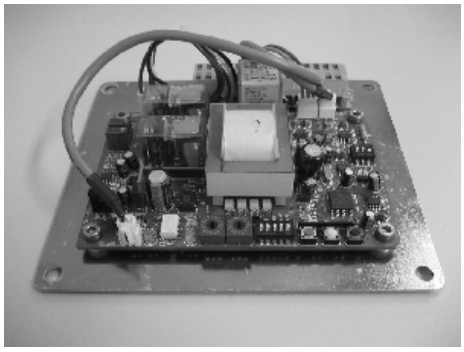
- CENTORK RPC Remote Position Controllers are packed in sturdy packing. During transport measures should be adopted in order to prevent impacts, hits. Handling with care as it is an electronic device.
- Stored in a clean, cool and dry area.
- While commissioning, CENTORK recommend a visual inspection in order to detect any anomaly caused during the transport, or during the storage.

3.1 Pre-Installation Inspection

- Verify main features (Model, Main Power, Control Power, Options) of the RPC Remote position Controller.
- Check electric wiring is correct or not.
- In case of 3 phase motor, must check rotating direction first before normal operation.
- All function of RPC may have been set by factory before delivery and no need to set the functions again, when RPC is delivered with the CENTORK actuator. In other situations or cases, users have to adjust and set the functions of RPC
- Disassembly, modification without factory's consent may affect the performance of the actuator.
- If there is any discrepancy, please contact with your local distributor, or CENTORK, to solve that discrepancy. Once the electric actuator has been set up, CENTORK decline any responsibility related to discrepancies.

4 RPC MOUNTING

- RPC Remote Position Controller can be mounted inside of a electric actuator or in a external electric cabinet.
- For external electric cabinet, RPC is mounted on a plate, ready to be fixed on the electric cabinet.
- Mounting: For hole dimensions and distances (Plate) see appendix

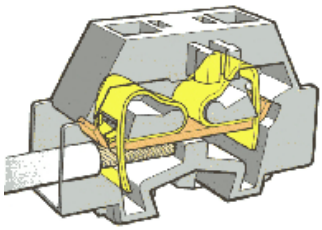


5 ELECTRICAL CONNECTIONS AND PRELIMINARY TEST

⚠ **Safety instructions on chapter 2 must be observed. Work on electrical system or equipment must only be carried out by skilled electrician.**

Wiring diagram is enclosed to the RPC Remote Position Controller. Just in case the wiring diagram is missing, contact with your distributor or CENTORK Valve Control. Respect the max. allowable current/voltage values of electric devices (Microswitches, heater, transmitter…)

- Standard factory units are anti-clockwise to open!. This could affect to potentiomer terminals and control relays, see wiring diagram enclosed.
- Make sure that power supply voltage is in accordance with the specification data.
- Connect according to the enclosed wiring diaphragm. Employ a proper screw driver in order to release the terminals. Wire should be 8~9 mm maximum.



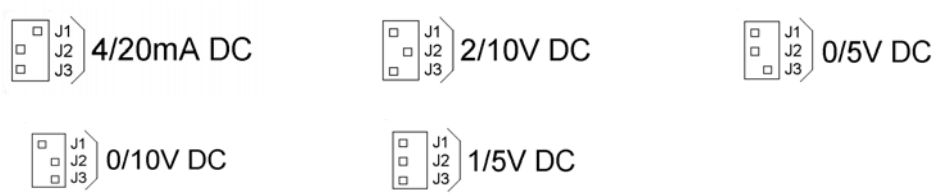
⚠
- **Move the valve manually to an half-open position, run the actuator to Open direction, check that the motor rotates in the right direction (Visual disc indicator or valve shaft could help for this). Stop immediately if NOT. Check OUTPUT signal value, it should increase, if not, stop, switch off main power and change potentiometer end terminals. Check it again.**
- Test run the actuator and check that the limit switches work correctly.

Power Requirements: Consult the nameplate of the actuator for duty cycle and current draw information
Duty Cycle: Duty cycle rated IEC34 – S2 or S4 (See standard features chapter) Exceeding the actuator's rated duty cycle may cause thermal overload.

6 SETTING: FUNCTIONS OF RPC

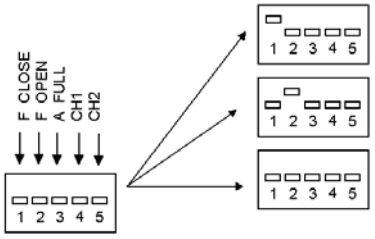
6.1 Setting input signal

User can select suitable input signal by adjusting DIP switches as follows. factory already set the signal as 4-20mA.



6.2 Setting fail position

In order to prevent serious trouble when input signal is failed, user can set the fail position of actuator by setting of DIP switches as follows.



Fails close

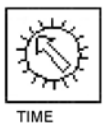
Fail open

Fail stop

6.3 Delay time

This prevents continuous operation of RPC card caused by abnormal INPUT signal such as noise, microphone and other foreign frequency

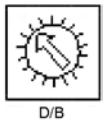
Once INPUT signal is detect, RPC follows that signal but if there is preset time (Delay time), RPC doesn't move within the pre-set time. RPC can move when input signal last a certain time which is preset and by turning the switch to clockwise, delay time is getting longer. Vice versa.



Range: 0.5 ~ 8sec, 1 step: 0.5sec, 0~15 step

6.4 Dead band

This is the tolerance between INPUT signal and the position of actuator. When turn this SETTING TOOL to clockwise, it is getting wider.



BE careful when turn this to counter-clockwise too much, sensitivity is getting increase, it could be the reason of called "PUMPING" effect: The actuator never finishes to reach the position (Never stops) because is always moving to open and to close. This effect can burn the motor and damage other components

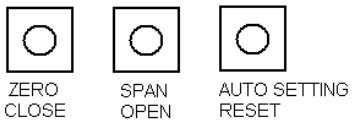
Range: 0.1~4.5%, 1step 0.3%, 0~15step

6.5 RPC setting and calibration (CH2)

This function allows to set the 4 mA (Close position) and 20 mA (Open position)
Remove (Disconnect on terminals) the INPUT signal

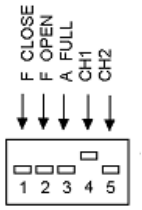
Close position

- Run the actuator to close position.
- Then put CH2 DIP SWITCH “on” status.
- Push Zero button for a while until “Close setting” is done. Notice that the output current signal is 4 mA.
- Change the CH2 DIP SWITCH to “OFF” status.



Open position

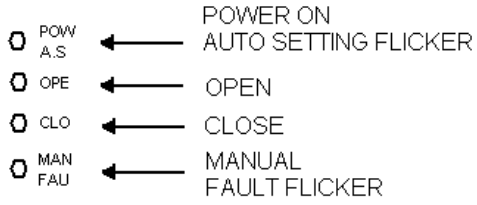
- Run the actuator to open position.
- Then put CH2 DIP SWITCH “on” status.
- Push SPAN button for a while until “Open setting” is done. Notice that the output current signal is 20 mA.
- Change the CH2 DIP SWITCH to “OFF” status.



Finally, connect again the INPUT signal and check the operation by remote INPUT signal 4~20mA.

6.6 Led signal alarms and information

Printed	LED colour and situation	Meaning of LED
POW A.S	Yellow on Yellow flicker	Power on Auto setting
OPE	Green on	Open
CLO	Red on	Close
MAN FAU	Red on Red flicker	Manual operation Failure in CT, RPC



7 AFTERSALES SERVICE

For any claim or information request, the SERIAL NUMBER or sales order should be used.

Should user have any further queries, please contact CENTORK thought phone, fax or e-mail without hesitation. CENTORK address can be found on Manual covers.

8 DIRECTIVES AND STANDARDS CONFORMITY

Quarter turn electric actuators conform to the following directive:

- Machinery Directive 98/37/EC
- Low voltage Directive 73/23/EC
- EMC Directive 89/336/EC

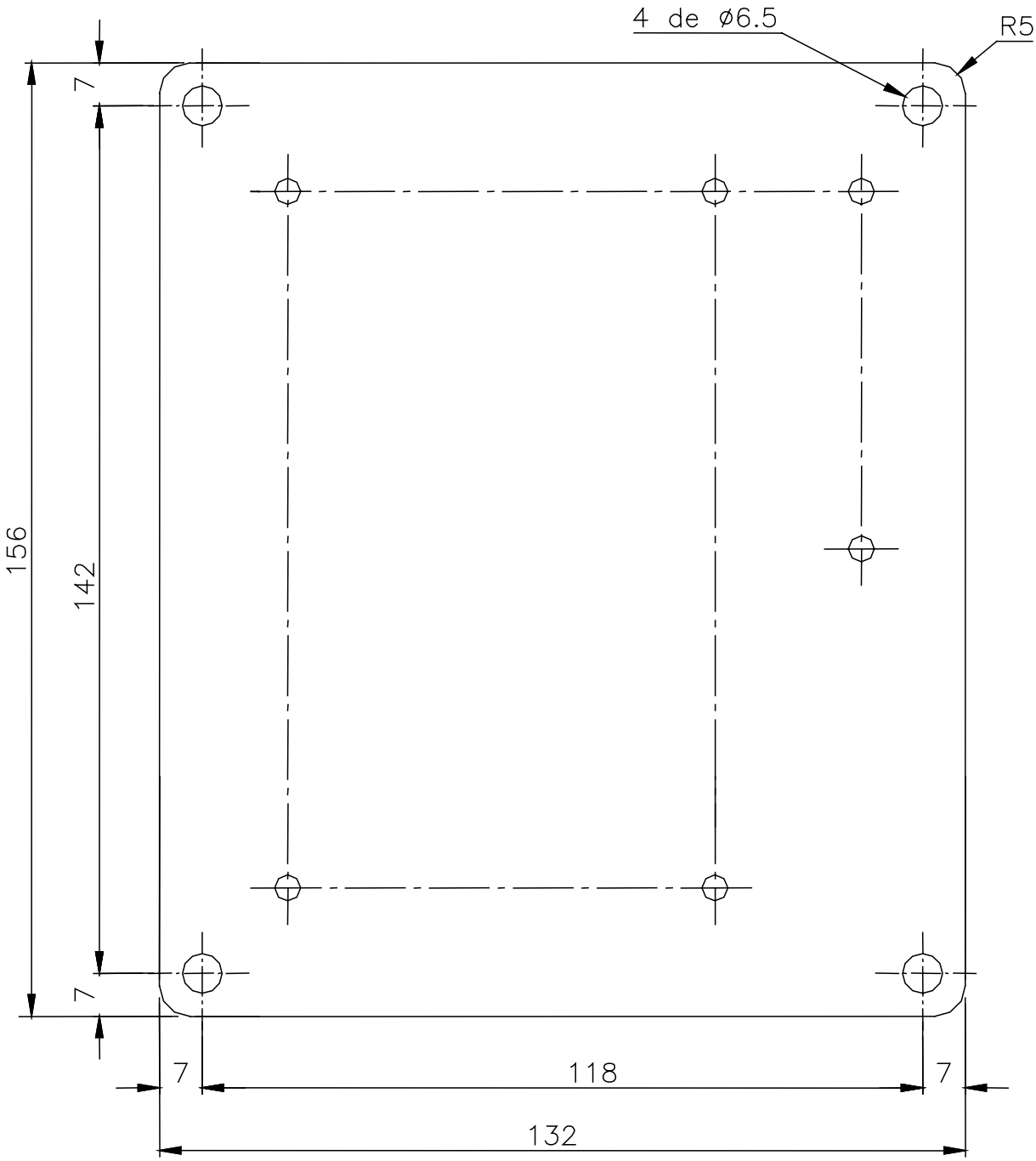
According to the following standards

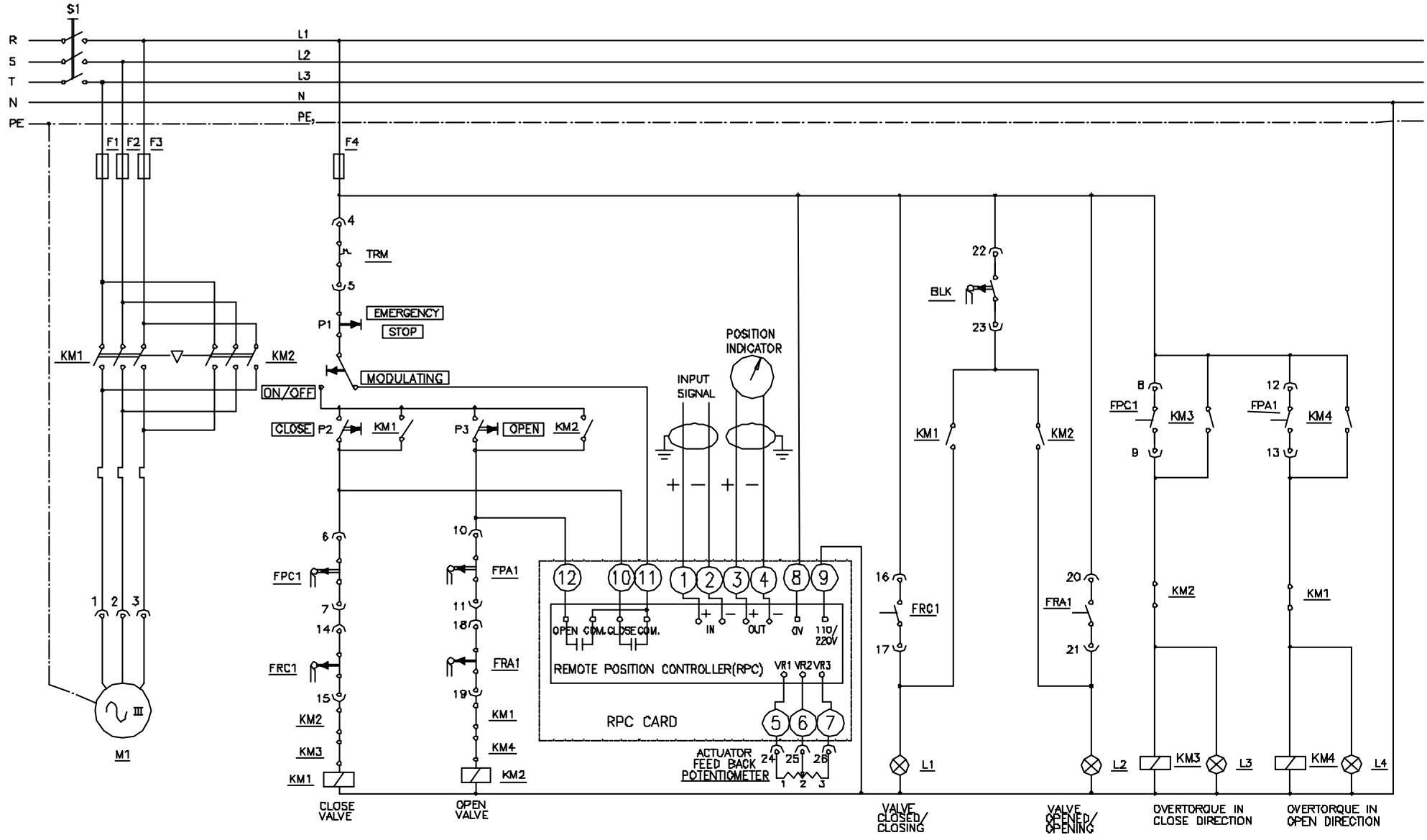
- EN 292: Parts 1-2: 1991/A1:1995
- EN 60204: 1997
- EN 61000-3-2: 1995/ A1, A2: 1998
- EN 1050: 1996
- EN 50081-1: 1992
- EN 61000-3-3: 1995
- ISO 5211: 1982

NOTES

APPENDIX

RPC Remote Positioner Controller: Plate dimensions:





OPEN/CLOSE BY LIMIT SWITCHING

–Case of overtorque, stops open/close action.

–Case of overtorque, allows open/close action after having done close/open action.

	MODIFICACION	FECHA
A	–	–
B	–	–
C	–	–
D	–	–
E	–	–
F	–	–
G	–	–

	FECHA	FIRMA
DIBUJADO	02/08/04	AF
REVISADO	02/08/04	AF
VERIFICADO	04/08/04	IM
ESCALA		

centork ACTUADOR INTEGRAL

WIRING DIAGRAM RPC POSITIONER+ACTUATOR

REDONDEO EN OTRAS ZONAS SIN INDICACION R0.3

TOLERANCIAS GENERALES DIMENSIONALES AGUJEROS: H12 EJES: h12, ROSCAS: GRADO MEDIO, LONGITUDES: Js12

FORMATO	Nº DE PLANO	HOJA
A3	D8015X1	Nº: 1 de 1

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VALVE CONTROL

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