



MANUAL

IQT1-HH20

Handheld (13,56 MHz)



CE



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1 Introduction

Congratulations

You have chosen a device manufactured by Pepperl+Fuchs. Pepperl+Fuchs develops, produces and distributes electronic sensors and interface modules for the market of automation technology on a worldwide scale.

Before you install this device and put it into operation, please read the operating instructions thoroughly. The instructions and notes contained in this operating manual will guide you step-by-step through the installation and commissioning procedures to ensure trouble-free use of this product. By doing so, you:

- guarantee safe operation of the device
- can utilize the entire range of device functions
- avoid faulty operation and the associated errors
- reduce costs from downtimes and incidental repairs
- increase the effectiveness and operating efficiency of your plant.

Store this operating manual somewhere safe in order to have it available for future work on the device.

After opening the packaging, please ensure that the device is intact and that the package is complete.

Symbols used

The following symbols are used in this manual:



Note!

This symbol draws your attention to important information.



Handling instructions

You will find handling instructions beside this symbol

Contact

If you have any questions about the device, its functions, or accessories, please contact us at:

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Fax: +49 621 776-274411
E-Mail: fa-info@pepperl-fuchs.com



2 Declaration of conformity

2.1 CE conformity

This product was developed and manufactured under observance of the applicable European standards and guidelines.



Note!

A declaration of conformity can be requested from the manufacturer.

2.2 Declaration of Conformity

The device has been tested for compliance with FCC regulations. Tests confirmed that all valid FCC rules and regulations have been complied with.



Note!

The device may not be used in the vicinity or in combination with another antenna or a transmitter in order to meet the requirements stipulated in FCC RF exposure guidelines.



3 Safety

3.1 Symbols relevant to safety

**Danger!**

This symbol indicates a warning about a possible danger.

In the event the warning is ignored, the consequences may range from personal injury to death.

**Warning!**

This symbol indicates a warning about a possible fault or danger.

In the event the warning is ignored, the consequences may cause personal injury or heaviest property damage.

**Caution!**

This symbol warns of a possible fault.

Failure to observe the instructions given in this warning may result in the devices and any connected facilities or systems develop a fault or fail completely.

3.2 Intended use

Always operate the device as described in these instructions to ensure that the device and connected systems function correctly. The protection of operating personnel and plant is only guaranteed if the device is operated in accordance with its intended use.

The handheld device was designed to identify RFID code and data carriers within a defined frequency range and should be used for this purpose only. The devices are used, for instance, to manually control quality or verify maintenance.

**Caution!**

Modified or independent JavaScript programs

The processes involved in the reading and writing of data are susceptible to external influences and interference.

- Do not modify JavaScript programs from the manufacturer.
- If you write your own JavaScript programs, check that the identification function is not affected.

3.3 General safety instructions

Installation and commissioning of all devices must be performed by a trained professional only.

When packing the device for storage or transport, use materials that will protect the device from bumps and impacts and protect against moisture. The original packaging provides the best protection. Also take into account the permitted ambient conditions.

Do not open, burn or short-circuit the battery. The battery may ignite, explode, leak or heat up and become irreparably damaged.

Always charge the battery using approved cables.

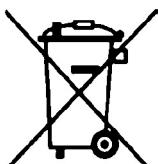
Only use recommended original accessories.

The operating company bears responsibility for observing locally applicable safety regulations.



User modification and or repair are dangerous and will void the warranty and exclude the manufacturer from any liability. If serious faults occur, stop using the device. Secure the device against inadvertent operation. In the event of repairs, return the device to your local Pepperl+Fuchs representative or sales office.

Do not dispose of storage batteries with the household refuse.



Consumers are obliged by law to dispose of used storage batteries in accordance with regulations. You can hand in your used batteries at public collection points in your area or sales points where batteries of that particular kind are sold. You can also send your used batteries directly to us for disposal. Please remember that this service is only available within the scope of normal use. If you wish to send back your used batteries, please affix sufficient postage stamps and send to our address. There are no extra charges for disposal.



4 Product description

4.1 Use and application

Handheld

IDENTControl by Pepperl+Fuchs is a proven system designed for stationary RFID applications. A portable device for process monitoring (reading/writing functions, data carrier initialization) is provided with this Handheld.

One new feature is the cellphone design with keypad and display for intuitive operation. Frequently recurring actions can be performed by pressing one of two configurable keys. JavaScript provides a familiar cross platform programming language to enhance system functionality for the user.

In addition to a lithium ion storage battery, a large permanent memory and the option of 2.45 GHz band wireless communication based on the Bluetooth standard ensure maximum mobility.



Data carrier 13.56 MHz (inductive)

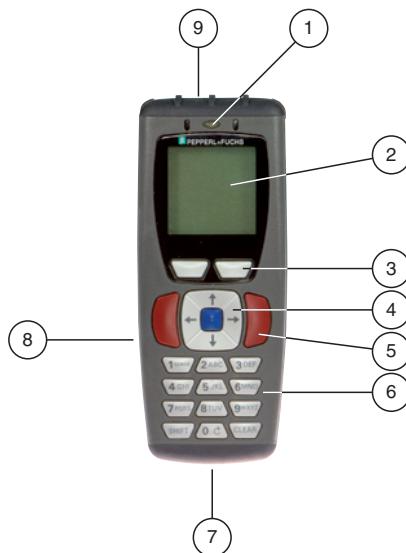
Data carriers in this frequency range can store large quantities of data and offer a reading speed superior to that of data carriers from 125 and 250 kHz systems. A larger antenna also achieves a sensing range of up to 300 mm. R/W heads from Pepperl+Fuchs are compatible with most existing data carriers that comply with standard ISO 15693.

The 13.56 MHz technology even allows so-called smart labels (data carriers in the form of adhesive labels with printed barcode). Currently available data carriers have a memory capacity of 64 bits of read only code and 968 bits or 2048 bits of programmable memory.



4.2 Displays and controls

The device is equipped with the following displays and controls:



- 1 Status-LED
- 2 LC-Display
- 3 Auswahltasten
- 4 Navigationstasten
- 5 Funktionstasten
- 6 Eingabetasten
- 7 Schnittstelle
- 8 Fach für Akku
- 9 Schreib-/Lesekopf

4.2.1 Status LED

The status LED indicates the following states:

Meaning of status LED

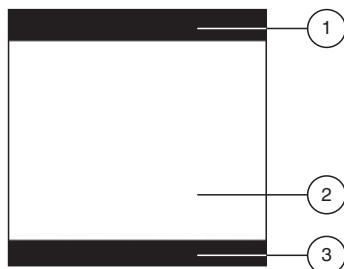
| Status | Description |
|-----------------|--|
| Green | <ul style="list-style-type: none">The handheld device is switched on.The interface has been changed.Data has been read or written. |
| Yellow flashing | The handheld device has executed a read or write command successfully. |

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| Status | Description |
|--------------|---|
| Red flashing | The handheld device has executed a read or write command unsuccessfully and indicates an error. |
| Off | Read/write head is inactive |

4.2.2 Display

The display on the device consists of different areas:



- 1 Statusleiste
- 2 Anzeige
- 3 Funktion Auswahltasten

The following table lists all the symbols in the status bar and explains what they mean:

Symbols in the status bar

| Symbol | Description |
|--------------------------|---|
| Charge state | |
| | The battery capacity is between 50 % and 100 %. |
| | The battery capacity is between 20 % and 50 %. |
| | The battery capacity is between 0 % and 20 %. Charge the battery. |
| | Battery is charging. |
| Connection status | |
| | The handheld device is connected to an interface. |
| | RS 232 is the preset interface. |
| | PS/2 is the preset interface. |
| | USB is the preset interface. |
| | Bluetooth is the preset interface. |



| Symbol | Description |
|----------------------|--|
| Data transfer | |
| | Data transfer in one direction: Data is sent from the handheld device to the computer. A response from the computer is not required. |
| | Data transfer in two directions: Data is sent from the handheld device to the computer. The handheld device then waits for a response from the computer. |
| | Keyboard mode: The handheld device is connected to the computer via a USB or PS/2 interface. |
| | Virtual COM port mode: The handheld device emulates an RS 232 interface via the USB interface to allow communication from the computer to the handheld device as well. A response from the computer is not required. |
| | Secure mode |
| Memory status | |
| | 0 % to 25 % of the internal memory is occupied. |
| | 25 % to 50 % of the internal memory is occupied. |
| | 50 % to 75 % of the internal memory is occupied. |
| | 75 % to 100 % of the internal memory is occupied. |
| | The internal memory is full. There is no more space to store data. |
| | Batch mode inactive. Data is not cached in the internal memory. |
| Input mode | |
| | Numerical input mode - data entered using the input keys appears in the numerical form. |
| | Alphabetical input mode - data entered using the input keys appears in alphabetical form. |
| | Alphabetical input mode - data entered using the input keys appears in the form of lowercase letters. |
| | Symbol input mode - data entered using the input keys appears in the form of symbols. |



4.2.3 Button overview

The following table lists all the buttons on the device and their names:

Selection buttons

| Button | Description |
|---|------------------------|
|   | Left selection button |
|   | Right selection button |

Navigation keys

| Keys | Designation |
|---|----------------------|
|  | Up navigation key |
|  | Down navigation key |
|  | Left navigation key |
|  | Right navigation key |
|  | Enter navigation key |

Function buttons

| Button | Description |
|---|---|
|  | Left function button (= left trigger button) |
|  | Right function button (= right trigger button) |

Input keys

| Keys | "Numerical" mode | "Alphanumerical upper case" mode | "Alphanumerical lower case" mode | "Symbols" mode |
|---|--|----------------------------------|----------------------------------|----------------|
|  | Switches between "Numerical", "Alphanumerical upper case", "Alphanumerical lower case" and "Symbols" mode. | | | |
|  | 1 | Space, 1 | Space, 1 | Space) < _ |
|  | 2 | A, B, C, 2 | a, b, c, 2 | ! * = ` |



| Keys | "Numerical" mode | "Alphanumerical upper case" mode | "Alphanumerical lower case" mode | "Symbols" mode |
|------|---|----------------------------------|----------------------------------|--|
| | 3 | D, E, F, 3 | d, e, f, 3 | " + > { |
| | 4 | G, H, I, 4 | g, h, i, 4 | # , ? |
| | 5 | J, K, L, 5 | j, k, l, 5 | \$ - @ } |
| | 6 | M, N, O, 6 | m, n, o, 6 | % . [~ |
| | 7 | P, Q, R, S, 7 | p, q, r, s, 7 | & / \ Space |
| | 8 | T, U, V, 8 | t, u, v, 8 | ' :] Space |
| | 9 | W, X, Y, Z | w, x, y, z | (; ^ Space |
| | 0 | 0 | 0 | Scrolls through the different symbol pages |
| | For data input fields: delete the last character. Otherwise: ESC function (exits the menu without adopting the current settings.) | | | |

4.3 Connections

The handheld device uses the following connections:



1 8-pin connecting socket

4.4 Delivery contents

The delivery package contains:

- Handheld device without battery or battery compartment lid
- CD with documentation (manual)

Note!

You will require some additional components in addition to the handheld device included in the delivery package to complete assembly of the device. Basic equipment includes: Handheld device, battery and charging station. All components can be obtained from Pepperl+Fuchs.



5 Installation

5.1 Preparation



Unpacking the unit

1. Check that all package contents are present and undamaged.
If anything is damaged, inform the shipper and contact the supplier.
2. Check that all items are present and correct based on your order and the shipping documents.
If you have any questions, please contact Pepperl+Fuchs.
3. Keep the original packing material in case you need to store or ship the unit at a later time.



Fitting the battery

Fit the battery as follows:

1. Turn the battery so that you can remove it as shown in the illustration.



2. Slide the plastic tab on the battery into the corresponding recess on the Handheld.





3. Push the locking device upwards and push in the battery.



4. Push the battery in the Handheld, hold in position and release the locking device so that the battery engages.



Charging the battery

Charge the battery as follows:

1. Connect the handheld device with battery to an interface cable.
2. Make sure the computer is switched on and then connect the interface cable to computer.

When the handheld device is switched on, the symbols displayed in the status bar on the handheld device indicate the charge state. view table "Symbols in the status bar" on page 11



Note!
If you are operating the handheld via an RS 232 interface, connect the RS 232 interface power supply unit to the socket to charge the battery.



Note!

Completely discharged storage batteries

If the storage battery is completely discharged, you will have to wait at least 10 minutes before the Handheld is ready for operation again.

5.2 Handle attachment



Attaching the standard handle

Proceed as follows to attach the grip to the handheld device:

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1. Insert the handheld device with battery into the bracket on the handle.



2. Slide back the handheld device until the connector on the handle engages in the cable connector socket on the handheld device.
3. Push the handheld device firmly onto the connector until it is flush with the handle.



The handheld device is attached to the handle.



Fitting a handle with cable connection

Fit the handle to the Handheld as follows:

1. Remove the battery from the battery compartment of the Handheld if necessary.
2. Carefully pull the rear, flexible part of the handle attached to the plug downwards.
3. Attach the cable connection socket on the Handheld to the plug on the handle.
4. Slide the plastic tab on the battery into the corresponding recess on the Handheld.



The Handheld is now fitted to the handle.

5. Push down the Handheld carefully until the locking device on the Handheld engages in the handle.



6. Connect the interface cable to the cable connection socket underneath the handle.
The Handheld is now ready for operation.



Fitting a handle with integrated storage battery

A handle with integrated battery is also available for this Handheld as an optional accessory. Fit the handle to the Handheld as follows:

1. Remove the battery from the battery compartment of the Handheld if necessary.
2. Slide the plastic tab on the battery into the corresponding recess on the Handheld.
3. Push down the Handheld carefully until the locking device on the Handheld engages in the handle.

The Handheld is now fitted to the handle.



Securing the interface cable to prevent inadvertent removal

You have the option of attaching a cord grip to prevent the interface cable from being pulled out inadvertently. Proceed as follows:

1. Secure the interface cable to the cable connection socket on the handle.
2. Guide the cable through the slot on the cord grip and slide the cord grip towards the cable connection socket.
3. Make sure that you slide the cord grip over the interface cable and into the correct position.
4. Screw the cord grip to the handle using the screws provided.



The interface cable is secured against inadvertent removal.



Note!

We recommend mounting the handheld device using the screws provided for extra security. There are two screw holes in the lower section of the handle (see illustration).



Removing the handle

Remove the handle as follows:

1. If you have secured the handheld with screws on the handle, remove the screws.
2. Push the locking device in the direction of the arrow and press the handheld out of the retainer.



The handle is removed.



6 Commissioning

6.1 Switching on/off



Switching on the handheld device

Switch on the handheld device as follows:

Press and hold either the left function button () or the right function button () for approx.1 second.

The handheld device switches on.



Note!

The Handheld switches into standby automatically 2 minutes after the last keystroke.



Note!

If you connect the device to the USB or PS/2 interface of your PC, the device switches on automatically.



Switching off the Handheld

The Handheld switches off automatically if it remains idle for more than 2 hours.

6.2 Basic operation

6.2.1 Navigating through menus

| Button | Function |
|------------------------------|---|
| Up navigation button () | Scroll up through different menus and submenus |
| Down navigation button () | Scroll down through different menus and submenus |
| Enter navigation button () | Select menus, submenus and individual menu entries |
| Left selection button () | Function depends on the menu. This button is usually used to confirm a command (e.g., OK) or execute a command (e.g., read). |
| Right selection button () | Function depends on the menu. This button is usually used to stop or cancel a command (e.g., ESC). |



Activating/Deactivating a menu entry

Activate/deactivate a menu entry as follows:

1. Scroll to the menu entry of your choice using the up navigation button () or the down navigation button ().

The menu entry currently selected is highlighted black.



2. Press the Enter navigation button to activate the menu entry ().
A star appears in front of the activated menu entry.
3. Press the Enter navigation button again to deactivate the menu entry ().
The star no longer appears in front of the deactivated menu entry.
4. Press the left selection button to confirm your selection ().

6.2.2 Data input

| Button | Function |
|-------------|--|
| (...) | Enter numerical or alphanumerical values (depending on the mode selected). |
| () | Switch between the different input modes. (The selected mode is indicated in the symbol bar of the handheld device on the right.) |
| () | For data input fields: delete the character last entered. Within menus: Exit the menu. |

6.3 Operating modes



Caution!

Data loss

An incorrectly preset interface may lead to data loss.

Make sure that the Handheld is connected to the interface (USB, RS 232, Bluetooth) preset in the Handheld. If necessary, use another interface cable or modify the settings in the Handheld.

6.3.1 Wireless operation (batch mode)

Wireless operation of the handheld device is recommended for certain applications. As soon as you remove the interface cable (USB, RS 232 cable) or move outside the range of a Bluetooth connection, the handheld device switches automatically to "Batch mode": In this mode, the read data is stored in the internal memory of the handheld device. You then have the option of transferring the data stored in the handheld device to the computer at a later time.



Note!

Using batteries

You will require a battery or a handle with integral battery to operate the handheld device using a wireless connection or a cable via an RS 232 interface.

A battery is not normally required for cable operation via USB. However, this depends on the current strength that the computer supplies via the USB connection. If the computer does not supply sufficient power to the USB port, you will require a USB hub with a separate power supply or will have to fit a battery to the handheld device.

If you wish to operate the handheld device without a handle using a cable via the USB port, you must fit a battery compartment cover ODZ-MAH-BLANK to the device.

This optional accessory is available from Pepperl+Fuchs.



6.3.2 Cable operation: RS 232



Configuring the RS 232 interface on the handheld device

Configure the RS 232 command interface on the handheld device as follows:

1. Select **Settings > Interface**
2. Activate the **RS 232** interface.
The **RS 232** submenu opens.
3. Edit the relevant parameters.
4. Press the left selection button to confirm your entries ( ).
The interface is now active.
5. Press the right selection button to exit the menu ( ).



Tip

Further information on interface settings see chapter 9.3.7



Connecting the interface cable to the Handheld

To connect the interface cable to the Handheld, proceed as follows:

1. Turn the 8-pin DIN plug so that the arrows on the plug are pointing downwards.
2. Hold the Handheld in your hand with the controls facing upwards.
3. Insert the plug into the corresponding cable connection socket on the Handheld.
4. Press the plug firmly into the cable connection socket until the locking device audibly engages.

The interface cable is now connected to the Handheld.



Connecting the Handheld to the computer via the RS 232 interface cable

Connect the Handheld to the computer as follows:

1. Switch off the computer.
2. Connect the RS 232 plug on the interface cable to the RS 232 interface on the computer.
3. Connect the low-voltage plug on the power supply unit to the low-voltage socket on the RS 232 interface cable.
4. Connect the power supply unit to the mains power supply.
5. Switch on the computer.

The Handheld switches on automatically once you have connected it to the computer. The symbols  and  are displayed in the toolbar.

6.3.3 Cable operation: PS/2



Configuring the PS/2 interface on the handheld device

Configure the PS/2 command interface on the handheld device as follows:

1. Select **Settings > Interface**
2. Activate the **PS2** interface.



You are prompted to select whether you wish to operate the handheld device in PS2 mode.

3. Press the left selection button to confirm your selection ().

The interface is now active.

4. Press the right selection button to exit the menu ().



Note!

Required PS/2 interface cable

You will require a PS/2 interface cable with the following connectors to connect the Handheld to the computer:

- **8-pin DIN connector** for connection to the Handheld.
- **PS/2 socket** for connecting an external keyboard.
- **PS/2 connector** for connection to the computer.



Connecting the interface cable to the Handheld

To connect the interface cable to the Handheld, proceed as follows:

1. Turn the 8-pin DIN plug so that the arrows on the plug are pointing downwards.
2. Hold the Handheld in your hand with the controls facing upwards.
3. Insert the plug into the corresponding cable connection socket on the Handheld.
4. Press the plug firmly into the cable connection socket until the locking device audibly engages.

The interface cable is now connected to the Handheld.



Note!

Connection cable with fitted grip

If you have mounted the Handheld to the optional grip, connect the interface cable to the cable connection socket on the grip.



Connecting the handheld device to the computer using a PS/2 interface cable

Connect the handheld device to the computer as follows:

1. Switch off the computer.
2. If an external keyboard is connected to the computer, disconnect from the computer.
3. If you are using a USB keyboard, connect the keyboard to the PS/2 socket on the interface cable using a corresponding adapter. If you are using a keyboard with PS/2 plug, connect the plug directly to the PS/2 socket on the interface cable.
4. Connect the PS/2 plug on the interface cable to the keyboard port on the computer.
5. Switch on the computer.

After you have connected the handheld device to the computer, it switches on

automatically. The symbols and appear in the status bar.

Power is supplied to the handheld device via the PS/2 interface. This is why you do not require an additional power supply.



6.3.4 Cable operation: USB



Configuring the USB interface on the handheld device

Configure the USB command interface on the handheld device as follows:

1. Select **Settings > Interface**

2. Activate the **USB** interface.

The **USB** submenu opens.

3. Press the Enter navigation button to activate the required mode ().

4. Press the left selection button to confirm your entries ().

The interface is now active.

5. Press the right selection button to exit the menu ().



Tip

Further information on interface settings see chapter 9.3.7



Connecting the interface cable to the Handheld

To connect the interface cable to the Handheld, proceed as follows:

1. Turn the 8-pin DIN plug so that the arrows on the plug are pointing downwards.

2. Hold the Handheld in your hand with the controls facing upwards.

3. Insert the plug into the corresponding cable connection socket on the Handheld.

4. Press the plug firmly into the cable connection socket until the locking device audibly engages.

The interface cable is now connected to the Handheld.



Note!

Connection cable with fitted grip

If you have mounted the Handheld to the optional grip, connect the interface cable to the cable connection socket on the grip.



Connecting the Handheld to the computer via the USB interface cable

Connect the Handheld to the computer as follows:

Insert the USB plug on the interface cable into a free USB port on the computer. It does not matter whether the computer is switched on or off.

The Handheld switches on automatically once you have connected it to the computer. The symbols and are displayed in the toolbar.



6.3.5 Operating with Bluetooth

This handheld device is equipped with a class 1 wireless Bluetooth interface incorporating a radio system that enables wireless point-to-point communication with other Bluetooth-compatible devices. If the other Bluetooth-compatible device also has a class 1 radio system, a sensing range of approx. 100 m is achieved in a free field. If the handheld device is connected to a class 2 or 3 Bluetooth-compatible device, the sensing range decreases accordingly.

If the handheld device is located outside the sensing range, it stores the read data in the internal memory. The handheld device attempts to send the read data until the connection with the Bluetooth-compatible device is established again. As soon as the handheld device sends data to the Bluetooth-compatible device, it is deleted from the internal memory automatically.



Note!

You will require a MAC address to connect the handheld device to a Bluetooth-compatible device. The MAC address is usually printed on the Bluetooth device next to the serial number or appears in the manual accompanying your Bluetooth device.



Connecting the handheld device via Bluetooth

Connect the handheld device to a Bluetooth-compatible device (e.g., laptop with corresponding Bluetooth USB dongle) as follows:

1. Select **Settings > Interface**.
2. Activate the **Bluetooth** interface.

The **Bluetooth** submenu opens.

3. Press the Enter navigation button to activate the required mode ().
4. Enter the MAC address in the file input field of the BD_MAC menu entry. The address consists of 12 digits, e.g., 000A3A72C2D0.
5. Press the left selection button to confirm your entries ().

A connection is established between the two devices. The connection may take a few moments to establish under certain circumstances. The symbols and appear in the status bar.



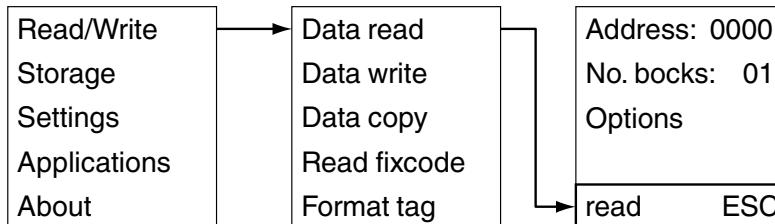
Tip

Further information on interface settings see chapter 9.3.7



7 Operation

7.1 Reading data



Before the handheld can read the data stored on a transponder, you must configure the correct **transponder type**. Overview of available settings see chapter 9.3.1.

The read-in data is saved in the handheld device or sent to the PC depending on the **Settings > Send/Save** setting (see chapter 6.3).

If you want to add a time stamp to the data, open the **Settings > Time stamp** menu and select the **ON** option.

Address

In the data input field of the **Address** menu entry, you have the option of changing the start address.

Start addresses specify the location of the individual data blocks on data carriers. You can read out specific data blocks and transfer data by changing the start address.



Defining the start address

Define the start address as follows:

1. Select **Address**.
2. Enter the start address using the input buttons.
3. Press the left selection button to confirm your entry ( ).

If the read operation is successful, the status LED will initially flash yellow before switching to a steady green. If you selected the buzzer and the vibration alarm in the Settings menu, you will also hear an acoustic signal and the handheld will vibrate. The read-in data will then be displayed in the selected format. If the transmission fails, the status LED flashes briefly red and a fault message is output. See chapter 8



Tip

Additional options see chapter 9.1.1

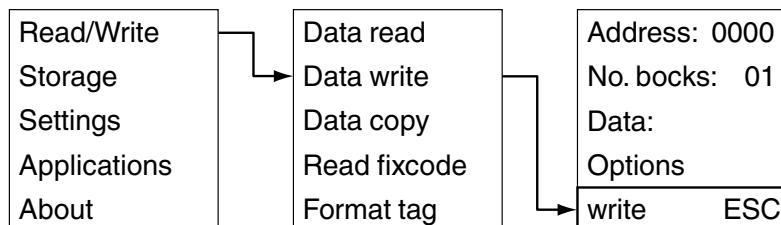


Note!

All the data are displayed in the format (ASCII, HEX, DEC) that you chose in the Data Format submenu.

7.2

Writing data



The table below shows you how to input data into your handheld device.

Data formats

| Data format | Notes | Block quantity (maximum 32) | Format | Example |
|-------------------|--|-----------------------------|--|------------------------------------|
| ASCII | In ASCII format, numbers 0 to 9, letters A to Z and special characters stored in the Handheld are available. | 01 | xxxx | HAND |
| | | 02 | xxxx xxxx | HAND HELD |
| | | 03 | ... | |
| HEX (hexadecimal) | In hexadecimal data format, numbers 0 to 9 and letters A to F are available. | 01 | xx xx xx xx (spaces are not required) | 11 22 11 22 |
| | | 02 | xx xx xx xx xx xx xx xx | 11 22 11 22 1A 2B 3C 4D |
| | | 03 | ... | |
| DEC (decimal) | In decimal data format, numbers 0 to 255 are available. | 01 | xxx xxx xxx xxx (spaces are not required) | 111 222 111 222 |
| | | 02 | xxx xxx xxx xxx xxx xxx xxx xxx | 111 222 111 222 010 020 030 040 |
| | | 03 | ... | |



Setting the data format

1. Select **Read/Write > Write data > Options > Data format**.

2. Press the Enter navigation button to select the required data format ().

3. Press the left selection button to confirm your selection ( )

4. Press the right selection button to exit the options ( ).



Transferring data to data carriers

To transfer data to data carriers, proceed as follows:



1. Select **Read/Write > Write data > Data**.

One or more data input fields are displayed (the number of data input fields displayed is based on the number of blocks.)

2. Navigate to the individual data input fields using the up navigation button () and the down navigation button ().

3. Enter the required data with the correct syntax for the selected data format using the input buttons.

4. Press the CLEAR input button to delete individual characters (). In principle, you can only delete the character last entered, not individual characters within the string.

5. Press the left selection button to confirm your entry ().

If the format of the entered characters differs from the specified data format, a fault message is issued and the value is not adopted.

6. Position the read/write head on the handheld device directly in front of the data carrier.

7. Press the left selection button to write the data to the data carrier ().

If the write operation is successful, OK appears on the display and the status LED flashes green. If you selected the buzzer and the vibration alarm in the Settings menu, you will also hear an acoustic signal and the handheld will vibrate. If the transmission fails, the status LED flashes briefly red and a fault message is output.



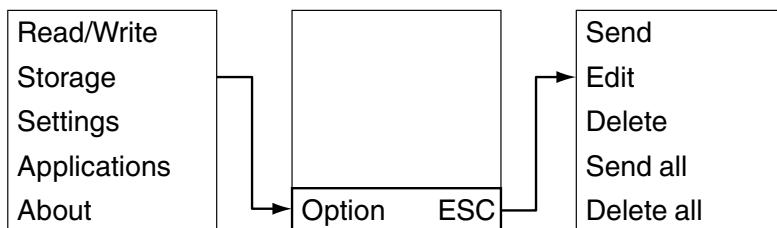
Note!

Observe the input format

Data bytes in hexadecimal data format must always contain 2 characters and data bytes in decimal data format must contain 3 characters.

7.3

Editing or entering data manually



Editing data manually

To edit data that has already been read in, proceed as follows:

1. Select **Memory**.

2. Scroll to the required data set using the left navigation button () or the right navigation

button ().



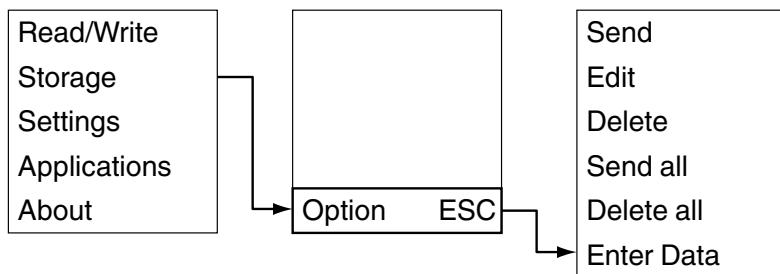
3. Press the left selection button () to access the options.
4. Select **Modify**.
5. Press the button to delete individual characters. In principle, you can only delete the character last entered, not individual characters within the string.
6. Enter the required changes using the input buttons.
7. Press the left selection button to confirm your changes ().
The value in the memory is modified.



Note!

Observe the input format

Data bytes in hexadecimal data format must always contain 2 characters and data bytes in decimal data format must contain 3 characters.



Entering data manually

Enter a new value as follows:

1. Select **Memory**.
2. Press the left selection button () to access the options.
3. Select **Enter data**.
4. Enter the data set using the input buttons.
5. Press the Enter navigation button to confirm your entry ().
The value is stored as a new data set.



Note!

Observe the input format

Data bytes in hexadecimal data format must always contain 2 characters and data bytes in decimal data format must contain 3 characters.



8 Troubleshooting

8.1 "No transponder" fault message



| Possible cause | Solution |
|---------------------------------------|--|
| No transponder in the detection range | Position the handheld device correctly or move transponder into the detection range. |
| Incorrect transponder type setting | Select the correct transponder type. |

8.2 "No connection!" fault message



| Possible cause | Solution |
|-----------------------------|---|
| Incorrect interface setting | Select the correct interface and configure correctly. |
| No interface available | Connect the correct interface cable. |

8.3 "No saved data" fault message



| Possible cause | Solution |
|--|------------------------------|
| All data sent and "Autom. del." mode selected. | - |
| No data in memory | Read or enter data manually. |

8.4 "No data to copy" fault message

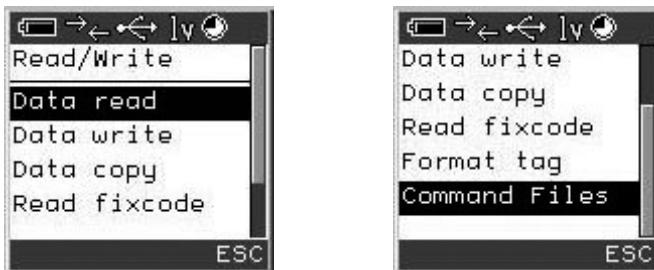


| Possible cause | Solution |
|---------------------------------|---|
| No data was read in beforehand. | In the "Copy data" menu, you can only copy data that you have just read in. Data in the memory cannot be copied. Read in data in the "Copy data" menu and copy this data directly from the menu. |



9 Software description PF_Ident

9.1 Menu Read/Write



The **Read/Write** menu offers the following options:

- Read in data from a data carrier. (**Read data**)
- Write data to a data carrier. (**Write data**)
- Read the data from a data carrier and write to other data carriers. (**Copy data**)
- Read the read only code from a data carrier. (**Read fixcode**)
- Overwrite the data from a data carrier. (**Format data carr.**)
- Write a new command file or modify/delete an existing command file. (**Command files**)



Note!

Save power

The read/write head consumes more power when switched on.

The read/write head on the handheld device switches on when you execute a command in the **Read/Write** menu. The green LED indicates that the head is switched on. The read/write head only switches off again when you exit the relevant submenu.

9.1.1 Read/Write > Read data

In this menu, you have the option of reading data stored on a data or code carrier.

Read data menu

| Submenu | Options |
|------------|-----------------------------|
| Menu entry | Address Number of blocks |

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Description of menu entries



Address

In the data input field of the **Address** menu entry, you have the option of changing the start address.

Start addresses specify the location of the individual data blocks on data carriers. You can read out specific data blocks and transfer data by changing the start address.



Defining the start address

Define the start address as follows:

1. Select **Address**.
2. Enter the start address using the input buttons.

3. Press the left selection button to confirm your entry ().

Number of blocks

In the data input field of the **No. blocks** menu entry, you have the option of changing the number of blocks.

The number of blocks determines how many data blocks the Handheld reads from the data carrier and how many data blocks are written to the data carrier. Each address block contains 4 bytes, i.e. in ASCII format, you can enter 4 characters for each block in the data input field of the **Data** menu entry, in hexadecimal data format 8 characters (2 characters each) and in decimal data format 12 characters (3 characters each).



Changing the number of blocks

Change the number of blocks as follows:

1. Select **Number of blocks**.
2. Press the CLEAR input button to delete the current entry ().
3. Enter the number of blocks using the input buttons.

Options submenu



| | |
|------------|-------------------------------------|
| Submenu | Data format Assign button |
| Menu entry | Copy |



Description of menu entries

Copy

You can use the **Copy** menu entry to transfer the data currently being read to the **Data write** menu.



Copy data

Use this option to copy data as follows:

1. Read the data from a data carrier.
2. Press the right selection button after the last read data carrier to exit read mode

().

3. Select **Options > Copy**.

If the copy operation is successful, "Data transferred" appears on the display and the status LED lights up green. If the copy operation fails, a fault message is output. See see chapter 8

Data format submenu

| | |
|------------|---------------------|
| | |
| Submenu | -- |
| Menu entry | ASCII HEX DEC |

Description of the submenu

Data format

In the **Data format** submenu, you can define the data format in which the data is read or written.

Description of menu entries

Data formats

| Data format | Notes | Format |
|-------------|--|---|
| ASCII | In ASCII format, numbers 0 to 9, letters A to Z and special characters stored in the Handheld are available. | xxxx (per block) |
| HEX | In hexadecimal data format, numbers 0 to 9 and letters A to F are available. | xx xx xx xx (spaces are not required) (per block) |
| DEC | In decimal data format, numbers 0 to 255 are available. | xxx xxxx xxxx (spaces are not required) (per block) |

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**Note!****Changing the data format**

Changes to the data format in this menu modify the basic settings **Settings > Data format** of the handheld device. Read and written data adopts the data format selected in this menu.

Assign button submenu

| | |
|------------|-------------------------|
| Submenu | -- |
| Menu entry | Left Right Handle |

Description of the submenu**Assign button**

In the **Assign button** submenu, you can assign the command from the higher level menu to the function buttons on the handheld device and the buttons on the handle.

Caution! The function buttons remain disabled until you exit the **Assign button** submenu.

Description of menu entries

| Button | Description |
|--------|--|
| Left | The command from the higher level menu is assigned to the left function button (). |
| Right | The command from the higher level menu is assigned to the right function button (). |
| Handle | The command from the higher level menu is assigned to the function button on the handle. |

Information on the Read data function**Read data**

When the **Read** option is selected in the selection button function bar, the handheld device executes the **Read data** function via the read/write head. The data stored on a data carrier or code carrier is read and either transferred to the handheld device memory or sent directly to a computer, depending on the setting.

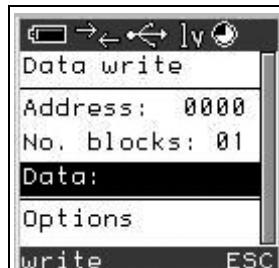
Detailed instructions, .



9.1.2 Read/Write > Write data

In this menu, you have the option of writing data to a data carrier.

Write data menu



| Submenu | Options |
|------------|-------------------------------------|
| Menu entry | Address Number of blocks Data |

Description of menu entries

Address

In the data input field of the **Address** menu entry, you have the option of changing the start address.

Start addresses specify the location of the individual data blocks on data carriers. You can read out specific data blocks and transfer data by changing the start address.



Defining the start address

Define the start address as follows:

1. Select **Address**.
2. Enter the start address using the input buttons.

3. Press the left selection button to confirm your entry ().

Number of blocks

In the data input field of the **No. blocks** menu entry, you have the option of changing the number of blocks.

The number of blocks determines how many data blocks the Handheld reads from the data carrier and how many data blocks are written to the data carrier. Each address block contains 4 bytes, i.e. in ASCII format, you can enter 4 characters for each block in the data input field of the **Data** menu entry, in hexadecimal data format 8 characters (2 characters each) and in decimal data format 12 characters (3 characters each).



Changing the number of blocks

Change the number of blocks as follows:

1. Select **Number of blocks**.



2. Press the CLEAR input button to delete the current entry ().
3. Enter the number of blocks using the input buttons.

Data

In the data input field of the **Data** menu entry, you have the option of entering data that you wish to write to the data carrier.

Options submenu



| | |
|------------|-------------------------------------|
| Submenu | Data format Assign button |
| Menu entry | -- |

Data format submenu



| | |
|------------|---------------------|
| Submenu | -- |
| Menu entry | ASCII HEX DEC |

Description of the submenu

Data format

In the **Data format** submenu, you can define the data format in which the data is read or written.



Description of menu entries

Data formats

| Data format | Notes | Format |
|-------------|--|---|
| ASCII | In ASCII format, numbers 0 to 9, letters A to Z and special characters stored in the Handheld are available. | xxxx (per block) |
| HEX | In hexadecimal data format, numbers 0 to 9 and letters A to F are available. | xx xx xx xx (spaces are not required) (per block) |
| DEC | In decimal data format, numbers 0 to 255 are available. | xxx xxx xxx xxx (spaces are not required) (per block) |

Note!

Changing the data format

Changes to the data format in this menu modify the basic settings **Settings > Data format** of the handheld device. Read and written data adopts the data format selected in this menu.

Assign button submenu

| | |
|------------|-------------------------|
| | |
| Submenu | -- |
| Menu entry | Left Right Handle |

Description of the submenu

Assign button

In the **Assign button** submenu, you can assign the command from the higher level menu to the function buttons on the handheld device and the buttons on the handle.

Caution! The function buttons remain disabled until you exit the **Assign button** submenu.

**Description of menu entries**

| Button | Description |
|--------|--|
| Left | The command from the higher level menu is assigned to the left function button (). |
| Right | The command from the higher level menu is assigned to the right function button (). |
| Handle | The command from the higher level menu is assigned to the function button on the handle. |

Information on the Write data function**Writing data**

When the **Write** option is selected in the selection button function bar, the left selection button

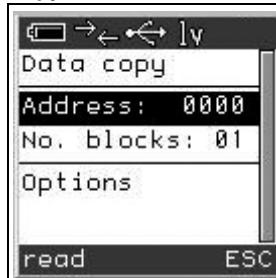


() is assigned the function **Write data** via the read/write head. You can use the left selection button to write data to a data carrier that you entered in the handheld device beforehand.

Detailed instructions, .

9.1.3**Read/Write > Copy data**

In this menu, you have the option of copying a data set you have just read in to one or more different data carriers.

Copy data menu

| Submenu | Options |
|------------|-----------------------------|
| Menu entry | Address Number of blocks |

Description of menu entries**Address**

In the data input field of the **Address** menu entry, you have the option of changing the start address.

Start addresses specify the location of the individual data blocks on data carriers. You can read out specific data blocks and transfer data by changing the start address.



Defining the start address

Define the start address as follows:

1. Select **Address**.
2. Enter the start address using the input buttons.

3. Press the left selection button to confirm your entry ().

Number of blocks

In the data input field of the **No. blocks** menu entry, you have the option of changing the number of blocks.

The number of blocks determines how many data blocks the Handheld reads from the data carrier and how many data blocks are written to the data carrier. Each address block contains 4 bytes, i.e. in ASCII format, you can enter 4 characters for each block in the data input field of the **Data** menu entry, in hexadecimal data format 8 characters (2 characters each) and in decimal data format 12 characters (3 characters each).



Changing the number of blocks

Change the number of blocks as follows:

1. Select **Number of blocks**.
2. Press the CLEAR input button to delete the current entry ().
3. Enter the number of blocks using the input buttons.

Options submenu

| | |
|------------|--------------------|
| | |
| Submenu | Data format |
| Menu entry | Copy |

Description of menu entries

Copy

You can use the **Copy** menu entry to transfer the data currently being read to the **Data write** menu.



Copy data

Use this option to copy data as follows:

1. Read the data from a data carrier.



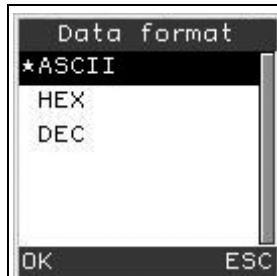
2. Press the right selection button after the last read data carrier to exit read mode



3. Select **Options > Copy**.

If the copy operation is successful, "Data transferred" appears on the display and the status LED lights up green. If the copy operation fails, a fault message is output. See see chapter 8

Data format submenu



| | |
|------------|---------------------|
| Submenu | -- |
| Menu entry | ASCII HEX DEC |

Description of the submenu

Data format

In the **Data format** submenu, you can define the data format in which the data is read or written.

Description of menu entries

Data formats

| Data format | Notes | Format |
|-------------|--|--|
| ASCII | In ASCII format, numbers 0 to 9, letters A to Z and special characters stored in the Handheld are available. | xxxx (per block) |
| HEX | In hexadecimal data format, numbers 0 to 9 and letters A to F are available. | xx xx xx xx (spaces are not required) (per block) |
| DEC | In decimal data format, numbers 0 to 255 are available. | xxx xxxx xxxx xxxx (spaces are not required) (per block) |



Note!

Changing the data format

Changes to the data format in this menu modify the basic settings **Settings > Data format** of the handheld device. Read and written data adopts the data format selected in this menu.



Information on the Copy data function



Copying data

To copy a data set from one data carrier to another data carrier, proceed as follows:

1. Select **Read/Write > Copy data**.
2. Position the read/write head on the handheld device directly in front of the data carrier that you wish to copy the data set from.
3. Press the left selection button ().
The data set appears on the display.
4. Then position the read/write head on the handheld device directly in front of the data carrier to which you wish to copy the data set.
5. Press the right selection button ().
"OK" appears on the display.
6. Press the CLEAR input button to exit the function ().

9.1.4 Read/Write > Read fixcode

In this menu, you have the option of reading the read only code on a data carrier.

Read fixcode menu



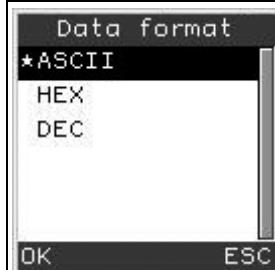
| Submenu | Options |
|------------|---------|
| Menu entry | -- |

Options submenu



| | |
|------------|------------------------------|
| Submenu | Data format Assign button |
| Menu entry | -- |

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Data format submenu

| | |
|------------|---------------------|
| Submenu | -- |
| Menu entry | ASCII HEX DEC |

Description of the submenu**Data format**

In the **Data format** submenu, you can define the data format in which the data is read or written.

Description of menu entries**Data formats**

| Data format | Notes | Format |
|-------------|--|---|
| ASCII | In ASCII format, numbers 0 to 9, letters A to Z and special characters stored in the Handheld are available. | xxxx (per block) |
| HEX | In hexadecimal data format, numbers 0 to 9 and letters A to F are available. | xx xx xx xx (spaces are not required) (per block) |
| DEC | In decimal data format, numbers 0 to 255 are available. | xxx xxxx xxxx xxx (spaces are not required) (per block) |

**Note!****Changing the data format**

Changes to the data format in this menu modify the basic settings **Settings > Data format** of the handheld device. Read and written data adopts the data format selected in this menu.



Assign button submenu

| | |
|------------|-------------------------|
| | |
| Submenu | -- |
| Menu entry | Left Right Handle |

Description of the submenu

Assign button

In the **Assign button** submenu, you can assign the command from the higher level menu to the function buttons on the handheld device and the buttons on the handle.

Caution! The function buttons remain disabled until you exit the **Assign button** submenu.

Description of menu entries

| Button | Description |
|--------|--|
| Left | The command from the higher level menu is assigned to the left function button |
| Right | The command from the higher level menu is assigned to the right function button |
| Handle | The command from the higher level menu is assigned to the function button on the handle. |

Information on the Read fixcode function



Reading a read only code

To read the read only code from a data carrier, proceed as follows:

1. Select **Read/Write > Read fixcode**.
2. Position the read/write head on the handheld device directly in front of the data carrier.
3. Press the left selection button ().



If the read operation is successful, the status LED will initially flash yellow before switching to a steady green. If you selected the buzzer and the vibration alarm in the Settings menu, you will also hear an acoustic signal and the handheld will vibrate. The read-in data will then be displayed in the selected format. If the transmission fails, the status LED flashes briefly red and a fault message is output. See see chapter 8

4. Press the right selection button to exit the function ().

9.1.5

ReadWrite > Format data car.

In this menu, you have the option of formatting or deleting the complete data carrier by overwriting it with a self-defined character string.

Format data carr. menu



| | |
|------------|---------|
| Submenu | Options |
| Menu entry | Data |

Description of menu entries

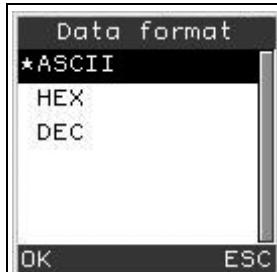
Data

In the **Data** field, you can enter the byte (length = 1 byte) that you wish to write to the data carrier.

Options submenu



| | |
|------------|------------------------------|
| Submenu | Data format Assign button |
| Menu entry | -- |

**Data format submenu**

| | |
|------------|---------------------|
| Submenu | -- |
| Menu entry | ASCII HEX DEC |

Description of the submenu**Data format**

In the **Data format** submenu, you can define the data format in which the data is read or written.

Description of menu entries

Data formats for the "Overwrite data carrier" function

| Data format | Notes | Format |
|-------------|--|--|
| ASCII | Numbers 0 to 9, letters A to Z and special characters stored in the handheld device are available in ASCII format. | x ASCII characters that cannot be displayed: /DEC (e.g., "/013" for CR) |
| HEX | Numbers 0 to 9 and letters A to F are available in hexadecimal data format. | xx (Spaces are not essential) |
| DEC | Numbers 0 to 255 are available in decimal data format. | xxx (Spaces are not essential) |

Note!**Changing the data format**

Changes to the data format in this menu modify the basic settings **Settings > Data format** of the handheld device. Read and written data adopts the data format selected in this menu.



Assign button submenu



| | |
|------------|-------------------------|
| Submenu | -- |
| Menu entry | Left Right Handle |

Description of the submenu

Assign button

In the **Assign button** submenu, you can assign the command from the higher level menu to the function buttons on the handheld device and the buttons on the handle.

Caution! The function buttons remain disabled until you exit the **Assign button** submenu.

Description of menu entries

| Button | Description |
|--------|--|
| Left | The command from the higher level menu is assigned to the left function button (). |
| Right | The command from the higher level menu is assigned to the right function button (). |
| Handle | The command from the higher level menu is assigned to the function button on the handle. |

Information on the Overwrite data carrier function



Overwriting data carriers

1. Select **Read/Write > Overwrite data carrier > Data**.
2. Press the CLEAR input button to delete individual characters (). In principle, you can only delete the character last entered, not individual characters within the string.
3. Enter the value with which you wish to overwrite the data carrier using the input buttons. Make sure the correct data format is selected.
4. Press the left selection button to confirm the entry ().



If the format of the entered characters differs from the specified data format, a fault message is issued. The value is not adopted.

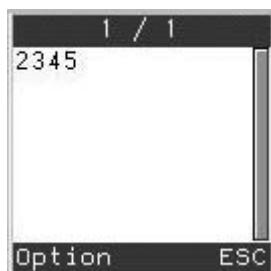
5. Position the read/write head on the handheld device directly in front of the data carrier.

6. Press the left selection button () or the right selection button ().

If the read operation is successful, "OK" appears on the display and the status LED flashes green. If you selected the buzzer and the vibration alarm in the Settings menu, you will also hear an acoustic signal and the handheld will vibrate. The read-in data will then be displayed in the selected format. If the transmission fails, the status LED flashes briefly red and a fault message is output. See see chapter 8

9.2

Menu Memory



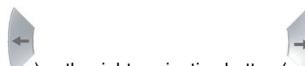
All data sets that you have read in are stored in the **Memory** menu. The **Memory** menu offers the following options:

- Browsing through stored data sets.
- Sending individual/all data sets.
- Editing data sets.
- Deleting individual/all data sets.
- Entering new data sets.



Selecting data sets

The number of stored data sets appears in the symbol bar on the display (current data set/total data sets).



1. Press the left navigation button () or the right navigation button () to scroll through the list of stored data sets.



2. Press the left selection button to access the options () or the right selection button ().

9.2.1

Memory > Options

In this menu, you have the option of sending, modifying, deleting or entering data manually.



Options

| | |
|---|---|
|  |  |
| Submenu | -- |
| Menu entry | Send Modify Delete Send all Delete all Input data |

Description of menu entries

Send

This command gives you the option of sending the data record currently selected to the computer via the preset interface.



Sending data sets

In order to send a data set to the computer via a preset interface, you must select an interface beforehand in the **Settings > Interface** menu. Connect the handheld device to the computer using the interface cable.



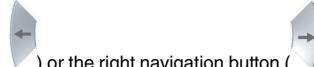
1. Press the left navigation button () or the right navigation button () to access the required data set.



2. Press the left selection button ( ) to access the options.

3. Select the option **Send**.

If the transfer process is successful, "#[Data set number] sent" appears in the status bar on the display.



4. Press the left navigation button () or the right navigation button () to access another data set.



5. Press the right selection button to exit the **Memory** menu ( ).

Edit

This command gives you the option of modifying the data record currently selected.

**Note!****Observe the input format**

Data bytes in hexadecimal data format must always contain 2 characters and data bytes in decimal data format must contain 3 characters.

**Modifying data sets**

Modify a data set as follows:



1. Press the left navigation button () or the right navigation button () to access the required data set.
2. Press the left selection button () to access the options.
3. Select **Modify**.
4. Press the CLEAR input button to delete individual characters (). In principle, you can only delete the character last entered, not individual characters within the string.
5. Enter the required data with the correct syntax for the selected data format using the input buttons.
6. Press the left selection button to confirm your selection ().
7. Press the right selection button to exit the Memory menu ().

Delete

This command gives you the option of deleting the data record currently selected.

**Deleting data sets**

Delete a data set as follows:



1. Press the left navigation button () or the right navigation button () to access the required data set.
2. Press the left selection button () to access the options.
3. Select **Delete**.

If the delete operation is successful, a confirmation message does not appear on the display. The total number of data sets in the status line on the display decreases by one.



4. Press the left navigation button () or the right navigation button () to access another data set.
5. Press the right selection button to exit the Memory menu ().



Send all

This command gives you the option of sending all data sets to the computer via the preset interface.



Sending all data

To send all data, proceed as follows:

1. Press the left selection button () to access the options.
2. Select **Send all**.

The data sets are displayed and sent in extremely quick succession.

3. Press the right selection button to exit the Memory menu ().

Delete all

This command gives you the option of deleting all data sets.



Deleting all data

To delete all data sets, proceed as follows:

1. Press the left selection button () to access the options.
2. Select **Delete all**.

"Delete all data?" appears on the display.

3. Press the left selection button to confirm the prompt ().

"No saved data" appears on the display.

4. Press the right selection button to exit the Memory menu ().

Input data

This command gives you the option of entering additional data manually.

Detailed instructions,



9.3 Menu Settings



You can configure the following basic settings in the **Settings** menu.

- Change the transponder type.
- Change the data format.
- Activate or deactivate password mode (IP* read/write heads only, operating frequency 125 kHz)
- Assign functions to the function buttons on the handheld device and handle (= trigger buttons).
- Switch the time stamp on and off.
- Select the interface.
- Define the send/memory options.
- Select the menu language.
- Set the date/time.
- Configure the display settings.
- Set the vibration alarm.
- Adjust the buzzer volume.
- Restore the default settings.

**Tip**

Press the left soft key to permanently adopt the settings when exiting a submenu



Press the right soft key to discard the settings when exiting a submenu (

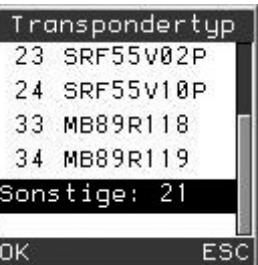


).

9.3.1 Settings > Transponder type

In the **Transponder type** submenu, you have the option of selecting the data carrier type you wish to use.

Transponder type menu

| | |
|---|--|
|  |  |
| Submenu | -- |
| Menu entry | ISO 15693 I-Code SLI Tag-it HFI SRF55V02P SRF55V10P MB89R118 MB89R119 Other |

Description of menu entries

13.56 MHz transponder types

| Transponder type | Chip type | Details | Pepperl+Fuchs designation | Access | Bit | Block address [HEX] |
|------------------|-------------------------|---------------------------------|---------------------------|--------------------|-----------|---------------------|
| 20 | Conforms with ISO 15693 | All ISO compliant data carriers | 1) | RW read only code | - 64 | - |
| 21 | I-Code SLI | Philips | IQC21 | RW read only code | 896 64 | 0...1B - |
| 22 | Tag-it HF-I | 'Plus' from Texas Instruments | IQC22 | R/W read only code | 2k 64 | 0...3F - |
| 23 | SRF55V02P | my-D from Infinion | IQC23 | R/W read only code | 2k 64 | 0...38 - |
| 24 | SRF55V10P | my-D from Infinion | IQC24 | R/W read only code | 10k 64 | 0...F7 - |
| 33 | MB89R118 | LSI FerVID from Fujitsu | IQC33 | R/W read only code | 2k 48 | 0...F9 FA...FF |
| 34 | MB89R119 | LSI FerVID from Fujitsu | IQC34 | R/W read only code | 232 24 | 0...39 3A...3F |
| Other: | | | | | | |

Table 9.1: 13.56 MHz transponder types

:¹⁾This transponder type is used to read the UID (read only code) of all Pepperl+Fuchs supported transponders compliant with ISO 15693.



If you select the entry **Other**, you can enter a transponder type manually. Transponder types 00 to 99 are available.



Selecting the transponder type

1. Select **Settings > Transponder type**.
2. Press the Enter navigation button to activate the required transponder type ().

An asterisk appears in front of the activated menu entry.

3. Press the left selection button to confirm your selection ().
4. Press the right selection button to exit the menu without selecting a transponder type ().

9.3.2

Settings > Data format

In the **Data format** submenu, you can specify whether to read and write the data in ASCII, hexadecimal or decimal format.

Data format submenu

| Data format | |
|-------------|---------------------|
| *ASCII | |
| HEX | |
| DEC | |
| OK | ESC |
| Submenu | -- |
| Menu entry | ASCII HEX DEC |

Description of menu entries

Data formats

| Data format | Notes |
|-------------|--|
| ASCII | In ASCII format, numbers 0 to 9, letters A to Z and special characters stored in the Handheld are available. |
| HEX | In hexadecimal data format, numbers 0 to 9 and letters A to F are available. |
| DEC | In decimal data format, numbers 0 to 255 are available. |



Note!

You can access this menu at any time by pressing the right and left function buttons simultaneously.



9.3.3 Settings > Trigger buttons

In the **Trigger buttons** submenu, you have the option of assigning commands to the function buttons on the handheld device and the buttons on the handle. Overview of available commands see chapter 10

Trigger buttons menu

| Triggertasten | Left [A] | Rechts [A] | Handgriff [A] |
|---------------|------------------------------|------------------------------|------------------------------|
| Links | Command [ASCII]: SF | Befehl [ASCII]: SF | Befehl [ASCII]: SF |
| Rechts | Message ENG: Read fixcode | Meldung ENG: Read fixcode | Meldung ENG: Read fixcode |
| Handgriff | Message GER: ESC | Meldung GER: ESC | Meldung GER: ESC |
| Submenu | OK | OK | OK |
| Menu entry | Left Right Handle | | ESC |

Description of menu entries

| Button | Description |
|--------|--|
| Left | The command entered in the data input field is assigned to the left function button  When the left function button is pressed, GER or ENG appears depending on the preset menu language. |
| Right | The command entered in the data input field is assigned to the right function button  When the right function button is pressed, GER or ENG appears depending on the preset menu language. |
| Handle | The command entered in the data input field is assigned to the function button on the handle. When the function button on the handle is pressed, GER or ENG appears depending on the preset menu language. |

Caution! The function buttons are disabled as soon as you open the **Settings** menu.

9.3.4 Settings > Time stamp

In the **Time stamp** menu, you can switch the time stamp on and off. The current date and time are allocated automatically to the read data sets in the format YYYY-MM-DD HH:MM:SS either before the save process or before the data sets are sent automatically to the computer.



Note!

Correct time stamp

Set the current date and time under **Settings > Date/time** to generate a correct time stamp.



Time stamp menu



| | |
|------------|-----------|
| Submenu | -- |
| Menu entry | On Off |

9.3.5

Settings > Check sum

In the **Check sum** you can specify a check sum for the data to be transferred. This check sum is inserted in front of the suffix character. You can use the check sum to verify whether the data was transferred without error.

Check sum menu



| | |
|------------|-----------|
| Submenu | -- |
| Menu entry | On Off |

9.3.6

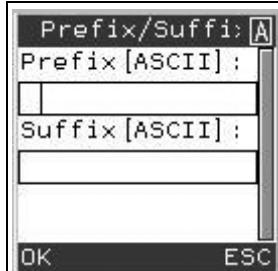
Settings > Prefix/suffix

In the **Prefix/suffix** menu, you can attach a suffix to the data (after the time stamp) or place a prefix in front of the data prior to transfer. Single characters or character strings can be added (in ASCII format). You can enter special characters in ASCII format via \ddd . d is replaced by the decimal number of the special character, ä for example corresponds to \228.



Note!

ASCII table see chapter 11

Prefix/suffix menu

| | |
|------------|------------------|
| Submenu | -- |
| Menu entry | Prefix Suffix |

9.3.7 Settings > Interface

In the **Interface** submenu, you can configure the interfaces and their parameters.

Interface menu

| | |
|------------|--|
| Submenu | RS 232 PS2 USB Bluetooth Options |
| Menu entry | -- |

Description of menu entries

You can configure these parameters for the individual interfaces in different operating modes:



| Interface and operating modes | Description |
|-------------------------------|--|
| RS 232 | |
| Baud | Specify the required baud rate here. Select from the following values: <ul style="list-style-type: none">• 1200• 2400• 4800• 9600• 19200• 38400• 57600• 115200 |
| Data bits | Specify the required number of data bits here. Select from the following values: <ul style="list-style-type: none">• 7• 8 |
| Stop bits | Specify the required number of stop bits here. Select from the following values: <ul style="list-style-type: none">• 1• 2 |
| Parity | Specify the required parity here. Select from the following values: <ul style="list-style-type: none">• none• odd• even |
| ACK | Select the signal for confirming a data transfer here (ACKnowledgement). Select from the following values: <ul style="list-style-type: none">• 1way• 2way |
| PS2 | |
| - | - |
| USB | |
| Keyboard | In Keyboard mode, data is sent from the reader to the control interface, where it is evaluated. During the transfer process, the handheld device behaves as if a USB keyboard were being used to input data. |
| Downloader | Downloader mode is used to transfer unformatted, unpacked data via the USB interface. This mode is used to upgrade the software on the handheld device. |
| Native 2way | Native 2way mode is used to establish two-way communication between the handheld device and the application via the USB interface. This mode uses a handshake protocol. Software that understands this protocol must be installed on the PC. |
| VCOM 1way | VCOM 1way mode is used to address the handheld device via the USB in the same way as a serial interface. A V-Com driver must be installed on the PC. |
| Bluetooth | |
| 1way range | One-way communication from the handheld device to the computer. This operating mode enables a larger sensing range but with a lower degree of reliability. Only use this operating mode if you intend to use the handheld device within a specific sensing range or connect the handheld device to a device without an operating system (e.g., printer). Even though the connection is stable, one-way communication may result in a loss of data. |

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| Interface and operating modes | Description |
|-------------------------------|--|
| 1way reliab. | One-way communication from the handheld device to the control interface. This operating mode offers a higher degree of reliability but a smaller sensing range. Only use this operating mode if you intend to use the handheld device within a specific sensing range or connect the handheld device to a device without an operating system (e.g., printer). Even though the connection is stable, one-way communication may result in a loss of data. |
| 2way | Two-way communication between the handheld device and the control interface. The data is transferred in packets using the protocol, which guarantees the reliability of the transfer because the handheld device always waits for a response from the control interface before deleting data from the internal memory. If necessary, the data is transferred again automatically. In addition, the two devices continually check whether the connection with the respective end device still exists (end-to-end handshake). Pepperl+Fuchs offers "XML Router - BE" software for XML Bluetooth modems. This software is suitable for Windows PCs and Windows Pocket PCs. "XML Router - BE" also offers Bluetooth to keyboard wedge communication for applications that require a keyboard port. You must use 2way mode when operating the XML Bluetooth modem. |
| BD_MAC | BD_ADDR of the Bluetooth receiver |

Options submenu



| | |
|------------|---|
| Submenu | -- |
| Menu entry | Autom. conn. Autom. disc. Timeout |

Description of the submenu

Options

In the **Options** submenu, you can specify whether to connect or disconnect the interface automatically. You can also configure the timeout (in ms) for the V commands.

Description of menu entries

Autom. conn.

If the menu entry **Autom. conn.** is enabled, the handheld device is connected to the computer automatically via the interface when the interface cable is connected.

Autom. disc.

If the menu entry **Autom. disc.** is enabled, the handheld device is disconnected from the computer automatically after the data is transferred.

Enable this menu item if you intend to send data from several devices to the same Bluetooth modem.



Timeout

In the data input field of the **Timeout** menu entry, you have the option of entering the timeout time [in ms] for the V commands. V commands are used to send commands from the PC directly to the read/write unit on the handheld device. Any terminal program and interface can be used here. A timeout preset in the communication menu of the HH20 detects the end of the command. The default setting is 500 ms, i.e., if no further characters are received after the last character during this timeout, the command is evaluated and sent to the handheld device.

9.3.8 Settings > Send/Save

In the **Send/Save** submenu, you can decide what to do with the read data.

Send/Save menu

| Send/Log | |
|--------------|--|
| *Always send | |
| Always log | |
| Auto erase | |
| Auto upload | |
| OK | ESC |
| Submenu | -- |
| Menu entry | Always send Always save Autom. del. Autom. upl. |

Description of menu entries

| Function | Explanation |
|-------------|--|
| Always send | Read or entered data is sent immediately from the handheld device to the connected computer. The data is transferred irrespective of the Always save setting. |
| Always save | Read or entered data is saved in the memory of the handheld device, regardless of whether it was sent to a computer. |
| Autom. del. | Data from the memory of the handheld device is deleted if it was sent to a computer. If read or entered data is sent from the handheld device to the computer directly after reading and the Autom. del. option is enabled, the data is transferred and deleted immediately. |
| Autom. upl. | When a connection with the computer is established again, data from the memory of the handheld device is sent immediately . This option is only active when the handheld device is operating in batch mode. |



9.3.9 Settings > Language

You can select the menu language in the **Language** submenu.

Language menu

The screen shows a list of languages. 'English' is highlighted with a star icon (*). Other options include 'German'. At the bottom are 'OK' and 'ESC' buttons.

| | |
|------------|-------------------|
| Submenu | -- |
| Menu entry | English German |

9.3.10 Settings > Date/time

You can set the date and time in the **Date/time** submenu.

Date/time menu

| | |
|---|--|
| <p>The screen shows a date input form. The 'Year' field contains '2009'. Below it are fields for 'Month' (10), 'Day' (1), and 'Hours' (06). At the bottom are 'OK' and 'ESC' buttons.</p> | <p>The screen shows a date input form. The 'Hours' field contains '06'. Below it are fields for 'Minutes' (59) and 'Minutes' (12). At the bottom are 'OK' and 'ESC' buttons.</p> |
| Submenu | |
| Menu entry | Year Month Day Hours Minutes |



Entering the date and time

1. Navigate to the individual data input fields using the up navigation button () and the down navigation button ().
2. Press the CLEAR input button to delete previously entered numbers ().
3. Enter numbers using the input buttons.
4. Press the left selection button to confirm your entries ().

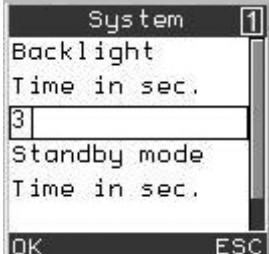
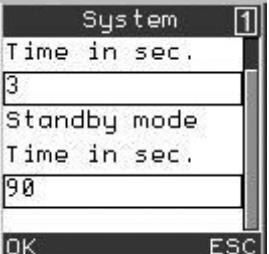


9.3.11

Settings > System

You can set the illumination time of the display and define the time that elapses before the device switches to standby mode in the **System** submenu.

System menu

| | |
|---|---|
|  |  |
| Submenu | -- |
| Menu entry | Illumination/time in sec. Standby mode/time in sec. |



Setting the illumination and standby time

1. Navigate to the individual data input fields using the up navigation button () and the down navigation button ().
2. Press the CLEAR input button to delete previously entered numbers ().
3. Enter numbers using the input buttons.
4. Press the left selection button to confirm your entries ( ).

9.3.12

Settings > Vibration

In the **Vibration** submenu, you can switch the vibration alarm for the device on and off.

Vibration menu

| | |
|---|-----------|
|  | |
| Submenu | -- |
| Menu entry | On Off |

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9.3.13 Settings > Buzzer

In the **Buzzer** submenu, you can adjust the volume of the buzzer (in percent) and the buzzer duration after a successful read or write command or after successfully executing a command using the function buttons (in ms).

Buzzer menu

| | | |
|------------|---|--|
| | | |
| Submenu | -- | |
| Menu entry | Volume [0...100%] Read time [ms] Write time [ms] Trigger time [ms] | |

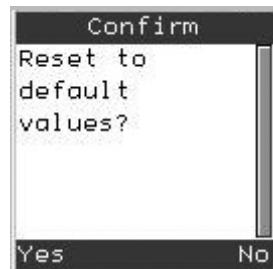


Adjusting the buzzer volume and buzzer times

1. Navigate to the individual data input fields using the up navigation button () and the down navigation button ().
2. Press the CLEAR input button to delete previously entered numbers ().
3. Enter numbers using the input buttons.
4. Press the left selection button to confirm your entries ().

9.3.14 Settings > Default settings

You can reset all the settings to default using the "Default settings" command.





Default settings

| Function | Default value |
|--|---|
| Assignment of trigger buttons right, left button and handle | SF Message ENG: "Read fixcode" Message GER: "Fixcode lesen" |
| Data format ASCII/HEX/DEC | ASCII |
| Password mode | off |
| Password | 00000000 |
| Time stamp on/off | off |
| Check sum on/off | off |
| Interface | USB -> VCOM 1way |
| Interface -> Connect autom. | on |
| Interface -> Disconnect autom. | off |
| Interface -> Timeout for V commands | 500 ms |
| Interface -> MAC address | "" |
| Send / save --> Always send | on |
| Send / save --> Always save | off |
| Send / save --> Autom. del. | on |
| Send / save --> Autom. upl. | on |
| Language | English |
| Background illumination time | 3 seconds |
| Standby mode | 90 seconds |
| Vibration | on |
| Buzzer -> Volume | 100 % |
| Buzzer -> Read time | 200 ms |
| Buzzer -> Write time | 400 ms |
| Buzzer -> Trigger time | 200 ms |



Resetting settings to default

1. Select **Settings > Default sett.**

"Reset to default settings?" appears on the display.



2. Press the left selection button to confirm the prompt ().

Press the right selection button to exit the menu without resetting the settings to default





9.4

Menu Applications



All Java applications stored on the device are displayed in the **Application** menu. The programs IxTmode.js and PF_Ident.js are both required to operate the unit as a handheld device.

You can configure the Bluetooth modem using the application BTModemCfg.js.

After selecting a JavaScript application by pressing the Enter navigation button (), you can

- Start the script (**Start**)
- Display information on the script version (**Version**)
- Delete the script (**Löschen**)
- Set the script as the default application (**As default**)

The script is started automatically when the device is restarted

**Caution!**

Modified or independent JavaScript programs

The processes involved in the reading and writing of data are susceptible to external influences and interference.

- Do not modify JavaScript programs from the manufacturer.
- If you write your own JavaScript programs, check that the identification function is not affected.

**Note!*****Creating a separate user interface***

If you wish to create your own user interface, please contact Pepperl+Fuchs.

9.5

Menu Info

The **Info** menu contains additional information on:

- Manufacturer
- Model number
- Part number (**PrtNo**)
- Version of firmware for read/write head (**FW**)
- Version of PF_Ident.js software (**SW**)
- Hardware version (**HW**)



- Serial number of the device (**Reader ID**)
- MAC address of the Bluetooth modem (**BD Addr**)
- Software number of the handheld firmware (**App**)
- Software number of the handheld boot software (**Boot**)
- Software number of the Bluetooth software (**Radio**)
- (**OEM ID**)



10 Command reference

| Command | Description |
|---------|------------------------|
| SR | Read data |
| SW | Write data |
| SF | Read fixcode |
| S# | Format data carrier |
| GS | Read data carrier type |
| CT | Set data carrier type |

Single Read Words (SR)

Command: **SR<WordAddr><WordNum>**

Response: <Status><Data>

Only one attempt is made to read <WordNum> data blocks from block address <WordAddr>.

Single Write Words (SW)

Command: **SW<WordAddr><WordNum><Data>**

Response: <Status>

Only one attempt is made to write <WordNum> data blocks from block address <WordAddr>.

Single Read Fixcode (SF)

Command: **SF**

Response: <Status><Data>

Only one attempt is made to read fixcode. The specified length of the fixcode depends on the data carrier type.

Fill Data Carrier (S#)

Command: **S#<WordAddr><WordNum><FillSign>**

Response: <Status>

The data carrier is filled with <WordNum> data blocks described by fill signs <FillSign> from the specified block address <WordAddr>.

Get State (GS)

Command: **GS**

Response: TT: <TagType>, TO:<Timeout>, BD:<Baud>

This command is used to read out permanently stored read/write head settings.

Change Tag (CT)

Command: **CT<TagType>**

Response: <Status>



This command tells the read/write head which data carrier type it is communicating with. This setting is stored permanently.

Key to variables

| | |
|------------|---|
| <Baud> | 4-6 characters in the preset data format Baud rate [in bit/s] |
| <Data> | <WordNum> times 4 bytes in the preset data format When communicating a data block, the highest value byte is transferred first and the lowest value byte last. |
| <FillSign> | 1 character [ASCII] |
| <Status> | 1 character [ASCII] 0 ... 9, status of the read/write head ¹⁾ |
| <TagType> | 2 characters in the preset data format Value indicates the number of the data carrier type. |
| <Timeout> | 3 characters in the preset data format Interface timeout [in ms]. A fault message is issued when this time elapses. '000' deactivates the timeout. |
| <WordAddr> | 4 characters [ASCII] Block start address in the data carrier for the respective command. Range from '0000' to 'FFFF', depending on data carrier type. |
| <WordNum> | 2 characters [ASCII] Number of data blocks to be read or written. Range from '00' to 'FF', depending on data carrier type. |

¹⁾ On the IC-HH20-V1, the status message appears on the display in clear text:

| Status | German display text | English display text |
|--------|-----------------------|----------------------|
| 0 | OK | OK |
| 1 | unbekannter Fehler | unknown error |
| 2 | Einschaltung | switch-on message |
| 3 | unbekannter Fehler | unknown error |
| 4 | falscher Befehl | command error |
| 5 | kein Transponder | no tag |
| 6 | Hardwarefehler | hardware error |
| 7 | Softwarefehler | software error |
| 8 | Service-Schnittstelle | service interface |
| 9 | unbekannter Fehler | unknown error |

11 ASCII table

| hex | dec | ASCII | hex | dec | ASCII | hex | dec | ASCII | hex | dec | dec | ASCII |
|-----|-----|-------|-----|-----|-------|-----|-----|-------|-----|-----|-----|-------|
| 00 | 0 | NUL | 20 | 32 | Space | 40 | 64 | @ | 60 | 96 | ' | |
| 01 | 1 | SOH | 21 | 33 | ! | 41 | 65 | A | 61 | 97 | a | |
| 02 | 2 | STX | 22 | 34 | " | 42 | 66 | B | 62 | 98 | b | |
| 03 | 3 | ETX | 23 | 35 | # | 43 | 67 | C | 63 | 99 | c | |
| 04 | 4 | EOT | 24 | 36 | \$ | 44 | 68 | D | 64 | 100 | d | |
| 05 | 5 | ENQ | 25 | 37 | % | 45 | 69 | E | 65 | 101 | e | |
| 06 | 6 | ACK | 26 | 38 | & | 46 | 70 | F | 66 | 102 | f | |
| 07 | 7 | BEL | 27 | 39 | ' | 47 | 71 | G | 67 | 103 | g | |
| 08 | 8 | BS | 28 | 40 | (| 48 | 72 | H | 68 | 104 | h | |
| 09 | 9 | HT | 29 | 41 |) | 49 | 73 | I | 69 | 105 | i | |
| 0A | 10 | LF | 2A | 42 | * | 4A | 74 | J | 6A | 106 | j | |
| 0B | 11 | VT | 2B | 43 | + | 4B | 75 | K | 6B | 107 | k | |
| 0C | 12 | FF | 2C | 44 | , | 4C | 76 | L | 6C | 108 | l | |
| 0D | 13 | CR | 2D | 45 | - | 4D | 77 | M | 6D | 109 | m | |
| 0E | 14 | SO | 2E | 46 | . | 4E | 78 | N | 6E | 110 | n | |
| 0F | 15 | SI | 2F | 47 | / | 4F | 79 | O | 6F | 111 | o | |
| 10 | 16 | DLE | 30 | 48 | 0 | 50 | 80 | P | 70 | 112 | p | |
| 11 | 17 | DC1 | 31 | 49 | 1 | 51 | 81 | Q | 71 | 113 | q | |
| 12 | 18 | DC2 | 32 | 50 | 2 | 52 | 82 | R | 72 | 114 | r | |
| 13 | 19 | DC3 | 33 | 51 | 3 | 53 | 83 | S | 73 | 115 | s | |
| 14 | 20 | DC4 | 34 | 52 | 4 | 54 | 84 | T | 74 | 116 | t | |
| 15 | 21 | NAK | 35 | 53 | 5 | 55 | 85 | U | 75 | 117 | u | |
| 16 | 22 | SYN | 36 | 54 | 6 | 56 | 86 | V | 76 | 118 | v | |
| 17 | 23 | ETB | 37 | 55 | 7 | 57 | 87 | W | 77 | 119 | w | |
| 18 | 24 | CAN | 38 | 56 | 8 | 58 | 88 | X | 78 | 120 | x | |
| 19 | 25 | EM | 39 | 57 | 9 | 59 | 89 | Y | 79 | 121 | y | |
| 1A | 26 | SUB | 3A | 58 | : | 5A | 90 | Z | 7A | 122 | z | |
| 1B | 27 | ESC | 3B | 59 | ; | 5B | 91 | [| 7B | 123 | { | |
| 1C | 28 | FS | 3C | 60 | < | 5C | 92 | \ | 7C | 124 | | |
| 1D | 29 | GS | 3D | 61 | = | 5D | 93 |] | 7D | 125 | } | |
| 1E | 30 | RS | 3E | 62 | > | 5E | 94 | ^ | 7E | 126 | ~ | |
| 1F | 31 | US | 3F | 63 | ? | 5F | 95 | _ | 7F | 127 | DEL | |

FACTORY AUTOMATION – SENSING YOUR NEEDS



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