UM-230609 User Manual TD1

Version: V1.1.0
Date: 2023-06-19
Status: Final

Disclaimer

Translation disclaimer
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Regulations, Standards & Guidelines

CE	Sensys Gatso declares that this product is manufactured in conformity with the essential requirements in the applicable directives, and that the relevant information conformity assessment procedures have been fulfilled.
ISO	Sensys Gatso's Management System is certified for ISO 9001 Quality management system, ISO 14001 Environmental management system and ISO 27001 Information technology – Security techniques.
RoHS & WEEE	Sensys Gatso follows the RoHS II 2011/65/EU (Restriction of Hazardous Substances) and WEEE 2012/19/EU (Waste Electrical and Electronic Equipment) directives.
WELMEC 7.2	Measuring Instruments Directive 2004/22/EC.

Safety instructions

This manual holds information and instructions for the correct and efficient use of the TD1. Following these instructions avoids hazardous situations, damage to the system, or a malfunction of the system.

Scope

This manual holds information and instructions for the correct and efficient use of the TD1. Some of the items described in this document are optional and may therefore not be available in all systems. Please contact Sensys Gatso Group for details.

All images, drawings and print screens shown in this manual are indicative and can differ from the originals, due to recent adaptations to hardware or software by Sensys Gatso.

Target audience

This document is intended for users that have been trained to work with the system and are familiar with its lawful use. In addition, the user must have basic skills in working with computers and setting up network connections.

Reader liability

This manual shall be carefully read and understood by any user operating the system. If there are any questions regarding the contents of this document or the proper use of the system, please contact Sensys Gatso or its distributor. Contact details are listed on the last page of this document.

FCC DECLARATIONS

Compliance statement (part 15.19)
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.

Warning (part 15.21)
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

RF Exposure (OET Bulletin 65)
To comply with FCC RF exposure requirements for mobile transmitting devices, this transmitter should only be used or installed at locations where there is at least 20cm separation distance between the antenna and all persons.

Information to the User (Part 15.105 (a))
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. 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. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Used symbols

Text with an exclamation mark in a red triangle means:
Please read the information carefully and/or carry out the given instructions precisely. Ignoring this warning may cause personal injury, cause damage to the system, or produce false data.

Text with an i mark in a green circle means:
Please read this information to not only use the system accurately and safely, but also efficiently.

Precautions RF radiations

The radar used does not pose a serious threat or cause adverse effects to people working on them, or using them, nor anyone in the vicinity.

Each radar generates electromagnetic fields with a certain frequency and power where the average output power of our radars is very low, a few milliwatts.

This is not considered hazardous to health, even when used in very close proximity to the body. However, as with all technologies, it is best to work safely to minimise exposure, no matter how small it may be.

Following recommendation can be observed:

- Keep radar emission areas clear of (metallic) objects to limit reflections;
- Do not cross, stand or walk in and/or limit the time present in the radar emission area;
- Keep a distance (> 60 cm) from a powered radar unit when in the radar emission area;

Do not place (large) metal objects directly in front of the radar, this can cause reflections and may damage the radars high frequency electronics due direct reflection.

Version table

Version	Date	Status	Remarks
1.1.0	2023-06-19	Final	Final review P. Chiocchio

Introduction

The TD1 radar is a multi track radar built to measure the speed of traffic. It emits radar signals and receives the reflected signals for vehicle detection and speed measurement. The TD1 can simultaneously measure the speed of multiple passing vehicles. The TD1 can measure receding traffic, approaching traffic or both simultaneously for stationary enforcement.

Fig1. TD1 radar, left front and right back

Fig2. TD1 radar with mounting bracket, Identification label FCC-ID: 2BA8R-TD1N66R1

Connections

Backside of the TD1 has two connections and three mounting points:

- Left round connector: Power, Ethernet, and CAN bus communication connections.
- Right rectangle connector: Homologation connection

Fig3. Connections of the TD1. Left: power and communication, Right: homologation

Power and communication connection

The power and communication connection is connected to the system computer and contains; network for communicating, CAN bus and power. Power for the TD1 antenna is distributed via the system computer.

The system computer is the central processing unit in an enforcement system. The computer processes all data coming from sub devices in the enforcement system.

Cabling

The radar cable shown in the figure below is used to connect the TD1 to the system computer. Both sides of the cable have an identical connector with an indication tab which helps the user connect the cable. A red dot indicates the indication tab.

Fig3. Radar cable

Fuse

The connection string between the system computer and TD1 has two additional fuses for a safe and reliable operation. One multifuse is placed at the system computer side and protects the hardware in the system computer and the radar cable. The other fuse is placed in the TD1 and protects the TD1 electronics against overcurrent.

Homologation connection

This connection is not used by the user. This connection is used by SGG employees for simulation of traffic for yearly verification or fault detection.

Status indication

At the right side of the homologation connector an indication LED will show the status of the radar.

- OFF - Power not available
- RED blinking - Start up
- RED - Error
- GREEN - Operation

A second LED will state the network activity.

Modes

When power is applied to the TD1 the status LED will blink RED. After 10 seconds the status LED will lit GREEN and the TD1 is in operation mode.

In operation mode the RF will be present.

TECHNICAL SPECIFICATIONS

GENERAL

Power supply 12VDC
Nominal power max. 7 W
Operating temperature -40 °C to +70 °C
In storage -40 °C to +85 °C
Housing IP67

Front end

Antenna type FMCW planar patch array
Beam shape oval cone
Beam width
62° horizontal
16° vertical

Measurement direction approaching and/or receding
Frequency band 24 GHz band: 24.075 - 24.175 MHz

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