

# uPASS Access

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## installation guide

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# 1 Introduction

The uPASS Access is an ultra-small UHF RFID reader for handsfree door access.

Based passive UHF technology, people are identified up to 2 meters (6.5 feet).

Typical applications include hands-free door access in hospitals, office buildings, gated communities, care homes and universities.

The uPASS Access is ideal for door post mounting at a height of about 1.5 meters (5 feet). It can be installed directly onto a wall next to a door, without requiring additional mounting accessories. The reader is IP65 rated, so it can be used indoors as well as outdoors. Installation cable 5 meter (15 feet) is included.

The uPASS Access supports a variety of industry-standard communication interfaces and protocols, such as RS485, Wiegand, Magstripe (clock & data) and the Open Supervised Device Protocol (OSDP). This enables seamless integration into any existing or new access control or parking system.

## 1.1 Firmware versions

The uPASS Access reader supports different firmware versions. Below an overview of the available firmware versions and their key features.

### Standard firmware

- STANDARD ASCII (CR/LF) protocol.
- Wiegand.
- Magstripe ISO7811/2 (clock & data).

### OSDP firmware

- OSDP according to the SIA OSDP v2.1.7 standard.
- Secure channel protocol supported.
- LED and buzzer control through OSDP commands.
- General purpose input (3x) and outputs (2x).

OSDP (Open Supervised Device Protocol) is an access control communications standard developed by the Security Industry Association (SIA). The OSDP protocol specification can be obtained from the website;

[www.securityindustry.org/industry-standards/open-supervised-device-protocol](http://www.securityindustry.org/industry-standards/open-supervised-device-protocol).

## 1.2 Supported tags

Any EPC Class 1 Gen 2 tag is supported by the uPASS Access.

NEDAP formatted UHF tags can have the following formats:

- **NEDAP UHF Wiegand tags**  
These tags will contain all Wiegand information including facility code and parity bits. All Wiegand formats can be supported. The reader transparently sends this information via the Wiegand outputs. There is no need to change any DIP-switches or configuration settings. See chapter 3.2.3 for wiring details.
- **NEDAP UHF Magstripe tags**  
These tags will contain all magstripe information. The reader transparently sends this information onto the magstripe interface. There is no need to change any DIP-switches or configuration settings. See chapter 3.2.4 for wiring details.
- **NEDAP UHF XS tags**  
These tags are especially programmed in the same format as our TRANSIT tags (Compact-Tag, Window-Button and Heavy-Duty-Tag). The tags will have a customer-code and id-number.  
The reader will modulate the tag-info onto the Nedap antenna interface output, which can be connected to NEDAP AEOS access control hardware such as the AP1001.

## 1.3 Tag security

EPC (Electronic Product Code) tags were introduced as a possible successor to the barcode with added functionalities. The tag emits its EPC in plain text. This makes the tags vulnerable to cloning and counterfeiting attacks.

There are a few security measures possible against tag cloning.

### **TID check \***

EPC tags contain a data field known as the Tag Identifier (TID). At the discretion of the EPC tag/card manufacturer, the value is be factory programmed and locked, ensuring that tags have a unique identity and cannot be cross-copied. NEDAP UHF tags support a locked serialized TID and the uPASS reader can be configured to read the TID data field.

### **EPC passwords \*\***

EPC tags have 2 passwords. NEDAP has implemented a two-way authentication anti-cloning method using these 2 passwords. This feature is supported in combination with all NEDAP UHF tags.

### **EPC Gen2 V2 secure authentication \*\*\***

The EPC Gen2 V2 tags support a secure authentication method.

This is the best possible anti-cloning measure available.

The authentication data transmitted between tag and reader are enciphered using AES128 bit encryption. The encryption keys are diversified using the programmed EPC number to ensure that the keys are different for each tag. Required is that the tags contain an EPC Gen2 V2 compliant RFID chip. Refer to NEDAP uPASS how to order guide for product numbers.

\* Possible for any UHF tag.

\*\* Possible for all NEDAP UHF tags.

\*\*\* Possible for all EPC Gen2 V2 tags.

Tag security is not evaluated by UL.

## 2 Installation

### 2.1 Safety instruction

The following safety precautions should be observed during normal use, service and repair.

- The uPASS Access may only be installed and serviced by qualified service personnel.
- Disconnect the power supply before (dis)connecting any wires, uPASS Access is NOT hot-swappable, so when making or changing connections, power must be switched OFF.
- The cable shield shall be connected with safety ground and the metal case of the external device(s).
- To be sure of safety, do not modify or add anything to the uPASS Access other than mentioned in this installation guide or indicated by NEDAP N.V.

### 2.2 Mounting instruction

The uPASS Access can be mounted to a stone, concrete or wooden wall. Metal may decrease the reading performance. Nedap recommends to perform read tests when installing the reader on or near metal.

See the picture below for details about the installation dimensions.

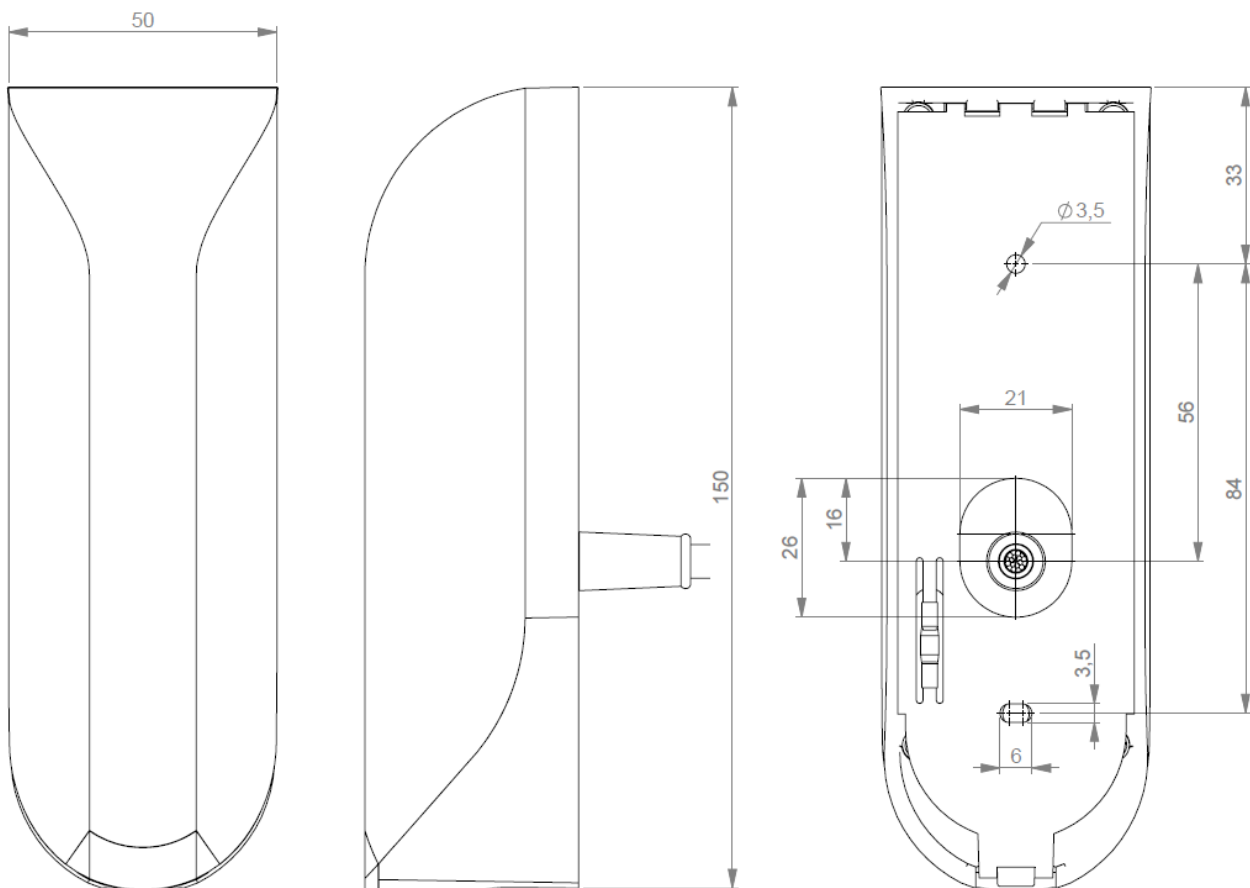


Figure 1: uPASS Access dimensions

Mount the base-plate on the required location.

Ensure that it is placed correctly covering the cable entry hole. Properly fix the base-plate into its position using the 2 screws. When mounting on a stone or concrete wall drill 5mm holes for the plugs. When mounting on wood, drill with 2.5mm.

Install the uPASS Access reader onto the base-plate.

1. Feed the cable through the cable entry hole. Important note: minimum bending radius 30mm.
2. Attach the top of the uPASS Access onto the base-plate.
3. Fix the assembly using the screw on the bottom.

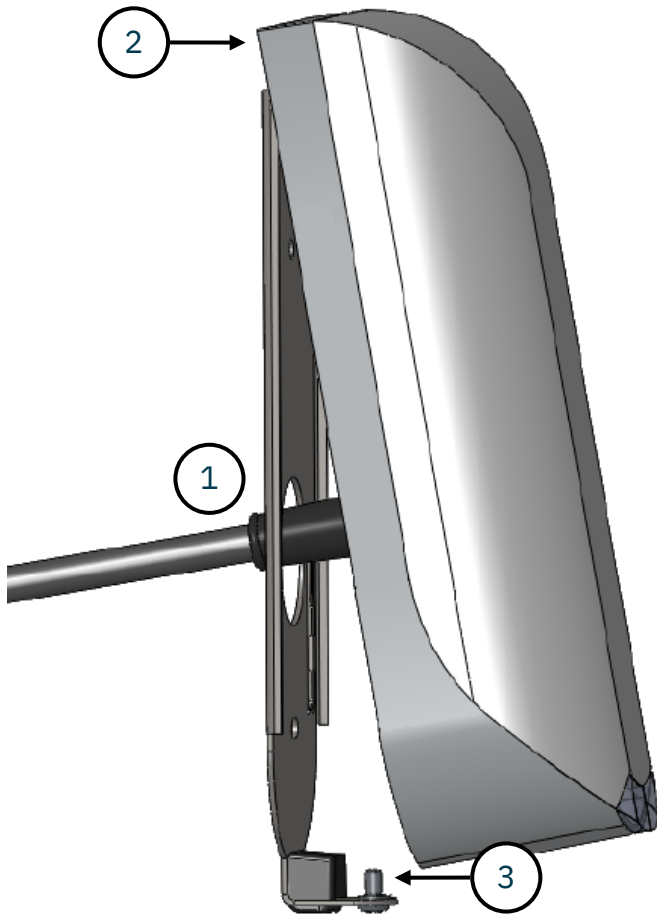


Figure 2: uPASS Access installation



## 2.3 Antenna coverage

The uPASS Access antenna has a detection coverage area as shown in the picture below.

The read range, which is up to 2 meters, can be adjusted by means of UHF TOOL software setting. See chapter 5.3.5. Reducing the read range will shrink the complete antenna lobe.



Figure 3: uPASS Access antenna coverage

Maximum read range:	2 meter (6 feet)
Antenna polarization:	Horizontal / Vertical
Horizontal reading angle:	160° / 90°
Vertical reading angle:	90° / 60°

## 3 Connections

The uPASS Access is supplied with a 5 meter (15 feet) shielded cable with 12 multi-color wires.

RED	Power supply 12 - 24VDC.
BLACK	Power supply 0VDC, DC-Ground.
BROWN	RS485 A (-)
GREEN	RS485 B (+)
GRAY	Data-0 / Clock
PINK	Data-1 / Data
YELLOW	Tamper switch (normally closed)
GRAY/PINK	Tamper switch (common)
RED/BLUE	LED_UL_IN (UL = unlock)
WHITE	LED_NA_IN (NA = not authorized)
PURPLE	Nedap antenna interface. RFMOD antenna modulation (ANT/HF+).
BLUE	Beeper_IN
SHIELD	Shield connected to DC-ground. Connect to metal case of the external device.

### 3.1 Power supply

The uPASS Access requires DC power supply in the range from 12 – 24V.

Maximum current consumption is 1A @ 12VDC, 1A @ 24VDC.

#### Connections

RED	Power supply 12 - 24VDC.
BLACK	Power supply 0V / DC-ground.
SHIELD	Shield connected to DC-ground. Connect to metal case of the external device.

#### Notes

- The minimum voltage at the end of the included cable shall be greater than 12VDC.

## 3.2 Communication

### 3.2.1 RS485

The uPASS Access reader has an RS485 interface for communication with a host system or for configuring reader settings. The RS485 interface is a 2-wire half-duplex serial communication interface using balanced lines. STANDARD and OSDP protocol are available.

#### Connections

BROWN	RS485 A (-)	Balanced RX/TX
GREEN	RS485 B (+)	Balanced RX/TX
SHIELD	Shield connected to DC-ground. Connect to metal case of the external device.	

#### STANDARD firmware

This is the default uPASS Access reader firmware version and implements a simple CR/LF protocol.

The RS485 output message format is described in chapter 5.3.2.

Default baud rate is 9600. This can be changed using the UHFTOOL software.

#### OSDP firmware

The uPASS Access reader has implemented the OSDP protocol including the Secure Channel Protocol.

Default baud rate is 9600. This may be changed using the OSDP\_COMSET command.

Perform a firmware update to change from STANDARD to OSDP (or vice versa).

The firmware update procedure is described in chapter 5.4.

#### RS485 point-to-point communication

Termination resistors (120 Ω) are recommended to prevent unwanted signal reflections on long RS485 communication lines. The resistors should be installed at both ends of the communication line.

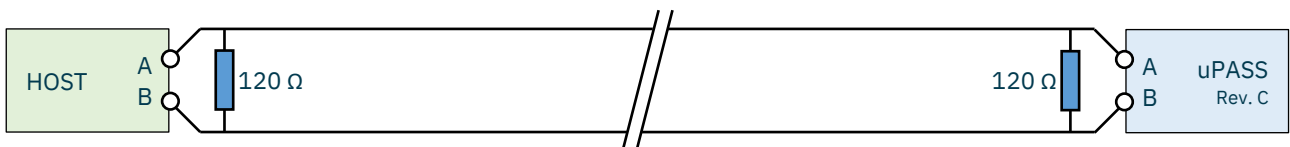


Figure 4: RS485 point-to-point communication (uPASS Access Rev. C)

The uPASS Access reader models before 2020 (Rev. A/B) have a fixed termination resistor. This means you don't need to install a separate termination resistor. See Figure 5.

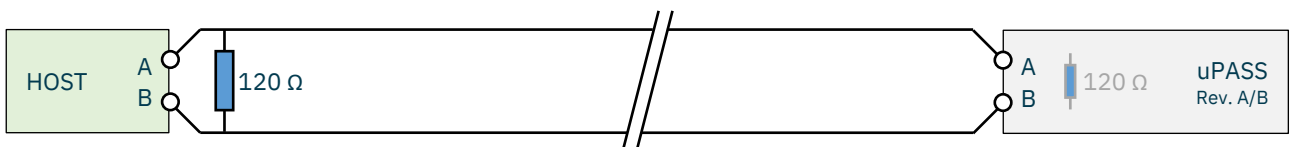


Figure 5: RS485 point-to-point communication (uPASS Access Rev. A/B)

#### Notes

- Use shielded twisted pair cable when extending the RS485 wiring beyond the standard 5 meter cable.
- Maximum RS485 cable length 1200 meters (6000 feet).
- The RS485 interface is disabled while the USB interface is in use.

### RS485 multi-drop communication

Multi-drop communication requires an addressable communication protocol, such as OSDP.

Termination resistors ( $120\ \Omega$ ) are recommended to prevent unwanted signal reflections on long RS485 communication lines. The resistors should be installed at both ends of the communication line. See Figure 6 below.

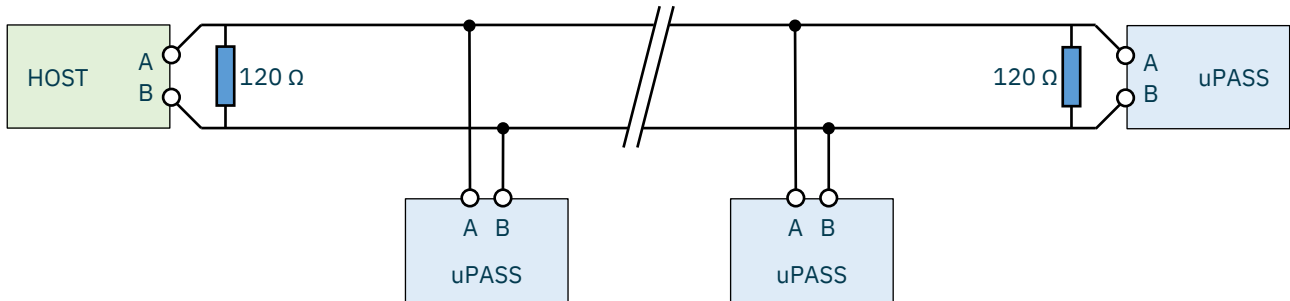


Figure 6: RS485 multi-drop communication

### Notes

- The uPASS Access reader models before 2020 (Rev. A/B) have a fixed termination resistor, which cannot not be disabled. This means that these readers should only be used in point-to-point communication.
- Use shielded twisted pair cable when extending the RS485 wiring beyond the standard 5 meter cable.
- Maximum RS485 cable length 1200 meters (6000 feet).
- The RS485 interface is disabled while the USB interface is in use.

### 3.2.2 USB

The uPASS Access reader features an USB interface for service, installation and firmware upgrade purposes.

The Mini-USB connector is located on the bottom of the device and can only be reached when the bottom screw is opened and the uPASS Access is lifted away from the base-plate. This ensures that unauthorized modifications to the reader settings can be detected using the tamper switch.

The USB interface can be used to configure the reader using the UHF TOOL software.

#### **USB driver**

Make sure your computer is connected with internet. Connect the uPASS Access reader to your computer via the USB cable. The USB drivers may be installed automatically. In case you need to install the USB drivers manually, please go to the website [www.ftdichip.com/Drivers/VCP.htm](http://www.ftdichip.com/Drivers/VCP.htm) and download the VCP (Virtual Com Port) drivers. After successful installation of the USB drivers the reader will appear in the Windows device manager in "Ports (COM & LPT)" section.

#### **Notes**

- While the USB cable is connected, the RS485 interface is disabled !

### 3.2.3 Wiegand

The Wiegand and Magstripe ISO7811/2 (clock & data) interface share the same connections. This means that only Wiegand or Magstripe can be used and not both simultaneously

#### Wiegand connections

GRAY	Data-0
PINK	Data-1
GROUND	Ground
SHIELD	Shield connected to DC-ground. Connect to metal case of the external device.

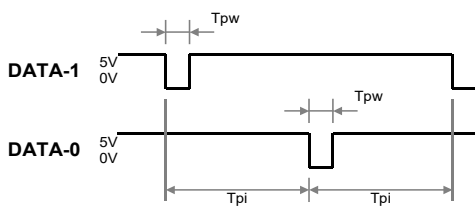
#### Message format

The Wiegand/Magstripe output format is determined by the programmed format of the tag. Make sure to order the correct tag formatting if you want to use the Wiegand interface. See the uPASS how to order guide for more information.

If UHF tags is not programmed in Wiegand format, you may configure Wiegand output format using the 'Extra output' settings. See for more details chapter 5.3.3.

#### Wiegand timing

The figure below shows the Wiegand protocol timing.



#### Timing constants

Pulse interval time ( $T_{pi}$ )	1msec
Pulse width time ( $T_{pw}$ )	50 $\mu$ sec

Figure 7: Wiegand timing details

#### OSDP firmware

The OSDP firmware does not support the Wiegand interface!

#### Notes

- Use shielded cable (4 x 0.25 mm<sup>2</sup>) when extending the Wiegand wiring beyond the standard 5 meter cable.
- Maximum Wiegand cable length 150 meters (500 feet).

### 3.2.4 Magstripe ISO7811/2

The Magstripe ISO7811/2 (clock & data) and Wiegand interface share the same connections. This means that only Wiegand or Magstripe can be used and not both simultaneously.

#### Magstripe connections

GRAY	Clock
PINK	Data
GROUND	Ground
SHIELD	Shield connected to DC-ground. Connect to metal case of the external device.

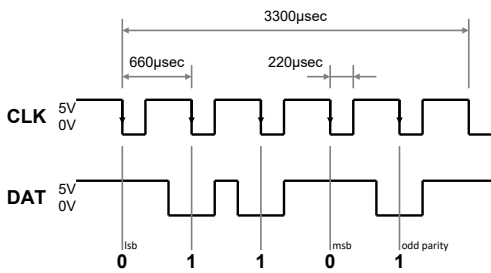
#### Message format

The Wiegand/Magstripe output format is determined by the programmed format of the tag. Make sure to order the correct tag formatting if you want to use the Wiegand or Magstripe interface. See the uPASS how to order guide for more information.

If UHF tags is not programmed in Wiegand format, you may configure Magstripe output format using the 'Extra output' settings. See for more details chapter 5.3.3.

#### Magstripe timing

The Magstripe (clock & data) interface follows the ISO7811/2 specifications. The figure below shows the timing for one character. Each bit consists out of one period low (220µsec) and two periods high (440µsec). The bit times have an accuracy of 10 percent. The data-signal is valid and stable on the falling edge of the clock-signal.



#### Timing constants

Clock period	660µsec
Clock high	440µsec
Clock low	220µsec
Data preamble	11msec
Data postamble	11msec

Figure 8: Magstripe timing details

#### OSDP firmware

The OSDP firmware does not support the Magstripe interface!

#### Notes

- Use shielded cable (4 x 0.25 mm<sup>2</sup>) when extending the Magstripe wiring beyond the standard 5 meter cable.
- Maximum Magstripe cable length 150 meters (500 feet).

## 3.3 Inputs

The uPASS Access reader has 3 digital inputs (active low).

Connect the input to ground to activate the input. Use a potential-free (relay) contact. Leave unconnected otherwise.

### Connections

RED/BLUE	Input 0 - LED_UL_IN (active low)
WHITE	Input 1 - LED_NA_IN (active low)
BLUE	Input 2 - Beeper_IN (active low)
BLACK	Ground
SHIELD	Shield connected to DC-ground. Connect to metal case of the external device.

### Standard firmware

The digital inputs can be used to control the LED and buzzer. See details about LED/buzzer control in chapter 5.2.4.

### OSDP firmware

The digital inputs are general purpose inputs.

Upon status change the reader will send input status report message OSDP\_ISTATR.

The current input status can be requested by sending the input status report request message OSDP\_ISTAT



## 3.4 Outputs

The uPASS Access reader has 2 digital outputs. The function of the digital outputs is dependent upon the installed firmware version. See description below.

### STANDARD firmware

The outputs are used for Wiegand or Magstripe communication. See respectively chapters 3.2.3 or 3.2.4.

### OSDP firmware

The outputs are general purpose outputs. The outputs are open-collector and can be used to activate an external relay. Use the OSDP\_OUT command to control the output state. The outputs allow for direct activation and deactivation plus timed operation (OSDP output control compliance level 3). The permanent command is volatile (does not transcend power cycles)

When the status of an output changes the reader will send an output status change report message OSDP\_OSTATR.

### Connections

GRAY	Output 0 / Data-0 / CLK
PINK	Output 1 / Data-1 / DAT
GROUND	Ground
SHIELD	Shield connected to DC-ground. Connect to metal case of the external device.

### Output ratings

Type	Open collector (internal weak 5V pull-up resistor)
Max. voltage	+24 VDC
Max. current	200 mA

## 3.5 Tamper switch

An internal magnet provides tamper indication when the reader is dismantled. This contact may be connected to an external alarm system. The contacts are normally closed when the reader is in place.

Tamper switches of multiple readers can be connected in series

### Connections

YELLOW	Tamper switch (normally closed)
GRAY/PINK	Tamper switch (common)
SHIELD	Shield connected to DC-ground. Connect to metal case of the external device.

### Contact ratings

Max. current	50 mA (0.5 Volt voltage drop)
Max. switching voltage	+24 VDC

### OSDP firmware

The tamper switch status is NOT reported through OSDP communication protocol

### Notes

- Use shielded cable (2 x 0.25 mm<sup>2</sup>) when extending the wiring beyond the standard 5 meter cable.
- Maximum cable length 150 meters (500 feet).

## 3.6 Nedap antenna interface

The Nedap antenna interface is used to connect the uPASS Access to NEDAP AEOS access control hardware such as the AP1001. Instead of proximity antenna the uPASS Access can be connected.

### Connections

PURPLE	Nedap antenna interface. RFMOD antenna modulation (ANT/HF+)
BLACK	Nedap antenna interface. Ground, shield (ANT/HF-).
SHIELD	Shield connected to DC-ground. Connect to metal case of the external device.

### OSDP firmware

The OSDP firmware does not support the Nedap antenna interface.

### Notes

- Nedap-XS formatted UHF tags are required to use the Nedap antenna interface!
- Use RG58U coax cable when extending the wiring beyond the standard 5 meter cable.
- Maximum cable length 100 meters (350 feet).

## 4 UHF frequencies

### 4.1 Radio regulations

The uPASS Access reader operates on the 860 – 960 MHz band. Regulations in this band are not standardized world-wide. Generally the regulations can be divided into several regions.

Per region a specific frequency band is available. This frequency band is divided into frequency channels. If local radio regulations require frequency hopping (FHSS), then the uPASS Access automatically selects and uses the available channels.

### 4.2 Frequency channel selection

If no frequency hopping is required, you should select an available frequency channel manually. This can be realized as described below. Select an available frequency channel to achieve the best performance and to avoid interference from other readers or equipment.

Use UHFTOOL to setup the frequency channel selection. See for more details chapter 5.3.4.

## 5 Reader configuration

The uPASS reader settings can be configured easily using the UHFTOOL software. Software developers can find the communication protocol description in the firmware manual.

### 5.1 UHFTOOL software

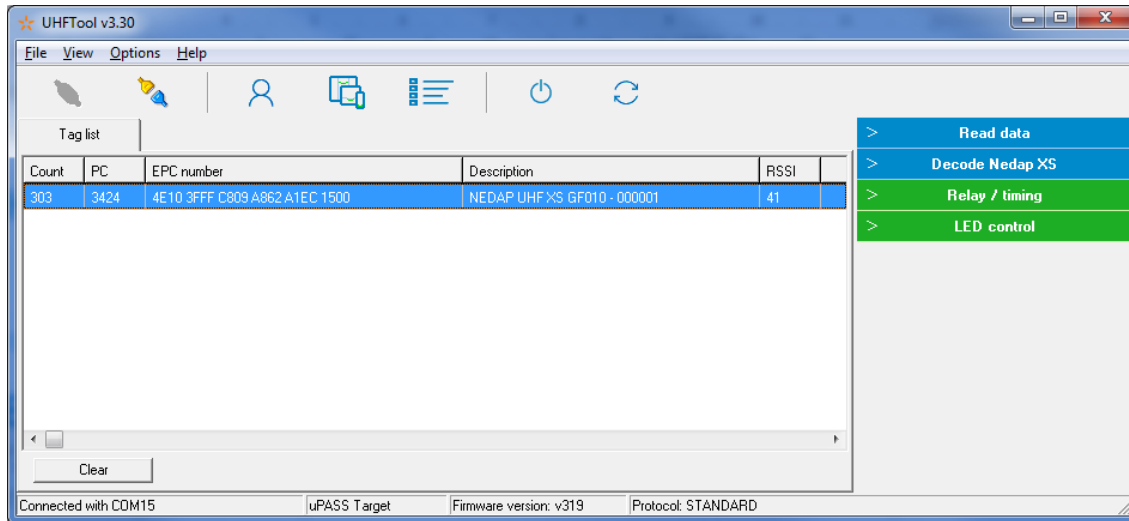


Figure 9: UHFTOOL software

### 5.2 Settings

Click 'View', 'Show config sidebar' or press F11 to show the configuration sidebar. In the sidebar the configuration categories are shown. Click the settings panels to expand or collapse them.

## 5.2.1 Read data

Configure here which tags should be selected, how to access these tags, what data should be read from these tags and if a security check should be performed.

By default, the reader is configured to select ANY TAG and read its EPC number.

Select NEDAP to read only Nedap tags.

NEDAP DUAL-ID enables the uPASS to search for Nedap vehicle-id tags. When a vehicle-id tag is found, the uPASS searches for driver-id tags.

### Example 1 - Nedap

Read only NEDAP UHF tags:

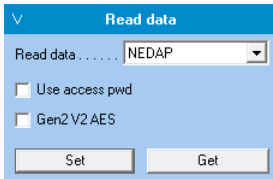


Figure 10: Read data example 1

### Example 2 - Custom

Read only tags with EPC number starting with 99 and read 4 words from user memory. Note that the bit pointer is set to 32 because the EPC memory bank starts with 16-bits CRC and 16-bits PC (protocol control). Therefore the EPC number starts at bit pointer 32.

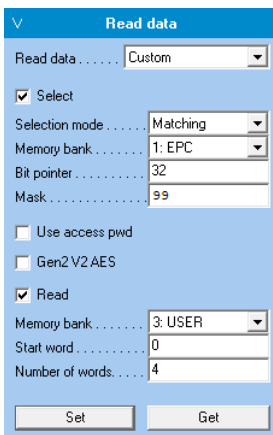


Figure 11: Read data example 2

## 5.2.2 Decode Nedap-XS

Enable/disable decode Nedap-XS formatted tags.

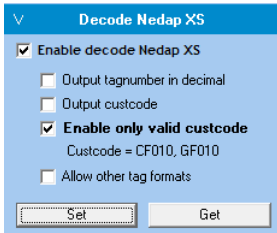


Figure 12: Decode Nedap-XS

By default, decode Nedap-XS is disabled. The data for Nedap-XS formatted tags will be transmitted to the NEDAP antenna interface.

Enable decode Nedap-XS when you do not want to use the NEDAP antenna interface. The uPASS will decode the Nedap-XS tag data and output its tag-number in readable format. You can also enable to output or verify the customer code.

Enable the option 'Allow other tag formats' when you want the reader to support also other formatted tags, such as NEDAP UHF Wiegand formatted tags and others.

The decoded Nedap-XS output number contains:

Byte 1:	4E	NEDAP UHF
Byte 2:	<FMT>	FMT=01: Nedap-XS decoded hex tagno FMT=02: Nedap-XS decoded decimal tagno.
Byte 3-4:	00	Unused
Byte 5-7:	CC	CC=Customer code (zero if not transmitted)
Byte 8-12:	TAGNO	TAGNO=Tag number

### Examples:

NEDAP UHF XS:	4E10 3FFF C415 A87C BD51 8000
NEDAP UHF XS decoded:	4E01 0000 0000 0000 0000 3039
NEDAP UHF XS decoded decimal:	4E02 0000 0000 0000 0001 2345
NEDAP UHF XS decoded + custcode:	4E01 0000 0415 A000 0000 3039
NEDAP UHF XS decoded decimal + custcode:	4E02 0000 0415 A000 0001 2345

## 5.2.3 Relay / timing

Configure timing parameters.



Figure 13: Relay / timing settings

Setting 'Automatic relay activation' has no effect for uPASS Access.

The 'Tag hold time' setting is the time an identified tag is "held" in reader memory. The timer expires when the tag is no longer identified. The timer is used for the automatic LED control and for sending a new identification event message.

The 'Vehicle hold time' setting is the time, after a vehicle-id tags has been found, for which the reader will search for driver-id tags. This setting is only used in the NEDAP DUAL-ID mode.

The Random off time parameter can be used to enable time sharing between multiple readers on the same frequency. Recommended to enable this setting.

### Notes

- The uPASS Access does not have a relay output.



## 5.2.4 LED control

The built-in high intensity LED provides visual feedback that the tag has been read or authorized. The LED and buzzer can be controlled automatically by the reader itself or by the access control system.

### Automatic mode

Default the uPASS Access will automatically control the LED.

During stand-by the LED will be BLUE and upon identification it will be GREEN. These colors can be changed!

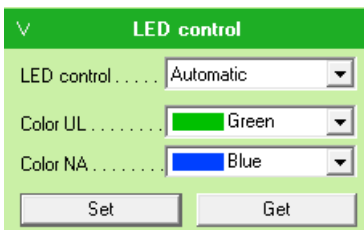


Figure 14: Automatic LED control

### Remote control

The LED can be controlled remotely by a connected access control system. Digital inputs will determine the color indicated on the LED.

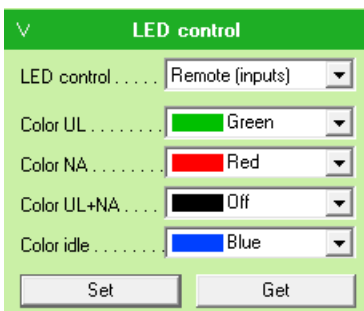


Figure 15: LED control

### OSDP firmware

The LED control settings are not available in the OSDP firmware version. In this mode the LED will be controlled through the OSDP command message OSDP\_LED.

## 5.3 Expert settings

Click 'Options', 'Usermode', 'Expert' to show additional configuration settings for advanced users.

### 5.3.1 Output

Configure communication output settings.

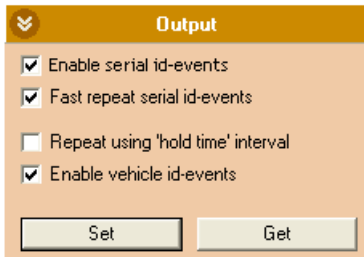


Figure 16: Output settings

Select 'Enable serial id-events' to enable the serial output upon identification.

When 'Fast repeat serial id-events' is selected (default) the serial output is repeated upon every identification. When this option is disabled, the message is only transmitted once.

Enable 'Repeat using hold-time interval' to periodically repeat the id-events as long as the tag is within the identification range. Set the hold-time to specify the interval between the repeated messages. The repeating will be enabled for the serial and also for the Wiegand or Magstripe interface.

'Enable vehicle id-events' allows enabling or disabling the id-event messages for vehicle-ids. This may be useful in combination with the NEDAP DUAL-ID mode and an access control panel that does not support the dual-id feature.

## 5.3.2 Output message format

Configure output message format.

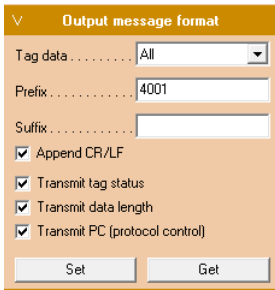


Figure 17: Output message format settings

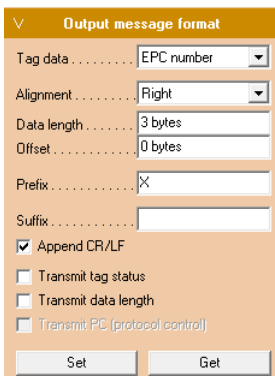
The serial output message format is configurable:

<prefix> [<tagstatus>] [<epclen>] [<epc>] [<datlen>] [<data>] <suffix> [ CR/LF ]

Example output:

```
40010257CB21DD0E34244E103FFFC809A862A1EC1500<CR><LF>
```

### Customized example



Output:

```
X012345<CR><LF>
```

### Notes

- When the output message format is changed, identified tags may no longer be shown in the UHFTOOL.

### 5.3.3 Extra output

Optionally enable Wiegand or Magstripe output for tags that are not programmed by NEDAP in a Wiegand, Magstripe or NEDAP-XS format.

'Protocol':

- Disabled Do not use the extra output feature.
- Wiegand Enable Wiegand output.
- Magstripe Enable Magstripe output.

'Data source':

- EPC number Output the EPC number using the selected protocol.
- Custom read data Output the custom data read using the selected protocol.  
See for more information about how to setup custom read data chapter 5.2.1.

'Alignment':

- Full Use the complete EPC number (or all custom read data).
- Left Truncate data. Keep left.
- Right Truncate data. Keep right.

'Data length':

Data length in bits for Wiegand (or in digits for Magstripe).

'Offset':

Data offset in bits for Wiegand (or in digits for Magstripe).

'Add constant':

Enable to add a constant to the output before or after the data read from the tag.

#### Example – Wiegand 26

Output a Wiegand 26-bit message with facility code 10:

Figure 18: Extra output example 1

### 5.3.4 Frequency

Here is shown the reader's operating frequency region.

When frequency hopping is not required, you can select a fixed frequency channel within the available frequency band.

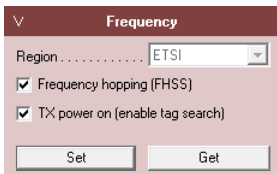


Figure 19: Frequency settings

### 5.3.5 Read range

Enable the squelch to reduce the read range. The squelch level ensures that only tags with a returned signal strength higher than the threshold level are identified. When the returned signal strength is lower than the squelch level the tag is rejected.

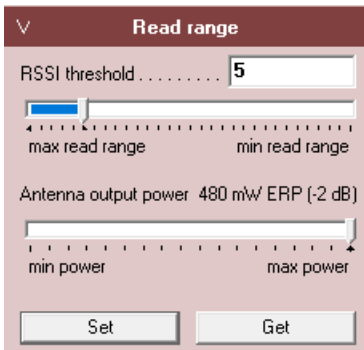


Figure 20: Read range settings

## 5.4 Firmware update

When the UHFTOOL software is connected to the reader, it automatically checks the firmware version of the reader. If necessary the software recommends to perform a firmware update. Recent reader firmware versions are included within the software.

The firmware update can also be used to change from STANDARD to OSDP firmware (or vice versa).

### Firmware update procedure

- Start UHFTOOL software.
- Connect with reader.
- Click 'Options', 'Update firmware'.
- Select the firmware (e.g. Standard firmware v2.xx).
- Click Download and wait until completed.

When the firmware update is completed, the software will reconnect. Upon reconnect, make sure to select the correct protocol and baud rate setting. This might have been changed due to different firmware.

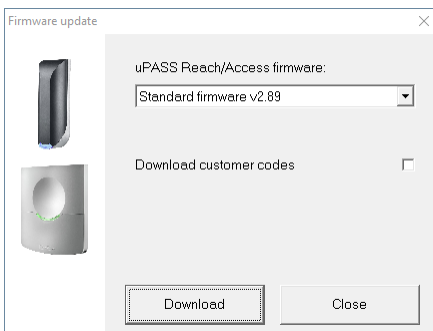


Figure 21: Firmware update dialog

### Retry procedure

Retry the firmware update when it wasn't successful.

During the retry ignore any communication error messages that may appear.

In case it doesn't work, try again using the USB interface !

## A Technical specifications

Item	Specification	Remark		
Dimensions	150x50x40mm (5.9 x 1.9 x 1.5 inch)			
Weight	0.5 kg (1.1 lbs)			
Enclosure	Polycarbonate (RAL7016)			
Chassis material	Aluminum Zamak (RAL9006)			
Protection class	IP65 (Approx. NEMA4x)			
Operating temperature	-30 °C ... + 60 °C (-22°F ... +140°F)			
Relative humidity	10 .. 93 % non condensing			
Read range	Up to 2 meters (6 feet)	With passive NEDAP UHF tags		
Power supply	12 ... 24VDC			
Current consumption	1A @ 12VDC, 1A @ 24VDC			
Inputs	2 digital input for LED control 1 digital input for buzzer control	Active low inputs		
Tamper indication	Yes by tamper switch	Dry contact		
Output	Wiegand, Magstripe ISO7811/2 (clock & data)			
Cable	Fixed shielded cable included Length 5 meter (15 feet)	Cable extensions shall only be allowed using shielded cable		
Interfaces	RS485 and USB	USB local service only		
Air interface	ISO18000-6C			
Operating frequency	<b>Country</b>	<b>Frequency</b>	<b>Technique</b>	<b>Power</b>
	ETSI	865.6 - 867.6 MHz	DRM 4ch	2W ERP
	FCC	902.7 - 927.2 MHz	FHSS 50ch	1W cond, ≤6dBi gain
	Brazil	915.5 - 927.5 MHz	FHSS 41ch	1W cond, ≤6dBi gain
	China, Singapore, Thailand	920.6 - 924.4 MHz	FHSS 20ch	2W ERP
	Australia	920.7 - 925.2 MHz	FHSS 10ch	4W EIRP
	Israel	915.1 - 916.9 MHz	DRM 4ch	2W EIRP
	Korea	917.3 - 920.3 MHz	FHSS 6ch	4W EIRP
	New Zealand	922.5 - 926.0 MHz	FHSS 8ch	4W EIRP
	Japan	916.8 - 920.4 MHz	DRM 4ch	1W cond, ≤6dBi gain
	Malaysia	919.8 - 922.2 MHz	FHSS 5ch	2W EIRP
	Taiwan	922.6 - 927.4 MHz	FHSS 9ch	1W cond, ≤6dBi gain
	Vietnam	866.3 - 867.5 MHz	DRM 3ch	2W ERP
	Philippines	918.5 - 919.5 MHz	DRM 3ch	2W ERP
Russia	866.3 - 867.5 MHz	DRM 3ch	2W ERP	
Polarization	Horizontal + Vertical	Switched every query round		
Safety	EN 60950			
Emission	EN 302 208-1,-2 v1.3.1			
	FCC part 15.247 incl. Spread Spectrum			
	Industry Canada RSS210			

## B FCC / IC Statement

**FCC ID: CGDUPASSREACH**

**IC: 1444A-UPASSRCH**

This device complies with part 15 of the FCC rules and to RSS210 of Industrial Canada. 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.

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

Cet appareil se conforme aux normes RSS 210 exemptés de license du Industry Canada.

L'opération est soumis aux deux conditions suivantes:

- (1) cet appareil ne doit causer aucune interférence, et
- (2) cet appareil doit accepter n'importe quelle interférence, y inclus interférence qui peut causer une opération non pas voulu de cet appareil.

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.

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment.

This device shall be installed to provide a separation distance of at least 20 cm from all persons.

### UL

This equipment is intended to be powered from a limited power supply that is listed as ALVY (UL294) or APHV (UL603).

UL294 Classifications:	Destructive Attack:	Level 1
	Line Security:	Level 1
	Endurance:	Level 4
	Standby Power:	Level 1



## C Part numbers

Readers		
	NEDAP uPASS Access Region 1 (ETSI/EUR 865-868 MHz)	9958240
	NEDAP uPASS Access Region 2 (FCC/USA 902-928 MHz)	9206663
	NEDAP uPASS Access Region 3 (915-928 MHz)	9211926

## D Disclaimer

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## E Document revision

Version	Date	Comment
4.9	2020-04-22	Minor corrections
4.8	2020-04-14	Added OSDP support and updated according to new corporate style
4.7	2019-12-04	Updated installation remarks
4.6	2019-02-26	Added antenna coverage
4.5	2019-01-07	Updated tag security and uhftool
4.4	2016-03-16	Updated frequency regions
4.3	2015-07-29	UL update
4.2	2015-03-17	Notes page 7 - extension lengths adjusted
4.1	2015-02-19	Duplicate content deleted
4.0	2014-02-11	Layout adjusted to new corporate style