



Installation Instructions



DESIGNA SMART MOVE

Version: 1.10

DESIGNA Verkehrsleittechnik GmbH

Faluner Weg 3
24109 Kiel
Germany

Tel. +49 (0)431 5336 0
Fax +49 (0)431 5336 260
Email info@designa.com
Web www.designa.com

COPYRIGHT

© 2020 DESIGNA Verkehrsleittechnik GmbH
All rights reserved. No part of this publication may be
reproduced, transmitted, transcribed, stored in a retrieval
system, or translated into any language in any form by any
means without the written permission of DESIGNA
Verkehrsleittechnik GmbH.

COPYRIGHT

© 2020 DESIGNA Verkehrsleittechnik GmbH
Urheberrechtlich geschützt. Jede Verwertung außerhalb der
engen Grenzen des Urheberrechtsgesetzes ist ohne
Zustimmung der DESIGNA Verkehrsleittechnik GmbH
unzulässig. Dies gilt insbesondere für Vervielfältigungen,
Übersetzungen, Mikroverfilmungen und die Einspeicherung
und Verarbeitung in elektronischen Systemen.

1	GENERAL.....	2
1.1	About this manual.....	2
1.2	Explanation of signal words and symbols	2
1.3	Customer service & service.....	3
2	SAFETY.....	4
2.1	Intended use.....	4
2.2	Warnings and occupational health and safety	4
2.3	Safety standards	5
3	SCOPE OF DELIVERY	5
4	SMART MOVE SYSTEM	6
5	SYSTEM REQUIREMENTS.....	7
5.1	Technical requirements	7
5.2	SQL database configuration.....	7
5.3	System software	7
5.3.1	Setting up the login group	7
5.3.2	Setting up app users	8
6	TECHNICAL DATA.....	10
7	CONFIGURING BEACONS	10
8	INSTALLING BEACONS IN THE LANE	11
8.1	Installation	12
8.1.1	Installing the beacon box on the entrance /exit control terminal.....	13
8.1.2	Connecting the beacon box on the entrance /exit control terminal.....	15
8.1.3	Example: Installing the beacon in the DCT casing body	16
8.1.4	Connecting the beacon in the DCT casing body	17
9	CONFIGURING THE IN AND OUT DEVICES.....	18
9.1	Configuration at the factory.....	18
9.2	Retrofitting the IN and OUT devices with SMART MOVE	18
9.3	Decommissioning and disassembly.....	19
9.4	Disposal	19
10	VERSION OVERVIEW.....	20

1 General

1.1 About this manual

This installation manual is specifically intended for the operator of the DESIGNA parking management system and provides important information on the installation and configuration of the respective SMART MOVE components.

Installation work may be carried out by skilled workers or DESIGNA trained and authorised electricians only.

- ⇒ To ensure safe and reliable operation, please read this manual carefully and fully before installing any components.
- ⇒ Please follow all the safety notices.
- ⇒ The manual is an integral part of the system and should be kept for future reference and be readily available to staff at all times.

DESIGNA eCademy



Discover information about courses, further documents, and all the latest news in the DESIGNA eCademy.

After registering you can download the operating instructions and further documents in the electronic read-only media format.

1.2 Explanation of signal words and symbols

Safety messages

Following signal words are used to identify the safety messages and property damage messages:

Pay careful attention to the safety messages in order to prevent accidents as well as bodily injuries and property damage.

DANGER

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

Hints and recommendations

... highlights useful hints and recommendations as well as information for an efficient and trouble-free operation.

Functional symbols and designations

The following symbols and designations are used in the instructions:

—	Instructions specified in warnings
■	List
1.	Step-by-step instructions
⇒	Instructions without fixed sequence
►	Result of the action
<i>italic</i>	Italic text refers to a component in a figure or a different chapter of these instructions or related instructions.

1.3 Customer service & service

Your DESIGNA Service is available to you for technical information. For the address, see invoice, delivery note or imprint.



In order to enable fast handling note the data of the type plate such as device type, order number, identity number, serial number, etc. before calling.



2 Safety

2.1 Intended use

The application SMART MOVE is part of the DESIGNA PARKING MANAGEMENT SOLUTIONS.

The DESIGNA system was developed for checking entrances and exits in parking areas as well as for recording parking times and parking costs, including their automated or manual payment.

The DESIGNA system is used for parking management and offers a service (a free parking space) to customers for a stipulated fee.

The SMART MOVE app from DESIGNA enables easy and convenient ticketless parking in car parks throughout Germany.

The beacon technology-based app allows you to manage all ticketless season parker processes via your smartphone or tablet. The smart device can be used to enter and exit car parks after prior registration. The beacons installed in the car parks communicate with the SMART MOVE app on your smart device via Bluetooth Low Energy.

2.2 Warnings and occupational health and safety

Always observe the following warnings to reduce health hazards and to avoid hazardous situations.

Electric voltage

DANGER

Danger of death due to electric shock!

Contact with live components may result in death.

- Installation has to be carried out by electrical technicians or DESIGNA electrical technicians or electrical technicians of DESIGNA trained and authorized dealers and partners.
- Make sure that the power supply is **externally** disconnected and that it cannot be switched on.
- Test for absence of voltage.

Thunderstorm, lightning, electric voltage

DANGER

Danger of death from lightning and electrical voltage!

If lightning strikes the device, contact to the device components and direct proximity to the device includes mortal danger.

- Never install the device during thunderstorms.
- Protect yourself in buildings or vehicles.

2.3 Safety standards

The SMART MOVE system has been tested according to the following standards:

EN 300 328 V2.1.1

Standard on the use of the radio spectrum.

EN 62479:2010

Assessment of the compliance of low power electronic and electrical equipment with the basic restrictions related to human exposure to electromagnetic fields (10 MHz to 300 GHz).

FCC Compliance Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: 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 to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into 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.

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

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 cm between the radiator and a human body.

3 Scope of delivery

Scope of delivery per lane:

- 2x beacon box
- 1x column (e.g. DCT column)
- Fastening materials

4 SMART MOVE system

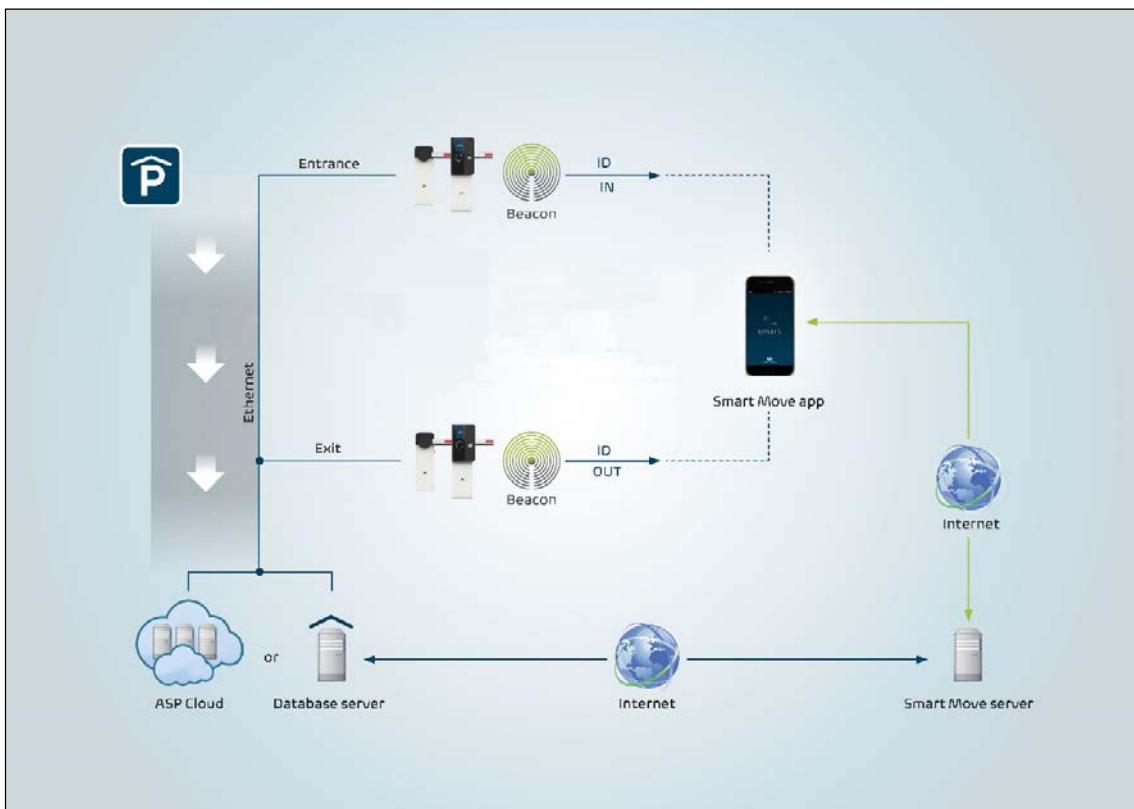


Fig. 1: SMART MOVE system

The SMART MOVE system enables ticketless entry and exit to car parks through the app installed on your smart device.

The beacons installed in the car parks communicate with the SMART MOVE app via Bluetooth Low Energy.

After registering with the SMART MOVE car park operator, car park customers receive the necessary SMART MOVE access data. Car park customers can then log into the SMART MOVE app using the access data sent to their email address stored in the system. The SMART MOVE server assigns a unique ID number to each user. Additionally, the app receives a list of available beacons from the SMART MOVE server.

When entering and exiting a car park, the beacon is recognised by the activated app and a connection to the beacon is established.

The ID number stored in the app is transferred to the DESIGNA system (database server/cloud) via the beacon. Once the ID number has been verified, customers can enter or exit the car park.

Communication between the DESIGNA system and the SMART MOVE server results in the parking data being sent to the SMART MOVE server for further processing.

5 System requirements

5.1 Technical requirements

The following technical requirements are necessary to ensure successful operation of the SMART MOVE system.

The operator should operate the parking management system via a DESIGNA CLOUD application or using an on-premise solution with a system version X20 or higher. If no CLOUD solution is used, a DSL connection with a fixed IP address is required as well as a firewall or router.

Users require a smartphone (version iOS 9.0 / Android 6.0 or higher), equipped with Bluetooth (version 4.0 LE), and a mobile phone connection.

5.2 SQL database configuration



The SQL database is configured by your DESIGNA Support.

SySDataConfig

The following settings must be carried out in the SySDataConfig:

ConfigToken:

QINKK_URL

ConfigValue:

<https://designaqinkk.westeurope.cloudapp.azure.com:8890/qinkk/160/ServiceDBeaconREST.svc/Callers/>

5.3 System software

In order to be able to use the SMART MOVE app, the data of the app user, e.g. email address, must be stored in the WinOperate system software. Further, to set up the app user in the system software, it is necessary for the operator to be given the appropriate user rights in the rights management.

5.3.1 Setting up the login group

In order for the system software operator to set up the app user, the logged-in operator must be assigned to the appropriate login group in the rights management that has the user right to assign the app user to the SMART MOVE function.

⇒ In the login group of the logged-in operator, activate the user right *Items and groups/ Assign Smart Move*.

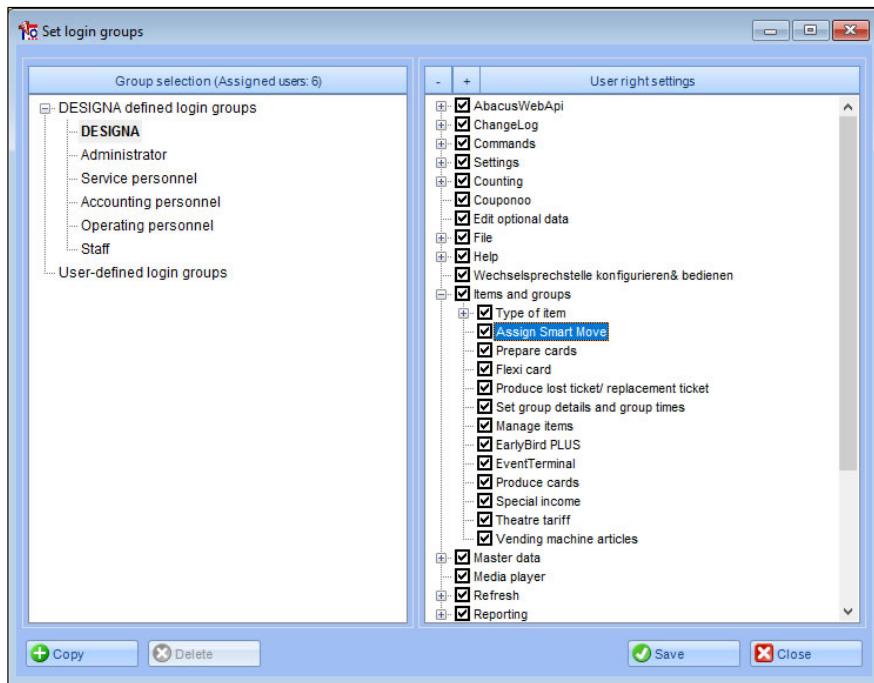


Fig. 2: Login group - user right

Refer to the separate operator manual WinOperate – Main Menu Setting/ Set login groups.

5.3.2 Setting up app users

SMART MOVE app users are listed as *customers* in the WinOperate system software.

A season parker card is also created in WinOperate for SMART MOVE users.



To be able to identify themselves with the SMART MOVE app in the system, the *email address* of app users **must** be stored in the WinOperate *customer master data*.

1. Create the app user as a *customer* in the WinOperate application. (Refer to the separate operator manual WinOperate Master Data/ Manage customers.)
2. Store an email address for the customer in the *customer master data*.
3. The user's *Login group* must be assigned the appropriate user rights (see above Set login groups).
4. Create a **season parker card** for the car park customer. (Refer to the separate operator manual WinOperate Items and groups/ Manage items/ Season parker cards.)
5. Assign the Smart Move ID to the season Parker card:
 - Use the *Assign Smart Move* function in the *Card details*. (Refer to the separate operator manual WinOperate Manage cards/ Card details.)
 - Or:
 - Use the *Produce card* function to assign the *Smart Move ID* criterion to the card under *Assign*.

(Refer to the separate operator manual *WinOperate Items and groups/ Produce card.*)



For the logged-in operator to be able to assign the card, the operator must have the appropriate user rights (see above).

- Using the *Assign* function, the SMART MOVE server generates a unique identification number (ETC number) for the season parker card.

When setting up the app, car park customers register with their email address (see *separate manual SMART MOVE parking app*).

After subsequent comparison with the SMART MOVE server, the season parker card with the assigned identification number can be found via the email address and used for entering and exiting the car park (refer to *Chapter 3 SMART MOVE SYSTEM*).

6 Technical Data

Dimensions

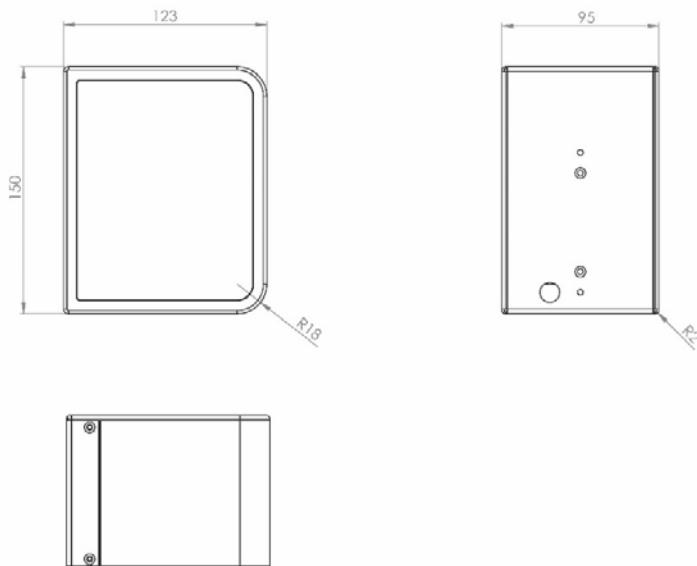


Fig. 3: Beacon box, dimensions in mm

Design

■ ABS (black)

7 Configuring beacons

The beacon is housed in a plastic box and preconfigured at the factory. Prior to delivery, the latest software is installed on the beacon before it is configured and tested for the customer. This ensures the beacon is always ready for use upon delivery.

Configuration

The beacon on the terminal and the beacon in the DCT column are equipped with the latest firmware at the factory.

As part of the factory configuration, the beacons receive a unique identification number. This identification number is subsequently used by the app to recognise the beacon. A label with the assigned ID number is affixed to the beacon box to guarantee correct beacon installation in the right lane.

8 Installing beacons in the lane

The beacons installed in the car parks communicate with the SMART MOVE app on your smart device via Bluetooth Low Energy.

These beacons are pre-configured ready for use at the factory and installed on site after delivery. To guarantee correct installation, the beacons have an ID number.



Fig. 4: Example: Installed beacons at a car park entrance

Two beacons are installed in each lane to facilitate vehicle recognition. This prevents incorrect parking data from being registered, e.g. when vehicles enter or exit one behind the other or when several entry or exit lanes are used.

The beacon on the device 1 provides the app with the recognition data of the device. The second beacon 2 is used as a reference for unique identification of the vehicle in the lane.

Bidirectional alignment

⇒ When aligning the beacon boxes, make sure they are opposite each other and facing towards the lane.

ID number

The ID number assigned in the configuration must be observed to ensure correct installation of the beacons in the lane. It can be found on the label affixed to the beacon box.



If an ID number was not assigned to the beacon upon delivery, service technicians can reconfigure the identification number on site using a tool.

⇒ After installation, remove the labels from the beacons.



8.1 Installation

Electric voltage

DANGER

Danger of death due to electric shock!

Contact with live components may result in death.

- Installation has to be carried out by electrical technicians or DESIGNA electrical technicians or electrical technicians of DESIGNA trained and authorized dealers and partners.
- Make sure that the power supply is **externally** disconnected and that it cannot be switched on.
- Test for absence of voltage.

Inappropriate installation

WARNING

Danger by inappropriate installation!

Inappropriate installation can cause severe injuries.

- Installation has to be carried out by electrical technicians or DESIGNA electrical technicians or electrical technicians of DESIGNA trained and authorized dealers and partners.
- Prior to work, ensure that there is sufficient assembly space.
- Pay attention to tidiness and cleanliness at the assembly site! Loosely stacked or lying around components and tools are accident sources.
- Comply with specifications for foundations and reinforcement.
- Ensure correct arrangement and fit on all assemblies and components.
- Install the indicated fastening elements correctly.

Risk of crushing fingers

CAUTION

Risk of crushing fingers when closing the housing door and the base door!

Fingers may be crushed when closing the housing door and the base door.

- Keep your fingers out of the danger zone.

8.1.1 Installing the beacon box on the entrance /exit control terminal

The beacon is housed in a plastic box and installed on the side of the device facing the barrier.

Power is supplied by the device.



Fig. 5: Beacon box on device

Holes on the entrance /exit control terminal

1. Drill three holes in the device (see figure below):
Two holes for installation on the device
One hole for the cable duct

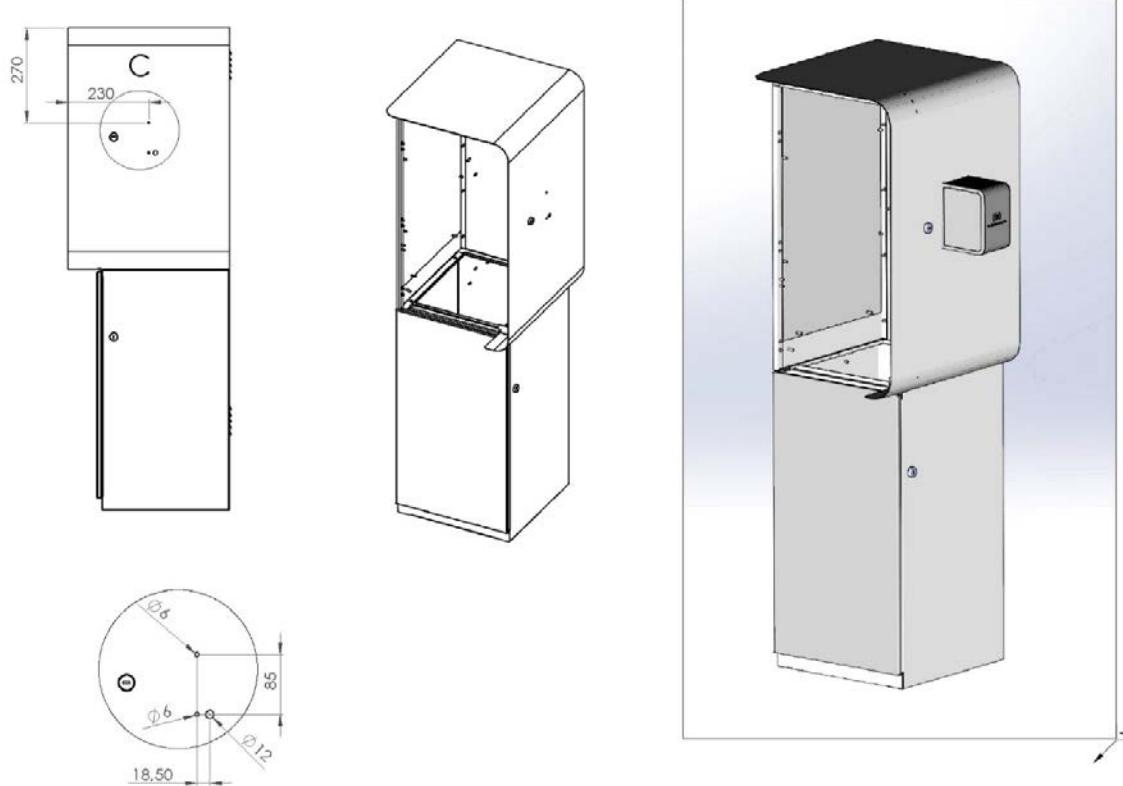


Fig. 6: Beacon box installation on entrance /exit control terminal– holes (dimensions in mm)

2. Open the beacon box to screw the box to the device.



Opening the beacon box

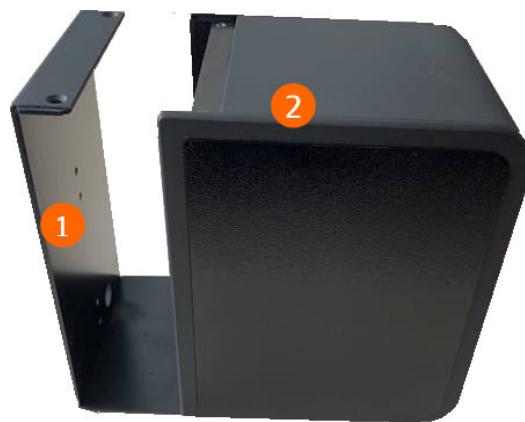


Fig. 7: Opened beacon box without any contents

1 Mounting plate
2 Casing body

3. Glue the seal to the outside of the entrance /exit control terminal according to the holes ①.

Seal



Fig. 8: Seal between device and beacon box

Beacon box with holes



Fig. 9: Pre-punched holes in mounting plate

- 1 Hole for the cable duct (beacon/SBC connection, power supply)
- 2 Two holes for installing the beacon box mounting plate on the side of the device (2x bolt CYL with internal hexagon M4X12 DIN 912 A2)
- 3 Two holes for installing the inner mounting plate (2x bolt COUNTERSUNK M3X10 DIN 963 A2)
- 4 Two holes each at the top and bottom for the screw connection of the beacon box (4x bolt COUNTERSUNK with cross slot M3X6 DIN 965 A2)

The inner mounting panel is already screwed to the mounting plate ③ at the factory (bolts COUNTERSUNK M3X10 DIN 963 A2).

4. Screw the beacon box to the lane device ②. To do so, use two bolts CYL with internal hexagon M4X12 DIN 912 A2.
5. Feed the serial communication and power supply cable from the SBC through the appropriate holes ① and the cable duct to the beacon.
6. If the beacon is not yet installed in the beacon box, attach the beacon with hook-and-loop tape to the underside of the mounting plate.
7. Slide the casing body and the mounting plate of the beacon box together.
8. Screw the casing body to the mounting plate of the beacon box with two bolts each at the top and bottom (4x bolt COUNTERSUNK with cross slot M3X6 DIN 965 A2) ④.

8.1.2 Connecting the beacon box on the entrance /exit control terminal

For data transfer (serial communication) and the power supply, connect the supplied cable to the SBC (Single Board Computer) and the beacon:

1. Plug the 6-pole micro-match connector into the beacon.



Fig. 10: Connection – beacon 6-pole micro-match connector

2. For data transfer, plug the RJ11 connector into the preconfigured port on the SBC.
3. Connect the open ends of the cable to the 5V supply of the SBC (green cable +5V, brown cable GND).

8.1.3 Example: Installing the beacon in the DCT casing body

The second beacon box is located in the DCT casing body. Power is supplied by a battery.



Fig. 11: Beacon in DCT casing body

1. Attach the beacon box with hook-and-loop tape behind the acrylic glass panel of the DTC.

8.1.4 Connecting the beacon in the DCT casing body

Power supply

The beacon in the DCT is powered by two supplied batteries (2x 1.5 V type Mono D).

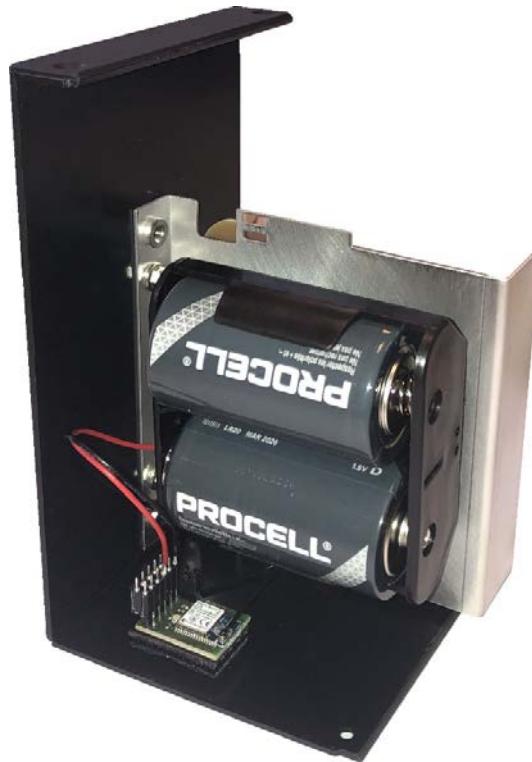


Fig. 12: Power supply beacon in DCT - batteries

⇒ Insert the batteries into the holder on the mounting panel.

Connection



Fig. 13: Connection of beacon in DCT to battery

⇒ Plug the female connector onto the male connector of the beacon (as shown above).



9 Configuring the IN and OUT devices

The beacon (radio transmitter) on the device is connected to the SBC (Single Board Computer) via a serial interface. The parking data received from the beacon is forwarded to the DESIGNA system via the SBC. The DESIGNA system then sends the data to the SMART MOVE server.

The port on the SBC must be configured accordingly in order to access the beacon.

9.1 Configuration at the factory

The IN and OUT devices are configured at the factory. In this case, the serial interface (standard port 6) for SMART MOVE communication between the beacon and the SBC is defined.

9.2 Retrofitting the IN and OUT devices with SMART MOVE

It is possible to subsequently integrate SMART MOVE into your parking system. To do so, you require the corresponding licence. You can request the license and the software update via the WinOperate application. The devices are then configured for SMART MOVE through the appropriate software update.

Requesting a licence

1. In WinOperate, open the *Car park overview*. (Refer to the separate operator manual *WinOperate/ Display overview: Car park/ Device icon*.)
2. In the context menu of the device icon, click *Licence/ Request licence*.
 - A request file is then created.
 - 3. Save the file.
 - 4. Email the file to license@designa.com.
 - The licence update file will be sent to you via email.
5. In the context menu of the device icon, click *Licence/Licence update* and select the update file.
6. The device is configured with the function requested in the licence.
6. Restart the device.

Importing the update

9.3 Decommissioning and disassembly

1. Disassemble the SMART MOVE components in reverse order to that described for installation (see *Section 7.1. Installation*)
2. Disassemble the device into its individual parts.

For decommissioning and disassembly, refer to the separate operator manuals of the devices.

9.4 Disposal

The SMART MOVE components consist of recyclable materials.

⇒ After correct disassembly, separate recyclable materials according to their typology and recycle them.



10 Version overview

Version 1.00
07/2020 (KS)

Creation of the document.

Version 1.10
09/2020 (KS)

Adaptation to German version

