Configuration Control Document

V4500 Firmware Version 1.0.7

Contents

1 Keyword Table **2**

2 Scope **3**

3 Notations **3**

4 Reader Command Overview **3**
4.1 Configuration Command Architecture . . . 3
4.2 Command Format . . . 3
4.3 Supported Commands . . . 3

5 AG - Automatic Gain Control (AGC) Parameters **5**

6 BT - Bluetooth Radio Parameters **13**

7 CD - Decoder Parameters **17**

8 CF - Configuration Parameters **29**

9 CM - Communication Parameters **31**

10 EN - Encoder Image Parameters **35**

11 FB - Feedback Parameters **36**

12 FW - Firmware Parameters **45**

13 IM - Image Sensor Parameters **47**

14 JS - JavaScript Configuration Parameters **48**

15 LA - Language Parameters **50**

16 MD - Motion Detection Parameters **51**

17 PK - Protocol Parameter **54**

18 PM - Power Management Parameters **55**

19 RD - Reader Parameters **56**

20 SC - Scene Manager Parameters **65**

21 ST - Storage Parameters **66**

22 SY - Symbology Parameters **67**

23 UI - User interface settings **87**

24 Motion Detection **90**

25 DPM Decoding **90**

26 Data Formatting **90**
26.1 Data Formatting Options . . . 90
26.2 Data Formatting String . . . 92
26.3 Prefixes and Suffixes . . . 92
26.4 Format Case . . . 92
26.5 Format Parse and Validation Configuration String . . . 92
26.6 Sending Windows Keystrokes using CodeXML . . . 92
26.7 Sending USB Keyboard Scan Codes using CodeXML . . . 94
26.8 Command Barcode Format . . . 95

27 Device Recovery for the V4500 **96**

A HID scancode delay description **97**

B ASCII-Hexadecimal table **98**

C USB VID - PID Listing **101**

D Decode Modes **102**

1 Keyword Table

Keyword	Description
#2Of5	All 2 of 5 symbologies
#AGC	Automatic Gain Control
#AIMId	AIM Identifier (ISO/IEC standard 15424)
#Aztec	Aztec symbology
#BC412	BC412 symbology
#Codabar	Codabar symbology
#Codablock	Codablock symbology
#Code11	Code 11 symbology
#Code128	Code 128 symbology
#Code39	Code 39 symbology
#Code32	Code 32 symbology
#Code49	Code 49 symbology
#Code93	Code 93 symbology
#Communications	Used in changing the communication mode of the reader
#CompositeBarcodes	Settings that affect reading of barcodes with more than one part
#DataEncoding	Settings that affect incoming/outgoing data
#DataFormatting	Data Formatting settings
#DataMatrix	Data Matrix symbology
#DotCode	DotCode symbology
#DuplicateBlock	Settings related to blocking duplicate barcodes
#EAN/JAN	EAN/JAN symbology
#GoCode	GoCode® symbology
#GridMatrix	Grid Matrix symbology
#GS1DataBar	The GS1 DataBar family of symbologies
#HanXin	Han Xin symbology
#Image	Image cropping, ROI
#InterCharacterDelay	Settings controlling the USB keyboard inter-character delay
#Interleaved2Of5	Interleaved 2 of 5 symbology
#MaxiCode	MaxiCode symbology
#Message	Messages and logs
#MSIPlessey	MSI Plessey symbology
#PDF417	PDF417 symbology
#Pharmacode	Pharmacode symbology
#Postal	Postal symbologies
#QR	QR Code symbology
#Raw	Settings related to the reader accepting raw commands
#ReaderState	Settings that affect the transition from one state to another (i.e. Active to Idle)
#SerialComm	Settings related to serial communications mode
#Telepen	Telepen symbology
#TextCommands	Settings relating to the reader accepting text commands
#Trioptic	Trioptic symbology
#UKPlessey	UK Plessey symbology
#UPC	UPC symbology
#CleanlinessTest	Cleanliness Test for 8200 products

2 Scope

This Configuration Control Document (CCD) specifies the Reader configuration commands.

3 Notations

The interface protocol is described as a set of grammars, indicated by different type styles and symbols. These indications are listed in the table below.

Example	Indication	Grammar
Text-Command	Italic type	Syntactic categories (non-terminals)
space	Bold type	Terminal symbols
%xx	Byte data	In Hex
0xFF	0x prefix indicating hexadecimal	Literal byte values
'X'	Single quotes	Literal ASCII characters
SOH	All caps	Non-printable ASCII characters
esc | tab	Vertical bar	Alternatives (this or that)
$data_{opt}$	$_{opt}$ (opt subscript)	Optional terminals and non-terminals
$crc16_{nr}$	$_{nr}$ (nr subscript)	Applies to packets sent in non-raw mode, i.e. in packet mode

4 Reader Command Overview

This section is intended to introduce users to the format of configuration commands a reader will accept to change and save configuration settings.

4.1 Configuration Command Architecture

Commands are defined as alphanumeric ASCII strings. For example, to enable Australian Post Symbology on the reader, the host will send the ASCII string SYAUPOSEN1. After the host sends a complete command, the reader will respond with a success or error message. If a command is not recognized or is not supported by a device, the reader will respond with a "NOTSUPP" error message. If an invalid parameter or parameter value is given, CDOPSQQ or CDOPSMD25 for example, the reader will respond with an "INVAL" error message.

4.2 Command Format

Primary Category	Sub-Category	Action Code	Parameter	Parameter Value (when action is S or P)
Example: SY, CM, etc.	Example: AZTC, SE, etc.	S - Change and save L - Save as a platform setting P - Change but do not save R - Reset to default value G - Get value in effect X - Execute C - Reset to saved or default value	Example: AL, BA, [, etc.	String of decimal, number, or text.

4.3 Supported Commands

The CR8200 family of readers use a new command set as compared to the CR8000 family of readers. The default output style of the CR8200 readers is via XML.

The Configuration Manager is a series of commands that apply to all primary category settings. For a full output of CR8200 settings, requested by issuing the Configuration Manager command CFG, the XML contains the following elements:

<CFG >

<CM > ... </CM > Communications
<PM > ... </PM > Power Management
<FC > ... </FC > Focus Testing
<AG > ... </AG > Automatic Gain Control
<CD > ... </CD > Decoder Control
<SC > ... </SC > Scene Manager
<SY > ... </SY > Symbologies
<PK > ... </PK > Packet Protocol
<IM > ... </IM > Image Sensor
<JS > ... </JS > JavaScript
<FW > ... </FW > Firmware
<RD > ... </RD > Reader
<FB > ... </FB > Feedback
<LA > ... </LA > Language
<MD > ... </MD > Motion Detection
<EN > ... </EN > Encoder Image Parameters
<ST > ... </ST > Storage
<BT > ... </BT > Bluetooth Radio Parameters
<Saved > ... </Saved >Saved Settings
<Platform > ... </Platform >Platform Settings

</CFG >

Each of the above elements is a "Primary Category" in the command format and has its own configuration commands that start with the two-letter element name, which the following sections describe

5 AG - Automatic Gain Control (AGC) Parameters

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	AG	FX	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
AGC - Fixed Mode - Percent	AG	FX	S/L/P/G R/C	BP	When the AGC is in fixed mode, this value selects the point on the AGC curve from which to make calculations. **Keyword:** #AGC **Example:** AGFXSBP50 **Default Value:** 50
Get All Subcategory Parameters	AG	BY	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
AGC - Bypass Mode - Illumination Percent	AG	BY	S/L/P/G R/C	IL	Overrides the illumination setting with the user-provided illumination setting when the AGC is set to bypass mode. **Keyword:** #AGC **Example:** AGBYSIL50 **Default Value:** 50
AGC - Bypass Mode - Exposure (us)	AG	BY	S/L/P/G R/C	EX	Overrides the exposure setting with the user-provided exposure setting when the AGC is set to bypass mode in microseconds. **Keyword:** #AGC **Example:** AGBYSEX4000 **Default Value:** 4000
AGC - Bypass Mode - Gain Percent	AG	BY	S/L/P/G R/C	GN	Overrides the gain setting with the user-provided gain setting when the AGC is set to bypass mode. **Keyword:** #AGC **Example:** AGBYSGN0 **Default Value:** 0
AGC Config Mode Exposure Time Curve Adjustment (us)	AG	CD	S/L/P/G R/C	E1	Adjust Config AGC's exposure time curve's points in microseconds. This configurable curve is used when taking pictures and decoding in this mode. **Keyword:** #AGC #Image **Example:** AGCDSE1100 **Default Value:** 100
AGC Config Mode Exposure Time Curve Adjustment (us)	AG	CD	S/L/P/G R/C	E2	Adjust Config AGC's exposure time curve's points in microseconds. This configurable curve is used when taking pictures and decoding in this mode. **Keyword:** #AGC #Image **Example:** AGCDSE21400 **Default Value:** 1400

Description	Cat	Sub	Action	Param	Notes/Example
AGC Config Mode Exposure Time Curve Adjustment (us)	AG	CD	S/L/P/G R/C	E3	Adjust Config AGC's exposure time curve's points in microseconds. This configurable curve is used when taking pictures and decoding in this mode. **Keyword:** #AGC #Image **Example:** AGCDSE33200 **Default Value:** 3200
AGC Config Mode Exposure Time Curve Adjustment (us)	AG	CD	S/L/P/G R/C	E4	Adjust Config AGC's exposure time curve's points in microseconds. This configurable curve is used when taking pictures and decoding in this mode. **Keyword:** #AGC #Image **Example:** AGCDSE45600 **Default Value:** 5600
AGC Config Mode Exposure Time Curve Adjustment (us)	AG	CD	S/L/P/G R/C	E5	Adjust Config AGC's exposure time curve's points in microseconds. This configurable curve is used when taking pictures and decoding in this mode. **Keyword:** #AGC #Image **Example:** AGCDSE57500 **Default Value:** 7500
AGC Config Mode Exposure Time Curve Adjustment (us)	AG	CD	S/L/P/G R/C	E6	Adjust Config AGC's exposure time curve's points in microseconds. This configurable curve is used when taking pictures and decoding in this mode. **Keyword:** #AGC #Image **Example:** AGCDSE69200 **Default Value:** 9200
AGC Config Mode Gain Curve Adjustment (%)	AG	CD	S/L/P/G R/C	G1	Adjust Config AGC's gain curve's points percentage. This configurable curve is used when taking pictures and decoding in this mode. **Keyword:** #AGC #Image **Example:** AGCDSG115 **Default Value:** 15
AGC Config Mode Gain Curve Adjustment (%)	AG	CD	S/L/P/G R/C	G2	Adjust Config AGC's gain curve's points percentage. This configurable curve is used when taking pictures and decoding in this mode. **Keyword:** #AGC #Image **Example:** AGCDSG225 **Default Value:** 25
AGC Config Mode Gain Curve Adjustment (%)	AG	CD	S/L/P/G R/C	G3	Adjust Config AGC's gain curve's points percentage. This configurable curve is used when taking pictures and decoding in this mode. **Keyword:** #AGC #Image **Example:** AGCDSG325 **Default Value:** 25
AGC Config Mode Gain Curve Adjustment (%)	AG	CD	S/L/P/G R/C	G4	Adjust Config AGC's gain curve's points percentage. This configurable curve is used when taking pictures and decoding in this mode. **Keyword:** #AGC #Image **Example:** AGCDSG425 **Default Value:** 25

Description	Cat	Sub	Action	Param	Notes/Example
AGC Config Mode Gain Curve Adjustment (%)	AG	CD	S/L/P/G R/C	G5	Adjust Config AGC's gain curve's points percentage. This configurable curve is used when taking pictures and decoding in this mode. **Keyword:** #AGC #Image **Example:** AGCDSG525 **Default Value:** 25
AGC Config Mode Gain Curve Adjustment (%)	AG	CD	S/L/P/G R/C	G6	Adjust Config AGC's gain curve's points percentage. This configurable curve is used when taking pictures and decoding in this mode. **Keyword:** #AGC #Image **Example:** AGCDSG625 **Default Value:** 25
AGC Config Mode Illumination Curve Adjustment (%)	AG	CD	S/L/P/G R/C	I1	Adjust Config AGC's illumination curve's points percentage. This configurable curve is used when taking pictures and decoding in this mode. **Keyword:** #AGC #Image **Example:** AGCDSI11 **Default Value:** 1
AGC Config Mode Illumination Curve Adjustment (%)	AG	CD	S/L/P/G R/C	I2	Adjust Config AGC's illumination curve's points percentage. This configurable curve is used when taking pictures and decoding in this mode. **Keyword:** #AGC #Image **Example:** AGCDSI214 **Default Value:** 14
AGC Config Mode Illumination Curve Adjustment (%)	AG	CD	S/L/P/G R/C	I3	Adjust Config AGC's illumination curve's points percentage. This configurable curve is used when taking pictures and decoding in this mode. **Keyword:** #AGC #Image **Example:** AGCDSI328 **Default Value:** 28
AGC Config Mode Illumination Curve Adjustment (%)	AG	CD	S/L/P/G R/C	I4	Adjust Config AGC's illumination curve's points percentage. This configurable curve is used when taking pictures and decoding in this mode. **Keyword:** #AGC #Image **Example:** AGCDSI444 **Default Value:** 44
AGC Config Mode Illumination Curve Adjustment (%)	AG	CD	S/L/P/G R/C	I5	Adjust Config AGC's illumination curve's points percentage. This configurable curve is used when taking pictures and decoding in this mode. **Keyword:** #AGC #Image **Example:** AGCDSI562 **Default Value:** 62
AGC Config Mode Illumination Curve Adjustment (%)	AG	CD	S/L/P/G R/C	I6	Adjust Config AGC's illumination curve's points percentage. This configurable curve is used when taking pictures and decoding in this mode. **Keyword:** #AGC #Image **Example:** AGCDSI680 **Default Value:** 80

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	AG	DP	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
AGC - Decode Plus - Window X	AG	DP	S/L/P/G R/C	WX	X component of the window for the Decode Plus AGC adjustments given to the decoder. **Keyword:** #AGC **Example:** AGDPSWX420 **Default Value:** 420
AGC - Decode Plus - Window Y	AG	DP	S/L/P/G R/C	WY	Y component of the window for the Decode Plus AGC adjustments given to the decoder. **Keyword:** #AGC **Example:** AGDPSWY320 **Default Value:** 320
AGC - Decode Plus - Corner X	AG	DP	S/L/P/G R/C	CX	X component of the corner for the Decode Plus AGC adjustments given to the decoder. **Keyword:** #AGC **Example:** AGDPSCX430 **Default Value:** 430
AGC - Decode Plus - Corner Y	AG	DP	S/L/P/G R/C	CY	X component of the corner for the Decode Plus AGC adjustments given to the decoder. **Keyword:** #AGC **Example:** AGDPSCY320 **Default Value:** 320
AGC - Decode Plus - Dim Red Illumination Percent	AG	DP	S/L/P/G R/C	DR	Illumination percent for dim red modes. **Example:** AGDPSDR10 **Default Value:** 10
Get All Subcategory Parameters	AG	CR	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
AGC Control - Window width	AG	CR	S/L/P/G R/C	CX	Set the contrast window width in pixels. **Keyword:** #AGC **Example:** AGCRSCX300 **Default Value:** 300
AGC Control - Window height	AG	CR	S/L/P/G R/C	CY	Set the contrast window height pixels. **Keyword:** #AGC **Example:** AGCRSCY300 **Default Value:** 300

Description	Cat	Sub	Action	Param	Notes/Example
AGC Control Window - X offset	AG	CR	S/L/P/G R/C	PX	Set the contrast window's horizontal offset from the center of the image (default is 0). Use positive values to move the window to the right and negative values to move it to the left. **Note:** This setting value is ignored if AGC Control Window - Enable re-positioning is disabled **Keyword:** #AGC #Image **Example:** AGCRSPX0 **Default Value:** 0
AGC Control Window - Y offset	AG	CR	S/L/P/G R/C	PY	Set the contrast window's vertical offset from the center of the image (default is 0). Use positive values to move the window upwards and negative values to move it downwards. **Note:** This setting value is ignored if AGC Control Window - Enable re-positioning is disabled **Keyword:** #AGC #Image **Example:** AGCRSPY0 **Default Value:** 0
AGC Control Window - Re-positioning	AG	CR	S/L/P/G R/C	ES	0 – Disable repositioning the contrast window 1 – Enable repositioning the contrast window **Keyword:** #AGC #Image **Example:** AGCRSES0 **Default Value:** 0
AGC Control Window - Drawing Boundaries	AG	CR	S/L/P/G R/C	ED	0 – Disable drawing visible boundaries to show the contrast window edges 1 – Enable drawing visible boundaries embedded in the image to show the contrast window edges **Keyword:** #AGC #Image **Example:** AGCRSED0 **Default Value:** 0
AGC Quality Low Threshold	AG	CR	S/L/P/G R/C	LT	Control quality calculations-Quality Low Threshold. **Keyword:** #AGC **Example:** AGCRSLT8 **Default Value:** 8
AGC Quality Low Factor	AG	CR	S/L/P/G R/C	LP	Control quality calculations-Quality Low Factor. **Keyword:** #AGC **Example:** AGCRSLP200 **Default Value:** 200
AGC Quality High Threshold	AG	CR	S/L/P/G R/C	HT	Control quality calculations-Quality High Threshold. **Keyword:** #AGC **Example:** AGCRSHT85 **Default Value:** 85
AGC Quality High Factor	AG	CR	S/L/P/G R/C	HP	Control quality calculations-Quality High Factor. **Keyword:** #AGC **Example:** AGCRSHP200 **Default Value:** 200

Description	Cat	Sub	Action	Param	Notes/Example
AGC Normal Mode Exposure Time Curve Adjustment (us)	AG	NO	S/L/P/G R/C	E1	Adjust Normal AGC's exposure time curve's points in microseconds. This configurable curve is used only when taking pictures and has no effect on decoding. **Keyword:** #AGC **Example:** AGNOSE1100 **Default Value:** 100
AGC Normal Mode Exposure Time Curve Adjustment (us)	AG	NO	S/L/P/G R/C	E2	Adjust Normal AGC's exposure time curve's points in microseconds. This configurable curve is used only when taking pictures and has no effect on decoding. **Keyword:** #AGC **Example:** AGNOSE21400 **Default Value:** 1400
AGC Normal Mode Exposure Time Curve Adjustment (us)	AG	NO	S/L/P/G R/C	E3	Adjust Normal AGC's exposure time curve's points in microseconds. This configurable curve is used only when taking pictures and has no effect on decoding. **Keyword:** #AGC **Example:** AGNOSE33200 **Default Value:** 3200
AGC Normal Mode Exposure Time Curve Adjustment (us)	AG	NO	S/L/P/G R/C	E4	Adjust Normal AGC's exposure time curve's points in microseconds. This configurable curve is used only when taking pictures and has no effect on decoding. **Keyword:** #AGC **Example:** AGNOSE45600 **Default Value:** 5600
AGC Normal Mode Exposure Time Curve Adjustment (us)	AG	NO	S/L/P/G R/C	E5	Adjust Normal AGC's exposure time curve's points in microseconds. This configurable curve is used only when taking pictures and has no effect on decoding. **Keyword:** #AGC **Example:** AGNOSE57500 **Default Value:** 7500
AGC Normal Mode Exposure Time Curve Adjustment (us)	AG	NO	S/L/P/G R/C	E6	Adjust Normal AGC's exposure time curve's points in microseconds. This configurable curve is used only when taking pictures and has no effect on decoding. **Keyword:** #AGC **Example:** AGNOSE69200 **Default Value:** 9200
AGC Normal Mode Gain Curve Adjustment (%)	AG	NO	S/L/P/G R/C	G1	Adjust Normal AGC's gain curve's points percentage. This configurable curve is used only when taking pictures and has no effect on decoding. **Keyword:** #AGC **Example:** AGNOSG115 **Default Value:** 15

Description	Cat	Sub	Action	Param	Notes/Example
AGC Normal Mode Gain Curve Adjustment (%)	AG	NO	S/L/P/G R/C	G2	Adjust Normal AGC's gain curve's points percentage. This configurable curve is used only when taking pictures and has no effect on decoding. **Keyword:** #AGC **Example:** AGNOSG225 **Default Value:** 25
AGC Normal Mode Gain Curve Adjustment (%)	AG	NO	S/L/P/G R/C	G3	Adjust Normal AGC's gain curve's points percentage. This configurable curve is used only when taking pictures and has no effect on decoding. **Keyword:** #AGC **Example:** AGNOSG325 **Default Value:** 25
AGC Normal Mode Gain Curve Adjustment (%)	AG	NO	S/L/P/G R/C	G4	Adjust Normal AGC's gain curve's points percentage. This configurable curve is used only when taking pictures and has no effect on decoding. **Keyword:** #AGC **Example:** AGNOSG425 **Default Value:** 25
AGC Normal Mode Gain Curve Adjustment (%)	AG	NO	S/L/P/G R/C	G5	Adjust Normal AGC's gain curve's points percentage. This configurable curve is used only when taking pictures and has no effect on decoding. **Keyword:** #AGC **Example:** AGNOSG525 **Default Value:** 25
AGC Normal Mode Gain Curve Adjustment (%)	AG	NO	S/L/P/G R/C	G6	Adjust Normal AGC's gain curve's points percentage. This configurable curve is used only when taking pictures and has no effect on decoding. **Keyword:** #AGC **Example:** AGNOSG625 **Default Value:** 25
AGC Normal Mode Illumination Curve Adjustment (%)	AG	NO	S/L/P/G R/C	I1	Adjust Normal AGC's illumination curve's points percentage. This configurable curve is used only when taking pictures and has no effect on decoding. **Keyword:** #AGC **Example:** AGNOSI11 **Default Value:** 1
AGC Normal Mode Illumination Curve Adjustment (%)	AG	NO	S/L/P/G R/C	I2	Adjust Normal AGC's illumination curve's points percentage. This configurable curve is used only when taking pictures and has no effect on decoding. **Keyword:** #AGC **Example:** AGNOSI214 **Default Value:** 14
AGC Normal Mode Illumination Curve Adjustment (%)	AG	NO	S/L/P/G R/C	I3	Adjust Normal AGC's illumination curve's points percentage. This configurable curve is used only when taking pictures and has no effect on decoding. **Keyword:** #AGC **Example:** AGNOSI328 **Default Value:** 28

Description	Cat	Sub	Action	Param	Notes/Example
AGC Normal Mode Illumination Curve Adjustment (%)	AG	NO	S/L/P/G R/C	I4	Adjust Normal AGC's illumination curve's points percentage. This configurable curve is used only when taking pictures and has no effect on decoding. **Keyword:** #AGC **Example:** AGNOSI444 **Default Value:** 44
AGC Normal Mode Illumination Curve Adjustment (%)	AG	NO	S/L/P/G R/C	I5	Adjust Normal AGC's illumination curve's points percentage. This configurable curve is used only when taking pictures and has no effect on decoding. **Keyword:** #AGC **Example:** AGNOSI562 **Default Value:** 62
AGC Normal Mode Illumination Curve Adjustment (%)	AG	NO	S/L/P/G R/C	I6	Adjust Normal AGC's illumination curve's points percentage. This configurable curve is used only when taking pictures and has no effect on decoding. **Keyword:** #AGC **Example:** AGNOSI680 **Default Value:** 80

6 BT - Bluetooth Radio Parameters

Description	Cat	Sub	Action	Param	Notes/Example
Bluetooth Radio Command Base	BT	BR	X	CM	Sends a given command through the radio to the base. If the command has associated output data meant for the host PC as opposed to the sender, the base must be first set into Host Response mode by the BTCMPRD_ setting and then changed back to the default response mode. **Example:** BTBRXCM[BTCMXCMUK] - Sends response back to originator destination (default) **Example:** BTBRXCM[BTCMPRD1] - Enable response to host **Example:** BTBRXCM[CFG] - Send A271 base configuration command **Example:** BTBRXCM[BTCMPRD0] - Disable Response to Host
Base Ready to Receive Verification	BT	BR	S/L/P/G R/C	SB	0 - Will send data to the host, even if it is not ready to receive data. 1 - Verifies that the host can receive data before sending data. **Example:** BTBRSSB1 **Default Value:** 1
Batch Mode - Transfer Mode	BT	BM	S/L/P/G R/C	TM	0 - Disables batch transfer mode. 1 - Sets batch transfer mode to normal. 2 - Sets batch transfer mode to in-stand. 3 - Sets batch transfer mode out-of-range. Controls Transfer Mode. Storage is done the same way for all modes, but the modes determine how data offload is triggered. **Example:** BTBMSTM0 **Default Value:** 0
Batch Mode - Offload Transfer Delay (ms)	BT	BM	S/L/P/G R/C	TD	Controls Transfer Delay. Adds a delay in milliseconds between sending each piece data, similar to inter-scan delay in continuous scan mode. **Example:** BTBMSTD0 **Default Value:** 0
Batch Mode - Host Application Delay (ms)	BT	BM	S/L/P/G R/C	SD	Controls host application delay. Adds a delay in milliseconds after host configuration is confirmed, and before it starts to offload data to allow the host application to be ready to receive data. **Example:** BTBMSSD10000 **Default Value:** 10000
Batch Mode - Host Configuration Delay (ms)	BT	BM	S/L/P/G R/C	CD	Controls host configuration delay. Adds a delay in milliseconds to wait for host configuration confirmation from A271 before it proceeds to offload data to allow the host USB to finish enumerating. **Example:** BTBMSCD10000 **Default Value:** 10000

Description	Cat	Sub	Action	Param	Notes/Example
Batch Mode - Maximum Storage Capacity (Bytes)	BT	BM	S/L/P/G R/C	SX	Controls maximum storage. Data will not be stored, and error will be indicated when this limit in bytes is reached. Setting this to zero effectively disables batch storage. **Example:** BTBMSSX1000000 **Default Value:** 1000000
Batch Mode - Erase Mode	BT	BM	S/L/P/G R/C	EM	0 Sets batch erase mode normal. 1 Sets batch erase mode to manual. 2 Sets batch erase mode to hybrid. Controls batch erase mode. Normally data is erased as they are offloaded, but in manual mode data is only offloaded and not erased. In hybrid mode data is only erased at the end of a successful offload. **Example:** BTBMSEM2 **Default Value:** 2
Batch Mode - Erase Data Manually	BT	BM	X	DE	Executes manual erasure of the batch data file. A new data file is always generated immediately after this operation. **Example:** BTBMXDE
Stop Paging	BT	CM	X	PS	Command to stop paging indication on the reader. **Example:** BTCMXPS
Get All Subcategory Parameters	BT	SE	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Bluetooth Security Mode	BT	SE	G	SM	The security mode of the current Bluetooth connection. **Example:** BTSEGSM
Bluetooth Security Level	BT	SE	G	SL	The security level of the current Bluetooth connection. **Example:** BTSEGSL
Bluetooth LE Secure Pairing	BT	SE	G	LS	Returns whether the current connection is LE Secure. **Example:** BTSEGLS
Get All Subcategory Parameters	BT	RD	G		Outputs all parameters, that support the G command, which are contained within this subcategory.

Description	Cat	Sub	Action	Param	Notes/Example
Bluetooth Radio Device Name	BT	RD	S/L/P/G R/C	DN	Set Bluetooth Device Name. **Example:** BTRDSDN"Brady V4500" **Default Value:** "Brady V4500"
Bluetooth Radio Clear Connection History	BT	RD	X	CC	Clears the connection history on the reader radio. **Note:** If the reader has been paired with another device in Bluetooth Keyboard Mode, that device will need to clear its history in order for this command to take effect. This will also disconnect the reader from the remote device. **Example:** BTRDXCC
Bluetooth Radio Firmware Version	BT	RD	G	RV	Returns the firmware version loaded on the radio. **Example:** BTRDGRV
Bluetooth Radio SoftDevice Version	BT	RD	G	SV	Returns the SoftDevice version loaded on the radio. **Note:** SoftDevice Version format is Major.Minor.BugFix. **Example:** BTRDGSV
Bluetooth Radio Bootloader Version	BT	RD	G	BV	Returns the bootloader version loaded on the radio. **Example:** BTRDGBV
Bluetooth Radio Chip Serial Number	BT	RD	G	ID	Returns the radio chip serial number. **Example:** BTRDGID
Bluetooth Radio Chip Version	BT	RD	G	CV	Returns the radio chip version. **Example:** BTRDGCV
Bluetooth Radio Device Transmit Power	BT	RD	S/L/P/G R/C	PW	The transmit/advertising power of the radio (dBm). **Note:** Transmit power should be set with valid values. The valid transmit power numbers are -40, -20, -16, -12, -8, -4, 0, 3, 4. (all in dBm). **Example:** BTRDSPW"-1" **Default Value:** "-1"
Bluetooth Radio Supervision Timeout (ms)	BT	RD	S/L/P/G R/C	ST	Sets the supervision timeout for the reader to maintain connection with the base when base is powered off until the set timeout is reached. **Note:** Readers needs to be rebooted for new timeout to take effect. Note: Valid range for the timeout is 100ms to 32 seconds. **Example:** BTRDSST500 **Default Value:** 500

Description	Cat	Sub	Action	Param	Notes/Example
Terminate Bluetooth Connection	BT	RD	X	DC	Disconnects reader from all remote devices. **Example:** BTRDXDC
Bluetooth Radio Link ID Type	BT	RD	S/L/P/G R/C	LT	0 – Sets the Link Lock ID to reader serial number 1 – Sets the Link Lock ID to radio chip serial number
Bluetooth wireless LED blink behavior	BT	RD	S/L/P/G R/C	BB	0 – Wireless LED will blink rapidly only when the device is actively connecting. 1 – Wireless LED will blink slowly any time the device is actively scanning. Sets the behavior of the Wireless LED. **Example:** BTRDSBB1 **Default Value:** 1
Qi Firmware Version	BT	RD	G	QV	Returns the firmware version of the Qi chip. **Example:** BTRDGQV
Bluetooth Radio Industrial Device Transmit Power	BT	RD	S/L/P/G R/C	SP	0 – Sets default maximum (+4dBm) transmit/advertising power of the radio. 1 – This setting allows user to set the any desired transmit/advertising power of the radio (dBm). **Note:** Supported by the Industrial Base **Example:** BTRDSSP1 **Default Value:** 1
Bluetooth Auto-Reconnect	BT	RD	S/L/P/G R/C	RC	0 – Disable auto-reconnect 1 – Enable auto-reconnect Sets auto-reconnect mode when reader is in Bluetooth vendor mode. Auto-reconnect will automatically attempt to reconnect to the last base connected to the reader. **Example:** BTRDSRC1 **Default Value:** 1
Bluetooth Auto-Reconnect Timeout (ms)	BT	RD	S/L/P/G R/C	RT	Sets the timeout for auto-reconnect in milliseconds. **Note:** If set to a negative value, the reader will attempt to reconnect indefinitely. **Example:** BTRDSRT300000 **Default Value:** 300000
Bluetooth Radio Device Vendor Timeout (ms)	BT	RD	S/L/P/G R/C	VT	The amount of time that the radio will try to connect in vendor mode before error beeping or indicating the first auto-reconnect beep. **Example:** BTRDSVT3000 **Default Value:** 3000

7 CD - Decoder Parameters

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	CD	DT	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Decode Time Limit (ms)	CD	DT	S/L/P/G R/C	TL	Amount of time in milliseconds that CortexDecoder uses for decode attempt before returning a decode failure. 0 - No time limit applied 1 - 60,000 time limit in ms The value should be entered as a hexadecimal number. **Example:** CDDTSTL320 **Default Value:** 320
Decode Locate Time Limit	CD	DT	S/L/P/G R/C	LT	This setting sets the timeout value to locate the barcode. 0 - No time limit applied 1 - 30,000 time limit in mS The value should be entered as a hexadecimal number. **Example:** CDDTSLT150 **Default Value:** 150
Continuous scan image capture delay (ms)	CD	DT	S/L/P/G R/C	CD	Limit the rate of image capturing in milliseconds during continuous scan. **Notes:** Shortest supported delay is 100ms **Example:** CDDTSCD100 **Default Value:** 100
Trigger mode image capture delay (ms)	CD	DT	S/L/P/G R/C	TD	Limit the rate of image capturing during trigger modes. Including event-based trigger modes. **Example:** CDDTSTD0 **Default Value:** 0
DecodePlus Decode Delay (ms)	CD	DT	S/L/P/G R/C	QD	The amount of time that the reader expects a barcode to remain outside of the field of view before allowing that same barcode to be decoded. If the barcode returns into the field of view before this time has expired, the barcode will not decode. If the barcode returns into the field of view before this time has expired, and leaves the field of view again, it must remain outside of the field of view for the full amount of time before the reader will decode that same barcode. This parameter only applies to DecodePlus quick decode and motion modes. Furthermore, this parameter is completely separated from the duplicate block time parameters and does not require CDVA_BD to be enabled. **Example:** CDDTSQD600 **Default Value:** 600

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	CD	OP	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Maximum Decodes Per Read	CD	OP	S/L/P/G R/C	PR	The reader will process up to this number of barcodes per read. If there are more barcodes in the field of view and target tolerance, only the first ones found will be decoded. **Example:** CDOPSPR1 **Default Value:** 1
Ensure Region of Interest	CD	OP	S/L/P/G R/C	RO	Only decoded barcodes that are completely inside the region of interest. When disabled, barcode may be decoded if it is partially inside the ROI. **Keyword:** #Image **Example:** CDOPSRO0 **Default Value:** 0
Region of Interest Leftmost pixel	CD	OP	S/L/P/G R/C	RL	ROI Left is the x or column coordinate of the ROI upper-left corner. Default value is 0. **Keyword:** #Image **Example:** CDOPSRL0 **Default Value:** 0
Region of Interest Topmost pixel	CD	OP	S/L/P/G R/C	RT	ROI Top is the y or row coordinate of the ROI top-left corner. Default value is 0. **Keyword:** #Image **Example:** CDOPSRT0 **Default Value:** 0
Region of Interest width (pixels)	CD	OP	S/L/P/G R/C	RW	ROI width - The width of the ROI rectangle. Default value is 0, indicating the full image width is used. **Keyword:** #Image **Example:** CDOPSRW0 **Default Value:** 0
Region of Interest height (pixels)	CD	OP	S/L/P/G R/C	RH	ROI height - The height of the ROI rectangle. Default value is 0, indicating the full image height is used. **Keyword:** #Image **Note:** Whenever these values are non-zero, the decoder only attempts decoding barcodes within or partially within this area. The only way to disable this feature is set RL, RT, RW, RH back to 0. **Example:** CDOPSRH0 **Default Value:** 0
Low Contrast Mode for 1D Barcodes	CD	OP	S/L/P/G R/C	LC	0 | Disable Low Contrast Mode 1 | Enable Low Contrast Mode Low contrast mode enable inverse images to be decoded more easily. **Example:** CDOPSLC1 **Default Value:** 1

Description	Cat	Sub	Action	Param	Notes/Example
Field of Interest (FOI) Zoom	CD	OP	S/L/P/G R/C	ZR	0 Disable FOI Zoom 1 Enable FOI Zoom Increase the FOI resolution to robustly decode small barcodes when FOI is set to sub-region of the entire FOI. For faster speed, set $FOI_{width} * FOI_{height} < 320 * 480$ **Example:** CDOPSZR0 **Default Value:** 0
Enhance Contrast Mode for 1D Barcodes	CD	OP	S/L/P/G R/C	EC	0 Disable Enhance Contrast Mode 1 Enable Enhance Contrast Mode Enhance contrast mode enables DPM images to be decoded more easily. **Example:** CDOPSEC0 **Default Value:** 0
1D Barcode Aggressiveness	CD	OP	S/L/P/G R/C	SE	0 Most aggressive at achieving a decode with increase possibility of misreads 1 Less aggressive for poorly printed 1D barcodes. Decreases probability of misreads. 2 Least aggressive for poorly printed 1D barcodes. Further decreases probability of misreads. 11 Less aggressive for 1D barcodes with low module size. Decreases probability of misreads. 12 Least aggressive for 1D barcodes with low module size. Further decreases probability of misreads This tells the decoder that it can enforce the barcode standard more strictly on poorly printed codes. **Example:** CDOPSSE0 **Default Value:** 0
Decode Attempt Timeout (ms)	CD	OP	S/L/P/G R/C	AT	Decode attempt timeout in milliseconds (was sticky time). **Example:** CDOPSAT0 **Default Value:** 0
Target bar trigger mode target time (ms)	CD	OP	S/L/P/G R/C	TT	The amount of time the targeting bar will be active before the reader begins scanning while in target bar trigger mode (RDTCSMD9) **Example:** CDOPSTT1000 **Default Value:** 1000
Stop Decoding on Duplicate	CD	OP	S/L/P/G R/C	SD	0 Continue decoding even if duplicate barcode is detected in the current image 1 Stop decoding when duplicate barcode is detected in the current image **Note:** This works only if CDOP_PR is set to more than 1. Instruct the decoder to continue or stop looking for decodes in the current image when a duplicate barcode is found. **Example:** CDOPSSD0 **Default Value:** 0

Description	Cat	Sub	Action	Param	Notes/Example	
Cellphone Mode Enable	CD	OP	S/L/P/G R/C	CE	0	Disable Cellphone reading mode
					1	Enable Cellphone reading mode
					2	Enable alternate Cellphone reading mode
					Enables the reading of barcodes on cellphone screens in the decoder so it will properly decode barcodes from a light-emissive surface instead of a light-absorbent surface. Alternate cellphone mode captures two images, and compares the image quality, which it uses to decide which image to attempt to decode. **Keyword:** #Cellphone **Example:** CDOPSCE1 **Default Value:** 1	
Targeting LED	CD	OP	S/L/P/G R/C	UT	0	Disable targeting LED during capture
					1	Enable targeting LED during capture
					This command allows or prevents the reader from turning on the blue targeting LED when capturing an image. **Example:** CDOPSUT1 **Default Value:** 1	
Decode Mode	CD	OP	S/L/P/G R/C	MD	0	Trigger Mode
					1	Motion Detection Mode
					2	Continuous scan Mode
					3	Quick Decode IR illumination (decode if barcode found)
					4	Motion Detection IR illumination (decode if motion detected)
					5	Quick Decode Dim red illumination (decode if possible)
					6	Motion Detection Dim red illumination (decode if motion detected)
					7	Pick list mode with red illumination and blue targeting LED
					8	Target bar trigger mode. Enables the targeting LED for the time specified by the target time setting (CDDT_TT) before attempting to scan. **Note:** This mode's intended behavior requires setting the trigger control setting to this mode (RDTCSMD9). If RDTCSMD9 is set in conjunction with sticky trigger (CDOP_AT), releasing the trigger will cause decoding to start immediately for the duration of the sticky trigger unless this setting is also set to target bar trigger mode (CDOPSMD8).
					These values dictate the scanning mode in which to run the reader by default. Trigger mode will scan when a button or trigger is pressed, motion detection mode will scan when the scanner is stationary and detects motion, and continuous scan means the scanner is always attempting a scan. **Note:** linked to RDPM_FT **Example:** CDOPSMD0 **Default Value:** 0	

Description	Cat	Sub	Action	Param	Notes/Example
Transfer Images	CD	OP	S/L/P/G R/C	DI	0 Disable transferring images 1 Enable transferring images When image transfer is enabled, each image captured by the reader will be sent as a stream of data to the host. The host is responsible for assembling the stream and saving it as a file. **Note:** This command enables transfer of all decoded, non-decoded and cellphone images. This command is a global enable and is linked to FWIM_DI, FWIM_NI, FWIM_CI. **Example:** CDOPSDI0 **Default Value:** 0
Last Read Image Width	CD	OP	G	LW	Returns the width of the image that contained the most recently decoded barcode. **Example:** CDOPGLW
Last Read Image Height	CD	OP	G	LH	Returns the height of the image that contained the most recently decoded barcode. **Example:** CDOPGLH
Send Aim ID	CD	OP	S/L/P/G R/C	AS	0 Disable Send Aim ID 1 Enable Send Aim ID **Keyword:** #AIMId **Example:** CDOPSAS0 **Default Value:** 0
Select Aim ID Position	CD	OP	S/L/P/G R/C	PI	0 Before prefix 1 After prefix, before decode data 2 Positioned according to Data formatting string **Keyword:** #AIMId **Example:** CDOPSPI1 **Default Value:** 1
Verifone Support	CD	OP	S/L/P/G R/C	VF	0 Disable Verifone formatting 1 Enable Verifone formatting
Gilbarco Support	CD	OP	S/L/P/G R/C	GB	0 Disable Gilbarco formatting 1 Enable Gilbarco formatting
NCR Register Support (Option 1)	CD	OP	S/L/P/G R/C	NC	0 Disable NCR formatting 1 Enable NCR formatting **Example:** CDOPSNC0 **Default Value:** 0
NCR Register Support (Option 2)	CD	OP	S/L/P/G R/C	N2	0 Disable NCR2 formatting 1 Enable NCR2 formatting **Example:** CDOPSN20 **Default Value:** 0
Wincor Nixdorf Support	CD	OP	S/L/P/G R/C	WN	0 Disable Wincor Nixdorf formatting 1 Enable Wincor Nixdorf formatting

Description	Cat	Sub	Action	Param	Notes/Example	
Data Formatting Enable	CD	OP	S/L/P/G R/C	DF	0	Disable Data Formatting
					1	Enable Data Formatting
					May be used in conjunction with a configuration string CDOPSFD, or prefix/suffix settings, or other special formatting like upper/lower case or output as hex. **Note:** May be used in conjunction with CDOP_DV to add data formatting to a validation type. **Keyword:** #DataFormatting **Example:** CDOPSDF0 **Default Value:** 0	
Data validation selection For use with cd 17.2.x **REPLACES CDOP_FO**	CD	OP	S/L/P/G R/C	DV	0	Disable data validation/parsing
					1	DL / ID public sector parsing **Note:** Requires configuration string see CDOP_FP
					2	DL / ID public sector parsing output in JSON format
					3	Simple age verification **Note:** Does not require configuration string **Note:** Requires license 5017
					4	Match string validation **Note:** Requires configuration string see CDOP_SM
					5	GS1 validation **Note:** Requires configuration string see CDOP_GP **Note:** Requires license 5019
					6	UDI validation **Note:** Requires configuration string see CDOP_UD **Note:** Requires license 5020
					7	ISO 15434 validation **Note:** Requires configuration string see CDOP_IS
					8	ISO 15434 before ISO 15418 validation **Note:** Requires configuration string see CDOP_IO
					9	Perform Success & Raw validation. Success & Raw means return both parsed data and raw data [4 chars parsed data length][parsed data][raw data]
					Selects data validation or data parsing option applied to decoded data. **Keyword:** #DataFormatting **Example:** CDOPSDV0 **Default Value:** 0	

Description	Cat	Sub	Action	Param	Notes/Example
Prefix	CD	OP	S/L/P/G R/C	PX	Prefix added to start of the data decoded from a barcode. The prefix string must be enclosed in double quotes, and it is recommended that any non-alphanumeric values be represented by hexadecimal values denoted by a forward slash, as in the example below. Hexadecimal values can be found in an appendix to this document. **Note:** Data format option selection must be set to 1 for this setting to have an effect **Keyword:** #DataFormatting **Example:** CDOPSPX"," **Default Value:** ""
Suffix	CD	OP	S/L/P/G R/C	SX	Suffix added to the end of the data decoded from a barcode. The suffix string must be enclosed in double quotes, and it is recommended that any non-alphanumeric values be represented by hexadecimal values denoted by a forward slash, as in the example below. Hexadecimal values can be found in an appendix to this document. **Note:** Data format option selection must be set to 1 for this setting to have an effect **Keyword:** #DataFormatting **Example:** CDOPSSX"," **Default Value:** ""
Convert output text	CD	OP	S/L/P/G R/C	FC	0 — No change to case formatting of decoded text 1 — Convert decoded text to upper case 2 — Convert decoded text to lower case 3 — Convert decoded text to bracketed hex bytes Barcode contents of 03400704 would produce output of: ⟨30⟩⟨33⟩⟨34⟩⟨30⟩⟨30⟩⟨37⟩⟨30⟩⟨34⟩ Data formatting output case/hex **Note:** Data format option selection must be set to 1 for this setting to have an effect **Keyword:** #DataFormatting **Example:** CDOPSFC0 **Default Value:** 0
Full data format string	CD	OP	S/L/P/G R/C	FD	Data formatting raw format configuration string. **Note:** This is enabled by setting data formatting enable to true (CDOPSDF1). **Note:** When FD is set, Prefix and Suffix are ignored **Keyword:** #DataFormatting **Example:** CDOPSFD"00\x2B\x5F\x61\x49\x60\x2B \x5F\x61\x49\x60/01!„012\x01@" **Default Value:** ""
Match string validation configuration string	CD	OP	S/L/P/G R/C	SM	Match String validation configuration string. **Note:** Data Validation option must be set to 4 for this setting to have an effect (CDOPSDV4). **Keyword:** #DataFormatting **Example:** CDOPSSM"00\x2B\x5F\x61\x49\x60\x2B \x5F\x61\x49\x60/01!„00F\x01@" **Default Value:** ""

Description	Cat	Sub	Action	Param	Notes/Example
GS1 standard validation configuration string	CD	OP	S/L/P/G R/C	GP	GS1 standard validation configuration string. **Note:** Data format option must be set to 5 for this setting to have an effect (CDOPSDV5). **Keyword:** #DataFormatting **Default Value:** ""
Public sector & validation configuration string	CD	OP	S/L/P/G R/C	FP	Validation & Public sector configuration string. **Note:** Data Validation option must be set to 1 for this setting to have an effect (CDOPSDV1). **Keyword:** #DataFormatting **Default Value:** ""
UDI standard validation configuration string	CD	OP	S/L/P/G R/C	UD	This configuration string is used for validation of FDA UDI Standard Validation (HIBCC-UDI, GS1-UDI, ICCBBA-UDI) barcode data. **Note:** The Data Validation option must be set to 6 for UDI validation (CDOPSDV6). **Keyword:** #DataFormatting **Default Value:** ""
ISO15434 standard validation configuration string	CD	OP	S/L/P/G R/C	IS	This configuration string is used to validate ISO/IEC 15434 Standard barcodes. **Note:** Data Validation option be set to 7 (CDOPSDV7). **Keyword:** #DataFormatting **Default Value:** ""
ISO15434/15418 standard validation configuration string	CD	OP	S/L/P/G R/C	IO	This configuration string is used to validate ISO/IEC 15434 followed by ISO/IEC 15418 validation. **Note:** Data Validation option be set to 8 (CDOPSDV8). **Keyword:** #DataFormatting
Success and Raw validation	CD	OP	S/L/P/G R/C	SR	0 – Disable Success and raw validation 1 – Enable Success and raw validation Perform Success & Raw validation. Success & Raw means return both parsed data and raw data [4 chars parsed data length][parsed data][raw data] **Keyword:** #DataFormatting **Example:** CDOPSSR0 **Default Value:** 0
Select decode Preferred Field of interest	CD	OP	S/L/P/G R/C	PF	0 – This setting passes the HD field to the decoder. AGC analysis is done on the HD field. 1 – This setting passes the wide field to the decoder. AGC analysis is done on the wide field. 2 – This setting passes the best field to the decoder. AGC analysis is done on the field calculated to have the best image. 3 – This setting passes the full image to the decoder. AGC analysis is done in the decoder. **Note:** Not supported by Single Optics **Example:** CDOPSPF0

Description	Cat	Sub	Action	Param	Notes/Example
AGC Logging Form	CD	OP	S/L/P/G R/C	LA	0 Disable AGC logging 1 Enable AGC logging in XML formatter form with time stamps 2 Enable AGC logging in raw form 3 Enable AGC extended logging in raw form **Note:** To avoid missing characters use RDCMXDL with CDOPSLA1 exclusively. **Note:** To avoid extraneous characters use RDCMXRL with CDOPSLA2 and CDOPSLA3 exclusively. **Keyword:** #Message #AGC **Example:** CDOPSLA0 **Default Value:** 0
Skip Formatting for Code XML Only Data	CD	OP	S/L/P/G R/C	SK	0 Skipping disabled 1 Skipping enabled Specifies if the reader should format a barcode that only contains CodeXML data. **Example:** CDOPSSK0 **Default Value:** 0
Get All Subcategory Parameters	CD	VA	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Target Tolerance (percent)	CD	VA	S/L/P/G R/C	TT	For a reader to accept a barcode, it must be within the specified distance from the center of the image. The distance is defined as a percentage of the barcode's smaller dimension. For example, with a 10 x 20 mm barcode and a setting of 150 (%), the barcode must be within 15 mm of the center of the image. Any value over 1000 is considered infinite tolerance, and no target checking is performed. This is sometimes referred to as picklist mode. **Example:** CDVASTT1600 **Default Value:** 1600
Duplicate Block Time (ms)	CD	VA	S/L/P/G R/C	BT	The additional time the reader will be prevented from decoding consecutive identical barcodes. This time is added on to the Default Block Time. **Note:** Duplicate Block time must be enabled (CDVASBD1). **Keyword:** #DuplicateBlock **Example:** CDVASBT0 **Default Value:** 0
Default Block Time (ms)	CD	VA	S/L/P/G R/C	EB	The default time to prevent the reader from decoding consecutive identical barcodes. **Keyword:** #DuplicateBlock **Example:** CDVASEB0 **Default Value:** 0

Description	Cat	Sub	Action	Param	Notes/Example
Enable Duplicate Block Time	CD	VA	S/L/P/G R/C	BD	0 Disable additional duplicate block time. 1 Enable additional duplicate block time. Setting enables or disables the additional Duplicate Block Time. If enabled, the amount of time that consecutive identical barcodes will be blocked is Default Block Time + Duplicate Block Time. If disabled, consecutive identical barcodes will be blocked for Default Block Time. This setting does not apply to CDDT_QD. **Keyword:** #DuplicateBlock **Example:** CDVASBD0 **Default Value:** 0
Get All Subcategory Parameters	CD	TP	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Command for taking pictures	CD	TP	X	EV	1 Take picture immediately 2 Take picture, wait to send (V4500) 3 Send picture (V4500) 4 Cancel picture send (V4500) Allows the reader to take a picture (Only captures, does not decode any data). **Example:** CDTPXEV
Use trigger to take pictures	CD	TP	S/L/P/G R/C	TE	0 Disable image capture with a trigger press. 1 Enable image capture with a trigger press.
Rotate picture	CD	TP	S/L/P/G R/C	RO	Rotates picture by 90, 180, or 270 degrees. No rotation for any other values. **Example:** CDTPSRO0 **Default Value:** 0
Extra image capture for AGC analysis and stabilization	CD	TP	S/L/P/G R/C	AB	Sets number of images to capture before the requested image, used to tune the AGC. Since all the images are written into the same buffer, only the last image is preserved. **Example:** CDTPSAB4 **Default Value:** 4
Convert picture to black and white	CD	TP	S/L/P/G R/C	CB	0 Disable converting an image from grayscale to black & white 1 Enable converting an image from grayscale to black & white Converts an image from grayscale to black & white. **Example:** CDTPSCB0 **Default Value:** 0
Window of interest - X coordinate	CD	TP	S/L/P/G R/C	XO	Set picture window of interest starting X coordinate. **Note:** This is only effective when picture FOI is set to full image (CDTPSPF2). **Example:** CDTPSXO0 **Default Value:** 0

Description	Cat	Sub	Action	Param	Notes/Example
Window of interest - Y coordinate	CD	TP	S/L/P/G R/C	YO	Set picture window of interest starting Y coordinate. **Note:** This is only effective when picture FOI is set to full image (CDTPSPF2). **Example:** CDTPSYO0 **Default Value:** 0
Window of interest - width	CD	TP	S/L/P/G R/C	WD	Set picture window of interest width. **Note:** This is only effective when picture FOI is set to full image (CDTPSPF2). **Example:** CDTPSWD-1 **Default Value:** -1
Window of interest - height	CD	TP	S/L/P/G R/C	HT	Set picture window of interest height. **Note:** This is only effective when picture FOI is set to full image (CDTPSPF2). **Example:** CDTPSHT-1 **Default Value:** -1
Preferred Field of interest (FOI) for taking pictures	CD	TP	S/L/P/G R/C	PF	0 – Select the HD "Field Of Interest" (FOI) for taking a picture 1 – Select the Wide "Field Of Interest" (FOI) for taking a picture 2 – Select both HD and Wide fields for taking a picture **Note:** This is only applicable to AGC calculations and has no effect on decoding nor on the size of image, and the entire image will be sent with every picture taken. **Note:** Not supported by single optics. **Example:** CDTPSPF2 **Default Value:** 2
Targeting Bar On Time for Taking Pictures	CD	TP	S/L/P/G R/C	TT	Number of milliseconds the targeting bar will be held on before taking a picture. **Example:** CDTPSTT100 **Default Value:** 100
Get All Subcategory Parameters	CD	DP	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
DPM Basic Etch	CD	DP	S/L/P/G R/C	BE	0 – Disable DPM Basic Etch 1 – Enable DPM Basic Etch This basic etch mode can read basic laser/chemical etched image. **Example:** CDDPSBE0 **Default Value:** 0
DPM Basic Dots	CD	DP	S/L/P/G R/C	BD	0 – Disable DPM Basic Dots 1 – Enable DPM Basic Dots The basic dots mode can read easy inkjet and dot peen images. **Note:** CDDP_BD, CDDP_BI, and CDDP_PD are mutually exclusive **Example:** CDDPSBD0 **Default Value:** 0

Description	Cat	Sub	Action	Param	Notes/Example
DPM Dot Peen DL	CD	DP	S/L/P/G R/C	PD	0 Disable DPM Dot Peen DL 1 Enable DPM Dot Peen DL This mode is the most robust method for reading dark dots on light background/ **Note:** Requires license 5013 **Note:** CDDP_BD, CDDP_BI, and CDDP_PD are mutually exclusive. **Example:** CDDPSPD0 **Default Value:** 0
DPM Dot Peen LD	CD	DP	S/L/P/G R/C	PL	0 Disable DPM Dot Peen LD 1 Enable DPM Dot Peen LD This mode is the most robust method for reading light dots on dark background. **Note:** Requires license 5013 **Example:** CDDPSPL0 **Default Value:** 0
DPM Laser Chem	CD	DP	S/L/P/G R/C	LC	0 Disable DPM Laser Chem 1 Enable DPM Laser Chem This mode is the most robust method for reading laser/chem etch marksA single command on a single line. **Note:** Requires license 5013 **Example:** CDDPSLC0 **Default Value:** 0
DPM Dot Peen 2LD	CD	DP	S/L/P/G R/C	DP	0 Disable DPM Dot Peen 2LD 1 Enable DPM Dot Peen 2LD This mode is the most robust method for reading 2D light dots on dark background. **Note:** Requires license 5013 **Example:** CDDPSDP0 **Default Value:** 0
DPM Basic Inkjet	CD	DP	S/L/P/G R/C	BI	0 Disable DPM Basic Inkjet 1 Enable DPM Basic Inkjet The mode can read poor quality inkjet image. **Note:** CDDP_BD, CDDP_BI, and CDDP_PD are mutually exclusive **Example:** CDDPSBI0 **Default Value:** 0
DPM Basic Handheld	CD	DP	S/L/P/G R/C	BH	0 Disable DPM Basic Handheld 1 Enable DPM Basic Handheld This mode can read good quality laser marks and normal barcode labels from images captured from a handheld reader that are more centered in the image but can have severe perspective distortion. **Example:** CDDPSBH0 **Default Value:** 0
DPM Small Mirrored	CD	DP	S/L/P/G R/C	SM	0 Disable DPM Small Mirrored 1 Enable DPM Small Mirrored The mode can read small, mirrored image. **Example:** CDDPSSM0 **Default Value:** 0

8 CF - Configuration Parameters

Description	Cat	Sub	Action	Param	Notes/Example	
Get All Reader Parameters	CF		G		Returns all reader parameter values in an XML element. **Example:** CFG	
Get Reader Settings	CF		G		[^CF]	Returns all Saved Settings in an XML element.
					[^PL]	Returns all Platform Settings in an XML element.
Save All Reader Parameters not at default values.	CF		S		Save all the reader settings in the local copy to flash (Commands issued with 'P' (SUPP_P) save to local copy). **Example:** CFS0 **Default Value:** 0	
Reset all values to their saved value.	CF		C		Reset all reader parameters to their current saved value or to their defaults if no value is saved. **Note:** Deprecated commands do not support C. This prevents accidentally resetting a shared value to its default value instead of the saved value.	
Reset Reader Defaults - All	CF		R		Reset all Reader parameters, which support the 'R' action, to default values. **Note:** Removes all saved/non-platform changes but does not remove any platform customizations or licenses.	
Reset Reader Defaults - Specific	CF		R		[^AL]	Remove license files, saved parameters which support the 'R' action, as well as platform parameters. **Note:** This will not reset the parameters, it only removes parameters from the list of saved parameters. To reset the parameter, the user needs to reboot the reader, issue another CFR, or manually set the parameter to its default value.
					[^LC]	Remove only license files.
					[^CF]	Remove only saved parameters which support the 'R' action. **Note:** This will not reset the parameters, it only removes parameters from the list of saved parameters. To reset the parameter, the user needs to reboot the reader, issue another CFR, or manually set the parameter to its default value.
					[^PL]	Remove only platform parameters. **Note:** This will not reset the parameters, it only removes parameters from the list of platform parameters. To reset the parameter, the user needs to reboot the reader, issue another CFR, or manually set the parameter to its default value.
					[^PM]	Has the same functionality as the generic CFR, but it preserves the current mode of communication.
					[^AM]	Has the same functionality as the CFCFR[^AL], but it preserves the current mode of communication.

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	CF	CF	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Reset Reader (shortcuts)	CF	CF	R		Shortcut for performing both a CFR and CFR[^code] See CFR above.

9 CM - Communication Parameters

Description	Cat	Sub	Action	Param	Notes/Example	
Get All Subcategory Parameters	CM	HD	G		Outputs all parameters, that support the G command, which are contained within this subcategory.	
HID Keyboard Control Characters	CM	HD	S/L/P/G R/C	CC	0	Use default language special keyboard character encoding
					1	Use Ctrl+⟨char⟩
					2	Use Alt+⟨Keypad⟩
					3	Use Alt+0⟨Keypad⟩
					Keyword: #DataEncoding **Example:** CMHDSCC0 **Default Value:** 0	
HID Keyboard Decode Data Input Conversion	CM	HD	S/L/P/G R/C	IE	0	ASCII - No Conversion
					1	ASCII to Unicode Code point
					2	UTF-8 to Unicode Code point
					3	Input encoding is Shift_JIS and convert the Shift_JIS input to Unicode codepoints.
					4	Input encoding is Unicode (2 byte) and convert the Unicode (2 byte) input to Unicode code points. This is a pass-through.
					5	Input encoding is Shift_JIS and convert (pass-through) the Shift_JIS input to Shift_JIS code points. This is a pass-through.
					This setting tells the reader how to report non-ASCII codes to the host. This only applies to keyboard communication modes. When this setting is non-zero, there must be an appropriate output conversion set (e.g., CMHDSOMn where 'n' is a non-zero value). **Keyword:** #DataEncoding **Example:** CMHDSIE0 **Default Value:** 0	
HID Keyboard Decode Data Output Conversion	CM	HD	S/L/P/G R/C	OM	0	Unicode as Windows Alt-Sequence **Note:** This parameter is only relevant when HID Keyboard Decode Data Input Conversion is greater than 0.
					1	Unicode as Windows Alt-Sequence
					2	Output Unicode as Thai characters IEC8859.11 This requires that the control characters be output as Alt+⟨Keypad⟩
					3	Output Shift_JIS code points using Alt+⟨Keypad⟩sequences
					This setting with a non-zero value requires the conversion of barcode data to Unicode (e.g., CMHDSIEn where 'n' is a non-zero value) in order to output Unicode code points to the host system **Keyword:** #DataEncoding **Example:** CMHDSOM0 **Default Value:** 0	

Description	Cat	Sub	Action	Param	Notes/Example
HID Keyboard Windows code page for Extended ASCII Characters	CM	HD	S/L/P/G R/C	EA	0 — Append leading zero (Code page 1232) 1 — Do not append leading zero (Code page 437) Extended ASCII characters [0x80, 0xFF] are output as alt-sequences with or without a leading zero which Windows uses to determine whether to display the character from CP1232 or CP437. This only applies when the HID Keyboard Decode Data Output Method is set to Unicode as Windows Alt-Sequence. **Keyword:** #DataEncoding **Example:** CMHDSEA0 **Default Value:** 0
Get All Subcategory Parameters	CM	GE	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Connection Retry Timeout (ms)	CM	GE	S/L/P/G R/C	CR	If reader disconnects, it will try to reconnect after the time-out interval In milliseconds. **Keyword:** #Communications **Example:** CMGESCR5000 **Default Value:** 5000
Get All Subcategory Parameters	CM	MO	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Communications Mode	CM	MO	S/L/P/G R/C	CM	BT — Bluetooth Vendor **Note:** Connects to base. BK — Bluetooth Keyboard **Note:** Connects to host via keyboard (iOS, Android, Windows). **Keyword:** #Communications **Example:** CMMOSCMUN
Get All Subcategory Parameters	CM	CP	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Communication Protocol	CM	CP	S/L/P/G R/C	PM	0 — Raw Mode 1 — Packet Mode 2 — Legacy Mode This option selects whether the reader will send data and responses in a packet, send the raw data, or communicate via legacy protocol. **Keyword:** #Communications **Keyword:** #Raw **Example:** CMCPSPM0 **Default Value:** 0

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	CM	UN	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
USB Vendor - Use Serial Number for the USB identification string	CM	UN	S/L/P/G R/C	SN	0 Disable USB Vendor 1 Enable USB Vendor Use serial number, if it is set, uses the reader's actual serial number for the USB identification strings. In some cases, however, more than one device is connected to a modem, and needs to report a serial number of '0000000' in order to properly register on the modem. **Keyword:** #Communications **Example:** CMUNSSN1 **Default Value:** 1
USB Vendor - IN Endpoint Polling Interval (us)	CM	UN	S/L/P/G R/C	IN	Controls the USB HID Vendor IN Endpoint Polling Interval. **Keyword:** #Communications **Example:** CMUNSIN1000 **Default Value:** 1000
USB Vendor - Product ID	CM	UN	S/L/P/G R/C	PD	The product ID of the reader reported when in USB Vendor mode. **Example:** CMUNSPD0x8202 **Default Value:** 0x8202
Get All Subcategory Parameters	CM	SE	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
RS-232 Interface - Baud Rate	CM	SE	G	BA	The baud rate. **Keyword:** #Communications **Example:** CMSEGBA
RS-232 Interface - Data Bit	CM	SE	G	DB	7 Seven data bits 8 Eight data bits The number of bits per character. **Keyword:** #Communications **Example:** CMSEGDB
RS-232 Interface - Parit	CM	SE	G	PA	N None - No parity bits E Even parity bit O Off parity bit A parity bit, or check bit, is a bit added to a string of binary code to ensure that the total number of 1-bits in the string is even or odd. **Keyword:** #Communications **Example:** CMSEGPA

Description	Cat	Sub	Action	Param	Notes/Example	
RS-232 Interface - Stop Bit	CM	SE	G	SB	1	One stop bit
					2	Two stop bit
					The number of stop bits sent. **Keyword:** #Communications **Example:** CMSEGSB	
RS-232 Interface - Flow Control	CM	SE	G	FC	0	Disable flow control
					1	Enable flow control
					2	Enable One Way flow control (Used in some POS terminals). Reader sets RTS high and waits for CTS high before sending data. Otherwise, RTS stays low.
					Transmit flow control. **Keyword:** #Communications **Example:** CMSEGFC	
RS-232 Interface - Flow Control	CM	SE	S/L/P/G R/C	FC	0	Disable flow control
					1	Enable flow control
					2	Enable One Way flow control (Used in some POS terminals). Reader sets RTS high and waits for CTS high before sending data. Otherwise, RTS stays low.
					Transmit flow control. **Keyword:** #Communications	
RS-232 Interface - Signal Polarity	CM	SE	S/L/P/G R/C	PO	0	Standard or non-inverted UART0 signals
					1	Invert UART0 signals
					This allows the RS232 communication channel to communicate with a host using an inverted RS232 protocol. RS232 levels have a '1' as a negative voltage, and a '0' as a positive voltage. TTL levels define a '1' as VCC and a '0' as 0V. Thus non-inverted is RS232 levels and inverted is TTL levels. **Note:** UART1 does not have polarity control **Keyword:** #Communications	

10 EN - Encoder Image Parameters

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	EN	IM	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Encode Type	EN	IM	S/L/P/G R/C	ET	1 RAW Image Format 2 PGM Image Format 3 JPEG Image Format 4 BMP Image Format This is a setting to select the format of the image being captured. **Note:** This parameter is an alias of CDIM_ET **Example:** ENIMSET3 **Default Value:** 3
Encode JPEG Quality (percent)	EN	IM	S/L/P/G R/C	JQ	Quality percentage used when encoding JPEG images. 1% quality is poor and 100% is best for JPEG format. **Example:** ENIMSJQ50 **Default Value:** 50
Encode JPEG Smoothing (percent)	EN	IM	S/L/P/G R/C	JS	Smoothing percentage used when encoding JPEG images. 0 is no smoothing and 100 is a lot of smoothing. **Example:** ENIMSJS30 **Default Value:** 30
Get All Subcategory Parameters	EN	PG	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Compression Level	EN	PG	S/L/P/G R/C	CL	PNG compression level. **Example:** ENPGSCL6 **Default Value:** 6

11 FB - Feedback Parameters

Description	Cat	Sub	Action	Param	Notes/Example	
Get All Subcategory Parameters	FB	GR	G		Outputs all parameters, that support the G command, which are contained within this subcategory.	
Beep as IO	FB	GR	S/L/P/G R/C	BI	0	Beep output is an audible tone
					1	Beep output is a GPIO signal toggle
Good Read Beep Polarity	FB	GR	S/L/P/G R/C	BP	0	Good Read beep polarity indication asserted low
					1	Good Read beep polarity indication beep asserted high
Beep Enable	FB	GR	S/L/P/G R/C	EN	0	Disable good read indication on successful decode
					1	Enable good read indication on successful decode
					Note: A good read indication includes LED, Vibration and beep **Example:** FBGRSEN1 **Default Value:** 1	
Good Read Beep Indication - Beep	FB	GR	S/L/P/G R/C	BE	0	Suppress good read beep indication on successful decode
					1	Enable good read beep indication on successful decode
Good Read IO Hold Time	FB	GR	S/L/P/G R/C	HT	The amount of time the reader will hold the Good Read GPIO line low. **Example:** FBGRSHT100 **Default Value:** 100	
Good Read Indication - Frequency (Hz)	FB	GR	S/L/P/G R/C	FQ	Good read beep output frequency. **Suggested Values:** 2730 and 2800. **Example:** FBGRSFQ2730 **Default Value:** 2730	
Good Read Indication - Volume (%)	FB	GR	S/L/P/G R/C	VO	Good read beep output volume as a percentage of full volume. **Example:** FBGRSVO100 **Default Value:** 100	
Good Read Beep - On Time (ms)	FB	GR	S/L/P/G R/C	NT	This parameter is the time the beep is on. **Example:** FBGRSNT80 **Default Value:** 80	
Good Read Beep - Off Time (ms)	FB	GR	S/L/P/G R/C	FT	This parameter is the time the beep is off. **Example:** FBGRSFT20 **Default Value:** 20	

Description	Cat	Sub	Action	Param	Notes/Example
Good Read Beep - Number of Beeps	FB	GR	S/L/P/G R/C	NB	This the number of beep on/off cycles to execute on a good read. **Example:** FBGRSNB1 **Default Value:** 1
Indicate Good Read	FB	GR	X	GR	Causes the reader to indicate a good read beep. **Example:** FBGRXGR
Good Read Blink - Delay (ms)	FB	GR	S/L/P/G R/C	KD	Sets the delay before starting to blink for good read indications. **Example:** FBGRSKD1 **Default Value:** 1
Good Read Blink - On Time (ms)	FB	GR	S/L/P/G R/C	KN	Sets the blink on time for good read indications. **Example:** FBGRSKN100 **Default Value:** 100
Good Read Blink - Off Time (ms)	FB	GR	S/L/P/G R/C	KF	Sets the blink off time for good read indications. **Example:** FBGRSKF20 **Default Value:** 20
Good Read Blink - Number of Blinks	FB	GR	S/L/P/G R/C	KM	Sets the number blinks for good read indications. **Example:** FBGRSKM1 **Default Value:** 1
Vibration on good read	FB	GR	S/L/P/G R/C	VB	0 | Disable vibrate on good read 1 | Enable vibrate on good read **Note:** Only supported on readers with a vibrate motor. **Example:** FBGRSVB1 **Default Value:** 1
Good read vibration On time (ms)	FB	GR	S/L/P/G R/C	NV	Set the number of milliseconds the reader should vibrate per pulse on good read. **Note:** Only supported on readers with a vibrate motor. **Example:** FBGRSNV160 **Default Value:** 160
Good read vibration Off time (ms)	FB	GR	S/L/P/G R/C	FV	Set the number of milliseconds the reader should rest between pulses on good read. **Note:** Only supported on readers with a vibrate motor. **Example:** FBGRSFV20 **Default Value:** 20
Good read vibration number of pulses	FB	GR	S/L/P/G R/C	VN	Set the number of vibrate pulses per good read. **Note:** Only supported on readers with a vibrate motor. **Example:** FBGRSVN1 **Default Value:** 1

Description	Cat	Sub	Action	Param	Notes/Example
Good read vibration Strength	FB	GR	S/L/P/G R/C	ST	Set the strength of the good read vibration. **Valid Range:** 0 - 100 **Example:** FBGRSST100 **Default Value:** 100
Get All Subcategory Parameters	FB	NM	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Enable Night Mode	FB	NM	S/L/P/G R/C	EN	-1: Disable night mode and do not restore previously set settings 0: Disable night mode and restore previously set settings. 1: Enable night mode Night mode is used for dimming the illumination and muting the sounds of the reader so that the reader doesn't disturb patients **Example:** FBNMSEN-1 **Default Value:** -1
Night Mode Hold Time (s)	FB	NM	S/L/P/G R/C	HT	The hold time setting is the length of time in seconds to hold the trigger to enable or disable the night mode. **Example:** FBNMSHT10 **Default Value:** 10
Get All Subcategory Parameters	FB	CB	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Configuration beep Frequency (Hz)	FB	CB	S/L/P/G R/C	FQ	The frequency used when performing a beep to indicate that a configuration has been applied. **Example:** FBCBSFQ2800 **Default Value:** 2800
Configuration beep volume (%)	FB	CB	S/L/P/G R/C	VO	The volume used when performing a beep to indicate that a configuration has been applied. This is a percentage of full volume. **Example:** FBCBSVO100 **Default Value:** 100
Configuration beep On time (ms)	FB	CB	S/L/P/G R/C	NT	The amount of time the beep sounds when performing a beep to indicate that a configuration has been applied in milliseconds. **Example:** FBCBSNT80 **Default Value:** 80
Configuration beep Off time (ms)	FB	CB	S/L/P/G R/C	FT	If multiple beeps are configured for Configuration beep number of beeps, this is the amount of time of silence the beep sounds when performing a beep to indicate that a configuration has been applied. **Example:** FBCBSFT20 **Default Value:** 20

Description	Cat	Sub	Action	Param	Notes/Example
Configuration beep number of beeps	FB	CB	S/L/P/G R/C	NB	The number of beep sounds to play when performing a beep to indicate that a configuration has been applied. **Example:** FBCBSNB1 **Default Value:** 1
Get All Subcategory Parameters	FB	RB	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Reconnect Beep frequency (Hz)	FB	RB	S/L/P/G R/C	FQ	The frequency used when performing a beep to indicate an attempt to reconnect. **Example:** FBRBSFQ2730 **Default Value:** 2730
Reconnect Beep volume (%)	FB	RB	S/L/P/G R/C	VO	The volume used when performing a beep to indicate a reconnect attempt. This is a percentage of full volume. **Example:** FBRBSVO50 **Default Value:** 50
Reconnect Beep On time (ms)	FB	RB	S/L/P/G R/C	NT	The duration, in milliseconds, of each beep when the reader is attempting to reconnect. **Example:** FBRBSNT100 **Default Value:** 100
Reconnect Beep Off time (ms)	FB	RB	S/L/P/G R/C	FT	This is the duration, in milliseconds, of the pause between beeps when the reader is attempting to reconnect. **Example:** FBRBSFT100 **Default Value:** 100
Reconnect Number of Beeps	FB	RB	S/L/P/G R/C	NB	The number of beeps to emit when attempting to reconnect. **Example:** FBRBSNB3 **Default Value:** 3
Reconnect Beep Delay (ms)	FB	RB	S/L/P/G R/C	DL	The amount of time, in milliseconds, before the reader begins to beep when the reader is attempting to reconnect **Example:** FBRBSDL30 **Default Value:** 30
Reconnect Vibrate Strength (%)	FB	RB	S/L/P/G R/C	VB	Set the strength of the reconnect attempt vibration. 0 will disable vibration when attempting to reconnect. **Valid Range:** 0 - 100 **Example:** FBRBSVB100 **Default Value:** 100
Reconnect Vibrate On time (ms)	FB	RB	S/L/P/G R/C	NV	The duration, in milliseconds, of each vibration pulse when attempt to reconnect. **Example:** FBRBSNV100 **Default Value:** 100

Description	Cat	Sub	Action	Param	Notes/Example
Reconnect Vibrate Off time (ms)	FB	RB	S/L/P/G R/C	FV	This is the duration, in milliseconds, of the pause between vibration pulses when attempting to reconnect. **Example:** FBRBSFV100 **Default Value:** 100
Reconnect Number of Vibration Pulses	FB	RB	S/L/P/G R/C	VN	The number of vibration pulses when attempting to reconnect. **Example:** FBRBSVN3 **Default Value:** 3
Reconnect Vibrate Delay (ms)	FB	RB	S/L/P/G R/C	VD	The amount of time, in milliseconds, before the reader begins to vibrate when attempting to reconnect **Example:** FBRBSVD30 **Default Value:** 30
Reconnect LED On time (ms)	FB	RB	S/L/P/G R/C	NL	The duration, in milliseconds, of each LED pulse when attempt to reconnect. **Example:** FBRBSNL100 **Default Value:** 100
Reconnect LED Off time (ms)	FB	RB	S/L/P/G R/C	FL	This is the duration, in milliseconds, of the pause between LED pulses when attempting to reconnect. **Example:** FBRBSFL100 **Default Value:** 100
Reconnect Number of LED Pulses	FB	RB	S/L/P/G R/C	LN	The number of LED pulses when attempting to reconnect. **Example:** FBRBSLN3 **Default Value:** 3
Reconnect LED Delay (ms)	FB	RB	S/L/P/G R/C	LD	The amount of time, in milliseconds, before the reader blinks the LED when attempting to reconnect **Example:** FBRBSLD30 **Default Value:** 30
Reconnect LED Color	FB	RB	S/L/P/G R/C	LC	The color of the LED when attempting to reconnect **Example:** FBRBSLCioLedRed **Default Value:** ioLedRed
Get All Subcategory Parameters	FB	BM	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Batch Mode All Beeps Enable	FB	BM	S/L/P/G R/C	EN	0 – Disables all batch mode beep indications. 1 – Enables all batch mode beep indications. Enables or disables all beep indications by the batch module during its operations. **Example:** FBBMSEN1 **Default Value:** 1

Description	Cat	Sub	Action	Param	Notes/Example
Batch Mode Error Beep Delay (ms)	FB	BM	S/L/P/G R/C	DL	The amount of time, in milliseconds, before the reader begins to indicate batch mode error beeps. **Example:** FBBMSDL1 **Default Value:** 1
Batch Mode Error Beep frequency (Hz)	FB	BM	S/L/P/G R/C	FQ	The frequency used when performing a beep to indicate batch mode error. **Example:** FBBMSFQ2800 **Default Value:** 2800
Batch Mode Error Beep volume (%)	FB	BM	S/L/P/G R/C	VO	The volume used when performing a beep to indicate batch mode error. This is a percentage of full volume. **Example:** FBBMSVO100 **Default Value:** 100
Batch Mode Error Beep On time (ms)	FB	BM	S/L/P/G R/C	NT	The amount of time, in milliseconds, the beep sounds when performing a beep to indicate batch mode error. **Example:** FBBMSNT200 **Default Value:** 200
Batch Mode Error Beep Off time (ms)	FB	BM	S/L/P/G R/C	FT	The amount of time, in milliseconds, the beep is silent when performing a beep to indicate batch mode error. **Example:** FBBMSFT100 **Default Value:** 100
Batch Mode Error Beep Number of Beeps	FB	BM	S/L/P/G R/C	NB	The number of beeps when indicating batch mode error. **Example:** FBBMSNB3 **Default Value:** 3
Get All Subcategory Parameters	FB	PG	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Paging Beep frequency (Hz)	FB	PG	S/L/P/G R/C	FQ	The frequency used when performing a beep to indicate paging. **Example:** FBPGSFQ2730 **Default Value:** 2730
Paging Beep volume (%)	FB	PG	S/L/P/G R/C	VO	The volume used when performing a beep to indicate paging. This is a percentage of full volume. **Example:** FBPGSVO100 **Default Value:** 100
Paging Beep On time (ms)	FB	PG	S/L/P/G R/C	NT	The duration, in milliseconds, of each beep when paging. This also applies to paging LED blinking and vibrate if it is enabled. **Example:** FBPGSNT500 **Default Value:** 500

Description	Cat	Sub	Action	Param	Notes/Example
Paging Beep Off time (ms)	FB	PG	S/L/P/G R/C	FT	This is the duration, in milliseconds, of the pause between beeps when indicating paging. This also applies to paging LED blinking and vibrate if it is enabled. **Example:** FBPGSFT500 **Default Value:** 500
Paging Vibrate Strength (%)	FB	PG	S/L/P/G R/C	VB	Set the strength of the paging vibration. A value of 0 will disable vibration while paging. **Valid Range:** 0 - 100 **Example:** FBPGSVB100 **Default Value:** 100
Paging LED brightness (%)	FB	PG	S/L/P/G R/C	LB	Set the brightness of the paging LED blinking. A value of 0 will disable LED indication while paging. **Valid Range:** 0 - 100 **Example:** FBPGSLB100 **Default Value:** 100
Paging beep number of beeps	FB	PG	S/L/P/G R/C	NB	The number of beeps to sound when a reader is paged. Paging will stop once the configured number of beeps have been completed. **Note:** Paging time is calculated as $(onTime + offTime) * NumberOfBeeps$. **Example:** FBPGSNB30 **Default Value:** 30
Get All Subcategory Parameters	FB	IN	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Beep as IO	FB	IN	S/L/P/G R/C	BI	0: All beep output is an audible tone 1: All beep output is a GPIO signal toggle
Beep Enable	FB	IN	S/L/P/G R/C	BE	0: Globally disable all beeps (does not affect vibrate) 1: Globally enable all beeps (does not affect vibrate)
Beep Polarity	FB	IN	S/L/P/G R/C	BP	0: All beep indication polarities asserted low 1: All beep indication polarities asserted high
Generic Indication Configuration	FB	IN	S/L/P/G R/C	GC	This command allows for a user to configure any indication from a list of indication actions. The structure of the command takes the form {'name':'⟨INDICATION NAME⟩','⟨PROPERTY NAME⟩':⟨VALUE⟩} **Valid Indication Names:** Vibrate, GoodReadBeep, GoodReadBlink, ErrorBeep, ConfigCodeBeep **Valid Property Names:** delay_ms, onTime_ms, offTime_ms, freq, dutyCycle **Note:** Multiple properties can be specified for a single indication. **Note:** Multiple indications can be specified in this one command. **Example:** FBINSGC"{'name':'GoodReadBeep', 'freq':3000,'onTime_ms':1000}, {'name':'ConfigCodeBeep','onTime_ms':2000}"

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	FB	CM	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Host connect beep frequency (Hz)	FB	CM	S/L/P/G R/C	FQ	The frequency used when performing a beep to indicate that the reader has connected to a host. **Example:** FBCMSFQ2730 **Default Value:** 2730
Host connect beep volume (%)	FB	CM	S/L/P/G R/C	VO	The volume used when performing a beep to indicate that the reader has connected to a host. This is a percentage of full volume. **Example:** FBCMSVO35 **Default Value:** 35
Host connect beep On time (ms)	FB	CM	S/L/P/G R/C	NT	The amount of time the beep sounds when performing a beep to indicate that the reader has connected to a host in milliseconds. **Example:** FBCMSNT100 **Default Value:** 100
Host connect beep Off time (ms)	FB	CM	S/L/P/G R/C	FT	If multiple beeps are configured for Comm connect beep number of beeps, this is the amount of time of silence the beep sounds when performing a beep to indicate that the reader has connected to a host. **Example:** FBCMSFT100 **Default Value:** 100
Host connect beep number of beeps	FB	CM	S/L/P/G R/C	NB	The number of beep sounds to play when performing a beep to indicate that the reader has connected to a host. **Example:** FBCMSNB1 **Default Value:** 1
Get All Subcategory Parameters	FB	ER	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Error Beep Frequency (Hz)	FB	ER	S/L/P/G R/C	FQ	The frequency used when performing a beep to indicate that an error has occurred. **Example:** FBERSFQ2800 **Default Value:** 2800
Error Beep volume (%)	FB	ER	S/L/P/G R/C	VO	The volume used when performing a beep to indicate that an error has occurred. This is a percentage of full volume. **Example:** FBERSVO100 **Default Value:** 100
Error Beep On time (ms)	FB	ER	S/L/P/G R/C	NT	The amount of time the beep sounds when performing a beep to indicate that an error has occurred in milliseconds. **Example:** FBERSNT200 **Default Value:** 200

Description	Cat	Sub	Action	Param	Notes/Example
Error Beep Off time (ms)	FB	ER	S/L/P/G R/C	FT	If multiple beeps are configured for Error beep number of beeps, this is the amount of time of silence the beep sounds when performing a beep to indicate that an error has occurred in milliseconds. **Example:** FBERSFT100 **Default Value:** 100
Error Beep number of beeps	FB	ER	S/L/P/G R/C	NB	The number of beep sounds to play when performing a beep to indicate that an error has occurred. **Example:** FBERSNB3 **Default Value:** 3

12 FW - Firmware Parameters

Description	Cat	Sub	Action	Param	Notes/Example	
Get All Subcategory Parameters	FW	IM	G		Outputs all parameters, that support the G command, which are contained within this subcategory.	
Transfer Decoded Images	FW	IM	G/P/R/C	DI	0	Disable transferring decoded images
					1	Enable transferring decoded images
Transfer Non-Decoded Images	FW	IM	G/P/R/C	NI	0	Disable transferring non-decoded images
					1	Enable transferring non-decoded images
Transfer Cellphone Images	FW	IM	G/P/R/C	CI	0	Disable transferring cellphone images
					1	Enable transferring cellphone images
Transfer Cellphone Transition Images	FW	IM	G/P/R/C	TI	0	Disable transferring normal cellphone mode transitional images
					1	Enable transferring normal cellphone mode transitional images
Transfer Subsampled Images	FW	IM	G/P/R/C	SI	0	Disable transferring decimated images
					1	Enable transferring decimated images
Get All Subcategory Parameters	FW	HW	G		Outputs all parameters, that support the G command, which are contained within this subcategory.	
Watchdog Timeout (s)	FW	HW	S/L/P/G R/C	WT	Minimum Watchdog timeout (in seconds) **Example:** FWHWSWT5 **Default Value:** 5	
Targeting Frequency	FW	HW	S/L/P/G R/C	TF	Targeting LED Frequency **Example:** FWHWSTF250000 **Default Value:** 250000	
Targeting Brightness	FW	HW	S/L/P/G R/C	TB	Targeting LED Brightness (in percent) **Example:** FWHWSTB100 **Default Value:** 100	
Targeting Leave On	FW	HW	S/L/P/G R/C	TO	0	Disable turning targeting LED to be always on
					1	Enable turning targeting LED to be always on. **Note:** This setting takes precedence over disables targeting LED during capture
Set Trigger Release De-bounce Time (ms)	FW	HW	S/L/P/G R/C	RD	Set the time (ms) that the trigger must remain released to register. **Example:** FWHWSRD50 **Default Value:** 50	

Description	Cat	Sub	Action	Param	Notes/Example
Set Trigger Press De-bounce Time (ms)	FW	HW	S/L/P/G R/C	PD	Set the time (ms) that the trigger must remain pressed to register. **Example:** FWHWSPD25 **Default Value:** 25

13 IM - Image Sensor Parameters

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	IM	CP	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Minimum Exposure (percent)	IM	CP	S/L/P/G R/C	ME	0 | Minimum Value Define the minimum exposure parameter of camera. **Note:** Do not set this to a value greater than the maximum exposure. **Example:** IMCPSME1 **Default Value:** 1
Maximum Exposure (percent)	IM	CP	S/L/P/G R/C	XE	100 | Maximum Value Define the maximum exposure parameter of camera. **Note:** Do not set this to a value less than the minimum exposure. **Example:** IMCPSXE65535 **Default Value:** 65535
Enable cropped image downloads	IM	CP	S/L/P/G R/C	EN	0 | Disable cropped image downloading 1 | Enable cropped image downloading **Keyword:** #Image **Example:** IMCPSEN0 **Default Value:** 0
Set cropping X offset	IM	CP	S/L/P/G R/C	WS	Set cropping window starting X coordinate. **Keyword:** #Image **Example:** IMCPSWS0 **Default Value:** 0
Set cropping Y offset	IM	CP	S/L/P/G R/C	HS	Set cropping window starting Y coordinate. **Keyword:** #Image **Example:** IMCPSHS0 **Default Value:** 0
Set cropping width	IM	CP	S/L/P/G R/C	WL	-1 | Use entire width supported by the imager. 0+ | Use specified width. If larger than imager resolution, will use the entire imager width. Set cropping window width. **Keyword:** #Image **Example:** IMCPSWL-1 **Default Value:** -1
Set cropping height	IM	CP	S/L/P/G R/C	HL	-1 | Use entire height supported by the imager. 0+ | Use specified height. If larger than imager resolution, will use entire imager height. Set cropping window height. **Keyword:** #Image **Example:** IMCPSHL-1 **Default Value:** -1

14 JS - JavaScript Configuration Parameters

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	JS	CM	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Execute JavaScript from filesystem	JS	CM	X	ES	This command tells the reader to read the named JavaScript file from the "disk" and execute (or run) that script. The script must have already been loaded to the reader for the command to successfully execute the script. **Example:** JSCMXES"File"
Restart JavaScript Engine	JS	CM	X	RS	This command clears the JavaScript engine and memory allocations and restarts the engine with the current settings. Settings can be changed, and the restart causes them to take effect. **Example:** JSCMXRS
Get All Subcategory Parameters	JS	PM	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
JavaScript Engine	JS	PM	S/L/P/G R/C	EN	0 Disable JavaScript Engine 1 Enable JavaScript Engine Turn on the JavaScript capabilities and functionality in the reader. **Example:** JSPMSEN1 **Default Value:** 1
JavaScript Startup Include	JS	PM	S/L/P/G R/C	SI	Defines the name of the file that will be included by the JavaScript engine on bootup. **Example:** JSPMSSI".default.js" **Default Value:** ".default.js"
Allow Processing	JS	PM	S/L/P/G R/C	AP	0 Disable Allow Processing 1 Enable Allow Processing Allow Processing tells the reader to allow the JavaScript engine to handle the decode data directly. **Note:** JSPMSAP0 Tells the system to bypass the JavaScript processing of the decoded data. **Example:** JSPMSAP1 **Default Value:** 1
JavaScript Debug Mode	JS	PM	S/L/P/G R/C	DM	JavaScript debug mode chooses where error messages are directed. **Example:** JSPMSDM0 **Default Value:** 0

Description	Cat	Sub	Action	Param	Notes/Example
Skip Configuration Decodes	JS	PM	S/L/P/G R/C	SC	Decoded configuration barcodes will not be passed to the reader.onDecodes, reader.onDecode, rules_onDecodes, or rules_onDecode functions. If 0, configuration barcodes will be passed down with the isConfig property set to "true." **Example:** JSPMSSC1 **Default Value:** 1
JavaScript Runtime Size	JS	PM	S/L/P/G R/C	RS	The amount of memory in kb that the JavaScript is allowed to use from system memory. **Example:** JSPMSRS2048 **Default Value:** 2048
Idle Timeout	JS	PM	S/L/P/G R/C	IT	The period for the JavaScript engine to idle before signaling to the system to move to idle mode. **Example:** JSPMSIT1000 **Default Value:** 1000

15 LA - Language Parameters

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	LA	IN	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Active language	LA	IN	S/L/P/G R/C	AL	Active language setting. **Valid Range:** Languages listed by the LAINGIL command. **Example:** USEnglish_Win **Default Value:** "USEnglish_Win"
Get Installed languages list	LA	IN	G	IL	Returns list of installed language names. **Example:** LAINGIL

16 MD - Motion Detection Parameters

Description	Cat	Sub	Action	Param	Notes/Example	
Get All Subcategory Parameters	MD	PM	G		Outputs all parameters, that support the G command, which are contained within this subcategory.	
Minimum gain	MD	PM	S/L/P/G R/C	NG	0	Minimum Gain Value
					Max	Maximum Gain Value **Note:** The largest valid value for this parameter is set by the maximum gain parameter.
Maximum gain	MD	PM	S/L/P/G R/C	XG	Min	Minimum Gain Value **Note:** The smallest valid value for this parameter is set by the minimum gain parameter.
					64	Maximum Gain Value
					Gain is the amount of signal amplification the AGC can apply to make the picture easier to read. **Valid Range:** Minimum Gain to 64. **Example:** MDPMSXG42 **Default Value:** 42	
Initial gain	MD	PM	S/L/P/G R/C	IG	Min	Minimum Initial Gain Value **Note:** The smallest valid value for this parameter is set by the minimum gain parameter.
					Max	Maximum Initial Gain Value **Note:** The largest valid value for this parameter is set by the maximum gain parameter.
Minimum exposure time (us)	MD	PM	S/L/P/G R/C	NE	1	Minimum Exposure Value
					Max	Maximum Exposure Value **Note:** The largest valid value for this parameter is set by the maximum exposure parameter.
					This is the minimum time the camera lets light into the element to take the picture in microseconds. **Example:** MDPMSNE299 **Default Value:** 299	
Maximum exposure time (us)	MD	PM	S/L/P/G R/C	XE	Min	Minimum Expsosure Value **Note:** The smallest valid value for this parameter is set by the minimum exposure parameter.
					20000	Maximum Exposure Value
Initial exposure time (us)	MD	PM	S/L/P/G R/C	IE	Min	Minimum Initial Expsosure Value **Note:** The smallest valid value for this parameter is set by the minimum exposure parameter.
					Max	Maximum Initial Exposure Value **Note:** The largest valid value for this parameter is set by the maximum exposure parameter.

Description	Cat	Sub	Action	Param	Notes/Example	
Minimum Illumination	MD	PM	S/L/P/G R/C	NI	0	Minimum Illumination Value
					Max	Maximum Illumination Value **Note:** The largest valid value for this parameter is set by the maximum illumination parameter.
					Minimum illumination is the lowest value the AGC should use to set the illumination. **Example:** MDPMSNI1 **Default Value:** 1	
Maximum illumination	MD	PM	S/L/P/G R/C	XI	Min	Minimum Illumination Value **Note:** The smallest valid value for this parameter is set by the minimum illumination parameter.
					100	Maximum Illumination Value
					This is the highest value the AGC should use to set the illumination. **Note:** This command replaces AGCR_MB. **Example:** MDPMSXI6 **Default Value:** 6	
Initial illumination value	MD	PM	S/L/P/G R/C	II	Min	Minimum Initial Illumination Value **Note:** The smallest valid value for this parameter is set by the minimum illumination parameter.
					Max	Maximum Initial Illumination Value **Note:** The largest valid value for this parameter is set by the maximum illumination parameter.
					The starting value the AGC will use to start adjusting illumination. **Example:** MDPMSII1 **Default Value:** 1	
Minimum lightest pixel value	MD	PM	S/L/P/G R/C	NL	0	Minimum Lightest Pixel Value
					Max	Maximum Lightest Pixel Value **Note:** The largest valid value for this parameter is set by the maximum lightest pixel parameter.
Maximum lightest pixel value	MD	PM	S/L/P/G R/C	XL	Min	Minimum Lightest Pixel Value **Note:** The smallest valid value for this parameter is set by the minimum lightest pixel parameter.
					255	Maximum Lightest Pixel Value
Detection pixel threshold	MD	PM	S/L/P/G R/C	PL	This pixel threshold is the minimum difference value between the background brightness and the pixel brightness for the current pixel to be considered a pixel. Different environments may require different thresholds which can be developed empirically. **Example:** MDPMSPL15 **Default Value:** 15	
Detection total threshold	MD	PM	S/L/P/G R/C	TL	Total threshold is the minimum number of pixels detected per detection region (left, center, right) to be considered detected motion Different environments may require different thresholds which can be developed empirically. **Example:** MDPMSTL5 **Default Value:** 5	

Description	Cat	Sub	Action	Param	Notes/Example	
Detection blob threshold	MD	PM	S/L/P/G R/C	BT	The minimum number of sequential pixels to be considered a group or blob (like a bar width) Different environments may require different thresholds which can be developed empirically. **Example:** MDPMSBT8 **Default Value:** 8	
Enable Targeting	MD	PM	S/L/P/G R/C	ET	0	Disable targeting while detecting motion
					1	Enable targeting while detecting motion
Leave Illumination On while detecting motion	MD	PM	S/L/P/G R/C	DI	0	Turn on illumination in-between motion detection captures. This produces a constant illumination when in motion detection.
					1	Turn off illumination in-between motion detection captures. With default settings, this produces an oscillating illumination when in motion detection, as the illumination turns on only to capture an image.
					The original behavior on our products did not match the behavior of the CR8x products. As such, we created this command, with a new default value. This allowed us to match the behavior of the previous products, but also switch back to the original CR82x behavior should a customer request it. **Example:** MDPMSDI0 **Default Value:** 0	
Target On When Motion is Detected	MD	PM	S/L/P/G R/C	TM	0	Disable Targeting Bar after motion has been detected
					1	Enable Targeting Bar after motion has been detected
					This setting allows the user to select the targeting bar behvavior after motion has been detected. **Example:** MDPMSTM1 **Default Value:** 1	

17 PK - Protocol Parameter

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	PK	OP	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Receive Timeout (ms)	PK	OP	S/L/P/G R/C	RT	When retry count specified and reader doesn't receive the ACK, it will resend the response after the timeout in milliseconds. **Keyword:** #Communications **Example:** PKOPSRT750 **Default Value:** 750
Connection Protocol Timeout (s)	PK	OP	S/L/P/G R/C	CT	When sending fragmented data in packet mode, this timeout specifies the maximum time between two fragments. Reader cancels the transaction when the timeout expires, and it didn't receive new fragmented data in Seconds. **Keyword:** #Communications **Example:** PKOPSCT60 **Default Value:** 60
Reader Retry Count	PK	OP	S/L/P/G R/C	RC	Number of retries from the reader when no ACK is received from the host. **Keyword:** #Communications **Example:** PKOPSRC0 **Default Value:** 0
Image Protocol Destination	PK	OP	S/L/P/G R/C	ID	0 – Send images to the host 1 – Send images to the filesystem 2 – Send images to the host and the filesystem 3 – Discard images When an image is captured and transferred by the reader, it will be sent to the specified destination. **Keyword:** #Communications **Example:** PKOPSID0 **Default Value:** 0

18 PM - Power Management Parameters

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	PM	SD	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Power Off Reader	PM	SD	X	PD	Powers off the reader. **Example:** PMSDXPD
Power off Mode Timer	PM	SD	S/L/P/G R/C	EN	0 Disable Power Off Mode Timer 1 Enable Power Off Mode Timer The power off mode timer must be enabled for the reader to go into power off mode. **Example:** PMSDSEN1 **Default Value:** 1
Power off Mode Timer Delay (s)	PM	SD	S/L/P/G R/C	VA	If power off mode is enabled, the reader will power off after this timer expires in seconds. **Example:** PMSDSVA7200 **Default Value:** 7200

19 RD - Reader Parameters

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	RD	ST	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Stand Detection - Enable	RD	ST	S/L/P/G R/C	SE	0 Disable 1 Enable Detect when the reader has been placed in a stand that contains a trigger magnet. **Note:** This command replaces CDST_SE **Example:** RDSTSSE1 **Default Value:** 1
Stand Duplicate Delay (ms)	RD	ST	S/L/P/G R/C	SD	When the reader is in the stand, block reading of duplicate barcodes for this many milliseconds **Note:** This command replaces CDST_SD **Note:** Duplicate Block time has to be enabled (CDVASBD1). **Example:** RDSTSSD500 **Default Value:** 500
Stand behavior	RD	ST	S/L/P/G R/C	SB	0 Trigger Mode 1 Motion Detection Mode 2 Continuous scan Mode 3 Quick Decode IR illumination (decode if barcode found) 4 Motion Detection IR illumination (decode if motion detected) 5 Quick Decode Dim red illumination (decode if possible) 6 Motion Detection Dim red illumination (decode if motion detected) 7 Pick list mode with red illumination and blue targeting LED Sets the Decode Mode when Stand Detection is enabled, and the reader is in the stand. **Note:** This command is linked to both BTRD_PM and RDPM_OT. Changing one will change both of them, since they implement the same behavior. **Example:** RDSTSSB0 **Default Value:** 0
Get All Subcategory Parameters	RD	TC	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Trigger Control	RD	TC	S/L/P/G R/C	MD	0 Trigger disabled 1+ These use our standard set of decode modes. See CDOP_MD for valid modes.

Description	Cat	Sub	Action	Param	Notes/Example	
Button/Trigger Enable	RD	TC	S/L/P/G R/C	T1	0	Disable handle trigger
					1	Enable handle trigger
Button/Trigger Enable	RD	TC	S/L/P/G R/C	T2	0	Disable top front trigger
					1	Enable top front trigger
Button/Trigger Enable	RD	TC	S/L/P/G R/C	T3	0	Disable top rear trigger
					1	Enable top rear trigger
Get All Subcategory Parameters	RD	FS	G		Outputs all parameters, that support the G command, which are contained within this subcategory.	
Format	RD	FS	X	FM	0	Firmware
					2	File by Extension (file system in user flash storage) Requires the File Name (FN) parameter
					The format of file being downloaded to the reader. **Note:** All format targets require the RDFSXSZ (file size) parameter. **Note:** This type determines where the file is stored on the reader. **Example:** RDFSXFM0	
File Size	RD	FS	X	SZ	File size in bytes. This parameter is required to download a file. **Example:** RDFSXSZ4098	
Base Address	RD	FS	X	BA	Base Address for the start of the file in storage. **Example:** RDFSXBA0	
CRC Checksum	RD	FS	X	CR	CRC checksum of the file's data. **Example:** RDFSXCR65535	
File Name	RD	FS	X	FN	File name of the file to write to the reader's file system This parameter is required when downloading a file to the file system (FM2). This command must be followed by the other RDFS commands. **Example:** RDFSXFN"File"	
Reboot	RD	FS	X	RB	0	Do not reboot the reader
					1	Reboot the reader
					Reboot reader after file download completes. **Example:** RDFSXRB1	
Get All Subcategory Parameters	RD	FD	G		Outputs all parameters, that support the G command, which are contained within this subcategory.	
Download File Data	RD	FD			This command must follow the RDFS command(s). The reader writes the file data immediately following the RDFD command to the file defined by the RDFS command. **Note:** The file's data must be exactly size bytes of data where size is the value of the RDFSSZ parameter.	

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	RD	RR	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Reader Serial Number	RD	RR	G	SN	This command returns the factory programmed reader serial number from the flash. **Default Value:** "" **Example:** RDRRGSN
Reader ID	RD	RR	G	ID	Returns Reader ID parameter value in an XML element. **Note:** This is a GUID that is internally generated used for packet communications. **Example:** RDRRGID
Hardware Revision	RD	RR	G	HR	Returns Reader Hardware Revision parameter value in an XML element. **Example:** RDRRGHR
Reader Model Version	RD	RR	S/L/P/G	MD	V2300: V2300 V3300: V3300 V4500: V4500 A string that indicates the Model name of the reader.
CR Reader Imager Model Type	RD	RR	G	MT	V2300: 2AD0 V3300: 2AD0 V4500: 2AD0 A string that indicates the Version of the CT8200 chip, the Imager model that is used, the Package type of the reader, and the Type of decoder. **Note:** See the Firmware File Naming Convention section of a firmware's included Read Me file for more information. **Example:** RDRRGMT
Reader Information String	RD	RR	S/L/P/G R/C	IS	Returns Reader Information String parameter. **Example:** RDRRGIS
Reader Device Deployment Date	RD	RR	S/L/P/G	DD	The Device Deployment Date. The user can enter date in any format desired.
Camera Orientation	RD	RR	G	CO	Orientation of the camera on the product. **Example:** RDRRGCO

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	RD	IL	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Leave Illumination On between image captures	RD	IL	S/L/P/G R/C	LO	0 Disable illumination-on between captures 1 Enable illumination-on between captures Leave illumination on prevents the illumination LED from blinking while scanning in a continuous scan (or motion) mode. **Example:** RDILSLO0 **Default Value:** 0
Illumination Max Brightness	RD	IL	S/L/P/G R/C	MB	Max Illumination Brightness (0-100 percent). **Example:** RDILSMB100 **Default Value:** 100
Get All Subcategory Parameters	RD	BI	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Battery Present	RD	BI	G	BP	Returns whether the battery is or is not attached to the reader. **Example:** RDBIGBP
Battery Voltage (mV)	RD	BI	G	BV	Returns the voltage from the battery. **Example:** RDBIGBV
Battery Current (uA)	RD	BI	G	CC	Returns the current from the battery. **Example:** RDBIGCC
Battery Average Current (uA)	RD	BI	G	AC	Returns the average current from the battery. **Example:** RDBIGAC
Battery Temperature (C)	RD	BI	G	BT	Returns the battery temperature. **Example:** RDBIGBT
Battery Capacity (%)	RD	BI	G	BL	Returns the battery capacity. **Example:** RDBIGBL

Description	Cat	Sub	Action	Param	Notes/Example
Battery Health (%)	RD	BI	G	LF	Returns the current battery health. **Note:** Percentage decreases over the life of the battery and drops off drastically after 70% **Example:** RDBIGLF
Battery Charge Status	RD	BI	G	CS	0 Not Charging 1 Charging Returns the charge status from the battery. **Example:** RDBIGCS
Delete Battery Log File	RD	BI	X	LC	Deletes "batt.csv" file. **Example:** RDBIXLC
Battery Beeps on Charge	RD	BI	S/L/P/G R/C	CB	Controls the number of times the reader will beep when the reader is placed into the charger. **Example:** RDBISCB0 **Default Value:** 0
Battery Deployment Date	RD	BI	G	DD	Returns the deployment date on the battery. **Example:** RDBIGDD
Battery Serial Number	RD	BI	G	SN	Returns the serial number on the battery. **Example:** RDBIGSN
Qi Tx error status including Foreign Object Detection	RD	BI	P/G	QE	Qi Transmitter error status which contains error information like FOD, over voltage, over temperature etc **Example:** RDBIPQE0
Battery Deployment Date	RD	BI	X	DS	Returns the deployment date on the battery. **Example:** RDBIXDS
Get All Subcategory Parameters	RD	OF	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Reader Output Format - Line Ending	RD	OF	S/L/P/G R/C	LE	Defines the output format line ending. Non-printable ASCII characters must be set using URL encoded hex value. ⟨CR⟩⟨LF⟩(%0D%0A) **Example:** RDOFSLE%0D%0A **Default Value:** ""

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	RD	CP	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Chip Revision	RD	CP	G	RV	Returns CT8200 Chip Revision parameter value in an XML element. **Example:** RDCPGRV
CT8200 Chip Serial Number	RD	CP	G	SN	Returns CT8200 Chip Serial Number parameter value in an XML element. **Example:** RDCPGSN
Get All Subcategory Parameters	RD	FW	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Firmware Version Major	RD	FW	G	MJ	Returns Firmware Major Version parameter value in an XML element. **Example:** RDFWGMJ
Firmware Version Minor	RD	FW	G	MN	Returns Firmware Minor Version parameter value in an XML element. **Example:** RDFWGMN
Firmware Version Build Number	RD	FW	G	BU	Returns Firmware Build Version parameter value in an XML element. **Example:** RDFWGBU
Firmware Version Build Option	RD	FW	G	OP	Returns Firmware Build Option parameter value in an XML element. **Example:** RDFWGOP
Firmware Build Version	RD	FW	G	VS	Returns Firmware Major, Minor, and Build parameter values in an XML element. **Example:** RDFWGVS
Firmware Type Number	RD	FW	G	TY	Returns Firmware Part Number parameter value in an XML element. **Example:** RDFWGTY
Decoder Version	RD	FW	G	DV	Returns the Decoder version. **Example:** RDFWGDV

Description	Cat	Sub	Action	Param	Notes/Example
Lens Type	RD	FW	G	FT	00 Normal filter - Single-field 01 IR cut filter - Single-field 02 Normal filter - Dual-field 03 IR cut filter - Dual-field The lens type that the reader firmware was built for. Firmware filename will have _LXX at the end (before the extension), where XX is the lens type. **Example:** RDFWGFT
Get All Subcategory Parameters	RD	FB	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Set Message Verbosity	RD	FB	S/L/P/G R/C	VB	0 Set verbosity level zero. 1 Set verbosity level one. Set error message verbosity Level. **Note:** Level 1 will provide more descriptive error text. **Keyword:** #Message **Example:** RDFBSVB0 **Default Value:** 0
Erase Error Log	RD	FB	X	EL	Erases the error log from the file system. **Keyword:** #Message **Example:** RDFBXEL
Reader Command - Post Event	RD	CM	X	EV1	P1: Start/Stop 0 = Stop Decode 1 = Start Decode P2: DecodeType 0 = Trigger 1 = Motion Detection 2 = Continuous 3 = Single Cycle P3: Attempt Timeout (Sticky Time) in milliseconds Posts a decode event. **Example:** RDCMXEV1,P11,P20
Reader Command - Post Event	RD	CM	X	EV2	P1: 0 = Disable Targeting 1 = Enable Targeting Posts a targeting event. **Example:** RDCMXEV2,P11
Reader Command - Post Event	RD	CM	X	EV7	Posts an event to continuously scan until decode is successful. **Example:** RDCMXEV7
Reader Command - Post Event	RD	CM	X	EV9	Post an event to attempt a single scan regardless of decode success. This command does not timeout, the decode process stops after a true single cycle, whether decoded or not. **Example:** RDCMXEV9

Description	Cat	Sub	Action	Param	Notes/Example
Reader Command - Process Barcode Data	RD	CM	X	BD	Send data to the host as barcode data. **Example:** RDCMXBD"barcode data"
Reader Dump log messages to console (Formatted)	RD	CM	X	DL	Print the contents of the message log to the console window in XML format and with time stamps. **Note:** To achieve proper format, enable logging in XML form with CDOPSLA1. **Keyword:** #Message **Example:** RDCMXDL
Reader Clear message logs	RD	CM	X	CL	Erase the contents of the message logs. **Keyword:** #Message **Example:** RDCMXCL
Reader Dump log messages to console (Raw)	RD	CM	X	RL	Print the contents of the message log to the console window in raw form. **Note:** To avoid extraneous characters enable logging in raw form with CDOPSLA2 or CDOPSLA3. **Keyword:** #Message **Example:** RDCMXRL
Reader Command - Reboot	RD	CM	X	RB	Reboots the reader. **Example:** RDCMXRB
Reader Command - Platform settings	RD	CM	X	PL	[⟨Cmd⟩] Save configuration command to Platform Settings. Enclose the configuration command in brackets, with the command appearing exactly as used when setting and saving a parameter. Note: Adding the same setting more than once will result in multiple entries for the same parameter. Adding different values for the same parameter will result in the reader using the last-added parameter value. [^⟨Cmd⟩] Delete configuration command from Platform Settings. Enclose the command in square brackets and add a caret between the opening square bracket and command to delete the command from the platform configuration. **Note:** If there are multiple entries for a parameter, issuing this command will remove only the first entry. See also CFR[^PL] & CFG[^PL] Each time the reader reboots it re-applies commands saved as Platform Settings. **Example:** RDCMXPL[RDILPMB50]

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	RD	HW	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Keypad Hardware Revision	RD	HW	G	KP	Returns the keypad hardware revision value. **Example:** RDHWGKP
LCD Manufacturer	RD	HW	G	SM	Returns the LCD manufacturer value. **Example:** RDHWGSM
Keypad String	RD	HW	G	KS	Returns the string value programmed into the keypad. **Example:** RDHWGKS

20 SC - Scene Manager Parameters

Description	Cat	Sub	Action	Param	Notes/Example	
Get All Subcategory Parameters	SC	SP	G		Outputs all parameters, that support the G command, which are contained within this subcategory.	
Scene Manager Mode	SC	SP	S/L/P/G R/C	MO	NO	Normal AGC Mode
					BY	Bypass AGC Mode (user can manually set image capture parameters)
					FX	Fixed AGC Mode
					DF	Default AGC Behavior.
					CD	Configurable. Allows the user to establish their own curve for adjustments. Please use AGCD parameters to set this curve.

21 ST - Storage Parameters

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	ST	FS	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
List Files	ST	FS	X	LS	List all the files saved in the file system. Any text after the param excludes any files that match the text (i.e. STFSXLS.log) Text inside of quotes lists files that match the text (i.e. STFSXLS".log"). **Example:** STFSXLS
Upload File (from reader to host)	ST	FS	X	RD	File read - Uploads the file to host (returns NODATA if the file is not stored in the file system). **Example:** STFSXRD"File"
Remove File	ST	FS	X	RM	File remove - Remove the file specified (returns NODATA if the file is not stored in the file system). **Example:** STFSXRM"File"
Remove Image Files	ST	FS	X	RI	Removes all the transferred images that were sent to the filesystem. **Example:** STFSXRI
Remove JS Rules Files	ST	FS	X	RR	Removes all JS files starting with ".codeRules." that already exist in the filesystem. **Example:** STFSXRR
Remove Part Files	ST	FS	X	RP	Removes all files in the filesystem that end with ".part⟨X⟩of⟨Y⟩", Where ⟨X⟩and ⟨Y⟩are integers. This command will run on bootup, removing any part files on the system at boot. **Example:** STFSXRP
Get 16-bit CRC of previously set file	ST	FS	G	GC	Get the file crc value of the file previously set (see STFSXCF). **Example:** STFSGGC
Set filename to get file CRC	ST	FS	X	CF	Set the filename for getting the crc. This is for files on the reader filesystem only. **Example:** STFSXCF"File"

22 SY - Symbology Parameters

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	SY	B412	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
BC412	SY	B412	S/L/P/G R/C	EN	0 Disable BC412 1 Enable BC412 **Keyword:** #BC412 **Example:** SYB412SEN0 **Default Value:** 0
BC412 - Reverse Decoding	SY	B412	S/L/P/G R/C	RD	0 Disable BC412 - Reverse Decoding 1 Enable BC412 - Reverse Decoding Reverse the decoding direction **Note:** This setting value is ignored if BC412 decoding is disabled. **Keyword:** #BC412 **Example:** SYB412SRD0 **Default Value:** 0
Get All Subcategory Parameters	SY	CODF	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Codablock F	SY	CODF	S/L/P/G R/C	EN	0 Disable Codablock F 1 Enable Codablock F **Keyword:** #Codablock **Example:** SYCODFSEN0 **Default Value:** 0
Get All Subcategory Parameters	SY	TELP	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Telepen	SY	TELP	S/L/P/G R/C	EN	0 Disable Telepen 1 Enable Telepen **Keyword:** #Telepen **Example:** SYTELPSEN0 **Default Value:** 0
Telepen - Output ASCII	SY	TELP	S/L/P/G R/C	OA	0 Disable Telepen - Output ASCII 1 Enable Telepen - Output ASCII **Note:** This setting value is ignored if Telepen decoding is disabled. **Keyword:** #Telepen **Example:** SYTELPSOA0 **Default Value:** 0

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	SY	PHCO	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Pharmacode	SY	PHCO	S/L/P/G R/C	EN	0 | Disable Pharmacode 1 | Enable Pharmacode **Note:** Not supported on readers with limited symbology set. **Keyword:** #Pharmacode **Example:** SYPHCOSEN0 **Default Value:** 0
Pharmacode - Support Color Bars	SY	PHCO	S/L/P/G R/C	CB	0 | Disable Pharmacode - Support Color Bars 1 | Enable Pharmacode - Support Color Bars **Note:** This setting value is ignored if Pharmacode decoding is disabled. **Note:** Not supported on readers with limited symbology set. **Keyword:** #Pharmacode **Example:** SYPHCOSCB0 **Default Value:** 0
Pharmacode - Bar Count Min	SY	PHCO	S/L/P/G R/C	CN	4 | Minimum Value **Note:** This setting value is ignored if Pharmacode decoding is disabled. **Note:** Not supported on readers with limited symbology set. **Keyword:** #Pharmacode **Example:** SYPHCOSCN4 **Default Value:** 4
Pharmacode - Bar Count Max	SY	PHCO	S/L/P/G R/C	CX	16 | Maximum Value **Note:** This setting value is ignored if Pharmacode decoding is disabled. **Note:** Not supported on readers with limited symbology set. **Keyword:** #Pharmacode **Example:** SYPHCOSCX16 **Default Value:** 16
Pharmacode - Min Value	SY	PHCO	S/L/P/G R/C	MI	15 | Minimum Value **Note:** This setting value is ignored if Pharmacode decoding is disabled. **Note:** Not supported on readers with limited symbology set. **Keyword:** #Pharmacode **Example:** SYPHCOSMI15 **Default Value:** 15

Description	Cat	Sub	Action	Param	Notes/Example
Pharmacode - Max Value	SY	PHCO	S/L/P/G R/C	MX	131070 Maximum Value **Note:** This setting value is ignored if Pharmacode decoding is disabled. **Note:** Not supported on readers with limited symbology set. **Keyword:** #Pharmacode **Example:** SYPHCOSMX0x1fffe **Default Value:** 0x1fffe
Pharmacode - Reverse	SY	PHCO	S/L/P/G R/C	RV	0 Disable Pharmacode - Reverse 1 Enable Pharmacode - Reverse Enable reading Pharmacode barcodes printed in light colors on a dark background (reverse printing). **Note:** This setting value is ignored if Pharmacode decoding is disabled. **Keyword:** #Pharmacode **Example:** SYPHCOSRV0 **Default Value:** 0
Get All Subcategory Parameters	SY	KIX0	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
KIX (Dutch Post)	SY	KIX0	S/L/P/G R/C	EN	0 Disable KIX (Dutch Post) 1 Enable KIX (Dutch Post) **Note:** Not supported on readers with limited symbology set. **Keyword:** #Postal **Example:** SYKIX0SEN0 **Default Value:** 0
Get All Subcategory Parameters	SY	CAPO	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Canada Post	SY	CAPO	S/L/P/G R/C	EN	0 Disable Canada Post 1 Enable Canada Post **Note:** Not supported on readers with limited symbology set. **Keyword:** #Postal **Example:** SYCAPOSEN0 **Default Value:** 0
Get All Subcategory Parameters	SY	DATM	G		Outputs all parameters, that support the G command, which are contained within this subcategory.

Description	Cat	Sub	Action	Param	Notes/Example
Data Matrix	SY	DATM	S/L/P/G R/C	EN	0 Disable Data Matrix 1 Enable Data Matrix **Keyword:** #DataMatrix **Example:** SYDATMSEN1 **Default Value:** 1
Data Matrix - Polarity	SY	DATM	S/L/P/G R/C	PO	0 Normal mode enabled - Black on white background 1 Inverse mode enabled - White on black background 2 Both normal and inverse modes enabled **Note:** This setting value is ignored if Data Matrix decoding is disabled. **Keyword:** #DataMatrix **Example:** SYDATMSPO2 **Default Value:** 2
Data Matrix - Mirror	SY	DATM	S/L/P/G R/C	MR	0 Disable decoding Data Matrix barcodes printed as a mirror image of a normal Data Matrix 1 Enable decoding Data Matrix barcodes printed as a mirror image of a normal Data Matrix **Note:** This setting value is ignored if Data Matrix decoding is disabled. **Keyword:** #DataMatrix **Example:** SYDATMSMR0 **Default Value:** 0
Data Matrix Rectangular	SY	DATM	S/L/P/G R/C	RE	0 Disable Data Matrix Rectangular 1 Enable Data Matrix Rectangular **Note:** This setting value is ignored if Data Matrix decoding is disabled. **Keyword:** #DataMatrix **Example:** SYDATMSRE1 **Default Value:** 1
Data Matrix Rectangular Extended	SY	DATM	S/L/P/G R/C	RX	0 Disable Data Matrix Rectangular Extended 1 Enable Data Matrix Rectangular Extended **Note:** This setting value is ignored if Data Matrix decoding is disabled. **Keyword:** #DataMatrix **Example:** SYDATMSRX0 **Default Value:** 0
Get All Subcategory Parameters	SY	CO49	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Code 49	SY	CO49	S/L/P/G R/C	EN	0 Disable Code 49 1 Enable Code 49 **Note:** Not supported on readers with limited symbology set. **Keyword:** #Code49 **Example:** SYCO49SEN0 **Default Value:** 0

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	SY	USPO	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
USPS POSTNET™	SY	USPO	S/L/P/G R/C	EN	0 Disable USPS POSTNET™ 1 Enable USPS POSTNET™ **Note:** Not supported on readers with limited symbology set. **Keyword:** #Postal **Example:** SYUSPOSEN0 **Default Value:** 0
Get All Subcategory Parameters	SY	CO32	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Code 32	SY	CO32	S/L/P/G R/C	EN	0 Disable Code 32 1 Enable Code 32 **Keyword:** #Code32 **Example:** SYCO32SEN0 **Default Value:** 0
Get All Subcategory Parameters	SY	HAXN	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Han Xin	SY	HAXN	S/L/P/G R/C	EN	0 Disable Han Xin 1 Enable Han Xin **Note:** Not supported on readers with limited symbology set. **Keyword:** #HanXin **Example:** SYHAXNSEN0 **Default Value:** 0
Han Xin - Polarity	SY	HAXN	S/L/P/G R/C	PO	0 Normal mode enabled - Black on white background 1 Inverse mode enabled - White on black background 2 Both normal and inverse modes enabled **Note:** This setting value is ignored if Han Xin decoding is disabled. **Note:** Not supported on readers with limited symbology set. **Keyword:** #HanXin **Example:** SYHAXNSPO0 **Default Value:** 0

Description	Cat	Sub	Action	Param	Notes/Example
Han Xin - Mirror	SY	HAXN	S/L/P/G R/C	MR	0 Disable Han Xin - Mirror 1 Enable Han Xin - Mirror **Note:** This setting value is ignored if Han Xin decoding is disabled. **Note:** Not supported on readers with limited symbology set. **Keyword:** #HanXin **Example:** SYHAXNSMR0 **Default Value:** 0
Get All Subcategory Parameters	SY	CBAR	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Codabar	SY	CBAR	S/L/P/G R/C	EN	0 Disable Codabar 1 Enable Codabar **Keyword:** #Codabar **Example:** SYCBARSEN1 **Default Value:** 1
Codabar - Require Checksum	SY	CBAR	S/L/P/G R/C	CS	0 Disable checksum check and output checksum if one exists 1 Enable Codabar mod16 checksum 2 Enable Codabar mod16 checksum and strip check character 3 Enable Codabar 7DR checksum 4 Enable checksum 7DR checksum and strip check character 5 Enable either mod16 or 7DR checksum 6 Enable either mod16 or 7DR checksum and strip check character **Note:** This setting value is ignored if Codabar decoding is disabled. **Keyword:** #Codabar **Example:** SYCBARSCS0 **Default Value:** 0
Codabar - Start/Stop Characters	SY	CBAR	S/L/P/G R/C	SS	0 Transmit Codabar Start/Stop Characters 1 Do not transmit Codabar Start/Stop Characters **Note:** This setting value is ignored if Codabar decoding is disabled. **Keyword:** #Codabar **Example:** SYCBARSSS0 **Default Value:** 0
Codabar - Set minimum decode length	SY	CBAR	S/L/P/G R/C	ML	This sets the minimum data length to be decoded. If shorter than specified length, the reader will not decode the data. **Note:** This setting value is ignored if Codabar decoding is disabled. **Keyword:** #Codabar **Example:** SYCBARSML2 **Default Value:** 2

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	SY	CO11	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Code 11	SY	CO11	S/L/P/G R/C	EN	0 Disable Code 11 1 Enable Code 11 **Keyword:** #Code11 **Example:** SYCO11SEN0 **Default Value:** 0
Code 11 - Require Checksum	SY	CO11	S/L/P/G R/C	CS	0 Decode with checksum check disabled 1 Decode with one checksum digits checked 2 Decode with two checksum digits checked **Note:** This setting value is ignored if Code 11 decoding is disabled. **Keyword:** #Code11 **Example:** SYCO11SCS2 **Default Value:** 2
Code 11 - Remove Checksum	SY	CO11	S/L/P/G R/C	SC	0 ransmit Code 11 Checksum 1 Do not transmit Code 11 Checksum **Note:** This setting value is ignored if Code 11 decoding is disabled. **Keyword:** #Code11 **Example:** SYCO11SSC0 **Default Value:** 0
Get All Subcategory Parameters	SY	P417	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
PDF417	SY	P417	S/L/P/G R/C	EN	0 Disable PDF417 1 Enable PDF417 **Keyword:** #PDF417 **Example:** SYP417SEN1 **Default Value:** 1
Micro PDF417	SY	P417	S/L/P/G R/C	MI	0 Disable Micro PDF417 1 Enable Micro PDF417 **Keyword:** #PDF417 **Example:** SYP417SMI0 **Default Value:** 0
Get All Subcategory Parameters	SY	M2O5	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Matrix 2 of 5	SY	M2O5	S/L/P/G R/C	EN	0 Disable Matrix 2 of 5 1 Enable Matrix 2 of 5 **Keyword:** #2Of5 **Example:** SYM2O5SEN0 **Default Value:** 0

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	SY	GS1D	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
GS1 DataBar Omnidirectional/GS1 DataBar Truncated	SY	GS1D	S/L/P/G R/C	EN	0 Disable GS1 DataBar Omnidirectional/GS1 DataBar Truncated 1 Enable GS1 DataBar Omnidirectional/GS1 DataBar Truncated **Keyword:** #GS1DataBar **Example:** SYGS1DSEN1 **Default Value:** 1
GS1 DataBar Stacked/GS1 DataBar Stacked Omnidirectional	SY	GS1D	S/L/P/G R/C	ST	0 Disable GS1 DataBar Stacked/ GS1 DataBar Stacked Omnidirectional 1 Enable GS1 DataBar Stacked/ GS1 DataBar Stacked Omnidirectional **Keyword:** #GS1DataBar **Example:** SYGS1DSST1 **Default Value:** 1
GS1 DataBar Expanded	SY	GS1D	S/L/P/G R/C	EX	0 Disable GS1 DataBar Expanded 1 Enable GS1 DataBar Expanded **Keyword:** #GS1DataBar **Example:** SYGS1DSEX1 **Default Value:** 1
GS1 DataBar Expanded Stacked	SY	GS1D	S/L/P/G R/C	ES	0 Disable GS1 DataBar Expanded Stacked 1 Enable GS1 DataBar Expanded Stacked **Keyword:** #GS1DataBar **Example:** SYGS1DSES1 **Default Value:** 1
GS1 DataBar Limited	SY	GS1D	S/L/P/G R/C	LI	0 Disable GS1 DataBar Limited 1 Enable GS1 DataBar Limited **Keyword:** #GS1DataBar **Example:** SYGS1DSLI1 **Default Value:** 1
Get All Subcategory Parameters	SY	C128	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Code 128	SY	C128	S/L/P/G R/C	EN	0 Disable Code 128 1 Enable Code 128 **Keyword:** #Code128 **Example:** SYC128SEN1 **Default Value:** 1
Code 128 - Set minimum decode length	SY	C128	S/L/P/G R/C	ML	This sets the minimum data length to be decoded. If shorter than specified length, the reader will not decode the data. **Keyword:** #Code128 **Example:** SYC128SML1 **Default Value:** 1

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	SY	AUPO	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Australian Post	SY	AUPO	S/L/P/G R/C	EN	0 Disable Australian Post 1 Enable Australian Post **Note:** Not supported on readers with limited symbology set. **Keyword:** #Postal **Example:** SYAUPOSEN0 **Default Value:** 0
Australian Post - Remove Checksum	SY	AUPO	S/L/P/G R/C	SC	This setting value is ignored if Australian Post decoding is disabled. **Note:** Not supported on readers with limited symbology set. **Keyword:** #Postal **Example:** SYAUPOSSC0 **Default Value:** 0
Get All Subcategory Parameters	SY	JAPO	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Japan Post	SY	JAPO	S/L/P/G R/C	EN	0 Disable Japan Post 1 Enable Japan Post **Note:** Not supported on readers with limited symbology set. **Keyword:** #Postal **Example:** SYJAPOSEN0 **Default Value:** 0
Get All Subcategory Parameters	SY	GDMX	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Grid Matrix	SY	GDMX	S/L/P/G R/C	EN	0 Disable Grid Matrix 1 Enable Grid Matrix **Note:** Not supported on readers with limited symbology set. **Keyword:** #GridMatrix **Example:** SYGDMXSEN0 **Default Value:** 0

Description	Cat	Sub	Action	Param	Notes/Example
Grid Matrix - Polarity	SY	GDMX	S/L/P/G R/C	PO	0 Normal mode enabled - Black on white background 1 Inverse mode enabled - White on black background 2 Both normal and inverse modes enabled **Note:** This setting value is ignored if Grid Matrix decoding is disabled. **Note:** Not supported on readers with limited symbology set. **Keyword:** #GridMatrix **Example:** SYGDMXSPO0 **Default Value:** 0
Grid Matrix - Mirror	SY	GDMX	S/L/P/G R/C	MR	0 Disable Grid Matrix - Mirror 1 Enable Grid Matrix - Mirror The ability to decode an Aztec code that has been printed as a mirror image of a standard Grid Matrix. **Note:** This setting value is ignored if Grid Matrix decoding is disabled. **Note:** Not supported on readers with limited symbology set. **Keyword:** #GridMatrix **Example:** SYGDMXSMR0 **Default Value:** 0
Get All Subcategory Parameters	SY	UPUI	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
UPU ID Tags	SY	UPUI	S/L/P/G R/C	EN	0 Disable UPU ID Tags 1 Enable UPU ID Tags **Note:** Not supported on readers with limited symbology set. **Keyword:** #Postal **Example:** SYUPUISEN0 **Default Value:** 0
Get All Subcategory Parameters	SY	MAXC	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
MaxiCode	SY	MAXC	S/L/P/G R/C	EN	0 Disable MaxiCode 1 Enable MaxiCode **Keyword:** #MaxiCode **Example:** SYMAXCSEN0 **Default Value:** 0
Get All Subcategory Parameters	SY	S2O5	G		Outputs all parameters, that support the G command, which are contained within this subcategory.

Description	Cat	Sub	Action	Param	Notes/Example
Straight 2 of 5	SY	S2O5	S/L/P/G R/C	EN	0 Disable Straight 2 of 5 1 Enable Straight 2 of 5 **Note:** Use for Straight 2O5, Standard 2O5 and Industrial. Previously this was used for IATA 2 of 5 as well. **Keyword:** #2Of5 **Example:** SYS2O5SEN0 **Default Value:** 0
Straight 2 of 5 Checksum	SY	S2O5	S/L/P/G R/C	CO	0 Disable Straight 2 of 5 checksum 1 Enable Straight 2 of 5 checksum 2 Enable Straight 2 of 5 checksum and strip check character **Note:** Use for Straight 2O5, Standard 2O5 and Industrial. **Keyword:** #2Of5 **Example:** SYS2O5SCO0 **Default Value:** 0
Get All Subcategory Parameters	SY	I2O5	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Interleaved 2 of 5	SY	I2O5	S/L/P/G R/C	EN	0 Disable Hong Kong 2 of 5 1 Enable Hong Kong 2 of 5 **Keyword:** #2Of5, #Interleaved2Of5 **Example:** SYI2O5SEN1 **Default Value:** 1
Interleaved 2 of 5 - Checksum Characters	SY	I2O5	S/L/P/G R/C	CO	0 Disable checksum checking and output checksum if one exists 1 Enable checksum checking and output checksum with decode data 2 Enable checksum check and do not output checksum from decode data **Note:** Will not scan a Standard I2O5 barcode **Note:** This setting value is ignored if Han Xin decoding is disabled. **Note:** Not supported on readers with limited symbology set. **Keyword:** #2Of5, #Interleaved2Of5 **Example:** SYI2O5SCO0 **Default Value:** 0
Interleaved 2 of 5 - Length	SY	I2O5	S/L/P/G R/C	LN	2 Minimum Value (will scan any Interleaved 2 of 5) 100 Maximum Value **Note:** This setting value is ignored if Interleaved 2 of 5 decoding is disabled. **Keyword:** #2Of5, #Interleaved2Of5 **Example:** SYI2O5SLN2 **Default Value:** 2

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	SY	QRCO	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
QR Code	SY	QRCO	S/L/P/G R/C	EN	0 Disable QR Code 1 Enable QR Code **Keyword:** #QR **Example:** SYQRCOSEN1 **Default Value:** 1
Disable QR Code - Mirror	SY	QRCO	S/L/P/G R/C	PO	0 Normal mode enabled - Black on white background 1 Inverse mode enabled - White on black background 2 Both normal and inverse modes enabled **Note:** This setting value is ignored if QR Code decoding is disabled. **Keyword:** #QR **Example:** SYQRCOSPO0 **Default Value:** 0
Micro QR Code	SY	QRCO	S/L/P/G R/C	MI	0 Disable Micro QR Code 1 Enable Micro QR Code **Keyword:** #QR **Example:** SYQRCOSMI0 **Default Value:** 0
QR Code - Mirror	SY	QRCO	S/L/P/G R/C	MR	0 Disable Disable QR Code - Mirror 1 Enable Disable QR Code - Mirror **Note:** This setting value is ignored if QR Code decoding is disabled. **Keyword:** #QR **Example:** SYQRCOSMR0 **Default Value:** 0
QR Code - Model 1	SY	QRCO	S/L/P/G R/C	M1	0 Disable Disable QR Code - Model 1 1 Enable Disable QR Code - Model 1 **Note:** This setting value is ignored if QR Code decoding is disabled. **Keyword:** #QR **Example:** SYQRCOSM10 **Default Value:** 0
QR Code - Custom	SY	QRCO	S/L/P/G R/C	CQ	0 Disable Disable QR Code - Custom 1 Enable Disable QR Code - Custom **Note:** This setting value is ignored if QR Code decoding is disabled. **Keyword:** #QR **Example:** SYQRCOSCQ0 **Default Value:** 0
Get All Subcategory Parameters	SY	H2O5	G		Outputs all parameters, that support the G command, which are contained within this subcategory.

Description	Cat	Sub	Action	Param	Notes/Example
Hong Kong 2 of 5	SY	H2O5	S/L/P/G R/C	EN	0 Disable Hong Kong 2 of 5 1 Enable Hong Kong 2 of 5 **Keyword:** #2Of5 **Example:** SYH2O5SEN0 **Default Value:** 0
Get All Subcategory Parameters	SY	CO93	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Code 93	SY	CO93	S/L/P/G R/C	EN	0 Disable Code 93 1 Enable Code 93 **Keyword:** #Code93 **Example:** SYCO93SEN1 **Default Value:** 1
Code 93 - Set minimum decode length	SY	CO93	S/L/P/G R/C	ML	This sets the minimum data length to be decoded. If shorter than specified length, the reader will not decode the data. **Keyword:** #Code93 **Example:** SYCO93SML1 **Default Value:** 1
Get All Subcategory Parameters	SY	CO39	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Code 39	SY	CO39	S/L/P/G R/C	EN	0 Disable Code 39 1 Enable Code 39 **Keyword:** #Code39 **Example:** SYCO39SEN1 **Default Value:** 1
Code 39 - Extended ASCII	SY	CO39	S/L/P/G R/C	EA	0 Disable support of Extended ASCII 1 Enable support of Extended ASCII **Note:** This setting value is ignored if Code 39 decoding is disabled. **Keyword:** #Code39 **Example:** SYCO39SEA0 **Default Value:** 0
Code 39 - MOD 43 Checksum Character	SY	CO39	S/L/P/G R/C	CS	0 Disable MOD 43 checksum check and output checksum if one exists 1 Enable MOD 43 checksum check and output checksum 2 Enable MOD 43 checksum check and do not output checksum from decode data **Note:** This setting value is ignored if Code 39 decoding is disabled. **Keyword:** #Code39 **Example:** SYCO39SCS0 **Default Value:** 0

Description	Cat	Sub	Action	Param	Notes/Example
Code 39 - Start/Stop Characters	SY	CO39	S/L/P/G R/C	SS	0 Do not transmit Code 39 Start/Stop Characters 1 Transmit Code 39 Start/Stop Characters **Note:** This setting value is ignored if Code 39 decoding is disabled. **Keyword:** #Code39 **Example:** SYCO39SSS0 **Default Value:** 0
Code 39 - Set minimum decode length	SY	CO39	S/L/P/G R/C	ML	This sets the minimum data length to be decoded. If shorter than specified length, the reader will not decode the data. **Note:** This setting value is ignored if Code 39 decoding is disabled. **Keyword:** #Code39 **Example:** SYCO39SML1 **Default Value:** 1
Get All Subcategory Parameters	SY	UPC0	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
UPC/EAN/JAN	SY	UPC0	S/L/P/G R/C	EN	0 Disable UPC/EAN/JAN 1 Enable UPC/EAN/JAN **Keyword:** #UPC, #EAN/JAN **Example:** SYUPC0SEN1 **Default Value:** 1
UPC/EAN/JAN - Expand UPC-E to UPC-A	SY	UPC0	S/L/P/G R/C	EA	0 Do not expand UPC-E to UPC-A 1 Expand UPC-E to UPC-A **Note:** This setting value is ignored if UPC/EAN decoding is disabled. **Keyword:** #UPC, #EAN/JAN **Example:** SYUPC0SEA0 **Default Value:** 0
UPC/EAN/JAN - Supplemental	SY	UPC0	S/L/P/G R/C	SU	0 Disable UPC/EAN/JAN - Supplemental 1 Enable UPC/EAN/JAN - Supplemental **Note:** This setting value is ignored if UPC/EAN decoding is disabled. **Keyword:** #UPC, #EAN/JAN **Example:** SYUPC0SSU0 **Default Value:** 0
UPC/EAN/JAN - Expand EAN-8 to EAN-13	SY	UPC0	S/L/P/G R/C	E8	0 Do not expand EAN-8 to EAN-13 1 Expand EAN-8 to EAN-13 **Note:** This setting value is ignored if UPC/EAN decoding is disabled. **Keyword:** #UPC, #EAN/JAN **Example:** SYUPC0SE80 **Default Value:** 0

Description	Cat	Sub	Action	Param	Notes/Example
UPC/EAN/JAN - Expand UPC-A to EAN-13	SY	UPC0	S/L/P/G R/C	AD	0 Do not expand UPC-A to EAN-13 1 Expand UPC-A to EAN-13 **Note:** This setting value is ignored if UPC/EAN decoding is disabled. **Keyword:** #UPC, #EAN/JAN **Example:** SYUPC0SAD0 **Default Value:** 0
UPC/EAN/JAN - Convert Bookland EAN-13 to ISBN	SY	UPC0	S/L/P/G R/C	DI	0 Do not convert Bookland EAN-13 to ISBN 1 Convert Bookland EAN-13 to ISBN **Note:** This setting value is ignored if UPC/EAN decoding is disabled. **Keyword:** #UPC, #EAN/JAN **Example:** SYUPC0SDI0 **Default Value:** 0
UPC/EAN/JAN - Convert Bookland EAN-13 to ISSN	SY	UPC0	S/L/P/G R/C	DN	0 Do not convert Bookland EAN-13 to ISSN 1 Convert Bookland EAN-13 to ISSN **Note:** This setting value is ignored if UPC/EAN decoding is disabled. **Keyword:** #UPC, #EAN/JAN **Example:** SYUPC0SDN0 **Default Value:** 0
UPC/EAN/JAN - Transmit UPC-A Check digit	SY	UPC0	S/L/P/G R/C	AC	0 Transmit UPC-A Check digit 1 Do not transmit UPC-A Check digit **Note:** This setting value is ignored if UPC/EAN decoding is disabled. **Keyword:** #UPC, #EAN/JAN **Example:** SYUPC0SAC0 **Default Value:** 0
UPC/EAN/JAN - Transmit UPC-A Number System	SY	UPC0	S/L/P/G R/C	AN	0 Transmit UPC-A Number System 1 Do not transmit UPC-A Number System **Note:** This setting value is ignored if UPC/EAN decoding is disabled. **Keyword:** #UPC, #EAN/JAN **Example:** SYUPC0SAN0 **Default Value:** 0
UPC/EAN/JAN - Transmit UPC-A Number System 0	SY	UPC0	S/L/P/G R/C	N0	0 Transmit UPC-A Number System 0 1 Do not transmit UPC-A Number System 0 **Note:** This setting value is ignored if UPC/EAN decoding is disabled. **Keyword:** #UPC, #EAN/JAN **Example:** SYUPC0SN00 **Default Value:** 0
UPC/EAN/JAN - Transmit UPC-E Check digit	SY	UPC0	S/L/P/G R/C	EC	0 Transmit UPC-E Check digit 1 Do not transmit UPC-E Check digit **Note:** This setting value is ignored if UPC/EAN decoding is disabled. **Keyword:** #UPC, #EAN/JAN **Example:** SYUPC0SEC0 **Default Value:** 0

Description	Cat	Sub	Action	Param	Notes/Example
UPC/EAN/JAN - Transmit UPC-E Number System	SY	UPC0	S/L/P/G R/C	ES	0 Transmit UPC-E Number System 1 Do not transmit UPC-E Number System **Note:** This setting value is ignored if UPC/EAN decoding is disabled. **Keyword:** #UPC, #EAN/JAN **Example:** SYUPC0SES0 **Default Value:** 0
UPC/EAN/JAN - Transmit EAN-13 Check digit	SY	UPC0	S/L/P/G R/C	DC	0 Transmit EAN-13 Check digit 1 Do not transmit EAN-13 Check digit **Note:** This setting value is ignored if UPC/EAN decoding is disabled. **Keyword:** #UPC, #EAN/JAN **Example:** SYUPC0SDC0 **Default Value:** 0
UPC/EAN/JAN - Transmit EAN-8 Check digit	SY	UPC0	S/L/P/G R/C	C8	0 Transmit EAN-8 Check digit 1 Do not transmit EAN-8 Check digit **Note:** This setting value is ignored if UPC/EAN decoding is disabled. **Keyword:** #UPC, #EAN/JAN **Example:** SYUPC0SC80 **Default Value:** 0
UPC/EAN/JAN - Use Standard AIM Modifier	SY	UPC0	S/L/P/G R/C	AM	0 Use Non-Standard AIM Modifie 1 Use Standard AIM Modifier **Note:** This setting value is ignored if UPC/EAN decoding is disabled. **Keyword:** #UPC, #EAN/JAN **Example:** SYUPC0SAM1 **Default Value:** 1
Get All Subcategory Parameters	SY	USIM	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
USPS Intelligent Mail®	SY	USIM	S/L/P/G R/C	EN	0 Disable USPS Intelligent Mail® 1 Enable USPS Intelligent Mail® **Note:** Not supported on readers with limited symbology set. **Keyword:** #Postal **Example:** SYUSIMSEN0 **Default Value:** 0
Get All Subcategory Parameters	SY	COMP	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Composite	SY	COMP	S/L/P/G R/C	EN	0 Disable Composite 1 Enable Composite **Keyword:** #CompositeBarcodes **Example:** SYCOMPSEN0 **Default Value:** 0

Description	Cat	Sub	Action	Param	Notes/Example
Get All Subcategory Parameters	SY	MSIP	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
MSI Plessey	SY	MSIP	S/L/P/G R/C	EN	0 Disable MSI Plessey 1 Enable MSI Plessey **Keyword:** #MSIPlessey **Example:** SYMSIPSEN0 **Default Value:** 0
MSI Plessey - Require Checksum	SY	MSIP	S/L/P/G R/C	CS	0 Disable checksum checking 1 Check for Mod 10 checksum type 2 Check for Mod 10/10 checksum type 3 Check for Mod 11/10 checksum type **Note:** This setting value is ignored if MSI Plessey decoding is disabled. **Keyword:** #MSIPlessey **Example:** SYMSIPSCS0 **Default Value:** 0
MSI Plessey - Remove Checksum	SY	MSIP	S/L/P/G R/C	SC	0 Transmit MSI Plessey Checksum 1 Do not transmit MSI Plessey Checksum **Note:** This setting value is ignored if MSI Plessey decoding is disabled. **Keyword:** #MSIPlessey **Example:** SYMSIPSSC0 **Default Value:** 0
UK Plessey - PLE	SY	MSIP	S/L/P/G R/C	PE	0 Disable UK Plessey - PLE 1 Enable UK Plessey - PLE **Keyword:** #MSIPlessey **Example:** SYMSIPSPE0 **Default Value:** 0
MSI Plessey - Set minimum decode length	SY	MSIP	S/L/P/G R/C	ML	This sets the minimum data length to be decoded. If shorter than specified length, the reader will not decode the data. **Note:** This setting value is ignored if MSI Plessey decoding is disabled. **Keyword:** #MSIPlessey **Example:** SYMSIPSML1 **Default Value:** 1
Get All Subcategory Parameters	SY	N2O5	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
NEC 2 of 5	SY	N2O5	S/L/P/G R/C	EN	0 Disable NEC 2 of 5 1 Enable NEC 2 of 5 **Keyword:** #2Of5 **Example:** SYN2O5SEN0 **Default Value:** 0

Description	Cat	Sub	Action	Param	Notes/Example
NEC 2 of 5 - Require Checksum	SY	N2O5	S/L/P/G R/C	CS	0 Disable checksum checking 1 Enable checksum checking **Note:** This setting value is ignored if NEC 2 of 5 decoding is disabled. **Keyword:** #2Of5 **Example:** SYN2O5SCS0 **Default Value:** 0
Get All Subcategory Parameters	SY	UKRO	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
UK Royal Mail	SY	UKRO	S/L/P/G R/C	EN	0 Disable UK Royal Mail 1 Enable UK Royal Mail **Note:** Not supported on readers with limited symbology set. **Keyword:** #Postal **Example:** SYUKROSEN0 **Default Value:** 0
UK Royal Mail - Require Check Character	SY	UKRO	S/L/P/G R/C	CC	0 Do not require a valid Check Character to output barcode data 1 Require a valid Check Character in order to output barcode data **Note:** This setting value is ignored if UK Royal Mail decoding is disabled. **Note:** Not supported on readers with limited symbology set. **Keyword:** #Postal **Example:** SYUKROSCC0 **Default Value:** 0
Get All Subcategory Parameters	SY	KOPO	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Korea Post	SY	KOPO	S/L/P/G R/C	EN	0 Disable Korea Post 1 Enable Korea Post **Note:** Not supported on readers with limited symbology set. **Keyword:** #Postal **Example:** SYKOPOSEN0 **Default Value:** 0
Get All Subcategory Parameters	SY	A2O5	G		Outputs all parameters, that support the G command, which are contained within this subcategory.

Description	Cat	Sub	Action	Param	Notes/Example
IATA 2 of 5	SY	A2O5	S/L/P/G R/C	EN	0 Disable IATA 2 of 5 1 Enable IATA 2 of 5 **Note:** Use for IATA 2 of 5. **Keyword:** #2Of5 **Example:** SYA2O5SEN0 **Default Value:** 0
IATA 2 of 5 Checksum	SY	A2O5	S/L/P/G R/C	CO	0 Disable IATA 2 of 5 checksum 1 Enable IATA 2 of 5 checksum 2 Enable IATA 2 of 5 checksum and strip check character **Note:** Use for IATA 2O5. **Keyword:** #2Of5 **Example:** SYA2O5SCO0 **Default Value:** 0
IATA 2 of 5 - Set minimum decode length	SY	A2O5	S/L/P/G R/C	ML	This sets the minimum data length to be decoded. If shorter than specified length, the reader will not decode the data. **Note:** Use for IATA 2O5. **Keyword:** #2Of5 **Example:** SYA2O5SML1 **Default Value:** 1
Get All Subcategory Parameters	SY	USPL	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
USPS PLANET®	SY	USPL	S/L/P/G R/C	EN	0 Disable USPS PLANET® 1 Enable USPS PLANET® **Note:** Not supported on readers with limited symbology set. **Keyword:** #Postal **Example:** SYUSPLSEN0 **Default Value:** 0
Get All Subcategory Parameters	SY	AZTC	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Aztec	SY	AZTC	S/L/P/G R/C	EN	0 Disable Aztec 1 Enable Aztec **Keyword:** #Aztec **Example:** SYAZTCSEN1 **Default Value:** 1

Description	Cat	Sub	Action	Param	Notes/Example
Aztec - Polarity	SY	AZTC	S/L/P/G R/C	PO	0 Normal mode enabled - Black on white background 1 Inverse mode enabled - White on black background 2 Both normal and inverse modes enabled **Note:** This setting value is ignored if Aztec decoding is disabled **Keyword:** #Aztec **Example:** SYAZTCSPO0 **Default Value:** 0
Aztec - Mirro	SY	AZTC	S/L/P/G R/C	MR	0 Disable Aztec - Mirror 1 Enable Aztec - Mirror The ability to decode an Aztec code that has been printed as a mirror image of a standard Aztec. **Note:** This setting value is ignored if Aztec decoding is disabled. **Keyword:** #Aztec **Example:** SYAZTCSMR0 **Default Value:** 0
Get All Subcategory Parameters	SY	TRIO	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Trioptic	SY	TRIO	S/L/P/G R/C	EN	0 Disable Trioptic 1 Enable Trioptic **Keyword:** #Trioptic **Example:** SYTRIOSEN0 **Default Value:** 0
Trioptic - Reverse	SY	TRIO	S/L/P/G R/C	RV	0 Disable Trioptic - Reverse 1 Enable Trioptic - Reverse Enable reading Trioptic barcodes printed in light colors on a dark background (reverse printing). **Note:** This setting value is ignored if Trioptic decoding is disabled. **Keyword:** #Trioptic **Example:** SYTRIOSRV0 **Default Value:** 0
Trioptic - Require Start/Stop Characters	SY	TRIO	S/L/P/G R/C	SS	0 Do not require Start/Stop Characters 1 Require Start/Stop Characters **Note:** This setting value is ignored if Trioptic decoding is disabled. **Keyword:** #Trioptic **Example:** SYTRIOSSS0 **Default Value:** 0

23 UI - User interface settings

Description	Cat	Sub	Action	Param	Notes/Example	
Get All Subcategory Parameters	UI	SC	G		Outputs all parameters, that support the G command, which are contained within this subcategory.	
Enable screen	UI	SC	S/L/P/G R/C	EN	0	Disables the screen backlight.
					1	Enables the screen backlight.
Set screen timeout in milliseconds	UI	SC	S/L/P/G R/C	TO	Sets the time (in milliseconds) to leave the LCD screen on before putting it to sleep. Screen timeout must be enabled (UISCSTE1). A timeout of 0 will also prevent the LCD from going to sleep. **Example:** UISCSTO300000 **Default Value:** 300000	
Enable screen timeout	UI	SC	S/L/P/G R/C	TE	0	Disables the LCD screen timeout. The screen will stay on as long as the reader is powered. It is recommended only setting this seting to 0 to temporarily disable the screen timeout, allowing the timeout duration to remain untouched. Permanently disabling the screen timeout is best done by settings the timeout to 0.
					1	Enables the LCD screen timeout. The screen will turn off after the time specified in the screen timeout setting.
Set screen backlight level	UI	SC	S/L/P/G R/C	BL	Set the brightness of the LCD. **Valid Range:** 0 - 100 **Example:** UISCSBL100 **Default Value:** 100	
Set screen backlight frequency	UI	SC	S/L/P/G R/C	BF	Set screen backlight LED frequency **Example:** UISCSBF2000 **Default Value:** 2000	
Set user interface language	UI	SC	S/L/P/G R/C	LA	The active language of the UI. **Example:** UISCSLA"English" **Default Value:** "English"	
Set screensaver timeout in milliseconds	UI	SC	S/L/P/G R/C	SO	Sets the time (in milliseconds) before the screensaver is displayed. A timeout of 0 will also prevent the screensaver from being displayed. **Example:** UISCSSO120000 **Default Value:** 120000	
Enable screensaver timeout	UI	SC	S/L/P/G R/C	SE	0	Disables the screensaver timeout.
					1	Enables the screensaver timeout.

Description	Cat	Sub	Action	Param	Notes/Example
Set screen dim timeout in milliseconds	UI	SC	S/L/P/G R/C	DO	Sets the time (in milliseconds) before the screen is dimmed. The dim timeout enable must be set (UISCSDE1) for this to work. A timeout value of 0 will disable the dim timeout. **Example:** UISCSDO60000 **Default Value:** 60000
Enable the dim timeout	UI	SC	S/L/P/G R/C	DE	0 Disables the dim timeout functionality. 1 Enables the dim timeout functionality.
Set dim timeout brightness level	UI	SC	S/L/P/G R/C	DL	Set the brightness of the screen for the dim timeout. **Valid Range:** 0 - 100 **Example:** UISCSDL10 **Default Value:** 10
Get All Subcategory Parameters	UI	JS	G		Outputs all parameters, that support the G command, which are contained within this subcategory.
Set active user interface app	UI	JS	S/L/P/G R/C	AP	Sets the UI application that will run on bootup. **Example:** UIJSSAP"StartApp" **Default Value:** StartApp
Set F1 function key app.	UI	JS	S/L/P/G R/C	F1	Set the application that will be activated with the F1 function key. **Example:** UIJSSF1"ScanApp" **Default Value:** ScanApp
Set F2 function key app	UI	JS	S/L/P/G R/C	F2	Set the application that will be activated with the F2 function key. **Example:** UIJSSF2"InventoryApp" **Default Value:** InventoryApp
Set F3 function key app	UI	JS	S/L/P/G R/C	F3	Set the application that will be activated with the F3 function key. **Example:** UIJSSF3"ImageApp" **Default Value:** ImageApp
One Push App Transition	UI	JS	S/L/P/G R/C	OP	When disabled, pushing a function button will display a preview of which apps are bound to which keys. Enabling this setting will immediately transition instead. **Example:** UIJSSOP0 **Default Value:** 0
Max Saved Inventory Field History Items	UI	JS	S/L/P/G R/C	MH	Sets the number of entries the scanner will retain for each inventory app field before starting to discard the least recently used entries. **Example:** UIJSSMH20 **Default Value:** 20
Enable Inventory Auto Send	UI	JS	S/L/P/G R/C	AC	0 Disables automatic sending of inventory data to the host when all inventory fields are filled. 1 Enables automatic sending of inventory data to the host when a scan fills the last empty inventory field.

Description	Cat	Sub	Action	Param	Notes/Example
Simulate Key Press	UI	JS	X	KP	This command simulates a key press on the keypad. Each key press corresponds to a hexidecimal number, as outlined below: F1: F1 key F2: F1 key F3: F1 key B0: Home key B1: Up arrow key B2: Left arrow key B3: Enter key B4: Right arrow key B5: Down arrow key B6: Settings key A0: 0 key A1: 1 key A2: 2 key A3: 3 key A4: 4 key A5: 5 key A6: 6 key A7: 7 key A8: 8 key A9: 9 key AB: Backspace key AF: FN (function) key **Example:** UIJSXKPF1

24 Motion Detection

The CR8200 supports motion detection, which means the reader will trigger automatically when an object is brought into the field of view. Motion detect mode is typically used when the reader is mounted in a stationary position, and barcodes are presented to it. The reader is set to use minimal illumination while detecting motion, and works best with bright ambient light shining from behind the reader.

The motion detection algorithm uses several parameters. The exposure time, gain, and illumination are camera settings that are used to get the best picture to determine whether or not objects have moved into the field of view. All three have minimum and maximum values which the AGC (automatic gain control) uses to get the best picture.

The exposure is the length of time that the camera "shutter" lets light into the detector array. If it isn't open long enough, the image will be too dark to detect motion. If it is open too long, the image will be over-exposed. By setting the minimum and maximum time the AGC is allowed to open the shutter, we can try to force the AGC to not over-expose or under-expose the picture.

The gain is the amount of amplification the AGC can use to attempt to increase the contrast of the picture between light and dark pixels. Setting the minimum too low doesn't produce enough contrast, and setting the maximum too high saturates the image. Thus, the gain range helps the AGC to optimize the contrast of the image.

The illumination is light the reader shines on the object to increase the sensitivity of the motion detection algorithm. This is in addition to any ambient light that may be present. More illumination makes it easier to detect motion, but brighter illumination can be undesirable in some environments.

25 DPM Decoding

When Decoding DPM (Direct Part Marking) barcodes, there are a few general guidelines to remember:

- Keep the image size small, 960x480 or 752x480. This smaller size prevents the DPM algorithm from taking a long time to decode.
- On markings that are difficult to decode, try more than one algorithm. For example, If CDDP_BD doesn't work, also try CDDP_BI or CDDP_PD.
- Make certain to disable the current DPM algorithm before trying a different one. Most settings are mutually exclusive.
- Set the DPM timeout, see CDDP_TF for details.

26 Data Formatting

The CR8200 supports data formatting at the decoder level. This produces fast, consistent results in a minimal amount of reader space. The reader supports simple prefixes and suffixes around the decoded data, the simplest form of data formatting, allows the user full control by using the data format string, and performs data validations and public sector parsing using the format parse setting in conjunction with the selected format option.

26.1 Data Formatting Options

The decoder allows many types of data formatting, selected by setting the data format option, and setting the appropriate configuration string. See Decoder Parameters section on format options.

Data Format Options	
Valid for cd 17.1.28 and below	
Value	**Description**
0	Data formatting off
1	Simple data formatting using either prefix and suffix, or by setting the format data string directly
2	Match String validation
3	GS1 DataBar validation **(requires license 5019)**

Data Format Options	
Valid for cd 17.1.28 and below	
Value	**Description**
4	UDI/HIBC validation **(requires license 5020)**
5	ISO15434 validation
6	ISO15434 & ISO15418 validation
~~7~~	~~Simple age verification using a configuration string **(requires a license)**~~ REPLACED - Use value '8'
8	Simple age verification **(requires license 5017)**
9	DL Parsing using a configuration string **(requires license 5014)**
10	DL Parsing without using a configuration string **(requires license 5014)**
11	Success and Raw validation
12	Match String validation + Data Formatting
13	GS1 validation + Data Formatting **(requires license 5019)**
14	UDI validation + Data Formatting **(requires license 5020)**
15	ISO15434 validation + Data Formatting
16	ISO15434 & ISO15418 validation + Data Formatting
18	Perform Simple Age verification and Data Formatting
19	Perform DL Parsing with configuration string and Data Formatting **(requires license 5014)**
20	Perform DL Parsing without configuration and Data Formatting **(requires license 5014)**

Data Format Options	
Valid for cd 17.1.28 and above	
Value	**Description**
DF=0	Data formatting off
DF=1	Simple data formatting using either prefix and suffix, or by setting the format data string directly
DV=1	DL Parsing using a configuration string **(requires license 5014 for non-CR5200 readers)**
DV=2	DL / ID public sector parsing output in JSON format **(requires a license)**
DV=3	Simple age verification **(requires a license)**
DV=4	Match String validation
DV=5	GS1 DataBar validation **(requires license 5019)**
DV=6	UDI/HIBC validation **(requires license 5020)**
DV=7	ISO15434 validation
DV=8	ISO15434 & ISO15418 validation
DV=1 DF=1	Perform DL Parsing with configuration string + Data Formatting (**requires license 5014** for non-CR5200 readers)
DV=2 DF=1	DL / ID public sector parsing output in JSON format + Data Formatting
DV=3 DF=1	Simple age verification + Data Formatting **(requires license 5017)**
DV=4 DF=1	Match String validation + Data Formatting
DV=5 DF=1	GS1 DataBar validation + Data Formatting **(requires license 5019)**
DV=6	UDI/HIBC validation + Data Formatting **(requires license 5020)**

Data Format Options	
Valid for cd 17.1.28 and above	
Value	**Description**
DF=1	
DV=7	ISO15434 validation + Data Formatting
DV=8	ISO15434 & ISO15418 validation+ Data Formatting

26.2 Data Formatting String

The data format string allows the user full control of the data formatting. This string consists of a 12-digit configuration string, typically zeros, a prefix, decode data, and a suffix. There may also be user data injected into the string. A format string example would be CDOPSFD"000000000000!„/0d/0a" which appends a carriage return line feed to the decoded data. For specific details of the format data string options see D025388.

26.3 Prefixes and Suffixes

Prefix and suffix values define data that will be added to the decoded barcode data. The firmware adds the prefix and suffix to the beginning and end of the decoded data, respectively. Adding prefix or suffix data takes two steps - defining the prefix and/or suffix strings and enabling the application of data formatting.

- Command to define a prefix - CDOPSPX"string"
- Command to define a suffix - CDOPSSX"string"
- "string" must be enclosed in quotes in the command.
- Non-printable characters are represented by a forward slash and the corresponding hexadecimal value, such as /0D for a carriage return.

Examples:

- Command to define a prefix comma - CDOPSPX","
- Command to define a prefix non-keyboard tab - CDOPSPX"/09

After defining strings for a prefix and/or suffix, the application of prefixes and suffixes must be enabled. This allows you to define prefixes and/or suffixes and enable/disable them as needed.

- Command to enable - CDOPSFO1 with cd 17.1.28 CDOPSDF1 with cd 17.2.x

26.4 Format Case

The decoder will decode the barcode data and if this option, which changes the default configuration string, is set, the data will be output as decoded (0), uppercase (1), lowercase (2), or bracketed hex (3).

An example is CDOPSFC1 to set the data to output in uppercase.

26.5 Format Parse and Validation Configuration String

Validation and public sector parsing also require a configuration string. This string is set using CDOPSFP"string".

26.6 Sending Windows Keystrokes using CodeXML

Brady Reader products are often connected to a PC using keyboard input. The data contained in the read barcode is simply "typed" into the PC application. It is often required that the reader send a certain key as a prefix or suffix to the application such as an "enter" key, mimicking an actual keystroke. CodeXML Sequence was created to allow users to configure a reader to send a Windows keystroke instead of literal data. Please note that an "Enter" key is not the same as an ASCII carriage return (0x0D)

A CodeXML sequence consists of a header, a payload, and a footer.

CodeXML header	<SOH>Y<RS>an/
Payload	(A keystroke representation. See the table below)
CodeXML footer	<EOT>

The non-printable characters are represented by their hexadecimal equivalents. This representation will be different based on the context, but will often be seen as \x01, /01, 0x01, etc. for the <SOH>(or Start of Header) non-printable character. For CortexDecoder formatting, the correct format is /01.

A CodeXML header, formatted for CortexDecoder formatting, would look like this:

/01Y/1Ean/2F

A CodeXML payload consists of one or more keystroke representations. These keystrokes are represented by a forward slash (which must be escaped by the hexadecimal /2F in the format string) and a letter. A full list of available keys is below:

Characters	Key
/a	Toggle Alt
/g	Toggle AltGr (right Alt)
/c	Toggle Ctrl
/m	Toggle Menu
/s	Toggle Shift
/w	Toggle Windows Logo
/u	Up arrow
/l	Left arrow
/r	Right arrow
/d	Down arrow
/t	Tab
/z	Delete
/e	Esc
/n	Enter
/v	End
/b	Backspace
/i	Insert
/p	Page up
/x	Page down
/h	Home
/,	500 ms delay
/0 - /9	Number pad
/f1 - /f12	Function keys
//	/
/k	USB scan codes (see section 4.5.7)

The CodeXML footer would look like this:

/04

Therefore, a CodeXML string representing a Windows Enter key, formatted for CortexDecoder formatting, would look like this:

/01Y/1Ean/2F/2Fn/04

And the entire command to add the above example as a suffix to decoded data (remembering to enable data formatting) would look like this:

CDOPSSX"/01Y/1Ean/2F/2Fn/04"
CDOPSFO1

26.7 Sending USB Keyboard Scan Codes using CodeXML

In addition to sending keyboard keystrokes using the aforementioned keystroke representations, CodeXML also has the ability to send USB scan codes to identify an exact key on a keyboard.

One such use case involves some language keyboards (e.g., Italian) labeling the left Alt key as "Alt" and the right "Alt" key as "AltGr" and entering different language characters for a keystroke based on just a key, Shift+key, AltGr+key, and even AltGr+Shift+key. Using CodeXML to identify the scan code for AltGr (right Alt), a reader can send a language character available only when AltGr (Alt Grave) is pressed by sending the scan codes for AltGr and the key.

USB scan codes provide for "modifiers"; that is, an indication of whether or not the Ctrl, Shift, Alt, AltGr and/or Meta/GUI (e.g., "Windows") keys are pressed at the same time a normal key is pressed, thus "modifying" the key's keystroke. For example, to send just the "a" character using scan codes requires sending the scan code for the "a" key (0x04) with no modifier (0x00); however, to send the "A" character requires sending the "a" key's scan code with a "Shift" modifier (0x02 (left Shift) or 0x20 (right Shift)).

The table below identifies the 2-digit hexadecimal representation for the "modifier" keys.

Key	Modifier
Left Ctrl	0x01
Left Shift	0x02
Left Alt	0x04
Left Meta/GUI	0x08
Right Ctrl	0x10
Right Shift	0x20
Right Alt (AltGr)	0x40
Right Meta/GUI	0x80

Note modifier keys can be combined by or'ing their values together; e.g., Left Shift + Right Alt = 0x42.

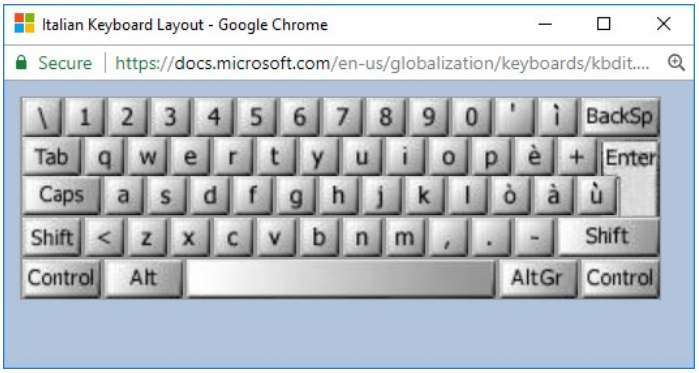
The CodeXML syntax for sending scan codes is the CodeXML header, followed by "/k", followed by two 2-digit hexadecimal values indicating the modifier(s) and key scan codes, respectively.

To illustrate, assume an Italian user wants to replace all "$" characters in a barcode with the Euro symbol "€", which is a non-ASCII character. The decoder's string-matching feature can easily accomplish this by replacing each dollar sign with CodeXML for the Euro sign on the Italian keyboard.

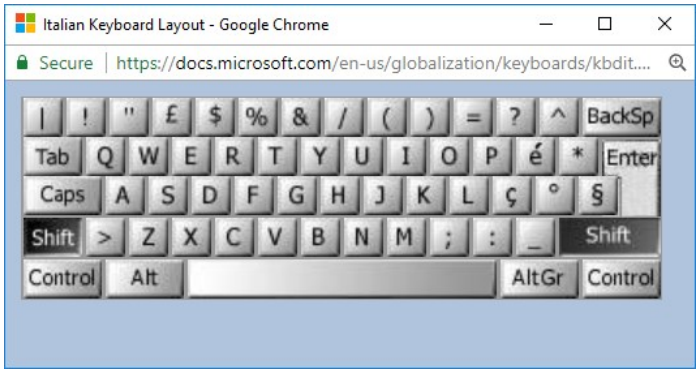
Below are the Italian keyboard character layouts based on the modifier keys pressed. Note the Euro sign is available as AltGr+5 or AltGr+e.

The USB scan codes for the "5" and "e" keys, which are in the same keyboard key position on both the English and Italian keyboards, are 0x22 and 0x08, respectively. The USB modifier scan code for the Italian AltGr key position, which is also the right Alt key position on the English keyboard, is 0x40.

No Modifier Keys



Shift Modifier Key



AltGr Modifier Key

AltGr+Shift Modifier Key

Note after the "key press" scan code(s) there must be a "key release" specified using 0x00 (no modifier) and 0x00 (no key) to terminate the key press or the operating system may interpret the last scan code as "auto-repeating", which would be undesirable.

Below is the CodeXML for the AltGr+e scan codes to indicate a "€" key press on an Italian keyboard, followed by the "key release" scan codes ("0000") to end the "€" key press.

CodeXML:

/01Y/1Ean//k40080000/04

CodeXML in a decoder data-management configuration string for all symbologies:

000000000000!„|/24^1/01Y/1Ean/2F/2Fk40080000/04

For all barcode symbologies, replace all "$" (0x24) with "€" for Italian keyboard and enable String-matching.

CDOPSSM"000000000000!„|/24^1/01Y/1Ean/2F/2Fk40080000/04"

CDOPSDV4

26.8 Command Barcode Format

The CR8200 can receive commands directly through user input via serial or text or via configuration barcode decoding. This section describes the format of configuration command barcodes.

Header	Command	Trailer
<SOH>Y<GS><STX> (/01Y/1D/02)	String as described in Section 4.2	<ETX><EOT> (/03/04)

Multiple commands can be included in one barcode by separating each command with ASCII <ETX>(0x03).

Example: Scanning barcode generated from **/01Y/1d/02SYAZTCG/03SYAUPOG/03/04** will output all settings of symbology AZTC and AUPO.

Configuration Command Barcodes:

- CR8200 configuration barcodes use QR Code barcode symbology.
- Source files to generate configuration barcodes have a file extension of .crccs and an intermediate file extension of .crmkr.
- If source files contain comments, a comment should start with two forward slash (//) characters
- Source files can have only one Primary Category command per line as defined in Section 4.2 above.

Examples:

Example.crccs

Contains:

```
// Hypothetical
// Output all settings of symbologies Aztec and Australian Post
// Rev 1 - 6/22/16 - Jackson - Initial Release

SYAZTCG // Get All Aztec settings
SYAUPOG // Get All Australian Post settings
```

Example.crmkr

Contains:

/01Y/1d/02SYAZTCG/03SYAUPOG/03/04

Example.png

Example

27 Device Recovery for the V4500

A device may get into a state in which it is difficult to determine its configuration state on very rare occasions. When this occurs, two methods that allow the user to set devices back to their default settings for those occasions are provided. The first method is to issue a configuration reset (CFR) command. This method sets all settings modified by users back to the default values set at the factory. If the device does not respond to either scanned (readers), or manually entered configuration codes (readers and charging station), powering down the unit and then powering it up again should clear this condition to allow configuration reset codes to be sent to the reader. Users may recover the device to default settings in the unlikely event where it does not communicate even after the aforementioned procedure. Unlike a configuration reset, recovery removes all conventional saved settings. Whereas a configuration reset only removes saved settings if they support the 'R' action. The following are the recovery steps for the V4500:

1. Power down the reader.
2. Press and hold down the trigger button while restoring power to the reader.
3. The reader will beep three times, a high pitch beep, a low pitch beep, and the high pitch beep again.
4. Release the trigger button and press and hold down again within two seconds after the triple-beep sequence is heard.

Note: If the trigger button is held down beyond the two-second limit, the settings will not reset.

5. The reader will beep once and then go through a quintuple-beep sequence.

Note: The sequence starts with three beeps (high, low, and high pitch beep), two beeps (high, low), two beeps (high, low), one beep (high) and one beep (high).

6. The reader's settings have now been reset to their default state. If you also wish to reset the platform settings, then keep the trigger held down and repeat steps 3 through 5. Otherwise, proceed to step 7.
7. Release the trigger and let the reader reboot.

A HID scancode delay description

Keyword: #Communications

All HID keyboard devices communicate via HID reports. These reports contain the keyboard scancodes for all possible keypresses including press, release, and modifier scancodes. In this way, each HID report represents a keyboard "key" action.

- **Inter-character delay** is the time between sending full key press-and-releases to the host. More specifically, this delay applies to key press scan codes, so long as they have a release scan code in between them (e.g. a full key press-and-release). It does not apply to key press scan codes that are not separated by releases (e.g. pressing two keys at the same time).
- **Inter-scancode delay** is the time between sending key presses to the host. More specifically, this delay applies only to key press scan codes that do not have a release in between them (e.g. pressing two keys at the same time). It does not apply to key presses separated by a release (e.g. a full key press-and-release).
- **Release delay** is the time after completing a key press before starting the subsequent key release. More specifically, the release delay is the reverse of the inter-character delay. While the inter-character delay applies after the key release, the release delay applies before the key release. This may have the effect of multiple characters outputted by the system, as this is equivalent to holding the key pressed for an extended amount of time.

B ASCII-Hexadecimal table

This table is for finding hexadecimal values for use in Prefixes, Suffixes and the Format String

Decimal Value	Hexadecimal Value	ASCII Character	Notes / Alternate Definition
0	00	NUL	(null)
1	01	SOH	(start of header)
2	02	STX	(start of text)
3	03	ETX	(end of text)
4	04	EOT	(end of transmission)
5	05	ENQ	(enquiry)
6	06	ACK	(acknowledge)
7	07	BEL	(bell)
8	08	BS	(backspace)
9	09	TAB; HT	(horizontal tab);
10	0A	LF	(line feed, new line);
11	0B	VT	(vertical tab)
12	0C	FF	(form feed, new page)
13	0D	CR	(carriage return);
14	0E	SO	(shift out)
15	0F	SI	(shift in)
16	10	DLE	(data link escape)
17	11	DC1	(device control 1)
18	12	DC2	(device control 2)
19	13	DC3	(device control 3)
20	14	DC4	(device control 4)
21	15	NAK	(negative acknowledgement)
22	16	SYN	(synchronous Idle)
23	17	ETB	(end of transmission block)
24	18	CAN	(cancel)
25	19	EM	(end of medium)
26	1A	SUB	(substitute)
27	1B	ESC	(escape)
28	1C	FS	(file separator);
29	1D	GS	(group separator)
30	1E	RS	(record separator);
31	1F	US	(unit separator)
32	20	Space	
33	21	!	
34	22	"	
35	23	#	
36	24	$	
37	25	%	
38	26	&	
39	27	’	
40	28	(	
41	29	)	
42	2A	*	
43	2B	+	
44	2C	,	
45	2D	-	

Decimal Value	Hexadecimal Value	ASCII Character	Notes / Alternate Definition
46	2E	.	
47	2F	/	
48	30	0	
49	31	1	
50	32	2	
51	33	3	
52	34	4	
53	35	5	
54	36	6	
55	37	7	
56	38	8	
57	39	9	
58	3A	:	
59	3B	;	
60	3C	<	
61	3D	=	
62	3E	>	
63	3F	?	
64	40	@	
65	41	A	
66	42	B	
67	43	C	
68	44	D	
69	45	E	
70	46	F	
71	47	G	
72	48	H	
73	49	I	
74	4A	J	
75	4B	K	
76	4C	L	
77	4D	M	
78	4E	N	
79	4F	O	
80	50	P	
81	51	Q	
82	52	R	
83	53	S	
84	54	T	
85	55	U	
86	56	V	
87	57	W	
88	58	X	
89	59	W	
90	5A	Z	
91	5B	[	
92	5C	\	
93	5D	]	
94	5E	^	

Decimal Value	Hexadecimal Value	ASCII Character	Notes / Alternate Definition
95	5F	_	
96	60	‘	
97	61	a	
98	62	b	
99	63	c	
100	64	d	
101	65	e	
102	66	f	
103	67	g	
104	68	h	
105	69	i	
106	6A	j	
107	6B	k	
108	6C	l	
109	6D	m	
110	6E	n	
111	6F	o	
112	70	p	
113	71	q	
114	72	r	
115	73	s	
116	74	t	
117	75	u	
118	76	v	
119	77	w	
120	78	x	
121	79	y	
122	7A	z	
123	7B	{	
124	7C	|	
125	7D	}	
126	7E	~	
127	7F	DEL	DEL

C USB VID - PID Listing

The Vendor ID for Brady's reader products, assigned by the USB Implementer's Forum, is 0x11FA		
PID	**Product**	**Description**
0x8200	CT8200	In-System-Programming
0x8201	Reader	USB Keyboard Mode
0x8202	Reader	HID Vendor
0x8210	Reader	VCOM Mode
0x8211	Reader	USB CDC
0x8241	V4500	USB Keyboard mode
0x8242	V4500	USB Vendor Mode (For base communication with Cortex tools)
0x8243	V4500	USB Vendor Mode (For reader communication with Cortex tools)
0x8244	V4500	USB HID POS Mode
0x8245	V4500	USB IBM POS Mode
0x8246	V4500	USB CDC ACM Mode
0x8247	V4500	USB VCOM Mode
0x8248	A275	USB Vendor Mode (For Industrial base communication with Cortex tools)

D Decode Modes

There are multiple ways to get a reader to attempt decoding. See the following table for a list of user interactions that will trigger a decode mode:

User Interactions that Produce Decode Modes		
User Interaction	**Description**	**Relevant Command**
Default	This is what happens when no other interactions are happening.	CDOP_MD
Trigger	This is what happens when the user presses the trigger.	RDTC_MD
Stand	This is what happens when the user puts the reader into a stand that it is compatible with.	RDST_SB
Event	This is what happens when the user issues a trigger event.	RDCMXEV1,P11,P2

Each of these interactions will cause the reader to enter a mode for decoding. See the following table for a list of possible behaviors that these interactions will produce, as well as the values needed in order to set that behavior in the associated setting:

Decode Modes					
CDOP Value	**RDCM Value**	**Value**	**Mode**	**Description**	**Decoding AGC Behavior**
-	0	1	Normal	This mode will attempt decoding until a barcode is decoded, at which point it will stop.	Uses the normal AGC.
1	1	2	Motion Detection	Reader uses a dim illumination to detect when there is motion in front of the reader. Once it has detected motion, it will switch over to a normal scan until it has decoded a barcode. Once a barcode has been decoded, or a predetermined amount of time has passed without motion, it will switch back into it's detecting state.	Uses motion detection AGC until motion has been detected, then it uses the normal AGC.
2	2	3	Continuous Scan	Reader continuously attempts decoding. This works similarly to our normal mode, except it does not stop after a barcode is decoded.	Uses the normal AGC.
3	-	4	Quick Decode using IR Illumination	If the reader supports IR detection, the reader will use an IR LED to detect when a barcode is presented in front of the reader. Once a barcode has been detected, it will switch over to a normal scan until it has decoded a barcode. Once a barcode has been decoded, or a predetermined amount of time has passed without a barcode in front of the reader, it will switch back into it's detection state.	Uses the detection AGC until a barcode has been detected, then it uses the Decode Plus AGC (to keep the illumination on after the barcode has been removed from in front of the reader).
4	-	5	Motion Detection using IR illumination	Works similarly to regular motion detection, except it uses the decode plus AGC to keep the illumination on after the barcode has been removed from the reader. It also uses IR illumination instead of a dim light.	Uses the detection AGC until motion has been detected, then it uses the Decode Plus AGC (to keep the illumination on after the barcode has been removed from in front of the reader).

Decode Modes					
CDOP Value	**RDCM Value**	**Value**	**Mode**	**Description**	**Decoding AGC Behavior**
5	-	6	Quick Decode using Red Illumination	If the reader supports IR detection, the reader will use an IR LED to detect when a barcode is presented in front of the reader. Once a barcode has been detected, it will switch over to a normal scan until it has decoded a barcode. Once a barcode has been decoded, or a predetermined amount of time has passed without a barcode in front of the reader, it will switch back into it's detection state.	Uses the detection AGC until a barcode has been detected, then it uses the Decode Plus AGC (to keep the illumination on after the barcode has been removed from in front of the reader).
6	-	7	Motion Detection using Red illumination	Works similarly to regular motion detection, except it uses the decode plus AGC to keep the illumination on after the barcode has been removed from the reader.	Uses the detection AGC until motion has been detected, then it uses the Decode Plus AGC (to keep the illumination on after the barcode has been removed from in front of the reader).
7	-	8	Pick List	Works similarly to our normal trigger mode, except it will keep the targeting bar on when the trigger is not currently pressed. If set as a trigger mode, this also enforces a narrow target tolerance, and only allows decodes close to the center of the reader's view.	Uses the normal AGC.
8	-	9	Target Bar Trigger	If set as a trigger mode (RDTC_MD9), this enables the targeting LED for the time specified by the target time setting (CDDT_TT) before attempting to scan.	Uses the normal AGC.
9	3	10	Single Cycle	This mode will make one attempt at decoding, at which point it will stop.	Uses the normal AGC.

The first column of the table references the values needed for CDOP_MD. The second column of the table references the values needed for RDCMXEV1. The third column of the table references the values for all other commands. These three distinct sets of values are maintained for backwards compatibility.

The "Decoding AGC Behavior" in the table above only takes place when the AGC mode is set to default (SCSP_MODF). In non-default cases, the AGC mode, when attempting a decode, will be the mode that the user specified.