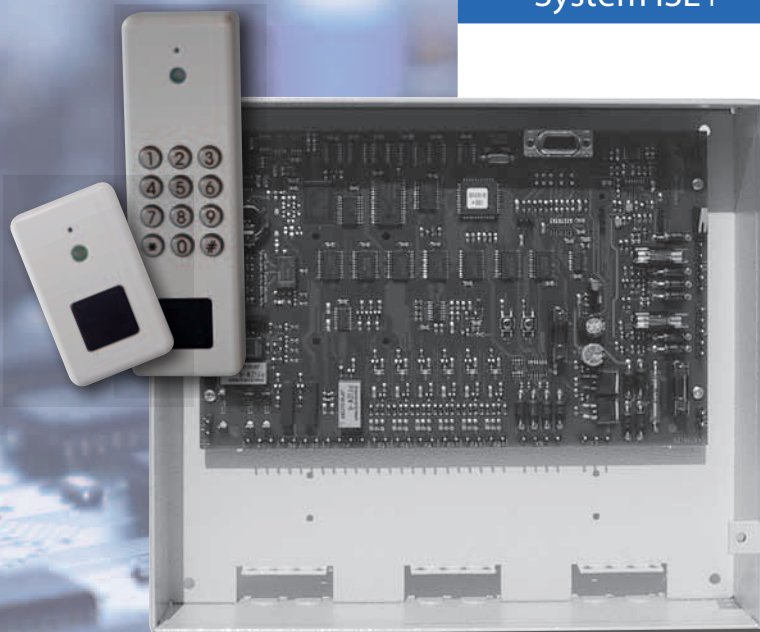


Installation and operation manual

sesam

System ISE+



Time acquisition • VdS-access control • VdS-switching device

VdS-SE-class-C :G 104 001

VdS-ZKA-Gerät-class-C :Z 105 001

VdS-ZKA-System-class- C: S 105 801

BSI recognition is in preparation

sesam

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1. Introduction

1.1 Overview

The controller is a freely configurable switching device with protocol functions, for intrusion detection technology and access control.

VdS-approval numbers:

VdS-SE-class-C: G 104 001

VdS-ZKA-Gerät-class-C: Z 105 001

VdS-ZKA-System-class-C: S 105 801

The Sesam access control center (ZKZ):

- does not feature a logical access repetition control.
- does not feature a time controlled access repetition control.
- does not feature a zone controlled access repetition control.
- does not feature a two-person access control.

Every device can manage up to 3000 persons, 16 time zones and 60,000 protocol entries.

Two controllers can be interconnected through a connection cable (master/slave) and operate as a single unit with double the amount of inputs/outputs and reader lines.

Up to 4 readers can be connected to a single controller, through the RDM-reader expansion. Hitag, Mifare, iClass and Legic-transponders can be connected through the RDM circuit board. For this, interfaces such as Clock/Data, Wiegand or RS485 are available.

1.2 Terminology

Keys: a key can be either a HF-transponder,
a Keso-Key, IR-transmitter, Codic-Key
or Tip Key.

Numeric code: A numeric code can consist of 1 to 6 digits.
It may only be programmed once.

Authorization: Authorization is the collective term for key
and numeric codes.

1.3 Support / Hotline

Most questions pertaining to the operation of the device can be answered by reading the instruction guide. We can help you faster, if you supply us with background information about your application of our products.

As a service contact we are available for you during the following times:

Mo.- Fr.: 8:00 am - 5:00 pm

SESAM GmbH
Electronic security systems
Finsterbachstr. 1
D-86504 Merching

Tel.: +49 - 82 33 / 7 94 45 - 0
Fax.: +49 - 82 33 / 7 94 45 - 20

Internet: www.sesam.de
E-Mail: info@sesam.de

2. Installation

2.1 Controller installation

The controller is installed into a housing. You can install these housings at a spray water protected location of your choice. Avoid the installation in a location that is exposed to a high degree of irradiation. Heat dissipation through natural air circulation must be possible. Avoid any excessive mechanical tension of the housing. The housing cover must be able to be opened after the installation. The connection cables must be routed properly through the intended openings of the housing.



Caution: When installing controllers into third-party enclosures, it is important to observe that the employed screws do not damage the drill holes of the circuit board. Damage resulting here from can destroy the circuit board and lead to short circuits.

2.2 Cabling to the reader unit

A standard shielded telephone cable with four wire pairs is used to connect the controller to the reader units.

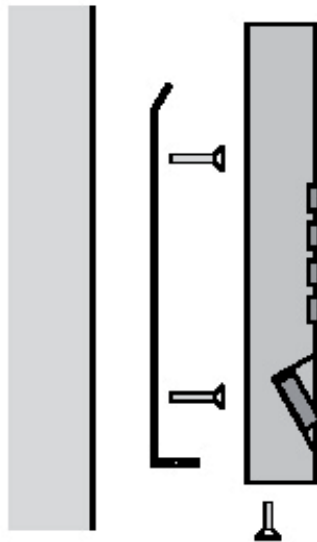
wire pair	color coding	description	Connection to reader lines X11 or X12
1	white	Data line (+)	pin 3
	brown	Data line (-)	pin 1
2	green	LED green signal (+ 12 V DC)	pin 4
	yellow	signal (GND)	pin 1
3	pink	LED red signal (+ 12 V DC)	pin 5
	grey	Piezo buzzer (+ 12 V DC)	pin 4
4	red	Supply voltage (+ 12 V DC)	pin 2
	blue	Supply voltage (GND)	pin 1

The cable between the controller and a Sesam-reader unit may have a maximum length of 100m. Please keep in mind, that for cable lengths greater than 100 m the electrical signal-to-noise ratio (SNR) drops and a flawless data transmission can no longer be guaranteed. This must be tested on-site if necessary. The maximum cable length for third-party readers can be obtained from their included installation guide.

If possible, route the cable in a cable duct. During installation the cable must not be damaged or overexpanded. An installation in close proximity to electric power lines should be avoided, to prevent possible dataflow interruptions.

2.3 Reader unit installation

The reader unit is screwed to the wall with a mounting bracket. For this, the mounting bracket has drill holes. The reader is shipped with a permanently connected, 4 m long connection cable.

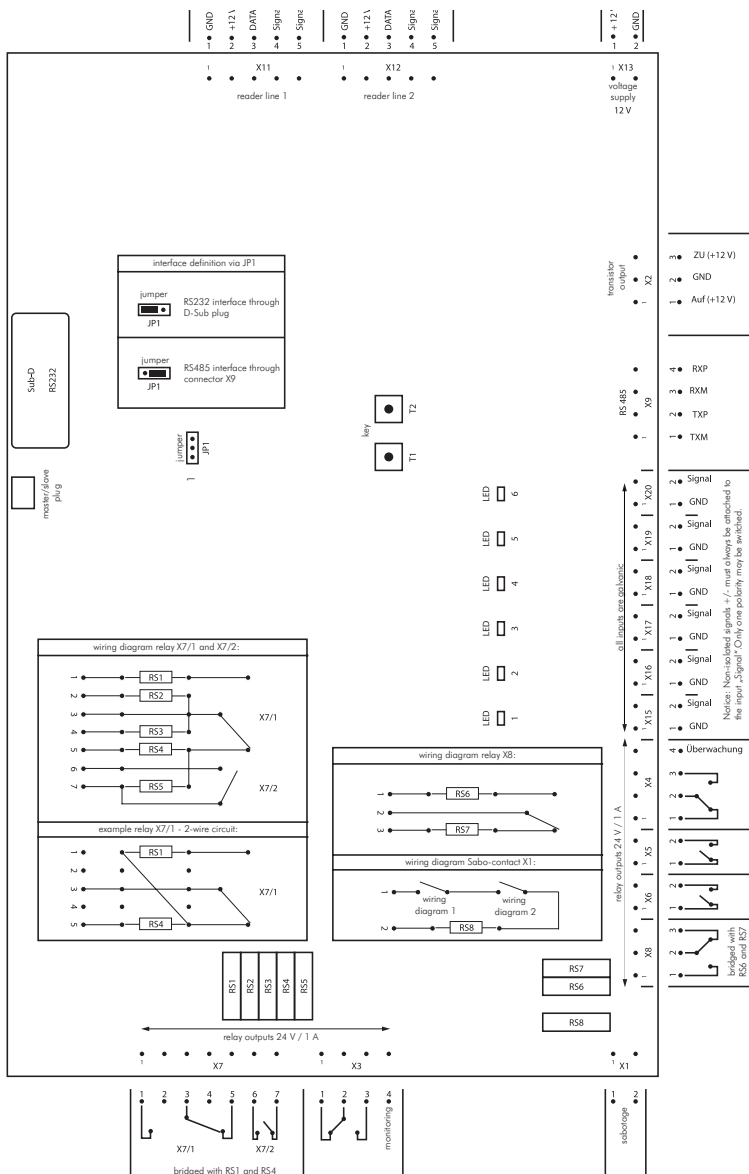


Wall mounting bracket reader

When installing a Siedle-Vario-Design reader, please follow the instructions in the „Siedle-installation guide“.

3. Connection

3.1 Circuitboard overview



3.2 Connection terminals overview

3.2.1 Reader lines

Connections X11, X12:

Pin	Label	Connection	Reader connection	Remark
1	GND	GND output	brown, yellow, blue	is always on
2	+ 12 V DC	Output (+ 12 V DC)	red	is always on
3	DATA	Data(+ 5 V)	white	is always on
4	Signal 1	Signaling (+ 12 V)	green, gray	only when signaling
5	Signal 2	Signaling (+ 12 V)	pink	only when signaling



Caution: Only one reader can be connected per reader line. Only with a TKS-LWA (Tip-Key-Reader) is it possible to connect 3 readers per reader line. The maximum cable length per reader is 100 m. Longer cable paths are possible, but cannot be guaranteed. A test must be carried out on-site to determine the functionality.



Notice: For connecting readers through the RDM-reader expansion, SimonsVoss cylinder systems and Keso-cylinders, please refer to the respective section in the appendix or reference the instructions supplied with the readers.

3.2.2 Detector inputs

Connections X15 - X20:

Pin	Label	Input type	Signal during standby	Signal when active	Remark
1	GND	galvanic	GND	GND	standard: not monitored
2	Signal	galvanic	5,5 - 6,5 V	0 .. 5,2 V / 6,2 .. 12 V	standard: not monitored



Notice: Non-isolated signals +/- must always be attached to the input „Signal“. Only one polarity may be switched.

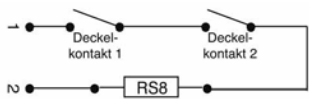


Notice: A monitoring through 4,7 kOhm terminating resistors against GND can be switched on via software.


3.2.3 Sabotage contact

Connection X1:

Optionally with RS8 resistor, if it is not present a bridge is to be soldered in its place.



3.2.4 relay outputs

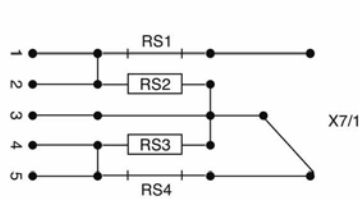
 All relay outputs have a capacity of: 24 V / 1 A

Connection X7:

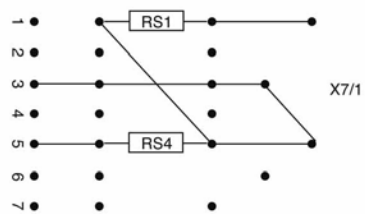
The standard arming (relay type: bistable) is carried out through the relay X7/1. in the impulse arming mode the relay X7/1 (when "armed") and the relay X7/2 (when "disarmed") each close for one second. The arming acknowledgment must hereby be returned as "armed".

Pin	Label	Relay type	Label	Connection	Remark
1	X7/1	bistable	armed 1	potential-free	via RS1
2	X7/1	bistable	armed 2	potential-free	via RS2
3	X7/1	bistable	Input	potential-free	from EMA
4	X7/1	bistable	disarmed 1	potential-free	via RS3
5	X7/1	bistable	disarmed 2	potential-free	via RS4
6	X7/2	monostable		potential-free	Impulse arming
7	X7/2	monostable		potential-free	via RS5

Example, 3-wire circuit:



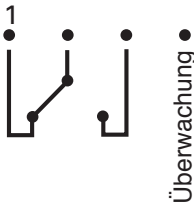
Example, 2-wire circuit:



Connection X3:

Pin	Label	Relay type	Label	Connection	Remark
1	X3	bistable		potential-free	
2	X3	bistable		potential-free	
3	X3	bistable		potential-free	
4	X3		Monitoring		for example, alarming devices

Relay X3:

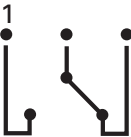


Connection X8:

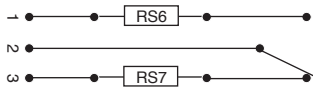
Pin	Label	Relay type	Label	Connection	Remark
1	X8	bistable		potential-free	via RS6
2	X8	bistable		potential-free	
3	X8	bistable		potential-free	via RS7

Wiring diagram X8:

with a bridge to
RS6 + RS7



with soldering holes for resistors:



Connection X5, X6:

Pin	Label	Relay type	Label	Connection	Remark
1	X6 + X5	monostable		potential-free	
2	X6 + X5	monostable		potential-free	

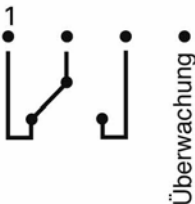
Relay X6 + X5:



Connection X4:

Pin	Label	Relay type	Label	Connection	Remark
1	X4	bistable		potential-free	
2	X4	bistable		potential-free	
3	X4	bistable		potential-free	
4	X4		Monitoring		for example, alarming devices

Relay X4:



3.2.5 Transistor output

Connection X2:

Pin	Label	connection/output	Remark
1	X2	To (+ 12 V DC)	
2	X2	GND	
3	X2	To (+ 12 V DC)	



Notice: For the connection procedure of the locking bolt unit, please refer to Chapter 6.7 on page 41 of the appendix.

3.2.6 Voltage supply

Pin	Label	connection/input	Remark
1	X13	+12 V DC	+/- 15 %
2	X13	GND	



Caution: The voltage must be 12 V DC +/-15 % = (10.2 V / 13.8 V). Beyond these thresholds a flawless operation of the controller cannot be guaranteed.

3.2.7 RS485 interface

Connection X9: RS 485

Pin	Label	Connection	Remark
1	X9	TXM	
2	X9	TXP	
3	X9	RXM	
4	X9	RXP	



Notice: For the connection procedure of the remote control adapter and the erection of a RS485 network, please refer to Chapter 6.8 on page 41 of the appendix.



3.2.8 RS232 interface

Connection: Sub-D plug on the circuit board

Pin	Label	Connection	Remark
1	Sub-D	DCD	Input
2	Sub-D	TXD	Output
3	Sub-D	RXD	Input
4	Sub-D	not assigned	
5	Sub-D	GND	
6	Sub-D	DSR	Input
7	Sub-D	CTS	Input
8	Sub-D	RTS	Output
9	Sub-D	RI	Input

3.2.9 Jumper for interface definition

JP1:

jumper JP1	Description	interface
	plugged to 2+3	RS232 (Sub-D-plug)
	plugged to 1+2	RS485 (connection X9)

4. Startup operation of the hardware

4.1 The boot sequence

4.1.1 Introduction

The hardware is a memory programmable controller with a 16 MB onboard memory. It boots fully automatically when it is POWERED-UP and executes predefined function routines. The complete sequences and their LED signaling as well as your intervention options, are listed and further described in the following.

4.1.2 LED-TEST

After switching on the voltage all LEDs are illuminated for one second (function test).



4.1.3 Loading firmware (boot sequence)

The firmware is loaded from the flash memory into the Main memory. This operation is indicated by the blinking LED 1. Directly after the loading process, that takes about 10 seconds to complete, the firmware is executed.

4.1.4 Warm start

After the boot sequence all LEDs are briefly illuminated again. Subsequently the outer LEDs 1 and 6 will remain illuminated for 5 seconds. After that the status (see table) will be displayed for 2 seconds. The controller is ready for operation after all LEDs have switched off.

LED 1	LED 2	LED 3	LED 4	LED 5	LED 6	Standard - operating mode Slave - operation possible
LED 1	LED 2	LED 3	LED 4	LED 5	LED 6	Slave - operation mode, 2. component is connected.
LED 1	LED 2	LED 3	LED 4	LED 5	LED 6	Master - operation mode, slave recognized
LED 1	LED 2	LED 3	LED 4	LED 5	LED 6	Master - operation mode, slave not recognized -> check the status if necessary.

Legend: LED  = ON, LED  = OFF

4.1.5 Manual cold start (restoring the factory default settings)



Note:

Through a manual cold start, the controller is reset with the factory default settings. All existing data in the controller (configuration, persons, protocols etc.) will be deleted. After a cold start is necessary to program the controller again.


Performing a control or cold start						
???			Switching off voltage			
???			Switching on voltage			
LED 1	LED 2	LED 3	LED 4	LED 5	LED 6	All 6 LEDs are illuminated for 1 second
LED 1	LED 2	LED 3	LED 4	LED 5	LED 6	LED 1 will blink for approx. 10 seconds
LED 1	LED 2	LED 3	LED 4	LED 5	LED 6	If LED 1 and LED 6 are illuminate, immediately press key 1, release it and press and release key 2 afterwards.
LED 1	LED 2	LED 3	LED 4	LED 5	LED 6	Now LED 1 and LED 2 are illuminated. As soon as the LEDs switched off the cold start has concluded.
LED 1	LED 2	LED 3	LED 4	LED 5	LED 6	All LEDs have switched off. The cold start has concluded, the controller has been assigned the address 0 and is ready for programming.




Caution: A cold start with a system that has already been programmed causes that a communication via software is no longer possible (address conflict). In this case, select the appropriate controller under the menu item „controller administration --> controllers --> edit“ and execute a reset. For this, refer to Chapter 5.10 "resetting options" on page 26.



4.1.6 Selecting the master/slave operation mode or respectively testing the operation mode

Both components must have been "cold started" (factory default settings). Then, connect the cabling and perform a warm start (switch on voltage) on both components at the same time (switch on voltage). After all LEDs have switched off, briefly push the "button 2" on the respective master assembly.

 **Notice:** The interface to the PC or respectively to the network must be plugged into the master assembly.

 **Notice:** during operation or respectively after selecting the master operating mode, the current operating mode can be queried at a time with the button 2:

LED 1	LED 2	LED 3	LED 4	LED 5	LED 6	Slave - operation (switching back to standard - operation is only possible through a cold start)
LED 1	LED 2	LED 3	LED 4	LED 5	LED 6	Standard - operation (no master/slave configuration)
LED 1	LED 2	LED 3	LED 4	LED 5	LED 6	Master - operation, no communication -> error (slave component is not in operation or a connection cable is not plugged in)
LED 1	LED 2	LED 3	LED 4	LED 5	LED 6	Master - operation, communication is flawless

Legend: LED  = ON, LED  = OFF

4.2 Local operation































4.2.1 Introduction



Even though the ISE+ is generally designed for parameterization via software, several queries can also be performed directly with the hardware by using the keys (T1 + T2).

4.2.2 Starting the local operation

The local operation is executed via the keys T1 and T2.

By pressing T1, the local operation is initiated. Through prolonged depression of T1, the various menus are accessed. After menu 4, menu 0 will be displayed again. The display of the menu selection is made justified to the right, with LED6 as the digit with the lowest value. To make a selection, release the key, when the desired menu is displayed.

LED - picture						Selection
LED  1	LED  2	LED  3	LED  4	LED  5	LED  6	Menu-0
LED  1	LED  2	LED  3	LED  4	LED  5	LED  6	Menu-1
LED  1	LED  2	LED  3	LED  4	LED  5	LED  6	Menu-2
LED  1	LED  2	LED  3	LED  4	LED  5	LED  6	Menu-3
LED  1	LED  2	LED  3	LED  4	LED  5	LED  6	Menu-4

Legend: LED  = ON, LED  = OFF

4.2.3 Menu selection



Caution: At present only menu-0 and menu-1 are active. The remaining menus are reserved for subsequent applications!

4.2.3.1 Menu-0: Display of the input states



























Notice: Displaying the input states eliminates the need to frequently measure the input signals with a multimeter. Just switch on the display and the illumination state of the LED will show you if the input is active or not.



A short actuation of the T1 key switches the signaling of the inputs on for 10 minutes. By briefly actuating the key once more, the display is switched off again.


If during the selection of a different menu, the display of the input states is active, the display will be switched off and after the other operation has concluded switched on again.

4.2.3.2 Menu-1: Display of the VdS-status (EMA)

When menu 1 is selected, the VdS – status display will be switched on for 5 seconds. LED6, the selection display for menu 1, will remain illuminated while the display is switched on. The VdS – status will be displayed through the LEDs 1, 2 and 3:


LED - picture						VdS-configurations-EMA
LED  1	LED  2	LED  3	LED  4	LED  5	LED  6	without VdS
LED  1	LED  2	LED  3	LED  4	LED  5	LED  6	VdS-class-A
LED  1	LED  2	LED  3	LED  4	LED  5	LED  6	VdS-class-B
LED  1	LED  2	LED  3	LED  4	LED  5	LED  6	VdS-class C

Legend: LED  = ON, LED  = OFF

 **Notice:** The VdS-status display is only illuminated, if the respective VdS class was selected during configuration and programming was performed with VdS restrictions.

4.2.4 Threat alarm reset display

After a threat alarm has been triggered on the respective reader line 1 to 4 (reader line 3+4 only if the RDM assembly is present) the respective LED (1 to 4) on the ISE+ circuit board will blink. By pressing the T1 key on the controller, the LED display can be reset.

 **Notice:** If during service work on the controller you should find LED1 through LED4 blinking, a threat alarm was triggered and the display was not reset.

5. Commissioning the controller via software

5.1 Important information



This guide for commissioning via software is merely a brief description. A comprehensive guide (in the HTML format) with pictures and films is included on the software CD. The current software and firmware as well as the current installation guide should always be used when units are initially put into operation (see Sesam-homepage).

5.2 Software system requirements

- Pentium-based or compatible PC
- Microsoft Windows NT/2000/XP
- screen resolution of 800x600 pixel
- min. 256 colors, small fonts
- an available serial interface
- min. 40 MB free hard disk space
- USB-memory-stick or CD burner for data backup

5.3 Data backup

Neither the person-/key data nor in the hardware configuration can be read from the controller. A conscientious data backup is therefore necessary.



Notice: Perform a data backup prior to every programming procedure. To perform an optimal data backup, copy the entire contents of the software CD and the current contents of the customer folder to a USB-memory-stick. Place the USB-memory-stick into the housing of the controller! Successful technicians will have access to all the relevant data (software, installation guides and the customer's database), that they need to perform programming/servicing tasks.

5.4 Loadable standard configurations



Notice: Loadable configurations can be found on the software CD or on our homepage on the Internet.

5.5 Introduction to the software

The software is required to program and configure one or more controllers.

Functions overview:

- Creating controllers and specifying their functions.
- Setting up persons and ID cards / key codes.
- Assigning a persons ID cards / key codes to the functions of the controllers.
- Assigning time and calendar functions to the ID cards / key codes.
- Administering controllers individually and in networks.
- Transferring configuration data to the controllers.
- Accessing protocol and status information from the controllers.

5.6 Program installation

The program installation is initiated by executing the SETUP.EXE file.

If „SUN JAVA“ is not installed on the computer yet, please execute „Start/Programme/Sesam-Plus/ Java installieren“ after the installation process has concluded.

During the execution of the "installer version" the folder "Sesam-Plus" will be created. During the execution of the retail version the folder "Sesam-Prof" will be created.

5.7 Program execution

After starting the program, the window „select database“ will be displayed. In the folder tree the Sesam Plus/Prof root directory folder is selected. (default = ..\Sesam-Plus).

By selecting „NEW“, a new „client“ will be created. The „client“ is a project folder, under which several ISE PLUS controllers can be created. A client folder can be created at any location within the overall directory of a computer or a PC network.



After the first program start, a new client must be created!

The database_leer in the Sesam-Plus root folder must be left unchanged.

After selecting a client folder in the folder tree, the selection is confirmed by clicking on the now active „OK“ button.



After entering the username and password (username: ADMIN, password: leave blank) the main menu will appear.

Execute further procedures according to the item entitled „creating and programming controllers“.

5.8 Program layout

User administration:

Here, user passwords are assigned. The user rights based on the folder tree of the main menu.

Equipment administration:

The client data is entered under the item „Organisation“.

The communication interface is selected under the item "parameters". Additionally it is specified here, if controllers in networks will be consolidated and if the time/calendar function is to be active.



The menu items network and time control will only be shown in the menu tree after they have been activated! (see „optional functions“ below)

Under the menu item "system password" the assignment of a systemwide password for all controllers is initiated and is stored in the "work processing list" The assignment of the password is executed under the menu item "synchronize controllers" (see below).

Under the menu item "date/time", the current PC time is displayed, along with the option to switch between standard and daylight savings time.

Controller administration:

Here, new controllers are created, configured and edited. For service work on existing systems the various reset options, which are explicitly described in the appendix, are of importance.

If a new controller is created, it must be ensured before transferring data, that the ISE PLUS assembly is in the factory default configuration. (see manual cold start page 17, chapter 4.15)!

User administration:

Creating user accounts and assigning user rights (see „creating and programming controllers“). Users can be consolidated into user groups to minimize the effort for functionality assignment and to improve the overview clarity of the assignments.

Functions:

Here, under the menu item " links" the users/user rights are assigned to the controllers and their functions.

If the time functions are activated, the user rights can optionally be restricted through time constraints.

Synchronizing controllers:

Under the menu item "execute process", the configuration and user data is transferred to the controllers.



All configuration changes are collected and consolidated into a "work processing list". When the data transfer is initiated, only the tasks that are listed in the "work processing list" are executed.



All controllers have a systemwide password that is used at the time of data transfer. For security purposes this systemwide password is not stored and must be entered again manually prior to every data transfer (the factory setting for the systemwide password is "0")!

With a single data transfer is possible to synchronize individual controllers, individual network segments or all controllers at once!

Lists:

The user and controller lists contain printable allocation tables.

The protocol contains all switching events in a chronologic order. It is updated by reading new protocol data from the controllers. The new data is appended to a possibly already existing protocol.

Administration:

Here, errors and administration protocols as well as a debug terminal output of the selected controller are displayed.

Through the menu item "load firmware", the firmware in the controllers is updated. To activate the newly loaded firmware, a cold start of the component is necessary after the data transfer has concluded.

(„Manual component – cold start“ (page 17) or through the software (see page 27) Through the menu item „load driver“ it is possible to load reader line drivers for the RDM-component.)

Optional functions:

Controller/network administration:

Under the menu item "system administration/ parameters" it is possible to select „RS485-network“. In a RS485-network and address between 1 and 63 is assigned to every controller.

By activating "network" it is possible to create a data telecommunications connection to communicate with a controller!

Under the menu item „controller/network administration“ the individual controllers must be assigned to a network.



After activating "network" at least one network must be redefined.

An individual communication connection is assigned to each network. During the data transfer through the menu item "synchronize controllers", it is possible to overwrite the communication connection setting for an individual network segment or for an individual controller (e.g. COM1: except modem)

Time control:

Through the utilization of a maximum of 16 time zones, time models can be created here, that can optionally be used to allocate persons/ID cards to functions with time-limited usage.



Before the time models can be created, the time zones must be defined!

5.9 „creating and programming controllers“ procedure

a) The user rights/ID cards are entered through a PC data acquisition device or a PC keyboard:

- Setting parameters
- Creating a controller or loading a finished/set up controller.
- Defining persons and acquiring user rights/ID cards through a PC data acquisition device or a PC keyboard
- Assigning persons to the functions of the controllers
- Controller synchronization

b) The user rights/ID cards are acquired through the reader of a controller:

- Setting parameters
- Creating a controller or loading a finished/set up controller.
- Controller synchronization
- Defining persons and acquiring user rights/ID cards with the reader of a controller. (for this, select the controller and reader!)
- Assigning persons to the functions of the controllers
- Synchronizing the controllers again

5.10 Resetting options (under the button „administer“)



The term factory default setting: In the factory default setting the controller has the RS485-network address 0. All configuration data is deleted and the controller is not functional.

Transferring data to the controller:

All configuration files are entered into the "work processing list" for transmission. The data transmission is initiated from the menu "synchronize controllers / execute process".



Notice: If there is no entry displayed in the controller synchronization list after a configuration alteration etc. (menu: synchronize controllers --> execute process), then the reset type „transfer data to the controller“ must be selected. Through this, all data to be transferred is reentered into the controller synchronization list and will be written to the controller during the subsequent synchronization.

Transferring data to a controller in the factory default setting:

The address in the database is set to 0. All configuration files are entered into the "work processing list" for transmission. The data transmission is initiated from the menu "synchronize controllers / execute process".



Caution: If a controller has already been assigned the address 0, this function will not be available. Synchronize the other controllers that have the addresses 0 first. After that, the controller can be reset.

Through the data transfer, the RS485 network address in the controller and in the database receive their originally assigned value, which is between 1 and 63.



Notice: This option is used, if a controller is replaced or a controller is manually (through a cold start) restored to the factory default setting.

Restoring a controller to the factory default setting and transferring data:

Selecting this option opens a dialog, which concludes with the controller being restored to the factory default setting through a software command. Through this process all configuration data is lost, all protocols and the controller are reset and the RS485 address in the controller is set to 0.



Caution: Immediately after this process has concluded, the controller is without function until the next data transfer occurs!!

The address in the database is set to 0. All configuration files are entered into the "work processing list" for transmission. The data transmission is initiated from the menu "synchronize controllers / execute process".

Through the data transfer, the RS485 network address in the controller and in the database receive their originally assigned value, which is between 1 and 63.



Notice: This option can be used to activate a new previously transferred firmware.

6. Appendix

6.1 Controller and reader units - technical data

Enclosure: Sheet steel housing

Dimensions: LxWxH: 260x230x60 mm (sheet steel housing)

Memory: 16 MB onboard memory for:
- 3,000 authorizations
- 60.000 protocol events

Power supply: 12 V DC (+/- +15%)

Power consumption: Controller on standby: typically 72 mA

Starting current for dimensioning the power supply 170 mA. (This value corresponds with the maximum power consumption, without taking the the electric lock bolt output into account. If it is utilized, a power consumption of up to 4 A is possible!)

RDM assembly additionally 15 mA

Power consumption of Sesam-reader units in mA:

	HFS	HFS-DS	TKS	UP55
Standby	2,5	15	< 1,0	10

For the signaling (LED and Piezo) during operation, an additional 20 mA are required.

Temperatures: Controller proximity: 0° - 40° C
Environmental class II
Reader proximity: -15° - +65° C
Environmental class IV

Relays: All relays 24 V / 1 A

Interfaces: RS232 for stand-alone operation
RS485 network operation

VdS-recognition: VdS-SE-class-C: G 104 001
VdS-ZKA-device-class-C: Z 105 001
VdS-ZKA-system-class-C: S 105 801

6.2 VdS-power supply (in a enclosure) for access control systems without an IAS (EMZ)

The power supply (in a enclosure) is in compliance with guidelines EN60950/VDE 0805, VDE 0833 as well as with the VdS guidelines.

The assembly may not be used without a protective enclosure. The employed enclosure must be designed to facilitate the necessary heat dissipation and the ventilation of the battery.

The main features:

- Two separate circuits (load control and charge regulator).
- Voltage is automatically adjusted according to temperature.
- The outputs as well as the control inputs of the power supply have protective extra-low-voltage with a secure separation (PELV).
- All inputs and outputs are secured against brief overvoltages (transient characteristic).
- An additional over voltage protection is activated, when the output voltage exceeds a value of approx. 16.5 V DC for more than 100 ms. (hereby the secondary fuse Si5, T2A is triggered.)
- A monitoring circuit visually and electrically signals power supply or battery faults. To display this, a green and yellow LED are soldered to the circuit board of the power supply.
- Additionally, 2 outputs to connect external LEDs are present and available. These are to be connected with the LED-displays in the housing cover, as follows:


LED display	Signal switching
Mains 230 V (green)	from the power supply: Mains LED
Fault, power supply (yellow)	from the power supply: Mains LED-NT-FAULT
Fault, operation (yellow)	from the controller: relay output
Sabotage (red)	from the controller: relay output

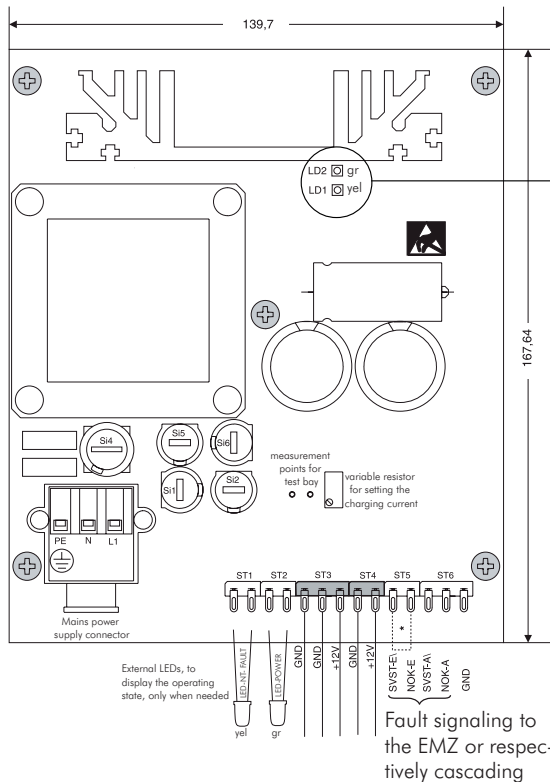
- For the retransmission of fault states IAS (EMZ), there are two cascadable signal outputs available per unit. (Mains o.k. = NOK and power supply fault = SVST)
- Two connection wire pairs with 6.3 mm blade receptacle connectors for the battery 2 x 12 Ah or 1 x 24 Ah (26 Ah).



Only carry out assembly work on the device after the operating voltage has been switched off (disconnected) and the battery is not connected. Discharge yourself prior to this by touching earthed metal parts to avoid damage to semiconductors caused by electrostatic discharge (ESD).


The mains connection is established through a 3-pole terminal strip (PE, N, L) for line cross-sections with 1.5 mm² (stripping length from 5 to 6 mm). The earthing connection of the housing, must be connected to the earth lug of the housing base plate. The mains connection line may be secured to the baseplate for strain relief using a cable tie. The device may only be connected to an installation with an earthing terminal (PE). When doing so, always make sure that the earthing terminal connection is carried out correctly. The red protective cap is used as a touch and disconnection protection, and must be fastened over the mains terminal strip after the installation has concluded. The mains power supply line may only be stripped to a length, so that the insulation it is still covered by the neck of the protective cap. Here, the cable sheathing can be fastened with cable ties again.

 The mains line connection may only be carried out by a qualified electrician! The VDE regulations must be observed. The separator and additional short-circuit protection compliant to EN60950/VDE0805 must be incorporated into the building installation.



The meaning of the LED display on the circuit board or respectively on the ST1 and ST2

operating state	LED gr	LED yel
mains and battery o.k.	illuminated	dark
mains fault	dark	illuminated
battery fault	illuminated	illuminated

 5 x fastening screws M4

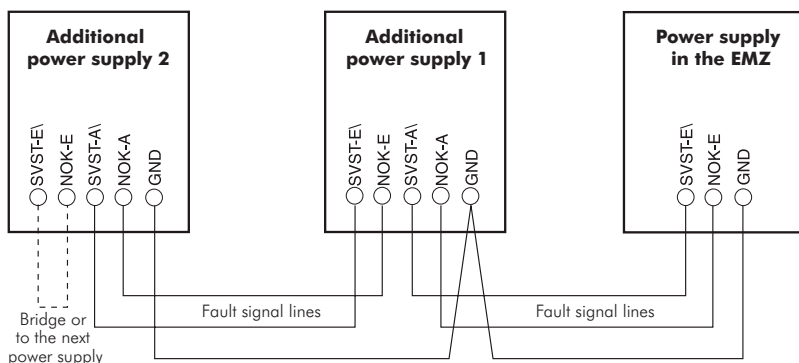
- Si1:T3.15A battery
- Si2:T1A output ST4
- Si4:T0.2A mains
- Si5:T2A secondary transformer
- Si6:T1A output ST3

* the connections SVST-E\ and NOK-E must be bridged, if a further power supply is connected (cascaded).

Connections on the soldering terminal strip ST1 to SDT6

ST1	1	GND switched	Output for the external LED "NT- FAULT" (yellow), illuminated if there is a mains power supply outage or a battery fault
	2	+12 V switched through series resistor	
ST2	1	GN	Output for the external LED "MAINS" (green), which is constantly illuminated if the mains power supply is on.
	2	+12 V switched through series resistor	
ST3	1	GND	Supply voltage for electric consumers (Si6/T1S)
	2	GND	
	3	+12 V DC	
ST4	1	GND	Supply voltage for electric consumers (Si2/T1A)
	2	+12 V DC	
ST5	1	SVST-E\	signal inputs for cascading additional power supplies 1 and 2, that must be bridged if no additional power supply is present (factory default setting)
	2	NOK-E	
ST6	1	SVST-A\	signal outputs to the EMZ or respectively for cascading have +12 V and 180 kOhm during normal operation. In case of a mains or battery fault 0V.
	2	NOK-A	
	3	GN	GND connection to the EMZ or respectively for cascading

Cascading the signals of several power supplies



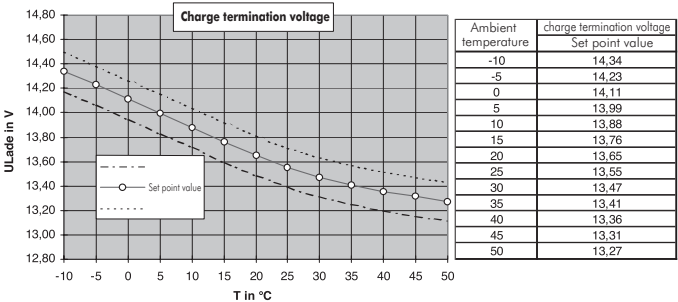
- The ground connections (GND) of all power supplies must be connected to each other.
- The +12 V-power supply outputs may not be connected to each other!
- The battery terminals may also not be connected to each other. This applies for the positive as well as for the negative terminals.



Checking the charging voltage:

The factory setting for the charge termination voltage is 13.65 V (at 20 °C) and does not need to be aligned. An optional control of the charge postage is made at the blade receptacles, which must be disconnected from the battery for this. For the measurement a 1 kOhm resistor must be switched parallel to the Voltmeter.

When evaluating the measurement, the temperature characteristic of the charging voltage must be taken into account. (see the following diagram)



Danger of injury!

A wrong selected charge voltage can damage the battery. Thereby acid can be released.

Technische Daten:

Mains voltage
Power consumption
Protection class
Output voltage
Lead battery
Maximum charge power
own consumption during power failure

230 (195-253) V AC / 50 Hz
max. 215 mA AC (Protective extra-low-voltage with a secure separation)
I (Protective earthing)
12 (10,2-14,5) V DC
12 V / 7,2 bis 26 Ah
approx. 1,3 A
approx. 10 mA

class		according to Vds-class B/C	according to Vds-class A
with battery 12 V / 7.2 Ah	maximum constant power drain	110 mA	550 mA
	short-term power drain	max. 1,6 A	max. 1,6 A
	charge time to 80% capacity (with a max. power drain at the same time)	≤ 10 h	≤ 10 h
with battery 12 V / 24 Ah (26 Ah)	maximum power drain	360 mA	900 mA
	short-term power drain	max. 1,6 A	max. 1,6 A
	charge time to 80% capacity (with a max.power drain at the same time)	≤ 24 h	≤ 40 h

NOTICE: If there is a power flow of approx. > 1.65 A, a portion of the power will be sourced from the battery. Therefore the monitoring switch will trigger.

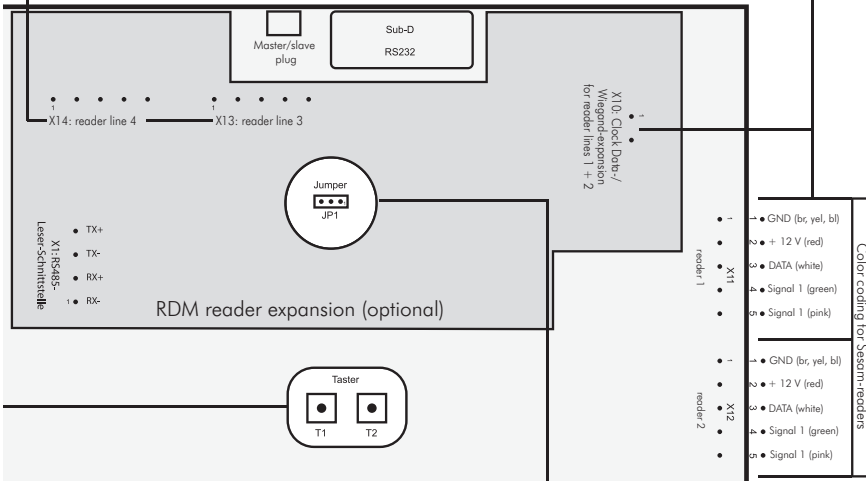
Protection class within the selected housing: .. IP 30, according to DIN 40050
Protection against environmental influences: according to VdS 2110 class II
Flammability class of the circuit board: V-0, according to UL 94
VdS certification: Z105001, class C

Lead batteries must be disposed of according to the country specific regulations.

6.3 RDM-reader expansion connection

Connection reader lines X14, X13 according to the interface			
Pin	Sesam (Dallas)	Wiegand	Clock/Data
1	GND (br, yel, bl)	GND	GND
+12 V	reader line X13: X11/2 reader line X14: X12/2	reader line X13: X11/2 reader line X14: X12/2	reader line X13: X11/2 reader line X14: X12/2
2	---	Data0	Clock
3	DATA (white)	Data1	Data
4	Signal 1 (green)	Signal 1	Signal 1
5	Signal 1 (pink)	Signal 2	Signal 2

Connection reader lines X11, X12 according to the interface			
Pin	Sesam (Dallas)	Wiegand	Clock/Data
1	GND (br, yel, bl)	GND	GND
2	+12 V (rot)	+12 V	+12 V
X10/1 X10/2	---	reader line X11: Data0 reader line X12: Data0	reader line X11: Clock reader line X12: Clock
3	DATA (white)	Data1	Data
4	Signal 1 (green)	Signal 1	Signal 1
5	Signal 1 (pink)	Signal 2	Signal 2



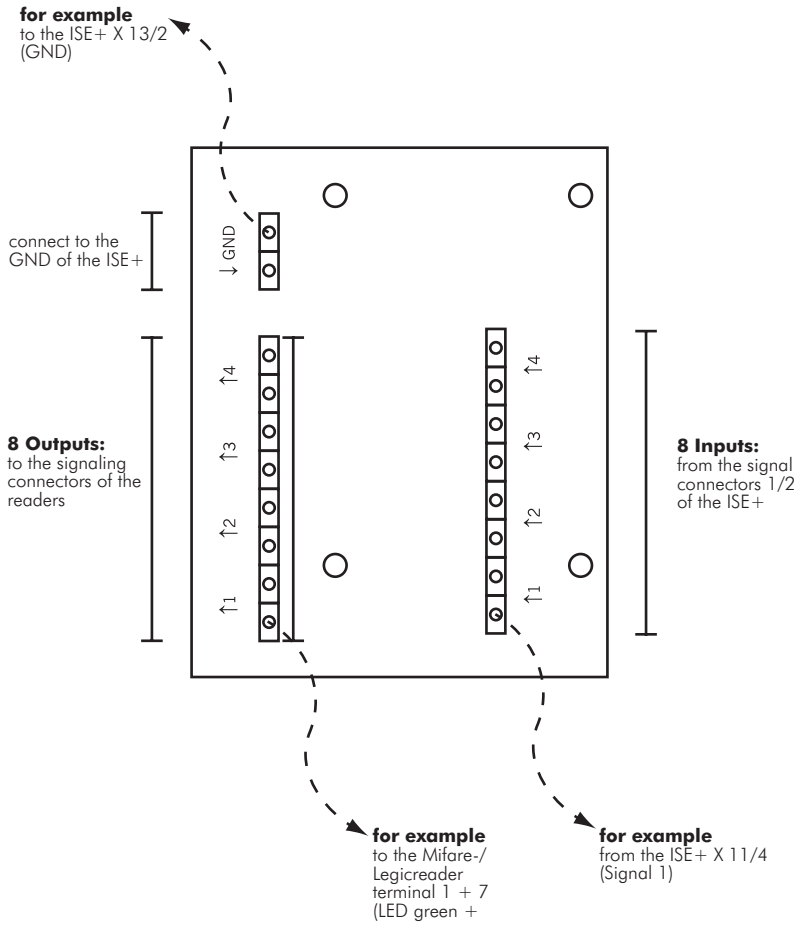
Notice: The factory default setting for all reader lines is the Sesam-protokoll (Dallas). Other protocols (Wiegand/Clock Data) must be requested when ordering the hardware. The respective drivers are loaded to the controllers when they are shipped.



Caution: For Mifare- and Legic-readers (Wiegand) the signaling must be controlled through the GND. For this, the signal converter (see 6.3.1) is used.

6.3.1 Connecting the signal converter (RDM-accessory)

The signal converter transforms signals from + 12 V to GND. This function is required for readers whose signaling is effected through GND, instead of being controlled with + 12 V (Mifare/Legic-reader).




6.3.2 Interfacing the Mifare-/Legic-reader to the ISE+




Caution: Mifare and Legic-readers may only be connected to the ISE+/
RDM controller. For controlling the signaling devices, which in the case of
Mifare and Legic-readers is effected through the GND-Signal, a signaling
converter is required (see 6.3.1).

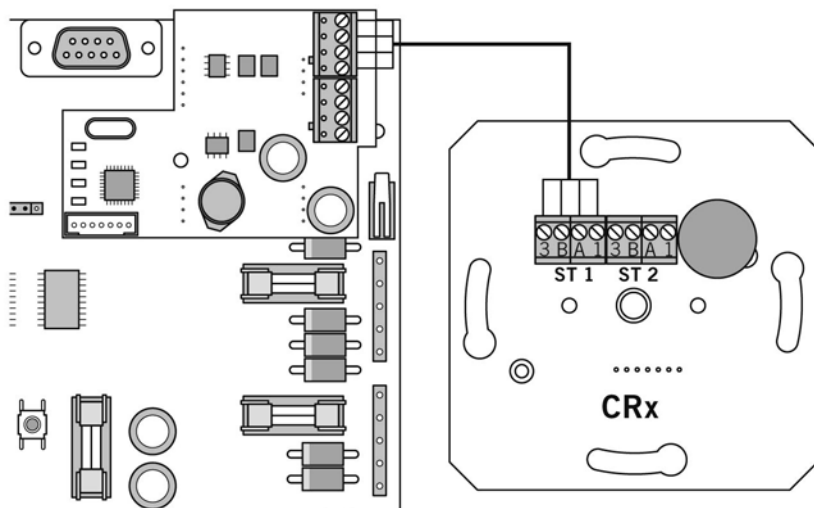
Switching of the reader lines X11 and X12 :

Pin	Label	Reader terminal	Remark
1	GND	2	
2	+ 12 V	3	
X10 Pin 1	Reader line X11: Data 0	5	
X10 Pin 2	Reader line X12: Data 0	5	
3	Data 1	4	
4	Signal 1 (+12 V)	1+7 	Piezo + LED green
5	Signal 2 (+12 V)	8 see above	LED red

Switching of the reader lines X13 + X14:

Pin	Label	Reader terminal	Remark
1	GND	2	
X11 Pin 2	+ 12 V	3	
X12 Pin 2	+ 12 V	3	
2	Data 0	5	
3	Data 1	4	
4	Signal 1 (+12 V)	1+7 	Piezo + LED green
5	Signal 2 (+12 V)	8 see above	LED red

6.4 Dorma DCW-expansion connection



Connection of the DCW-readers:

For the connection of the controller to the reader units, a shielded standard telephone cable with two wire pairs (I-Y (St) Y) 2x2x0.8 is used.

The cable between the controller and all reader units may have a maximum length of 300 m. Please keep in mind, that for cable lengths greater than 300 m the electrical signal-to-noise ratio (SNR) drops and a flawless data transmission can no longer be guaranteed. This must be tested on-site.



Caution: In VdS-installations the readers must be connected radially. This means that every reader must be connected through a separate cable. The maximum overall cable length of all readers may not exceed 300 m.

Technical data / power consumption of the controller + readers:

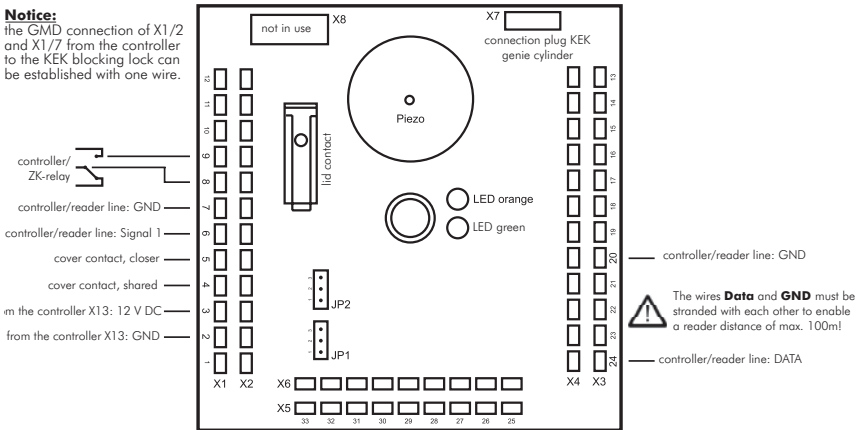
- with one reader : 170 mA
- with two readers : 280 mA
- with three readers : 380 mA
- with four readers : 500 mA

VdS-class-C: in recognition

6.5 KESO-cylinder system connection

Notice:

the GND connection of X1/2 and X1/7 from the controller to the KEK blocking lock can be established with one wire.



Notice:

Adjacent pins are connected to each other. Unmarked pins are unused and available for wiring.

Start-up, cylinder connection and LED-test:

After the KESO KEK genie Zylinder has been connected to the KESO KEK genie blocking lock, the start-up procedure and function test will be executed.



Startup: The KESO KEK genie cylinder must be connected to the KESO KEK genie blocking lock before applying voltage. After the power is switched on, the two LEDs (green, orange) on the circuit board of the KESO KEK genie blocking lock, will illuminate briefly. With this, the startup procedure has concluded successfully.



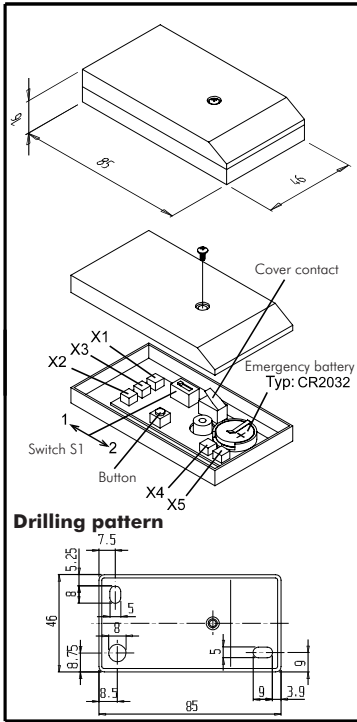
Appearance of the green LED when a key is inserted:

rapid blinking: the ISE+ identifies that the data is okay
 Slow blinking: Data is incorrect, check the data connection
 Constantly illuminated: No data transfer, mechanical key or the key's transponder is faulty



Hotline: ASSA-KESO Sicherheitssysteme GmbH, D-21244 Buchholz,
 Tel.: +49 - 41 81 - 9 24 - 0


6.6 Connection of the SimonsVoss cylinder system with switchbox



Caution:
there is a new switchbox version. As of version 1.1 the cylinder clearance is switched with **12 V** through the access control relay. (If there is no label on the battery it is usually the version 1.0 which is controlled via GND.)

Connection to the switching device ISE

Connection cable: 5 x 0.6 mm
max. cable length 100 m

Connection switchbox	ISE connection	description	remark
Terminal X1	connected separately	+12V DC	fused
Terminal X2	connected separately	Masse	250mA (slow response)
Terminal X3	on the respective access control relay	switching contact +12V DC  caution: potential altered	X1 → X3 ZK-relay
Terminal X4 and X5			close, when the cover is closed

Technische Daten:

Housing: plastic
dimensions (LxWxT): 85x46x16 [mm]
supply voltage: 12V DC
power consumption: <1mA quiescent current
VdS class C: recognition number, see controller
environmental conditions according to environment class II

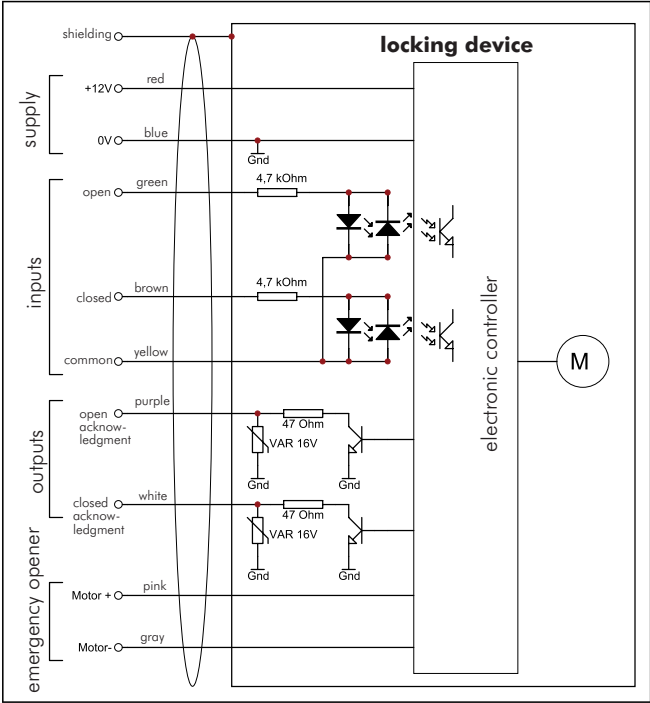


Notice: The SV-cylinder and the switchbox always form a unit and are programmed attuned to each other. If you need to exchange the cylinder or switchbox, it is important to disclose the serial number of the device to be exchanged, when ordering a new one.



Installation: the Sesam switchbox is to be installed next to the door in the secured area. The maximum possible distance to the lock cylinder is dependent on the conditions of the locality. Before the final installation, please check if the intended installation location permits a flawless operation. For this, the S1 switch is put into the position 2 (push-button operation). Now it is possible to test the intended installation location by actuating the pushbutton, without the need for the switch box to be wired. Move the S1 switch to the position 1 (online operation), after you have found the ideal installation location (the cylinder switches reliably when the door is closed). A horizontal installation delivers a greater range. Further information can be found in the instructions that accompany the cylinder.

6.7 Connecting the locking bolt device



caution:

The connection wires for the emergency opener motor+ (pink) and motor- (gray) will not be switched.

These wires are only to be used for emergency opening purposes, if the electronic locking bolt unit should fail!

Inputs and outputs of the electronic locking bolt unit		
signal	wire color	description
shielding	-	the shielding must be earthed
+12V	red	supply +12V
0V	blue	supply 0V
open	green	input electronic locking bolt unit "open"
closed	brown	input electronic locking bolt unit "closed"
common	yellow	common connection of the open and close input. Must be switched to +12V or 0V. switched to +12V ? inputs are 0V active switch to 0V ? inputs are +12 active
open output	purple	OC output: display of the open status
closed output	white	OC output: display of the closed status
Motor +	pink	+ direct motor connector for emergency opening
Motor -	gray	- direct motor connector for emergency opening

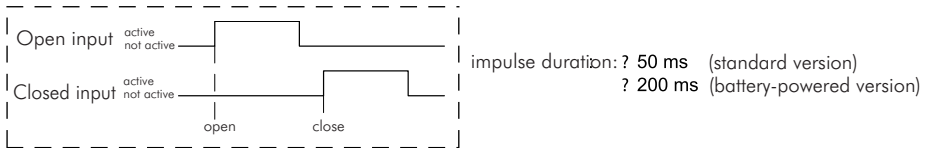
Controlling with dynamic signals

these are time-limited impulses for open and close controlling, like the ones used for bistable door openers. The following values for the impulse length must be observed.

impulse length	> 50 ms	for the standard versions	8320.0 / 8320.1
	> 200 ms	for the battery-powered versions	8320.2 / 8320.3

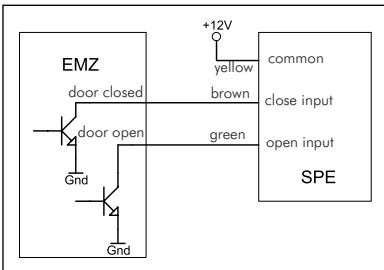
The impulse is stored in the electronic locking bolt element and the opening or respectively closing operation is executed.

Signal characteristics:

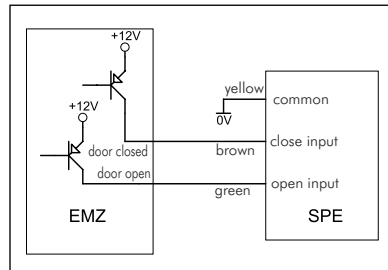


Control examples:

With outputs that switch at 0V
„door open“ and „door closed“ (0V-active)



With outputs that switch at +12V
„door open“ and „door closed“ (+12V-active)



Cascading of several electronic locking bolt units

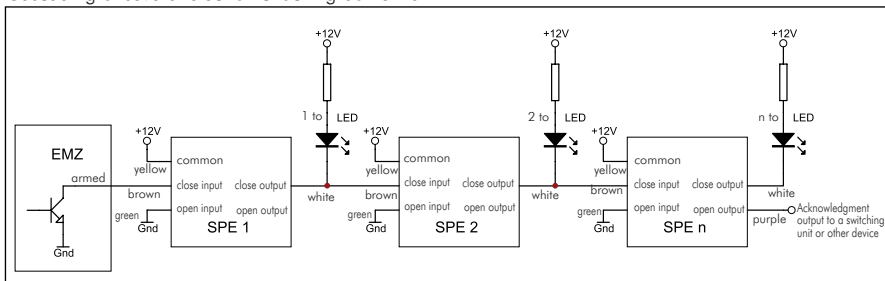


Diagram 2-12

6.8 Remote control adapter-plus (FBA-Plus) / controller networking

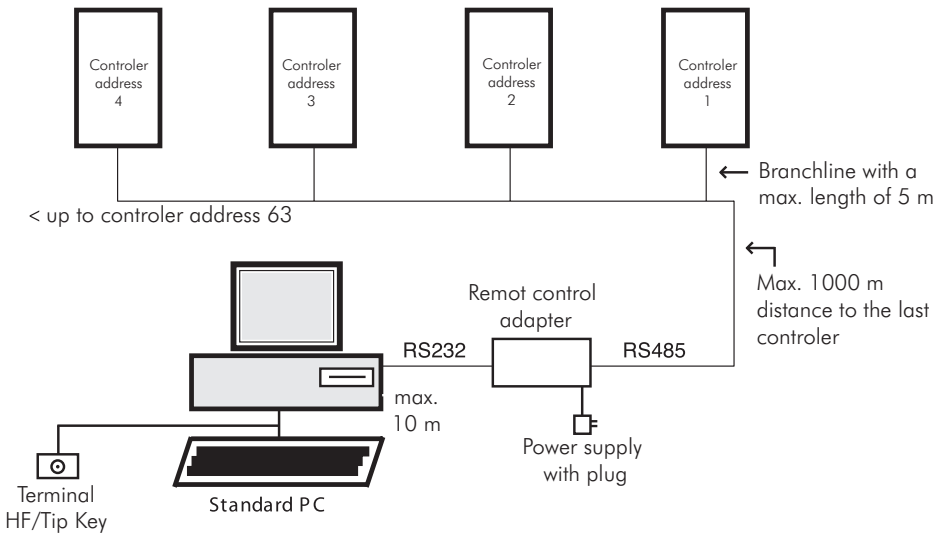
A RS485 network is described as the interconnection of several controllers to a computer. The purpose of this, is the parameterization, programming and protocol analysis of all connected controllers from a single centralized location.

The remote control adapter-plus (FBA-Plus) is used as a connection link between the COM interface of the PC (RS232) and the controller (RS422/485). For wired connections, there is the option to select between 2- and 4-wire cabling.

The distance from the first to the last device may be 1,000 meters at most.

The cable must be terminated with 2 x 120 Ohm resistors.

6.8.1 Network topology



6.8.2 Network cable

Shielded copper cable with 2 wires, stranded with each other, is used as network cabling (twisted pair, 2x2x0.6 or 1x2x0.6 depending on the type of connection).

The maximum length of the cable is 1,000 m. Branch lines to the various controllers may not be longer than 5 m.

6.8.3 Wiring arrangement

A maximum of 63 controllers can be connected to a remote control adapter-plus (FBA-Plus). If the network is larger, several remote control adapters with their own individual network cable must be utilized.



Notice: With the FBA-Plus, 2- or 4-wire networks can be implemented. Please observe the exact connection method for this.



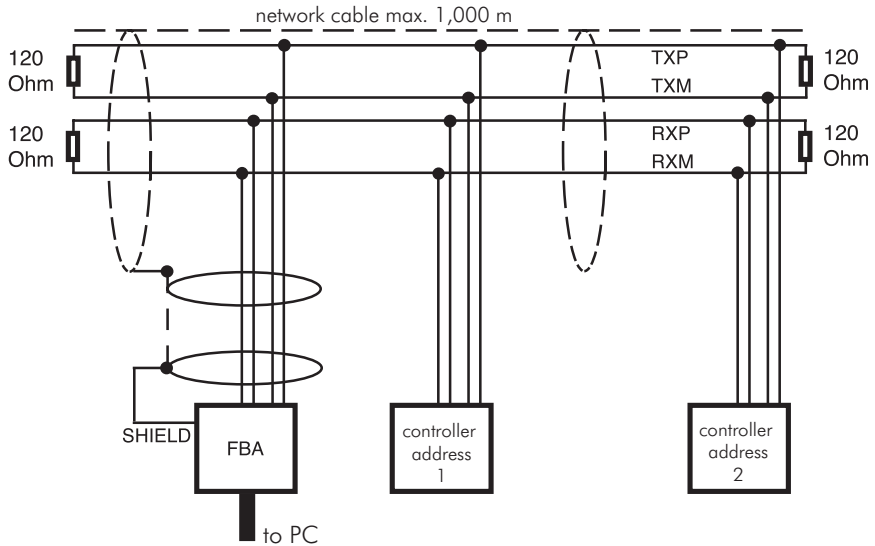
Notice: The wire pairs must be terminated with 120 Ohm resistors at both ends of the network cable. The resistors can be soldered directly to the wire ends.



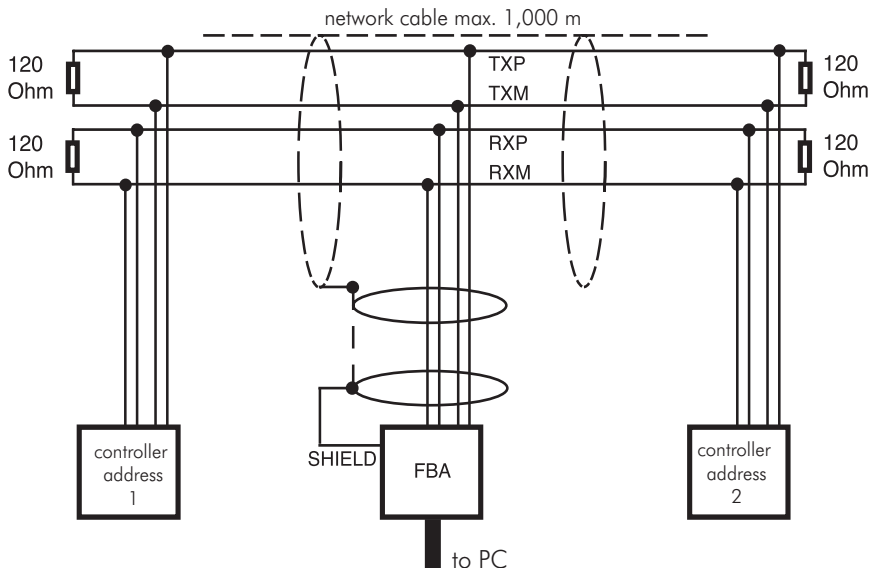
Caution: A radial wiring array, away from the FBA-Plus is not permitted. The network cable may only leave the FBA-Plus in 2 strands (in 2 different directions) at most.

The FBA-Plus can be placed in the following ways:

a) the FBA-Plus is located at the beginning/end of a network cable:



b) the FBA-Plus is located in the middle of a network cable:



6.8.4 Connecting the remote control adapter-plus (FBA-Plus)



Caution: The FBA-Plus may only be operated with the associated power supply. If it is operated with another power supply, a flawless operation of the FBA cannot be guaranteed.



Caution: The shielding may only be connected to one side of the (B)GND terminal on the FBA-Plus.

The FBA-Plus is connected to a PC through a 9-pin sub-D-socket and a shielded V24/RS232 cable (wired through 1:1).



Caution: Null modem cables (crossed) can not be used for connections to the FBA-Plus.

The FBAs network cable and power supply are connected to the terminal strip of the FBA according to the following table:

a) Power supply:

FBA-Plus	Connection
(R)+VS	10-30 Volt DC
(B)GND	0 Volt DC

b) 2- wire connection:

FBA-Plus (RS 485)	Controller X9 (RS485)	Remark
Data+	2	X9/2 with X9/4 bridges
Data-	1	X9/1 with X9/3 bridges



Notice: The maximum length of the network is 1,000 m. Both network ends must be terminated with 120 Ohm resistors.

c) 4-wire connection:

FBA-Plus (RS 485)	Controller X9 (RS485)	Remark
TX+	2	(+) data from PC
TX-	1	(-) data from PC
RX+	4	(+) data to PC
RX-	3	(-) data to PC



Notice: The maximum length of the network is 1,000 m. Both network ends must be terminated with 120 Ohm resistors.



Notice: Please check to make sure that the jumper on the controller is set to RS485-operation.



Notice: A remote control adapter with a USB connector is optionally available (item no. SES-FBA/USB)

Ready-for-operation display:

LED1 on the modem, remote controller and on the remote control adapter is illuminated

Jumper:

JP1 - closed if the callback function is activated, open if not

JP2 - without function

JP3 - closed if a GSM modem is connected, open if not

JP4 - closed if a ISDN modem is connected / open, if an analog modem is connected

Switches:

S1 - Reset (must be actuated after every change of jumper states or cable connections on a data telecommunications module)



Notice: Commissioning instructions are included with the data telecommunications device.



Caution: The ferrit beads must be mounted to ensure that the permissible threshold values for electromagnetic emissions are observed.

6.10 Fault signals during arming

Interval signal:

When	Cause
<u>immediately</u> after the arming attempt	The signal for arming readiness is not present.
<u>3 seconds</u> after the arming attempt	Locking switch contacts (if programmed) are not closed.
<u>8 seconds</u> after the arming attempt	The EMA did not switch to armed. The arming acknowledgment signal was not received within the latency time of <u>8 seconds</u> .

6.11 No connection to the controller

1. Was the correct data cable used?

The data cable must be a serial 1:1 connected cable. It may not be a null modem cable.

2. Do the controller (Hardware) and the controller in the database have the same address?

During the start of operation of the controller, unintentional address conflicts can occur. These can develop through:

a) Was a hardware cold start performed after a controller alignment?

Cycle through the following steps in the software, in the menu administration--> control--> edit --> administer „transfer data to a controller in the factory default setting“.

b) Was a controller deleted in the software, to which a connection had already been established? And, is it impossible to transfer data to the device of a newly created controller?

Newly created controllers always have the address „zero“. Since you have already established a connection to the hardware, a different address than "zero" has been stored there.

Perform a manual cold start with the hardware. After that a communication should be possible again.

3. Is the jumper for the interface selection plugged in correctly?

Please check if the jumper for your selected interface is plugged in correctly. For the RS232 the jumper must be plugged to pin 2+3.

4. Is your notebook connected to the power supply?

Some notebooks have problems supplying enough power to the interface while operating on battery power only.

5. Are you using a USB to RS232-converter?

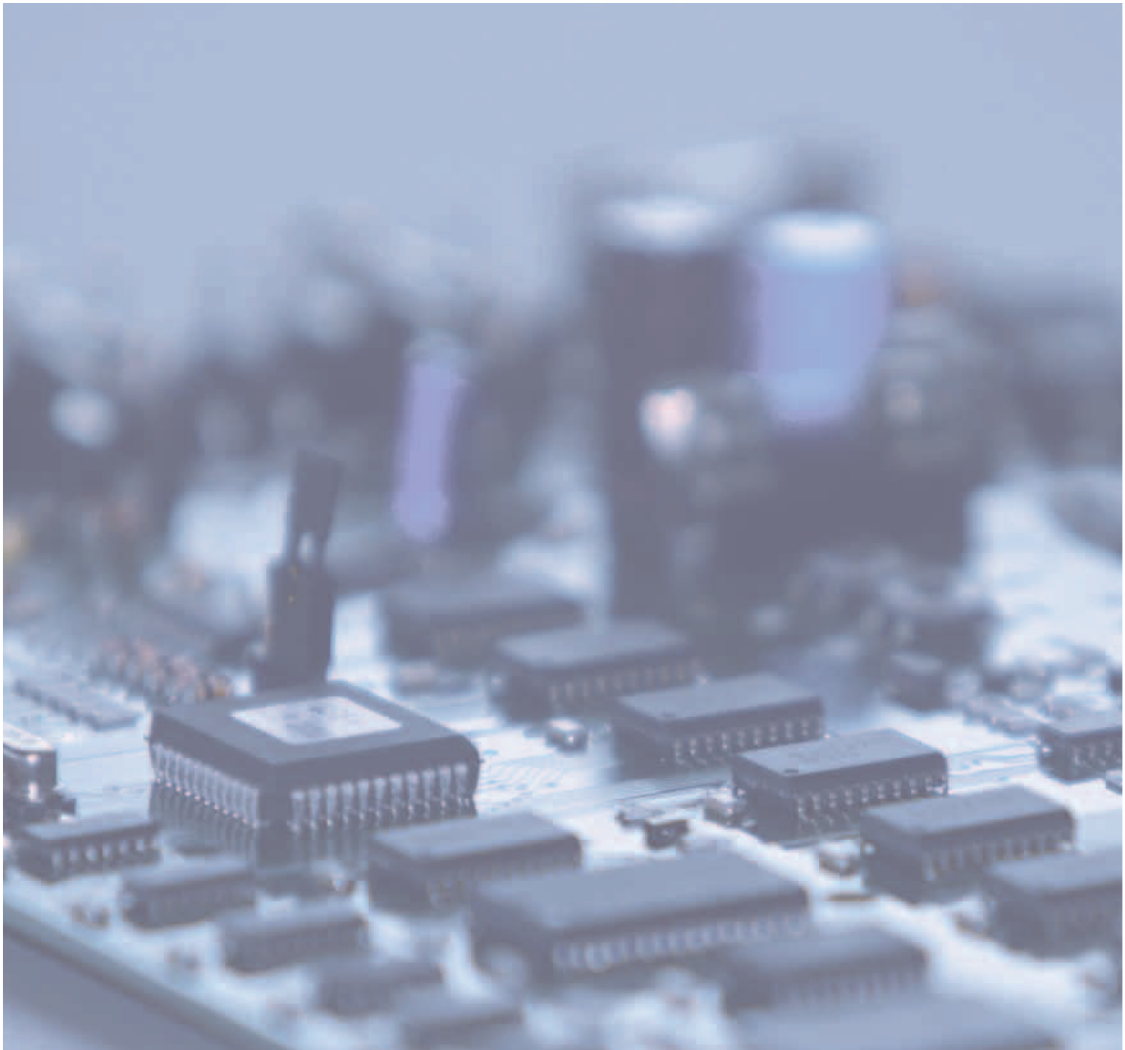
Not every converter is compatible to the Sesam Software. You can order a suitable converter from Sesam (item no.: 000871-0)

6.12 Does the data transfer abort and display the entry Syncerror in the transfer protocol?

1. A security zone of the controller is armed.
2. Cycle through following steps in the software, in the menu administration--> control--> edit --> administer „transfer data to a controller“.

Notes:

Notes:



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