

GRYPHON™ BT SH3500

REFERENCE MANUAL



DATALOGIC

DATALOGIC S.p.A.
Via Candini 2
40012 - Lippo di Calderara di Reno
Bologna - Italy

GRYPHON™ BT SH3500

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GENERAL VIEW

GRYPHON™ BT SH3500 READER

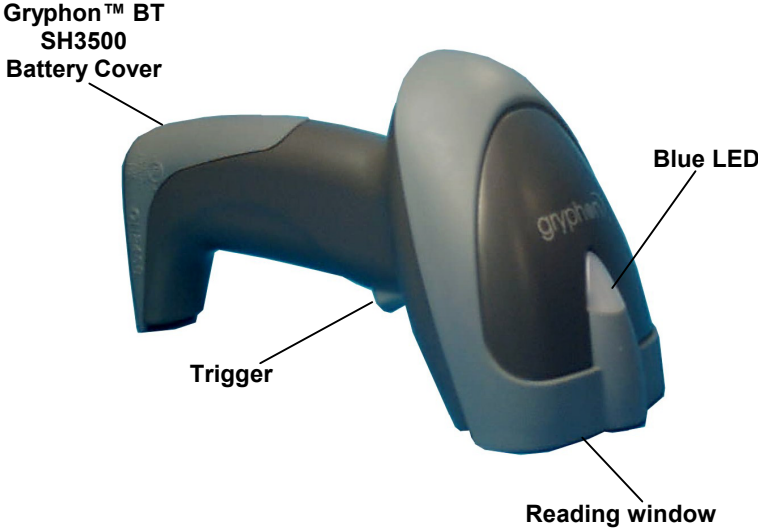


Figure A – Gryphon™ BT SH3500 Series Reader

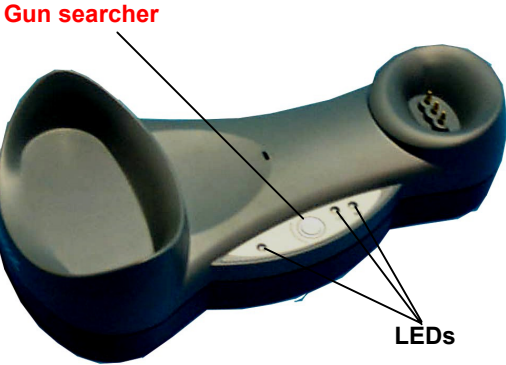


Figure B – OM-Gryphon™ BT SH3500

COMPLIANCE

This device must be opened by qualified personnel only.

The batteries must be removed before opening the device.

Modifications or changes to this equipment without the expressed written approval of Datalogic could void the authority to use the equipment.

This device complies with PART 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference which may cause undesired operation.

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

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

Contact the competent authority responsible for the management of radio frequency devices of your country to verify the eventual necessity of a user license.

Refer to the web site <http://europa.eu.int/comm/enterprise/rtte/spectr.htm> for further information



LED CLASS



1 INTRODUCTION

Datalogic has moved a step ahead in the concept of “instinctive reading”. The new **Gryphon™ BT SH3500** reader series has been developed to provide optimised reading performance through excellent ergonomic design, a natural instinctive reading approach and innovative good reading feedback.

The Gryphon™ BT SH3500 (Gryphon™ Bluetooth®) reader is a CCD wireless barcode scanner communicating in the 2.4 GHz ISM band and using the Serial Port Profile (SPP). Thanks to a Bluetooth® device, such as a Bluetooth® dongle, the reader can send data to a remote Host such as a PC, PDA, printer, etc.

The “INSTINCTIVE READING DISTANCE,” a concept introduced by Datalogic a few years ago based on in-depth ergonomic studies, represents the natural position of the user while reading a code. The Gryphon™ BT SH3500 series takes this concept one step further. It allows wireless operations at the desk/POS within a 10 meter range. The new “blue spot,” (Datalogic patent application) produced by the Gryphon™ BT SH3500 provides “good reading” feedback directly on the code, where the user usually tends to be looking. Correct pointing becomes quick and easy thanks to the sharp and bright illumination line. All these characteristics are coupled with outstanding performance in terms of reading quickness and decoding capability thanks to state-of-the-art optics and a decode rate of 270 scans/sec, making the Gryphon™ BT SH3500 very user friendly, intuitive and fast.

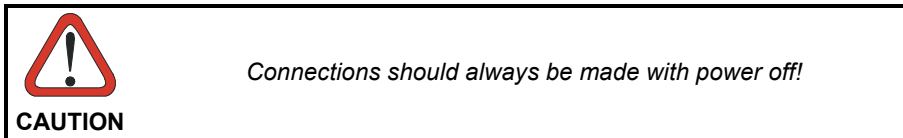
Specially optimised optics allow reading of the most popular standard codes with superior depths of field from near contact to over 30 cm. High resolution codes, which can reach 3 mils are also easily read. The Gryphon™ BT SH3500 reader is paving the road for innovative barcode reading.

The OM-Gryphon™ BT SH3500 cradle is provided in the package to build a Cordless Reading System for the collection, decoding and transmission of barcoded data. It can be connected to a Host PC through a USB, RS232 or Wedge emulation cable. The OM-Gryphon™ BT SH3500 also allows charging the Gryphon™ BT SH3500 batteries.

2 GRYPHON™ BT SH3500 POWER

To begin using your Gryphon™ BT SH3500 reader you must charge the Gryphon™ BT SH3500 battery using OM-Gryphon™ BT SH3500 as described in par. 2.3. A full charge takes less than 4 hours with Li-Ion batteries.

2.1 POWERING THE OM-GRYPHON™ BT SH3500



Apply power to OM-Gryphon™ BT SH3500 by connecting a power supply unit to the connector on the base of the cradle.

OM-Gryphon™ BT SH3500 is ready to charge Gryphon™ BT SH3500 reader Li-Ion batteries.



OM-Gryphon™ BT SH3500 Power Supply Connector

2.2 BATTERY TYPE

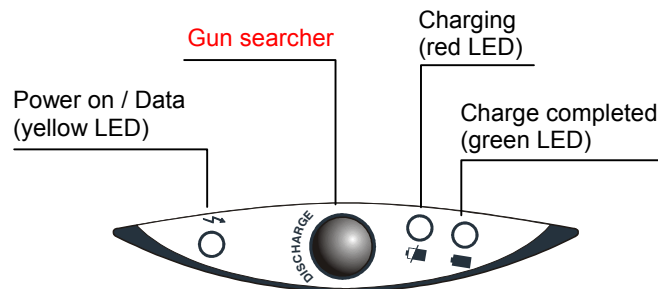
You can install Li-Ion batteries in the Gryphon™ BT SH3500.

2.3 BATTERY CHARGING

Once the system is connected and powered, you can place the Gryphon™ BT SH3500 onto the cradle to charge the battery.







Charging the Batteries



When the reader is correctly placed onto the cradle, the red LED on the cradle goes on to indicate that the battery is charging. The green LED on the cradle goes on when the battery is completely charged.

The LEDs positioned on the cradle signal the charge status, as described in the following table:

	LED	STATUS
	Power on / Data	Yellow On = OM-Gryphon™ is powered. Yellow Blinking = OM-Gryphon™ receives commands from the Host.
	Charging	Red On = the battery charge is in progress. Red Blinking = the battery reconditioning is in progress.
	Charging completed	Green On = the battery is completely charged.
	Charging + Charging completed	Red and Green Blinking together = The reader is not correctly placed onto the cradle.

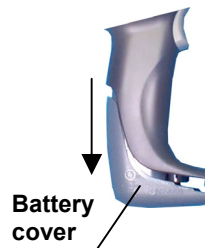
2.4 REPLACING GRYPHON™ BT SH3500 BATTERIES

To change the batteries in your GRYPHON™ BT SH3500 scanner, proceed as follows:

1. Unscrew the battery cover screw.



2. Open the battery cover.



3. Replace the old battery pack with new one, then screw the battery cover back into place.



Li-Ion Battery Pack



CAUTION

Dispose of used batteries properly.

Do not disassemble, modify, heat or throw batteries into fire. This could cause leakage of liquid, generation of heat or, in extreme cases, explosion.

Replace only with the same type recommended.

3 GRYPHON™ BT SH3500 OPERATION

3.1 BLUETOOTH® DEFINITIONS

Bluetooth® address:	a unique 12-character hexadecimal, IEEE 48-bit address (BT_ADDR) that represents a Bluetooth® device.
Bluetooth® controller:	A sub-system containing Bluetooth® RF, baseband, resource controller, link manager, device manager, and Bluetooth® HCI.
Bluetooth® device:	a device that is capable of short-range wireless communication using the Bluetooth® system.
BT:	abbreviation for Bluetooth®. Bluetooth® protocol is a predefined rule that sets out a specific system for devices to communicate with each other and a protocol stack is the layering of the protocols that are used in a specific technology. The Bluetooth® Radio protocol operates in the 2.4GHz ISM band.
Remote Bluetooth® device:	any Bluetooth® device the reader can communicate with.
SPP:	Serial Port Profile. Bluetooth® profile creating an RS232 cable replacement.
Master:	the first Bluetooth® device initiating the radio connection (Discovery procedure).
Slave:	a Bluetooth® device which can only wait for a Bluetooth® Master device to initiate a connection with it.
Piconet:	Bluetooth® device network where a Master can communicate with up to 7 Slaves.

For further information about Bluetooth technology see the website:

<https://www.bluetooth.org/>

3.2 BLUETOOTH® RADIO CONNECTION

During typical operation a physical radio channel is shared by a group of devices that are synchronized to a common clock and frequency hopping pattern. One device provides the synchronization reference and is known as the **Master**. All other devices are known as **Slaves**. A group of devices synchronized in this fashion form a **piconet**.

Most Bluetooth® devices can be both Master or Slave. The Master will be the first unit to initiate the connection (page procedure).

Some devices can only be Slaves (i.e. printers). They can only wait for a Bluetooth® Master device to initiate a connection with them.

Gryphon™ BT SH3500 can be either Master or Slave. As Master it can initiate a connection with only one Slave device.

The blue LED and / or the beeper always indicate the reader radio connection status (see also the Reader Status table, at page 62):

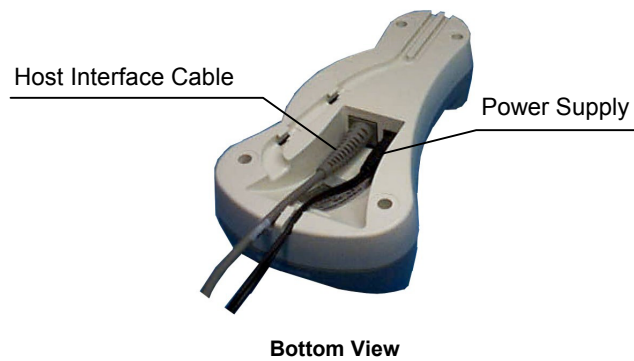
- the radio connection is signaled by the blue LED through a single blink at regular intervals, while if the reader radio is disconnected the LED emits two short blinks at regular intervals;
- during the initialization procedure, if the radio connection attempt is successful, the reader emits four ascending tones;
- the radio disconnection is signaled by four descending tones.

3.3 OM-GRYPHON™ BT SH3500 CABLE CONNECTIONS

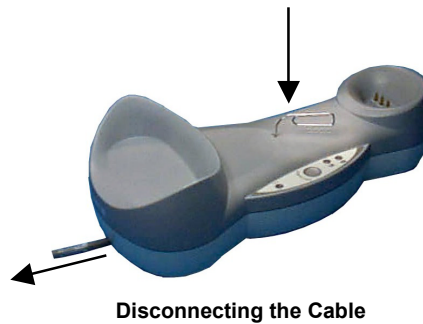
The OM-Gryphon™ BT SH3500 incorporates a multi-standard interface which can be connected to a Host by simply plugging an RS232, USB or Wedge emulation cable into the Host connector, placed on the base of the cradle. In addition the cradle must be connected to an external power supply.

To connect the OM-Gryphon™ BT SH3500:

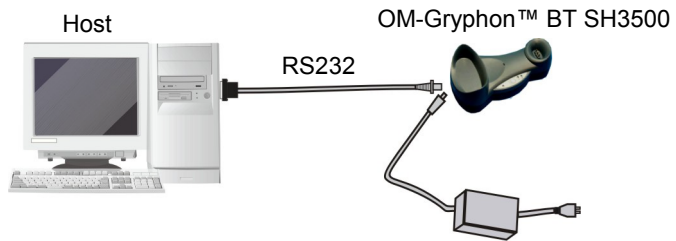
1. Connect the OM-Gryphon™ BT SH3500 to the appropriate interface cable which must be simply plugged into the Host connector on the base of the cradle.
2. Connect the cradle to an external power supply, see the figure below.



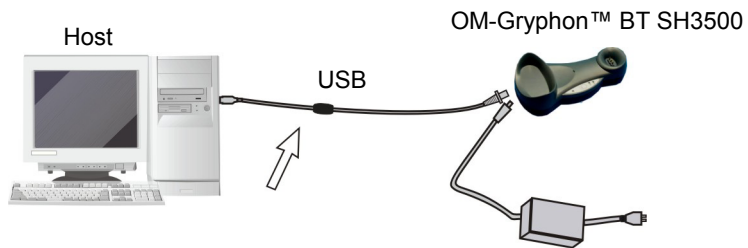
To disconnect the cable, insert a paper clip or other similar object into the hole corresponding to the Host connector on the body of the cradle. Push down on the clip while unplugging the cable. Refer to the following figure:



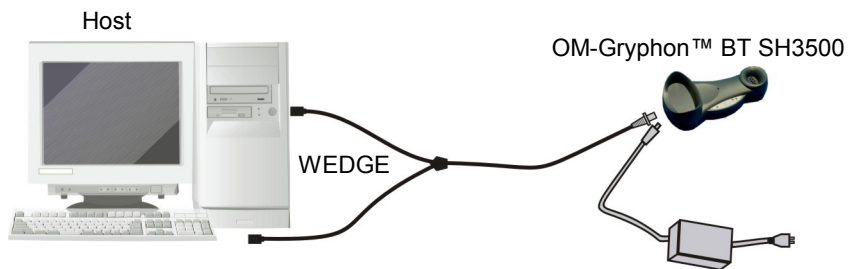
3.4 RS232 CONNECTION



3.5 USB CONNECTION



3.6 WEDGE CONNECTION



4 CONFIGURATION

4.1 CONFIGURATION METHOD

4.1.1 Reading Configuration Barcodes

This manual can be used for complete setup and configuration of your reader by following the setup procedures in this chapter (see par. 4.2 for an overview).

If you wish to change the default settings, this manual provides complete configuration of your reader in an easy way.

To configure your reader:

- 1) Open the page of [Appendix C](#) with the hex-numeric table and keep it open during the device configuration.
- 2) Read the **Enter Configuration** code ONCE, available at the top of each page of configuration.
- 3) Modify the desired parameters in one or more sections following the procedures given for each group.
- 4) Read the **Exit and Save Configuration** code ONCE, available at the top of each page of configuration.

Reference notes describing the operation of the more complex parameters are given in chapter 5.

4.2 SETUP PROCEDURE

Follow the given procedure to set up Gryphon™ BT SH3500.

Read the restore default parameters code below.

1. **Restore Gryphon™ BT SH3500 Default**



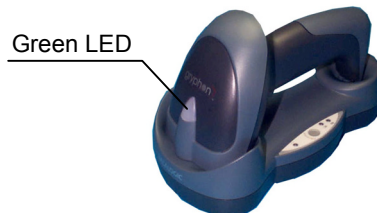
2. Read the **Bind** code to pair the Gryphon™ BT SH3500 to the OM-Gryphon™ BT SH3500 cradle.
The reader is dedicated to the cradle. Any previously **bound** reader will be excluded.

Bind



The green LED on the Gryphon™ BT SH3500 will blink; the reader is ready to be positioned onto the cradle.

3. Firmly position the reader onto the OM-Gryphon™ BT SH3500 cradle within 10 seconds, a beep will be emitted, signaling that the OM-Gryphon™ BT SH3500 cradle has been paired to the Gryphon™ BT SH3500, and the green LED on the reader will go off.



YOUR READER IS NOW CONFIGURED TO READ BARCODES USING THE DEFAULT VALUES.

4. Configure the OM-Gryphon™ BT SH3500 cradle. Refer to par. 4.3, par. 4.4 or par. 4.5 depending on the interface selection code required for your application

4.3 RS232 INTERFACE SELECTION

1. Read the OM-Gryphon™ BT SH3500 restore default code:

Restore OM-Gryphon™ BT SH3500 Default



2. Read the RS232 interface selection code:

RS232



4.4 WEDGE INTERFACE SELECTION

1. Read the OM-Gryphon™ BT SH3500 restore default code:

Restore OM-Gryphon™ BT SH3500 Default



2. Read the interface selection code for your application:

WEDGE

IBM AT or PS/2 PCs



IBM XT



4.5 USB INTERFACE CONFIGURATION AND SELECTION

The USB interface is compatible with:

Windows 98 (and later)	IBM POS for Windows
Mac OS 8.0 (and later)	4690 Operating System

USB START-UP

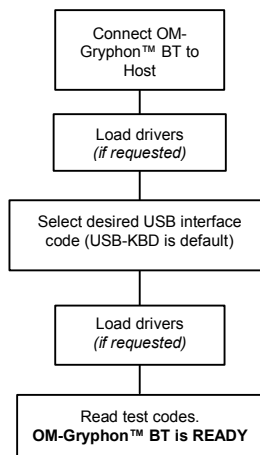
As with all USB devices, upon connection, the Host performs several checks by communicating with the OM-Gryphon™ BT SH3500. Before the OM-Gryphon™ BT SH3500 is ready, the correct USB driver must be loaded.

For all systems, the correct USB driver for the default USB-KBD interface is included in the Host Operating System and will either be loaded automatically or will be suggested by the O.S. and should therefore be selected from the dialog box (the first time only).

You can now read codes with the associated Gryphon™ BT SH3500 reader. At this point you can read the USB interface configuration code according to your application. Load drivers from the O.S. (if requested). When configuring the USB-COM interface, the relevant files and drivers must be installed from the USB Device Installation software which can be downloaded from the web site: <http://www.datalogic.com>.

The OM-Gryphon™ BT SH3500 is ready.

First Start-Up



Successive start-ups will automatically recognize the previously loaded drivers.

4.5.1 USB Interface Selection

USB

USB-KBD (default)



USB-COM*



- * When configuring USB-COM, the relevant files and drivers must be installed from the USB Device Installation software which can be downloaded from the web page (see <http://www.datalogic.com>).

4.6 CHANGING DEFAULT SETTINGS

Once your reader is setup, you can change the default parameters to meet your application needs. Refer to the preceding paragraphs for initial configuration in order to set the default values and select the interface for your application.

In this manual, the configuration parameters are divided into logical groups making it easy to find the desired function based on its reference group.

The first three groups are for Standard Interface parameter configuration:

- **RS232**
- **USB**
- **WEDGE**

The following parameter groups are common to all interface applications:

DATA FORMAT parameters regard the messages sent to the Host system.


READING PARAMETERS control various operating modes and indicator status functioning.

CODE SELECTION parameters allow configuration of a personalized mix of codes, code families and their options.

RADIO PARAMETERS allow configuration of radio control parameters.

RS232 PARAMETERS

⊙	BAUD RATE	⊙
⊙	PARITY	⊙
⊙	DATA BITS	⊙
⊙	STOP BITS	⊙

- 1.** Read the **Enter Configuration** code ONCE, available at the top of each page.
- 2.** Read configuration codes from the desired groups.
 -  = Read the code and follow the procedure given
 - ◆ = Default value
- 3.** Read the **Exit and Save Configuration** code ONCE, available at the top of each page.

Enter configuration



Exit and Save Configuration



RS232

BAUD RATE

150 baud



300 baud



600 baud



1200 baud



2400 baud



4800 baud



◆ 9600 baud



19200 baud



38400 baud



Enter configuration



Exit and Save Configuration



RS232

PARITY

◆ none



even parity



odd parity



DATA BITS

7 bits



◆ 8 bits



9 bits



Enter configuration



Exit and Save Configuration



RS232

STOP BITS

◆ 1 stop bit




2 stop bits



USB

⊙ **USB-KBD** ⊙
Keyboard nationality

- 1.** Read the **Enter Configuration** code ONCE, available at the top of each page.
- 2.** Read configuration codes from the desired groups.
 = Read the code and follow the procedure given
◆ = Default value
- 3.** Read the **Exit and Save Configuration** code ONCE, available at the top of each page.

Enter configuration



Exit and Save Configuration



USB

KEYBOARD NATIONALITY

This parameter default value is restored through the Interface Selection code and not Restore Default.

Belgian



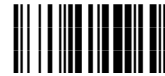
English



French



German



Italian



Spanish



Swedish



◆ USA




Japanese



WEDGE PARAMETERS

⊙	<i>KEYBOARD NATIONALITY</i>	⊙
⊙	<i>CAPS LOCK</i>	⊙
⊙	<i>CAPS LOCK</i>	⊙
	<i>AUTO-RECOGNITION</i>	

- 1.** Read the **Enter Configuration** code ONCE, available at the top of each page.
- 2.** Read configuration codes from the desired groups.
 -  = Read the code and follow the procedure given
 - ◆ = Default value
- 3.** Read the **Exit and Save Configuration** code ONCE, available at the top of each page.

Enter configuration



Exit and Save Configuration



WEDGE

KEYBOARD NATIONALITY

Belgian



English



French



German



Italian



Spanish



Swedish



◆ USA



The Japanese Keyboard Nationality selection is valid only for IBM AT compatible PCs.

Japanese



Enter configuration



Exit and Save Configuration



WEDGE

CAPS LOCK

◆ caps lock OFF



caps lock ON



Select the appropriate code to match your keyboard caps lock status.

Note: For **IBM AT and PC Notebook** interface selections, the caps lock status is automatically recognized, therefore this command is not necessary.

CAPS LOCK AUTO-RECOGNITION (IBM AT COMPATIBLE ONLY)

disable




◆ enable



DATA FORMAT

⊙ *HEADER* ⊙
⊙ *TERMINATOR* ⊙

- 1.** Read the **Enter Configuration** code ONCE, available at the top of each page.
- 2.** Read configuration codes from the desired groups.
 -  = Read the code and follow the procedure given
 - ◆ = Default value
- 3.** Read the **Exit and Save Configuration** code ONCE, available at the top of each page.

Enter Configuration



Exit and Save Configuration



DATA FORMAT

HEADER

◆ no header



one character header



two character header



three character header



four character header



five character header



six character header



seven character header



eight character header



After selecting **one** of the desired Header codes, read the character(s) from the HEX table.

Valid characters for all readers are in the range: **00-FE**

Example:

four character header



+ 41 + 42 + 43 + 44 = Header **ABCD**

Enter Configuration



Exit and Save Configuration



DATA FORMAT

TERMINATOR

no terminator



one character terminator



two character terminator



three character terminator



four character terminator



five character terminator



six character terminator



seven character terminator



eight character terminator



After selecting **one** of the desired Terminator codes, read the character(s) from the HEX table.

Valid characters for all readers are in the range: **00-FE**

Example:

two character terminator




+ 0D + 0A = Terminator CR LF

◆ Default terminators = CR LF.

READING PARAMETERS

⊙	<i>HAND-HELD OPERATION</i>	⊙
⊙	<i>FLASH MODE</i>	⊙
⊙	<i>BEEPER INTENSITY</i>	⊙
⊙	<i>BEEPER TONE</i>	⊙
⊙	<i>BEEPER TYPE</i>	⊙
⊙	<i>BEEPER LENGTH</i>	⊙

- 1.** Read the **Enter Configuration** code ONCE, available at the top of each page.
- 2.** Read configuration codes from the desired groups.
 -  = Read the code and follow the procedure given
 - ◆ = Default value
- 3.** Read the **Exit and Save Configuration** code ONCE, available at the top of each page.

Enter Configuration



READING PARAMETERS

Exit and Save Configuration



HAND-HELD OPERATION

◆ hardware trigger



software trigger



FLASH MODE

"FLASH" ON duration



"FLASH" OFF duration



Read 2 numbers in the range 01-99:

01 to 99 = from .1 to 9.9 seconds.

◆ Flash-ON = 1 sec. Flash-OFF = 0.6 sec

Enter Configuration



Exit and Save Configuration



READING PARAMETERS

BEEPER INTENSITY

* very low intensity



low intensity



medium intensity



◆ high intensity



* This sets the beeper OFF for data entry, while for all other beeper signals it has the meaning very low intensity.

The Intensity parameter is effective for all operating conditions described in par. 8.3.

BEEPER TONE

tone 1



◆ tone 2



tone 3



tone 4



Enter Configuration



Exit and Save Configuration



READING PARAMETERS

BEEPER TYPE

◆ monotone



bitonal



BEEPER LENGTH

long




◆ short



CODE SELECTION

⊙	<i>EAN/UPC FAMILY</i>	⊙
⊙	<i>2/5 FAMILY</i>	⊙
⊙	<i>CODE 39 FAMILY</i>	⊙
⊙	<i>CODE 128 FAMILY</i>	⊙
⊙	<i>CODABAR FAMILY</i>	⊙
⊙	<i>CODE 93</i>	⊙
⊙	<i>MSI</i>	⊙
⊙	<i>PLESSEY</i>	⊙
⊙	<i>TELEPEN</i>	⊙
⊙	<i>DELTA IBM</i>	⊙
⊙	<i>CODE 11</i>	⊙
⊙	<i>CODE 16K</i>	⊙
⊙	<i>CODE 49</i>	⊙
⊙	RSS FAMILY	⊙

1. Read the **Enter Configuration** code ONCE, available at the top of each page.
2. Read configuration codes from the desired groups.
 = Read the code and follow the procedure given
◆ = Default value
3. Read the **Exit and Save Configuration** code ONCE, available at the top of each page.

Enter Configuration



Exit and Save Configuration



CODE SELECTION

DISABLE ALL CODE FAMILIES



NOTE

The reader allows up to 5 code selections. This does not limit the number of CODES enabled to 5, as it depends on the code family.

SINGLE SELECTIONS =

- **ONE** combination code from the EAN family
- **ONE** code from the 2/5 family

Example

5 code selections:

1. **2/5 Interleaved**
2. **2/5 Industrial**
3. Code 128 + EAN 128
4. Code 39 Full ASCII + Code 32
5. **UPC A/UPC E**

In this section all **SINGLE** code selections are **underlined and in bold**.

Enter Configuration



Exit and Save Configuration



CODE SELECTION

EAN/UPC FAMILY

disable the family



① Read the desired family code

Note:

Since the EAN/UPC without ADD ON code selection is enabled by default, to correctly enable another selection, first disable the family.

EAN 8/EAN 13/UPC A/UPC E with and without ADD ON



WITHOUT ADD ON

◆ EAN 8/EAN 13/UPC A/UPC E



EAN 8/EAN 13



UPC A/UPC E



Enter Configuration



Exit and Save Configuration



CODE SELECTION

WITH ADD ON 2 AND 5

EAN 8/EAN 13/UPC A/UPC E



EAN 8/EAN 13



UPC A/UPC E



WITH ADD ON 2 ONLY

EAN 8/EAN 13

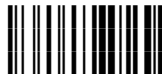


UPC A/UPC E



WITH ADD ON 5 ONLY

EAN 8/EAN 13



UPC A/UPC E



Enter Configuration



Exit and Save Configuration



CODE SELECTION

EAN/UPC CHECK DIGIT TX SELECTIONS

For each code type in this family you can choose to transmit the check digit or not

CHECK DIGIT TRANSMISSION

EAN 8



EAN 13



UPC A



UPC E



NO CHECK DIGIT TRANSMISSION

EAN 8



EAN 13



UPC A



UPC E



Enter Configuration



Exit and Save Configuration



CODE SELECTION

CONVERSION OPTIONS

UPC E to UPC A conversion



UPC E to EAN 13 conversion



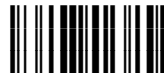
UPC A to EAN 13 conversion



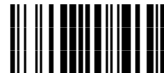
EAN 8 to EAN 13 conversion



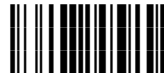
enable only ISBN conversion



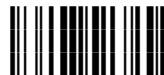
enable only ISSN conversion



enable both ISBN and ISSN conversion



disable both ISBN and ISSN conversion



Enter Configuration



Exit and Save Configuration



CODE SELECTION

2/5 FAMILY

disable the family



① Read the desired family code

◆ Interleaved 2/5



Normal 2/5 (5 Bars)



Industrial 2/5 (IATA)



Matrix 2/5 (3 Bars)



The pharmaceutical code below is part of the 2/5 family but has no check digit nor code length selections.

Code CIP/HR



French pharmaceutical code

② Read a check digit selection

CHECK DIGIT TABLE

no check digit control



◆ check digit control and transmission



Check digit control without transmission



③ Read 4 numbers for the code length where:

- **First 2 digits** = minimum code length.
- **Second 2 digits** = maximum code length.

The maximum code length is 99 characters.

The minimum code length must always be less than or equal to the maximum.

Examples:

0199 = variable from 1 to 99 digits in the code.

1010 = 10 digit code length only.

Enter Configuration



Exit and Save Configuration



CODE SELECTION

CODE 39 FAMILY

disable the family



① Read the desired family code

② Read a check digit selection



◆ **Standard Code 39**



Full ASCII Code 39



CHECK DIGIT TABLE

◆ no check digit control



check digit control
and transmission



check digit control
without transmission



Enter Configuration



Exit and Save Configuration



CODE SELECTION

The pharmaceutical codes below are part of the Code 39 family but have no check digit selections.

Code CIP39



French pharmaceutical code

Code 32



Italian pharmaceutical code

CODE LENGTH (optional)

The code length selection is valid for the entire Code 39 family

Read the code + 4 numbers for the code length where:

First 2 digits = minimum code length.

Second 2 digits = maximum code length.

set code length



The maximum code length is 99 characters. The minimum code length must always be less than or equal to the maximum.

Examples: **0199** = variable from 1 to 99 digits in the code. **1010** = 10 digit code length only.

Enter Configuration



Exit and Save Configuration



CODE SELECTION

CODE 128 FAMILY

disable the family



① Read the desired family code

◆ Code 128



control without transmission
of check digit

EAN 128



control without transmission
of check digit

Add GS Before Code

Code EAN 128 uses the ASCII <GS> character to separate a variable length code field from the next code field. This character can also be added before the code.

◆ disable



enable



Enter Configuration



Exit and Save Configuration



CODE SELECTION

ISBT 128



Enabling ISBT 128 automatically disables Puzzle Solver™.

CODE LENGTH (optional)

The code length selection is valid for the entire Code 128 family

Read the code + 4 numbers for the code length where:

First 2 digits = minimum code length.

Second 2 digits = maximum code length.

set code length



The maximum code length is 99 characters. The minimum code length must always be less than or equal to the maximum.

Examples: **0199** = variable from 1 to 99 digits in the code. **1010** = 10 digit code length only.

The length is calculated on the output string.

CODE 93

◆ disable the code



Code 93



control without transmission
of check digit

Enter Configuration



Exit and Save Configuration



CODE SELECTION

CODABAR FAMILY

◆ disable the family



① Read the desired equality control code

② Read a start/stop transmission selection



Standard Codabar



no start/stop character equality control

START/STOP CHARACTER TRANSMISSION

no transmission



Standard Codabar



start/stop character equality control

transmission



The Codabar ABC code below uses a fixed start/stop character transmission selection.

Codabar ABC



no start/stop character equality control but transmission.

Enter Configuration



Exit and Save Configuration



CODE SELECTION

Codabar ABC Forced Concatenation

enable Codabar ABC with forced concatenation



non start/stop character equality control but transmission

CODE LENGTH (optional)

The code length selection is valid for the entire Codabar family

Read the code + 4 numbers for the code length where:

First 2 digits = minimum code length.

Second 2 digits = maximum code length.

set code length



The maximum code length is 99 characters. The minimum code length must always be less than or equal to the maximum.

Examples: **0199** = variable from 1 to 99 digits in the code. **1010** = 10 digit code length only.

START/STOP CHARACTER CASE IN TRANSMISSION

The start/stop character case selections below are valid for the entire Codabar family:

transmit start/stop characters in lower case



transmit start/stop characters in upper case



Enter Configuration



Exit and Save Configuration



CODE SELECTION

MSI

◆ disable the family



Enable the code by selecting one of the check digit selections.

no check digit control



MOD10 check digit control
no check digit transmission



MOD10 check digit control
check digit transmission



MOD11 - MOD10 check digit control
no check digit transmission



MOD11 - MOD10 check digit control
check digit transmission



MOD10 - MOD10 check digit control
no check digit transmission



MOD10 - MOD10 check digit control
check digit transmission



Enter Configuration



Exit and Save Configuration



CODE SELECTION

PLESSEY

◆ disable the family



Enable the code by selecting one of the check digit selections.

Standard Plessey

no check digit control



check digit control
check digit transmitted



check digit control
check digit not transmitted



Anker Plessey

no check digit control



check digit control
check digit transmitted



check digit control
check digit not transmitted



Enter Configuration



Exit and Save Configuration



CODE SELECTION

TELEPEN

◆ disable the family



Enable the code by selecting one of the check digit selections.

Numeric Telepen

no check digit control



check digit control
check digit transmitted



check digit control
check digit not transmitted



Alphanumeric Telepen

no check digit control



check digit control
check digit transmitted



check digit control
check digit not transmitted



Enter Configuration



Exit and Save Configuration



CODE SELECTION

DELTA IBM

◆ disable the family



Enable the code by selecting one of the check digit selections.

no check digit control



Type 1 check digit control



Type 2 check digit control



Enter Configuration



Exit and Save Configuration



CODE SELECTION

CODE 11

◆ disable the family



Enable the code by selecting one of the check digit selections.

no check digit control



Type C check digit control
check digit transmitted



Type C check digit control
check digit not transmitted



Type K check digit control
check digit transmitted



Type K check digit control
check digit not transmitted



Type C and Type K
check digit control
check digits transmitted



Type C and Type K
check digit control
check digits not transmitted



Enter Configuration



Exit and Save Configuration



CODE SELECTION

CODE 16K

◆ disable the code



Code 16K



To read stacked codes, simply move the illuminated bar over the code so that each line of the code is scanned. During this process a series of brief "ticks" indicates that reading is proceeding correctly.

CODE 49

◆ disable the code



Code 49



To read stacked codes, simply move the illuminated bar over the code so that each line of the code is scanned. During this process a series of brief "ticks" indicates that reading is proceeding correctly.

Enter Configuration



Exit and Save Configuration



CODE SELECTION

RSS FAMILY

◆ disables the family



DISABLE CODE

disable RSS Expanded Linear
and Stacked



disable RSS Limited



disable RSS 14 Linear and
Stacked



ENABLE CODE

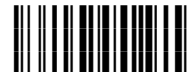
enable RSS Expanded Linear
and Stacked



enable RSS Limited




enable RSS 14 Linear and
Stacked



To read the stacked version of these codes, simply move the reader over the code so that each line of the code is scanned.

RADIO PARAMETERS

⊙	<i>RADIO PROTOCOL TIMEOUT</i>	⊙
⊙	<i>ACK/NACK PROTOCOL AND FRAME PACKING</i>	⊙
⊙	<i>POWER-OFF TIMEOUT</i>	⊙
⊙	<i>ENCRYPTION</i>	⊙
⊙	<i>BATCH MODE</i>	⊙

- 1.** Read the **Enter Configuration** code ONCE, available at the top of each page.
- 2.** Read configuration codes from the desired groups.
 = Read the code and follow the procedure given
- 3.** Read the **Exit and Save Configuration** code ONCE, available at the top of each page.

Enter Configuration



Exit and Save Configuration



RADIO PARAMETERS

RADIO PROTOCOL TIMEOUT



radio protocol timeout



Read a number from the table where:
03-19 = timeout from **3** to **19** seconds

◆ 3 seconds

See par. 5.2.1 for details.

ACK/NACK PROTOCOL AND FRAME PACKING

◆ no ACK/NACK protocol
nor frame packing



ACK/NACK protocol only



frame packing only



ACK/NACK protocol
and frame packing



See par. 5.2.2 for details.

Enter Configuration



Exit and Save Configuration



RADIO PARAMETERS

POWER-OFF TIMEOUT



power-off timeout



Read 2 numbers in the range 00-99:

00 = Power-off disabled; reader always ready

01-99 = corresponds to a max. 99 hour delay before power-off.

◆ power-off after 4 hours.

See par. 5.2.3 for details.

ENCRYPTION

◆ disable



enable



BATCH MODE

◆ disable



◆ enable



See par. 5.2.4 for details.

5 REFERENCES

5.1 DATA FORMAT

The output message from Gryphon™ BT SH3500 towards the Host uses the following format:

**[Bluetooth® Reader Addr] [Reader Addr Delimiter] [Header]
[Code ID] [Code Length] CODE [Terminator]**

[Items in square brackets are optional.]

5.2 RADIO PARAMETERS

5.2.1 Radio Protocol Timeout

This parameter sets the valid time to wait before transmission between the Gryphon™ BT SH3500 reader and the remote Bluetooth® device is considered failed.

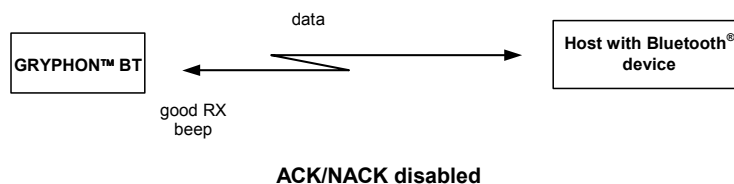
This parameter should be set taking into consideration the radio traffic (number of readers in the same area). It can be set between 3 and 19 seconds.

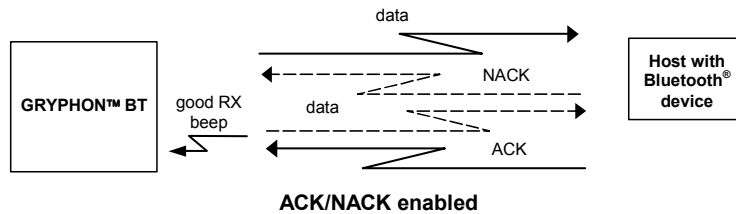
5.2.2 ACK/NACK Protocol and Frame Packing

ACK/NACK Protocol

The transmission protocol takes place between the reader and the Host. The reader passes its data (code read) to the remote Bluetooth® device (Host).

When ACK/NACK is disabled, there is no control from reader to Host transmission, therefore the reader responds with the good reception tone.





When ACK/NACK is enabled, the Host sends an ACK character (06 HEX) in the case of good reception or the NACK character (15 HEX) requesting re-transmission, in the case of bad reception. Only after the ACK character is received by Gryphon™ BT SH3500 does the reader respond with the good reception tone.

If the reader does not receive an ACK or NACK, transmission is ended after the Radio Protocol Timeout, par. 5.2.1.

Frame Packing

When Frame Packing is disabled, the Output Message from the Gryphon™ BT SH3500 reader is sent to the Host as is, see par. 5.1.

If instead, Frame Packing is enabled, the Output Message is "packed" into a Frame with the following format:

STX Length Control Counter Output Message CRC-16 CR

where:

STX = Frame Start character (02 Hex).

Length = 2 bytes; indicates frame length of the remaining fields (including CR).

Control = 1 byte; indicates message fragmentation. For further details see the DL Security Protocol documentation on the CD-ROM.

Counter = a loop counter for the Output Message characters (bytes) that cycles from 0 to 255 and then restarts.

Output Message = complete text message from the Gryphon™ BT SH3500 reader including optional fields as shown in par. 5.1. The maximum length of this field is 304 bytes.

CRC-16 = 2 bytes; 16-bit Cyclic Redundancy Check based on the hex 1021 polynomial and performed on all bytes from Length up to the CRC itself. The MSB is sent first. For further details see the DL Security Protocol documentation on the CD-ROM.

CR = Frame Stop character (0D Hex).

To simplify the management of this frame packing, and to avoid having to develop a special proprietary software program, included on the CD-ROM are: the DL Security Protocol example program, (written in Visual Basic), the Windlbt.dll, and the source code of the example. The example program allows extraction of the data from the frame, verification of the CRC, discarding any duplicate data (with the same counter value), and automatic management of Frame Packing and ACK/NACK protocol in response to each frame.

5.2.3 Power-Off Timeout

If this command is enabled, after the desired timeout in hours, the GRYPHON™ BT SH3500 batteries are disconnected and all power consumption ceases. To restore power, press the trigger once. The reader will now be ready to read codes.



Power-off does not effect configuration parameters.

5.2.4 Batch Mode

Batch mode allows codes to be stored in the gun on a FIFO basis whenever the gun is out of range. In this case radio communication is not suspended and transmission is attempted after each code read. If transmission cannot be successfully completed, then the code is added to the list. When the gun returns in range, transmission of the codes to the cradle resumes automatically, according to the selected communication protocol, upon simply pressing and releasing the trigger or by successfully reading a new code.

6 SYSTEM MANAGEMENT COMMANDS

The following commands carry out their specific function and then exit the configuration environment.

Command	Description
	Unbind the reader preventing the connection to a cradle to which it was previously bound.
	Turn the reader off.

7 TROUBLESHOOTING

Problem	Solution
The beeper and LED signal radio disconnection from the remote Bluetooth® device.	The distance between the remote device and Gryphon™ BT SH3500 may be too far or there may be obstacles to radio transmission between them. Reconnect.
The requested radio connection by Gryphon™ BT SH3500 Master does not activate.	Reduce the distance between the devices. Check that Gryphon™ BT SH3500 is powered (batteries are charged), that the radio protocol software version is compatible with Gryphon™ BT SH3500, that there is not already another BT device connected using the same SPP profile. Insert the remote device address again to Gryphon™ BT SH3500. Check the Gryphon™ BT SH3500 configuration using the Transmit configuration command via OM-Gryphon™ BT SH3500 cradle.
The remote Bluetooth® device recognizes Gryphon™ BT SH3500 but cannot connect to it.	Check that there are no limits set to the connection such as a password. Check that the radio protocol software version is compatible with Gryphon™ BT SH3500.
The radio range seems reduced.	Check that there are no obstacles to radio transmission between the devices.
An un-connected Gryphon™ BT SH3500 Master accepts a radio connection from another Bluetooth® Master device.	In this case the Gryphon™ BT SH3500 automatically forces a disconnection and restarts.
A Gryphon™ BT SH3500 Master fails to make an automatic connection.	Double-click the trigger to force an immediate retry of the radio connection or read the "Request Radio Connection" code in par. Errore. L'origine riferimento non è stata trovata.
A Gryphon™ BT SH3500 Master remains connected to a Slave device.	Read the "Request Radio Disconnection" code in par. Errore. L'origine riferimento non è stata trovata. or power off the Bluetooth® Slave device.

8 TECHNICAL FEATURES

8.1 GRYPHON™ BT SH3500

Electrical Features	
Battery Type	Li-Ion batteries 1.2 V – 1850 mAh or 2100 mAh
Time of recharge	max. 4 hours
Operating autonomy (typ. continuous reading)	>14 hours
Max scan rate	270 scans/sec
Indicators	LED, Good Read Spot, Beeper
Optical Features	
Sensor	CCD solid state (3648 pixels)
Illuminator	LED array
Wavelength	630 ~ 670 nm
Max. LED Output Power	0.33 mW
LED Safety Class	Class 1 EN 60825-1
Reading field	see reading diagram (p. 63)
Max. resolution	0.076 mm, 3 mils
PCS minimum	15% (Datalogic Test Chart)
Reading Pitch angle	65°
Reading Skew angle	80°
Reading Tilt angle	35°
Radio Features	
Bluetooth® version	Bluetooth® 1.1
Profiles supported	Serial Port Profile
Working frequency	2.4000 to 2.4835 GHz
Maximum output power	2.5 mW (class 2)
Range (in open air)	10 m typical
Radio frequency	up to 921 Kbps
Effective radiated power	<10 mW
Environmental Features	
Working Temperature	0° to + 40 °C
Storage Temperature (without battery)	-20°to + 70 °C
Humidity	90% non condensing
Drop resistance	1.8 m
Ambient light immunity	100000 lux (sunlight) / 4000 lux (artificial light)
Protection class	IP30

Mechanical Features	
Weight (with batteries)	about 280 g. (including battery)
Dimensions	179 x 81 x 98 mm
Material	ABS and Polycarbonate molded with rubber
Decoding Capability	
Readable codes	EAN/UPC, ISBN/ISSN, 2/5 family, Code 39 (plus Code 32, Cip 39), Codabar, Code 93, MSI, Plessey, Telepen, Delta IBM, Code 11, EAN 128, Code 128, ISBT 128, Code 16K, Code 49, RSS family
Other features	encryption

8.2 OM-GRYPHON™ BT SH3500

Electrical Features	
Supply voltage	9.28 Vdc
Power consumption	max. 8 W (charging) *
Indicators	Battery charging (red) Charge completed (green) Power (yellow)
Time of recharge	max.4 hours
Environmental Features	
Working temperature	0° to +40 °C
Storage temperature	-20° to +70 °C
Humidity	90 % non condensing
Protection class	IP30
Maximum number of devices in the same area	>50
Communications	
Interface	RS232, Keyboard emulation (AT, XT, minidin PS/2), USB
Mechanical Features	
Weight	about 250 g.
Dimensions	208 x 107 x 55.5 mm
Material	ABS

- * Having a switching regulator inside, the OM-Gryphon™ SH3500 draws the same power, regardless of the supply voltage, i.e. as the input voltage increases the current drawn decreases.

8.3 STATUS INDICATORS

The reader has three indicators, LED, Beeper and Good Read Spot. The OM-Gryphon™ BT SH3500 cradle has three LEDs. They signal several operating conditions which are described in the tables below.

H = high tone

M = medium tone

L = low tone

GRYPHON™ BT SH3500 READER START-UP

Beeper ¹	Meaning
L L L L H	Parameters loaded correctly, radio OK
L L L L H L H L	Parameters loaded correctly, no answer from radio
H H H H long tones	Parameter loading error, reading or writing error in the non volatile memory
H L H L	Hardware error in EEPROM

GRYPHON™ BT SH3500 READER CONFIGURATION

Beeper ¹	Meaning
H H H H	Correct entry or exit from Configuration mode
L	Good read of a command
L L L	Command read error

GRYPHON™ BT SH3500 POWER

Beeper	LED	Meaning
10 short H	10 short blinks	Low Battery

¹ Only the Beeper Intensity command can modify these signals.

GRYPHON™ BT SH3500 READER DATA ENTRY

Beeper ¹	LED	Good Read Spot	Meaning
one beep ²	ON	ON	Correct read of a code in normal mode
H L long			TX error between Gryphon™ BT SH3500 and remote Bluetooth® device
H long	ON	ON	Successful advanced format concatenation
H H H			Timeout expired – operation not completed
H H long			Error in advanced data formatting
	OFF	OFF	Ready to read a code

GRYPHON™ BT SH3500 READER STATUS

Beeper ¹	LED	Meaning
L M M H		Radio connection
H M M L		Radio disconnection
	1 blink / 2 sec.	Radio connected
	2 blinks / 2 sec.	Radio not connected
	1 blink / 4 sec.	Sleep state and radio connected
	2 blinks / 4 sec.	Sleep state and radio not connected
ticks	Short blinks (Master only)	Connection / re-connection attempts

¹ Only the Beeper Intensity command can modify these signals.

² The data entry good read tone is user-configurable with all the Beeper commands in the Reading Parameters section.

Normally this results in two beeps; the first indicates that the reader has decoded the code, the second indicates whether the remote Bluetooth® device has received the data.

OM-GRYPHON™ BT SH3500 CHARGE STATUS

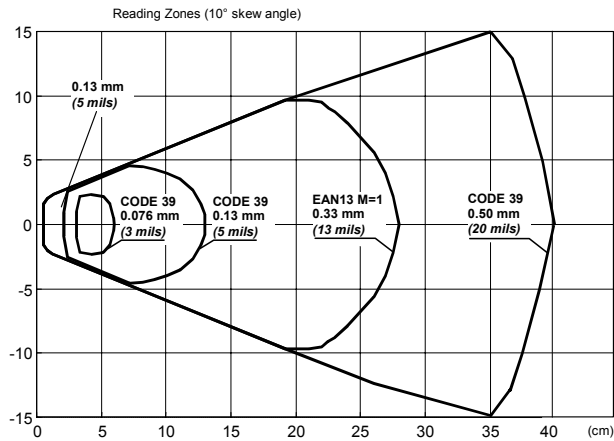
Red LED	Green LED	Meaning
ON	OFF	Charging
OFF	ON	End of charge
Flashing	OFF	Reconditioning (see par. 2.3)
OFF	OFF	No gun inserted or Alkaline battery selected
Flashing	Flashing	Reader not correctly placed onto the charger; shorted or open battery

OM-GRYPHON™ BT SH3500 POWER/COMMUNICATION

Yellow LED	Meaning
ON	Power applied
OFF	Error in reading EEPROM parameters / Insufficient Voltage
Blinking	OM-Gryphon™ BT SH3500 receives commands from the Host

8.4 READING DIAGRAMS

GRYPHON™ BT SH3500100



A HEX AND NUMERIC TABLE

CHARACTER TO HEX CONVERSION TABLE					
char	hex	char	hex	char	hex
NUL	00	*	2A	U	55
SOH	01	+	2B	V	56
STX	02	,	2C	W	57
ETX	03	-	2D	X	58
EOT	04	.	2E	Y	59
ENQ	05	/	2F	Z	5A
ACK	06	0	30	[5B
BEL	07	1	31	\	5C
BS	08	2	32]	5D
HT	09	3	33	^	5E
LF	0A	4	34	~	5F
VT	0B	5	35		60
FF	0C	6	36	a	61
CR	0D	7	37	b	62
SO	0E	8	38	c	63
SI	0F	9	39	d	64
DLE	10	:	3A	e	65
DC1	11	;	3B	f	66
DC2	12	<	3C	g	67
DC3	13	=	3D	h	68
DC4	14	>	3E	i	69
NAK	15	?	3F	j	6A
SYN	16	@	40	k	6B
ETB	17	A	41	l	6C
CAN	18	B	42	m	6D
EM	19	C	43	n	6E
SUB	1A	D	44	o	6F
ESC	1B	E	45	p	70
FS	1C	F	46	q	71
GS	1D	G	47	r	72
RS	1E	H	48	s	73
US	1F	I	49	t	74
SPACE	20	J	4A	u	75
!	21	K	4B	v	76
"	22	L	4C	w	77
#	23	M	4D	x	78
\$	24	N	4E	y	79
%	25	O	4F	z	7A
&	26	P	50	{	7B
'	27	Q	51		7C
(28	R	52	}	7D
)	29	S	53	~	7E
		T	54	DEL	7F



0



2



4



6



8



A



C



E



1



3



5



7



9



B



D



F

Backspace



Cancels an incomplete configuration sequence