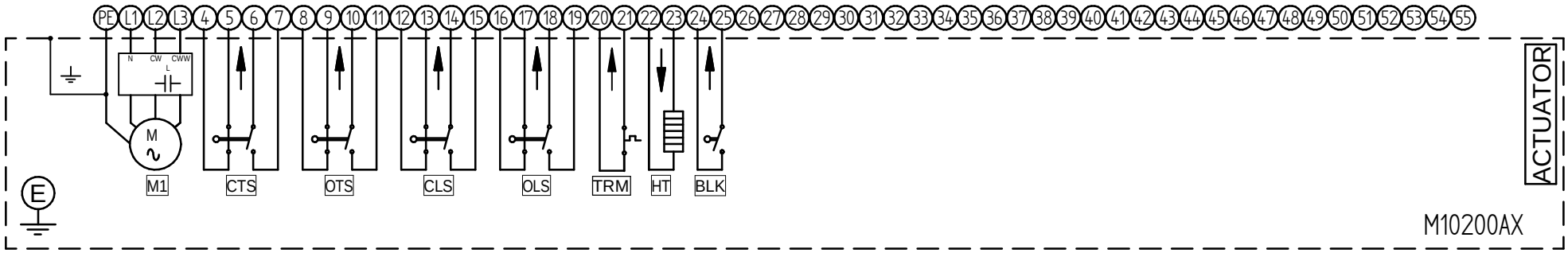
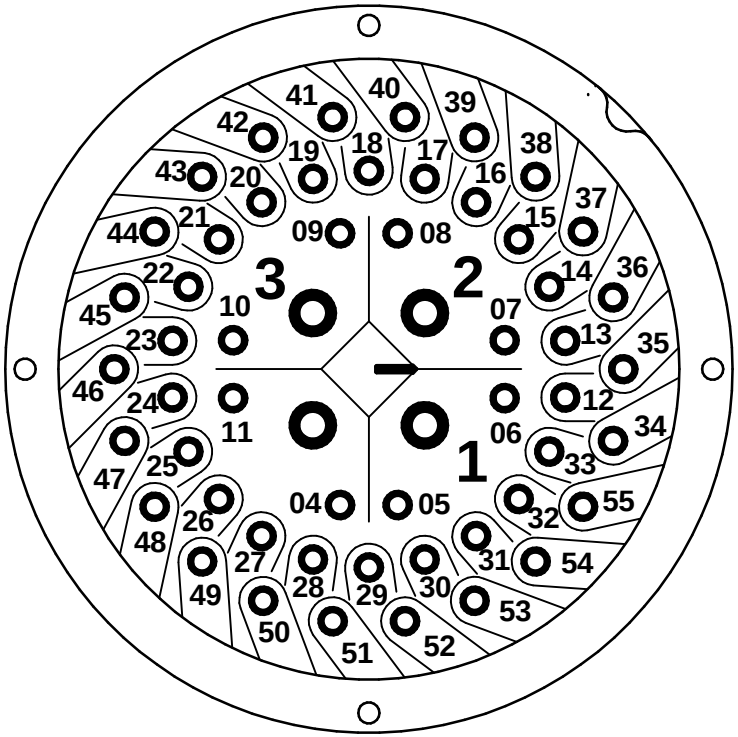



## PLUG-AND-SOCKET CONNECTOR LAYOUT




## LEGENDS:

- M1 ELECTRIC MOTOR
- CTS CLOSE TORQUE SWITCH
- OTS OPEN TORQUE SWITCH
- CLS CLOSE LIMIT SWITCH
- OLS OPEN LIMIT SWITCH
- TRM THERMAL PROTECTION DEVICE (MOTOR WIND).
- HT ANTI-CONDENSATION HEATER
- BLK BLINKER SWITCH
- POT POTENTIOMETER (VALVE POSITION SIGNAL)
- CPT CURRENT POSITION TRANSMITTER (VALVE POSITION SIGNAL)
- ACTS AUXILIARY CLOSE TORQUE SWITCH
- AOTS AUXILIARY OPEN TORQUE SWITCH
- ACLS AUXILIARY CLOSE LIMIT SWITCH
- AOLS AUXILIARY OPEN LIMIT SWITCH
- IP1 VALVE MIDDLE TRAVEL POSITION SWITCH(No 1)
- IP2 VALVE MIDDLE TRAVEL POSITION SWITCH(No 2)
- IP3 VALVE MIDDLE TRAVEL POSITION SWITCH(No 3)
- IP4 VALVE MIDDLE TRAVEL POSITION SWITCH(No 4)
- DSM DIGITAL SWITCH MECHANISM(ELECTRONIC VALVE POSITION AND TORQUE SIGNALS)

**NOTES:**

1. THE TERMINAL PLAN SHOWS THE MULTI-TURN ELECTRIC ACTUATOR IN INTERMEDIATE POSITION, ACTUATOR CLOSES VALVE CLOCKWISE.
2. SEE ACTUATOR USER MANUAL AND DATASHEETS FOR TECHNICAL DATA, PARAMETERS AND DESCRIPTION OF THE ACTUATOR ELECTRIC AND ELECTRONIC EQUIPMENT.
3. IF THE ACTUATOR IS CONFIGURED TO BYPASS THE MOTOR PROTECTION THERMOSTAT (TRM), THE ACTUATOR WILL NO LONGER COMPLY WITH THE ESSENTIAL SAFETY REQUIREMENTS.
4. THE USER MUST FIT A CLASS 10 OVERLOAD RELAY. THE RELAY MUST BE SIZED ACCORDING TO THE OVERCURRENT PROT. DEVICE SETTING VALUE FOR THE MOTOR.
5. REFER TO THE MOTOR DATA SHEET FOR THIS VALUE. THE OVERLOAD RELAY MUST BE SIZED TO ENSURE THAT IT TRIPS WITHIN 10 SECONDS IN A FAULT CONDITION.
6. THE USER MUST COMPLETE A RISK ASSESSMENT AND IMPLEMENT WHATEVER MEASURES ARE REQUIRED TO ENSURE THAT THE RESULTANT SYSTEM COMPLIES WITH ALL APPLICABLE LEGISLATION.

| PARAMETER | VALUE | DESCRIPTION |
|---|---|---|
| TYPE | M | MULTI-TURN ELECTRIC ACTUATOR, STANDARD UNIT (SYNCROSET), MECHANICAL SWITCH MECH. |
| MAIN POWER SUPPLY | 1 | A.C. SINGLE PHASE |
| FEEDBACK ANALOG POS. SIG. | 0 | STANDARD: NOT INCLUDED(WITHOUT) |
| HEATER | 2 | ANTI-CONDENSATION HEATER, 220-240VAC |
| LIMIT SWITCHES | 0 | STANDARD: 1 OPEN AND 1 CLOSE LIMIT SWITCHES (DPDT) |
| TORQUE SWITCHES | 0 | STANDARD: 1 OPEN AND 1 CLOSE TORQUE SWITCHES (DPDT) |
| AUX. MIDDLE TRAVEL SWITCH | A | VISUAL INDICATION DISC |

| | ISSUE | DATE | | ISSUE | DATE |
|---|---|---|---|---|---|
| 1 | FIRST RELEASE | 28-07-16 | 3 | - | - |
| 2 | - | - | 4 | - | - |

| SHEET 1/2 | DATE | SIGN. | TERMINAL PLAN |
|---|---|---|---|
| MADE BY | 28-07-2016 | NTS | WD CK-CKR STD., MSM, 1PH, NOCPT, HT230, LIM, TOR, IMP |
| CHECKED | 28-07-2016 | BHARAT | |
| APPROVED | 27/07/2016 | JP | |

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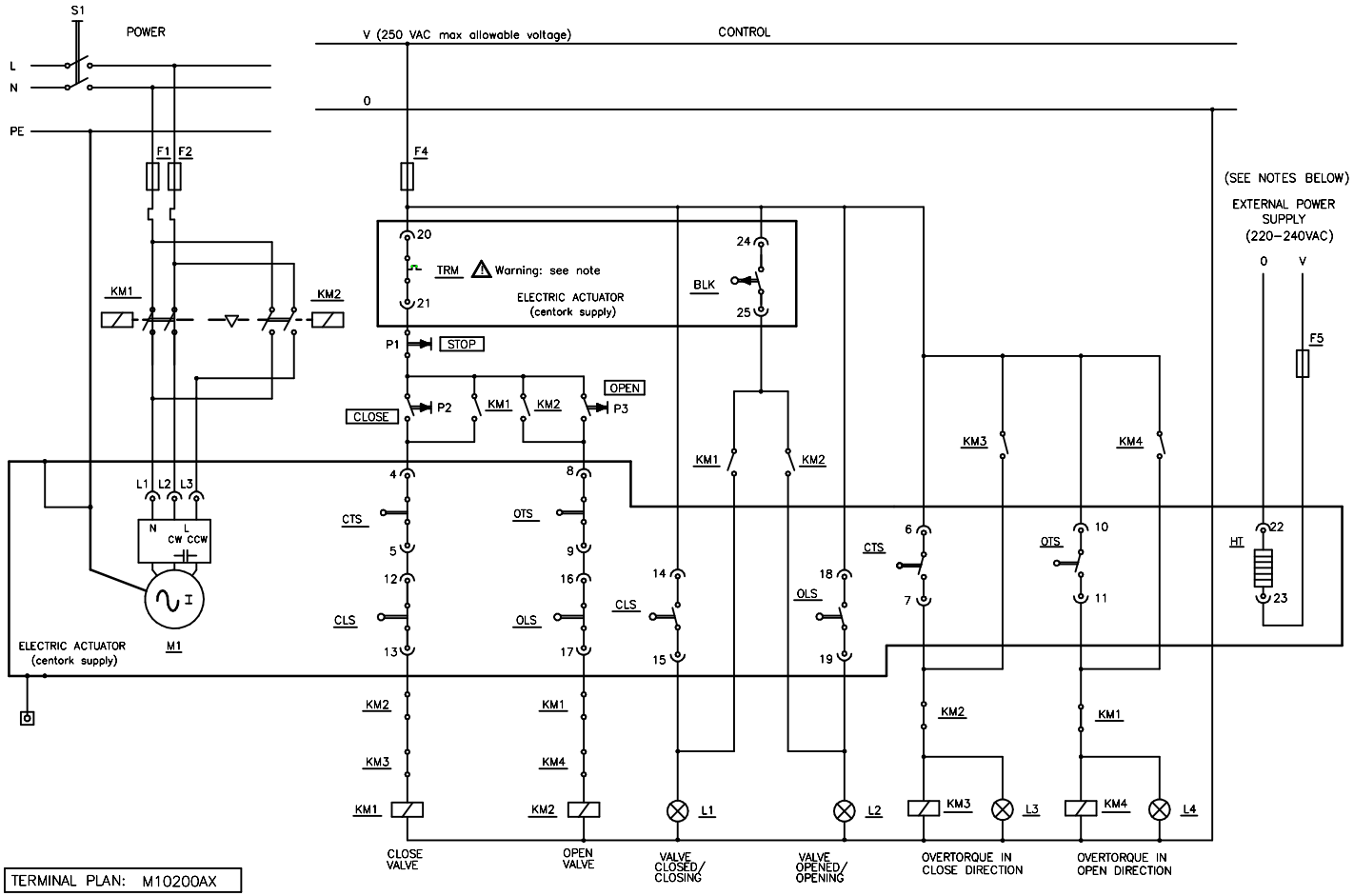


TERMINAL PLAN: M10200AX

**OPEN/CLOSE by limit switching**

- CTS and OTS act as overload protection for the whole stroke, they interrupt the control circuit when reaching the actuator set tripping torque.
- OLS interrupts the control circuit when reaching the valve open limit set position.
- CLS interrupts the control circuit when reaching the valve close limit set position
- BLK gives information about valve movement.

**OPEN by limit switching / CLOSE by torque switching**

- CTS and OTS act as overload protection for the whole stroke, they interrupt the control circuit when reaching the actuator set tripping torque.
- OLS interrupts the control circuit when reaching the valve open limit set position.
- CTS interrupts the control circuit when closing (seating) the valve. Set the close limit switch CLS shortly before reaching the closed end position
- BLK gives information about valve movement.

**OPEN/CLOSE by limit switching**

| SWITCH | | CLOSED ← INTERMEDIATE → OPEN |
|---|---|---|
| CTS | 4–5 | |
| | 6–7 | |
| OTS | 8–9 | |
| | 10–11 | |
| CLS | 12–13 | |
| | 14–15 | |
| OLS | 16–17 | |
| | 18–19 | |
| BLK | 24–25 | |

**OPEN by limit switching/CLOSE by torque switching**

| SWITCH | | CLOSED ← INTERMEDIATE → OPEN |
|---|---|---|
| CTS | 4–5 | |
| | 6–7 | |
| OTS | 8–9 | |
| | 10–11 | |
| CLS | 12–13 | |
| | 14–15 | |
| OLS | 16–17 | |
| | 18–19 | |
| BLK | 24–25 | |

**NOTES:**

1. THE TERMINAL PLAN SHOWS THE ELECTRIC ACTUATOR IN INTERMEDIATE POSITION, ACTUATOR CLOSES VALVE CLOCKWISE
2. SEE ACTUATOR USER MANUAL FOR TECHNICAL DATA, PARAMETERS AND DESCRIPTION OF THE ACTUATOR ELECTRIC AND ELECTRONIC EQUIPMENT.
3. DPDT TORQUEN(CTS, OTS, ACTS, AOTS) AND LIMIT MICROSWITCHES (CLS, OLS, ACLS, AOLS) HAVE 1NO+1NC CONTACTS, ONLY SAME POTENTIAL CAN BE CONNECTED THROUGH BOTH CIRCUITS. STANDARD 250AVC/5A, 24VDC 3A. GOLD CONTACT SWITCHE (LOW ENERG. CIRCUITS) UNDER REQUEST
4. INTERMEDIATE POSITION SWITCHES, NO/NC CONTACT SETTABLE BY CAM (ACTUATOR)
5. EXTERNAL POWER SUPPLY FOR HEATER: HEATER MUST BE POWERED ACCORDING TO HEATER RATED VOLTAGE (SEE ACTUATOR ORDER FORM OR ORDER ACKNOWLEDGEMENT), A 250V 50mA QUICK BLOW FUSE MUST BE INSTALLED FOR 120V AND 240V RATED HEATERS
6. CPT ELECTRONIC POSITION TRANSMITTER: VOLTAGE/CURRENT 2, 3 AND 4 WIRES CONFIGURATIONS ARE POSSIBLE. CHECK PROPER TECHNICAL DATASHEET.
7. PRECISION POTENTIOMTER (POT): CHECK OHMIC VALUE
8. IF THE ACTUATOR IS CONFIGURED TO BYPASS THE MOTOR PROTECTION THERMOSTAT (TRM), THE ACTUATOR WILL NO LONGER COMPLY WITH THE ESSENTIAL SAFETY REQUIREMENTS.
9. THE USER MUST CONDUCT A RISK ASSESSMENT, AND IMPLEMENT WHATEVER EXTRA SAFETY MEASURES ARE REQUIRED, TO ENSURE THAT THE RESULTANT SYSTEM COMPLIES WITH THE LOW VOTAGE DIRECTIVE, AND ANY OTHER LEGISLATION IN FORCE AT THE INSTALLATION SITE.
10. A.C. SINGLE PHASE ACTUATORS ARE DELIVERED WITH THEIR CAPACITOR (VALUE INDICATED ON MOTOR NAMEPLATE). CAPACITOR MUST BE INSTALLED IN THE EXTERNAL ELECTRIC CABINET

| | ISSUE | DATE | | ISSUE | DATE |
|---|---|---|---|---|---|
| 1 | FIRST RELEASE | 28-07-16 | 3 | - | - |
| 2 | - | - | 4 | - | - |

| SHEET 2/2 | DATE | SIGN. |
|---|---|---|
| MADE BY | 28-07-2016 | NTS |
| CHECKED | 28-07-2016 | BHARAT |
| APPROVED | 27/07/2016 | JP |

WIRING DRAWING
WD CK-CKR STD., MSM, 1PH, NOCPT, HT230, LIM, TOR, IMP

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