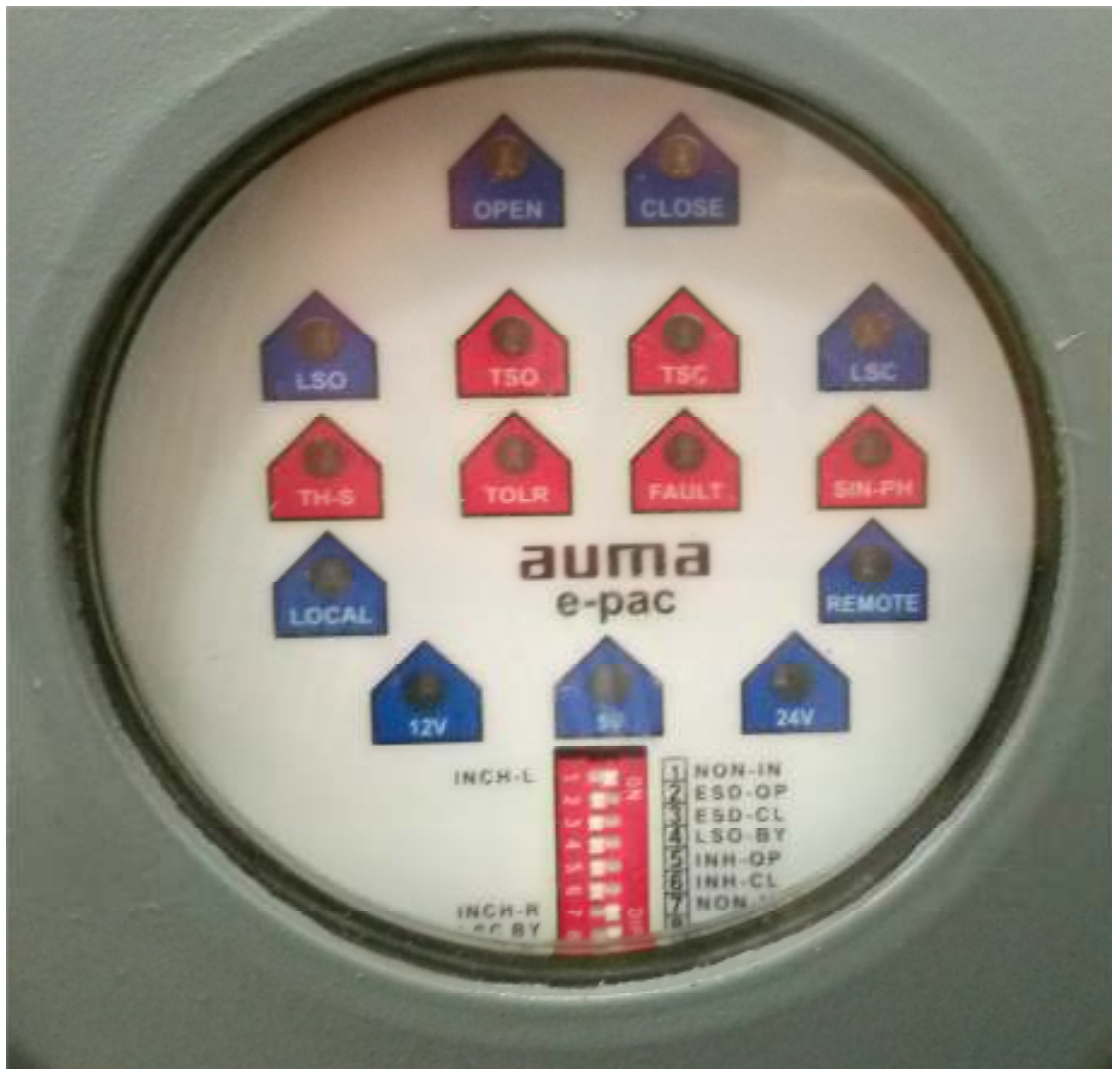


EPAC

Operation & Instruction Manual For
VERSION: 1.XMP
(MICROCONTROLLER BASED)
(For On/Off duty Application)



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1. DISPLAY BOARD LEGENDS:



Display board

SYMBOL	TYPE	DISCRIPTION	SYMBOL	TYPE	DISCRIPTION
	STATUS	Actuator in open direction		FAULT	Torque switch open
	STATUS	Actuator in close direction		FAULT	Torque switch close
	STATUS	Limit switch open tripped		FAULT	Thermal switch trip
	STATUS	Limit switch close tripped		FAULT	TOLR trip
	STATUS	Actuator in local mode		FAULT	Common fault indication
	STATUS	Actuator in remote mode		FAULT	Single phasing indication
	STATUS	5V internal supply		STATUS	24V DC for customer's use available
	STATUS	12V internal supply			

Green LED ON (Steady State) – Indicates that the END position is hit by the respective LIMIT Switch

Green LED Blinking –Indicates that the Actuator is running in the respective direction

2. BASIC OPERATION:

1. Power supply connection is to be made as per the wiring diagram.
2. After the power is put ON, check if
 - a. 5V Green LED is ON
 - b. 12V Green LED is ON
 - c. 24V Green LED is ON
3. Now the Actuator is ready for Operation



Figure B

Set the Selector Switch in the Front Panel (Fig. B) to Local Mode, the “LOCAL” Green LED will be ON in Display Board indicating that the actuator is ready for local operation.

4. **Press open key** in push button assembly, the respective Relay and contactor gets energized and motor start running in open direction. Also Open LED in front display & open (Green) LED in push button assembly starts blink. Press stop key, motor stops running and LED's turn off.
Press close key in push button assembly, the respective Relay and contactor gets energized and motor start running in close direction. Also close LED in front display & close (Orange) LED in push button assembly starts blink. Press stop key, motor stops running and LED's turn off.
5. Fault LED (RED) in the FDP starts glowing whenever a fault occurs and motor stops running. Tripping of Torque switches (Open-TSO and Close-TSC), Thermal switch (TH) and Overload condition (TOLR) are considered as fault conditions.

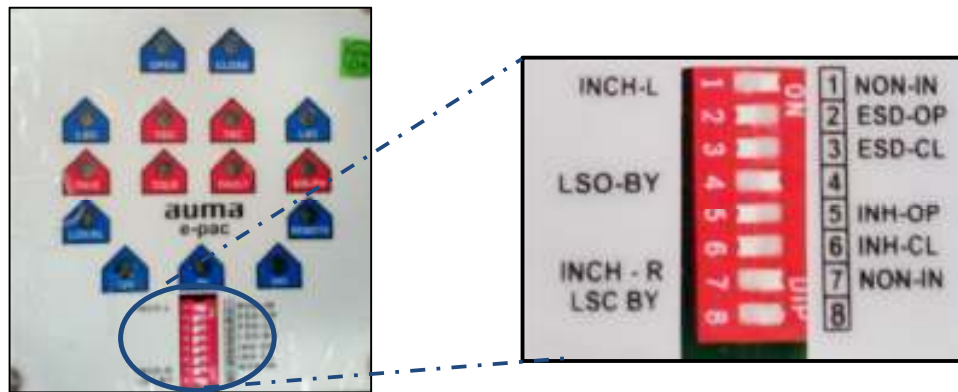
Along with fault LED, respective fault LED's will also come on when above said fault occurs. For example if open torque switch is hit then “TSO” (RED) LED will glow along with “FAULT” LED. Further commands will not be accepted as long as the fault condition exists.

NOTE: In the case of fault the INFO A (fault) will be available and the checking can be done as per the wiring diagram and INFO B (Healthy) will be available as per the requirement for which the wiring diagram is to be referred.

- Now set the selector switch in the Front Panel (Fig. B), to remote mode “REMOTE” Green LED will glow in the Display Board (Fig. A) indicating that the actuator is ready for remote operation.

NOTE: As per the wiring diagram the remote command can be given to the respective terminals and checked for its operation similarly to local mode.

- The DIP switch selection is as follows (Refer Fig. C)



DIP POSITION 1: Setting of the switch towards the left activates the LOCAL inching (INCH-L) mode. When this mode is selected and as long as the Open / Close key is pressed, Contactor will be energized till no fault has occurred or the end position is reached or the open/close key is released.

Setting of the switch towards the right activates the NON Inching (NON-IN) mode. When this mode is selected and open / close switch pressed and released, Contactor will be energized as long as no fault has occurred or the end position is reached or Stop key is pressed. That is the command is latched.

DIP POSITION 2 & 3: ESD (Emergency Shut Down) Operation - Setting of the switch towards right, enables the ESD feature and towards left, disables the Emergency Shutdown Feature. Short the ESD+ and ESD- cable as shown in WD to enable ESD. Four modes of operation are available.

DIP SWITCH 2	DIP SWITCH 3	FUNCTION SELECTED
OFF	OFF	ESD Disabled
ON	OFF	OPEN
OFF	ON	CLOSE
ON	ON	STAY

Selection of ESD-OP commands the actuator to run in OPEN, till it is fully opened on the depression of emergency switch. Similarly selection of ESD-CL commands the actuator to run in CLOSE, till it is fully closed on the depression of emergency switch.

Non selection of ESD-OP & ESD-CL makes the actuator to STOP at its current position on the depression of emergency switch.

DIP POSITION 4: LSO BYPASS (LSO-BY) – Setting of LSO-BY, bypasses the feature of tripping by LIMIT switch OPEN. The actuator will trip only by the torque switch OPEN. Enabling this feature, FAULT signal will not be displayed. With the opposite command that is CLOSE given, the CLOSE TORQUE Switch (TSC) is bypassed for the first 3 Seconds.

DIP SWITCH 5 & 6: Inhibit operation

DIP SWITCH 5	DIP SWITCH 6	FUNCTION SELECTED
OFF	OFF	Inhibit disabled
ON	OFF	Inhibit OPEN
OFF	ON	Inhibit CLOSE
ON	ON	Inhibit disabled

Selecting the Inhibit OPEN (INH-OP), the actuator will not accept the OPEN command given by remote mode. Similarly selecting the Inhibit CLOSE (INH- CL), the actuator will not accept the CLOSE command given by remote mode.

DIP POSITION 7: Selection of REMOTE mode inching (INCH-R) is done by sliding the switch towards the left. This selection entails the operation of the REMOTE push button till the push button is kept in pressed condition. Similarly selection of REMOTE mode non inching (NON-IN) is done by sliding the switch towards the right. Actuator runs continuously till end position as is set, in absence of any fault or tripping of torque switch

DIP POSTION 8: LSC Bypass – Setting of LSC-BY, bypasses the feature of tripping by LIMIT switch CLOSE. The actuator will trip only by the torque switch CLOSE. Enabling this feature, FAULT signal will not be displayed. With opposite command that is OPEN given, the OPEN TORQUE Switch (TSO) is bypassed for the first 3 Seconds.

3. TROUBLESHOOTING FOR 1.XMP WITH TWO TRANSFORMERS

To identify the problems, check status displayed by the LEDs on the Display Board (Fig. A)

1. If power supply indications are not ON (i.e. if any of the 5V Green LED, 12V Green LED or 24V Green LED is not ON): Check the fuses. If fuses are blown, before changing the fuse, check for the SHORT (after the fuse) using a multimeter by disconnecting the MAINS. If there is no dead short, then replace the fuses (FS1 & FS2) and switch on the MAINS.

2. With 5V LED, 12V LED and 24V LED being ON, if FAULT LED is glowing (ON) then check the following:

“SIN-PH” LED is ON:

Check the fuse in R (FS1) & B (FS2) phases, whether it is blown.

Ensure the MAINS frequency of operation is as mentioned on the name plate.

- “TH-S” LED is ON: Check the motor thermal switch continuity.
- “TOLR” LED is ON: In this case check if the Thermal Over load relay provided along with the contactor is tripped. Reset the TOLR by pressing the RESET switch provided on the TOLR-

Refer Fig. D.

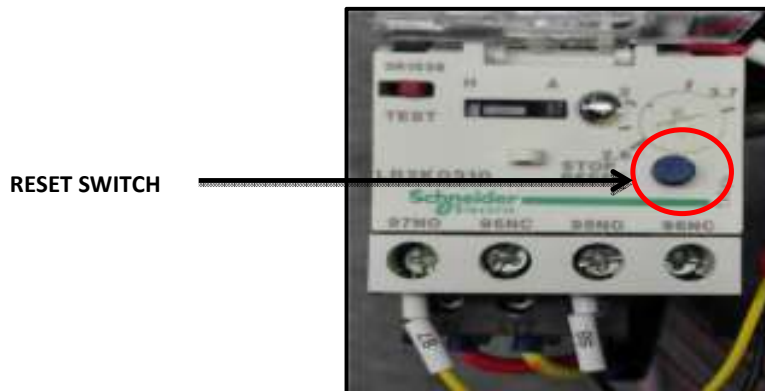


Figure: D

- “TSO” or “TSC” LED is ON: Indicates the tripping of torque in the respective direction. If seating by torque process is not employed then correct the same by setting the LIMIT switch correctly. For doing this release the valve manually by using the declutch lever available on the actuator and the hand wheel. If seating by torque process is required and torque trip is not as per requirement, set the torque to required value and operate again.

3. "FAULT" LED (alone) is ON: indicates that there is no supply going to space heater / contactor. Check the fuses FS3 & FS4 (1 A fuse).
4. 24V LED off: Ensure that '+' and '-' terminal at the customer end are not shorted. If the problem still persists replace the PWR card.
5. In case of actuator running inadvertently either in OPEN or CLOSE direction check if ESD is activated (wiring mistake) using the WD provided.
6. In case of Remote-local mode selection option from REMOTE is not happening (optional feature): check for the wiring at the customer end according to the WD.
7. During the motor replacement, after changing the MOTOR if the actuator is running in reverse direction for the respective command inputs (Actuator runs in open direction for close command and vice versa): Interchange any 2 wires of the motor.
8. During the Transformer replacement (either TR1 or TR2 or both), kindly ensure the correct motor direction (for CLOSE command it should rotate in clockwise direction & for OPEN in anticlockwise direction). If the directions are not proper, reverse the polarity of the 0-9V (which is a tapping at TR2 connector) & ensure the proper direction of rotation for in-phase & out of phase input supplies.
9. In case the motor is not responding to the OPEN & CLOSE command and OPEN/CLOSE LED is blinking: Check the requisite voltages (110/230V) at the contactor terminals (K, K1 & K, K2 –refer Figure.E).

If the voltages are proper it could be the failure of the contactor; replace the contactor. If the voltages are not proper, it means relay failure on the LS card; replace the LS card(K215.214).



Figure: E

4. TROUBLESHOOTING FOR 1.XMP WITH SINGLE TRANSFORMER

To identify the problems, check status displayed by the LEDs on the Display Board (Fig. A)

1. If power supply indications are not ON (i.e. if any of the 5V Green LED, 12V Green LED or 24V Green LED is not ON): Check the fuses. If fuses are blown, before changing the fuse, check for the SHORT (after the fuse) using a multimeter by disconnecting the MAINS. If there is no dead short, then replace the fuses (FS1 & FS2) and switch on the MAINS.

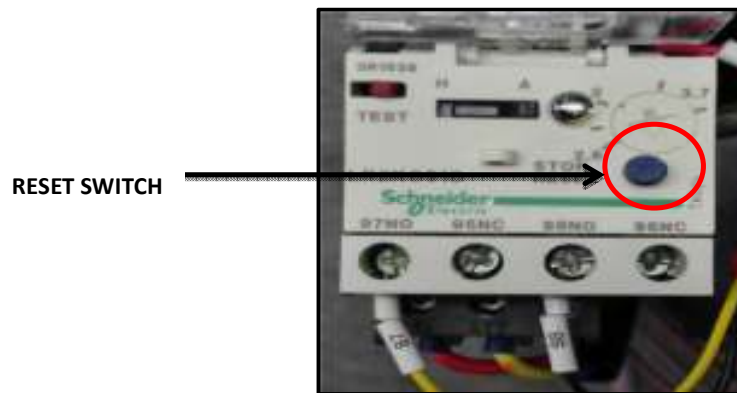
2. With 5V LED, 12V LED and 24V LED being ON, if FAULT LED is glowing (ON) then check the following:

“SIN-PH” LED is ON

Check the fuse in R (FS1) & B (FS2) phases, whether it is blown.

Ensure the MAINS frequency of operation is as mentioned on the name plate.

- “TH-S” LED is ON: Check the motor thermal switch continuity.
- “TOLR” LED is ON: In this case check if the Thermal Over load relay provided along with the contactor is tripped. Reset the TOLR by pressing the RESET switch provided on the TOLR-



- “TSO” or “TSC” LED is ON: Indicates the tripping of torque in the respective direction. If seating by torque process is not employed then correct the same by setting the LIMIT switch correctly. For doing this release the valve manually by using the declutch lever available on the actuator and the hand wheel. If seating by torque process is required and torque trip is not as per requirement, set the torque to required value and operate again.

3. "FAULT" LED (alone) is ON: indicates that there is no supply going to space heater / contactor. Check the fuses FS3 & FS4 (1 A fuse).
4. 24V LED off: Ensure that '+' and '-' terminal at the customer end are not shorted. If the problem still persists replace the PWR card.
5. In case of actuator running inadvertently either in OPEN or CLOSE direction check if ESD is activated (wiring mistake) using the WD provided.
6. In case of Remote-local mode selection option from REMOTE is not happening (optional feature): check for the wiring at the customer end according to the WD.
7. During the motor replacement, after changing the MOTOR if the actuator is running in reverse direction for the respective command inputs (Actuator runs in open direction for close command and vice versa): Interchange any 2 wires of the motor.
8. During the Transformer replacement kindly ensure the correct motor direction (for CLOSE command it should rotate in clockwise direction & for OPEN in anticlockwise direction). If the directions are not proper, reverse the polarity of the 0-9V & ensure the proper direction of rotation for in-phase& out of phase input supplies.
9. In case the motor is not responding to the OPEN & CLOSE command and OPEN/CLOSE LED is blinking: Check the requisite voltages (110/230V) at the contactor terminals (K, K1 & K, K2 –refer Figure.E).

If the voltages are proper it could be the failure of the contactor; replace the contactor. If the voltages are not proper, it means relay failure on the PS card; replace the PS card(K215.214).



5.SPARES LIST FOR 1.XMP WITH SINGLE TRANSFORMER:

SL NO	1.XMP	ARTICLE NO.
1	CONTROL MODULE ASSY-1.XMP-1TFR. EPAC [CPU+PS+EXTENDER CARD]	K215.614
2	POWER MODULE ASSY-1.XMP-1TFR. EPAC[TFR. ASSY + FUSE ASSY]	K215.615
3	V1.XMP KEY CARD [FOR ALL V1.XMP EPAC]	K215.032
4	V1.XMP SINGLE TFR 380/400/415/440/460/480V,50/60Hz, 110V,"C"	K215.487

7. SPARES LIST FOR 1.XMP WITH TWO TRANSFORMERS:

SL NO	1.XMP	ARTICLE NO.
1	1.XMP CPU CARD PCB ASSEMBLY	K215.213
2	PCB ASSEMBLY OF KEY CARD	K215.215
3	PS & EXTENDER CARD SOLDERED	K215.368
4	TR1+TR2+FUSE ASSEMBLY WITH WIRING(ALL MOUNTED ON MOUNTING PLATE)	K215.664
5	4 PCB ASSEMBLIES (WHERE EXTENDER CARD IS SOLDERED ON PS CARD)	K215.864
6	CPU+PS+EXTENDER (CONNECTED VIASPACERS + FRONT LED PLATE & STICKER)	K215.987
7	X1 TO X11 (11 TYPES OF CABLE SET)	K215.895
8	1.XMP FUSE ASSEMBLY	K215.896
9	1.XMP TR1 (RY-415VAC TRANSFORMER)**	Z213.096
10	1.XMP TR2 (YB-415VAC TRANSFORMER)	Z213.095
11	F3 & F4 (USED FOR CONTROL SUPPLY & SPACE HEATER)	K215.143
12	F1 & F2 (USED FOR INPUT PHASES R & B)	K214.379

6. SPARES:



**CONTROL MODULE ASSY-1.XMP-1TFR.
EPAC [CPU+PS+EXTENDER CARD]**



**POWER MODULE ASSY-1.XMP-1TFR.
EPAC [TFR. ASSY + FUSE ASSY]**



**V1.XMP KEY CARD [FOR ALL V1.XMP
EPAC]**



**V1.XMP SINGLE TFR
380/400/415/440/460/480V,50/60Hz,
110V,"C"**

NOTE:

* Above set spare parts are for 415V, S28 feature only. For any other S codes/feature spare parts it is advised to contact AUMA for the proper information.

** For other input voltage & phase (other than 415VAC/3P) contact AUMA to identify the exact article number

***The spare parts listed here are for the standard 415VAC/3P operation only; however during the spares requirement it is advised to contact AUMA with the exact commission number of the actuator (to identify the needed item)

8. Disposal and Recycling :

Our devices have a long lifetime. However, they have to be replaced at one point in time. The devices have a modular design and may, therefore, easily be separated and sorted according to materials used, i.e.:

- Electronic scrap
- Various metals
- Plastics
- Greases and oils

The following generally applies:

- Greases and oils are hazardous to water and must not be released into the environment.
- Arrange for controlled waste disposal of the disassembled material or for separate recycling according to materials.
- Observe the national regulations for waste disposal

9. EPAC NAME PLATE:

Identify the location of the EPAC name plate on the actuator which is as shown in the Fig



EPAC NAME PLATE

The following relevant details are available on the EPAC name plate to ensure our support after supply



EPAC NAME PLATE

Please furnish the above details of the name plate while ordering spare parts/after sales support