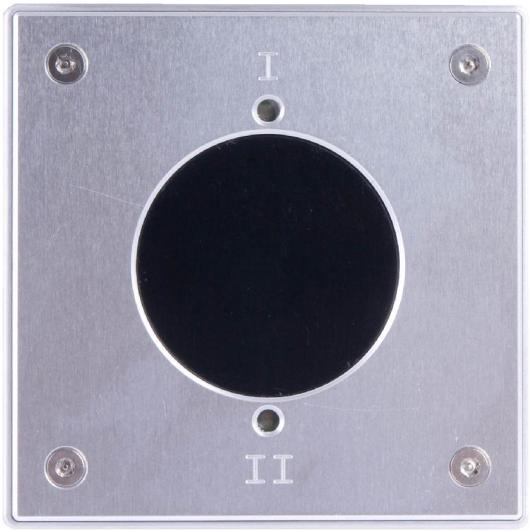

Baudisch.Transponderleser ID6

Manual

History:

Version	Date	Name	Change
1.0	27.06.2012	T. Eberhardt	Translation

Approval latest version

	Date	Name	Division	Initial	Signature
checked	27.06.2012	T. Eberhardt	DEV	Eb	
checked			PF		
checked			VT		
checked			User		
checked			FE		

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2. General Information

2.1. Symbols

Warning of dangerous electrical voltage.

This symbol points out important references, which must be followed to avoid injuries, as well as damages and malfunctions of the product.

This symbol points out helpful references.

2.2. Software History

Date	Version	Description / Function Expansion
20.12.2005	1.0	Initial Version.
30.05.2006	1.1	Parity Check EasyLAN added.
09.09.2006	1.2	RX-Uart Function improved.
24.03.2007	1.3	Add-on: • Reset of A1 and A2 by Transponder 55558 • Separate parameter for time slot S2 and continuous operation, new parameter 9, both adjustable in 0,5 sec steps • Editing of the access list by EasyLAN bus. • Telegram repeats to target address adjustable by parameter 0x0B.
24.04.2007	1.4	Calibration Byte in EEPROM changed from address 2 to 32. Not relevant for the usability.
23.05.2007	1.5	New parameter 12, switching of the relays and the green LED after adjusted time (in seconds) to use the ID6 without bus connection.
05.10.2007	1.6	Telegram extension C4-02-00-8x to identify the state of the 4 LEDs.
05.12.2007	1.7	Switching to state presence 2, if parameter 12 is activated.
11.04.2008	1.8	EMC test mode added, porting to ICC V7.X, EEPROM mapping adapted.
25.04.2008	1.9	Digital inputs and reaction masks, EasyLAN bit masks extended, status signal and transmit check added.

07.05.2008	2.0	Reaction masks have priority to the internal LED switch off.
08.05.2008	2.1	Test mode extended, start by special transponder chip.
03.06.2008	2.2	Bug fix: Handling of red LED, when transponder chip is in detection range
22.01.2009	2.3	Bug fix: Internal Pull-ups for inputs (hardware option).
09.08.2010	2.4	EasyLAN bug fix (TX handler) added, new EEPROM parameter for light switch in context with A1 and A2. New parameter to handle state presence 1 and presence 2 separately.
06.09.2010	2.5	Bit7 of parameter 10 (0x0A) has now a function: Both green LEDs illuminated, if state presence 1 is activated.
15.08.2011	2.6	Handling of data packet and timer message in case of receive of switch command at once.

2.3. Hardware Versions

Date	Version	Expansion
10.06.2010	0.1	Initial Version
23.09.2010	1.3	Improvement of the power supply (several modules connected to one Door Module).

3. Product Description

3.1. General Information

The vandalism protected transponder reader with self-sufficient key switch function and a optional data bus connector for central configuration or function control was developed to detect the presence of attendants in a hall of a prison.

Compared to well-established procedures based on PIN numbers, terminals or mechanical keys, the transponder technology opens up important advantages.

- The detection of a transponder is contactless, so there is no wear.
- The reading operation is completed in a very short time and the key number is transmitted securely.
- The needs no electricity, so you can carry it on your bunch of keys.
- In case of loss or damage a transponder can get prohibited and replaced by another one.

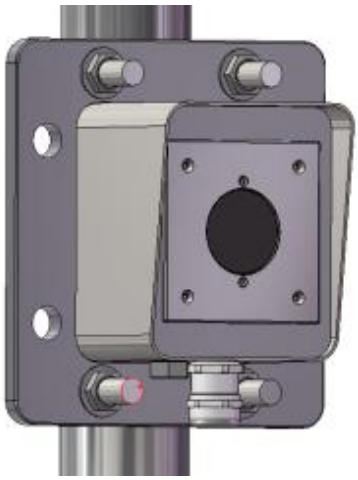
In condition of delivery each transponder is programmed to an individual key number. The transponder communicates by a weak magnetic field with a few centimeter of range with the reader.

If there is a transponder in the magnetic field, there is automatically a transmission of the data to the reader. The reader detects the number and starts directly with programmed switching functions or transmits the number together with it's own code to a central unit.

- Up to 3 states and visualization with integrated LEDs.
- Visualization of presence in the hall.
- Cancellation of a prison cell call.
- Preparation of an officer's alert (type ID6-JV) after activation 1 or timeout after activation 2.
- Compelled power-on of the cell electric lighting (type ID6-JV).
- Access control and door release with online link.
- Time posting "arriving – leaving – business trip" in conjunction with a data connection to a central unit.

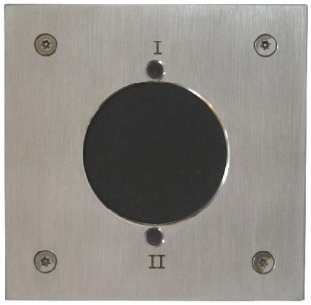
3.2. Abridgment

Item number	Name Description	
36-0147E	**Transponder reader ID6-JV-E** Basic version without sabotage protection with covering panel in anodized aluminum.	**Transponderleser ID6-JV-E** Basis-Version ohne Sabotageschutz mit Abdeckplatten aus eloxiertem Alu.
		
36-0147	**Transponder reader ID6-JV** JVA version with sabotage contact and V2A covering. Shows status presence 1 and 2.	**Transponderleser ID6-JV** JVA-Version mit Sabotagekontakt und V2A-Abdeckung. Zeigt die Zustände Anwesenheit 1 und 2 an.
		
36-0185	**Transponder reader ID6-EA** Transponder reader with 2 digital inputs instead of an sabotage switch. V2A covering, 2 relay outputs.	**Transponderleser ID6-EA** Transponderleser mit 2 digitalen Eingängen anstelle Sabotageschalter. V2A-Abdeckung, 2 Relais-Ausgänge
		

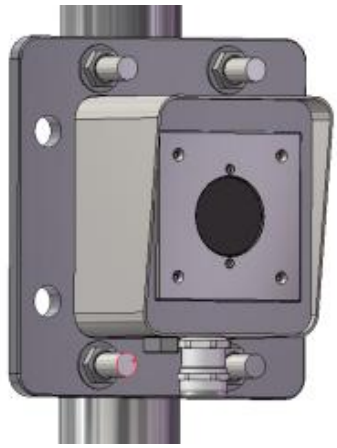
Item number	Name Description	
36-0183	**Transponder reader ID6-RL** Transponder reader for outdoor operations. 2 digital inputs, V2A covering, 2 relay outputs.	**Transponderleser ID6-RL** Transponderleser für Anwendungen im Außenbereich. 2 digitale Eingänge, 2 Relais-Ausgänge, V2A-Abdeckung.
		
33-1197	**Transponderschalter ID6-Steel** Vandal-protected transponder reader module with Baudisch.EasyLAN data bus terminal.	**Transponderschalter ID6-Steel** Vandalismusgeschütztes Transponder-Lesemodul mit Baudisch.EasyLAN Datenbusklemme zur Anbindung an zentrale Komponenten der Baudisch Zugangskontrolle oder Zeiterfassung.
		

3.3. Details

Transponderleser ID6-JV-E **(Art.-Nr. 36-0147E)**	Vandalism protected transponder reader with self-sufficient key switch function and optional data bus connector for a central configuration or function check.
	Built-in mounting in in-wall pattress box diameter 61mm. Depth measured from rear side of the mounting panel approx. 42mm. Mounting panel with stainless steel cover approx. 80x80x6mm. V2A safety screws. Power supply 24VDC, 50mA. 1 Open Collector Output (80V, 15W, max. 250mA) for electric lighting control. 2 multicolor LED indicators (red / green / yellow). Acoustic function indicator available for all states if the device like alert sound generation. Safe detection of the transponder in a range up to 10mm. Internal storage for 5000 keys or groups. General erasure of all authorities, selective adding or deleting of keys or groups by configuration transponder. Individual erasure of lost transponders by configuration transponder and master program unit. Data bus interface for connection to central unit and separate indicators. Configuration with optional Windows software, also in mounted state by data bus connection.

Transponderleser ID6-JV **(Art.-Nr. 36-0147)**	Vandalism protected transponder reader with self-sufficient key switch function and optional data bus connector for a central configuration or function check.
	Characteristics as ID6-JV-E, but addiotional features: • Electrical sabotage protection, acting if front panel is removed. • Upper front panel consists of stainless steel V2A, lower panel of anodized aluminum. Due to the V2A front panel and the sabotage protection, this device fulfills a higher safety standard than the base version. The software and configuration is the same as at ID6-JV-E.

Transponderleser ID6-EA **(Art.-Nr. 36-0185)**	Vandalism protected transponder reader with self-sufficient key switch function and optional data bus connector for a central configuration or function check.
	Characteristics as ID6-JV-E, but addiotional features: • Upper front panel consists of stainless steel V2A, lower panel of anodized aluminum. • 2 digital inputs, galvanic isolation by optocouplers. Working from 12V to 24V DC. The digital Inputs may generate several sounds depending on the software configuration. The state of the inputs can be sent to the central unit.

Transponderleser ID6-RL **(Art.-Nr. 36-0183)**	Vandalism protected transponder reader with self-sufficient key switch function and optional data bus connector for a central configuration or function check.
	Characteristics as ID6-JV-E, but addiotional features: • Upper front panel consists of stainless steel V2A, lower panel of anodized aluminum. • 2 digital inputs, galvanic isolation by optocouplers. Working from 12V to 24V DC. • Coating of the printed circuit board to avoid damages through high himidity. • Extended temperature range. • No speaker This ID6 can be used in conjunction with a mast housing as shown in the illustration.

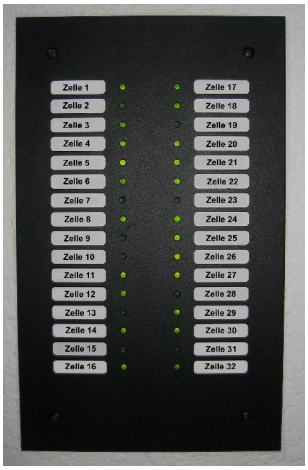
Transponderschalter ID6-Steel **(Art.-Nr. 33-1197)**	Transponder reader with Baudisch.EasyLAN data interface for connection to a central unit for access control and time recording.
 The shown front panel has to be ordered separately. 33-1176 V4A front panel for ID6-Steel 109,5 x 109,5 x 2mm	Mounting in ModularSteel-System. Power supply 24VDC, 50mA. 1 Open Collector Output (80V, 15W, max 250mA) for electric lighting control. 2 multicolor LED indicators (red / green/ yellow). Acoustic function indicator available for all states if the device like alert sound generation. Safe detection of the transponder in a range up to 10mm. Internal storage for 5000 keys or groups. General erasure of all authorities, selective adding or deleting of keys or groups by configuration transponder. Individual erasure of lost transponders by configuration transponder and master program unit. Data bus interface for connection to central unit and separate indicators. Configuration with optional Windows software, also in mounted state by data bus connection.

3.4. Accessories

Konfigurationskit ID6-JV **(Art.-Nr. 36-0147X)**	The configuration kit ID6 is used to program the transponder chips and consists of a PC software (Windows 98, XP) and a programming device.
	Scope of delivery: • Windows Software ID6-PROG with manual (CD-ROM) • Programming device for connection to a PC RS232 (COM1-COM4). • Wall power supply • 5 transponder chips IC6-CP-RD (red configuration transponder) Scope of operation: Detection and display of the data content of all transponder chips (if there is no labeling) Programming of the functions of configuration transponders. Each configuration transponder can be used for one of these functions: - Deleting of a defined chip number (1 to 5000). The number is programmed to the chip. - Activating/deactivating of the teach-in mode of a transponder reader. - Deleting all of the 5000 authorities. - Activation of all of the 5000 authorities. - Reset of the Transponderlesers.

Transponder Schlüsselanhänger schwarz / blau / rot **(Art.-Nr. 31-0503, 31-0503R, 31-0503B)**	Transponder keys for a contactless operation of the ID6. Programmed with a safe 64 bit number, containing system ID, customer ID and lock information.
  	Standard functional chain: A1 - A2 - Light - not active Color: black Programmed serial, Label with key number • Available colours: o 31-0503 black / grey o 31-0503R red / grey o 31-0503B blue / grey Each RFID product and it's number is listed in a safe data base in the factory. So it's sure that each device is individual programmed. When ordering, you have to name one of these three functions: • Standard use: Triggering of a door release buzzer or access permision. • Prison presence logic: standard switching chain A1 - A2 - Light - not active • Electrical lighting: Switchs on the output as long as the transponder is present in the detection range. Measures of the transponder chip: Diameter 31mm, max. 40mm You can not order the transponder chips separately, you always have to tell us a corresponding project.

Transponder Schlüsselanhänger rot **(Art.-Nr. 31-0503S, 31-0503P, 31-0503C, 31-0503F, 31-0503Z)**	Special functions for transponder reader ID6
	The designated function must be communicated with each order: • 31-0503S Erasing of a spezific key number (1 to 5000) • 31-0503P Configuration transponder switchs on and off the teach-in mode of the ID6 • 31-0503C Locks all transponder chips of a system (1 bis 5000). • 31-0503F Unlocks all transponder chips (1 bis 5000). • 31-0503Z Resets the presence state of a transponder reader All items delivered as a key pendant in red / grey. Measures of the transponder chip: Diameter 31mm, max. 40mm You can not order the transponder chips separately, you always have to tell us a corresponding project.

Sektionalanzeige ID6-JDP **(Art.-Nr. 36-0177)**	Indication of the state of up to 32 transponder reader ID6 in LED technology. Labeling of numbers or names with inlays possible.
	State A1: illuminated green State A2: flashing green (slow) Time alert: flashing green (fast) Simple wiring of the transponder reader by 2 wire bus in any architecture. On-wall or in-wall mounting. Power supply 24V DC, max. 700mA.

ASB_2OutRelais **(Art.-Nr. 36-0113)**	EasyLAN module comes with 2 relay outputs 48V / max. 10A for DIN rail mounting.
	Double relay module to transfer the relays state to the transponder reader ID6. Reduction of the amount of wires: All transponder reader can be connected by 2 wire bus in any architecture (additional wires for sabotage and supply necessary). Useful for switching state remote indicator. Two inputs for the connection of isolated switching contacts to remote control the light switching output as well as the speaker of the transponder reader ID6.

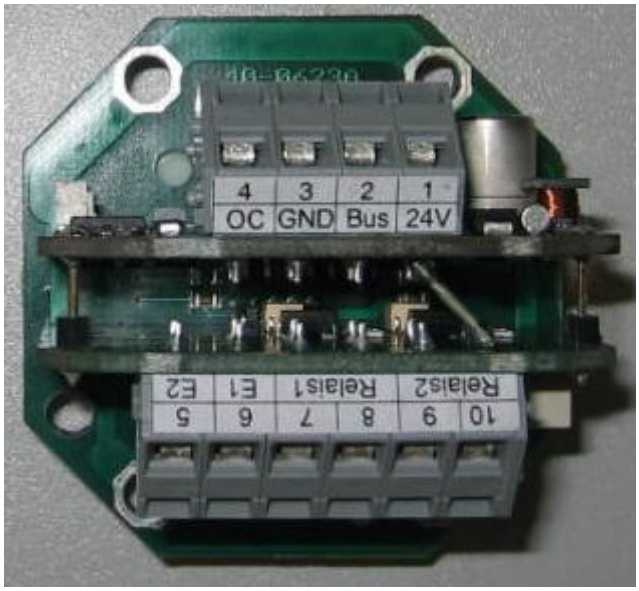
Datenbus-Interface RS232 **(Art.-Nr. 36-0101)**	RS232 converter with galvanic isolation for the connection of the EasyLAN 2 wire bus to a PC
	Remote monitoring of states and functions of up to 63 transponder reader ID6 per bus segment. Configuration of the transponder reader ID6 in conjunction with the Windows-Config-Software (WCS). Connection of the transponder readers to a facility management system with Open-Access-DDL. Remote control of all switching functions, the LED indicators and the speaker of the transponder reader in conjunction with the Windows-Remote-Software (WRS). There is a RS232 wire (length: 2m) and a kit for mounting the device on a DIN rail included in the delivery.

Windows-Config-Software (WCS)	Configuration of the transponder reader in conjunction with a RS232 data bus interface.

Windows-Remote-Software (WRS)	Remote control of all outputs, the LED indicators and the speaker of the transponder reader ID6 in connection with the RS232 data bus interface.

4. Connection and Installation

4.1. Connectors



4.1.1. ID6-JV-E, ID6-JV and ID6-Steel

Number	Description
1	Power supply 24VDC/50mA
2	EasyLAN bus
3	0V (GND)
4	Open Collector Output (80V/15W, max. 250mA)
5	Isolated switching contact for sabotage
6	Isolated switching contact for sabotage
7	Isolated relay contact 1
8	Isolated relay contact 1
9	Isolated relay contact 2
10	Isolated relay contact 2

4.1.2. ID6-RL

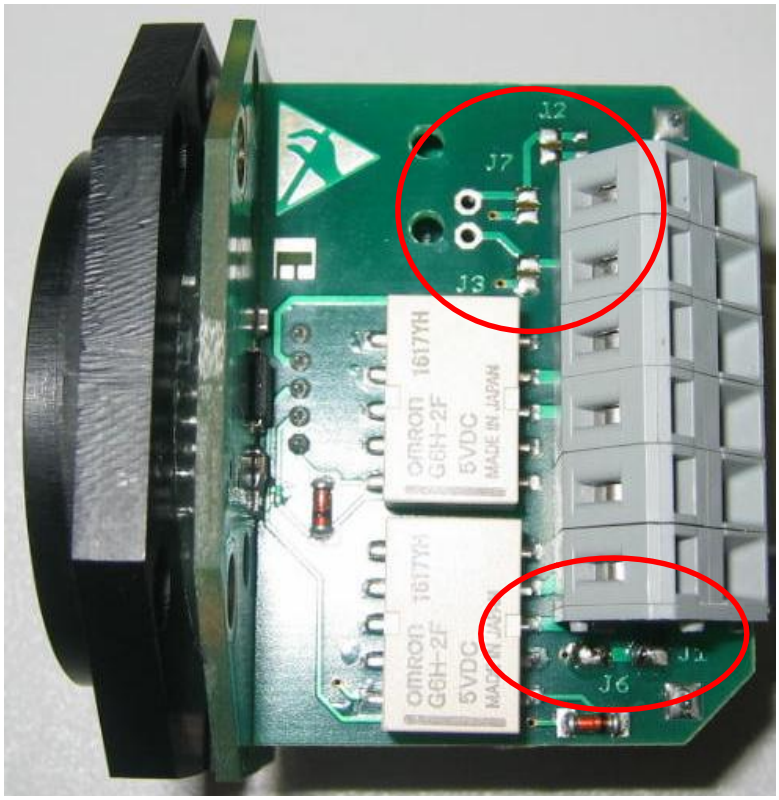
Number	Description
1	Power supply 24VDC/50mA
2	EasyLAN bus
3	0V (GND)
4	Open Collector Output (80V/15W, max. 250mA)
5	Input 2 (0V)
6	Input 1 (0V)
7	Isolated relay contact 1
8	Isolated relay contact 1
9	Isolated relay contact 2
10	Isolated relay contact 2

4.2. Solder bridges

The devices is in an operable when delivered. If the relay contacts should be galvanic isolated to each other, it is possible to configure by solder bridge.

Also there can be uses a 10kOhm resistor in the sabotage loop option, which is used instead of the digital inputs E1 and E2.

To detect the state of the sabotage switch is not supported by the software until now.



4.2.1. ID6-JV-E, ID6-JV and ID6-Steel

Solder Bridge	closed	open
J1	Pin 8 is shared as a output of relay 1 and relay 2, that means connector 8 is connected to 10.	default
J2	Sabotage loop resistance 0 Ohm (default)	10kOhm
J3, J7	Sabotage is reported to controller	Sabotage state extern (default)

4.2.2. ID6-RL

Solder Bridge	closed	open
J1	Pin 8 is shared as a output of relay 1 and relay 2, that means connector 8 is connected to 10.	Relay contacts isolated to each other
J6	Power supply of the inputs on connector 10	Power supply of the inputs not connected to the connector

4.3. Front Panel Mounting type ID6-JV-E and ID6-JV

When mounting the stainless steel front panel keep in mind to mount it straight and with no application of a force until it seats solidly on the aluminum panel.

Do not push the stainless steel panel up, so the stud bolt will operate the switch securely.

! Take care not to bend the switch when mounting the front panel.

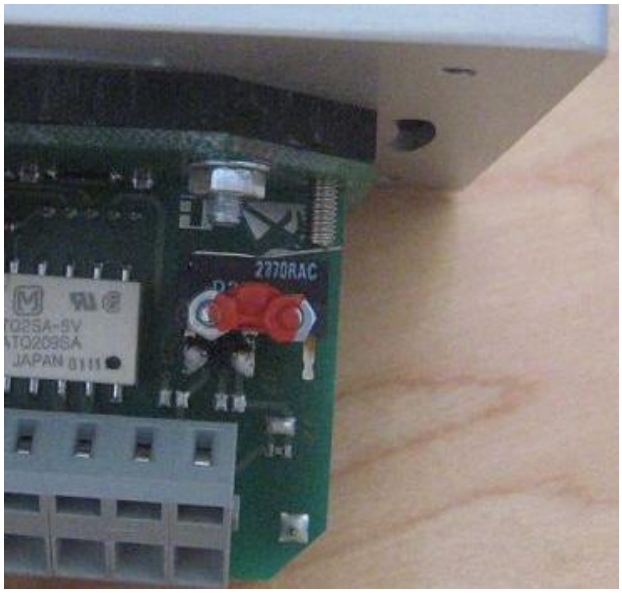


Figure 1: The stud bolt of the front panel operates the sabotage switch – the sabotage loop is closed.

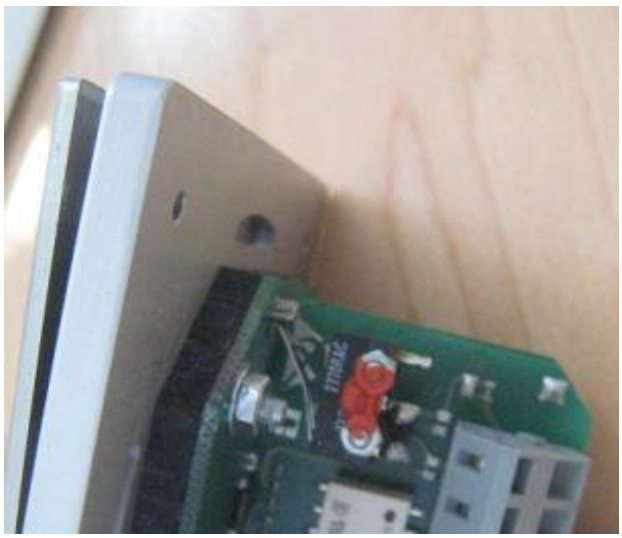


Figure 2: The front panel is pushed slanted above and inserted. The stud bold is pressed closed to the sabotage switch. Take care not to bend it, to avoid malfunctions.

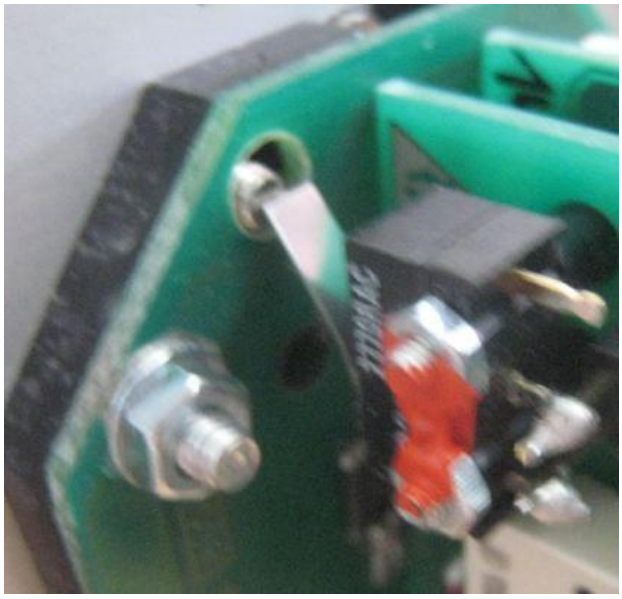


Figure 3: The stud bolt is inserted correctly, the sabotage switch is operated precise.

Figure 4: This picture shows a bent switch and will lead into malfunction. Adjust it as shown in figure 1.

4.4. EasyLAN data bus

EasyLAN was developed by Baudisch Electronic GmbH to connect electronic systems and devices in an easy and safe way.

The design allows the use of long unshielded wires to connect the devices. Also it is resistant to electrical damages.

4.4.1. Basic Principle

The bus conductor is connected to positive voltage (+12V) in one device. So it is on high potential when in stand by mode.

All bus subscribers are able to pull the bus conductor down to ground potential by a tough circuit to send data.

The bus conductor is connected to the micro controller highly resistive and EMC protected. So the central processing unit is able to receive it's own transmitted data and it's able to compare it. Also it's possible to interpret data from other bus subscribers.

4.4.2. Selection of Wires

The easiest way to use EasyLAN is in 2 wire technology. In this case the wires are connected to ground and bus signal. All bus subscribers need a separate power supply with galvanic isolation (e.g. a wall wart).

Usually EasyLAN is used in 4 wire 2x2x0,6² technology. The second pair of wires allows to bring the supply voltage (e.g. 12VDC) with the bus. So it is possible to power devices with a small power consumption by the bus wire.

4.4.3. Length of Wires

The maximum length of wires depends on the used wires overall. Using a common shielded communication cable 2x2x0,6 there is a possible length up to 2km.

High grade wires (e.g. green Instabus cable) are used for longer distances.

The EasyLAN bus allows a capacity of up to 100nF and a maximum loop impedance of 100 Ohm.

4.4.4. Wiring Architecture

It is not necessary to connect EasyLAN in star or loop architecture, it can be used any architecture.

The most common way to install EasyLAN is to use one power supply for all ID6 readers. It is not allowed to install a bus segment larger than the power supply range, because EasyLAN has no galvanic isolation.

Installing the bus from floor to floor will lead to a connection of different ground potential and leakage currents or ground loops.

4.4.5. Data Format

The data format of the EasyLAN data bus is compatible to many asynchronous serial interfaces.

EasyLAN can be converted via level converter to RS232 or RS422. There are corresponding devices available providing galvanic isolation and function indicators. (e.g. EasyLAN PC-Interface).

The data type is defined to 4800 Baud, 8 Bit, 2 Stop bit, Parity even

4.4.6. Bus Subscriber Addressing

The EasyLAN technology achieves an aim to give the possibility to send a message to a defined subscriber on the bus, if necessary. So each device needs it's address to use it in the telegrams.

One consequence is that the receiver confirms the reception. Any EasyLAN telegram includes a target address and the address of the sender.

EasyLAN supports up to 64 logical bus addresses, shown in a data byte in the range from 40h to 7Fh. When assigning the addresses, the subscribers with top priority have the lowest address. It is important not to use an address several times.

4.4.7. File Transfer Process

Previous to send a data telegram by a device, the device checks for a idle bus for itself. The duration of this check depends on the own address and will be restarted if the bus was busy.

Afterwards a telegram like this will be sent:

DST SRC STW LEN D0 .. Dn BCC CR

The receiver sends an acknowledgement telegram, that has to be received within 250ms:

DST SRC ACK

A receiver must give a receipt for a telegram with a correct syntax, independent if the data content and the control command will lead into an activity.

If there is no acknowledgement received, the telegram is sent again. Attention: In the acknowledge telegram DST means the address of the subscriber the telegram was sent from, SRC stands for the sender.

5. Software Logic

5.1. Transponder

5.1.1. Functions

The device discerns 8 different types of transponders with a different mode of operation.

Type	F-Identifier	Key Number	Description
N	0x20	1 to 65535	Transponder for **n**ormal access control without further local logic.
L	0x80	1 to 5000	Toggles the electrical **L**ight um (on <-> off)
A	0x81	1 to 5000	Changes the presence state (**A**): A0 -> A1 -> A2 -> A0 and so on.
S	0x88	1 to 5000	**S**elective erase transponder Switches the teach-in mode on or off and erases by activating the teach-in mode the authority of the key with a specific number. This is used to delete a lost transponder chip.
P	0x88	55555	Configuration transponder (**P**rogram) Switches the teach-in mode on or off. There are no further functions.
C	0x88	55556	Erase transponder **C**lears the memory by switching on or off the teach-in mode and erases the authorities of all keys (numbers 1 to 5000).
F	0x88	55557	**F**ormatting transponder: Switches on or off the teach-in mode and activates the authority of all keys (1 to 5000).
R	0x88	55558	**R**eset Transponder Restarts the software of the reader and clears saved presence states A1 or A2.
T	0x88	55559	**T**est mode activated. LEDs and relays toggle and sound plays depending on test mode configuration (see parameters).

5.1.2. Data Content

The following data fields are programmed to the transponder and will be sent to the reader:

- Application ID — Application, use of the transponder, access control
- Object ID — Differentiation of the end user is made dependent to the order.
- Key number — 2 Byte, adjustable from 1 to 65534
  For the numbers 1 to 5000 there are can be authorities for direct switch functions.
- Date code creation — Day.Month.Year, each with two digits, for internal application or interpretation by the host. There is no influence to the switch authority.
- Function detection — Two-digit Hex, declares the function of the transponder.
- Check sum process — For data safety during transfer.

5.2. Teach-in Mode

The teach-in mode allows to lock or unlock individual transponder chips in the authority list.

To do so the corresponding transponder must be in the detection range while the teach-in mode is activated.

- Teach-in mode on/off by configuration transponder (P):

  The tech-in mode is activated and disabled by using any transponder chip with function 0x88 (except chips for test mode) activated. When activating you will hear increasing tones, if deactivated you will hear decreasing sounds. While this mode is active, the red LEDs will be illuminated alternately (approx. 1 Hz).

- Transponder tech-in/erase:

  The transponder will be activated in the active time period. So the state of clearance is changed and the following new state is shown acoustically. Tech-in and erase will alternate each time the chip is present. If the transponder is authorized, a positive signal will sound, if the chip is locked, a negative signal will sound.

- You can only use teach transponder chips with function detection 0x80 (electrical lighting) and 0x81 (presence).

- Time out:

  The tech-in mode stops automatically 60 seconds after activation or last teach-in.

5.3. Presence Logic

To control the presence state logic, transponder chips must be programmed with the function detection 0x81 and a key number from 1 to 5000.

- If there is a locked transponder detected, a negative tone is generated and there is no switch operation.
- To reset the states A1 and A2 you have to use the same chip as you used to set the states.
- If there is an adjusted time out for state A1 (e.g. 10 seconds) the next transponder detection will reset the chain to A0.
- If the reader is in state A0 and the transponder is in range longer than the adjusted time (e.g. 5 seconds) the reader is set to A0 when the chip is no longer present. With this function it is possible to control the electrical lighting as long as the chip is in front of the reader.
- The indication of A1 is realized by the green LED with the Roman numeral 1, the indication of A2 with both LEDs.
- In case A1 or A2 the output “light” is activated.
- The contact A1 is closed, as long as the reader is in state A1 (transponder detected once).
- The contact A2 is closed, as long as the reader is in state A2 (transponder detected twice).

5.4. Remote Control of the LEDs

From software version 1.6 the 4 LEDs can be controlled by bus to indicate states in buildings. For example: Alarm system activated/not activated, doors locked/unlocked and so on.

A bit mask, received by bus, defines the states with the 4 LEDs:

Bit 0: LED green at the top
Bit 1: LED red at the top
Bit 2: LED green at the bottom
Bit 3: LED red at the bottom

After starting the software (reset) the state is zero, the LEDs are off.

This indication is subordinated to internal functions of the reader. If there are other LED states set by a switch function, the software will add them to the current state. So the remote indication only works in stand-by state in the transmitted combination.

5.5. Input States

The two inputs can be used for several purposes. For example for indication of states (door open/closed/locked etc.). The table below shows how to realize an optical and/or acoustical indication depending on the inputs. The current state can be sent to a computer system if there is a bus connection.

The state “on” signalizes the change from input active to inactive. The state “off” shows a change from input inactive to active. An input is active if there is an electrical voltage present and inactive if there is no voltage.

Bit	Reaction
0	LED red 1 on
1	LED red 1 off
2	LED green 1 on
3	LED green 1 off
4	LED red 2 on
5	LED red 2 off
6	LED green 2 on
7	LED green 2 off

If there are two complementary bits set (e.g. red 1 on and red 1 off), the current state will toggle.

The number of available sounds starts the acoustic reaction. The range from 00h to 7Fh can contain valid sound. Defined sounds (incl. FFh = 255d) are:

```
// Definitionen für feste Sounds
#define SND_A0                  0
#define SND_A1                  1
#define SND_A2                  2
#define SND_INIT                3
#define SND_PROG                4
#define SND_PROG_ER             5
#define SND_PROG_OK             6
#define SND_LIGHT_ON            7
#define SND_LIGHT_OFF           8
#define SND_PERMIT_ON           9
#define SND_PERMIT_OFF         10
#define SND_LEARN_ON           11
#define SND_LEARN_OFF          12

#define SND_ZK0                20
#define SND_ZK1                21
#define SND_ZK2                22
#define SND_ZK3                23
#define SND_ZK4                24
#define SND_ZK5                25

#define SND_NULL              255
```

6. Configuration Parameter

The configuration of the device is stored in its EEPROM and can be changed by the corresponding EasyLAN messages.

EEPROM address	Default value	Description
00h	0x00	Reserved for CPU
01h	0x55	Load factory default If this value is programmed unequal to 0x55, the device will load the factory default values after reset.
02h	0x00	Not in use.
03h	0x41	Own bus address.
04h	0x40	Target address (PC).
05h	0x1E	Interval time state call in 10 seconds increments.
06h	0x??	Time to transponder clear call in 50ms increments.
		0x3C = Default value EasyLAN transponder reader 0x08 = Default value JVA
07h	0x0C	Time for minimal presence time in prison cell x 0.5 seconds. If there is between the activation on state A1 and the following transponder detection a larger time than adjusted with this parameter, the presence state is cleared at the upcoming chip detection.
08h	0x??	Clearance of EasyLAN send telegrams: Bit0: state message on power-on Bit1: periodic state message after time Bit2: message of transponder data Bit3: clear message after transponder detection Bit4: state message after changing presence state Bit5: state message after changing input Bit6: state transmit check activated / hardware state change generates a state message
		0x0D = Default value EasyLAN transponder reader 0x00 = Default value JVA
09h	0x06	Time for detection long-term operation output A1 x 0.5 seconds. If there is more time elapsed between activation of A1 and the removal of the chip, presence 1 will be cleared when removing the chip.
0Ah	0x??	Clearance for options: Bit0: play sound after reset Bit1: acoustical indication of light switch chip Bit2: acoustical indication of switch state A0, A1, A2 Bit3: lock of switch state A2, if parameter 0Ch uneven 0 Bit4: field detection: red LEDs on/off Bit5: orientation light red on/off (effective after reset) Bit6: not in use Bit7: Both green LEDs illuminated in state presence 1
		0x11 = Default value EasyLAN transponder reader 0x0F = Default value JVA reader

0Bh	0x05	Amount of transmission repeats to target address in case of no received acknowledge. 0x00: Do not wait for acknowledge, 0xFF: Try endless
0Ch	0x??	This parameter defines the time after the presence state indicator will switch off. Thereby both of the relays and the green LED get switched off. There is no acoustical indication (true for A1 and A2, alternatively there is a separate configuration possible. See parameters 2Ch and 2Dh).
		0x00 = Default value JVA 0x00 = Default value EasyLAN transponder reader
0Dh-10h	---	Not in use
11h-18h	PASSWORD	8-digit transponder password
19h	0x02	Transponder block code
1Ah-1Fh	„...“	Not in use – 6 Bytes
20h	0xXX	Calibration data for internal RC oscillator. This address is read only. It’s only possible to program at factory but is not relevant for type ID6-Rail due to external oscillator.
21h	0x00	EMC test mode Bit0: toggle green LEDs Bit1: play Sound Bit2: toggle Relay 1 Bit3: toggle Relay 2 Bit4: toggle LEDs alternately Bit5: toggle Relays alternately Bit6: not in use Bit7: load settings on power-up Value 0 => function off! The events will be started after 10 correctly received transponder data (approx. 2 per second)

Reaction of the LEDs on inputs

22h	0x00	E1 state change to HIGH (bit mapping – see below)
23h	0x00	E1 state change to LOW (bit mapping – see below)
24h	0x00	E2 state change to HIGH (bit mapping – see below)
25h	0x00	E2 state change to LOW Bit0: LED1 red on Bit1: LED1 red off Bit2: LED1 green on Bit3: LED1 green off Bit4: LED2 red on Bit5: LED2 red off Bit6: LED2 green on Bit7: LED2 green off

Sound reaction on inputs

26h	0xFF	E1 change state to HIGH (Sound number – 0xFF = Null sound)
27h	0xFF	E1 change state to LOW (Sound number – 0xFF = Null sound)
28h	0xFF	E2 change state to HIGH (Sound number – 0xFF = Null sound)
29h	0xFF	E2 change state to LOW (Sound number – 0xFF = Null sound)
2Ah	0x02	Time in 10ms increments, an input state or a sate change must be present to detect it securely.

Additional options

2Bh	0x03	Options for open collector control in conjunction with A1/A2. 0 = never switch 1 = Switch at A1 2 = Switch at A2
		0x03 = Default value JVA 0x03 = Default value EasyLAN Transponderleser
2Ch	0x00	Time limit for presence state A1 (Param. 0x0C [12d] must be 0!) [seconds]
		Time limit for presence state A1 (Param. 0x0C [12d] must be 0!) [seconds]
2Dh	0x00	Time limit for presence state A2 (Param. 0x0C [12d] must be 0!) [seconds]
		0x00 = Default value JVA 0x00 = Default value EasyLAN transponder reader
2Eh-3Fh		Not in use
40h-2B1h	0xFF	Clearance bits for transponder (5000 pieces)