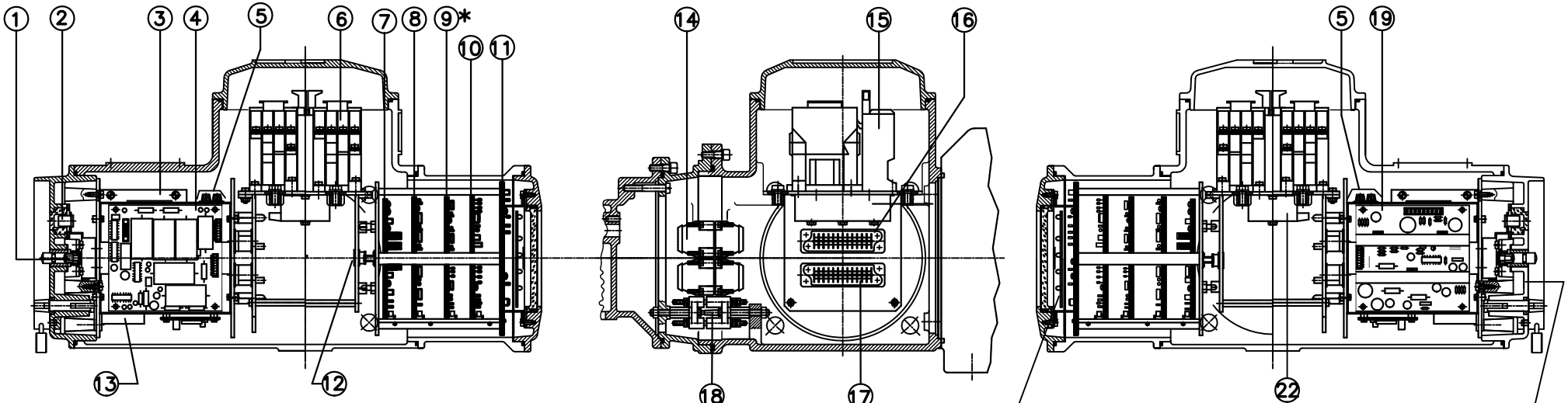
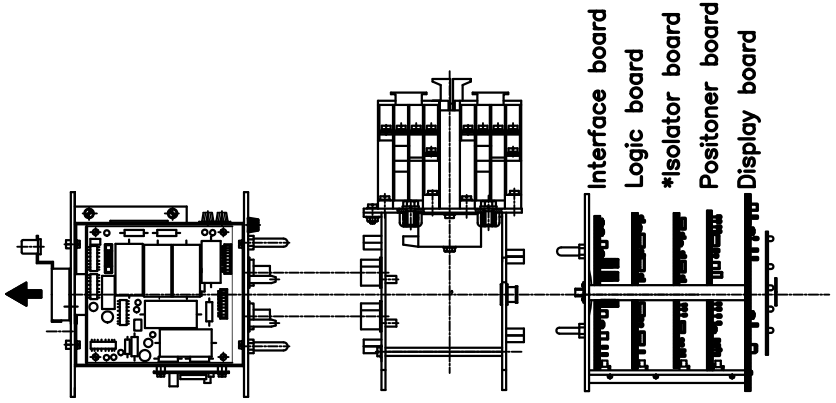
e-pac

OPERATION & INSTRUCTION MANUAL

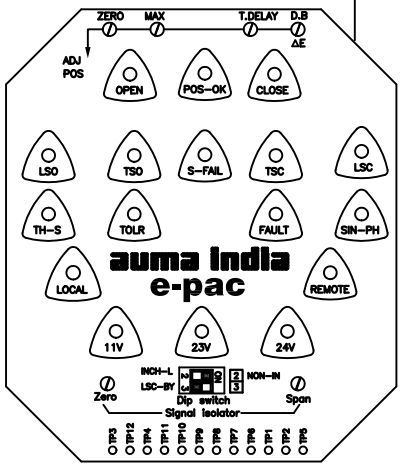
VERSION V2.1 TO V3.9

auma® india

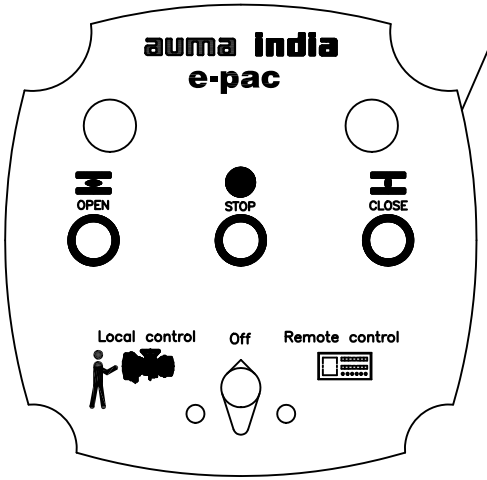




POWER MODULE STARTER MODULE CONTROL MODULE



DISPLAY LEGEND PLATE



LOCAL CONTROL LEGENT PLATE

* OPTIONAL

Item No	Particulars
①	Local push buttons (For Open–Stop–Close)
②	Indication LED (For Open & Close)
③	Control transformer
④	Single phase board and phase discriminator board (Optional)
⑤	FS1 (2A),FS2(2A),FS3(1A)
⑥	Reversing contactors or Thyristors
⑦	Interface board
⑧	Logic board
⑨	Isolator board (Optional)
⑩	Electronic Positioner board
⑪	Display board
⑫	64 Pin C8F Inter connection connector(Between cable tray & CM)
⑬	Mode switch
⑭	32 Pin control Plug & Socket
⑮	Thermal over load relay (Optional)
⑯	C16F Inter connection connector (Between cable tray & PM)
⑰	C15F Inter connection connector (Between cable tray & PM)
⑱	Motor Plug & Socket
⑲	Power supply board
⑳	Local control legend plate
㉑	legend plate
㉒	Current transformer assembly

DISPLAY BOARD LEGEND:–

Symbol	Type	Description	Symbol	Type	Description
OPEN	Status	Actuator in open direction	TSO	Fault	Torque switch open
Close	Status	Actuator in Close direction	TSC	Fault	Torque switch close
LSO	Status	Limit switch open	TH–S	Fault	Thermoswitch trip
LSC	Status	Limit switch close	TOLR	Fault	Thermal overload relay trip
LOCAL	Status	Actuator in local mode	FAULT	Fault	Fault indication
REMOTE	Status	Actuator in remote mode	SIN–PH	Fault	Single phasing
11V	Status	11V Internal power supply	S–Fail	Fault	Signal fail
23V	Status	23V Internal power supply			
24V	Status	24V DC For Customer's use			
POS.OK	Status	Position O.K			

DIP SWITCH PROGRAMMING: –

Switch No	Switch position OFF	Switch position ON	Applicable for Versions
2	INCH–L Inching operation in Local mode (non self retaining)	NON–IN Non–inching operation in Local mode (self retaining)	V2.1 to V3.9
3	LSC–BY Limit switch close bypass–Torque seating (Closing by torque switch Close)	Limit seating (Closing by Limit switch Close)	V2.1 to V3.9

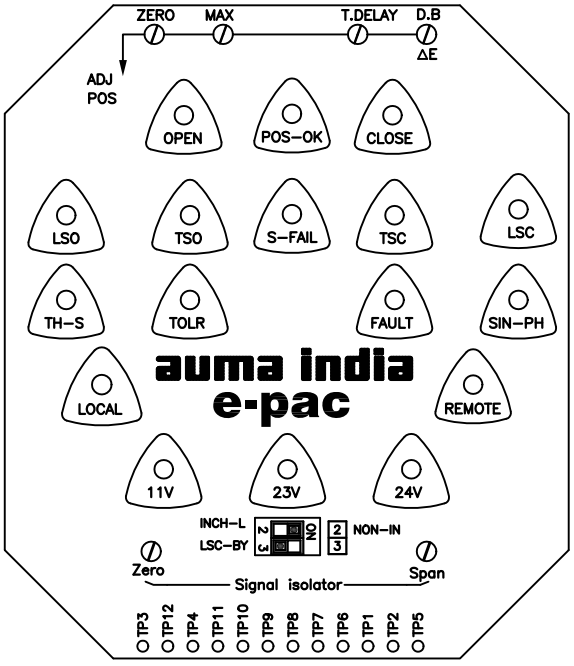
Selection of versions :–

To select any desired version, a dip switch fitted inside the positioner card should be put into appropriate combination using the chart below by authorised person only.

Ensure power is switched off before opening the unit to select the dip switch combination

Version	Dip switch combination						
	S1	S2	S3	S4	S5	S6	Condition
V2.1/V3.1	ON	OFF	DON'T CARE	OFF	OFF	ON	FAIL AS IS
V2.2/V3.2	ON	ON		OFF	OFF	ON	
V2.3/V3.3	OFF	ON		OFF	OFF	ON	
V2.4/V3.4	ON	OFF		OFF	ON	ON	FAIL CLOSE
V2.5/V3.5	ON	ON		OFF	ON	ON	
V2.6/V3.6	OFF	ON		OFF	ON	ON	
V2.7/V3.7	ON	OFF		ON	OFF	ON	FAIL OPEN
V2.8/V3.8	ON	ON		ON	OFF	ON	
V2.9/V3.9	OFF	ON		ON	OFF	ON	

Positioner adjustment end position close :–



DISPLAY LEGEND PLATE
(fig–2)

* Prior to positioner setting it is to be ensured that limit and torque switches of the actuator as well as the position feed back have been set according to "Operating Instruction SA6–SA100"..
* Set the selector switch (local controls) to position 'LOCAL'.
* Run the actuator to end position close by pressing push button (2), (Fig.1)

Setting of Electronic Positioner Card:-

Technical data :

Command (input signal E1,Nominal value) : E1, nominal value)	:	0/4–20mA
sensitivity (dead band) ΔE	:	1% to 2.5%
Time delay	:	0.5–15 sec
Relay output max. load (resistive load)	:	250V,10Amps
Supply voltage	:	24V DC ±1V
Current drawn	:	60mA

Different versions :-

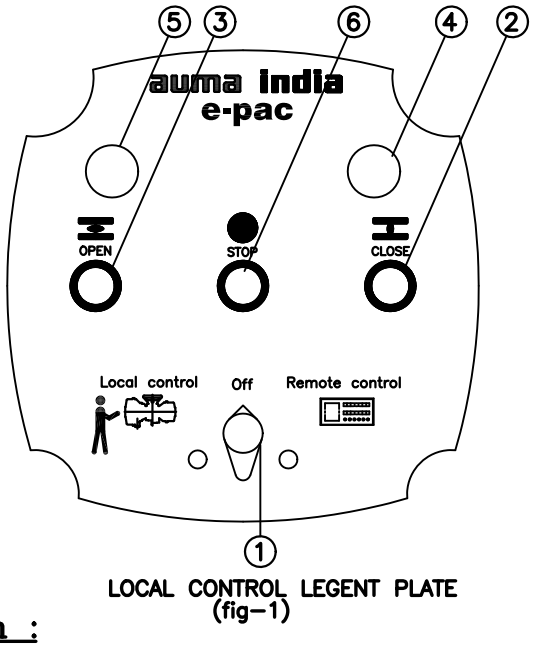
	Command Signal nominal value (E1)	Feed back signal actual valve (E2)	Versions
Fail as is When Nominal value signal(E1) fails,Actuator stops immediately & remains in its position	0/4–20mA	0–20mA(RWG1001,IWG1003)	V2.1/V3.1
		4–20mA(RWG2002,RWG1001 IWG1003,IWG1002)	V2.2/V3.2
		1–5V (pot.4.7K.ohms)	V2.3/V3.3
Fail close When Nominal value signal(E1) fails,Actuator moves the valve to end position close	0/4–20mA	0–20mA(RWG1001,IWG1003)	V2.4/V3.4
		4–20mA(RWG2002,RWG1001 IWG1003,IWG1002)	V2.5/V3.5
		1–5V (pot.4.7K.ohms)	V2.6/V3.6
Fail open When Nominal value signal(E1) fails,Actuator moves the valve to end position open	0/4–20mA	0–20mA(RWG1001,IWG1003)	V2.7/V3.7
		4–20mA(RWG2002,RWG1001 IWG1003,IWG1002)	V2.8/V3.8
		1–5V (pot.4.7K.ohms)	V2.9/V3.9

Instructions for e–pac Actuators :–

Auma india e–pac have motor starter and controls built into the actuator.
Controls include selector switch (Local–off–Remote),Local push button OPEN–STOP–CLOSE Positioner, Logic board,Interface board etc.

It is required to connect main Supply voltage to R, Y, B from the customer end.

* Connect R,Y, B and other customer connections according to the wiring diagram, After removing the terminal compartment.
* Check for correct direction of rotation for remote & local positions.(fig.1).



LOCAL CONTROL LEGENT PLATE
(fig–1)

* Local position :

– Set selector (1) to Local.
– Run the actuator in CLOSE or OPEN direction by pressing push buttons (2) or (3) &
– Check for proper direction of rotation of hollow drive shaft from hand wheel direction (clockwise – close).
– If the direction of rotation is not correct, interchange any two phases R,Y,B
– Running indications for CLOSE & OPEN directions are indicated by LED's
– (4) & (5) & Press push button (6) to stop actuator

Note:–If Auto phase correction is given in the actuator,then the phase is corrected automatically.

* Remote position :

– Set selector (1) to REMOTE.
– Operate the actuator from Remote for CLOSE or OPEN direction & check for proper directions of rotations. This will be correct, if it is ok for Position 'LOCAL'

* OFF position :

– Set selector (1) to OFF.
– Ensure that actuator does not run in both directions either from remote or local

* Selector switch (1) is lockable in any of the three positions using a pad lock.

* Give command signal (nominal input signal) E1 to 0 or 4mA Corresponding to the version of positioner.
* Adjust feed back signal E2 to 0/4mA in RWG/IWG card or 1V by turning the potentiometer depending on the type of transmitter. if necessary ,Feed back voltage or current can be measured at test points provided in the display board.

* If both signals E1 & E2 are matching, then LED (POS.OK) lights up (Fig.2)

* Turn the setting potentiometer 'Zero',clockwise until LED (POS.OK) goes out.then turn potentiometer 'Zero' slightly counter clockwise untill LED(POS.OK) lights up again indicating the correct setting.

* If LED (POS.OK) is not illuminated, turn the setting potentiometer 'zero' clockwise till LED (POS.OK) lights up signalizing the correct setting.

Positioner adjustment end position open :–

* Run the actuator to end position open by pressing push button (3) (FIG.1) and set the command signal E1 to maximum value of 20mA.
* If necessary adjust the feed back signal E2 to 20mA in RWG/IWG card & the Feed back signal E2 will be approximately nearer to 5V for potentiometer type.

* If the LED (POS.OK) is illuminated then turn potentiometer 'Max' clockwise untill LED (POS.OK) goes out. Then turn potentiometer 'Max.' slightly counter clockwise until LED (POS.OK) lights up again indicating correct setting.

* If LED (POS.OK) is not illuminated then turn the potentiometer 'Max.' counter clockwise until LED (POS.OK) lights up indicating the correct setting.

Setting of sensitivity (Dead band–△E) :–

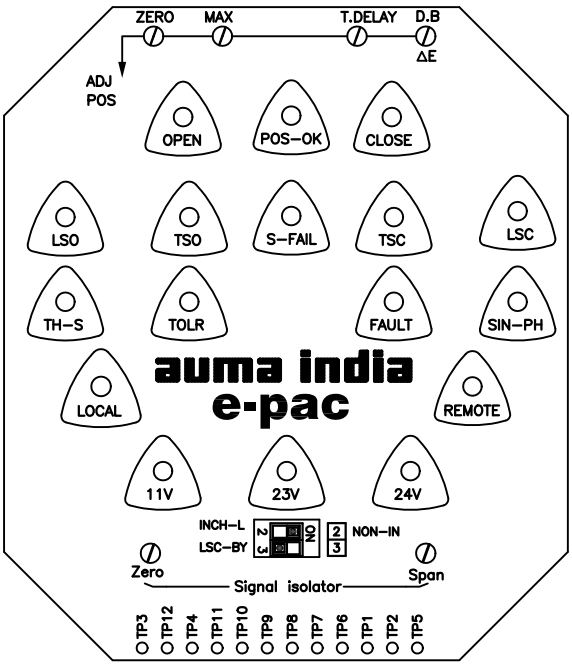
* Set selector switch (1) at local controls to position REMOTE.
* Set the command signal E1 to any value between 0/4–20mA
* Turn the setting screw (△E/dead band) in counter clockwise direction till operation frequency is high i.e. actuator is hunting.
* Then turn the setting to △E clockwise till actuator stay in position without hunting.

* Due to possible fluctuations of actual value, operational frequency may be too high even if setting of ΔE has been done well. In order to maintain number of operations within permissible value (refer to technical data sheet) the time delay can be set between 0.5–15sec the setting screw 'T–Delay'.

Note :–

When setting ΔE, if no. of starts is too high it may lead to unnecessary wear at the valve and actuator. Therefore the maximum possible dead band acceptable for the process must be set.

Test points:–



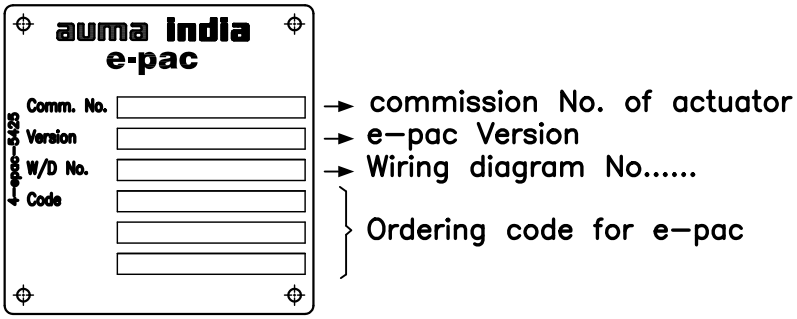
DISPLAY LEGEND PLATE

(fig–3)

Test points	Output
TP1&TP2	24V DC
TP4&TP3	11V DC
TP4&TP5	23V DC
TP6&TP12	4/20mA
TP11&TP12	1 to 5V

e–pac name plate:–

The following relevant details are available on the e–pac name plate to ensure support after supply



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