

Search Platform Wireless Module Integration guide

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1 Introduction

To satisfy needs of a market for Internet of Things and wireless technology Honeywell Corp. introduces its own Bluetooth module. Device Search Platform Wireless Module, (referred as DSWM), is design to fit into industrial devices which need to support Bluetooth Low Energy 4.2 standard. Wireless module is certified to operate with antenna GW26.0151 (Taoglas), simple monopole of $\frac{1}{4}$ wave length.

Integrating DSWM module to industrial Search Platform Detector family (referred as SPD), requires presence of special components and technique of assembly. This document describes briefly wireless module, shows location of the Wireless module in Searchzone Sonik detector and depiction of the certificate detector's label.

2 Search Platform Wireless Module Description

Module disposes options of Bluetooth 4.2 technology rated as power class number 1. Maximal EIRP of 11.5dBm provides sufficient cover for long distances in harsh industrial environment (more than 30m). Frequency range is 2400 to 2480 MHz. SPWM module consists of integrated and discrete components placed on four layers PCB. Excluding two passive components and antenna MMCX (female) connector, all components are shielded by steel sheet EMC shielding. Heart of the module is transceiver of Cypress Corp. LBEE5KL1DX (originally Murata). As a meeting connector for hosting devises serves 40 positions, double row, low profile M50-3602042 connector, 1.27 mm pitch (Harwin Inc.). Module dimensions are H x W x L, (8.85 x 27.94 x 53.34) mm.

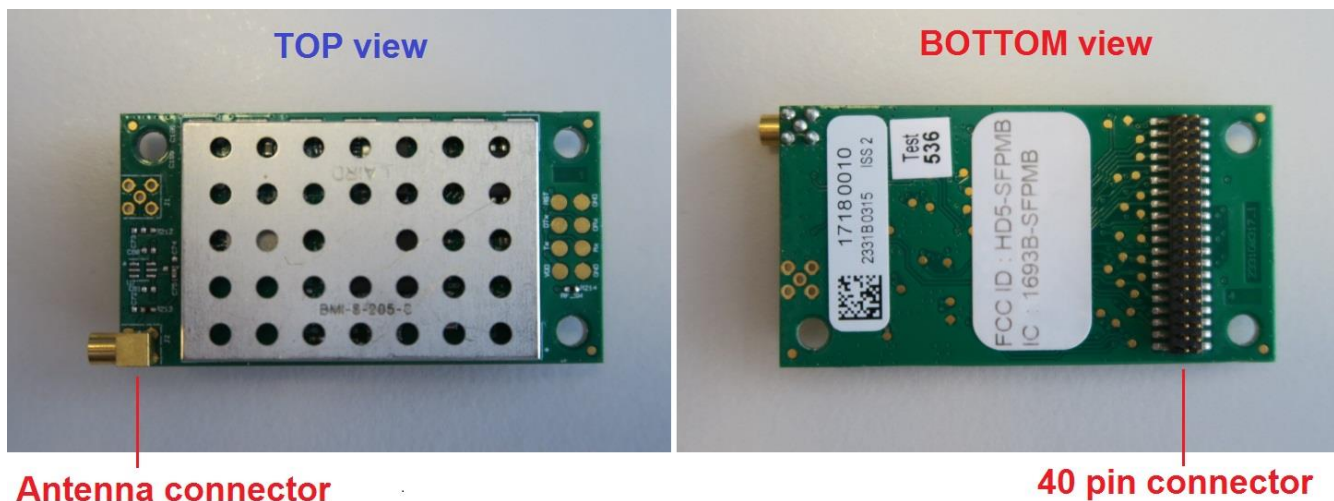


Figure 1: Wireless module EVE, TOP (left) and BOTTOM (right) side

3 Search Platform Detectors assembly

3.1 Typical Module installation

Following guide shows typical installation of the module:

Figure 2 shows Searchzone Sonik – one member of the SPD family with section the Main body, which contains Wireless module and carries antenna.

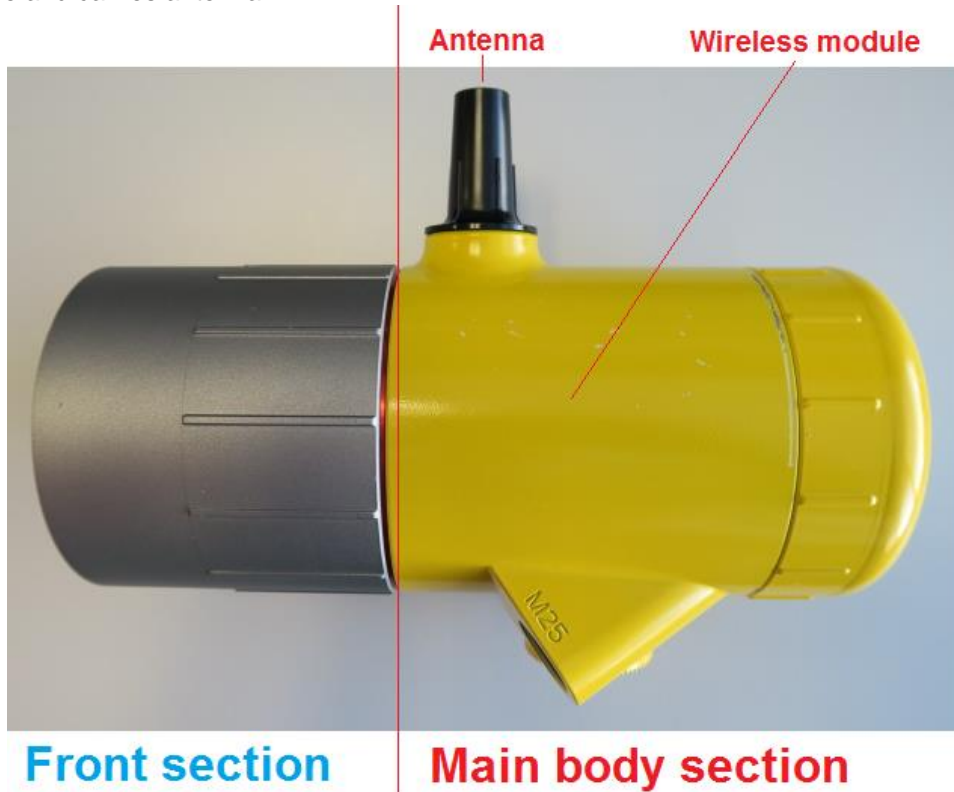


Figure 2: Search Platform Detectors main sections (Searchzone Sonic on picture)

SPWM is attached to one of the 2 PCAs in the main body (PSU2 – power supply unit). The figure number 3 captures exploded view of the Main section of detector and how the wireless module is connected to it. This example shows Searchzone Sonik which is one example of the Search Platform Detectors (SPD). Construction of the Main body is same for all family products, therefore assembly process of Wireless module is the same.

Connection between PSU2 PCA and wireless module uses 40 pins connector. The plastic standoff clips are used for support and vibration stability on 3 edge points of the SPWM's PCB. During the assembly, wireless module is connected first to PSU2 PCA, then preinstalled antenna cable, which sticks out of the Main body is connected to only wireless MMCX antenna connector of SPWM. Length of cable is 94mm. PSU2 is inserted with SPWM into the Main body.

Connection between antenna and SPWM module includes 2 components. Antenna coupler and antenna cable. For the reason of detector to operate in explosive area, the impedance matched, isolating AC coupler (capacitance) is present at the interface between the Main body and the external placed antenna. Antenna coupler has shape of screw with MMCX connector from the interior for antenna cable and exterior RP-SMA Female connector for antenna.

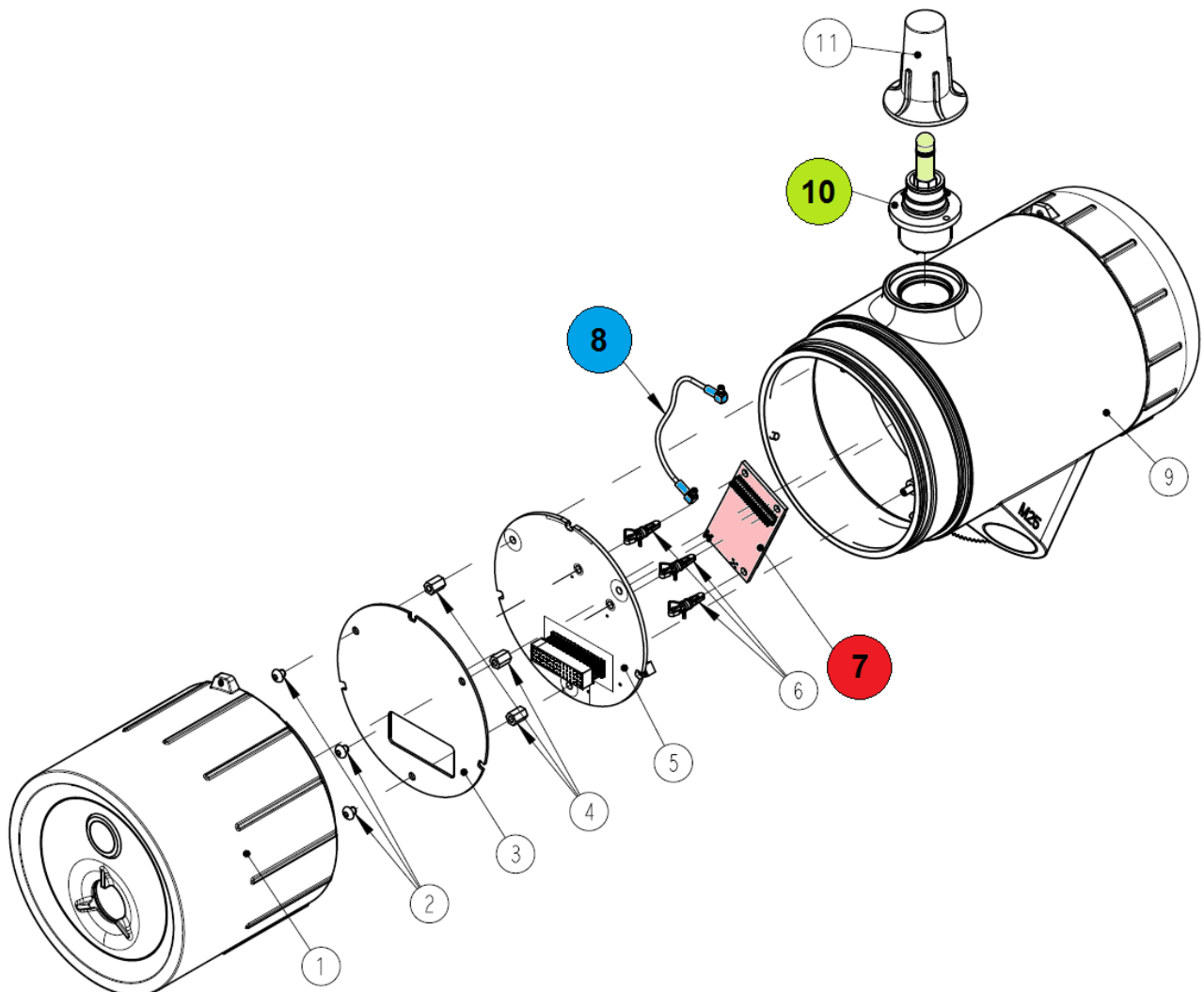


Figure 3: Example of typical integration of module. On the picture is one of the Search Platform Detectors - Searchzone Sonik assembly. Assembly of module is the same for all SPDs. 5 - PSU2 PCA, 6 – plastic standoffs, 7 - wireless module, 8 - antenna cable, 9 – Main body, 10 - antenna coupler with monopole antenna, 11 – Antenna cover

3.2 Antenna

Taoglas's antenna with manufacturer number GW26.0151 is screwed on the top of the detector, to the Antenna coupler with RP-SMA Female connector. Finally, antenna is capsulated under plastic dome, which has protective purpose. Antenna maximal gain is 1.8dBi, 2.4GHz frequency band. SPWM was tested and certified with GW26.0151.

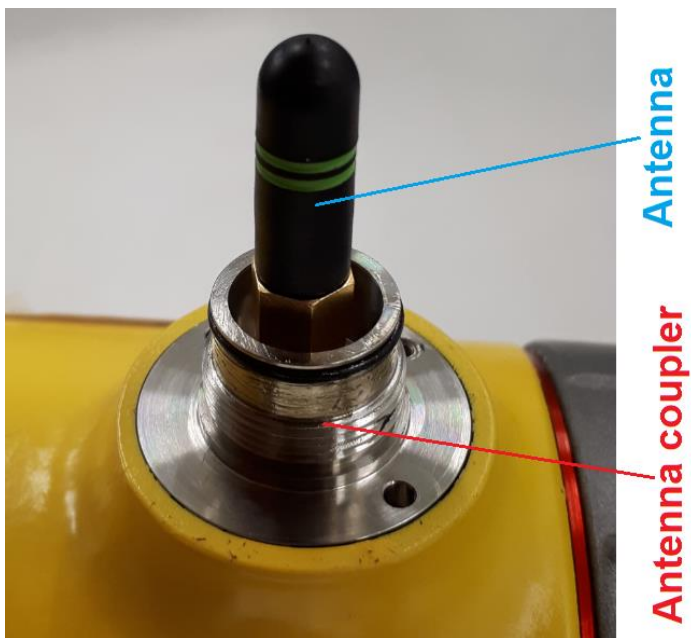


Figure 4: Antenna mounting detail

For more details of antenna visit manufacturer site:

https://taoglas.com/images/product_images/original_images/GW.26.0151.pdf

4 Product labeling

4.1 Search Platform Wireless module labeling

SPWM contains stickers with manufacturer number, ID, test ID and FCC ID with IC number on the bottom side of the PCB.

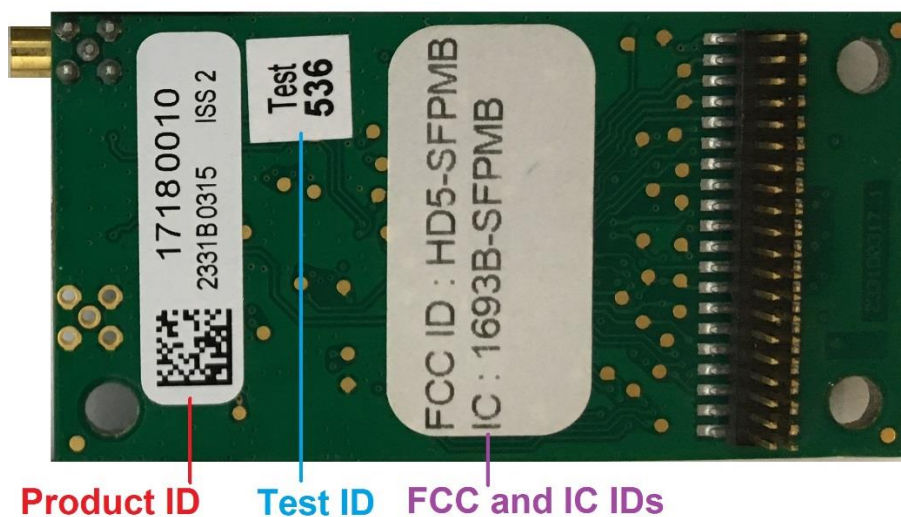


Figure 5: Search Platform Wireless module labeling.

4.2 FCC Compliance

This device complies with Part 15 of FCC rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference; and
- (2) This device must accept any interference received, including interference that may cause undesired operation

No changes shall be made to the equipment without the manufacturer's permission as this may void the user's authority to operate the equipment.

It is the responsibility of the product manufacturer to ensure compliance with FCC Part 15B with the BT Module integrated into their product.

This device complies with FCC radiation exposure limits for an uncontrolled / general public environment.

4.3 ISED Canada Compliance

This device complies with ISED's licence-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference; and
- (2) This device must accept any interference, including interference that may cause undesired operation of the device

This equipment complies with ISED RSS-102 radiation exposure limits set forth for an uncontrolled environment.

French version

Cet appareil est conforme au(x) standard(s) RSS exempts de licence d'Industrie Canada. Son exploitation est soumise aux deux conditions suivantes :

- (1) cet appareil ne doit pas occasionner d'interférence et
- (2) cet appareil doit supporter toutes les interférences, y compris celles qui pourraient provoquer un mauvais fonctionnement de cet appareil.
- (3)

Cet appareil est conforme aux limitations de la norme IC RSS-102 concernant l'exposition aux radiations dans un environnement non contrôlé.

4.4 Host device labeling

Products such as SPD detectors contain visible label on the back side, terminal cover. Comply with: “The FCC ID and ISED Canada certification number shall be placed on the label on the outside of the product enclosure.”

Labels for SPWM’s host devices contain following:
 Contains Transmitter Module FCC ID: HD5-SFPMB
 Contains Transmitter Module IC: 1693B-SFPMB



Figure 6: Example shows Searchzone Sonik as a representative of Search Platform Detectors family. Label placement on Back, terminal cover.

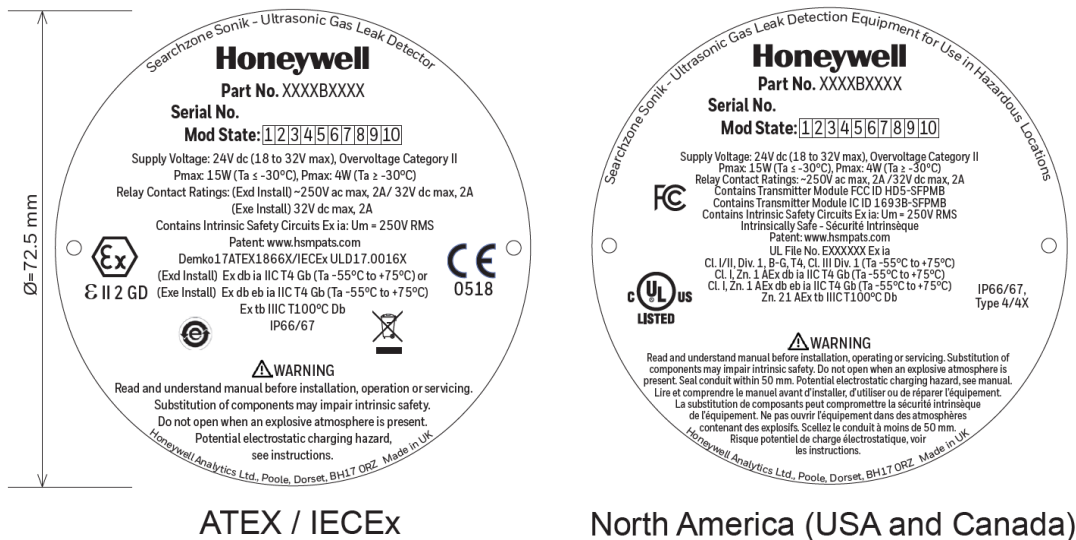


Figure 7: Example shows details of label of Search Platform Detectors. EU on the left, North America on the right.

5 Proclamations and requirements

Product assembly / disassembly can be performed only by authorized services.

FCC and ISED Canada RF Requirements:

The integration of Search Platform Wireless Module is limited to fixed or mobile categorized host devices, where a separation distance between the antenna and any person of min. 20cm can be assured during normal operating conditions.

IMPORTANT:

Manufacturers of portable applications incorporating this BT module are required to have their final product certified and apply for their own FCC Grant and ISED Canada Certificate related to the specific portable host product. This is mandatory to meet the SAR requirements for portable applications.

French version

Exigences FCC et ISED Canada

L'intégration est limitée aux appareils hôtes fixes ou mobiles pour laquelle une distance minimum de 20 cm est respectée entre l'antenne et tout personne en conditions normales d'utilisation.

IMPORTANT :

Les fabricants d'applications portables incluant ce module BT sont dans l'obligation d'obtenir la certification du produit fini pour leur compte auprès des organismes FCC Grant et ISED Canada. Ceci dans le but d'atteindre les spécifications SAR pour les applications portables.