



GRYPHON™ BT

Reference Manual

DATALOGIC

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REFERENCE MANUAL



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GRYPHON™ BT

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GENERAL VIEW

GRYPHON™ BT READER



Figure A – Gryphon™ BT Series Reader

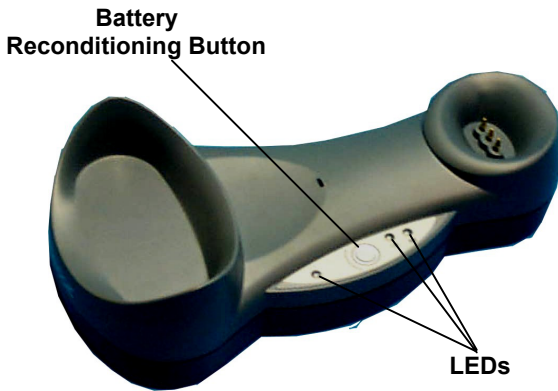


Figure B – C-GRYPHON

1 INTRODUCTION

Datalogic has moved a step ahead in the concept of “instinctive reading”. The new **Gryphon™ BT** 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 (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 series takes this concept one step further. The series includes two cordless (BT100 and BT200) models, allowing wireless operations at the desk/POS within a 10 meter range. The new “blue spot,” (Datalogic patent application) produced by the Gryphon™ BT 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 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™ BT200 has been designed to provide decoding of the PDF417, as well as traditional barcodes. The Gryphon™ BT reader series is paving the road for innovative barcode reading.

The C-Gryphon battery charger is provided in the package to charge the Gryphon™ BT batteries and to provide a means for serial configuration of the Gryphon™ BT reader.

2 GRYPHON™ BT POWER

To begin using your Gryphon™ BT reader you must charge the Gryphon™ BT battery using C-Gryphon charger as described in par. 2.3 and in the Quick Reference manual. A full charge takes 4 hours with NiMh batteries.

2.1 POWERING THE C-GRYPHON



CAUTION

Connections should always be made with power off!

Apply power to C-GRYPHON by connecting a power supply unit to the connector on the base of the battery charger.

C-GRYPHON is ready to charge Gryphon™ BT Series readers with NiMh or NiCd batteries.



C-GRYPHON power supply connector

2.2 BATTERY TYPE

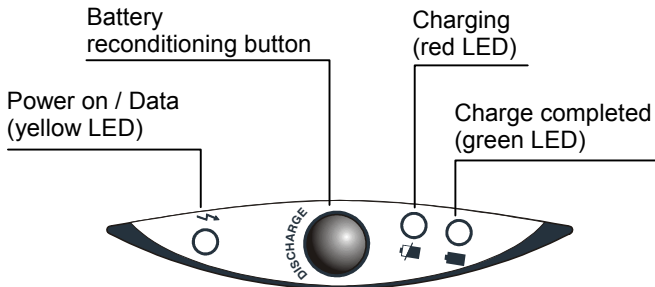
You can install NiMh, NiCd or Alkaline AA batteries in the GRYPHON™ BT.

2.3 BATTERY CHARGING

Once the system is connected and powered, you can place the GRYPHON™ BT 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.





When using NiCd or NiMh batteries, frequent recharging before fully discharging can cause a “memory effect” in which the batteries assume a reduced capacity.

Since it is not practical to wait for the reader to be fully discharged before recharging it, the C-GRYPHON BT are provided with a battery-reconditioning feature which overcomes the “memory effect” problem.

To perform battery reconditioning, simply press the battery-reconditioning key on the cradle control panel: the battery will be fully discharged in a short period of time (red LED flashing), then automatically recharged.

We recommend performing the battery reconditioning once every few months or whenever you feel the battery capacity has decreased.

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

	LED	STATUS
	Power on / Data	Yellow On = C-GRYPHON is powered. Yellow Blinking = C-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 BATTERIES

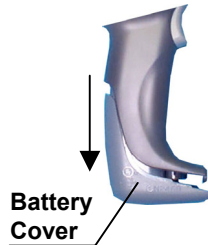
To change the batteries in your GRYPHON™ BT scanner, proceed as follows:

1. Unscrew the battery cover screw.

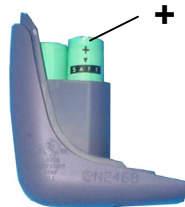
**Battery
Cover Screw**



2. Open the battery cover.



3. Replace the old batteries with new ones, then screw the battery cover back into place.



NiMh, NiCd, or Alkaline AA Batteries



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 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.
- User-Friendly name:** a human-readable name to set for a Gryphon™ BT to make it easily recognizable when operating together with other Bluetooth® devices.
- 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 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 106):

- 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.

3.2.1 Gryphon™ BT as Slave

Once set as Slave, a Gryphon™ BT reader requires no particular configuration for communication, however some radio parameters can be set to increase system performance and data transmission security. At startup the reader can only wait for the Master to initialize the radio communication.

The following is a general procedure recommended for Gryphon™ BT Slave applications:

1. Power up the remote Bluetooth® Master device (example Laptop or PC).
2. Power up the Gryphon™ BT reader within radio range (10 meters).
Any modifications to the radio configuration should be made at this time before the radio connection takes place.

3. From the remote Bluetooth® Master device, execute the Discovery procedure, (according to the procedure given in the documentation of the Bluetooth® Master device), to recognize the Gryphon™ BT reader(s) within radio range.
4. Check that "**Gryphon BTx00**" is shown among the discovered devices.
5. Request to open an SPP connection with Gryphon™ BT, making sure to disable any required PIN and/or pairing parameters. Gryphon™ BT is always discoverable and connectable without any required PIN.

**NOTE**

If the PIN of the Bluetooth® Master device cannot be disabled, use the PIN "1234". The Gryphon™ BT Slave will emit four ascending tones indicating radio connection.

After the Gryphon™ BT reader(s) indicate radio connection (see also the Reader Status Table, at page 106), you can start sending barcodes.

The following figure shows an example Gryphon™ BT Slave application.

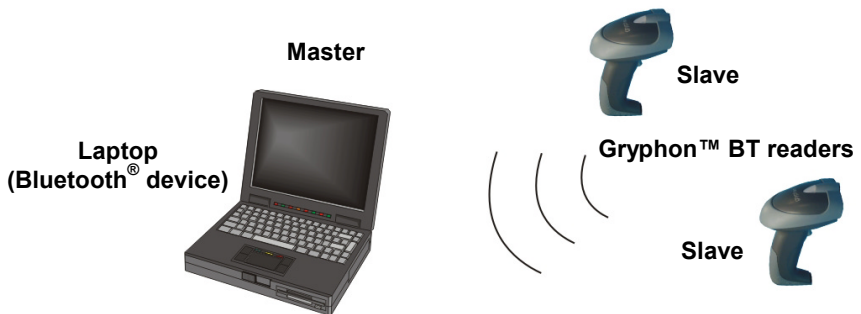


Figure 1 - Gryphon™ BT Slave Application

If the Master Bluetooth® device can support a **piconet**, the communication can be established with up to **7 seven Slave** readers at the same time.

3.2.2 Gryphon™ BT as Master

Once set as Master, a Gryphon™ BT reader must be configured with the address of the Slave device to which it wants to communicate.

By default, at startup the reader initializes the communication with the Slave. If the connection is successful, the reader can send barcodes to the Slave device. Radio connections can also be managed manually as described in pars. 5.5.7, 5.5.8 and 5.7.

During the request of radio connection or disconnection with a remote Bluetooth® Slave device, the reader emits a series of ticks and short blinks of the blue LED.

The following figure shows an example Gryphon™ BT Master application.



Figure 2 - Gryphon™ BT Master Application

3.2.3 Sleep State

The μ P in the reader enters a “Sleep” state after 5 minutes of no reading for minimum power consumption.

3.2.4 Data Transmission

The transmission of data can be transparent (no ACK/NACK protocol), when each character is read and immediately sent to the Host (default value). Otherwise, data transmission can be with flow control (with ACK/NACK protocol), when, after each reading, Gryphon™ BT waits for an acknowledge that the remote Host received the data before reading and sending the following code.



NOTE

RTS/CTS handshaking should be set by the Bluetooth® COM driver for correct serial communication. If not used, the RTS line must be forced to the level that doesn't block such communication, otherwise, after 1 minute Gryphon™ BT interrupts the radio link (disconnects).

3.2.5 Wedge Emulation Utility

This utility is provided on the CD-ROM. When using the Wedge Emulation Utility, it is advised to correctly set the terminators depending on the expected format for the program in which the data will be collected.

4 CONFIGURATION

4.1 CONFIGURATION METHODS

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 folded page in [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.

4.1.2 Using DL Sm@rtSet

DL Sm@rtSet is a Windows-based utility program providing a quick and user-friendly configuration method via the RS232 interface. You can also print configuration barcodes to a local printer for barcode reading configuration.

It also allows upgrading the software of the connected device (see the DL Sm@rtSet User's Manual for more details).

4.1.3 Sending Configuration Strings from Host

An alternative configuration method is provided in Appendix A using the C-Gryphon connected to the Host via the RS232 interface. Batch files containing the desired parameter settings can be prepared to configure devices quickly and easily. This method is particularly useful when many devices need to be configured with the same settings.

4.2 SETUP PROCEDURES

Follow one of the following two procedures to set up Gryphon™ BT as Slave or as Master.

4.2.1 Setup for Gryphon™ BT Slave

1.

Restore GRYPHON™ BT Default



2.

Set Gryphon™ BT as Slave



YOUR READER IS NOW READY TO BE DISCOVERED (CONNECTED VIA RADIO) BY A BLUETOOTH® MASTER DEVICE AND READ BARCODES.

To change the defaults see par. 4.3.

4.2.2 Setup for Gryphon™ BT Master

1. **Restore Gryphon™ BT default**



2. **Set Gryphon™ BT as Master**



3. **Enter configuration**



4. **Set Remote Bluetooth® Device Address (slave)**



+

12 characters for the remote Bluetooth® device address specified in each Bluetooth® device.

5. **Exit and Save configuration**



6. **Request Radio Connection with Slave**



If the connection is not successful, you can attempt a connection manually by double-clicking the reader trigger.

YOUR READER IS NOW READY TO READ BARCODES.

To change the defaults see par. 4.3.

4.3 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.

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

POWER SAVE manages overall current consumption in the reading device.

READING PARAMETERS control various operating modes and indicator status functioning.

DECODING PARAMETERS maintain correct barcode decoding in certain special reading conditions.


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

ADVANCED FORMATTING PARAMETERS allow code concatenation and advanced formatting of messages towards the Host.

RADIO PARAMETERS allow configuration of radio control parameters.

DATA FORMAT

⊙	<i>CODE IDENTIFIER</i>	⊙
⊙	<i>CUSTOM CODE IDENTIFIER</i>	⊙
⊙	<i>HEADER</i>	⊙
⊙	<i>TERMINATOR</i>	⊙
⊙	<i>FIELD ADJUSTMENT</i>	⊙
⊙	<i>FIELD ADJ. CHARACTER</i>	⊙
⊙	<i>CODE LENGTH TX</i>	⊙
⊙	<i>CHARACTER REPLACEMENT</i>	⊙
⊙	<i>ADDRESS STAMPING</i>	⊙
⊙	<i>ADDRESS DELIMITER</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.

DATA FORMAT

CODE IDENTIFIER TABLE			
CODE	AIM STANDARD	DATALOGIC STANDARD	Custom
2/5 interleaved	] I y	N	
2/5 industrial	] X y	P	
2/5 normal 5 bars	] S y	O	
2/5 matrix 3 bars	] X y	Q	
EAN 8	] E 4	A	
EAN 13	] E 0	B	
UPC A	] X y	C	
UPC E	] X y	D	
EAN 8 with 2 ADD ON	] E 5	J	
EAN 8 with 5 ADD ON	] E 6	K	
EAN 13 with 2 ADD ON	] E 1	L	
EAN 13 with 5 ADD ON	] E 2	M	
UPC A with 2 ADD ON	] X y	F	
UPC A with 5 ADD ON	] X y	G	
UPC E with 2 ADD ON	] X y	H	
UPC E with 5 ADD ON	] X y	I	
Code 39	] A y	V	
Code 39 Full ASCII	] A y	W	
CODABAR	] F y	R	
ABC CODABAR	] X y	S	
Code 128	] C y	T	
EAN 128	] C y	k	
ISBT 128	] C 4	f	
Code 93	] G y	U	
CIP/39	] X y	Y	
CIP/HR	] X y	e	
Code 32	] X y	X	
Codablock-A	] O 6	n	
Codablock-F Std	] O 4	l	
Codablock-F EAN	] O 5	m	
MSI	] M y	Z	
Plessey Standard	] P 0	a	
Plessey Anker	] P 1	o	
Telepen	] X 0	d	
Delta IBM	] X 0	c	
Code 11	] H y	b	
Code 16K	] K 0	p	
Code 49	] T y	q	
RSS 14 Linear and Stacked	] e 0	u	
RSS Limited	] e 0	v	
RSS Expanded Linear and Stacked	] e 0	t	
PDF417	] L 0	r	

DATA FORMAT

- AIM standard identifiers are not defined for all codes: the X identifier is assigned to the code for which the standard is not defined. The y value depends on the selected options (check digit tested or not, check digit tx or not, etc.).
- When customizing the Datalogic Standard code identifiers, 1 or 2 identifier characters can be defined for each code type. If only 1 identifier character is required, the second character must be selected as **FF** (disabled).
- The code identifier can be singly disabled for any code by simply selecting **FF** as the first identifier character.
- Write in the Custom character identifiers in the table above for your records.



DATA FORMAT



CODE IDENTIFIER

◆ disable



Datalogic standard



AIM standard



custom



**DATA FORMAT*****CUSTOM CODE IDENTIFIER***

define custom code identifier(s)



- ① Read the above code.
(Code Identifiers default to Datalogic standard, see table on previous page).
- ② Select the code type from the code table in Appendix B for the identifier you want to change.
- ③ You can define 1 or 2 identifier characters for each code type. If only 1 identifier character is required, the second character must be selected as **FF** (disabled). Read the hexadecimal value corresponding to the character(s) you want to define as identifiers for the code selected in step ②: valid characters are in the range **00-FD**.

Example: To define Code 39 Code Identifier = @

Read define custom code identifier(s)  + Code 39  + **40** + **FF**



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**



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**.

**DATA FORMAT*****FIELD ADJUSTMENT***

- ◆ disable field adjustment



Field adjustment allows a number of characters n , to be added to or subtracted from the barcode read. The adjustment can be different for each enabled code type. To define the field adjustment:

- ① Read the enable field adjustment code:



enable field adjustment



- ② Select the code type from the Code Identifier Table in Appendix B.
- ③ Select the type of adjustment to perform:

right addition



left addition



right deletion



left deletion



- ④ Read a number in the range
- 01 - 32**
- from the Hex/Numeric Table to define how many characters to add or delete:

Conditions:

- Adjustment is only performed on the barcode data, the Code Identifier and Code Length Transmission fields are not modified by the field adjustment parameter.
- If the field setting would subtract more characters than exist in the barcode, the subtraction will take place only to code length 0.
- You can set up to a maximum of 10 different field adjustments on the same barcode family or on different barcode families.

Example: To add 4 characters to the right of Standard Code 39 Codes:

Read  +  +  + **04**



DATA FORMAT

FIELD ADJUSTMENT CHARACTER

- ① Read the field adjustment character code:



field adjustment character



- ② Read the hexadecimal value corresponding to the character you want to use for field adjustment.

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

Example:

To define the field adjustment character = **A**:

Read  + **41**

CODE LENGTH TX

- ◆ code length not transmitted



code length transmitted in variable-digit format



code length transmitted in fixed 4-digit format



The code length is transmitted in the message after the Headers and Code Identifier characters. The code length is *calculated* after performing any field adjustment operations.

**DATA FORMAT*****CHARACTER REPLACEMENT***

◆ disable character replacement



This parameter allows up to three characters to be replaced from the barcode read. These substitutions are stored in memory. To define each character replacement:

- ① Read one of the following character replacement codes:



first character replacement



second character replacement



third character replacement



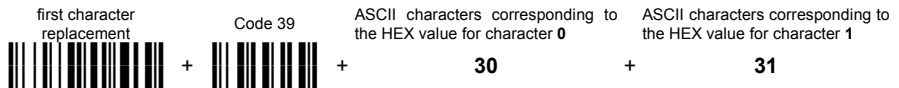
- ② From the Code Identifier Table in Appendix B, read the Code Identifier for the desired code family.
0 = character replacement will be effective for all code families.
- ③ From the Hex/Numeric Table read two characters corresponding to the Hex value which identifies the character to be replaced. Valid values for all readers are in the range **00-FF**.
- ④ From the Hex/Numeric Table read two characters corresponding to the Hex value which identifies the new character to replace. Valid values for all readers are in the range **00-FF**.
FF = the character to be replaced will be substituted with no character, that is, it will be removed from the code.

DATA FORMAT

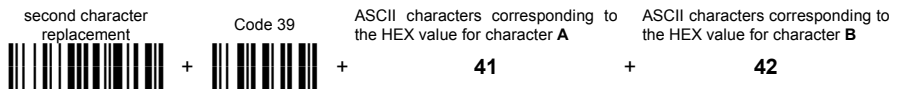
Example:

The following strings define:

1. *First Character Replacement:* substitution in *Code 39 barcodes* of all occurrences of the **0** character with the **1** character.
2. *Second Character Replacement:* substitution in *Code 39 barcodes* of all occurrences of the **A** character with the **B** character.



For Code 39 codes containing the string "0123", the contents transmitted will be "1123".



For Code 39 codes containing the string "ABCD", the contents transmitted will be "BBCD".



DATA FORMAT

ADDRESS STAMPING

◆ disable reader address stamping



enable reader address stamping



See par. 5.1.1 for details.

ADDRESS DELIMITER

◆ disable reader address delimiter



enable reader address delimiter and select characters



Read 2 HEX characters in the range **00-FE**.


See par. 5.1.2 for details.

POWER SAVE



SCAN RATE



- 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.



POWER SAVE

SCAN RATE

67 scans per sec.



135 scans per sec.



◆ 270 scans per sec.




A lower scan rate reduces power consumption but can lengthen reading response time.

READING PARAMETERS

⊙	OPERATING MODE	⊙
⊙	HAND-HELD OPERATION	⊙
⊙	STAND OPERATION	⊙
⊙	HARDWARE TRIGGER MODE	⊙
⊙	TRIGGER-OFF TIMEOUT	⊙
⊙	FLASH MODE	⊙
⊙	READS PER CYCLE	⊙
⊙	SAFETY TIME	⊙
⊙	BEEPER INTENSITY	⊙
⊙	BEEPER TONE	⊙
⊙	BEEPER TYPE	⊙
⊙	BEEPER LENGTH	⊙
⊙	PDF DECODING RECOGNITION INTENSITY	⊙
⊙	GOOD READ SPOT DURATION	⊙

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



READING PARAMETERS

OPERATING MODE

You can pre-configure both Hand-Held and Stand operating modes, and with the codes below, you can switch between them. See par. 5.2.1 for details. Stand operation is not advised since it constantly consumes battery power.

◆ hand-held operation



automatic



stand operation



HAND-HELD OPERATION

◆ hardware trigger



software trigger



hardware trigger ready



automatic





READING PARAMETERS

STAND OPERATION

hardware trigger



software trigger



◆ automatic



HARDWARE TRIGGER MODE

◆ trigger active level



trigger active pulse



See par. 5.2.2 for details.



READING PARAMETERS

TRIGGER-OFF TIMEOUT



trigger-off timeout



Read 2 numbers in the range 00-99:

00 = disables the trigger-off timeout
 01-99 = corresponds to a max. 99 sec. delay after the trigger press to allow the reader to turn off automatically.

- ◆ trigger-off timeout disabled

See par. 5.2.3 for details.

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



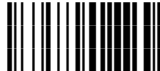
READING PARAMETERS

READS PER CYCLE

- ◆ one read per cycle



multiple reads per cycle



See par. 5.2.4 for details.

SAFETY TIME



safety time



Limits same code consecutive reading.

Read 2 numbers in the range 00-99:

00 = no same code consecutive reading until reader is removed (no decoding) for at least 400 ms.

01 to 99 = timeout from .1 to 9.9 seconds before a consecutive read on same code.

- ◆ safety time = 0.5 sec

See par. 5.2.5 for details.

**READING PARAMETERS*****BEEPER INTENSITY***

* very low intensity



medium intensity



low 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. 7.3.

BEEPER TONE

tone 1



tone 3



◆ tone 2



tone 4





READING PARAMETERS

BEEPER TYPE

◆ monotone



bitonal



BEEPER LENGTH

long



◆ short



PDF DECODING RECOGNITION INTENSITY

◆ low



high





READING PARAMETERS

GOOD READ SPOT DURATION

disable



short



◆ medium



long



DECODING PARAMETERS

⊙	<i>INK-SPREAD</i>	⊙
⊙	<i>OVERFLOW CONTROL</i>	⊙
⊙	<i>INTERDIGIT CONTROL</i>	⊙
⊙	<i>DECODING SAFETY</i>	⊙
⊙	<i>PUZZLE SOLVER™</i>	⊙



CAUTION

Before changing these parameter values read the descriptions in par. 5.3.

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



DECODING PARAMETERS

INK-SPREAD

disable



◆ enable



See par. 5.3.1 for details.

OVERFLOW CONTROL

disable



◆ enable



See par. 5.3.2 for details.



DECODING PARAMETERS

INTERDIGIT CONTROL

disable



◆ enable



See par. 5.3.3 for details.

DECODING SAFETY

◆ one read



(decoding safety disabled)

two reads



three reads



four reads



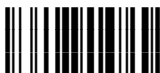
Required number of good reads before accepting code.

**DECODING PARAMETERS*****PUZZLE SOLVER™***

◆ disable



enable



In the case of damaged or poorly printed codes, this parameter allows reading multiple parts of the single code to reconstruct it.

To read codes using this technology, 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.

Conditions:

- This parameter is only valid for the following codes:

EAN 8 without Add-on	EAN 13 without Add-on	UPC A without Add-on
Code 128	Code 39	


- Codablock-A and Codablock-F codes are automatically disabled.
- For Code 39, Check digit control without transmission is forced.
- PuzzleSolver™ is disabled when code ISBT 128 is enabled.

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>CODABLOCK-A</i>	⊙
⊙	<i>CODABLOCK-F</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>	⊙
⊙	<i>RSS FAMILY</i>	⊙
⊙	<i>PDF417</i>	⊙
	<i>PDF READERS ONLY</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.

**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**.

**CODE SELECTION**

EAN/UPC FAMILY

disable the family

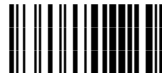


- ① Read the desired family code

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**



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





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





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



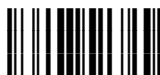
enable only ISSN conversion



enable both ISBN and ISSN conversion



disable both ISBN and ISSN conversion

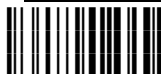


**CODE SELECTION****2/5 FAMILY**

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.



CODE SELECTION

CODE 39 FAMILY

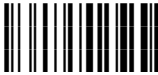
disable the family



① Read the desired family code

② Read a check digit selection

◆ Standard Code 39



CHECK DIGIT TABLE

◆ no check digit control



◆ Full ASCII Code 39



check digit control
and transmission



check digit control
without transmission





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.

**CODE SELECTION*****CODE 128 FAMILY***

disable the family



- ① Read the desired family code

◆ Code 128control 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**

If the <GS> character has been modified in the Character Replacement parameter, the new character is affected by this command.



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



CODE SELECTION

CODABAR FAMILY

◆ disable the family



① Read the desired equality control code

② Read a start/stop transmission selection

START/STOP CHARACTER TRANSMISSION

Standard Codabar



no start/stop character equality control

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.



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



**CODE SELECTION*****CODABLOCK-A***

- ◆ disable the code

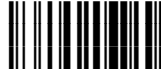
**Codablock-A****Notes:**

- Enabling Codablock-A automatically disables the entire Code 39 family and vice-versa.
- Enabling Codablock-A automatically disables Puzzle Solver™.

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.

CODABLOCK-F

- ◆ disable the family

**Codablock-F Standard****Codablock-F EAN****Notes:**

- Enabling Codablock-F automatically disables Puzzle Solver™.

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 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





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





CODE SELECTION

TELEPEN

◆ disable the family



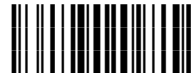
Enable the code by selecting one of the check digit selections.

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





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





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





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.



CODE SELECTION

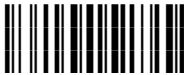
RSS FAMILY

◆ 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.



CODE SELECTION



PDF417

disable the code



◆ PDF417



Only for GRYPHON™ BT200 readers.

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.

ADVANCED FORMATTING

⊙	CONCATENATION	⊙
⊙	ADVANCED FORMATTING	⊙
⊙	ZEBRA PRINTER FORMATTING	⊙
⊙	ZEBRA PRINTER FORMAT FILE SELECTION	⊙



NOTE

Please follow the setup procedures carefully for these parameters.

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



CONCATENATION

◆ disable



enable



Permits the concatenation of two codes defined by code type and length. It is possible to set a timeout for the second code reading and to define code transmission if the timeout expires.

The order of transmission is CODE 1-CODE 2.

Define Concatenation

1

Code 1

code ID



Read the code type from the Code Identifier Table beginning in Appendix B.

code length



Read a number in the range **01-99** from the Hex/Numeric Table.

ADVANCED FORMATTING



2

Code 2

code ID



Read the code type from the Code Identifier Table beginning in Appendix B.

code length

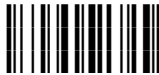


Read a number in the range **01-99** from the Hex/Numeric Table.

3

Concatenation Result Code ID

use code 1 ID



use code 2 ID



Since you can concatenate codes from different families, you must select the Code ID character of the resulting code. The Code ID character will be sent in the output message only if it is enabled according to the Code Identifier selection (Datalogic, AIM, or Custom).

4

Concatenation Timeout

timeout



Read two numbers in the range **00 to 99**

00= no timeout

01-99 = timeout from 1 to 99 seconds

ADVANCED FORMATTING



5

Transmission after Timeout

no code transmitted
after timeout



only code 1 transmitted
(if read) after timeout



only code 2 transmitted
(if read) after timeout



either code 1 or code 2 transmitted
after timeout



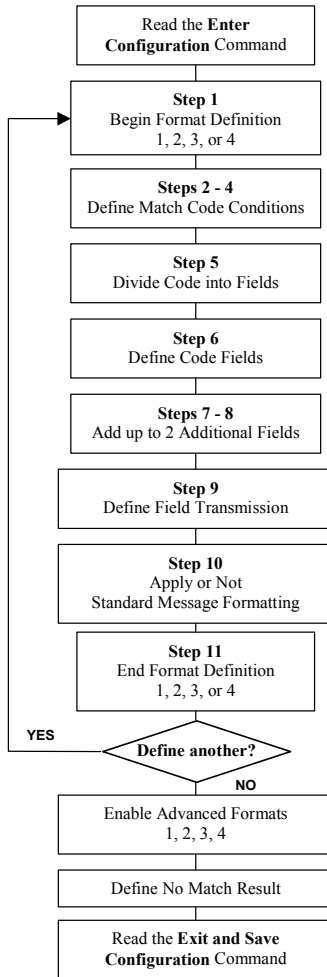
Define the timeout, which determines the valid waiting period between the two codes, in order to accept concatenation. If the timeout expires, the resulting action will be based on the following selection.

ADVANCED FORMATTING

ADVANCED FORMATTING

Advanced formatting has been designed to offer you complete flexibility in changing the format of barcode data **before** transmitting it to the host system. This formatting will be performed when the barcode data meets certain criteria which you will define in the following procedure.

Up to 4 advanced code management formats can be defined and saved in memory. For each format you must complete the entire configuration procedure:





ADVANCED FORMATTING

1

Begin Format Definition

begin Format 1 definition



begin Format 2 definition



begin Format 3 definition



begin Format 4 definition



2

Match Code Type

match code type



Read the above code + the code type to match from the Code Identifier Table in Appendix B.

OR

any code type



3

Match Code Length

match code length



Read the above code + two numbers in the range **01** to **99** for the exact code length.

OR

any code length





ADVANCED FORMATTING

4

Match with Predefined Characters

no match



OR

match with 1 character



match with a 2-character string



match with a 3-character string




match with a 4-character string



After selecting the predefined match code, read the character(s) from the HEX table. Range of characters = **00-FE**.

Example:

Match code with the 2-character predefined string = "@@".

Read  + 40 + 40

AND

position of first character in predefined string



Read the above code + two numbers in the range **01** to **99** representing the character position in the code where the first character of the predefined string must be found.

Read **00** if the match string can be found in any character position.



ADVANCED FORMATTING

5

Divide Code into Fields

divide code into fields



Read one number in the range **1** to **5** to divide the code into fields.

6

Define Code Fields

define code fields

Each code field length can be set by either:

- a) defining a field separator character to be found in the code itself. In this case you can choose to **discard** the code separator character or **include** it as the last character of the field.

OR BY

- b) specifying a specific character length up to the maximum of 99 characters.

OR BY


- c) selecting the last field as variable length (if any).

You must define the same number of fields as selected in step 5, including fields that will not be transmitted.




ADVANCED FORMATTING

DEFINE FIELD 1 BY: EITHER


a) 

field separator




Read the field separator character from the HEX table. Range of characters = **00-FE**.


discard separator




include separator



OR

b) 

field length



Read two numbers in the range **01** to **99** to define the field length.

OR

c)

this is the last field (variable length)



AND

Field 1 Terminators

no field terminators



1 field terminator



2 field terminators





Read the field terminator character(s) from the HEX table.

Valid range of characters for all readers = **00-FE**.





ADVANCED FORMATTING

DEFINE FIELD 2 BY: EITHER



a)  field separator 

Read the field separator character from the HEX table. Range of characters = **00-FE**.

discard separator 

include separator 

OR

b)  field length 

Read two numbers in the range **01** to **99** to define the field length.

OR

c)  this is the last field (variable length) 

AND

Field 2 Terminators

no field terminators



1 field terminator



2 field terminators




Read the field terminator character(s) from the HEX table.

Valid range of characters for all readers = **00-FE**.




ADVANCED FORMATTING

DEFINE FIELD 3 BY: EITHER


a) 

field separator




Read the field separator character from the HEX table. Range of characters = **00-FE**.


discard separator




include separator



OR

b) 

field length



Read two numbers in the range **01** to **99** to define the field length.

OR

c)

this is the last field (variable length)



AND

Field 3 Terminators

no field terminators



1 field terminator



2 field terminators




Read the field terminator character(s) from the HEX table.

Valid range of characters for all readers = **00-FE**.




ADVANCED FORMATTING

DEFINE FIELD 4 BY: EITHER


a) 

field separator




Read the field separator character from the HEX table. Range of characters = **00-FE**.


discard separator




include separator



OR

b) 

field length



Read two numbers in the range **01** to **99** to define the field length.

OR

c)

this is the last field (variable length)



AND

Field 4 Terminators

no field terminators



1 field terminator



2 field terminators



Read the field terminator character(s) from the HEX table.


Valid range of characters for all readers = **00-FE**.


ADVANCED FORMATTING



DEFINE FIELD 5 BY:


EITHER

a)  field separator




Read the field separator character from the HEX table. Range of characters = **00-FE**.


discard separator




include separator



OR

b)  field length



Read two numbers in the range **01** to **99** to define the field length.

OR

c) this is the last field (variable length)



AND

Field 5 Terminators

no field terminators



1 field terminator



2 field terminators



Read the field terminator character(s) from the HEX table.

Valid range of characters for all readers = **00-FE**.



ADVANCED FORMATTING

7

First Additional Fixed Field

no fixed field



1 character fixed field



2 character fixed field



3 character fixed field



4 character fixed field



5 character fixed field



6 character fixed field



After selecting **one** of the Additional Fixed Field codes, read the corresponding character(s) from the HEX table. Range of characters = **00-FE**.

Example:

4 Character Fixed Field


 $+ 4D + 41 + 49 + 4E = \text{MAIN}$



ADVANCED FORMATTING

8

Second Additional Fixed Field

no fixed field



1 character fixed field



2 character fixed field



3 character fixed field



4 character fixed field



5 character fixed field



6 character fixed field



After selecting **one** of the Additional Fixed Field codes, read the corresponding character(s) from the HEX table. Range of characters = **00-FE**.

Example:

3 Character Fixed Field


 $+ 53 + 45 + 54 = \text{SET}$

ADVANCED FORMATTING



9

Field Transmission

number of fields to transmit



Read one number in the range 1 to 7 for the number of fields to transmit. **Include only fields to be transmitted.**

Field Order Transmission

Read the codes corresponding to the fields to transmit in the order in which they are to be transmitted, see example.

field 1



field 3



field 5



additional field 2



field 2



field 4



additional field 1



Example:

The barcode is divided into 2 defined fields plus 1 additional fixed field.

Transmit in the order: Field 2, Additional Field 1, Field 1.

Number of Fields
to Transmit



+ 3 +

Field 2



+

Additional Field 1



+

Field 1





ADVANCED FORMATTING

10

Standard Formatting

do not apply standard formatting



apply standard formatting



After performing Advanced Formatting on the barcode read, Standard Formatting (Headers, Code Length, Code ID, Terminators) can be applied to the message to be transmitted.

11

End Format Definition

end Format 1 definition



end Format 2 definition



end Format 3 definition



end Format 4 definition





ADVANCED FORMATTING

Enable Advanced Format

◆ no Advanced Formats enabled



Advanced Format 1

enable



disable



Advanced Format 2

enable



disable



Advanced Format 3

enable

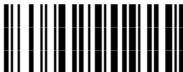


disable



Advanced Format 4

enable



disable





No Match Result

clear data - no transmission



transmit data using standard format



This selection determines the action to be taken when codes read do not conform to the advanced format requisites (no match).

- Codes not matching can be ignored, cleared from memory and not transmitted.
- Codes not matching can be transmitted using the Standard formatting (Headers, Code Length, Code ID, Terminators).

**ADVANCED FORMATTING****ZEBRA PRINTER FORMATTING**

◆ disable



enable

**1****Disable Headers and Terminators**

no header



no terminator



This step is necessary if **CR** and / or **LF** characters are used in either the Header or Terminator since the Zebra printer interprets these characters as field separators. **CR** and **LF** are the default Terminators.

2**Define the Number of Zebra Printer Parameters and Relative Values**

define 0 parameters

**Number of Parameters**

define 1 parameter



define 2 parameters

**Parameter Values**

barcode





ADVANCED FORMATTING



define 3 parameters



define 4 parameters



code ID



See par. 5.4.1 for details.



ADVANCED FORMATTING

ZEBRA PRINTER FORMAT FILE SELECTION

◆ File 00



File 01



File 02



File 03



File 04



File 05



File 06



File 07





ADVANCED FORMATTING

File 08



File 09



File 10



File 11



File 12



File 13



File 14




File 15



See par. 5.4.2 for details.

RADIO PARAMETERS

⊙	<i>RADIO PROTOCOL TIMEOUT</i>	⊙
⊙	<i>TRANSMISSION RETRY</i>	⊙
⊙	<i>ACK/NACK PROTOCOL AND FRAME PACKING</i>	⊙
⊙	<i>POWER-OFF TIMEOUT</i>	⊙
⊙	<i>USER-FRIENDLY NAME</i>	⊙
⊙	<i>BEEPER CONTROL FOR RADIO RESPONSE</i>	⊙
⊙	<i>AUTO-CONNECTION (FOR MASTER ONLY)</i>	⊙
⊙	<i>AUTO-RECONNECTION (FOR MASTER ONLY)</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.



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. 5.5.1 for details.

TRANSMISSION RETRY



set transmission retry period



Read 2 numbers in the range 00-60:

00 = No Transmission Retry;

01-60 = corresponds to a max. 60 sec. period for automatic retry transmission.

◆ 00 (No Retry)

See par. 5.5.2 for details.



RADIO PARAMETERS

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. 5.5.3 for details.

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. 5.5.4 for details.



RADIO PARAMETERS

USER-FRIENDLY NAME

change user-friendly name



Read 20 hexadecimal characters (in the range 00-7E) to define the user-friendly name:

restore factory user-friendly name

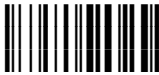


◆ "Gryphon BTx00 "

See par. 5.5.5 for details.

BEEPER CONTROL FOR RADIO RESPONSE

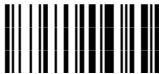
◆ good decode and good reception



only good decode



only good reception



off



See par. 5.5.6 for details.



RADIO PARAMETERS

AUTO-CONNECTION (FOR MASTER ONLY)

disable



◆ enable



See par. 5.5.7 for details.

AUTO RECONNECTION (FOR MASTER ONLY)

disable



◆ enable



See par. 5.5.8 for details.

5 REFERENCES

5.1 DATA FORMAT

The output message from Gryphon™ BT 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.]

5.1.1 Address Stamping

It is possible to include the reader's Bluetooth® address in the message sent to the host. This address is a 12-character hexadecimal string that is unique to every Bluetooth® device. For message output format, refer to par. 5.1.

5.1.2 Address Delimiter

The Address Delimiter allows a character to be included to separate the reader's Bluetooth® address stamping field from the next field in the message. Any character can be included in the hexadecimal range from 00 to FE. For message output format, refer to par. 5.1.

5.2 READING PARAMETERS

5.2.1 Operating Mode

This group of parameters allows setting different reading modes for either Hand-Held operation or Stand operation:

- **SoftwareTrigger:** the reader is set in FLASH MODE. Code reading takes place during the *flash on* time;
- **Hardware Trigger:** the code reading is started with a trigger press (ON);
- **Hardware Trigger Ready:** the illuminator is switched ON when the reader sees a code. It functions as a pointer aiming at the code to be read. The reading phase starts only when the trigger is pressed. In this mode the reader is automatically set to **trigger active level** and **one read per cycle** parameters. (Only for Hand-held operation).
- **Automatic:** The illuminator is switched ON when the reader sees a code. The reading phase starts automatically.

5.2.2 Hardware Trigger Mode

This mode determines how the reading phase is controlled when the hardware trigger operating mode is selected:

- **trigger active level:** the reader goes ON when the trigger is pressed and goes OFF when it is released
- **trigger active pulse:** the reader goes ON at the first trigger press and goes OFF only at a second press

5.2.3 Trigger-Off Timeout

When this timeout is selected, the reader turns OFF automatically after the desired period of time.

5.2.4 Reads per Cycle

In general, a **reading cycle** corresponds to the ON + OFF times of a device. The resulting effects of this parameter on code reading depend on other related configuration conditions. Here are the definitions of ON and OFF times.

- For readers using the software trigger parameter (FLASH MODE), a reading cycle corresponds to the *flash on* + *flash off* times. Code reading takes place during the *flash on* time.
- For readers using the *hardware trigger* parameter, a reading cycle corresponds to a trigger press (ON) + one of the following OFF events:
 - trigger release (for *trigger active level*)
 - a second trigger press (for *trigger active pulse*)
 - trigger-off timeout* (see par. 5.2.3).

When **one read per cycle** is selected, the device decodes only one code during the ON period and immediately turns the reader OFF. It is only possible to read another code when the next ON time occurs.

In **multiple reads per cycle**, the ON period is extended so that the device can continue decoding codes until an OFF event occurs. For software trigger mode, the *flash on* period is immediately reset after each read and therefore extended. If another code is decoded before the reset *flash on* period expires, it is again reset and the effect is that the device remains ON, decoding codes until the *flash on* or *timeout* period expires.

The Safety Time parameter should be used in this case to avoid unwanted multiple reading of the same code, see par. 5.2.5.

5.2.5 Safety Time

Safety time prevents the device from immediately decoding the same code more than once. Same code consecutive reading can be disabled requiring the reader to be removed from the code (no decoding) for at least 400 ms, or a timeout can be set up to 9.9 seconds before the decoder will accept the same code. Reading is immediate if the code changes.

The safety time parameter is not applicable when reading stacked codes or when setting one read per cycle in hardware trigger operating mode, since these settings require voluntary action by the user.

5.3 DECODING PARAMETERS



CAUTION

These parameters are intended to enhance the decoding capability of the reader for particular applications. Used incorrectly, they can degrade the reading performance or increase the possibility of a decoding error.

5.3.1 Ink-Spread

The ink-spread parameter allows the decoding of codes which are not perfectly printed because the page texture tends to absorb the ink.

5.3.2 Overflow Control

The overflow control parameter can be disabled when decoding codes printed on small surfaces, which do not allow the use of an overflow space.

This command does not effect code families 2/5, Code 128 and Code 93.

This command is forced (enabled) when PDF417 codes are enabled.

5.3.3 Interdigit Control

The interdigit control parameter verifies the interdigit spacing for code families Code 39 and Codabar.

5.4 ADVANCED FORMATTING

5.4.1 Zebra Printer Formatting

Some Zebra Bluetooth® Printers (example: Cameo 3 BT or similar type) allow format files (pre-loaded in its memory) to be selected for printing labels with different formatting. These files can be preloaded onto the Zebra printer using the "Label Vista™" program.

Gryphon™ BT as Master provides the possibility to define a number of formatting parameters and their relative values (type), which can be passed to the printer format files globally, (one setting is valid for all 16 possible pre-defined printer format files). You can set between 0 and 4 parameters, which can be of two types, barcode data or code ID.

Setting 0 parameters means printing a label with no barcode or code ID information.

Setting between 1 and 4 parameters allows printing barcode labels with barcode and/or code ID information. The number of barcode/code ID values selected must match the number of printer parameters selected.

The Gryphon™ BT default setting is:

```
"! UF DLFMT00.FMT[CR][LF]barcoderead[CR][LF]barcoderead[CR][LF]"
```

where Gryphon™ BT sends two parameters (both barcode data) to file 00. The assumption is that one barcode is used to print the actual barcode and the other is used to print the human readable numbers of the barcode all on the same label.

Not all barcode symbologies read by Gryphon™ BT are managed by the printer, see your printer documentation for a list of printable barcode symbologies.

Note: "barcoderead" can also be a barcode formatted with headers and terminators.

5.4.2 Zebra Printer Format File Selection

Select the number of the Zebra printer format file which is pre-loaded in the printer memory and contains the graphic and parameter value information for printing a label. These files must be programmed correctly to accept the data passed to them from the Gryphon™ BT reader.

5.5 RADIO PARAMETERS

5.5.1 Radio Protocol Timeout

This parameter sets the valid time to wait before transmission between the Gryphon™ BT 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.

5.5.2 Transmission Retry

This parameter allows setting a period of time in which transmission of the previously read barcode will automatically be retried. If not disabled (00), this value must be at least equal to double the Radio Protocol Timeout value (see par. 5.5.1).

Each time transmission is retried, the reader emits a beep tone lower than the "Good Decode" beep tone.

Transmission retry is valid only if ACK/NACK Protocol is enabled (see par. 5.5.3).

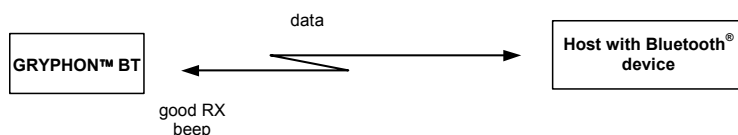
5.5.3 ACK/NACK Protocol and Frame Packing

ACK/NACK Protocol

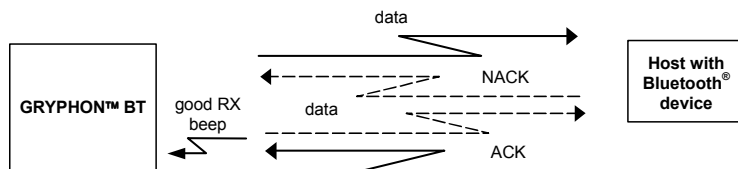
The transmission protocol takes place between the reader and the Host. The reader passes its data (code read) to the remote Bluetooth® device (Host).

In the following descriptions the completed transmission is indicated by the Beeper Control for Radio Response parameter with its default setting to "Good Decode and Good Reception" beep, see par. 5.5.6.

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



ACK/NACK disabled



ACK/NACK enabled

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 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. 5.5.1, or retried if transmission retry is enabled, par. 5.5.2.

Frame Packing

When Frame Packing is disabled, the Output Message from the Gryphon™ BT 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 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.

5.5.4 Power-Off Timeout

If this command is enabled, after the desired timeout in hours, the GRYPHON™ BT 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.

5.5.5 User Friendly Name

This parameter provides a way to identify the Gryphon™ BT reader in a human readable (user-friendly), format. This name is returned with the reader configuration parameters (see par. 5.6). The name is made up of a fixed 20-character field. If you choose to use a name that is less than 20 characters, you must fill in the blanks with a valid character (i.e. space character). Valid characters are in the range 00 - 7E and must be entered in hex format.

5.5.6 Beeper Control for Radio Response

The data entry good read tone normally 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.

This can be changed according to the following selections:

- ◆ Good Decode and Good Reception: both good decode and good reception are signaled (two beeps).
- ◆ Only Good Decode: only the first beep indicating a good read is signaled.
- ◆ Only Good Reception: only the second beep indicating a good reception is signaled.
- ◆ Off: Neither good read nor good reception beeps are signaled.

For all configurations, any transmission errors will always be signaled.

5.5.7 Auto-Connection (Master only)

Upon power-up, the Gryphon™ BT reader makes attempts to connect with the remote Bluetooth® device (Slave). If the connection is not successful, the reader remains on, but not connected.

In this case reconnection can be requested by double clicking the reader trigger or by reading the "Request Radio Connection" command in par. 5.7.






5.5.8 Auto-Reconnection (Master only)

If a radio connection is interrupted, the Gryphon™ BT reader makes attempts to reconnect with the remote Bluetooth® device (Slave). If the connection is not successful, the reader remains on, but not connected.

In this case reconnection can be requested by double clicking the reader trigger or by reading the "Request Radio Connection" command in par. 5.7.

5.6 CONFIGURATION EDITING COMMANDS

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

Command	Description
	Restore Gryphon™ BT reader default configuration (see the relative Quick Reference Manual for default settings). This command does not reset: <ul style="list-style-type: none"> • role (Master /Slave) • remote Bluetooth® address • user-friendly name
	Transmit the Gryphon™ BT Software release via radio.
	Transmit Gryphon™ BT reader configuration in ASCII format to Host via radio.
	Transmit Gryphon™ BT reader configuration in ASCII format to Host via C-Gryphon cradle (Gryphon™ BT reader must be placed onto cradle).
	Transmit Gryphon™ BT address (BT_ADDR) via C-Gryphon cradle (Gryphon™ BT reader must be placed onto cradle).

5.7 RADIO CONTROL COMMANDS

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

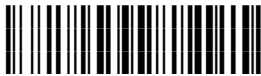


Request Radio Disconnection (*Master only*)



Request Radio Connection (*Master only*)

This request can also be performed by double clicking the reader trigger.



Request immediate Power-off. At power-on, Auto-connection attempted only if enabled.

5.8 C-GRYPHON CONFIGURATION

Battery selection is required only when the Gryphon™ BT reader has an Alkaline battery and you want to use C-GRYPHON either for serial configuration, software upgrades or to hold Gryphon™ BT. Since this type of battery must not be charged it is necessary to disable the C-GRYPHON charge function by following the procedure:

1. With the Gryphon™ BT read the following code:

Alkaline



The blue LED on the Gryphon™ BT will blink, signaling the reader has accepted the command.

2. Place the reader onto the charger within 10 seconds. The blue LED turns off and a short beep is emitted

To enable the charge function repeat step 1 and 2 substituting the "Alkaline" code with the following one:

NiMh/NiCd



CAUTION

Attempts to charge Alkaline batteries could cause leakage of liquid, generation of heat or, in extreme cases, explosion. If using Alkaline batteries, carefully follow the procedure above to avoid damage.

6 TROUBLESHOOTING

Problem	Solution
The beeper and LED signal radio disconnection from the remote Bluetooth® device.	The distance between the remote device and Gryphon™ BT may be too far or there may be obstacles to radio transmission between them. Reconnect.
The requested radio connection by Gryphon™ BT Master does not activate.	Reduce the distance between the devices. Check that Gryphon™ BT is powered (batteries are charged), that the radio protocol software version is compatible with Gryphon™ BT, that there is not already another BT device connected using the same SPP profile. Insert the remote device address again to Gryphon™ BT. Check the Gryphon™ BT configuration using the Transmit configuration command via C-Gryphon cradle.
The remote Bluetooth® device recognizes Gryphon™ BT 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.
The radio range seems reduced.	Check that there are no obstacles to radio transmission between the devices.
An un-connected Gryphon™ BT Master accepts a radio connection from another Bluetooth® Master device.	In this case the Gryphon™ BT automatically forces a disconnection and restarts.
A Gryphon™ BT 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. 5.7.
A Gryphon™ BT Master remains connected to a Slave device.	Read the "Request Radio Disconnection" code in par. 5.7 or power off the Bluetooth® Slave device.

7 TECHNICAL FEATURES

7.1 GRYPHON™ BT

Electrical Features	
Battery Type	2 AA NiMh* batteries 1.2 V – 1850 mAh or 2100 mAh
Time of recharge NiMh	4 - 5 hours
Operating autonomy (typ. continuous reading)	24.000 reads - NiMh
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. 47)
Max. resolution	0.076 mm, 3 mils
PCS minimum	15% (Datalogic Test Chart)
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.
Environmental Features	
Working Temperature	0°to + 40 °C / 32° to 104 °F
Storage Temperature (without battery)	-20°to + 70 °C / - 4° to 158 °F
Humidity	90% non condensing
Drop resistance	1.8 m
Protection class	IP30
Mechanical Features	
Weight (with batteries)	about 280 g. / 9.87 oz
Dimensions	179 x 81 x 98 mm / 7.04 x 3.18 x 3.85 in
Material	ABS and Polycarbonate molded with rubber

* It is possible to employ also NiCd or non-chargeable Alkaline AA batteries.

7.2 C-GRYPHON

C-GRYPHON	
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	NiMh / NiCd batteries: 4 - 5 hours
Environmental Features	
Working temperature	0° to +40 °C / 32° to 104 °F
Storage temperature	-20° to +70 °C / - 4° to 158 °F
Humidity	90 % non condensing
Protection class	IP30
Communications	
Interface	RS232
Baud Rate	9600
Data Bits	8
Stop Bit	1
Parity	None
Mechanical Features	
Weight	about 250 g. / 8.81 oz
Dimensions	208 x 107 x 55.5 mm / 8.1 x 4.2 x 2.18 in
Material	ABS

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

7.3 STATUS INDICATORS

The reader has three indicators, LED, Beeper and Good Read Spot. The C-Gryphon 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 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 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 POWER

Beeper	LED	Meaning
10 short H	10 short blinks	Low Battery

¹ Only the Beeper Intensity command can modify these signals.

GRYPHON™ BT 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 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 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. See also par. 5.5.6.

C-GRYPHON CHARGE STATUS

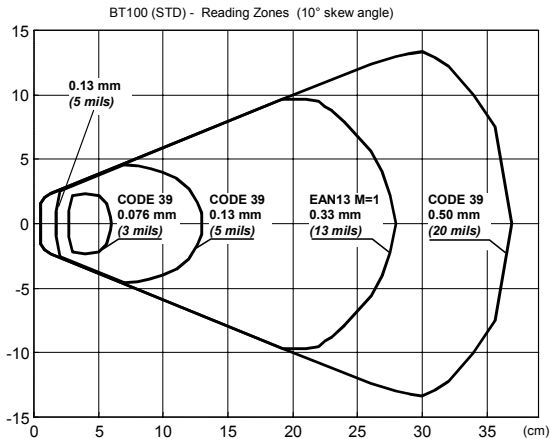
Red LED	Green LED	Meaning
ON	ON	Charging
OFF	ON	End of charge
Flashing	OFF	Reconditioning
OFF	OFF	No battery inserted
Flashing	OFF	Discharging (see par. 2.3)
Flashing	Flashing	Reader not correctly placed onto the charger; shorted or open battery

C-GRYPHON POWER/COMMUNICATION

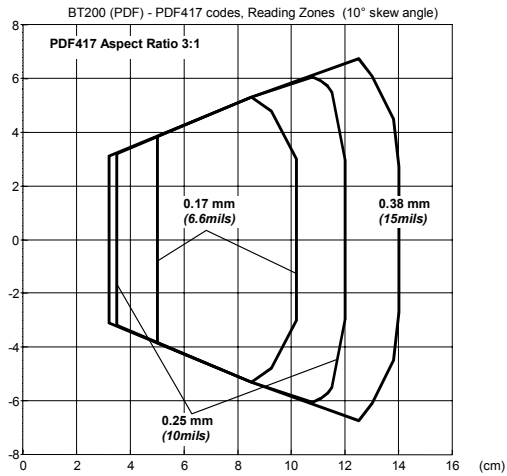
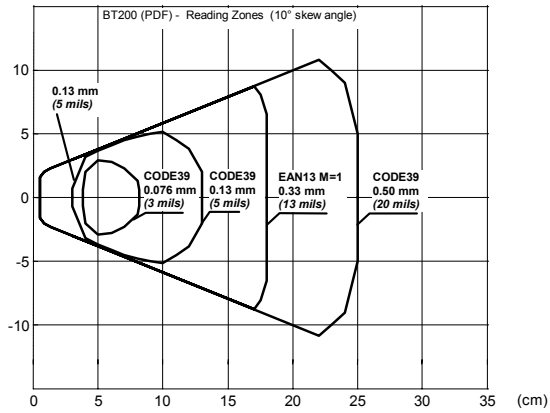
Yellow LED	Meaning
ON	Power applied
OFF	Error in reading EEPROM parameters
Blinking	Transmission over the Host port

7.4 READING DIAGRAMS

GRYPHON™ BT100



GRYPHON™ BT200



A HOST CONFIGURATION STRINGS

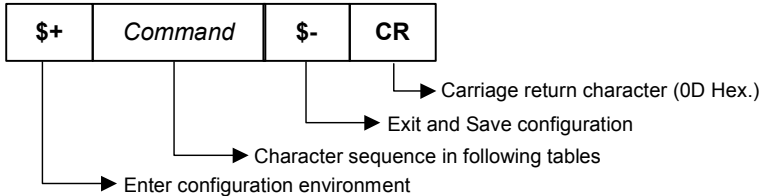
In this section we provide a description of how to send serial strings from the Host to the reader using the C-GRYPHON.

This method requires C-GRYPHON to be connected to the Host via RS232 interface.

Use this method either to modify the device configuration, or to upgrade the reader application software.

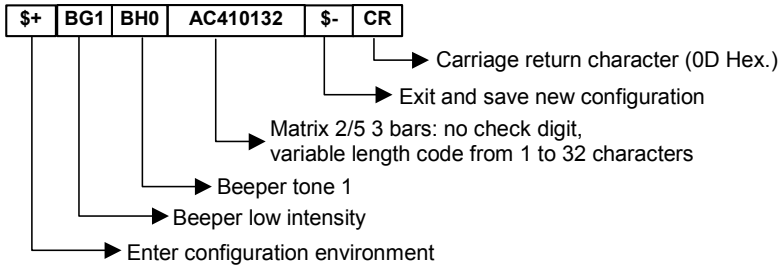
To proceed with these operations, connect an RS232 cable between C-GRYPHON and the PC. Connect the power supply to C-GRYPHON. Place the Gryphon™ BT reader onto the charger.

When this method is used, the programming sequence format is the following:




Example:

Multiple command programming sequence:



Each configuration parameter setting removes the condition previously active for that parameter.



NOTE

The device buffer can contain about 400 characters. If your programming string goes over this value, you must split it into separate groups and send each group after a delay of at least 3 seconds to give the reader time to empty the buffer and interpret the commands.

SERIAL CONFIGURATION STRINGS

ENTER/EXIT CONFIGURATION COMMANDS	
DESCRIPTION	STRING
Enter Configuration	\$+
Exit and Save Configuration	\$-
Restore Default ¹	\$*
Transmit Software Release ¹	\$!
Transmit Device Configuration in ASCII ^{1 2}	\$&

¹ These commands do not require \$-.

² For Gryphon™ BT200, this command transmits only the Bluetooth® radio configuration.

DATA FORMAT		
DESCRIPTION		STRING
Code Identifier	disable	EB0
	Datalogic standard	EB1
	AIM standard	EB2
	Custom	EB3
Custom Code Identifier		EHabc
Headers	no header	EA00
	one character	EA01x
	two characters	EA02xx
	three characters	EA03xxx
	four characters	EA04xxxx
	five characters	EA05xxxxx
	six characters	EA06xxxxxx
	seven characters	EA07xxxxxxxx
eight characters	EA08xxxxxxxxx	
Terminators	No terminator	EA10
	one character	EA11x
	two characters	EA12xx
	three characters	EA13xxx
	four characters	EA14xxxx
	five characters	EA15xxxxx
	six characters	EA16xxxxxx
	seven characters	EA17xxxxxxxx
eight characters	EA18xxxxxxxxx	

a = ASCII character.

b, c, x = HEX values representing an ASCII character.

a = ASCII character of the DATALOGIC STANDARD Code Identifier from the table on p. 121.

b = Hex value of the first Custom Code Identifier character from **00** to **FD**;
FF = disable Code Identifier

c = Hex value of the second Custom Code Identifier character from **00** to **FD**;
FF = disable second character of Custom Code Identifier

x = Hex value from **00** to **FE**

DATA FORMAT (continued)		
DESCRIPTION		STRING
Code Length Tx	not transmitted	EE0
	transmitted in variable-digit format	EE1
	transmitted in fixed 4-digit format	EE2
Field Adjustment	disable	EF0
	right addition	EFa0d
	left addition	EFa1d
	right deletion	EFa2d
	left deletion	EFa3d
Field Adjustment Character		EGe
Character Replacement	disable character replacement	E00
	first character replacement	E01afg
	second character replacement	E02afg
	third character replacement	E03afg
Address Stamping	disable reader address stamping	QU0
	enable reader address stamping	QU1
Address Delimiter	disable reader address delimiter	QV0
	enable reader address delimiter and select character	QV1h
Gryphon™ BT address	disable	QX0
	enable	QX1

- a** = ASCII character.
- d** = a number from the Hex/Numeric Table
- e, f, g, h** = HEX values representing an ASCII character

a = ASCII character of the DATALOGIC STANDARD Code Identifier from the table on p. 121.

d = a number in the range **01-32** from the Hex/Numeric Table

e = Hex value from **00** to **FE**

f = Hex value of the character to be replaced from **00** to **FE**

g = Hex value of the new character to insert from **00** to **FE**
FF = replace with no new character (remove character)

h = a HEX value in the range from **00** - **FE** representing the ASCII character.

POWER SAVE		
DESCRIPTION		STRING
Scan Rate	67 scans per sec.	BT0
	135 scans per sec.	BT1
	270 scans per sec.	BT2

READING PARAMETERS		
DESCRIPTION		STRING
Operating Mode	hand-held operation	BP0
	stand operation	BP1
	automatic	BP2
Hand-Held Operation	software trigger	BK0
	hardware trigger	BK1
	automatic	BK2
	hardware trigger ready	BK4
Stand Operation	software trigger	BU1
	hardware trigger	BU3
	automatic	BU0
Hardware Trigger Mode	trigger active level	BA0
	trigger active pulse	BA1
Trigger-off Timeout (s)		BD00 - BD99
FLASH ON (100 ms)		BB001 - BB099
FLASH OFF (100 ms)		BB101 - BB199
Reads per Cycle	one read	BC0
	multiple reads	BC1
Safety Time (100 ms)		BE00 - BE99
Beeper Intensity	very low intensity	BG0
	low intensity	BG1
	medium intensity	BG2
	high intensity	BG3
Beeper Tone	tone 1	BH0
	tone 2	BH1
	tone 3	BH2
	tone 4	BH3
Beeper Type	monotone	BJ0
	bitonal	BJ1
Beeper Length	long	BI0
	short	BI1
PDF Decoding Recognition Intensity	low	BW0
	high	BW1
Good Read Spot - Duration	disabled	BV0
	short	BV1
	medium	BV2
	long	BV3

DECODING PARAMETERS		
DESCRIPTION		STRING
Ink-spread	disable	AX0
	enable	AX1
Overflow control	disable	AW1
	enable	AW0
Interdigit control	disable	AV0
	enable	AV1
Puzzle Solver™	disable	AU0
	enable	AU1
Decoding Safety	one read	ED0
	two reads	ED1
	three reads	ED2
	four reads	ED3

CODE SELECTION			
DESCRIPTION		STRING	
DISABLE ALL FAMILY CODES		AZ0	
EAN/UPC	disable EAN/UPC family	AA0	
	EAN 8/EAN 13/UPC A/UPC E	without ADD ON	AA1
		with ADD ON	AA5
		with and without ADD ON	AA8
	EAN 8/EAN 13	without ADD ON	AA3
		with ADD ON 2 ONLY	AAK
		with ADD ON 5 ONLY	AAL
		with ADD ON 2 AND 5	AA6
	UPC A/UPC E	without ADD ON	AA4
		with ADD ON 2 ONLY	AAM
		with ADD ON 5 ONLY	AAN
		with ADD ON 2 AND 5	AA7
	EAN 8 check digit transmission	disable	AAG0
		enable	AAG1
	EAN 13 check digit transmission	disable	AAH0
		enable	AAH1
	UPC A check digit transmission	disable	AAI0
		enable	AAI1
	UPC E check digit transmission	disable	AAJ0
		enable	AAJ1
conversions	UPC E to UPC A	AAA	
	UPC E to EAN 13	AAB	
	UPC A to EAN 13	AAC	
	EAN 8 to EAN 13	AAD	

CODE SELECTION (continued)			
DESCRIPTION		STRING	
	ISBN Conversion codes	enable ISBN	AP1
		enable ISSN	AP2
		enable ISBN and ISSN	AP3
		disable ISBN and ISSN	AP0
Code 39	disable Code 39 family		AB0
	Standard	no check digit control	AB11
		check digit control and transmission	AB12
		check digit control without transmission	AB13
	Full ASCII	no check digit control	AB21
		check digit control and transmission	AB22
		check digit control without transmission	AB23
	CIP 39		AB3
Code 32		AB4	
code length		AB*xxxx	
2/5	disable Code 2/5 family		AC0
	Interleaved 2/5	no check digit control	AC11xxxx
		check digit control and transmission	AC12xxxx
		check digit control without transmission	AC13xxxx
	Normal 2/5 5 bars	no check digit control	AC21xxxx
		check digit control and transmission	AC22xxxx
		check digit control without transmission	AC23xxxx
	Industrial 2/5 (IATA)	no check digit control	AC31xxxx
		check digit control and transmission	AC32xxxx
		check digit control without transmission	AC33xxxx
	Matrix 2/5 3 bars	no check digit control	AC41xxxx
		check digit control and transmission	AC42xxxx
		check digit control without transmission	AC43xxxx
	CIP/HR		AC5

xxxx = ASCII numbers that define the code length where:

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

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

The maximum code length for all codes is 99 characters:

Examples:

0132 = variable length from 1 to 32 digits in the code.

1010 = 10 digit code length only.

CODE SELECTION (continued)			
DESCRIPTION		STRING	
Codabar	disable Codabar family		AD0
	Standard	no start/stop character equality control nor transmission	AD111
		no start/stop character equality control but transmission	AD112
		start/stop character equality control but no transmission	AD121
		start/stop character equality control and transmission	AD122
	ABC Codabar	no start/stop character equality control but transmission	AD212
	Codabar ABC forced concatenation		AD232
	code length		AD*xxxx
start/stop character case in transmission	lower case	ADA0	
	upper case	ADA1	
Code 128	disable Code 128 family		AI0
	enable Code 128 - control without transmission of check digit		AI11
	enable EAN 128 - control without transmission of check digit		AI21
	add GS before Code	disable	EQ0
		enable	EQ1
	ISBT 128	enable ISBT 128	AI31
code length		AILxxxx	
Code 93	disable Code 93 family		AK0
	enable Code 93 - control without transmission of check digit		AK1
Codablock-A	disable	AO0	
	enable	AO1	
Codablock-F	disable the family	AN0	
	enable Standard	AN1	
	enable EAN	AN2	

xxxx = ASCII numbers that define the code length where:

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

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

The maximum code length for all codes is 99 characters:

EXAMPLES:

0132 = variable length from 1 to 32 digits in the code.

1010 = 10 digit code length only.

CODE SELECTION (continued)		
DESCRIPTION		STRING
MSI	disable the family	AE0
	no check	AE1
	MOD10 no tx	AE2
	MOD10 with tx	AE3
	MOD11-MOD10 no tx	AE4
	MOD11-MOD10 with tx	AE5
	MOD10-MOD10 no tx	AE6
	MOD10-MOD10 with tx	AE7
Plessey	disable the family	AF0
	Standard no check	AF11
	Standard check - with tx	AF12
	Standard check - no tx	AF13
	Anker no check	AF21
	Anker check - with tx	AF22
	Anker check - no tx	AF23
Telepen	disable the family	AL0
	Numeric no check	AL11
	Numeric check - with tx	AL12
	Numeric check - no tx	AL13
	Alpha no check	AL21
	Alpha check - with tx	AL22
	Alpha check - no tx	AL23
Delta IBM	disable the family	AH0
	no check	AH1
	Type 1 check	AH2
	Type 2 check	AH3
Code 11	disable the family	AG0
	no check	AG1
	Type C with tx	AG21
	Type C no tx	AG22
	Type K with tx	AG31
	Type K no tx	AG32
	Type C and K with tx	AG41
	Type C and K no tx	AG42
Code 16K	disable	AJ0
	enable	AJ1
Code 49	disable	AM0
	enable	AM1

CODE SELECTION (continued)		
DESCRIPTION		STRING
RSS	disable the family	AQ0
	disable RSS Expanded Linear and Stacked	AQ10
	enable RSS Expanded Linear and Stacked	AQ11
	disable RSS Limited	AQ20
	enable RSS Limited	AQ21
	disable RSS 14 Linear and Stacked	AQ30
	enable RSS 14 Linear and Stacked	AQ31
PDF417	disable	AR0
	enable	AR1

RADIO PARAMETERS		
DESCRIPTION		STRING
Radio Protocol Timeout	enable (seconds)	RH03-RH19
Power-Off Timeout		RP00-RP99
Beeper Control For Radio Response	normal	BF0
	only good decode	BF1
	only good reception	BF2
	off	BF3
Transmission Retry (s)		QO00 - QO60
ACK/NACK Protocol and Frame Packing	No ACK/NACK nor Frame Packing	QL0
	ACK/NACK only	QL1
	Frame Packing only	QL2
	ACK/NACK and Frame Packing	QL3
Auto-Connection (Master only)	disable	QA0
	enable	QA1
Auto-Reconnection (Master only)	disable	QM0
	enable	QM1

B CODE IDENTIFIER TABLE

2/5 Interleaved



2/5 normal 5 bars



EAN 8



UPC A



EAN 8 with 2 ADD ON



EAN 13 with 2 ADD ON



UPC A with 2 ADD ON



2/5 Industrial



2/5 matrix 3 bars



EAN 13



UPC E



EAN 8 with 5 ADD ON



EAN 13 with 5 ADD ON



UPC A with 5 ADD ON



UPC E with 5 ADD ON



Code 39 Full ASCII



ABC CODABAR



EAN 128



CIP/39



Code 32



UPC E with 2 ADD ON



Code 39



CODABAR



Code 128



Code 93

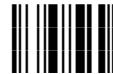


CIP/HR



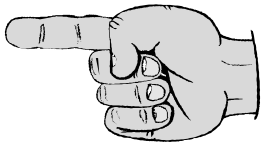
ISBT 128



CODABLOCK-A**CODABLOCK-F Standard****CODABLOCK-F EAN****MSI****Plessey Anker****Plessey Standard****Delta IBM****Telepen****Code 16K****Code 11****PDF417****Code 49**

C HEX AND NUMERIC TABLE

**OPEN THIS PAGE TO READ THE DESIRED
HEX AND NUMERIC SELECTIONS**



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	a	60
FF	0C	6	36	b	61
CR	0D	7	37	c	62
SO	0E	8	38	d	63
SI	0F	9	39	e	64
DLE	10	:	3A	f	65
DC1	11	;	3B	g	66
DC2	12	<	3C	h	67
DC3	13	=	3D	i	68
DC4	14	>	3E	j	69
NAK	15	?	3F	k	6A
SYN	16	@	40	l	6B
ETB	17	A	41	m	6C
CAN	18	B	42	n	6E
EM	19	C	43	o	6F
SUB	1A	D	44	p	70
ESC	1B	E	45	q	71
FS	1C	F	46	r	72
GS	1D	G	47	s	73
RS	1E	H	48	t	74
US	1F	I	49	u	75
SPACE	20	J	4A	v	76
!	21	K	4B	w	77
"	22	L	4C	x	78
#	23	M	4D	y	79
\$	24	N	4E	z	7A
%	25	O	4F	{	7B
&	26	P	50	|	7C
'	27	Q	51	}	7D
(	28	R	52	~	7E
)	29	S	53	DEL	7F
		T	54		

HEX / NUMERIC TABLE



Backspace



Cancels an incomplete configuration sequence