

Operating Instructions



Designa CONNECT POS 500 - Manual pay station with touch function

Barcode Systems
Version: 2.10

Identity no.: DOCEN09130

Original Operating Instructions

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1 General

1.1 Information regarding the operating instructions

These operating instructions are intended for operators of the ABACUS system and provide crucial information on handling of device POS 500.

These operating instructions describe measures *see main chapter 10 Cleaning and Basic Services on page 44 and the sections of the individual modules* which have to be carried out at regular intervals to ensure reliable and trouble-free operation of the device. The required work should only be carried out by DESIGNA trained operating personnel, who are familiar with the operating instructions and safety information.

For all other tasks, we recommend special DESIGNA training courses or separate specialist instruction manuals for trained personnel are available (e.g. special maintenance works).

Certain tasks have to be carried out by specialized staff or specially trained DESIGNA electrical technicians or electrical technicians of DESIGNA trained and authorized partners. These tasks are marked accordingly.

- ⇒ Read the operating instructions carefully before starting any work.
- ⇒ Pay careful attention to the safety instructions.
- ⇒ Use the table of contents to find the sections which are important for your work routines.
- ⇒ Keep the operating instructions for later use, well accessible to the personnel at all times.
- ⇒ When passing the device on to third parties, the operating instructions must also be handed over.

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.

NOTICE

Indicates a potentially harmful situation which, if not avoided, could lead to property damage.

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
bold	Terms in bold are explained in the glossary
<i>italic</i>	Italic text refers to a component in a figure or a different chapter of these instructions or related instructions.

1.3 Consumables, spare parts and accessories

DESIGNA offers comprehensive consumables, spare parts and accessories for the device POS 500.



These operating instructions mention some consumables. Please refer to your spare parts catalogue and consumables catalogue for further consumables, accessories and spare parts.

1.4 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 device POS 500 is part of the ABACUS parking management system.

ABACUS is an integrated system that controls the entrance/exit, time and cost of parking in protected areas such as car parks, airports or similar places. The automated parking system ABACUS is designed to give a service (parking) in exchange for money.

As part of the ABACUS the application POS 500 and the barcode scanner in combination with a suitable receipt printer, form the manual pay station POS 500.¹

The application for the POS 500² is installed on the operator workstation and operated via a touch display.

Together with the receipt printer and a barcode scanner, it is used to calculate parking fees and to process various **types of item (season parker card, value card, prepaid ticket, as well as special tariffs and special incomes**. The barcode scanner for capturing 1D and 2D codes can be used to read both ticket information from barcodes and QR codes. In addition, QR discount codes can be processed.

For ticketless parking systems with an integrated licence plate recognition system (LPR), the PAY BY PLATE function is available in the POS 500. The licence plates of short-term parkers recognised at the entrance can be searched for in the POS 500 application and used to calculate the parking fee.

The device POS 500 is intended for interior use only.

Only original DESIGNA spare parts and consumables should be used.

2.2 Non-intended use

Non-intended use



WARNING

Risk of injury from non-intended use!

Every non-intended use can cause severe or lethal injuries.

- Only use the device POS 500 as intended.
- Read the operating instructions carefully and pay careful attention to the safety instructions.

The device POS 500 must not be used in outdoor locations.

The device POS 500 must not be used in explosive environments.

Use of non-approved spare parts and accessories is prohibited.

Modifications or changes to the device are prohibited.

All uses not described as intended use are prohibited.

¹ Previous product „PAY manual touch station“

² ABACUS Version x24.2 and higher

Operation is not permitted if the permissible technical limits are exceeded.

Use of unsuitable media (consumer goods, cleaning agents) is not permitted.

Deployment of non-trained personnel is prohibited.

The manufacturer shall refuse to accept liability and withdraw warranty if the instructions are not followed and if the device is used incorrectly or for a purpose for which it was not intended.

2.3 Safety on site

The operator has to pay attention to the following measures in order to guarantee safety in the car park area:

- ⇒ Always keep children away from system devices.
- ⇒ Select easily recognizable warning colours and signs used in the car park area.
- ⇒ Provide separate footpaths next to entrances and exits and mark pedestrian areas (see figures below) to ensure that pedestrians do not have to walk near entrances and exits and on the roads.
- ⇒ Make sure that there are sufficient fully visible signs around the car park site. Keep signs clean and position them so that they can be read easily.
- ⇒ Use additional safety barriers (e.g. safety cones) to close off entrances and exits when carrying out work there and wear safety clothing in easily recognizable warning colours.
- ⇒ Make sure that the danger area of the devices cannot be accessed by any unauthorized persons, and in particular not by children, under any circumstances.



Fig. 1: Safety marking on the road

If barriers are installed in your ABACUS system the operator should pay attention to the following measures:

- ⇒ Provide all footpaths with a sufficient distance to the lanes and the car park barriers. Observe national regulations.
- ⇒ Observe the safety instructions in the barrier's operating instructions.

2.4 Specialists and operating personnel

WARNING

Risk of injury in case of inadequate qualification!

Improper handling can lead to considerable bodily injuries and property damage.

- Have any activities only carried out by the individuals designated for that purpose.

The operating instructions specify the following qualification requirements for the different fields of activity:

Operating personnel

Operating personnel have been trained and authorized by DESIGNA to carry out certain cleaning and fitting tasks at the device POS 500. It is essential that operating personnel are also completely familiar with the operating manual and relevant safety instructions.

Specialized staff

Specialized staff is due to its technical training, knowledge and experience as well as due to its knowledge of the pertinent regulations able to carry out the work assigned to it and to independently recognize potential hazards.

Electrical technicians according to DIN VDE 1000-10

Electrical technicians are able, due to their technical training, knowledge and experiences as well as knowledge of the relevant standards and regulations, to execute tasks on electrical systems and to independently recognize possible hazards.

In Germany, the electrical technicians must fulfil the provisions of the accident prevention regulation DGUV-V3 (e.g. master electrician). Appropriate regulations apply in other countries. The regulations valid there must be observed.

DESIGNA electrical technicians or electrical technicians of DESIGNA trained and authorized dealers and partners

DESIGNA electrical technicians or electrical technicians of DESIGNA trained and authorized dealers and partners comply with the requirements of the electrical technicians named here. Additionally, these electrical technicians are trained and authorized by DESIGNA to perform installation, connection and servicing at the device POS 500.

2.5 Occupational safety and special dangers

The remaining risks resulting from the risk analysis are specified in the following section.

Observe the safety notes listed here and the warning notes mentioned in the other chapters of these instructions to reduce health hazards and to avoid dangerous situations.

2.5.1 Product safety labels on the device

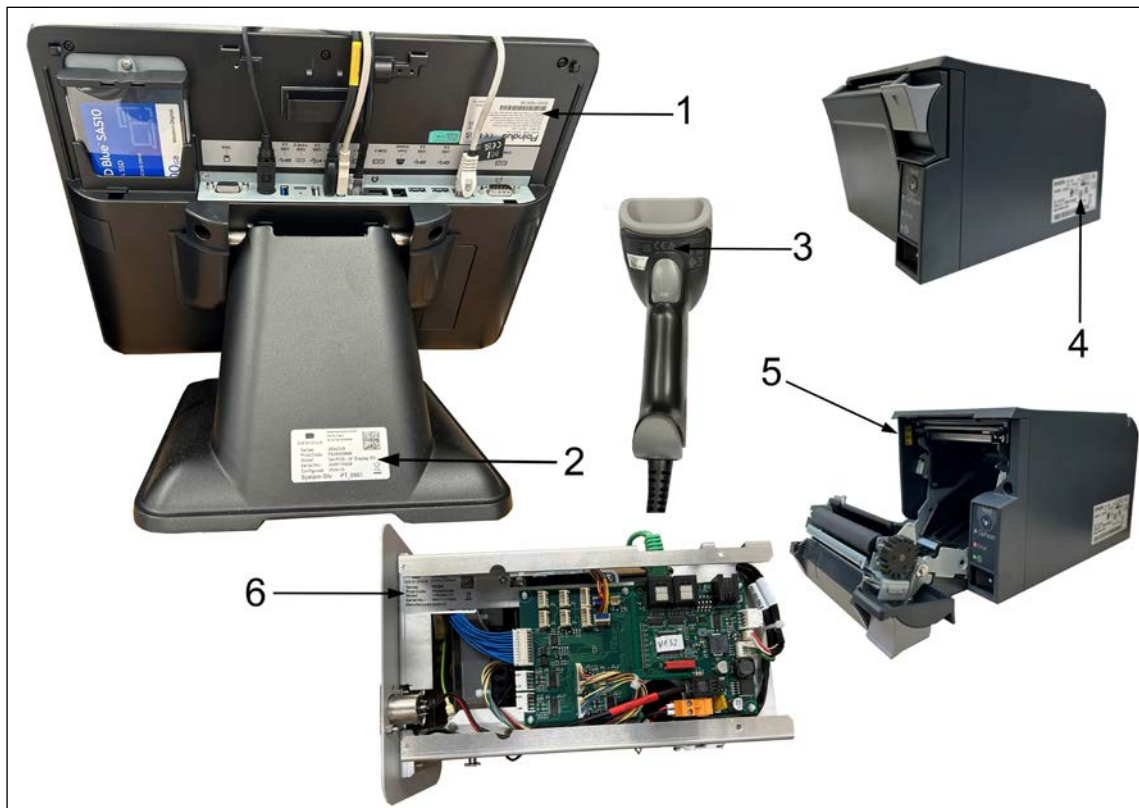


Fig. 2: Product safety labels (Figure similar)

- 1 Safety information of manufacturer- Operating PC
 - 2 Type plate - Operating PC
 - 3 Safety information on the barcode / QR-code scanner
 - 4 Safety information on the receipt printer
 - 5 Safety sign: risk on burns inside the receipt printer
 - 6 Type plate on MCBC of the coding station
- Not shown:
- 7 Safety information on the power supply unit - Operating PC
 - 8 Safety information on the power supply unit for the receipt printer

- ⇒ Check that all product safety labels are in place and display the information specified below.
- ⇒ Contact your DESIGNA Service if any labels are missing or damaged.

Type plate

See chapter 3 Identification on page 12.

Safety information on Operating PC-POS 500

See chapter 4 Technical Data on page 13 and the separate quick operating and installation instructions of the operating PC.

Safety information on the barcode / QR-code scanner	<i>See chapter 4 Technical Data on page 13 and the separate operating instructions of the scanner.</i>
Safety information on the receipt printer	<i>See chapter 4 Technical Data on page 13 and the separate operating instructions of the receipt printer.</i>
Product safety label Risk of burns at the receipt printer	<i>Please follow the instructions enclosed with the receipt printer.</i> The safety symbol indicates that there is a risk of burns when touching the thermal print head. Failure to observe the safety sign may result in minor injuries.
Safety information on the power supply unit for the receipt printer	<i>See chapter 4 Technical Data on page 13 and the separate operating instructions of the receipt printer.</i>
Safety information at the MCBC coding station	<i>Safety information on type plate Multicon: See chapter 4 Technical Data on page 13.</i>

2.5.2 Safety messages and operation safety

Observe the safety messages listed here to reduce health hazards and to avoid dangerous situations.

Electric voltage

DANGER

Danger of death due to electric shock!

Contact with live components may result in death.

- Use POS 500 only with appropriate external power supply unit with adequate output and input voltages.
- Power supply unit is intended for interior use only. Protect against condensed humidity or water.
- Certain maintenance work may be carried out by DESIGNA trained operating personnel familiar with the user manual and the safety instructions. All other maintenance work may only be carried out by DESIGNA electrical technicians or electrical technicians of DESIGNA trained and authorized dealers and partners and is marked accordingly.

Illegible signage

WARNING

Risk of injury by illegible symbols!

Labels and signs can become dirty or unrecognizable in the course of time.

- Always keep safety, warning and operating notes in a well readable condition.
- Immediately renew damaged or unrecognizable signs or labels.

Device intended for interior use only

NOTICE

Humidity, dirt and heat may damaged the device.

- Device intended for interior use only.
- Protect the device against condensed humidity or water, dirt and heat.

3 Identification

The device type plate is located on the casing.

	1	8  
	2	
	3	
	4	
	5	
	6	
	7	

Fig. 3: Type plate

- 1 Manufacturer's name and address
- 2 Series (system)
- 3 Production code
- 4 Device type / Designation (Model)
- 5 Serial no
- 6 Date Configuration
- 7 System-SN: Number of the car park
- 8 2D-Barcode

Some modules are also equipped with a type plate. The type plate is then located directly on the module.

4 Technical Data

4.1 Technical Data Operating PC – POS 500

Mainboard	
Prozessor	Intel® Celeron® J6412
Chipset	CPU Integrated
System Memory	1 x SO-DIMM DDR4 slot, up to 16GB
Display&Touch	
LCD Size	15" TFT LCD (LED backlight)
Touch Technology	True Flat Projected Capacitive
Resolution	1024 x 768
Storage	
HDD/SSD	1 x SATA (2.5") or M.2 memory
OS Support	Windows 10
Power Adapter	External adapter, DC Model:65 Watts, Input Voltage: 100-240V, A _{max} Output Voltage: 19VDC 3.42 A _{max} CE, UL
Compliance	
Certifications	CE, FCC, LVD, RoHS
Protection	IP 66 on front panel
Dimension(W x H x D)	370 x 300 x 236mm
Weight	7 Kg
Environmental	
Operating Condition	0°C to 40°C, 10% to 90% RH, non-condensing
Storage Condition	-20°C to 60°C, 10% to 90% RH, non-condensing

4.2 Technical Data: Components

Dimensions

Description	
Scanner	169x62x82 mm (HxWxD)
Receipt printer	125x114x195 mm (WxHxD)
External customer display	240x95x35 mm (WxHxD)
Cash drawer	400x110x450 mm (WxHxD)
MCBC Coding station	188x135x267 mm (WxHxD)

Cable lengths

Description	
Operating – POS 500 ⇔ Receipt printer	1 m
Receipt printer ⇔ Cash drawer	1.3 m
Operating – POS 500 ⇔ Scanner	1 m
Operating – POS 500 ⇔ MCBC Coding station	3 m

Electrical connection
Barcode / QR-code scanner

Description	
Power supply	5 V DC
Power consumption	max. 5 W
Laser class	Class 1

Electrical connection
Receipt printer

Description	
Input voltage	100-240 V AC, 50/60 Hz (via external power supply unit)
Operating voltage	24 V DC
Power consumption	45 W (max. 60 W), in standby: 0.1 A, average: 2 A

Electrical connection
MCBC Coding station

Description	
Input voltage	100-240 V AC, 50/60 Hz (via external power supply unit)
Operating voltage	24 V DC, max. 1.5 A
Power consumption	36 W



Pay attention to the enclosed barcode scanner and receipt printer instructions, as the actual technical data depends on the applied model.

5 Device Description

In this chapter there is an overview of the design and functions of standard and optional device equipment.

5.1 General design



Fig. 4: POS 500 device components

- 1 Operating PC with POS 500 application installed
- 2 Barcode /QR code-Scanner
- 3 Receipt printer
- 4 MCBC coding station (optional)

Not shown:

- 5 External customer display (optional)
- 6 Cash drawer (optional)

5.2 Components

5.2.1 Operating PC - POS 500



Fig. 5: Operating PC

The operating PC with the user software serves as a manual pay station. The functions are executed via the touch buttons.

- ⇒ Press the power button at the bottom right of the device to switch the device on.
- ⇒ To exit the application, shut down the PC via the Windows Start menu.

5.2.2 Barcode- / QR-code scanner

Hazardous laser radiation



Abb. 6: 1D/2D scanner

WARNING

Risk of injury due to laser radiation!

Laser radiation can cause permanent eye damage.

Class 1 laser product: The accessible laser radiation is not considered hazardous when used under normal conditions.

- Do not stare into the laser beam.
- Work at the barcode scanner should only be carried out by DESIGNA trained operating personnel who are familiar with the operating instructions and safety information.
- If a power supply is required, the respective tasks at the barcode scanner should only be carried out by DESIGNA electrical technicians or electrical technicians of DESIGNA trained and authorized dealers and partners.

The barcode scanner is a 1D and 2D scanner which can read barcode **short term parker tickets**, or other **types of item (season parker cards, value cards)** from the ABACUS system. QR discounts³ can also be read out.

Example short term parker ticket:

- ⇒ Hold the barcode short term parker ticket in front of the barcode scanner or move the barcode scanner over the barcode.
- The infrared sensor of the barcode scanner recognizes a barcode medium and the scanner reads the barcode. The parking fee is calculated and displayed on the basis of the short term parker ticket's entrance information and the system's tariff information.



Pay careful attention to the safety instructions in the separate operating instructions of the barcode scanner.

5.2.3 Receipt printer



Fig. 7: Receipt printer
(similar to figure)

The *receipt printer* in a desk top casing is a fast thermal printer. It prints the available **types of item**, receipts when needed and a short shift report at the end of a shift or a shift change with **function cards**.



Please refer to the instructions supplied with the receipt printer for information on safety, connection, functions, operation, and cleaning.

³ ABACUS Version x18.17/ x19.7 and higher

5.2.4 External customer display (optional)



Fig. 8: External customer display

In addition, it is also possible to connect an external two-line display to allow customers to conveniently read the amount due.

The *external customer display* is mounted on the PAY manual touch station (PC).

The customer display is automatically initialized after switching on the device PAY manual touch station (PC).

After scanning or reading a short-term parking ticket at the MCBC coding station, the amount due is displayed. If, after scanning the ticket, no amount is displayed, the customer display has to be entered into the **configuration of the device**. This configuration task is carried out by your DESIGNA Service.

5.2.5 Cash drawer (optional)



Fig. 9: Cash drawer

A *cash drawer* can be connected to the receipt printer via a supplied RJ 45 cable as an optional extra. This provides the respective signals for automatic cash drawer opening. The cash drawer can be operated standing on a table or fixed underneath a table.

The drawer is divided into respective compartments in order to sort coins and banknotes. The money tray with the compartments can be removed (e.g. at the end of a shift). Additional trays are available as accessories.

The cash drawer opens in the standard configuration after using the function PAID or PAID WITH RECEIPT See *chapter 9 Operation on page 29*.

Additional opening via a key and emergency mechanism is possible.

The closed status of the cash drawer is not monitored.

5.2.6 MCBC coding station (optional)



Fig. 10: Coding station

The external MCBC coding station can optionally be used to process barcode tickets.

The device can be used to read barcode **short term parker tickets** or other article types (**season parker cards**, **value cards**) from the System ABACUS system.

Item types such as **lost tickets**, **replacement tickets** and **one-use tickets** can be created on a barcode basis.

Value cards and **season parker cards** can also be created by the MCBC coding station. These are created using the WinOperate application and printed at the coding station.

- ⇒ Insert the ticket or card into the chute of the coding station
- The information of the ticket read is displayed on the screen in the POS 500 application, e.g. the price of a short term parker ticket.

5.2.7 RFID (optional)

Procedures using hands-free **RFID** cards can only be carried out if a respective antenna has been fitted to the device.

Various hands-free systems/antennas are available in the ABACUS system.

For further details see chapter 12 RFID (Hands-free Identification) (optional) on page 47.

6 Transport and Storage

6.1 Transport inspection

1. Immediately check the delivery after receipt for completeness and transport damages.
2. Proceed as follows in the case of outwardly recognizable transport damage:
 - ⇒ Do not accept the delivery or only under reserve.
 - ⇒ Note the extent of damage on the transport documents or on the delivery note of the forwarder.
 - ⇒ Lodge complaint.



Lodge a complaint for each defect, as soon as it is recognized. Compensation claims can only be submitted within the valid complaint periods.

6.2 Storage

Store the device or packages under the following conditions:

- Do not store outdoors.
- Store dry and dust free.
- Do not expose to aggressive media.
- Protect against solar irradiation.
- Avoid mechanical vibrations.
- Storage temperature and relative humidity: *See chapter 4 Technical Data on page 13*
- Check the general condition of all components and packaging regularly, if they are stored for longer periods than 3 months.

7 Positioning and Connection

7.1 Safety

Electric voltage

DANGER

Danger of death due to electric shock!

Contact with live components may result in death.

- Use POS 500 only with appropriate external power supply unit with adequate output and input voltages.
- Power supply unit is intended for interior use only. Protect against condensed humidity or water.

Device intended for interior use only

NOTICE

Humidity, dirt and heat may damaged the device.

- Device intended for interior use only.
- Protect the device against condensed humidity or water, dirt and heat.

7.2 Installation preparation

Location requirements

- ⇒ Ensure that a large enough installation area is provided, thus allowing the device to be operated easily.
- ⇒ Provide sufficient aeration. The device POS 500 should be free standing.

7.3 Connection of the components



Fig. 11: Connection of the components

- 1 External customer display (optional)

- 2 POS 500 – Operating PC
- 3 Cash drawer (optional)
- 4 Scanner
- 5 Receipt printer
- 6 MCBC coding station

7.3.1 Operating PC – POS 500

The components scanner and receipt printer as well as the optional external customer display and the optional MCBC coding station are connected to the operating PC POS 500. The following connections are available:

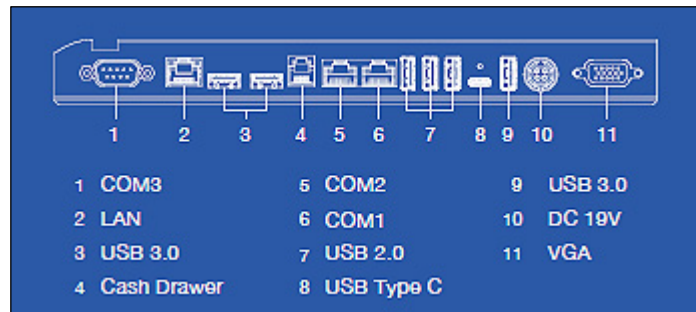


Fig. 12: Connections on the operating PC – POS 500

7.3.2 Connection barcode scanner

The *barcode scanner* is connected to the USB port of the operating PC.



Fig. 13: Connection barcode / QR-code scanner (similar to figure)

- 1 Barcode / QR-code scanner connector (USB)

NOTICE

Device might become damaged.

Inappropriate connection can endanger the sensitive electronics of the device.

- Shut down the operating PC prior to connecting the barcode scanner. Only restart the operating PC once the Cash reader has been connected.
- The operating PC interfaces have to be configured accordingly. This task is carried out by your DESIGNA Service.
- See the separate operating instructions of the scanner.

7.3.3 External customer display connection (optional)

NOTICE

Device might become damaged.

Inappropriate connection can endanger the sensitive electronics of the device.

- Shut down the operating PC prior to connecting the customer display. Only restart the operating PC once the customer display has been connected.
- The operating PC interfaces have to be configured accordingly. This task is carried out by your DESIGNA Service.
- Only use the included serial cable to connect the customer display. This has been pre-assembled to ensure correct data connection **and** power supply.
- Only use the power supply unit provided with the serial cable.

The customer display (option) is attached directly to the operating PC PAY manual touch station ❶. The customer display is connected to the operating PC (Port COM1/COM2) via the integrated serial cable (RJ50 plug) ❷. (see picture Fig. 12:Connections on the operating PC – POS 500 on page 20).

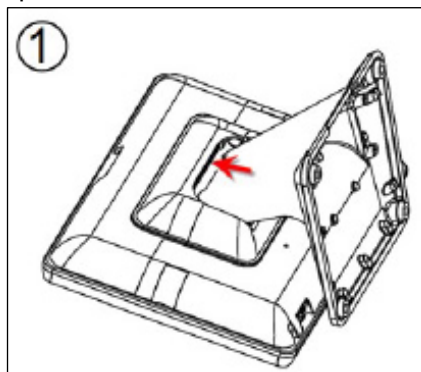


Fig. 14: Connection customer display

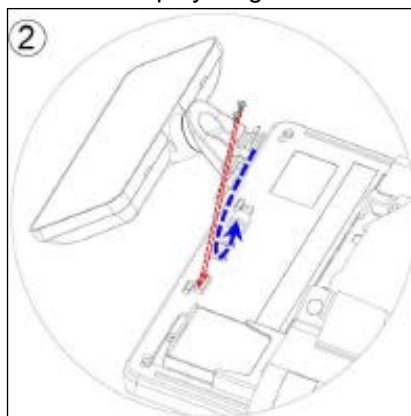
- 1 Mounting
- 2 Serial cable (RJ50)

Mounting the customer display

1. Place the control PC with the screen down on a flat surface and open the IO back cover.

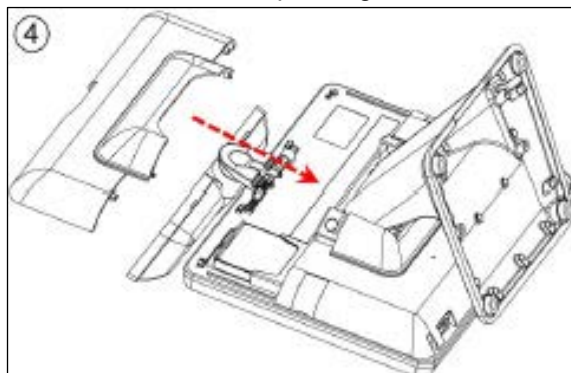


2. Insert the display hinge into the display slot and fasten 2 screws.

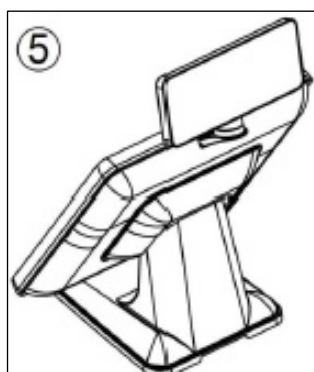


Connect the customer display

3. Then connect the serial cable (RJ50 plug) of the customer display to the COM3 port
4. Close the back of the operating PC with the corresponding IO cover.



5. Position the customer display in a way that it can be easily read by customers.



6. Start the operating PC.
 - If the interfaces of the operating PC have been configured correctly, the external customer display will be initialized automatically.



When POS 500 is delivered, the power supply at port COM3 is preconfigured to 12V in BIOS.

If the power supply does not correspond to the specified 12V power supply when the customer display is retrofitted, please contact DESIGNA Service.

7.3.4 Receipt printer connection

The *receipt printer* is connected to a USB interface of the operating PC as well to a mains socket.



Fig. 15: Receipt printer connection (similar to figure)

- 1 Power supply unit connection
- 2 USB connection
- 3 Power supply unit connector

NOTICE

Device might become damaged.

Inappropriate connection can endanger the sensitive electronics of the device.

- Shut down the operating PC prior to connecting the receipt printer. Only restart the operating PC once the receipt printer has been connected.
- The operating PC interfaces have to be configured accordingly. This task is carried out by your DESIGNA Service.
- See the separate operating instructions of the receipt printer.

Check power supply unit

1. Check if the power supply unit has adequate input and output voltages, see *chapter 4 Technical Data on page 13*.
2. If the input and output voltages are not in accordance with those stated, do not put the POS 500 into operation and contact your DESIGNA customer service.
3. Insert the USB cable into the *USB connection* at the receipt printer and into a USB interface at your operating PC.
4. Insert the *power supply unit connector* into the *power supply unit connection*.
5. Plug the power supply unit into a mains socket.

7.3.5 Cash drawer connection (optional)

The *cash drawer* is connected to the *receipt printer*.



Fig. 16: Cash drawer connection (similar to figure)

- 1 Kick out for cash drawer
- 2 Receipt printer connector

NOTICE

Device might become damaged.

Inappropriate connection can endanger the sensitive electronics of the device.

- Switch off the receipt printer prior to connecting the cash drawer.
- See the separate operating instructions of the receipt printer.

⇒ Insert the *receipt printer connector* into the *kick out for cash drawer* at the receipt printer.

7.3.6 MCBC coding station connection (optional)

The MCBC coding station is connected to the COM3 interface of the operating PC and to a power socket.



Fig. 17: MCBC coding station connection

- 1 Power supply unit connector
- 2 SUB-D connection
- 3 SUB-D plug
- 4 Power supply unit plug

NOTICE

Device might become damaged.

Inappropriate connection can endanger the sensitive electronics of the device.

- Shut down the operating PC prior to connecting the MCBC coding station. Only restart the operating PC once the MCBC coding station has been connected.
- The operating PC interfaces have to be configured accordingly. This task is carried out by your DESIGNA Service.

Check power supply unit

1. Check if the power supply unit has adequate input and output voltages, see *chapter 4 Technical Data on page 13*.
2. If the input and output voltages are not in accordance with those stated, do not put the POS 500 into operation and contact your DESIGNA customer service.

3. Insert the *SUB-D plug* into the *SUB-D connection* on the MCBC coding station and into the *COM3 connection* on your POS 500 operating PC.
4. Insert the *power supply unit plug* into the *power supply unit connection*.
5. Insert the power plug into a power socket.

8 Commissioning and Function check

8.1 Commissioning



Commissioning is carried out on-site by your DESIGNA Service according to the respective requirements of your system and is therefore not described in these operating instructions.

8.2 Check condition of device

1. Check completeness of the safety labels *See chapter 2.5.1 Product safety labels on the device on page 9*. Consult your DESIGNA service if any are missing or the quality is below standard.
2. Check the quality of the device components.
Consult your DESIGNA service if any damages are visible.
3. Make sure the device components are fitted correctly.
Tighten any loose screw connections.
4. Check that the plug and clamping connections are connected correctly.

8.3 Induce general function and check

1. Switch on the POS 500: *See chapter 5.2.1 Operating PC - POS 500 on page 15*.
2. Open the application POS 500: *See chapter 9.2 Start application on page 29*.
- The POS 500 “boots (starts and sets the device components ready for functional operation) and is subsequently ready for operation.”⁴
A connection to the **System server** is achieved via the **Ethernet**: If no **device configuration** is yet assigned to the **SBC/TCC**, the SBC/TCC is registered with a request in the system. The assignment is then carried out with the function *Search new SBC/TCC* at the **WinOperate** (see *separate manual Main Menu Settings*). The device is now **online**.
The device specific program and further necessary data (e.g. tariff information) for operation are transferred to the **SBC/TCC** (if problems occur, “Reset 8” can be sent from WinOperate to the device (please note duration)).
The POS 500 carries out a self-test: The standby of the device components is checked.
3. Check at the WinOperate whether **alarm messages** occur for the newly installed device and its device components.
4. Read the function card No. 2 (TCC in operation) by using the scanner. Or: Set the device via the command *Set device in service* at WinOperate into operating mode
- The device is now in its normal operating mode. Please contact your DESIGNA service if problems arise during the function check.

⁴ The first booting can take up to 7 minutes.

8.4 Checking the payment function

1. Read the function card no. 13 (*Shift change*) by using the scanner or the MCBC coding station to start a new shift.
 2. Read a **short term parker ticket** issued at an entrance control device.
 3. Check that the amount due appears on the display and, if necessary, on the customer display.
 4. Tap on the *PAID with receipt* touch button and check the printed out receipt (see chapter 9.3.13 *PAID WITH RECEIPT* on page 41).
 5. Read the function card no. 13 (*Shift change*) to terminate the shift and check the printed out shift report (see the operator manual *Function cards*).
 6. Read the function card no. 14 (*Delete total turnover*).
- The device's total turnover counters are reset to zero.

9 Operation

9.1 General device functioning

The application POS 500 can be installed on the operating PC in the system ABACUS and is used, together with the receipt printer and a barcode scanner, to calculate parking fees and to process various **types of item** (**season parker card**, **value card**, **prepaid ticket**, as well as **special tariffs** and **special incomes**). The barcode scanner for capturing 1D and 2D codes can be used to read both ticket information from barcodes and QR codes. In addition, QR discount codes can be processed.

The application POS 500 is operated via a touch display.

The functions are actuated via the various application POS 500 Touch buttons:

- Payments can be accepted and the respective receipts are printed out at the receipt printer.
- The processing of various **types of item** is actuated.
- The due amounts are displayed on the operating PC monitor and, optionally, on the customer display.
- Types of items can be created at the MCBC coding station.
- PAY BY PLATE: The parking duration is calculated by entering the licence plate on the touch display. Afterwards the payment is made.
- Discounts from predefined *discount categories* can be allocated to short term parker tickets.
- Brief shift reports are issued at the receipt printer at the end of shifts.

9.2 Start application

1. Tap on the icon on your desktop to open the application POS 500.

PAY BY PLATE -Login



- In order to be able to make payments in the POS 500 using the identification medium *licence plate* (PAY BY PLATE), a *system login* must be set up for the user in the *WinOperate* application.
See the chapter Manage customers/ System login in the separate WinOperate user manual
- The *login group* of the user must be assigned the corresponding user right.
See the chapter Set login groups in the separate WinOperate – Menu Settings user manual.
- Depending on the *configuration* in the *WinOperate* application, the login window opens immediately after opening the POS 500 application or when using the *Licence plate* function.

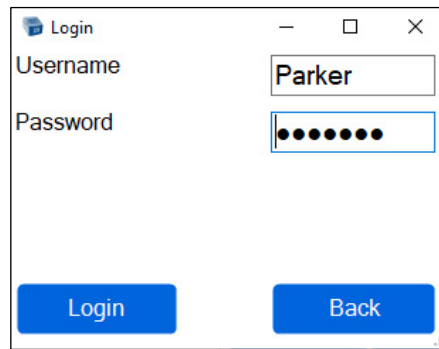


Fig. 18: POS 500 - Login

2. In the field *Username*, enter the name of your valid *system login* of the WinOperate application.
3. Enter your *Password*.
4. Afterwards tap on *Login*.
- You can now use the *licence plate* function.

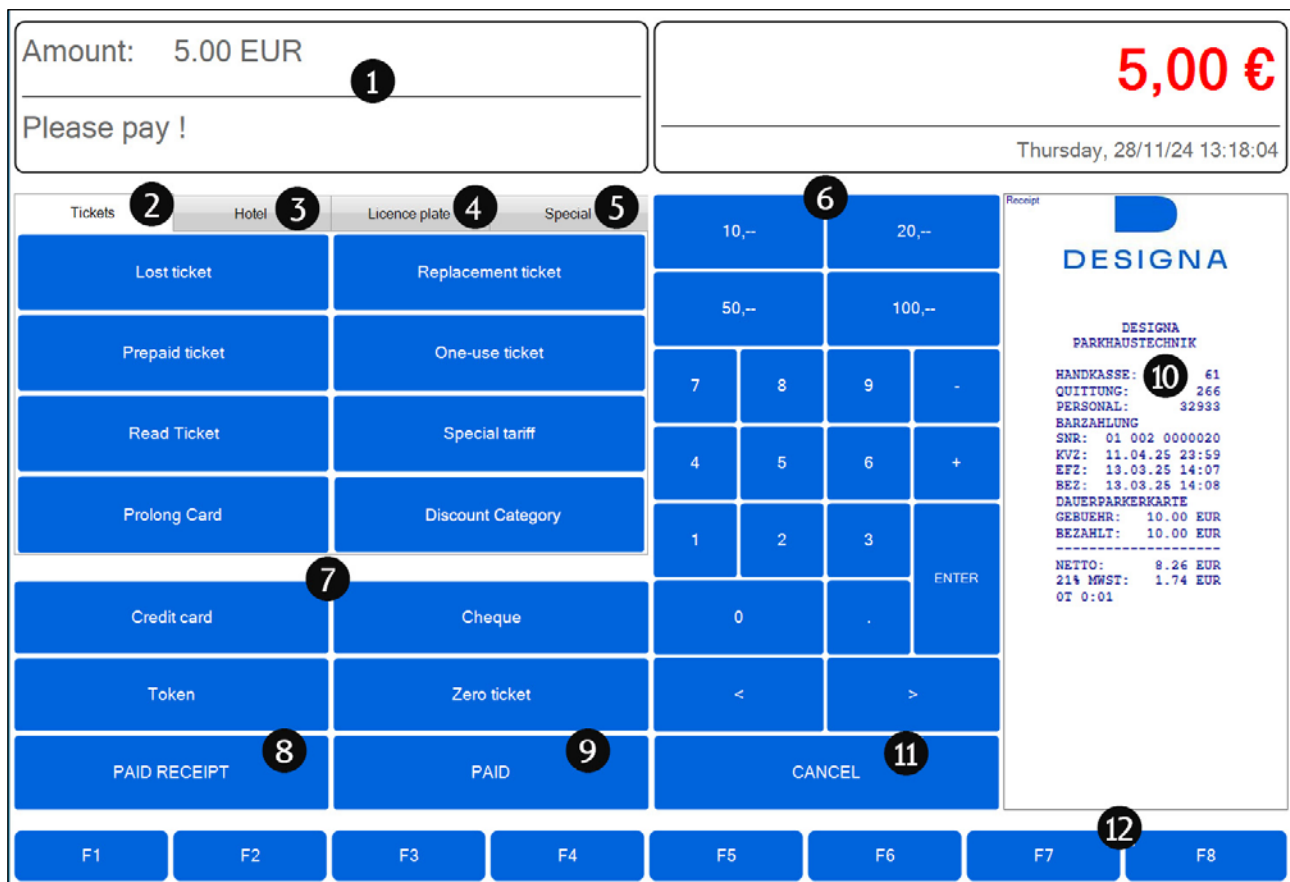
Close application⇒ Close the application with the touch button .**9.3 General function and design of the application**

Fig. 19: Application POS 500

- 1 Display (e.g. Amount)

- 2 Tickets
- 3 Hotel
- 4 Licence plate (requires system login)
- 5 Special tickets
- 6 Numeric pad
- 7 Payment types
- 8 PAID RECEIPT
- 9 PAID
- 10 Receipt preview
- 11 CANCEL
- 12 Function keys

Display

The *Display* area shows operating information, prices and the current date.

9.3.1 Lost ticket

A **lost ticket** can be issued to customers who claim to have lost their ticket. To prevent misuse of this function, a fee in the amount of the daily tariff is usually charged.

A lost ticket is issued according to the item details. The details are only editable if this is permitted in the item details of the lost ticket. It is always the lost ticket which has been activated for this with the setting *Use at TCC* at the WinOperate which is issued.

1. In the *Tickets* tab, tap the *Lost ticket* button.

➤ The amount due is displayed.

Depending on the settings in the *item details*, the *price*, *car park* and *validity* can be edited.

Example

Item details Validity editable

2. Enter the *entry time* using the touch buttons on the numeric pad.

3. Tap the ENTER button.

➤ The recalculated amount to be paid is displayed and can be paid using the desired *payment type*.

4. When paying with cash, enter the amount you have received from the customer for payment.

5. Tap the PAID or PAID RECEIPT button.

➤ The *lost ticket* is issued at the receipt printer or at the MCBC coding station.

➤ The repayment to the customer is displayed and can be made.

9.3.2 Replacement ticket

A **replacement ticket** is issued as an identical copy of a ticket no longer readable (the barcode is no longer readable by the scanner or the MCBC coding station). The replacement ticket is based on the data of the original **short term parker ticket**

1. On the *Tickets* tab, tap the *Replacement ticket* button.

2. Enter the *serial number* of the short term parking ticket on the numeric pad.

3. Confirm the entry with the ENTER button.

9.3.3 Prepaid ticket

A **prepaid ticket** is issued at the device POS 500 for a set price and is valid until a pre-set exit time on the day of ticket issue.

A prepaid ticket is issued according to the item details. The details are only editable if this is permitted in the item details of the prepaid ticket. It is always the prepaid ticket which has been activated for this with the setting *Use at TCC* at the WinOperate which is issued.

1. On the *Tickets* tab, tap the *Prepaid ticket* button.
2. Read the short term park ticket with the scanner or at the MCBC coding station.
3. Enter the date and time until when the prepaid ticket should be valid using the *numeric pad*.
4. Tap on the *Enter* button at the *numeric pad* to confirm your entry.
- The due amount is displayed and can be paid with the desired *type of payment*.

9.3.4 One-use ticket

A **one-use ticket** allows a customer to exit the car park once. Thus, the car park can be exited free of charge, e.g., in exchange for a short term parker ticket with which the customer entered.

1. On the *Tickets* tab, tap the *One-use ticket* button.
2. Enter the date and time on the *numeric pad* until when the one-use tickets should be valid
3. Confirm the entry with the ENTER button.
4. Enter the desired number of one-use tickets on the *numeric pad*.
5. Confirm the entry with the ENTER button.
- The one-use tickets are created and issued at the MCBC coding station one after the other in the previously specified number.
- One-use tickets can also be printed on the receipt printer ⁵. The serial print function is not available.
6. If the option *Ticket insertion from belt* is not available, insert a new ticket.
- After the last ticket has been issued, a coding report is printed at the receipt printer.

The issued one-use tickets⁶ are reported in the functions *Operating report* and *Cash book* of the **WebReport**. Please also see the separate user manual *WebReport*.

9.3.5 Read ticket

With the function *Read ticket* it is possible to read tickets and cards at the POS 500. By doing so, relevant card data can be checked. If data for a certain type of card is not available the value 0 appears. (for example Gr/Fk/Fa (group/ function/ trips) when reading/scanning a short term parker ticket).

9.3.6 Special tariff

Special tariffs can be set up as manually granted discounts, with the possibility of up to 8 different tariffs.

⁵ From system version X25.1

⁶ The issued one-use tickets are listed as **congress tickets** in the *Operating report* and *Cash book*.

Special tariffs have to be fixed in the tariff structure of the system. During **configuration** *Special tariff with tariff inquiry* has to be activated.

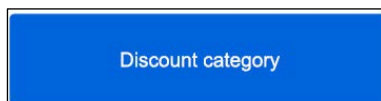
1. Read a short term parker ticket by using the scanner or at the MCBC coding station.
 2. On the *Tickets* tab, tap on the *Special tariff* button
 3. Use the *numeric pad* of the touch display to enter the number of the special tariff (1-8) to be charged.
 4. Tap on the *Enter* button at the *numeric pad* to confirm your entry.
- The due amount is displayed and can be paid with the desired *type of payment*.

9.3.7 Renew card

The *Renew* function can be used to renew respectively charge **season parker cards** or **debit cards**. To do so, the respective card is required or the card number has to be entered manually.

1. On the *Ticket* tab, tap on the *Renew card* button.
 2. Read the card with the scanner or at the MCBC coding station.
- The card is renewed according to the specified item details (see *separate operator manual WinOperate*).

9.3.8 Discount category



- The *discount categories* and the related discounts are set up in the WinOperate application in the *Settings* menu under *Discount category configuration*.
- To be able to use the *discount category* function on the POS 500 manual pay station, the options *Live-discount allowed* and *Anonymous use allowed* must be activated in the *discount category configuration* in the WinOperate application (See the chapter '*Discount category configuration*' in the *separate operating instructions 'WinOperate – Menu Settings'*).

The *discount category* function can be used to discount **short term parking tickets** for certain customer categories, e.g. for the handicapped, for staff or for a shop.

1. Read the short term parker ticket with the scanner or at the MCBC coding station.
Or: Use the *licence plate* function to determine the parking fee.
 2. On the *Tickets* tab, tap the *Discount category* button
- ⇒ The window for *discount selection* opens.

Select discount

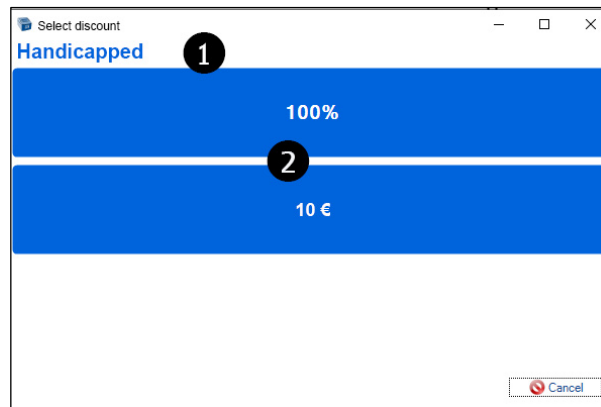


Fig. 20: Select discount category and related discount

3. Tap on the desired discount ② of the corresponding *discount category* 1 (example: discount category *Handicapped*, discounts 100% and 10 €).

⇒ The window for discount allocation opens.

Apply discount

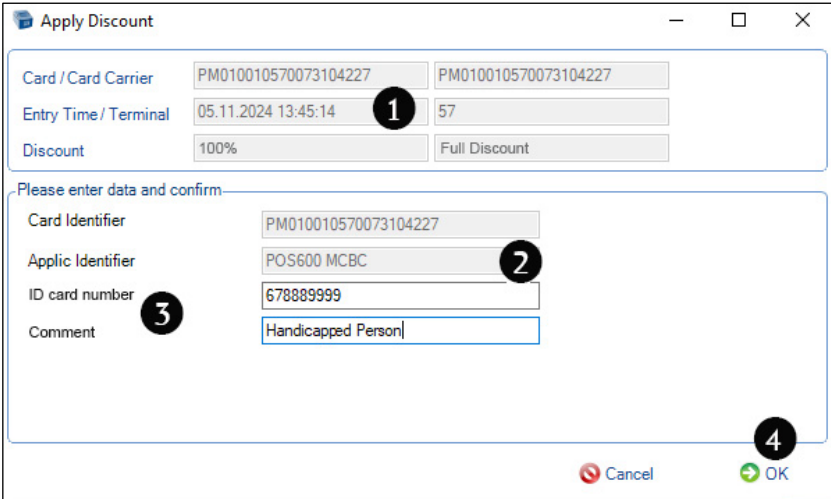


Fig. 21: Apply discount

- The ticket data, such as the *card carrier*, *entry time*, the number of the entry *terminal* and the selected *discount* are displayed ①.
- The identification data from the system (*Card/ Applic Identifier*) are displayed ②.

Additional fields

4. Enter the data for the *additional fields*: in the example above, the additional fields are the 'ID card no.' and a 'comment field' ③.



- *Additional fields* are only displayed if they are set up in the *discount category configuration*. The additional fields can be defined as *mandatory fields*.
- The entries made in the mandatory fields are stored in the database.

5. Confirm the discount allocation with OK.
- The discounted amount is displayed and can be paid via the desired payment type.

9.3.9 Hotel ticket

A **hotel ticket** is issued by changing an entered **short term parker ticket** which a hotel guest received at an entrance. After entering the guests' departure dates he can use the car park as often as desired until the set time. The payment for this is done in advance during the process *Check-in hotel ticket*.

With the *Change hotel ticket* function the departure can be changed if required (e.g. extended stay) and the hotel ticket can be additionally paid for.

With the *Check-out hotel ticket* function overpaid parking fees can be refunded if the hotel guest is departing earlier.

Check-in hotel ticket

1. On the *Hotel* tab, tap the *Check-in hotel ticket* button.
2. Read the **short term parker ticket** with the scanner or at the MCBC coding station.
 - You will be requested to enter the scheduled date of departure.
3. Use the touch buttons on the *numeric keypad* to enter the date and time until when the hotel ticket is to be valid.
4. Tap on the *Enter* button at the *numeric pad* to confirm your entry.
 - The due amount is displayed and can be paid with the desired *type of payment*.

The short term parker ticket now is a **hotel ticket** with which the car park can be entered and exited as often as desired until the set time.

The issued hotel tickets and their payments are reported in the functions *Operating report* and *Cash book* of the **WebReport**. Please also see the separate operator manual *WebReport*.

Change hotel ticket

With the function *Change hotel ticket* you can change the departure (e.g. extended stay) and the hotel ticket can be additionally paid for.

1. On the *Hotel* tab, tap the *Change hotel ticket* button.
2. Read the **hotel ticket** with the scanner or at the MCBC coding station.
 - The recent validity of the hotel ticket is displayed.
3. Use the touch buttons on the *numeric keypad* to change the validity of the hotel ticket.

The departure for the hotel ticket is now changed and the guest can enter and exit the car park as often as desired until the set time.

The changed hotel tickets and their payments are reported in the functions *Operating report* and *Cash book* of the **WebReport**. Please also see the separate operator manual *WebReport*.

Check-out hotel ticket

With the *Check-out hotel ticket* function you can refund overpaid parking fees if the hotel guest is departing earlier.

1. On the *Hotel* tab, tap the *Check-out hotel ticket* button.
2. Read the **hotel ticket** with the scanner or at the MCBC coding station.
 - The recent point in time is suggested as accounting time at the display.
3. If the guest is going to leave the hotel immediately, tap the *Enter* button to confirm the recent point in time.

Overpaid fees are then refunded to the guest from this recent point in time onwards. (Validity of the ticket = recent point in time plus *time gratification (system times)*).

4. Otherwise, use the touch buttons on the *numeric keypad* to enter the date and time of the guest's departure.
Overpaid fees are then refunded to the guest from this recent point in time onwards. (Validity of the ticket = recent point in time plus *time gratification (system times)*).
Confirm this entry with the Enter button on the *numeric keypad*.

- The overpaid fees are displayed and can be refunded.

The refunding is reported as (negative) *Special income Gr. 8* in the function *Operating report* of the **WebReport**. Please also see the *separate operator manual WebReport*.

The guest now has the opportunity to exit the car park once with this ticket until the selected point in time. The hotel ticket now is a short term parker ticket with the selected validity (plus *time gratification*).



Hotel tickets which have already been checked-out can no longer be changed.

9.3.10 Licence plate



For ticketless parking systems with an integrated licence plate recognition system (LPR), the *licence plate* function is available in the POS 500. This enables the number plates of short term parkers recognised at the entrance to be searched for and used to calculate the parking fee.

If the number plate was not recognised correctly in the system, you can create a new ticket and enter the parking data manually to calculate the parking fee (Honesty-Funktion).

The licence plate function requires a *system login* (see chapter 9.2 *Start application* on page 29).

Search licence plate

1. On the *Licence plate* tab, tap the *Search ticket* button.
 - The window for entering the *licence plate number* opens.

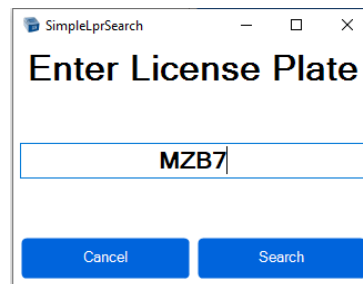
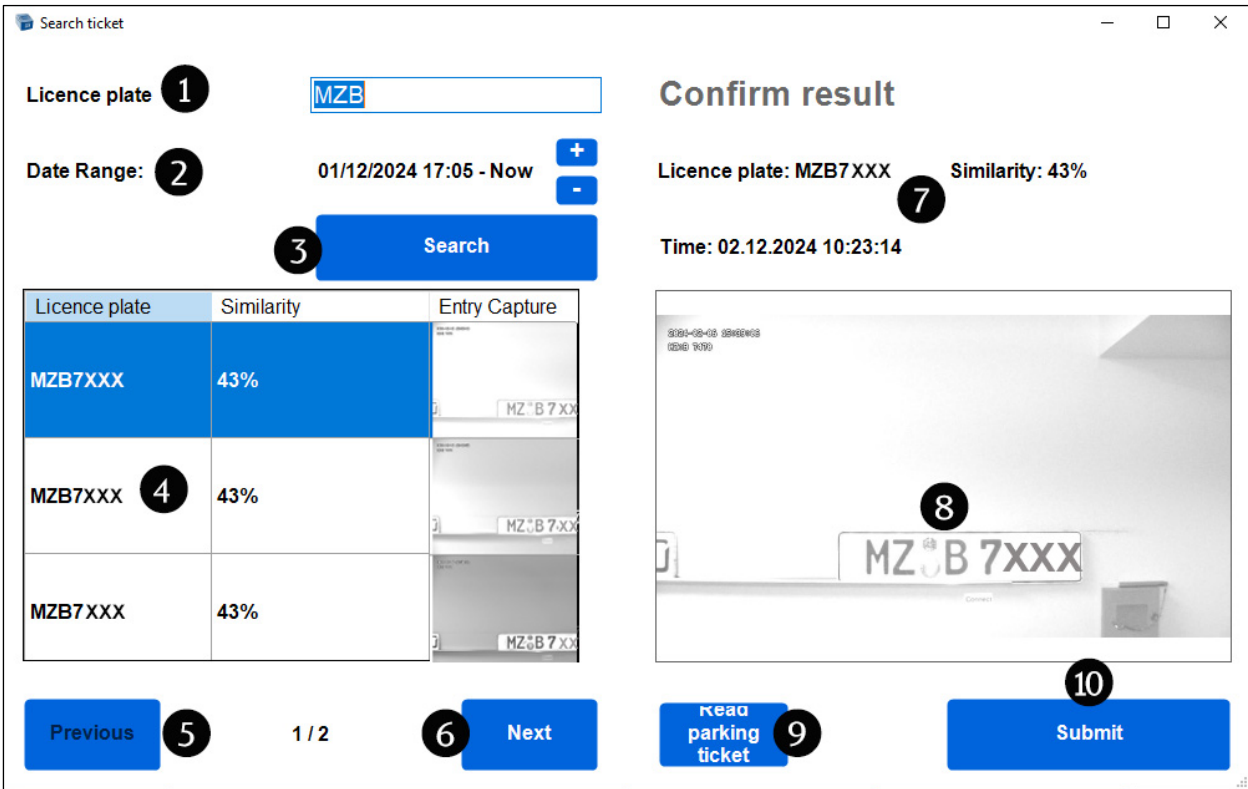


Fig. 22: Search licence plate_Licence plate entry

2. Tap in the licence plate number (at least one character).
3. Tap on *Search*.
 - The *Search ticket* window opens.

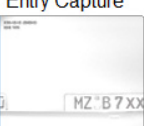


Search ticket

Licence plate **1**

Date Range: **2** 01/12/2024 17:05 - Now **+**
-

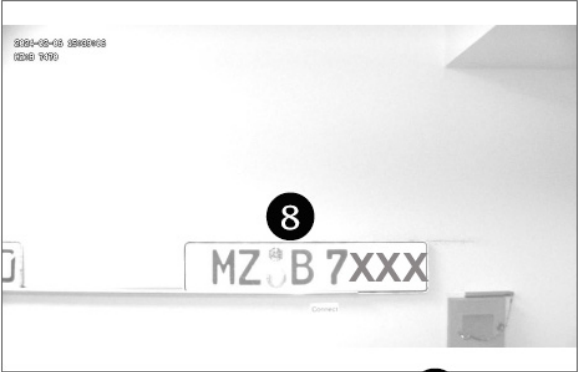
3 Search

Licence plate	Similarity	Entry Capture
MZB7XXX	43%	
MZB7XXX 4	43%	
MZB7XXX	43%	

Confirm result

Licence plate: MZB7XXX **7** Similarity: 43%

Time: 02.12.2024 10:23:14



5 Previous 1 / 2 **6** Next **9** Read parking ticket **10** Submit

Fig. 23: Search ticket_ Results for Entry events

- The results for the licence plate entered in the ticket search (example MZB7) **1** are listed **4**.

Licence plate

The licence plate number entered in the *licence plate search* is added to field **1**.

1. Enter the licence plate number to be searched for (if different).
2. Afterwards tap on *Search* **3**.

Date range

You have the option of specifying a search period. The previous day is selected by default.

- ⇒ Tap on the plus sign (+) to enlarge the time period. If you select *Whole time range*, all results for all licence plates for the period are displayed.
- ⇒ Tap the minus sign (-) to reduce the time period.

Overview

In the overview **4**, the entry events are listed based on the entered search criteria of *licence plate* and *time period*. The *licence plate*, the *similarity* (see below) and the *entry image* are displayed for each event.

- ⇒ Use the *Previous* **5** and *Next* **6** buttons to select the previous or next event from a long list.

Similarity

The *similarity* indicates the percentage match between the licence plate number entered in the search and the licence plate number found.

Event details

For the event selected in the *overview* **4**, the details are displayed with the exact entry date **7** and the enlarged entry image **8**.

Read parking ticket

- ⇒ Tap the *Read parking ticket* button **9** to cancel the entire process.

Confirm result

1. Tap on the event in the *overview* ④.
2. Then tap on Submit ⑩.

Or

- ⇒ Double-tap on the event in the *overview* ④.

- The *Search ticket* window closes.
- The amount to be paid is displayed and can be paid with the desired *payment type*.

Create ticket

If your licence plate has not been correctly recognised by the system, you have the option of entering the customer's parking data manually in order to calculate the parking fee (Honesty-Funktion).

1. On the *Licence plate* tab, tap the *Create ticket* button.
- The window for entering the parking data opens.

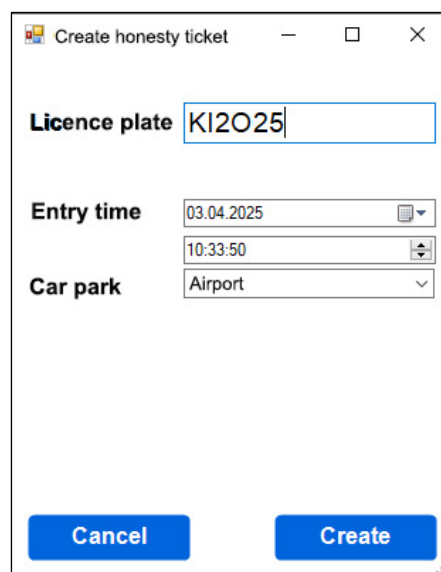


Fig. 24: Create ticket – Enter car park data manually

Licence plate

1. Enter the *licence plate* in the *Create honesty ticket* window.

Entry time

2. Enter the *entry date and time*.

Car park

3. Select the *car park*.
 4. Then tap on *Create*.
- The amount to be paid is displayed and can be paid using the desired *payment method*.

9.3.11 Special incomes

Up to 8 different *special incomes* can be set at the **WinOperate** (e.g. for services).

Special incomes have to be defined at the **WinOperate** and thus at the **system server**. During **configuration** *Special incomes with tariff request* has to be activated.

1. On the tab *Special*, tap on the *Special incomes* button.
 2. Use the *numeric pad* of the touch display to enter the number of the special income (1-8) to be charged.
 3. Tap on the *Enter* button at the *numeric pad* to confirm your entry.
- The due amount is displayed and can be paid with the desired *type of payment*.

9.3.12 Payment types

This function is used to select the *payment types* during payment.

Credit card



Payment with the payment types *credit card* is only possible at the application **POS 500** if an external system for reading and administering the credit card data is available.

The *credit card* function only confirms a credit card payment which occurs at a manual, external system.

At first, the amount is entered and processed separately at the external credit card system by a staff member. The payment is subsequently confirmed via the *Credit card* function:

1. Read, e.g., a **short term parker ticket** by with the scanner or at the MCBC coding station.
- The due amount is displayed.
2. Now pay for the ticket at your external credit card system.

The required card data is read and administered via the external system and settled at a later date.



To ensure correct data keeping and operation, always observe the instructions of your external system for credit card processing.

3. If the credit card process has been executed correctly via the external credit card system, tap on the *Credit card* button.

This function ensures that the **entire** due amount is booked as paid.

Cancel (see below) can only be used with credit card payments in order to cancel the process immediately after the amount has been displayed.

After successful booking an exit entitlement is assigned to the ticket whilst taking the valid system settings into consideration (e.g. car park no., **system times**). The line CREDIT CARD is printed onto the receipt.

Cheque

If a cheque can be used as type of payment please contact your DESIGNA Service (national differences).

Token

The *Token* function can be used to pay the due amount the same as with a **token**.



In the application POS 500 tokens are always used as *free tokens*:

The value of a free token is set as the incurred parking fee. Utilization of the type of payment *token* thus evokes that the **entire** due amount is booked as paid.

This is even the case if value tokens are configured in the system with a specified amount (value tokens).

1. Read, e.g. a **short term parker ticket** with the scanner or at the MCBC coding station.
 - The due amount is displayed.
2. Tap on the *Token* button.
 - The **entire** due amount is booked as paid and an exit entitlement is assigned to the ticket (defined at the **system server**) whilst taking the valid system settings into consideration (e.g. car park no., system times). The line TOKEN is printed onto the receipt.

Zero ticket

The *Zero ticket* function is used to change a **short term parker ticket** into a zero ticket.

1. Read, e.g. a **short term parker ticket** by using the barcode scanner or at the coding station MCBC.
 - The due amount is displayed.
2. Tap on the *Zero ticket* button.
 - The ticket is registered as a paid **short term parker ticket** with the current time at the **system server**.
 - The amount is then displayed in a separate field in the shift report and is not added to the total amount.

9.3.12.1.1

9.3.13 PAID WITH RECEIPT

The *PAID* function is used to book the **entire** due amount as paid with cash.

The cash drawer (if available and if correspondingly set in the receipt texts) opens. A receipt is printed.

9.3.14 PAID

The *PAID* function is used to book the **entire** due amount as paid with cash.

The cash drawer (if available and if correspondingly set in the receipt texts) opens.

No receipt is printed. A receipt can be requested by re-inserting the paid ticket.

Cash 100,-/ 50,-/ 20,-/ 10,-

The 100,-/ 50,-/ 20,-/ 10,- functions are specified cash denominations via which the due amount can be paid. This ensures that the income from bank notes can be entered quickly.



The banknote denomination must always be selected higher than the due amount: This means that the due amount **cannot** be paid for bit by bit via the buttons.

1. Read, e.g. a **short term parker ticket** with the scanner or at the MCBC coding station.
 - The due amount is displayed, e.g. EUR 7.75.
2. Tap on, e.g. 10,- or 20,-, depending on which banknote you have received for the payment.
 - How much change is due is displayed and returned to the customer accordingly.
 - The **entire** due amount is booked as paid with cash. The cash drawer (if available and if correspondingly set in the receipt texts) opens and a receipt is printed.

9.3.15 Numeric pad

Enter numbers via the *numeric pad* if, e.g., dates and amounts have to be specified.

- ⇒ Tap onto the arrow buttons   in order to navigate to the position on the display at which you wish to enter a number.
- ⇒ Tap with onto the *Enter* button in order to confirm or accept details (e.g. Dates when renewing cards) on the display.

9.3.16 CANCEL

The CANCEL function cancels all current payment processes or entries; cancellation is registered at the **system server** and logged together with the cancelled amount of money.

9.3.17 Receipt preview

The *receipt preview* displays what the receipt for the current payment process will look like after printing.

9.4 Printouts at the receipt printer

9.4.1 Receipt printout

The device POS 500 prints a payment receipt on request. A receipt is printed out as shown in the following example:

Printout

DESIGNA CAR PARK SYSTEMS		
MPS:	3	TCC no. of the device
RCEIPT:	25	Serial no. of the receipt
STAFF:	31	Staff no. of the shift operator
CASH PAYMENT		Type of payment, also CREDIT CARD, TOKEN
SNR:	01 034 0000071	Serial number of the ticket
KVZ:	25.06.15 15:15	End of validity of card
EFZ:	23.06.15 15:15	Entrance time according to ticket, in case of lost tickets: issuing time
BEZ:	23.06.15 15:15	Payment time
CONGRESS TICKET		Type of paid ticket
FEE:	10.00 EUR	Due fee
PAID:	20.00 EUR	Amount paid by the customer
RETURN:	10.00 EUR	Change given

NET:	8.40 EUR	Net sum of parking fee
19% SALES TAX:	1.60 EUR	Sales tax for parking fee

9.4.2 Shift report

A shift report is printed at the end of a shift (initiated with the respective function card).



Please see the separate operator manual Function cards for further functions and the handling of the function cards.

9.5 Trigger functions with function cards

Besides normal operation it is possible to trigger certain functions at the POS 500 with **function cards**. For this, the loop V has to be unoccupied. If the POS 500 has to be temporarily taken out of service due to an error status, it can be done using the function card 01 *TCC/SBC out of service*: No further functions are carried out and the display shows the message *Out of service*.

The reading device remains active, so that the device can be put back into operation using the function card 02 *TCC/SBC in service*. This function can also occur via the command *Device in service* at the **WinOperate**.

See the separate operator manual Function cards for further functions and the handling of the function cards.

10 Cleaning and Basic Services

10.1 Safety

Inappropriate cleaning and basic services



WARNING

Risk of injury from inappropriate cleaning and basic services!

Inappropriate cleaning and basic services can cause severe or lethal injuries.

- Cleaning and basic services should only be carried out by DESIGNA trained operating personnel who are familiar with the operating instructions and safety information. The required work is described in the section *See chapter 10 Cleaning and Basic Services on page 44.*

Any other work must be carried out by DESIGNA electrical technicians or electrical technicians of DESIGNA trained and authorized dealers and partners.

- Make sure that cleaning fluids are neither swallowed nor come into contact with eyes.

10.2 General Information

Cleaning and basic services are to be divided into two categories:

- Measures to be carried out **daily** and
- Measures to be carried out **monthly**.



The intervals “daily” and “monthly” are approximate time periods and can differ due to ambient conditions and frequency of use of the device.

Daily services

- | | |
|--|--|
| Check safety signs | 1. Make sure that the safety signs near the device are visible and can always be easily read |
| Check safety labels | 2. Make sure that the safety labels on the POS 500 are visible and can always be easily read (<i>see chapter 2.5.1 Product safety labels on the device on page 9</i>). |
| Check user prompting labels and diagrams | 3. Pay attention to good perceptibility of the user prompting labels and diagrams. |
| Receipt printer | 4. Check the supply of paper on the receipt reel.
5. If necessary, replace the receipt reel or have a paper reel ready, if an imminent exchange is expected. |



Please refer to the instructions supplied with the receipt printer for information on safety, connection, functions, operation, and cleaning.

- | | |
|--------------------------------|---|
| MCBC coding station (optional) | 6. Check the paper stock of the coding station.
(<i>See the 'Cleaning and basic services' chapter in the separate 'Multicon MC Barcode' instructions.</i>) |
|--------------------------------|---|

Monthly services

- | | |
|--|--|
| Clean barcode scanner | 7. Clean the plexiglass plate of the barcode scanner with a soft cloth and a mild cleaning agent
Recommended cleanser: antistatic plexiglass cleaning agent. |
| Clean the casing of the barcode scanner | 8. Clean the casing of the barcode scanner regularly with a soft cloth and a mild cleanser.
Recommended cleanser: Washing-up liquid-water-solution. |
| Clean customer display (optional) | 9. Clean the customer display with a soft cloth and a mild cleaning agent. Recommended cleanser: antistatic plexiglass cleaning agent. |
| Clean the casing of the receipt printer (optional) | 10. Clean the casing of the receipt printer regularly with a soft cloth and a mild cleanser.
Recommended cleanser: Washing-up liquid-water-solution. |
| Clean the cash drawer (optional) | 11. Clean the cash drawer inside and outside with a soft cloth and a mild cleanser.
Recommended cleanser: Washing-up liquid-water-solution. |
| Clean the MCBC coding station (optional) | 12. Clean the outside of the coding station with a soft cloth and a mild cleanser.
Recommended: Detergent-water solution.
(<i>See the 'Cleaning and basic services' chapter in the separate 'Multicon MC Barcode' instructions.</i>) |

11 Maintenance

Electric voltage

DANGER

Danger of death due to electric shock!

Contact with live components may result in death.

- Maintenance has to be carried out by DESIGNA electrical technicians or electrical technicians of DESIGNA trained and authorized partners.

Maintenance is carried out on-site by your DESIGNA Service according to the respective requirements of your system and is therefore not described in these operating instructions.

12 RFID (Hands-free Identification) (optional)

A convenient entry check is enabled by using a hands-free identification system at the control devices. For the **additional payment** and **renewal** of **RFID** cards antennas can also be mounted to Automatic Pay Stations.

The transmitter-receiver antennas are installed either in the device's monitored area or directly on the device. When **RFID** cards are brought closer to the antennas (if necessary, after occupying loop V), a radio link is created and the antenna receives the relevant card data (min. card number). The antenna signal is processed via a controller in or on the device or directly at the antenna and then transmitted to the **TCC/SBC**. The data is requested at the **System server** and checked for certain parameters.

If the **RFID** card is a valid ABACUS **type of item** (e.g. **season parker card**) and valid for the car park, the barrier opens. A roller door or similar object can be controlled instead of a barrier.



With hands-free processes, information for processing is in the **System server**. For every process at the devices, information has to be requested via an intact data line.

The following hands-free systems, which allow various reading distances for hands-free operation, can be used in the ABACUS system:

12.1 Short range RFID systems: Legic/ Mifare/ ISO 15693 Proximity Systems

As further ABACUS **RFID** systems, the following RFID systems can be used:

- Legic Proximity System (operating frequency: 13.56 MHz)
- Mifare Proximity System (operating frequency: 13.56 MHz)
- ISO 15693 Proximity System (operating frequency: 13.56 MHz)
- HID Proximity System (operating frequency: 125 kHz)
- HID Hybrid card reader (operating frequency: 125 kHz and 13,56 MHz)

The following are required (e.g. from your time recognition system):

- **RFID** cards
- system specific antennas
- system specific card reading devices (in order to allocate the card numbers as **types of tickets**)

12.1.1 RFID cards

The **RFID** cards of the *Legic Proximity System*, *Mifare Proximity System* and *ISO 15693 Proximity System* are based on flexible identification standards for hands-free applications.

The cards are equipped with a card number (usually a serial number) which can be read by the *system specific antennas* and *reading devices*.

These are passive cards which do not require batteries, the required transmission energy is provided by the antenna.

The cards usually come in a "credit card format" (ID-1 format): 85.60x 53.98 mm.



Fig. 25: Example Mifare card



Ask your DESIGNA service whether existing ABACUS system cards (e.g. from your time recognition system) can be used).

12.1.2 System-specific antennas



Fig. 26: Example: Antenna

Antennas in the ABACUS system are installed behind the reading field cover or directly in the reading device.

Antennas of the *Legic Proximity System*, *Mifare Proximity System*, *ISO 15693 Proximity System* and *HID Proximity Systems* are short reading-range antennas:

■ <i>Legic</i> antenna range (passive card):	approx. 4cm
■ <i>Mifare</i> antenna range (passive card):	approx. 5cm
■ <i>ISO 15693</i> antenna range (passive card):	approx. 4cm
■ <i>HID ProxPoint Plus®</i> antenna range (passive card):	approx. 5cm
■ <i>HID Hybrid card reader</i> range (card)	approx. 5cm

12.1.3 System-specific card reading devices

The *system specific card reading devices* are connected to the operating PC **WS 120**.

The devices read the **RFID** card number and relay it to the PC application **WinOperate** when **producing** the card: The card number is registered as a **season parker card** together with the necessary card information in the **System server** (see the separate operator manual *WinOperate*).

12.2 Instructions for RFID cards

- ⇒ Protect RFID cards against extreme cold and heat as well as temperature fluctuations:
Pay attention to the temperature ranges specified by the card manufacturer.
- ⇒ Make sure the cards are not bent or folded:
Pay attention to the specifications of the card manufacturer.
- ⇒ Protect the cards against direct sunlight.
(Sunlight will fade their colour over time, cause the cards to warp or bend and impair the RFID technology).
- ⇒ Protect cards with additional magnetic strips against magnetic fields, e.g. against magnetic print heads and certain electronic devices (such as radios or loudspeakers).
- ⇒ Do not allow the cards to come into contact (plastic becomes brittle) with aggressive solvents (e.g. petroleum ether, methylated spirits, etc.).
- ⇒ Do not keep the cards in soft PVC holders or wallets (risk due to PVC softeners or leather tanning agents).

13 Disposal

Occupational safety and
environmental protection



WARNING

Risk of harm to humans and the environment as a result of improper disposal of the device or components.

Improper disposal of the device or components can be harmful to human health and the environment.

- Pay attention to valid country-specific environmental regulations.

14 Glossary

A

Additional payment

An **additional payment** can be charged for **season parker** or **value cards** or other **items** with special online application.

A **season parker card** is charged an additional payment if the season parker is still in the car park when the card validity runs out. In this case, the tariff is calculated from the end of validity until the time of payment. If not additionally paid for, the season parker card is withdrawn and marked as deleted at the exit. A season parker card also has to be additionally paid for if parking occurs outside **the group time**. On which tariff this additional payment is based in both cases depends on the configuration of the **season parker group**. A short term parker tariff is used if no special charge has been defined as additional payment.

A **value card** is charged an additional payment if the parking fee exceeds the residual value of the value card. The customer has to pay the difference at an automatic or manual payment system or (if possible) at an exit.

Other **items** with special online application are charged an additional payment if the **group time** is exceeded: When the selected parking duration is exceeded, additional payment is due according to the tariff ID for additional payment assigned in the Item details.

The payment device must be **online** to carry out an additional payment in a barcode system.

Advance payments, accepted

A payment which can only be partially paid (example: the customer has insufficient change) can result in this amount being credited to the ticket during cancellation. This part payment is listed as an **accepted advance payment** in the operating report.

The customer can pay the residual fee at a later date at the same or another automatic payment system. The previous accepted advance payment is then booked as an **offset advance payment**.

Crediting during cancellation at an automatic payment system instead of returning the inserted money depends on the device configuration.

Advance payment, offset

If a ticket which has been partially paid (**accepted advance payment**) is fully paid at a later date, the previous accepted advance payment is booked as an **offset advance payment**.

The previous incomplete payment from the accepted advance payment has now been completed. Therefore, offset advance payments are listed in the operating report the same as other payments, accepted advance payments are considered separately.

Alarm message

All the occurrences in the ABACUS system, e.g. *barrier broken, door to the pay station has been opened* etc., are displayed as **alarm messages**. Every possible alarm message is assigned an alarm number.

If something occurs at a device an alarm message is sent from the device to the **System server**, which not only logs the name and number of the alarm message but also the **TCC/SBC no.**, date and time. The alarm messages are registered in a database in the **System server** and can be displayed at the **WinOperate**.

Anonymous

In the ABACUS system, **season parker cards**, **value cards** and **congress tickets** can be issued as **anonymous** cards. This may be necessary due to data protection provisions, e.g. if the trips of employees should not be recorded.

All the event and receipt information of anonymous cards is recorded without card numbers. This ensures that the cards remain relevant for car park occupancy, turnover etc. However, the history of these cards – i.e. their trips and payments – is thus invisible in the corresponding **WinOperate** functions (e.g. *event details* and *ticket tracking*).

B

Blacklist

Cards which are not desired in the facility can be detected at the devices with the ABACUS system's **blacklist**. Cards can be put on the blacklist automatically by the system (**card not entered**) or manually. Blacklist cards are, according to the device configuration, either refused, withdrawn and/or deleted.

Blacklist check

The **blacklist check** can be switched on or off for each device. In principle, the blacklist-check should be switched on: the device takes the blacklist entries into account and rejects or withdraws listed cards. If the blacklist-check is switched off the device also accepts blacklisted cards.

C

Card not entered

The ABACUS system judges a ticket to be a **card not entered** if only a ticket is taken without an actual entry occurring. The taken ticket is registered immediately as a **card not entered** at the **System server** and this message is then transferred from the System server to all the devices; thus if an attempt is made to use the ticket it is rejected as "invalid".

Charging

Charging is a **value card** function. The decision whether value cards should be charged or not is set during the setting of the **item** value card. The "chargeability" of value cards allows the customer to book a new cash amount onto the card when the original value has been used up. A **partial charging** is also possible: subject to a license

NOTE: The item which has been activated with the setting *Use at TCC/SBC* is used when charging cards at automatic pay stations.

The payment device must be **online** to charge barcode value cards.

Compressed air

In order to clean sensitive operating elements in ABACUS system devices (Multicon or similar devices), it is recommended to use a **compressed air** spray can. By using the spray can, it is possible to remove dust particles, snippets of paper etc. from the device.

NOTICE: When cleaning with compressed air, always make sure that the nozzle of the compressed air equipment is **not** aimed inside the device and that snippets of paper do not enter the ticket guides.

Suitable cleaning material: see DESIGNA Consumables Catalogue

Congress ticket

Congress tickets entitle repeated entrances and exits free of charge during a set time period. They can be purchased by an organizer before an event (conferences, trade fairs) at a set price and sent to the participants in advance.

Some item details can only be checked **online** in barcode systems (e.g. validity). Therefore, barcode congress tickets are rejected **offline**.

Credited

Credited groups are groups whose incurred fees, after exceeding the **group time (additional payment)**, are stored at the **System server** and thus can be invoiced at a later date (see operator manual "WebReport"). A credited group does not have to pay an **additional payment** immediately.

A pre-condition for invoicing additional payments of credited items is that the group has the property *Credited*. Recommended: Furthermore, make sure to enter the correct customer data, e.g. address and bank details, for all customers assigned with items with a credited group to ensure later settlement.

Customer related counting

By using **customer related counting** customers can be issued with several **season parker cards** but admission during one time period can be restricted to a specific number of cards (example: A customer wishes to have 4 car season parker cards but only rents 2 parking spaces).

D

DBS (also System server): see **System server**

Detector N/ Detector V

For a standard application with two loops, the loop N is located underneath the barrier arm as a closing loop and the loop V at the control device as a presence loop.

The signal from loop N is evaluated by the **detector N** and the signal from loop V by the **detector V** and relayed to the barrier control unit for processing.

Device configuration

The device properties are set in the **device configuration** when setting up new devices or when changing existing settings. These are device-specific parameters which can vary

according to the installed operating elements and define how the device should "behave" in the ABACUS system. Device configuration is always carried out by your DESIGNA service.

Drive&pay (also KK-EC as STP)

The function **drive&pay** in the ABACUS system allows customers to enter and **exit** the car park with credit and other customer cards or with SmartCards. The entrance and exit times of the cards are recorded in the **System server** (card number) and subsequently invoiced or (with SmartCards) deducted when exiting. Furthermore, the payment of **short term parker tickets** is possible at an exit control terminal with the option Drive&pay.

NOTE: The function drive&pay does **not function offline**, i.e. for it to function there has to be communication with the System server.

Drive-through and usage message (greylist): see **Greylist** and **Usage message**

E

EasyMove

EasyMove is the name of the standard **RFID** system which is used for a hands-free entry check in the ABACUS system: combined with an EasyMove antenna the EasyMove cards allow a hands-free entry and exit at a distance of up to 1 meter (depending on the antenna used). EasyMove cards, as with **value cards** or **season parker cards**, are a very convenient way of entering or exiting a car park.

Ethernet

Ethernet is a widespread and standardized communication infrastructure for local networks (**LAN**). All devices to be networked have their own IP (Internet Protocol) address, which is used for communication independent of the location. The consistent use of the Ethernet standard for all operating elements enables a diversity of access possibilities and networking types (e.g. fibre optics or wireless **LAN**).

Exit entitlement

Certain data is used to write an **exit entitlement** onto tickets after valid payment (magnetic strip systems: magnetically coded, barcode systems: printed at the ticket printer), or the entitlement is registered in the **System server** (e.g. RFID or credit cards) and checked at an exit control terminal.

F

Flexi cards

In some systems **value cards** are issued as **flexi cards**. Flexi cards, just like value cards, allow customers to utilize ("park") an existing value without having to pay at an automatic pay station.

The flexi card allows to enter and exit as often as desired during a set time frame. The amount⁷ is deducted from the flexi card during the first exit, every further parking process during the set time frame is free of charge.

The fee for using the flexi card depends on the set **payment type** (GID) in the tariff configuration.

Function cards

Function cards initiate certain functions at ABACUS system devices. These are a set of cards which are obtained from DESIGNA with (pre-coded) functions for your system (see separate instructions "Function cards") or which can be created at a later date at the **WinOperate**.

G

GID: see. **Payment type**

Greylist

In the ABACUS system, the **greylist** registers conspicuous cards and reacts to their usage or drive through.

The cards can be allocated the message types **drive-through message** or **usage message**, thus triggering the corresponding **alarm messages** or other set reactions.

Groups, Group details: see **season parker groups** and **group time**

⁷ The fee for using the flexi card depends on the set payment type (GID) in the tariff configuration.

Group time

With the help of **groups** it is possible to divide **season parkers** or other **items** with special online application into different groups for which different conditions are valid. This also includes the setting of the **group time**: the length of stay (if necessary, recorded in a contract) for which the customer pays a lump sum.

Thus, a customer who only wishes to use the car park at night can be offered a more reasonable price than a customer who wishes to use the car park 24 hours a day. It is possible to determine whether customers - outside their group time - are either not allowed to enter or are allowed to enter, but then have to pay a fee for the parking times outside the group time (additional payment).

Barcode season parker cards are rejected **offline**, unless configuration of the barcode system allows season parker cards to enter and exit the car park offline. However, the group time will not be checked offline: This means the season parker group is not restricted offline by group times.

H

Hands-free identification

The ABACUS system supports various systems for the hands-free identification (also see **RFID**) of **season parkers** and **value card** users. The products range from proximity terminals with reading distances of several centimetres to hands-free applications with an operating range of 10 meters. All the systems are completely wear-free since they function without moving parts and electrical contacts.

Hopper

The *change unit* allows change to be given at the automatic payment system. The change unit is equipped with change holders, which are called **hoppers**. The hoppers are "numbered" for **device configuration** (clockwise).

Hotel (as hotel ticket registered cards)

A **hotel ticket** is issued by recoding a short term parker ticket at the manual pay station or at the application PAY manual touch station. After entering the guests' scheduled departure dates they can use the car park as often as desired until the set time.

Hotel tickets are not available for barcode systems.

I

ID medium

Various ID media can be used at the entrance and exit: paper ticket, RFID card, print@home ticket with QR Code (Quick Response Code), smartphone with QR Code, credit card; licence plate recognition, customer card or number code.

I/O check

The **I/O check** (Inside/Outside-Check) checks the **I/O identification** of the ticket: On the basis of the **TCC/SBC no.** it is possible to see at which device last use occurred.

If the ticket was last used at an entrance or pay station it is "inside" and next use, if the I/O check is switched on, has to occur at an exit. If the ticket was last used at an exit next use has to occur at an entrance or pay station.

The I/O-check can thus stop, e.g., several vehicles being taken out of the car park with one **season parker card**, because after using the card at an exit next use has to occur at an entrance or pay station.

If configuration of the barcode system allows season parker cards to enter and exit the car park **offline**, there is no offline I/O check.

I/O identification (wrong)

The last used device (**TCC/SBC no.**) is allocated to the ticket as the **I/O identification**.

If the **I/O check** is switched on the I/O identification is checked and tickets with **wrong I/O identification** are, depending on the **device configuration**, rejected and deleted or withdrawn. An I/O identification is wrong when the logical, alternating ticket pattern of "inside" and "outside" has not been observed (e.g. if two exits, one after the other, are attempted with the same ticket without an entrance having been used in the meantime).

Item

Items are set in order to issue cards of a **type of item** with various properties. The properties depend on the respective type of item.

In order to issue cards in the system, items which can be used at the car park have to at first be defined. Items are allocated to a customer, thus **preparing** a card in the system.

K

Keypad

Optionally, a number code can be used as the **ID medium** for **pre-bookings**. This number code is entered at the entrance via a **keypad**.

KK-EC as STP: see **drive&pay**

L

LAN

A **LAN** (Local Area Network) is a locally limited network under control of the owner. In the ABACUS system, the **LAN** is the car park network achieved via **Ethernet**. This can include just the car park or also company units or networked partners (e.g. multi-facility centres).

Login group

In order to provide **users** with various user rights for the **WinOperate**, the **system logins** are allocated to various **login groups**. The login group specifies which functions are available for the logged in user. The various login groups are *DESIGNA*, *Administrator*, *Service personnel*, *Accounting personnel*, *Operating personnel* and *Staff*.

The login group "DESIGNA" has been set solely for your DESIGNA Service for service and remote maintenance purposes.

Lost ticket

A **lost ticket** can be issued to customers who claim to have lost their ticket. To avoid abuse of this function a price is usually charged which corresponds to the per diem rate.

Lost tickets can be issued with the function *Produce lost ticket* at the **WinOperate** or as a special function via a *Lost Ticket* push button at the automatic pay station. For this function an appropriate **Multicon** is necessary.

LPR

LPR (Licence Plate Recognition) is an image-processing technology used to identify vehicles by their licence plates. This technology is used in various security and traffic applications, such as access-control systems.

While the vehicle approaches the barrier, the LPR unit automatically reads and registers the licence plate. In the ABACUS system this licence plate data is used as ticket and receipt reference (in some countries required by tax authorities), or can be used for access authorization. In this case the data is compared to predefined lists: The system denies entry if e.g. the Card/ Vehicle allocation does not match or the barrier can open automatically for predefined VIP cards.

M

MAC address

The **MAC address** (Media Access Control address) is the hardware address of each individual **TCC/SBC** that is used for permanent identification of the device in the system. The MAC address is permanently assigned to the device and displayed on a sticker affixed to the TCC/SBC (also referred to as the "Ethernet ID" or "physical address").

Media change

A **media change** involves changing to a different **ID medium** at the entrance control terminal. The car park customer is identified, e.g. via a QR Code (Quick Response Code), and is issued a paper ticket directly at the terminal.

Multicon

The devices' (write/read) unit is known as **Multicon**. According to the desired function range and used technology (magnetic strip or barcode), it is necessary to have different versions of the Multicon:

For example, in order to offer the function **"lost ticket"** at the automatic payment system a Multicon with ticket insertion from the rear is necessary, or for credit card payments a Multicon with a "parking position" is necessary.

O

Offline

If a device is **offline** there is no communication between the **System server** and **TCC/SBC**, i.e. ABACUS system's data transmission is interrupted and no data exchange can occur.

Offline, capable of functioning offline

The ABACUS system is **capable of functioning offline** for standard functions: The devices carry on functioning in "stand-alone" operation in spite of the interrupted data line. All the accrued data at the device is accumulated in the TCC/SBC and transferred to the **System server** when online-standby is back on.

There is only a limited offline capability for barcode technology: Barcode tickets contain only partial information for processing.

Some of the other functions (RFID, credit card processing) are not capable of functioning offline: An intact data transmission between **TCC/SBC** and System server is needed⁸.

One-use ticket

One-use tickets are issued at the MPS 120 and permit one exit: For example, a short term parker ticket used to enter the car park can be exchanged for a one-use ticket and the car park can be exited free of charge (also recommended: use of the function null ticket at MPS 120) or at a fixed price.

Some item details can only be checked **online** in barcode systems (e.g. validity). Therefore, barcode one-use tickets are rejected **offline**.

Online

If a device is **online** there is communication between the **System server** and **TCC/SBC**, i.e. the ABACUS system's data transmission via **Ethernet** is intact and an exchange of data can take place.

Overpayment

Overpayment occurs if the parking fee is smaller than the inserted sum of money and no change can be returned at the automatic payment system (e.g. parking fee= EUR 2.30/ inserted amount= EUR 4.00 with 2x EUR 2.- coins; no change available. Overpayment= EUR 1.70).

P

Park app

The term **park app** is the abbreviation for car park application. Application refers to an application program installed on a smartphone or a tablet computer. A **park app** can be used to carry out **pre-bookings**.

Park cheque

Park cheques allocate parking entitlement with various temporal conditions. The parking entitlement information is coded onto a park cheque, which can then be used as an additional insert card with a **short term parker ticket** at the automatic or manual payment system (if necessary, also at the entrance control device when without a *recoding fee*). The short term parker ticket is recoded accordingly and, depending on the temporal conditions of the park cheque, allows the customer to enter and exit the car park.

Park cheques are not available for barcode systems.

Parking swindler: s. Card not entered

Partial charging

Partial charging is a function for **value cards**. The decision whether value cards should be partially charged or not is taken during the setting of **item** value card. The partial charging of value cards enables customers to book a new amount of money onto the card when the old value has run out (has been parked). This new amount can be fixed by the customer and can be less than the amount for a (full) **charging**. For this, the value is calculated with the price at a ratio of one to one. The possible issuing of discounts due to a favourable price/value ratio is not taken into consideration.

NOTE: The function partial charging is subject to a license.

The payment device must be **online** to carry out partial charging in a barcode system.

Payment type (GID)

Payment types are for example the standard tariff which is incurred, certain **types of item** or any functions for which further alternative tariffs have to be accessed (e.g. additional payment of **season parker cards**).

⁸ Credit card payments (up to 7) can be accepted if the device is offline (actions are saved in the TCC/SBC). Recommended: Only accept credit card actions if the device is online (standard).

All the **payment types** which are possible in the ABACUS are allocated a number (GID: Group Identification) and are set in the tariff configuration.

PiP

A **PiP** is "a car park within a car park" in the ABACUS system: An additional marked off area (e.g. using SPT 120 and a barrier) where the entrance is controlled.

Pre-booking

If the pre-booking option is available in the ABACUS system, car park customers can carry out **pre-bookings**: A planned stay in a car park can be booked and paid for in advance via a web application, e.g. at the car park operator's website, or via a smartphone **park app**. The **pre-booking** functions are subject to a licence and require customer-specific implementation.

Prepaid ticket

A **prepaid ticket** is issued for a set price and is valid until a pre-set exit time on the day of ticket issue. The short term parker tariff can also be the basic rate for a prepayment with a prepaid ticket.

Prepare cards

In order to issue cards in the system, **items** which you wish to offer in your car park have to at first be defined. Items are subsequently allocated to a customer, thus **preparing** a card in the system. To finally issue a prepared card to a customer, it has to be **produced**.

The cards are **prepared** in the function *Prepare cards* of the **WinOperate**, i.e. you allocate a previously defined **Item** to a customer.

Produce cards

In order to issue cards in the system, **items** are at first defined and subsequently **prepared** in the system. To finally issue a prepared card to a customer, it has to be **produced**, if necessary at a later date.

The cards are **produced** in the function *Produce cards* of the **WinOperate**, i.e. the data record from **prepare cards** is written onto a paper ticket or allocated to a card at the **System server** (e.g. plastic barcode cards and RFID). From this moment onwards the card is available as a "real" card and can be issued to the customer.

Promotional Codes

In the ABACUS system, promotional codes allow customers to use an **ID medium** (e.g. a barcode or a number code) more than once to enter the car park during a specified time period. Promotional codes can therefore be used for temporary special offers (e.g. specially priced parking due to a barcode published in a newspaper).

Promotional codes are defined with specific properties (e.g. valid period, car park and max. issue amount) and are stored in the system as **season parker cards**. The preparation of various **season parker groups** allows the assignment of numerous tariffs for a car park.

R

Renew

Renewing is a function for **season parker cards**. If a renewing is allowed *Before expiry*, *After expiry* or *Still allowed* for the item, the car park customers can renew their cards at the automatic pay station themselves during these times; before and after the validity of their cards expires.

The payment device must be **online** to carry out renewing in a barcode system.

Replacement ticket/ Manual replacement ticket

A **replacement ticket** is issued as an identical copy of a ticket which is no longer readable (magnetic strip or barcode no longer readable by the **Multicon**). The replacement ticket is based on the data of the original **short term parker ticket**.

For this, the data of the original short term parker ticket is entered at the WinOperate or at the MPS in order to retrieve it from the **system server**: At the MPS this is done according to the ticket's **serial no.** At the WinOperate this is done according to the ticket's serial no., its LPR identification (only optional **LPR**) or according to its receipt no. This way a replacement is issued for the previously issued ticket. Usually, the replacement ticket has to be paid at a pay station before exiting (Exception: a replacement ticket is issued for a just paid short term parker ticket).

A **manual replacement ticket** can be issued at the WinOperate: For this, the **user** defines the desired data for producing a **replacement ticket**.

The data is created as for an entrance of a short term parker ticket (date, TCC/SBC and time). This way, a new, unpaid ticket is issued, whose entered entrance data will be valid for its subsequent payment. The manual replacement ticket has to be paid at a pay station before

exiting or it can be issued in a way that payment occurs immediately during **production** (at the pay station).

Reservation, With (diverse types of item)

The ABACUS system provides **items with** and **without reservation**:

A certain number of parking spaces are reserved for items **with reservation** in order to guarantee a free parking space (e.g. specially marked spaces). Items **with reservation** are counted separately and can still enter the car park even if all the short term spaces are full and short term parkers and items **without reservation** are denied.

The **types of item season parker card, value card** and **congress ticket** can be assigned with reservation. This is done in *Manage items* of the **WinOperate**.

Reservation, Without (diverse types of item)

The ABACUS system provides **items with** and **without reservation**:

Items without reservation are counted as **short term parkers** by the car park counters, i.e. in a car park occupied with short term parkers all subsequent cards without a reservation are refused entrance. The message "Car park occupied" appears on the display at the entrance.

Reset

In principle, there is a differentiation made between the following types of **resets** which produce different effects at the devices and in the system communication. A reset is selected from 6 various types of **Reset**.

- **Reset 0**
Reset 0 causes a type of "cancellation": A current payment at an automatic payment system can be cancelled from **WinOperate**.
- **Reset 1:**
Reset 1 puts some TCC/SBC processes in a basic condition.
NOTE: This can cause operating irregularities as device component processes are not put in a basic condition. For this reason Reset 1 is not used in normal operation.
- **Reset 2:**
Reset 2 causes the respective device to be switched on and off like during a "manual" restart. Recommendable for clearing smaller operating faults.
- **Reset 3:**
Reset 3 causes configuration data to be transferred from the **System server** to the TCC/SBC
Part of this configuration data is, e.g., price or group data.
- **Reset 4:**
Reset 4 transfers the executing program for the individual control of a device to the TCC/SBC.
NOTE: A Reset 4 deletes all the existing alarm messages in the TCC/SBC which have not been transferred to the System server.
Before carrying out a Reset 4 use Reset 2 to make sure that all the alarm messages have been transferred (approx. 2 min in advance).
- **Reset 8:**
Reset 8 is only used for service purposes during the new configuration of a TCC/SBC.

Resin-Free Oil

Only use **resin-free oil** to lubricate moving parts.

(Recommended: Ballistol oil spray, DESIGNA Ident. no. 8 815 057 000)

RFID

Radio Frequency Identification (**RFID**) enables the hands-free data registration and customer identification. RFID enables rapid processing (also of various systems, e.g. time recognition and entrance) and is maintenance-free.

An RFID system always consists of data media (**RFID** cards with chip and antenna) and a reading device (antenna and decoder/controller).

Magnetic or electromagnetic fields are used for data transmission.

S

SBC

A **SBC** is used in the ABACUS system. The SBC manages and controls the device functions with the individual program of a device.

The SBC is centrally controlled by the **System server** and identified and addressed via IP addresses. Possible signal conversion for parallel device components (i.e. barriers) takes place via the optional module *I/O interface*.

Season parker (also SP)

Season parkers are customers who wish to use the car park over a longer period and usually pay the incurred fee as a lump sum in advance. They are neither fixed to a certain number of parking processes nor to a set parking duration.

Season parker cards

Season parker cards are issued with certain properties (price, validity, **group time**, with or without **reservation**) in order to offer the ABACUS system's **season parkers** different conditions.

This is defined by creating various types of items **season parker card** and various **season parker groups**. These are then written onto the season parker card when **producing** (or allocated to a card at the **System server**).

Some item details can only be checked **online** in barcode systems (e.g. validity). Therefore, barcode season parker cards are rejected **offline**, unless configuration of the barcode system allows season parker cards to enter and exit the car park offline. However, this results in certain item details not being checked offline (e.g. validity, **group time** or **I/O identification**).

Season parker groups / Groups / Group details

Groups are usually set for **season parker cards** (**season parker groups**). Additionally, setting groups might also be necessary for other **types of item**, i.e. for their *special online application* (from version x15).

All the season parkers within the ABACUS system can be divided into different groups (**season parker groups**) for which different conditions are set. For example, a season parker group can be restricted to parking at night. A maximum of 14 season parker groups with different properties can be active for each car park.

The different properties are summarized as **group details** and the group number is allocated to the **season parker card** (or to the other **types of item** with *special online application*).

Season parker with reservation/ without reservation: see **reservation**

Serial no.

Each ticket and each card produced in the system is allocated a precise **serial no.**. The serial no. can be used as successive numbers or in 3 blocks.

For **short term parker tickets** the serial no. is made up of the system no., TCC/SBC no. and the ticket no. It is allocated and printed onto the ticket at the entrance. The serial no. is requested in several functions to locate data sets (e.g. issuing of **replacement tickets** at the MPS or ticket tracking and issuing of replacement tickets at the **WinOperate**). In magnetic strip systems the serial no. is printed in line 1 of the printed ticket information (standard printing line for the entrance information) or can, according to the (Multicon) **configuration**, be printed in line 8 (extended ticket imprint of the entrance) (also see document "MC 120 TICKETS" (specification of the tickets and their printed areas)). In barcode systems the ticket no. is not numbered consecutively and the serial no. needs to be set as printed in its own line in the Multicon configuration.

For **season parker cards**, **value cards** and **congress** tickets the serial no. is made up of the system no., TCC/SBC no. and the card no. which has been assigned when **preparing** the card. The serial no. of these **types of item** is only printed onto the tickets and cards if this is set accordingly at the WinOperate (*Manage items*) (**never** print onto plastic cards).

Short term parker (also STP)

Short term parkers are customers who request a **short term parker ticket** at the entrance and enter the car park with this ticket. After paying the fee (at an automatic pay station or MPS as well as at an exit, see **drive&pay**) the customer can exit the car park. The fee depends on the parking duration and parking time.

Short term parker ticket

The **short term parker ticket** is issued to the user upon request when entering the car park (express entrance: automatically). The parking fee is calculated on the basis of the ticket's entrance data. The fee has to be paid prior to (or while) exiting.

Special income

Special incomes in the ABACUS system do not relate to parking fees but to other types of incomes, e.g. services such as car washing, car park security etc.

System login

Before **WinOperate** can be opened, thus allowing access to the ABACUS system, the **user** has to provide identification. This occurs via the so-called **system login**, a combination of user name and password: A login window in which ID can be entered appears prior to the start. Menu items and functions can be switched off depending on the **login group**.

System server

The **System server** is the PC or the server platform for controlling, monitoring and administrating the parking system ABACUS.

The operating interface **WinOperate** is installed at the DESIGNA operating work station **WS 120** and communicates via **Ethernet** with the System server. The application WinOperate is located on the actual System server (DBS COMPACT and COMPACT PLUS) for smaller car park systems.

System times

In the ABACUS system it is possible to define times as **system times**. These times influence the tariff calculation for each facility: e.g. *grace time* (time period by which a tariff step can be exceeded before the next tariff step is calculated), *lag time* (maximum length of stay in the facility after payment) or *free passing time* (a customer's maximum length of stay in the facility before payment is due at an exit device).

T

TCC

A **TCC** of type SCC or LCC is used in the ABACUS system. The TCC with Linux operating system manages and controls the device functions with the individual program of a device.

All TCC are centrally controlled by the **System server** and identified and addressed via IP addresses. The internal device communication takes place via serial connections. Possible signal conversion for parallel device components (i.e. barriers) takes place via the optional module *I/O interface*.

TCC/SBC address/ TCC/SBC no.

TCC/SBC addresses are used in the ABACUS system in order to enable a purposeful transfer of commands and programs and an identifiable data exchange between the device and the **System server**. These are configured according to the device features and are programmed at the **TCC** (the device and TCC/SBC **configuration** is usually carried out before delivery or by your DESIGNA Service).

The TCC/SBC address set at the TCC/SBC and configured in the System server corresponds to the **TCC/SBC no.** requested in many functions.

Theatre tariff

The **theatre tariff** allows you to charge a separate price at automatic pay stations⁹ for **short term parker tickets** which enter the car park during a certain period, if the payment also occurs in this time period. Customers pay according to a defined price calculation (payment type (GID)) up until the specified exit time.

This ensures that payment can be carried out in advance, e.g. to prevent queues at pay stations after events.

The short term parker tickets can exit the car park until a specified time in the future. If a customer exits the car park after this specified time, the short term parker tariff is charged as additional payment.

Ticket medium

In the DESIGNA system, the **ticket medium** stands for the "carrier material" that transports unique data records. The unique data records (card ID) consist of a) the respective authorisation (e.g. event ticket, weekly ticket, staff card) and b) the user of this authorisation (e.g. customer, event, company, employee).

The ticket medium is linked to a unique ticket ID in the system.

Depending on the medium used by the car park customer for identification at the entrance, automatic pay station or exit, a corresponding system comparison is made to the authorisation assigned to the ticket medium. This can be, for example, the **serial number** of a ticket/card produced, the hash code of a credit card, the QR code content, the UIDs of RFID cards or the licence plate (for VIP or Ticketless).

⁹ Depending on the device configuration, the theatre tariff can, e.g., be activated at just one pay station of a car park or by selecting it via the lost ticket button.

Time cheque: see **value and time cheque**

Time slot

Time slots help to statistically analyse parking processes in the ABACUS system. They are used to divide and record the parked times into ranges. The parking durations can then be displayed with the *time slot statistic* of the **WebReport** application (e.g.: How many short term parkers use 2 or 4 hours as a parking duration?). Up to 50 time slots can be defined.

Token

Token are coins to which a certain value is allocated. The coin validator recognizes certain features of a token the same as it does with coins. Tokens are valued and processed as coins at the automatic pay station (not intended as change).

Tokens can be configured as *value tokens* or as *free tokens (device configuration)*: A *value token* is allocated with a certain cash value. The value of a *free token* is set at the automatic pay station to the same amount as the incurred parking fee, thus allowing free parking.

Traffic jam detection

For **traffic jam detection** at the exits, the system monitors how well the lag time can be observed. This is achieved by continuously determining the average time required by car park customers from the pay station to the exit. If this average time and the lag time converge at an exit, the **alarm message** "Traffic jam at the exit" is generated (when the difference between the average time of the last 10 car park customers and the set lag time is less than 60 seconds).

It is possible to react to this alarm message by increasing the lag time by 20% at the affected exit via **WinOperate** or it can also be increased automatically by the system: There is a reduced risk of paid tickets losing their **exit entitlement**, resulting in further payments due to the jam.

If the average time and the already increased lag time also converge, the alarm message is regenerated and the lag time can be increased by another 20% at the affected exit via **WinOperate** or automatically by the system.

The increased lag time remains active at this exit until it is reset to the original lag time at **WinOperate** or automatically by the system.

Type of customer

Types of customer can be used in the ABACUS system to divide the master data in *Manage customers (WinOperate)* into categories. This ensures that functions can only be available with assigned types of customer for certain **users**.

Type of item

The ABACUS system provides numerous **types of item** (e.g. **season parker cards**, **value cards** and **function cards**) in order to cope with the needs of the car park customers.

U

Usage message and drive-through message (greylist)

In the ABACUS system, the **greylist** registers conspicuous cards and reacts to their usage or drive through.

The cards can be allocated the message types **drive-through message** or **usage message**, thus triggering the corresponding **alarm messages** or other set reactions (*Manage cards/ Comments tab, Blacklist & Greylist* in **WinOperate**).

Cards or licence plates (only optional **LPR**) entered in the system with the **usage message** trigger the alarm message no. 213 or set reactions when **used** at any device (card insertion at the device or an **RFID** card request).

Cards or licence plates (only optional **LPR**) entered in the system with the **drive-through message** trigger the alarm message no. 186 or set reactions when **driving through** an entrance or exit.

These alarm messages (no. 213 and no. 186) are also individually set to ensure that usage or drive through of the card (or e.g. the entrance of a licence plate) is displayed as desired (*Set alarm messages* in **WinOperate**).

User

To ensure that only authorized personnel operate the system operating personnel have to register and deregister as a **user** prior to and after working at the **WinOperate**.

Users are registered as customers in *Manage customers* at the **WinOperate** and are allocated a **system login**. Menu items and functions can be switched off depending on the **login group**.

V

Valet Parking

Valet Parking refers to the parking of vehicles by an employee. The vehicle and the key are left with parking authorized staff (jockeys) at a central drop-off point. A jockey then parks the car on behalf of the owner and, when requested, returns it to the pick-up area. This parking service is offered, e.g., by hotels and airports.

Value and time cheque

Value cheques are tickets which are used as means of payment in the ABACUS system. A certain money value is assigned to the ticket which can be used as payment at the pay stations and some exits (only **drive& pay**).

In contrast to value cheques, a time value instead of a money value is coded onto **time cheque**. They can also be used as means of payment by reducing the incurred parking duration at the pay station or at an exit.

Value/Time cheques can be allocated to, e.g., participating shops by the facility operator in order for these shops to offer their customers reduced parking costs in the interest of customer retention. There are two different ways of charging the participating shops (or similar) for the value/time cheques:

- The assigned money/ time value is charged 100% when issuing or
- only the actual amount of money/time used by the customer is charged (e.g. for **overpayment** with value/time cheques).

The **device configuration** specifies whether just **one** value/time cheque can be used as a payment medium at the device or any number of cheques.

Some item details can only be checked **online** in the barcode system (e.g. validity). Therefore, barcode value cheques are rejected **offline**.

Value cards

Value cards are coded with a certain value (amount of money or time) and subsequently sold to the customers at a set price. The incurred parking fee or time is deducted from the value card when exiting. This has the advantage that the customer does not have to pay at the automatic pay station. The residual value of the card is shown on the display when entering and exiting. In addition to this, the value card can be used to offer the customer a concession by choosing a price which is less than the coded value.

Different properties can be issued for value cards: for example, the validity of the card can be set, a favourable value/price ratio issued or a later **charging** of the value card provided for if the value has run out.

Some item details can only be checked **online** in barcode systems (e.g. validity). Therefore, barcode value cards are rejected **offline**.

W

WebReport

WebReport enables professional statistical reporting of parking data in the ABACUS system. Statistical values are analyzed rapidly, precisely and clearly.

Reporting of:

Time slot statistics, throughput statistics, occupancy statistics, turnover statistics, alarm statistics, operating report, cash book, value card balance, tariff switch card report, value cheques/ time cheque settlement, park cheque report, card lists, customer lists

WinOperate

The **WinOperate** is an easy-to-use graphical Windows® interface which allows the user to check, monitor and control processes in ABACUS as well as manage system data and present business figures.

The operating interface WinOperate is installed at a DESIGNA operating work station **WS 120**, which communicates via Ethernet with the **System server**. The application WinOperate is located on the System server DBS COMPACT and COMPACT PLUS for smaller car park systems.

WS 120 (also work station, operating PC)

The **WS 120** is the operating work station of the ABACUS parking system which communicates with the **System server** via **Ethernet**. In connection with WinOperate the WS 120 provides extensive monitoring, controlling, administrating and reporting functions. Several WS 120s can be networked and access the data and control of one car park.

The application WinOperate is located on the actual System server (DBS COMPACT and COMPACT PLUS) for smaller car park systems, a separate PC WS 120 operating work station is then not required.

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16 Version overview

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