

Special Instruction

i06713710

Installation Guidelines for the Cat[®] Bluetooth Network Transceiver

SMCS Code:

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Introduction

This Special Instruction covers the installation guidelines for the Cat[®] Bluetooth Network transceiver (Cat BTNT). Do not perform any procedure in this Special Instruction until you have read the information and you understand the information.

FCC Notice

This device complies with part 15 of the 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.

Industry Canada Notice to Users

This device complies with Industry Canada 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 received, including interference that may cause undesired operation of the device.

Cat Bluetooth Network Transceiver Overview

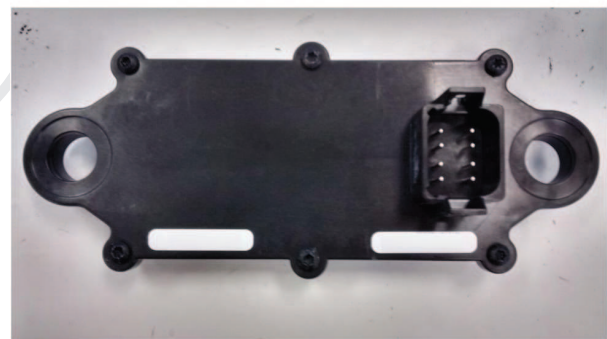


Illustration 1

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The Cat BTNT acts as a central hub for wireless Bluetooth devices on Cat machines. The Bluetooth network uses Bluetooth Low Energy technology. This technology enables the machine to read Cat key fobs and sensors wirelessly and convert the data to standard and proprietary J1939 messages. These messages are sent over the CAN datalink to a machine control ECM to enable operator identification or machine system security.

Note: The Cat BTNT hardware will be ready for future applications that may require the ability to pair with smart devices such as smartphones, tablets, and other Bluetooth enabled devices.

Specifications

Technical Specifications

Table 1

Input Voltage	
Operating Voltage Range	9VDC to 32VDC
Protection	Reverse Polarity
Bluetooth Communication	
Transmit Frequency	2.400 GHz to 2.485 GHz
Transmit Output Power	0 dBm (1 mW)
Antenna	Internal SMT Chip
Antenna Pattern	Omnidirectional
Antenna Linear Average Gain	-1 dBi
Current Consumption (max)	
Low-Power Mode / Scanning	10mA
Normal Operation / Transmitting	50mA
Environment	
Operating Temperature	-40° C (-40° F) to 85° C (185° F)
Storage Temperature	-50° C (-58° F) to 85° C (185° F)
Sealing	IP68 @ 0.35 bar (5 psi)
Humidity	90% RH
Vibration	9.73 Grms Isolation Mounted

Enclosure Dimensions

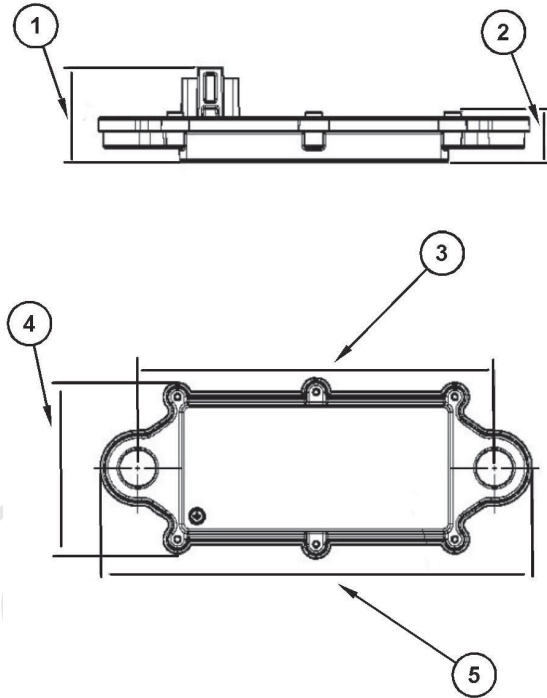


Illustration 2

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- (1) 38.9 mm (1.5 inch)
- (2) 22 mm (0.87 inch)
- (3) 148 mm (5.87 inch)
- (4) 75 mm (2.95275 inch)
- (5) 180 mm (7.1 inch)

Table 2

Physical Specifications	
Enclosure Material	Glass-Reinforced Polycarbonate
Material Flammability Rating	UL-94 5VA @ 1.5mm
Dimensions (LxWxH, excluding connector)	180 mm (7.1 inch) x 75 mm (3.0 inch) x 22 mm (0.87 inch)
Dimensions (LxWxH, including connector)	180 mm (7.1 inch) x 75 mm (3.0 inch) x 38.9 mm (1.53 inch)
Mounting Hole Spacing	148 mm (5.83 inch)
Interface Connector (Geometry)	8-pin Deutsch

Pin Numbering and Locations

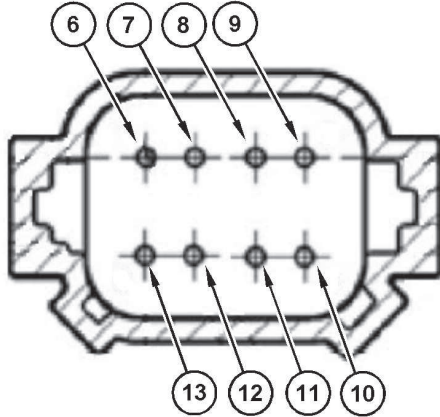


Illustration 3

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Pinout of 8-pin DT connector

- (6) Pin 1: Batt +
- (7) Pin 2: Batt -
- (8) Pin 3: CAN +
- (9) Pin 4: CAN -
- (10) Pin 5: SWG #1 (LOC 0)
- (11) Pin 6: SWG #2 (LOC 1)
- (12) Pin 7: GND
- (13) Pin 8: Key switch

Installation Guidelines

Mounting Hardware

Refer to Table 3 for the transceiver mounting hardware.

Table 3

Isolation Mounting Hardware	
Part Number	Description
8C-5607	Isolation Mount
8C-5608	Spacer
8C-8451	Bolt
9X-6165	Washer

The transceiver must be isolation mounted to a flat surface.

Note: Isolation mounting hardware is required even if the surface is already iso-mounted.

A standard torque of 12 N·m (8.9 lb ft) is required with the use of the M6 bolt.

All Cat BTNT locations use isolation mounts regardless of location. The isolation mounts cannot be removed to allow only the use of the M6 bolt for hard-mounting.

Note: The Cat BTNT mounting surface does not align with the rear of the enclosure without the isolation mounts. Replace the geometry of the isolation mount with a new component if an isolation mount is not available.

Mounting Locations and Radio Frequency Guidelines

Ensure that the following guidelines are met when mounting the Cat BTNT transceiver.

- Mount the Cat BTNT transceiver inside the cab if used for operator ID applications.
- Do not mount the transceiver more than 1 m (3.3 ft) away from the key switch. This ensures reliable wireless transfer of operator ID data from the key fob to the transceiver.

Note: The 1 m (3.3 ft) distance requirement is due to the controlled range of the key fob.

- Ensure that the radio frequency propagation is not inhibited. Do not fully enclose the transceiver in metal. The transceiver may be mounted to a metal plate inside a panel or compartment as long as most of the panel material is non-metallic.
- Mount the transceiver away from other transmitting and receiving antennas. These antennas include, but are not limited to, the following: AM/FM, CB, Cellular/satellite, and GPS.

Note: A minimum distance of 200 mm (7.87 inch) is recommended between the transceiver and other transmitting and receiving antennas.

- Mount the transceiver a minimum of 200 mm (7.87 inch) away from any part of the operator in order to comply with FCC regulations.

Location Codes

The transceiver location code switch-to-ground pins are left floating for operator ID applications. This ensures that the transceiver remains configured as the primary transceiver device (location code is "11"). Refer to (10) and (11) in Illustration 3. Grounding either of these pins changes the logic of that pin to a "0".

Note: If two transceiver devices are used, the devices will never have the same location code. Up to four transceivers can be installed on a single machine datalink.

Connection to Machine Battery

The transceiver is connected to an unswitched battery for operator ID applications. This connection allows the transceiver to authenticate a key fob in close-proximity to the cab prior to a “Key-On” event.



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