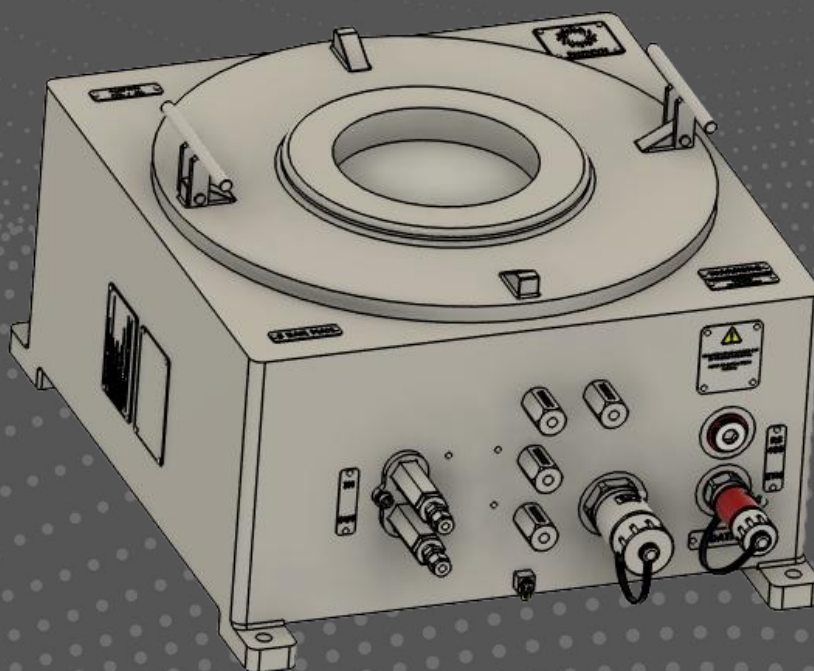


User Manual

Electrical Equipment FluidInspectIR®_ATEX6

Serial Number:

Year of Construction: 2025



Please read these operating instructions completely and carefully.
These operating instructions are part of the FluidInspectIR®_ATEX6 and contain important information on commissioning and handling. Always observe all safety instructions.
Before commissioning, check that the correct voltage is present and that all parts are correctly fitted.
If you have any questions or are unsure about how to use the electrical equipment, please contact your dealer or the service centre.
Please keep these operating instructions in a safe place and pass them on to third parties if necessary.

Document name of these operating instructions: MAN_FI_ATEX6_01

Revision

Revision	Description of the changes	Datum	Authors
1	First Version	08/04/25	Spyros Brown

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2. Notes and Explanations

	Hazards due to dangerous electrical voltages. Failure to do so may result in serious injury or death. Access only permitted for qualified electricians or EUP.
	Risk of crushing hands. Failure to do so may result in minor injuries to the hands. (During installation/assembly).
	Warning of hot surface (> 40°C). Failure to do so may result in serious injury. (In case of direct contact with the heating cable).
	WARNING - warns of dangerous situations. Avoid these dangerous situations. Failure to do so may result in serious injury or death.
	How to act correctly. Follow the recommended actions to avoid property damage and problems.
	Read instructions. Follow the recommended actions to avoid property damage and problems.
	Eco-label identifies environmental protection measures (warning against environmental pollution, in the chapter on disposal). Failure to do so will result in damage to the environment. Incorrect disposal can lead to major environmental damage.

3. Safety Instructions

3.1 Scope of Application



This documentation applies to all persons who carry out work on the FluidInspectIR®_ATEX6. Before carrying out any work on the electrical equipment, the documentation must be read in full and followed exactly.

The documentation must be kept in the vicinity of the FluidInspectIR®_ATEX6 and must be accessible to personnel at all times.

The documentation is part of the electrical equipment and must be kept fully available and updated throughout the entire period of use

3.2 Applicable Regulations

The FluidInspectIR®_ATEX6 was developed, designed and manufactured in accordance with German and European technical regulations.

The FluidInspectIR®_ATEX6 may only be operated in compliance with the technical rules and safety regulations applicable at the place of use.

- Applicable health, labour and fire protection regulations
- Laws, regulations and safety rules

3.3 Staff Deployment and Responsibilities

In the documentation, personnel deployment and responsibilities are defined before each activity is described. A distinction is made between the following groups of people:

Expert

- Qualified for managerial tasks.
- Interdisciplinary supervision for all activities.
- Authorised by the operator.
- Know and understand functional sequences and their interaction with the environment.

Operating personnel

- Qualified for operation.
- Authorised by the operator.
- Knows and understands functional sequences and their interaction with the environment.

Maintenance personnel

- Qualified for maintenance activities.
- Authorised by the operator.
- Knows and understands functional sequences and their interaction with the environment.

Qualified electricians

- Authorised by the operator.
- Are demonstrably qualified to work on electrical systems through recognised training.
- Know and understand the technology and functional sequences of the electrical equipment and their interaction.

Operator

- Any natural or legal person who uses the electrical equipment or makes it available to third parties for use and is responsible for the safety of the user, personnel or third parties during use.

External persons

- All persons who do not belong to the above-mentioned groups.
- It is forbidden for unauthorised persons to remain in the working area of the electrical equipment.

3.4 Obligations of the Operator

The FluidInspectIR®_ ATEX6 is used in the commercial sector. The operator of the electrical equipment is therefore subject to the legal obligations regarding occupational safety. In addition to the warnings and safety instructions in this manual, the safety, accident prevention and environmental protection regulations applicable to the area of use of the electrical equipment must be observed.

In particular, the operator must:

- inform themselves about the applicable health and safety regulations;
- identify possible additional hazards arising from the specific application conditions at the place of use of the electrical equipment by means of a risk assessment and minimize these by taking appropriate measures;
- implement the necessary behavioral requirements for operating the electrical equipment at the place of use in operating instructions;
- regularly check during the entire period of use of the electrical equipment whether the operating instructions drawn up by him correspond to the current status of the regulations;
- adapt the operating instructions to new regulations, standards and operating conditions where necessary;
- clearly and unambiguously regulate the responsibilities for the installation, operation, maintenance and cleaning of the electrical equipment;
- Ensure that all employees working with the electrical equipment are familiar with the protective measures for safe operation;
- Ensure that all employees working with the electrical equipment have read and understood the operating instructions and the general safety instructions.

In addition, the operator must train the personnel in handling the electrical equipment at regular intervals and inform them of the potential hazards. Furthermore, the operator is responsible for ensuring that the electrical equipment is always in perfect technical condition.

3.5 General safety Instructions

Fundamentally

- Always carry out all activities responsibly and safely.
- Faults that impair safe operation must be rectified immediately.
- The electrical equipment must be taken out of operation until the fault has been rectified.
- All markings and labelling on the electrical equipment must be legible and complete.
- The housing of the electrical equipment may only be opened by authorised personnel of the manufacturer.

Hazards in normal operation

- Only operate the electrical equipment if it is parked on a level surface whose dimensions are greater than or equal to the base area of the electrical equipment.
- Before switching on the electrical equipment, ensure that the appliance cannot fall from the work surface.

Dangers due to electrical energy

- Work on electrically operated assemblies may only be carried out by qualified electricians.
- Check the electrical equipment of the electrical equipment regularly. Loose connections and damaged cables must be repaired or replaced immediately.
- Do not open the housing.
- When working on live equipment, it must be de-energised beforehand.

Dangers during maintenance and assembly

- Switch off the electrical equipment and disconnect it from the mains before carrying out any work.
- If the housing is opened, observe the hazard warnings inside the appliance.

3.6 Damage

Damage caused by non-compliance with these operating instructions will invalidate the warranty. No liability is accepted for consequential damage. No liability is accepted for damage to property or personal injury caused by improper handling or non-compliance with the safety instructions / intended use.

This appliance is intended for industrial / commercial use only. Operation and maintenance is only to be carried out by trained personnel.



Avoid danger to life due to electric shock. Have the electrical installation carried out by a qualified electrician or a person trained in electrical installations. No liability is accepted for damage to property or personal injury caused by improper handling or non-compliance with the safety instructions!

Ensure that no cables are damaged during installation and operation. Make sure beforehand that the existing mains voltage matches the required operating voltage. Avoid cleaning with water or other liquids at all costs. If there is visible damage to the electrical supply, inform a qualified electrician. Do not continue working without obtaining authorization.

Check the FluidInspectIR®_ATEX6 for electrical safety (DGUV V3) before initial commissioning and then at regular intervals.



Even though the FluidInspectIR®_ATEX6 has an IP67 rating where possible Install the electrical equipment in such a way that it is protected from moisture, dirt and excessive heat.

Always be attentive. Always pay attention to what you are doing and always proceed sensibly. Never use the electrical equipment if you are not focused or feel unwell. Before use, familiarize yourself with all instructions and illustrations in these operating instructions and with the electrical equipment itself.

4. Intended Use

4.1 Intended Use criteria

- The FluidInspectIR®_ATEX6 is used to monitor the status parameters of liquids.
- The FluidInspectIR®_ATEX6 may only be installed by qualified personnel who have the necessary qualifications for the installation of electronic measuring devices.
- The FluidInspectIR®_ATEX6 should not be tampered with at all as any changes (removal of parts, open the lid etc) will potentially invalidate the ATEX certification

4.2 Reasonably Foreseeable Misuse

The FluidInspectIR®_ATEX6 has been designed to be operated in explosive environments in accordance with its ATEX rating which can be found in the ATEX certification documentation in section 14.3.

The electrical equipment is used exclusively for the above-mentioned intended purpose. Any other use or modification beyond this is not permitted without written agreement with the manufacturer.

Mechanical and electrical modifications may only be carried out after consultation with the manufacturer and only by certified specialists. All modifications to the electrical operating equipment must fulfil the safety requirements. The manufacturer accepts no liability for damage caused by improper use.

- No measurement/monitoring of highly flammable liquids (petrol, paraffin, etc.)
- No operation under water

5. Overview

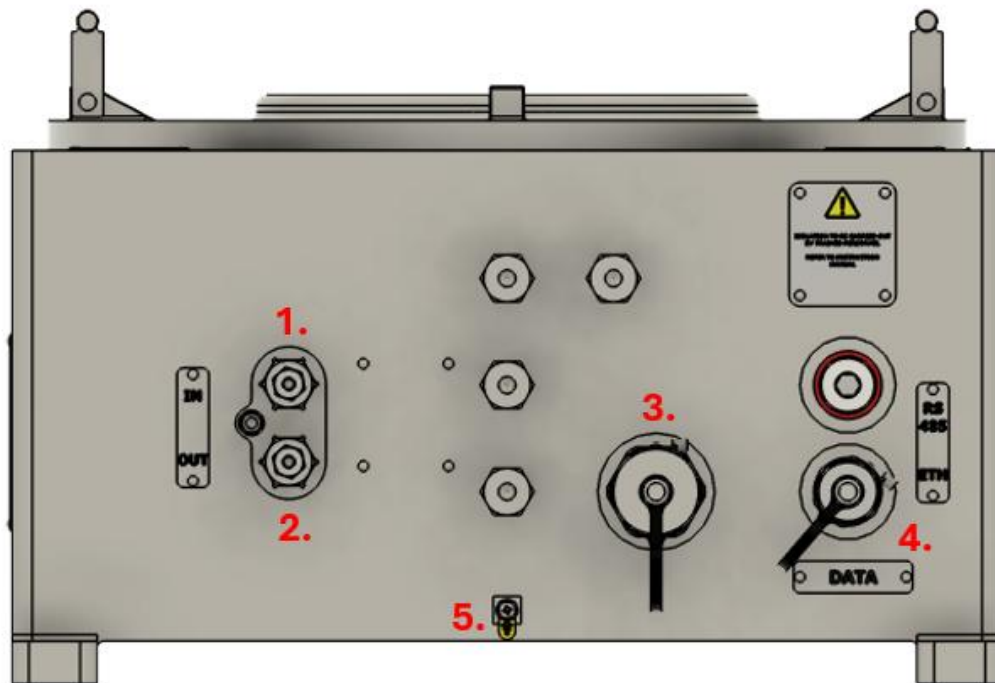
5.1 Packing List



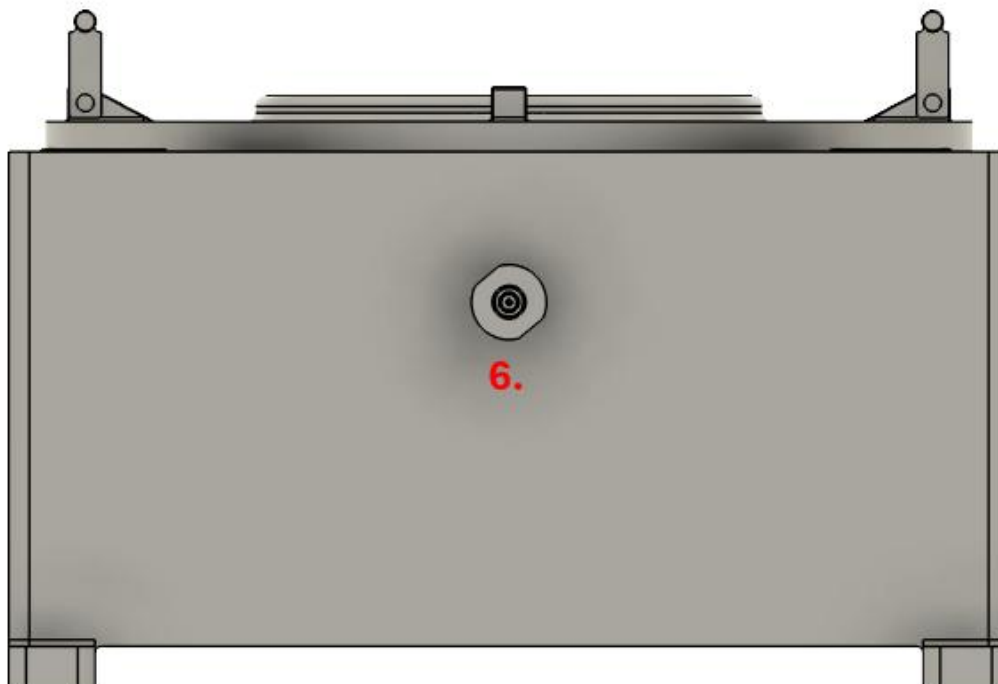
1	System (FI_ATEX6)
2	Hawke 9pol Power Connector with pins
3	Hawke 8pol Data Connector with pins
4	Solexy Aerial for LTE data connection

5.2 System Description

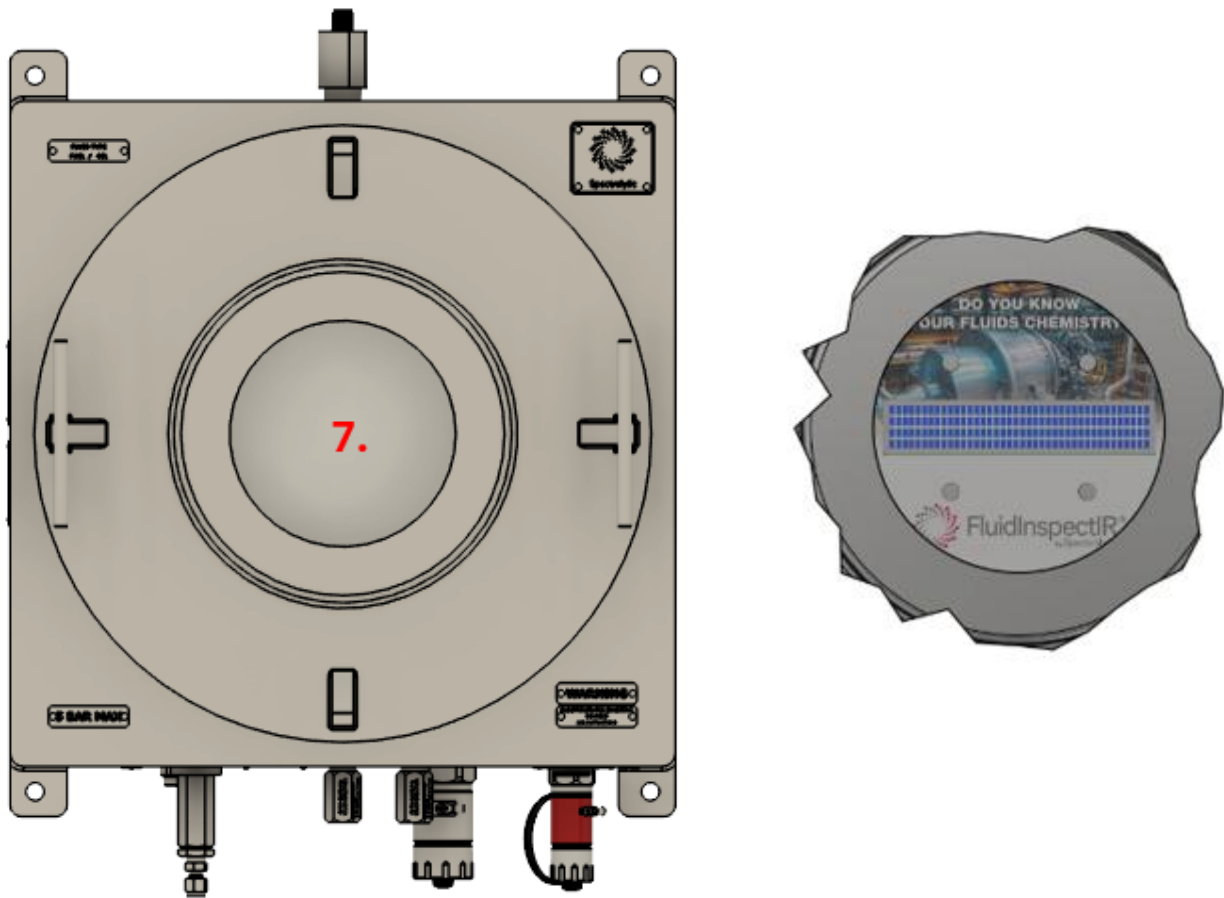
Bottom View of System



Top View of System



Front View of System



1	Oil Inlet Port
2	Oil Outlet Port
3	Power Connector (Hawke 9pol)
4	Ethernet Connector (Hawke 8pol)
5	Ground Point
6	Antenna Connector (Solexy)
7	Viewing window with info Screen

5.3 Technical data

5.3.1 System Overview

Item	Values
Dimensions and Weight	
Width	465 cm
Depth	310 cm
Height	535 cm
Weight (main unit)	160 kg
Energy / Media:	
Rated voltage	24V DC
Rated power	60W
Network Connections	LTE-M Ethernet
Hydraulics - Maximum pressure	5Bar

5.3.2 Component Overview

Sensor	Values
IR Sensor	
Power Supply	24V dc
Pressure Max	10 bar
Flow-rate	2 – 250ml/min
Operating temperature	-10°C to 80°C
Viscometer	
Power Supply	9-36Vdc
Pressure Max	25 bar
Flow-rate	2 – 250ml/min
Operating temperature	-40°C to 85°C
Optical Particle Counter	
Power Supply	24V dc
Pressure Max	5 bar
Flow-rate	10ml/min
Operating temperature	-10°C to 55°C
Pump	
Power Supply	24V
Pressure Max	5 bar
Flow-rate	10 ml/pm
Operating temperature	-10°C to 55°C

5.3.3 Environment / Emissions / Hazardous

Environment / Emissions / Hazardous	Value	Remarks
Rated temperature - Storage	0°C to + 50°C	
Rated humidity - Operation	max. 50 % at 40°C or 90 % at 20°C.	non- condensing
Electromagnetic environment (EMC Directive): - Interference emission - Interference influence	DIN EN 61326-1	
Lightning protection	Yes	Protective
Emissions	Yes	EMC
Solder (RoHS)	Yes	Compliant
Maximum heating	≤ 80°C	
IP protection class	IP67	

6. Installation

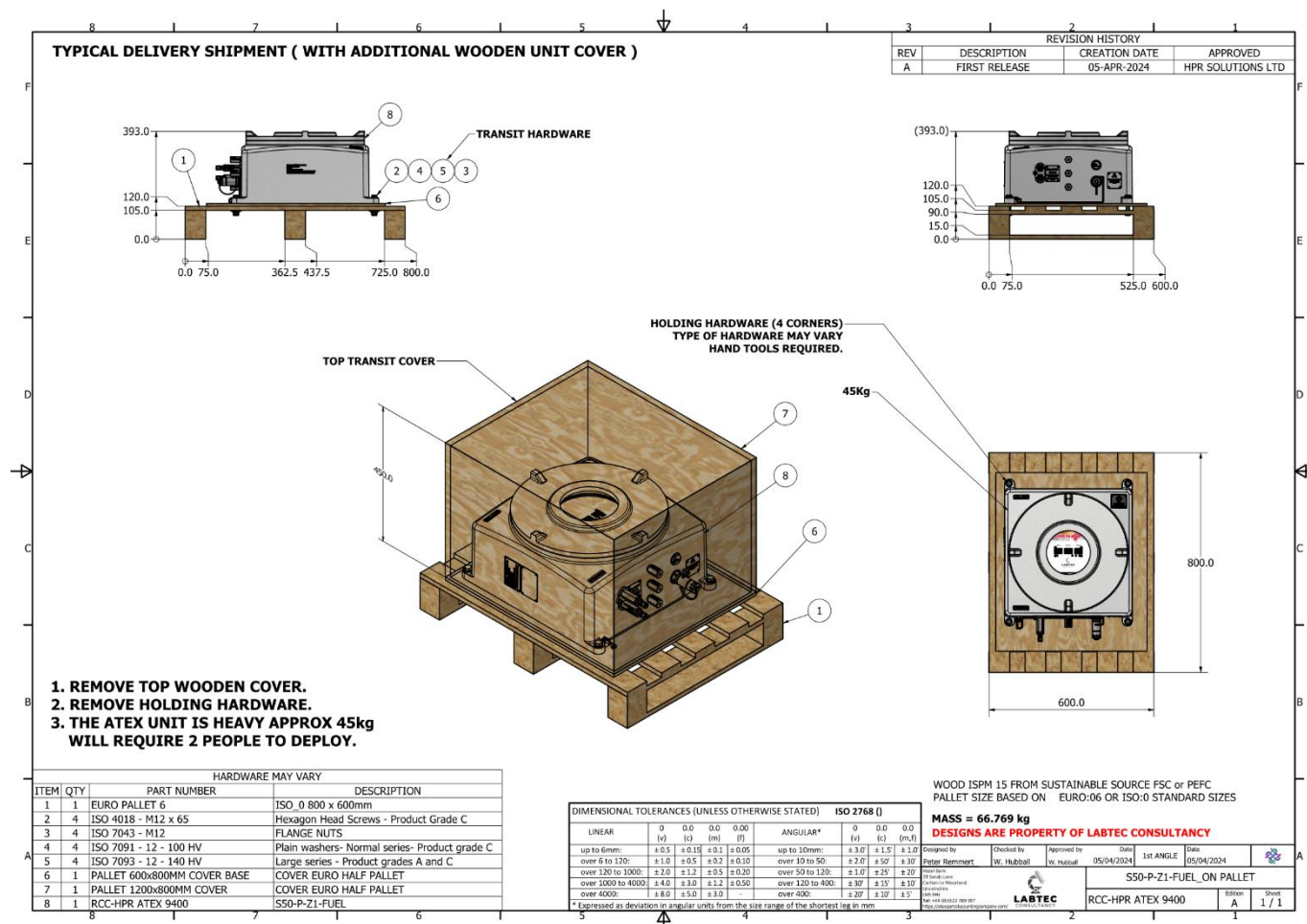
6.1 Unpacking FluidInspectIR_ATEX6



The images in this document are typical and representative but may not be exact.

Ensure you are using all relevant PPE safety equipment, foot protection as the item is very heavy (160Kg) and a 2-person lift.

The ATEX Zone 1 GUB6 will arrive on a small pallet with a protection and transit cover.





It may have additional steel or nylon type strapping or “band-it”. These will have to be cut and removed, there may be additional wood screws to hold the cover on, remove all.



The item will be mounted / fixed onto the pallet.

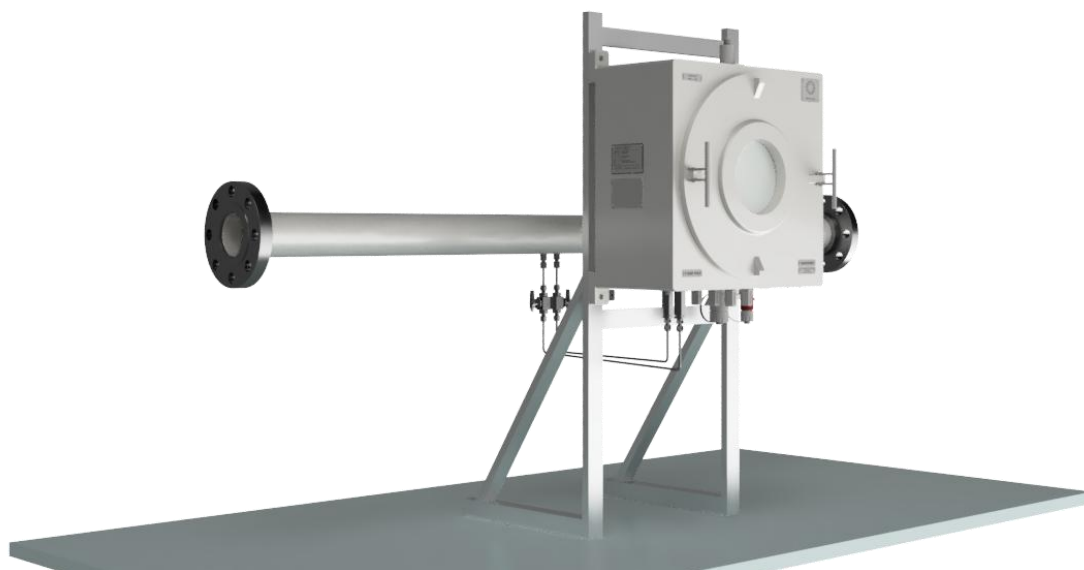
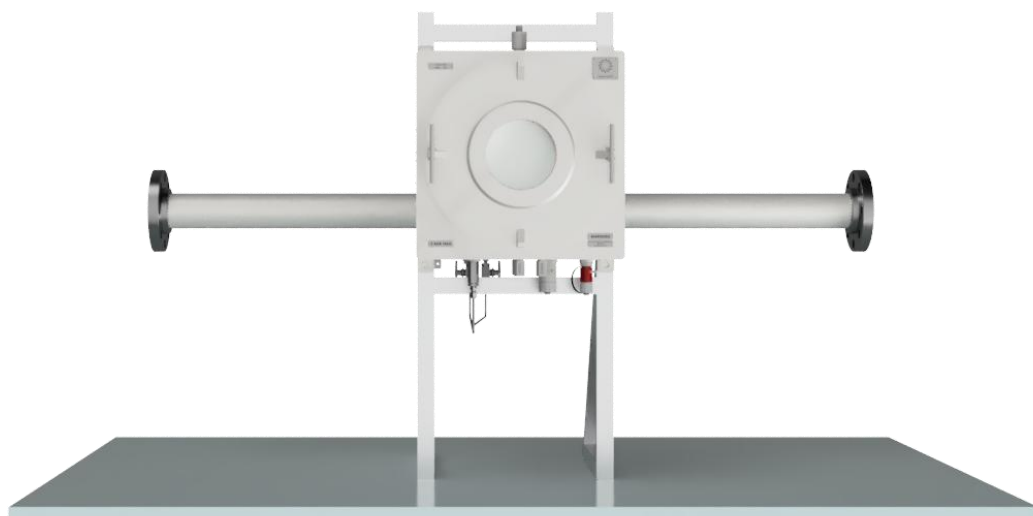


Fittings can be removed using standard Philips screwdriver

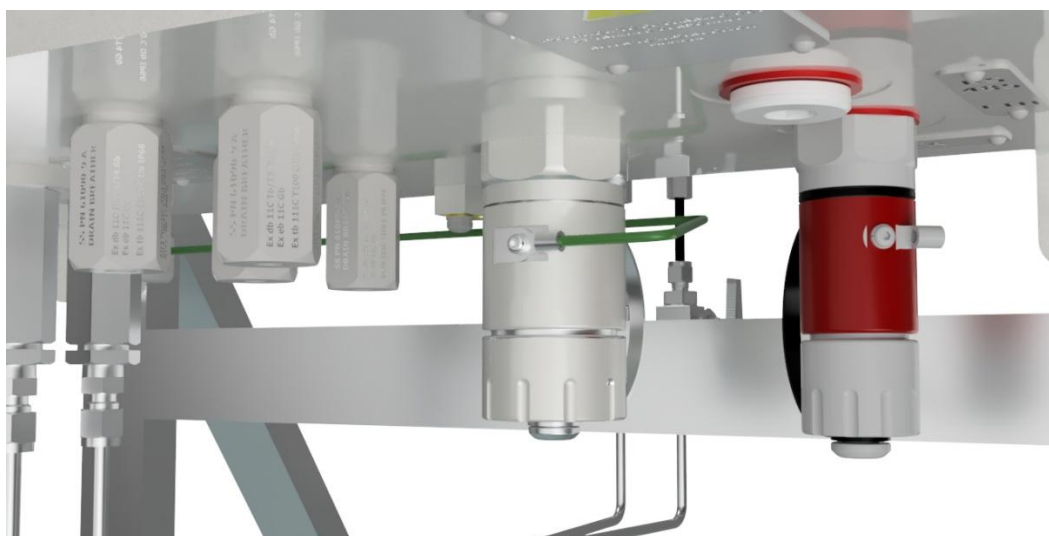
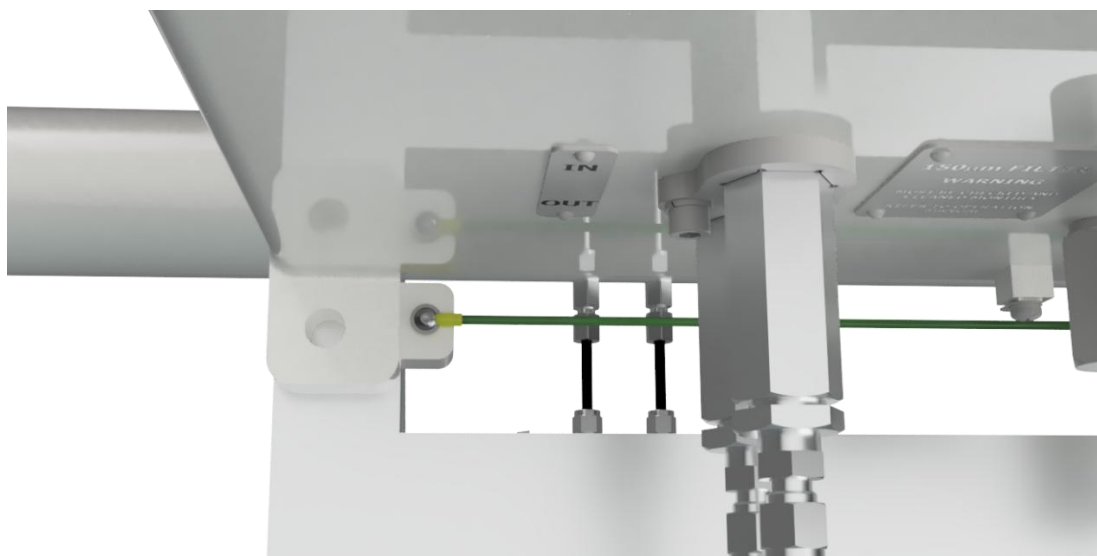
6.2 Mounting System

The FluidInspectIR®_ATEX6 is to be installed vertically with short delivery pipe runs.

The supplied pressure must be between 2 and 5 bar.



The full system needs to be earthed with suggested earthing points shown below on the main body and the connectors.



It is recommended that delivery connections are fitted with isolating valves to allow for service and unit removal.



6.3 Physical Connections

6.3.1 Hydraulics

To be made only by ATEX qualified and certified personnel



Remove protective caps.

Connections are FITOK stainless steel 316 dual ferrule fittings 6mm OD pipe.

Upper is inlet 5 BAR max pressure, Lower is the Return line.



Ensure no damage to flame path connections or loosening of fittings.

Fit and tighten FITOK pipe connections as to specifications and gauge testers.

6.3.2 Power and Data

Ensure power and data cables are wired according to the pinout and instruction guide in Appendix 14.2

Connect first the LTE-M antenna to the upper part of the system by screwing it in place.

If required, then connect to optional data cable by removing the dust caps from the connectors and screw them together till they are secured without overtightening. Join the dust caps together by screwing them into each other to ensure they remain clean.

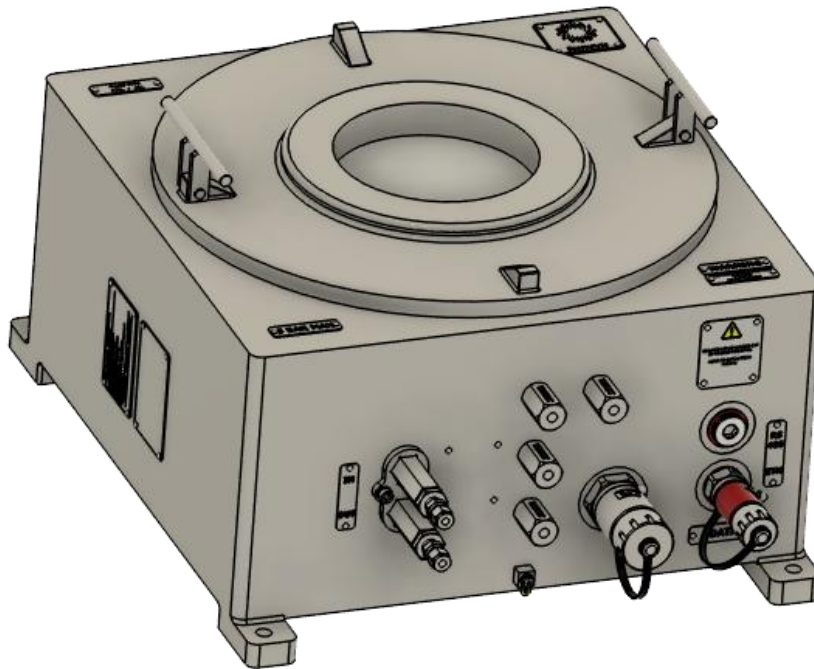


Next attach the power connector, removing the dust caps and then screwing them together till they are secured without overtightening. Join the dust caps together by screwing them into each other to ensure they remain clean.

System is now ready for powering up.

6.4 Functional Description

The FluidInspectIR®_ATEX6 is a highly developed multi-sensor system for monitoring the oil condition in any system. The sensor comprises an oil condition sensor, an optical particle counter and a viscosity sensor which are fully enclosed into an ATEX GUB6 enclosure shown below.



An integrated pump runs continuously ensuring a stable flow is present in the system.

Warning :

It is crucial that the pump does not run continuously for long periods of time without any sample present or ports blocked, as this can cause damage to the pump.

Data is transmitted to the cloud via an inbuilt LTE-M modem which is preconfigured during assembly.

The inbuilt display shows the current status of the system, its online connection state, and any warnings or errors that might occur.

The default data capture rate for all internal sensors is 60 min. Different capture rates can be implemented on requested. There is in principle no upper or lower limit to the capture rates so if there are any specific requirements, please let us know.

6.4.1 Switch ON Procedure

To power on the device, it is recommended to have the power connector attached and apply the power to it from the source.

On powerup, the system will perform a self test, to ensure that all internal components are operating correctly and the pump will start running.

The display will come on showing the current status of the system and its online connectivity state.

Once powered on, it can take up to 10 minutes for the system to go online and establish connection to the cloud platform.

Any longer is recommended to contact Spectrolytic for support.

6.4.2 Switch OFF Procedure

To power off the device simply remove the power from the source and system will shutdown.

This can be visually confirmed by looking at the integrated display which should go dark.

7. Faults



The appliance must be disconnected from the power supply in the following situations:

- The mains cable or plug is damaged.
- Main switch is damaged.
- Smoke development is noticeable.
- The FluidInspectIR®_ ATEX6 is exposed to environments not compatible with its ATEX rating
- The FluidInspectIR®_ ATEX6 is not working properly according to these operating instructions.
- The FluidInspectIR®_ ATEX6 has fallen or is damaged or the device shows clear signs of a defect.

An expert determines the cause and defines further measures. Work on the electrical equipment may only be carried out by authorized personnel of the manufacturer.

8. Maintenance

8.1 General Maintenance



- The analyser is designed to be largely maintenance-free and any maintenance required can be carried out as part of normal asset servicing.
- The FluidInspectIR®_ ATEX6 can be serviced remotely by qualified Spectrolytic personnel who log into the system and check the performance of the individual parts. This should be carried out annually.
- If a customer wants to maintain the ISO 11171:2022 certification the unit has to be sent back to the manufacturer annually for a recalibration of the optical particle counter. This can not be done remotely
- It is NOT ALLOWED to open the enclosure or to remove / replace the flame arrestors of the system as this might invalidate the ATEX certification
- It is allowed to connect / disconnect the power cable, data cable and antenna cable from the unit. Please ensure that after removal of the connectors the connector part on the unit is protected from dust and moisture ingress.
- Only clean the exterior of the FluidInspectIR®_ ATEX6 with all the connectors in place as they provide IP67 protection and prevent any moisture / dirt causing problems.
- Always disconnect the FluidInspectIR®_ ATEX6 from the power supply before carry out any work (disconnect the power supply plug).
- Do not use any aggressive liquid or aerosol cleaners or other aggressive type of cleaning materials. This could potentially damage the FluidInspectIR®_ ATEX6.
- Do not use pressurised water to clean the FluidInspectIR®_ ATEX6
- If maintenance or servicing work is required on the analyser, this should only be carried out by Spectrolytic personnel or by personnel who have been trained by Spectrolytic to carry out maintenance and servicing work. This should be done annually.
- Any attempt by unauthorised personnel to service or repair the analyser will automatically invalidate the warranty and more importantly invalidate the ATEX conformity
- The FluidInspectIR®_ ATEX6 has integrated tamper protection and any unauthorised opening of the system automatically voids the warranty.

8.2 General Operation Considerations

8.2.1 Maintenance on the asset

In the event of any system asset maintenance the Analyser should be switched off by stopping the power to the system or removing the power connector. If removing the connector ensure dust caps are replaced correctly on both the connector and unit to prevent contamination.

Any maintenance can only be carried out by Spectrolytic personnel and/or partners who have the required certifications to work with ATEX certified systems

ALWAYS contact the manufacturer prior to attempting to carry out any maintenance work

8.2.2 Power Cut Recovery

In the event of a power cut or power loss to the Analyser, please contact the manufacturer to ensure that everything is working correctly after the power has been restored.

9. Installation of Spare Parts



- Only parts of the same type may be used.
- You can purchase all spare and wear parts from Spectrolytic.

Spectrolytic Ltd. and the suppliers of the electrical equipment and components provide a delivery guarantee of 5 years from the date of delivery (in accordance with DIN EN 82079-1, reference from DIN EN ISO 12100, DIN EN 60204-1) for the above parts.

We expressly draw your attention to the fact that spare parts and accessories not supplied by us have not been tested and approved by us. The installation and/or use of such products may therefore adversely affect the design characteristics of the electrical equipment.

Liability is excluded for damage caused by the use of non-original parts and non-original accessories.

10. Service

Servicing and spare parts can be obtained from:

Spectrolytic Ltd.
1-6 Techcube
Summerhall, Edinburgh
EH9 1PL
Phone: +44 1316081230
Email: info@spectrolytic.com

11. Scope Of Delivery

Immediately after unpacking, always check that the scope of delivery is complete and that the electrical equipment is in perfect condition.

12. Warranty Provisions

The manufacturer's / distributor's statutory warranty is 12 months from the date of delivery or handover on site after commissioning.

The appliance has been carefully produced and subjected to a thorough quality check. All material or manufacturer defects will be rectified free of charge within the warranty period.

The warranty does not cover damage caused by improper handling, non-compliance with the operating instructions or tampering by unauthorised persons or wearing parts.

The warranty service neither extends nor renews the warranty period.

13. Disposal



The FluidInspectIR®_ATEX6 is made of metal and plastic (except for the electrical equipment) and must be disposed of in accordance with the applicable local environmental regulations. National regulations and laws must be observed. Depending on the nature, existing regulations and in compliance with current regulations, dispose of e.g. as:

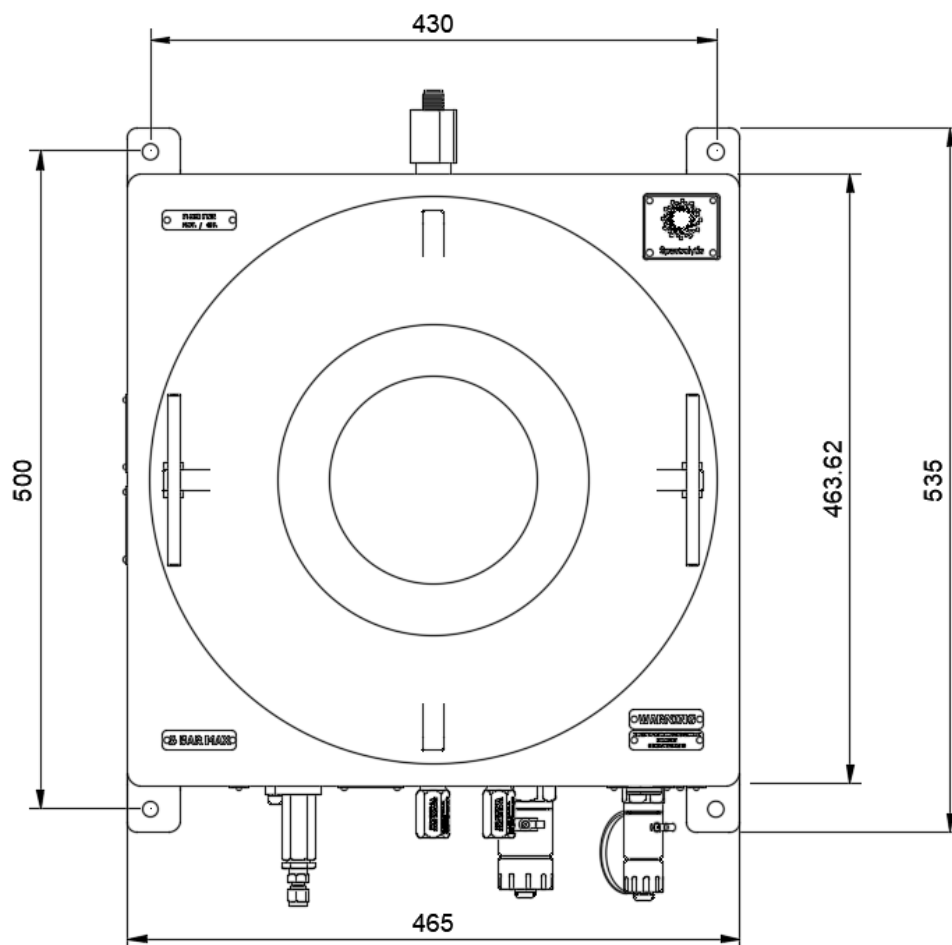
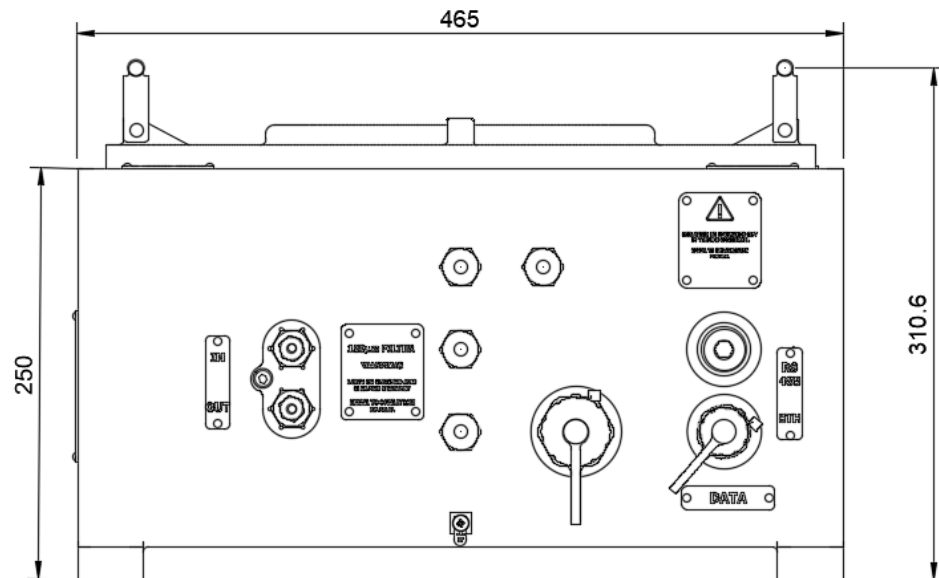
- Electronic waste
- Fluorescent / energy-saving lamps (collection points)
- Plastics / Rubber
- Batteries (collection points)

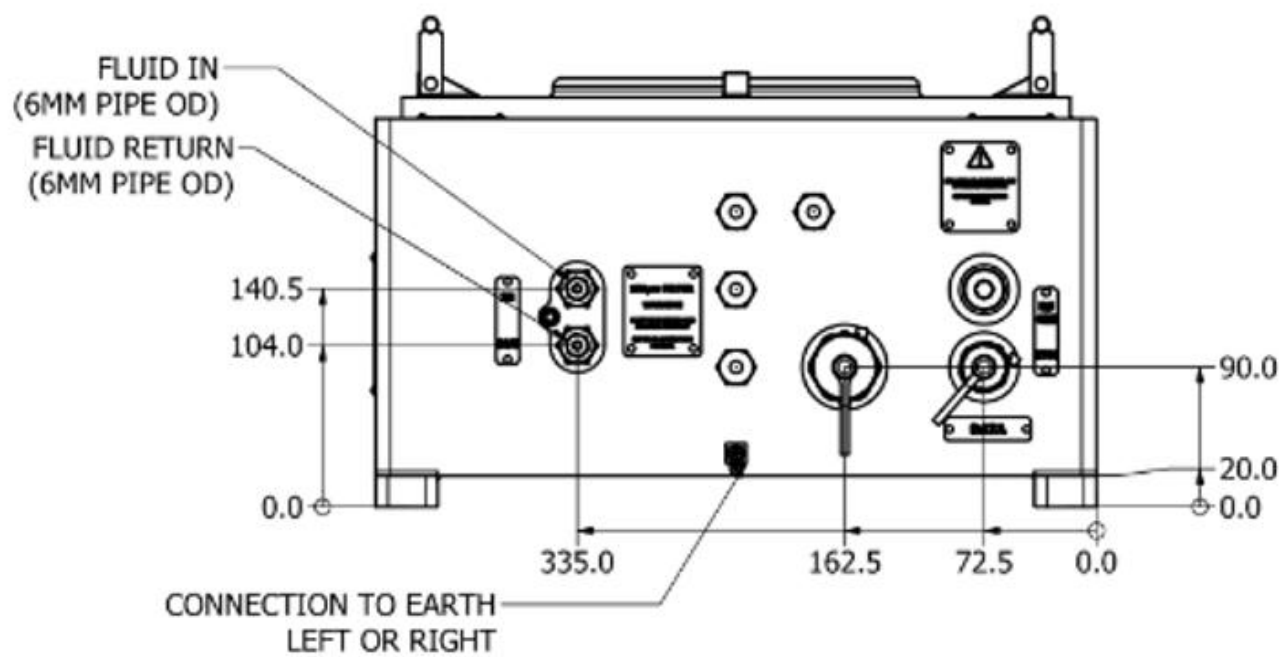
The packaging and packaging materials are made exclusively from environmentally friendly materials. They can be disposed of in the local recycling bins. The product must be taken to a separate waste collection centre in the European Union. Labelled products must not be disposed of with normal household waste but must be handed in at a collection point for the recycling of electrical and electronic equipment. Recycling helps to reduce the consumption of raw materials and the environment.

It is recommended that the appliance be disposed of by the manufacturer.

14. Appendix

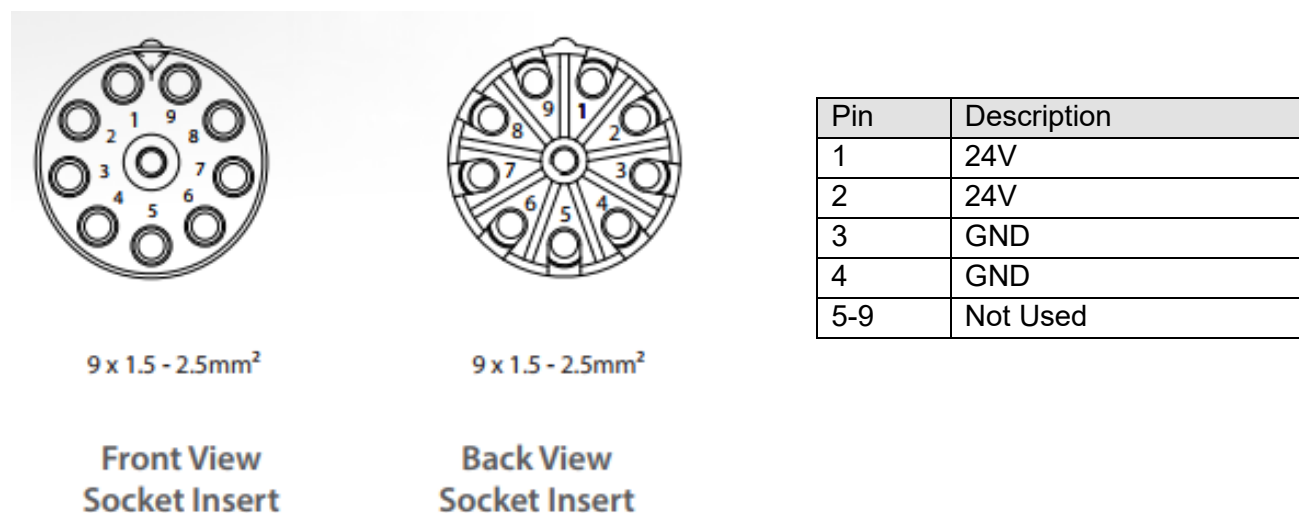
14.1 Technical Drawings



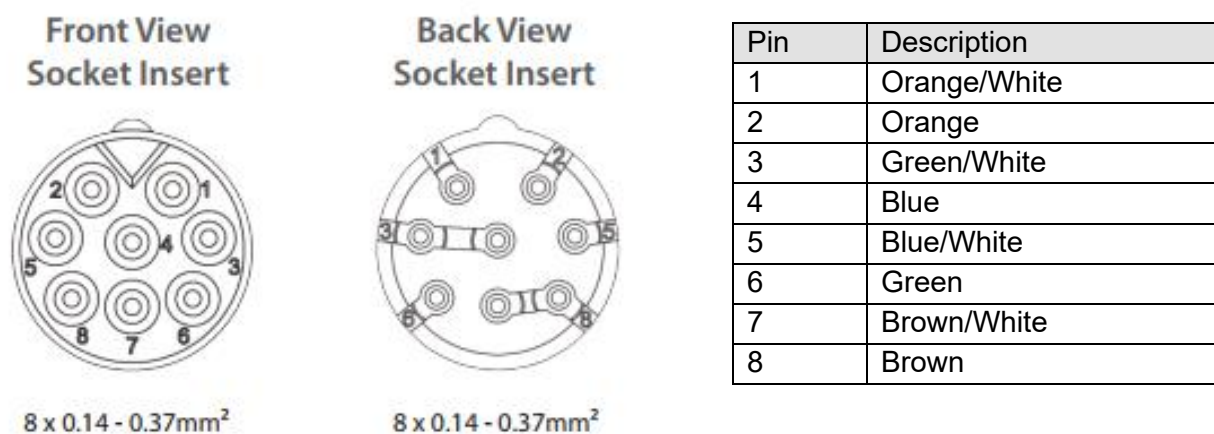


14.2 Pin Assignment and Connector Assembly

14.2.1 24V Power Connector – Hawke SCP-X-ESA-XXX-A



14.2.2 Ethernet Data Connector – Hawke SCP-X-CSS-XXS-A EX S-S



14.2.3 Recommended Crimp Tool

ADJUSTABLE CRIMP TOOL AF8

DMC DANIELS
MANUFACTURING
CORPORATION
DATASHEET

THIS HAND TOOL MUST NOT BE USED IN ANY POWERED
"PRESS" AS DEFINED BY OSHA CFR 1910.211 (46)

SEE REVERSE SIDE FOR IMPORTANT INFORMATION CONCERNING
LIMITED WARRANTY, AND LIMITATION OF LIABILITY.

GENERAL INFORMATION:

1. Designation AF8 (M22520/1-01) refers to basic tool without positioner.
2. Wire crimp range 26 to 12 AWG
3. The tool has a double action ratchet, and cannot be opened without completing the cycle.

INSTALLATION OF POSITIONER:

1. Tool must be in open position.
2. Press positioner trigger latch which releases turret to indexing position.
3. Place positioner onto retaining ring with alignment pin in alignment hole.
4. After positioner is seated against retainer ring, tighten socket head screws with 9/64" hex. key.
5. Refer to dataplate on positioner. From color code column, select the positioner color that corresponds with the appropriate part number and size of contact to be crimped.
6. With tool in open position, rotate until color coded insert is in line with the index mark. Press turret until it snaps in latched position.
7. Refer to dataplate. From wire size column, determine the selector setting that corresponds with the contact being used.
8. Remove spring clip from selector knob and rotate until correct setting is in line with selector mark.

CRIMPING INSTRUCTIONS:

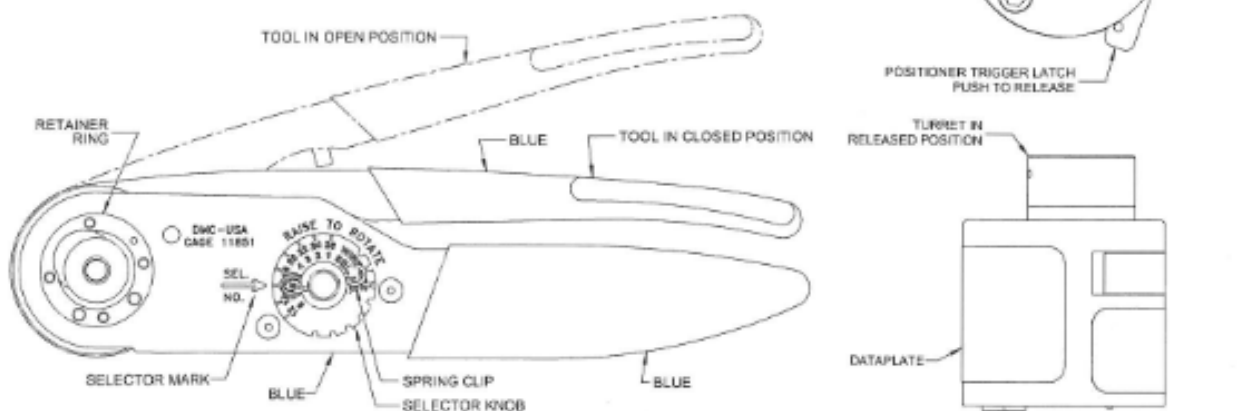
1. Insert contact and prepared wire through the indenter opening into the positioner.
2. Squeeze handles together until ratchet releases. Handle will return to open position.

REMOVING POSITIONER:

1. With tool in open position, release turret. Loosen screws until threads are disengaged from retainer ring and remove with a straight lifting motion.

CAUTION:

TOOL MUST BE IN OPEN POSITION WHENEVER
POSITIONER IS BEING INSTALLED, REMOVED OR RELEASED.
DAMAGE TO TURRET HEAD AND/OR CRIMP TOOL MAY RESULT
IF THIS PROCEDURE IS NOT FOLLOWED.



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NOVEMBER 2014 REV. C AFB-DS

GAUGING INSTRUCTIONS

"GO" GAUGING

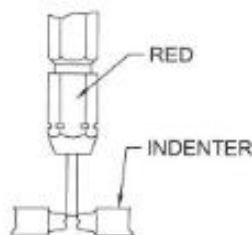
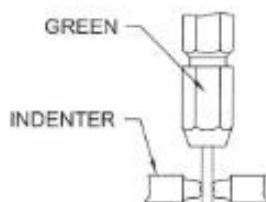
Operate the tool to the fully closed position. Maintain firm hand pressure on the tool handles. Insert the "GO" gage end as shown. The gage must pass freely between the indenter tips.

"NO-GO" GAUGING

Operate the tool to the fully closed position. Maintain firm hand pressure on the tool handles. Try to insert the "NO-GO" gage end as shown. The "NO-GO" gage may partially enter the indenter opening, but must not pass completely through.

GAUGING LIMITS

SEL NO	INSPECTION GAGE	
	Ø GO ± .0001	Ø NO-GO ± .0001
1	.0280	.0330
2	.0320	.0370
3	.0360	.0410
4	.0390	.0440
5	.0450	.0500
6	.0520	.0570
7	.0590	.0640
8	.0680	.0730



CAUTION!
DO NOT CRIMP GAGE !!

CARE OF TOOL

There is virtually no maintenance required. However, it's good practice to keep indenter tips free of residual deposits and other debris. A small wire brush may be used for this purpose.

We strongly recommend that you:

1. DO NOT immerse tools in cleaning solution.
2. DO NOT spray oil into tool to lubricate.
3. DO NOT attempt to disassemble tool or make repairs.

This is a precision hand crimp tool and should handled as such.

DMC offers complete refurbishing and recalibrating services.

DMC specially engineers and manufactures complete tool kits to satisfy individual customer requirements, such as total aircraft support, general shop maintenance or production, on board ship and vehicle service, etc.

LIMITATION OF LIABILITY

DANIELS MANUFACTURING CORPORATION IS NOT LIABLE FOR CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY NATURE OR KIND RESULTING FROM THE USE, MISUSE, OF ANY OF ITS PRODUCTS. OWNERS AND USERS OF DMC PRODUCTS ASSUME FULL RESPONSIBILITY FOR INSTRUCTING THEIR EMPLOYEES IN THE PROPER AND SAFE USE OF SUCH PRODUCTS.

LIMITED WARRANTY

DMC (Daniels Manufacturing Corporation) warrants each new product sold by it to be free from defects in material and workmanship under normal use and service. DMC's obligation under this warranty is limited to the free correction or, at DMC's option, the refund of the purchase price of any such product which proves defective in normal service within ninety (90) days after delivery to the first user, provided that the product is returned to DMC with all transportation charges prepaid and which shall appear to DMC's satisfaction, after DMC's inspection, to have been defective in material or workmanship, it being understood that DMC products are not consumer products. This warranty shall not cover any damage to any products which, in the opinion of DMC, was caused by normal wear, misuse, improper operation, tampering, neglect or accident. This warranty is in lieu of all other warranties express or implied. No warranty, express or implied, is made or authorized to be made or assumed with respect to products of Daniels Manufacturing Corporation other than those herein set forth.

14.2.4 Hawke Connectors Termination / Hook Up Procedure



LIVE DEMATEABLE CONNECTOR TERMINATION / HOOK UP PROCEDURE



(AI364 Rev 17 – Mar 2022)

Hawke International
UK Office,
Oxford Street West,
Ashton-under-Lyne,
Lancashire,
OL7 0NA, UK

Phone: +44 (0) 141 8103644
E-mail: hholes1@hubbell.com

Connection Solutions
www.hawke.com

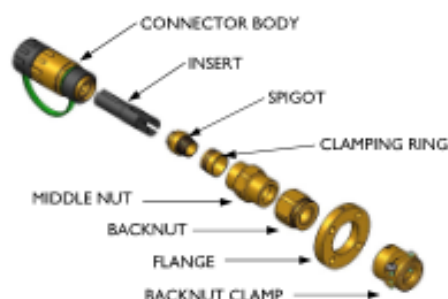
HAWKE
International

IMPORTANT NOTE

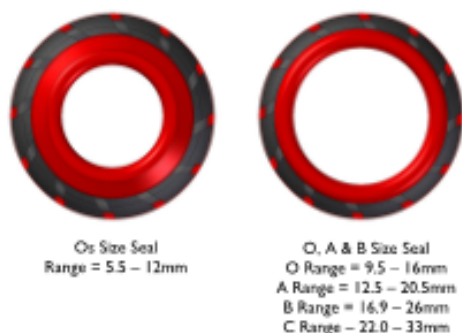
1. Hawke International does not recommend the use of the InstrumEx Connectors in applications where rigid PVC / SWA / PVC power cabling is used in portable / semi-portable applications.
2. Hawke Ex Connector products are designed to be used in multi-voltage applications in circuits: 4 / 9 way up to 250V AC, 4 / 9 way up to 60V DC and 8 way up to 60V AC/DC. It is possible that on certain installations, there may be a mix of applications utilising different voltages on the Connector products. In these instances, the installer / circuit designer must ensure that the plugs and sockets, or their associated cabling, is clearly marked with the correct circuit voltage and current rating to ensure that the equipment being supplied is matched correctly with the supply voltage. The variable insert positions which are a feature of the Connectors may also be used to provide additional means of safety in these applications.

CP / CR PROCEDURE

- 1) Unscrew the middle nut and back nut from the connector body and remove the armour clamping ring, spigot and insert. If you have purchased a connector with the optional backnut clamp and / or flange, slide these down the cable now (clamp first).



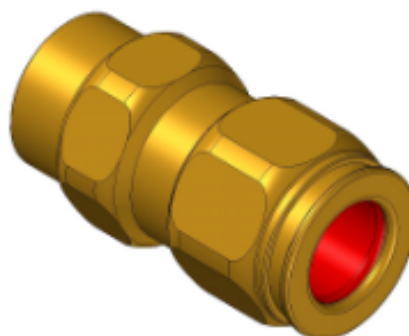
- 2) Remove the two seal assemblies from the box and choose the required seal to suit the diameter of the cable outer jacket.



- 3) Insert the seal into the back nut, ensuring that the flange on the seal goes past the thread as shown.



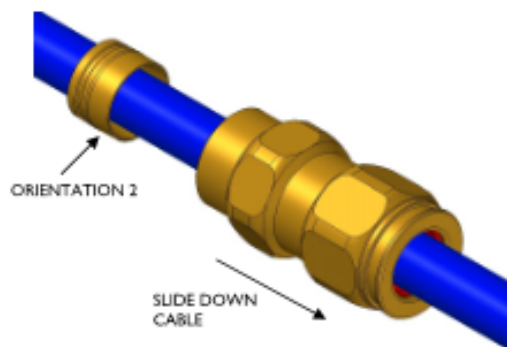
- 4) Screw the backnut onto the middle nut. Do not compress the seal at this stage.



- 5) Slide the middle nut, backnut and armour clamping ring over the cable ensuring that the clamping ring is pointing in the required direction for the size of armour / braid. The alternative ring is supplied in the box.

STANDARD RING		
RING PART No.	ARMOUR / BRAID THICKNESS	
	ORIENTATION 1	ORIENTATION 2
Ox / O	0.8 - 1.25	0.0 - 0.8
A	0.8 - 1.25	0.0 - 0.8
B	1.25 - 1.6	0.0 - 0.7
C	1.6 - 2.0	0.0 - 0.7

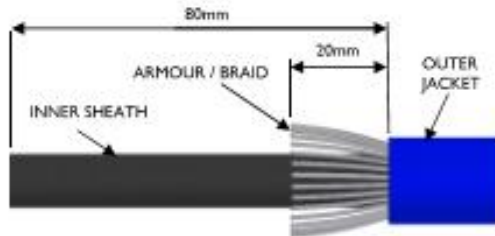
ALTERNATIVE RING		
RING PART No.	ARMOUR / BRAID THICKNESS	
	ORIENTATION 1	ORIENTATION 2
B	0.9 - 1.25	0.5 - 0.9
C	1.2 - 1.6	0.6 - 1.2



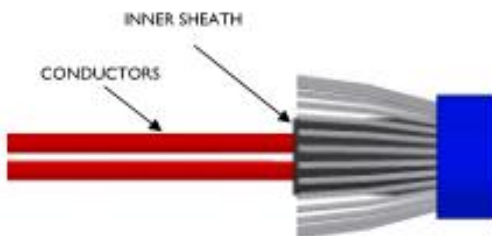
Instrum^{Ex} Termination Procedure

(AI364 Rev: 17)

- 6) Strip back the outer jacket and armour (if present) as shown below.

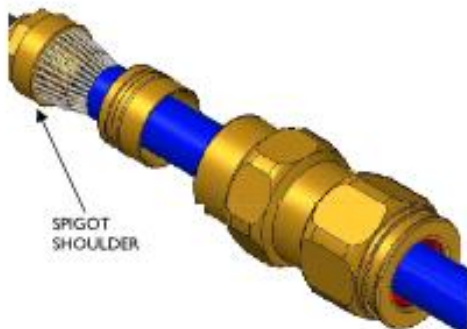


- 7) Strip back the inner sheath level with the armour to expose the insulated conductors as shown below. If unarmoured, strip back to the outer jacket.

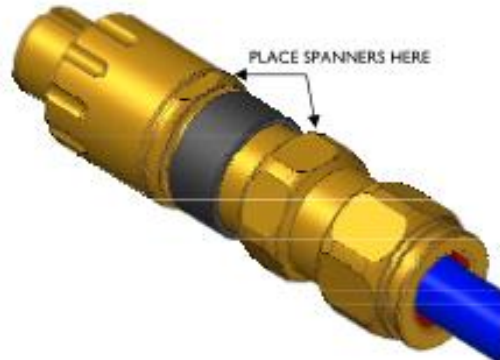


ARMoured / BRAIDED CABLE

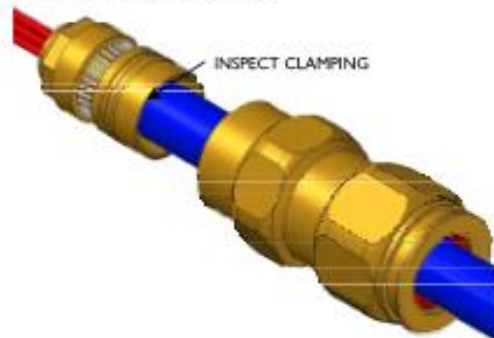
- 8) Push the inner sheath of the cable through the spigot. Spread the armour / braid over the spigot until the end of the armour / braid is up against the shoulder of the spigot. Position the armour clamping ring onto the armour / braid.



- 9) Place the connector body over the spigot engaging the octagonal portion of the spigot. Move the middle nut up to meet the connector body. Place a spanner on the flats of the connector body and hold it in position. Hand tighten the middle nut to the connector body, then turn a further $\frac{1}{2}$ to $\frac{3}{4}$ turn with a spanner.



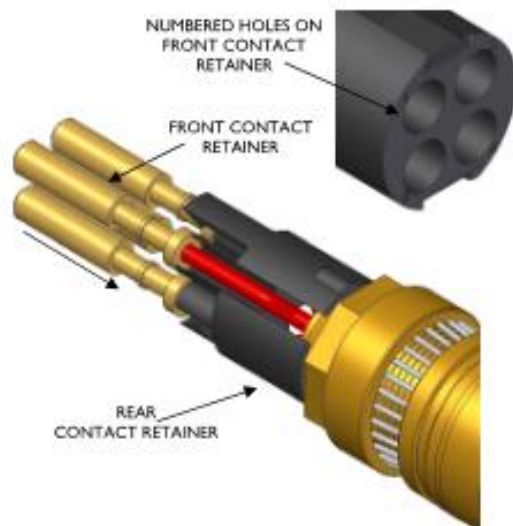
- 10) Unscrew the middle nut and visually inspect that the armour has been successfully clamped between the armour spigot and the clamping ring.



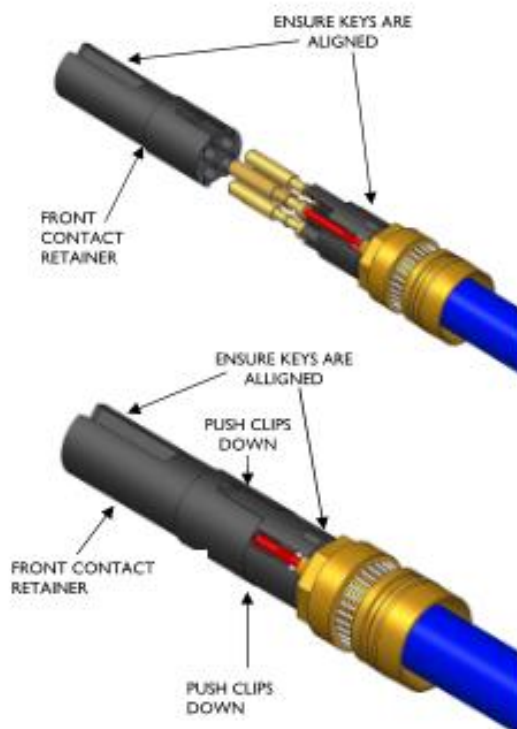
Instrum^{Ex} Termination Procedure

(AI364 Rev: 17)

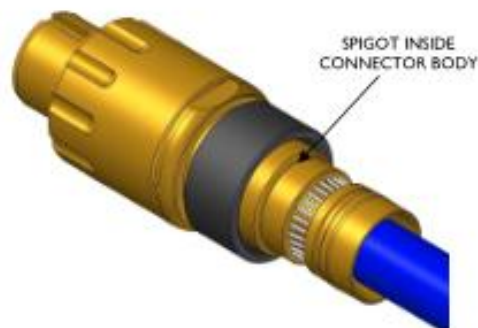
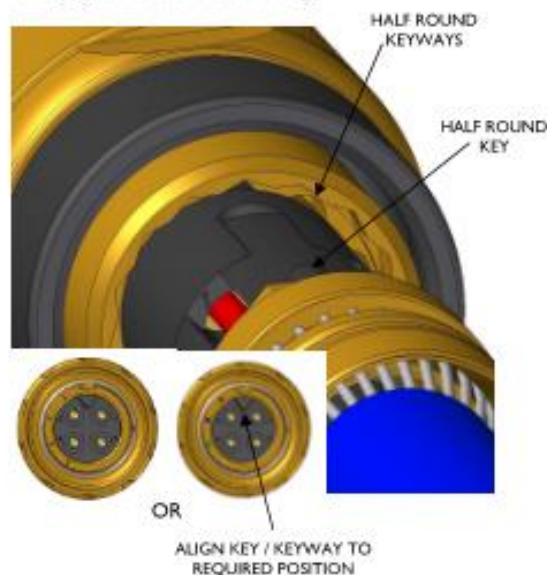
- 17) Splay out the contacts and fit them through the slots in the rear contact retainer, ensuring they line up with the relevant numbered hole on the front contact retainer (ensure keys are aligned - see step 18). Unused contacts should be omitted if not required to ease assembly.



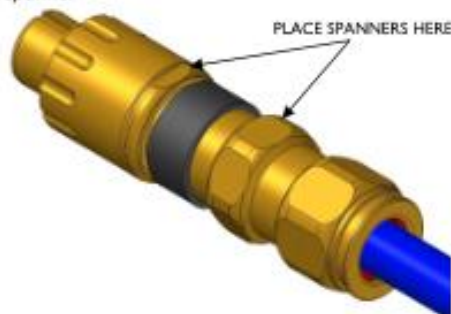
- 18) Slide the front contact retainer over the contacts and snap into place with the rear contact retainer. Push the clips of the rear contact retainer firmly down to ensure they are not protruding (will only fit in the correct orientation).



- 19) Slide the insert into the connector body, aligning the half round key on the rear contact retainer with the required half round keyway in the connector body. (The colour coded or numbered keying position is shown on the front of the connector body. No colour coding or numbering for default 12 o'clock position - see picture inset). It should be noted that colour coded and numbered connector bodies are mutually interchangeable. Push the octagonal portion of the spigot into the connector body.



- 20) Slide the middle nut over the clamp / spigot and hand tighten onto the connector body, then further tighten $\frac{1}{8}$ to $\frac{1}{4}$ of a turn with a spanner while holding the front shell with a spanner

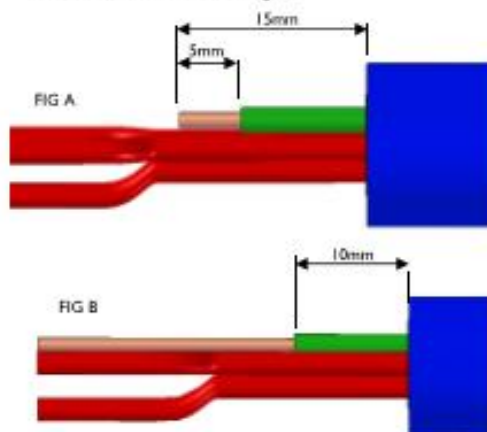


Instrum Termination Procedure

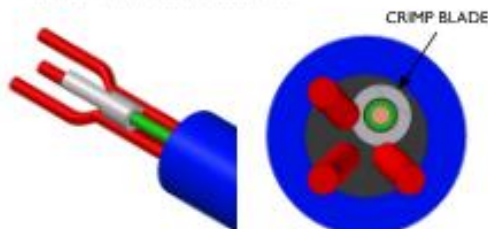
UNARMoured CABLE

(If earth is to be terminated to connector shell. Otherwise proceed to step 15)

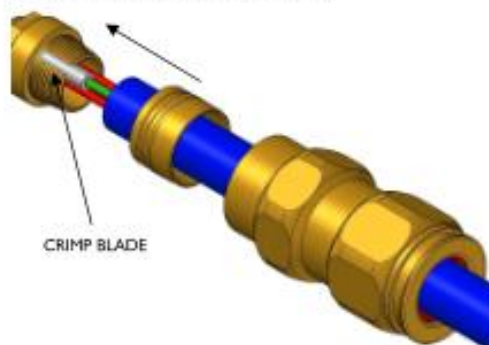
- 11) Strip back the earth conductor as shown below. If the earth is being carried through a contact as well as being connected to the shell, see fig b.



- 12) Crimp the flat blade earth crimp onto the earth conductor as shown below. Ensure the blade of the crimp is outermost, as shown and that the crimp is pushed all the way up to the insulation of the earth conductor.



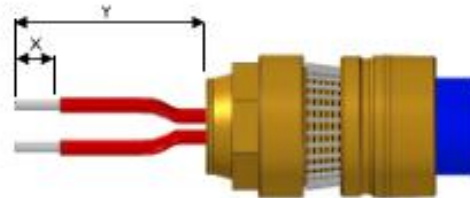
- 13) Push the conductors through the spigot and place the blade of the crimp on the taper of the spigot.



(AI364 Rev: 17)

- 14) Push the armour clamp (orientation 2 – see step 5) onto the blade of the crimp and lock into position by following steps 9 and 10 of the armoured / braided cable procedure.

- 15) Strip back the conductors as shown below.



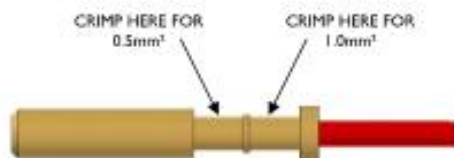
CONTACT	CONTACT SIZE	X	Y
8 Core	0.14 - 0.37mm ²	5mm	23 - 28mm
4 / 9 Core	0.5mm ²	10mm	28 - 33mm
0.5mm ² - 1.0mm ²	1.0mm ²	5mm	23 - 28mm
4 / 9 Core	1.5mm ²	10mm	28 - 33mm
0.5mm ² - 2.5mm ²	2.5mm ²	5mm	23 - 28mm

- 16) Remove the contacts from the contact retainers. Crimp the contacts onto the conductors using the Hawke crimp tool only (Astro Crip Corp – 615708 Crimp Tool M22520/1-01 Large). Ensure that the insulation of the conductor is up against the shoulder of the contact. When terminating 0.5mm² or 1.5mm² wire, ensure the conductor is pushed all the way into the smaller hole of the contact and that the contact is square in the crimp tool.

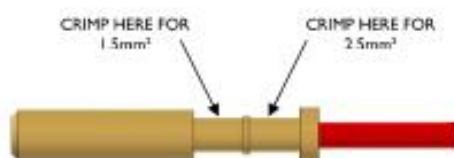
CAUTION: EXCESSIVE FORCE MAY BEND THE CONTACTS

Alternatively, conductors may be soldered into the contacts. Ensure that the cable installation is the same on the mating half. Hawke recommends that wiring details are placed on the cable outer jacket near to the connector.

4 / 9 CORE 0.5mm² - 1.0mm²



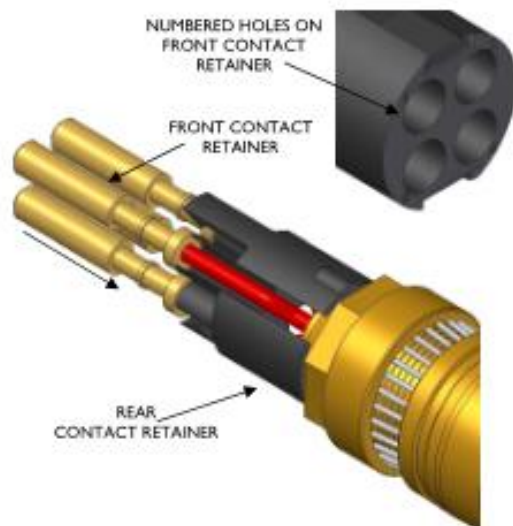
4 / 9 CORE 1.5mm² - 2.5mm²



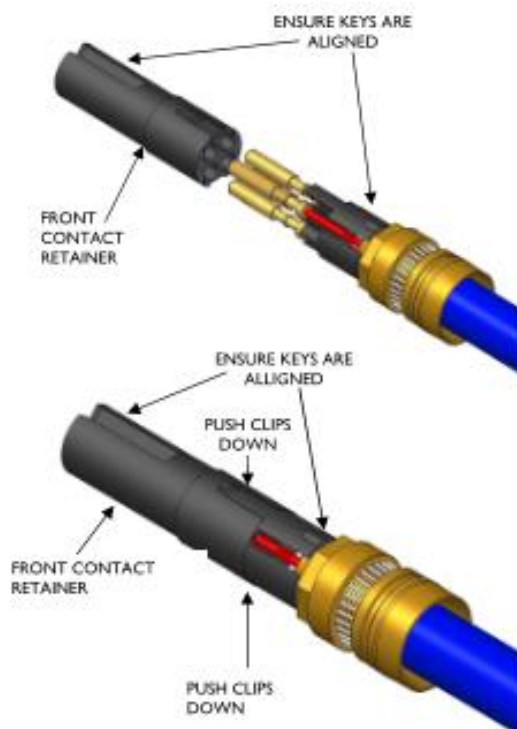
Instrum^{Ex} Termination Procedure

(AI364 Rev: 17)

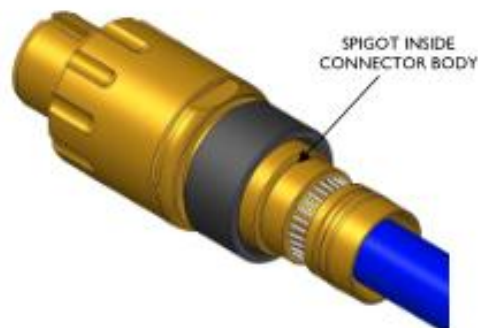
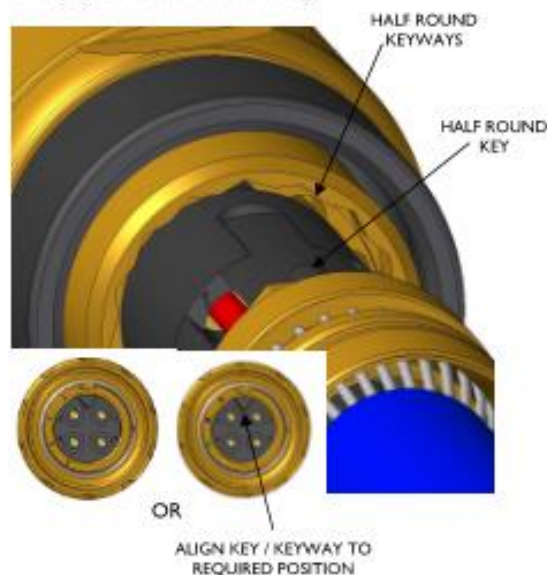
- 17) Splay out the contacts and fit them through the slots in the rear contact retainer, ensuring they line up with the relevant numbered hole on the front contact retainer (ensure keys are aligned - see step 18). Unused contacts should be omitted if not required to ease assembly.



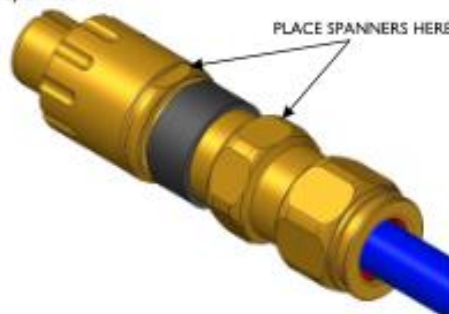
- 18) Slide the front contact retainer over the contacts and snap into place with the rear contact retainer. Push the clips of the rear contact retainer firmly down to ensure they are not protruding (will only fit in the correct orientation).



- 19) Slide the insert into the connector body, aligning the half round key on the rear contact retainer with the required half round keyway in the connector body. (The colour coded or numbered keying position is shown on the front of the connector body. No colour coding or numbering for default 12 o'clock position - see picture inset). It should be noted that colour coded and numbered connector bodies are mutually interchangeable. Push the octagonal portion of the spigot into the connector body.



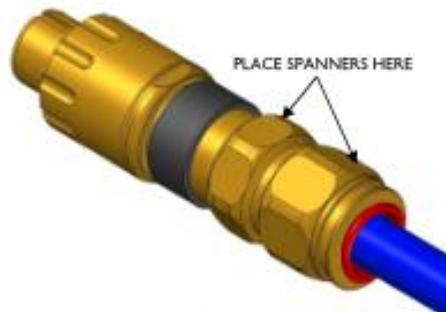
- 20) Slide the middle nut over the clamp / spigot and hand tighten onto the connector body, then further tighten $\frac{1}{8}$ to $\frac{1}{4}$ of a turn with a spanner while holding the front shell with a spanner



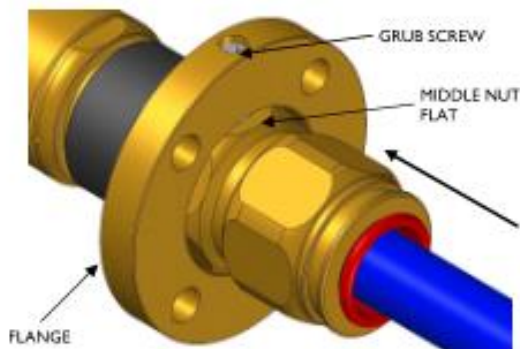
Instrum^{Ex} Termination Procedure

(AI364 Rev: 17)

- 21) Tighten the backnut onto the middle nut until a seal is formed. Further tighten 1 to 1 ½ turns with a spanner while holding the middle nut with a spanner.



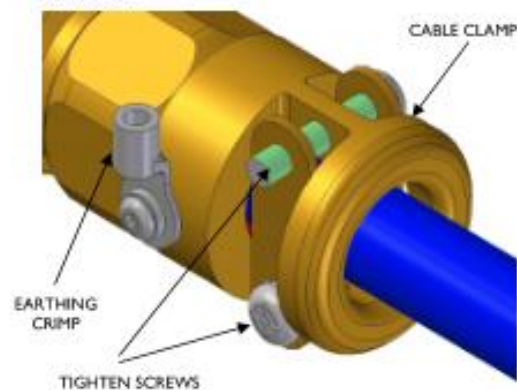
- 22) If the optional mounting flange is required, slide the flange over the backnut and position on the middle nut. Align the grub screw with one of the flats and tighten.



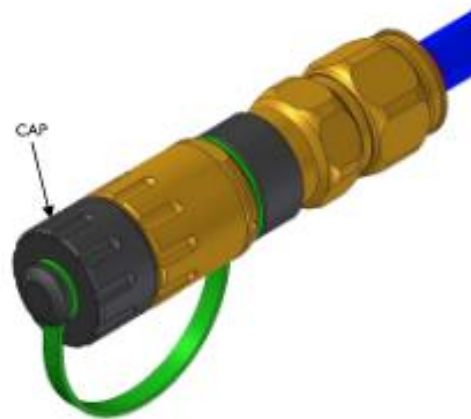
- 23) If the optional cable clamp has been purchased, tighten the screws on the clamping bars equally until the clamping bars touch the cable. Tighten each screw a further 2-4 turns or until adequately clamped.

DO NOT OVERTIGHTEN AS THIS COULD DAMAGE THE CABLE

If the cable clamp is being used with unarmoured cable, the connector should be earthed via the crimp with a 4mm² conductor.



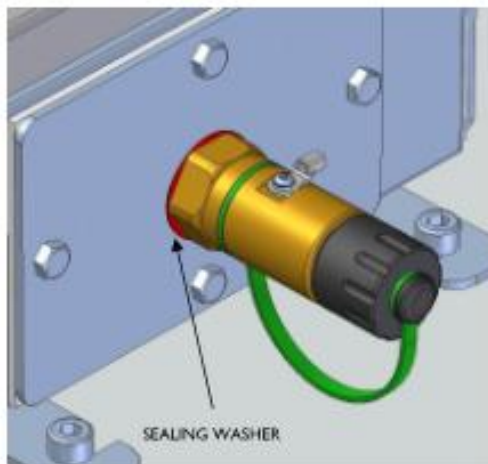
- 24) Screw the cap back onto the connector. **Stick the corresponding round colour coded / numbered sticker onto label in the circular space provided. (white = 12 o'clock / Position 1)**



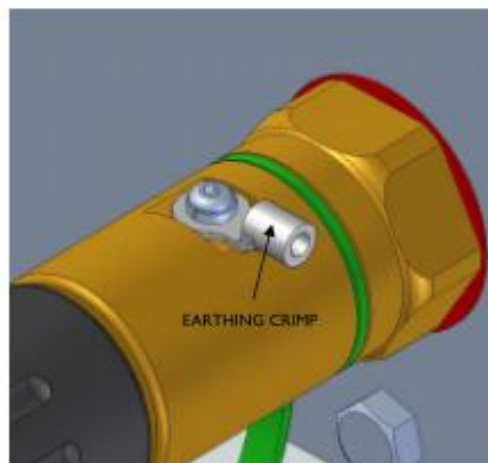
- 25) The connector is now ready for hook up. Please refer to the hook up procedure.

BR PROCEDURE

- 1) The BR connector is supplied ready terminated with tails. Simply fit into suitable junction box / equipment as required. To maintain the IP rating of the equipment, a sealing washer should be used (available separately) as shown below.



- 2) Terminate the conductors and earth wire inside the junction box / equipment.
- 3) The connector may also be earthed externally via the crimp with a 4mm² conductor if required.



- 4) The connector is now ready for hook up. Please refer to the hook up procedure.

HOOK UP PROCEDURE

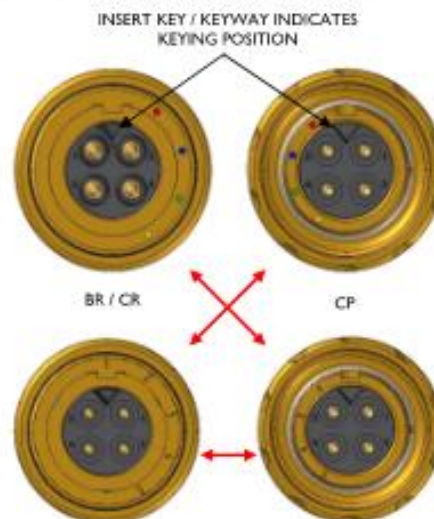
WARNING:

Only the socket insert is allowed to remain energised while de-mated. If being used with bi-directional signals, isolate elsewhere before connecting / disconnecting.

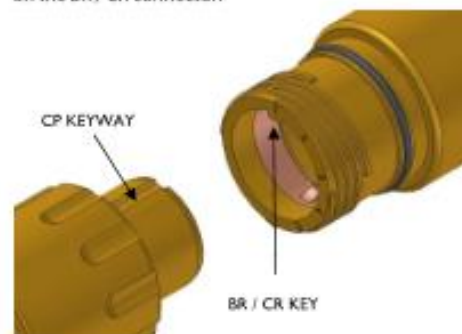
Before commencing hook up, a visual inspection should be carried out on the cable / connector assembly. The assembly should be checked to ensure that all of the assembly components are tight. If the assembly components have loosened during transportation / cable installation, they should be retightened in accordance with the relevant assembly instruction sheets without twisting the cable in the connector assembly.

- 1) Remove connector caps.
- 2) Ensure the connectors are both set to the same keying position colour or numbered (no colour or number for default 12 o'clock position on BR/CR) and are of the same insert type.

It should be noted that colour coded and numbered connector bodies are mutually interchangeable.

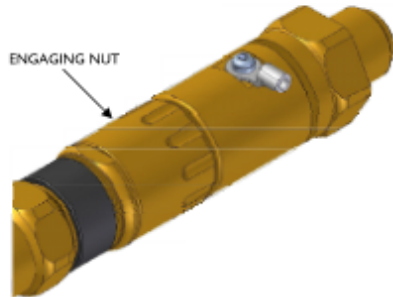


- 3) Engage the CP connector with the BR / CR connector and align the keyway on the CP connector to the key on the BR / CR connector.

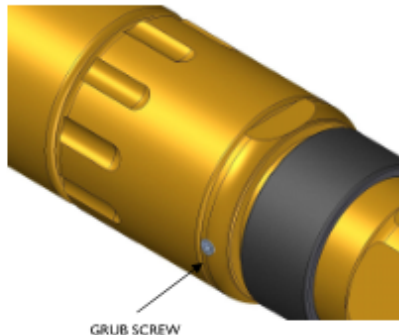


Instrum^{Ex} Termination Procedure

- 4) Engage the two connectors by screwing the engaging nut clockwise without interruption onto the BR/CR shell. If the threads will not engage, the connectors are set to different keying positions.



- 5) If anti-vibration protection is required, tighten the grub screw on the CP shell.



- 6) To disconnect, slacken the tightened grub screw, turn the engaging nut anti-clockwise and remove the connector. Fit the caps.

SCHEDULE OF LIMITATIONS

- Following disconnection, the energised power supply must only be connected to the connector part incorporating the socket connections.
- The connector part containing the pin connections must not be connected to equipment containing a power supply or energy storage devices likely to cause the plug to remain energised after disconnection.
- The protection caps are to be fitted immediately following separation.
- The bulkhead connector is not to be fitted to the enclosures / bulkheads where the interface temperature may exceed 80°C. In addition, the integral cables shall be mechanically protected.
- When used in dust environments, the bulkhead mounting thread is to be sealed in accordance with the installation code of practice to ensure that an ingress protection level of IP65* is maintained.
- External sources of heating or cooling shall maintain the temperature limits of the equipment.
- Flameproof joints are not intended to be repaired.

(AI364 Rev: 17)

TECHNICAL SPECIFICATION

Certification: ^{Ex} II 2GD Ex db eb IIC T6 Gb, Ex tb III C T80 Db

Tamb: -40°C to +60°C

Baseefa06ATEX0061X IECEx BAS06.0018X CSA 2633583

Inmetro IEx 14.0217X EAC RU C-GB HA91.8.00261/21

IP Rating: IP66 / 67 (IP68 on request)

Note: Caps to be fitted to maintain IP ratings when the connector halves are separated.

Deluge Rating: DTS01

Outer Seal Range: Os 5.5 to 12mm B 16.9 to 26.0mm
Q 9.5 to 16mm C 22.0 to 33.0mm
A 12.5 to 20.5mm

Armour/Braid Sizes: 0 to 1.6mm

Keying Positions: CP / CR – 5 flexible BR – 5 factory set

Conductor Sizes: 4 / 9 Way 8 Way
0.5 to 2.5mm² 0.14 to 0.37mm²

Ratings: 4 / 9 Way 8 Way

Voltage AC 250V 60V

Current AC

EN 60947-4-3 10A (AC21) 1A (AC21)

EN 60947-4-1 10A (AC1) 1A (AC1)

EN 60947-4-1 1A (AC3) 0.1A (AC3)

Frequency 50 / 60 Hz 50 / 60 Hz

Power Factor 0.9

Voltage DC 60V 60V

Current DC

EN 60947-3 2.5A (DC21) 0.5A (DC21)

EN 60947-4-1 2.5A (DC1) 0.5A (DC1)

EN 60947-4-1 0.5A (DC3) 0.1A (DC3)

Fuse Rating:

4 / 9 Way 10 amp without thermal protection

20A gL with thermal protection

8 Way 1 amp max with / without thermal protection

Maximum number of make and break operations (EN 61984)

On-Load Off-Load

4 / 9 Way 150 500

8 Way 150 500

Storage Temperature: -55°C to +70°C

EU Declaration of Conformity in accordance with European Directive 2014/34/EU and UK Statutory Instrument 2016/1107

Manufacturer: Hawke International

Address: Oxford Street West, Ashton-under-Lyne, GL7 0WA, United Kingdom

Equipment Type: Range of Connectors: InstrumEx

Provisions of the Directive fulfilled by the Equipment:

Group II Category 2GD Ex db eb IIC T6 Gb, Ex tb III C T80 Db – IP66

Notified Body for EC-Type Examination: SGS-Fimko 0598 Helsinki Finland

EC-type Examination Certificate: Baseefa06ATEX0061X

Notified Body for production: 0598

Approved Body for UK-Type Examination: SGS-Baseefa 1180 Buxton UK

UK-type Examination Certificate: BAS21UKEX0061X

Approved Body for production: 1180

Harmonised Standards used:

EN 60079-0:2018, EN 60079-1:2014, EN 60079-7:2015+A1:2018, EN 60079-31:2014

On behalf of the above named company, I declare that, on the date the equipment accompanied by this declaration is placed on the market, the equipment conforms with all technical and regulatory requirements of the above listed directives.



A. Reid
Technical Manager

14.3 Declaration of Conformity / MAM ATEX Certification



M.A.M.



DICHIARAZIONE UE/UK DI CONFORMITA' EU/UK DECLARATION OF CONFORMITY

Cliente: Spectrolytic Ltd Customer 12 Orchard Court EH32 0PE Longniddry Scotland UK	N. Ordine: PoUkCG- 10_2024_01_MAM PO no.
Commessa M.A.M.: 4277-24 M.A.M. Job	Custodia: GUB6W Enclosure
Numero di serie: 10366 Serial no.	Notify/Approved Body CE 0080 – INERIS QAN 12ATEXQ403 QAR FR/INE/QAR11.0004 UK CA 2503 - CML 21UKQAN14444

Con il presente certificato dichiariamo che il materiale fornito a fronte dell'ordine sopra citato è conforme alle seguenti direttive comunitarie e con la relativa legislazione nazionale di recepimento:

We declare that the product supplied as per above mentioned order is in conformity with following EU directives and with the relevant national laws

- **ATEX DIRECTIVE 2014/34/EU**
- **SI 2016 No. 1107 (as amended)**

Dichiariamo inoltre che sono state applicate le seguenti norme armonizzate:

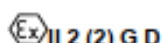
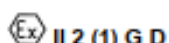
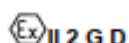
We also declare that following harmonised/designated standard have been applied:

- | | | | |
|-------------------------|--------|---------------------|--------|
| - EN IEC 60079-0 | : 2018 | IEC 60079-0 | : 2017 |
| - EN 60079-1 | : 2014 | IEC 60079-1 | : 2014 |
| - EN 60079-11 | : 2012 | IEC 60079-11 | : 2011 |
| - EN 60079-31 | : 2014 | IEC 60079-31 | : 2013 |

L'apparecchiatura è coperta dal seguente Certificato di Esame UE di tipo
Apparatus are certified by following EU/UK-Type Examination Certificate

INERIS 16ATEX0024X
CML 21UKEX1864X

*



OFFICINE MECCANICHE M.A.M. SRL
EXPLOSION PROOF ENCLOSURES

Sede Legale & Operativa
Via Vico Veneto 32,
20072, Pieve Emanuele (MI) Italy

Phone +39.02.90.400.419
info@mamitaly.it
cod. dest. SDI: W7YVJK9

CF/P.IVA IT08707640960
Cap.Sociale € 40.000,00 I.V.
PEC m.am.srl@legalmail.it

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**YOUR
SAFETY**



M.A.M.



Ex db IIC T6...T4 Gb

Ex db [ia IIA or IIB or IIC Ga] IIC T6...T4 Gb

Ex db [ib IIA or IIB or IIC] IIC T6...T4 Gb

Ex tb IIIC T85°C...T135°C Db IP66

Ex tb [ia Da] IIIC T85°C...T135°C Db IP66

Ex tb [ib] IIIC T85°C...T135°C Db IP66

Temp. Amb. -20°C/+40°C, +60°C, +65°C; -30°C/+40°C, +60°C, +65°C;

-40°C/+40°C, +60°C, +65°C; -50°C/+40°C, +60°C, +65°C

-60°C/+40°C, +60°C, +65°C

* Vedere targa sul prodotto per marcatura specifica

See plate on the product for specific marking

Pieve Emanuele, March 31st 2025

A. Trino/ATEX Authorized Person

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