

**EA04 for Type 104  
Actuated Valves**

**User Manual**

# Technical Specifications Electric Actuator EA04

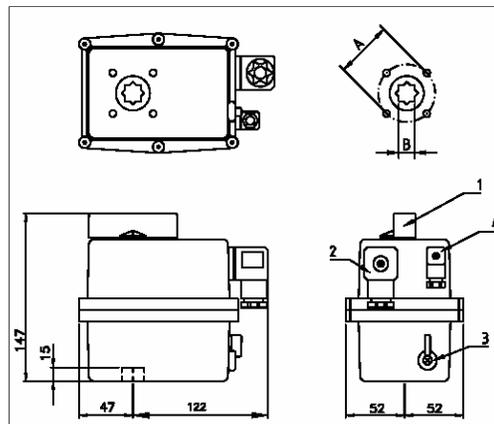


EA 04	
Nominal torque Mdn	10 Nm
Peak torque	12 Nm
Control time	18 seconds/90° at Mdn $\pm$ 10% without load
Actuating angle	90°-180°
L/W/H (Actuator only)	178/103/130
Housing materials	Polyamide
Position indicator	optical, integrated
Emergency manual override	integrated, standard
Rated voltage	80-240V, 50/60 Hz AC
Rated output	21 Watts
Duty cycle ED	35% at 77°F/15 min
Protection class	IP 65
Electrical connections	Power - Connector plug 3 P+ E per DIN EN 175301-03, Limit switches DIN 3337 (mini DIN)
Weight	3.3 Pounds
Limit switches	Two SPST 5A 250V
Operating temperature	14° to 110°F

**Important Note:** Some residual voltage may be present on the closed terminal when the valve is in the open state and on the open terminal when in the closed state. For position indication the auxiliary limit switches should be used. The power terminals should not be used for position indication.

# EA04 for Type 104 Actuated Valves

## Dimensions:



## On/off, stays put on power failure:

A: Multi-flange: F03/04/05 ISO5211

B: 14mm double square (star)

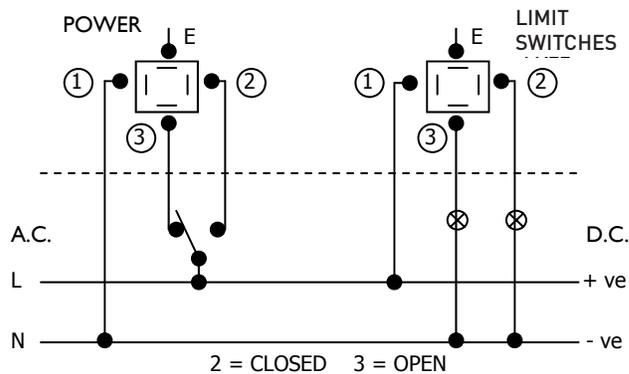
1 Manual override & local position indicator

2 Power supply DIN plug

3 Manual override selector lever

4 Volt free limit switch DIN plug

## Wiring:



## Wiring Diagram (AC or DC): 3 wire

Notes:

DIN plugs supplied with actuator

Change-over switch not supplied

**Important Note:** Some residual voltage may be present on the closed terminal when the valve is in the open state and on the open terminal when in the closed state. For position indication the auxiliary limit switches should be used. The power terminals should not be used for position indication.

# Installation, Operation & Maintenance Instructions

## EA04 for Type 104 Actuated Valves

### INSTALLATION INSTRUCTIONS

EA04 actuators operate using live electricity and we strongly recommend that only qualified electricians/ electrical engineers be employed to make electrical connections. They are quick and easy to connect without removing the cover, do not remove the cover without our authorisation or the warranty may be invalidated. We recommend that the EA04 actuators have their own independent fused supply to protect against potential damage by excess current drawn from other devices in the circuit (eg: pumps).

Check that the voltage being applied matches the voltage shown on the actuator's identification label and connect the power supply cables to the DIN plug(s) as per the wiring diagram affixed to the side of the actuator. Removing any label will invalidate the warranty. Wiring can be the same for AC or DC (3 wire), or 2 wire DC with a customer supplied voltage polarity switch, which is needed to reverse the motor. If in doubt, ASK BEFORE CONNECTING. Ensure that the rubber seal is refitted between the Din plug and base to maintain the IP65 seal, failure to fit the seals will invalidate the warranty. Do not over-tighten the plug securing screw.

All EA04 actuators are supplied with volt free position confirmation switches (limit switches) that require a separate power supply to operate (rated 240V 5A) The suggested wiring as per the wiring diagram affixed to the side of the actuator shows the same voltage for the actuator being used as the power source for these switches – this is a suggestion only and any standard control voltage can be used (eg: 24VDC). Do NOT use the end of travel confirmation switches to cut the power to the motor as (a) they are set around 5° ahead of the motor stop position and the actuator would therefore stop before it reaches the fully open of fully closed positions, and (b) the internal heater would be disabled as it only operates while power is being supplied to the actuator.

If the limit switch plug is not being used, blank off the cable entry to the DIN plug and leave the plug fitted to the actuator to maintain its IP65 weatherproof rating. Take care not to knock the DIN plugs as this may pull the DIN plug base away from the actuator which in turn will break the body seal and permit water to access the housing. Damage of this nature invalidates any warranty.

While the EA04 actuators can be fitted in any orientation we recommend installing the actuator vertically wherever possible.

### OPERATING INSTRUCTIONS

EA04 actuators work with the use of cams that operate limit switches which control the starting, stopping, and direction of rotation of an electric motor. These cams are factory set at 0 and 90 degrees (or as per your order eg: 0-180 degrees) and whilst they are adjustable, should not normally require any user adjustment.

Supply a continuous (not pulse) live signal (either open live, or close live) to operate the actuator. The actuator will rotate until the cams operate the micro switch and cut the power to the motor. The actuator will stay in this position until a further continuous live signal is received to send it to its opposite position. The in-built heater uses this mains supply and therefore the power supply voltage should remain on at all times, this is very important where actuators are exposed to the weather.

The rest positions are as per the moulded open and closed logos (see below) and are indicated by a local visual position indicator.

In the case of main power failure, the actuator will stay in the position it saw at the moment of power interruption. Should the actuator need to be operated under these circumstances, use the manual override facility handle, but remember to reset the selector lever in the AUTO position when the movement is completed as selection of 'MAN' cuts the power to the motor.

All EA04 actuators have an electronic torque limiter (ETL) which cuts the motor power if the applied torque exceeds the actuators rated output. To reset, cut the power, clear the cause of the excess torque eg: valve blockage, turn the power back on and the limiter will reset allowing resumption of normal operation.

### MANUAL OVERRIDE

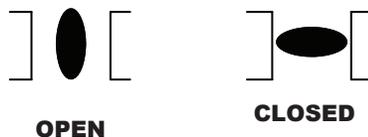
All EA04 actuators have a manual override feature, operated by a selector lever which disengages the motor drive when moved from AUTO (automatic operation) to MAN (manual operation). The gearbox contains planetary gears and it may be necessary to 'wiggle' the selector lever whilst gently moving the manual override handle to ensure the gears disengage and re-engage. When resetting into AUTO – a positive 'click' will be felt when the gears have correctly re-engaged. A safety cut out switch activated by the manual override selector lever, cuts the power to the motor when in the MAN position. When MAN is selected, the actuator will not operate electrically.

NEVER remove the selector lever retaining screw as this will allow the internal operating mechanism to become free and will cause irreparable damage to the actuator's gearbox. Removing this screw will invalidate any warranty.

When in AUTO mode, the manual override operating handle rotates on models 20 & 55 – restricting this rotation may activate the ETL. In these circumstances, switch off the power, leave a few seconds and turn back on – the ETL will automatically reset.

When in MAN mode, avoid rotating the actuator beyond the open and closed logos moulded on the top of the actuator. There are no mechanical stops fitted to the actuator (to allow rotations of 120 and 180 degrees) and it is therefore possible to over rotate the actuator. Over rotation will position the internal cams beyond their micro switches which will result in a first abnormal operation of the actuator when reset into AUTO mode (the actuator may rotate up to 450 degrees until the cam resets in the correct position).

Actuator cover has moulded open and closed logos:



### MAINTENANCE

EA04 actuators are designed to be maintenance free, the gearbox is factory lubricated for life and there are no internal parts that require maintenance.

# Wiring diagram - on/off & failsafe EA04 for Type 104 Actuated Valves

