



..Run – extra information EL-R



The „EL-R“ data sheet contains additional information for ..Run actuators of the size S, for the optimization and simplification in regard to planning, installation and initial startup. It provides influences of external factors in reference to the safe initiation of the actuators, as well as technical references and problem solutions (error indication). With the error indication, functions can be examined and different error/problems can be adjusted locally.

- ▶ Power supply design
- ▶ Design of line cross section 24...48 VAC/DC
- ▶ Error indication – problem treatment/solution

For additional mechanical data have a look at extra information „ME-R“

Power input depending of supply voltage

Power supply design

The design of the on-site supply, depends on the selected motor running time and selected supply voltage. Accompanying values are „about values“, since there can be construction unit dispersions within electronics. The power consumption in the blocking position is run time independently with max. 20 W. The power consumption for the heater is approx. 16W. The heading is running only if the motor is in idle position! The initial starting supply voltage required by the actuators power supply unit is around 2,0 A for about 1 sec. (Please consider this while conceiving the cross section of the supply line)

- Electrical connection with approved terminals only
- Electrical connection with integrated junction box. After this close all openings and screws thighten.
- Do not open the junction box when circuits alive!
- The cable of the actuator must be installed in a fixed position and protected against mechanical and thermal damage.
- The cross section of the wiring please choose according the length of the wiring and the necessary power consumption of the actuator. Too small cross sections are very often the reason for malfunctions.
- Power connection must be made with switched off circuits, always.
- Note supply voltage! Wrong connection or over voltage are no warranty!
- Inrush current is approx. 2 A up to 1 sec. Please note during dimensioning.

Load	Rated current in acc. with motor running time									
	500 N					1.000 N				
Voltage	2	3	6	9	12	2	3	6	9	12
24 V I _{Nenn} [A]	0,5	0,4	0,3	0,4	0,3	1,0	0,8	0,6	0,5	0,5
120 V I _{Nenn} [A]	0,4	0,3	0,2	0,1	0,1	0,4	0,3	0,2	0,1	0,1
240 V I _{Nenn} [A]	0,3	0,2	0,1	0,1	0,1	0,3	0,2	0,1	0,1	0,1

Load	Rated current in acc. with motor running time									
	2.500 N					5.000 N				
Voltage	2	3	6	9	12	2	3	6	9	12
24 V I _{Nenn} [A]	0,6	0,5	0,3	0,3	0,3	0,9	0,6	0,4	0,3	0,3
120 V I _{Nenn} [A]	0,4	0,3	0,2	0,1	0,1	0,5	0,4	0,4	0,3	0,3
240 V I _{Nenn} [A]	0,3	0,2	0,1	0,1	0,1	0,3	0,2	0,1	0,1	0,1

Load	Rated current in acc. with motor running time									
	7.500 N					10.000 N				
Voltage	4	6	9	12	15	4	6	9	12	15
24 V I _{Nenn} [A]	1,2	1,0	0,8	0,6	0,4	1,5	1,2	1,0	0,7	0,5
120 V I _{Nenn} [A]	0,5	0,5	0,4	0,3	0,3	0,5	0,4	0,4	0,4	0,3
240 V I _{Nenn} [A]	0,5	0,5	0,4	0,4	0,3	0,6	0,5	0,4	0,4	0,2

Dimensioning of the line cross section with 24...48 VAC/DC supply voltages

Dimensioning/Design of the supply line

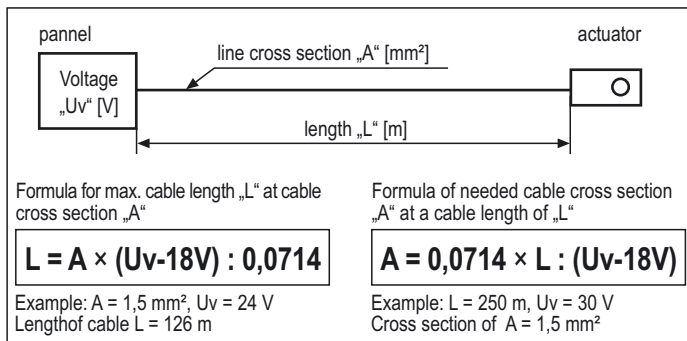
On long distances between voltage supply and drive, voltage drops occur due to line resistances. As a consequence with 24 VAC/DC the actuator receives a too low tension and does not start. In order to prevent this, the cross section of the inlet line is to be designed/dimensioned accordingly. The accompanying formula allows the calculation of the necessary line cross section, perhaps provides the maximally permitted conduit length utilizing the existing line cross section. Alternatively the secondary voltage can be increased by selecting a transformer. For calculation purposes, following characteristics are essential:

Uv = supply voltage in [V]

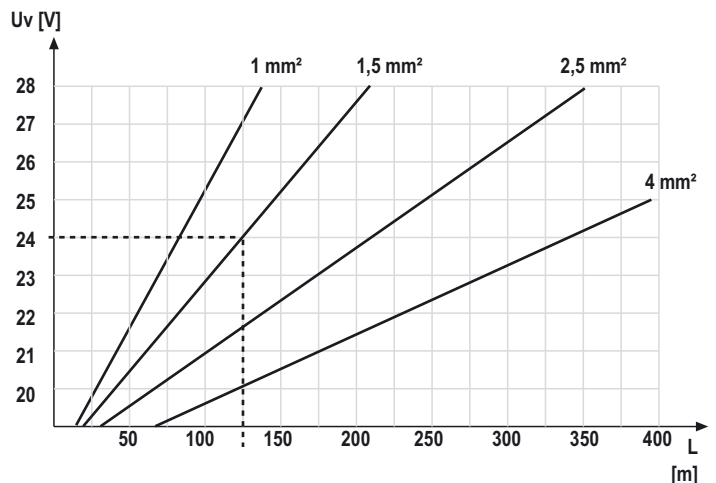
A = line cross section in [mm²]

L = conduit length in [m]

Factor 0.0714 = drive-specific factor [Vmm²/m] (based on the electrical conductivity of electrolytic copper with a coefficient of 56m/Wmm²)



Example:
24 V power supply with wire diameter 1,5 mm² = 126 m





Technical requirements for controller

The controller must ensure that the following conditions are fulfilled: To ensure a high accuracy and long life, the actuators are equipped with "protective mechanisms". They protect all electric motors against early wear. For 2 and 3-point actuators, a minimum control time of 0,1 seconds must be attained. If your controller pulses in short steps (<0.1 sec), the actuator will not respond. The time between the impulses must be min 0.5 sec.

Note at small control deviations is the actuator permanently active what can arise overtemperature and the actuator goes in stop position. This self protection is a sign that the control loop is incorrect.

Maintenance

In acc. with operation actuators are maintenance free. Nevertheless maintenance must comply with regional standards, rules and regulations. The actuator can be open for adjustments only. After settings all covers must be closed. Damaged junction box, cable glands or gasgats must be changed to original parts or send for repair to Schischek GmbH.

Service and Commissioning

- Ensure that the supply voltage is in accordance with the specifications
 - Before switch on power check the wiring
 - Connect protection earth and potential equalisation.
 - The actuator must not display any type of mechanical damage
 - Rod goes in with contact 3 to 2
 - Rod goes out with contact 4 to 2
 - Check manual override
- Check options:**
- Check internal aux. switches regarding endposition
 - Check feedback potentiometer
 - Adjust external switches note
- Further checks**
- Check valve and actuator linkage to confirm correct connection
 - Check the terminal box for damage
- With manual override you move the rod very carefully in the end positions. Actuator and valve can be damaged
- Before switching off, consider the effects on the system and on other devices. Disconnect the mains before starting mechanical dismantling. The junction box must be free of voltage. Loosen the linkage and remove the actuator.

Error indication

Error/Symptom	Reason	Solution
01 Actuator does not work LED does not lights	<ul style="list-style-type: none"> ● No power supply attached ● The actuator is operated beyond prevention ambient temperature specifications and the internal temperature sensor did irreversibly shut down operations 	<ul style="list-style-type: none"> ● Attache power supply and turn on ● Because of inadmissible operation the actuator drove out of safety relevant reasons into an irreversible condition and must be exchanged. Accompanying new installation the ambient temperature has to be reduced accordingly
02 Actuator does not work LED lights red	<ul style="list-style-type: none"> ● The actuator is operated by a too high ambient temperature and the internal temperature sensor responded 	<ul style="list-style-type: none"> ● Shut off actuator and let temperature decrease, reduce ambient temperature by suitable measures e.g. ventilation or other mounting position of the actuator
03 Actuator does not work LED lights green	<ul style="list-style-type: none"> ● 3-Pos control signal is wired on both entrances ● Required force is greater than actuators force ● Control signals are not attached or attached on a wrong conductor ● Actuator is incorrect mounted and is blocked by an external stop unit ● Actuator is clogged with impulses < 0,1 sec. and therefore ingored the signals ● Interchanged supply lines 	<ul style="list-style-type: none"> ● Readjust/correct circuit ● Adjust a higher force at the actuator if possible otherwise exchange for a type with higher force. ● Examine rule and adjusting signal in accordance with attached diagram ● Dismount actuator and testdrive without load for operability. Install actuator accordingly that the power transmissions runs without external blockade or torsion ● Switch off supply voltage for at least 2 sec. thereby a reset is conducted Readjust controller in order to extend control pulses ● Wire 1 must be (-, N) and wire 2 (+, L)
04 Actuator does not work LED is red blinking	<ul style="list-style-type: none"> ● The actuator has been mounted by temperatures of less than -20°C and did not reach is operating temperatur of at least -20°C. 	<ul style="list-style-type: none"> ● Ensure that a constant voltage supply on conductor 1-2 is existing. ● Wait until the required operating temperature is achieved by the actuators internal heating system. The actuator will start operating independently
05 LED flashes irregularly and actuator does not work	<ul style="list-style-type: none"> ● Actuator does not receive sufficient supply voltage ● Cable to long, voltage drop in the supply line to large 	<ul style="list-style-type: none"> ● Increase line cross section or increase tension at the transformer/power supply unit ● Increase line cross section or increase tension
06 LED flashes red and endposition is not reached	<ul style="list-style-type: none"> ● Actuator is in blocking position 1 × blinking block position rod goes in 2 × blinking block position rod goes out 	<ul style="list-style-type: none"> ● External load is higher than actuator max force Check mechanic of easy going and twisting check probably without valve



“ME-R” Extra information for ...Run – size S



The “ME-R” data sheet contains additional information for ...Run actuators of the size s for the optimization and simplification in regard to planning, installation and initial startup. It provides influences of external factors in reference to the safe initiation of the actuators. In particular it represents the, as well as different and armatures. Additionally describing different accessory elements and their mounting to the actuator.

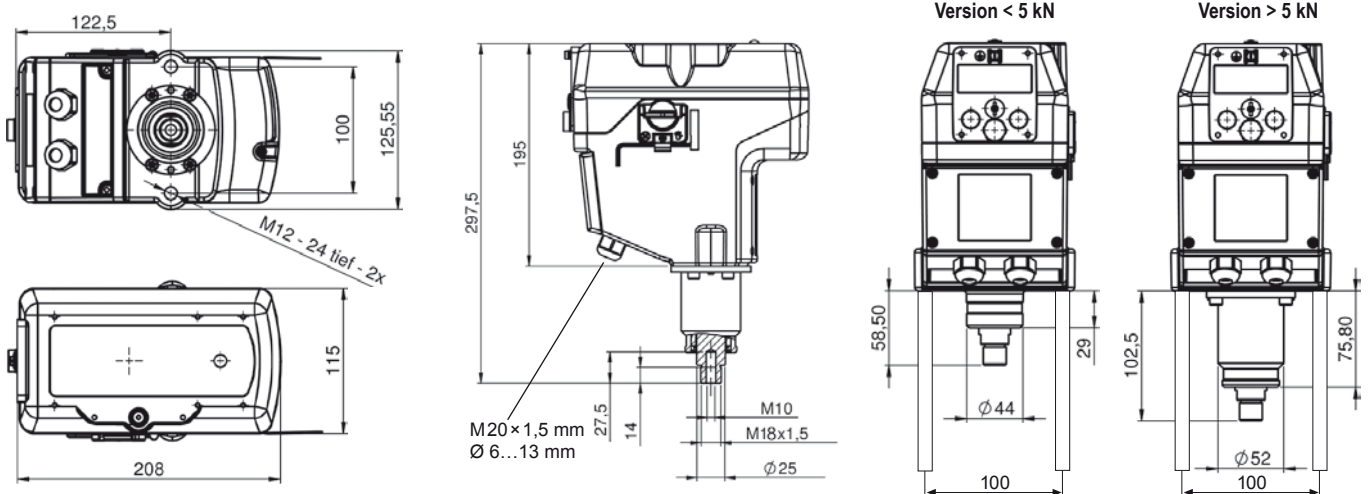
- ▶ Dimension, drill template
- ▶ Control elements: switch – push button – LED
- ▶ Outdoor installation
- ▶ Mounting adaption

For additional electrical data have a look at extra information “EL-R”

Subject to change!

Dimensions – drill template

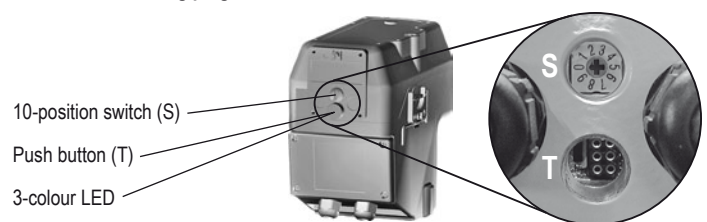
Measurements in [mm]



Control elements: switch – push button – LED

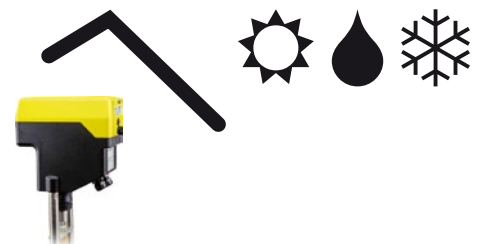
All actuators are equipped with a 10-position switch a push button and a multicolor LED for calibration. These control elements are to be found cable-laterally behind the two middle sectioned dummy plugs. For operation these must be removed. The calibration can be achieved despite lining up tension at the actuator. The function is not impaired thereby. However it has to be of great concern that the dummy plugs must be rescrewed in order to comply with the IP-protection class. The operation of the switch and button has to be done by means of a small screwdriver. Force with strong pressure and/or rotation is to be avoided in any case, since otherwise control electronics can be damaged irreparably. By bad visibilities a flashlight (certified within the EX-range) should be used. Attitudes of torque and running time can be achieved also before mounting. The adjustment of stroke can be started only with accurate mounting to the valve.

Switch – push button – lamp for adjustment, behind the blanking plug



Outdoor installation or high dust loading

When mounting actuator outdoors it has to be certain that the actuator is protected against direct sun exposure (heat and UV), rain and snow by employing an enclosure roof. Supply voltage is to be applied immediately after mounting in order to assure integrated heating at start. All actuators has an internal safety temperature limiter, these may not be exposed neither at storage nor during operation to a too high temperature. Otherwise the limiters could respond and switch of the actuator irreversibly. At high dust loading prevent the rod.

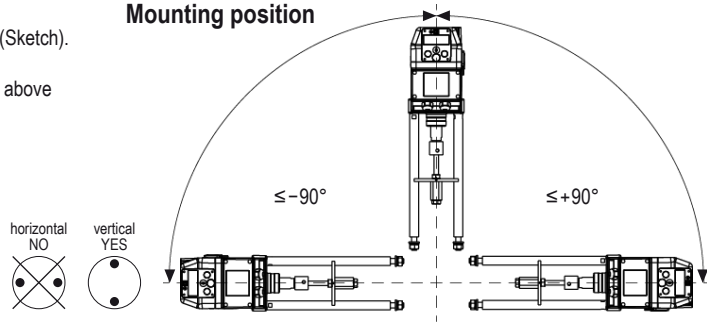


Mounting instructions for ...Run

When mounting particularly observe the following:

- The linkage spacer columns for the actuators should only to be mounted vertically (Sketch).
- Valve actuators should only be mounted as shown opposite, never suspended.
- When mounting on a steam valve, the actuator should not to be mounted vertically above the valve as the rising heat could result in a part of the actuator being damaged.
- If mounting outside or in areas with a high level of humidity, the drive must be equipped with a heater.
- Vibration should be avoided, they shorten the serviceable life of the actuators.
- Pressure fluctuations in steam systems must be avoided, suitable shock absorption should be incorporated to protect the actuator.

Mounting position



Valve adaption

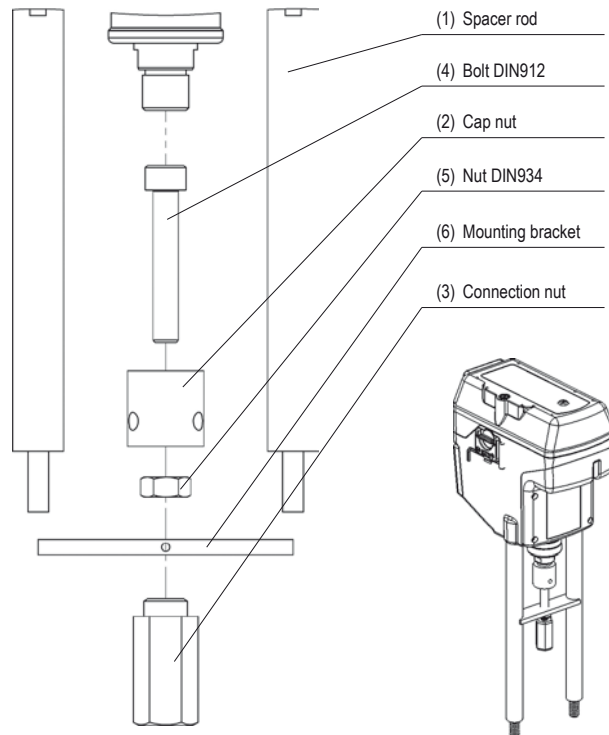
For mounting and adjustment act as follows:

- The actuator needs a specific linkage to match the selected valve.
- The actuator is mounted on the valve by way of the valve linkage.
- Check the stroke of actuator and compare with valve if necessary adjust stroke.
- Check adaption.
- Mount actuator to valve.

Stroke setting

The max. stroke is 60 mm. To reduce this turn the adjusting screw. Open the lateral cover of actuator. Remove the 5 screws of the cover and set the adjusting screw of needed stroke. (see ...Run data sheet page 4).

1. The actuator will be delivered with retracted stroke!
2. Place the actuator on the valve body and attach with the nuts and washers provided.
3. Remove the cap nut (2) and screw the connecting parts with the connecting nut (3), taking care not to damage the valve spindle. The spindle should be retracted as far as possible into the valve body.
4. Allow enough distance between the threaded bolt head (4) and the rod of the actuator, **noting the travel of the valve spindle**. Any adjustment can be done by screwing the bolt (4) into the connection nut (3).
5. Screw the nut (5) hand tight. Draw out the valve spindle with the connecting parts until contact is made to the threaded actuator rod and join with the cap nut (2). **Do not overtighten (max. 4 Nm) otherwise damage will be cause to the mounting bracket.**
6. Connect the actuator to the supply in accordance with the wiring diagram.
7. Operate the actuator electrically to fully extend the actuators rod. For modulated controlled actuator with a 4 mA or 0 VDC positioning signal or by connecting to load via terminal 4 (if no positioning signal available). Visual check that the valve is closed. Minor adjustment to the travel can be achieved by turning the threaded bolt (4).
8. Connections: take care not to operate the actuator against the stroke otherwise damage to mounting bracket may occur.
9. Start adjustment drive.
10. The actuator is ready to operate.



Check adaption on 2- or 3-way valve

Check adaption on 2-way valve:

- Check adaption
- Mount adaption to actuator
- Set stroke, note internal and external end positions
- Push button (T) for 3 sec. (necessary for Y "modulation" types)
- Actuator goes automatically in the adjusted end position and scales the stroke

Check adaption on 3-way valve:

An adaption on a 3-way valve is checked as above. You only need to take into account that the lift rod must move to both of the valve closures. This can necessitate a repeated check or adjustment.

Fixing the valve stroke in position

With 3-way valves the valve stroke must be less than the actuator stroke. The valve stroke must be measured exactly so as to eliminate \pm tolerances. The actuator stroke must be slightly greater than the valve stroke (3-way valves close in two directions). For 2-way valves it is possible to use the value stated in the written information. However, many valve manufacturers do not allow travel beyond its fully opened/closed position (2-way valves only close in one direction).

Mounting of external ...Switch-R



- Plug adaption in actuator shaft
- Plug on ...Switch-R and screw
- Additional junction box ...Box-SW for wiring necessary
- Open cover of ...Switch-R and set the switch points (see data sheet ...Switch-R)
- Check switch points und stroke
- Close ...Switch-R cover