C1D2 Emergency Stop Disconnect Switch
690V Rated, 3PH - 6-Pole, 20 Amps - (1) NC - Wall Mount
Instruction Manual

Thank you for your purchase of the Larson Electronics HLSW-MDS-20A-6P-ES.

WARNING

TO AVOID THE RISK OF FIRE, EXPLOSION OR ELECTRIC SHOCK, THIS PRODUCT SHOULD BE INSTALLED, INSPECTED AND MAINTAINED BY A QUALIFIED ELECTRICIAN ONLY, IN ACCORDANCE WITH ALL APPLICABLE ELECTRICAL CODES.

TO AVOID ELECTRIC SHOCK:

- BE CERTAIN ELECTRICAL POWER IS OFF BEFORE AND DURING INSTALLATION AND MAINTENANCE.
- PRODUCT MUST BE CONNECTED TO A WIRING SYSTEM WITH AN EQUIPMENT-GROUNDING CONDUCTOR.

TO AVOID EXPLOSION:

- MAKE SURE THE SUPPLY VOLTAGE IS WITHIN THE VOLTAGE RATING.
- ENSURE THE MARKED T RATING IS LESS THAN THE IGNITION TEMPERATURE OF THE HAZARDOUS ATMOSPHERE.
- DO NOT OPERATE IN AMBIENT TEMPERATURES ABOVE THOSE INDICATED ON THE PRODUCT NAMEPLATE.
- DO NOT OPERATE IF THE LENS, CORD, SEALS, HOUSING, RECEPTACLES, ETC. IS CRACKED OR DAMAGED. IF SO, DISCONTINUE USE AND CONTACT MANUFACTURER FOR REPLACEMENT PARTS.
- ALL FASTENERS SHOULD BE PROPERLY SEATED.

The Larson Electronics HLSW-MDS-20A-6P-ES Explosion Proof Emergency Stop Disconnect Switch is designed for managing electrical connections in hazardous locations. This 20-amp unit is rated at 690V AC and offers compatibility with three phase. Constructed of non-metallic fiberglass-reinforced polyester, the disconnect switch is housed in an IP66-rated enclosure. This 6-pole hazardous location switch can be mounted on walls for seamless access.

⚠ ***Caution***
This symbol warns of a possible failure. Failure to observe this caution may result in the total failure of the device or the system or plant to which it is connected.

Special conditions
This symbol shows Highlights for safe use in accordance to EU-Type-Examination Certificate/ IEC Ex-Certificate of Conformity.

Safety instructions

Target group:
For skilled electricians and suitable qualified, instructed personnel in accordance with national legislation, including the relevant standards and, where applicable, in acc. with IEC/EN 60079-14 on electrical apparatus for explosive atmospheres.

The switches are not suitable for zone 0 and zone 20 hazardous areas.

The temperature class and explosion group marked on the apparatus, shall be observed.

The requirements of the IEC/EN 60079-31 regarding excessive dust deposits and temperature to be considered from the user.

To ensure adherence to the temperature class stated on the type label of the apparatus, the permissible ambient temperature, the rated terminal cross section and the self-heating of the apparatus, that is mainly due to the power dissipation, shall be taken into account (test criterion for the self-heating is an overload of 10%).

They shall be used for their intended purpose and in perfect and clean state.

Prior to being put into operation, the switches shall be checked in accordance with the instructions as per section 6.

Warning: The covers of the switches can only be removed when the switch is in the "ON" position.

The national safety rules and regulations for the prevention of accidents, as well as the safety instructions included in these operating instructions, that, like this text, are set in italics, shall be observed!

APPLICATION / PROPERTIES

The switches are intended for use in potentially explosive atmospheres in Zones 1 and 2 as well as in Zones 21 and 22 in accordance with IEC/EN 60079-10-1 and IEC/EN 60079-10-2.

The enclosure materials used, including any external metal parts, are high quality materials that ensure a corrosion resistance and resistance to chemical substances according to the requirements for use in a “normal industrial atmosphere”:

- glass-fiber reinforced polyester
- impact resistant polyamide
- special steel AISI 316 L

The switches fulfill the isolating properties according to IEC/EN 60947-3.

In addition to this, the switches are so designed, that they also switch off the drive, e.g. via the contactor that precedes the auxiliary contacts. In relation to the main contacts, this auxiliary contacts are lagging while making and leading while breaking.

Versions with gold-tipped auxiliary contacts are suited for switching extra-low voltage circuits. Special attention shall be paid to the maximum current load (see technical data). The contact chamber of the gold-tipped version is marked with the letter ”G” or colour-coded.

Due to the mechanical design of the switch, compulsory opening of the contacts is possible.

To prevent unauthorized switching, the switches can be locked in the ”OFF“ position by means of 3 padlocks, see fig. 1 and 6, (shackle diameter of the padlocks up to 7 up to 8 mm).

Specially marked auxiliary contacts of the switches can be used in ”intrinsically safe circuits”.

The electrical limiting values that are decisive for the intrinsic safety shall be observed.

Fig. 1



The clearances and creepage distances between intrinsically safe and non-intrinsically safe circuits must be maintained. (EN/IEC 60079-0).

The data according to sections 3 and 4 shall be taken into account during use.

Applications other than those described are not permissible.

During operation the instructions stated in section 7 of the operating instructions shall be observed.

The sole responsibility with respect to the suitability and proper use of the switches according to the basic requirements of these instructions (see technical data) lies with the operator.

Safety switch / load disconnect switch

The safety switches / load disconnect switch (IEC/EN 60947-3) are designed for the safe isolation of the electrical energy at all poles on equipment, machinery and drives in potentially explosive atmospheres.

The ”EMERGENCY-STOP“ version conforms to the requirements of IEC/EN 60204-1.

A built-in locking device prevents the opening of the enclosure in the ”OFF“ position.

INSTALLATION

The relevant national regulations and the generally recognized rules of engineering apply for the installation and operation (IEC/EN 60079-14).

The improper installation and operation of safety switches may result in the invalidation of the guarantee.

Mounting

The switch can be mounted without opening the enclosure.

When being mounted directly onto the wall, the switch shall rest evenly only at the fastening points provided for them. The chosen screw shall match the fastening hole (see dimensional drawing) and they shall not damage the hole (e.g. use of a washer).

The switch shall be fixed diagonally with a minimum of 2 screws.

Fig. 3

size 3 size 3

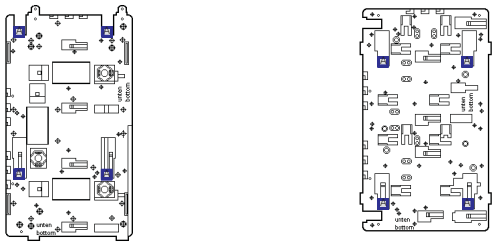
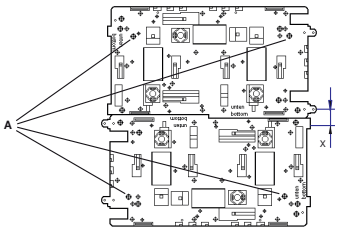


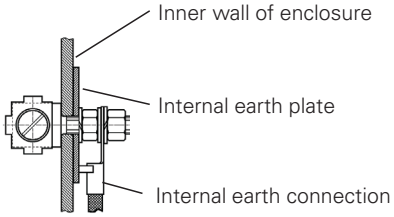
Fig. 4

2 x Apparatus holder size 3
for pipe mounting, horizontally



A = Snap-on fixing points

Fig. 5 External earth connection



If the screws are overtightened, the apparatus may be damaged.

The switch is suited for plug-in mounting on CEAG apparatus holder size 3, whereby they are pushed into the guide groove from the top of the apparatus holder (see fig. 3).

Opening the device/ Electrical connection

⚠ **The electrical connection of the apparatus may only be carried out by skilled staff (IEC/EN 60079-14).**

Before opening the apparatus, ensure that it has been isolated from the voltage supply, or take appropriate protective measures.

Before opening, set the switch to the ”ON“ position.

The properly bared conductors of cables shall be connected with due regard to the respective regulations.

⚠ **To maintain the explosion protection, conductors shall be connected with special care.**

The insulation shall reach up to the terminal. The conductor itself shall not be damaged.

The minimum and maximum conductor cross sections that can be connected shall be observed (see technical data).

⚠ **The cable lugs should be crimped onto the cable in a workman-like manner. It is to be ensured that the required min. air gaps are kept (at 690 V > 12 mm).**

When combining Ex-e/Ex-i it is essential to maintain the separation, air and creepage distances.
The Ex-i circuit wires are to be laid separately from the Ex-e circuit wires (see e.g. EN/IEC 60079-11).
The connection wires of the Ex-i circuits are to be marked (e.g. by colour, light blue).

When apparatus is open, (isolate voltage supply), it is necessary to ensure that no voltage is carried over into the connected intrinsically safe circuits.

All screws and/or nuts of connection terminals, including those not in use, shall be tightened down securely.

Excessive tightening may affect or damage the connection.

The terminals are designed for the direct connection of conductors with copper wires.

If multi- or fine-wire connection cables are used, the wire ends shall be handled acc. to the applicable national and international regulations (e.g. use of multicore cable ends).

The position of the connection terminals is shown in the wiring diagrams on the switch base and technical data of these operating instructions.

To ensure that the switch closes correctly, switching at the switch shaft of the switch insert is not permitted when the apparatus is open.

If, to facilitate the feeding of conductors into the enclosure, the switch insert is removed from the enclosure base, it shall be put back correctly before the electrical connection is made.

When fitting the apparatus cover, care shall be taken to ensure that the switch shaft of the switch insert engages correctly in the carrier hole of the switch handle (pay attention to the correct position of the switch handle).

Cable entries (KLE); blanking plugs; screw plugs

⚠ ***Generally, only certified cable entries, screw plugs and blanking plugs may be used.***

Flexible cables shall be used with trumpet-shaped cable glands or other suitable entries with additional pull-relief.

When using cable entries with a lower IP protection than that which applies to the device (see technical data), the IP protection of the complete unit is reduced.

⚠ ***Intrinsically safe circuits shall be fed through cable entries that are colour-coded (light blue).***

The relevant mounting directives applicable to the cable entries fitted shall be observed.

In order to ensure the minimum degree of protection, any unused entry holes shall be sealed with certified blanking plugs or screw plugs.

When fitting cable entries, care has to be taken that the sealing inserts are suitable for the cable diameter. In the case of sealing inserts that are cut out, it is necessary to ensure that the insert is properly adapted to the cable diameter.

In order to ensure the required minimum degree of protection, the cable entries shall be tightened down securely.

⚠ ***Overtightening can impair the degree of protection.***

When tightening the cap nut of the metal cable entry (e.g. type ADL/ADE), a suitable tool shall be used to safeguard the gland against twisting.

Any unused cable entries shall be sealed with the blanking plug certified for these cable entries.

Plastic*-metal flanges, metal plates and external earth connection

If flange plates have to be dismantled, (e.g. to drill entry holes), when replacing the plates,in order to maintain the minimum degree of protection, it is necessary to ensure that the flange plate and the fixing clamp fit correctly.

PE conductors fed from outside shall be connected to the PE terminal provided on the flange.

In case an external earth connection is mounted on the plastic enclosure, it should be connected with a max. 25 mm² wire.

This earth connection is inserted through a M6 drill in the inner wall of the enclosure (see fig. 5).

Metal flanges, metal plates and metal glands shall be incorpo-rated in the potential equalization.

* not yet certified for category II D

Closing apparatus

⚠ ***Any foreign matter shall be removed from the apparatus.***

The switch handle on the cover of the switch is to be set to the ”ON“ position.

⚠ ***When fitting the apparatus cover, care shall be taken to ensure that the switch shaft of the switch insert engages correctly in the carrier hole of the switch handle.***

To ensure the required minimum degree of protection, the cover screws shall be tightened down.

⚠***Overtightening may impair the degree of protection.***

Maintenance / Servicing

⚠***The valid national regulations for the servicing / maintenance of electrical apparatus for use in potentially explosive atmospheres shall be observed (e.g. IEC/EN 60079-17).***

Prior to opening the enclosure, it is necessary to ensure that the voltage supply has been isolated or to take suitable protective measures.

⚠***To avoid a build-up of electrostatic charge, only use a damp cloth or sponge to clean the switch.***

In case of intrinsically safe circuits, working is permitted while voltage applies.

Switch with auxiliary contacts in the gold-tipped auxiliary contact edition should be activated occasionally depending on service conditions.

The necessary intervals between servicing depend upon the specific application and shall be stipulated by the operator according to the respective operating conditions.

During servicing, special attention shall be given to checking the parts on which the explosion protection depends (e.g. intactness of the flame-proof components, the enclosure, the seals and cable entries).

If during servicing, repairs prove to be necessary, section 8 of these operating instructions will have to be observed.

The required maintenance intervals depend on the specific application and will, therefore, have to be determined by the user dependent on the conditions of use.

Repairs / Overhaul / Modifications

Only use original parts to make repairs or modifications.

⚠ ***In the event of damage to the flameproof encapsulation, replacement of these components is mandatory. In case of doubt, the respective apparatus shall be sent to Larson Electronics for repair.***

⚠ ***Repairs that affect the explosion protection may only be carried out by Larson Electronics or by a qualified electrician in compliance with the respective national regulations (e.g. IEC/EN 60079-19).***

Apparatus modifications or design changes are not permitted; excepted from this is the fitting of additional cable entries within the scope of the apparatus approvals.

Putting into operation

Before putting the apparatus into operation, the tests specified in the individual national regulations shall be performed.

In addition to this, before being put into operation, the correct functioning of the apparatus and installation of the apparatus shall be checked in accordance with these operating instructions and other applicable regulations.

⚠ ***The improper operation of switch may result in the invalidation of the guarantee.***

Switch on

Turn switch handle clockwise to position "I","ON", "EIN" .

Perform the rotational movement quickly.

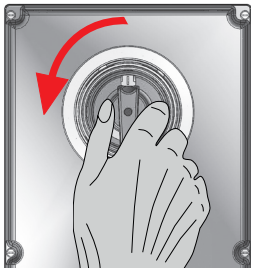
Switch off

Fig. 6 A

Turn switch handle counterclockwise to position "0","OFF", "AUS".

Perform the rotational movement quickly.

Fig. 6 A

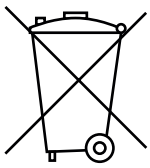


If an unusually high force, e.g. a second hand, is required, the switch shall be isolated from the supply immediately by means of the upstream external protective device and checked by a qualified electrician acc. to IEC/EN 60079-19.

Lock out

To prevent unauthorized switching, the explosion- protected safety-switches can be locked in the „OFF“ position by means of 3 padlocks, (shackle diameter of the padlocks up to 7 - 8 mm). At all other types of switches is this feature optional.

Disposal / Recycling



When the apparatus is disposed of, the respective national regulations on waste disposal will have to be observed.

In order to facilitate the recycling of individual components, plastic parts are provided with the identification mark of the plastic material used.

Subject to modifications or supplement of the product range.

THESE INSTRUCTIONS MAY NOT COVER ALL DETAILS OR VARIATIONS OF THIS PRODUCT FOR YOUR EQUIPMENT OR INSTALLATION REQUIREMENTS. SHOULD FURTHER INFORMATION NOT COVERED BY THESE INSTRUCTIONS BE REQUIRED, PLEASE CONTACT LARSON ELECTRONICS BY EMAIL AT SALES@LARSONELECTRONICS.COM OR BY PHONE AT 1-877-348-9680 FOR FURTHER ASSISTANCE.

PLEASE VISIT LARSONELECTRONICS.COM FOR **WARRANTY** AND **RETURN** INFORMATION.