

TRANSIT Ultimate

long-range vehicle and driver
identification reader

Key features:

- ✓ simultaneous vehicle and driver identification
- ✓ read range up to 15 meters* (50 feet)
- ✓ object speed up to 200 km/h (125 mph)
- ✓ tag authentication based on AES encryption
- ✓ adjustable read range
- ✓ bi-directional communication
- ✓ variety of integrated communication interface
- ✓ robust industrial design
- ✓ OSDP v2, including secure channel communication



The TRANSIT Ultimate is an extremely robust RFID reader that enables simultaneous identification of vehicles and drivers in challenging situations. Based on semi active RFID technology, vehicles and drivers are identified at distances up to 15 meters* (50 feet) and speeds up to 200 km/h (125 mph).

This high-end reader is designed to perform well in high security applications, demanding vehicular access control applications and under harsh environmental conditions. Typical applications include highly secured vehicle access at airports, seaports, mines, military bases and other installations where vehicles must be assigned to specific drivers.

Channel selection

The TRANSIT Ultimate operates on a factory-set frequency. The frequency channel selection allows multiple readers to operate in close vicinity of each other without interference.

Read range adjustment

The reader resolves typical multi-lane, entry and exit reader challenges. The read range of the reader can be adjusted, offering accurate identification in demanding applications.

Housing & mounting

The weatherproof TRANSIT Ultimate features an IP66 certified housing. The reader operates reliable under harsh environmental conditions and is able to withstand exposure to rain, snow and ice. Wall mounting equipment is included.

Interfaces & protocols

The TRANSIT Ultimate is designed for seamless and flexible integration into existing management systems in the industry, such as security, parking, traffic and logistics.

Several communication interfaces are available such as RS232 (default, standard included), RS422, RS485, HID Interface Board (HIB) and TCP/IP. Also open industry standards protocols such as Wiegand and OSDP are supported. Customer specific protocols can be implemented on request.

OSDP capability

The TRANSIT Ultimate long-range RFID reader supports the Open Supervised Device Protocol (OSDP v2) for automatic vehicle identification applications. OSDP enables advanced and secure communication between the long-range RFID reader and the controller. For this feature the TRANSIT OSDP Interface Board is required.

Security Key Pack

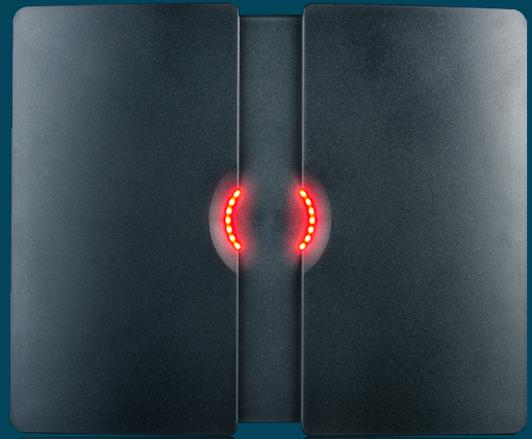
A Security Key Pack is optionally available for the TRANSIT Ultimate. With this key, advanced bi-directional communication between readers and tags becomes available. Additionally, secure authentication of Ultimate tags becomes available to prevent cloning and replay attacks. This function is available for the Ultimate Tag- and Boosters.

** In combination with Compact Button. The maximum read range depends on identifier type, the installation and the environment.*

Technical specifications	TRANSIT Ultimate
Part number	9215689 TRANSIT Ultimate Preprogrammed US RS232/HID 9229203 TRANSIT Ultimate Preprogrammed RS232/HID 9229206 TRANSIT Ultimate Custom Programming RS232/HID 9229210 TRANSIT Ultimate Custom Programming RS422/RS485 9229213 TRANSIT Ultimate Custom Programming OSDP 9229216 TRANSIT Ultimate Custom Programming TCP-IP
Dimensions	274 x 330 x 140 mm (10.8 x 13 x 5.5 in)
Color	RAL 7016 (cover), RAL 7035 (housing)
Weight	4 kg (8.82 lbs)
Protection class	IP66 (NEMA4x)
Material	Cover ABS, Housing Die-casting ADC12
Operating temperature	-30 ... +66°C (-22 ... +150°F)
Storage temperature	-30 ... +66°C (-22 ... +150°F)
Relative humidity	10% ... 93% relative humidity, non-condensing
Power supply	Input: 100-240 VAC, 0.3-0.6A (50 - 60 Hz) or 24 VDC, 0.7A; Output 24Vdc, 0.1A
Power consumption	<25VA (on AC), <20 Watt (on DC)
Read range	Up to 15 meters (50 feet) in combination with Compact Button
Object speed	Up to 200 km/h (125 mph) at appropriate distance
Operating frequency	2.438 – 2.457 GHz, 433.62 & 434.22 MHz (RX-Cat 3) Ton <5sec.
Antenna polarization	Circular (LHC) (2450 MHz) integrated antenna; Horizontal (433 MHz); dedicated antenna.
Air interface	2.45 GHz: Nedap proprietary encoding standard 433 MHz: Encryption based upon diversified AES128; 300kbps/ GFSK 75 kHz; Duty cycle < 1%; LBT not applicable
Communication interfaces	Default interface board: RS232 / HID (default) Available interface boards: RS422/485, TCP/IP and OSDP USB service interface
Communication protocols	OSDP v2, including secure channel communication, CR/LF, DC2/DC4 and various OEM protocols depending upon installed firmware - see firmware manual.
Input	TTL read disable; 3x TTL general purpose inputs
Output	Wiegand, Magstripe (clock & data) 1 relay output (NO, common, NC), 24 VDC 2A, 120 V AC 1A
Antenna input	Optional 1 external inductive antenna connection 120 kHz
Antenna output	Nedap external reader antenna connection 120 kHz output
Connectors	PCB screw connectors
Tamper switch	Magnetic switch, normally closed
Standards	CE, UKCA, FCC, UL294, IC, ACMA, R-NZ, China_CMIIT Consult your Nedap representative for country specific standards
Included accessories	9984364 Wall Mounting Set
Optional accessories	5626595 Pole Mounting Kit 9218327 Weather Protection Hood 9216537 Security Key Pack
Document version number	3.1

TRANSIT Ultimate Accessories

optional reader accessories



Products:

- ✔ Weather Protection Hood
- ✔ Pole Mounting Kit

Weather Protection Hood

If the TRANSIT Ultimate is used in (extreme) sunny weather conditions, it is recommended to apply a Weather Protection Hood. This hood protects the reader from temperature rise by means of long lasting exposure to the sun.

The Weather Protection Hood can be mounted on the back side of the TRANSIT Ultimate.



Pole Mounting Kit

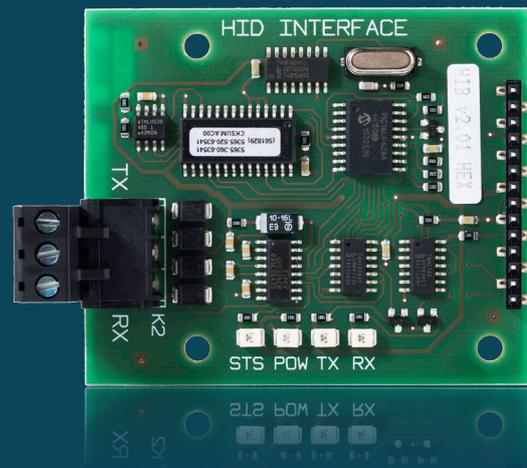
With the Pole Mounting Kit the TRANSIT Ultimate can be mounted on round or square masts.

Technical specifications	Weather Protection Hood
Part number	9218327 Weather Protection Hood
Dimensions	355 x 288 x 75 mm (14 x 11.3 x 3 in.)
Color	Grey/White according to RAL 9002
Weight	750 g (26.5 oz)
Material	Powder coated aluminum
Compatible readers	9215689 TRANSIT Ultimate

Technical specifications	Pole Mounting Kit
Part number	5626595 Pole Mounting Kit
Dimensions	Ø 40 mm (1.57 in.) - min. dimensions pole Ø 190 mm (7.48 in.) - max. dimensions round pole 150 mm (5.9 in.) - max. dimensions square pole
Color	Stainless steel
Weight	900 g (31.7 oz)
Material	Stainless steel
Compatible readers	9215689 TRANSIT Ultimate 9217363 uPASS Target (region 1) 9217371 uPASS Target (region 2 & 3)
Document version number	5.1

TRANSIT Ultimate Interfaces

optional communication interface boards



Products:

- ✓ RS232 / HID Interface Board (HIB)
- ✓ TCP/IP Interface Board
- ✓ RS422/ RS485 Interface Board
- ✓ OSDP Interface Board

HID Interface Board (HIB)

The HID Interface Board enables TRANSIT readers to read HID prox cards at long-range in Booster applications. It can be used in combination with the Prox Booster. The Booster transmits the HID prox card information to the reader. The HIB ensures that the received card information is decoded and transmitted to a controller in the programmed format. The HIB has an integrated RS232 interface to allow communication to a PC over RS232. For example to adjust reader settings and to download new firmware in the reader. In addition, a Wiegand output is available to ensure easy integration into any existing installation.

TCP/IP Interface Board

The TCP/IP Interface Board is designed to connect TRANSIT readers to an Ethernet network with a serial interface using the TCP/IP protocol.

RS422/ RS485 Interface Board

The RS422/RS485 Interface Board is designed to connect TRANSIT readers to a RS422 or RS485 communication network.

OSDP Interface Board

The OSDP Interface Board is designed to connect TRANSIT readers to a RS485 communication network making use of the OSDP v2 protocol, including secure channel communication.

Technical specifications	RS232 / HID Interface Board	TCP/IP Interface Board
Part number	9230785	9230777
Dimensions	70 x 60 x 11 mm (2.8 x 2.4 x 0.4 in)	70 x 60 x 11 mm (2.8 x 2.4 x 0.4 in.)
Weight	25 g (0.88 oz)	40 g (1.41 oz)
Operating temperature	0 ... +40°C (+32 ...+104°F)	0 ... +40°C (+32 ...+104°F)
Storage temperature	-30 to +65 °C (-40 to +165 °F)	-30 to +65 °C (-40 to +165 °F)
Interface	RS232	TCP/IP (RJ45)
Compatible readers	9215689 TRANSIT Ultimate	9215689 TRANSIT Ultimate
Required firmware	P61, P81, P82, P84, P85	Any
Standards	CE, FCC, IC, ACMA, R-NZ	CE, FCC, IC, ACMA, R-NZ

Technical specifications	RS422/ RS485 Interface Board	OSDP Interface Board
Part number	9230793	9229078
Dimensions	70 x 60 x 11 mm (2.8 x 2.4 x 0.4 in.)	110 x 90 x 25 mm (4.3 x 3.5 x 0.4 in.)
Weight	25 g (0.88 oz)	25 g (0.88oz)
Operating temperature	0 ... +40°C (+32 ...+104°F)	0 ... +40°C (+32 ...+104°F)
Storage temperature	-30 to +66 °C (-40 to +165 °F)	-30 to +66 °C (-40 to +165 °F)
Interface	RS422/485	RS485
Compatible readers	9215689 TRANSIT Ultimate	9215689 TRANSIT Ultimate
Required firmware	Any	Any
Standards	CE, FCC, IC, ACMA, R-NZ	CE, FCC, IC, ACMA, R-NZ
Document version number	2.3	

Compact Button

long-range vehicle identification tag
(with user activation)

Key features:

- ✔ automatic vehicle identification
- ✔ identification up to 15 meters* (50 feet)
- ✔ easy mounting to vehicle's windshield
- ✔ battery powered to give a strong response signal
- ✔ in 'always on' mode or with user activation button



The Compact Button is a long-range vehicle identification tag. This tag is based on semi-active RFID technology. It operates on a frequency with very little interference or environmental noise. In addition, the tag is battery powered to give a strong response signal, which makes it the most accurate and reliable identification system. The read-range is up to 15 meters* (50 feet) in combination with the TRANSIT Ultimate reader.

The Compact Button is the preferred choice for installations where vehicles need to be identified in a secure and most accurate manner. Typical applications include secure vehicle access to critical infrastructure and accurate identification of vehicles to enter a logistic site.

User activation functionality

For applications that require user activation, the user can switch to 'user activation' mode by pressing and holding the button. In 'user activation' mode the driver determines the time and distance of the vehicle being identified by pressing the button. When the button on the front of the tag is activated by the driver, the tag ID is transmitted to the TRANSIT reader for 5 seconds.

Typical applications for using the tag in 'user activation' mode are if activation is related to a fee or if there is a lot of cross traffic with tags to operate the gate only if needed.

Windshield mounting

As the Compact Button is equipped with a suction pad with industrial strength, the Compact Button can easily be placed on the windshield without blocking the drivers sight due to its small size.

Read Only programmed

The Compact Button is Read Only (R/O) programmed. It is default programmed with a specific security code and an unique tag ID number. The part number, tag ID number and production date are laser engraved onto the backside of the tag.

Sustainable design

Besides the material reduction in size, the Compact Button features a replaceable battery with an expected lifetime of 8 years after which the battery can be replaced for more years of service. The product is produced in The Netherlands with an eye for sustainable sourcing, processing, labour and reducing the logistic footprint.

** In combination with the TRANSIT Ultimate reader.
The maximum read range depends on reader type,
the installation and the environment.*

Technical information		Compact Button - NVT2201
Part number	9567909 Compact Button - Preprogrammed US 9567879 Compact Button - Preprogrammed 9230149 Compact Button - Custom Programming	
Dimensions	Ø60 mm	
Color	Anthracite, according to RAL 7016	
Weight	35 g	
Protection class	IP32 (approx. NEMA2)	
Material	PC	
Operating temperature	-40 ... +85°C (-40 ... +185°F)	
Storage temperature	-40 ... +85°C (-40 ... +185°F)	
Relative humidity	10% ... 93% relative humidity, non condensing	
Read range	Up to 15 meters (50 ft) with TRANSIT Ultimate	
Operating frequency	2.45 GHz / 120 kHz	
Air interface	Nedap proprietary encoding standard	
Battery	User replaceable battery CR2450 3V Lithium coin cell with expected lifetime of 8 years. Tag standard features an acoustic battery low indication.	
Mounting	Attaches with a suction pad to the inside of all normal windscreens. In case of a metalized windscreen a metal free communication window is required.	
Compatible readers	TRANSIT Ultimate	
Standards	CE, UKCA, FCC, IC, ACMA, R-NZ	
Document version number	1.1	

TRANSIT Booster

long-range vehicle & driver identification tag

Key features:

- ✔ simultaneous vehicle and driver identification
- ✔ identification up to 12 meters* (40 feet)
- ✔ patented dual identification solution
- ✔ easy mounting to vehicle's windshield
- ✔ different versions to support the latest cards and credential technologies
- ✔ optional advanced tag authentication (Ultimate mode)



The TRANSIT Booster is a vehicle and driver identification tag. This patented solution ensures that a vehicle can only get access to a secured area when driven by an authorized driver. The TRANSIT Booster is used in combination with (existing) personal access credentials. Based on semi active RFID technology, the TRANSIT Booster is identified up to 12 meters* (40 feet) with the TRANSIT Ultimate reader.

Typical applications include highly secured vehicle access at airports, seaports, military bases, police, firebrigades, critical infrastructure utilities, and other installations where vehicles must be assigned to specific drivers.

Driver based identification

The driver based vehicle identification solution consists of two elements: a building access card and an in-vehicle Booster. The Booster is mounted on the inside of a vehicle's windshield. The booster assists the TRANSIT reader to identify and authenticate the card ID. The TRANSIT reader transmits the combination of the card ID and booster ID to any access control system. If this combination is authorized, access is granted and the gate opens automatically.

Building access

By removing the access card from the Booster, it can be used for building access. The Booster solution eliminates the need to issue (new) cards, making it easily integrable into existing installations. As the solution operates only when the access card and the Booster are combined, removal of the access card ensures a high level of security.

Supported Cards

The TRANSIT Booster comes in five versions; a Booster for low frequency cards, Smartcards, Smartcards including advanced tag authentication (Ultimate mode), an ultimate booster specifically for Legic cards and an Ultimate Booster for HID cards.

Windshield mounting

As the TRANSIT Booster is equipped with suction pads on the backside, it can be mounted onto the windshield easily. Thanks to this convenient design, installing the Booster only takes seconds.

Sustainable design

The TRANSIT Booster uses two AAA-type replaceable batteries with an expected lifetime of 5 years after which the batteries can be replaced for more years of service. The product is produced in The Netherlands with an eye for sustainable sourcing, processing, labour and reducing the logistic footprint.

** In combination with the TRANSIT Ultimate reader.
The maximum read range depends on reader type,
the installation and the environment.*

Technical information	TRANSIT Booster
Part number	9948546 Prox Booster Single ID 2G
	9948538 Prox Booster 2G
	9948554 Smartcard Booster 2G
	9982809 Smartcard Booster Ultimate
	9982817 Legic Booster Ultimate
	9988483 Smartcard Booster End2End
Dimensions	111 x 65 x 28 mm (4.4 x 2.6 x 1.1 in)
Color	RAL 7016 (housing), RAL 7035 (edge)
Weight	110 g (3.9 oz)
Protection class	IP32 (approx. NEMA 2)
Material	PC and TPU
Operating temperature	-40 ... +85°C (-40...+185°F)
Storage temperature	-40 ... +85°C (-40 ... +185°F)
Relative humidity	10% ... 93% relative humidity, non condensing
Read range	Up to 12 meters (40 feet) with TRANSIT Ultimate; message acceptance ratio > 80%
Operating frequency	2.45 GHz, 120 KHz (Prox) / 13.56 MHz (Smartcard) / 433 MHz (Ultimate/End2End)
Operating modes	RO-C = read-only, switch button activation RO-A = read-only, always on (only available for Prox- & Smartcard Booster 2G)
Authentication	Ultimate Boosters with two-way authentication using AES128 bit encryption End2End Booster supports End2End encrypted authentication
Supported Credentials	Prox Booster: Nedap, EM4200 and HID-PROX Smartcard Booster 2G and Ultimate: Mifare Classic, Ultralight, DESFire (EV3), and Calypso PUPI and ISO 14443-3A CSN Legic Booster Ultimate: Legic Prime, Legic Advant and ISO14443-A/B CSN Smartcard Booster End2End: HID iClass, HID Elite keys, HID SEOS (Mobile ID over NFC - Android only)
Air interface	300kbps/ GFSK 75 kHz Duty cycle < 1%; LBT not applicable Nedap proprietary encoding standard
Battery	User replaceable alkaline AAA batteries (x2) with expected lifetime of 5 years. Life time expectation is based on: Average warm climate conditions (exposure to extreme hot conditions might reduce battery life). 2.6V < Vbat < 3.3V max. 0.12A; Battery low beeper when Vbat < 2.6V
Mounting	Attaches with a suction pad to the inside of all normal windscreens.
Compatible readers	TRANSIT Ultimate
Optional accessories	9216537 Security Key Pack for use in conjunction with Ultimate Boosters 9233741 TRANSIT TAB Upgrade Kit for use in conjunction with 9988483
Standards	CE, FCC, IC, UKCA, ACMA, R-N2
Document version number	1.0

Heavy Duty Tag ISO

ATEX-certified vehicle identification tag



Key features:

- ✔ automatic vehicle identification
- ✔ identification up to 20 meters* (66 feet)
- ✔ ATEX-certified (gas and dust)
- ✔ reliable under harsh environmental conditions
- ✔ robust mounting
- ✔ shock and vibration proof

The Heavy Duty Tag ISO is an ATEX-certified vehicle identification tag. Based on semi active RFID technology, the Heavy Duty Tag ISO is identified at distances up to 20 meters* (66 feet) with Nedap's TRANSIT Ultimate reader.

As the Heavy Duty Tag ISO is weatherproof, it is ideal for applications that require reliable long-range identification in harsh environmental conditions. It can be used to identify trucks, trailers, containers, railway wagons, forklifts, straddle carriers and other industrial vehicles. Typical applications include advanced vehicle identification in the petrochemical, mining, transportation, logistics and security industry.

Harsh environmental conditions

This Heavy Duty Tag ISO is shock and vibration proof, watertight, UV stable and chemical resistant. The intrinsically safe design of the tag is type approved for use in potentially explosive atmospheres, Zone 21 and Zone 22, as is certified by the certificate number KEMA 09ATEX0016 X.

Container compatibility

The Heavy Duty Tag ISO complies with the ISO 10374 directive for RFID of freight containers. It is designed to be mounted in the corrugated pockets on the sides of the freight container. By mounting the Heavy Duty Tag ISO in these pockets, it is automatically protected to direct impact.

Robust mounting

The Heavy Duty Tag ISO is mounted by means of screws, bolts or rivets on the exterior of the vehicle chassis. The tag can be directly mounted on a metal surface. Private cars allow hidden mounting behind the grill.

Battery low indication

The Heavy Duty Tag can optionally be featured with a battery low indication. This indication is sent to the reader with the ID number. This function allows a timely replacement of the tags.

Read Only programmed

The Heavy Duty Tag ISO is Read Only (R/O) programmed. It is default programmed with a specific security code and an unique tag ID number. The part number, tag ID number and production date are laser engraved onto the exterior of the tag.

** In combination with the TRANSIT Ultimate reader.
The maximum read range depends on reader type,
the installation and the environment.*

Technical information	Heavy Duty Tag ISO
Part number	9875980 Heavy Duty Tag ISO
Dimensions	170 x 60 x 20 mm (6.64 x 2.60 x 0.78 in)
Color	Black, according to RAL 9005
Weight	125 g (4.4 oz)
Protection class	IP66 [approx. NEMA 6]
Material	ASA/PC
Operating temperature	-20 ... +80°C (-4.0 +176 °F)
Storage temperature	-20 ... +80°C (-4.0 +176 °F)
Relative humidity	10% ... 93% relative humidity, non condensing
Read range	Up to 20 meters (66 feet) with TRANSIT Ultimate
Operating frequency	2.45 GHz / 120 kHz
Operating modes	RO-A = read-only, always on RO-A/b = read-only, always on, battery-low enabled
Air interface	Nedap proprietary encoding standard
Battery	Built-in lithium battery with an expected lifetime of 10 years. The lifetime is not affected by the number of times the tag is read or by RF fields from other sources.
Mounting	Tamperproof mounting to the exterior of a vehicle by means of two M6 bolts, screws, rivets and/or 3M VHB pressure sensitive tape combined with Loctite sealant.
Compatible readers	9840990 TRANSIT ATEX 9215689 TRANSIT Ultimate
Standards	ATEX certificate: KEMA 09ATEX0016 X ATEX warning: electrostatic hazard: CLEAN WITH WET CLOTH ONLY ATEX identification:  II 2 GD Ex ia IIC T4 / Ex iaD 21 IP66 T 135 °C CE, FCC, IC, UKCA, ACMA, R-N2
Document version number	9741607 - A.04

Window Tag Ultimate

long-range vehicle identification



Key features:

- ✔ automatic vehicle identification
- ✔ identification up to 10 meters (33 feet)
- ✔ easy mounting to vehicle's windshield
- ✔ includes user activation switch
- ✔ advanced tag authentication based on AES encryption
- ✔ uses two RFID frequencies for optimized performance

The Window Tag Ultimate is a long-range vehicle identification tag. Based on semi-active RFID technology, the Window Tag Ultimate is identified at distances up to 10 meters (33 feet) with Nedap's TRANSIT Ultimate reader.

In situations where vehicles need to be identified, the Window Tag Ultimate is the preferred choice. Typical applications include access to parking facilities, gated communities and corporate sites.

Read-only

The Window Tag Ultimate is read-only factory programmed with a unique customer specific security code, a customer defined tag ID number and unique AES128 authentication encryption keys. The part number, tag ID number and date of manufacture are laser etched into the back case of the tag.

User activation

For applications that require user activation, the Window Tag Ultimate can be applied. This tag is designed for situations where the driver determines the time and distance of the vehicle being identified. When the switch on the front of the tag is activated by the driver, the tag ID is transmitted to the TRANSIT reader for 5 seconds.

Windshield mounting

As the Window Tag Ultimate is equipped with suction pads on the backside, it can be mounted onto the windshield easily. Thanks to this convenient design, installing the Window Tag Ultimate only takes seconds.

Two frequencies

The Window Tag Ultimate uses the 2,45 GHz for reliable identification and the 433 MHz frequency for advanced tag authentication* using AES standards.

*Note: the advanced tag authentication function is only functional when the Security Key Pack has been installed in the TRANSIT Ultimate.

Technical information	Window Tag Ultimate
Part number	9564314 Window Tag Ultimate
Dimensions	111 x 65 x 26 mm (4.37 x 2.56 x 1.02 in)
Color	RAL 7016 (housing), RAL 7035 (edge)
Weight	115 g (4.1 oz)
Protection class	IP32 (approx. NEMA 2)
Material	PC and TPU
Operating temperature	-40 ... +85°C (-40 ... +185°F)
Storage temperature	-40 ... +85°C (-40 ... +185°F)
Relative humidity	10% ... 93% relative humidity, non condensing
Read range	Up to 10 meters (33 feet) with TRANSIT Ultimate
Operating frequency	2.45 GHz and 433 MHz (integrated antennas)
Operating modes	RO-C = read-only, switch button activation
Authentication	Two-way authentication using AES128 bit encryption
Air interface	300kbps/ GFSK 75 kHz Duty cycle < 1%; LBT not applicable Nedap proprietary encoding standard
Battery	User replaceable alkaline AAA batteries (x2) with expected lifetime of 5 years. Life time expectation is based on: Average warm climate conditions (exposure to extreme hot conditions might reduce battery life). 2.6V < Vbat < 3.3V max. 0.12A; Battery low beeper when Vbat < 2.6V
Mounting	Attaches with a suction pad to the inside of all normal windscreens*. *In case of a metalized windscreen, please contact your Nedap representative.
Compatible readers	9215689 TRANSIT Ultimate
Optional accessories	9216537 Security Key Pack
Standards	CE, FCC, IC, UKCA, ACMA, R-NZ, UL294
Document version number	2.1