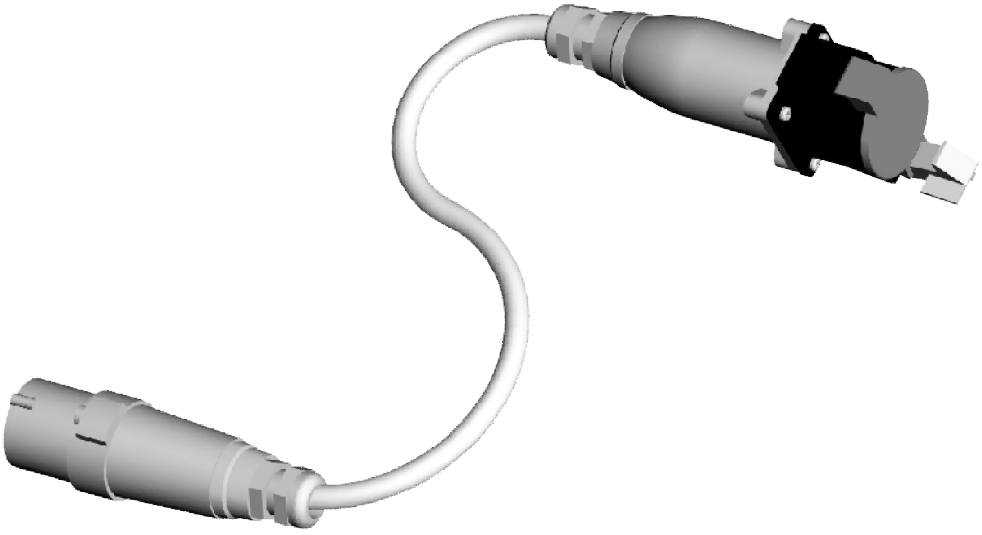
SAURYA
Value Driven Safety

Instructions for Safe Use

SLAM

(Certification N:o VTT 11 ATEX 004X)

Thank you for choosing Slam® Extension Cable EX – The Ex-certified extension cable for your job site. Purpose of this manual is to provide you all the necessary safety and product information to conduct your job conveniently and without any risks for health and safety.



ATEXOR

WE DON'T TAKE SAFETY LIGHTLY.
WE PROVIDE LIGHT SAFELY.

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1. Introduction to Slam® Extension Cable EX

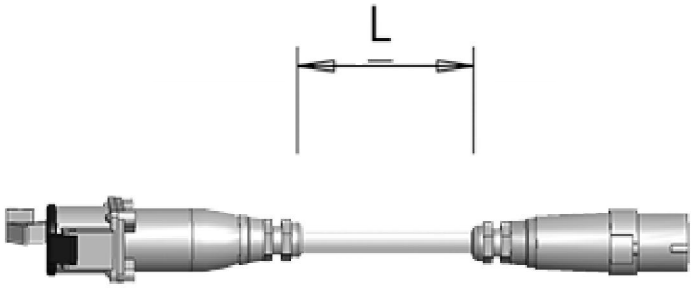
(Certification N:o VTT 11 ATEX 004X)

This instruction manual guides you through the process of selecting and adopting Slam® Extension Cable EX at your work site.

1.1 Technical data

Slam® Extension Cable EX (later CSEC)

	Dimensions	
Product model	**L (max) m**	**conductor Ø (min) mm^2**
Slam® Extension Cable EX	25	2,5



1.2 Certification of equipment

The Slam® Extension Cable EX–series has been designed, tested and certified (according to ATEX) for portable use. There is “X” –mark in the certificate for special conditions of safe use of the equipment. Special conditions of safe use specifies:

- The permissible cable shall be suitable for heavy industrial use (H07….) with the following conditions
  - Permissible cable length is max. 25m
  - The minimum cross-sectional area of the conductor is 2,5mm^2
  - The insulation of conductor shall withstand continuous temperature of 90°C

- **When loaded with current the cable shall not be coiled or looped**

The equipment is to used properly and according to its ratings, documentation and local applicable laws. Local, national certificates of these units may exist outside the region of EU. Detailed information of the features is available at the typelabel of the product

Slam® Extension Cable EX is typically certified as follows. You may find brief explanation of certificate beneath:

CE_{0537} II 2 GD **Ex de IIC T4 Gb**
Ex tb IIIC T120 °C Db
IP 66

CE_{0537} = Valid production quality system approved and notified by VTT Expert Services Ltd (Finnish Notified Body, listed by EC)

= Certified for explosion hazardous areas
II = Certified for use in areas excluding mines
2 = Equipment category (suitable for Zone 1&21 and Zone 2&22)
G = Certification taking account explosion hazardous GASES
D = Certification taking account explosion hazardous DUSTS

Explanation of marking for explosion hazardous area due to Gases (Ex de IIC T4 Gb) :

Ex = Certified for use in explosion hazardous areas
d = Flameproof
e = Explosion protection method increased safety (of certain components)
IIC = Equipment group (including explosion hazardous areas of IIA, IIB and IIC gases)
T4 = Maximum inside temperature of the unit is 135 °C (within the ambient temperature range of -20°C - +40°C)
Gb = Explosion Protection Level (EPL) marking for “HIGH” level of protection. Equipment for explosive **GAS** atmospheres, which is not a source of ignition in normal operation or during expected malfunctions.

Explanation of marking for explosion hazardous area due to Dusts (Ex tb IIIC T120 °C Db):

Ex = Certified for use in explosion-hazardous areas
tb = Explosion protection method “protection by enclosure”
IIIC = Equipment group for conductive dusts (including IIIA, IIIB and IIIC dusts)
T 120 C = Maximum OUTSIDE surface temperature of the unit is 120 °C (within the ambient temperature range of -20°C - +40°C)
Db = Explosion Protection Level (EPL) marking for “HIGH” level of protection. Equipment for explosive **DUST** atmospheres, which is not a source of ignition in normal operation or during expected malfunctions

1.3 Standard unit construction

The following list familiarizes you with some common unit features important to recognize.

Plug: for connecting the Slam® Extension Cable EX to a power source.

Cable: the Slam® Extension Cable EX–series is equipped either with 3x2,5mm^2 H07BQ-F or 3x2,5mm^2 H07RN-F cable.

Mobile socket: socket for connecting the CentaurSlam luminaries or other equipment to the extension cable.

1.4 Quality guaranteed

1.4.1 General

The Slam® Extension Cable EX-series is designed, certified, manufactured and tested under ISO 9001:2008 quality system as well as additional requirements of the Directive 94/9/EC (ATEX). The Slam® Extension Cable EX-series is designed and tested according to the latest directives and standards. The referred directives and standards of the production date in case are stated on the Declaration of Conformity included in the delivery.

1.4.2 Individual testing reports

Each Slam®–unit has its own individual serial number and is provided with an original, individual testing report when leaving the factory. The year of manufacture is specified on the type label of the equipment. Following tests have been done for Slam® Extension Cable EX according to standards relating to portable equipment for explosion hazardous area. The Declaration of Conformity is specifying the relevant standards. The testing report which is included in the delivery specifies the results of the factory tests for that particular unit. The testing report typically specifies the following tests:

PE –resistance test (when applicable)
The purpose of this test is to measure persistence of earth conductor.
Vital test for electrical safety as well as explosion safety because of e.g static electricity control.

The test current is 10 A (current) and the overall resistance should not exceed 0,5 ohm.

High voltage test (electrical strength)
The purpose of this test is to measure leakage current trough insulation. Vital test for revealing broken components or similar failures which can not be identified visually. Testing voltage applied is 2130VDC. Maximum leakage current is 5mA.

Polarity test
The purpose of this test is to ensure that the wires are connected in the correct order in the both ends of the cable.

Visual inspection
A final check to see everything is fine (screws attached properly, wires connected and required markings attached).

2. Prior to use

2.1 Selection of right equipment

You need to be sure that the equipment you intend to take into explosion-hazardous area matches up with the zone classification and other safety requirements related. At least the following points should be notified prior to use:

2.1.1 Intended purpose of equipment

Please keep in mind what the actual application of equipment is. For example in case the equipment is to be moved when connected to the supply it needs to be designed for that purpose. If the certification is mentioning “portable” it means that the equipment is suitable and tested for portable use. If the certification does not mention portable it means that the equipment shall not be moved when it is in operation (reliable fixing of equipment).

Slam® -units are designed and tested for portable use.

2.1.2 Application of use (Zone XX) in accordance with equipment category

Operator has the best knowledge of area classification at his site. To help the operators’ selection of equipment the certification is describing the equipment category. For explosion hazardous areas there are three equipment categories.

Category 1 product is suitable for use in Zones 0, 1 and 2 / (20, 21 and 22)

Category 2 product is suitable for use in Zones 1 and 2 / (21 and 22)

Category 3 product is suitable for use in Zones 2 / (22)

Slam® -units mentioned in this instruction fall into Category 2 equipment.

2.1.3 Explosion group (IIA, IIB or IIC) in accordance with Equipment group (IIA, IIB or IIC)

This information is vital because the substances require different amount of energy to be ignited. Safety requirements for equipment are not the same for different substances (e.g. static electricity requirements).Therefore making the selection easier the gases are divided to three different groups (IIA, IIB and IIC). Further information about the substances can be found from EN 60079-20-1 (Data for flammable gases and vapours, relating to the use of electrical apparatus).

Slam® -units mentioned in this instruction are Equipment group IIC.

2.1.4 Temperature class of the equipment

Please observe the Ignition Temperature (IT) of the substance creating the explosion hazard at your site. Select the equipment based on IT of the substance. The temperature of the equipment must be lower than IT. The highest temperature of the equipment is specified by using Temperature Classes T1 to T6.

Example:

Petroleum ignition temperature is approximately 250 Celsius → Maximum allowed temperature class of the equipment is T3 (< 200° C)

Slam® -units mentioned in this instruction are Temperature Class T4 (GASES)
Slam® -units mentioned in this instruction maximum surface temperature of 120ºC (DUSTS)

2.1.5 Environmental criteria

Please observe the ambient temperature of the application in use because certification is valid for temperatures between – 20°C --- + 40°C. Some Slam® products are certified for temperatures between – 40°C --- + 40°C. Please see type label of the product for further data. If the equipment is used in other temperatures than mentioned the safety can not be guaranteed.

Selection and use of equipment is always under the responsibility of the operator. Please note that all of the aforementioned criteria are to be fulfilled when selecting the equipment.

Please do not take any unnecessary risks.

3. Operating instructions

3.1 Personnel

The use of the equipment is to be controlled and accepted by the operator. The personnel using the unit have to be authorized by the operator or his representative. In case of further training of using the equipment please contact the local supplier of this equipment.

3.2 Visual Inspection of Slam® Extension Cable EX

As for all equipment to be used inside explosion hazardous area it is recommended that before taking the unit into Ex –area, a visual re-inspection on the unit was taken and an analysis made that the unit is un-damaged (e.g. any part or wires are loose damaged or disconnected).

In case faults or defects on the unit are noticed, it is prohibited to use or take such a unit into Ex –area until corrective actions have been made.

3.3 Connection to the supply

The Slam® Extension Cable EX –unit need to be uncoiled completely before connecting it to power supply. Check that there are no loops when the cable is uncoiled.

It is recommended that the unit is first connected to the mains / transformer before entering the explosion-hazardous area. Potential equalization should be arranged by the operator prior entering explosion hazardous area if applicable.

Slam® Extension Cable EX -units with 2-pole supply (without bonding connection) can be taken to explosion hazardous area without connecting it to the supply first.

3.3.1 Requirements for supply (electricity)

The following main requirements should be taken into account:

Supply voltage: 12-240V

Current: Maximum current of the system is 16 A.

Frequency: 0Hz, 50Hz or 60Hz

Fuse protection: The supply has a fuse with a breaking capacity of at least 1500 A.

Earth Leakage Circuit Breaker (ELCB): It is recommended to use a supply with 30 mA ELCB

Please observe the type label for further data.

4. Inspection & Maintenance

4.1 After Use

Take the following steps after the Slam® Extension Cable EX –unit has been taken out from Ex –area:

1) Clean the unit with a damp cloth if necessary (do not use detergents or solvents)
2) Have a visual check on the unit (condition of cable, mobile socket and plug)
3) Let the unit dry in open air

4.2 Maintenance

The Slam® Extension Cable EX does not have components which are intended to be repaired. In case of damaged component of the system, the mobile socket and the plug can be replaced with a new one. In case the cable is damaged, you are required to order a new original cable from the manufacturer. Use of other cables is prohibited.

1) Maintenance may be carried out only outside Ex –area

2) Person responsible for maintenance should have been trained the basics of explosion-protection as well electricity and should be authorized by the operator of the equipment to carry out the maintenance.

3) Only original spare parts from the manufacturer should be used. Please note that there are no components in this unit which can be repaired by using glue, silicone or any other similar method.

4) Maintenance instructions with exploded-view diagram and spare parts list are available at your local distributor and the manufacturer. Please, when requesting maintenance instructions with exploded-view diagrams, include the model and serial number of the product.

4.3 Testing

Tests are to be done according to EN 60079-19 until returning the repaired unit back to operation. Below mentioned tests shall be done in addition to the tests specified in EN 60079-19

- PE –resistance test if applicable
- High-voltage test (500 VDC between Phase& Neutral against P/E conductor)

Proper testing ensures safe operation of repaired equipment.

4.4 Repair report

The operator is responsible for keeping up to date record of the condition of his equipment (EN 60079-14). Ensuring the availability of this important information each repair procedure should be written down in repair report according to EN 60079-19.

This report should reveal at least:

- Person who conducted the maintenance
- Date of maintenance
- Procedure of maintenance

- Signature of person responsible accepting the maintenance

4.6 More information about the use of Electrical Apparatus for Explosive Gas Atmospheres

Please observe the requirements of the valid standards of the day. Please study at least the following standards:

EN 60079-14 (Electrical installations in hazardous areas)
EN 60079-10 (Classification of hazardous areas)
EN 60079-17 (Inspection and maintenance of electrical installations in hazardous areas)
EN 60079-19 (Repair and overhaul for apparatus used in potentially explosive atmospheres)

Notes:

Helpdesk

Under any doubt or question, please contact your local distributor or the manufacturer.

Contact details:

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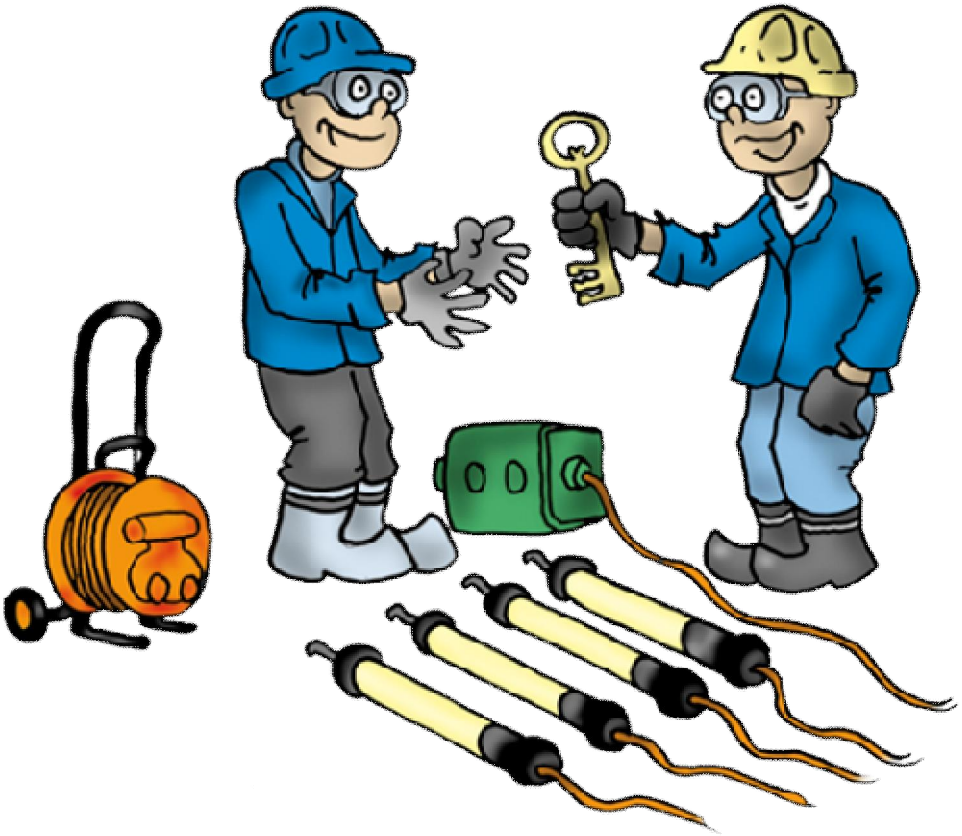

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