

General explanations	<p>The electromechanical vane actuators J+ J[®] for manipulation of industrial valves with an angle of traverse of 0-90° / 0-180° or a freely definable angle of traverse are assembled quite compactly and equipped completely to be taken in use without problems. Because of the clear structure and the maintenance-free operation, flexibility and security as well as the mechanical unblocking the actuators are straightforward and tolerant towards errors in use.</p> <p>This tolerance is supported by versatile systems as ETL (Electronic Torque Limiting), AVS (Automatic Voltage Sensing), ATC (Automatic Temperature Control) and PEC (Protected Consistent Electrical Connection) to improve quality and handling.</p> <p>The actuators are driven by engines which are connected with the mainshaft through gears. Through redirecting these gears it is possible to declutch the engines on manual working. Here the current of the engine is interrupted. As the manual emergency manipulation is firmly installed, the armature can be operated via handwheel or via locking handle right after switching over. The travel stops take place through 2 integrated micro-switches. These switches are operated through cams which are placed directly onto the mainshaft. Beyond that there are 2 further, floating limit switches for signal generating. There is no mechanical travel stop. The optical position indicator on the actuator gives information about the position of the armature. At the interface of the armature, which is conforming to standards, appropriate armatures can be mounted directly or with the help of suitable adapters. The electrical connection is made by plugs. A nameplate as well as a socket plan / connection diagram makes it easy to identify the actuator.</p>
Standard - equipments	<p>An electronic torque limiter is fitted to all J2 actuators. The ETL constantly monitors the motor load and immediately cuts the motor power supply if the 'set point' is exceeded. An internal LED, visible through the actuator's housing, provides constant status indication: constantly lit LED = actuator working normally, flashing LED = fault warning, the torque in the valve has exceeded the 'set point'. This advises operators that a problem has arisen with the valve (eg: blockage). A flashing LED indicates a fault with the valve, not the actuator. The ETL automatically backs off when activated to relax the gears, allowing the manual override to be used to assist in clearing the blockage. Once the cause of the excess torque has been cleared, the J2 will automatically reset, the LED will change to being constantly lit, and the actuator will start operating again. See instructions overleaf.</p> <p>ATC (Auto Temperature Control): An inbuilt thermostat and heater maintains the internal temperature at around 30°C to prevent the possibility of condensation forming within the housing. This system does not require a separate power supply, it is fed from the main power supply. The power supply must remain on at all times for the heater to operate.</p> <p>All J2 actuators have a manual override facility to allow manual operation in the event of power failure. Selection of manual ('MAN') operation operates an internal switch which cuts the motor power – the actuator will not operate electrically whilst in manual.</p> <p>All J2 actuators have an additional pair of volt free mechanical micro-switch contacts which are typically used for remote position confirmation. These switches are NOT to be used for actuator motor control.</p>
Conditions	<p>The connection occurs by means of the provided wall plugs. Here one should pay attention to the suitable cable diameter because otherwise the tightness is not ensured. In principle the wiring suggestions, the tensions and other data presented on the print of the actuator are valid. With discrepancies and any malfunctions you should absolutely confer in order to avoid destruction or damages.</p> <p>Complete units, consisting of armature and actuator, only have to be wired over the plugs. Opening the actuator is only necessary if one has to adjust it. Connection, start-up or opening of the actuators may only take place by technical personal considering VDE regulations.</p>
Connection	<p>All J+ J[®] actuators have to be connected single-phase, have to be mutual bolted and actuated by a relay or a switch. Please intend an external fuse. The interface of the armature has to be arranged according to DIN3337/ISO5211 and has to guarantee an alignment of actuator and the driving shaft of the armature. The driving shaft of the armature has to be shorter than accommodation of the actuator. The technical requirements have to be according to the performance data of the actuators. A blocking of the driving shaft or the manual operating facilities may cause damages on the actuator.</p>
Maintenance	<p>These actuators are designed to be maintenance free, the gearbox is factory lubricated for life and there are no internal parts that require maintenance. With rarely used actuators it is recommended to carry out a rule examination of the functions in accordance with the safety requirements. After the start-up the connection between actuator and armature should be examined after some running time. Here the operation smoothness of the armature has to be examined, too. Generally one has to pay attention to the close seat of the cover and the tightness of the cable gland. Unused plugs have to be locked.</p>
Mounting	<p>The J+ J[®] actuators may not install over head. (Flange upwards) Please consider the accessibility of the hand emergency manipulation and the visibility of the position indicator. Depending on the type, the actuator is adjusted according to the print. Possibly the angle of traverse as to be adapted corresponding to the armature. With applications in the external area the actuator has to be protected by suitable measures in order to keep the permissible temperature range. To avoid condensation one should respect the wiring variant for switch room heating.</p> <p>Beyond that the actuators have to be protected against environmental influences (rain, snow, etc.) in order to avoid any malfunction or failure.</p> <p>On part of the plant construction and/or the operator maintenance cycles and test cycles have to be stipulated according to the employment- and safety requirements. Beyond that one has to go into the particulars of control characteristics with the help of guidances and documentations.</p>
Set in operation	<p><u>Before start-up please check the following circumstances:</u></p> <ul style="list-style-type: none"> -Does the actuator correspond to the demanded model? (Torque, protection class, voltage, etc.) -Does the wiring correspond to the kind of tension (see diagram) -Can the armature be operated via hand emergency manipulation without large energy expenditure? -Is there a switch room heating necessary? (With reaching the end positions the tension has to remain on)

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Malfunctioning:

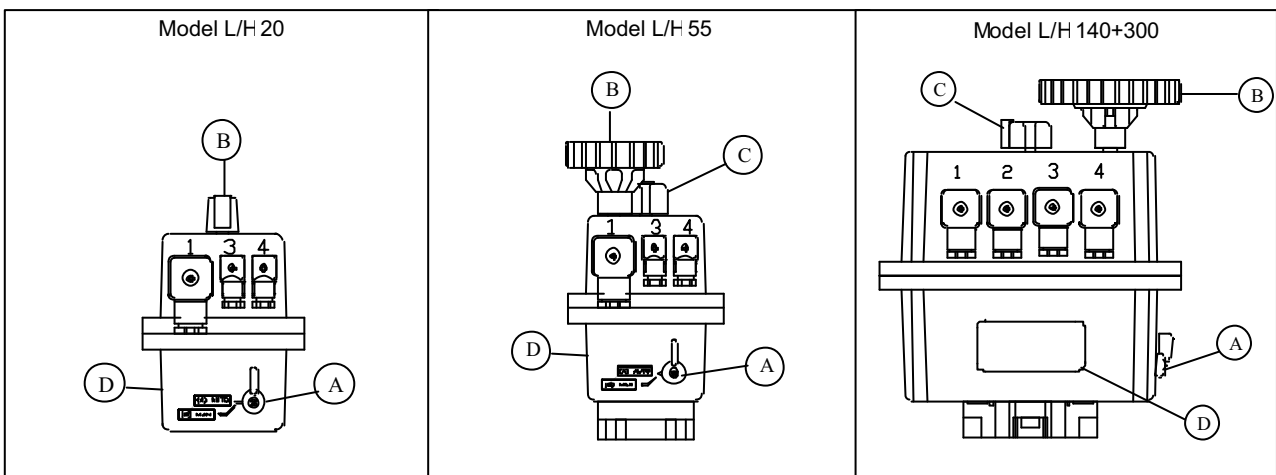
- It does not pass nothing: Switch from manual to open. Wiring (AC or DC) is attached the plug? Does tension arrives the plug?
- The drive starts and remains then standing: At the long side of the drive flashes in the housing a red light (if necessary only with opened drive recognizably- to open only by technical personnel!) Limiter actively, valve difficult to operate or blocks or for operation by the drive model unsuitably. Eliminate reason for overloading or select stronger drive.
- It is recognizable no flare signal: External safety device or fuse blown / if necessary replace wiring fuse.
- Drive stands on open, valve is however closed or for valve opens and closes not completely drive rotated developed or endposition adjustment agrees not with valve: The releasing cams must again be adjusted, and/or the drive is to be developed correctly. The limit switches for position signal do not react to wiring examine: adjustment of the releasing cams in such a way examine and stop that the switches are operated briefly before reaching the procedure way border.
- The drive proceeds, which valve however not adjusts: the interface between valve and drive is incorrectly or defectively, hold consultation with the supplier and examine if necessary total documentation.
- The end position is reached, the Limiter is active (light flashes): mark the position of the position-indication, switch to Manual and turn back drive manually easily from the final position and turn again in direction of the final position.
- Do you encounter increased reconditions must the valve be examined have the valve of final notices those were not removed > notices to remove condition foreign matter in the valve (cloth around shut-off valve, solids in death areas or the like), are defective the seal? > valve repair/ consultation with valve supplier hold. The integrated Limiter represents a protection device, in order to Avoid damage for such problems, a constant utilization (e.g. drive on valve notices) can however to damage to valve, adapters and drive follow. Such errors must be eliminated thus as fast as possible.

Options:

Potentiometer (Optional)	With the special equipment „potentiometer“ is possible a resistance-dependent position sensing of the drive. Here the connection diagram applies to potentiometers (see below), the potentiometer by the drive main shaft over a gear wheel is propelled, the min value represents the position "CLOSED".
Positioner (Optional)	The DPS position control is in accordance with drive identification plate on 4-20mA or 0-10V configures, an appropriate exit for feedback is integrated. The connection takes place in accordance with connection diagram. The control signal must be floating. For the avoidance of operational errors may not be proceeded the drive in the manual enterprise over the indicated terminator points (0-90° or 0-180°). Thus nothing is damaged, but a reprogramming of the terminator points could become necessary (separate guidance). Important notes to potentiometer and position control: With proceeding over the preset stroke the adjustment must take place opposite or it must a 360° adjustment take place so long to the initial value is again reached. We use a stop free potentiometer and by the speed ratio shift the "zero point" with each 360° turn, until it agrees after several turns again.
BSR/ AKKU- Battery pack (Optional)	The BSR safety pack contains a battery inclusive load electronics, which ensures with power failure a safety adjustment (open or close) to the valve. Continuous operation with power failure is not possible hereby, otherwise the drive can be operated like the standard drives. Consider the different wiring (drawer control tension and current on contact).The charging voltage must fit constantly with it the battery is if necessary loaded. Here if tension lies close and the switching contact with tension is subjected, the drive proceeds opposite for safety position. If the switching contact is unloaded or if this current or the charging current precipitates, the emergency adjustment is released. The batteries used has a long life span, which is however dependent on the operating conditions. Thus a rule examination of the drives is to be planned based on the safety requirements.

Outfit:

- 1 : Main supply
- 2 : Options - Auxiliaries
- 3 : Options - Auxiliaries:: Connector for positioner, output potentiometer
- 4 : Connector for extra limit switches
- A : Manual / Automatic switch
- B : Handwheel At model 20 lever / optical position indicator and manual override.
- C : Optical position indicator
- D: Wiring diagram



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Main Data:

Model	max. current Modell H 85 -240V (+/- 5%)	max. current Modell L 12-48V DC (-0/+ 5%) 15-48V AC (-0/+5%)	Max. torque Nm	Working- time for 90°/
20	85VAC: 330mA / 28,05W 85VDC: 290mA / 24,65W 110VAC: 202mA / 22,22W 110VDC: 180mA / 19,8W 220VAC: 99mA / 21,78W 240VAC: 88mA / 21,12W	15VAC: 2400mA / 36W 12VDC: 2600mA / 31,2W 24VAC: 840mA / 20,16W 24VDC: 680mA / 16,32W 48VAC: 460mA / 22,08W 48VDC: 400mA / 19,2W	25 Nm	L20 = 8 sec. (+/- 10%) H20 = 9,5 sec. (+/- 10%)
55	85VAC: 400mA / 34W 85VDC: 430mA / 36,55W 110VAC: 257mA / 28,27W 110VDC: 280mA / 30,8W 220VAC: 120mA / 26,4W 240VAC: 115mA / 27,6W	15VAC: 3900mA / 58,5W 12VDC: 2580mA / 30,96W 24VAC: 1110mA / 26,64W 24VDC: 1110mA / 26,64W 48VAC: 560mA / 26,88W 48VDC: 600mA / 26,8W	60 Nm	L55 = 10 sec. (+/- 10%) H55 = 11 sec. (+/- 10%)
140	85VAC: 700mA / 59,8W 85VDC: 610mA / 31,85W 110VAC: 340mA / 37,4W 110VDC: 270 mA / 29,7W 220VAC: 155 mA / 34,1W 240VAC: 150mA / 36W	15VAC: 6400mA / 96W 12VDC: 4130mA / 49,56W 24VAC: 1620mA / 38,88W 24VDC: 1430mA / 34,32W 48VAC: 590mA / 28,32W 48VDC: 600mA / 28,8W	170 Nm	L140 = 31 sec. (+/- 10%) H140 = 31 sec. (-10% / +20%)
300	85VAC: 750mA / 63,75W 85VDC: 800mA / 68W 110VAC: 440mA / 48,4W 110VDC: 470mA / 51,7W 220VAC: 230mA / 50,6W 240VAC: 240mA / 57,6W	15VAC: 6900mA / 103,5W 12VDC: 4770mA / 57,24W 24VAC: 1800mA / 43,2W 24VDC: 1600mA / 38,4W 48VAC: 1000mA / 48W 48VDC: 1010mA / 48,48W	350 Nm	L300 = 60 sec. (+/- 10%) H300 = 66 sec. (+/- 10%)

Common Data:

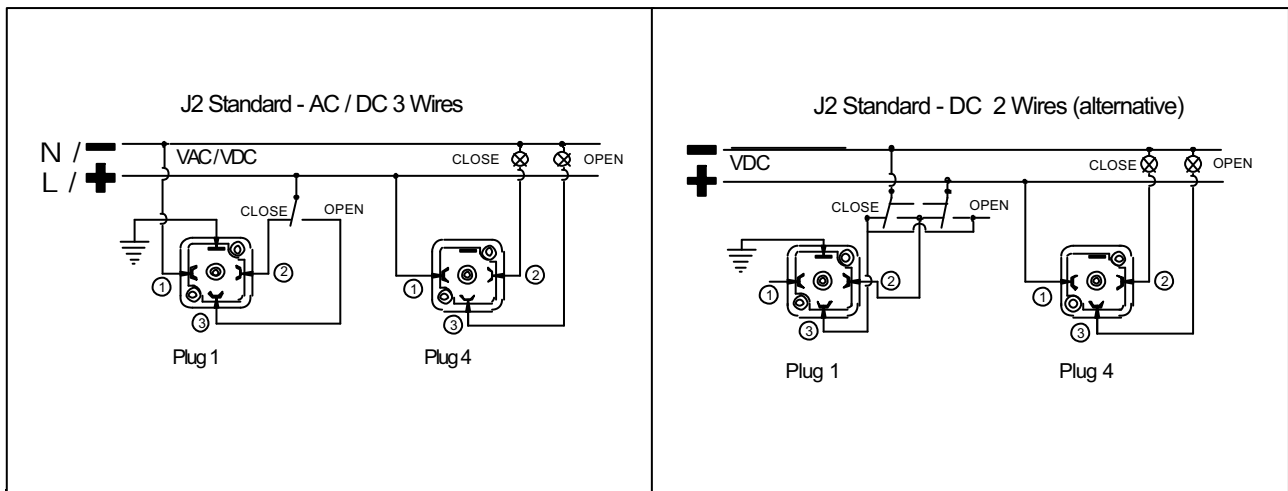
Duty	Temperature range	Heater	Safety class IEC60529	Lim.- switches*
75%	-20 / +70°C	4W	IP65	250VAC 3A

Weight:

Model "20"	Model "55"	Model "140"	Model "300"
1,5 Kg	2,4 Kg	5,2 Kg	5,2 Kg

Further dates on request. Other switches (gold contacts) possible.

Wiring Diagram:



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Adjustment:

Adjustment instruction limit switches J2

All work in the drive may be accomplished only by qualified technical personnel and with switched off voltage supply.

Affecting live components can have and to the damage of electronics lead a dangerous electrical impact to the consequence! Purpose: The drives are pre-adjusted. Dependent on the use, lacking aligning of valve connections or adapters, it can be necessary the drive in its strokeends on the respective valve to adapt or feedbacks circuit differently to adjust. Sometimes a readjusting can become necessary after longer employment under strong vibrations. Note: All screws and seals are to be brought after the assembling into their original position. Consider the references of the valve manufacturer and if necessary instructions of the plant constructor.

Preparing measures:

1. Plugs after loosening of the fixing screws take off (seals consider).
2. (only model 55, 140, 300)
loosen the screws of the handwheel and take handwheel off.
3. Take off indicator and/or lever carefully with a broad screwdriver after above force away.
4. The housing screws loosen and take.
5. Covers carefully straight take off upward and do not rotate, if necessary with model 140 and 300 upper section with both hands press upward (levers with a screwdriver can lead to leakages). Covers aside put (cables to be able to remain connected with the plate, however absolutely consider them the cable run, which must be restored for the assembly).
6. Put handwheel/ lever or indicator and fix the screws.

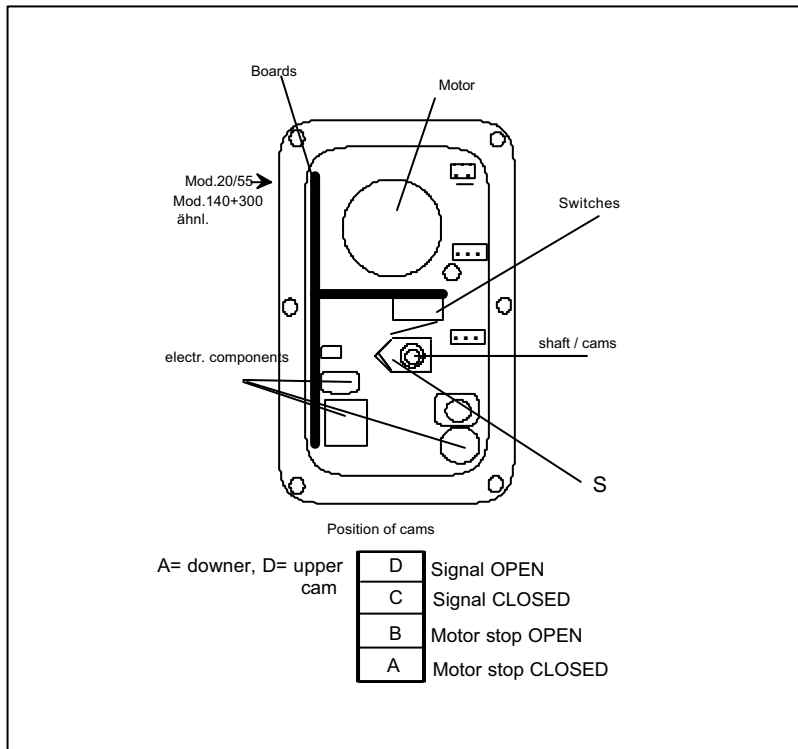
Proceeding: Switch from AUTO to MAN and drive to position by handwheel, which shall be changed.

Engine shut-down: You can use a 2mm Allen key or a small screwdriver now into the gap S of the cam put and rotate the cam to the clicking noise of the switch to hear are. Turn the cam from the direction with that the main shaft on the position will always turn to the switching flag near.

End position signal: The adjustment of the end positions takes place in the same way or by means of a continuity tester. The continuity tester is attached to pin 1 and 2 (closed position) or to pin 1 and 3 of the end position plug (see connection diagram).

The signal levers must be adjusted in such a way that they are released briefly before reaching the engine shut-down. Naturally they can be adjusted also on any point in the swivelling range of the drive over e.g. intermediate positions to indicate. Note: The adjusting tool may not be supported when adjusting the end positions at drive construction units. Examine afterwards the elevator position of the cams, shifting upward can to the consequence have that a cam affects 2 switching flags. If necessary are to be shifted after cams down.

Assembly: After conclusion of the adjustment the cover is carefully remounted. Pay attention to lead the cables past as in the starting situation at the waves and the engine so that it cannot come to malfunctions by getting jammed. The cover must rest upon now closely the lower part. This is the case does not lie a cable possibly between engine and cover or is gotten jammed between lower part and cover. The cover lies closely on can you the screws use and crosswise tighten. Put afterwards the flaps position indicator on, the handwheel or the lever put on and fix. After the electrical connections are manufactured and were switched the drive under easy rotation of the handwheel or lever by AUTO to MAN, you can examine the electrical function. If the function should be incorrect, the procedure is to be repeated carefully. With questions please contact with the J+J® Service.



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