

# HOST MODE PROGRAMMING



> DS8110, DX8210, SC5000



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DS8110, DX8210 and SC5000 Host Mode Programming

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# CONTENTS

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<b>1</b>	<b>HOST MODE PROGRAMMING</b> .....	<b>1</b>
<b>2</b>	<b>PROGRAMMING COMMANDS</b> .....	<b>2</b>
2.1	Connection To Device .....	2
2.2	Disconnection From Device.....	2
2.3	Self Disconnection .....	3
<b>3</b>	<b>PROGRAMMING STRINGS</b> .....	<b>6</b>
3.1	Definitions .....	6
3.1.1	Shortcut (SHC) .....	6
3.1.2	Depth (Parameter Depth) .....	6
3.1.3	Type (Parameter Type or PT).....	6
3.2	How To Send A Single Parameter To The Reader.....	9
3.3	How To Get A Single Parameter From The Reader .....	10
3.4	Save And Restore Commands .....	11
3.4.1	Save Commands .....	11
3.4.2	Restore Commands.....	12
3.5	Examples .....	14
<b>4</b>	<b>PARAMETERS LIST</b> .....	<b>16</b>
4.1	System Info.....	16
4.2	Global Settings .....	16
4.2.1	Operating Mode .....	16
4.2.2	Barcode Settings Table .....	19
4.2.3	Barcode Configuration .....	22
4.2.4	Serial Ports .....	24
4.2.5	Ethernet .....	26
4.2.6	Fieldbus .....	28
4.2.7	Messaging .....	30
4.2.8	Digital I/O Setting.....	39
4.2.9	Diagnostics .....	43
4.2.10	Energy Saving .....	44
4.2.11	HMI Settings .....	45
4.2.12	Redundant Operation (SC5000 only) .....	46
4.2.13	Hybrid Configuration (SC5000 only) .....	47
4.3	Device Settings.....	47
4.3.1	Options .....	47
<b>A</b>	<b>TABLES</b> .....	<b>48</b>
	Control Rules Table .....	48
	Error Codes Table .....	49
	ASCII Table .....	50



# 1 HOST MODE PROGRAMMING

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An alternative method of programming the DS8110, DX8210 laser scanners and the SC5000 controller is by sending programming strings over one of the communication interfaces.

These strings must be transmitted from the Host system to the device either on one of the Ethernet User Sockets, the auxiliary RS232 serial interface or the main RS232/RS422 serial interface. This is called Host Mode Programming.

In order to send the programming strings, it is necessary to switch the reader into **Host Mode**.



**CAUTION:** e-Genius should be disconnected from all reader interfaces before entering in Host Mode.



**CAUTION:** If you change the address or communication parameters of the interface you are using for Host Mode Programming you will lose connection with the device.



**CAUTION:** Starting a Host Mode Programming session on any interface automatically terminates any active Host Mode Programming session on any other interface.

## Ethernet Interfaces

To send the command strings to the reader over the Ethernet TCP/IP port you must connect to the reader. The default parameters are given below.

<u>Host Network (HOST/ETH1)</u>	<u>Setup Network (CFG/ETH2)</u>
Default IP Address: 172.27.101.220	Default IP Address: 192.168.3.100
Subnetmask: 255.255.0.0	Subnetmask: 255.255.255.0
TCP Type: Server	TCP Type: Server
User Socket 1 - Port: 51236	User Socket 1 - Port: 51236

## Serial Interfaces

The programming commands and strings must be sent to the reader at the programmed baud rate of the selected interface (e.g. if the baud rate of the Auxiliary interface is programmed at 115200 bps the command must be sent at 115200 bps).

The selected communication channel must be programmed as follows:

- Data Bits: 8 Bits
- Parity: None
- Stop Bits: 1

## 2 PROGRAMMING COMMANDS

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### 2.1 CONNECTION TO DEVICE

	DESCRIPTION	HOST COMMAND	REPLY MESSAGE
1	<b>Enter Host Mode</b>	<b>&lt;ESC&gt; [ C</b>	<b>&lt;ESC&gt; H &lt;CR&gt;&lt;LF&gt;</b>
	<p>After entering this command, the device responds with the first reply message and then waits for the following command.</p> <p>From now on the device is in the <b>CONNECTED</b> state. Normal data flow is inhibited until it comes back to the <b>IDLE</b> state.</p>		
2	<b>Enter Terminal Mode</b>	<b>&lt;ESC&gt; ] B</b>	<b>&lt;ESC&gt; R &lt;CR&gt;&lt;LF&gt;</b>
	<p>After entering this command, the device responds with the second reply message and then waits for the following command in Terminal mode.</p>		
3	<b>Enter Programming Mode</b>	<b>&lt;ESC&gt; c M &lt;B0<sub>H</sub>&gt; 0</b>	<b>&lt;ESC&gt; c &lt;CR&gt;&lt;LF&gt;</b>
	<p>After entering this command, the device responds with the third reply message and then waits for one or more programming strings as shown in Chapter 3 and 4.</p>		

### 2.2 DISCONNECTION FROM DEVICE

	DESCRIPTION	HOST COMMAND	REPLY MESSAGE
1	<b>Exit Programming Mode</b>	<b>&lt;ESC&gt; d M &lt;B0<sub>H</sub>&gt; 0</b>	<b>&lt;ESC&gt; d &lt;CR&gt;&lt;LF&gt;</b>
	<p>This message must always be transmitted to exit from programming mode.</p>		
2	<b>Exit Terminal Mode</b>	<b>&lt;ESC&gt; I A &lt;space&gt;</b>	<b>&lt;ESC&gt; K &lt;CR&gt;&lt;LF&gt;</b>
	<p>This message must always be transmitted to exit from Terminal mode.</p>		
3	<b>Exit Host Mode</b>	<b>&lt;ESC&gt; [ A</b>	<b>&lt;ESC&gt; X &lt;CR&gt;&lt;LF&gt;</b>
	<p>This message must always be transmitted to end the programming session. From now on device is in <b>IDLE</b> state. Communication channel may be used for normal data flow.</p>		

## 2.3 SELF DISCONNECTION

Specific situations exist where the device is automatically disconnected from the Host and is restored to the **IDLE** state. Once connected, the following message could be sent:

	DESCRIPTION	HOST REPLY	DEVICE MESSAGE
	<b>Self Disconnection</b>	-	<ESC> [ A
	This message notifies a forced disconnection from the Host. This message must always be managed by the Host program to check when the device has gone back to the <b>IDLE</b> state.		

Normally programming sequences do not involve this message except for the occasions listed below:

### 1. Inactivity Timeout Expiration

After connection, no programming commands or programming strings are sent to the device (approximately 2 minutes as default).

### 2. Application Software Restart

Particular commands may force a restart of the device like Data Storage commands (refer to the Paragraph 3.4). The Self Disconnection message is sent to notify these cases.

### 3. General Error Condition

After connection to the device, unexpected errors are notified by means of the Self Disconnection message.

### 4. Protocol Error

When the Host sends wrong messages like unexpected escape sequences.

	DESCRIPTION	HOST REPLY	DEVICE MESSAGE
	<b>Self Disconnection</b>	<ESC> X <CR><LF>	-
	Host must confirm the disconnection event sending this reply message. If not sent, after a timeout (about 300 ms as default) device goes back to the <b>IDLE</b> state.		

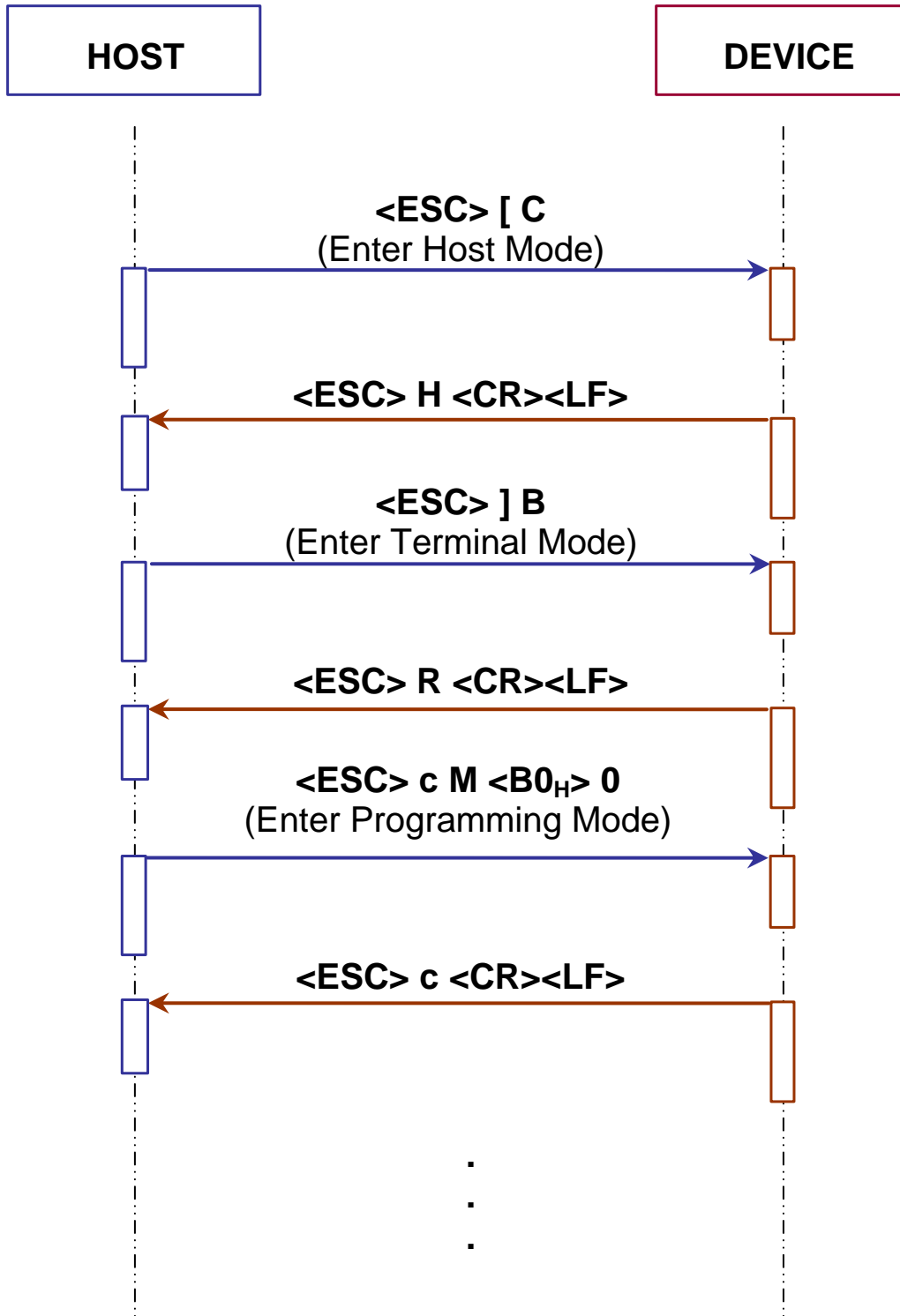


Figure 1 - Connection to Device



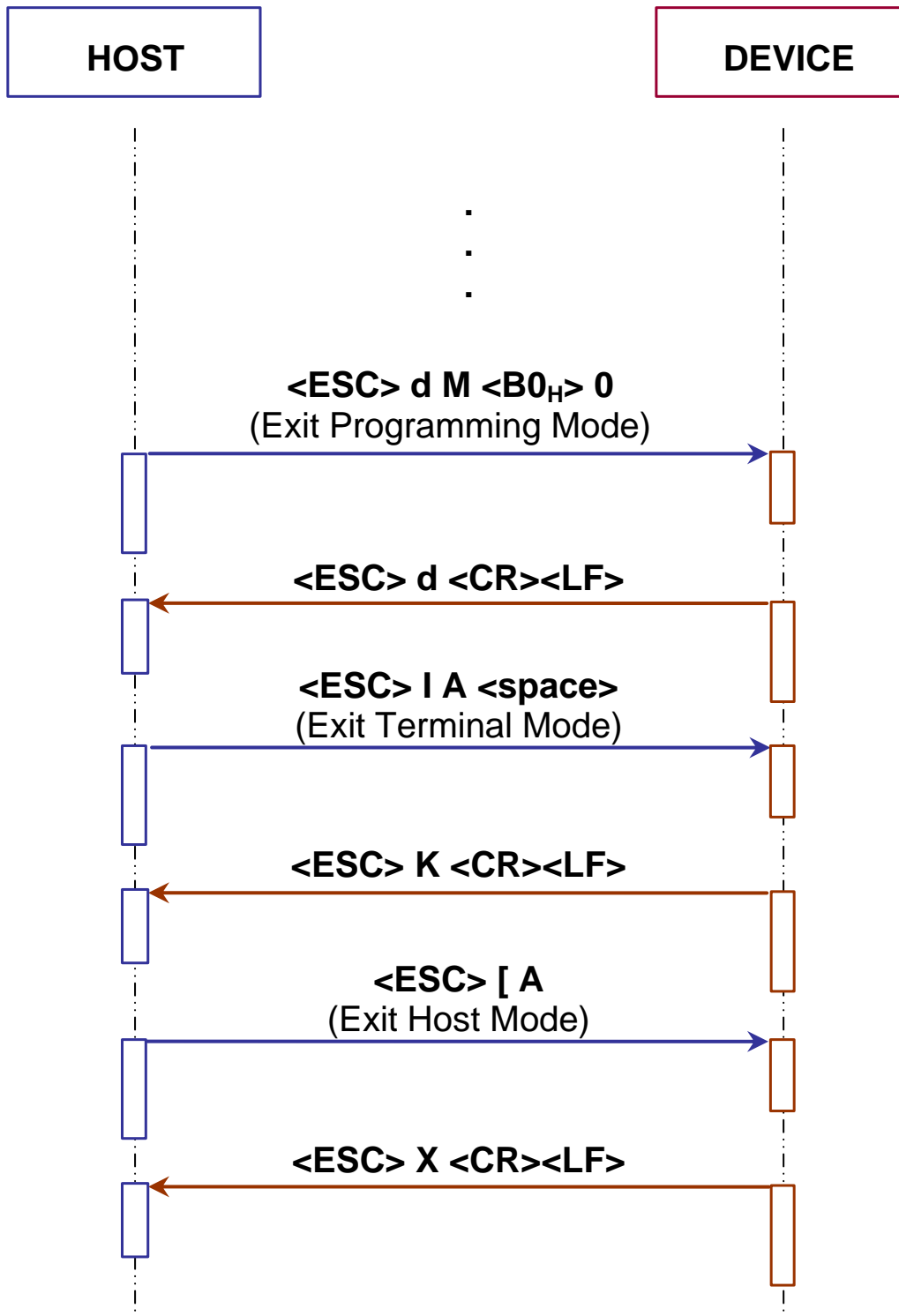


Figure 2 - Disconnection from Device

## 3 PROGRAMMING STRINGS

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### 3.1 DEFINITIONS

The following terms define the fields in the configuration parameters tables in chapter 4.

#### 3.1.1 Shortcut (SHC)

All configuration parameters are assigned a numeric value called a **shortcut** (or **SHC**). This allows implementation of shorter programming strings.

Example:

The *Code Combination* parameter has the numeric value 129. Its depth =1 so the depth field is omitted (see par. 3.1.2 below).

Label:                   Code Combination  
Shortcut:                129

#### 3.1.2 Depth (Parameter Depth)

The depth of the parameter is indicated by the '#' character followed by a numeric value which indicates that it is made up of a vector of values, also called its multiplicity. If the depth is = 1 then this field can be omitted.

For example the parameter *Code Symbology* has depth > 1 since we have one *Code Symbology* value for each Code slot allowed (up to 10). The range of values for parameters having depth > 1 is indicated in the relative configuration parameter tables.

Example:

The *Code Symbology* parameter has the following syntax when indicating Code slot 3.

Label:                   Code Symbology  
Shortcut+Depth:       154#3

#### 3.1.3 Type (Parameter Type or PT)

Parameter type is essential in order to decide the parameter **VALUE** format used in the programming strings. Types are:

[Type 0:](#)           Integer (Numeric)  
[Type 1:](#)           Enumeration  
[Type 2:](#)           ASCII String  
[Type 3:](#)           Binary String  
[Type 4:](#)           Floating Point

The other definitions change according to the parameter type.

## Integer (Type = 0)

### Range

Minimum and maximum values allowed for the parameter.

Example: Reading Phase *Timeout* parameter (see [Operating Modes](#)).

Type: 0  
Shortcut: 37  
Label: Timeout (ms)  
Range: 40 to 15.000  
Default: 500

The sign can be omitted if the parameter value is not negative.

## Enumeration (Type = 1)

### Item List

List of the values allowed for the parameter.

List of the values allowed for the parameter (i.e. 0 = first entry of the list, 1 = second entry of the list).

Example: *Operating Mode Selection* parameter (see [Operating Modes](#)).

Type: 1  
Shortcut: 17  
Label: Operating Mode Selection  
Item List: 0 = On Line  
          1 = Continuous  
          2 = PackTrack  
Default: 0 (*On Line*)

## ASCII String (Type = 2)

### Length

Minimum and maximum number of ASCII printable characters allowed for this parameter.

Example: *Device Name* parameter.

Type: 2  
Shortcut: 435  
Label: Device Description  
Length: 0 to 32  
Default: Empty string

## Binary String (Type = 3)

### Length

Minimum and maximum number of bytes (hex values) allowed for this the parameter.

Example: *Header String* parameter.

Type: 3  
Shortcut: 413  
Label: Header String  
Length: 0 to 128 (hex values)  
Default: 02 (<STX>)

## Floating Point (Type = 4)

The Floating Point parameter value has the following format:

**XXX.YYY**

### Range

Minimum and maximum values allowed for the parameter.

The sign can be omitted if the parameter value is not negative.

## 3.2 HOW TO SEND A SINGLE PARAMETER TO THE READER

The '**Set Shortcut**' programming string (based on the short parameter description) must have the following format:

**SS**<space>**SHC**[**#DEPTH**]:**VALUE**<CR><LF>

Where:

- **SS**: 'Set Shortcut' command
- **SHC**: Numeric value of the Shortcut
- **[#DEPTH]**: Depth character plus numeric value (optional field if depth = 1)
- **VALUE**: Parameter value

After entering this command, the device responds with the proper reply message and then waits for one or more programming strings.

If the programming is correct, the device updates the configuration and confirms with the following message:

**Y**<space>**VALUE**<CR><LF>

Where:

- **VALUE**: Parameter Value

If programming contents are wrong (i.e. a typing error in the file) or due to a transmission error, the device replies with the following message and programming data will not be updated in this case:

**N**<space>**ERRCODE**<CR><LF>

Where:

- **ERRCODE**: Error Code (signed decimal value)

For information on Error Codes see the "[Error Codes Table](#)" in the Appendix.

### 3.3 HOW TO GET A SINGLE PARAMETER FROM THE READER

The '**Get Shortcut**' programming string (based on the short parameter description) must have the following format:

**GS**<space>**SHC**[**#DEPTH**]<CR><LF>

Where:

- **GS:** 'Get Shortcut' command
- **SHC:** Numeric value of the Shortcut
- **[#DEPTH]** Depth character plus numeric value (optional field if depth = 1)

After entering this command, the device responds with the following message:

**Y**<space>**VALUE**<CR><LF>

Where:

- **VALUE:** Parameter Value.

If programming contents are wrong (i.e. a typing error) or due to a transmission error, the device replies with the following message:

**N**<space>**ERRCODE**<CR><LF>

Where:

- **ERRCODE:** Error Code (signed decimal value)

For information on Error Codes see the "[Error Codes Table](#)" in the Appendix.

## 3.4 SAVE AND RESTORE COMMANDS

### 3.4.1 Save Commands

The 'Data Storage' programming command must have the following format:

**E**<space>**MODE**<CR><LF>

Where:

- **E**: Data Storage command
- **MODE**: Data Storage mode. The possible values are:
  - V** = Storage in temporary (volatile) memory only.
  - P** = Storage in temporary and permanent memory.

If the programming is correct, the device updates the configuration and confirms with the following message:

**Y**<space>**MODE**<CR><LF>

Where:

- **MODE**: Data Storage mode



**CAUTION:** Restart of the device is now forced. If no disconnection commands are sent within a minimum timeout of 300 ms, the device will transmit the Self Disconnection message (refer to the Paragraph 2.3).

If programming contents are wrong (i.e. a typing error in the file) or due to a transmission error, the device replies with the following message and programming data will not be updated in this case:

**N**<space>**ERRCODE**<CR><LF>

Where:

- **ERRCODE**: Error Code (signed decimal value).

For information on Error Codes see the "[Error Codes Table](#)" in the Appendix.

### 3.4.2 Restore Commands

The 'Restore Default Configuration' programming command must have the following format:

**SD**<space>**DEFNUM**<CR><LF>

Where:

- **SD:** Restore Default configuration command
- **DEFNUM:** Default configuration number. The only possible value is currently:  
**0** = Application Default (does not affect Ethernet addressing or PackTrack calibration)

After entering this command, the device responds with the proper reply message and then waits for one or more programming strings.

If the programming is correct, the device updates the configuration and confirms with the following message:

**Y**<space>**DEFNUM**<CR><LF>

Where:

- **DEFNUM:** Default

If programming contents are wrong (i.e. a typing error in the file) or due to a transmission error, the device replies with the following message:

**N**<space>**ERRCODE**<CR><LF>

Where:

- **ERRCODE:** Error Code (signed decimal value)

For information on Error Codes see the "[Error Codes Table](#)" in the Appendix.



**CAUTION:** This programming command will be applied to all **Configuration** parameters. Refer to the e-Genius Help On Line of the selected device for further details.



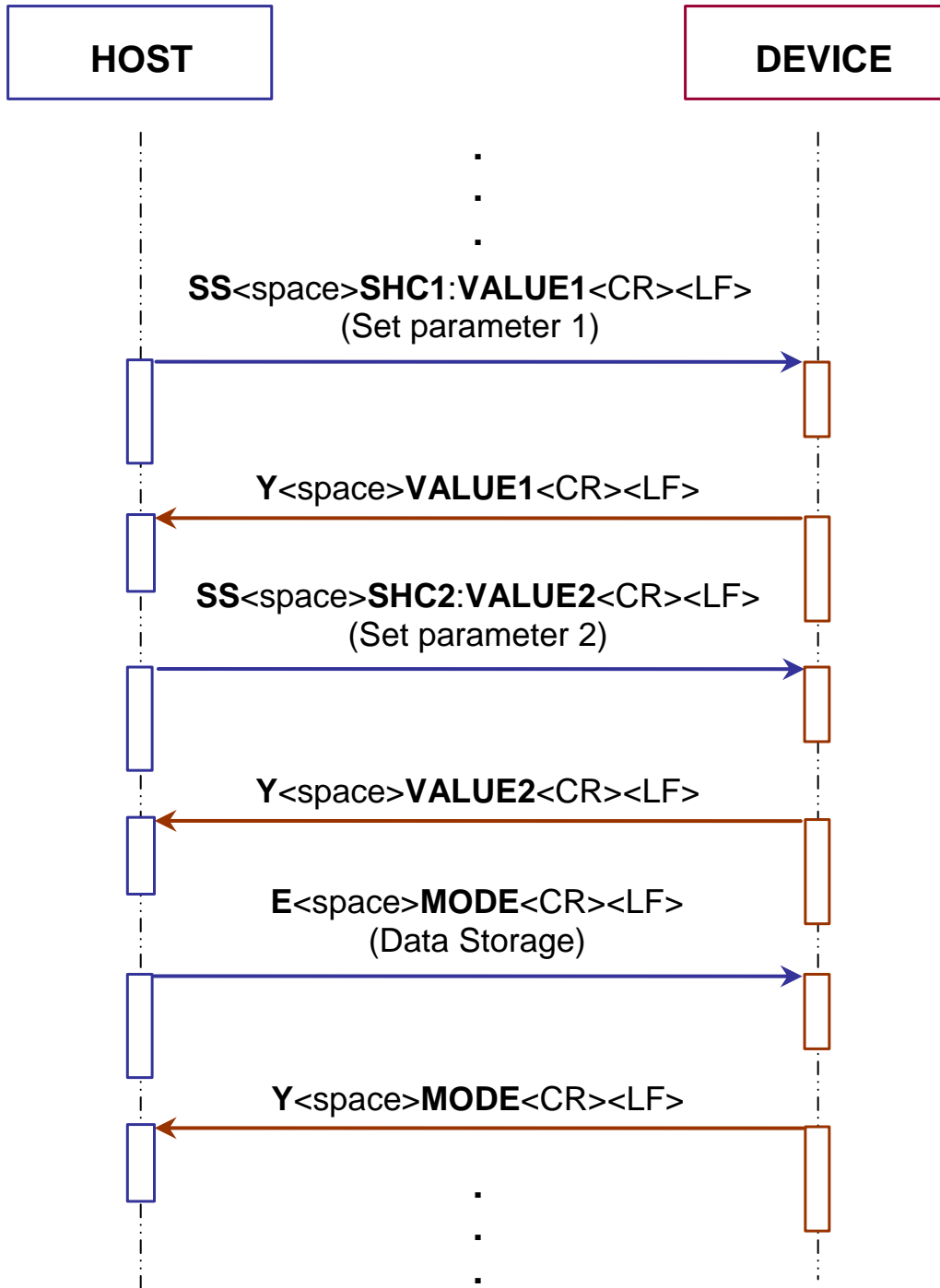


Figure 3 - Two Parameters Programming Session With Data Storage

### 3.5 EXAMPLES

#### - 1 -

Set the *Minimum Label Length* parameter for Code Slot 2 to value 4: (see [Barcode Settings Table](#))

Shortcut: 160  
Type: 0 (Integer)  
Range: 0 to 60  
Value: 4

The 'Set Shortcut' programming string is:

**SS<space>160#2:4<CR><LF>**

After entering the programming string, the reader responds with the message:

Y<space>4<CR><LF>

#### - 2 -

Set the *Operating Mode Selection* parameter to PackTrack: (see [Operating Mode Settings](#))

Shortcut: 17  
Type: 1 (Enumeration)  
Item List: 0 = On Line  
          1 = Continuous  
          2 = PackTrack  
Value: 2

The 'Set Shortcut' programming string is:

**SS<space>17:2<CR><LF>**

After entering the programming string, the reader responds with the message:

Y<space>2<CR><LF>

#### - 3 -

Set the Profinet Station Name parameter to 'Scanpoint1' in:

Shortcut: 10322  
Type: 2 (ASCII String)  
Length: 0 to 240  
Value: Scanpoint1

The 'Set Shortcut' programming string is:

**SS<space>10322:Scanpoint1<CR><LF>**

After entering the programming string the reader responds with the message:

Y<space> Scanpoint1<CR><LF>

**- 4 -**

Set the *Header String* parameter in the Standard Message Output Format to 'HEADER': (see [Standard Format](#))

Shortcut: 413  
Type: 3 (Binary String)  
Length 0 to 128  
Value hex values: 48H 45H 41H 44H 45H 52H (*HEADER*)

The 'Set Shortcut' programming string is:

**SS<space>413:484541444552<CR><LF>**

After enter the programming string, the reader responds with the message:

Y<space>484541444552<CR><LF>

**- 5 -**

Get the value of *Digital Output 2 Primary Activation Event* parameter: (see [Digital Output Lines - Output 2](#))

Shortcut: 354  
Type: 1 (Enumeration)  
Current Value: 2 (Partial Read)

The 'Get Shortcut' programming string is:

**GS<space>354<CR><LF>**

After entering the programming string, the reader responds with the message:

Y<space>2<CR><LF>

**- 6 -**

Get the value of the *Global No Read String* parameter: (see [Barcode Configuration](#))

Shortcut: 136  
Type: 3 (Binary String)  
Current Value: hex value: 3F (?)

The 'Get Shortcut' programming string is:

**GS<space>136<CR><LF>**

After entering the programming string, the reader responds with the message:

Y<space>3F<CR><LF>

## 4 PARAMETERS LIST

### 4.1 SYSTEM INFO

PARAMETER	PT	SHC	DEPTH	VALUE
<b>SYSTEM INFO</b>				
System Description	2	457		Length: 0 to 32
Role	1	446		0 = Master 3 = Standalone
Enable Automatic Slave Replace	1	10232		0 = Disable 1 = Enable
Force Operation as a Standalone/Master	1	10399		0 = Disable 1 = Enable
Device N Description	2	435	0 to 32	Length: 0 to 32

### 4.2 GLOBAL SETTINGS

#### 4.2.1 Operating Mode

PARAMETER	PT	SHC	DEPTH	VALUE
<b>OPERATING MODE</b>				
Operating Mode Selection	1	17		0 = On Line 1 = Continuous 2 = PackTrack
On Line Options	1	19		0 = 1 Input Used 1 = 2 Inputs Used 2 = Serial/Network
Bidirectional PackTrack Enable	1	10355		0 = Disable 1 = Enable
<b>TRIGGER SOURCE</b>				
Extended Phase	1	21		0 = Disable 1 = Enable
Serial Start String	3	23		Length: 1 to 32
Serial Stop String	3	24		Length: 1 to 32
Start Input from Bus	1	127		0 = Disable 1 = Enable
Start Input Number	1	26		0 = Trigger (Input 1) 1 = Aux (Input 3) 3 = I/O 4 (Input 4)
Start Input Active Level	1	28		0 = Active Closed 1 = Active Open
Stop Input Number	1	30		0 = Trigger (Input 1) 1 = Aux (Input 3) 3 = I/O 4 (Input 4)
Stop Input Active Level	1	32		0 = Active Closed 1 = Active Open
Stop Phase Edge	1	33		0 = Trailing 1 = Leading

PARAMETER	PT	SHC	DEPTH	VALUE
Reading Phase Timeout	1	35		0 = Disable 1 = Enable
Timeout (ms)	0	37		Range: 40 to 15000
Timeout Counting From	1	125		0 = Start 1 = Stop
Stop Priority	1	38		0 = Input / SerialStop 1 = Always Timeout
Transmission Edge	1	10382		0 = Trailing 1 = Leading
<b>BIDIRECTIONAL PACKTRACK SETTINGS</b>				
Reverse Start Input	1	10358		0 = Trigger (Input 1) 1 = Aux (Input 3) 3 = I/O 4 (Input 4)
Reverse Start Input Active Level	1	10359		0 = Active Closed 1 = Active Open
Direction Input	1	10356		0 = Trigger (Input 1) 1 = Aux (Input 3) 3 = I/O 4 (Input 4)
Direction Input Active Level	1	10357		0 = Active Closed 1 = Active Open
Distance from PS to Reverse PS (mm)	0	10360		Range: 100 to 20000
<b>MODE SETTINGS</b>				
Ps Line (mm)	0	46		Range: -32767 to 32767y
Distance from PS Line to TX Line (mm)	0	47		Range: 100 to 20000
Minimum Distance Error Behaviour	1	49		0 = Ignore Error 1 = Compose 2 = Discard Last
Minimum Distance Between Packages (mm)	0	51		Range: 10 to 1000
Minimum Package Length (mm)	0	54		Range: 0 to 1000
Window Dimension (mm)	0	55		Range: 0 to 1000
Code Filter	1	66		0 = Disable 1 = Timeout 2 = Encoder Steps 3 = Tx Line
Code Filter Depth	0	65		Range: 0 to 127
Filter Timeout Value (ms)	0	68		Range:40 to 15000
Filter Number of Encoder Steps	0	69		Range:1 to 15000
Replicate same code when symbologies don't match	1	63		0 = Disable 1 = Enable
Replicate same code when X positions don't match	1	70		0 = Disable 1 = Enable
Replicate same code when Y positions don't match	1	72		0 = Disable 1 = Enable
Replicate same code when Z positions don't match	1	73		0 = Disable 1 = Enable

PARAMETER	PT	SHC	DEPTH	VALUE
Continuous Threshold (number of scans)	0	60		Range: 10 to 32765
<b>ENCODER SOURCE</b>				
Encoder Source	1	42		0 = Constant Speed (Internal) 1 = Physical Encoder (Tachometer) 2 = Derived Encoder (PLL)
Encoder Step (hundredths of millimeter)	0	44		Range: 10 to 100000
Conveyor Speed (mm/sec)	0	45		Range: 50 to 10000
Derived Encoder Input Source	1	10392		0 = Trigger (Input 1) 1 = Tach (Input 2) 2 = Aux (Input 3)
Derived Encoder Input Edge	1	10393		0 = Rise to Rise 1 = Fall to Fall 2 = Rise to Fall 3 = Fall to Rise
Derived Encoder Pulse Width	0	10395		Range: 1 to 5000
<b>BEAM SHUTTER</b>				
Beam Shutter	1	10252		0 = Disable 1 = Triggered 2 = Enable
PackTrack Beam Shutter Timeout	1	10253		0 = Disabled 1 = 50 msec 2 = 100 msec 3 = 500 msec 4 = 1 sec 5 = 5 sec 6 = 10 sec 7 = 30 sec 8 = 1 min 9 = 5 min 10 = 10 min 11 = 15 min
<b>VERIFIER</b>				
Verifier Enable	1	75		0 = Disable 1 = Enable
Verifier Code	3	77		Length: 0 to 128
Store Input	1	78		0 = Trigger (Input 1) 1 = Aux (Input 3) 3 = I/O 4 (Input 4)
Active Level	1	80		0 = Active Closed 1 = Active Open
Wrong Code Tx	1	82		0 = Disable 1 = Enable
Wrong String Tx	1	83		0 = Disable 1 = Enable
Wrong String	3	86		Length: 0 to 128

## 4.2.2 Barcode Settings Table

PARAMETER	PT	SHC	DEPTH	VALUE
<b>BARCODE SETTING #N</b>				
Enable	1	152	1 to 10	0 = Disable 1 = Enable
Code Symbology	1	154	1 to 10	0 = Code 128 1 = Interleaved 2 of 5 2 = Code 39 3 = Code GS1-128 4 = EAN-13 5 = EAN-8 6 = UPC-A 7 = UPC-E 8 = All EAN-UPC 9 = Codabar 10 = Code 93
EAN AddOn	1	156	1 to 10	0 = No Add On 1 = 2 digits Add On 2 = 5 digits Add On
Minimum Label Length	0	160	1 to 10	Range: 1 to 60
Maximum Label Length	0	161	1 to 10	Range: 1 to 60
Bar Count (only for Code 128, GS1-128)	1	166	1 to 10	0 = Variable 1 = 25 2 = 31 3 = 37 4 = 43 5 = 49 6 = 55 7 = 61 8 = 67 9 = 73 10 = 79 11 = 85 12 = 91 13 = 97 14 = 103 15 = 109 16 = 115 17 = 121 18 = 127 19 = 133 20 = 139 21 = 145 22 = 151 23 = 157 24 = 163 25 = 169 26 = 175 27 = 181 28 = 187 29 = 193 30 = 199

PARAMETER	PT	SHC	DEPTH	VALUE
				31 = 205 32 = 211 33 = 217 34 = 223 35 = 229 36 = 235 37 = 241 38 = 247 39 = 253 40 = 259 41 = 265 42 = 271 43 = 277 44 = 283 45 = 289 46 = 295 47 = 301 48 = 307 49 = 313 50 = 319 51 = 325 52 = 331 53 = 337 54 = 343 55 = 349 56 = 355 57 = 361 58 = 367 59 = 373 60 = 379
Bar Count (only for Code 93)	1	168	1 to 10	0 = Variable 1 = 31 2 = 37 3 = 43 4 = 49 5 = 55 6 = 61 7 = 67 8 = 73 9 = 79 10 = 85 11 = 91 12 = 97 13 = 103 14 = 109 15 = 115 16 = 121 17 = 127 18 = 133 19 = 139 20 = 145 21 = 151 22 = 157



PARAMETER	PT	SHC	DEPTH	VALUE
				23 = 163 24 = 169 25 = 175 26 = 181 27 = 187 28 = 193 29 = 199 30 = 205 31 = 211 32 = 217 33 = 223 34 = 229 35 = 235 36 = 241 37 = 247 38 = 253 39 = 259 40 = 265 41 = 271 42 = 277 43 = 283 44 = 289 45 = 295 46 = 301 47 = 307 48 = 313 49 = 319 50 = 325 51 = 331 52 = 337 53 = 343 54 = 349 55 = 355 56 = 361 57 = 367 58 = 373 59 = 379 60 = 385
Check Digit	1	172	1 to 10	0 = Disable 1 = Enable
Check Digit Type (only for Interleaved 2 of 5)	1	174	1 to 10	0 = Standard 1 = German 2 = DHL 3 = Daimler-Chrysler 4 = Bosch
Check Digit Type (only for Code 39)	1	176	1 to 10	0 = Standard 1 = Mod 7
Check Digit Tx	1	227	1 to 10	0 = Disable 1 = Enable
Decoding Safety	0	181	1 to 10	Range: 1 to 100
Match String Rule	1	183	1 to 10	1 = Match 2 = Do Not Match
Pattern Match String	3	185	1 to 10	Length: 0 to 200

PARAMETER	PT	SHC	DEPTH	VALUE
Match Direction Rule	1	186	1 to 10	0 = Disable 1 = Forward 2 = Reverse
Code Label Local No Read String	3	188	1 to 10	Length: 0 to 60
Code Label Local Multiple Read String	3	189	1 to 10	Length: 0 to 60
Start Char Tx (only for Codabar)	1	190	1 to 10	0 = Disabled 2 = Lower Case 3 = Upper Case
Stop Char Tx (only for Codabar)	1	192	1 to 10	0 = Disabled 2 = Lower Case 3 = Upper Case

### 4.2.3 Barcode Configuration

PARAMETER	PT	SHC	DEPTH	VALUE
<b>BARCODE CONFIGURATION</b>				
Code Combination	1	129		0 = Single Label 1 = Standard Multi Label 2 = Logical Combination 3 = Code Collection
Logical Combination Rule	2	131		Length: 0 to 64
No Read Message	1	132		0 = Disable No Read Message 1 = Global No Read Message 2 = Local No Read(s) Message
Global No Read String	3	136		Length: 0 to 512
Use 'Global No Read String' when No Codes Read	1	10398		0 = Disable 1 = Enable
Multiple Read Message	1	137		0 = Disable 1 = Enable
Multiple Read String	3	139		Length: 0 to 512
Send All Multiple Read Labels	1	140		0 = Disable 1 = Enable
WebSentinel - Partial Read Is Treated As	1	142		0 = No Read 1 = Good Read 3 = Partial Read
Multi Filters	1	148		0 = Disable 1 = Enable
Associate Same Codes When Read By Different Scanners	1	198		0 = Disable 1 = Enable
<b>GROUP NO READ MESSAGES #N</b>				
Group N No Read String	3	145	1 to 15	Length: 0 to 60
<b>GROUP MULTIPLE READ MESSAGES #N (DEPTH: N = 1 to 15)</b>				
Group N Multiple Read String	3	147	1 to 15	Length: 0 to 60

**Multi Filters**

PARAMETER	PT	SHC	DEPTH	VALUE
<b>MULTI FILTER SETTINGS</b>				
Contained Filter	1	205		0 = Disable 1 = Enable
Maximum Number of Different Characters	0	207		Range: 0 to 5
Voting Filter	1	208		0 = Disable 1 = Enable
Maximum Number of Different Characters	0	210		Range: 1 to 5
Filter Out Low Height Codes	1	211		0 = Disable 1 = Enable
Strip Filter	1	218		0 = Disable 1 = Enable
Priority Filter Enable	1	10433		0 = Disable 1 = Enable
	2	10434		Length: 0 to 128
	2	10436		Length: 0 to 200
<b>STRIP FILTER PARAMETERS</b>				
Strip All Non Printable Chars	1	221		0 = Disable 1 = Enable
Char(s) to be Stripped	3	223		Length: 0 to 128
Strip Filter Collapse	1	224		0 = Disable 1 = Enable
Replacement Char	3	226		Length: 0 to 1
<b>FILTER OUT LOW HEIGHT CODES PARAMETERS</b>				
Minimum Difference in Readings Between Scanners	1	216		0 = 0 1=1 2=2 3=3 4=4 5=5 6=6 7=7 8=8 9=9 10=10
Filter Out Single Readings	1	214		0 = Disable 1 = Enable

#### 4.2.4 Serial Ports



**CAUTION:** If you change the address or communication parameters of the interface you are using for Host Mode Programming you will lose connection with the device.

#### Main Port

PARAMETER	PT	SHC	DEPTH	VALUE
<b>MAIN SERIAL PORT</b>				
Data Tx	1	252		0 = Disable 1 = Enable
Heartbeat	1	253		0 = Disable 1 = Enable Unconditioned 2 = Enable Conditioned
<b>HEARTBEATSETTINGS</b>				
Heartbeat Timeout (sec)	0	255		Range: 1 to 3600
Heartbeat Message	3	256		Length: 0 to 32
Heartbeat Terminator	3	257		Length: 0 to 32
<b>MAIN SERIAL PORT LINE SETTINGS</b>				
Main Port Communication Mode (SC5000 Only)	1	10424		0 = Standard 2 = Siemens 3964
Main Port Electrical Interface	1	261		0 = RS232 1 = RS422
Handshake (RS232)	1	263		0 = None 1 = Hardware (RTS/CTS) 2 = Software (Xon/Xoff)
Handshake (RS422 Full Duplex)	1	265		0 = None 1 = Software (Xon/Xoff)
Baud Rate	1	267		8 = 1200 1 = 2400 2 = 4800 3 = 9600 4 = 19200 5 = 38400 6 = 57600 7 = 115200
Parity	1	269		0 = None 1 = Odd 2 = Even
Data Bits	1	271		0 = 7 1 = 8
Stop Bits	1	273		0 = 1 1 = 2
Checksum (SC5000 Only)	1	10425		0 = Disable 1 = Enable
Priority (SC5000 Only)	1	10426		0 = Low 1 = High

**Aux Port**

PARAMETER	PT	SHC	DEPTH	VALUE
<b>AUXILIARY SERIAL PORT</b>				
Search For Backup Memory at Device Startup (Scanners Only)	1	276		0 = Disable 1 = Enable
Data Tx	1	278		0 = Disable 1 = Enable
Heartbeat	1	279		0 = Disable 1 = Enable Unconditioned 2 = Enable Conditioned
<b>HEARTBEATSETTINGS</b>				
Heartbeat Timeout (sec)	0	280		Range: 1 to 3600
Heartbeat Message	3	281		Length: 0 to 32
Heartbeat Terminator	3	282		Length: 0 to 32
<b>AUXILIARY SERIAL PORT LINE SETTINGS</b>				
Baud Rate	1	285		0 = 1200 1 = 2400 2 = 4800 3 = 9600 4 = 19200 5 = 38400 6 = 57600 7 = 115200
Parity	1	286		0 = None 1 = Odd 2 = Even
Data Bits	1	287		0 = 7 1 = 8
Stop Bits	1	288		0 = 1 1 = 2

## 4.2.5 Ethernet



**CAUTION:** If you change the address or communication parameters of the interface you are using for Host Mode Programming you will lose connection with the device.

### Line Settings

PARAMETER	PT	SHC	DEPTH	VALUE
<b>HOST NETWORK (HOST/ETH1)</b>				
Enable DHCP	1	327		0 = Disable 1 = Enable
Host IP Address	2	326		Length: 7 to 15
Host IP Netmask	2	328		Length: 7 to 15
Host IP Gateway	2	329		Length: 7 to 15
Host IP DNS 1	2	330		Length: 7 to 15
Host IP DNS 2	2	331		Length: 7 to 15
Host IP Address Active	2	10291		Length: 7 to 15
Host IP Address Standby	2	10292		Length: 7 to 15
Host IP Address Working	2	10293		Length: 7 to 15
Host IP Address Protecting	2	10294		Length: 7 to 15
Host Address Actual	2	10302		Length: 7 to 15
<b>SETUP NETWORK (CFG/ETH2)</b>				
Setup IP Address	2	443		Length: 7 to 15
Setup IP Netmask	2	444		Length: 7 to 15

### User Socket Settings

PARAMETER	PT	SHC	DEPTH	VALUE
<b>USER SOCKET #N</b>				
Enable User Socket	1	311	1 to 6	0 = Disable 1 = Enable
Enable Data Transmission	1	312	1 to 6	0 = Disable 1 = Enable
Heartbeat	1	313	1 to 6	0 = Disable 1 = Enable Unconditioned 2 = Enable Conditioned
<b>HEARTBEATSETTINGS</b>				
Heartbeat Timeout (sec)	0	314	1 to 6	Range: 1 to 3600
Heartbeat Message	3	315	1 to 6	Length: 0 to 32
Heartbeat Terminator	3	316	1 to 6	Length: 0 to 32
Send Diagnostic Info	1	317	1 to 6	0 = Disable 1 = Enable

PARAMETER	PT	SHC	DEPTH	VALUE
<b>SOCKET CONFIGURATION</b>				
Type	1	318	1 to 6	0 = Server 1 = Client
Server Address	2	320	1 to 6	Length: 7 to 15
Protocol	1	321	1 to 6	0 = TCP 1 = UDP
Port	0	323	1 to 6	Range: 0 to 65535

## EtherNet/IP

PARAMETER	PT	SHC	DEPTH	VALUE
<b>ETHERNET/IP</b>				
Enable Ethernet/IP	1	294		0 = Disable 1 = Enable
Ethernet/IP Object Selection	1	10416		0 = DLA Object 1 = ASI Object
Enable ControlLogix On-Demand Messaging	1	10417		0 = Disable 1 = Enable
<b>DIGITAL INPUT LINES</b>				
Trigger (Input 1) Echo	1	295		0 = Disable 1 = Enable
Aux (Input 3) Echo	1	297		0 = Disable 1 = Enable
I/O 4 (Input 4) Echo (SC5000)	1	10265		0 = Disable 1 = Enable
Phase Echo	1	298		0 = Disable 1 = Enable
<b>DIGITAL OUTPUT LINES</b>				
Control Output 1	1	299		0 = Disable 1 = Enable
Control Output 2	1	300		0 = Disable 1 = Enable
Control Output 3 (SC5000)	1	10266		0 = Disable 1 = Enable
Control Output 4 (SC5000)	1	10267		0 = Disable 1 = Enable
<b>ON-DEMAND OPTIONS</b>				
PLC IP Address	2	10422		Length: 7 to 15
Tag Name	2	10423		Length: 0 to 32
PLC Slot Number	0	10421		Range: 0 to 15
<b>MESSAGE OPTIONS</b>				
Message Format	1	10418		0 = ASCII 1 = Binary
ASCII Message Byte Swap	1	10419		0 = Disable 1 = Enable

PARAMETER	PT	SHC	DEPTH	VALUE
Binary Message Byte Order	1	10420		0 = Little Endian 1 = Big Endian

## WebSentinel

PARAMETER	PT	SHC	DEPTH	VALUE
<b>WEBSENTINEL</b>				
Enable	1	301		0 = Disable 1 = Enable
WebSentinel Socket	1	302		0 = User Socket 1 1 = User Socket 2 2 = User Socket 3 3 = User Socket 4 4 = User Socket 5 5 = User Socket 6
Conveyor Speed Check Type	1	305		0 = Percent 1 = Absolute
Max Conveyor Speed Percent Error (%)	0	307		Range: 0 to 20
Max Conveyor Speed Absolute Error (mm/s)	0	308		Range: 0 to 3000
Input timeout (secs)	0	310		Range: 3 to 10

### 4.2.6 Fieldbus

PARAMETER	PT	SHC	DEPTH	VALUE
<b>FIELDBUS SETTINGS (SC5000 FIELBUS MODEL or CBX GATEWAY with FIELDBUS MODULE)</b>				
Fieldbus Type	1	10304		0 = None 1 = Profibus 6 = Profinet
Data Tx	1	10189		0 = Disable 1 = Enable
Heartbeat	1	10190		0 = Disable 1 = Enable Unconditioned 2 = Enable Conditioned
<b>HEARTBEAT SETTINGS</b>				
Heartbeat Timeout (sec)	0	10191		Range: 1 to 3600
Heartbeat Message	3	10192		Length: 0 to 32
Heartbeat Terminator	3	10193		Length: 0 to 32
<b>FLOW CONTROL SETTINGS</b>				
Baud Rate	2	10199		Length: 0 to 32



PARAMETER	PT	SHC	DEPTH	VALUE
Data Flow Control	1	10204		0 = Disable 1 = DPD Driver 2 = DAD Driver
Consistency	1	10207		0 = Disable 1 = Enable
<b>PROFIBUS SETTINGS</b>				
Master Input Area Size	0	10200		Range: 8 to 144
Master Output Area Size	0	10201		Range: 8 to 144
Node Address	0	10309		Range: 0 to 126
<b>PROFINET SETTINGS</b>				
Master Input Area Size	0	10312		Range: 8 to 56
Master Output Area Size	0	10313		Range: 8 to 56
<b>PROFINET ETHERNET SETTINGS</b>				
Station Name	2	10322		Max Length: 240
MAC Address (READ-ONLY)	2	10321		Length: 12
MAC Address 1 (READ-ONLY)	2	10315		Length: 12
MAC Address 2 (READ-ONLY)	2	10316		Length: 12
Ethernet Bus Rate (READ-ONLY)	2	10317		Length: 1 to 32
IP Addressing	1	10323		0 = Static Assignment 1 = DHCP 2 = Remote Assignment
IP Address	2	10318		Max Length: 7 to 15
IP Netmask	2	10319		Max Length: 7 to 15
IP Gateway	2	10320		Max Length: 7 to 15
<b>DIGITAL INPUT LINES</b>				
Trigger (Input 1) Echo	1	10211		0 = Disable 1 = Enable
Aux (Input 3) Echo	1	10212		0 = Disable 1 = Enable
I/O 4 (Input 4) Echo (SC5000)	1	10264		0 = Disable 1 = Enable
Phase Echo	1	10231		0 = Disable 1 = Enable
<b>DIGITAL OUTPUT LINES</b>				
Control Output 1	1	10214		0 = Disable 1 = Enable
Control Output 2	1	10215		0 = Disable 1 = Enable
Control Output 3 (SC5000 Only)	1	10262		0 = Disable 1 = Enable

PARAMETER	PT	SHC	DEPTH	VALUE
Control Output 4 (SC5000 Only)	1	10263		0 = Disable 1 = Enable

## 4.2.7 Messaging

### Message Format

PARAMETER	PT	SHC	DEPTH	VALUE
<b>MESSAGING FORMATTING</b>				
Special Host Protocol	1	532		0 = None 1 = Crisplant 2 = Mettler Toledo
Message Format	1	381		0 = Standard 1 = Advanced
Header TX Start	1	376		0 = With Data 1 = After Reading Phase On
Termination After No Read Message	1	378		0 = Disable 1 = Enable
Message Tx Selection	1	379		0 = On Decoding 1 = After Reading Phase Off
Maximum Tx Delay After Phase Off (ms) (for Master)	1	411		50 = 50 60 = 60 70 = 70 80 = 80 90 = 90 100 = 100 110 = 110 120 = 120 130 = 130 140 = 140 150 = 150 160 = 160 170 = 170 180 = 180 190 = 190 200 = 200 250 = 250 300 = 300 500 = 500

PARAMETER	PT	SHC	DEPTH	VALUE
Max Tx Delay After Phase Off (ms) (for Stand Alone)	1	385		0 = Disabled 50 = 50 60 = 60 70 = 70 80 = 80 90 = 90 100 = 100 110 = 110 120 = 120 130 = 130 140 = 140 150 = 150 160 = 160 170 = 170 180 = 180 190 = 190 200 = 200 250 = 250 300 = 300 500 = 500
<b>STANDARD FORMAT</b>				
Header String	3	413		Length: 0 to 128
Termination String	3	421		Length: 0 to 128
Data Packet Separators	3	422		Length: 0 to 128
Code Direction Identifier Enable	1	417		0 = Disable 1 = Enable
Forward Direction String	3	418		Length: 0 to 32
Reverse Direction String	3	419		Length: 0 to 32
Unknown Direction String	3	420		Length: 0 to 32
Code Field Length Setting	1	423		0 = Variable Length 1 = Fixed Length
Code Field Length	0	425		Range: 0 to 48
Data Justification	1	426		0 = Left 1 = Right
Fill Character	3	428		Length: 0 to 1
Code Identifier	1	387		0 = Disabled 1 = Standard AIM ID 2 = User Specified
<b>STANDARD FORMAT CUSTOM CODE IDENTIFIER STRINGS</b>				
Code 128 Identifier String	3	390		Length: 0 to 32
Interleaved 2/5 Identifier String	3	391		Length: 0 to 32
Code 39 Identifier String	3	392		Length: 0 to 32
GS1-128 Identifier String	3	393		Length: 0 to 32
EAN 13 Identifier String	3	394		Length: 0 to 32
EAN 13 + Add-on 2 Identifier String	3	395		Length: 0 to 32
EAN 13 + Add-on 5 Identifier String	3	396		Length: 0 to 32
EAN 8 Identifier String	3	397		Length: 0 to 32

PARAMETER	PT	SHC	DEPTH	VALUE
EAN 8 + Add-on 2 Identifier String	3	398		Length: 0 to 32
EAN 8 + Add-on 5 Identifier String	3	399		Length: 0 to 32
UPC-A Identifier String	3	400		Length: 0 to 32
UPC-A + Add-on 2 Identifier String	3	401		Length: 0 to 32
UPC-A + Add-on 5 Identifier String	3	402		Length: 0 to 32
UPC-E Identifier String	3	403		Length: 0 to 32
UPC-E + Add-on 2 Identifier String	3	404		Length: 0 to 32
UPC-E + Add-on 5 Identifier String	3	405		Length: 0 to 32
Codabar Identifier String	3	406		Length: 0 to 32
Code 93 Identifier String	3	407		Length: 0 to 32

### Crisplant Protocol

PARAMETER	PT	SHC	DEPTH	VALUE
<b>CRISPLANT PROTOCOL</b>				
Port to Use	1	10396		0 = Main 1 = Aux 2 = Socket1 3 = Socket2 4 = Socket3 5 = Socket4 6 = Socket5 7 = Socket6
Crisplant Manufacturer ID	2	520		Length: 1
Heartbeat Message	1	521		0 = Disable 1 = Enable
Heartbeat Message Timing (ms)	0	522		Range: 40 to 60000
Crisplant Protocol Type	1	523		0 = CSC 1 = CMC 2 = P10
Discard Read on Missing Index	1	528		0 = Disable 1 = Enable

**Mettler Toledo Protocol**

PARAMETER	PT	SHC	DEPTH	VALUE
<b>METTLER TOLEDO PROTOCOL</b>				
Conveyor Direction Input	1	480		0 = Trigger (Input 1) 1 = Aux (Input 3) 3 = I/O 4 (Input 4)
SW Divide Encoder Frequency	1	471		0 = Disable 1 = Enable
<b>MESSAGE DEFINITION</b>				
Header	3	467		Length: 0 to 128
Trailer	3	468		Length: 0 to 128
Heartbeat Enable	1	477		0 = Disable 1 = Enable
Heartbeat Timeout (ms)	0	478		Range: 40 to 60000
Heartbeat Message	3	479		Length: 0 to 16
Code Field Length Setting	1	465		0 = Fixed Length 1 = Variable Length
Code Field Length	0	466		Range: 0 to 48
Data Justification	1	469		0 = Left 1 = Right
Fill Character	3	470		Length: 0 to 1
Add AIM Prefix	1	473		0 = Disable 1 = Enable
AM/PM Behaviour	1	474		0 = Disable 1 = Enable
AM Message Target	1	475		0 = Main 1 = Aux 2 = Socket1 3 = Socket2 4 = Socket3 5 = Socket4 6 = Socket5 7 = Socket6
Spontaneous Status Message	1	484		0 = Disable 1 = Enable
Multi Tx Transport Disabled	1	485		0 = Disable 1 = Enable
Purolator Custom Check	1	534		0 = Disable 1 = Enable
<b>CODE FILTERS</b>				
Enable UPS Code Filter	1	491		0 = Disable 1 = Enable
Enable German Post 2/5 IL Code Filter	1	511		0 = Disable 1 = Enable
Enable SSCC-18 Code Filter	1	512		0 = Disable 1 = Enable
Enable DPD Code Filter	1	513		0 = Disable 1 = Enable

PARAMETER	PT	SHC	DEPTH	VALUE
<b>UPS CODE FILTERS</b>				
Tracking Label – Starts with '1Z'	1	493		0 = Disable 1 = Enable
Service Upgrade Label – Starts with '403' Length is 8	1	494		0 = Disable 1 = Enable
<b>PTN CODE FILTERS</b>				
Select all PTN type codes except codes below (that must be selected)	1	496		0 = Disable 1 = Enable
Starts with '400'	1	497		0 = Disable 1 = Enable
Starts with '420'	1	498		0 = Disable 1 = Enable
Starts with '421'	1	499		0 = Disable 1 = Enable
Starts with '51L'	1	500		0 = Disable 1 = Enable
Starts with '52L'	1	501		0 = Disable 1 = Enable
Starts with '54L'	1	502		0 = Disable 1 = Enable
Starts with '55L'	1	503		0 = Disable 1 = Enable
<b>POSTAL CODE FILTERS</b>				
Starts with '420' Length is 8 or 12	1	505		0 = Disable 1 = Enable
Starts with '421' Length is from 6 to 15	1	506		0 = Disable 1 = Enable
Starts with '51L' Length is 8, 9, or 12	1	507		0 = Disable 1 = Enable
Starts with '52L' Length is 8, 9, or 12	1	508		0 = Disable 1 = Enable
Starts with '54L' Length is from 6 to 19	1	509		0 = Disable 1 = Enable
Starts with '55L' Length is from 6 to 19	1	510		0 = Disable 1 = Enable
<b>DPD CODE FILTERS</b>				
I 2of5 Code, Length is 10	1	515		0 = Disable 1 = Enable
I 2of5 Code, Length is 12	1	516		0 = Disable 1 = Enable
I 2of5 Code, Starts with '0', Length is 4	1	517		0 = Disable 1 = Enable
I 2of5 Code, Starts with '90', Length is 4	1	518		0 = Disable 1 = Enable
Code 128, Length is 28	1	519		0 = Disable 1 = Enable

PARAMETER	PT	SHC	DEPTH	VALUE
<b>DIAGNOSTIC MESSAGES</b>				
Diagnostic Data on Serial Channel N (DEPTH: N = 1 Main, 2 Aux)	1	486	1 to 2	0 = Disable 1 = Enable
Diagnostic Data on User Socket N	1	487	1 to 6	0 = Disable 1 = Enable
<b>DEBUG MESSAGES</b>				
Debug Data on Serial Channel N (DEPTH: N = 1 Main, 2 Aux)	1	488	1 to 2	0 = Disable 1 = Enable
Debug Data on User Socket N	1	489	1 to 6	0 = Disable 1 = Enable

### Statistics

PARAMETER	PT	SHC	DEPTH	VALUE
<b>STATISTICS</b>				
Enable	1	544		0 = Disable 1 = Enable
Separator	3	545		Length: 0 to 32
Time (hh mm)	1	546		0 = Disable 1 = Enable
Trigger Counter	1	547		0 = Disable 1 = Enable
Good Read Counter	1	548		0 = Disable 1 = Enable
No Read Counter	1	550		0 = Disable 1 = Enable
Multiple Read Counter	1	551		0 = Disable 1 = Enable

### Protocol Index

PARAMETER	PT	SHC	DEPTH	VALUE
<b>PROTOCOL INDEX / AUX MESSAGE</b>				
Protocol Index	1	90		0 = Disable 1 = Enable
<b>MAIN/AUXSERIAL PORTS (DEPTH: N = 1 Main, 2 Aux)</b>				
Receive On N Serial Port	1	111	1 to 2	0 = Disable 1 = Enable Without Request Message 2 = Enable With Request Message

PARAMETER	PT	SHC	DEPTH	VALUE
Protocol Index Type	1	10409	1 to 2	0 = Standard 1 = Volume 2 = Scale 3 = Image Name
Message Header	3	113	1 to 2	Length: 1
Message Terminator	3	115	1 to 2	Length: 1
Message Length	1	117	1 to 2	0 = Length In Message 1 = Variable length 2 = 2 3 = 3 4 = 4 5 = 5 ... 99 = 99
No Index Message Char	3	119	1 to 2	Length: 1
Request Message	3	121	1 to 2	Length: 1 to 32
Distance from Message Receipt to Trigger (mm)	0	123	1 to 2	Range:0 to 32765
<b>USER SOCKET #N (DEPTH: N = 1 to 6)</b>				
Receive On Socket N	1	112	1 to 6	0 = Disable 1 = Enable Without Request Message 2 = Enable With Request Message
Protocol Index Type	1	10410	1 to 6	0 = Standard 1 = Volume 2 = Scale 3 = Image Name
Message Header	3	114	1 to 6	Length: 1
Message Terminator	3	116	1 to 6	Length: 1
Message Length	1	118	1 to 6	0 = Length In Message 1 = Variable length 2 = 2 3 = 3 4 = 4 5 = 5 ... 99 = 99
No Index Message Char	3	120	1 to 6	Length: 1
Request Message	3	122	1 to 6	Length: 1 to 32
Distance from Message Receipt to Trigger (mm)	0	124	1 to 6	Range:0 to 32765



## Pass Through

PARAMETER	PT	SHC	DEPTH	VALUE
<b>PASS THROUGH SETTINGS</b>				
Maximum String Length (Main)	0	566		Range: 0 to 65535
Termination String (Main)	3	567		Length: 0 to 32
Maximum String Length (Aux)	0	559		Range: 0 to 65535
Termination String (Aux)	3	560		Length: 0 to 32
Maximum String Length User Socket N	0	572	1 to 6	Range: 0 to 65535
Termination String User Socket N	3	573	1 to 6	Length: 0 to 32
<b>SOURCE</b>				
Main Serial Port	1	564		0 = Disable 1 = Enable
Aux Serial Port	1	557		0 = Disable 1 = Enable
User Socket N	1	570	1 to 6	0 = Disable 1 = Enable
<b>DESTINATION</b>				
Main to Aux	1	568		0 = Disable 1 = Enable
Main to User Socket N	1	569	1 to 6	0 = Disable 1 = Enable
Aux to Main	1	561		0 = Disable 1 = Enable
Aux to User Socket N	1	562	1 to 6	0 = Disable 1 = Enable
User Socket N to Main	1	574	1 to 6	0 = Disable 1 = Enable
User Socket N to Aux	1	575	1 to 6	0 = Disable 1 = Enable
User Socket N to User Socket N	1	576	See table below	0 = Disable 1 = Enable



**NOTE:** The **Source** User Socket cannot be the same as the **Destination** User Socket.

User Socket Source to Destination Depth Table		Source					
		User Socket 1	User Socket 2	User Socket 3	User Socket 4	User Socket 5	User Socket 6
Destination	User Socket 1	-	#13	#19	#25	#31	#37
	User Socket 2	#8	-	#20	#26	#32	#38
	User Socket 3	#9	#15	-	#27	#33	#39
	User Socket 4	#10	#16	#22	-	#34	#40
	User Socket 5	#11	#17	#23	#29	-	#41
	User Socket 6	#12	#18	#24	#30	#36	-

## Diagnostic Messages

PARAMETER	PT	SHC	DEPTH	VALUE
<b>ERROR MESSAGES</b>				
Transmit Mode	1	599		0 = On Timeout 1 = With Code"
TX Refresh	1	591		1 = 1 sec 2 = 2 sec 5 = 5 sec 10 = 10 sec 20 = 20 sec 30 = 30 sec 60 = 1 min 300 = 5 min"
Message Position	1	593		0 = Append to Code 1 = Replace Code
<b>MESSAGE FORMAT</b>				
Header String	3	602		Length: 0 to 128
Terminator String	3	603		Length: 0 to 128
Error Message Type	1	604		0 = Numeric 1 = Global String
Global String	3	606		Length: 0 to 32
<b>DESTINATION</b>				
Main Serial Port	1	596		0 = Disable 1 = Enable
Aux Serial Port	1	595		0 = Disable 1 = Enable
User Socket:N	1	598	1 to 6	0 = Disable 1 = Enable
EtherNet/IP	1	597		0 = Disable 1 = Enable
Profibus\Profinet	1	10326		0 = Disable 1 = Enable
<b>PACKTRACK MESSAGES</b>				
PackTrack Debug Message Enable	1	577		0 = Disable 1 = Enable
PackTrack Debug Message Port	1	578		0 = Main 1 = Aux 2 = Socket1 3 = Socket2 4 = Socket3 5 = Socket4 6 = Socket5 7 = Socket6
PackTrack Debug Message Digital Input	1	580		0 = None 1 = Trigger (Input 1) 2 = Aux (Input 3) 3 = I/O 4 (Input 4)

### 4.2.8 Digital I/O Setting

PARAMETER	PT	SHC	DEPTH	VALUE
<b>BIDIRECTIONAL LINE SETUP</b>				
I/O 4 Direction (SC5000)	1	10261		0 = Input 1 = Output
<b>DIGITAL INPUT LINES</b>				
Trigger(Input 1) Active Level <i>Overridden by Operating Mode</i>	1	334		0 = Active Closed 1 = Active Open
Aux (Input 3) Active Level <i>Overridden By Operating Mode</i>	1	335		0 = Active Closed 1 = Active Open
I/O 4 (Input 4) Active Level <i>Overridden By Operating Mode</i>	1	10065		0 = Active Closed 1 = Active Open
<b>DIGITAL OUTPUT LINES / OUTPUT 1</b>				
Digital Output 1 Use	1	10297		0 = Redundancy 1 = Local 2 = Ethernet/IP 3 = Fieldbus
Digital Output 1 Line State	1	338		0 = Normally Open 1 = Normally Closed
Primary Activation Event	1	339		0 = None 1 = Complete Read 2 = Partial Read 3 = No Read 5 = Phase On 6 = Phase Off 8 = Multiple Read 9 = Right 10 = Wrong
Secondary Activation Event	1	342		0 = None 1 = Complete Read 2 = Partial Read 3 = No Read 5 = Phase On 6 = Phase Off 8 = Multiple Read 9 = Right 10 = Wrong
Primary Deactivation Event	1	344		0 = None 5 = Phase On 6 = Phase Off 7 = Timeout
Secondary Deactivation Event	1	361		0 = None 5 = Phase On 6 = Phase Off
Activate On Error	1	348		0 = Disable 1 = Enable
Deactivate On Clear Error	1	349		0 = Disable 1 = Enable
Deactivation Timeout (ms)	0	351		Range: 40 to 15000

PARAMETER	PT	SHC	DEPTH	VALUE
<b>DIGITAL OUTPUT LINES / OUTPUT 2</b>				
Digital Output 2 Use	1	10299		0 = Redundancy 1 = Local 2 = Ethernet/IP 3 = Fieldbus
Digital Output 2 Line State	1	353		0 = Normally Open 1 = Normally Closed
Primary Activation Event	1	354		0 = None 1 = Complete Read 2 = Partial Read 3 = No Read 5 = Phase On 6 = Phase Off 8 = Multiple Read 9 = Right 10 = Wrong
Secondary Activation Event	1	355		0 = None 1 = Complete Read 2 = Partial Read 3 = No Read 5 = Phase On 6 = Phase Off 8 = Multiple Read 9 = Right 10 = Wrong
Primary Deactivation Event	1	356		0 = None 5 = Phase On 6 = Phase Off 7 = Timeout
Secondary Deactivation Event	1	357		0 = None 5 = Phase On 6 = Phase Off
Activate On Error	1	358		0 = Disable 1 = Enable
Deactivate On Clear Error	1	359		0 = Disable 1 = Enable
Deactivation Timeout (ms)	0	360		Range: 40 to 15000
<b>DIGITAL OUTPUT LINES / OUTPUT 3 (SC5000 Only)</b>				
Digital Output 3 Use	1	10300		0 = Redundancy 1 = Local 2 = Ethernet/IP 3 = Fieldbus
Digital Output 3 Line State	1	790		0 = Normally Open 1 = Normally Closed

PARAMETER	PT	SHC	DEPTH	VALUE
Primary Activation Event	1	791		0 = None 1 = Complete Read 2 = Partial Read 3 = No Read 5 = Phase On 6 = Phase Off 8 = Multiple Read 9 = Right 10 = Wrong
Secondary Activation Event	1	792		0 = None 1 = Complete Read 2 = Partial Read 3 = No Read 5 = Phase On 6 = Phase Off 8 = Multiple Read 9 = Right 10 = Wrong
Primary Deactivation Event	1	793		0 = None 5 = Phase On 6 = Phase Off 7 = Timeout
Secondary Deactivation Event	1	794		0 = None 5 = Phase On 6 = Phase Off
Activate On Error	1	795		0 = Disable 1 = Enable
Deactivate On Clear Error	1	796		0 = Disable 1 = Enable
Deactivation Timeout (ms)	0	798		Range: 40 to 15000
<b>DIGITAL OUTPUT LINES / OUTPUT 4 (SC5000 Only)</b>				
Digital Output 4 Use	1	10301		0 = Redundancy 1 = Local 2 = Ethernet/IP 3 = Fieldbus
Digital Output 4 Line State	1	690		0 = Normally Open 1 = Normally Closed
Primary Activation Event	1	691		0 = None 1 = Complete Read 2 = Partial Read 3 = No Read 5 = Phase On 6 = Phase Off 8 = Multiple Read 9 = Right 10 = Wrong

PARAMETER	PT	SHC	DEPTH	VALUE
Secondary Activation Event	1	692		0 = None 1 = Complete Read 2 = Partial Read 3 = No Read 5 = Phase On 6 = Phase Off 8 = Multiple Read 9 = Right 10 = Wrong
Primary Deactivation Event	1	693		0 = None 5 = Phase On 6 = Phase Off 7 = Timeout
Secondary Deactivation Event	1	694		0 = None 5 = Phase On 6 = Phase Off
Activate On Error	1	695		0 = Disable 1 = Enable
Deactivate On Clear Error	1	696		0 = Disable 1 = Enable
Deactivation Timeout (ms)	0	697		Range: 40 to 15000

### 4.2.9 Diagnostics

PARAMETER	PT	SHC	DEPTH	VALUE
<b>DIAGNOSTIC SETTINGS</b>				
Sample Time	1	587		1 = 1 sec 2 = 2 sec 5 = 5 sec 10 = 10 sec 30 = 30 sec 60 = 1 min
Report Slave Scanner Diagnostics	1	607		0 = Disable 1 = Enable
No Scan Signal Failure	1	609		0 = Disable 1 = Enable
ADP Sensor Failure	1	10241		0 = Disable 1 = Enable
In-the-Beam Sensor Failure	1	10242		0 = Disable 1 = Enable
Rotor Facet Failure	1	10243		0 = Disable 1 = Enable
Precise Time Protocol Failure	1	10244		0 = Disable 1 = Enable
SD Card Failure	1	10269		0 = Disable 1 = Enable
Start/Stop Input Failure	1	613		0 = Disable 1 = Enable
No Phase Timeout	1	611		0 = Disable 1 = 1 sec 2 = 5 sec 3 = 10 sec 4 = 20 sec 5 = 1 min 6 = 5 min 7 = 10 min 8 = 20 min
Presence Sensor Failure	1	614		0 = Disable 1 = Enable
Presence Sensor Stuck Timeout	1	615		0 = Disable 1 = 1 sec 2 = 2 sec 5 = 5 sec 10 = 10 sec 30 = 30 sec 60 = 1 min
Encoder Timeout	1	618		0 = Disable 1 = 1 sec 2 = 2 sec 5 = 5 sec 10 = 10 sec 30 = 30 sec 60 = 1 min
Encoder Failure	1	617		0 = Disable 1 = Enable

PARAMETER	PT	SHC	DEPTH	VALUE
Motor Warning	1	620		0 = Disable 1 = Enable
Motor Failure	1	621		0 = Disable 1 = Enable
Motor Life End	1	622		0 = Disable 1 = Enable
Laser Failure	1	623		0 = Disable 1 = Enable
Laser Life End	1	624		0 = Disable 1 = Enable
Protocol Index Alarms	1	625		0 = Disable 1 = Enable
Maximum Consecutive Lost Protocol Indexes	0	626		Range: 2 to 20
Maximum % of Lost Protocol Indexes	0	627		Range: 2 to 100

#### 4.2.10 Energy Saving

PARAMETER	PT	SHC	DEPTH	VALUE
<b>ENERGY SAVING</b>				
Energy Saving Configuration	1	230		0 = Disable 1 = Enable
<b>ACTIVATION &amp; DEACTIVATION</b>				
Use Digital Input For	1	246		0 = None 1 = Deactivation 2 = Activation 3 = Activation & Deactivation
Select Digital Input	1	247		0 = Trigger (Input 1) 1 = Aux (Input 3) 3 = I/O 4 (Input 4)
Select Event Type	1	249		0 = Edge 1 = Level
Use Encoder For	1	362		0 = None 1 = Deactivation 2 = Activation 3 = Activation & Deactivation
Activation Encoder Timeout	1	363		5 = 5 min 10 = 10 min 15 = 15 min 20 = 20 min 25 = 25 min 30 = 30 min



PARAMETER	PT	SHC	DEPTH	VALUE
Deactivation Encoder Timeout	1	365		5 = 5 sec 10 = 10 sec 20 = 20 sec 30 = 30 sec 1 = 1 min 2 = 2 min
<b>ACTIVATION &amp; DEACTIVATION (DEPTH: N = 1 Main, 2 Aux)</b>				
Use N Serial Port For	1	232	1 to 2	0 = None 1 = Deactivation 2 = Activation 3 = Activation & Deactivation
Header	3	236	1 to 2	Length: 0 to 1
Terminator	3	237	1 to 2	Length: 0 to 1
Activation String	2	238	1 to 2	Length: 0 to 10
Deactivation String	2	239	1 to 2	Length: 0 to 10
<b>ETHERNET / SOCKET #N (DEPTH: N = 1 to 6)</b>				
Use Socket N For	1	240	1 to 6	0 = None 1 = Deactivation 2 = Activation 3 = Activation & Deactivation
Header	3	241	1 to 6	Length: 0 to 1
Terminator	3	242	1 to 6	Length: 0 to 1
Activation String	2	243	1 to 6	Length: 0 to 10
Deactivation String	2	244	1 to 6	Length: 0 to 10

#### 4.2.11 HMI Settings

PARAMETER	PT	SHC	DEPTH	VALUE
<b>LED SETTINGS</b>				
Partial Read Is Treated As	1	201		0 = No Read 1 = Good Read
Multiple Read Is Treated As	1	203		0 = No Read 1 = Good Read
Indicate Errors On Master	1	589		0 = Disable 1 = Enable
Read LED Timeout	1	542		0 = Disabled 1 = 1 sec 2 = 2 sec 5 = 5 sec 10 = 10 sec 30 = 30 sec 60 = 60 sec 120 = 120 sec

PARAMETER	PT	SHC	DEPTH	VALUE
<b>XPRESS SETTINGS</b>				
XPRESS Button Enable	1	536		1 = Unlocked 2 = Locked
Test Mode Exit Timeout	1	538		0 = Disabled 1 = 1 sec 2 = 2 sec 5 = 5 sec 10 = 10 sec 30 = 30 sec 60 = 60 sec 120 = 120 sec
Auto Learn Exit Timeout	1	540		0 = Disabled 1 = 1 sec 2 = 2 sec 5 = 5 sec 10 = 10 sec 30 = 30 sec 60 = 60 sec 120 = 120 sec
<b>DISPLAY SETTINGS (SC5000)</b>				
Display Warnings as Alarms	1	10268		0 = Disable 1 = Enable
User Interface Type	1	10260		0 = Standard 1 = US Airports
'Last Code Read' Display	1	10259		0 = Disable 1 = Statistics (Last 100 Codes) 2 = Statistics
Enable Last 10 Codes Display	1	10258		0 = Disable 1 = Enable

#### 4.2.12 Redundant Operation (SC5000 only)

PARAMETER	PT	SHC	DEPTH	VALUE
<b>REDUNDANCY SETTINGS</b>				
Redundancy Enable/Disable	1	10271		0 = Disable 1 = Enable
Redundancy Topology Role	1	10273		0 = Master Alone 1 = Master Working 2 = Master Protecting
Redundancy Role Type	1	10274		0 = None 1 = Active 2 = Standby
IP Selector	1	10275		0 = Topology Role 1 = Redundancy Role
WebSentinel Operating Mode	1	10272		0 = Standard 1 = Redundant
Power Input Enable/Disable	1	10324		0 = Disable 1 = Enable

PARAMETER	PT	SHC	DEPTH	VALUE
Power Input Type	1	10290		0 = Trigger (Input 1) 1 = Aux (Input 3) 3 = I/O 4 (Input 4)
Active Output Enable/Disable	1	10325		0 = Disable 1 = Enable
Active Output	1	10296		1 = Output1 2 = Output2 3 = Output3 4 = Output4
<b>SWITCHOVER PARAMETERS</b>				
Consecutive Package Lost Enable	1	10282		0 = Disable 1 = Enable
Consecutive Package Lost Threshold	0	10283		Range: 2 to 20
Percentage Package Lost Enable	1	10284		0 = Disable 1 = Enable
Percentage Package Lost Threshold	0	10285		Range: 2 to 100

#### 4.2.13 Hybrid Configuration (SC5000 only)

PARAMETER	PT	SHC	DEPTH	VALUE
<b>HYBRID SETTINGS</b>				
Hybrid Enable/Disable	1	10402		0 = Disable 1 = Enable
Hybrid Server Socket Port	0	10408		Range: 0 to 65536

### 4.3 DEVICE SETTINGS

#### 4.3.1 Options

PARAMETER	PT	SHC	DEPTH	VALUE
<b>SCANNER OPTIONS</b>				
Barcode Reconstruction	1	10187		0 = Disable 1 = Enable
Enable Stacked Codes	1	10335		0 = Disable 1 = Enable
<b>ADVANCED READING SETTINGS</b>				
Overflow Start Ratio	0	10336		Range: 1 to 50
Overflow Stop Ratio	0	10337		Range: 1 to 50

## A TABLES

### CONTROL RULES TABLE

This paragraph provides a list of the most important control rules that can be applied to the DS8110, DX8210 and SC5000 parameters.

PARAMETER	CONTROL RULES
<b>CODE DEFINITION</b>	
Code Combination	Must be $\neq$ <i>Single Label</i> and $\neq$ <i>Code Collection</i> if <a href="#">Special Host Protocol</a> = <i>Crisplant</i> . Must be $\neq$ <i>Standard Multi Label</i> and $\neq$ <i>Logical Combination</i> if <a href="#">Operating Mode Selection</a> = <i>Continuous</i> . Must be $\neq$ <i>Code Collection</i> if <a href="#">No Read Message</a> = <i>Local No Read(s) Message</i> .
No Read Message	Must be $\neq$ <i>Local No Read(s) Message</i> if <a href="#">Code Combination</a> = <i>Single Label</i> . Must be $\neq$ <i>Local No Read(s) Message</i> if <a href="#">Code Combination</a> = <i>Code Collection</i> .
Associate Same Codes When Coming From Different Scanners	Not available if <a href="#">Role</a> $\neq$ <i>Master</i> and <a href="#">Code Combination</a> $\neq$ <i>Code Collection</i> .
<b>BARCODE SETTINGS TABLE Barcode #N (DEPTH: n = 1 to 10)</b>	
Minimum Label Length	Value must be $\leq$ <a href="#">Maximum Label Length</a>
Maximum Label Length	Value must be $\geq$ <a href="#">Minimum Label Length</a>
<b>OPERATING MODE</b>	
Operating Mode Selection	Must be $\neq$ <i>Continuous</i> if <a href="#">Special Host Protocol</a> = <i>Crisplant</i> .
On Line Options	Must be $\neq$ <a href="#">On Line Options</a> <i>Serial/Network</i> if <a href="#">Special Host Protocol</a> = <i>Crisplant</i> .
Stop Phase Edge (only for On Line 2 Input)	Must be $\neq$ <i>Leading</i> if <a href="#">Extended Phase</a> = <i>Enable</i>
<b>VERIFIER</b>	
Code Verifier	Not available if <a href="#">Code Combination</a> $\neq$ <i>Single Label</i> . Not available if <a href="#">Operating Mode Selection</a> $\neq$ <i>On Line</i>
<b>DATA COMMUNICATION SETTING</b>	
Special Host Protocol	Must be $\neq$ <i>Crisplant</i> if <a href="#">Operating Mode Selection</a> $\neq$ <i>On Line</i> . Must be $\neq$ <i>Crisplant</i> if <a href="#">On Line Options</a> = <i>Serial On Line</i> . Must be $\neq$ <i>Crisplant</i> if <a href="#">Main Port Communication Mode</a> $\neq$ <i>Standard</i> . Must be $\neq$ <i>Crisplant</i> if Aux Serial Port Pass Through <a href="#">Source</a> or <a href="#">Destination</a> = <i>Enable</i> .

PARAMETER	CONTROL RULES
<b>MAIN SERIAL PORT</b>	
Main Port Communication Mode	Must be = Standard if <a href="#">Special Host Protocol</a> $\neq$ <i>Standard</i> .
<b>PASS THROUGH</b>	
Aux Serial Port	<a href="#">Source</a> and <a href="#">Destination</a> must be = Disable if <a href="#">Special Host Protocol</a> $\neq$ <i>Standard</i> .
<b>DIGITAL OUTPUT LINES SETTING</b>	
Primary Activation Event, Secondary Activation Event	Not available if <a href="#">Activate On Error</a> = <i>Enabled</i> .
Primary Deactivation Event, Secondary Deactivation Event	Not available if <a href="#">Deactivate On Clear Error</a> = <i>Enabled</i> .

## ERROR CODES TABLE

This paragraph provides a list of the most important error codes.

CODE	INTERPRETATION
<b>COMMAND PARSING</b>	
-3	Parameter does not exist.
-4	Invalid range.
-8	Wrong syntax error.
-9	Wrong shortcut error.
-12	Path not found.
-13	Unknown command.
-14	Too many parameters in the programming string.
-15	No command is present in the programming string.
-16	Wrong number of parameters in the programming string.
-17	Unexpected error.
-19	One or more parameters are not applicable.
<b>PARAMETERS PROGRAMMING</b>	
3	The current Path is not valid.
7	The current Path is a Folder
8	Parameter Type is not correct.
9	Parameter Value is not correct.
12	One or more Control Rules are not satisfied.
13	Access denied.

## ASCII TABLE

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



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