

**User manual**

**Cordless Serial Port**

**HW 8615 DECT**

**HW 8615/US FHSS**

Version 1.02

**DATA**  **UNWIRED**



**HÖFT & WESSEL**

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HW8615\_e.doc

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## 1. Introduction

Thank you for choosing Data Unwired products of Hoeft & Wessel.

The HW 8615 cordless serial port is a powerful solution for cordless data communication when replacing V.24 cables by a radio connection in order to address different peripheral devices via common interface.

Data Unwired products operate according the international DECT telecommunication standard resp. the North American FCC and the Canadian standard.

- DECT offers a reserved radio spectrum which is free from interference. Operation of Data Unwired DECT systems is unrestricted and licence-free in all countries of the EU.
- Data Unwired FHSS (Frequency Hopping Spread Spectrum) systems operate in the open 2.4 GHz band and comply with FCC part 15.

Data Unwired products are easy to install and do not require specific drivers. So they can be used with most computers and operating systems.

This manual describes how to install and use the HW 8615 cordless serial port.

In case of problems during the installation or during the operation of the HW 8615 that cannot be solved with the information given in this manual, please contact the service department of your local dealer or contact the Hoeft & Wessel-service line directly at

[Service-Line@hoeft-wessel.de](mailto:Service-Line@hoeft-wessel.de).

For further information about Data Unwired products please visit our Website:

[www.data-unwired.com](http://www.data-unwired.com)

### 1.1 References

Please follow the explanation and instructions in the Integration Manual IM86010 and Firmware Manual FM86010, too.

In the case of inconsistency the documents apply in the following order of priority:  
1. Firmware Manual FM86010, 2. Integration Manual IM86010, 3. this manual.

## 1.2 Important user information

The HW 8615 does not require maintenance work or special attendance, except for the instructions mentioned below.



### **CAUTION!**

**Do not operate device within the range of strong electromagnetic fields.**

**Notice the temperature range for operation given in chapter 2.2. Do especially avoid overheating.**

**Protect device against humidity and dust.**

**Do clean device only with a soft cloth and mild cleaning agent. Do not apply water or wet cleaner.**

**Do not insert any objects into openings of the device unless specifically mentioned otherwise in this document. This may damage the device.**

### **Do not open the HW 8615**

**The HW 8615 does not contain parts which could be maintained, exchanged or repaired by the customer or non-authorized maintenance personnel.**

**Opening the device might damage the electric components. A correct function of the device is no longer guaranteed!**

### **Only operate the HW 8615 with the enclosed AC adapter**

**The HW 8615 is delivered with an AC adapter. Using any other power supply may damage the device or cause radio interference.**

**Before connecting the AC adapter make sure that the voltage fits the local power supply.**

### 1.3 Special note for users in the USA (HW 8615/US only)

**NOTE:**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The maximum output power of the Base Station transmitter is 100 mW. Though this is a low power level a minimum separation distance of 20 cm from the enclosure of the Base Station to all persons must be kept. The antennas must not be co-located and operating in conjunction with any other antenna or transmitter.

### 1.4 Important Information for users in Canada (HW 8615/US only)

**NOTE!**

To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment (or its transmit antenna) that is installed outdoors is subject to licensing.

## 2. Product description

### 2.1 Operational elements

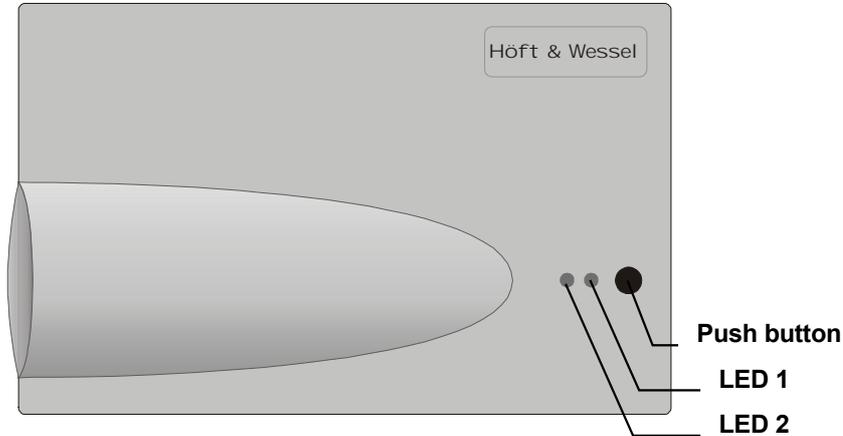


Figure 1: HW 8615 top view

- Push Button      Pressing this button activates the on-air subscription procedure
- LED1              The two LEDs indicate the operational state of the device
- LED2

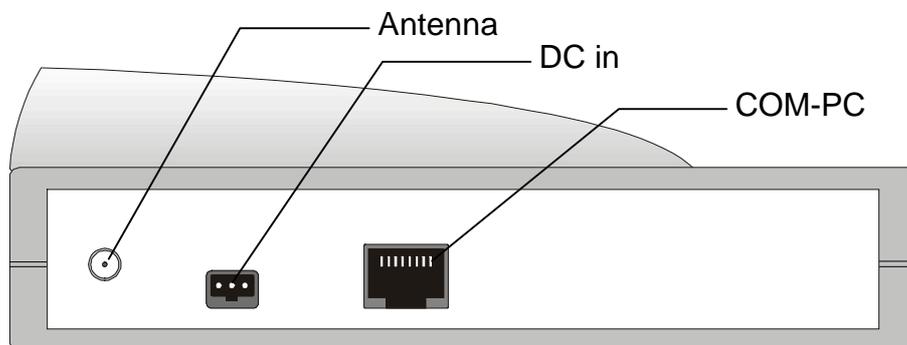


Figure 2: HW 8615 back view

- COM-PC      Connect the HW 8615 to your computer with the serial data cable
- DC in         Connect the HW 8615 with the AC adapter (included in the delivery)

## 2.2 Technical specification – HW 8615

Dimensions:	approx. 145 x 88 x 46 mm
Weight:	approx. 180 g
Temperature range:	0 .. +55 °C operating
Power supply:	6.0 .. 30.0 V; 1.8 W (maximum load), 0.6 W (idle)
Interfaces:	RS-232, 115 kBd (max) serial interface (10-pin modular jack connector, V.24)
Frequency:	1.880 .. 1.900 MHz
Output power:	250 mW (max.)
Standards:	EN 300 175 parts (DECT Common Interface) EN 301 406 (TBR6 2 <sup>nd</sup> edition) ETS 300 329 (EMC for DECT equipment) ETS 300 651 (Data Services DSP C.2)
Conformity:	DECT CTR 6
Modulation:	Gaussian FSK
Data capacity:	115.2 kBd max., protected
Antenna system:	two integrated antennas, one external connector
Range:	up to 60 m inhouse, up to 300 m outdoor
Operational elements:	1 push button 2 LEDs
Casing:	plastic housing, suitable for wall mount or desktop installation
Accessories:	external power supply unit HW 1207, 240V/50Hz prim., 7.5 V/600 mA sec., V.24 data cable

### 2.3 Technical specification – HW 8615/US

Dimensions:	approx. 145 x 88 x 46 mm
Weight:	approx. 180 g
Temperature range:	0 .. +55 °C operating
Power supply:	6.0 .. 30.0 V; 2 W (maximum load), 0.6 (idle)
Interfaces:	RS-232, 115 kBd (max) serial interface (10-pin modular jack connector, V.24)
Frequency:	2.400 .. 2.483 GHz
Output power:	100 mW
Standards:	EN 300 328 FCC part 15 (Low power devices operating in 2400 MHz band) EN 300 175 parts 4 - 6 (DECT Common Interface) ETS 300 329 (EMC for DECT equipment) ETS 300 651 (Data Services DSP C.2)
Modulation:	Gaussian FSK
Mode:	FHSS
Duty cycle:	max. 16.67 %
Data capacity:	115.2 kBd max., protected
Antenna system:	two integrated antennas, one external connector
Range:	up to 60 m inhouse, up to 300 m outdoor
Operational elements:	1 push button 2 LEDs
Casing:	plastic housing, suitable for wall mount or desktop installation
Accessories:	external power supply unit, UL1310 (class 2), 120V/60Hz prim., 7.5 V/600 mA sec., V.24 data cable

## 2.4 Included delivery

The device is shipped with the following components:

- HW 8615 or HW 8615/US
- Power supply unit
- 1 serial data cable
- Configuration software

### 3. Installation

#### 3.1 Data Unwired system architecture

The HW 8615 cordless serial port acts as a mobile station of a Data Unwired system. Every Data Unwired system requires a base station and may contain one or more mobile stations.

If you purchased the HW 8615 as part of a communication set the base station is included.

Single HW 8615 devices are also available, in case you want to extend an existing Data Unwired installation with an additional mobile station.

Different base stations are available that offer dedicated connectivity:

Data Unwired ISDN HW 8621 (DECT only)	Base station for Internet access via ISDN
Data Unwired Modem HW 8622 (DECT only)	Base station for Internet access via analogue modem lines
Data Unwired Base HW 8615	Base station for access to a shared peripheral device or a server computer via serial interface

### 3.1.1 Wireless Internet access via ISDN (DECT only)

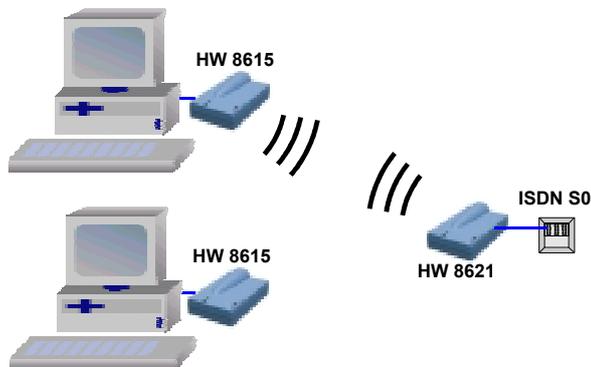


Figure 3: Wireless Internet access via ISDN

The basic system comprises a single HW 8615 cordless serial port together with an ISDN base station HW 8621. The system may be expanded so multiple PCs can use the base station alternately.

### 3.1.2 Wireless Internet access via analogue modem lines (DECT only)

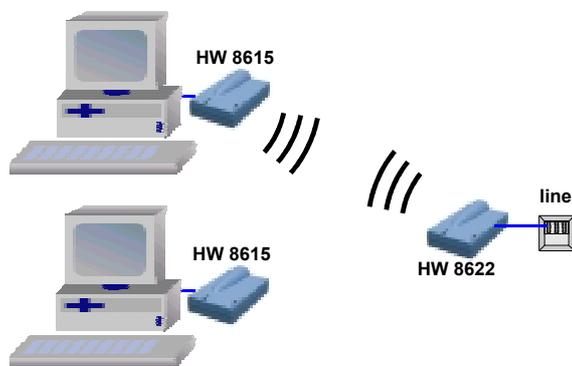


Figure 4: Wireless Internet access via analogue modem lines

The basic system comprises a single HW 8615 cordless serial port together with a modem base station HW 8622. The system may be expanded so multiple PCs can use the base station alternately.

### 3.1.3 Wireless server or shared peripheral access

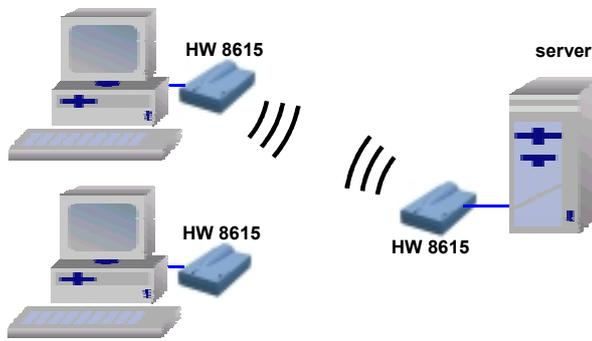


Figure 5: Wireless server or shared peripheral access

The basic system comprises a single HW 8615 cordless serial port together with a V.24 base station HW 8615. The system may be expanded so multiple PCs can use the base station alternately.

## 3.2 Hardware installation

This chapter deals with the hardware installation of the HW 8615. In case you purchased it together with a base station in a communication set, base station and HW 8615 are ready for communication.

In order to establish a data connection to your computer, please connect the enclosed V.24 data cable to the V.24 port of the HW 8615 and to a COM port of your computer.

The cable fits to 9-pin COM port. Some older computers still have 25-pin COM port connectors. In this case you will need a 9 (male) / 25 (female) sub-D adapter, which is available from your local dealer.

For power supply, first connect the AC adapter to the HW 8615. Before plugging it into the mains, check that your local supply voltage fits to the voltage range printed on the AC adapter.

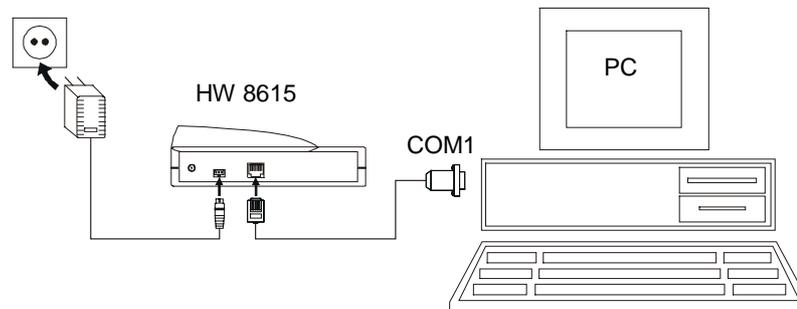


Figure 6: Installation

### 3.2.1 Getting the best radio coverage

Like any radio device the coverage range of the HW 8615 is limited by the available transmit power and losses on the radio path.

Data Unwired can bridge distances up to 300m in open space. In real environments the range is influenced by shielding, reflections and interference. In a typical indoor environment like an apartment, a range up to 60m can be expected. In order to achieve these results, take care where you locate your radio devices (i.e. mobile and base stations).

- Operate the radio device in a dry and clean place on moderate temperatures. Keep the device away from heat sources.
- Do not place the radio device close to large metal objects.
- Each object in between the mobile and the base station will attenuate the radio waves.
- Try to install the base station as high above ground as possible, since most obstacles are on the ground.
- Walls will attenuate the radio signal. Light walls have only little impact whereas armed concrete absorbs most of the radio energy. Try to achieve a line-of-sight condition between the mobile and the base station.

### 3.3 LED display information

When the HW 8615 is powered-on, one or both of the LEDs will light-up in intervals or continuously. This signals the operational state of the device. The meaning of the different LED displays is further explained below

LED1 (red)	LED2 (green)	Meaning
•	•	Power off condition
•		Power on, not locked to a base station (slow blink)
•		DECT connection to base station established While data is transmitted, LED2 flickers.
		End-to-end connection established. The exact meaning on LED1 depends on the function of the base station.
	•	Device has entered configuration mode.
		On-air subscription in progress (fast alternating blink)
	•	On-air subscription failure (fast blink)
•		On-air subscription success (fast blink)

## 4. Taking HW 8615 into operation

This chapter describes the basic configuration of the HW 8615 cordless serial port. More advanced configuration features are provided, but generally not required in typical applications.

### 4.1 Setting-up your computer

As a default, the V.24 port of the HW 8615 is configured to

115.200 Bd  
8 data bits  
no parity  
1 stop bit  
RTS/CTS handshake on

You must configure the COM port on your computer for these settings.

On Windows operating systems, applications usually do not directly access the COM port. Take care to set up the baud rate at the right place. If you use the HW 8615 together with an ISDN base station HW 8621 or a modem base station HW 8622 you must set up the baud rate under Settings / Modems. A detailed description can be found in the user manual of the respective base station.

### 4.2 Subscribing the HW 8615 to a base station

A mobile station only works with a base station where it has been subscribed. This is a security feature of your Data Unwired system that prevents access from unauthorised devices. It also applies to the HW 8615.

During the subscription procedure the HW 8615 and the associated base station agree on a secret key that is then used for data encryption. The key depends on unique hardware addresses of base and mobile stations and a PIN code to be configured by the user.

Unless the pin code of the system is changed, the subscription procedure must be done only once during the installation of each mobile station.

### 4.3 Configuration using the Data Unwired Configurator

The delivery encloses a configuration software tool that simplifies configuration of Data Unwired products. The Data Unwired Configurator requires a Win98, WinNT, WinME or Win2000 operating system.

Usage of this tool is highly recommended because it makes configuration easier and also includes a self check of the system. However, configuration can also be made without this utility, e.g. if the HW 8615 is connected to a non-Windows system (4.4).

#### 4.3.1 Installation of the Data Unwired Configurator

Start the application **DUConf.exe** from hard disk, your provided disk or CD ROM and follow the instructions given in section 4.3.2.

### 4.3.2 Using the Data Unwired Configurator



#### Step 1: Welcome

Click button [Next]



#### Step 2: Connect base station

Connect the base station to a COM port of your PC. Select the COM port in the dialog box.

Click button [Next].



#### Step 3: Base station settings

Enter a baud rate and PIN of your choice. The PIN is stored inside the Configurator for easier re-use.

Click button [Next].

The base station is ready now.

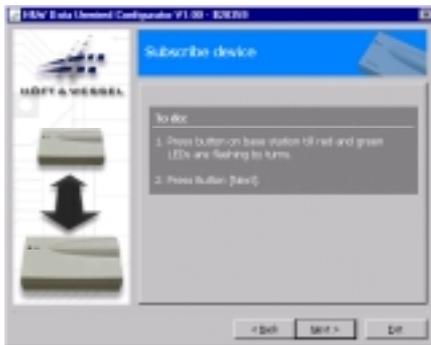


#### Step 4: Connect mobile station

Disconnect the base station from your PC, but leave it powered-on.

Connect the HW 8615 to a free COM port of your PC and select that COM port in the dialog box.

Click button [Next].

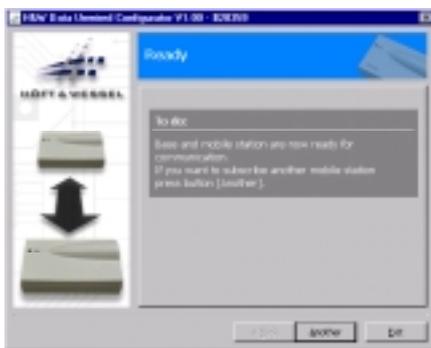


#### Step 5: Perform subscription of the mobile station

Press the push button on the base station for about 5 seconds until the two LEDs are blinking alternately. The base station is now ready to accept a subscription of the mobile station.

Click button [Next].

This will trigger the subscription procedure.



#### Step 6: Ready

After a successful subscription the base station's green LED will start blinking quickly for 5 seconds, then turn to blinking slowly.

The radio set is ready for wireless communication now. If you want to subscribe another mobile station to the same base, click button [Another]. Otherwise click [Exit] to terminate the Configurator program.

When ready, please reset both base and mobile station by disconnecting them from the power supply for 5 seconds.

## 4.4 Configuration using a terminal program

This method must be used, if you configure the HW 8615 on a non-Windows computer, or in case you want to perform advanced configuration commands.

Please set-up your computer as described in section 4.1.

Start a terminal program on your computer and access the HW 8615.

### 4.4.1 Entering and leaving the configuration mode

The HW 8615 has a configuration mode. In this mode it can be configured using simple text-based command.

To start the configuration mode, enter the key sequence + - + on the terminal program. The following timing requirements apply:

- Before the first + character and after the last + character there must be a pause of at least 500 ms
- Between two characters of the escape sequence the maximum allowed pause is 200 ms

The red LED1 will light up which indicates that the HW 8615 is in configuration mode. In this mode the HW 8615 will response to commands received via the V.24 interface.

All commands have to be terminated by [↵] (RETURN key).

When keying in the command **EXIT** the configuration mode will be terminated.

#### 4.4.2 Performing the subscription

Please make sure the HW 8615 is connected to the power supply as well as to your terminal program and is properly set to configuration mode (see 4.4.1). Please ensure the base station is also connected to its power.

Please press the push button of the base station until the two LEDs start blinking fast and alternately.

Enter the command

**SISUA <pin>**

- where <pin> is the PIN code of your base station. For instructions how to set the PIN code of the base station please refer to the next section.

Example:

**SISUA 0**

Note that leading zeros of PIN codes are relevant, e.g. PIN code 0 is different from PIN code 000.

After successful subscription the green LED on the HW 8615 and the base station will start blinking fast.

Leave the configuration mode by use of the command

**EXIT**

#### 4.4.3 Setting the base station's PIN code

Please make sure the base station is connected to the power supply as well as to your terminal program and is properly set to configuration mode.

Please enter the command

**SIPIN <pin>**

Leave the configuration mode by use of the command

**EXIT**

#### 4.4.4 Advanced configuration

This document describes only the basic configuration. All Data Unwired products can be customized by using special commands. For detailed information about advanced configuration of Data Unwired products please contact your service department of your local dealer or contact the Hoeft & Wessel service line directly at

[Service-Line@hoeft-wessel.de](mailto:Service-Line@hoeft-wessel.de)

## 5. Using the HW 8615

After the HW 8615 has been taken into operation, your Data Unwired system is ready to be used.

A cordless data connection to the base station is automatically established when your computer activates the DTR line of the COM-port. Typical PC applications set the DTR signal as soon as they allocate a COM-port.

When the wireless data connection is no longer needed, the application clears the DTR signal and the wireless data connection is released.

## 6. Appendix

### 6.1 Serial port pinout

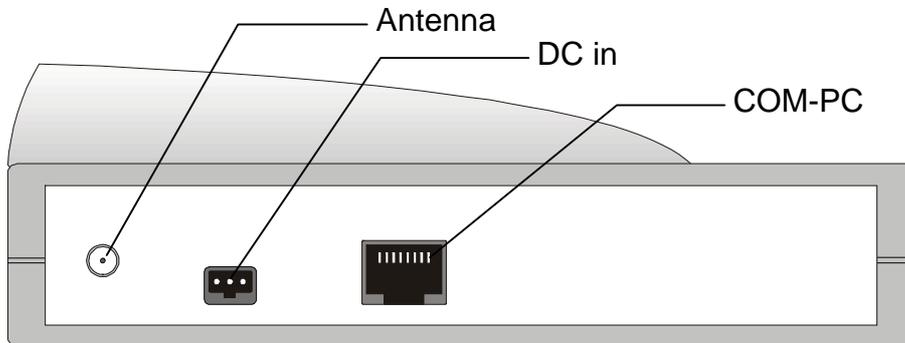
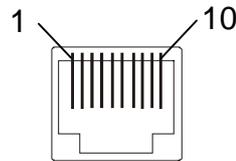


Figure 7: HW 8615 back view

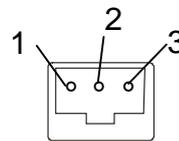
#### COM-PC

Pin no.	RS232 signal
1	RI out
2	DCD out
3	RTS in
4	RXD out
5	GND
6	TXD in
7	DTR in
8	CTS out
9	DSR out
10	DC in



#### DC in

Pin no.	DC signal
1	6 .. 30 V in *
2	5 V $\pm$ 5 % in *
3	GND



\* alternatively

## 6.2 Manufacturer address

Hoeft & Wessel AG  
Rotenburger Str. 20  
D - 30659 Hannover

Phone: +49 511 / 6102 - 0  
Fax: +49 511 / 6102 - 411

[www.hoeft-wessel.com](http://www.hoeft-wessel.com)  
[info@hoeft-wessel.com](mailto:info@hoeft-wessel.com)

[www.hoeft-wessel.de](http://www.hoeft-wessel.de)  
[info@hoeft-wessel.de](mailto:info@hoeft-wessel.de)

[www.data-unwired.com](http://www.data-unwired.com)

Service line: +49 1803 / 23 28 29

## 6.3 Troubleshooting

### 6.3.1 Power supply

Make sure that the HW 8615 is properly connected to the AC connector which is plugged to the mains. When the device is powered, at least one of the LEDs will light up or blink.

In case both LEDs remain dark, a problem with the power supply is the most likely reason.

- Please unplug the device from the power supply and re-connect it.

If the problem persists please contact the Hoeft & Wessel service line for further support.

### 6.3.2 Availability of a base station

A slow blinking red LED indicates that the HW 8615 is not able to find a base station. This may have several reasons.

- Check the power supply of the base station. Please refer to the base station documentation for further details
- Maybe the coverage range of the base station is exceeded. In this case the problem will disappear as you get closer to the base station. Follow the instructions in section 3.2.1 to improve the coverage range of your system.
- The subscription information of the HW 8615 is invalid. Try to renew the subscription as described in section 4.2.

If you cannot solve the problem with these hints, please consult the Hoeft & Wessel service line.

### 6.3.3 Erroneous configuration mode

A continuously lit red LED indicates that the device is in configuration mode. In this mode it will not set up a connection to the base station.

The configuration mode is left by use of the **EXIT** command (see section 4.4.1). An alternate way to quit the configuration mode is to simply execute a power-off/power-on reset.

If such a problem occurs frequently you should consult the Hoeft & Wessel service line.

### 6.3.4 No connection

A slow blinking green LED on the HW 8615 indicates that it has found a base station. In this state it should be able to establish a wireless data connection. If there is no connection, please check the following possible causes:

- Verify that the V.24 cable from your computer to the HW 8615 is correctly connected.
- Make sure that the PC COM port is set-up correctly (see section 4.1).
- Check that the application running on your computer has opened the COM port and set the DTR signal.
- Verify that the base station is ready to accept a connection. Please refer to chapter 4.2 for further information.

In case the problem persists, you should consult the Hoeft & Wessel service line.

### 6.3.5 The HW 8615 does not enter the configuration mode

Although you followed the instructions in section 4.4.1, the HW 8615 does not enter the configuration mode. Most likely there is a problem with the V.24 connection between your computer and the HW 8615. Please proceed as follows:

- Make sure that the device is powered-up.
- Verify that the V.24 cable from your computer to the HW 8615 is correctly connected.
- Make sure that the PC COM port is set-up correctly (see section 4.1).

### 6.3.6 Subscription to the base station fails

- Check that you use the correct PIN
- Verify that both devices are powered-up
- The base station must be set to subscription mode, which is indicated by fast and alternately blinking green and red LEDs
- Make sure not to exceed the coverage range

In case the problem persists please consult the Hoefft & Wessel service line.

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