



TrackMan™ Radar Unit Installation and Safety Instruction

TrackMan Baseball V2, Type: TMC3J



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1 Introduction

This document provides instructions and warning in order to safely install and operate the TrackMan Baseball Stadium Radar TMC3J Radar Unit

This document does not describe the TrackMan™ application software and how to operate it. This is provided in separate document.

2 Safety Instructions

2.1 Regulatory Notice

FCC compliance

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 are designed to provide reasonable protection against harmful interference in a residential installation.

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

This device complies also with Industry Canada licence-exempt RSS standard(s). 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.

Le présent appareil est conforme aux CNR d'Industrie 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, et*
- 2) *l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.*

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, 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. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, 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/TC technician for help.

NOTICE

Never try to open or repair the device yourself. Any changes or modifications not expressly approved by TrackMan A/S could void the user's authority to operate the device.

Changes or modifications made to this equipment not expressly approved by (manufacturer name) may void the FCC authorization to operate this equipment.

2.2 Warning: Radiation Hazard

Radiation Safety Warning.

This device radiates a low level of microwave electromagnetic radiation from the front window and top when in use. The radiated power is significantly lower the international safety standards for microwave frequencies. However, the user should maintain a minimum distance of 20 cm from this device during operation.

2.3 Caution: Safety precautions

Use the following safety instructions to ensure your own personal safety and to help protect the TrackMan™ radar unit.

General

- Do not attempt to service the device yourself. Always follow installation instructions closely.
- Only use cables and accessories approved by TrackMan A/S together with your TrackMan™ Radar Unit.
- The Radar may become hot during normal operation of the TrackMan™ system. Use care when handling the radar during or immediately after operation.

Power

- Only use the Junction Box supplied with the TrackMan™ Radar Unit.
- Before you connect the TrackMan™ Radar Unit to an electrical outlet, check the AC adaptor voltage rating to ensure that the required voltage and frequency match the available power source.
- To help prevent electric shock ensure a properly grounded power source.

TrackMan A/S accepts no liability for failure to comply with these requirements.



3 Installation instructions

3.1 System description

The TrackMan™ radar system is a standalone measurement system for the detection and measurement of baseball movements.

The system consists of:

- TrackMan™ Radar Unit model TMC3J
- Power junction Box model ConnectionBox ver. 5

The following diagram depicts the TrackMan™ system:

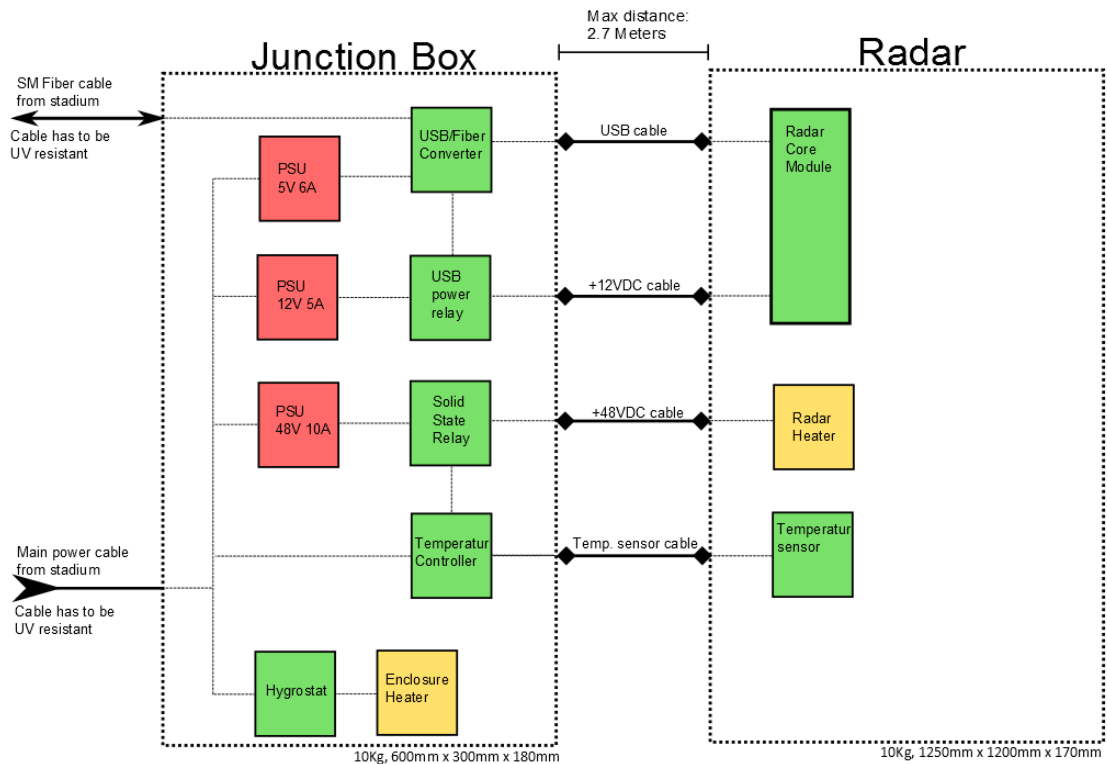


Figure 1: TrackMan™ system block diagram

3.2 System specifications

3.2.1 Radar.

The TrackMan™ radar unit is a robust construction, with chassis made of Metal back. The front of the TrackMan™ is black plastic from where behind the microwave radiation is transmitted and received.

The TrackMan™ Radar Unit also has a built-in digital camera, which looks out through a window in the front.



3.2.2 Junction Box.

The TrackMan™ radar unit is an industrial installation plastic box and it includes all the power supply components.





3.3 TrackMan™ Radar Unit, model TMC3J

Operating Frequency	US + CDN Market: 10.500 - 10.550GHz Operating frequency is fixed during manufacture
Transmitter power	+19dBm
Antenna gain	13 dB
Horizontal beam	65°
Vertical beam	30°
Dimensions	Width: 1250 mm Depth: 180 mm Height: 1200 mm
Mass	~10 kg
Main power supply	12VDC, 25W maximum 48VDC, 480 W maximum during heating
Data interface	USB2.0 high speed out of the radar. Fiber or Ethernet out of the connection box.

The TrackMan™ Radar Unit consists of the following sub-assemblies and/or printed circuit board assemblies:

- Radar analog signal processing
- Antennas for transmitting and receiving
- Digital camera
- GPS receiver

The TrackMan™ Radar Unit system is splash proof and designed to withstand rain.

3.4 Setting up the system

Setting up the system will only be done by TrackMan™ personnel or 3rd party personnel educated by TrackMan™ personnel.

4 Warranty Comments

The TrackMan™ Radar Unit contains NO user serviceable parts inside. In case of defect or malfunctioning TrackMan™ Radar Unit, TrackMan A/S authorized personal ONLY must repair the unit.

IMPORTANT The box is sealed to prevent unauthorized access to the inside of the TrackMan™ Radar Unit. If the sealed is broken any warranty agreement will terminate immediately. Warranty will also terminate immediately if:

- Use of non-approved cables between the TrackMan™ Radar Unit and the computer in fixed installation.
- If the TrackMan™ Radar Unit is not installed or operated in compliance with this manual.

For full description of the warranty and the scope hereof, reference is made to the warranty agreement between the user and TrackMan A/S.