Instructions for use and operation

IoT Tracking & Monitoring „Schraubmodul“ TM1xxx
IoT Tracking & Monitoring „Kompaktmodul“ TM2xxx

IoT Tracking & Monitoring „Schraubmodul“
Model series: TM1xxx

IoT Tracking & Monitoring „Kompaktmodul“
Model series: TM2xxx

Table of contents for the documentation

1. Foreword

IOT TRACKING & MONITORING MODULE OPERATING GUIDE FOREWORD Thank you for purchasing an IoT Tracking & Monitoring Module. This manual will show you in detail how to start up the device smoothly. Please read this manual carefully before you start using the device. Please note that any updates to the manual will be made without prior notice. Each time the latest version of the manual is published in the latest product sales. The manufacturer assumes no responsibility for errors or omissions in this manual.

1.1 About this documentation

1.2 Explanation of the symbols used

1.2.1 Warnings

Warnings alert people to hazards that may occur when handling or using the product. The following signal words are used in combination with a symbol:

	CAUTION! Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury. Death can lead
	WARNING! Indicates a potential hazard that could result in serious personal injury or death. Can lead to death
	CAUTION! Indicates a potentially hazardous situation which may result in minor personal injury. Injuries or property damage.

1.2.2 Symbols in the documentation

The following symbols are used in this document:

	Read the operating instructions before use
	Instruction manual and other useful information

1.3 Product information

Our products are intended for professional users and may only be used by trained, authorized personnel. Operation, maintenance and servicing of the products. These personnel must be made aware of special

hazards may be encountered. The product and its ancillary equipment may present hazards if used improperly by untrained personnel or if used improperly.

1.4 Declaration of Conformity

We declare under our sole responsibility that the product described here complies with the applicable directives and standards. You will find a copy of the declaration of conformity at the end of this documentation.

2. Security

2.1 General safety instructions

Read all safety and other instructions.

Keep all safety and other instructions for future reference.

General safety instructions:

- Do not cover the type plate or other labels.
- Do not cover any housing openings of the device.
- Do not block switches, indicators and warning lights.
- To avoid surface damage or chemical reactions, check the compatibility of the adhesive with the surface before applying the ON Track Smart Tag.
- Keep away from children.

Read all safety and other instructions.

3. Description

- Platform-based vehicle or device monitoring and tracking system to provide location coordinates and information about the operating status of the connected device.
- Long distance connectivity via NB-IOT (network provider tbd) GPS module for device tracking
- Water resistant IP69 suitable for outdoor use and for cleaning with high pressure
- Vibration resistant against strong shaking
- Standardized or customized, tailor-made solutions of the IoT Tracking & Monitoring Module possible
- Data transfer to the Aquis Cloud or direct transfer to the customer's cloud
- Typical battery life 1-3 years depending on parameterization
- Mounting via corresponding recess in outer plate

Functions:

- Integrated accelerometer 0 to 16g
- Integrated detection algorithms and FFT analysis for autonomous detection of the operating state (rest, transport, engine idle, operation).
- Adaptable to individual devices and vehicles by means of parameters
- Firmware update via "Over the Air" (OTA) via external battery connector
- Optional: Firmware update via "Over the Air" (OTA)
- Optional: Detection of device battery voltage and ignition signal via optional connection to device battery; cable and connector (e.g. DEUSCH connector DT04-3P) tbd
- Optional: bidirectional data interface to device (e.g. CAN bus); cable and connector tbd

3.1 IoT Tracking & Monitoring „Schraubmodul“ for Vehicle or Device Monitoring and Processing System on Platform Basis

		
IoT Tracking & “Schraubmodul”, Basic Connections: 2-pin connector for connection of the battery module	**IoT Tracking& “Schraubmodul”, Power** 2-pin DEUTSCH connector for battery module connection 3-pin DEUSCH connector (DT04-3P) for external battery and ignition signal	**IoT Tracking & “Schraubmodul”, Power PRO** 2-pin DEUTSCH connector for battery module connection 3-pin DEUSCH connector (DT04-3P) for external battery and ignition signal Connector for bi-directional interface to device electronics

Functions:

- Integrated accelerometer 0 to 16g
- Integrated detection algorithms and FFT analysis for autonomous detection of the operating state (rest, transport, engine idle, operation).
- Adaptable to individual devices and vehicles by means of parameters

- Firmware update via "Over the Air" (OTA) via external battery connector
- Optional: Firmware update via "Over the Air" (OTA)
- Optional: Detection of device battery voltage and ignition signal via optional connection to device battery; cable and connector (e.g. DEUSCH connector DT04-3P) tbd
- Optional: bidirectional data interface to device (e.g. CAN bus); cable and connector tbd

Technical data:

Environmental requirement:

- Designed for extreme loads. Electronics fully potted
- Protection class IP69, temperature -20°to +70°degrees Celsius, also condensing
- Resistant to vibrations

Connections:

- 2-pin DEUTSCH connector for battery module connection
- Optional: 3-pin DEUSCH connector (DT04-3P) for external battery and ignition signal

Mechanical data

- Weight: ≈ 350 g
- Outer dimensions housing: Ø 52 x 35 mm
- Cable length: 180 mm
- Total length: 184.1 mm
- Color: black
- Plastic locknut: M36

3.2 Battery module for IoT tracking & monitoring „Schraubmodul“ Vehicle, or device monitoring, and tracking system on platform basis.

Battery Module for IoT Tracking & Monitoring „Schraubmodul“ Lithium battery cpl. potted	

Description:

- Battery module for vehicle or equipment monitoring and tracking system
- on a platform basis.
- Water resistant IP69 suitable for outdoor use and for cleaning with high pressure
- Vibration resistant against strong shaking
- Standardized or customized, tailor-made solutions of the battery module for IoT tracking & monitoring „Schraubmodul“ possible

Technical data:

Connections:

- 2-pin DEUTSCH plug for
- Connection to the IoT-Module
- Environmental requirement:
- Designed for extreme loads. Electronics fully potted
- Protection class IP69, temperature -20°to +70°degrees Celsius, also condensing
- Resistant to vibrations

Electrical data

- Type: Lithium battery
- Capacity: 3400m Ah
- Output voltage: 7.2 V
- Attention: Battery module only cpl. replaceable
- Battery not rechargeable

Mechanical data

- Weight: ≈ 300 g
- Outer dimensions housing: 89 x 50 mm
- Cable length 150 mm
- Total length: 210 mm
- Color: black

3.3 IoT Tracking & Monitoring “Kompaktmodul” for vehicle, or device monitoring and tracking system on platform basis

IoT Tracking & Monitoring **“Kompaktmodul” TM2001, battery** No connectors, internal battery	

Description:

- platform base to provide location coordinates and information about the
- To provide operating status of the connected device.
- Connectivity for long distances via NB-IOT (network provider tbd)
- GPS module for locating the device
- Water resistant IP69 for outdoor use and for cleaning with
- High pressure suitable
- Vibration resistant against strong shaking
- Standardized or customized, tailor-made solutions
- of the IoT module possible
- Data transfer to the Aquis Cloud or direct transfer to the cloud
- of the customer
- Typical battery life 1-3 years depending on parameterization
- Mounting by means of four screws from the front or rear

Functions:

- Integrated accelerometer 0 to 16g
- Integrated detection algorithms and FFT analysis
- for autonomous detection of the operating state (rest, transport, engine idle, operation).
- Adaptable to individual devices and vehicles by means of parameters
- Firmware update via "Over the Air" (OTA)
- Optional: Detection of device battery voltage and ignition signal via optional connection to the Device battery; cable and plug (e.g. DEUSCH plug DT04-3P) tbd
- Optional: bidirectional data interface to device (e.g. CAN bus); cable and connector tbd

Technical data:

- Environmental requirement:

- Designed for extreme loads. Electronics fully potted
- Protection class IP69, temperature -20°to +70°degrees Celsius, also condensing
- Resistant to vibrations

Electrical data:

- Type: Lithium battery (fully potted)
- Capacity: 3200 mAh
- Output voltage: 7.2 V
- Attention: Battery module only complete replaceable
- Battery not rechargeable

Mechanical data

- Weight: ≈ 350 g
- Outer dimensions housing: Ø 153.2 x 99.3 mm
- Color: black

3.4 Battery module for IoT tracking & monitoring „Kompaktmodul“ for vehicle, or device monitoring and tracking system on platform basis.

Battery Module for IoT Tracking & Monitoring „Kompaktmodul“ Lithium battery cpl. potted	

- Water resistant IP69 suitable for outdoor use and for cleaning with high pressure
- Vibration resistant against strong shaking
- Standardized or customized, tailor-made solutions of the IoT battery module possible

Technical data:

Connections:

- 2-pin DEUTSCH plug for
- Connection to the IoT Tracking & Monitoring „Kompaktmodul“
- Environmental requirement:
- Designed for extreme loads. Electronics fully potted
- Protection class IP69, temperature -20°to +70°degrees Celsius, also condensing

- Resistant to vibrations

Electrical data

- Type: Lithium battery
- Capacity: 3400m Ah
- Output voltage: 7.2 V
- Attention: Battery module only complete replaceable
- Battery not rechargeable

Mechanical data

- Weight: ≈ 300 g
- Outer dimensions housing: 77.7 x 42 mm
- Cable length 20 mm
- Color: black

3.5 Scope of delivery

1x IoT Tracking & Monitoring „Kompaktmodul“ with any accessories 1x user manual

3.6 Accessories

Is none provided

3.7 Third-party word marks, trademarks and logos

The Bluetooth® word mark and logos are registered trademarks and are the property of Bluetooth SIG, Inc.

4. Requirements

4.1 Requirements

This chapter contains system requirements

5. Technical data

Wireless connection

- NB-IoT / LTE-M
- SIM card

Antennas

- NB-IoT / LTE-M
- GPS

5.1 Technical details

DC power supply	Lithium battery 7.2V or external 12V supply
Battery life typical	2-3 years / 5 years
Battery capacity lithium battery 7.2V	3400mAh
Voltage range battery	4,5-8V
Voltage range external	7-15VDC
Digital input (ignition signal):	0-15VDC

6. Operation

6.1 Commissioning of the IoT Tracking & Monitoring „Kompaktmodul“

It is not recommended to install the unit inside the device (vehicle, etc.) The GPS reception signal will be reduced and GPS functionality will be disturbed if the windshield is bonded with a metallic thermal insulation layer or heating layer.

⚠	The IoT Tracking & Monitoring „Kompaktmodul“ must be installed by an experienced technician

Function indicator, after connecting to the battery

Function indication by red flashing LED!
The LED flashes when the module is active! (after wake_up)
Flashing stops after the module switches to sleep mode!
Wake_up takes place through events or timer

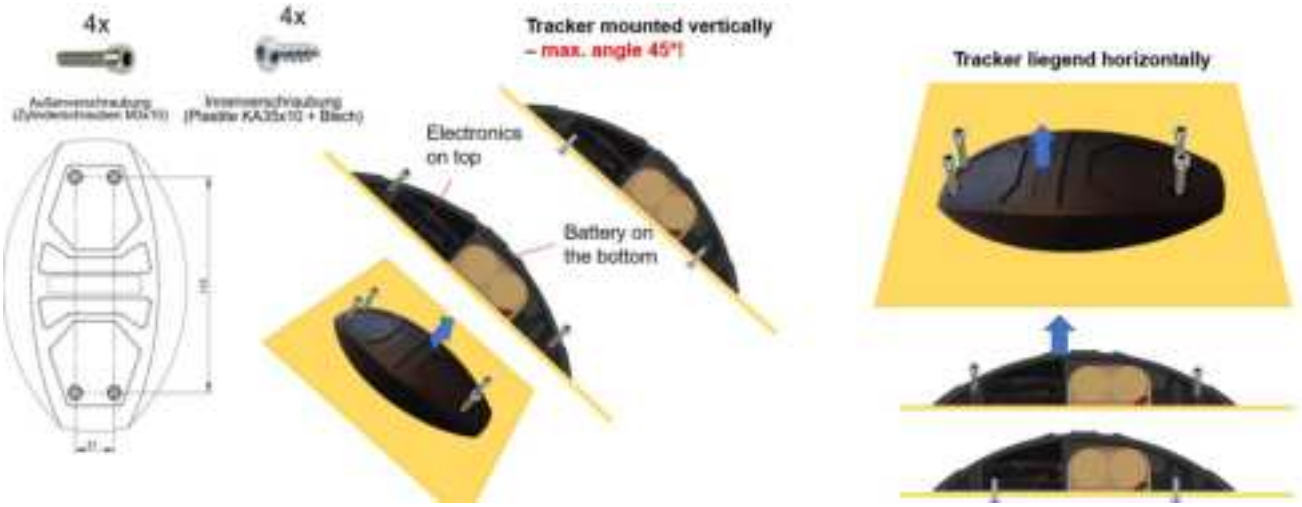
If there is no flashing immediately after contacting the battery, the module or cable connection may be defective or the battery may be empty!

⚠ **Important**

It must be ensured that during mounting on the vehicle/device

no cable protrudes or is pinched

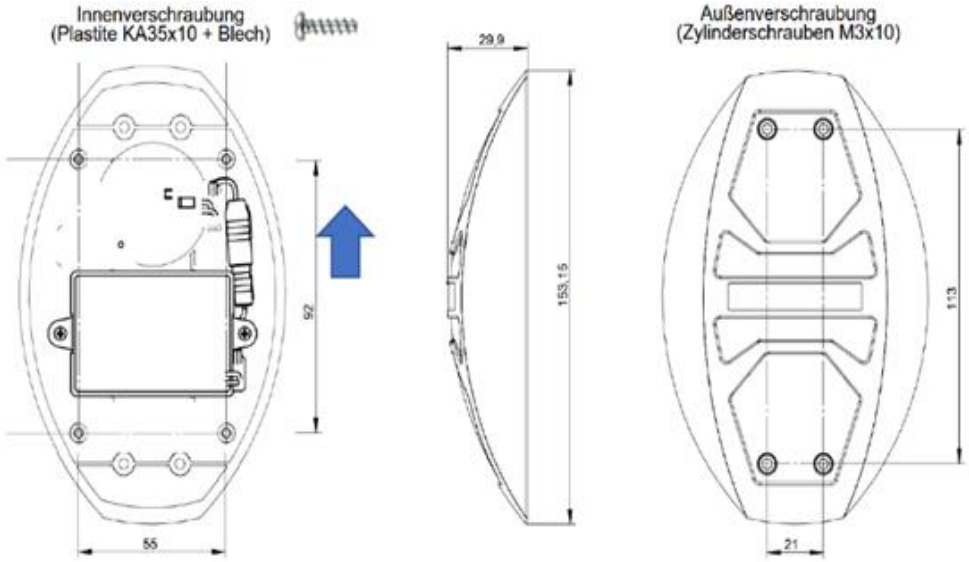
6.2 Mounting IoT Tracking & Monitoring „Kompaktmodul“



Drill image IoT tracking & monitoring „Kompaktmodul“

Blue arrow

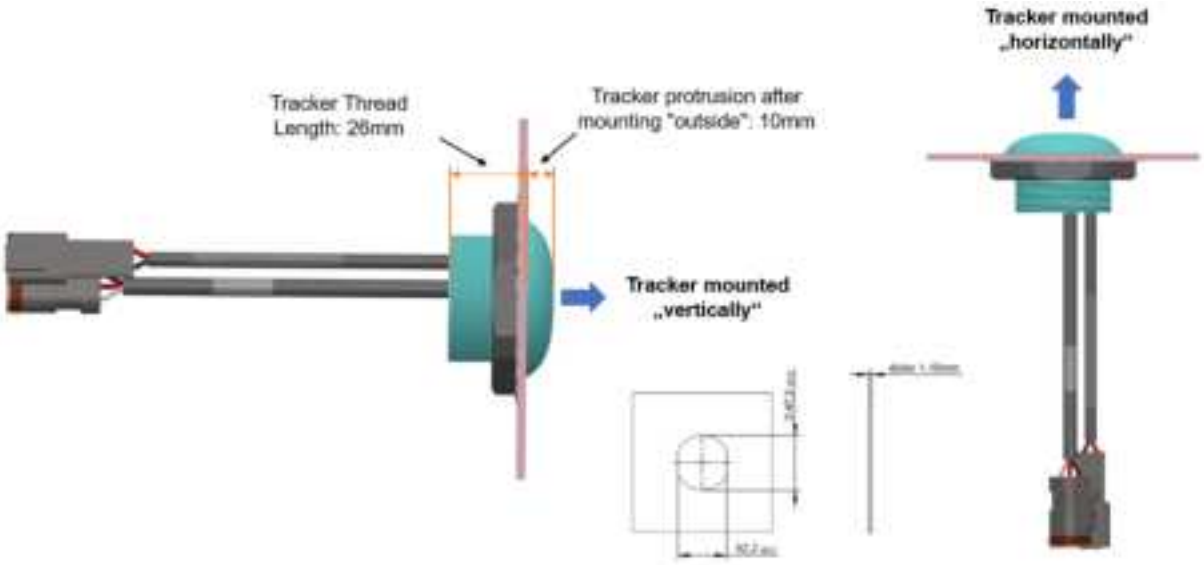
Alignment upwards



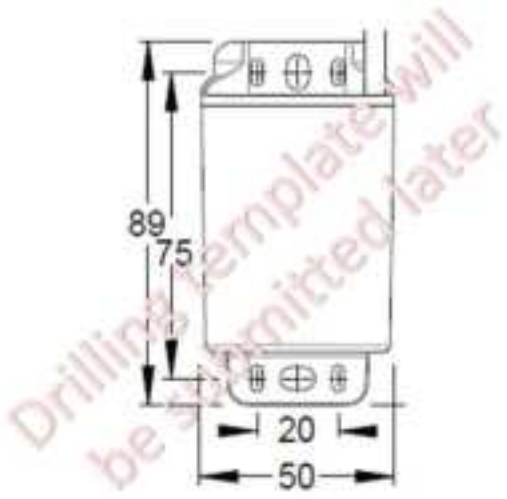
6.3 Commissioning of the IoT Tracking & Monitoring „Schraubmodul“

Function display after plugging in the battery

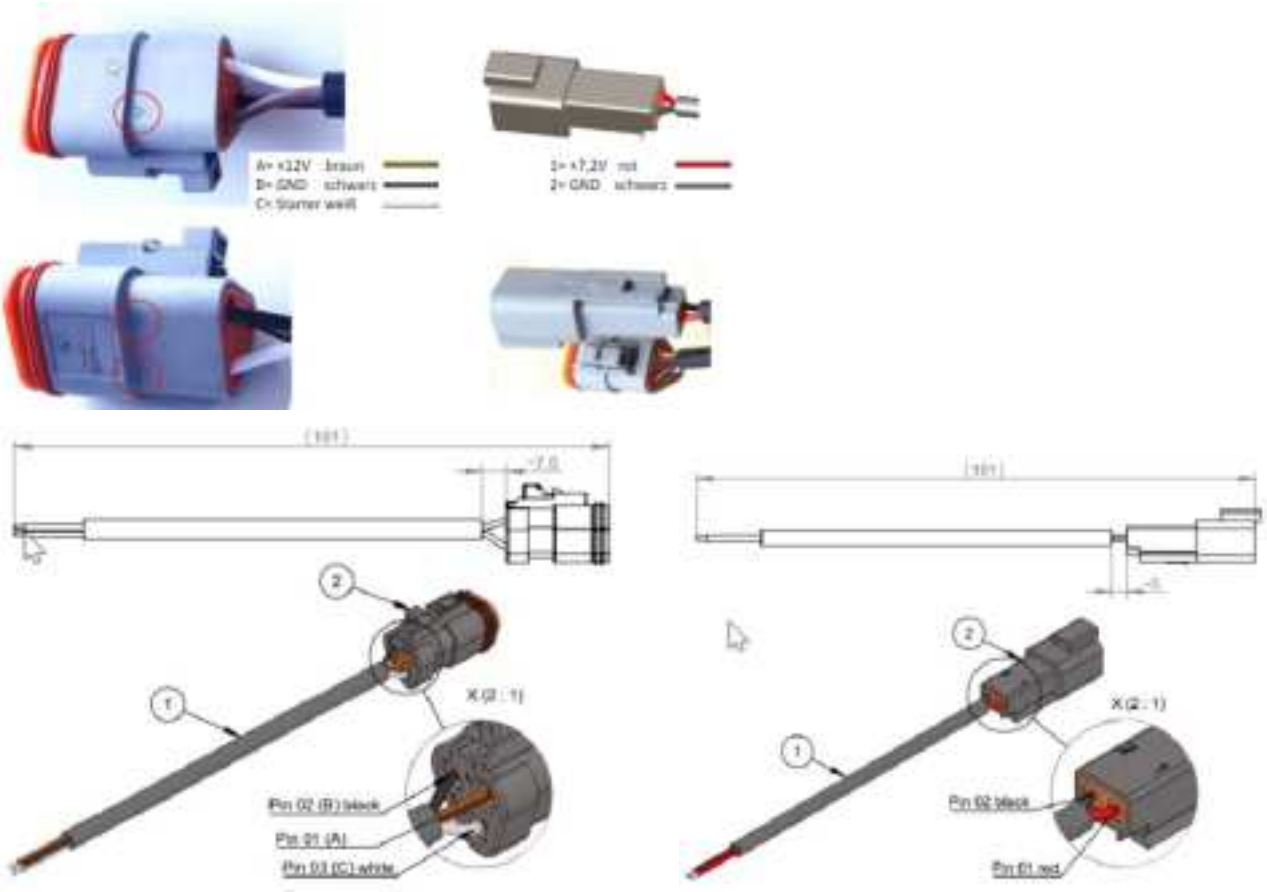
6.4 Fastening IoT Tracking & Monitoring „Schraubmodul“



Mounting of battery module for IoT tracking & monitoring „Schraubmodul“



6.5 PIN assignment of the IoT Tracking & Monitoring „Schraubmodul“



6.6 PIN assignment of battery module for IoT tracking & monitoring „Schraubmodul“

7. Mounting locations or possibilities

7.1 Deactivation IoT Tracking & Monitoring „Schraubmodul“ and „Kompaktmodul“

Unplugging or removing the battery.

8. Packing and transport

Risk of material damage.
Store and transport the device only within a temperature range of 0°C to +40°C / 32°F ... +104°F

9. RoHS (Restriction of Hazardous Substances)

This chapter contains information on RoHS.

10. Disposal

The device or battery must be recycled or disposed of separately from household waste!

Instructions to prevent reasonably foreseeable misuse according to EN 62368-1 Annex M.10

CAUTION: Failure to follow the safety instructions may result in fire, electric shock, and other injury or damage to the equipment and other property.

The housing is made of plastic with sensitive electronic components and batteries inside.

Safety instructions:

- Do not pierce, break, crush or cut the device or the battery!
- Do not expose the device or battery to open flames or extremely high temperatures!
- Do not expose the device or battery to any liquid or extremely low air pressure!
- Do not drop the device or the battery!
- Do not attempt to replace or charge the battery in the device!
- The device or battery must be recycled or disposed of separately from household waste!

According to the Waste Electrical and Electronic Equipment (WEEE) directive, the device must not be disposed of with household waste. Take the device to a collection point for waste electrical and electronic equipment for proper disposal.

11. Regulatory guidance for FCC/ISED

This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s) and complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation of the device.

Changes or modifications made to this equipment not expressly approved by Aquis Systems AG may void the FCC authorization to operate this equipment.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1. *L'appareil ne doit pas produire de brouillage;*
2. *L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.*

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits where designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if they were not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

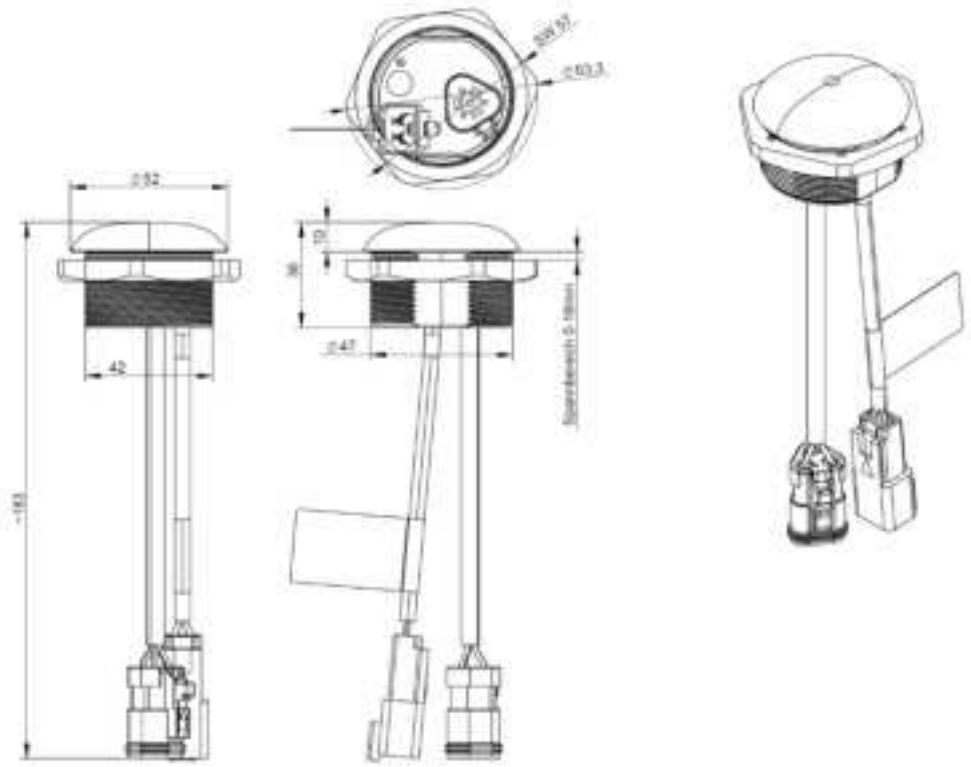
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Radiofrequency radiation exposure information:

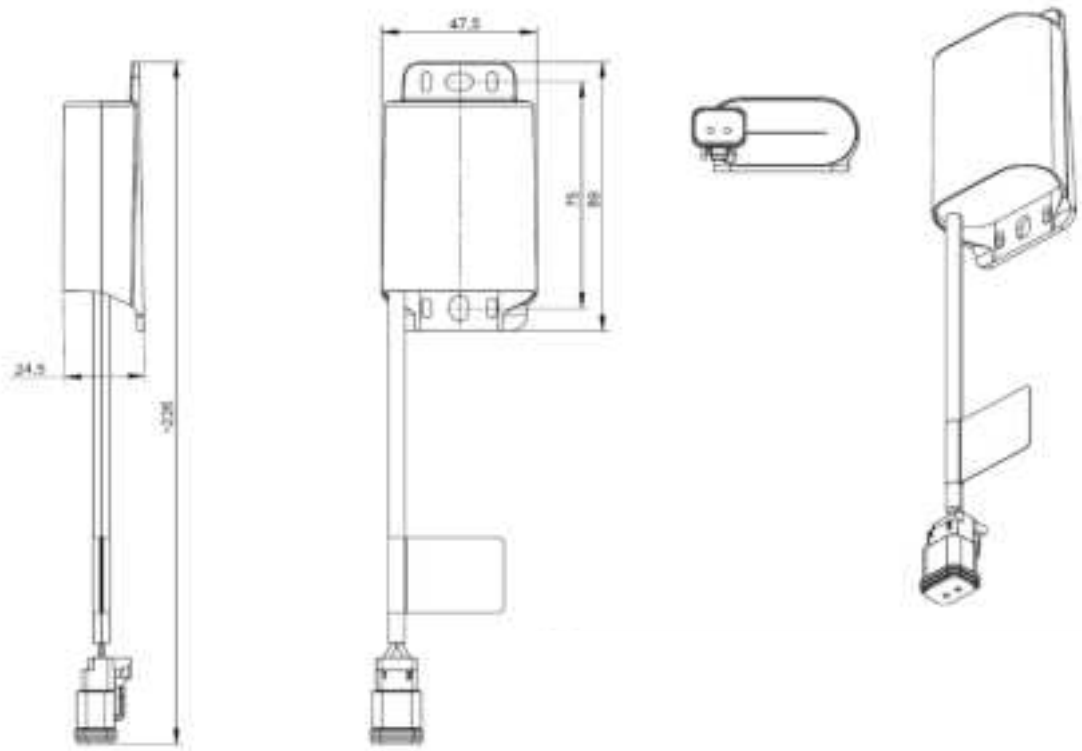
This equipment complies with FCC and ISED radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance of 20 cm between the radiator and your body.

12. Appendix

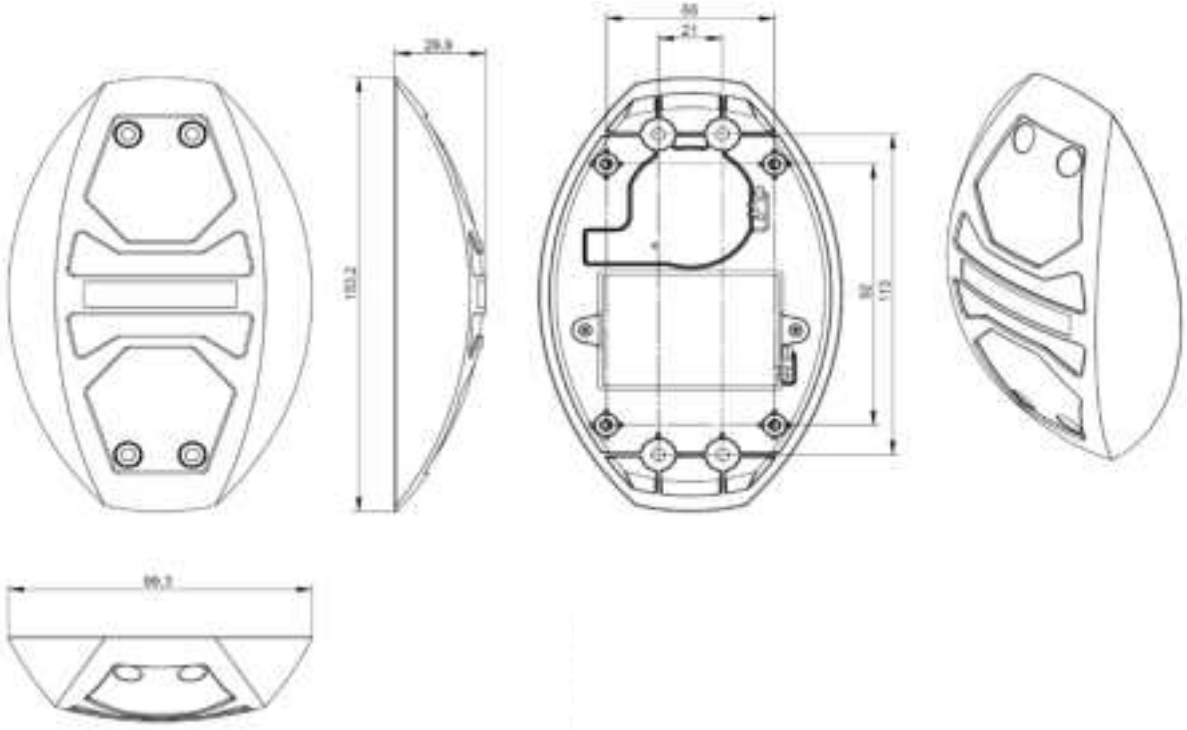
12.1 Technical Drawings IoT Tracking & Monitoring „Schraubmodul“



12.2 Technical Drawings Battery Module for IoT Tracking & Monitoring „Schraubmodul“



12.3 Technical Drawings IoT Tracking & Monitoring „Kompaktmodul“



13. Certification en

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