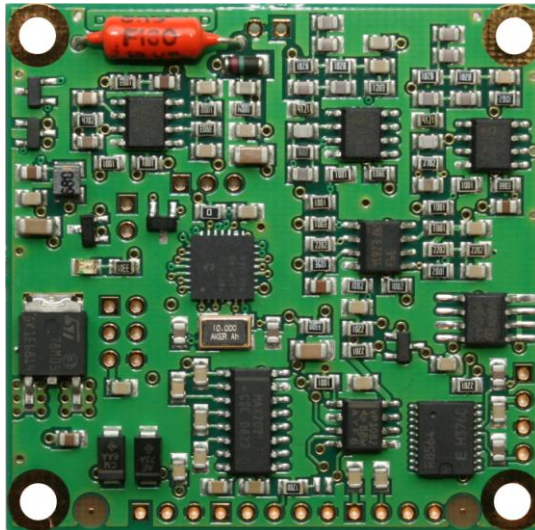# USER MANUAL

# trovan® LID665 stationary decoder

# READ THIS MANUAL FIRST!



**Date: August 2010**



Copyrights: Dorset identification B.V.
Tel. +31 543 477119
Fax +31 543 475355
Email : id@dorset.nu
www: http://www.dorset.nu

---

The **LID665** complies with FCC Rule Part 15
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**

**Federal Communications Commission notice**

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 and correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.
• Increase the distance between the equipment and the receiver.
• Connect the equipment to 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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

# Contents:

# 1 About the Windows® PC program.

The decoder is standard delivered with a Windows™ 95/98/NT/XP based PC program to configure the decoder so it fits the users needs. The main screen of the PC program is divided into 3 tabsheets called *Settings*, *History* and *Dbase*. These 3 groups have the following functions:

*Settings*: Making general settings regarding the basic operation of the reader. These settings include reader settings, communication baudrate, transmit options, read options and change password.

*History:* This tabsheet allows you to select whether the transponder codes have to be saved in the readers' historical memory or not. The historical data can also be downloaded and saved to a disk file.

*Dbase:* When the decoder has to function as an access control system, this tabsheet allows you to manage the persons that have access to the controlled area.

## 1.1 How to install the software?

Download the setup software from our website : www.dorset.nu

Software on CD:
1. Insert the CD in your CD-ROM device. The CD will start automatically. If not, run RunHTML.exe from the CD
2. Select "Install LID650-665 PC software Windows 98/NT/2000/XP"
3. At pop up screen select "Open"
4. Follow the instructions on your screen.

The software can also be found under directory LID650&LID665\SOFTWARE. This can be copied to disk or CD for further use.

## 1.2 Start the software
After the software has been installed an icon is created in the START menu. When the program is executed, the comport has to be selected where the program should search for the connected decoder(s). Also the type of communication (RS232/RS485) has to be selected. After confirmation the program will connect to the readers.

If no reader is found the following message box will appear.
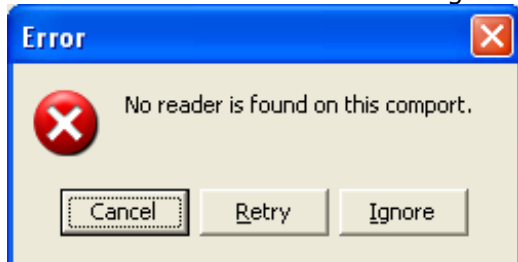
# 2 The Settings tabsheet.

To configure the reader to your requirements, you can adjust the settings in this tabsheet. This tabsheet allows you to adjust *reader settings*, communication *baudrate, transmit options, read options* and *change password*. The full settings tabsheet is shown in appendix A.

## 2.1 Reader settings.

The general settings of the decoder can be adjusted in this part of screen.

**Read read-only transponders:** When read-only transponders have to be read, this option should be activated.

**Use LED during read:** When the LED has to flash during the read cycle, this option should be activated.

**Wait time after read:** After the decoder has read a transponder code, the reader waits x seconds before starting to read again. The wait time can be set between 0 and 25 seconds. During this time the LED can be lit and the relay output can be activated.

**Use LED after read:** The LED can be lit during the wait time after a good read.

**Use relay after read:** The relay can be set during the wait time after a good read.

**Use buzzer after read:** This checkbox should be set if the buzzer has to beep after a valid transponder code has been read.

**Use LCD after read:** This checkbox should be set if the optional LC display has to display the transponder code after a valid read attempt.

**Relay on:** This checkbox should be set if the relay has to be activated continuously, independent of a transponder read.

**Antenna on:** The antenna can be turned on/off by selecting/deselecting this option. The decoder will not be able to read a tag if the antenna is turned off.

**Fast mode (only for LID650):** THIS OPTION CAN ONLY BE USED WITH CERTAIN ANTENNAS. CONTACT YOUR DISTRIBUTOR IF YOU ARE NOT SURE! If the connected antenna can handle the fast mode, this checkbox can be set to put it in the fast reading mode. All single coil antennas are used in the fast mode automatically.

**Read read-write transponders:** When read-write transponders have to be read, this option should be activated.

**String to send:** A string of max. 15 characters can be sent to a read-write transponder. Only LID665 decoders with version L665V200 or later can write read-write transponders.

**Write string to RW transponder:** Sends the string to a read-write tranponder.

**Number of blocks:** Here the number of blocks for a read-write transponder can be set. The decoders are capable of reading 3, 5 and 7 blocks transponders.

**Set number of blocks:** This sets the number of blocks for a read-write transponder.

## 2.2 Baudrate.

The RS232/RS485 communication speed can be adjusted here.
To apply the new settings the *Set new settings* button has to be depressed
The RS232 decoder defaults to 9600 baud after a reset. The RS485 decoder defaults to 19200 baud.

## 2.3 Transmit options.

This part of the settings tabsheet allows you to change some transmit options.

**Send code:** If a transponder code is read it can be transmitted via RS232/RS485 immediately by setting this checkbox. For RS232 the code can be transmitted together with a prefix, suffix or checkdigit.

**Send Prefix (RS232 only):** The prefix in the editbox is sent in front of the transponder code. This option is only selectable when 'Send code' is selected.

**Send Suffix (RS232 only):** The suffix in the editbox is sent behind the transponder code. This option is only selectable when 'Send code' is selected.

**Send checkdigit (RS232 only):** A checkdigit is sent between the transponder code and the suffix. This checkdigit can be added to check if the transponder code is sent correctly. This option is only selectable when 'Send code' is selected.

## 2.4 Read options.

**Use all ID codes:** All transponder codes are read and used for saving, sending, access control etc.

**Use only new ID:** When a transponder code is read more then once in a row, it will only be used once for saving, sending, access control, etc. A different transponder code has to be read first before the first transponder can be used again.

**Use read delay:** A transponder code will be used only once for saving, sending, access control, etc. unless the specified time in the edit box has run out. After the read delay has passed or when another transponder code has been read, the same transponder code can be used again. (this is not a time in seconds, but stands for the number of readcycles)

**Check in/ Check out:** This is a combination of *Use only new ID* and *use readdelay*. In this mode a new ID number is transmitted via RS232. As long as the tag stays within range, nothing happens. If the ID is no longer within range the GNO<CR> message is transmitted to the PC after readdelay time has passed.
If the checkbox *use relay* is activated the relay is activated during the time the tag is present.
If *use access control* is also active, then only those ID number(s) present in the internal memory will activate the relay
NOTE The *wait time after read* must be > 0 .

**Use sensor in/out:** This option is not available on older decoder boards, in that case this option is invisible.

Use this mode if in/out sensors are connected to the decoder board ( see Chapter 5 and 6 for more information on how to connect in/out sensors to the decoder board ). When one of the sensor inputs gets high (5V) the reader starts to read. When the option **save all movements** is **not** enabled, both sensor inputs must get high in order to store the data in the reader's memory. The diagrams on the following page show an example.

**! the antenna will always be turned off after the transponder is read, independent of the sensor states.**

The read delay has the following purpose: When using a tube with sensors on the both ends of the tube, it is possible that an outgoing animal does not trigger the outside sensor before leaving the inside sensor therefore the reader must continue reading for a small time. Depending on the length of the tube and the size of the animal this time must be shorter or longer. You can adjust this time in the box right next to "use readdelay" text, see previous page for more info.

**A valid "IN" sequence example:**
An animal enters the tube triggering the sensor on the outside, then it travels trough the tube where the transponder will be read. Eventually the animal will trigger the inside sensor and the event will be stored into the reader's memory.
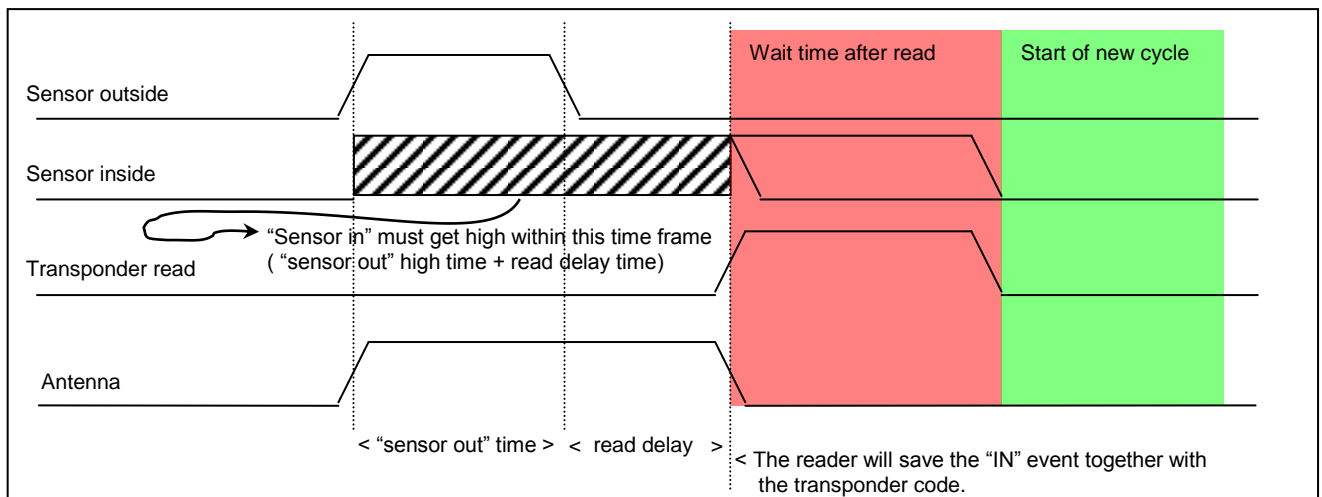


Note: The transponder may be read prior to the inside sensor getting high. In that case, the antenna will be turned off and the reader will continue waiting for the outside sensor to get high.
The "Wait time after read" will start as soon as a transponder has been read and the sensors both have been high. After this time, both sensors must be low, if not the reader will flash the led on and off until these inputs are low.

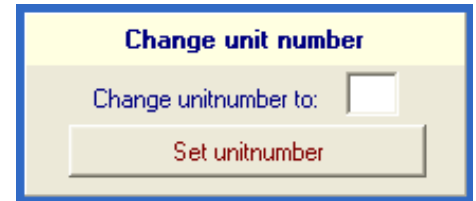If the reader failed to read a transponder then it will save a null code into memory
If the option "save all movements" is enabled then the reader also stores the events where only one sensor was triggered.

**Use software trigger:** The decoder starts reading a specified number of read cycles when the software trigger command has been received by the decoder. The trigger command can be send by clicking the *Software Trigger* button. The number of read cycles is specified in the edit box.

**Use hardware trigger:** The decoder starts reading the specified number of read cycles after the hardware trigger has been activated by an external device. For more information on the trigger input, please refer to the specifications regarding the decoder. The number of read cycles is specified in the edit box.

## *2.5 Change unit number (RS485 only)*

Every RS485 decoder must have its own unit number so communication to this specific decoder can be established. The default unit number is 00 and can be renumber by entering a new unit number between 1 and 255. When pressing 'Set unit number' the new unit number will be assigned. After this the program will try to reconnect all readers.

## *2.6 Change password.*

The password at startup can be changed. Type the old and new password and the new password verification. After pressing 'Use new password', the new password is set.

# *3 The History tabsheet.*

The reader is capable to save max. 6400 transponder codes without date/time or 3200 transponder codes with date/time (24LC256 32kB EEPROM, 64kB memory optional available). The maximum number of codes in the historical memory will decrease when the access control option is used. The full History tabsheet is shown in appendix B.

Whether the ID codes should be stored can be set in this tabsheet. There are different ways of storing the information in the internal memory. This can be configured by the following checkboxes:

- **Save codes in reader:**
  Select this option if the decoder has to save the ID codes in the historical memory.



- **With date/time:** If date and time have to be saved together with the ID code this option has to be selected. This option is only enabled if the *'Save codes in reader'* option is selected.
- **Overwrite codes:** When the historical memory is full the reader can overwrite the oldest codes or it can stop saving codes. If this option is selected the oldest codes will be overwritten.

Other information shown in this tabsheet is the number of saved codes present in the historical memory at the moment the settings were acquired from the decoder by depressing the *Get current settings* button and the number of overwritten codes. The number of overwritten codes is only displayed if the 'overwrite codes' box is selected. This number represents the number of codes that are overwritten in the historical memory after the memory went full.

The historical data is downloaded from the decoder to the table by clicking on the *Get codes from reader* button.
Other functions of the History tabsheet are:

- Save to disk file
- Printing the table
- Clear Reader
- Clear table
- Sorting
- Filtering



### *Save table to Disk*
The file save dialog is opened after this button is depressed. The information stored in the file is ";" separated and can be loaded by a spreadsheet program if necessary.

### *Print Table*
The printer dialog is opened, and the information in the table is transferred to the selected printer after this button has been depressed.

### *Clear Reader*
The internal memory is erased after this button has been depressed. The information stored in the reader is lost and can not be retrieved.

### *Clearing Table*
Pressing this button clears the data in the table.

## Sorting

After the information is downloaded from the reader, the table can be sorted on a certain item like code, date or time.

To do this, just click on the header on top of the table. If the table should be sorted in an inverted manner press on the header again.

\

| | Nr | Code | Last name | First name | ReadingDate | Reading |
|---|---|---|---|---|---|---|
| ▶ | 1 | 000041C0CC | Unknown in thi: | | 18-11-03 | 10:30:: |
| | 2 | 0000E0C1A1 | Unknown in thi: | | 18-11-03 | 10:32:: |
| | 3 | 00008C77BB | Unknown in thi: | | 18-11-03 | 10:32:· |
| | 4 | 00008CA543 | Unknown in thi: | | 18-11-03 | 10:32:· |
| | 5 | 0000000205 | Unknown in thi: | | 18-11-03 | 10:32:: |
| | 6 | 00008C8C06 | Unknown in thi: | | 18-11-03 | 10:32:. |
| | 7 | 0000003AFA | Unknown in thi: | | 18-11-03 | 10:33:: |
| | 8 | 0000ED1515 | Unknown in thi: | | 18-11-03 | 10:33:. |
| | 9 | 0000DADB14 | Unknown in thi: | | 18-11-03 | 10:33:. |

Header

## Filtering

Filtering an item in the table can be done by selecting the desired topic and enter your filter criteria in the "search on" input field.

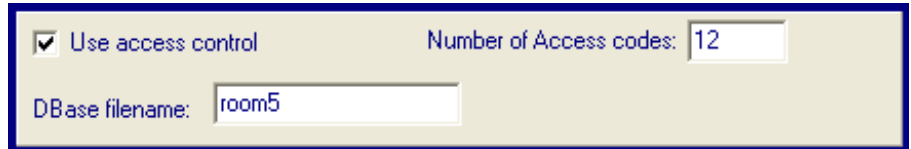The table will be updated immediately after each character entered in the input field.

Search topic: None ▼      Search on: [          ]

If you press the *print table* or *save table to disk* button after you have filtered information from the table, only the filtered information will be used for printing or saving.

# 4 The Dbase tabsheet.

When the reader has to be used as an access control system, the configuration can be set in this tabsheet. The complete Dbase tabsheet is shown in appendix C.
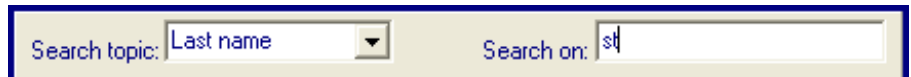
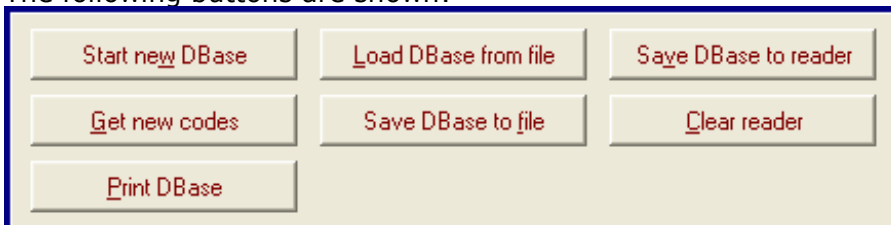The *Use access control* checkbox has to be set if the reader is going to be used as access control reader.

The following information is shown in this tabsheet:
- **Number of access codes:** This is the number of cards present in the memory at the moment the settings were acquired from the decoder.

- **Dbase filename:** Since you have the possibility to connect more than one reader to the PC, there are different databases that can be used for each decoder.

- **Cardholder information**: This information is shown in two ways.
  □□*Individual information* in a number of edit boxes, see §4.1
  □□Information in a *table* form, *Goldcard*, *Silvercard* and records, see §4.2

- **Search Topic:** If you are looking for a certain person in the table, you can use this item to easily retrieve the required information. Just select the topic that you want to use, for example last name, and enter the search criteria in the Search on field. All persons who have a last name that starts with *st* will be shown in the table above the Search topic item.

The following buttons are shown:

*Start new Dbase*: Creates a new empty table

*Get new codes*: appends the ID cards which where entered via the Goldcard option in the current table.

*Print DBase*: transfers data from the current table to a printer.

*Load DBase from file:* This allows the user to fill the table with information from a file, the file open dialog will be opened after depressing this button. A file can be selected in this dialog.

*Save DBase to file*: After modifications have been made in the table, this button should be depressed to store the altered information in a disk file. The store file dialog will be opened to allow the user to enter a new diskfile name if necessary.

*Save DBase to reader:* The current contents (active cards only) of the table is transferred in the reader that is currently selected.

*Clear Reader*: All information in the reader is erased. No cardholder can enter the controlled area.

## 4.1 Individual card holder information



The *Active* checkbox should be set if the current record has to be stored in the readers memory as a valid access code after the *Save Dbase to reader* button is depressed.

## 4.2. Information in Table form



In this part of the screen a list is shown of the records that are present in the selected database file. With the horizontal scroll bar the first name, Date of birth etc. can be made visible. With the horizontal scroll bar you can walk through the records.
Special in this table is the first and second record. The first card in the table is defined as the Gold card and the second as SILVER card.

## 4.3 Gold card
The first card in the table is the Goldcard, a normal ID card with a special function.

After reading the Goldcard, the reader will automatically be set in the Save mode. All ID numbers that are read from now, are stored in the internal memory of the decoder as valid access cards. After reading the Goldcard again, the reader will return to the normal operation mode.

## 4.4 Silver card
The second card in the table is the Silvercard, a normal ID card with a special function.

After reading the Silvercard, the reader will erase all ID numbers from the internal memory. There will be no valid access card after this ID number has been read.

# 5 About the LID665V4.1 decoder

The LID665V4.1 decoder is designed for use with single coil antennas like the ANT613(S)/ ANT614/614OEM or custom made antennas. The decoder, together with an antenna can read all trovan™ read-only transponders.

Standard the LID665V4.1 decoder is delivered with Windows® 95/98/NT/XP PC software to change the settings of the decoder, download the history data or assign access codes.

**Specifications**

**LID665V4.1 decoder**

| | |
|---|---|
| Dimensions decoder | 51 x 50 x 8 mm |
| Weight decoder | 20 Gram |
| Supply voltage | +5VDC +/- 5% or +7,5VDC to 24VDC |
| Supply current | 70mA (antenna activated) |
| | 26mA (antenna deactivated) |
| Reading rate | 24 msec |
| Operating frequency | 128 kHz |
| Number of ID codes with 32kB EEPROM | 6400 ID codes only or 3200 with date and time |
| Interfaces and protocols | RS232 (8 data, no parity, 1 stop, 1200..19200 baud, default 9600) |
| | RS485 2-wire (8 data, no parity, 1 stop, 1200..19200 baud, default 19200) |
| LED and buzzer output | DC buzzer type (5VDC) |
| Options | Clock/Calendar with lithium battery to store date/time with ID-codes. |
| | 512kB memory for storing 12800 codes or 6400 with date and time. |
| | I2C connection for serial communication |
| | Custom serial communication. |
| | Wiegand/clock-data/Omron protocol |
| | 2 TTL inputs or outputs. |

**Connectable antennas**

| | | | | Reading distances up to (cm) | | | |
|---|---|---|---|---|---|---|---|
| Antenna | Dimensions | Weight | Protection | ID100 | ID200 | ID300 | ID400 |
| ANT614 | 100 x 60 x 13 mm | 0,2 Kg | IP67, Polyurethane | 2 | 5 | 3,5 | 11 |
| ANT614OEM | 85 x 55 x 2 | 0,01 Kg | NA | 2 | 5 | 3,5 | 11 |
| ANT613 | Ø18 x 165mm | 0,06 Kg | IP65 | 1 | 2,5 | 1,7 | 6 |
| ANT613S | Ø18 x 60mm | 0.05 Kg | IP65 | 1 | 2,5 | 1,7 | 6 |

Several other complete and OEM customized antennae can be made on request.

**Note** : *Metal objects near the antenna increase the current consumption and reduce the reading distance. The minimum distance towards a metal surface depends on the type of antenna. Also (SVGA) monitors decrease the reading distance.*

## 5.1 How to connect the LID665v4.1

Description of connectors:

**J1 powersupply:**
1. 7-24VDC
2. +5VDC +/- 5%
3. GND, Ground

C = Pin 1

**J2 Serial port:**
1. TXD RS232 (9600,n,8,1*)
2. RXD RS232 (9600,n,8,1*)
3. RS485 B (19200,n,8,1*) orTTL output wiegand**
4. RS485 A (19200,n,8,1*)or TTL output wiegand**
5. GND, Ground interface

**Important note:** Depending on firmware version V6.xx or N6.xx RS232 or RS485 is available.

**J3 Output LED/Buzzer:**
1. + led
2. – led
3. + buzzer (DC 20mA)
4. – buzzer

**J4 I2C Output**
1. SCL, serial Clock
2. GND
3. VCC
4. SDA, serial DATA

**J5 Input/output (input only if RS232 protocol is being used)**
1. Output
2. Input, until firmware version L650665v411

**J6 Input/output (input/output 2 only in customized firmware)**
1. Input for hardware trigger or in/sensor input (external pull up maybe required). Connect to ground for activation. **Resistor R12 has to be removed.** (from firmware version L650665n603 and L650665v604)
2. Output 2 (optional, only possible with customized firmware)
3. Input 2 (optional, only possible with customized firmware)

**J7 Antenna connection:**
1. + single coil antenna
2. - single coil antenna

**JP1 Bus-end for RS485 bus must be closed if decoder is at the end of the bus. Resistors of 680 ohm must be placed between J1.2 and J2.3 and between J2.4 and J2.5 at one of the bus-ends.**

\* = Baudrate can be changed by software setting (1200, 2400, 4800, 9600, 19200baud)
\*\* = Protocol for wiegand interface is depending on firmware

### IMPORTANT NOTE FOR LID665 OEM!!!
USE A **125mA** FUSE IN LINE WITH THE 5V POWER INPUT
MAX. **500mA** FUSE IN LINE WITH THE WIDE RANGE INPUT.
THERE'S **NO FUSE** ON THE LID665 OEM DECODER BOARD.

## 5.2 LID665v14 Backplane connections

For access control application with the LID665 decoder can be combined with this backplane that Contains connectors, two fuses, a buzzer and a potential free relay output to drive an electric lock.



○= PIN1
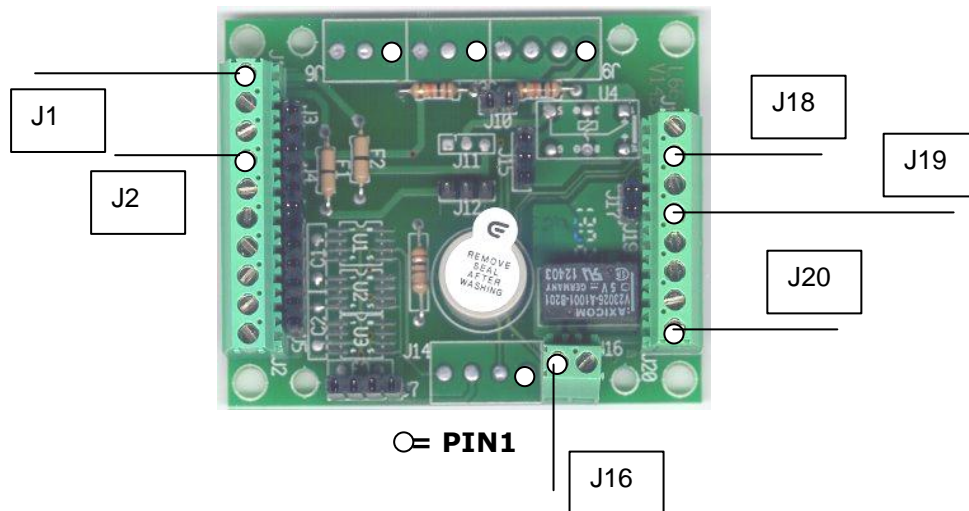
**J1 Powersupply**
1. 7-24Vdc Wide range power supply (Vin High)
2. 5Vdc +/-5% stabilized power supply (Vin LOW)
3. Gnd

**J2 Communication**
1. Txd Transmit data RS232
2. Rxd Receive data RS232
3. B channel RS485
4. A channel RS485
5. B channel RS485
6. A channel RS485
7. Gnd

**J19 Antenna connection**
1. Antenna signal     (ANT614, Brown)
2. Antenna Gnd        (ANT614, Yellow)

**J18 External LED**
1. + LED      (ANT614, Green)
2. – LED      (ANT614, White)

**J20 Relay output 1**
1. Voltage, 5VDC **(Vin LOW, max. 50mA)** or wide range **(Vin HIGH, max. 400mA)**, jumper J11 selectable. If **jumper removed** relay can be used to switch up to 125VAC, max. 1 Amp with external powersupply.
2. NO Normally Open
3. NC Normally Closed
4. GND

**J16 Hardware trigger input**
Hardware trigger input from firmware version L650665n603 and L650665v604
1. TTL signal input 3, connect to GND to activate or leave open.
2. GND

**J14 I2C Serial Bus\*\***
1. SCL Serial Clock
2. GND
3. VCC
4. SDA Serial Data

**J9 Relay output 2\*\***
1. Voltage, 5VDC **(Vin LOW, max. 50mA)** or wide range **(Vin HIGH, max. 400mA)**, jumper J11 selectable. If **jumper removed** relay can be used to switch up to 125VAC, max. 1 Amp with external powersupply.
2. NO Normally Open
3. NC Normally Closed
4. GND

**J8 Input/Output direct from uP**
1. TTL signal Output 2 (relay output 2) **\*\***
2. TTL signal for input 2 **\*\***
3. Gnd

**J6 Input/Output direct from uP**
1. TTL signal Output 1 (relay output 1)
2. TTL signal for input 1 until firmware version L650665v411
3. Gnd

**For RS485 communication resistors of 680 ohm must be placed between J1.2**

**and J2.3 and between J2.6 and J2.7 at one of the bus-ends.**

** ** Optional feature**

## *Schematic overview of Relay outputs:*

Use of jumper J11** &12
The two jumpers can be used in three different ways.
- No jumper: External voltage can be applied to pin 1 of J20/J9 (Max. 125VAC, max. 1 Amp)
- Jumper on 1-2: Vin LOW 5Vdc +/-5% is selected (Max. 50mA).
- Jumper on 2-3: Vin High 7-24Vdc is selected
  (Max. 400mA, with EID part number. **PWS12V-1A** 12V/1000mA).
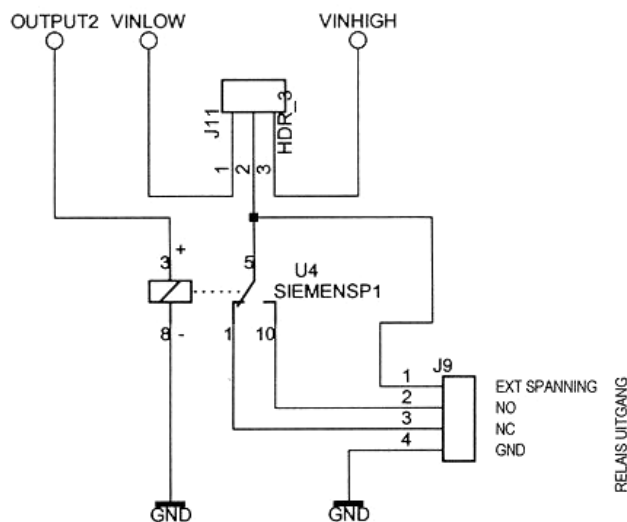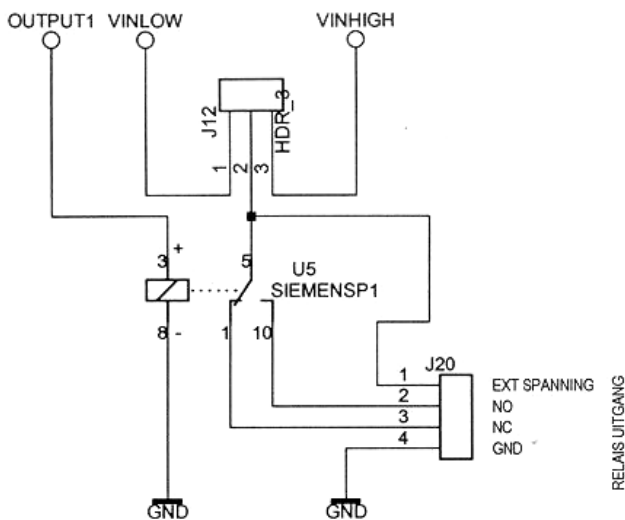




**Important note:** **If you connect an inductive load like an electric lock or relay, there should be a free running diode (like 1N400x type) mounted at the inductive load.**

## *In/out sensors connections:*

When you want to use the in/out function on the backplane you must replace the buzzer by a connector and the resistor by a zero ohm resistor.
You also need to remove a resistor on the LID665 circuit board, see the reader's manual for more information.

Connect the sensors as follows:
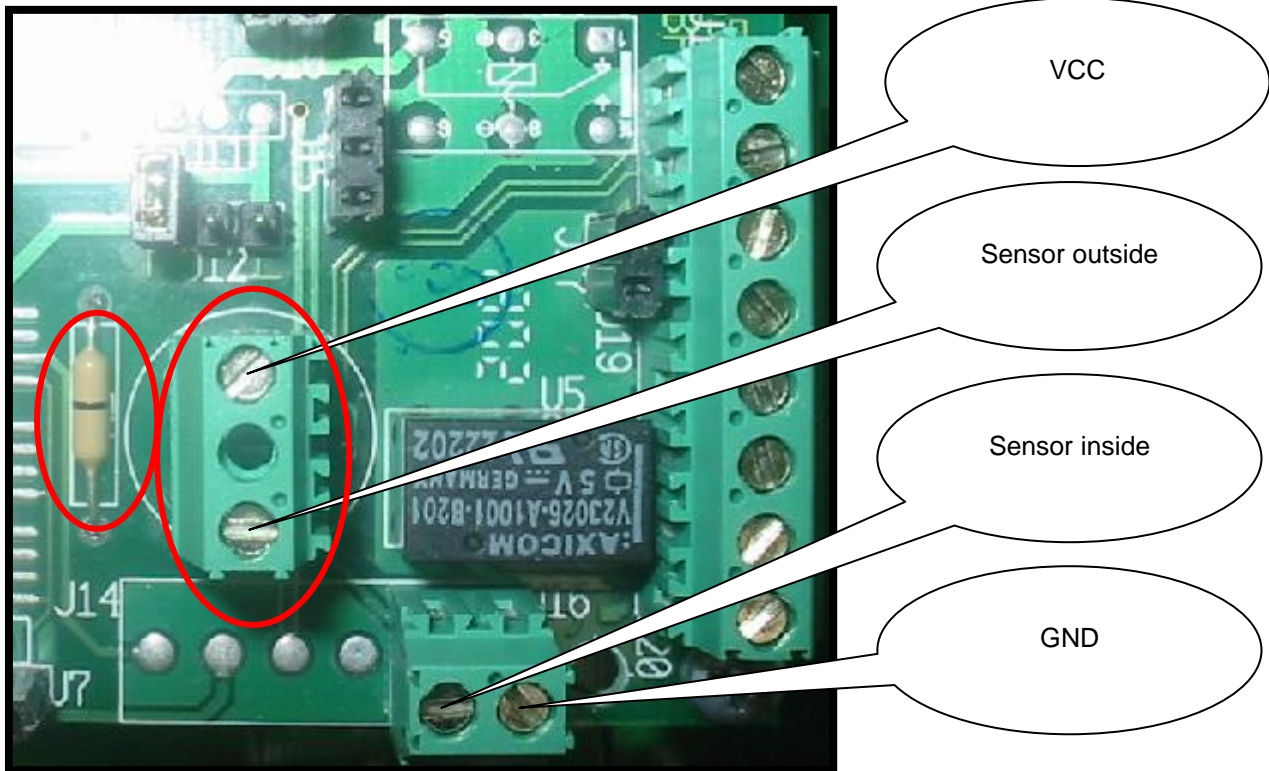


**Important note:** **use pull up or pull down resistors for the sensors (depending on the sensor type).**
**Never exceed VCC (5Volts) on the sensor input pins!!**


**\*\* Optional feature**

*Note : Metal objects near the antenna increase the current consumption and reduce the reading distance. The minimum distance towards a metal surface depends on the type of antenna. Also (SVGA) monitors decrease the reading distance.*

# 6 Powersupply LID650 & LID665:

The powersupply can be used for 220Vac or 110Vac. When using 220Vac R1 has to be placed and fuse F1 is T125mA **(slow type)**. When using 110Vac R2 and R3 have to be placed and fuse F1 is T250mA **(slow type)**.

**J1: 220Vac/110Vac Power input**

**J3: Output 12V**
1. +12V
2. Gnd

**F1: Input fuse (slow type):**
T125mA fuse for 220Vac
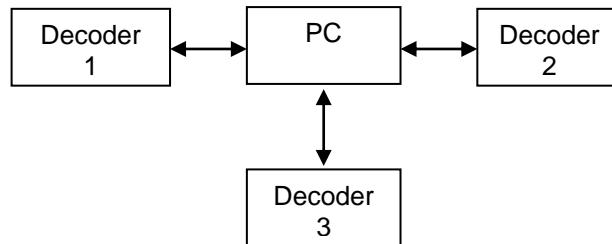T250mA fuse for 110Vac.

**F2: Output fuse (fast type):**
F1 Amp fuse

# 7 Communications

The decoders can be connected to a PC or other devices directly via RS232 or via a network using a 2-wire RS485 connection. The type of communication to be used depends on the firmware inside the decoder.

## 8.1 RS232 serial communication

The direct RS232 connection is the easiest way to connect a decoder to the PC. It is especially used for access control systems with a low number of readers (1..4). The RS232 communication can only be used if a decoder is situated close to the PC (up to 14 meters / 46ft).

```
┌──────────┐      ┌──────────┐      ┌──────────┐
│ Decoder  │◄────►│   PC     │◄────►│ Decoder  │
│    1     │      │          │      │    2     │
└──────────┘      └────┬─────┘      └──────────┘
                       │
                       ▼
                  ┌──────────┐
                  │ Decoder  │
                  │    3     │
                  └──────────┘
```

## 8.2 RS485 network communication

The 2-wire RS485 network connection is used when larger numbers of decoders are used or when the distance between decoder and PC is too far for a direct RS232 connection.

```
┌──────────┐  ┌──────────┐  ┌──────────┐  ┌──────────┐  ┌──────────┐
│ Decoder  │  │  Uport   │  │ Decoder  │  │ Decoder  │  │  Up to   │
│    1     │  │          │  │    2     │  │    3     │  │ 250 units│
└──────────┘  └────┬─────┘  └──────────┘  └──────────┘  └──────────┘
                   │
                   ▼
              ┌──────────┐
              │    PC    │
              └──────────┘
```
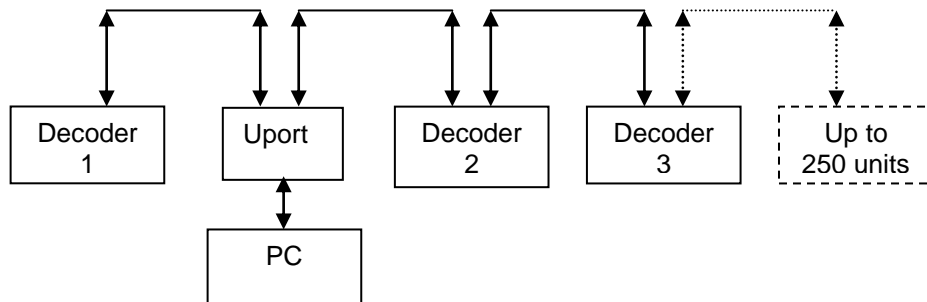
The LID665N proximity decoders and the LID650N decoders can be used in the same RS485 network.

## 8.2.1 RS485 bus general:

- The bus length may not exceed 1200 meters (4000ft).
- All decoders in the RS485 bus are connected by a shielded twisted pair cable.(2x2x0.5mm$^2$, diameter depends on length of the bus).
- The Voltage over the AB lines has to be between 0,2 to 0,4 Volts.
- A groundline has to be connected between all decoders.

## 8.2.2 Decoder: 1, first in the bus

The first unit in the bus, has the fail safe resistors and the 120 Ohm Jumper set.
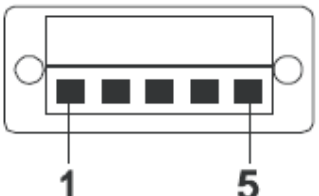- The 1K5 Ohm fail save resistors are placed between line A and GND(J11.4 and J11.5) and line B and +12V(J11.3 and J14.1)
- **The first decoder on the bus needs a termination resistor.** This resistor is already available on the decoder and can used by placing the jumper JP3 on the decoder board.
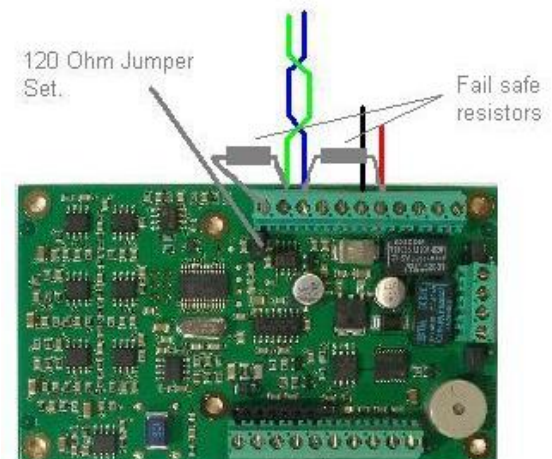
## *8.2.3 Conversion from RS485 to USB by Uport*

The Uport is used to convert the RS485 data to USB. This device should be placed somewhere between the first and last decoder in the bus.

The UPort 1130 comes with a DB9 to terminal block converter, with pin assignments as shown below:

| Terminal Block | Pin | 2-wire RS-485 |
|---|---|---|
| | 1 | - |
| | 2 | - |
| | 3 | Data+(B) |
| | 4 | Data-(A) |
| | 5 | GND |

**Follow the U-port instructions to install the Uport!**

## *8.2.3 Decoder: 2,3…n-1*
- The bus has to go from decoder to decoder. **Do not use branches from the bus to a decoder** but make the connection on the decoder itself.
- **The maximum number of decoders on each bus is 250.** Multiple RS485 busses can be used with only one PC.
- The 120 Ohm jumper JP3 is <u>NOT set</u> in these decoders.



120 Ohm Jumper Set.
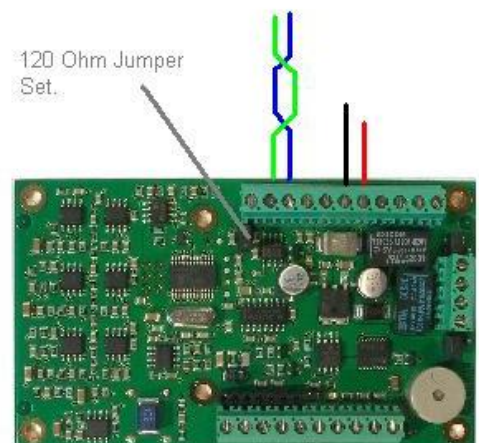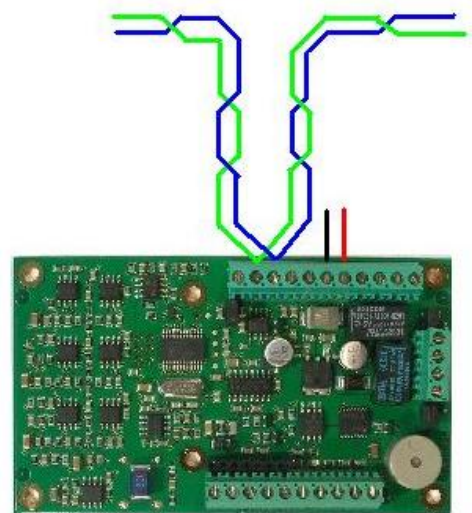


## *8.2.4 Decoder: n, last in the bus*
- **The decoder on the end of the bus needs a termination resistor.** This resistor is already available on the decoder and can used by placing the jumper JP3 on the decoder board.

# 8 Frequently asked questions.

q: The LED in the antenna flashes very fast
**a:** The reader is probably in save mode, read the Goldcard once more or use the PC software

q: A card is not recognized as a valid keycard.
**a:** Make sure the checkbox use access control is set, the reader is not in the save mode and the active checkbox is set.

q: The reader is not recognized at start up time
**a:** Make sure the RS232/RS485 connection is made properly.

q: The activation time of the relay is to short or to long
**a:** Check the value of the *wait time after read*, perhaps you'll have to reconfigure this value.

q: An ID number is only transmitted once, I need it more often
**a:** Check in the Transmit options if the Use all ID codes checkbox is set.

q: I choose a new Transmit option but the reader doesn't seem to apply the new settings
**a:** After the settings have been changed, you should depress the *Set new settings* button on the right side of the screen otherwise the new settings are not being used.

q: Although the reader scans the tag, the LED does not show the readcycle.
**a:** The checkbox Use LED during read is not set.

q: The LID665 reader doesn't write a read-write transponder:
**a:** Probably the transponder is to far away from the antenna or distance to another reader is to small.

# *Appendix A The complete Settings tabsheet.*

# *Appendix B The complete History tabsheet.*

# *Appendix C The complete Dbase tabsheet.*

# *Appendix D: Characters that can be used as pre- or suffix (only RS232).*

The prefix and suffix string can each be 4 characters long. All ASCII characters can be used except for the hexadecimal values 0Dh and 00h.

The control characters, the hexadecimal values and the way to enter them in the prefix or suffixbox are shown below.

| *CHARACTER* | *HEX* | *HOW TO ENTER* |
|---|---|---|
| NUL | 00h | NOT ALLOWED |
| SOH | 01h | <SOH> |
| STX | 02h | <STX> |
| ETX | 03h | <ETX> |
| EOT | 04h | <EOT> |
| ENQ | 05h | <ENQ> |
| ACK | 06h | <ACK> |
| BEL | 07h | <BEL> |
| BS | 08h | <BS> |
| TAB | 09h | <TAB> |
| LF | 0Ah | <LF> |
| VT | 0Bh | <VT> |
| FF | 0Ch | <FF> |
| CR | 0Dh | NOT ALLOWED |
| SO | 0Eh | <SO> |
| SI | 0Fh | <SI> |
| DLE | 10h | <DLE> |
| DC1 | 11h | <DC1> |
| DC2 | 12h | <DC2> |
| DC3 | 13h | <DC3> |
| DC4 | 14h | <DC4> |
| NAK | 15h | <NAK> |
| SYN | 16h | <SYN> |
| ETB | 17h | <ETB> |
| CAN | 18h | <CAN> |
| EM | 19h | <EM> |
| SUB | 1Ah | <SUB> |
| ESC | 1Bh | <ESC> |
| FS | 1Ch | <FS> |
| GS | 1Dh | <GS> |
| RS | 1Eh | <RS> |
| US | 1Fh | <US> |