Edificio Genebre. Av. de Joan Carles I, 46-48
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INSTALLATION, OPERATION & MAINTENANCE MANUAL

GE

Electric quarter turn Actuator
Single Phase / Three phase

Ref. GENEBRE: 5803

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INSTRUCTIONS FOR INSTALLATION, OPERATION & MAINTENANCE MANUAL

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1. Product Description

Genebre, S.A. offers a comprehensive range of electrical actuators such fraction of a turn (turn 90 degrees) and different types of voltages

GE electric Actuators are designed to automation of industrial valves of quarter turn with 0 – 90º range of operation.

Actuator torques range from 100 Nm to 2.100Nm.

2. Technical Features & Data

Nº	Especificaciones Generales / *General Specifications*	
1	Angulo de giro	90º (±5º)
1	Swing angle	90º (±5º)
2	Acoplamiento válvula	Según ISO 5211. Doble cuadrado. Casquillo extraíble para mecanizado según eje de válvula
2	Valve attachment	According to ISO 5211. Double square. Removable socket for machining according to valve axis.
3	Limitación de recorrido	Levas ajustables montadas sobre el eje de salida (SPDT 250 VAC)
3	Limit seating	Adjustable cams attached on the output axis (SPDT 250 VAC)
4	Limitación de par	Protección en cierre y en apertura (SPDT 250 VAC)
4	Torque limitation	Closing and opening protection (SPDT 250 VAC)
5	Indicador de posición	Mecánico, ventana en tapa superior
5	Position indicator	Mechanical, window on top cap
6	Calefacción	Calefacción anti-condensación, 5 W (110/220-230 VAC)
6	Heating	Anticondensation heating, 5 W (110/220-230 VAC)
7	Motor	Protección Clase F, protegido por térmicos, Alimentación: 3 Fases CA, 1 Fase CA o 24 V DC
7	Motor	F class protection, termic protected, alimentation: 3 Phase AC, 1 Phase AC or 24V DC
8	Mando manual	Para operación de emergencia, no gira si motor en marcha
8	Manual control	Emergency operation, It doesn't turn if the motor is running
9	Temperatura de trabajo	-20ºC á +70ºC
9	Working temperature	-20ºC to +70ºC
10	Protección	IP 67 según EN 60529, IP 68 opcional
10	Protection	IP 67 according EN 60529, IP 68 optional
11	Pintura acabado	Pintura epoxi
11	Finished paint	Epoxy paint
12	Conexión eléctrica	Por bornes. Entrada de cable E1 & E2: M25x1,5
12	Electric connection	Metalic terminals. Wire entry E1 & E2: M25x1,5
13	Anti vibración	XYZ 10g. 02 – 34 Hz, 30 minutos
13	Anti vibration	XYZ 10g. 02 – 34 Hz, 30 minutes

3. Safety Instructions

The scope of this manual is to enable a competent user to install, operate, adjust and inspect a 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.

During operation, certain surfaces of the actuator (motor) can reach high temperatures (up to 100 º C). The user must take measures to prevent any risk of damage to persons or property (High Temperature).

4. Transport and Storage

- **GE** quarter turn electric actuators are packed in sturdy packing. During transport measures should be adopted in order to prevent impacts, hits.
- Actuators must be stored in a clean, cool and dry area.
- The unit shall be stored with the cover installed and the conduit openings sealed with PTFE tape.
- 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.

5. Pre-Installation Inspection

- Verify the actuators nameplate to insure correct model number, torque, operating speed, options and special components, voltage and enclosure type before installation or use.
- It is important to verify that the output torque of the actuator is appropriate for the torque requirements of the valve and that the actuator duty cycle is appropriate for the intended application.
- If there is any discrepancy, please contact with your local distributor, or Genebre, S.A., to solve that discrepancy. Once the electric actuator has been set up, Genebre, S.A. decline any responsibility related to discrepancies

6. Actuator Mounting

- **Do not lift the actuator by the hand wheel. Do not attach to the hand wheel ropes or hooks to lift by hoist.**
- The actuator may be mounted in any position-
- The GE quarter turn electric actuator Series are supplied with a female drive output ISO5211. Bolt patterns are provided for actuator mounting. The actuator drive bush is removable for ease of machining. To remove the drive bush, just take out the 2 fixing screws.
- It is mandatory that the actuator be firmly secured to a sturdy mounting bracket or directly mounted to the valve's ISO mounting pad. High tensile bolts or studs with spring locking washers must be used.
- The valve output shaft must be inline with the actuator output drive to avoid side-loading the shaft. To avoid any backlash no flexibility in the mounting bracket or mounting should be allowed.
- Reserve the space for maintenance routines and tasks.

7. Electrical Connections

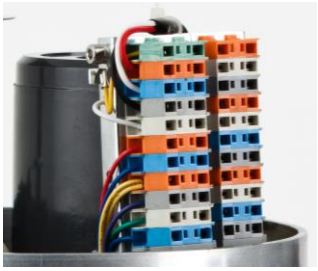
Safety instructions on chapter 3 must be observed. Work on electrical system or equipment must only be carried out by skilled electrician.
Wiring diagram is enclosed inside the quarter turn electric actuator (Electric compartment). Observe the max. allowable current/voltage values of electric devices (Micro switches, heater, transmitter…)

- Standard factory units are anti-clockwise to open.
- Loosen the screws on the actuator cover and lift it off.
- Make sure that power supply voltage is in accordance with the data on the actuator nameplate.

- Use and install proper cable glands and protection plug according to IP protection degree. Seal properly the cable glands. Warranty is no longer valid if this is not respected.

- Pass cables through cable glands.

- Connect according to the enclosed wiring diaphragm or Annex A. Employ a proper screw driver in order to release the terminals. Wire should be 8~9 mm maximum.



- Check that all cable glands are correctly tighten.

- Clean sealing faces at terminal cover and check whether O-ring is in good condition. Mount cover and tighten cover bolts.

8. Preliminary Test and Settings

- **Move the valve manually to an half-open position, operate an electrical opening and check that the motor rotates in the right direction (Visual disc indicator or valve shaft could help for this). Stop immediately if NOT. Instructions have been made for standard electric actuators: CLOCKWISE TO CLOSE.**

8.1 Test run actuator

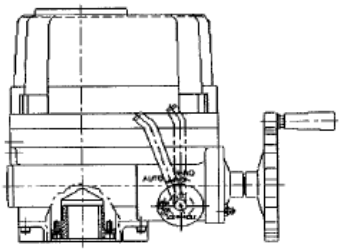
- **Test run the actuator and check that the limit switches work correctly.**
- **Check that all cable glands are correctly tighten.**
- **Clean sealing faces at terminal cover and check whether O-ring is in good condition. Mount cover and tighten cover bolts.**

8.2 Handwhell and Declutching

Quarter turn electric actuators are provided with a declutchable manual override system. The override engagement lever returns automatically to auto position when the actuator is operated electrically.

Models GE-010 to GE-210

- In order to manually operate the actuator, pull the manual override
- Engagement lever towards the handwheel until it remains in position.
- Turn the handwheel until the valve reaches the required position.
- Turn clockwise to close and anti-clockwise to open.



8.3 Mechanical Travel Stop Adjustment

Travel Stop Open **Travel Stop Close**

Adjust the top end in the valve closed position first:

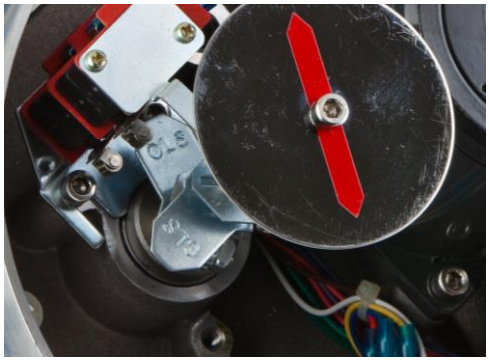
- Loosen both travel stop stud bolt nuts by 3~4 threads.
- Manually operated the actuator to valve closed position until its makes trip contact with the closed limit switch.
- Forward adjust travel stop stud bolt until it contacts the Word wheel (in this position the stud bolt should not be able to travel any further).
- Adjust the travel stop stud back one turn and tighten the lock nut.

Repeat the same setting operation for the open travel stop

8.4 Limit Switch Setting

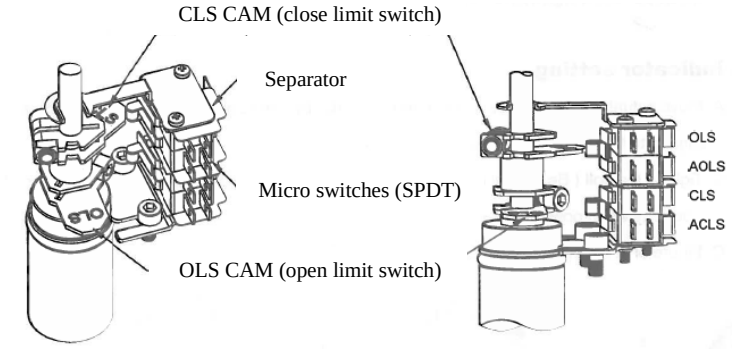
Closed Position Setting

- Operate the actuator manually to closed position
- Using an Allen key, loosen the set screw in the CLOSE limit switch cam, it is normally marked with a “CLS” indication (see picture).
- Rotate the CLS cam towards CW limit switch lever until the switch ‘clicks’.
- Tighten set screw with hex wrench.
- Lower cam marked CLS.



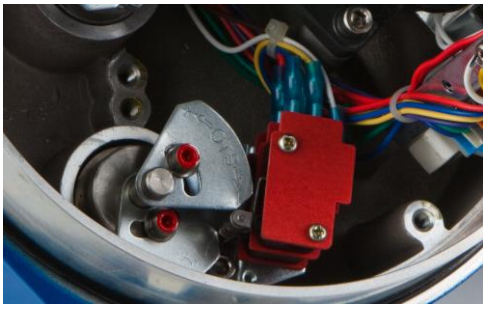
Open Position Setting

- Operated the actuator manually to valve open position.
- Using an Allen key, loosen the set screw in the OPEN limit switch cam,it is normally marked with a “OLS” indication (see picture).
- Rotate the OLS cam towards CCW limit switch lever until the switch ‘clicks’.
- Raise cam marked OLS.
- Tighten set screw with hex wrench.



8.5 Torque Switch Setting

- The torque switches are adjusted from factory to protect actuator and valve against overloading and should normally NOT be adjusted or modified on site.
- Should adjustment be necessary, please contact with Genebre, S.A. before adjusting.



8.6 Anti – Clockwise to Close Setting

Standard factory actuators are normally set to clockwise rotation to CLOSE. However the rotation can be reverse to anti-clockwise to close by simply reconfiguring the wiring as follows:

- Reverse wiring in the main terminal block the limit switches and the power supply.
- Adjust the visual indicator to suit the anti-clockwise rotation.

8.7 Mechanical Position Indicador Setting

- Manually rotate actuator to fully closed position.
- Remove actuator cover.
- Loosen indicator screw.
- Adjust indicator to correct orientation.
- Tighten indicator screw.
- Replace cover.
- Check indicator alignment.

9. Maintenance

Maintenance, under normal conditions at six month intervals. 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 cleanliness of internal electrical devices.
- Insure conduit connections are installed properly and are dry.
- Check internal devices for condensation (Presence of water) / humidity.
- Check power to internal heater.
- Check enclosure O rings sealing and verify that the O ring is not pinched/damaged between flanges.
- Verify declutch mechanism.
- Visually inspect during open/close cycle.
- Inspect identification labels for wear and replace if necessary.

9.1 Lubrication

GE Series electric actuator is a totally enclosed unit with a permanently lubricated gear train (Moly EP Grease). Once installed lubrication should not be required. However, periodic preventative maintenance will extend the operating life of the actuator.

9.2 Tools for installation and maintenance tasks

- 1 Set of Metric Allen Keys
- 1 Set of Screwdrivers
- 1 Metric Spanner
- 1 Wrench 200mm
- 1 Wrench 300mm
- 1 Wire Stripper (long Nose)
- 1 Multi Meter (AC, DC, Resistance), and 4-20 mA pocket generator.

10. Trouble Shooting

The following instructions are offered for the most common difficulties encounter during installation and start-up.

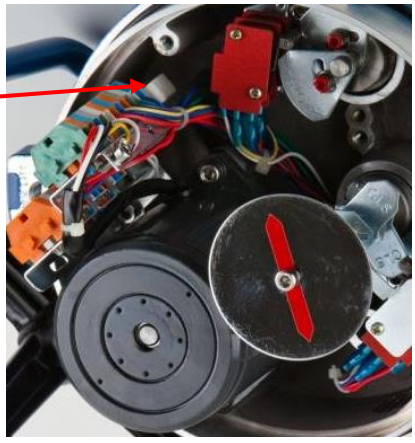
10.1 Actuator does not respond

- Verify the line voltage (Power supply) to the actuator.
- Check that the voltage matches the rating on the actuator nameplate.
- Check internal wiring against actuator wiring diagram.
- Check limit switch cams: Limit switches might not be correctly set.
- Check torque switches: Jamming might happen.

10.2 Actuator is being powered but it does not operate

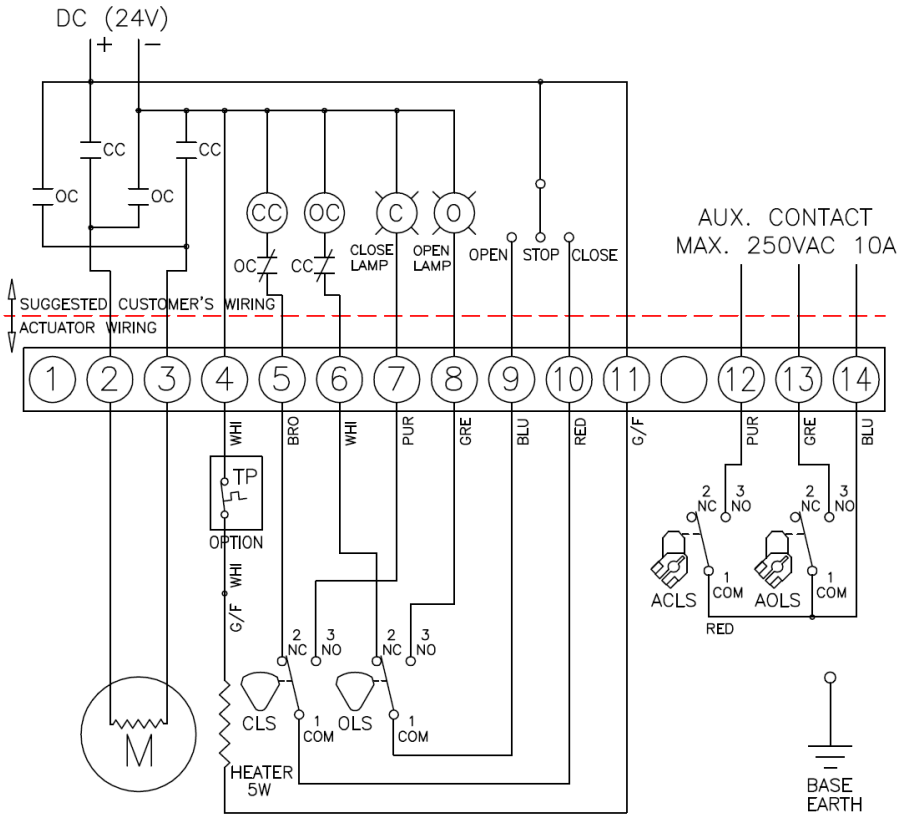
- Verify the line voltage to the actuator.
- Check actuator torque to see if it's greater than the valve torque: Actuator might be undersized.
- Check limits switches and cams.
- Check that the torque switches are not tripped.
- Check mechanical travel stop adjustment.
- Verify the actuator against valve rotation (standard units are anti-clockwise to open).
- Check internal wiring.
- Check for corrosion and condensation.
- Check that motor is not warm (Overheat).
- Verify coupler/bracket are correctly installed and is not causing binding.
- Verify heating device are correctly installed.

Anti condensation Space Heater The switch is open when the temperature is around 20 +/- 3ºC to prevent condensation and the switch is close when the temperature is over 30 +/- 3ºC to prevent over heating.



11. Annex A: Wiring Diagrams.

GE-010 (24 VDC) Model:



CLS: ***Close Limit Switch*** **(250 VAC 10A)**
OLS: ***Open Limit 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.

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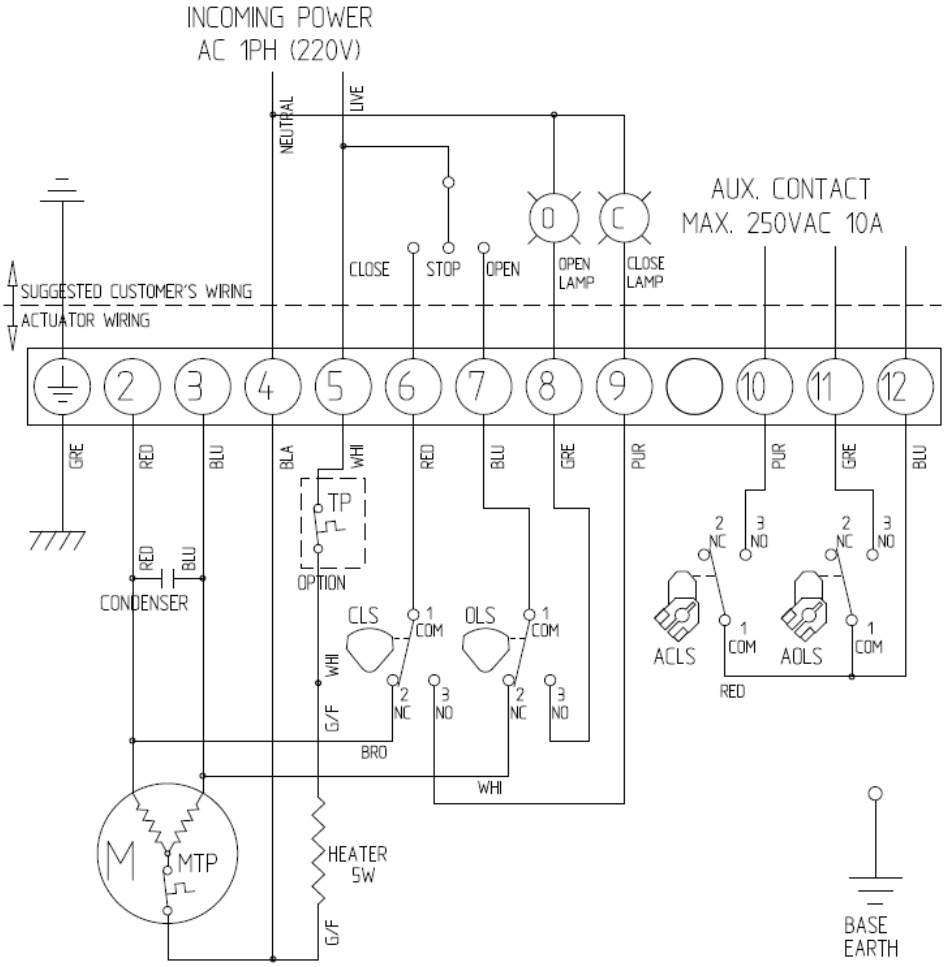
GE-010 (1 Phase) Model:



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OLS: ***Open Limit Switch*** **(250 VAC 10A)**
ACLS: ***Aux. Close Limit Switch*** **(250 VAC 10A)**
AOLS: ***Aux. Open Limit Switch*** **(250 VAC 10A)**
ACTS: ***Aux. Close Torque Switch*** **(250 VAC 10A)**
AOTS: ***Aux. Open Torque Switch*** **(250 VAC 10A)**
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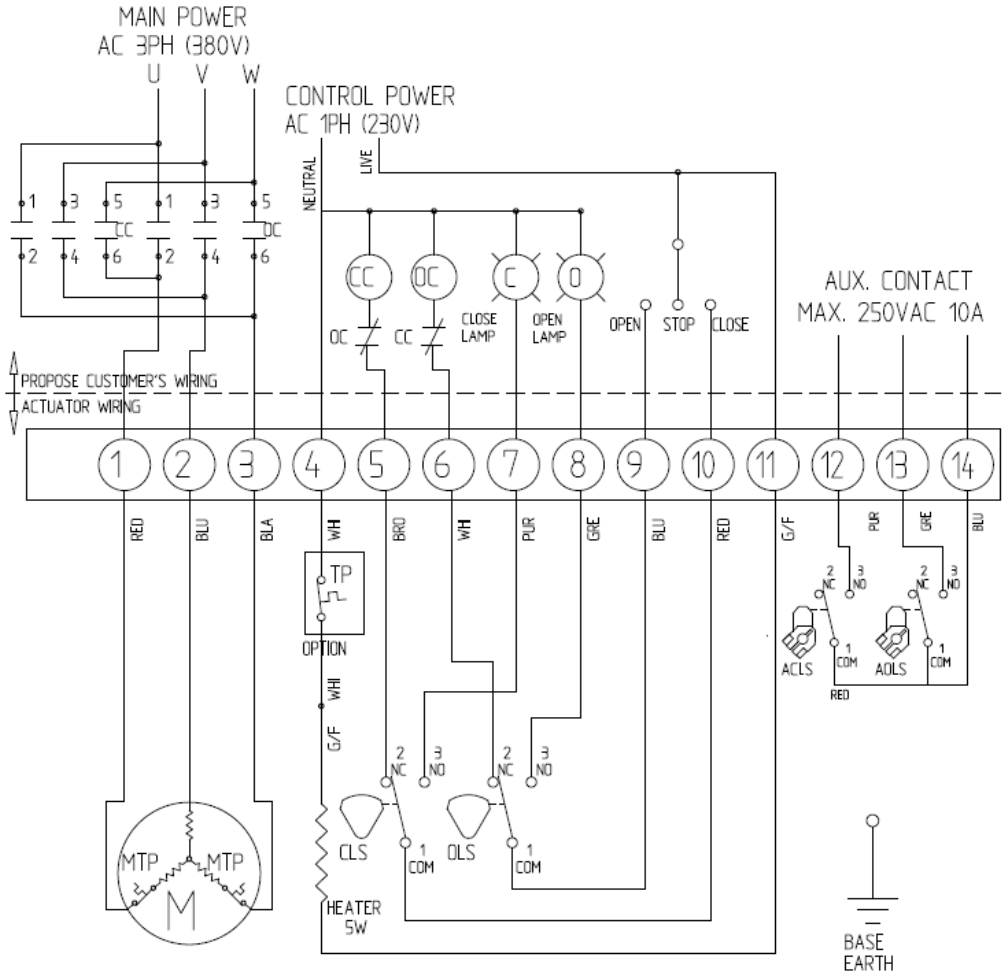
GE-010 (3 Phase) Model:



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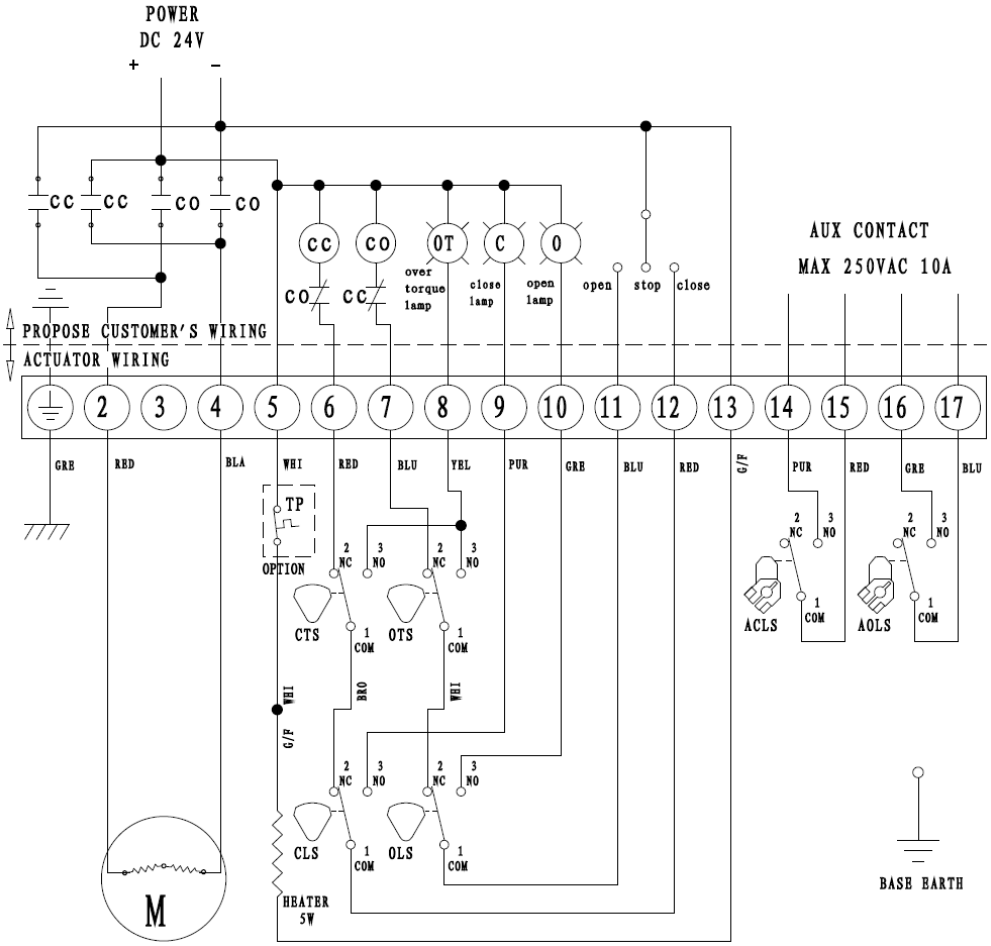
From GE-015 to GE-210 (24 VDC) Model:



CLS: ***Close Limit Switch*** **(250 VAC 10A)**
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CTS: ***Aux. Close Torque Switch*** **(250 VAC 10A)**
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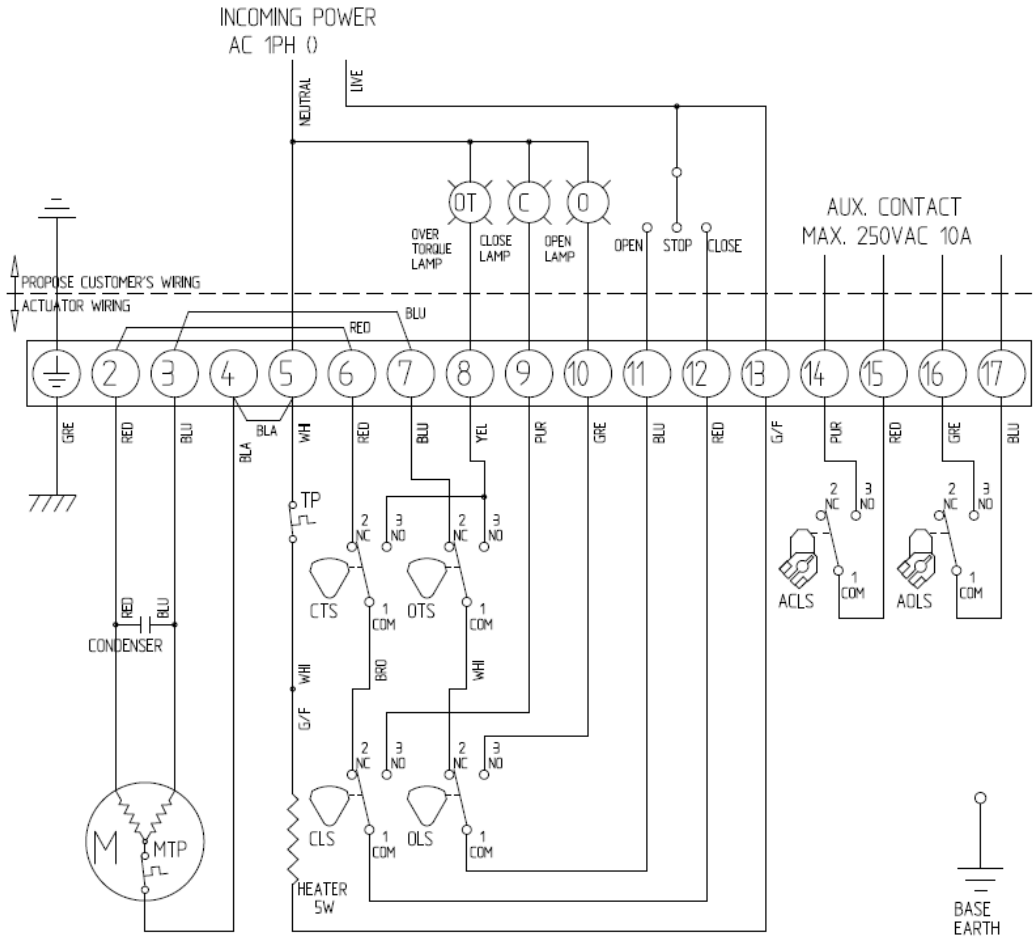
From GE-015 to GE-210 (1 Phase) Models:



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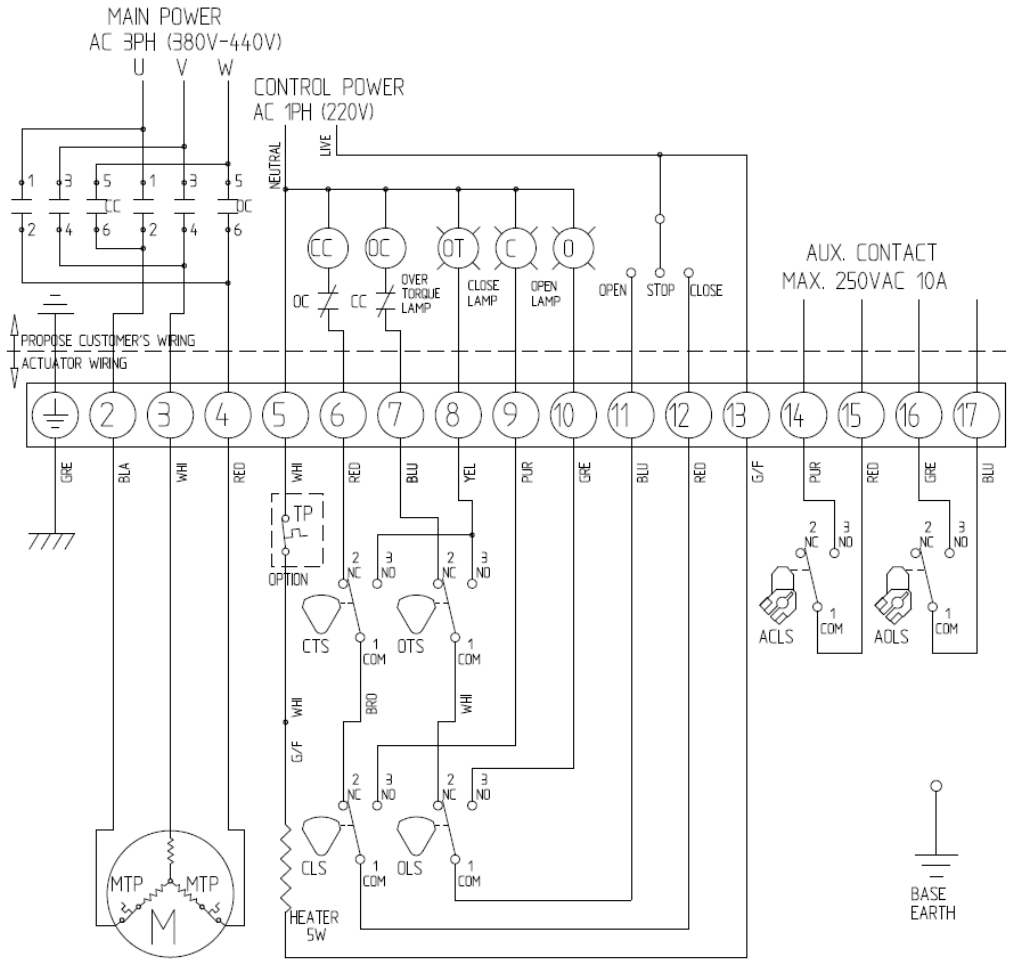
From GE-015 to GE-210 (3 Phase) Models:



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