

Smartcard-Booster End2End

installation guide

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Please consult the Nedap products dealer from whom you purchased this product, in regards to the applicable warranty conditions. This product cannot be used for any other purpose as described in this document. If the product is not installed according to this document; the warranty provided is not applicable. At the sole discretion of Nedap N.V., Nedap N.V. may decide to change the conditions of the warranty policy. You agree that Nedap N.V. is able to compensate you the pro-rata value of the warranty involved rather than replacing or repairing the product depending on the technical or economical value of the product.

Prior to applying the warranty, please verify if you comply with the warranty conditions of the warranty policy, whether you can successfully apply for the replacement or repair of a defective part. Parts can only be replaced with original Nedap parts, otherwise the warranty policy will not be applicable on the product. If the warranty is applicable, please contact the dealer or send the defective parts to the dealer.

Additional information

For any information or questions regarding the product, please contact your own dealer

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1 Introduction

The Smartcard-Booster End2End is a dual-ID tag enabling simultaneous identification of the inserted personal ID card and the embedded vehicle ID resulting in rapid driver and vehicle monitoring.

The Booster allows reading the Booster ID and inserted card number up to a range of 12 meters (40 feet) using the NEDAP TRANSIT Ultimate reader. This solution substantially enhances the level of security when controlling activities of vehicles that are regularly used by different drivers. The combined vehicle and driver ID is a unique NEDAP patented feature.

For more details about the NEDAP TRANSIT Ultimate reader refer to the corresponding installation guide.

The Smartcard-Booster End2End uses the 433 MHz bi-directional wireless communication with the TAB board on the TRANSIT Ultimate reader. The HID OMNIKEY secure element on the TAB board enables reading securely the id-number from HID SEOS/iCLASS cards. This means that the Booster must be in range of the TRANSIT Ultimate reader to read the inserted card.

The following personal ID card types are supported with the Boosters:

- HID iCLASS SEOS (14443A)
- HID iCLASS SE (15693)
- HID MIFARE Classic SE (14443A)
- HID MIFARE Desfire SE (14443A)

Warning: Do not leave card in the Booster when leaving the vehicle, as this presents a security risk!

Warning: Do not leave card in the Booster for long periods of time in extreme heat, as this may damage the card!

2 Installation

2.1 Dimensions

The Booster is easily mounted to the inside of the car's windshield by means of suction cups. Users should ensure the visual contact between the Booster and TRANSIT reader is unobstructed with items such as stickers or metallized windshields (see also chapter 2.3 about solar control windshields).

Note that the Booster's suction cups must be faced toward the reader to achieve maximum reading distance.

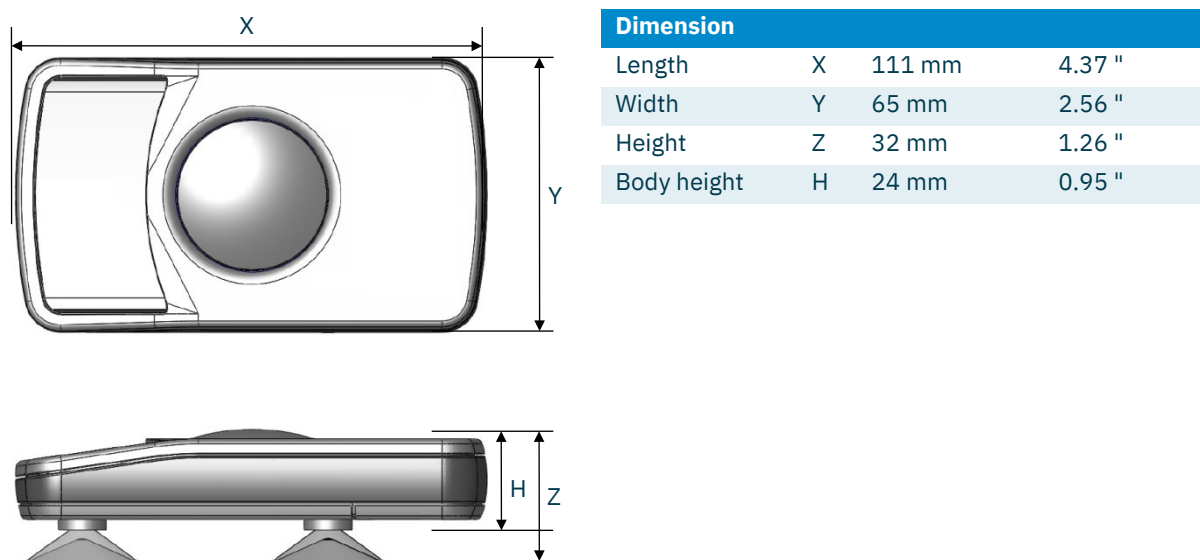


Figure 1: Booster dimensions

2.2 Temperature considerations

The Booster is designed to operate within the extreme temperature ranges, which often occur behind a vehicle's windshield during the winter or summer seasons (-20°C to 85°C / -4°F to +185°F). However, the personal ID card inserted in the Booster may not be designed to withstand such temperatures and could suffer damage as a result.

Nedap recommends to remove the personal identification card when not in use.

2.3 Solar control windcreens

From 1997 onwards, several car manufacturers introduced vehicles with solar control windshields. The solar control windshields are equipped with a metallized coating, which can block the TRANSIT signal from the Booster mounted on the inside of the windshield of the vehicle.

Most of these windshields have a metal free zone where transponders can be mounted. The metal free zone of metallized windshields is most often found in the middle of the windshield behind and slightly below the rear-view mirror. In vehicles manufactured after 1998 the metal free zone should be indicated on the window.

We advise the owner to contact the local car dealer if it is not clear where the aperture is exactly positioned in a certain vehicle and where the transponder should be mounted.

3 Configuration

Requirements

9988483 - Smartcard-Booster End2End

9215689 - TRANSIT Ultimate

↳ 7819102 - RS232 / HID interface board (default)

↳ 7841329 - TAB board hardware revision C *

- * The TAB board (part. no. 7841329) is part of the TRANSIT Ultimate and does not need to be ordered separately. However it is important that the TAB board hardware revision must be at least C. Older readers may be featured with an older TAB board which does not support reading the HID SEOS/iCLASS cards. In such case the TAB board needs to be replaced. See further below for more detailed information about how to install.



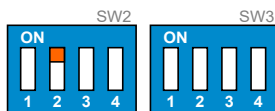
✓ TAB board hardware revision C



✗ Older TAB

TRANSIT Ultimate configuration

Enable ULTIMATE-mode by setting dip-switch SW2-2 ON.



ULTIMATE-mode enabled

Smartcard-Booster End2End configuration

The Booster does not require any configuration.

4 Identifying the Booster with a TRANSIT

4.1 How to use the Booster

1. Insert card into booster.
2. Push button (while in range of TRANSIT Ultimate).
The TRANSIT Ultimate reader can identify your card up to a distance of 12 meters (=40 ft).
3. A beep indicates that the card was read successful. See chapter 5 for details about the buzzer indications.

Notes

Card read can only be successful while in range of TRANSIT Ultimate.

After identification (or after 1 second timeout) the Booster automatically returns into sleep mode.

The Smartcard-Booster End2End does not support an always-on mode.

4.2 Reader output

The example below assume that a TRANSIT reader with P81 firmware is used and show the messages transmitted on the RS232 interface to a host system (TXD). Refer to the TRANSIT firmware manuals for more details about the reader communication protocol.

Example

booster-id = 123, card-id = Wiegand 26-bit FC1, id-number 1:

If 'Extended-length (default)' is configured, the following message is transmitted to the host:

TXD =  ^C_R ^L_F

-  Event identifier ('Y').
-  Vehicle-id (10 digits).
-  Driver-id (22 digits).

5 Buzzer indications

The Booster's built-in buzzer gives audible feedback upon various conditions. The table below describes the buzzer indications.

Description	Buzzer
Card read successful	Positive beep 🎵
Card read failed (timeout 1 s)	1 low tone beep
Power on	3 beeps increasing frequency 🎵🎵🎵
Power-on + button	Tune Mission Impossible → Smartcard-Booster End2End
Battery low	Morse SOS (· · · — — — · · ·)

6 Battery replacement

The Booster contains two replaceable non-rechargeable AAA batteries (2 x 1.5V). The average lifetime of these batteries is approximately 5 years. When replacement becomes necessary follow the procedure below.

- Open the battery compartment.
- Remove both batteries. Follow local environment protection laws / regulations for disposal of used batteries.
- Replace with two new batteries. Make sure that the polarity matches the indicated polarity. Refer to appendix A for battery requirements.
- Close the battery compartment and verify that the Booster is working properly.

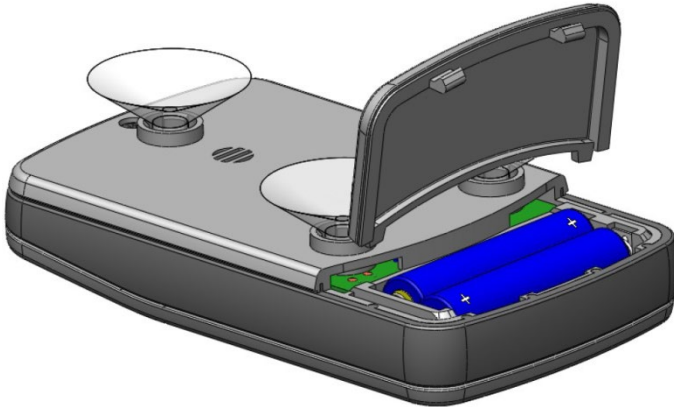


Figure 2: Battery replacement

A Technical specifications

Item	Specification	Remark
Part numbers	9988483 – Smartcard-Booster End2End	
Dimensions	111 x 65 x 24 mm [4.4 x 2.6 x 1.0 in]	
Weight	120 grams [4.2 oz.]	
Housing	PC and TPU	
Color	Grey	RAL 7016 / RAL 7040
Protection	IP32	Approx. NEMA 2
Operating frequencies	2.45 GHz / 433 MHz / 13.56 MHz	
Supported RFID cards	HID iCLASS SEOS (14443A) HID iCLASS SE (15693) HID MIFARE Classic SE (14443A) HID MIFARE Desfire SE (14443A)	
Operating temperature	-20°C ... +85°C [-4°F ... +140°F]	
Storage temperature	-40°C ... +85°C [-40°F ... +140°F]	
Relative humidity	10% ... 93%	non-condensing
Identification range	Typically 12 meters [40 ft]	line-of-sight required
Battery, size AAA, 1.5V	2 x Alkaline or Energizer Lithium L92	expected lifetime up to 5 years
Certifications	CE, FCC and ISED	

B Disposal of equipment

The products will be disposed of by the end-user and discharge Nedap for any liability or responsibility thereof.



The WEEE symbol in Europe indicates that the relevant electrical product or battery should not be disposed of as general household waste in Europe. To ensure the correct waste treatment of the product and battery, please dispose them in accordance to any applicable local laws of requirement for disposal of electrical equipment or batteries. In so doing, you will help to conserve natural resources and improve standards of environmental protection in treatment and disposal of electrical waste (Waste Electrical and Electronic Equipment Directive WEEE 2012/19/EU).

C CE declaration

Hereby, Nedap N.V. declares that the subject equipment is in compliance with directives 2014/53/EU (Radio Equipment Directive) and 2011/65/EU (RoHS). The full text of the EU declaration of conformity is available at the following internet address: <https://portal.nedapidentification.com>.

D FCC / ISED statement

Smartcard-Booster End2End

Model: SMARTCARD-BOOSTER ULTIMATE FCC ID: CGDBOOSTER10 / IC: 1444A-BOOSTER10

FCC and ISED Compliance statement

This device complies with part 15 of the FCC Rules and contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(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.

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

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 et (2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Les changements ou modifications n'ayant pas été expressément approuvés par la partie responsable de la conformité peuvent faire perdre à l'utilisateur l'autorisation de faire fonctionner le matériel.

FCC and ISED Radiation Exposure Statement

This equipment complies with FCC (OET Bulletin 65) and Canadian radiation exposure limits set forth in RSS-102 for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 0 mm 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 à CNR-102 limites énoncées pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec une distance minimale de 0 mm entre le radiateur et votre corps.

ISED EMC Declaration

This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de Classe B est conforme à la norme Canadienne ICES-003.

FCC Information to the user

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 equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, 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/TV technician for help

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

US responsible party: Nedap Inc., 25 Corporate Drive (Suite 101), MA 01803 Burlington, USA, 781 349 6200.

E Document revision

Version	Date	Comment
1.00	2023-09-20	Created