PiccoLink®

RF600

User's Manual

CONTENT

System

The PiccoLink RF600 Wireless Data Collection System consists of three principal components:

- PiccoLink RF600 Hand Terminal(s)
- PiccoLink RF600 Base Station(s)
- The application software runs on the Host Computer

Principles of Operation

The Hand Terminals communicate with the Host Computer via the Base Station(s). The system can include several Hand Terminals and Base Stations. A Base Station can be interfaced directly to the Host Computer using an RS232C interface, or to different networks using an external adapter. The Hand Terminals can send/receive data to/from the Host Computer using the Communication protocol described this document. Data transfer between the system components is always check summed and acknowledged, this prevents any loss of data.

Communication between the Base Station and the Host Computer

The Base Station has an RS232C port with fixed settings 19200 bauds, no parity, 8 data bits, and 1 stop bit. It uses RTS/CTS hardware handshaking in the direction HOST-> Base station.

The Base Station keeps a listening watch on the radio channel and the RS232C interface, this is in order to check when the Hand Terminals or the Host Computer have data to send. When the base Station receives data from the Hand Terminal, it verifies the integrity of the data frame using CRC checksumming; only correct messages are then passed to the RS232C port. The CRC is not removed from the message so that it can be used to checking the hardware link between the Base Station and the Host Computer.

When the Base Station receives a data from the Host Computer the CRC checksum for the data frame is recalculated and only if the message is correct will it be sent for transmission on the radio channel.

Operation of the Hand terminal

The RF600 Hand Terminal is designed to use application specific forms i.e. fields in the virtual display. This helps to make the user interface of the Hand Terminal flexible and easy-to-use. The commands use to generate, modify, read and write the forms are described later in this document.

When no forms are used, the initial screen of the Hand Terminal shows as a prompt a heading which can be defined by the user and an input field. This field can be filled with data from the keyboard or from a laser scanner. Any text sent by the Host Computer will clear the screen and show the text that was sent. Any user input (from the keyboard or a laser scanner) will clear the text and the initial screen will be displayed again.

The user starts a transaction by using the Hand Terminal keyboard to make an entry or by reading a barcode. The Hand Terminal then sends this data to the Host Computer (via the Base Station) and waits for a message from the HOST. If it does not receive a correct (check summed) message within the specified time limit, it will resend the original data as many times as it has been programmed.
Note: When no entry is made on the Hand Terminal by the user, it remains in a standby state and will not be able to receive data from the Host Computer. There are some exceptions to this which will be described later.

Using the Hand Terminal

Activating

The Hand Terminal has no On/Off switch. The Hand Terminal is always ready to function by pressing any key. When resetting (SHIFT+DEL) or installing batteries, The Hand Terminal will beep twice. The Hand Terminal will resume its standby state 30 seconds after the last function.

Symbols of display

Special symbols will be shown on the right side of the display depending on the function:

SHIFTLOCK. This function will be ON or OFF by pressing the shift key,.

TRANSACTION. This sign shows up, when the Hand Terminal is communicating with the HOST.

TRANSACTION FAILURE. This sign shows up, when transaction between the Hand Terminal and the HOST has failed. This will also be indicated by five beeps.

LASER. This sign shows up, when the laser reader is activated. (yellow laser button)

EXTERNAL READER. This sign shows up, when the external reader is activated. (SHIFTLOCK + laser button)

Sounds

Resetting Hand terminal	2 beeps.
Transaction failure	5 beeps
Bad battery condition	3 beeps with different levels
Reception of message	At least 1 beep, can be more.
Successful reading of laser scanner	1 beep
Opening keylock	1 long beep
Wrong password	3 fast beeps

Keyboard

Key function table:

Key	Function with shift key (shift + key pressed at the same time).	Function with SHIFTLOCK	Normal function
Laser	***	External reader will be activated if allowed by the current input field.	The Laser reader will be activated if allowed by the current input field.
F1	RECEIVER mode ON/OFF	F6	F1
F2	***	F7	F2
F3	***	F8	F3
F4	***	F9	F4
F5	***	F10	F5
OK	Keylock ON / OFF	Normal function	The cursor will be moved to the next field and/or the content of the field sent to the HOST if allowed by the current field
Arrow up	Scrolls display upward	Moves the cursor step by step to the left.	Displays the previous field of the form.
Arrow down	Scrolls display downward	Moves the cursor step by step to the right.	Displays the next field of the form.
Shift	***	SHIFTLOCK OFF	SHIFTLOCK ON
7	***	**ABC abc**	**7**
8	***	**DEF def**	**8**
9	***	**GHI ghi**	**9**
4	***	**JKL jkl**	**4**
5	***	**MNO mno**	**5**
6	***	**PQR pqr**	**6**
1	***	**STU stu**	**1**
2	***	**VWX vwx**	**2**
3	***	**YZÅÄÖ yzåäö**	**3**
.	***	**¿ : ; ! ? " # & @ |**	**.**
0	MENU	**< > [ ] Ü { } ( ) ü**	**0**
-	Backlight (option)	Spc **+ * / % = $ £ ± ½**	**-**
DEL	Reset	Normal function	Removes a character from the current field.

F-Keys

The F-Keys F1 - F10 can be programmed to include recurring strings.

The F-Keys function in two different ways:

1. By pressing an F-Key, a string is printed in the current field. If the length of the string exceeds the length of the field, the excess characters will be omitted. If the field already contains a text, this will be replaced by the new text.
2. By pressing an F-key, the string of characters is sent to the HOST.

The instructions for defining the F-Keys are under the heading MENU in this manual.

Initial display

An initial display will always appear if no fields are defined. This will usually occur when the Hand Terminal is activated or its RAM is cleared. The initial display includes a heading which can be defined by the user and an input field of max. 18 characters.

0	<	H	E	A	D	I	N	G	>											
1																				
2		_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	_	
3																				

A string of characters in the initial display can be sent to the HOST by pressing the OK button or read with a laser scanner.

Input fields

The RF500 Hand Terminal has a virtual display page of 12 x 20 characters. The actual display size is 8 x 20 characters, thus 2/3 of the virtual page can be viewed at a time

Depending on the application, the HOST can send fields to the Hand Terminal. Those may be filled using the keyboard or a laser scanner. Fields are typically underlined.

Locked fields

Fields can generally be filled with text using the keyboard. An exception to this is caused by locked fields. When a locked field is active, the cursor is the same length as the field. A locked field cannot be read by a laser scanner, either. A locked field functions like a button the content of which can be sent to the HOST by pressing OK.

Filling fields using the laser scanner

1. A field can be defined to be filled using a laser scanner and sent to the HOST.
2. A field can be defined to be filled using a laser scanner but **not** sent to the HOST.
3. A field can be defined not to be filled using a laser scanner.

If a field already contains a text, this will be replaced by the new text.

Writing text in a field

An active field is indicated by the cursor. An active field can be filled with text using the keyboard and/or using a laser scanner.

You can move the cursor in the field step by step using the arrow keys if SHIFLOCK is ON.

Writing letters

Letters can be written in a field when the SHIFTLOCK is ON by pressing the number keys containing letters. When a key is pressed once the first indicated letter will appear. When pressed twice the second letter will be shown, and so on.

CAPITAL- or small letters can be changed by pressing a key for at least 1.2 sec.

Removing letters

Letters can be removed from a field with the DEL key.
An entire field can be cleared by pressing the DEL key for at least 0.5 sec.

Moving between fields

You can move between the fields using the **arrowkeys.**
By pressing the OK key, you can move to the next field.

MENU

The settings of the Hand Terminal can be changed through the Menu. The Menu will be activated only if the initial display is on by pressing the keys SHIFT + 0.

You can move in the Menu using the arrow keys. The desired item is selected by pressing the OK key. You can move backwards in the Menu by pressing << .
After choosing an item in the Menu, it must be confirmed by pressing the OK key. A changed setting will be signalled by a beep.

Settings

The most important settings can be changed using a password (0-9999).
The Initial setting is 0.
.

Heading   The Initial display heading. Max 20 characters.
Extra-ID   The Hand Terminal sends this ID to the HOST (0-255).
Password   Change of Password (0 – 9999).
F-keys   Editing of Function keys F1 - F10. You can define a 15- character- long text under an F-key. F-Keys can be defined two different ways: To be printed in the field or to be sent to the HOST. If you add ¿ at the end of a text, it will be sent to the HOST by pressing the F-key.

Example

```
F1: Hello ¿_ _ _ _ _ _ _ _ _ _     Send "Hello" to the HOST .
F2: Hey _ _ _ _ _ _ _ _ _ _ _ _     Print "Hey" in the field.
```

The ¿ character can easily be obtained by pressing SHIFLOCK + **.** if the capitals are on.

RF-settings

Channels. Channel 1-7.
Resending times. How many times a message is sent to the HOST if no answer is receive. If the Hand Terminal cannot get a response from the Base Station, and all the resending times have been used, the transaction failure sign F will be prompt on the display.
Reception timelimit. The time limit during which the Base Station must respond to the Hand Terminal before the message is resent.

Adjustments

Key sounds	On / Off
Volume	Beep level. Three different levels.
Battery	0, if using NI-CD or NI-MH rechargeable batteries. 1, if using normal batteries.

Info

Information about battery condition and number of software version.

Laserscanner

Do not stare into beam. Danger to the eyes. Class 2 laser product.

Desk Top Charger (DTC05)

CAUTION ! DO NOT PLACE A DEFECTIVE HAND HELD UNIT INTO THE CHARGER.

General information

>   The Desk Top Charger (model DTC05) is used for charging the rechargeable batteries of the
>   PiccoLink RF600 Hand Terminal. It is a fast charger which reduces the charging time. Using the
>   Desk Top Charger the batteries may be charged without removing them from the Hand
>   Terminal. The charging procedure is directed through the Hand Terminal.
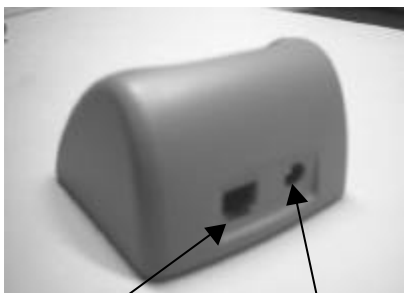
Equipment needed

>   - DTC05 Desk Top Charger
>   - Power Supply (9525)
>   - AA-size rechargeable batteries. NiCd or NiMH
>   - PiccoLink RF600 Hand Terminal
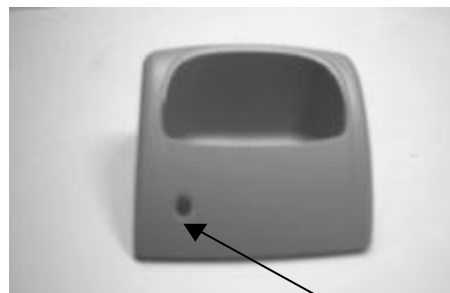
Connectors

>   The charger includes 3 connectors:
>   - For the Hand Terminal
>   - For the power supply
>   - For the RS232C serial connector

RS232 serial connector   Power supply   Charging indicator
                           (DC 7,5V)

Technical data

>   Rechargeable batteries   Size AA. NiCd or NiMH
>   Charging methods   Quick charge and trickle
>   Charging current   650 mA
>   Charging time   Ca 1,5 h (850 mAh battery)
>   Ca 2,5 h (1400 mAh battery)

Charging the batteries

Caution! Do not attempt to charge regular or alkaline batteries as this may cause an explosion. Use only rechargeable batteries recommended by the manufacturer.

Charging batteries using the DTC05 Desk Top Charger:

- Batteries must be in the Hang Terminal to allow charging.
- Check that the Hand Terminal batteries are rechargeable.
- Check that the settings for the Hand Terminal have been configured as follows: MENU > ADJUSTMENTS > BATTERY > 0. (See User´s Manual: MENU).
- Connect the adapter (9525) to the power supply connector of the charger (see picture).
- Place the Hand Terminal in the charger.
- The charging indicator led will remain ON during quick charging.
- The led will to blink when the battery is fully charged. Charger current led will then be reduced to a trickle charge current

The Desk Top Charger may only be used with the Power Supply provided by the manufacturer.

The Hand Terminal cannot be used during battery charging.

It is normal for the base of the charger to become warm during charging.

Audio signals and the led indicator on the charger

Charging indicator:

Quick charge	The led remains on
Trickle charge	The red led blinks

Audio signals:

Three successive beeps	Charging not allowed (the Hand Held unit does not include rechargeable batteries).
Two successive beeps (long-short)	The battery is being charged

TO AVOID DAMAGE OR ACCIDENTS, THE DESK TOP CHARGER MUST NOT BE USED FOR ANY OTHER PURPOSE THAN THAT STATED IN THIS MANUAL.