

Software Manual

DECT Evaluation Pilot

Version 2.01



HÖFT & WESSEL

Table of Contents

| | |
|---|-----------|
| 1. Introduction..... | 8 |
| 1.1 Survey on the content..... | 8 |
| 1.2 System requirements..... | 8 |
| 1.3 Terminology..... | 8 |
| Installation of the DECT Evaluation Pilot..... | 9 |
| 2. The main mask | 10 |
| 2.1 General operational elements..... | 10 |
| 2.1.1 The system bar | 11 |
| 2.1.2 The main menu | 11 |
| 2.1.2.1 The file menu | 11 |
| 2.1.2.2 The edit menu | 11 |
| 2.1.2.3 The reset menu..... | 13 |
| 2.1.2.4 The tools menu | 13 |
| 2.1.2.5 The help menu..... | 14 |
| 2.1.3 The command control bar | 15 |
| 2.1.4 The mode bar..... | 16 |
| 2.1.5 The help line | 16 |
| 2.1.6 The status line..... | 16 |
| 2.2 Generally provided services | 17 |
| 2.2.1 How to enter the service mode mask | 17 |
| 2.2.2 How to enter the terminal mode mask..... | 17 |
| How to enter the COM port configuration mask..... | 18 |
| 2.2.3 How to enter the DECT identifiers calculation mask | 18 |
| 3. The terminal mode mask | 19 |
| 3.1 Operational elements | 19 |
| 3.1.1 The terminal window | 20 |
| 3.1.2 The serial port status bar..... | 21 |
| 3.2 Provided services | 22 |
| 3.2.1 How to enter the configuration mode by performing a hardware reset..... | 22 |
| 3.2.2 How to enter the configuration mode by software escape commands | 22 |
| 3.2.3 How to interactively subscribe a pair of DECT radio items | 23 |
| 3.2.3.1 How to perform the on-air subscription..... | 23 |
| 3.2.3.1.1 Both elicit and set up the fixed part's identifiers | 24 |
| 3.2.3.1.2 Perform the portable part's on-air subscription | 25 |

| | | |
|-----------|--|-----------|
| 3.2.3.1.3 | Conclude the fixed part's on-air subscription..... | 26 |
| 3.2.3.2 | How to perform the offline subscription | 27 |
| 3.2.3.2.1 | Elicit the portable part's identifiers | 27 |
| 3.2.3.2.2 | Elicit the fixed part's identifiers | 28 |
| 3.2.3.2.3 | Perform the fixed part's offline subscription..... | 29 |
| 3.2.3.2.4 | Perform the portable part's offline subscription | 30 |
| 3.2.4 | How to interactively set up a pair of DECT radio items for intercommunication..... | 31 |
| 3.2.5 | How to enter the transparent data sub-mode by performing a hardware reset..... | 33 |
| 3.2.6 | How to enter the transparent data sub-mode by software escape commands | 33 |
| 3.2.7 | How to set up an intercommunication connection..... | 34 |
| 3.2.8 | How to use the clock data command..... | 35 |
| 3.2.9 | How to invoke the clock data configuration mask | 35 |
| 3.2.10 | How to use the virtual data loop command..... | 36 |
| 3.2.11 | How to use the paste buffer command | 36 |
| 3.2.12 | How to use the clear screen command..... | 38 |
| 3.2.13 | How to change the font settings | 38 |
| 4. | The service mode mask | 39 |
| 4.1 | Operational elements..... | 39 |
| 4.1.1 | The service configuration panel..... | 40 |
| 4.1.1.1 | The read-only parameters | 41 |
| 4.1.1.2 | The read/writeable parameters..... | 42 |
| 4.1.1.3 | The save-to-file command..... | 43 |
| 4.1.1.4 | The refresh command | 43 |
| 4.1.2 | The firmware tabsheet..... | 43 |
| 4.1.2.1 | The firmware path selection command..... | 43 |
| 4.1.2.2 | The firmware version selection box | 43 |
| 4.1.2.3 | The load command | 43 |
| 4.1.3 | The subscription tabsheet | 44 |
| 4.2 | Provided services | 45 |
| 4.2.1 | How to perform a firmware update..... | 45 |
| 4.2.2 | How to force a firmware update..... | 46 |
| 4.2.3 | How to non-interactively subscribe a pair of DECT radio items..... | 48 |
| 4.2.3.1 | Elicit the portable part's identifiers | 48 |
| 4.2.3.2 | Elicit the fixed part's identifiers | 49 |
| 4.2.3.3 | Perform the fixed part's subscription..... | 50 |
| 4.2.3.4 | Perform the portable part's subscription | 51 |
| 4.2.4 | How to automatically set up a pair of DECT radio items for intercommunication.... | 52 |

| | |
|---|-----------|
| 5. The clock data configuration mask..... | 54 |
| 5.1 Operational elements | 54 |
| 5.2 Usage..... | 54 |
| 6. The font settings configuration mask..... | 55 |
| 6.1 Operational elements | 55 |
| 6.2 Usage..... | 55 |
| 7. The COM port configuration mask..... | 57 |
| 7.1 Operational elements | 57 |
| 7.2 Usage..... | 57 |
| 8. The DECT identifiers calculation mask | 58 |
| 8.1 Operational elements | 58 |
| 8.2 Usage..... | 58 |
| 9. The firmware path selection mask..... | 60 |
| 9.1 Operational elements | 60 |
| 9.2 Usage..... | 60 |
| 10. The information mask | 61 |
| 10.1 Operational elements..... | 61 |
| 10.2 Usage | 61 |
| 11. Getting started..... | 62 |
| 12. Operating modes | 63 |
| 12.1 The data transmission mode..... | 63 |
| 12.2 The firmware update mode | 63 |
| The configuration mode | 64 |
| 12.2.1 Configuration command overview | 64 |
| 12.2.2 Return codes..... | 66 |
| 12.2.3 Argument formats..... | 66 |
| 12.2.4 The RFPI and PARK parameters | 67 |
| 12.2.4.1 ARI class A..... | 67 |
| 12.2.4.2 ARI class B..... | 68 |
| 13. The initialization file | 69 |
| 13.1 File architecture | 69 |
| 13.2 File editing | 69 |
| 13.3 File sections..... | 69 |
| 13.4 File view..... | 70 |

| | | |
|------------|--|-----------|
| 14. | The saved parameter settings file | 71 |
| 14.1 | File architecture | 71 |
| 14.2 | File editing | 71 |
| 14.3 | File sections | 71 |
| 14.4 | File view | 72 |
| 15. | Code samples | 73 |
| 15.1 | Header defines and public variables | 73 |
| 15.2 | Code initialization example | 73 |
| 15.3 | Reset modes example | 73 |
| 15.4 | Reset config mode example | 75 |
| 15.5 | Reset data transmission mode example | 75 |
| 15.6 | Point-to-dedicated point communication examples | 76 |
| 15.6.1 | Portable part's code samples: | 76 |
| 15.6.2 | Fixed part's code samples: | 77 |
| 15.7 | Reset firmware update mode example | 80 |
| 16. | HW 86910 DECT Evaluation Kit | 88 |
| 17. | HW 86010 DECT wireless data communications module | 88 |
| 18. | Index | 89 |

1. Introduction

In completion of the Hoeft & Wessel DECT Evaluation Kit HW 86910 the Hoeft & Wessel DECT Evaluation Pilot is to support development engineers on the process of adaptation and integration of the DECT module HW 86010 into customer-individual product developments.

The functionality focuses on the following 3 areas:

- Firmware updates
- Module configuration
- Data communication

1.1 Survey on the content

This document provides a survey on the components of the DECT Evaluation Pilot, its installation and the basic technical details.

1.2 System requirements

- Hardware: CPU >= P100, RAM >= 32 MB
- OS: Windows 95/98 or Windows NT

1.3 Terminology

| | |
|----------|---|
| ARC | Access rights class |
| ARD | Access rights details |
| ARI | Access rights identity |
| CD | Carrier detect |
| CPU | Central processing unit |
| CTS | Clear to send |
| DCD | Data carrier detect |
| DCE | Data communication equipment |
| DECT | Digital enhanced cordless telecommunication |
| DSR | Data set ready |
| DTE | Data terminal equipment |
| DTR | Data terminal ready |
| EIC | Equipment installer's code |
| EMC | Equipment manufacturer's code |
| FPN | Fixed part number |
| FPS | Fixed part subnumber |
| GND | System ground |
| HW 1202 | Power supply unit |
| HW 86010 | DECT basic module |
| HW 8611 | DECT modem |
| OS | Operating system |
| PARI | Primary ARI |
| PARK | Portable access rights key |
| RFPI | Radio fixed part identity |
| RI | Ring indikator |
| RPN | Radio fixed part number |
| RTS | Request to send |
| RXD | Receive data |
| TARI | Tertiary ARI |
| TXD | Transmit data |

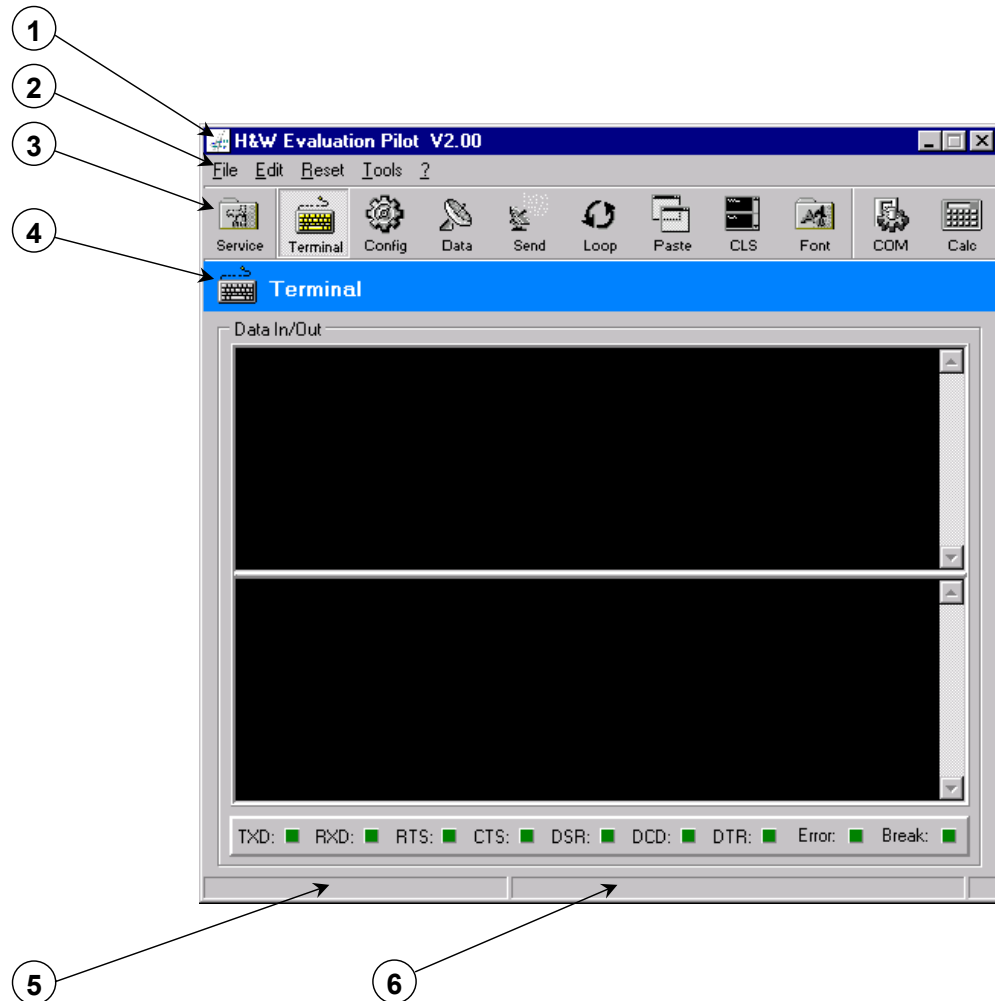
Installation of the DECT Evaluation Pilot

Start the file **setup.exe** on your installation disk, installation CD ROM or installation directory.

An installation mask will appear to lead you through the steps of installation. Please follow the instructions given by the install shield.

2. The main mask




2.1 General operational elements



The H&W DECT Evaluation Pilot's main mask in the terminal mode





| No. | Item | No. | Item |
|-----|----------------------|-----|-------------|
| 1 | System bar | 4 | Mode bar |
| 2 | Main menu | 5 | Help line |
| 3 | Command controll bar | 6 | Status line |

2.1.1 The system bar

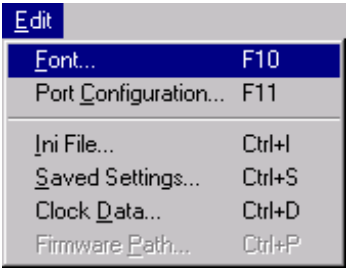


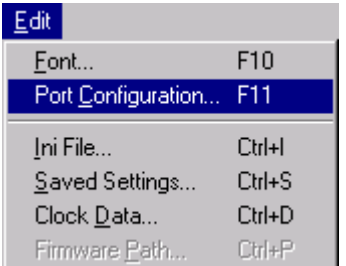


| Enabled | Busy | Disabled | Usage |
|---|------|---|--|
|  | | | The minimize command will shrink the program to the task bar. |
| | |  | The maximize command will always appear disabled. |
| | |  | The exit program command will quit the program. |

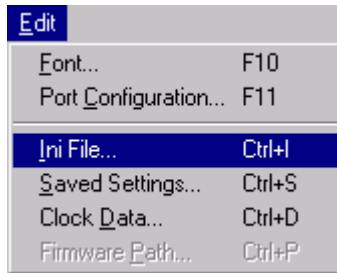
2.1.2 The main menu

2.1.2.1 The file menu

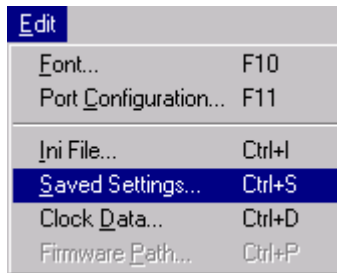
| Menu Item | Usage | Equivalent |
|---|---|--|
|  | The File Exit Program command will quit the program. |   +  |

2.1.2.2 The edit menu

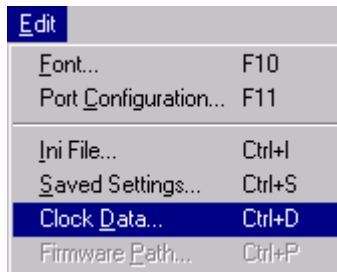
| Menu Item | Usage | Equivalent |
|---|--|--|
|  | Use the Edit Font... command to change the terminal window's font settings. |   |
|  | Use the Edit Port Configuration command to adjust serial port parameter settings. |   |



The **Edit | Ini File** command allows for editing the HWDEctEP initialization file.



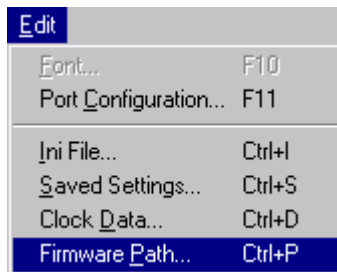
The **Edit | Saved Settings** command allows for viewing resp. editing the HWDEctEP saved settings file which is created by the **service module mask's save to file** command. This will write the module's current parameter settings to file which maybe useful in case of trouble.



The **Edit | Clock Data** command will call the **clock data configuration mask** which allows for adjusting the pulse the clock data are transmitted with (please see chapter 5 pp.).



use right mouse button



The **Edit | Firmware Path** command will call the **firmware path selection mask** which allows for selecting the path showing to the DECT firmware's location on your hard disk or in your network.

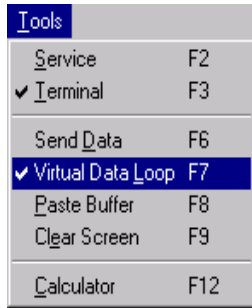


2.1.2.3 The reset menu

| Menu Item | Usage | Equivalent |
|-----------|---|------------|
| | <p>The Reset Config Mode command will reset the DECT module to the configuration mode.</p> | |
| | <p>The Reset Data Transmission Mode command will reset the DECT module to the data communication mode.</p> | |

2.1.2.4 The tools menu

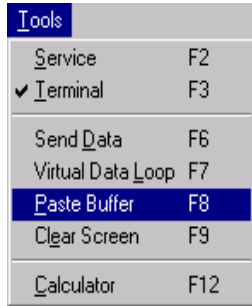
| Menu Item | Usage | Equivalent |
|-----------|---|------------|
| | <p>The Tools Service command allows for automated module configuration, subscription settings and firmware updates in the service module mask.</p> <p>While active, the text entry will be marked as checked active.</p> | |
| | <p>The Tools Terminal command allows for interactive communication in the communication terminal mask's Data Transmission Mode as well as interactive module configuration and subscription settings in the command mode.</p> <p>While active, the text entry will be marked as checked active.</p> | |
| | <p>The Tools Send Data command will cause continuous transmission of current clock data the way its clock pulse is adjusted in the clock data configuration mask (please see 3.2.8 pp.).</p> <p>While active, the text entry will be marked as checked active.</p> | |



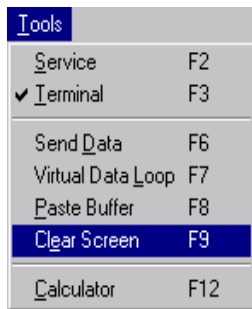
Use the **Tools | Virtual Data Loop** to echo received data to the DECT module's serial port.



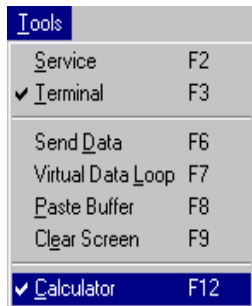
While active, the text entry will be marked as checked active.



Use the **Tools | Paste Buffer** command to paste the Windows-OS text buffer's contents to the DECT module's serial port.



Use the **Tools | Clear Screen** command to clear the terminal window's screens.



The **Tools | Calculator** command allows for calculating EMC and DECT number to both PARK and RFPI identifiers as well as vice versa.

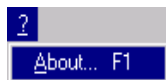


While active, the text entry will be marked as checked active.



2.1.2.5 The help menu






























| Menu Item | Usage | Equivalent |
|-----------|-------|------------|
|-----------|-------|------------|



The **? | About** command offers information about this program's currently used version as well as ways of contacting the Hoef & Wessel service line.

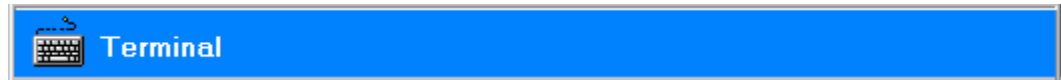


2.1.3 The command control bar

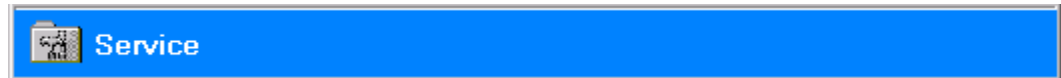
| Enabled | Busy | Disabled | Usage |
|---|---|---|--|
|  |  | | The service module command is intended for automated module configuration, subscription settings and firmware updates in the service mask. |
|  |  | | The communication terminal command allows for interactive communication in the data mode as well as interactive module configuration in the command mode. |
|  |  |  | The reset config mode command will reset the DECT module to configuration mode. |
|  |  |  | The reset data transmission mode command will reset the DECT module to data communication mode. |
|  |  |  | Use the send clock data command to continuously transmit current clock data the way its clock pulse is adjusted in the clock data configuration mask . |
|  |  |  | While active, the virtual data loop command will effect the echoing of all received data to the DECT module's serial port. |
|  |  |  | The paste buffer command will paste the Windows-OS text buffer's contents to the DECT module's serial port. |
|  |  |  | The clear screen command is destined for clearing the terminal window's screens. |
|  |  |  | The font settings command will call the font settings configuration mask which is meant for changing the terminal window's font settings. |
|  |  | | The COM port settings command will invoke the COM port configuration mask which is designed for adjusting the serial port parameter settings. |
|  |  | | The DECT calculator command allows for calculating EMC and DECT number identifiers to both PARK and RFPI identifiers as well as vice versa. |

2.1.4 The mode bar

The mode bar provides information about the DECT Evaluation Pilot's currently selected operating mode, either the terminal mode...



...or the service mode:



2.1.5 The help line



The help line (on the left) offers hints about the functionality of operational elements.

2.1.6 The status line



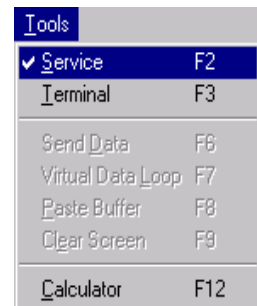
The status line (on the right) reports on current states and settings in addition to possibly occurred errors.

2.2 Generally provided services

2.2.1 How to enter the service mode mask

Enter the service mode mask by either

- clicking the **service module** command
- or pressing the **[F2]** key
- or selecting the **Tools | Service** menu command

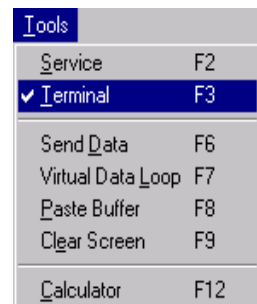


The DECT Evaluation Pilot will now present the **service mode mask** which allows for automated module configuration in the **command mode**.

2.2.2 How to enter the terminal mode mask

Enter the terminal mode mask by either

- clicking the **communication terminal** command
- or pressing the **[F3]** key
- or selecting the **Tools | Terminal** menu command

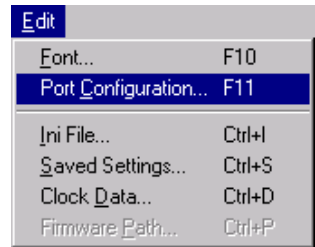


The DECT Evaluation Pilot will now present the **terminal mode mask** which allows for both interactive communications in the **data transmission mode** as well as interactive module configuration in the **command mode**.

How to enter the COM port configuration mask

Enter the COM port configuration mask by either

- clicking the **COM port settings** command
- or pressing the **[F11]** key
- or selecting the **Edit | Port Configuration** menu command

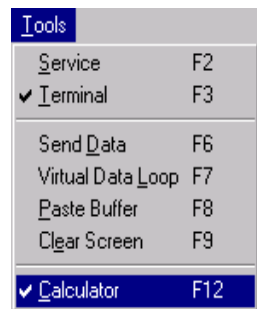


Invoke the **COM port configuration mask** to adjust serial port parameter settings.

2.2.3 How to enter the DECT identifiers calculation mask

Enter the DECT identifiers calculation mask by either

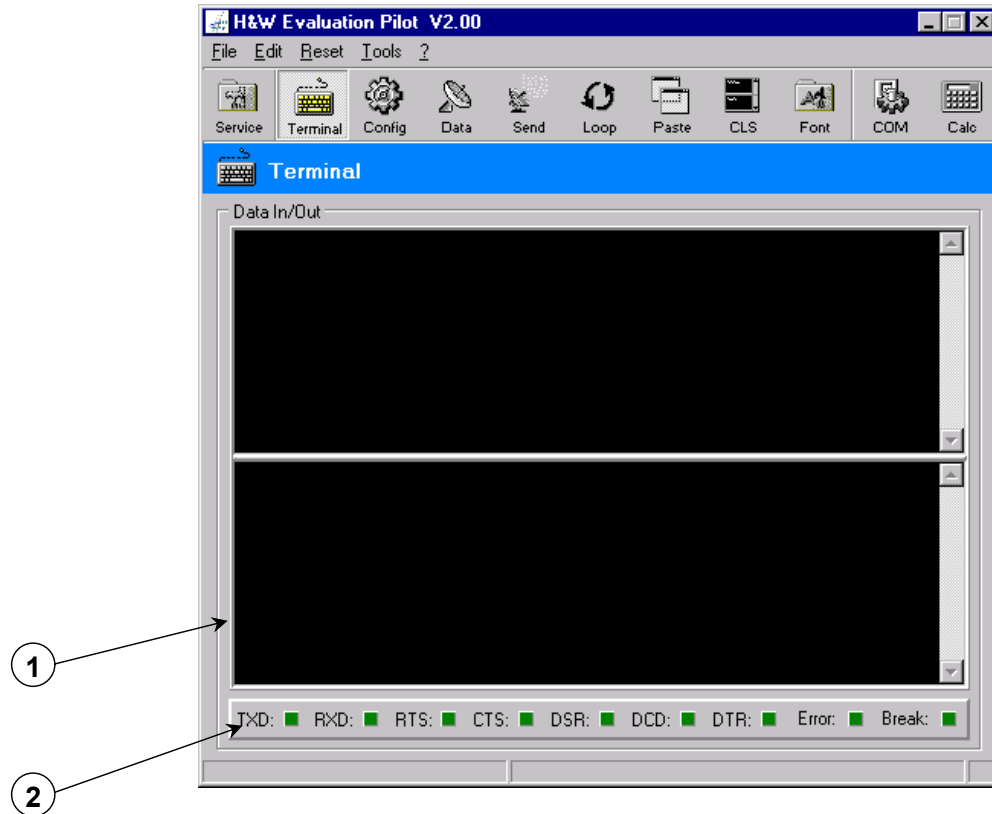
- clicking the **DECT calculator** command
- or pressing the **[F12]** key
- or selecting the **Tools | Calculator** menu command



Invoke the **DECT identifiers calculation mask** for calculation of the EMC and DECT number identifiers to both the PARK and RFPI identifiers as well as vice versa.

3. The terminal mode mask

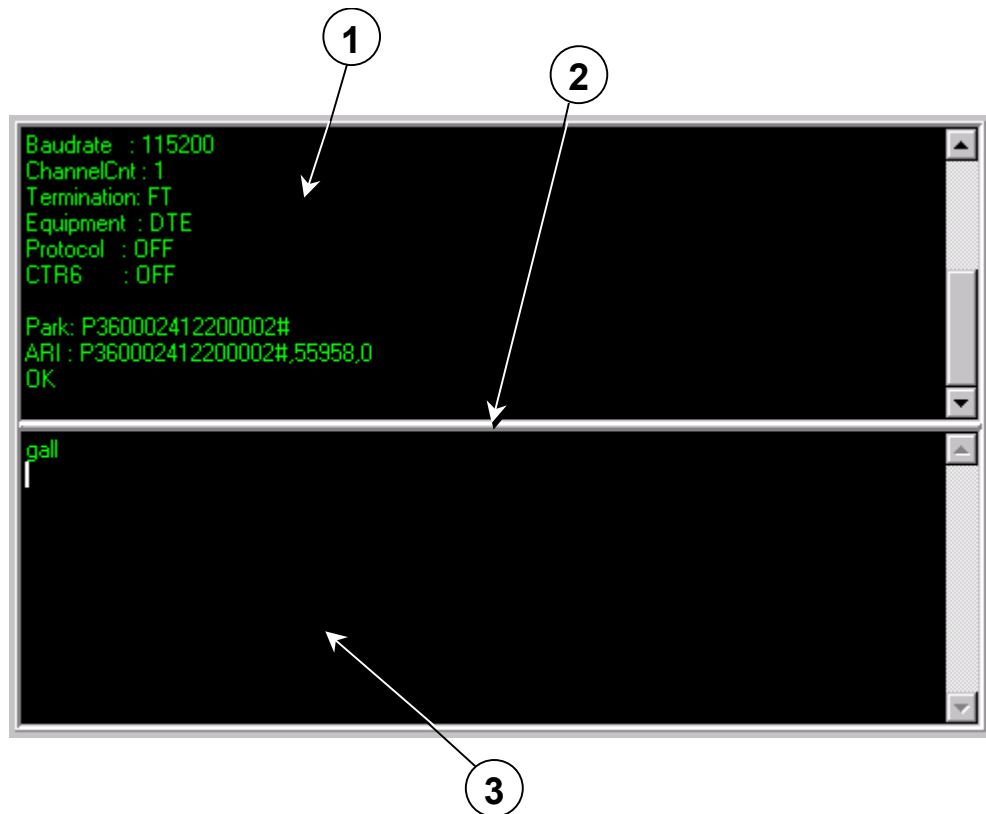
3.1 Operational elements



The H&W DECT Evaluation Pilot in the terminal mode mask

| No. | Item | No. | Item |
|-----|-----------------|-----|------------------------|
| 1 | Terminal window | 2 | Serial port status bar |

3.1.1 The terminal window



| No. | Item | No. | Item |
|-----|---------------------|-----|------------------------|
| 1 | Data reception area | 3 | Data transmission area |
| 2 | Split bar | | |

The terminal window offers a view of the received and transmitted data in the **data reception** or **data transmission area**. Its **split bar** allows for proportional resizing. The windows display both the input and output data while running the data transmission mode as well as DECT parameter settings in the configuration mode.

3.1.2 The serial port status bar.

The serial port status bar informs about currently used V.24 line settings.



TXD: ■ RXD: ■ RTS: ■ CTS: ■ DSR: ■ DCD: ■ DTR: ■ Error: ■ Break: ■

It is presented in an emphasized style while COM port is closed and appears lowered while COM port is open.



TXD: ■ RXD: ■ RTS: ■ CTS: ■ DSR: ■ DCD: ■ DTR: ■ Error: ■ Break: ■

Usage:

- Click the serial port status bar to change the open/closed state
- Double click the RTS label to toggle the RTS line state
- Double click the DTR label to toggle the DTR line state



Note:

The V.24 status lights indicate their states as follows:

- green: inactive state
- red: active state

3.2 Provided services

3.2.1 How to enter the configuration mode by performing a hardware reset

Enter the configuration mode by either

- clicking the **reset config mode** command
- or pressing the **[F4]** key
- or selecting the **Reset | Config Mode** menu command



The DECT Evaluation Pilot will now perform a software-driven hardware reset to the HW 8611 DECT modem which will force the HW 86010 DECT module to enter the configuration mode.

The serial port status bar will appear in a lowered style and its RTS and DTR status lights will signal the COM port is opened while the CTS status light indicates the DECT modem is currently detected.

For a detailed overview of valid command parameters and ways to configure the module's parameter settings please see chapter 0 pp.

3.2.2 How to enter the configuration mode by software escape commands

The configuration mode may be entered from the transparent data sub-mode as well by sending the escape sequence **+-+** to the module. In this case the configuration mode will be executed without performing a hardware reset and will be using the baud rate configured for data mode.

If the module detects the escape sequence while a connection is established, it will immediately release the connection which is indicated by DTR switching to the inactive state.

The following timing requirements apply:

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

A transition from configuration mode back to data mode is performed without a hardware reset by use of the **EXIT** configuration command (see chapters 3.2.6, 0 pp.).

3.2.3 How to interactively subscribe a pair of DECT radio items

**Warning:**

The **portable** termination's subscription may be deleted explicitly by use of the **DISUB ALL** command.

It may also be deleted unintentionally by changing the module's termination from **portable** to **fixed** resp. by setting the **subscription parameters** of a different **FT**.

Normally when you receive your DECT Evaluation Kit both the fixed and the portable parts are subscribed to each other so the kit is ready for intercommunication. **Provided a valid subscription is still in effect you may skip these subscription chapters.**

In order to renew the subscription of a pair of DECT radio items we ought to elicit both the fixed and portable termination's EMC and DECT number resp. the PARK and ARI identifiers by use of the configuration mode's identifier commands.

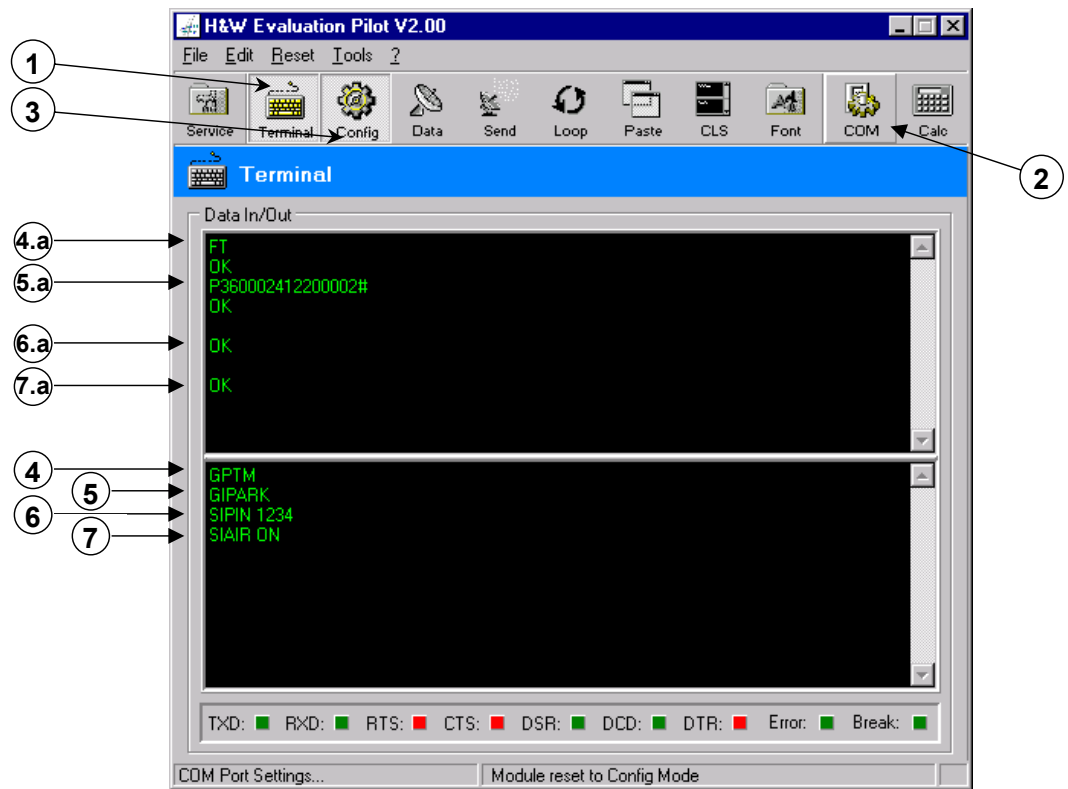
**Note:**

Each command given interactively while in the configuration mode has to be concluded by striking the **carriage return** or the **enter** key ↵.

3.2.3.1 How to perform the on-air subscription

In order to perform the on-air subscription - besides doing some settings - we ought to know the fixed termination's PARK identifier. Please follow the steps given in the submitted chapters.

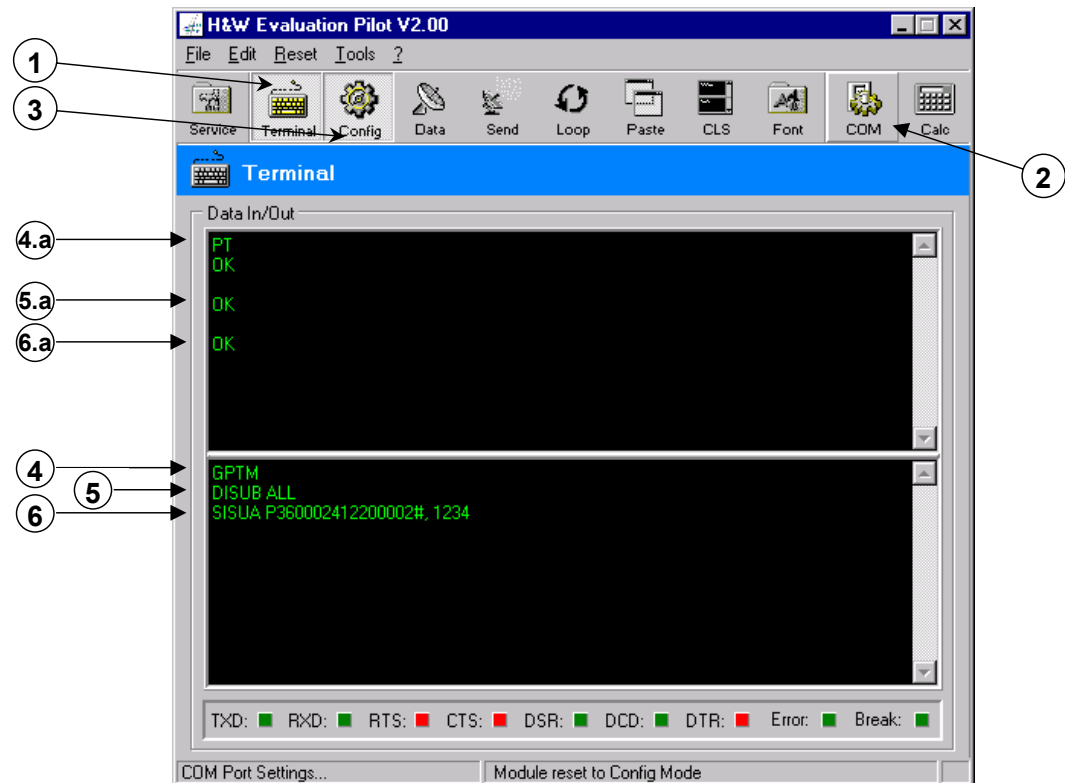
3.2.3.1.1 Both elicit and set up the fixed part's identifiers



| Step | Operation | |
|------|--|----------------------------|
| 1 | Enter the DECT Evaluation Pilot's terminal mode. | |
| 2 | Ensure the right port is chosen (e.g. COM2, see also chapter 7. pp.). | |
| 3 | Reset the DECT Evaluation Pilot's config mode. | |
| 4 | Ensure it's the <i>fixed</i> termination (FT) that's currently connected by keying in: | GPTM ↵ |
| 4.a | Fixed termination will respond | FT OK |
| 5 | Elicit the fixed termination's PARK identifier by keying in: | GIPARK ↵ |
| 5.a | Note down fixed termination 's | PARK: # _____ |
| 6 | Set the fixed termination's PIN by keying in: | SIPIN <PIN> ↵ |
| 6.a | Fixed termination will respond | OK |
| 7 | Set fixed termination prepared for on-air subscription by keying in: | SIAIR ON ↵ |
| 7.a | Fixed termination will respond | OK |

Leave fixed termination connected to power supply in the configuration mode.

3.2.3.1.2 Perform the portable part's on-air subscription



Step

Operation

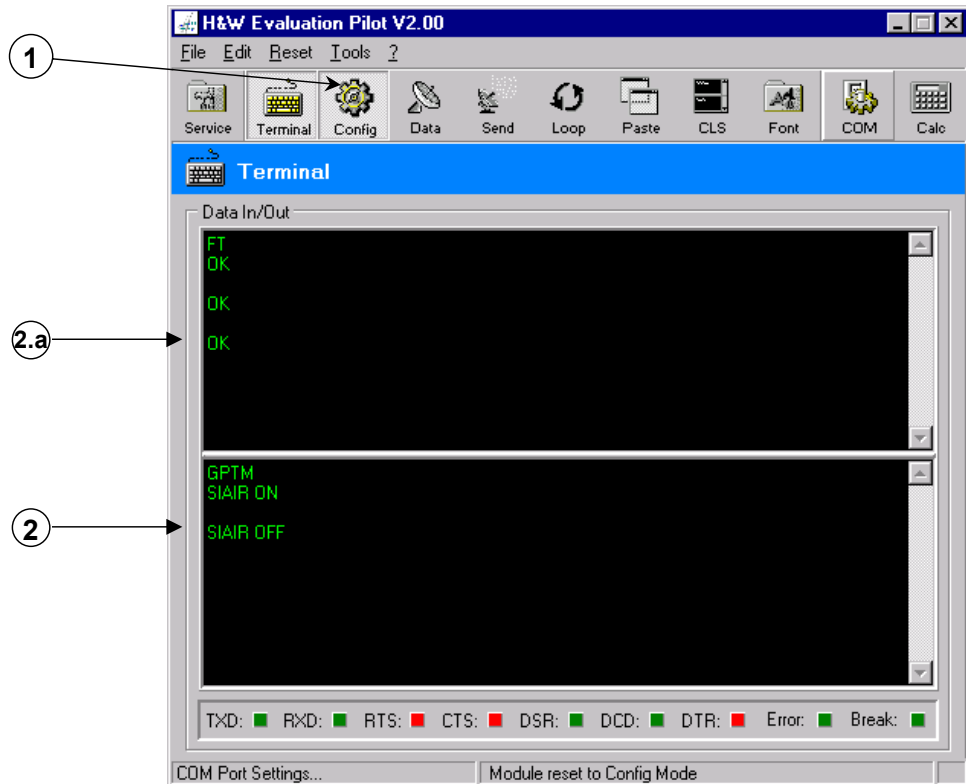
- | | | |
|-----|---|--|
| 1 | Enter the DECT Evaluation Pilot's terminal mode. | |
| 2 | Ensure the right port is chosen (e.g. COM2, see also chapter 7. pp.). | |
| 3 | Reset the DECT Evaluation Pilot's config mode. | |
| 4 | Ensure it's the <i>portable</i> termination (PT) that's currently connected by keying in: | GPTM ↵ |
| 4.a | Portable termination will respond | PT OK |
| 5 | Precautionary delete an eventually existing subscription by keying in: | DISUB ALL ↵ |
| 5.a | Portable termination will respond | PT OK |
| 5 | Set the portable termination's subscription by keying in: | SISUA <FT's PARK>, <FT's PIN> ↵ |
| 5.a | Portable termination will respond | OK |



Note:

Please pay regard to setting the **comma separator** between both **PARK** and **PIN** parameters.

3.2.3.1.3 Conclude the fixed part's on-air subscription

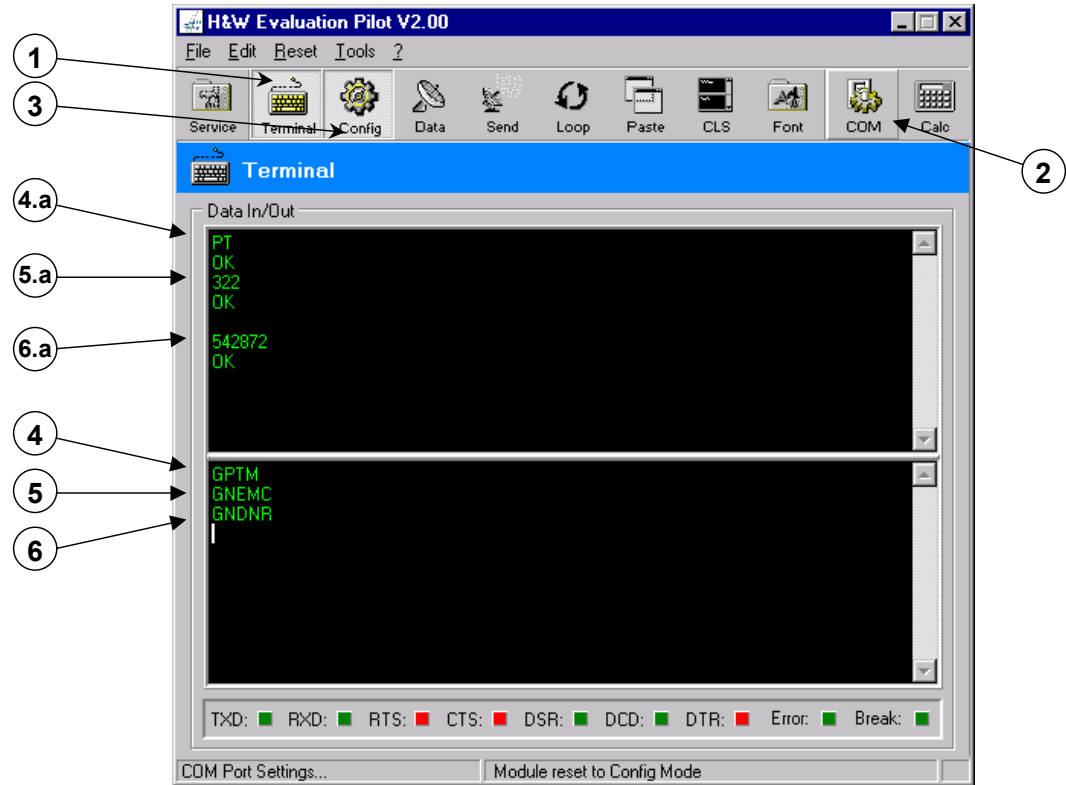


| Step | Operation |
|------|--|
| 1 | Ensure that the fixed termination was left connected to the power supply in the terminal mode mask's configuration mode. |
| 2 | Disable fixed termination's on-air state by keying in: SIAIR OFF ↵ |
| 2.a | Fixed termination will respond OK |
| | The kit should be ready for wireless intercommunication now (see chapter 3.2.7). |

3.2.3.2 How to perform the offline subscription

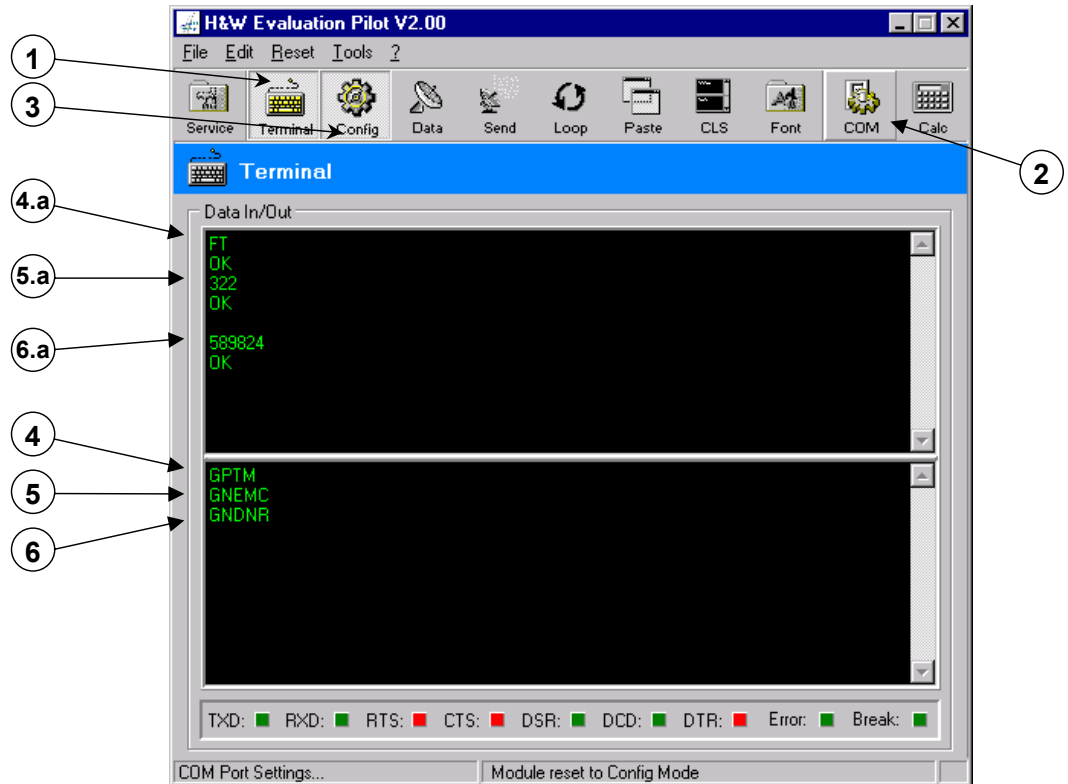
In order to perform the offline subscription at a pair of DECT radio items we ought to know both the fixed and portable termination's EMC and DECT number identifiers.

3.2.3.2.1 Elicit the portable part's identifiers



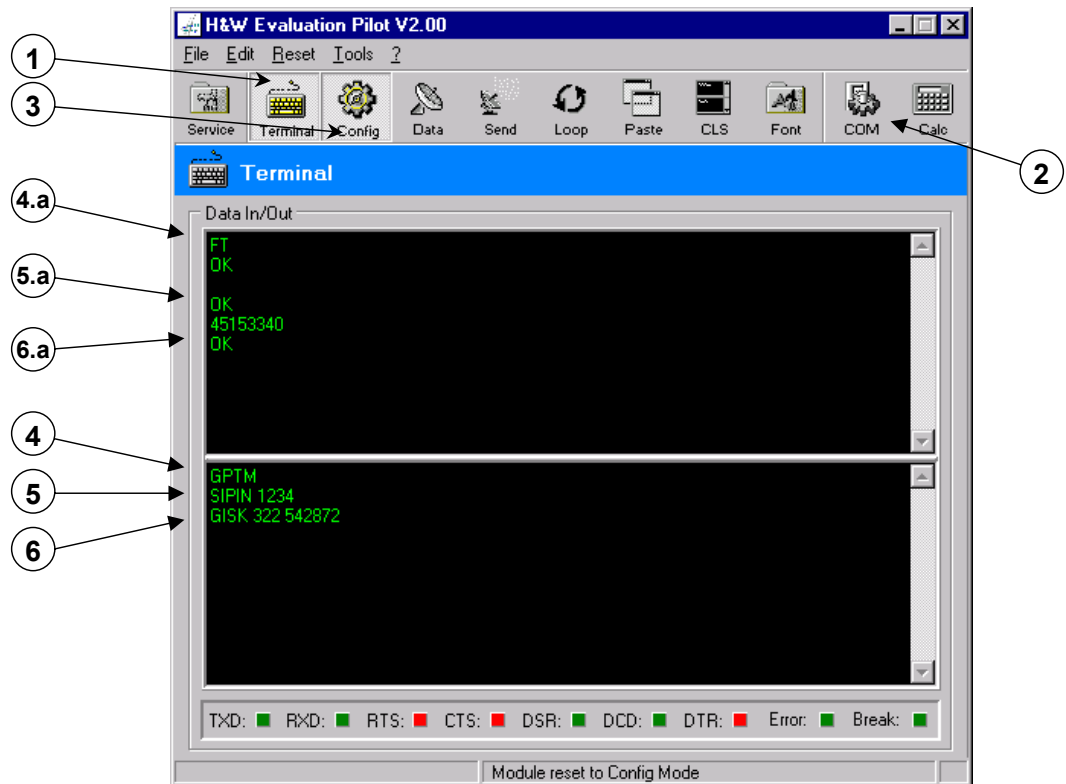
| Step | Operation | |
|------|---|----------------|
| 1 | Enter the DECT Evaluation Pilot's terminal mode. | |
| 2 | Ensure the right port is chosen (e.g. COM2, see also chapter 7. pp.). | |
| 3 | Reset the DECT Evaluation Pilot's config mode. | |
| 4 | Ensure it's the <i>portable</i> termination (PT) that's currently connected by keying in: | GPTM ↵ |
| 4.a | Portable termination will respond | PT OK |
| 5 | Elicit the portable termination's EMC identifier by keying in: | GNEMC ↵ |
| 5.a | Note down portable termination 's EMC: | # _____ |
| 6 | Elicit the portable termination's DECT number identifier by keying in: | GNDNR ↵ |
| 6.a | Note down portable termination 's DECT number: | # _____ |

3.2.3.2.2 Elicit the fixed part's identifiers



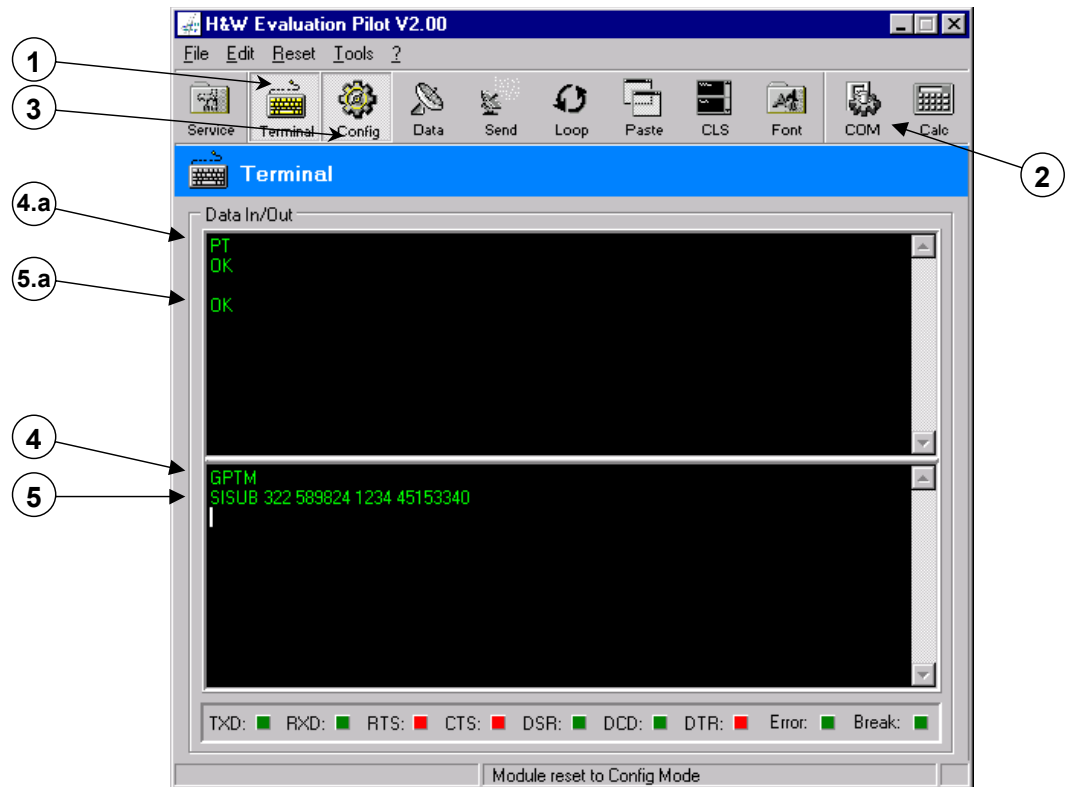
| Step | Operation |
|------|--|
| 1 | Enter the DECT Evaluation Pilot's terminal mode. |
| 2 | Ensure the right port is chosen (e.g. COM2, see also chapter 7. pp.). |
| 3 | Reset the DECT Evaluation Pilot's config mode. |
| 4 | Ensure it's the <i>fixed</i> termination (FT) that's currently connected by keying in: GPTM ↵ |
| 4.a | Fixed termination will respond FT OK |
| 5 | Elicit the fixed termination's EMC identifier by keying in: GNEMC ↵ |
| 5.a | Note down fixed termination 's EMC: # _____ |
| 6 | Elicit the fixed termination's DECT number identifier by keying in: GNDNR ↵ |
| 6.a | Note down fixed termination 's DECT number: # _____ |

3.2.3.2.3 Perform the fixed part's offline subscription



| Step | Operation |
|------|---|
| 1 | Enter the DECT Evaluation Pilot's terminal mode. |
| 2 | Ensure the right port is chosen (e.g. COM2, see also chapter 7. pp.). |
| 3 | Reset the DECT Evaluation Pilot's config mode. |
| 4 | Ensure it's the <i>fixed</i> termination (FT) that's currently connected by keying in: GPTM ↵ |
| 4.a | Fixed termination will respond FT OK |
| 5 | Set the fixed termination's PIN by keying in: SIPIN <PIN> ↵ |
| 5.a | Fixed termination will respond OK |
| 6 | Elicit the fixed termination's subscription key (SK) by keying in: GISK <PT's EMC> <PT's DECT number.> ↵ |
| 6.a | Note down fixed termination's SK: #_____ |

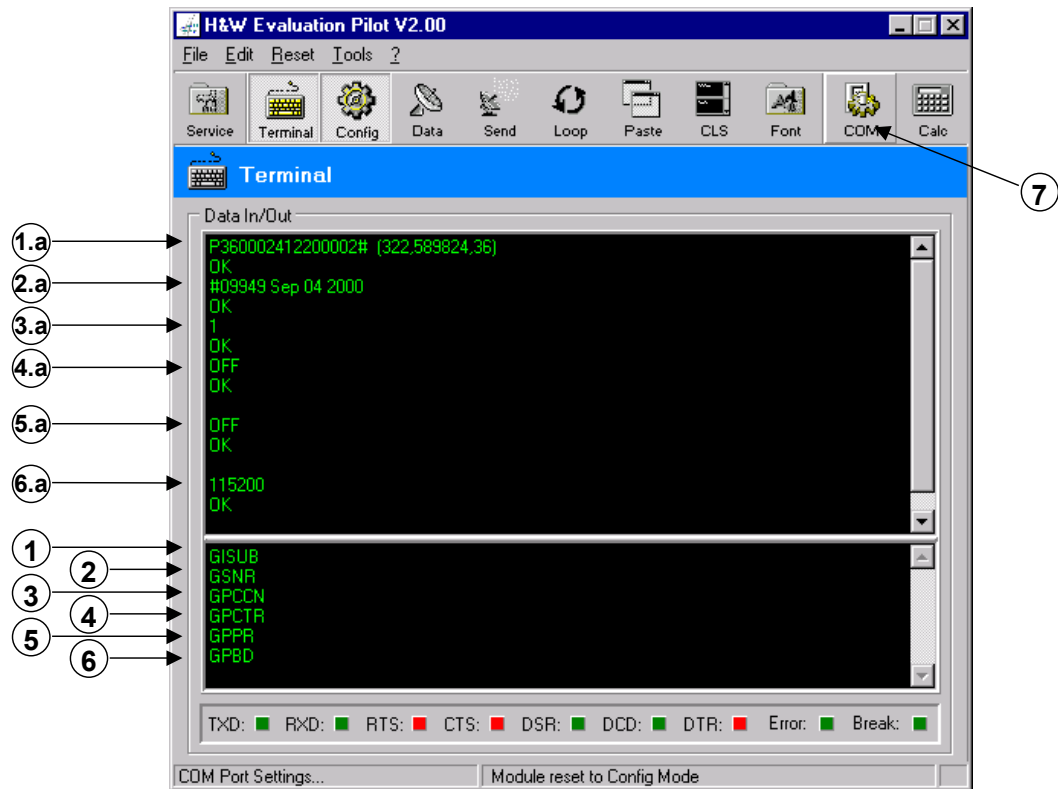
3.2.3.2.4 Perform the portable part's offline subscription



| Step | Operation |
|------|--|
| 1 | Enter the DECT Evaluation Pilot's terminal mode. |
| 2 | Ensure the right port is chosen (e.g. COM2, see also chapter 7. pp.). |
| 3 | Reset the DECT Evaluation Pilot's config mode. |
| 4 | Ensure it's the <i>portable</i> termination (PT) that's currently connected by keying in: GPTM ↵ |
| 4.a | Portable termination will respond PT OK |
| 5 | Set the portable termination's subscription by keying in: SISUB <FT's EMC> <FT's DECT number> <FT's PIN> <FT's SK> ↵ |
| 5.a | Portable termination will respond OK |

The kit should be ready for wireless intercommunication now (see chapter 3.2.7).

3.2.4 How to interactively set up a pair of DECT radio items for intercommunication



In order to set up a pair of DECT radio items for wireless intercommunication please ensure the following parameters are set correctly at both fixed and/or portable termination:

| Step | Operation/response |
|------|---|
| 1 | Ensure the fixed termination's subscription identifiers are set at the portable termination by keying in: GISUB ↵ |
| 1.a | Portable termination will respond all PARK, EMC, DECT number and PLI subscription identifiers followed by OK |
| | Note: If you found the subscription parameters of the fixed termination are not set at the portable termination please renew the subscription as given in chapter 3.2.2. pp. |
| 2 | Ensure the same firmwares are installed at both fixed and portable terminations by comparing their firmware numbers. Key in: GSRN ↵ |
| 2.a | Each termination will respond firmware number and creation date OK |
| | Note: If both the portable and fixed part's firmware numbers differ please perform a firmware update as given in chapter 4.2.1. |

| Step | Operation/response |
|------|--|
| 3 | Ensure the channel count is set to '1' when intended to use the transparent data sub-mode by keying in: GPCCN ↵ |
| 3.a | Each termination will respond the current channel count OK |
| | Note: On unexpected response please correct settings by keying in: SPCCN 1 ↵ |
| 4 | Ensure the CTR6 mode is set to 'OFF' when intended to use any type of data transmission mode by keying in: GPCTR ↵ |
| 4.a | Each termination will respond the current CTR6 mode flag OFF OK |
| | Note: On unexpected response please correct settings by keying in: SPCTR OFF ↵ |
| 5 | Ensure the protocol mode is set to 'OFF' when intended to use the transparent data sub-mode by keying in: GPPR ↵ |
| 5.a | Each termination will respond the current protocol mode flag OFF OK |
| | Note: On unexpected response please correct settings by keying in: SPPR OFF ↵ |
| 6 | Ensure the same baud rates are set at both the fixed <i>and</i> portable terminations by keying in: GPBD ↵ |
| 6.a | Each termination will respond the currently set baud rate OK |
| | Note: On unexpected response please correct settings by keying in: SPBD <baud rate> ↵ |
| 7 | Finally ensure the same baud rates as set in step 6 are set at both fixed <i>and</i> portable terminations' PC COM ports (see chapter 7. pp.). |

Your kit should be ready for wireless intercommunication now (see chapter 3.2.7).



Warning:

When changing the module's **baud rate** interactively in the **terminal mode mask** the PC's serial COM port settings **will not be updated** automatically.

3.2.5 How to enter the transparent data sub-mode by performing a hardware reset

Enter the data transmission mode by either

- clicking the **reset data transmission mode** command
- or pressing the **[F5]** key
- or selecting the **Reset | Data Transmission Mode** menu command



The DECT Evaluation Pilot will now perform a software-driven hardware reset to the HW 8611 DECT modem which forces the HW 86010 DECT module to enter the data transmission mode.

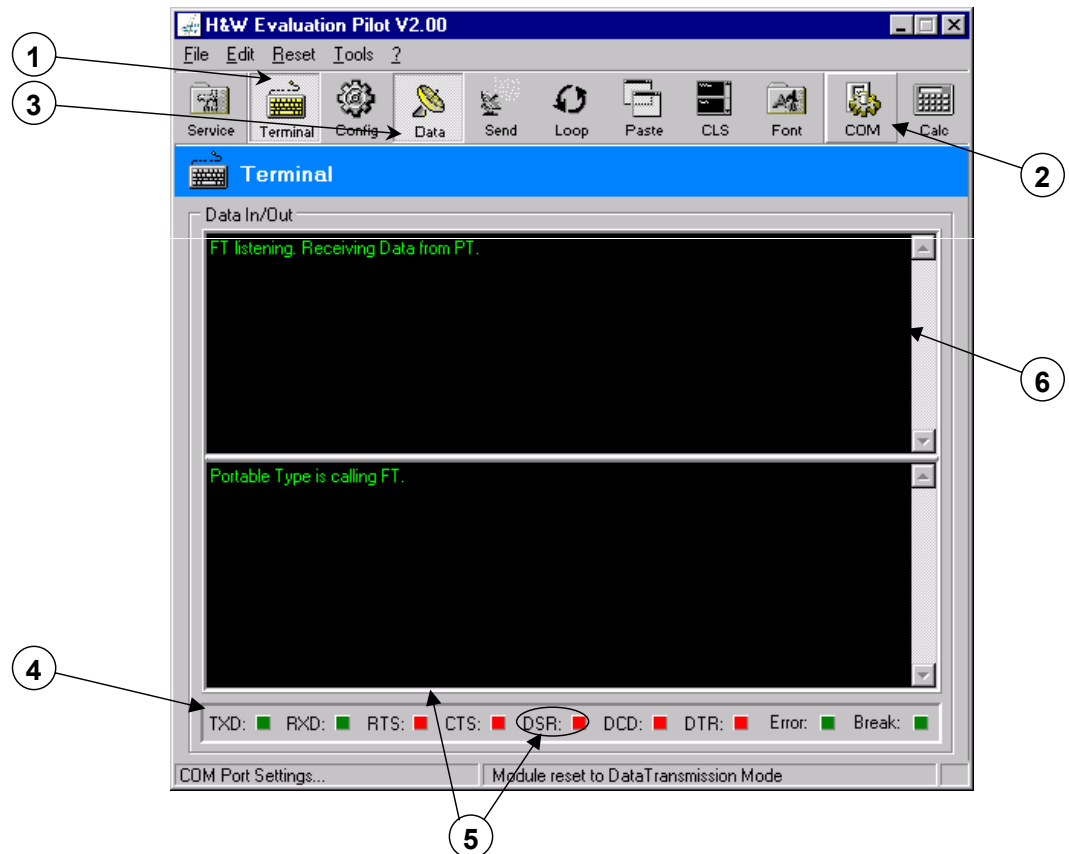
The serial port status bar will appear in a lowered style and its RTS and DTR status lights will signal the COM port is opened while the CTS status light indicates the DECT modem is currently detected.

3.2.6 How to enter the transparent data sub-mode by software escape commands


The transparent data sub-mode may be entered from the configuration mode as well by use of the **EXIT** configuration command (see chapter 0 pp.). In this case the data mode will be executed without performing a hardware reset.

A transition from data mode back to configuration mode is performed without a hardware reset by use of the **+-+** escape sequence (see chapter 3.2.2).

3.2.7 How to set up an intercommunication connection



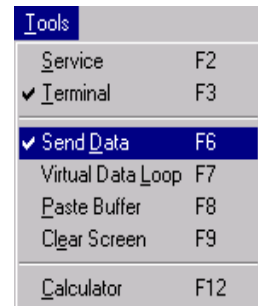
In order to set up an intercommunication connection while in the transparent data sub-mode please proceed as given below:

| Step | Operation |
|---|---|
| 1 | Enter the DECT Evaluation Pilot's terminal mode mask at both fixed and portable termination. |
| 2 | Ensure the right COM port is chosen at both fixed and portable termination (e.g. COM2 and COM3, see also chapter 7. pp.). |
|  | Note: Ensure both the fixed and portable termination are set up for wireless intercommunication (see 3.2.4). |
| 3 | Enter the data transmission mode at both fixed and portable termination. |
| 4 | The serial port status bar will now appear in a lowered style and both its RTS and DTR status lights will signal the COM port is opened while the CTS status light indicates the DECT modem is currently detected. |
| 5 | Once the DSR status light indicates the wireless connection is established you may start data transfer either by keying in data to the Terminal Window's data transmission area or by pasting the Windows-OS text buffer's contents to the DECT device's serial port. |
| 6 | You will find the transmitted data appearing at the terminal window's data reception area of the corresponding application. |

3.2.8 How to use the clock data command

Activate the clock data command by either

- clicking the **send clock data** command
- or pressing the **[F6]** key
- or selecting the **Tools | Send Data** menu command



Use the **send clock data** command to continuously transmit current clock data the way its clock pulse is adjusted in the **clock data configuration mask** (see both chapters 3.2.9 and 5 pp.).

This feature may be useful for the purpose of range tests or whenever a continuous stream of data is required to be transmitted via the DECT air interface.

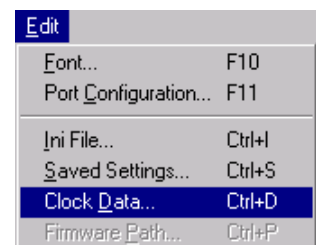
3.2.9 How to invoke the clock data configuration mask

Invoke the clock data configuration mask by either

- clicking the right mouse button on the **send clock data** command
- or pressing the **[Ctrl]+[D]** keys
- or selecting the **Edit | Clock Data** menu command



use right mouse button

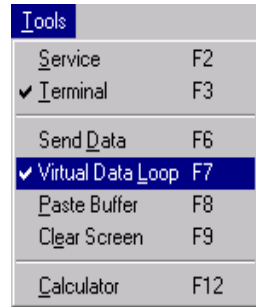


The **clock data configuration mask** allows for adjusting the interval the clock data are transmitted (please see chapter 5 pp.).

3.2.10 How to use the virtual data loop command

Activate the virtual data loop command by either

- clicking the **virtual data loop** command
- or pressing the **[F7]** key
- or selecting the **Tools | Virtual Data Loop** menu command



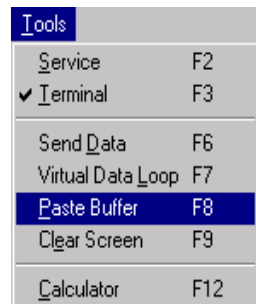
Use the **virtual data loop** command to echo received data right away to the DECT module's serial port.

This feature may be useful for the purpose of range tests or whenever a dedicated stream of data is required to be echoed via the DECT air interface.

3.2.11 How to use the paste buffer command

Activate the the paste buffer command by either

- clicking the **paste buffer** command
- or pressing the **[F8]** key
- or selecting the **Tools | Paste Buffer** menu command



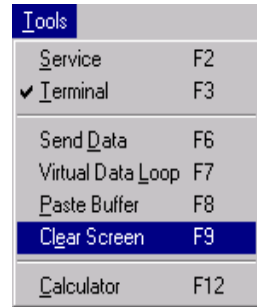
Use the **paste buffer** command to paste the Windows-OS text buffer's contents to the DECT module's serial port.

This feature may be useful for both the transmission of huge ascii data blocks as well as the comparison of in/outgoing data when additionally activating the corresponding device's **virtual data loop** command (see chapter 3.2.9).

3.2.12 How to use the clear screen command

Execute the clear screen command by either

- clicking the **clear screen** command
- or pressing the **[F9]** key
- or selecting the **Tools | Clear Screen** menu command



Use the **clear screen** command to clear the terminal window's screens.



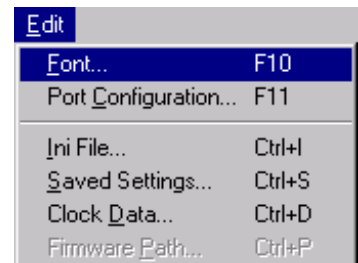
Note:

Either the terminal window's data reception or data transmission areas' screen will be cleared automatically when their particular max. line limit - determined by the HWDectEP.ini file - is topped (see chapter 12.2.4 pp.)

3.2.13 How to change the font settings

Invoke the font settings configuration mask by either

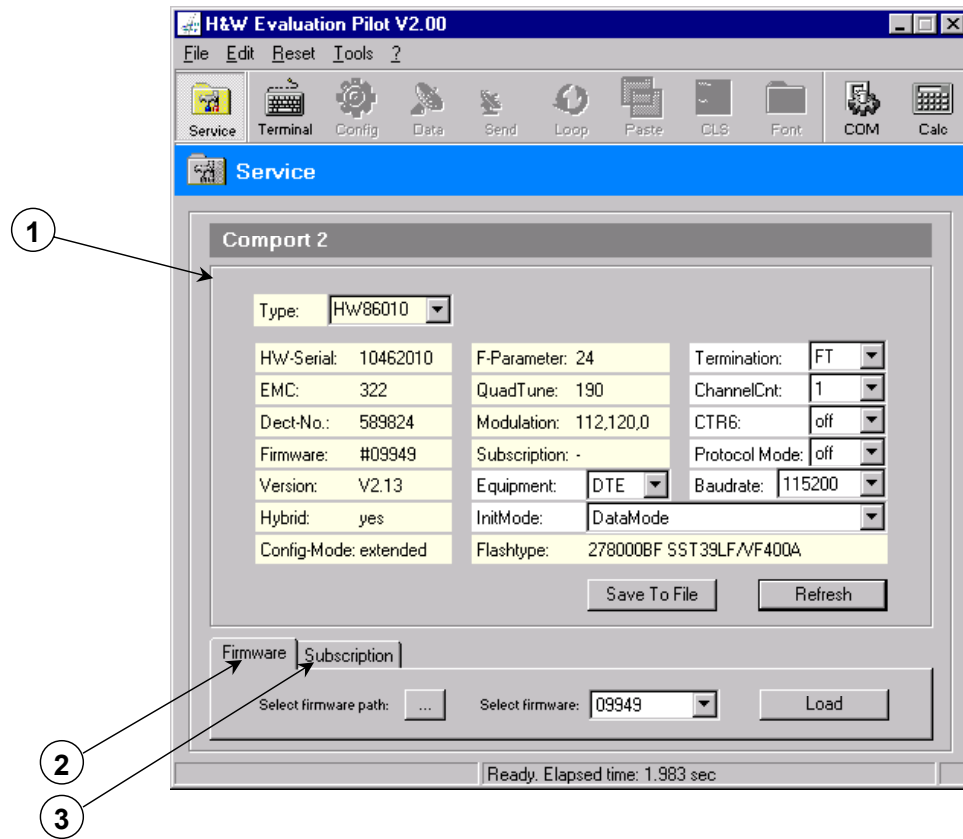
- clicking the **font settings** command
- or pressing the **[F10]** key
- or selecting the **Edit | Font...** menu command



Use The **font settings** command to change the terminal window's font settings. This will invoke the **font settings configuration mask** which allows for adjusting font properties such as charset, size, style and color etc. (see chapter 5 pp.).

4. The service mode mask

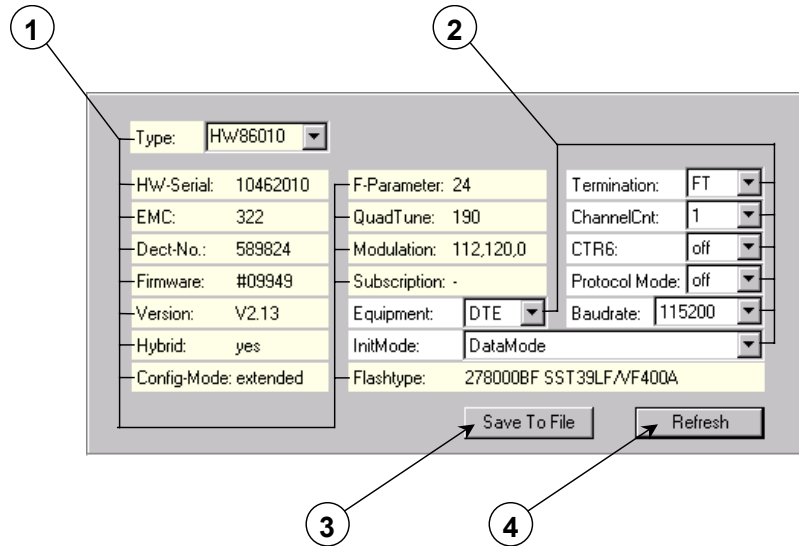
4.1 Operational elements



The H&W DECT Evaluation Pilot in the service mode mask

| No. | Item | No. | Item |
|-----|-----------------------------|-----|-----------------------|
| 1 | Service configuration panel | 3 | Subscription tabsheet |
| 2 | Firmware tabsheet | | |

4.1.1 The service configuration panel




| No. | Item | No. | Item |
|-----|---------------------------|-----|----------------------|
| 1 | Read-only parameters | 3 | Save-to-file command |
| 2 | Read/writeable parameters | 4 | Refresh command |

4.1.1.1 The read-only parameters

| Parameter | Meaning | Interactive equivalent: Read ¹ |
|------------------|--|--|
| Type | The module type identifies the currently connected hardware. | GHTY Get Hardware Modultype |
| HW serial number | The hardware serial number identifies each DECT modul by its physical number. | GNSER Get Number Production Serial |
| EMC | The equipment manufacturer's code is a value that has been assigned to the manufacturer by the ETSI. | GNEMC Get Number EMC |
| DECT number. | The DECT number identifies each DECT modul by its virtual serial number. | GNDNR Get Number DECT Serial |
| Firmware | The firmware number represents a build number which is needed for internal purpose only. | GSNR Get Software Number |
| Version | The firmware version represents information the soft- and hardware manuals refer to. | GSVER Get Software Version |
| Hybrid | The hybrid flag shows whether the currently detected DECT firmware is hybrid type - i.e. both fixed and portable part concerted - or not. | ./. |
| Config mode | The config mode hint informs about the currently detected command set: - standard = obsolete command set - extended = up-to-date command set | ./. |
| F. parameter | The frequency parameter is one of the production related parameters intended for calibration purposes. | GMF Get Module Frequency |
| Quadtune | The quadtune parameter is another production related parameter intended for calibration purposes. | GMQ Get Module Quad-Tune |
| Modulation | The modulation parameters are other production related parameters intended for calibration purposes. | GMM Get Module Modulation |
| Subscription | The subscription parameters refer to the fixed part's EMC, FPN and PLI identifiers the portable part is subscribed to (PT only - please see chapter 4.2.2). | GISUB Get Identity Subscription (list) |
| Flashtype | The flashtype identifies the module's flash memory IC by its manufacturer's part number. | GHFL Get Hardware Flashtype |

¹ Each command given interactively while in the configuration mode has to be concluded by striking the **carriage return** or the **enter** key ↵.

4.1.1.2 The read/writeable parameters

| Parameter | Meaning | Interactive equivalent: Read/Write ² |
|---|--|--|
| Equipment | <p>The equipment parameter determines whether the module acts as data terminal equipment (i.e. DCD I/O and RI I/O are configured as inputs) or as data communication equipment (i.e. DCD I/O and RI I/O are configured as outputs).</p> <ul style="list-style-type: none"> - DTE is default to fixed terminations - DCE is default to portable terminations | <p>GPEQ Get Parameter Equipment</p> <p>SPEQ <DTE DCD> Set Parameter Equipment</p> |
| Termination | <p>The termination parameter determines whether the module shall work as portable (PT) or as fixed termination (FT).</p> | <p>GPTM Get Parameter Termination</p> <p>SPTM <FT PT> Set Parameter Termination</p> |
| Channel count | <p>The channel count parameter sets the number of bearers bundled into a multi-bearer connection. Both PT and FT must be set to the same value.</p> | <p>GPCCN Get Parameter Channel Count</p> <p>SPCCN <n> Set Parameter Channel Count</p> |
| CTR6 mode | <p>The CTR6 mode is a dedicated test mode for standardized test of the DECT air interface. While in CTR6 test mode the module interacts with CTR6 test equipment.</p> <p>Default is OFF</p> | <p>GPCTR Get Parameter CTR6 Mode</p> <p>SPCTR <ON OFF> Set Parameter CTR6 Mode</p> |
| Protocol mode | <p>The protocol mode parameter determines whether the</p> <ul style="list-style-type: none"> - protocol data sub-mode (=ON) or the - transparent data sub-mode (=OFF) <p>will be driven.</p> | <p>GPPR Get Parameter Data Submode</p> <p>SPPR <ON OFF> Set Parameter Data Submode</p> |
| Baud rate | <p>The baud rate parameter defines the data rate the DECT module's serial RS-232 interface is adjusted to while operating in the data transmission mode.</p> | <p>GPBD Get Parameter Baud rate</p> <p>SPBD <n> Set Parameter Baud rate</p> |
|  | <p>When changed in the H&W DECT Evaluation Pilot's service mode mask the PC's serial COM port's baud rate will be updated simultaneously at the same time.</p> | |
| Init mode | <p>The intialization mode defines the mode the DECT module will automatically start up with after a hard reset.</p> | <p>GPINI Get Parameter Default Mode</p> <p>SPINI <0 - n> Set Parameter Default Mode</p> |

² Each command given interactively while in the configuration mode has to be concluded by striking the **carriage return** or the **enter** key ↵.

4.1.1.3 The save-to-file command

The save-to-file command will write current module parameter settings to the DectEP.txt file.

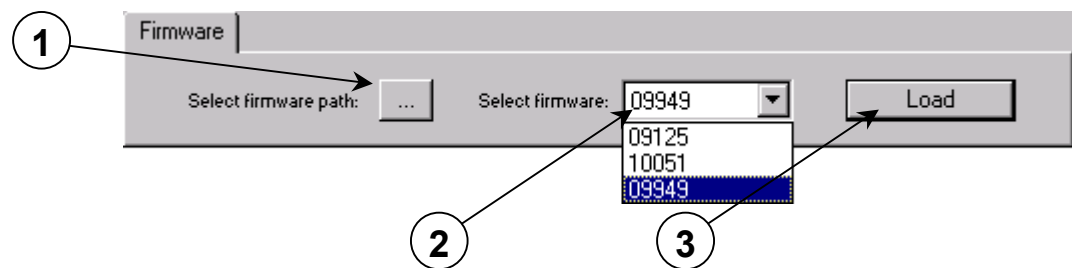
This file may be viewed resp. edited by use of the **Edit | Saved Settings...** command and may be useful in case of possibly needed support.

A precedent execution of the **refresh** command is recommended.

4.1.1.4 The refresh command

The refresh command will force another readout of the module's parameter settings. The current settings will be displayed by the service configuration panel.

4.1.2 The firmware tabsheet



| No. | Item | No. | Item |
|-----|---------------------------------|-----|--------------|
| 1 | Firmware path selection command | 3 | Load command |
| 2 | Firmware version selection box | | |

4.1.2.1 The firmware path selection command

When clicked, the **firmware path selection mask** will appear which allows for selecting the path showing to the DECT firmware's location (see 8. pp.).

4.1.2.2 The firmware version selection box

The firmware version selection box allows for selecting suitable DECT firmware versions.

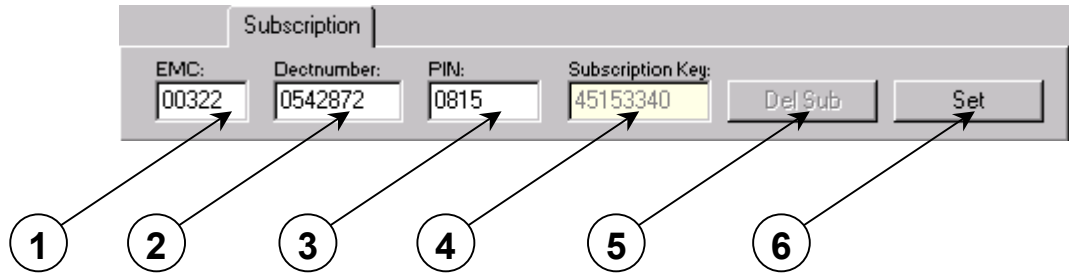
4.1.2.3 The load command

The load command will effect the currently selected DECT firmware version's load to the baseband module.

4.1.3 The subscription tabsheet



The subscription tabsheet in the PT view



The subscription tabsheet in the FT view

| No. | Item | No. | Item |
|-----|-----------------------------|-----|--|
| 1 | EMC edit field ³ | 4 | Subscription key (edit) field ⁴ |
| 2 | DECT number edit field | 5 | Delete subscription command |
| 3 | PIN edit field | 6 | Set subscription command |

For use of the subscription tabsheet please see full particulars in chapter 4.2.3 pp.

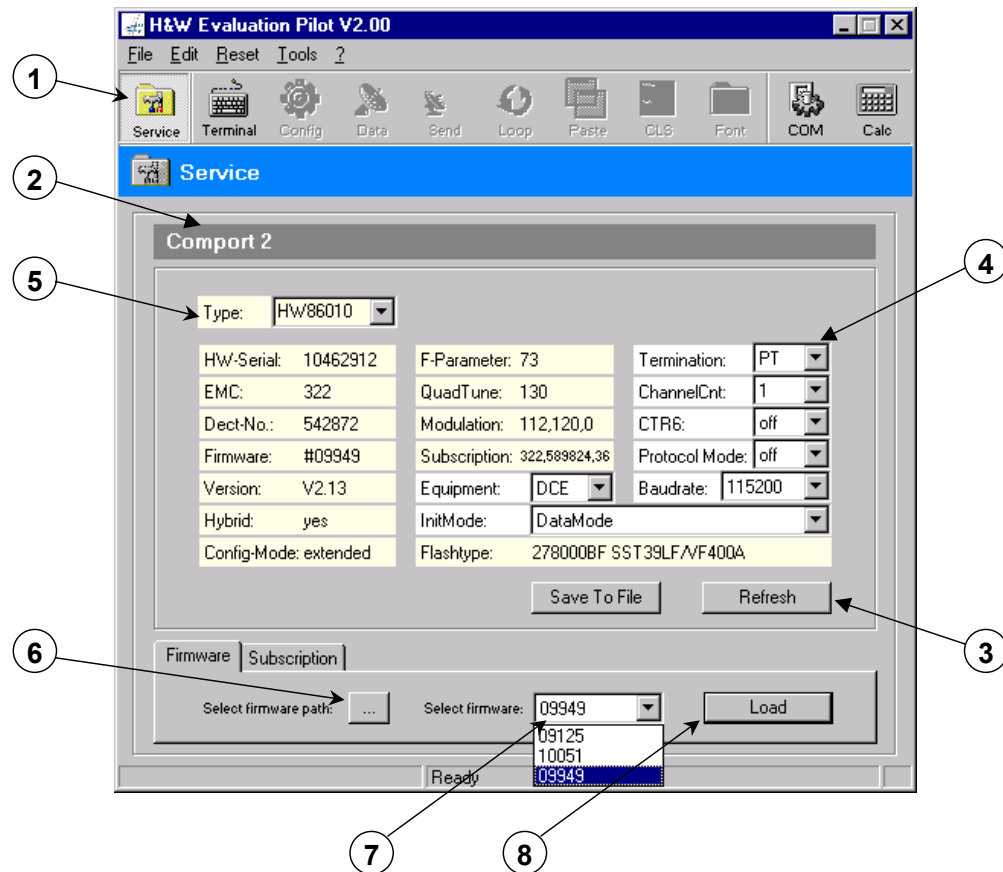
³ EMC, DECT No., PIN and subscription key values represent the values of the respective corresponding Parts.

⁴ The subscription key is read-only to the fixed part and write-only to the portable part.

4.2 Provided services

4.2.1 How to perform a firmware update

For loading DECT firmware updates to the module please proceed as follows:



| Step | Operation |
|------|---|
| 1 | Enter the DECT Evaluation Pilot's service mode. |
| 2 | Ensure the right port is chosen (e.g. COM2, see also chapter 7. pp.). |
| 3 | Precautionary press the refresh command. |
| 4 | Ensure the right termination is set (FT or PT, see also chapter 4.1.1.2 pp.). |
| 5 | Ensure the right module type is set (see chapter 4.1.1.2. pp.). |
| 6 | Case still undone click the firmware path selection command to adjust the path showing to the DECT firmware's location (see also chapter 8. pp.). |
| 7 | Select a suitable firmware number (see also chapter 4.1.2. pp.). |
| 8 | Finally press the load command. |



Warning:

Loading **fixed termination's** firmware to a **portable termination** may effect the wipe out of any subscription parameters.

4.2.2 How to force a firmware update



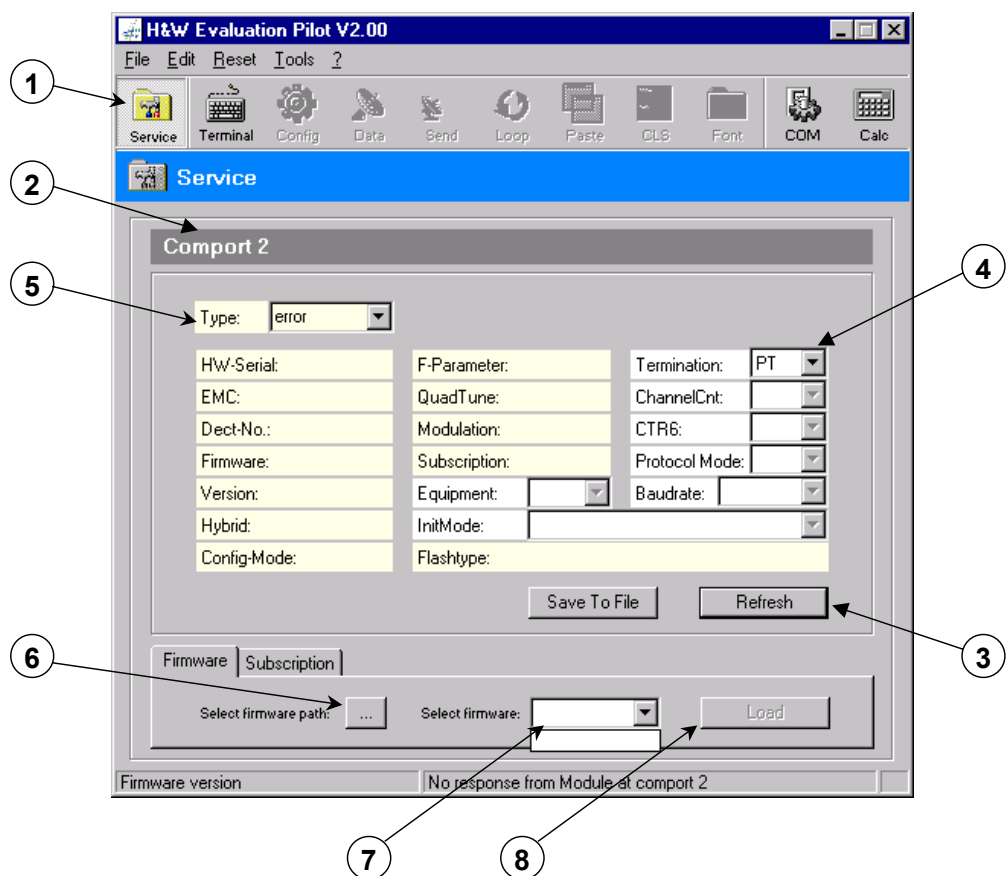
Note:

When a firmware update had been aborted accidentally during the erasing or loading process the module's flash memory will contain invalid firmware data.

This will leave the module unable to identify even its own type, not to mention its configuration parameter settings. The **type** parameter field will show "error" and the **termination** parameter field will switch to its preset value "PT".

So it's up to the user to set both the module's type (e.g. HW86010) and termination (PT or FT), then select a suitable firmware and finally initiate another firmware update.

In order to force a DECT firmware update to the module please proceed as follows:



| Step | Operation |
|------|---|
| 1 | Enter the DECT Evaluation Pilot's service mode. |
| 2 | Ensure the right port is chosen (e.g. COM2, see also chapter 7 pp.). |
| 3 | Precautionary press the refresh command. |
| 4 | Set the right termination (FT or PT, see also chapter 4.1.1.2. pp.). |
| 5 | Set the right module type (e.g. HW86010, see chapter 4.1.1.2. pp.). The firmware version selection box will now reoffer suitable firmware. |

**Note:**

Assumed step 5 did succeed you may skip step 6.

| Step | Operation |
|------|---|
| 6 | In case the path is still unadjusted, click the firmware path selection command to adjust the path leading to the DECT firmware's location (see also chapter 8. pp.). |
| 7 | Select a suitable firmware number (see also chapter 4.1.2. pp.). |
| 8 | Finally press the load command. |

**Warning:**

Both loading **fixed termination's** firmware to a **portable termination** resp. changing from **portable** to **fixed termination** may effect the wipe out of any subscription parameters.

4.2.3 How to non-interactively subscribe a pair of DECT radio items



Warning:

The subscription may be deleted explicitly by use of the **delete subscription command**.

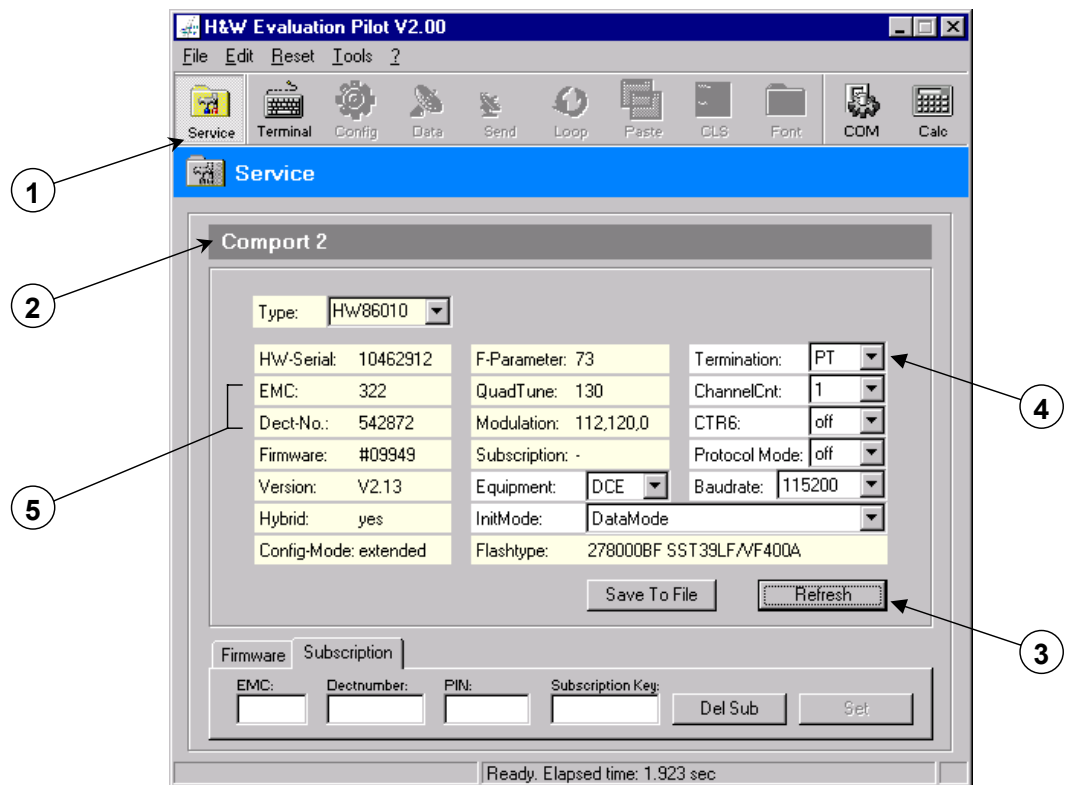
It may also be deleted unintentionally by changing the module's termination from **portable** to **fixed** resp. by setting the **subscription parameters** of a different FT. (see chapter 4.1.1.1).

Normally when you receive your DECT Evaluation Kit both the fixed and the portable parts are subscribed to each other so the kit is ready for wireless intercommunication. **Provided a valid subscription is still in effect you may skip these subscription chapters.**

In order to renew the subscription of a pair of DECT radio items we ought to know both the fixed and portable termination's EMC and DECT number identifiers.

4.2.3.1 Elicit the portable part's identifiers

Connect the **portable** termination to the PC's COM port.

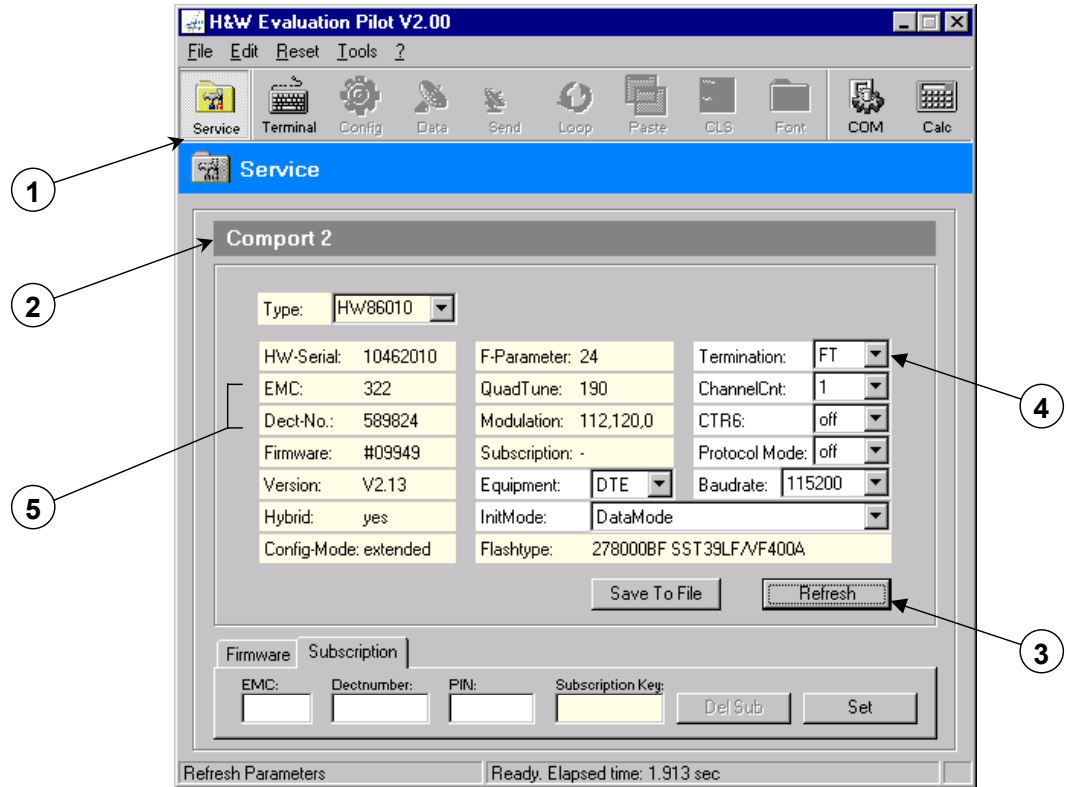


| Step | Operation |
|------|---|
| 1 | Enter the DECT Evaluation Pilot's service mode. |
| 2 | Ensure the right port is chosen (e.g. COM2, see also chapter 7. pp.). |
| 3 | Precautionary press the refresh command. |
| 4 | Ensure it's the <i>portable</i> termination that's currently connected. |
| 5 | Note down <ul style="list-style-type: none"> portable termination 's EMC: # _____ |

- portable termination 's **DECT number:** # _____

4.2.3.2 Elicit the fixed part's identifiers

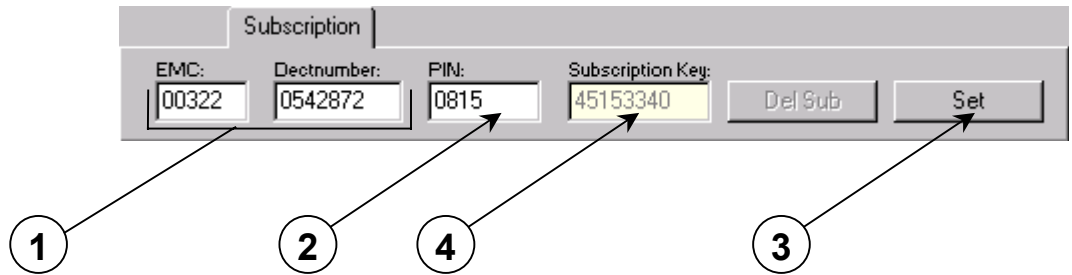
Connect the **fixed** termination to the PC's COM port.



| Step | Operation |
|------|--|
| 1 | Enter the DECT Evaluation Pilot's service mode. |
| 2 | Ensure the right port is chosen (e.g. COM2, see also chapter 7. pp.). |
| 3 | Precautionary press the refresh command. |
| 4 | Ensure it's the <i>fixed</i> termination that's currently connected. |
| 5 | Note down <ul style="list-style-type: none"> fixed termination 's EMC: # _____ fixed termination 's DECT number: # _____ |

4.2.3.3 Perform the fixed part's subscription

In order to perform the **fixed** part's subscription please proceed as follows:

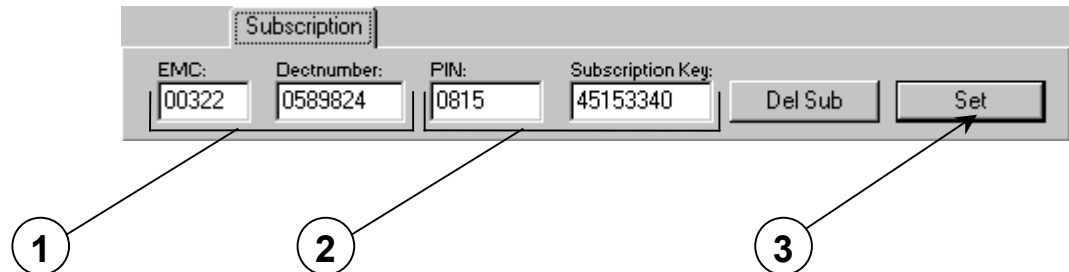


| Step | Operation |
|------|--|
| 1 | Key in the <i>portable</i> termination's EMC and DECT number identifiers (see chapter 4.2.3.1). |
| 2 | Key in a unique, freely selectable PIN (max. 8 digits) and note down <ul style="list-style-type: none"> fixed termination 's PIN: # _____ |
| 3 | Now press the set subscription command which will set the fixed termination's PIN and force the DECT firmware to calculate a valid subscription key (SK) corresponding to the respective portable termination's identifiers. |
| 5 | Note down <ul style="list-style-type: none"> fixed termination 's SK: # _____ |

4.2.3.4 Perform the portable part's subscription

In order to perform the portable part's subscription please proceed as follows:

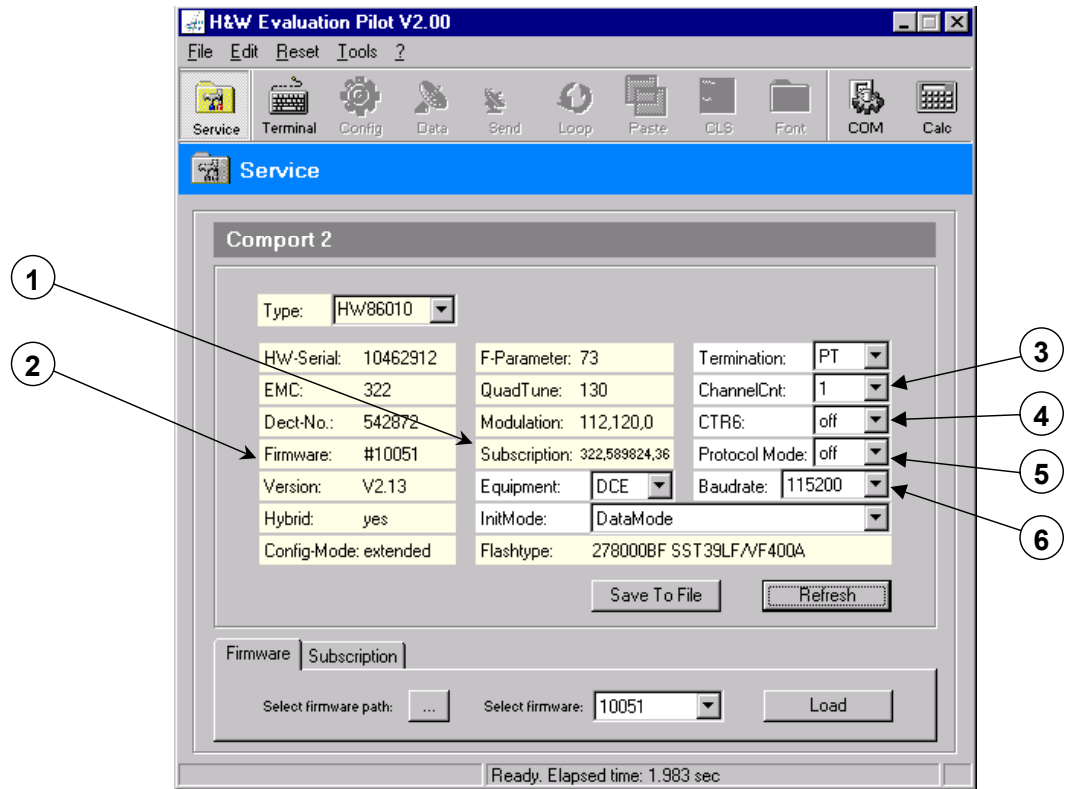
- Reconnect the **portable** termination to the PC's COM port.
- Press the refresh command.



| Step | Operation |
|------|--|
| 1 | Key in the <i>fixed</i> termination's EMC and DECT number identifiers (see chapter 4.2.3.2). |
| 2 | Key in the <i>fixed</i> termination 's PIN and SK identifiers (see chapter 4.2.3.3). |
| 3 | Now press the set subscription command which will perform the portable part's subscription. |

The DECT Evaluation Kit is ready for wireless intercommunication now (see chapter 3.2.7).

4.2.4 How to automatically set up a pair of DECT radio items for intercommunication



In order to set up a pair of DECT radio items for wireless intercommunication, ensure the following parameters are set correctly at **both** the **fixed** and **portable** terminations:

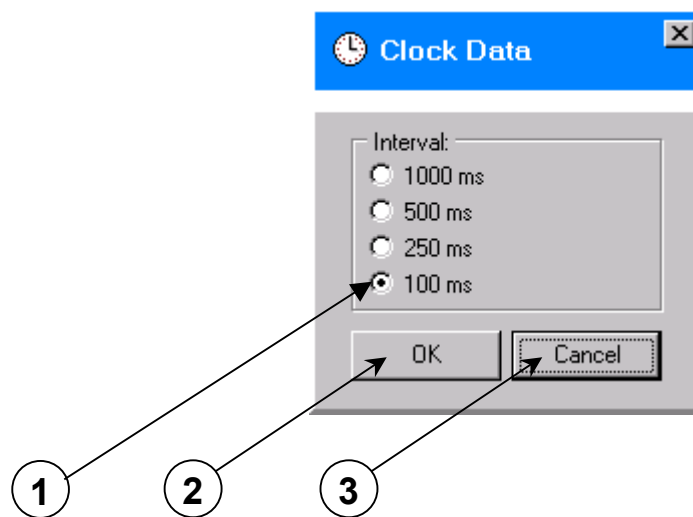
| Step | Operation |
|------|---|
| 1 | Ensure the <i>fixed</i> termination's subscription identifiers are set at the <i>portable</i> termination. |
| | Note: If you found the subscription parameters of the fixed termination are not set at the portable termination please renew the subscription process as given in chapter 4.2.2. pp. |
| 2 | Ensure the same firmwares are installed at both fixed and portable terminations by comparing their firmware numbers (see also 4.2.1 pp.). |
| 3 | Ensure the channel count is set to '1' when intended to use the transparent data sub-mode. |
| 4 | Ensure the CTR6 mode is set to 'OFF' when intended to use any type of data transmission mode. |
| 5 | Ensure the protocol mode is set to 'OFF' when intended to use the transparent data sub-mode. |
| 6 | Ensure the same baud rates are set at both the fixed and portable terminations. |

**Note:**

When changing the module's **baud rate** while in the **Service Mode Mask (and only there!)** the PC's serial COM port settings will be updated automatically at the same time.

5. The clock data configuration mask

5.1 Operational elements



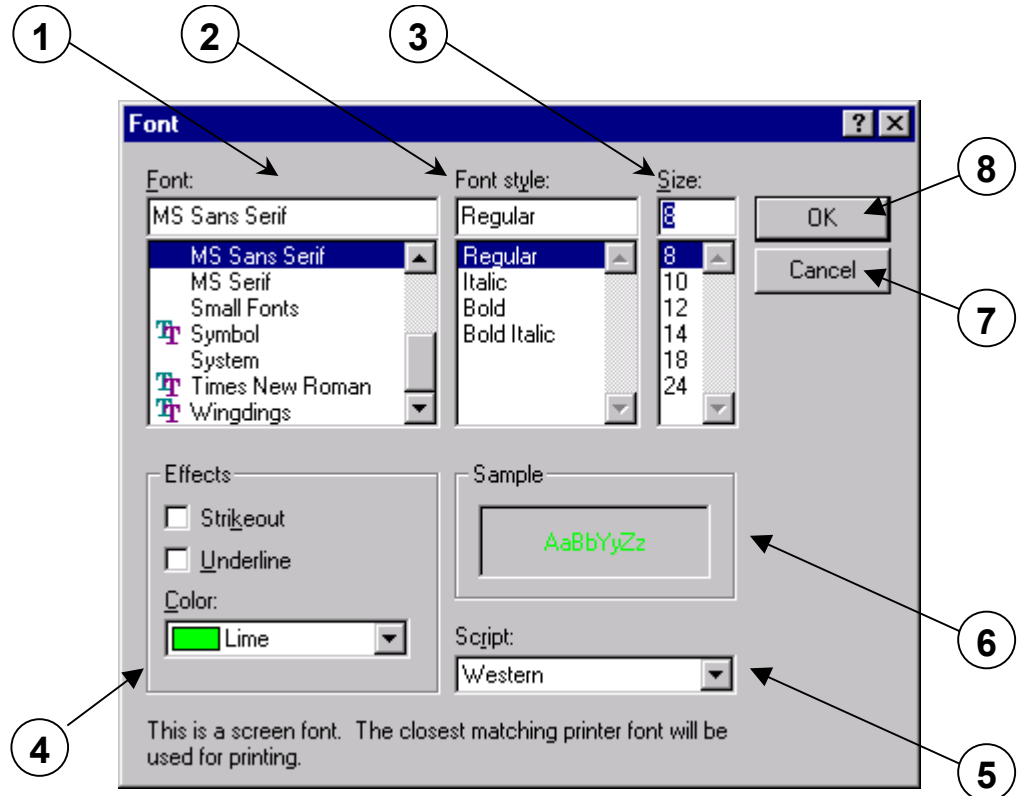
| No. | Item | Preset |
|-----|---------------------------|--------|
| 1 | Selectable clock interval | 100 ms |
| 2 | Save command | <CR> |
| 3 | Cancel command | <ESC> |

5.2 Usage

- Select a pertinent value to determine the **interval** the application ought to transmitt current clock data to the DECT air interface.
- Click either the **save** or the **cancel** command to conclude (see also chapter 3.2.8).

6. The font settings configuration mask

6.1 Operational elements



| No. | Item |
|-----|--------------------------|
| 1 | Font selection box |
| 2 | Font style selection box |
| 3 | Size selection box |
| 4 | Effects selection box |
| 5 | Script drop down list |
| 6 | Sample view |
| 7 | Cancel command |
| 8 | Save command |

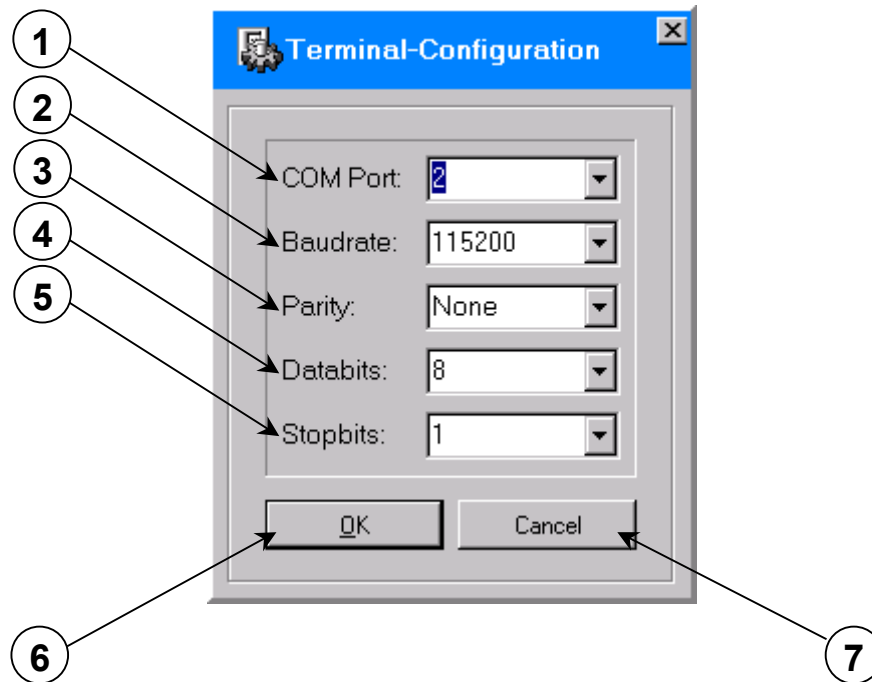
6.2 Usage

Use the **font settings configuration mask** to change the **terminal window's** font settings.

- Optionally select properties **1 - 5** to personal taste while watching the sample view **(6)**.
- Either save settings by executing the save command **(8)** or reject settings by use of the cancel command **(7)**.

7. The COM port configuration mask

7.1 Operational elements



| No. | Item | Preset |
|-----|-------------------------|--------|
| 1 | COM port selection box | 2 |
| 2 | Baud rate selection box | 115200 |
| 3 | Parity selection box | None |
| 4 | Databits selection box | 8 |
| 5 | Stopbits selection box | 1 |
| 6 | Save command | <CR> |
| 7 | Cancel command | <ESC> |

7.2 Usage

Use the **COM port configuration mask** to adjust general serial parameter settings.

- First select the COM port connected to the HW 8611 DECT modem.
- The adjustment of the baud rate parameter will effect a change to the data transmission mode only.

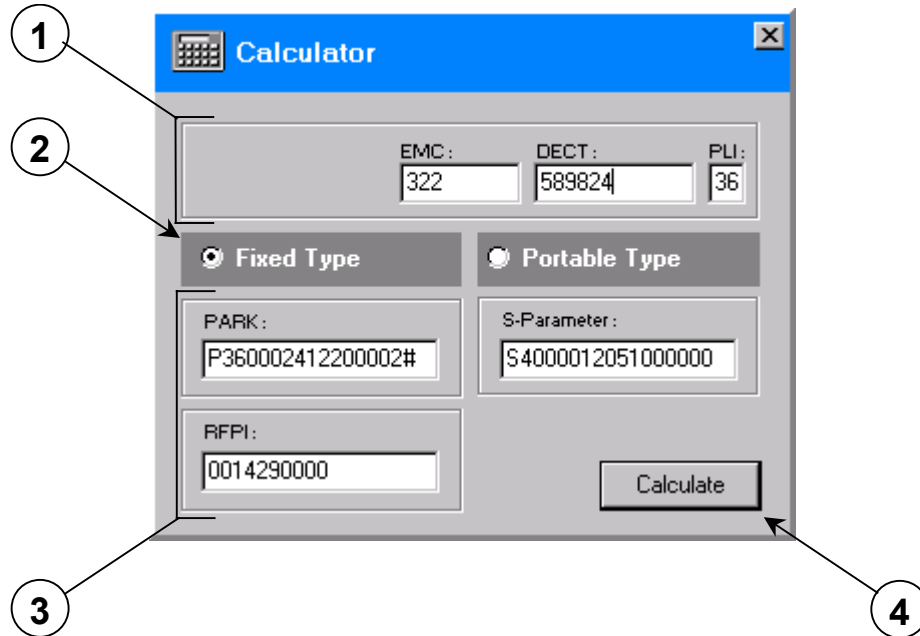


Note:

When changing the **baud rate** of the **PC's serial COM port** while in the **service mode mask (and only there!)** the module's **baud rate** will be updated automatically at the same time.

8. The DECT identifiers calculation mask

8.1 Operational elements



| No. | Item |
|-----|--|
| 1 | EMC, DECT number and PLI edit fields |
| 2 | Termination indicators |
| 3 | PARK, RFPI and S-parameter edit fields |
| 4 | Calculate command |

8.2 Usage

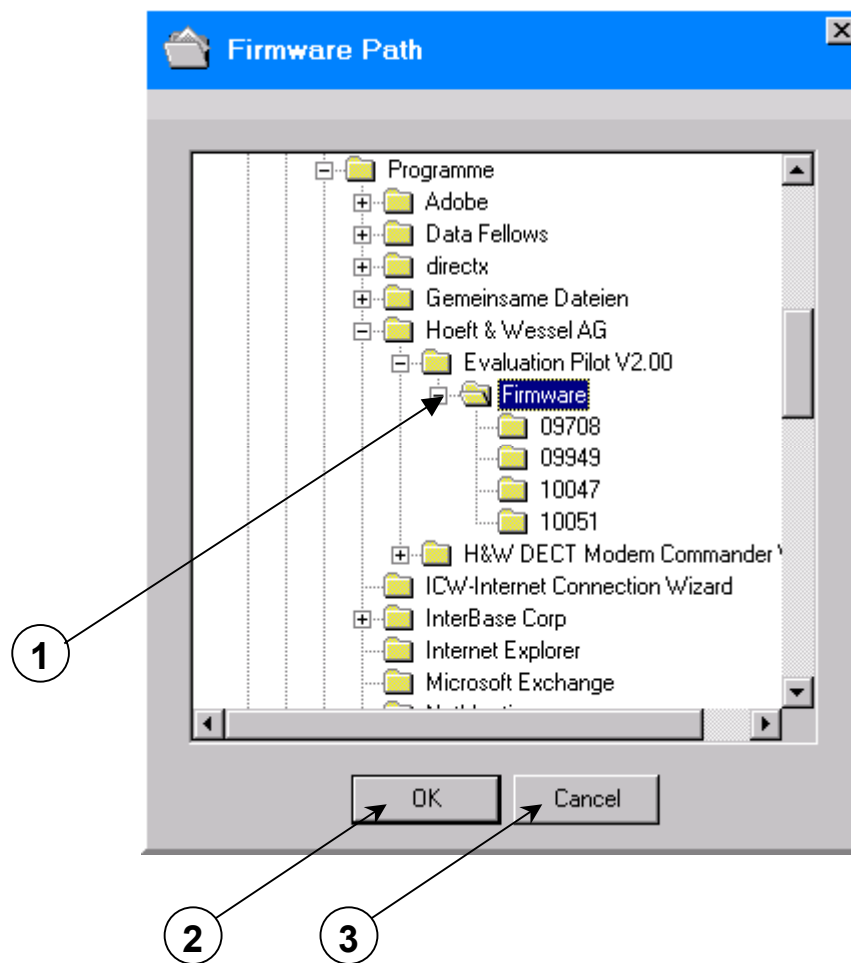
Use the **DECT identifiers calculator** to calculate the EMC and DECT number identifiers to both the PARK and RFPI identifiers as well as vice versa. The S-parameter is relevant only to fixed terminations using the standard (obsolete) command mode.

- Key in valid EMC and DECT number identifiers (1) and press the calculate command (4). The calculator will indicate whether either a PT or FT DECT number has been entered (2). Both the corresponding PARK and RFPI identifiers will be displayed (3).
- Key in either a valid PARK or RFPI or S-parameter identifier (3) and press the calculate command (4). The calculator will indicate whether either a PT or FT identifier has been entered (2). Both the corresponding EMC, DECT number and PLI identifiers will be displayed (1).

- For detailed information about the structure of the DECT identifiers please see the HW86010 integration manual.

9. The firmware path selection mask

9.1 Operational elements



| No. | Item | Preset |
|-----|-----------------------------|-----------------------|
| 1 | Firmware path selection box | Firmware subdirectory |
| 2 | Save command | <CR> |
| 3 | Cancel command | <ESC> |

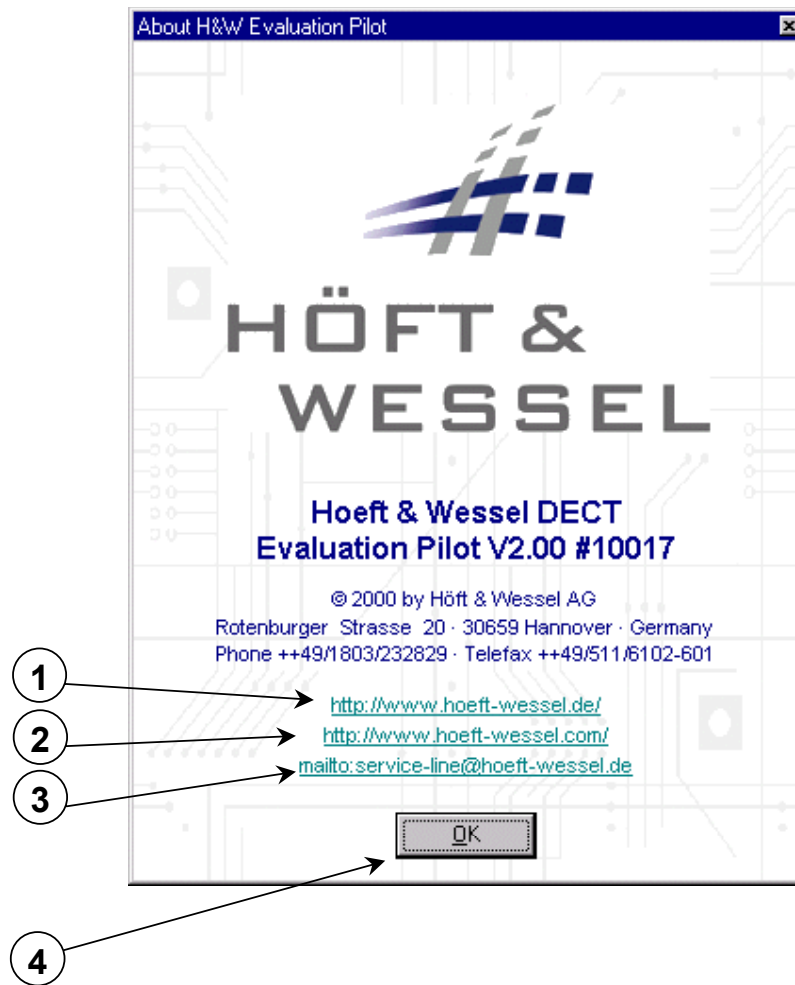
9.2 Usage

The **firmware path selection mask** allows for selecting the path showing to the DECT firmware's location.

- Select the **firmware** directory located in the tree of the Hoeft & Wessel AG's Evaluation Pilot.
- Click the **save command** to save the current setting and quit the mask.
- The **cancel Command** will quit the mask without saving.

10. The information mask

10.1 Operational elements



| No. | Item |
|-----|---|
| 1 | Link to the Hoeft & Wessel german homepage |
| 2 | Link to the Hoeft & Wessel international homepage |
| 3 | Link to the Hoeft & Wessel service line |
| 4 | Close command |

10.2 Usage

- Use link 1 or 2 to contact the Hoeft & Wessel german or international homepage.
- Use link 3 to send mail to the Hoeft & Wessel service line
- Click <OK> to close the form.

11. Getting started

- Set-up the DECT Evaluation Kit as illustrated in the HW 86910's hardware description.
- Install the DECT Evaluation Pilot software on your PCs as described in chapter 0.
- Check out the data mode as given in chapter 3.2.7.

12. Operating modes

Three modes of operation are distinguished:

Data transmission mode:

In this mode, the DECT module performs data transmission through its serial interface, i.e. it operates as DCE or DTE according to DECT DSP C1/C2 standard.

In the following, the basic functionalities of the operating modes are explained as well as how they are set and changed.

Firmware update mode:

In this mode, a firmware update is performed to the module's flash memory. A proprietary protocol is used.

Configuration mode:

This mode allows for read and write operations done to the DECT module's configuration parameter settings. The current settings may be both read and set in DECT Evaluation Pilot's either the terminal mode or the service mode. A dedicated control protocol is used.

12.1 The data transmission mode

In order to perform wireless data communication please proceed as given below:

- Enter the data transmission mode as described in chapter 3.2.5 at both fixed and portable part.
- The DSR LED will switch on to indicate the fixed and portable parts have been logged in after a few seconds.
- Key in some characters to start terminal-to-terminal communication.
- Check out the paste buffer and virtual data loop commands as described in chapter 3.2.10.

12.2 The firmware update mode

For performing a DECT firmware update to a module please proceed as follows:

- Enter the service mode mask as described in chapter 2.2.1
- Perform the firmware update as given in chapter 4.2.1.
- Check out the other operating modes as given in the previous and next chapters.



Warning:

Loading **fixed termination's** firmware to a **portable termination** may effect the wipe out of any subscription parameters.

The configuration mode

In order to set up the module's configuration parameters interactively please enter the configuration mode as described in chapter 3.2.1 pp. The commands described in the next chapter allow for individual configuration. For more detailed description of the commands provided by the extended command mode please see the Hoeft & Wessel HW 86010 integration manual.



Warning:

The standard command mode is yet obsolete and will not be supported any further.

So if you still work the standard command mode it is urgently recommended to perform a firmware update to a version supporting the extended command mode.

12.2.1 Configuration command overview

The commands provided in configuration mode are given below:

| Command | Description |
|---------|---|
| GHALL | Get Hardware Data (list) |
| GHTY | Get Hardware Modultype |
| GHFL | Get Hardware Flashtype |
| GSALL | Get Software Data (list) |
| GSNR | Get Software Number |
| GSVER | Get Software Version |
| GMALL | Get Module Data (list) |
| GMF | Get Module Frequency |
| GMQ | Get Module Quad-Tune |
| GMM | Get Module Modulation |
| GNALL | Get Number Data (list) |
| GNEMC | Get Number EMC |
| GNDNR | Get Number DECT Serial |
| GNSER | Get Number Production Serial |
| GPALL | Get Parameter Data (list) |
| SPBD | Set Parameter Baud Rate |
| GPBD | Get Parameter Baud Rate |
| IPBD | Information Supported Baud Rates (list) |
| SPTM | Set Parameter Termination |
| GPTM | Get Parameter Termination |
| SPPR | Set Parameter Protocol Data Submode |
| GPPR | Get Parameter Protocol Data Submode |

| Command | Description |
|---------|---|
| SPCTR | Set Parameter CTR 6 Testmode |
| GPCTR | Get Parameter CTR 6 Testmode |
| SPCCN | Set Parameter Channel Count |
| GPCCN | Get Parameter Channel Count |
| IPCCN | Information Supported Channel Counts (list) |
| SPINI | Set Parameter Default Mode |
| GPINI | Get Parameter Default Mode |
| IPINI | Information Supported Default Modes (list) |
| SIAIR | Set Identity Air Subscription Accept |
| GIAIR | Get Identity Air Subscription Accept |
| SISUA | Set Identity Subscription On-Air |
| SISUB | Set Identity Subscription Offline |
| GISUB | Get Identity Subscriptions (list) |
| DISUB | Delete Subscription |
| GICNT | Get Number of Subscriptions |
| GIFRE | Get Number of Free Subscription Table Entries |
| GISK | Get Identity Subscription Key |
| SIPIN | Set Identity PIN |
| SISMK | Set Identity Subscription Master Key |
| GALL | Get All Data (list) |
| CRC | Do Firmware Diagnostics |
| GOK | Get OK (dummy command) |
| EXIT | Exit configuration mode |

12.2.2 Return codes

The return codes provided in the configuration mode are given below:

| Return Code | Description |
|-------------|--|
| OK | Command successful |
| ERROR 1 | Command failed |
| ERROR 2 | Command invalid |
| ERROR 3 | Command parameter invalid |
| ERROR 4 | Subscription table full |
| ERROR 21 | Invalid character at command start |
| ERROR 22 | Unexpected argument (Get or Information command) |
| ERROR 23 | Argument missing (Set or Delete command) |
| ERROR 24 | Wrong argument type |
| ERROR 25 | Wrong number of arguments |
| ERROR 26 | Internal conversion error |
| ERROR 41 | First character of PARK invalid |
| ERROR 42 | Second character of PARK invalid |
| ERROR 43 | PARK length indicator too big |
| ERROR 44 | Wrong character, where octal digit was expected |
| ERROR 45 | Invalid character in checksum |
| ERROR 46 | Wrong checksum |
| ERROR 47 | Checksum too long |
| ERROR 48 | PARK table full |
| ERROR 49 | Timeout occurred |

12.2.3 Argument formats

| Format | Description |
|-------------|---|
| octal | string containing characters '0' to '7' |
| decimal | string containing characters '0' to '9' |
| hexadecimal | string containing characters '0' to '9', 'A' to 'F' |
| string | string containing characters '0' to '9', 'A' to 'Z' or special characters '.', '*', '#', '-', '+', ':', ' ' (space) |

12.2.4 The RFPI and PARK parameters

In order to obtain a better comprehension of the DECT authentication parameters one should get familiar with the hierarchical composition resp. the relations between both the different ARI classes and the PARK, RFPI, EMC, FPN as well as the other DECT identifiers.

12.2.4.1 ARI class A

The structures of both the RFPI A and the PARK A referring to the ARI class A are given below:

| RFPI A Radio fixed part identity | | | | |
|---|---|---|---------------------------------|---|
| E: Y/N (no extended SARIs/ TARIs available) | PARI A Primary access rights identity | | | RPN Radio fixed part number |
| | ARC Access rights class | ARD Access rights details | | |
| | A ARI class A | EMC Equipment manufacturer's code | FPN Fixed part number | |
| 1 | 3 | 16 | 17 | 3 |
| 40 bits | | | | |

| PARK A Primary access rights key | | | |
|--|---|---------------------------------|--|
| ARC Access rights class | ARD Access rights details | | |
| A ARI class A | EMC Equipment manufacturer's code | FPN Fixed part number | |
| 3 | 16 | 17 | |
| 36 bits | | | |

| PARK A⁵ (manually entered) | | | | | |
|---|-----------|----------|----------|----------|----------|
| P | LL | O | O | C | # |
| 1 | 2 | ..12 | | 1 | 1 |
| 17 bytes | | | | | |

where:

- P** is a manufacturer specific enabling key
- LL** is a two digits decimal representation of the PARK length
- O__O** is up to 12 digits octal representation of the PARK
- C** is a check character
- #** is the terminating symbol

⁵ The format for PARK A entry is specified in ETS 300 175. A PARK always starts with the character 'P' followed by two decimal digits, which are the decimal representation of the bit-length of the PARK. The next 12 characters are the octal representation of the PARK. There is then a check character - either 0-9 or '*' - and finally a '#' symbol.

12.2.4.2 ARI class B

The structures of both the RFPI B and the PARK B referring to the ARI class B are given below:

| RFPI B Radio fixed part identity | | | | | |
|---|---|--|---------------------------------|-----------------------------------|---|
| E: Y/N (extended SARIs/ TARIs available) | PARI B Secondary access rights identity | | | | RPN Radio fixed part number |
| | ARC Access rights class | ARD Access rights details | | | |
| | B ARI class B | EIC Equipment installer's code | FPN Fixed part number | + FPS Fixed part subno. | |
| 1 | 3 | 16 | 8 | + | 4 |
| 40 bits | | | | | |

| PARK B Primary access rights identity | | | | | |
|---|-----------------------------------|--|---------------------------------|-----------------------------------|---|
| | ARC Access rights class | ARD Access rights details | | | |
| | B ARI class B | EIC Equipment installer's code | FPN Fixed part number | + FPS Fixed part subno. | |
| | | 3 | 16 | 8 | + |
| 31 bits | | | | | |

| PARK B⁶ (manually entered) | | | | |
|---|-----------|-------------------------|----------|----------|
| P | LL | O _____ O | C | # |
| 1 | 2 | ..11 | 1 | 1 |
| 16 bytes | | | | |

where:

- P** is a manufacturer specific enabling key
- LL** is a two digits decimal representation of the PARK length
- O__O** is up to 11 digits octal representation of the PARK
- C** is a check character
- #** is the terminating symbol

⁶ The format for PARK B entry is specified in ETS 300 175. A PARK always starts with the character 'P' followed by two decimal digits, which are the decimal representation of the bit-length of the PARK. The next 12 characters are the octal representation of the PARK. There is then a check character - either 0-9 or '*' - and finally a '#' symbol.

13. The initialization file

13.1 File architecture

The initialization file is divided in several sections, each of them containing a couple of keywords with corresponding values assigned. The file is intended for storage of both COM port settings done in the COM port configuration mask (see 7 pp.) and paths showing to the DECT firmware's location (see 4.1.2 pp.).

Each section name is unique just as the keywords referring to each section are. To disable entries a semicolon has to be entered as first character of a keyword line.

Manually entered alterations of the initialization file will effect changes in the program configuration after program restart only.

13.2 File editing

To edit the initialization file proceed as described in chapter 2.1.2.2.

13.3 File sections

| Section | Assignments |
|------------|---|
| [CURRENTS] | The CURRENTS section covers the last selected COM port settings just as the last selected firmware update path. |
| [COMPORTS] | The COMPORTS section covers selectable COM port numbers. |
| [BAUDRATE] | The BAUDRATE section covers selectable baud rate values. |
| [PARITIES] | The PARITIES section covers selectable parity values |
| [DATABITS] | The DATABITS section covers selectable databits values. |
| [STOPBITS] | The STOPBITS section covers selectable stopbits values. |
| [FONT] | The FONT section covers the terminal window's current font settings. |

13.4 File view

```
[CURRENTS]
COMPORTS=2
BAUDRATE=115200
PARITIES=None
DATABITS=8
STOPBITS=1
DATAPATH=C:\Programme\Hoeft & Wessel AG\Evaluation Pilot V2.00\Firmware
CHECKCTS=1
```

```
TIMEOUT=900
Timer=100
Maxlines=500
```

```
[COMPORTS]
Key1=1
Key2=2
Key3=3
Key4=4
Key5=5
Key6=6
Key7=7
Key8=8
```

```
[BAUDRATE]
;Key1=300
;Key2=1200
;Key3=2400
;Key4=4800
Key5=9600
;Key6=14400
Key7=19200
;Key8=28800
Key9=38400
Key10=57600
Key11=115200
```

```
[PARITIES]
Key1=Even
Key2=Mark
Key3=None
Key4=Odd
Key5=Space
```

```
[DATABITS]
Key1=7
Key2=8
```

```
[STOPBITS]
Key1=1
Key2=2
```

```
[FONT]
Name=MS Sans Serif
Size=8
Color=65280
Style=
```

14. The saved parameter settings file

14.1 File architecture

The saved parameter settings file is intended for saving either a module's or a pair of modules' complete set of parameters to the file HWDectEP.txt all at once. This file may be useful in any case of trouble such as support resp. service is needed.

The file HWDectEP.txt is read-only to that effect that manual changes to the file won't cause any changes to the DECT module itself. The file may cover a dynamically increasing, infinite number of sections where each of them represents a complete set of module parameters. Each section name covers both its creation date and time. The sections are created by use of the save to file command (see 4.1.1.3).

The file may be purged by editing resp. deleting its contents.

14.2 File editing

In order to edit the saved parameter settings file proceed as described in chapter 2.1.2.2.

14.3 File sections

| Section | Assignments |
|-------------|--|
| [date/time] | Each section name covers both its creation date and time. The sections itself cover a complete set of the relevant module configuration parameters. |

14.4 File view

[16.11.00/13:30:04]
HWSerial=10462010
HWModultype=86010
Dect-Nr.=589824
EMC=322
Firmware=#09949
Version=2.13
Hybrid=yes
Config=extended
F-Param=24
QuadTune=190
Modulation=112,120,0
Subscription=322,542872,36
Equipment=DCE
ChannelCnt=1
Termination=Portable
CTR6-Flag=0
Protocol=off
Baudrate=115200
Flashtype=278000BF SST39LF/VF400A
Initmode=DataMode

[16.11.00/13:30:32]
HWSerial=10462912
HWModultype=86010
Dect-Nr.=542872
EMC=322
Firmware=#09949
Version=2.13
Hybrid=yes
Config=extended
F-Param=73
QuadTune=130
Modulation=112,120,0
Subscription=
Equipment=DTE
ChannelCnt=1
Termination=Fixed
CTR6-Flag=0
Protocol=off
Baudrate=115200
Flashtype=278000BF SST39LF/VF400A
Initmode=DataMode

```
port->RTS = true;           // RTS active

igCurrentMode = currentMode; // save current mode
return(true);               // all OK
} /* ResetModes + + + + + + + + + + + + + + + + + + + + + +
+ +
```

15.4 Reset config mode example

- C++ procedure to set the DECT module's configuration mode:

```

/*                                     ResetConfigMode
*****/
bool __fastcall TfrmDectLoad::ResetConfigMode(TRS232 *port)
{
    if(port == NULL)                    // check port
        return(false);                 // out on error

    port->Open = true;                  // open port

    /* params: port, DTR, RTS, timeOut, currentMode */
    ResetModes(RS232, false, false, TIME_OUT_HARD, CONFIG_MODE);

    return(true);                       // all OK
} /* ResetConfigMode + + + + + + + + + + + + + + + + + +
+ +

```

15.5 Reset data transmission mode example

- C++ procedure to set the DECT module's data transmission mode:

```

/*                                     ResetDataTxMode
*****/
bool __fastcall TfrmDectLoad::ResetDataTxMode(TRS232 *port)
{
    if(port == NULL)                    // check port
        return(false);                 // out on error

    port->Open = true;                  // open port

    /* params: port, DTR, RTS, timeOut, currentMode */
    ResetModes(RS232, false, true, TIME_OUT_HARD, DATA_MODE);

    return(true);                       // all OK
} /* ResetDataTransmissionMode + + + + + + + + + + + + + + + + + +
+ +

```

15.6 Point-to-dedicated point communication examples

In order to connect a dedicated portable part please implement as given below:

15.6.1 Portable part's code samples:

- while waiting for a call disable DTR at all portable parts
 - raise DTR whenever DSR activity is detected at a dedicated portable part
 - drop DTR whenever DSR is dropped at a dedicated portable part
- ```
port->DTR = port->DSR; // spy DSR, set DTR
```

- C++ portable part procedures to set up a point-to-dedicated point communication:

```

/* WaitForFTcalling *****/
bool __fastcall TfrmDectLoad::WaitForFTcalling(TRS232 *port)
{
 if(port == NULL) // check port
 return(false); // out on error

 // While PT's DSR is inactive the DTR will stay inactive
 // as well. When DSR raises (FT has connected PT successfully)
 // the PT answers raising its own DTR. When DSR is dropped,
 // the PT will drop its DTR as well:

 port->DTR = port->DSR; // spy DSR, set DTR!
 return(true);
} /* WaitForFTcalling + + + + +

```

```

/* cmdWaitForFT_ClickOn *****/
void __fastcall TfrmDectLoad::cmdWaitForFT_ClickOn(TObject
*Sender)
{
 tmPTtimer->Interval = 200; // timerInterval in ms
 tmPTtimer->Enabled = true; // start timer

 if(igCurrentMode != DATA_MODE) // not in data mode?
 ResetDataTxMode(RS232); // ..enter data mode
 else
 {
 RS232->ComClose(); // toggle port..
 RS232->ComOpen(); // ..
 }
} /* cmdWaitForFT_ClickOn + + + + +

```

```

/* cmdWaitForFT_ClickOff *****/
void __fastcall TfrmDectLoad::cmdWaitForFT_ClickOff(TObject
*Sender)
{
 tmPTtimer->Enabled = false; // stop timer
 ResetDataTxMode(RS232); // do hard reset
} /* cmdWaitForFT_ClickOff + + + + +

```

```

/* tmPTtimer_OnTimer *****/
void __fastcall TfrmDectLoad::tmPTtimer_OnTimer(TObject
*Sender)

```



```
 sprintf(s, "%s %s %s %c %c", "SPDSI", EMC, DECTNo, 0x0D,
0x0A);
 port->ComPuts(s); // call dedicated PT
 result = port->ComRead(s, 6); // string, len
 if((!result) || (strcmp(s, OK_ACK, 6) != 0))
 { // not 'OK'?
 igCurrentMode = START_MODE; // setup for next
trial
 ShowMessage("connect failed!"); // report error
 return(result); // give up
 }
```



## 15.7 Reset firmware update mode example

- ANSI-C procedures to perform a firmware update to the DECT module using V.24 routines:

```
#include <stdio.h>
#include <dos.h>
#include <conio.h>
#include "v24tools.h"

typedef unsigned char byte;
typedef unsigned short word;
typedef unsigned long dword;

#define ESC 27
#define VACK 0
#define VNACK 0xFF
#define BUSIZE 0x400

extern int iHardware;
extern int iPortHdl;
extern int iEeMonitor;
extern int expert;

extern void EeMonitor (void);

/*****
/* include images from ARM compiler */

#ifdef ONLY_86010_DOWNLOAD
byte aee45[] = {
#include "ee45.dat"
};

byte aee96[] = {
#include "ee96.dat"
};

byte aee10[] = {
#include "ee10.dat"
};

byte aDl45[] = {
#include "dl45.dat"
};

byte aDl96[] = {
#include "dl96.dat"
};
#endif

byte aDl10[] = {
#include "dl10.dat"
};

/*****
byte bRxErr;

/*****
/* RxWait (int par) --> get a char from serial port, *****/
/* wait max. par * 10 ms *****/
```



```

/*****/
int RxWait (int timex10ms)
{
 do {
 if (!v24qempty (iPortHdl, RCV))
 return v24getch (iPortHdl);
 delay (10);
 } while (--timex10ms > 0);
 bRxErr |= 1;
 return -2;
}

/*****/
void ClearRxBuf (void)
{
 while (!v24qempty (iPortHdl, RCV))
 v24getch (iPortHdl);
}

/*****/
byte *GetType (byte type)
{
 if (type == 3)
 return "HW86010";
 if (type == 4)
 return "HW86020";
 if (type == 1)
 return "HW86045";
 return "unknown";
} /* GetType() */

/*****/
word ComputeCRC (byte *buffer, dword lenght)
{
 word crc = 0;
 byte index;

 while (lenght != 0)
 {
 crc ^= ((word)*buffer++ << 8);
 for (index = 0 ; index < 8 ; index++)
 {
 if (crc & 0x8000)
 crc = (crc << 1) ^ 0x1021;
 else
 crc <<= 1;
 }
 lenght--;
 }
 return crc;
} /* ComputeCRC() */

/*****/
int DownloadFile (char *szFileName)
{
 int iv,ik;
 int ii;
 word ww;
 dword flen, dw;
 FILE *fpa;
 byte bu[BUSIZE];
 int res;

```

```
byte *pArrDl;
int iLenDl;

ClearRxBuf();
iHardware = 255;

v24setparams (iPortHdl, 9600, 8, N, 1);
delay (33);
v24putc (iPortHdl, 0xAA);
#ifdef ONLY_86010_DOWNLOAD
if (RxWait (100) != 0xA1)
{
 printf ("Sync Char1 not found");
 return 1;
}
pArrDl = aDl10;
iLenDl = sizeof aDl10;
#else
ii = RxWait (100);
if (ii == 0xA1)
 iHardware = 2; /* HW 86010 */
if (ii == 0x53)
 iHardware = 1; /* HW 86096 */

if (iHardware == 255)
{
 v24setparams (iPortHdl, 4800, 8, N, 1);
 delay (33);
 v24putc (iPortHdl, 0xAA);
 ii = RxWait (100);
 if (ii == 0x53)
 iHardware = 0; /* HW 86045 */
}
if (iHardware == 255)
{
 printf ("Sync Char1 not found");
 return 1;
}

if (iHardware == 0)
 printf ("HW86045 ");
if (iHardware == 1)
 printf ("HW86096 ");
if (iHardware == 2)
 printf ("HW86010 ");

/* select programmer image */
if (iHardware == 0)
{
 if (!iEeMonitor)
 {
 pArrDl = aDl45;
 iLenDl = sizeof aDl45;
 } else {
 pArrDl = aee45;
 iLenDl = sizeof aee45;
 }
}
else
if (iHardware == 1)
{
 if (!iEeMonitor)
```

```

 {
 pArrDl = aDl96;
 iLenDl = sizeof aDl96;
 } else {
 pArrDl = aee96;
 iLenDl = sizeof aee96;
 }
} else {
 if (!iEeMonitor)
 {
 pArrDl = aDl10;
 iLenDl = sizeof aDl10;
 } else {
 pArrDl = aee10;
 iLenDl = sizeof aee10;
 }
}
}
#endif

/* tx length of programmer image */
v24putc (iPortHdl, (byte) iLenDl);
v24putc (iPortHdl, (byte)(iLenDl >>8));

/* rx length of programmer image */
bRxErr = 0;
ww = RxWait (200);
ww |= RxWait (200) <<8;

/* check length of programmer image */
if (ww != iLenDl || bRxErr)
{
 printf ("error length transm.");
 v24putc (iPortHdl, VNACK);
 return 2;
}
v24putc (iPortHdl, VACK);
printf ("Download F-Prg ...");

/* tx programmer image */
iv = 0;
do {
 v24putc (iPortHdl, pArrDl[iv]);
} while (++iv < iLenDl);

/* rx CRC of programmer image */
ww = RxWait (200);
ww |= RxWait (200) <<8;

/* check CRC of programmer image */
if (ww != ComputeCRC (pArrDl, iLenDl) || bRxErr)
{
 printf ("\10\10\10Error\n");
 v24putc (iPortHdl, VNACK);
 return 2;
}
v24putc (iPortHdl, VACK);
printf ("\10\10\10Ok \n");

/* 08.07.99/HEL: Before switching to 115200 baud, we've got
*/
/* to wait for the last VACK being transmitted completely.
*/

```

```

/* Pity the EMPTY() function doesn't serve this purpose.
*/
delay(10);

v24setparams (iPortHdl, 115200, 8, N, 1);
v24putc (iPortHdl, 0xAA);

if (RxWait (1000) != ii)
{
 printf ("Sync Char not found");
 return 1;
}
#endifdef ONLY_86010_DOWNLOAD
if (iEeMonitor)
{
 EeMonitor();
 return 98;
}
#endif

#ifdef HEL_RECEIVE_FLASH
{
 long n;
 FILE *f;
 int i;
 unsigned char b[1000];

 v24settimeout (iPortHdl, 10*18);
 printf("\nReceiving FLASH.ERR");
 f = fopen("FLASH.ERR", "wb");

 for(n = 0; n < 140L; n++)
 {
 i = v24read(iPortHdl, b, sizeof(b));

 if(i != sizeof(b))
 {
 printf("Error1\n");
 return 1;
 }

 fwrite(b, sizeof(b), 1, f);
 printf(".");
 }

 fclose(f);
 printf("\nOk\n");
 return 0;
}
#endifdef /* #ifdef HEL_RECEIVE_FLASH */

if ((fpa = fopen (szFileName, "rb")) == NULL) {
 printf ("can't open %s\n", szFileName);
 return 2;
}
fseek (fpa, 0L, SEEK_END);
flen = ftell (fpa);
#endifdef OLD_FORMAT
fseek (fpa, 0x37L, SEEK_SET);
fread (bu, 1, 1, fpa);
if (*bu == 0xE1)
 *bu = 1;

```

```

#endif
 fseek (fpa, 0L, SEEK_SET);

 printf ("DownloadFile: %s Lenght: 0x%lx\n", szFileName,
flen);

 /* tx length of DECT image */
 v24putc (iPortHdl, (byte) flen);
 v24putc (iPortHdl, (byte)(flen >> 8));
 v24putc (iPortHdl, (byte)(flen >>16));
#ifdef OLD_FORMAT
 v24putc (iPortHdl, (byte)(flen >>24));
#else
 v24putc (iPortHdl, 2);
#endif

 /* rx length of DECT image */
 bRxErr = 0;
 dw = RxWait (200);
 dw |= (dword)RxWait (200) << 8;
 dw |= (dword)RxWait (200) <<16;
#ifdef OLD_FORMAT
 dw |= (dword)RxWait (200) <<24;
#else
 if ((res = RxWait (200)) != *bu) &&*bu != 0)
 {
 printf ("download of %s firmware to %s not possible",
 GetType (*bu), GetType (res));
 v24putc (iPortHdl, VNACK);
 return 3;
 }
#endif

 /* check length of DECT image */
 if (dw != flen || bRxErr)
 {
 printf ("error length transm.");
 v24putc (iPortHdl, VNACK);
 return 2;
 }
 v24putc (iPortHdl, VACK);
#ifdef TESTS
 {
 for (;;)
 {
 if ((res = RxWait (200)) != -1)
 {
 if (res == 0x88)
 {
 printf ("\n");
 } else {
 printf ("%02x ", res);
 }
 }
 if (kbhit())
 {
 if (getch() == ESC)
 return 99;
 }
 }
 }
#endif
}
#endif

```

```

printf ("Erasing Flash ...");
if ((res = RxWait (1500)) != VACK) /* !!! max 15 sec */
{
 int eraseNr;
 eraseNr = RxWait (200);
 printf ("\10\10\10Error");
 if (expert)
 printf (" %02X %d\n",res,eraseNr);
 v24putc (iPortHdl, VNACK);
 return 2;
}
printf ("\10\10\10Ok \n");

/* while there are bytes to transmit in the DECT image */
/* read it in portions */
while ((iv = fread (bu, 1, BUSIZE, fpa)) != 0)
{
 ik = 0;
 while (ik < iv)
 {
 v24putc (iPortHdl, bu[ik++]);
 if (kbhit())
 if (getch() == ESC)
 {
 printf ("\nDownload canceled !!!\n");
 return 22;
 }
 }
}
#ifdef SEARCH_FLASHERROR
 ii = RxWait (200);
 if (ii != VACK)
 printf ("%x ",ii);
 ww = RxWait (200);
 ww |= RxWait (200) <<8;
 v24putc (iPortHdl, VACK);
#else
 ii = RxWait (200);
 if (ii != VACK)
 {
 if (expert)
 {
 printf ("Program error %02X", ii);
 } else {
 if (ii == 1)
 printf ("type error");
 else
 printf ("Flash-CRC error");
 }
 v24putc (iPortHdl, VNACK);
 return 2;
 }

 /* rx CRC of block */
 ww = RxWait (200);
 ww |= RxWait (200) <<8;

 /* check CRC of block */
 if (ww != ComputeCRC (bu, iv) || bRxErr)
 {
 printf ("CRC error");
 }

```

```
 /* printf ("ComputeCRC: %x RetCRC %x\n", ComputeCRC (bu,
iv),
 ww); */
 v24putc (iPortHdl, VNACK);
 return 2;
 }
 v24putc (iPortHdl, VACK);
#endif
 putchar ('#');
} /* while ((iv = fread (bu, 1, BUSIZE, fpa)) != 0) */

printf ("\nOk");
return 0;
} /* DownloadFile() */
```

## 16. HW 86910 DECT Evaluation Kit

For detailed information on the HW 86910 DECT Evaluation Kit, please refer to the corresponding manual.

## 17. HW 86010 DECT wireless data communications module

For detailed information on the HW 86010 DECT wireless data communications module, please refer to the corresponding specification.



## 18. Index

### A

|                              |           |
|------------------------------|-----------|
| <b>About</b> .....           | 14        |
| Access rights class .....    | 8, 67, 68 |
| Access rights details .....  | 8, 67, 68 |
| Access rights identity ..... | 8         |
| ARC .....                    | 8, 67, 68 |
| ARD .....                    | 8, 67, 68 |
| ARI .....                    | 8         |
| ARI class A .....            | 67        |
| ARI class B .....            | 68        |

### B

|                                  |    |
|----------------------------------|----|
| <b>baud rate parameter</b> ..... | 42 |
| Baud rate selection box .....    | 57 |

### C

|                                      |                |
|--------------------------------------|----------------|
| Calculate command .....              | 58             |
| <b>Calculator</b> .....              | 14             |
| Cancel command .....                 | 54, 55, 57, 60 |
| Carrier detect .....                 | 8              |
| CD .....                             | 8              |
| Central processing unit .....        | 8              |
| <b>channel count parameter</b> ..... | 42             |
| <b>Clear screen</b> .....            | 14, 15, 38     |
| Clear to send .....                  | 8              |
| <b>Clock data</b> .....              | 12             |
| Clock data command .....             | 35             |
| clock data configuration mask .....  | 35, 54         |
| Close command .....                  | 61             |
| Code initialization example .....    | 73             |
| Code samples .....                   | 73             |
| COM port configuration mask .....    | 18, 57         |
| COM port selection box .....         | 57             |
| <b>COM port settings</b> .....       | 15             |
| Command control bar .....            | 15             |
| Command controll bar .....           | 10             |
| <b>Communication terminal</b> .....  | 15             |
| <b>Config mode</b> .....             | 13             |
| <b>config mode hint</b> .....        | 41             |
| Configuration mode .....             | 22, 63         |
| Configuration Mode .....             | 64             |
| Connection setup .....               | 34             |
| CPU .....                            | 8              |
| CRC (command table) .....            | 65             |
| <b>CTR6 Mode</b> .....               | 42             |
| CTS .....                            | 8              |

### D

|                                     |        |
|-------------------------------------|--------|
| Data carrier detect .....           | 8      |
| Data communication .....            | 8      |
| Data communication equipment .....  | 8      |
| Data reception area .....           | 20     |
| Data set ready .....                | 8      |
| Data terminal equipment .....       | 8      |
| Data terminal ready .....           | 8      |
| Data transmission area .....        | 20     |
| <b>Data transmission mode</b> ..... | 13, 63 |
| Data Transmission Mode .....        | 63     |
| Databits selection box .....        | 57     |

|                                                   |        |
|---------------------------------------------------|--------|
| DCD .....                                         | 8      |
| DCE .....                                         | 8, 42  |
| decimal .....                                     | 66     |
| DECT .....                                        | 8      |
| DECT authentication parameters .....              | 67     |
| DECT basic module .....                           | 8      |
| <b>DECT calculator</b> .....                      | 15     |
| DECT DSP C1/C2 standard .....                     | 63     |
| DECT identifiers calculation mask .....           | 18, 58 |
| DECT modem .....                                  | 8      |
| <b>DECT number</b> .....                          | 41     |
| DECT number edit field .....                      | 44     |
| Delete subscription command .....                 | 44     |
| Digital enhanced cordless telecommunication ..... | 8      |
| DISUB (command table) .....                       | 65     |
| <b>DISUB (example)</b> .....                      | 25     |
| DSR .....                                         | 8, 63  |
| DTE .....                                         | 8, 42  |
| DTR .....                                         | 8      |
| DTR line state .....                              | 21     |

### E

|                                            |        |
|--------------------------------------------|--------|
| Edit menu .....                            | 11     |
| Effects selection box .....                | 55     |
| EIC .....                                  | 8, 68  |
| EMC .....                                  | 8, 67  |
| EMC edit field .....                       | 44     |
| EMC, DECT number and PLI edit fields ..... | 58     |
| Equipment installer's code .....           | 8, 68  |
| <b>equipment manufacturer's code</b> ..... | 41     |
| Equipment manufacturer's code .....        | 8, 67  |
| <b>equipment parameter</b> .....           | 42     |
| Escape sequence .....                      | 22     |
| ETS 300 175 .....                          | 67, 68 |
| EXIT (command table) .....                 | 65     |
| EXIT command .....                         | 22, 33 |
| <b>exit program</b> .....                  | 11     |
| extended command mode .....                | 64     |

### F

|                                       |           |
|---------------------------------------|-----------|
| File architecture .....               | 69, 71    |
| File editing .....                    | 69, 71    |
| File menu .....                       | 11        |
| File sections .....                   | 69, 71    |
| File view .....                       | 70, 72    |
| <b>firmware number</b> .....          | 41        |
| <b>Firmware path</b> .....            | 12        |
| Firmware path selection box .....     | 60        |
| firmware path selection command ..... | 43        |
| Firmware path selection command ..... | 43        |
| firmware path selection mask .....    | 60        |
| firmware tabsheet .....               | 43        |
| Firmware tabsheet .....               | 39        |
| firmware update .....                 | 45, 46    |
| firmware update Mode .....            | 63        |
| <b>Firmware update mode</b> .....     | 63        |
| Firmware updates .....                | 8         |
| <b>firmware version</b> .....         | 41        |
| firmware version selection box .....  | 43        |
| Firmware version selection box .....  | 43        |
| Fixed part subno. .....               | 68        |
| Fixed part number .....               | 8, 67, 68 |

|                                               |            |
|-----------------------------------------------|------------|
| Fixed part subnumber .....                    | 8          |
| Fixed part's code samples.....                | 77         |
| <b>flashtype</b> .....                        | 41         |
| Font selection box.....                       | 55         |
| <b>Font settings</b> .....                    | 11, 15, 38 |
| <b>font settings configuration mask</b> ..... | 38, 55     |
| Font settings configuration mask .....        | 38         |
| Font style selection box.....                 | 55         |
| forcing a firmware update.....                | 46         |
| FPN.....                                      | 8, 67, 68  |
| FPS.....                                      | 8, 68      |
| <b>frequency parameter</b> .....              | 41         |

## G

|                                    |                        |
|------------------------------------|------------------------|
| GALL (command table).....          | 65                     |
| General operational elements ..... | 10                     |
| General services .....             | 17                     |
| Getting started .....              | 62                     |
| GHALL (command table).....         | 64                     |
| GHFL (command table).....          | 64                     |
| GHTY (command table).....          | 64                     |
| GIAIR (command table).....         | 65                     |
| GICNT (command table).....         | 65                     |
| GIFRE (command table).....         | 65                     |
| <b>GIPARK (example)</b> .....      | 24                     |
| GISK (command table).....          | 65                     |
| <b>GISK (example)</b> .....        | 29                     |
| GISUB (command table).....         | 65                     |
| <b>GISUB (example)</b> .....       | 31                     |
| GMALL (command table).....         | 64                     |
| GMF (command table).....           | 64                     |
| GMM (command table).....           | 64                     |
| GMQ (command table).....           | 64                     |
| GNALL (command table).....         | 64                     |
| GND.....                           | 8                      |
| GNDNR (command table).....         | 64                     |
| <b>GNDNR (example)</b> .....       | 27, 28                 |
| GNEMC (command table).....         | 64                     |
| <b>GNEMC (example)</b> .....       | 27, 28                 |
| GNSER (command table).....         | 64                     |
| GOK (command table).....           | 65                     |
| GPALL (command table).....         | 64                     |
| GPBD (command table).....          | 64                     |
| <b>GPBD (example)</b> .....        | 32                     |
| GPCCN (command table).....         | 65                     |
| <b>GPCCN (example)</b> .....       | 32                     |
| GPCTR (command table).....         | 65                     |
| <b>GPCTR (example)</b> .....       | 32                     |
| GPINI (command table).....         | 65                     |
| GPPR (command table).....          | 64                     |
| <b>GPPR (example)</b> .....        | 32                     |
| GPTM (command table).....          | 64                     |
| <b>GPTM (example)</b> .....        | 24, 25, 27, 28, 29, 30 |
| GSALL (command table).....         | 64                     |
| GSNR (command table).....          | 64                     |
| <b>GSNR (example)</b> .....        | 31                     |
| GSVER (command table).....         | 64                     |

## H

|                                           |        |
|-------------------------------------------|--------|
| Hardware .....                            | 8      |
| hardware description.....                 | 62     |
| Hardware reset .....                      | 22, 33 |
| <b>hardware serial number</b> .....       | 41     |
| Header defines and public variables ..... | 73     |
| Help line .....                           | 10, 16 |

|                                   |    |
|-----------------------------------|----|
| help menu.....                    | 14 |
| hexadecimal .....                 | 66 |
| HW 1202 .....                     | 8  |
| HW 86010 .....                    | 8  |
| HW 86010 DECT module .....        | 88 |
| HW 86010 integration manual ..... | 64 |
| HW 8611 .....                     | 8  |
| HW 86910 DECT Evaluation Kit..... | 88 |
| <b>hybrid flag</b> .....          | 41 |

## I

|                                 |        |
|---------------------------------|--------|
| Information mask.....           | 61     |
| <b>Ini file</b> .....           | 12     |
| Initialization file.....        | 69     |
| Interactive subscription.....   | 23     |
| Intercommunication setup .....  | 31, 52 |
| <b>intialization mode</b> ..... | 42     |
| IPBD (command table).....       | 64     |
| IPCCN (command table).....      | 65     |
| IPINI (command table).....      | 65     |

## L

|                                                         |    |
|---------------------------------------------------------|----|
| Link to the Hoeft & Wessel german homepage ...          | 61 |
| Link to the Hoeft & Wessel international homepage ..... | 61 |
| Link to the Hoeft & Wessel service line .....           | 61 |
| load command.....                                       | 43 |
| Load command.....                                       | 43 |

## M

|                                    |        |
|------------------------------------|--------|
| Main mask.....                     | 10     |
| Main menu.....                     | 10, 11 |
| Mode bar .....                     | 10, 16 |
| <b>modulation parameters</b> ..... | 41     |
| Module configuration .....         | 8      |
| <b>module type</b> .....           | 41     |

## O

|                           |                |
|---------------------------|----------------|
| obsolete command set..... | 41             |
| octal.....                | 66             |
| Offline subscription..... | 27, 28, 29, 30 |
| On-air subscription ..... | 23, 24, 25, 26 |
| Operating modes.....      | 63             |
| Operating system .....    | 8              |
| OS.....                   | 8              |

## P

|                                              |            |
|----------------------------------------------|------------|
| PARI.....                                    | 8          |
| <b>PARI A</b> .....                          | 67         |
| <b>PARI B</b> .....                          | 68         |
| Parity selection box .....                   | 57         |
| PARK.....                                    | 8, 23      |
| <b>PARK A</b> .....                          | 67         |
| <b>PARK A</b> (manually entered).....        | 67         |
| <b>PARK B</b> .....                          | 68         |
| <b>PARK B</b> (manually entered).....        | 68         |
| PARK, RFPI and S-parameter edit fields ..... | 58         |
| <b>paste buffer</b> .....                    | 36, 63     |
| <b>Paste buffer</b> .....                    | 14, 15, 36 |
| Paste Buffer.....                            | 36         |
| PIN edit field.....                          | 44         |

|                                                       |                |                                          |                |
|-------------------------------------------------------|----------------|------------------------------------------|----------------|
| Point-to-dedicated point communication examples ..... | 76             | <b>Service module</b> .....              | 15             |
| <b>Port configuration</b> .....                       | 11             | Set subscription command .....           | 44             |
| Portable access rights key .....                      | 8              | <b>setup.exe</b> .....                   | 9              |
| Portable part's code samples .....                    | 76             | SIAIR (command table).....               | 65             |
| Power supply unit.....                                | 8              | <b>SIAIR (example)</b> .....             | 24, 26         |
| Primary access rights identity .....                  | 68             | SIPIN (command table).....               | 65             |
| Primary access rights key .....                       | 67             | <b>SIPIN (example)</b> .....             | 24, 29         |
| Primary ARI .....                                     | 8              | SISMK (command table).....               | 65             |
| <b>protocol mode parameter</b> .....                  | 42             | SISUA (command table).....               | 65             |
|                                                       |                | <b>SISUA (example)</b> .....             | 25             |
| <b>Q</b>                                              |                | SISUB (command table).....               | 65             |
| <b>quadtune parameter</b> .....                       | 41             | <b>SISUB (example)</b> .....             | 30             |
|                                                       |                | Size selection box .....                 | 55             |
| <b>R</b>                                              |                | Software escape commands .....           | 22, 33         |
| Radio fixed part identity .....                       | 8, 67, 68      | SPBD (command table) .....               | 64             |
| Radio fixed part number.....                          | 8, 67, 68      | <b>SPBD (example)</b> .....              | 32             |
| read/writeable parameters .....                       | 42             | SPCCN (command table).....               | 65             |
| Read/writeable parameters .....                       | 40             | <b>SPCCN (example)</b> .....             | 32             |
| Read-only parameters .....                            | 40, 41         | SPCTR (command table).....               | 65             |
| Receive data .....                                    | 8              | <b>SPCTR (example)</b> .....             | 32             |
| refresh command .....                                 | 43             | SPINI (command table).....               | 65             |
| Refresh command.....                                  | 40             | Split bar .....                          | 20             |
| Request to send.....                                  | 8              | SPPR (command table) .....               | 64             |
| <b>Reset config mode</b> .....                        | 15             | <b>SPPR (example)</b> .....              | 32             |
| Reset config mode example .....                       | 75             | SPTM (command table).....                | 64             |
| <b>Reset data transmission mode</b> .....             | 15             | standard command mode .....              | 64             |
| Reset data transmission mode example .....            | 75             | Status line .....                        | 10, 16         |
| Reset firmware update mode example .....              | 80             | Stopbits selection box .....             | 57             |
| Reset menu .....                                      | 13             | string .....                             | 66             |
| Reset modes example .....                             | 73             | subscription - non-interactively.....    | 48, 49, 50, 51 |
| return code.....                                      | 66             | Subscription key (edit) field .....      | 44             |
| RFPI.....                                             | 8              | <b>subscription parameters</b> .....     | 41             |
| <b>RFPI A</b> .....                                   | 67             | subscription tabsheet .....              | 44             |
| RFPI and PARK parameters .....                        | 67             | Subscription tabsheet.....               | 39             |
| <b>RFPI B</b> .....                                   | 68             | System bar .....                         | 10, 11         |
| RI8 .....                                             |                | System requirements .....                | 8              |
| Ring indicator .....                                  | 8              |                                          |                |
| RPN .....                                             | 8, 67, 68      | <b>T</b>                                 |                |
| RTS.....                                              | 8              | TARI.....                                | 8, 67, 68      |
| RTS line state .....                                  | 21             | <b>Terminal mode</b> .....               | 13             |
| RXD .....                                             | 8              | Terminal mode mask.....                  | 17, 19         |
|                                                       |                | <b>terminal window</b> .....             | 55             |
| <b>S</b>                                              |                | Terminal window .....                    | 19, 20         |
| Sample view.....                                      | 55             | terminal-to-terminal communication ..... | 63             |
| SARI .....                                            | 67, 68         | Termination indicators .....             | 58             |
| Save command.....                                     | 54, 55, 57, 60 | <b>termination parameter</b> .....       | 42             |
| Saved parameter settings file .....                   | 71             | Tertiary ARI .....                       | 8              |
| <b>Saved settings</b> .....                           | 12             | Tools menu .....                         | 13             |
| save-to-file command.....                             | 43             | Transmit data .....                      | 8              |
| Save-to-file command .....                            | 40             | Transparent data sub-mode .....          | 33             |
| Script drop down list.....                            | 55             | TXD .....                                | 8              |
| Secondary access rights identity.....                 | 68             |                                          |                |
| Selectable clock interval .....                       | 54             | <b>U</b>                                 |                |
| <b>Send clock data</b> .....                          | 15             | up-to-date command set .....             | 41             |
| <b>Send data</b> .....                                | 13             |                                          |                |
| Serial port status bar .....                          | 19, 21         | <b>V</b>                                 |                |
| Service configuration panel.....                      | 39, 40         | V.24 line settings .....                 | 21             |
| <b>Service mode</b> .....                             | 13             | V.24 status lights .....                 | 21             |
| Service mode mask .....                               | 17, 39         | <b>virtual data loop</b> .....           | 36, 63         |
|                                                       |                | <b>Virtual data loop</b> .....           | 14, 15, 36     |

