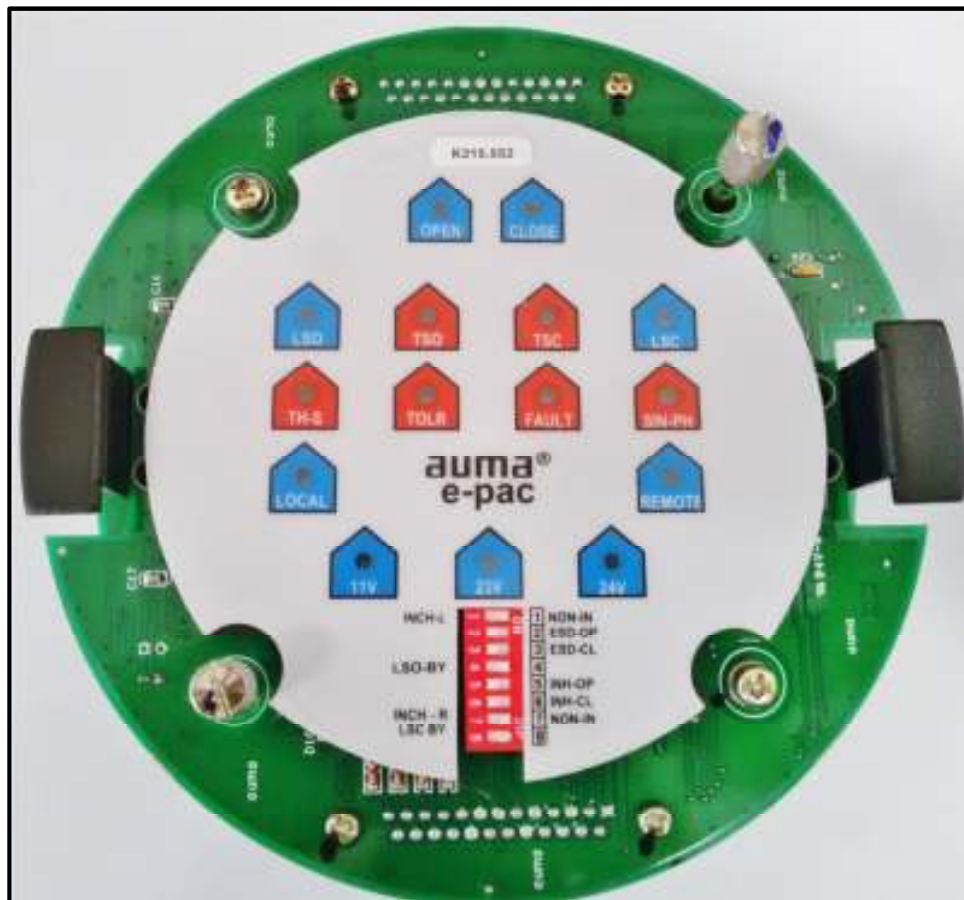


# Epac

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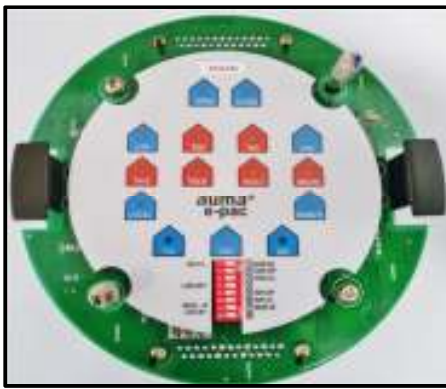
Operation & Instruction Manual For  
VERSION: V1.A  
(Discrete Electronics)  
(For On/Off duty Application)




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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	11V internal supply		STATUS	24V DC for customer's use available
	STATUS	23V 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. 11V Green LED is ON
  - b. 23V 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. When respective end positions are reached (i.e open/close limit switch are hit), Open and close LED's in the front display panel and push button assembly starts glowing continuously. Also LSO (for open limit switch) and LSC (for close limit switch) in FDP start glowing continuously. Further commands given are not accepted as long as limit switches are hit.

6. 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.

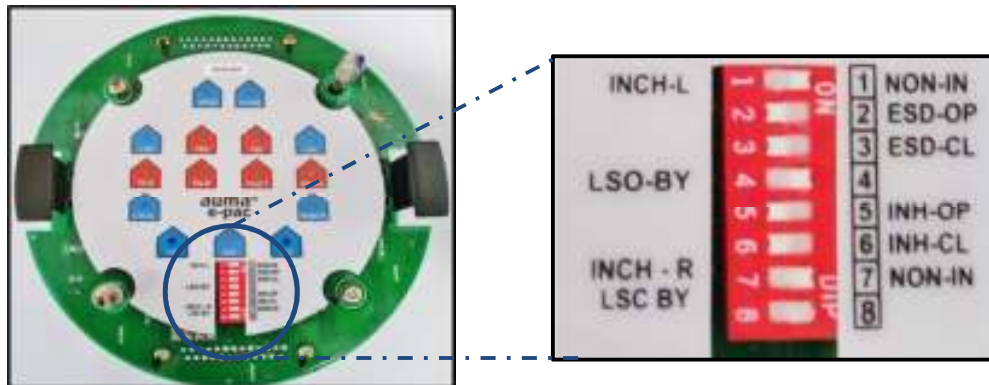
Along with fault LED, respective fault LED's will also come on when above said fault occurs. For example if open torque switch is hit then "TSO" (RED) LED will glow along with "FAULT" LED. Further commands will not be accepted as long as the fault condition exists.

**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.

7. When R or B phase is absent module turns off. When Y phase is absent, module will shut down and only "SPH LED" starts glowing and module will not accept any command.
8. "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.

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



**DIP SWITCH 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 SWITCH 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	STAY
ON	OFF	OPEN
OFF	ON	CLOSE
ON	ON	STAY

- a) ESD Open OFF and ESD Close OFF: In this condition ESD is disabled.
- b) ESD Open OFF and ESD Close ON: In this condition Actuator will start running in Close Condition and actuator will not accept any other command.
- c) ESD Open ON and ESD Close OFF: In this condition Actuator will start running in Open and actuator will not accept any other command.
- d) ESD Open ON and ESD Close ON: In this condition Actuator will stops running and stays where ever it and actuator will not accept any other command and both OPEN LED and CLOSE LED in control module and key card starts blinking.

**DIP SWITCH 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 SWITCH 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 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 SWITCH 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:

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 11V Green LED, 23V 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 multi-meter by disconnecting the MAINS. If there is no dead short, then replace the fuses (FS1 & FS2) and switch on the MAINS.
  - Check whether R phase or B phase is missing or not connected properly. Connect all the phases correctly and switch on the mains.
2. If only “SPH LED” is glowing, then whether Y phase is connected properly. Connect all the phases correctly and switch on the mains.  
If all the cables are connected properly and even then the problem still persists then replace SPHnPHD card (K215.558).
3. With 11V LED, 23V LED and 24V LED being ON, if FAULT LED is glowing (ON) then check the following:
  - “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).

Reset switch



- “TSO” or “TSC” LED is ON: Indicates the tripping of torque [Figure: D](#) 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.
  - “FAULT” LED (alone) is ON: indicates that there is no supply going to space heater / contactor. Check the fuses FS3 & FS4 (150 A fuses).
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. 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.
  7. 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 LB card; replace the LB card (K215.553).



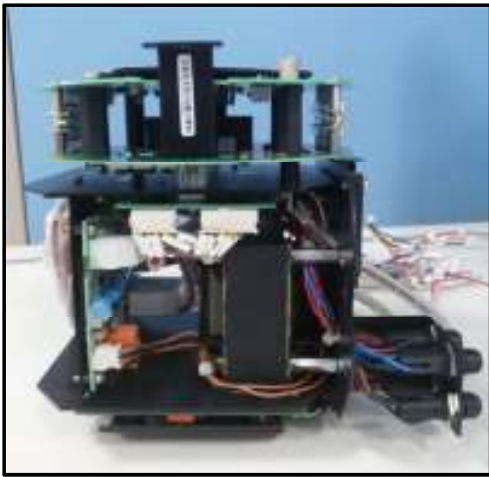
Figure: E



#### **4. SPARE PARTS:**

<b>SL NO</b>	<b>V1.A – S28</b>	<b>ARTICLE NO.</b>
1	COMPLETE EPAC – S28	K215.552
2	LB– S28	K215.553
3	FPL– S28	K215.554
4	Control Module - S28	K215.560
5	CABLE TRAY (ICP+PWR+TRANSFOMER + FUSE ASSEMBLY) – S28 (POWER Module)	K215.561
6	PHDnSPH – S28	K215.558
7	Power Supply Card – S28	K215.555
8	Key Card - S28	K215.557
9	ICP Card - S28	K215.556
10	TRANSFORMER PRIMARY-415V - S28	K215.559

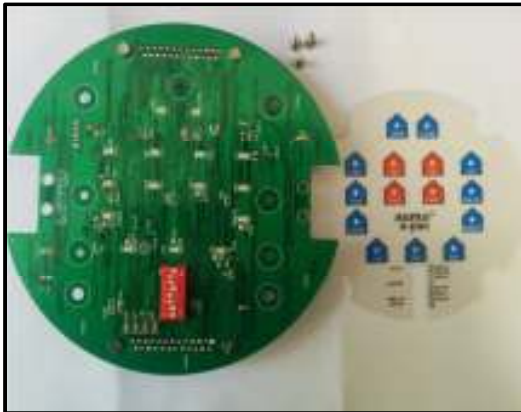
**SPARE PICTURES:**



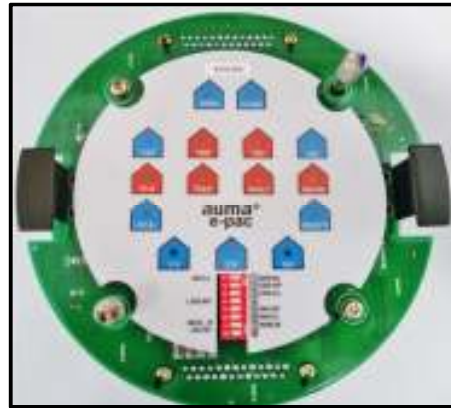
**COMPLETE EPAC – S28  
(K215.552)**



**LB – S28 (K215.553)**



**FPL – S28 (K215.554)**



**CONTROL MODULE - S28  
(K215.560)**



**CABLE TRAY (K215.561)**



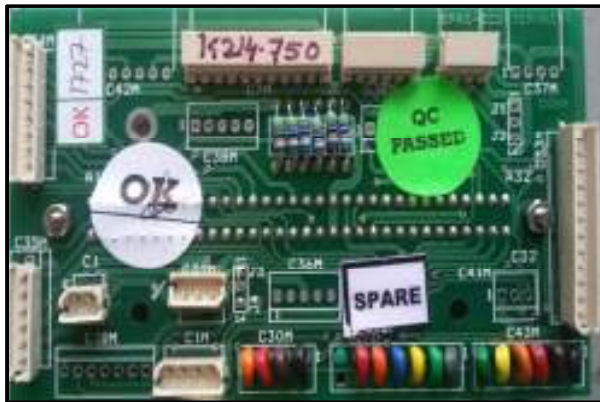
**PHDnSPH-S28 (K215.558)**



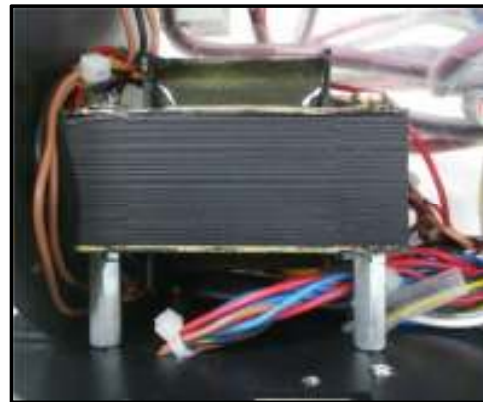
**POWER SUPPLY CARD – S28  
(K215.555)**



**KEY CARD - S28 (K215.557)**



**ICP CARD - S28 (K215.556)**



**TRANSFORMER PRIMARY - 415V -  
S28 (K215.559)**

**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)

## 5. 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

## 6. 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