This supplement should be used together with the user's manual for PHL2700.

This supplement describes the RF-ID feature of the PHL2700 and provides additional information or changes of the general functioning of PHL2700-RFID terminal in comparison to the standard PHL2700 terminal.

The exact behavior of the terminal depends on the installed user application. For instructions about applications please consult the documentation of that software.

Read this supplement for RF-ID and the user's manual for PHL2700 carefully before using the terminal, to maximise the efficiency of this terminal.

The changes for PHL2700 RF-ID in comparison to the standard PHL2700, (displayed in bold text) concerns:

Chapter 1	added RF-ID technolgy
Chapter 2	updated details of terminal
Chapter 3	use different software
Chapter 4	added scanning instructions for RF-ID
Chapter 5	unchanged
Chapter 6	added RF-ID specifications updated battery specifications
Chapter 7	added troubleshooting for RF-ID scanning
Chapter 8	new terminal article code new software article code

Laser Terminal PHL 2700

with RF - Identification feature

RF-ID SUPPLEMENT

CAUTION: This user's manual is preliminary and may be revised or withdrawn at any time without prior notice.

1 RF-ID SUPPLEMENT

INTRODUCTION

The terminal is a compact, programmable handheld terminal, and is well suited for a variety of indoor portable applications. It has a built-in laser scanner that can scan all popular bar code labels at varying distances.

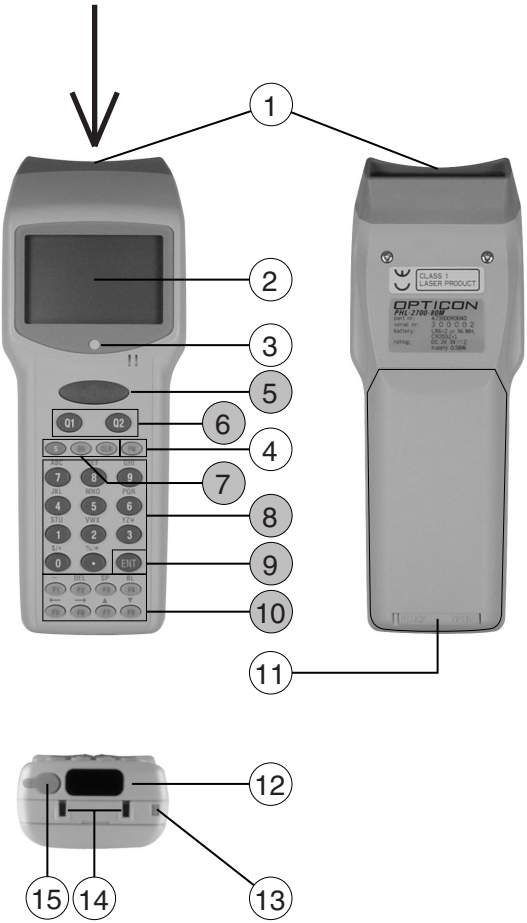
In addition, the terminal is equipped with RF-ID technology and has RF read/write capability for various types of RF-ID tags. For the data reading and writing the 13.56 MHz ISM frequency is used.

2 RF-ID SUPPLEMENT

INSTALLATION

2.2.2 Details of terminal:

1. Reading window
   - laser beam for barcode reading will be emitted from here
   - **antenna for RF-ID reading / writing is located here**



2. LCD Display
   for displaying information

3. LED indicator
   can be used to indicate results, for example bar code reading / status of communication

4. Power key
   for switching power On/Off

5. Trigger key ● definable by user's application
   typical use: dual read key
   - switches laser beam on for barcode reading
   - switches RF-ID module on for RF-ID reading/writing

6. Quick keys ● definable by user's application
   typical use: menu scroll keys or yes/no input

7. Control keys ● definable by user's application
   for controlling basic functions
   typical use as below:
   CLR : Cancel input
   BS : Back space
   S : Shift key
   "S"on the LCD display indicates the terminal is in the shift mode

8. Character keys ● definable by user's application
   typical use: for input of alpha-numeric and punctuation characters

9. ENT key ● definable by user's application
   typical use: for confirming input

10. Function keys ● definable by user's application
    user programmable keys, to be used together with shift key.
    typical use as shown on next page

11. Battery case cover
    for housing main battery

12. Optical interface window
    for infra red communication

13. Hand strap pillar
    for attaching hand strap

14. Electrical contacts
    for power supply from the cradle IRU2700 to terminal

15. RS-232C connector
    for connecting external device, or for system expansion, through Opticon RS232 cable

RF-ID SUPPLEMENT

3 OPERATION OF THE TERMINAL

The functionality of the terminal is determined by software, the so-called user application, that is running on the terminal.

A tool for developing a user application on the PC for use on the terminal, as supplied by Opticon is:

- **C language, consisting of:**
  - **Microtec ANSI-C compiler**
  - **C library for handheld terminals**
  - **RF-ID addon library**

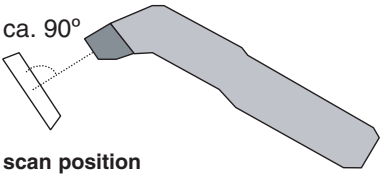
Note!

- **An additional C-library for the PHL2700 with RF-ID feature has been developed, that needs to be used together with the C-compiler and C-library for handheld terminals.**
- **Application Generator Potstar will soon support Opticon handheld terminals with RF-ID technology. (Contact Opticon for availability)**

RF-ID SUPPLEMENT

4 SCANNING

Depending on the user application that is running, the terminal can use the RF-ID technology for reading a RF-ID tag or for a combination of reading and writing. The terminal will detect, read, and write the RF-ID tag in the way as defined by the user.



scan position

- How to position the terminal

The read direction must be perpendicular to the plane surface of the tag, as shown in the scan position illustration.

- How to read the RF-ID tag

Point the nose of the terminal on the tag. Note that the maximum reading distance depends on the type of tag.

When a tag is not responding to the terminal move the nose to another location of the tag.

- How to write the RF-ID tag

Make sure the tag will not move and hold the terminal stable for the time that it is writing. If the tag moves out of the antenna field before the writing is completed, the writing operation will fail.

- RF-ID tag reading/writing problems

- **Reduce the distance between the tag and the terminal.**
- **Point the terminal to the edge of the tag.**
- **Make sure there is only one tag in the reading range.**

RF-ID SUPPLEMENT

6 SPECIFICATIONS

6.1 SPECIFICATIONS TERMINAL

6.1.1 Electrical specifications

Main battery	☐ rechargeable pack: Ni-MH ☐ dry cell: Alkaline penlite ☐ optional: other 2 x AA-size penlite
Main battery operating time	☐ Ni-MH: When having every 10 seconds on: 1 sec laser, 0.4 sec. green LED, 0.4 sec. buzzer, 1 sec. RFIDtag reading, 0,2 sec. RFIDtag writing, **operating time is: approx. 22 hours** ☐ Alkaline: When having every 10 seconds on: 1 sec laser, 0.4 sec. green LED, 0.4 sec. buzzer, 1 sec. RFIDtag reading, 0,2 sec. RFIDtag writing, **operating time is: approx. 43 hours** ☐ Different operation conditions affect the operating time ☐ Use of other penlite batteries affect the operating time
Backup battery	Lithium (CR2032)
Backup battery operating time	If fully charged: 30 days backup time
Battery management	☐ Low voltage indicated on the terminal display. ☐ When battery is low the terminal switches off automatically.
Charging method	☐ Rechargeable Ni-MH pack in terminal via cradle

6.1.5 Environmental specifications

Emission	According to EN50081, part 1
Immunity	According to EN50082, part 1
R&TTE	**conform I-ETS 300-330**

Additional specifications

☐ **Specifications RF-ID module (RF-ID tag reading)**

Reading range up to 15 mm, dependent on type of RF-ID tag.

☐ **Supported RF Tags**

Philips I-Code
Texas Instruments Tag-It
(on request: Gemplus GEM wave)
For more information contact Opticon.

☐ **Supported RF Frequencies**

13,56 MHz
(on request: 125 KHz, Low frequency)
For more information contact Opticon.

RF-ID SUPPLEMENT

7 TROUBLE SHOOTING

General checks:

- ☐ Make sure everything is installed properly
- ☐ Check the power supply of all devices
- ☐ Is the reading window of the terminal clean?
- ☐ Is the optical window of the cradle clean?
- ☐ **Is the RF-ID tag readable, eg. not damaged?**
- ☐ **Has the terminal been configured to read the type of RF-ID tag? Consult your application.**

7.2 READ OPERATION PROBLEMS

When the terminal has a problem with reading/writing the RF-ID tag:

A metal object is placed direct above or below the RF-ID tag.

- ☐ **Remove the metal object or move the tag to an other area.**

The RF-ID tag is not read

- ☐ **Decrease the distance between the tag and the terminal.**
- ☐ **Point the terminal to the edge of the tag.**
- ☐ **Make sure there is only one tag in the reading range.**
- ☐ **Place the nose of the terminal in perpendicular direction with the tag.**

The RF-ID tag is not recognized

- ☐ **When using I-code tag, possibly the tag is in "quiet" mode. Enable the terminal to send a "reset quiet mode" command. (consult documentation of user application)**
- ☐ **Check if the type of RF-ID tag is supported by the user's application. If not, enable it. (consult documentation of user application)**

RF-ID SUPPLEMENT

8 ORDERING INFORMATION

	Article Code
Terminal	
☐ **PHL 2700-RFID**	**A73800R0045**
Software development tools	
☐ **Microtec ANSI-C cross compiler**	**O8010000010**
☐ **C-library for handheld terminals including addon PHL2700 - RFID**	**D4030000020**