GRYPHON™ BT

Reference Manual

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DATALOGIC

GRYPHON™ BT

REFERENCE MANUAL

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GRYPHON™ BT

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GENERAL VIEW

GRYPHON™ BT READER

Figure A – Gryphon™ BT Series Reader

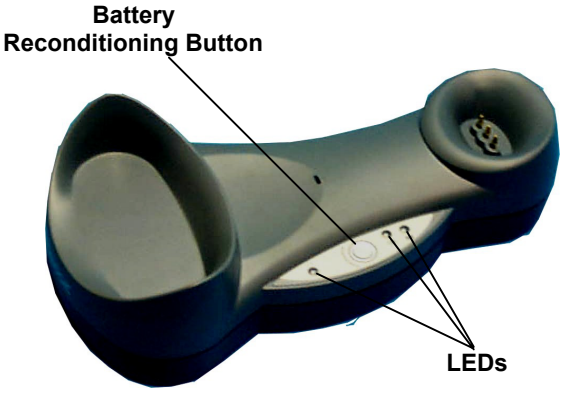


Figure B – C-GRYPHON

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.

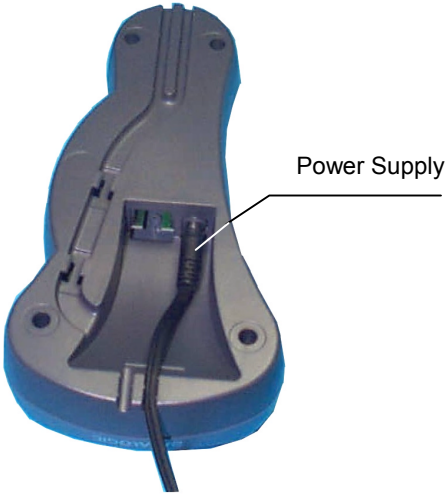
2.1 POWERING THE C-GRYPHON

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

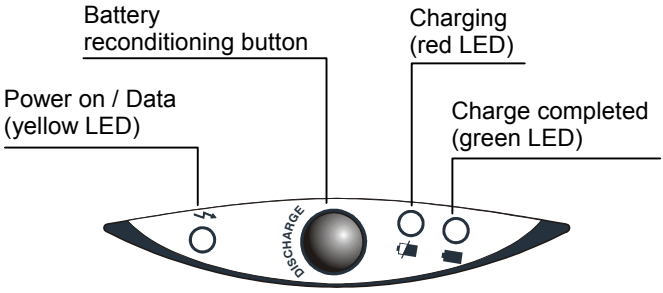
2.2 BATTERY TYPE

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:

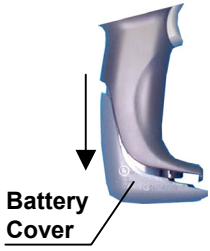
	LED	STATUS
	Power on / Data	Yellow On = C-GRYPHON is powered. Yellow Blinking = C-GRYPHON receives commands from the Host.
	Charging	Red On = the battery charge is in progress. Red Blinking = the battery reconditioning is in progress.
	Charging completed	Green On = the battery is completely charged.
	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.

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.

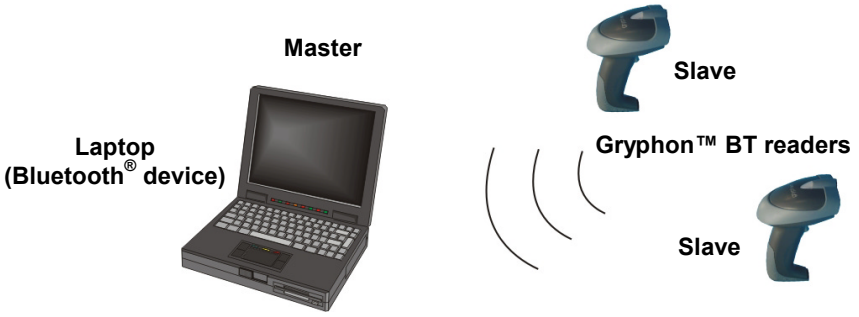


Figure 1 - Gryphon™ BT Slave Application

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 µP 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

⊙	***CODE IDENTIFIER*** ⊙
⊙	***CUSTOM CODE IDENTIFIER*** ⊙
⊙	***HEADER*** ⊙
⊙	***TERMINATOR*** ⊙
⊙	***FIELD ADJUSTMENT*** ⊙
⊙	***FIELD ADJ. CHARACTER*** ⊙
⊙	***CODE LENGTH TX*** ⊙
⊙	***CHARACTER REPLACEMENT*** ⊙
⊙	***ADDRESS STAMPING*** ⊙
⊙	***ADDRESS DELIMITER*** ⊙

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	] C4	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	

- 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

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**

Enter Configuration

Exit and Save Configuration

DATA FORMAT

HEADER

◆ no header

one character header

two character header

three character header

four character header

five character header

six character header

seven character header

eight character header

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

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

Example:

four character header + **41** + **42** + **43** + **44** = Header **ABCD**

DATA FORMAT

TERMINATOR

no terminator

one character terminator

two character terminator

three character terminator

four character terminator

five character terminator

six character terminator

seven character terminator

eight character terminator

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

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

Example:

two character terminator + **0D** + **0A** = Terminator **CR LF**

◆ Default terminators = **CR LF**.

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 enable field adjustment + Code 39 + right addition + **04**

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 field adjustment character + **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.

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**-**FE**.

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**-**FE**.

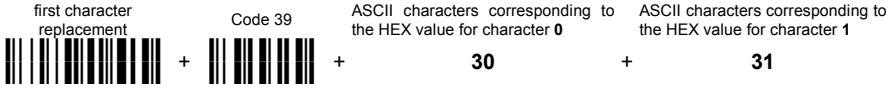
FF = the character to be replaced will be substituted with no character, that is, it will be removed from the code.

Example:

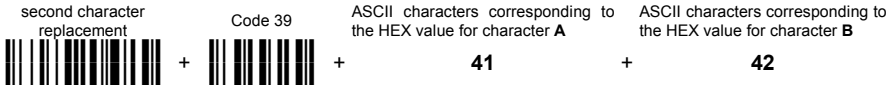
The following strings define:

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 "**0**123", the contents transmitted will be "**1**123".



For Code 39 codes containing the string "**A**BCD", the contents transmitted will be "**B**BCD".

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.

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.

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.

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

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.

BEEPER INTENSITY

* very low intensity

low intensity

medium intensity

◆ high intensity

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

The Intensity parameter is effective for all operating conditions described in par. 7.3.

BEEPER TONE

tone 1

◆ tone 2

tone 3

tone 4

READING PARAMETERS

BEEPER TYPE

◆ monotone

bitonal

BEEPER LENGTH

long

◆ short

PDF DECODING RECOGNITION INTENSITY

◆ low

high

GOOD READ SPOT DURATION

disable

short

◆ medium

long

DECODING PARAMETERS

⊙	***INK-SPREAD***	⊙
⊙	***OVERFLOW CONTROL***	⊙
⊙	***INTERDIGIT CONTROL***	⊙
⊙	***DECODING SAFETY***	⊙
⊙	***PUZZLE SOLVER™***	⊙

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.

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.

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

⊙	***EAN/UPC FAMILY***	⊙
⊙	***2/5 FAMILY***	⊙
⊙	***CODE 39 FAMILY***	⊙
⊙	***CODE 128 FAMILY***	⊙
⊙	***CODABAR FAMILY***	⊙
⊙	***CODE 93***	⊙
⊙	***CODABLOCK-A***	⊙
⊙	***CODABLOCK-F***	⊙
⊙	***MSI***	⊙
⊙	***PLESSEY***	⊙
⊙	***TELEPEN***	⊙
⊙	***DELTA IBM***	⊙
⊙	***CODE 11***	⊙
⊙	***CODE 16K***	⊙
⊙	***CODE 49***	⊙
⊙	***RSS FAMILY***	⊙
⊙	***PDF417*** ***PDF READERS ONLY***	⊙

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.

Enter Configuration

Exit and Save Configuration

CODE SELECTION

EAN/UPC FAMILY

disable the family

① Read the desired family code

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

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

WITHOUT ADD ON

◆ **EAN 8/EAN 13/UPC A/UPC E**

EAN 8/EAN 13

UPC A/UPC E

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

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

CONVERSION OPTIONS

UPC E to UPC A conversion

UPC E to EAN 13 conversion

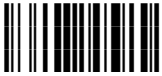
UPC A to EAN 13 conversion

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

◆ **Standard Code 39**

Full ASCII Code 39

② Read a check digit selection

CHECK DIGIT TABLE

◆ no check digit control

check digit control
and transmission

check digit control
without transmission

Enter Configuration

Exit and Save Configuration

CODE SELECTION

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

Code CIP39

French pharmaceutical code

Code 32

Italian pharmaceutical code

CODE LENGTH (optional)

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

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

set code length

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 128 FAMILY

disable the family

① Read the desired family code

◆ **Code 128**

control without transmission
of check digit

EAN 128

control without transmission
of check digit

Add GS Before Code

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

◆ disable

enable

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

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:

set code length

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.

The length is calculated on the output string.

CODE 93

◆ disable the code

Code 93

control without transmission
of check digit

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.

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

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.

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

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

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

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 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 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.

RSS FAMILY

◆ disables the family

DISABLE CODE	ENABLE CODE
disable RSS Expanded Linear and Stacked	enable RSS Expanded Linear and Stacked
disable RSS Limited	enable RSS Limited
disable RSS 14 Linear and Stacked	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.

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.

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

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

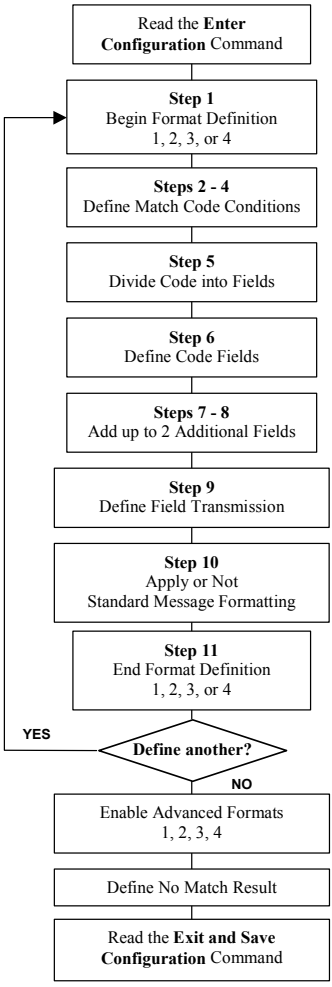
either code 1 or code 2 transmitted
after timeout

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 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

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 = "@@".

Match with a 2-character 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.

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

field separator

a) ☞ 

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

discard separator

include separator

OR

field length

b) ☞ 

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

OR

this is the last field (variable length)

c) 

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

field separator

a) ☞

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

discard separator

include separator

OR

field length

b) ☞

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

OR

this is the last field (variable length)

c)

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**.

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 = MAIN

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 = SET

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 2

field 3

field 4

field 5

additional field 1

additional field 2

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

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).

Enter Configuration

Exit and Save Configuration

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

Enter Configuration

Exit and Save Configuration

ADVANCED FORMATTING

define 3 parameters

define 4 parameters

code ID

See par. 5.4.1 for details.

ZEBRA PRINTER FORMAT FILE SELECTION

◆ File 00

File 01

File 02

File 03

File 04

File 05

File 06

File 07

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

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

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.

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.

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.

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.

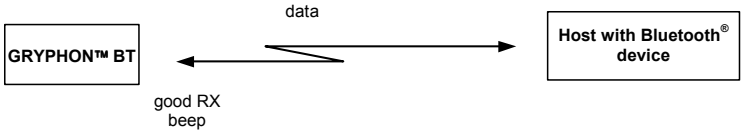
Transmission retry is valid only if ACK/NACK Protocol is enabled (see par. 5.5.3).

5.5.3 ACK/NACK Protocol and Frame Packing

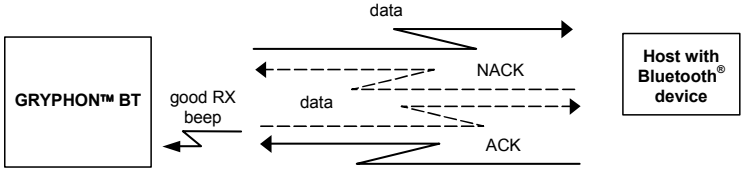
ACK/NACK Protocol
The transmission protocol takes place between the reader and the Host. The reader passes its data (code read) to the remote Bluetooth® device (Host).

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 Bluethooth® 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 Bluethooth® 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: • 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 Wavelength Max. LED Output Power LED Safety Class Reading field	LED array 630 ~ 670 nm 0.33 mW Class 1 EN 60825-1 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

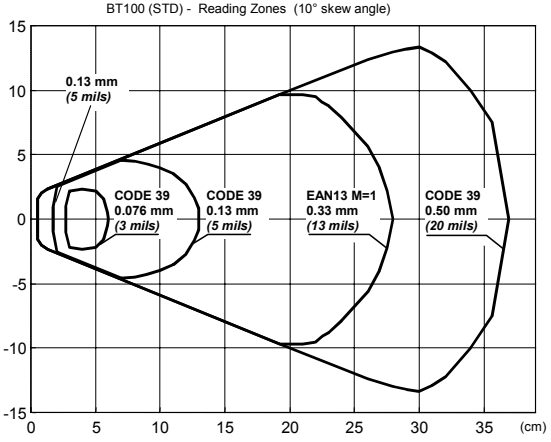
Red LED	Green LED	Meaning
ON	OFF	Charging
OFF	ON	End of charge
Flashing	OFF	Reconditioning (see par. 2.3)
OFF	OFF	No gun inserted or Alkaline battery selected
Flashing	Flashing	Reader not correctly placed onto the charger; shorted or open battery

C-GRYPHON POWER/COMMUNICATION

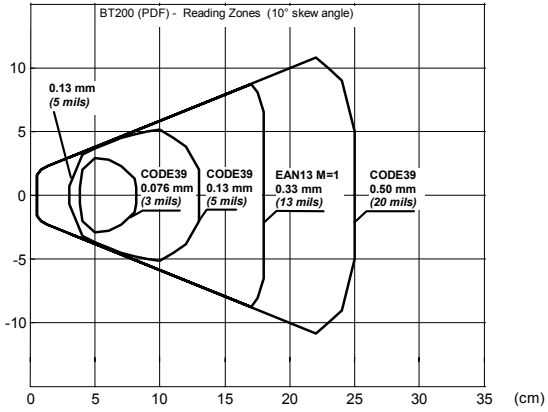
Yellow LED	Meaning
ON	Power applied
OFF	Error in reading EEPROM parameters / Insufficient Voltage
Blinking	C-GRYPHON receives commands from the Host

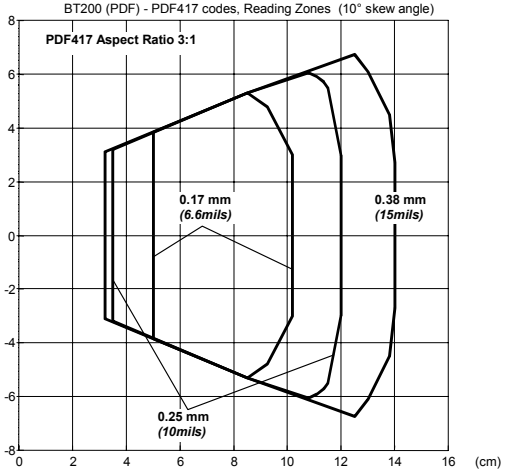
7.4 READING DIAGRAMS

GRYPHON™ BT100



GRYPHON™ BT200





A HOST CONFIGURATION STRINGS

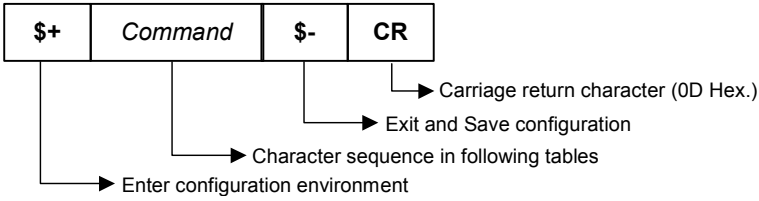
In this section we provide a description of how to send serial strings from the Host to the reader using the C-GRYPHON.

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

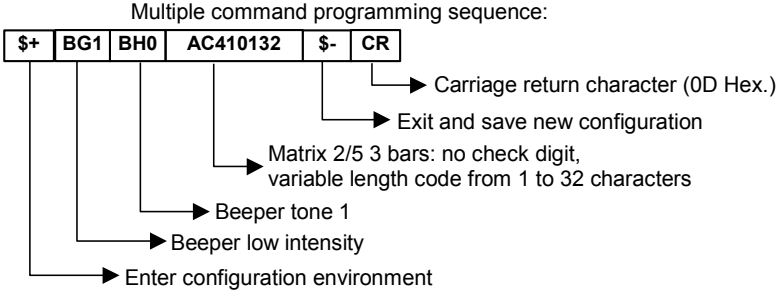
Use this method either to modify the device configuration, or to upgrade the reader application software.

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:



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		**EH*abc***
Headers	no header	**EA00**
	one character	**EA01*x***
	two characters	**EA02*xx***
	three characters	**EA03*xxx***
	four characters	**EA04*xxxx***
	five characters	**EA05*xxxxx***
	six characters	**EA06*xxxxxx***
	seven characters	**EA07*xxxxxxx***
	eight characters	**EA08*xxxxxxxx***
Terminators	No terminator	**EA10**
	one character	**EA11*x***
	two characters	**EA12*xx***
	three characters	**EA13*xxx***
	four characters	**EA14*xxxx***
	five characters	**EA15*xxxxx***
	six characters	**EA16*xxxxxx***
	seven characters	**EA17*xxxxxxx***
	eight characters	**EA18*xxxxxxxx***

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	**EF*a*0*d***
	left addition	**EF*a*1*d***
	right deletion	**EF*a*2*d***
	left deletion	**EF*a*3*d***
Field Adjustment Character		**EG*e***
Character Replacement	disable character replacement	**EO0**
	first character replacement	**EO1*afg***
	second character replacement	**EO2*afg***
	third character replacement	**EO3*afg***
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	**QV1*h***
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	**AC11*xxxx***
		check digit control and transmission	**AC12*xxxx***
		check digit control without transmission	**AC13*xxxx***
	Normal 2/5 5 bars	no check digit control	**AC21*xxxx***
		check digit control and transmission	**AC22*xxxx***
		check digit control without transmission	**AC23*xxxx***
	Industrial 2/5 (IATA)	no check digit control	**AC31*xxxx***
		check digit control and transmission	**AC32*xxxx***
		check digit control without transmission	**AC33*xxxx***
	Matrix 2/5 3 bars	no check digit control	**AC41*xxxx***
		check digit control and transmission	**AC42*xxxx***
		check digit control without transmission	**AC43*xxxx***
	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			**AIL*xxxx***
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 EAN

Plessey Anker

Delta IBM

Code 16K

PDF417

CODABLOCK-F Standard

MSI

Plessey Standard

Telepen

Code 11

Code 49

C HEX AND NUMERIC TABLE

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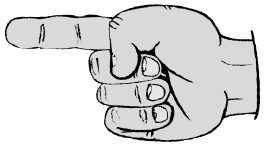
HEX AND NUMERIC SELECTIONS



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

HEX / NUMERIC TABLE


0


2


4


6


8


A


C


E


1


3


5


7


9


B


D


F

Backspace

Cancels an incomplete configuration sequence