RadarSens User Manual (part 2 of 2) - Safety Supplement



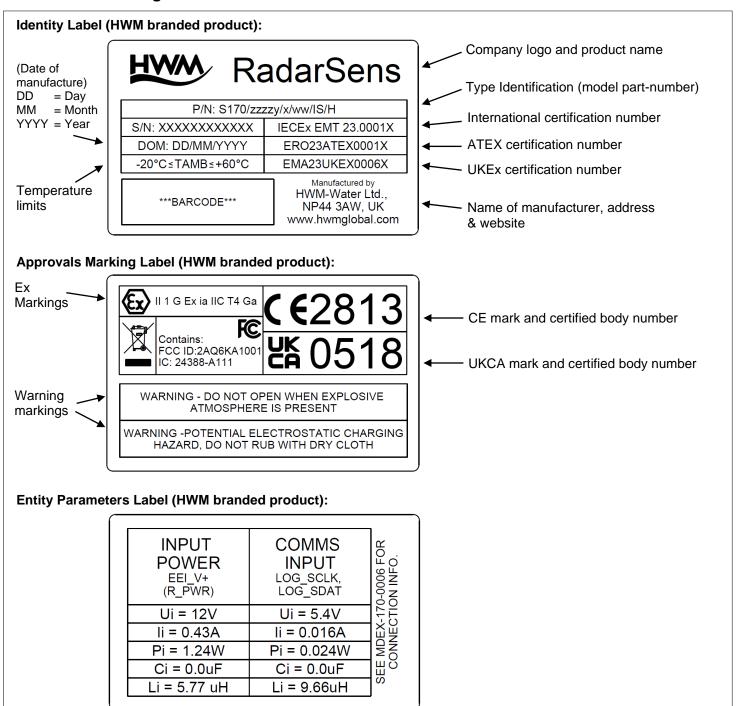
1: Introduction.

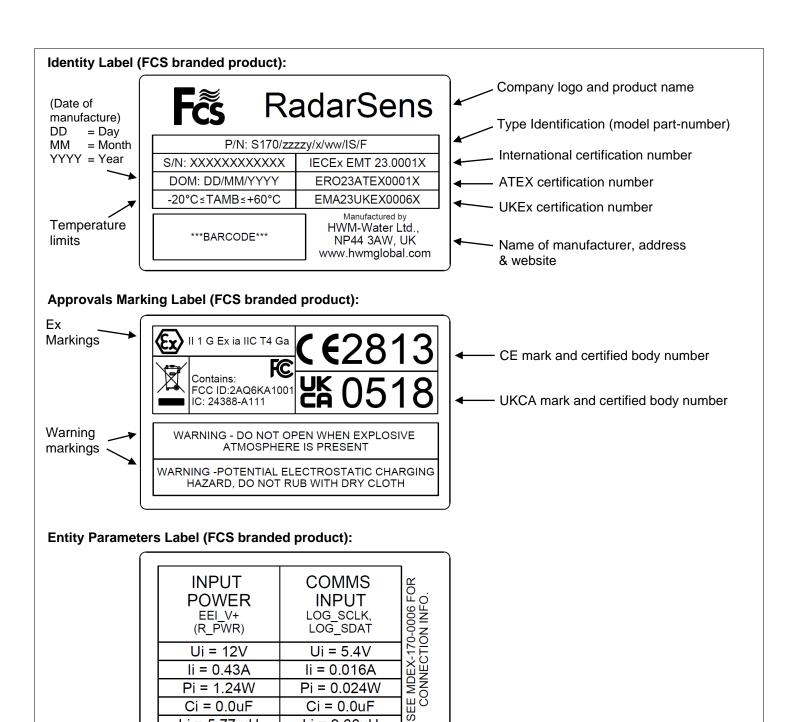
This document gives additional safety information for when the equipment is used in potentially explosive atmospheres.



Warning: This manual contains important safety and operating information. Please read, understand and follow the instructions / warnings contained in this manual.

2: Product marking





Li = 9.66uH

Li = 5.77 uH

3: Part Number scheme and nomenclature

A RadarSens model has a part-number in the format of **\$170/zzzzy/x/ww/I\$/t**. Refer to the drawing MDEX-170-0006, reproduced on the following six pages, for details of the Part Number scheme and nomenclature.

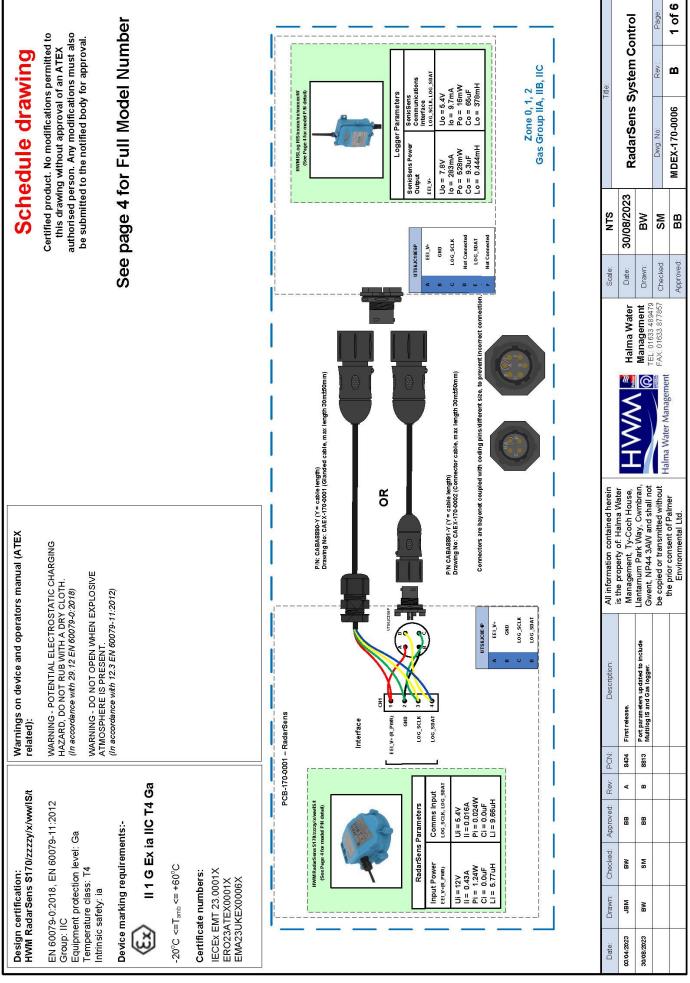
4: Connection and Entity Parameters

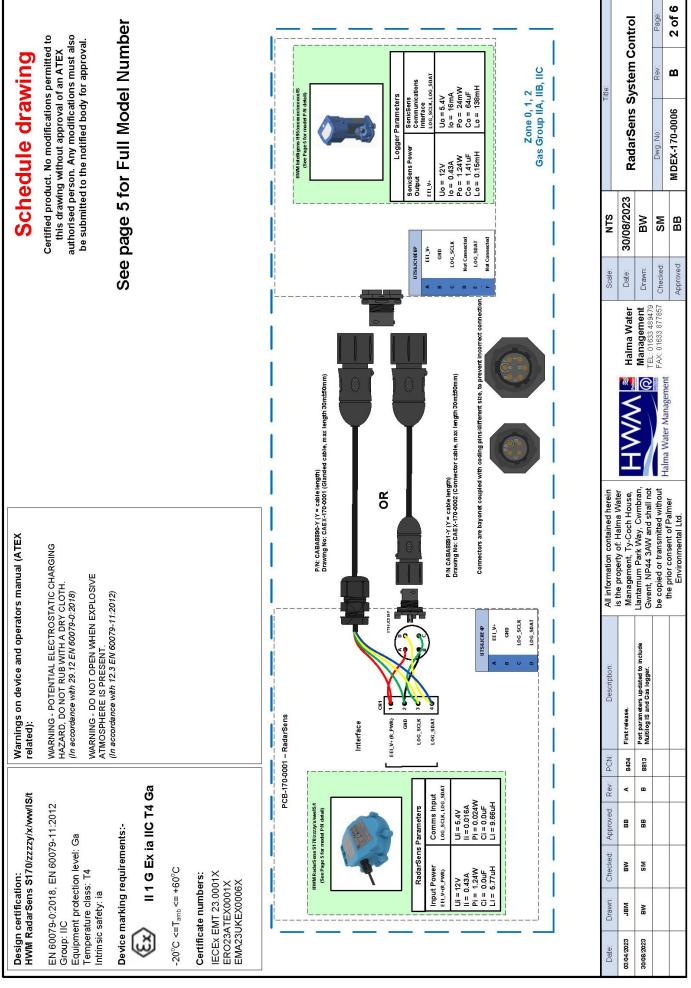
When used in a potentially explosive environment, RadarSens must be connected to HWM intrinsically safe data loggers only; do not connect to any other type of logger.

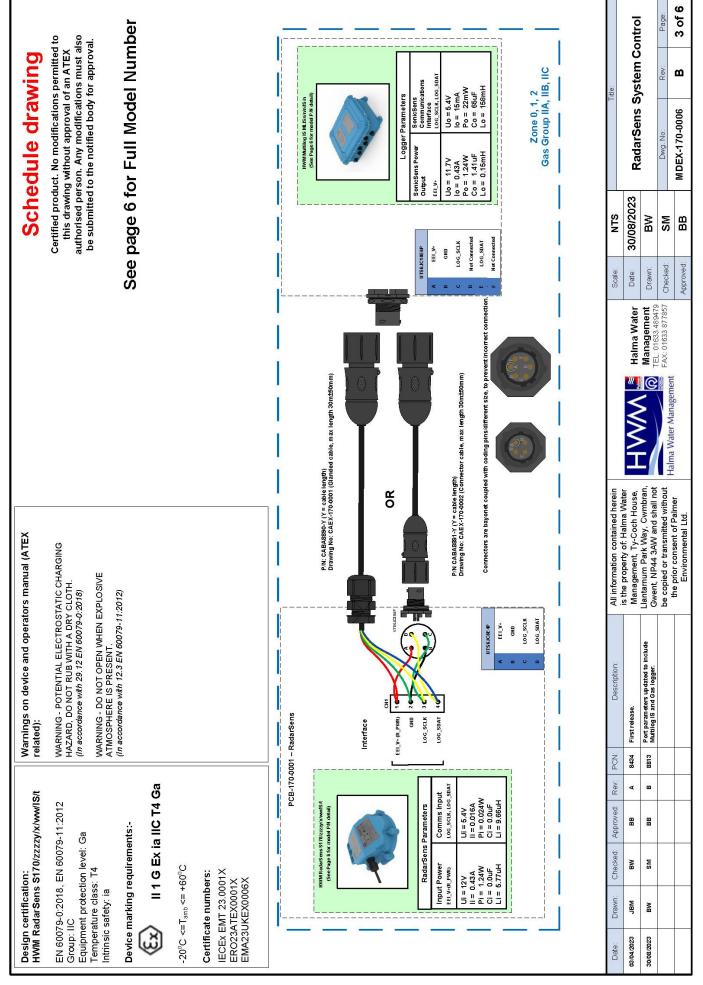
Use only with one of the following types of intrinsically safe HWM logger:

- ISLog.
 (An ISLog model has a part-number in the format of: HIS/xxxxx/xx/xxxxxx/W).
- COMLog2-IS.
 (A COMLog2-IS model has a part-number in the format of: HIS/xxxx/xx/xx/xxxxx/C).
- Multilog-IS.
 (A Multilog-IS model has a part-number in the format of: MLISn/n/n/IS/n, where 'n' is a variable length option field).
- Intelligens.
 (An Intelligens model has a part-number in the format of: H95/xxxxxxx/xxxxxx/IS).
- COMLog-IS.
 (A COMLog-IS model has a part-number in the format of: H95/xxxxxxx/xxxxx/lS).

Refer to the drawing MDEX-170-0006, reproduced on the following six pages, for details of the equipment that can be interconnected, including the entity parameters of the equipment.







S	Sensor (HWM RadarSens) Model Number S170	arSens) Model N	Jumber S170			7	Logger (HWM ISLog) Model Number HIS	og) Model N	Number HIS	
S170	/zzzzy	/x	/ww/	/IS	/t	HIS	xxxx/	XX/	xxxxxx/	×
Product Type and Input/Or	Input/Output	Hardware	Software	Safety	Branding	Product Type No and Antenna and Shipp	Antenna and	Shipping	Modem Options	Model Type

	1,555,5 1,A	80	^^ ^^	2			2 = -
Product Type and Input/Output	Input/Output	Hardware	Software	Safety	Branding	_	Product Type No
Project Number	Options	Variant	Settings	Accreditation			Safety Designation
Product Type	- 'S170' identi	 S170' identifies the unit as belonging to the 'RadarSens' product family 	nging to the 'Rada	rSens' product fan	. ylic		Product Type

HIS	/xxxxx	/xx	/xxxxx	x /
Product Type No and	Antenna and	Shipping	Modem Options	Model Type
Safety Designation	Input/Output Options	Spec.	2	

Product Type	 - 'S170' identifies the unit as belonging to the 'RadarSens' product family. 	Product Type	 'HIS' identifies the unit as belonging to the 'ISLog' or 'COMLog 2 IS' product family 	_
Input/Output Option	 This controls variations in connectorisation and cable length. 	Antenna and Input/	Antenna and Input/ - This controls variations in logger configuration.	
	'zzzz' is a variable length field which encodes the approximate cable length (in meters). Output Option	Output Option	'x' is a single channel field which indicates antenna type (HWM use only).	
	The field is only used for option $y' = G$; When $y' = G$ it is blank.		'xxx' field is used to define logger connections (up to 3 locations selectable).	
	30m (max length). 'W' is used as decimal point. e.g., 10M = 10m, 0M35 = 0.35m.		'D' in any location 1,2 or 4 indicates RadarSens input.	
	y' is a single character field, used as follows:		'x' is a single channel field which indicates digital connector (HWM use only).	

'C' indicates a sensor (with bulkhead connector) is supplied. 'G' indicates a sensor (with captive cable) is supplied.	 i's an enumerator (set to 1 or 2) identifying the hardware variant (HWM use only). 	 'ww' is a variable length field which encodes a set of software parameters, required for the host loader device to identify the sensor and its available functions 	
	Hardware Variant	Software Settings	

riant	 in is an enumerator (set to 1 or 2) identifying the hardware variant (HVVM use only). 	
ings	 - 'ww' is a variable length field which encodes a set of software parameters, required 	
	for the host logger device to identify the sensor and its available functions	
	(HWM use only).	

'W' indicates the model is for Waste water (and similar) applications.

xxxx' is a Modem variant code (HWM use only).

- 'xx' is a Modem country code (HWM use only).

Modem Options Shipping Spec.

Model Type

- 'xx' (customer specific, HWM use only).

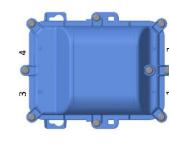
'C' indicates the model is for AMR (Automated Meter Reading)

(and similar) applications.

- 'IS' indicates the model is of the Intrinsically Safe construction. Safety Accreditation Software Settii

't' is a multiple character field, used as follows:
 'H' indicates the model is branded as 'HWM'
 'F' indicates the model is branded as 'FCS'.

Branding



Schedule drawing

Certified product. No modifications permitted to authorised person. Any modifications must also be submitted to the notified body for approval. this drawing without approval of an ATEX

Date:	Drawn:	Drawn: Checked: Approved: Rev: PCN:	Approved:	Rev:	PCN:	Description:
03/04/2023	JBM	BW	88	4	8434	8434 First release.
30/08/2023	BW	Ms	88	•	8813	Port parameters updated to include Multilog IS and Gas logger.

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is System Control

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_ogger (HWM Intelligens) Model Number H95 Sensor (HWM RadarSens) Model Number S170

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S170	/zzzzy	×/	ww/	SI/	/t	H95	/xxxxxx
Product Type and Project Number	Input/Output Options	Hardware Variant	Software Settings	Safety Accreditation	Branding	Product Type	Antenna, Communical Input/Output Channel

H95	/xxxxxxx/	xxxxx/	SI/
Product Type	Antenna, Communications &	Modem Options	Safety
	Input/Output Channel Configuration		Designation
12			

"H95' identifies the unit as belonging to the 'Intelligens' or 'COMLog IS'

product family

Antenna and Input /Output Channel Configuration

Product Type

This controls variations in logger configuration. Channel types required are used to build the logger part-number. The case positions (see below) appear in the order - 134562.

 'S170' identifies the unit as belonging to the 'RadarSens' product family This controls variations in connectorisation and cable length. Input/Output Option Product Type

'zzzz' is a variable length field which encodes the approximate cable length (in meters). The field is only used for option 'y' = 'G'; When 'y' = 'G' it is blank. 30m (max length). 'M' is used as decimal point. e.g., 10M = 10m, 0M35 = 0.35m

 - 'n' is an enumerator (set to 1 or 2) identifying the hardware variant (HWM use only). C' indicates a sensor (with bulkhead connector) is supplied. 'G' indicates a sensor (with captive cable) is supplied. 'y' is a single character field, used as follows:

- 'ww' is a variable length field which encodes a set of software parameters, required for the host logger device to identify the sensor and its available functions (HWM use only).

1S' indicates the model is of the Intrinsically Safe construction.

Safety Accreditation

Branding

Software Settings Hardware Variant

"t' is a multiple character field, used as follows: '/H' indicates the model is branded as 'HWM' '/F' indicates the model is branded as 'FCS'.

The fitted interface options are shown on the 'Connections' label on the The label lists physical port locations and input / output type. A RadarSens compatible port is identified as 'RadarSens' A 'D' in a location indicates a RadarSens input.

- xxxxxxx is a Modem country and customer settings code (HWM use only).
 - indicates the model is of an Intrinsically Safe construction.

Modem Options Safety Designations

'xxxxxxx' field is used to define logger connections (up to 6 locations are selectable; case position 2 may require two characters to encode) of input /

Unused positions are coded as a '0'

output / antenna use (HWM use only).



Data logger physical port positions



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Halma Water Management TEL: 01633 489479 FAX: 01633 877857	
HWW Water Management	

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agement	Drawn:	BW			
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Schedule drawing

this drawing without approval of an ATEX

Branding Ξ Logger (HWM Multilog IS) Model Number MLIS Safety Accreditation SI/ Modem Code Ę Shipping Spec. Ę Sequential Variant Number Product Type No and Branding Safety Accreditation /IS Software Settings <u>}</u> Sensor (HWM RadarSens) Model Number S170 Hardware Variant × Input/Output Options /zzzzy Product Type and Project Number S170

Project Number

'S170' identifies the unit as belonging to the 'RadarSens' product family. Product Type

Sequential Variant Number zzzz' is a variable length field which encodes the approximate cable length (in meters). The field is only used for option 'y' = 'G'; When 'y' = 'C' it is blank This controls variations in connectorisation and cable length Input/Output Option

30m (max length). 'M' is used as decimal point. e.g., 10M = 10m, 0M35 = 0.35m

y' is a single character field, used as follows:

'n' is an enumerator (set to 1 or 2) identifying the hardware variant (HWM use only). 'ww' is a variable length field which encodes a set of software parameters, required C'indicates a sensor (with bulkhead connector) is supplied. G'indicates a sensor (with captive cable) is supplied. Software Settings Hardware Variant

for the host logger device to identify the sensor and its available functions

 'IS' indicates the model is of the Intrinsically Safe construction. 't' is a multiple character field, used as follows: (HWM use only)

Safety Accreditation

Branding

'/H' indicates the model is branded as 'HWM' '/F' indicates the model is branded as 'FCS'.

(This is number is an unintelligent part of the model number; a new number is assigned, whenever required, for a model with a variation of interfaces It identifies the build variant number of the unit. (HWM use only). 'n'. This controls variations of the logger configuration

MLIS' identifies the unit as belonging to the 'Multilog IS' product family.

Product Type

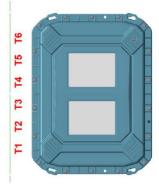
The fitted interface options are shown on the 'Connections' label on the that has not previously been built.) logger enclosure.

The label lists physical port locations and input / output type A RadarSens compatible port is identified as 'RadarSens' '/n' is a Modem country and customer settings code (HWM use only). //S' indicates the model is of an Intrinsically Safe construction. Safety Designations Modem Code

'/n' is a customer specific code (HWM use only)

Shipping Spec

'/H' indicates the model is branded as 'HWM' '/F' indicates the model is branded as 'FCS'. Branding



Schedule drawing

Certified product. No modifications permitted to authorised person. Any modifications must also be submitted to the notified body for approval. this drawing without approval of an ATEX

Description:	First release.	Port parameters updated to include Multilog IS and Gas logger.	
PCN:	8434	8813	
Rev:	4	m	
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All information contained herein

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5: Installation and Maintenance

Safety Considerations

Certification of RadarSens includes the following schemes (dependant on model):







Check the labels of the equipment for the presence of any required approvals marks prior to their use.

Note: Where the terms "Intrinsically Safe" or "ATEX" are used throughout this document, this must be understood to mean the applicable intrinsic safety standards (ATEX, UKEX, IECEx) that are in force in country of installation.

Note: The installer is responsible for ensuring the logger and any connected equipment are certified for use and are also compatible for interconnection.

Note:

Before continuing, carefully read and follow the non-ATEX, general safety information in the "Safety Warnings and Approvals Information" document supplied with the product. This document provides additional ATEX-related safety information. Retain all documents for future reference.

Before using this product:

- Make a risk assessment of the installation site and expected work activity.
- Installations in a hazardous environment (e.g., ATEX) must be carried out by appropriate technicians with suitable training for that environment.
- It is the responsibility of the end user to take suitable precautions to prevent exposure to aggressive chemicals that may attack the metals or polymeric materials used in the construction of this equipment.

The following materials are used in the construction of this equipment:

Enclosure: PC/ABS.Enclosure Labels: Polyester.Gasket: Silicone.

Connectors: Nylon / Macromelt.

Cables: PVC.Gland: Nylon.

Fasteners: Stainless Steel.Bracketry: Stainless Steel.

- Ensure any tools necessary for installation are suitable for use within the hazardous environment.
- Ensure suitable PPE (personal protective equipment) is used and that safe working practices are followed during
 installation and any maintenance.
- Check with the site owner or supervisor for any additional safety requirements before commencing work.
- Ensure any communications device being used to assist in the install or setup of the logger is also suitable for use in the hazardous environment in which you are working.

Before entering hazardous area:

- Check the sensor and apparatus have the right approvals and certifications for use within the intended installation
- Confirm the equipment has suitable ATEX markings and is being operated within its ATEX limits.
- Check the port parameters of the relevant logger interface and the equipment to be attached. Confirm they are suitable for interconnection.
- Check the equipment includes a suitable cable with connector attached for interconnecting RadarSens to the logger interface. A water-tight connection is required.

Installation of Equipment:

Installation Accessories, including brackets for mounting the unit, are available to suit most installation situations. Examples are shown below.





For safe and secure installation, adhere to the safety warnings (section 6) and always use bracket solutions if required from HWM when installing RadarSens.

For additional guidance of installation of RadarSens, refer to the RadarSens User Guide (Part 1 of 2), document MAN-170-0001.

RadarSens is installed in conjunction with a compatible HWM logger device. Refer to the related documentation for the logger, including the user guide and safety supplement. Follow the instructions and warnings contained within each of the user guides and the product labelling during installation and maintenance of the equipment.

Connection and Commissioning:

Whilst adhering to the safety measures within this document, connect the equipment and commission the RadarSens as described in the RadarSens user guide.

Safety of Operation:

Once installed, the unit has been certified to the appropriate standards for continuous operation without user intervention.

Maintenance:

The RadarSens may be cleaned as a maintenance task. Adhere to the safety warnings (section 6) and within the documentation and labelling when performing any maintenance.

The RadarSens has no internal serviceable parts. Do not attempt to disassemble the unit.

6: Warnings



Warnings:

- DO NOT OPEN WHEN EXPLOSIVE ATMOSPHERE IS PRESENT.
- POTENTIAL ELECTROSTATIC CHARGING HAZARD. DO NOT RUB WITH A DRY CLOTH.
 WHEN CLEANING, USE A DAMP CLOTH THAT CAN HAVE A MILD CLEANING SOLUTION.
- TAKE STEPS TO MINIMISE BUILD UP OF ELECTROSTATIC CHARGES, SUCH AS INSTALLING RADARSENS IN A LOCATION PROTECTED FROM DIRECT AIRFLOW.
- THE UNIT MUST BE INSTALLED IN A SUITABLE LOCATION. CONSIDERATION MUST BE GIVEN TO LOW
 HUMIDITY SITES TO AVOID THE GENERATION OF STATIC ELECTRICITY. ADDITIONAL PROTECTION
 MEASURES MAY BE REQUIRED.
- WHEN MAKING A RISK ASSESSMENT, CONSIDER ANY STEPS REQUIRED TO PREVENT ELECTROSTATIC DISCHARGE TO RADARSENS OR SURROUNDING EQUIPMENT DURING INSTALLATION.
- DURING INSTALLATION, USE INSULATED TOOLS AND EQUIPMENT, TO PREVENT ELECTROSTATIC DISCHARGE.

7: Standards and Ratings

RadarSens complies with the following standards:

IEC 60529:1991 Degrees of protection provided by enclosures (IP Code).

- RadarSens Ingress Protection level: IP66/68 (1.5m for 1 hr).

EN 60079-0:2018 Explosive atmospheres - Equipment. General requirements.

EN 60079-11:2012 Explosive atmospheres - Equipment protection by intrinsic safety "i".

EN 61010-1:2010/A1:2019 Safety requirements for electrical equipment for measurement, control, and laboratory

use - General requirements.

EN 62368-1:2014/A11:2017 Audio/video, information and communication technology equipment

- Safety requirements.

EN 62479:2010 Assessment of the compliance of low power electronic and electrical equipment with

the basic restrictions related to human exposure to electromagnetic fields

(10 MHz to 300 GHz).

EN 62311:2008 Assessment of electronic and electrical equipment related to human exposure

restrictions for electromagnetic fields (0 Hz - 300 GHz).

EN 55032:2015 Electromagnetic compatibility of multimedia equipment. Emission Requirements.

EN 55035:2017 Electromagnetic compatibility of multimedia equipment. Immunity requirements.

EN 301 489-1 V2.2.3 Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic

Compatibility (EMC) standard for radio equipment and services; Part 1: Common

technical requirements.

EN 301 489-3 V1.1.1 ElectroMagnetic Compatibility (EMC) standard for radio equipment and services;

Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies

between 9 kHz and 246 GHz; Harmonised Standard covering the essential

requirements of article 3.1(b) of Directive 2014/53/EU.

EN 305 550 V2.1.0 Short Range Devices (SRD); Radio equipment to be used in the 40 GHz to 246 GHz

frequency range; Harmonised Standard for access to radio spectrum.

EN 305 550-1 V1.2.1 Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range

Devices (SRD); Radio equipment to be used in the 40 GHz to 246 GHz frequency

range; Part 1: Technical characteristics and test methods.

EN 305 550-2 V1.2.1 Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range

Devices (SRD); Radio equipment to be used in the 40 GHz to 246 GHz frequency range; Part 2: Harmonized EN covering the essential requirements of article 3.2 of the

R&TTE Directive.

Notified Body Opinion. Radio. Complies with the essential requirements of article 3.2 of Directive 2014/53/EU.

(CE 0682) (Certificate Registration No: T818606L-01-TEC).

EN IEC 63000:2018 Technical documentation for the assessment of electrical and electronic products with

respect to the restriction of hazardous substances.

If further support or assistance is required, please contact HWM Technical Support on 01633 489479 (option 5) or e-mail: cservice@HWM-Water.com

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