CPAC SYSTEMS AB
Box 217, SE-401 23
Göteborg, Sweden
Visitors: Bergskroken 3,
Mölndal
Phone: +46 (0)31 352 16 00
www.cpacsystems.se

VAT#: SE556566281001

User manual

Description	General installation and operational guidelines for the CPAC-BLE Tag unit		
Issued by	Marcus Karlsson	**Classification**	Open within project
Approved by		**Date**	2024-05-14
Project	BLE ID Tag	**Revision**	PA1
Reg. No.		**Page**	1 (11)
File			

Innehåll

1. Document Information

1.1 Purpose

The purpose of this document is solely to give general guidelines for the installation of CPAC BLE Tag.

It does not replace the instructions included in the product kit and specific instruction for the intended use case may vary.

1.2 Revision History

Rev	Date	Name	Description
PA1	2024-05-15	Marcus Karlsson	Created

1.3 Confidentiality

This document is solely to be used by CPAC and Volvo group, or companies specifically appointed by Volvo group for integrating the CPAC BLE tag unit into supplied systems.

The document is not intended for the end users.

1.4 References

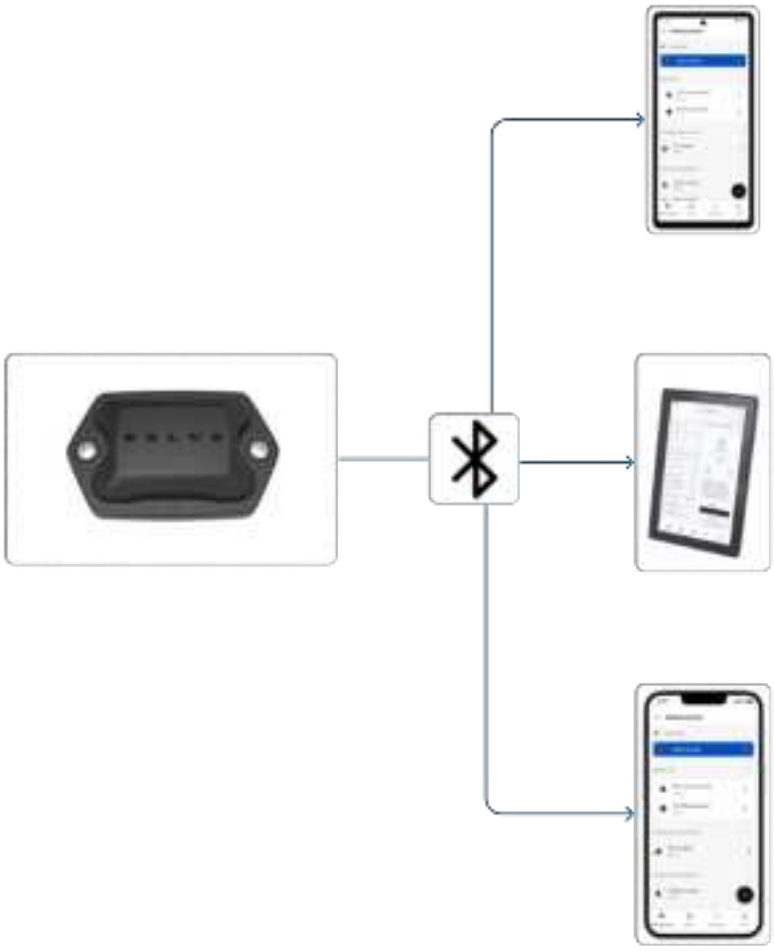
Ref	Title	Registration number

1.5 Terminology

Term	Explanation

2. Feature overview

The CPAC BLE Tag is strive towards a higher level of connectivity for the various asset related to the active segment through a wireless mountable unit. The CPAC BLE Tag unit is developed by CPAC and enables the operator to store and access asset related data from the phone, tablet or other custom ECU:s connected with a machine though a Bluetooth connection.



3. Overview

The unit is a rugged wireless unit designed to handle the harsh environments of a construction use case from both vibration and ingress protection perspective. It consists of a durable plastic housing with a removable lid on the back, in order to allow the user to change the battery. It is completely wireless, communicating through Bluetooth Low Power protocol as a peripheral node.

General purpose for the unit is to store and transfer asset related data via Bluetooth protocol to a custom application on a mobile device or custom ECU.

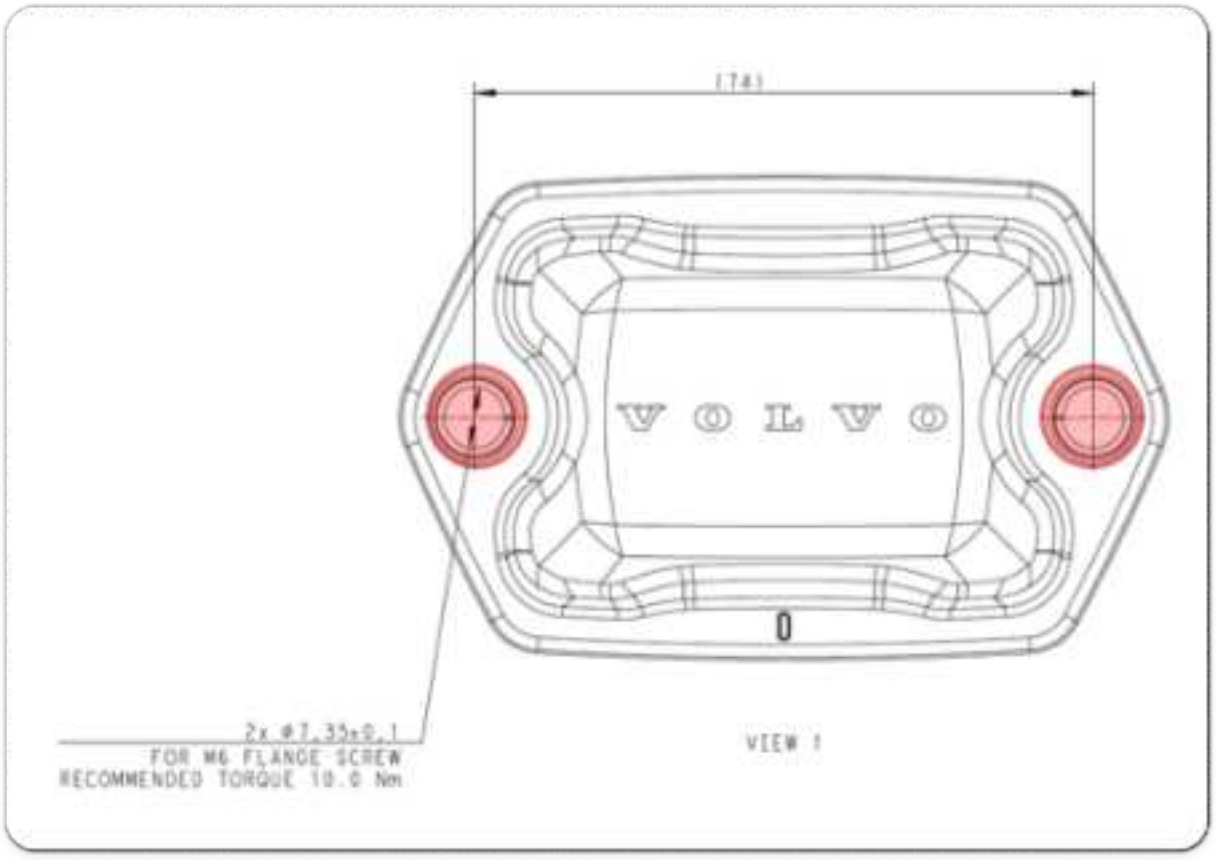
- Access stored pre-defined data on the device memory and transfer to device, (app).
- Access usage data from device and transfer to device, (app).
- Access sensory data from device and transfer data to device, (app).
- Support software upgrade:
    - Over-The-Air (OTA) software upgrade of BLE
        - Possible to update BLE chip with new software release by using the app.
- Set-up / Pairing:
    - Bluetooth concept is low Energy BLE, security mode 1 and level 2, meaning no authentication paring is used during set-up. Access to services is limited by an optional security code defined by the user for the specific unit.

4. Installation

4.1 Label

4.2 Mounting requirements - unit

The unit can be mounted in multiple ways depending on the intended use case and environment requirements. For high stress environment, the device can be mounted with two M6 bolts in the dedicated holes with compression limiters to reinforce the plastic housing and increase torque. For less demanding environments, the device can be attached with glue or double-sided tape. Always follow the recommendation stated in the specific product information.



The unit can be mounted horizontally or vertically.

- No hot surfaces shall be close to or come in contact with the unit.
- No moving parts shall be allowed touch the unit.

5. Provisioning - Mobile device app

When first receiving the unit, it will contain a battery thus powered and will have been set to a shelf mode to preserve battery life. To provision the device, a 4 dimensional movement needs to be performed in order to wake the device, to be able to connect to the device with the custom mobile application.

- Search for the assigned application for your product at App Store (iOS) or Play Store (Android).
- Download the application to the mobile device.
- Be sure to allow the location and Bluetooth permission requested by the application.
- Navigate to the activation of device and follow the instruction in the application.

When completed, the device is activated and will be connectable in the application for the intended use case.

Additional technical data

5.1 RF/Physical Layer

Bluetooth Low

5.2 Power

- Power consumption: 10 uA – 15 mA
- Voltages: 3.3 - 2 is the full supply range

5.3 Environment

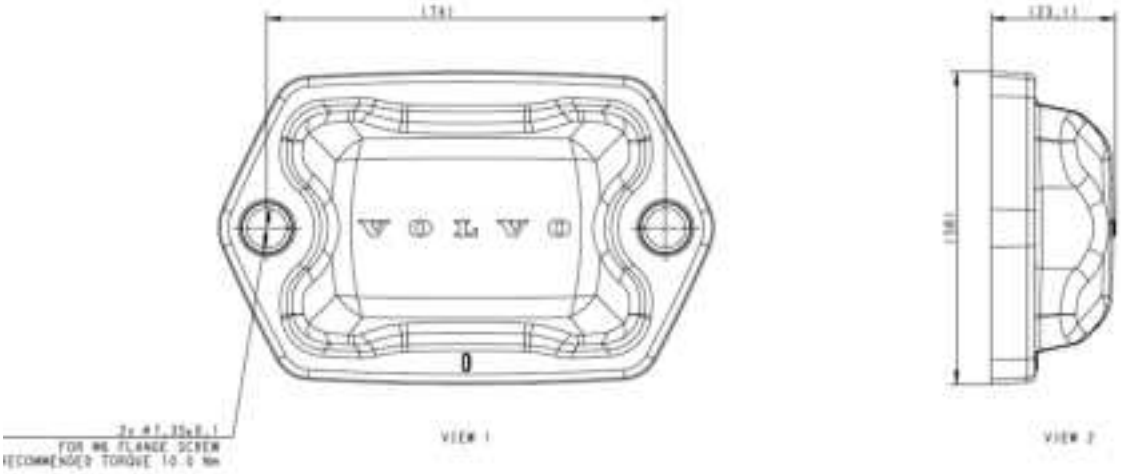
- IP class IP6K9K/IPx8 (2 m)
- Temperature (operational): -40 - +85 ºC

5.4 Bluetooth antenna

- Internal antenna built in unit.
- Operating Frequency: 2,4GHz
- Output power:
- Number of channels: 40 channels

5.5 Physical Specification

- Size: 92 mm x 58 mm x 23,1mm
- Weight: 62 +- 6g


VIEW 1
VIEW 2
VIEW 3

6. Regulatory information

6.1 US and Canada

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-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.

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.

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

This equipment complies with FCC/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.
This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Cet équipement est conforme aux limites d'exposition aux rayonnements FCC/ISED établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.
Ce transmetteur ne doit pas etre place au meme endroit ou utilise simultanement avec un autre transmetteur ou antenne.

6.2 Battery safety information

Specified battery type: CR2450
Alternative battery type (with different battery holder): CR2477

CAUTION

- Risk of explosion if the battery is replaced by an incorrect type.
- Always insert batteries correctly regarding polarity.
- Do not dispose a battery into fire or a hot oven, or mechanically crushing or cutting of a battery, that can result in an explosion.
- Do not leave a battery in an extremely high temperature surrounding environment that can result in an explosion or the leakage of flammable liquid or gas.
- Do not subject a battery to extremely low air pressure that may result in an explosion or the leakage of flammable liquid or gas.
- Exhausted batteries should be immediately removed from equipment and properly disposed of.
- Store unused batteries in their original packaging away from metal objects.

6.3 Homologation Label