

## INSTALLATION, OPERATION & MAINTENANCE MANUAL



### Digital Positioning System to Electric quarter turn Actuator

Ref. GENE BRE: 5810 04

## INSTRUCTIONS FOR INSTALLATION, OPERATION & MAINTENANCE MANUAL

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## 1. Product Description

The Digital Positioner is a fitting the electric actuator to convert the actuator in a self-control valve positioner.

The Digital Positioner is a modulus with a microprocessor (CPU) which manages digitally the analogical input and output and compare them with the position of the actuator to establish an uniform relation.

The analogical inputs are sent to CPU where they are processed for his continuous comparison with the position of the actuator, this allows to obtain a very high sensitivity next to a very high repetitivity of the position (see characteristics).

The Digital Positioner in communication with the electronic system of the actuator provides an integral management of the motion on the actuator.

Sign position input is converted to a digital numerical value and is continuously compared with the position of potentiometer which is mechanically fitted to the valve shaft.

The programme in the microchip makes all the necessary calculations to determine which way the motor should turn so that the potentiometer position and the valve corresponds to the position, it keeps the motor in stopped position until it receives an input signal.

## 2. Safety Instructions

The scope of this manual is to enable a competent user to install, operate, adjust and inspect a Digital Positioning System to GE quarter turn electric actuator. 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 actuator as this could very well invalidate the conditions which the device was designed.**

### 3. Transport and Storage

- All products are packed in sturdy packing. During transport measures should be adopted in order to prevent impacts, hits.
- Storage must be off the floor, covered with a sealed dust protector.
- While commissioning, Genebre, S.A. recommend a visual inspection in order to detect any anomaly caused during the transport, handling or during the storage.

### 4. Pre-Installation Inspection

- Verify the product nameplate to insure correct model number, before installation or use.
- If there is any discrepancy, please contact with our local distributor, or Genebre, S.A., to solve that discrepancy.

### 5. External Electrical Connections

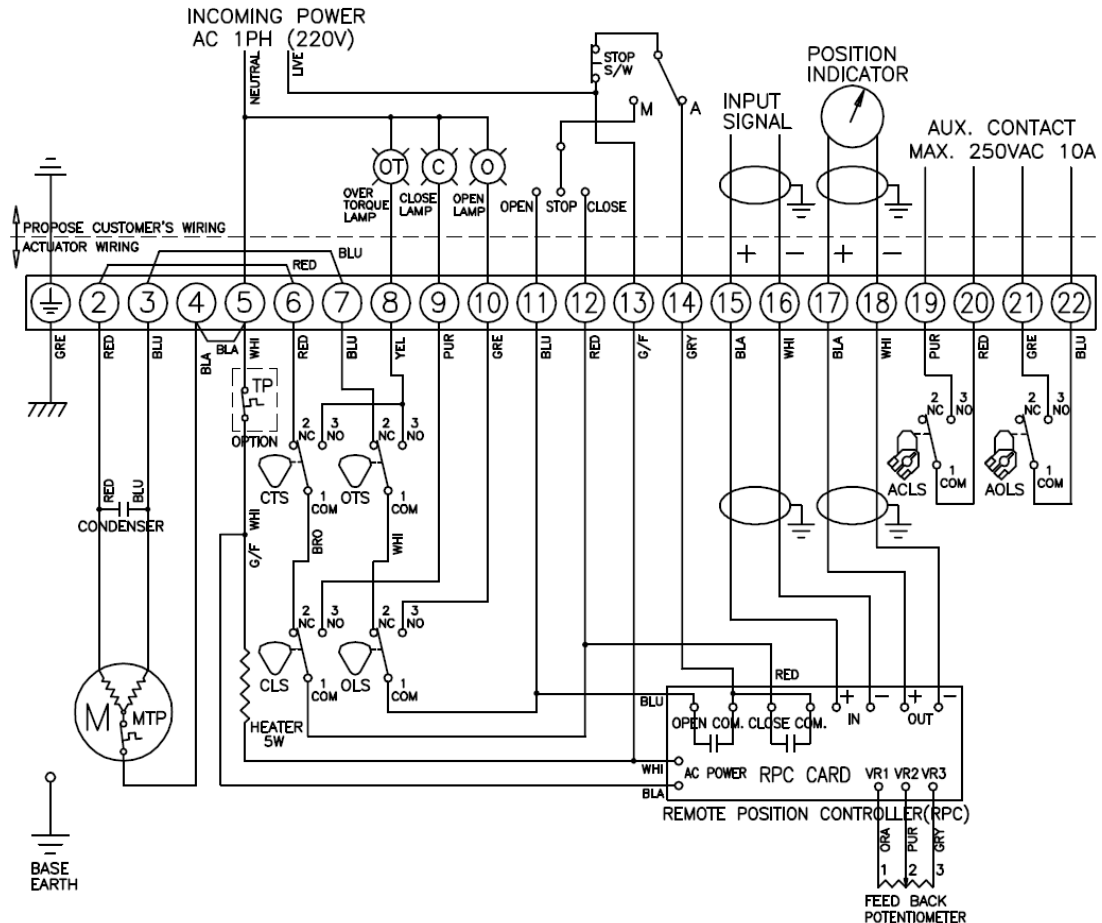


**As electric device, during electrical operation certain parts inevitably carry lethal voltages and currents (ELECTRICAL RISKS).**



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

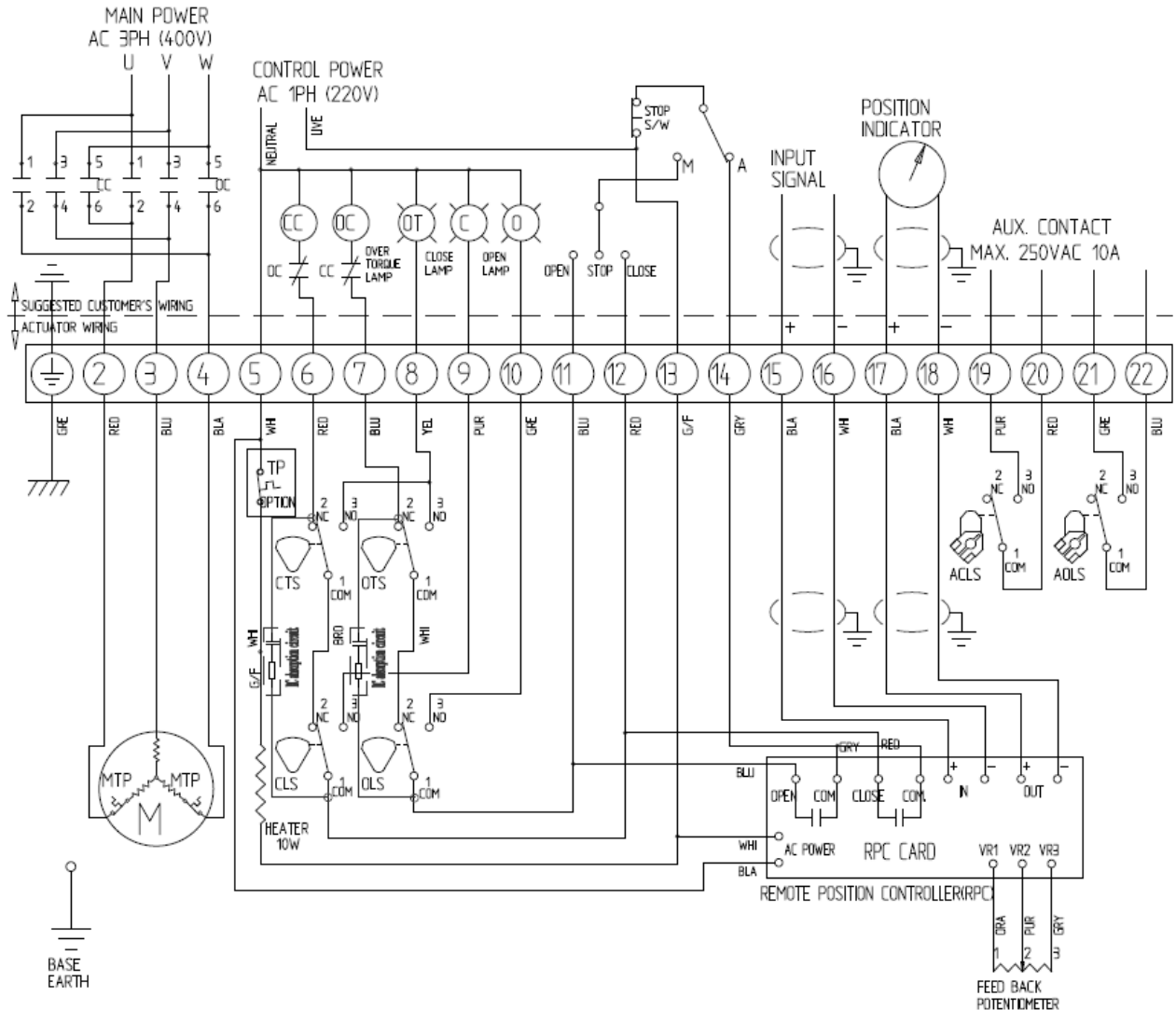
*From GE-015 to GE-210 with optional Positioner RPC (1 Phase)*



- CLS:** Close Limit Switch (250 VAC 10A)
- OLS:** Open Limit Switch (250 VAC 10A)
- CTS:** Aux. Close Torque Switch (250 VAC 10A)
- OTS:** Aux. Open Torque Switch (250 VAC 10A)
- ACLS:** Aux. Close Limit Switch (250 VAC 10A)
- AOLS:** Aux. Open Limit Switch (250 VAC 10A)
- CC:** Close Magnetic Coil.
- OC:** Open Magnetic Coil.
- TP:** Thermal Protector (250 VAC 15A)

**Caution:** Each actuator should be powered through its own individual switch or relay contacts to prevent cross feed between two or more actuators.

**From GE-015 to GE-210 with optional Positioner RPC (3 Phase)**



- CLS: Close Limit Switch (250 VAC 10A)**
- OLS: Open Limit Switch (250 VAC 10A)**
- CTS: Aux. Close Torque Switch (250 VAC 10A)**
- OTS: Aux. Open Torque Switch (250 VAC 10A)**
- ACLS: Aux. Close Limit Switch (250 VAC 10A)**
- AOLS: Aux. Open Limit Switch (250 VAC 10A)**
- CC: Close Magnetic Coil.**
- OC: Open Magnetic Coil.**
- TP: Thermal Protector (250 VAC 15A)**

**Caution: Each actuator should be powered through its own individual switch or relay contacts to prevent cross feed between two or more actuators.**

## 6. Operation Instructions



### ATTENTION:

ALL SERVOMOTOR WHIT POSITIONER SYSTEM HAVE BEEN CORRECTLY ADJUSTED FROM THE FACTORY AS REQUESTED, THEREFORE IT'S NOT NECESSARY TO PROCEED ANY ADJUSTMENTS UNLESS SPECIAL PRECISE ADJUSTMENTS ARE REQUIRED.

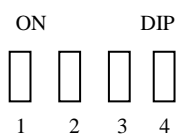
## 7. Signal Control

### 7.1 Signal Types

The signal types can be 4-20 mA or 0-10V DC. **If there is no instruction for the input signal, Genebre set the signal as 4-20 mA.**

### 7.2 Setting of working parameters

The user can set the fail position of actuator by setting DIP switches as follows:



#### Switch N° 1:

On: Valve closing direction is anticlockwise.  
Off : Valve closing direction is clockwise.

#### Switch N° 2:

On: Valve control error value add 0.5% on the basis of menu setting.  
Off : Value control error valve using menu setting valve.

Switch N° 3 and N° 4 (combination functions):

| Switch N° 3 | Switch N° 4 | Action of actuator                              |
|-------------|-------------|---|
| Off         | Off         | Without signal keep valve position              |
| On          | On          | Without signal keep valve position              |
| On          | Off         | Without signal valve position full open (N.A.)  |
| Off         | On          | Without signal valve position full close (N.C.) |

**Note: The standard configuration for Genebre is the 4 switches in "Off"**

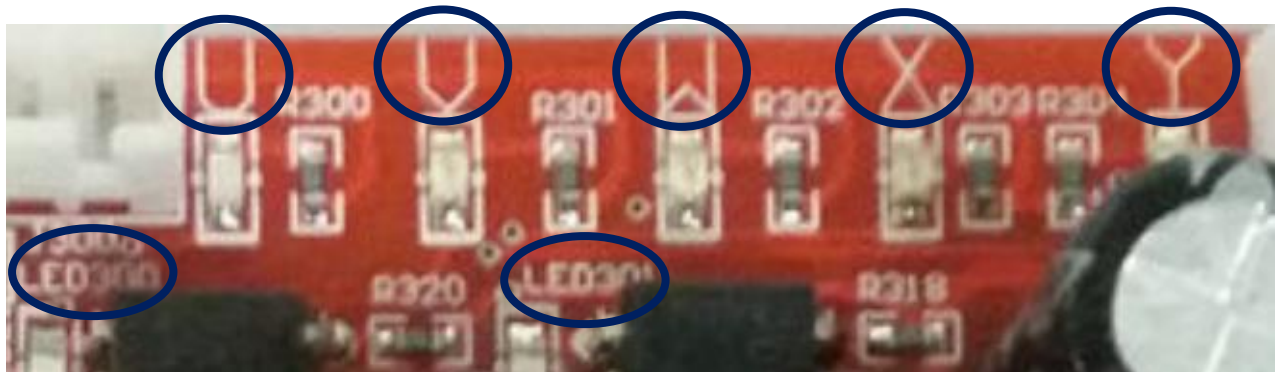
### 7.3 Auto Setting

If actuator is properly mounted on application, please check the input power, input signal and wiring are correct or not. Without input signal, put actuator 50% open by hand wheel, push Auto Setting Button for 3 seconds (S2). Firstly, the actuator moves by itself in order to set the close and open position automatically.

After setting, actuator stops at the position, which is correspondence with the current input signal and transmits the output signal.



### 8. Signal Leds





| LED | COLOR | STATUS   | DEFINITION            |
|-----|-------|----------|-----------------------|
| 300 | Green | Light On | Open                  |
| 301 | Green | Light On | Close                 |
| U   | Blue  | Light On | Normal Working        |
| U   | Blue  | Flicker  | Automatic Calibration |
| V   | Red   | Light On | Lost Signal           |
| W   | Red   | Light On | Over Torque           |
| X   | Red   | Light On | Blocked or Reverse    |
| Y   | Red   | Light On | Calibration Error     |

## 9. Maintenance

These actuators are free maintenance, but when conditions are more severe, more frequent inspections may be advisable.

- Ensure valve actuator alignment.
- Insure wiring is insulated, connected and terminated properly.
- Insure all screws are present and tight.
- Insure conduit connections are installed properly and are dry.
- Verify declutch mechanism.