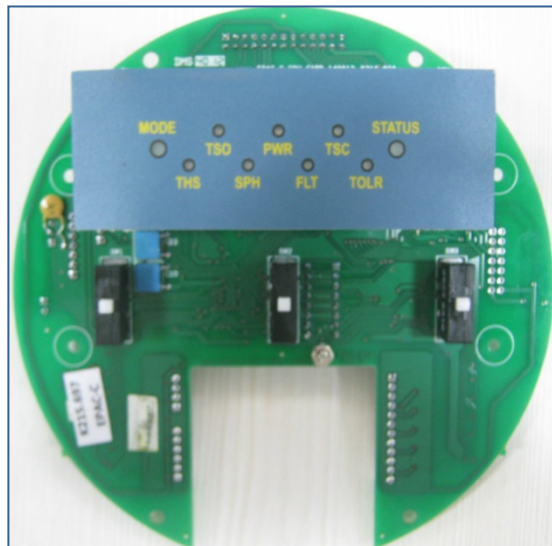


# epac

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## Operation & Spare Parts Manual

### VERSION: EPAC-C



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## INTRODUCTION:

To be competitive in Market, Auma India has developed a new range of electric actuators with 16 bit microcontroller for weatherproof application. These electric actuators are different in terms of:

1. Integral starter actuator is using Semipact Housing and other related parts
2. No plug-in connections between Actuator and EPAC Controls.
3. No separate cards for LED Indications but most of the LED are provided in the push button cover which provides easy operation and status viewing of the Actuator and this would be an added feature in comparison to Rotork K Range actuator.
4. As the Semipact Housing is being designed only for plug-in connections (50, 32x2 & 24x3), we shall be offering only plug-in connections to the customer end and which would be less expensive as compared to offering KLK Cover and Screw Type Terminals.

## FRONT PANEL DETAILS:

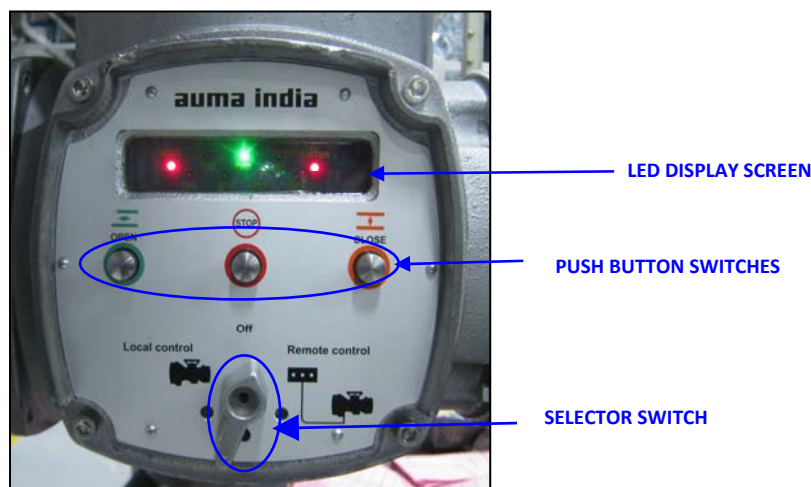


Fig. A: EPAC-C FRONT PANEL

**Selector Switch:** There are 3 modes available; LOCAL, OFF & REMOTE. The mode selection can be done by using the selector switch.

**Push Button Switches:** Actuators are made to run in OPEN or CLOSE direction by pressing the respective push buttons and can be stopped in mid travel by pressing STOP push button. These three push buttons are also used for programming and calibrating the actuator.

LED Display Screen:



CATEGORY	NOTATION	LED TYPE	DESCRIPTION
FAULT	TSO	RED COLOR LED ON	Open Torque Switch Trip
	TSC	RED COLOR LED ON	Close Torque Switch Trip
	TH-S	RED COLOR LED ON	Thermo switch Trip
	SPH	RED COLOR LED ON	Single Phase fault
	TOLR	RED COLOR LED ON	TOLR trip
	FLT	RED COLOR LED ON	
	SPH	RED COLOR LED BLINKS	Single Phase detection (4 pin) connector is unconnected
INDICATOR	PWR	GREEN LED ON	Power ON indication
	ESD	GREEN COLOR LED BLINKS	ESD feature is enabled
MODE	LOCAL	GREEN LED ON	LOCAL
	OFF	RED LED ON	OFF
	REMOTE	ORANGE LED ON	REMOTE
STATUS	OPENING	GREEN color blinking	Running OPEN
	OPENED	GREEN LED ON	OPEN end position reached
	CLOSING	ORANGE color blinking	Running CLOSE
	CLOSED	ORANGE LED ON	CLOSE end position reached
	FAULT	RED color blinking	Fault condition
	JAM	RED LED ON	Actuator stopped in Mid Travel

### Basic Operation:

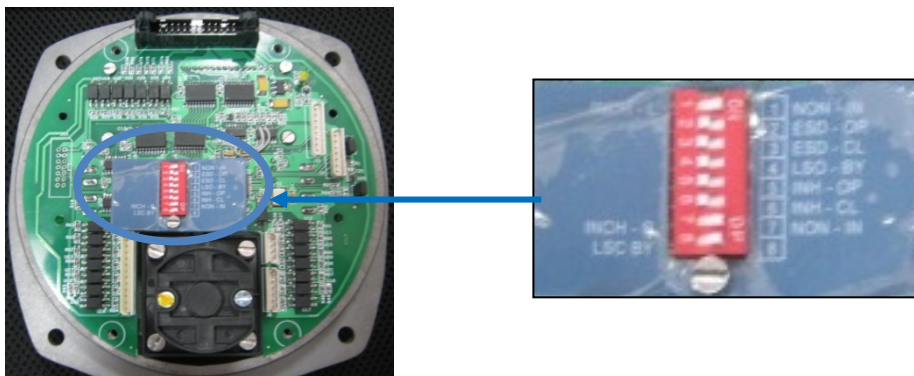
1. Power supply connection is to be made as per the wiring diagram
2. After the power is put ON, check if PWR LED is ON, which ensures the availability of the 5V, 12V & 24V needed for the EPAC module; Now the Actuator is ready for Operation
3. Set the Selector Switch in the Front Panel to Local Mode, the “MODE” LED will be in Green color indicating that the actuator is ready for local operation
4. Press Open or Close key in the Front Panel, the actuator will start running in the respective direction with the respective color blinking on the “STATUS” LED (Green for OPENING & Orange for CLOSING). When the respective end position is reached (Limit Switch is hit) the LED will stop blinking and will glow continuously.
5. In case of a Fault the “FLT”(RED) LED will glow in the front panel along with the “type of fault” indicator LED. For example if one Mains phase is absent then “SPH” (RED) LED will glow along with “FLT” LED.

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

6. Now set the selector switch in the Front Panel to remote mode, the “MODE” LED will be in Orange color 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

7. In case when the selector switch is not present, the local/remote mode selection can be done from remote by giving signal at the terminals as per the wiring diagram
8. The DIP switch selection: Locate the DIP switch behind the Front Cover as shown below;



a. POSITION 1: Setting of the switch towards the left activates the LOCAL inching (INCH-L) mode. This selection entails the operation of the actuator till the push button is kept in pressed condition.

Setting of the switch towards the right activates the NON Inching (NON-IN) mode. Actuator runs continuously till end position as is set, in absence of any fault or tripping of torque switch.

b. POSITION 2 & 3: ESD (Emergency Shut Down) Operation - Setting of the switch towards right (ON) enables the ESD feature and towards left (OFF) disables the ESD feature

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.

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

c. POSITION 4: LSO BYPASS (LSO-BY) – Setting of LSO-BY, bypasses the feature of tripping by LIMIT switch OPEN (with no FAULT indication on LSO trip). The actuator will trip only by the torque switch OPEN. With the opposite command that is CLOSE given, the CLOSE LIMIT Switch (LSC) is bypassed for the first 3 Seconds.

d. POSITION 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.

e. 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.

f. POSITION 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 (with no FAULT indication on LSC trip). The actuator will trip only by the torque switch CLOSE. With opposite command that is OPEN given, the OPEN LIMIT Switch (LSO) is bypassed for the first 3 Seconds.

#### Troubleshooting:

To identify the problems, check status displayed by the LEDs on the Front side Display Board. The possibilities of errors are as follows;

1. PWR-LED is OFF: 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. PWR-LED is BLINKING: It indicates that ESD feature is enabled. Ensure the required setting at the DIP switch selection.
3. With PWR-LED being ON, if FLT LED is glowing (ON) then check the following:
  - “SPH” 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.
  - “SPH” LED is BLINKING: Ensure the correct cable connection at J6 terminal of the PS card
  - “THS” LED is ON: Check the motor thermo 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).

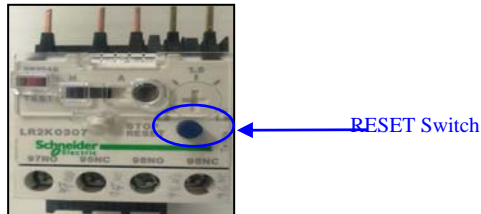


Fig. D: TOLR

- “TSO” or “TSC” LED is ON: indicates the tripping of torque in the respective direction. Correct the same by setting the LIMIT switch. For doing this release the valve manually by using the declutch lever available on the actuator and the hand wheel.
  - “FAULT” LED (alone) is ON: indicates that there is no supply going to space heater / contactor. Check the fuses FS3 & FS4 (1 A fuses).
4. 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.
  5. In case of actuator running inadvertently either in OPEN or CLOSE direction check if ESD is activated (wiring mistake) using the WD provided which can also be identified if the PWR LED blinks.
  6. In case the actuator is not taking command in any particular direction check if INHIBIT feature is enabled (wiring mistake) using the WD provided.
  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. 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 Fig.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

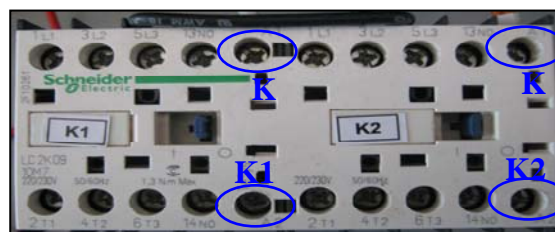
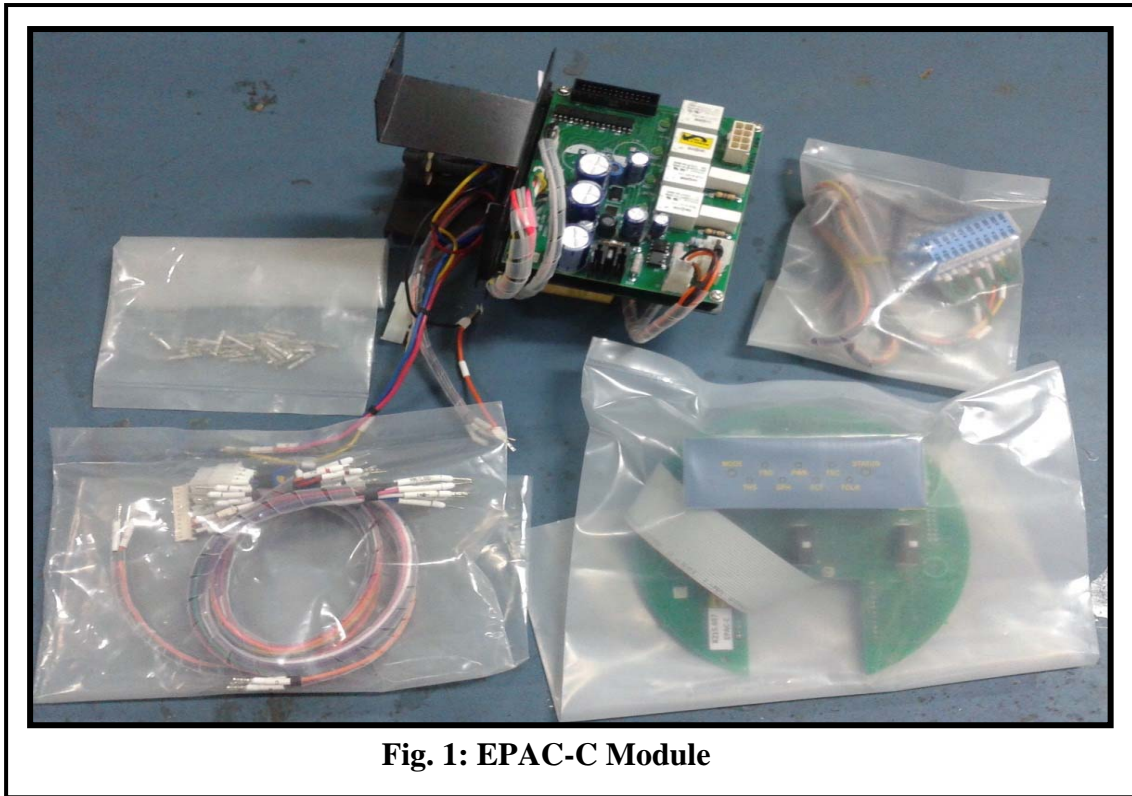


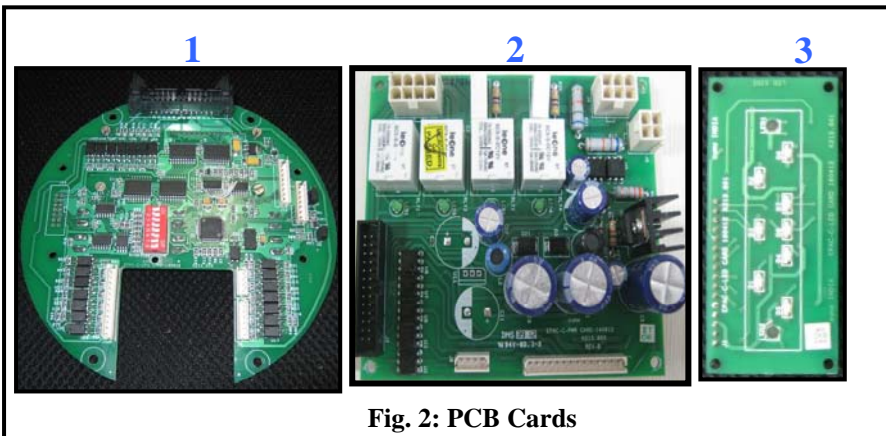
Fig. E: CONTACTOR



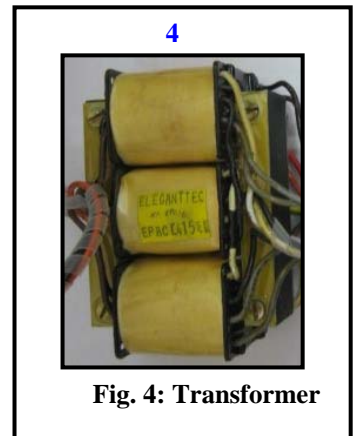
Spare Parts:



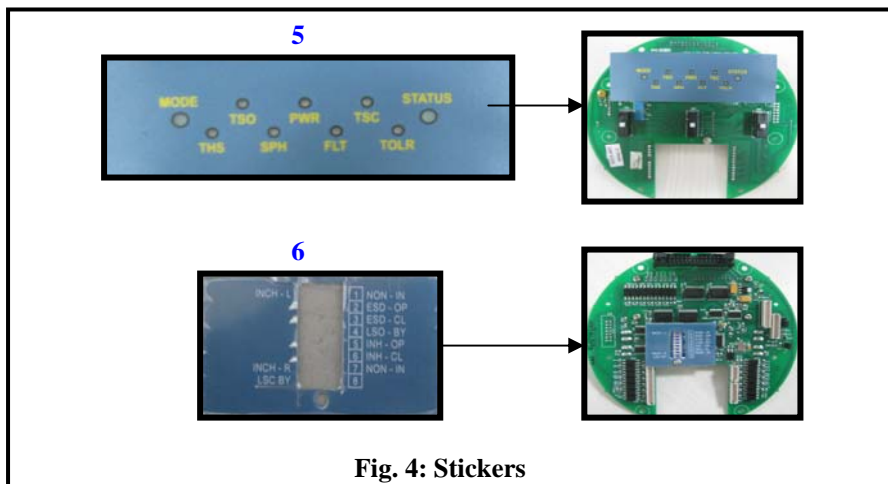
**Fig. 1: EPAC-C Module**



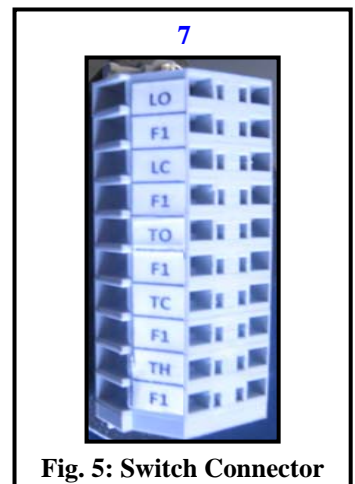
**Fig. 2: PCB Cards**



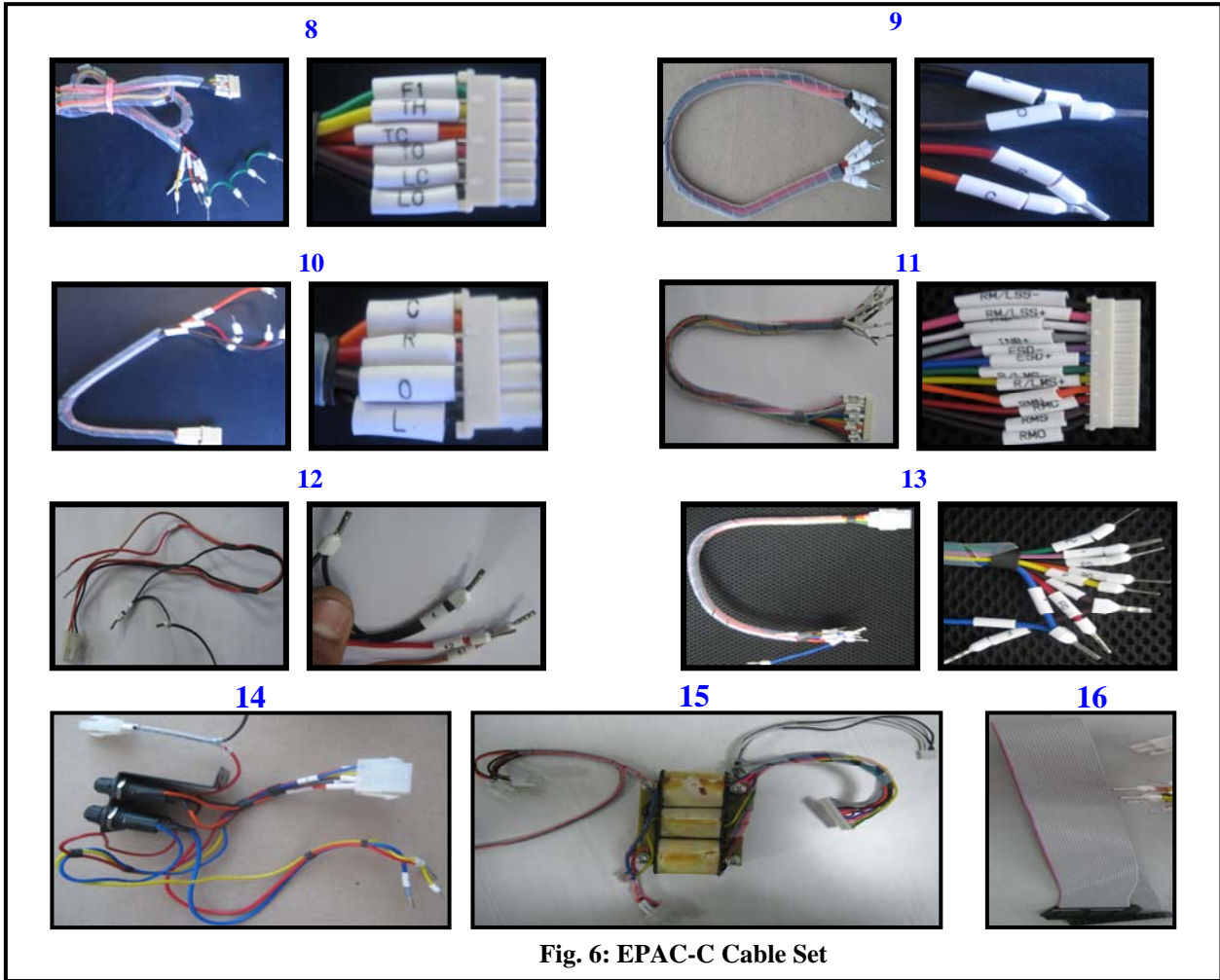
**Fig. 4: Transformer**



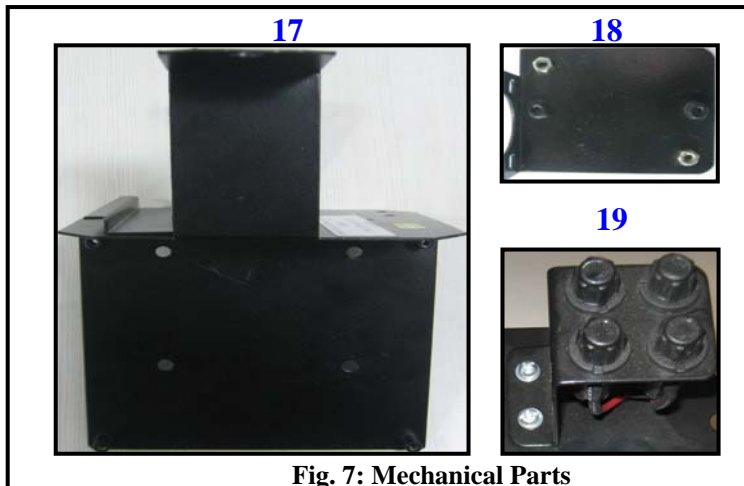
**Fig. 4: Stickers**



**Fig. 5: Switch Connector**



**Fig. 6: EPAC-C Cable Set**



**Fig. 7: Mechanical Parts**

CATEGORY	SL. NO.	SPARE PART DESCRIPTION	ARTICLE NO
PCB	1	CPU CARD ASSEMBLED	K215.859
	2	FRONT LED CARD ASSEMBLED	K215.861
	3	PS CARD ASSEMBLED	K215.860
TRANSFORMERS	4	TRANSFORMER WITH CONNECTOR (PRI 415V/50Hz/'C')	K215.389
	5	TRANSFORMER WITH CONNECTOR (PRI 415V/50Hz/'D')	K215.390

## EPAC nameplate:

Identify the location of the epac name plate on the actuator which is as shown in the Fig. L



Fig. L: Actuator with EPAC

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

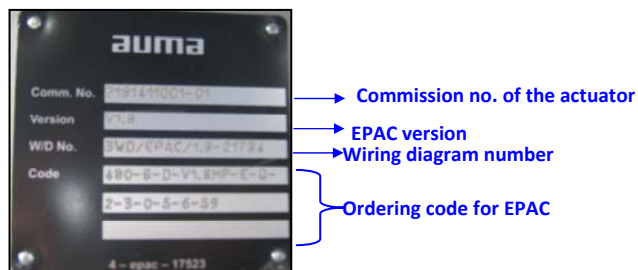


Fig. M: EPAC name plate

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

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