

TECHNICAL REFERENCE MANUAL

DS-CAN2 V23-2



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2. About this document

2.1. Legend

The following symbols and formats will be used throughout the document.



Important

It gives you important information about the subject.
Please read carefully!



Hint

It gives you a hint or provides additional information about a subject.



Example

It gives you an example of a specific subject.

3. Specifications

	DS-CAN2	SIRIUSim-4xCAN	SIRIUSi-8xCAN	SIRIUSif-8xCAN	SIRIUSiw-8xCAN
CAN specification					
Number of ports	2	4	8 + 1	8 + 1	8 + 1
Interface type	CAN 2.0B	CAN 2.0B	CAN 2.0B	CAN 2.0B	CAN 2.0B
Interface data rate	up to 1 Mbit/sec	up to 1 Mbit/sec	up to 1 Mbit/sec	up to 1 Mbit/sec	up to 1 Mbit/sec
Special protocols	OBDDII, J1939, CAN out	OBDDII, J1939, CAN out	OBDDII, J1939, CAN out	OBDDII, J1939, CAN out	OBDDII, J1939, CAN out
Sampling rate	> 10 kHz per channel Software selectable	> 10 kHz per channel Software selectable	> 10 kHz per channel Software selectable	> 10 kHz per channel Software selectable	> 10 kHz per channel Software selectable
Galvanic isolation (Sensor supply not isolated)	Isolated	Isolated	Isolated	Isolated	Isolated
Bus pin fault protection	±36 V	±36 V	±36 V	±36 V	±36 V
Power specification					
Power supply	6 - 36 V DC Startup voltage 7V	Max voltage 5.00 ±0.25 V 2x USB 2.0 powered	9 - 36 V DC	9 - 36 V DC	9 - 36 V DC
Maximum sensor power consumption	3 W max total (max 2W on 15V)	2.5 W max	1 W per channel	1 W per channel	
Maximum power consumption	5.5 W	5 W Combined device & sensor consumption	6.5 W (instrument) + 8 W (sensor)	6.5 W (instrument) + 8 W (sensor)	
Environmental specification					
Interface	USB 2.0	USB 2.0	USB 2.0	USB 2.0	USB 2.0
Connector type	9 pin D-SUB	9 pin D-SUB	9 pin D-SUB	9 pin D-SUB	9 pin D-SUB
Physical dimensions	105 x 90 x 30 mm 3.94 x 3.54 x 1.18 inch	145 x 139 x 64mm 5.71 x 5.43 x 2.52 inch	266x139x64mm 10.47 x 5.43 x 2.52 inch	266x139x64mm 10.47 x 5.43 x 2.52 inch	282 x 135 x 70 mm 11.10 x 5.47 x 2.76 inch
Weight	Weight 230 g 0.51 lbs	Weight 800 g 1.76 lbs	1320 g 2.90 lbs	1320 g 2.90 lbs	1930 g 4.25 lbs
Operating temperature	-20°C to +60°C	-10°C to +50°C	-10°C to +50°C	-10°C to +50°C	-40°C to +60°C
Storage temperature	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C
Humidity	95% RH non condensing @ 60°C	95% RH non condensing @ 60°C	95% RH non condensing @ 60°C	95% RH non condensing @ 60°C	
IP protection	-	-	-	IP50	IP65 / IP67

4. Device operation

4.1. Front and back side

Front connectors:



Front connectors

Back connectors:

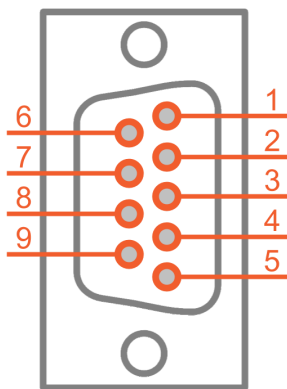


Back connectors

4.2. Connectors

4.2.1: CAN connector

9-pin D-SUB male connector for CAN bus:

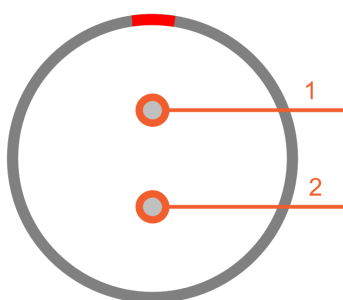


CAN connector: pin-out (DSUB-9 male)

Pin	Name	Description
1	+5V	5 V supply max. current: 500 mA
2	CAN_LOW	CAN low
3	DGND	Digital Ground
4	RES	Reserved
5	RES	Reserved
6	DGND	Digital Ground
7	CAN_HIGH	CAN high
8	RES	Reserved
9	+15V	15 V supply max. current: 200 mA

4.2.2. Power connector

2-pin LEMO connector (mating cable connector: FGJ.1B.302.CLLD42Z)

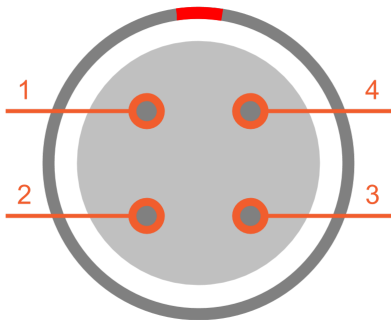


Power out connector: pin-out (2-pin LEMO male)

Pin	Name	Description
1	V+	Supply
2	V-	Ground

4.2.3. Sync connector

4-pin LEMO connector (mating cable connector: FGG.00.304CLAD27Z)



Pin	Name	Description
1	CLK	Clock
2	Trigg	Trigger
3	GPS-PPS	GPS - PPS
4	DGND	Digital Ground

Sync connector: pin-out (4-pin LEMO female)

5. Using DS-CAN2 in DewesoftX®

5.1. Hardware setup

5.1.1. Start up of the device

Please connect the device via USB to PC. Note that power supply is not needed unless you want to power external devices from DS-CAN2 (like CPAD2 module). Then make sure that the device is connected to the PC when starting up DewesoftX®.

The device will be automatically recognized and shown in the Device settings.

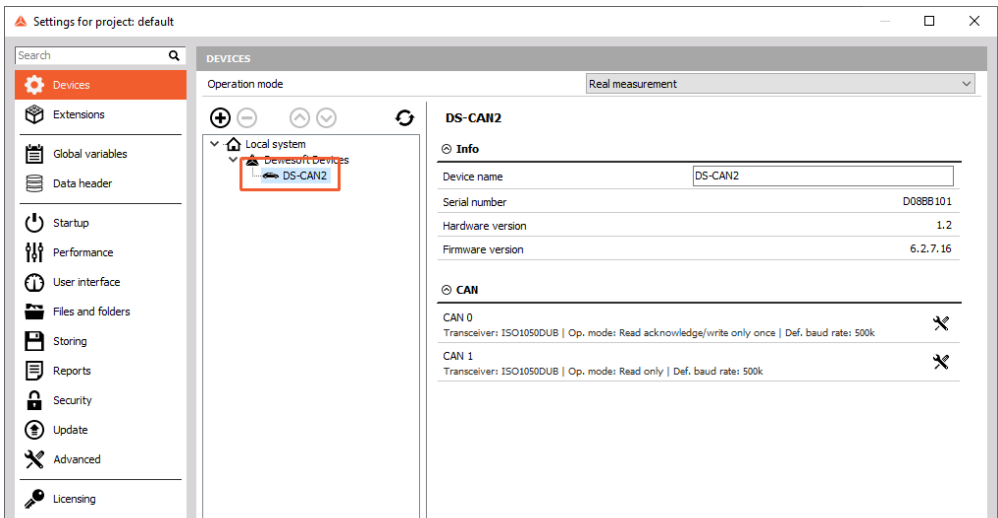


Image 3: DS-CAN in device settings

You will see the device information such as serial number, HW number and FW number on the right site of the Settings window.

The two CAN ports are shown under the CAN section. By pressing on the Tool button you can adjust the CAN port settings:

- Default baud rate
- Operation mode
- CAN plugin

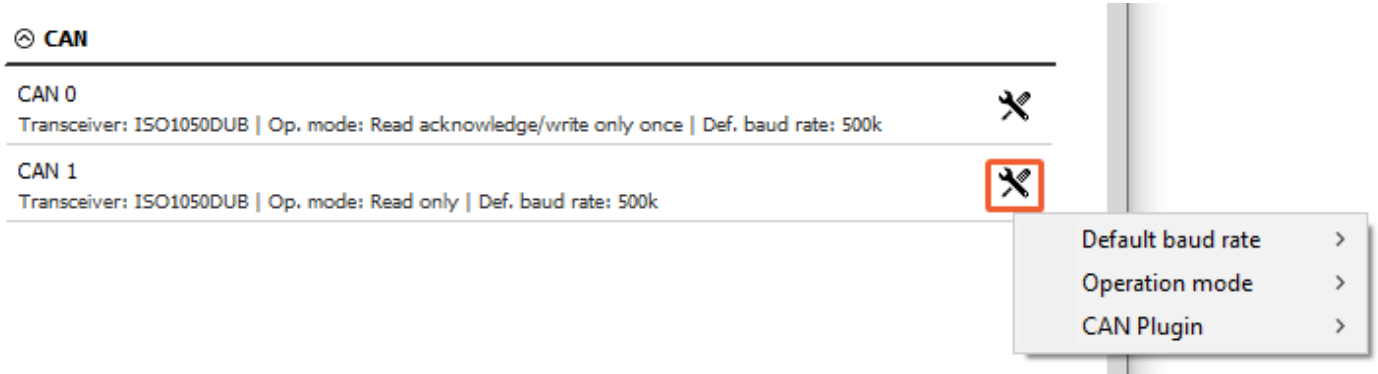


Image 4: Adjusting CAN settings

5.2. Losing USB connection

When acquiring data and the USB connection is lost, the acquisition will stop. In this case reconnect the unit and restart the acquisition with the reconnect button.

In this case (if the data was being stored, the gap will be filled in with missing data).

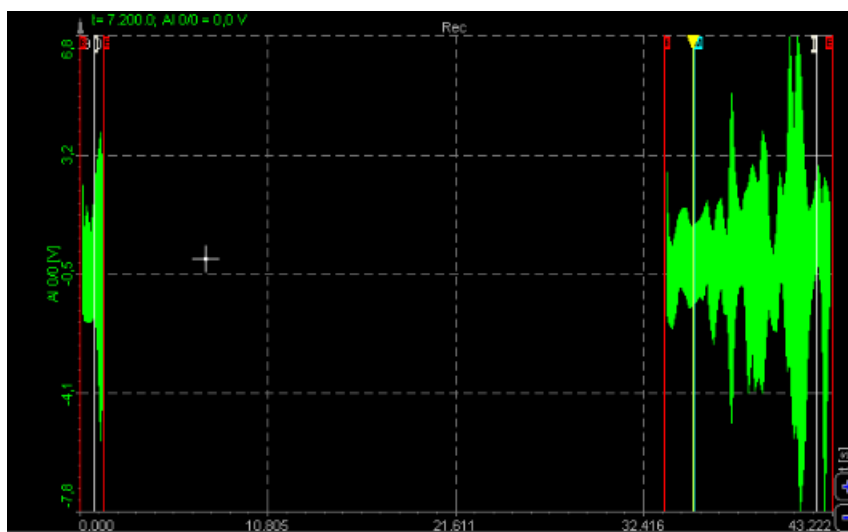


Image 5: Gaps in the data file, due to disconnection of the device

6. Firmware upgrade

- Download the [Dewesoft upgrade package](#) (.dxu file) from the Dewesoft downloads page under the section Drivers.
- Unzip the file and copy the *.dxu file into the Firmwares folder of your DewesoftX® installation (e.g. D:\DewesoftX\System\Firmwares).
- Connect the Dewesoft instrument to the PC and run DewesoftX®
- Go to settings under the Update tab:

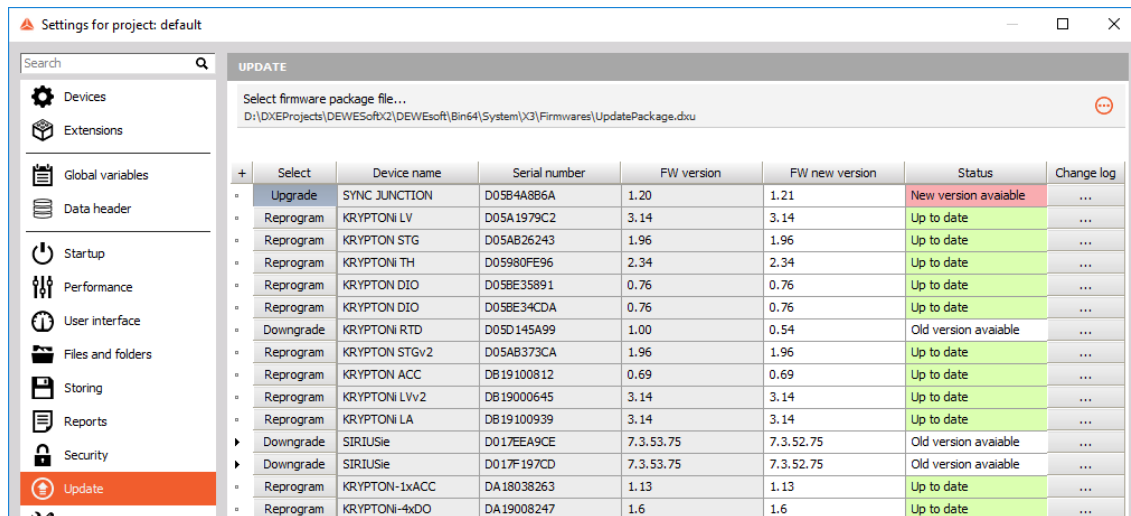


Image 6: Update options

- If the firmware package isn't selected, select it by pressing the button and find the folder with the firmware file in it.
- Select the device you want to upgrade and start the firmware upgrade by pressing the "Upgrade" button.

7. DewesoftX® license information

DS-CAN2 or any other Dewesoft device already comes with an embedded Dewesoft license. You can check the license details with all the available options in the Licensing tab ① by pressing the three dotted buttons ⑥. However if the user decides to upgrade the license with an additional extension, DewesoftX® will require a new license registration. The registration can be made online ② or offline by importing an offline license ③ in case the system doesn't have an internet connection. Offline licenses can be pre-registered on a different PC with the internet connection. If needed, the license can also be written on the actual device ⑤.

Active and embedded licenses are seen under the Active licenses tab. If the license is recognized as none active, it usually means that the wrong license was entered.

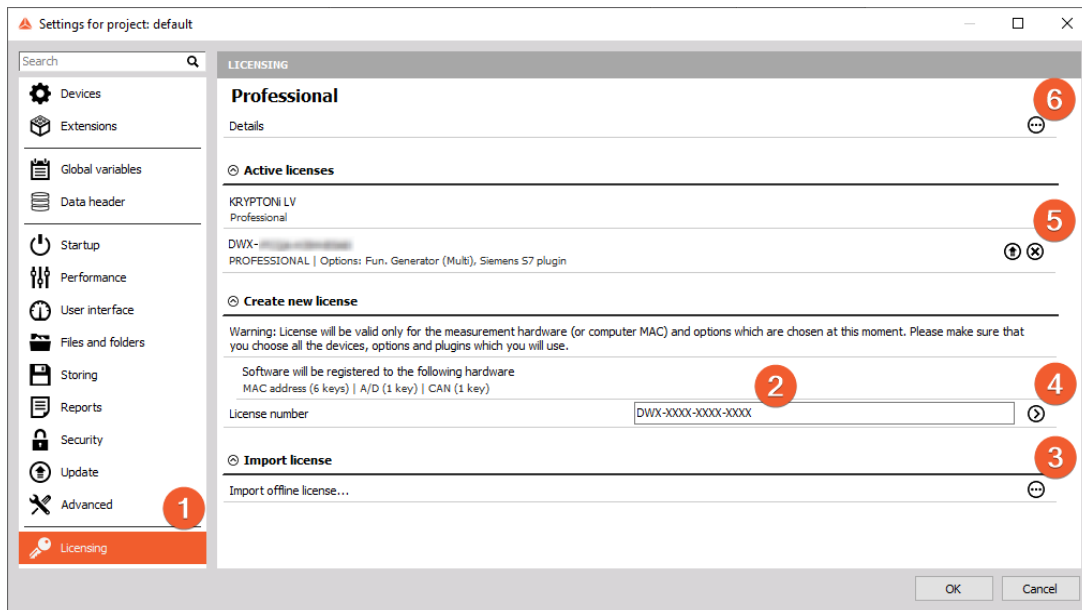


Image 7: Licensing options



Hint

All licenses regarding Krypton will only work when the Krypton system is connected to your PC and the device has been activated in the hardware setup.

8. Warranty information

Notice

The information contained in this document is subject to change without notice.

Note:

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The copy of the specific warranty terms applicable to your Dewesoft product and replacement parts can be obtained from your local sales and service office. To find a local dealer for your country, please visit <https://dewesoft.com/support/distributors>.

8.1. Calibration

Every instrument needs to be calibrated at regular intervals. The standard norm across nearly every industry is annual calibration. Before your Dewesoft data acquisition system is delivered, it is calibrated. Detailed calibration reports for your Dewesoft system can be requested. We retain them for at least one year, after system delivery.

8.2. Support

Dewesoft has a team of people ready to assist you if you have any questions or any technical difficulties regarding the system. For any support please contact your local distributor first or Dewesoft directly.

Dewesoft d.o.o.
Gabrsko 11a
1420 Trbovlje Slovenia

Europe Tel.: +386 356 25 300

Web: <http://www.dewesoft.com>

The telephone hotline is available Monday to Friday from 07:00 to 16:00 CET (GMT +1:00)

8.3. Service/repair

The team of Dewesoft also performs any kinds of repairs to your system to assure a safe and proper operation in the future. For information regarding service and repairs please contact your local distributor first or Dewesoft directly on <https://dewesoft.com/support/rma-service>.

8.4. Restricted Rights

Use Slovenian law for duplication or disclosure. Dewesoft d.o.o. Gabrsko 11a, 1420 Trbovlje, Slovenia / Europe.

8.5. Printing History

Version 2.0.0, Revision 217 Released 2015 Last changed: 23. July 2018 at 16:54.

8.6. Copyright

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8.7. Trademarks

We take pride in our products and we take care that all key products and technologies are registered as trademarks all over the world. The Dewesoft name is a registered trademark. Product families (KRYPTON, SIRIUS, DSI, DS-NET) and technologies (DualCoreADC, SuperCounter, GrandView) are registered trademarks as well. When used as the logo or as part of any graphic material, the registered trademark sign is used as a part of the logo. When used in text representing the company, product or technology name, the ® sign is not used. The Dewesoft triangle logo is a registered trademark but the ® sign is not used in the visual representation of the triangle logo.

9. Safety instructions

Your safety is our primary concern! Please be safe!

9.1. Safety symbols in the manual



Warning

Calls attention to a procedure, practice, or condition that could cause the body injury or death



Caution

Calls attention to a procedure, practice, or condition that could possibly cause damage to equipment or permanent loss of data.

9.2. General Safety Instructions



Warning

The following general safety precautions must be observed during all phases of operation, service, and repair of this product. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the product. Dewesoft d.o.o. assumes no liability for the customer's failure to comply with these requirements.

All accessories shown in this document are available as an option and will not be shipped as standard parts.

10.2.1. Environmental Considerations

Information about the environmental impact of the product.

10.2.2. Product End-of-Life Handling

Observe the following guidelines when recycling a Dewesoft system:

10.2.3. System and Components Recycling

Production of these components required the extraction and use of natural resources. The substances contained in the system could be harmful to your health and to the environment if the system is improperly handled at its end of life! Please recycle this product in an appropriate way to avoid unnecessary pollution of the environment and to keep natural resources.



This symbol indicates that this system complies with the European Union's requirements according to Directive 2002/96/EC on waste electrical and electronic equipment (WEEE). Please find further information about recycling on the Dewesoft web site www.dewesoft.com



Restriction of Hazardous Substances

This product has been classified as Monitoring and Control equipment and is outside the scope of the 2002/95/EC RoHS Directive. However, we take care of our environment and the product is lead-free.

10.2.4. General safety and hazard warnings for all Dewesoft systems

Safety of the operator and the unit depend on following these rules.

- Use this system under the terms of the specifications only to avoid any possible danger.
- Read your manual before operating the system.
- Observe local laws when using the instrument.
- DO NOT touch internal wiring!
- DO NOT use higher supply voltage than specified!
- Use only original plugs and cables for harnessing.
- You may not connect higher voltages than rated to any connectors.
- The power cable and connector serve as Power-Breaker. The cable must not exceed 3 meters, the disconnect function must be possible without tools.
- Maintenance must be executed by qualified staff only.
- During the use of the system, it might be possible to access other parts of a more comprehensive system. Please read and follow the safety instructions provided in the manuals of all other components regarding warning and security advice for using the system.
- With this product, only use the power cable delivered or defined for the host country.
- DO NOT connect or disconnect sensors, probes or test leads, as these parts are connected to a voltage supply unit.
- Ground the equipment: For Safety Class I equipment (equipment having a protective earth terminal), a non-interruptible safety earth ground must be provided from the main power source to the product input wiring terminals.
- Please note the characteristics and indicators on the system to avoid fire or electric shocks. Before connecting the system, please read the corresponding specifications in the product manual carefully.
- The inputs must not, unless otherwise noted (CATx identification), be connected to the main circuit of category II, III and IV.
- The power cord separates the system from the power supply. Do not block the power cord, since it has to be accessible for the users.
- DO NOT use the system if equipment covers or shields are removed.
- If you assume the system is damaged, get it examined by authorized personnel only.
- Adverse environmental conditions are Moisture or high humidity Dust, flammable gasses, fumes or dissolver Thunderstorm or thunderstorm conditions (except assembly PNA) Electrostatic fields, etc.
- The measurement category can be adjusted depending on module configuration.
- Any other use than described above may damage your system and is accompanied with dangers like short-circuiting, fire or electric shocks.
- The whole system must not be changed, rebuilt or opened.
- DO NOT operate damaged equipment: Whenever it is possible that the safety protection features built into this product have been impaired, either through physical damage, excessive moisture, or any other reason, REMOVE POWER and do not use the product until the safe operation can be verified by service-trained personnel. If necessary, return the product to Dewesoft sales and service office for service and repair to ensure that safety features are maintained.
- If you assume a more riskless use is not provided anymore, the system has to be rendered inoperative and should be protected against inadvertent operation. It is assumed that a more riskless operation is not possible anymore if the system is damaged obviously or causes strange

noises. the system does not work anymore. The system has been exposed to long storage in adverse environments. The system has been exposed to heavy shipment strain.

- Warranty void if damages caused by disregarding this manual. For consequential damages, NO liability will be assumed!
- Warranty void if damage to property or persons caused by improper use or disregarding the safety instructions.
- Unauthorized changing or rebuilding the system is prohibited due to safety and permission reasons (CE).
- Be careful with voltages >25 VAC or >35 VDC! These voltages are already high enough in order to get a perilous electric shock by touching the wiring.
- The product heats during operation. Make sure there is adequate ventilation. Ventilation slots must not be covered!
- Only fuses of the specified type and nominal current may be used. The use of patched fuses is prohibited.
- Prevent using metal bare wires! Risk of short circuit and fire hazard!
- DO NOT use the system before, during or shortly after a thunderstorm (risk of lightning and high energy over-voltage). An advanced range of application under certain conditions is allowed with therefore designed products only. For details please refer to the specifications.
- Make sure that your hands, shoes, clothes, the floor, the system or measuring leads, integrated circuits and so on, are dry.
- DO NOT use the system in rooms with flammable gasses, fumes or dust or in adverse environmental conditions.
- Avoid operation in the immediate vicinity of high magnetic or electromagnetic fields, transmitting antennas or high-frequency generators, for exact values please refer to enclosed specifications.
- Use measurement leads or measurement accessories aligned with the specification of the system only. Fire hazard in case of overload!
- Do not switch on the system after transporting it from a cold room to a warm room and vice versa. The thereby created condensation may damage your system. Acclimatize the system unpowered to room temperature.
- Do not disassemble the system! There is a high risk of getting a perilous electric shock. Capacitors still might be charged, even if the system has been removed from the power supply.
- The electrical installations and equipment in industrial facilities must be observed by the security regulations and insurance institutions.
- The use of the measuring system in schools and other training facilities must be observed by skilled personnel.
- The measuring systems are not designed for use in humans and animals.
- Please contact a professional if you have doubts about the method of operation, safety or the connection of the system.
- Please be careful with the product. Shocks, hits and dropping it from already- lower level may damage your system.
- Please also consider the detailed technical reference manual as well as the security advice of the connected systems.
- This product has left the factory in safety-related flawlessness and in proper condition. In order to maintain this condition and guarantee safety use, the user has to consider the security advice and warnings in this manual.

EN 61326-3-1:2008

IEC 61326-1 applies to this part of IEC 61326 but is limited to systems and equipment for industrial applications intended to perform safety functions as defined in IEC 61508 with SIL 1-3.

The electromagnetic environments encompassed by this product family standard are industrial, both indoor and outdoor, as described for industrial locations in IEC 61000-6-2 or defined in 3.7 of IEC 61326-1.

Equipment and systems intended for use in other electromagnetic environments, for example, in the process industry or in environments with potentially explosive atmospheres, are excluded from the scope of this product family standard, IEC 61326-3-1.

Devices and systems according to IEC 61508 or IEC 61511 which are considered as “operationally well-tried”, are excluded from the scope of IEC 61326-3-1.

Fire-alarm and safety-alarm systems, intended for the protection of buildings, are excluded from the scope of IEC 61326-3-1.

11. Documentation version history

Version	Date	Notes
V23-2	09.05.2023	Change log: - Incorrect specification of the connector
V23-1	03.03.2023	Change log: - Corrected the pinout of CAN connector (15V excitation)
V20-2	12.10.2020	Small cosmetic updates
V20-1	31.8.2020	New Template