LSB1 LIMIT SWITCH BOXES

INSTALLATION AND MAINTENANCE INSTRUCTIONS

IMI LSB1.010 E 00.26

GENERAL INFORMATION

- These instructions must be carefully read before performing any work involving VALSTEAM ADCA products. Failure to observe these instructions may result in hazardous situations.
- These instructions describe the entire life cycle of the product. Keep them in a location that is accessible to every user and make these instructions available to every new owner of the product.
- Current regional and plant safety regulations must be considered and followed during installation, operation, and maintenance work.
- The images shown in these instructions are for illustration purposes only.
- For problems that cannot be solved with the help of these instructions, please contact VALSTEAM ADCA or its representative.

VALSTEAM ADCA ENGINEERING S.A

Zona Ind. da Guia
Pav.14 - Brejo
3105-467 Guia, Pombal
PORTUGAL
quality@valsteam.com

CONTENT

1. SAFETY INFORMATION

1.1. Explanation of symbols

DANGER

Hazardous situations which, if not avoided by applying the correct preventive measures, will result in fatal or serious injury and/or considerable property damage.

WARNING

Hazardous situations which, if not avoided by applying the correct preventive measures, could result in fatal or serious injury and/or considerable property damage.

CAUTION

Hazardous situations which, if not avoided by applying the correct preventive measures, could result in moderately severe or minor injury.

NOTICE

Situations which, if not avoided, can result in property damage or product malfunction.

NOTE

Indicates additional informations, tips, and recommendations.

1.2. Intended use

The LSB1 must not be used:

- Outside the specified temperature ranges;
- In hazardous areas without appropriate Ex certification;
- With electrical parameters exceeding the specified limits;
- In applications other than valve position feedback and control;

Failure to comply with these conditions may result in malfunction, damage to the device, or unsafe operation.

Refer to the markings on the device, such as nameplate and laser markings, Information Sheet (IS) and these Installation and Maintenance Instructions (IMI) to check that the product was designed for the intended use and meets the specifications used for sizing and selection. This includes checking application, material suitability, process medium, pressure and temperature as well as their respective limiting values.

VALSTEAM ADCA does not assume any responsibility for damage resulting from inappropriate use of the product, damage caused by external stresses or any other external factors. Correct installation of the product is the full responsibility of the contractor.

Inappropriate use of the product is any use other than the one described in this chapter. Inappropriate use also includes:

- Use of spare parts that are not genuine;
- Performance of maintenance work not described in these instructions;
- Use outside the limits defined by the accessories connected to the product;
- Unauthorized modifications to the product.

If the product is to be used for an application or with a fluid other than the one it was designed for, contact VALSTEAM ADCA.

1.3. Qualification of personnel

Handling, installation, operation, and maintenance work must be carried out by fully trained and qualified personnel, capable of judging the work that they are assigned to perform and recognizing potentially hazardous situations. They should be trained to properly use this product according to these Installation and Maintenance Instructions.

Where a formal “Permits to Work” system is implemented in the plant, it must be complied with.

1.4. Notes on electric equipment

The following precautions must be followed when dealing with electric equipment:

- Personnel which comes into contact with the product must be qualified to work with equipment containing hazardous live voltage. Life-threatening risks may occur due to electrical voltages.
- Before removing the cover from the unit, ensure that it is isolated from the supply voltage and protected against unintended reconnection. Supply voltage may only be switched on after the proper closure of the main cover or terminal box.
- The unit is designed as an installation category II product, and as such is reliant on the building installation for overcurrent protection and primary isolation.
- Wiring should be carried out in accordance with IEC 60364 or equivalent.
- Fuses should not be fitted in the protective earth conductor. The integrity of the

installation protective earth system must not be compromised by the disconnection or removal of other equipment.

- A circuit breaker or other type of switching device must be included in the installation. The requirements for the switching device are specified in IEC 60947-1 and IEC 60947-3 or equivalent. The switching device must be of easy reach and located in close proximity to the equipment; Marked as a disconnecting device for the equipment in question; Must not interrupt the protective earth conductor.

1.5. Personal protective equipment

Personal protective equipment should always be worn during work in order to protect against hazards posed by e.g. the process medium, dangerous temperatures, noise, falling or projected objects and working at height. These equipment includes a helmet, safety glasses, safety harness, protective clothes, safety shoes, hearing protection, etc.

NOTE

Always assess whether you or others in your vicinity require any protective equipment. When in doubt check with the plant's health & safety responsible personnel for details on required protective equipment.

1.6. The system

The complete system should be assessed as well as every action (e.g. closing of shut-off valves, disconnection of the power supply) to ensure this will not bring additional risk to personnel or property.

Dangerous actions that can result in a hazardous situation include isolation of protective devices such as safety valves, vents, vacuum relief valves, disconnection of electric safety devices, sensors, and alarms.

1.7. ATEX

Standard versions are suitable for general industrial use.

The permissible ambient temperature range depends on the housing material and the installed switch or sensor type. The applicable limits are specified in the relevant technical data sheet and indicated on the product label.

Intrinsically safe versions (Ex ia) are suitable for Zone 1 and 2 (gas, mist, or vapor atmospheres), 21 and 22 (combustible dust atmospheres) when connected to certified intrinsically safe circuits.

The permissible ambient temperature range depends on the sealing compound and the installed switch or sensor type.

The specific temperature limits are defined in the corresponding information sheet and indicated on the product label. Depending on the configuration, extended temperature ranges may be available, typically from -55°C up to +100°C, provided that all components are rated accordingly.

1.8. General safety notes

DANGER

RISK OF ELECTRIC SHOCK

Before connecting wiring, opening or performing any work on the instrument, disconnect the supply voltage and protect it against unintentional reconnection.

- Do not perform work on live parts.
- Only use power interruption devices that are protected against unintentional reconnection of the power supply.
- An earth connection must be made to the earth terminal of the instrument.

WARNING

RISK OF INJURY AS A RESULT OF ILLEGIBLE INFORMATION

Important information written in the product nameplate, markings, and warning signs may wear overtime or get illegible due to e.g. dirt accumulation, resulting in hazardous situations and personal injury or property damage.

- Keep nameplates, markings, and warning signs in a legible state, replacing when illegible, missing, or damaged.

2. PRODUCT INFORMATION

The ADCATrol LSB1 is a limit switch box designed for mounting on pneumatic linear or rotary actuators, serving as an interface between the valve and the control system.

Featuring a flexible and compact design, the LSB1 is an essential component in industrial and process control systems. It enhances safety, efficiency, and control by providing accurate, real-time position feedback of the valve, enabling fast response to process changes or emergency conditions while reducing the need for manual intervention.

Depending on the configuration, the LSB1 can be equipped with a variety of switching and sensing elements, including:

- Mechanical micro switches
- Inductive proximity switches (including intrinsically safe versions)
- Slot-type sensors (1 to 3 units)
- Cylindrical sensors (1 to 2 units)

- Dual sensors
- Potentiometers (model dependent)
- Pneumatic switches (model dependent)

The unit supports configurations with up to four switches or sensors.

Intrinsically safe versions (Ex ia) are available for use in hazardous areas, in compliance with applicable safety requirements.

The LSB1 can optionally be equipped with mechanical visual position indicators for local valve position monitoring. Two versions are available:

- Mechanical visual position indicator with transparent window – Includes a 3D visual indicator integrated inside the housing, providing clear position indication for 2-way and 3-way ball valves.
- Mechanical visual position indicator with protruding transparent window – Features a large, raised visual indicator integrated into the cover, providing clear OPEN/CLOSED position indication for quarter-turn (90°) applications.

2.1. Principle of operation

The LSB1 operates through a direct mechanical connection between the actuator shaft and the internal shaft of the limit switch box. As the actuator moves, the LSB1 shaft rotates accordingly. Cams mounted on the shaft actuate the installed switches or sensors, generating electrical signals corresponding to the valve position. This ensures reliable and real-time feedback to the control system, contributing to safe and efficient process operation.

2.1.1. Special conditions of use

The permissible ambient temperature range is determined by the device components, design, and the applicable temperature class. The specific values must be taken from the operating instructions and product marking.

Models equipped with an OCT visual indicator must be installed in locations protected from high electrostatic charging processes.

The device must only be operated in a fully assembled condition and in accordance with the specified operating limits.

2.2. Certification

This product complies with the requirements of the European LVD - 2014/35/EU Low Voltage Directive, EMC - 2014/30/EU Electromagnetic Compatibility Directive, and RoHS - 2011/65/EU and 2015/863/EU Restriction of Hazardous Substances Directive.

The product declaration of conformity is available on request.

In versions with Explosion Protection, the equipment complies with the requirements of the ATEX 2014/34/EU Directive and is designed in accordance with the following standards:

- EN IEC 60079-0:2018
- EN 60079-11:2012

2.3. Product identification

The following items are indicated on the product nameplate or directly on its body:

- Manufacturer
- Product model and code (e.g. LSB1)
- Type of switch (e.g. P+F, NBB2-V3-E2)
- Voltage and operating current limits (e.g. 8,2V DC < 1mA on, >= 3mA off)
- Ambient temperature (e.g. -25... + 70 ºC)
- IP rating (e.g. IP 66 / IP 67)
- Serial number and year of manufacturing (e.g. Reg.:17483/26)
- CE Marking
- EX Marking (when applicable e.g. Ex 2 G, Ex ia IIC T6 GB; II 2D Ex ia IIIC T80 ºC Db)

Each switch configuration may have a specific label version depending on the installed components.

Where applicable, the label may also include the identification number of the notified body responsible for the quality management system.

2.4. Technical data

For technical data, including dimensions, materials, limiting conditions, and versions, refer to the product's respective Information Sheet (IS).

3. TRANSPORT, STORAGE AND PACKAGING

WARNING

RISK DUE TO FALLING LOADS

Loads may tip or fall over, resulting in damage to property, serious injury, or death.

- Use suitable equipment when moving or lifting suspended loads.
- Make sure no one is standing below the suspended load.

CAUTION

RISK OF INJURY DUE TO IMPROPER HANDLING

Manual handling (e.g. lifting, carrying, pushing, pulling) of large and/or heavy products may result in personal injury, such as back injury.

- Assess the risk associated with the handling task.
- Use adequate handling methods and appropriate auxiliary handling equipment.

NOTICE

RISK OF PRODUCT DAMAGE DUE TO IMPROPER STORAGE

- Do not remove any packaging or protective covers until immediately before installation at the site.
- Store the product in a solid base in a dry, cool, and dust-free environment.
- Until its installation, protect it from the weather, dirt, corrosive atmospheres, and other harmful influences.

RISK OF PRODUCT DAMAGE DUE TO LONG-TERM STORAGE

Some product components may deteriorate with time (e.g. valve packings, seals).

- Do not store the product for more than 12 months.
- If, for any reason, the product must be stored for longer periods, contact VALSTEAM ADCA.

Products are individually wrapped in plastic film, thermo-shrinkable plastic, and/or stored in a cardboard box as they leave VALSTEAM ADCA. Avoid removing packaging and any protective cover until immediately before installing the product at the site.

Ensure the product is stored at a temperature of -20 to +60°C and relative humidity of 5 to 95% in a non-condensing environment.

NOTE

If the transport packaging has any shipping damage, contact VALSTEAM ADCA or its representative.

Before storing and transporting the product, protect it from impacts and mechanical damage, paying special care to fragile parts.

NOTE

If the corrosion protection (paint and other surface coatings) of the product is damaged during transport or other handling procedures, repair it immediately.

4. INSTALLATION

Before performing any installation work, refer to section 1 – Safety information.

WARNING

RISK OF INJURY DUE TO INSUFFICIENT SUPPORT DURING INSTALLATION

Insufficient support of the product during installation may cause it to fall and cause personal injury.

- Ensure the product is safely held in place during installation.
- Wear protective safety shoes.

NOTICE

RISK OF PRODUCT DAMAGE DUE TO STRESS

The housing is not designed to support mechanical loads or to be used as a step or climbing aid. Improper use may compromise its sealing integrity, leading to ingress of water, dust, or other contaminants and resulting in malfunction or failure of the device. In hazardous areas, this may also create safety risks, such as explosions.

- Do not use the housing as a step, support, or climbing aid.
- Do not apply external mechanical loads to the device housing.
- Do not damage or modify the housing or sealing elements.
- Ensure the housing remains properly sealed during operation.

NOTICE

LOCAL WIRING AND SAFETY REGULATIONS SHOULD BE STRICTLY ADHERED TO WHEN INSTALLING THE PRODUCT

- Should these regulations conflict with the following instructions, contact VALSTEAM ADCA or its representative for advice.

Installation, connection, and commissioning must only be carried out by qualified personnel with appropriate technical knowledge and in compliance with applicable regulations.

For intrinsically safe (Ex ia/ib) versions, personnel must additionally have proven knowledge of explosion protection requirements and the applicable standards for hazardous areas.

4.1. Preparation for installation

Before installation, make sure the following conditions are met:

- The installation area has easy access, and the product is to be installed in a position where operation and maintenance work can be performed safely. Ensure there is enough space to remove the front cover.
- The product will be installed with proper support and free of any stresses that can be induced by the system. The necessary precautions are recommended during system design.
- The product is not damaged.
- Make sure all the necessary materials and tools are readily available during installation work.
- Referring to this Installation and Maintenance Instructions (IMI), Information Sheet (IS), and nameplate, check that the product is suitable for the intended installation – see section 1.2 – Intended use.
- Check voltage, frequency, and electric cable section to make sure that the electrical supply meets the specifications stated on the product nameplate.
- Take appropriate measures to prevent accidental activation and improper external influence.
- Remove sealing plugs only immediately before cable insertion to prevent contamination.
- Ensure all connecting cables are adequately strain-relieved or securely routed.
- Use only approved conductor cross-sections and tightening torques as specified in the documentation.
- Protect the equipment and cables against mechanical damage.

- When installing limit switch boxes in outdoor applications, a pressure compensation (venting) element is required to prevent the formation of condensation inside the housing due to temperature variations. Always verify whether the device is equipped with a pressure compensation element. The enclosures are rated for IP66 and IP67 protection. However, under heavy rainfall conditions, water ingress may still occur if installation is not performed correctly. For vertical mounting positions, it is recommended to orient the cable glands downward to reduce the risk of water ingress along the cables due to capillary effects.
- Avoid static charge on plastic parts and cables. To clean the equipment, use an antistatic or wet cloth.
- Include all conductive metal parts in equipotential bonding.
- Ensure dissipative housings are properly grounded via the mounting system (bracket or ground screw, depending on configuration).
- Operate the device only when fully assembled.
- Never disconnect connector cables while they are under power.
- In Ex ia versions, connect the switch box only to certified intrinsically safe circuits that comply with maximum values (Ui, Ii, Pi, Ci, Li).
- In Ex ia versions, each sensor must be connected to a separate intrinsically safe circuit.
- In Ex ia versions, and for multi-sensor configurations, use approved 2-channel isolating barriers (e.g. IFM N0533A, P+F KFD2-SR2-Ex2.W, Turck IM1-22EX-R, or IM36-11EX-U/24VDC for potentiometers).
- When selecting the location, make sure the limit switch box is not exposed to ambient temperatures beyond the limits specified on the device. If necessary, provide insulation to prevent overheating.
- When designing the system, make sure the system will fail safe. This could include the provision of an additional monitoring device, depending upon the particular application and any consequences of an instrument or sensor failure.
- Failure to observe the outlined instructions in these operating instructions, or improper use or handling of the device, will void any liability on our part. Furthermore, any warranty coverage for the device and its accessory components will be invalid.

NOTE

Assembly Drawings (AD) with assembly details and parts lists are available on request.

4.2. Mounting the limit switch box on rotary pneumatic actuators

The limit switch box can be mounted quickly and easily on the actuator using a mounting kit in accordance with VDI/VDE 3845.

Installation procedure:

1. Set the actuator to the end position so that the groove of the drive shaft is aligned parallel to the actuator housing.
2. Place the limit switch box onto the actuator using the appropriate mounting bracket.
3. Secure the mounting bracket to the actuator using the four supplied screws.
4. Loosen the four cover screws and open the housing, taking care not to remove the screws completely; they should remain retained in the cover.
5. Feed the system cable through the cable gland into the housing and connect the individual conductors to the terminal block. Refer to the wiring diagram on the product label or inside the cover. Ensure proper connection to the equipotential bonding system.
6. Close the housing by attaching the cover, ensuring the gasket is correctly positioned, and tighten the cover screws securely.

4.3. Mounting the limit switch box on manual valves

Limit switch boxes equipped with an F05 interface on the underside of the housing can also be mounted on manual valves using a suitable mounting kit (consult manufacturer).

For this application, the manual valve must be provided with a top flange in accordance with ISO 5211 (F03–F16) and a threaded bore in the valve shaft.

4.4. Mounting the limit switch box on linear pneumatic actuators

The limit switch box can be mounted on linear pneumatic actuators that comply with EN 60534 6 1 using an appropriate mounting kit (consult the manufacturer).

Installation procedure:

1. Install the lever (4) on the actuator shaft using the two supplied socket cap screws.
2. Install the mounting bracket (1) on the rear side of the limit switch box using four hexagon bolts and four flat washers.
3. Install the scaled lever (3) onto the shaft of the limit switch box and tighten the compression bolt securely.
4. Attach the mounting bracket to the actuator, depending on the type of actuator yoke:

a. Round bar yoke: In case the mounting kit was supplied with a U bolt (2), place it around the bar, fit one flat washer and spring washer on each side, and tighten the nuts loosely. In case a mounting plate (2A) was supplied, it clamps onto the round bar using four hexagon head screws. Align the carrier pin (5) with the slot in the actuator lever (4), then tighten all bolts and nuts securely.

NOTE

The position along the yoke may require adjustment while adjusting the swivel-range of the limit switches – see section 4.6.

b. Flat bar (plate or fabricated) yoke: Fasten the mounting bracket to the yoke using a single hexagon bolt, together with a spring washer and a flat washer. Ensure that the carrier pin (5) is correctly aligned with the slot in the actuator lever (4).

5. Adjust the carrier pin position along the marked scale as required to correctly set the swivel range of the limit switches in accordance with the actuator stroke.

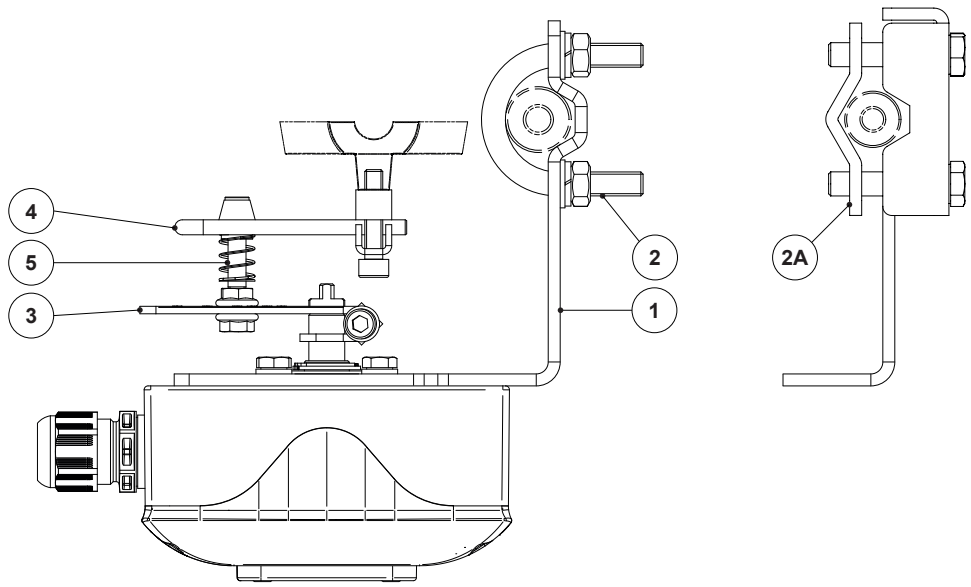

Fig. 1 – Mounting detail

4.5. Electrical installation

The permissible cable outer diameters are specified in the LSB1 information sheet. The wiring diagram is provided either on or inside the housing cover, as well as in the corresponding information sheet.

Each sensor inside the housing is connected to a separate intrinsically safe circuit.

As an alternative to cable glands, M12 connectors or other suitable connection devices may be used, provided they comply with the separation distances specified in Table 5 of EN 60079-11. Any unused connections must be sealed with an appropriate dust-tight

cap.

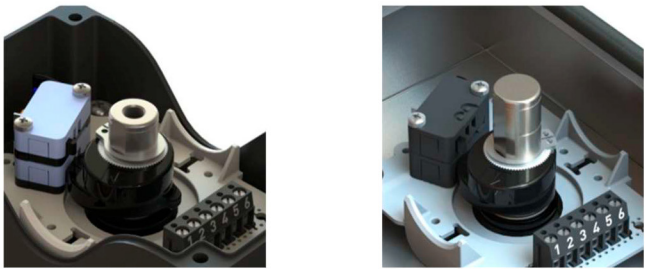

Fig. 2 – Standard terminal box for aluminium (left) and stainless steel (right) enclosures

NOTICE

RISK OF PRODUCT DAMAGE AND LOSS OF IP PROTECTION DUE TO IMPROPER CABLE GLAND INSTALLATION

Improper cable gland installation may compromise the sealing integrity of the housing and reduce the ingress protection (IP rating) of the device. This can lead to water or dust ingress and result in malfunction of the electrical system.

- Ensure the gland body remains fixed in the housing during tightening. Rotation may cause the sealing washer to move out of position, resulting in loss of sealing integrity.
- Use two open-end wrenches: one to hold the gland body in position and one to tighten the nut.

As an alternative to cable glands, the LSB1 can be supplied with different electrical connection options depending on the configuration. The following options are available:

- M12 male plug connector (5-pin) for quick and simple plug-in electrical connection;
- Threaded housing entry with 1/2” NPT connection (without cable gland).

These connection types must be installed in accordance with the applicable protection requirements of the device and ensure proper sealing and ingress protection.

The electrical input parameters are determined by the installed sensors and must be strictly observed.

The relevant values, including:

- Ui (input voltage)
- Ii (input current)
- Pi (input power)
- Ci (internal capacitance)
- Li (internal inductance)

are specified on the product label and in the corresponding documentation.

For configurations with mechanical switches (gold contacts), the applicable electrical limits must be observed as specified in the product documentation.

For configurations with potentiometers, the corresponding electrical ratings must also be respected, as defined in the technical documentation.

4.6. Adjusting the swivel-range

In the delivered condition, the cams are factory preset for a standard swivel range of 0–90°. If a different swivel range is required, proceed with the procedures described below.

4.6.1. For rectangular limit switches and slot-type sensors

Adjustment procedure:

1. Move the actuator to the desired end position 1.
2. Adjust the lower cam by pressing it down and rotating it until it activates the switch. Release the cam to allow it to engage again with the gear mechanism.
3. Move the actuator to the desired end position 2.
4. Adjust the upper cam in the same way until it activates the switch, then release it to re-engage with the gear mechanism.
5. Verify the adjustment by operating the actuator several times to ensure correct switching.

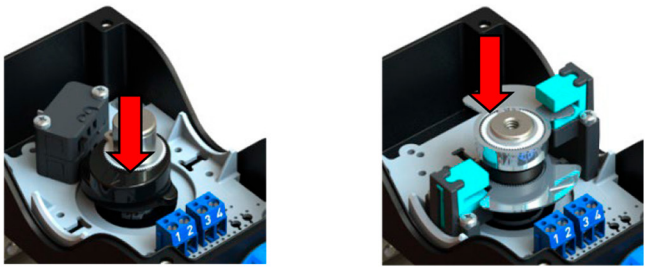

Fig. 3 – Adjusting cams in rectangular switches (left) and slot-type sensors (right)

4.6.2. For cylindrical limit switches

Adjustment procedure:

1. Loosen the M6 nut and remove the upper cam.
2. Unfasten the threaded rod and move the actuator to the desired end position 1. Adjust the lower cam as required, then tighten the threaded rod securely.
3. Move the actuator to the desired end position 2. Adjust the upper cam and secure it again using the nut.
4. Verify the adjustment by operating the actuator several times to ensure correct

switching and functionality.

5. Reinstall the visual indicator on the shaft of the limit switch box. Ensure that the indicator is aligned with the upper end of the threaded rod to prevent contact with surrounding components or the housing.

Fig. 4 – Adjusting cams in cylindrical limit switches

WARNING

RISK OF INJURY AND EQUIPMENT DAMAGE DURING ADJUSTMENT

During actuator operation, moving parts may create pinch points between the switch and cam, which may cause injury.

- Improper cam adjustment may also damage the switch if the cam comes into direct contact with it during operation.
- Keep hands and body parts away from moving actuator components during operation.
- Ensure correct cam positioning before operating the actuator.
- Verify that the cam does not strike the switch during movement.

5. SHUTDOWN

Before performing the shutdown procedure, refer to section 1 – Safety information.

5.1. Shutdown procedure

1. Disconnect the limit switch box from the power supply.
2. Loosen the four cover screws and remove the housing cover. Do not remove the screws completely; they should remain retained in the cover.
3. Disconnect the system cables from the terminal block inside the limit switch box.
4. If the limit switch box is to be removed from the actuator, loosen the four screws securing the mounting bracket to the actuator and carefully remove the limit switch box from the actuator.

6. MAINTENANCE

Before performing a maintenance procedure, refer to section 1 – Safety information.

With long-term outdoor use or exposure to extremely high or low ambient temperatures, the housing and shaft seals may become porous. Safe operation can only be guaranteed with a properly sealed housing.

Seals must be replaced as soon as signs of wear are detected, and at the latest every 5 years.

Additionally, strong vibrations or significant temperature fluctuations may cause the cover screws to loosen. To ensure proper sealing, retighten the cover screws every two years. Any other modifications to the device are strictly prohibited.

Ex ia Versions (ATEX Applications): Intrinsically safe (Ex ia) limit switch boxes may be opened during operation or in the presence of an explosive atmosphere, as maintenance work is permitted within the Ex zone due to the use of intrinsically safe circuits. The same maintenance rules apply regarding seal inspection and replacement.

Limit switch boxes are precision devices and must be handled with care during maintenance and cleaning.

The housings are designed to provide protection in accordance with IP66 / IP67 standards:

IP66: Dust-tight and protected against powerful water jet.

IP67: Protected against temporary immersion in water up to 1 m for 30 minutes.

To maintain these protection levels, ensure that seals remain intact and properly installed.

Cleaning must be performed using a damp cloth only. The use of high-pressure cleaners or similar equipment is not permitted, as it may damage the sealing system.

7. TROUBLESHOOTING

Before applying any corrective measure, refer to section 1 – Safety information.

If the malfunction cannot be solved with the help of the following table, contact VALSTEAM ADCA or its representative.

In the event of a malfunction, first check the electrical connections, supply voltage, cam positions, and the presence of condensation inside the housing. Also, verify the correct operation of the actuator and valve.

Rectify any identified faults where possible.

If the malfunction persists, disconnect the device from the power supply and do not attempt further operation. For problems that cannot be solved using these instructions, contact VALSTEAM ADCA or its representative.

MALFUNCTION	POSSIBLE CAUSE	CORRECTIVE MEASURE
No signal output.	Faulty wiring or incorrect supply voltage.	• Verify terminal connections and supply voltage.
Signal at wrong position.	Cams misaligned.	• Readjust cams according to Section 9 (Setting of the Swivel Range).
Condensation inside housing.	Missing pressure compensation element or loose cable gland.	• Install “-DAE” venting element and ensure cable glands are properly tightened.
Switch damage.	Cam incorrectly adjusted and striking the switch.	• Adjust cam position and ensure sufficient clearance from the switch.

8. DISPOSAL

Once the product has reached the end of its working life, it should be sent for disposal in accordance with the prevailing national and local regulations.

Before disposal, make sure that the product is clean and free from fluid residues.

During its disposal, pay special attention to rubbers, resins, and polymer components (PVC, PTFE, PP, PVDF, FKM, NBR, etc.).

Do not dispose of components and hazardous substances together with household waste.

9. RETURNING PRODUCTS

Information regarding hazards and precautionary measures to be considered due to contaminating fluids and residues or mechanical damage that may represent a health, safety, or environmental risk must be provided in writing when returning products to VALSTEAM ADCA.

WARNING

RISK DUE TO THE PRESENCE OF HAZARDOUS RESIDUES ON RETURNED PRODUCTS

Contaminated fluids and residues may represent an environmental risk or risk to VALSTEAM ADCA personnel.

- Information regarding any hazards or precautionary measures to be considered must be provided in writing when returning products to VALSTEAM ADCA.
- Health and Safety information sheets relating to any substances identified as hazardous or potentially hazardous must be provided outside the packaging.
- Use Hazmat labels on the packaging.

IMPORTANT NOTE

Total or partial disregard of these Installation and Maintenance Instructions involves loss of any right to warranty.

The extent and warranty period are specified in the “General sales conditions”.