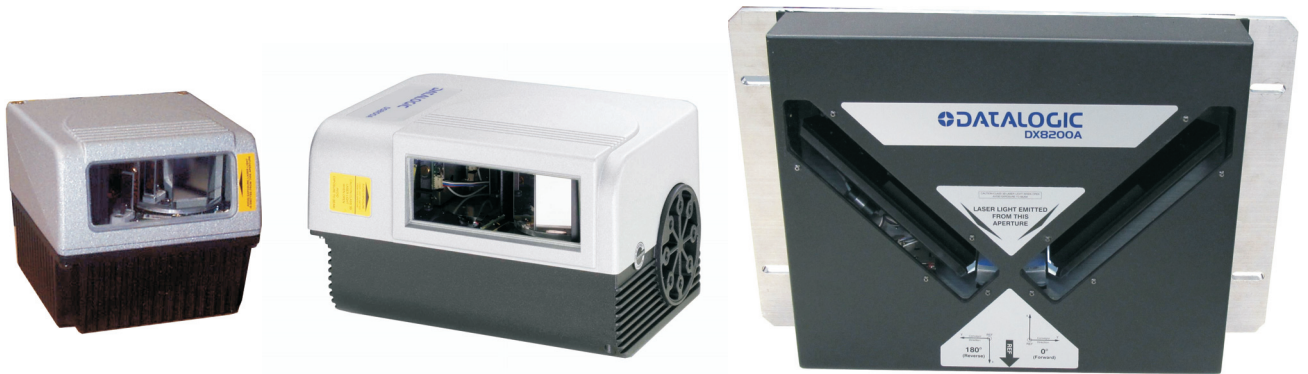




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## 6K-8KA FAMILY



## Host Mode Programming

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6K-8KA Family Host Mode Programming

Ed.: 02/2013

This manual refers to software release 7.00 or later.

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05/02/13

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# 1 HOST MODE PROGRAMMING

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An alternative method of programming the 6K family and the 8KA family laser scanners is by sending programming strings.

These strings must be transmitted from the Host system to the device either on the auxiliary RS232 serial interface or on the main RS232/RS485 serial interface, or, if available, on the Ethernet System Socket. This is called Host Mode Programming.

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



**CAUTION**

*Genius™ must not be connected to the reader through the selected interface before entering in Host Control Mode.*

## 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 9600 bps the command must be sent at 9600 bps).

The selected communication channel must be programmed as follows:

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

Once the programming session has started on one of the interfaces, the other is disabled until programming is over.

## Ethernet System Socket (Server only)

The programming commands and strings must be sent only to the dedicated System socket of the reader.

- Ethernet System Socket Port Number: 51235 (default value)

## 2 PROGRAMMING COMMANDS

### 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; ADDR</b>	<b>&lt;ESC&gt; c &lt;CR&gt;&lt;LF&gt;</b>
	<p><b>ADDR</b> is a character indicating the address of the device in an LONWORKS Master/Slave reading system layout</p> <p><b>ADDR = &lt;30<sub>H</sub>&gt; + &lt;Device Address&gt;</b> where:</p> <ul style="list-style-type: none"> <li>• <b>Device Address = 0:</b> Stand Alone device or Master LONWORKS device</li> <li>• <b>Device Address = 1 to 31:</b> Slave LONWORKS device</li> </ul> <p>This means:</p> <ul style="list-style-type: none"> <li>• <b>ADDR = &lt;30<sub>H</sub>&gt;:</b> Stand Alone device or Master LONWORKS device</li> <li>• <b>ADDR = &lt;31<sub>H</sub>&gt; to &lt;4F<sub>H</sub>&gt;:</b> Slave LONWORKS device</li> </ul> <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; ADDR</b>	<b>&lt;ESC&gt; d &lt;CR&gt;&lt;LF&gt;</b>
	Where <b>ADDR</b> is the address of the device in an LONWORKS Master/Slave layout. This message must always be transmitted to exit from programming mode.		
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>
	This message must always be transmitted to exit from Terminal mode.		
3	<b>Exit Host Mode</b>	<b>&lt;ESC&gt; [ A</b>	<b>&lt;ESC&gt; X &lt;CR&gt;&lt;LF&gt;</b>
	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.		

## 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 3.5). 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 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.		



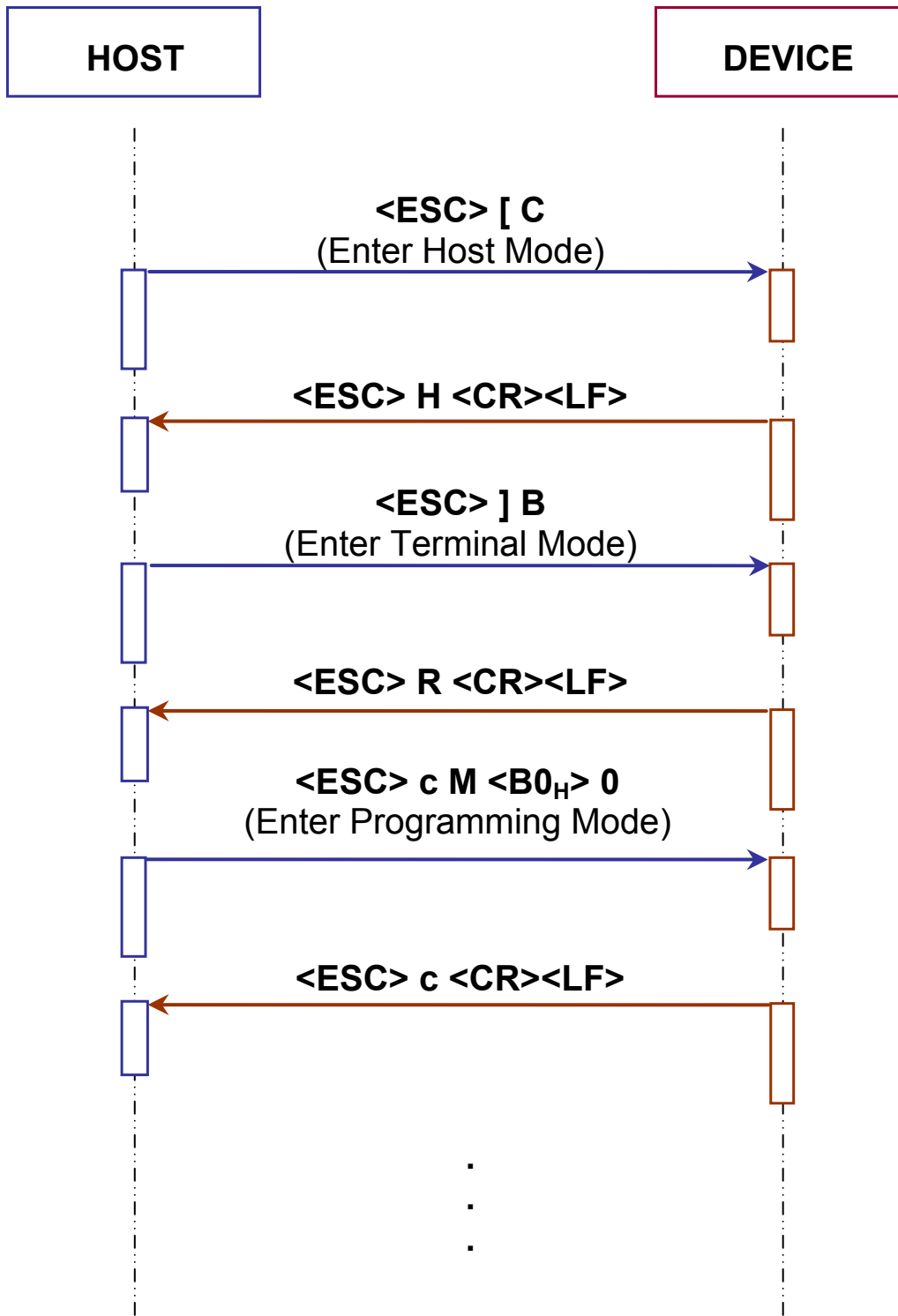


Figure 1 - Connection to Stand Alone Device

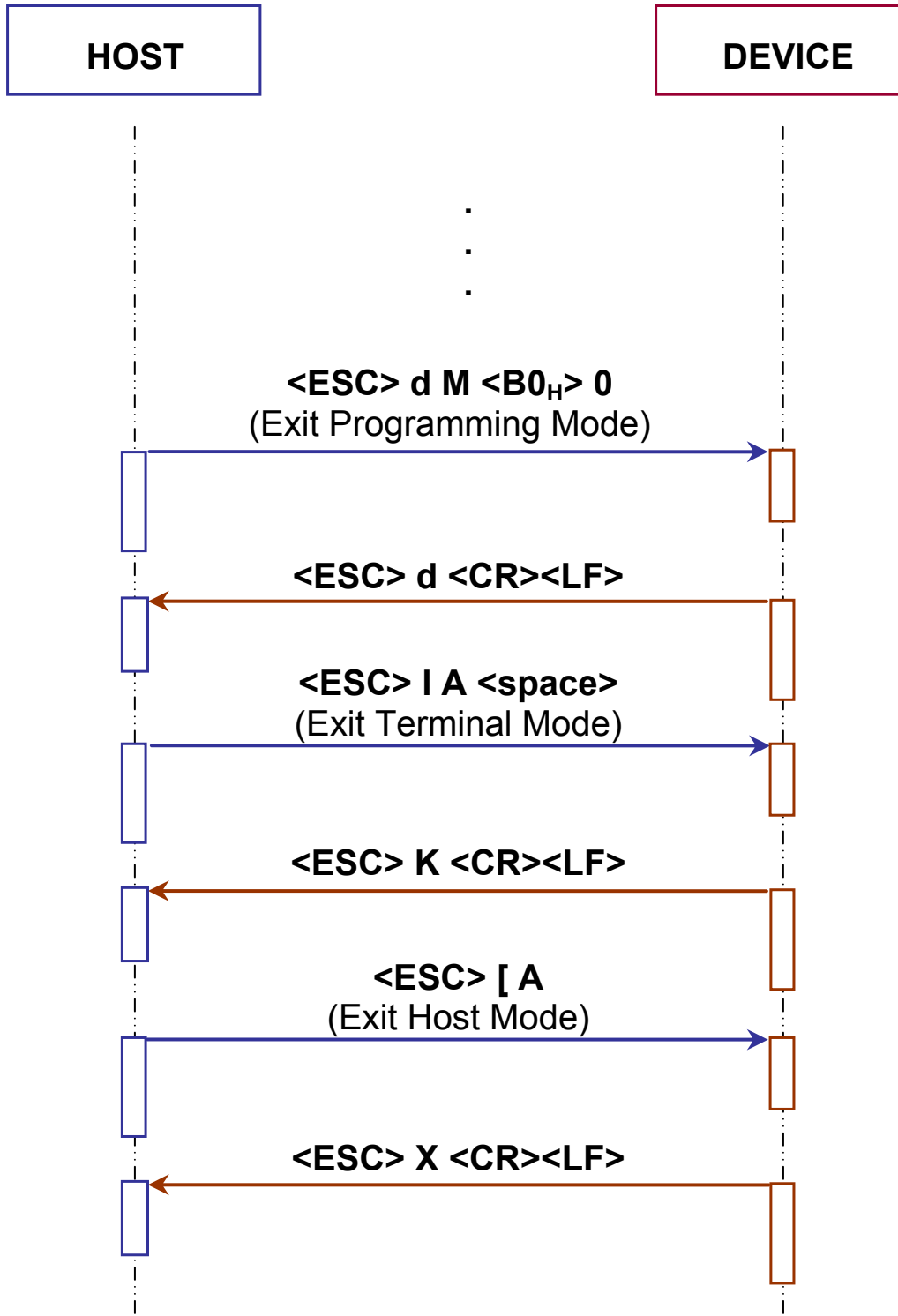


Figure 2 - Disconnection from Stand Alone Device

## 3 PROGRAMMING STRINGS

---

### 3.1 DEFINITIONS

Common definitions for each parameter are:

#### Path

The complete parameter path must have the following format:

**/Folder1[#Depth1]/Folder2[#Depth2]/ ... /FolderN[#DepthN]/Param[#DepthM]**

Where:

- **FolderX:** Folder Name
- **[#DepthX]:** Folder or Parameter Depth (not necessary if equal to 1)
- **Param:** Parameter Name

#### Shortcut (SHC)

The short description replacing the complete parameter path (that allows implementation of shorter programming strings) must have the following format:

**Shortcut [#Depth]**

Where:

- **Shortcut:** Short Parameter Description
- **[#Depth]:** Folder or Parameter Depth (not necessary if equal to 1)

#### Depth (Parameter Depth)

Depth of the parameter indicates if it is made up of a vector of values or a single value (e.g. *Code Symbology* parameter has depth > 1 since we have one *Code Symbology* value for each Code slot allowed; *Code Combination* parameter has depth =1).

Example:

Label:	Code Symbology
Path:	/Codes/Code#3/Type
Shortcut:	2#3

Allows selecting the code symbology requested for Code slot 3.

**Type (Parameter Type)**

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

<a href="#">Type 0:</a>	Integer (Numeric)
<a href="#">Type 1:</a>	Enumeration
<a href="#">Type 2:</a>	String
<a href="#">Type 3:</a>	Binary String
<a href="#">Type 4:</a>	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 ([OPERATING MODES](#) folder).

Path:	/Operating/ONLTimeOut
Shortcut:	79
Type:	0
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 (i.e. 0 = first entry of the list, 1 = second entry of the list).

Example: *Operating Mode* parameter ([OPERATING MODES](#) folder).

Path:	/Operating/Selection
Shortcut:	31
Type:	1
Label:	Operating Mode Selection
Item List:	0 = On Line 1 = Automatic 3 = Test 4 = Continuous 5 = PackTrack
Default:	0 (Entry 0 → On Line)

## String (Type = 2)

### Length

Minimum and maximum number of characters allowed for this parameter.

Example: *Device Name* parameter ([USER INFORMATION SECTION](#) folder).

Path: /UserInfo/Name  
 Shortcut: 522  
 Type: 2  
 Label: Device Name (max. 128 chars)  
 Length: 0 to 128  
 Default: Empty string


## Binary String (Type = 3)

The value of a Binary String parameter must have the following format:

**NumChar**<space>**[Char1][Char2] ... [CharK] ... [CharN]**

Where:

- **NumChar:** Number of Characters (DEC value)
- **[CharK]:** Character K (HEX value)



*A special case occurs If a character of the parameter value is equal to:  
 <DLE> (10<sub>H</sub>), <ESC> (1B<sub>H</sub>), <CR> (0D<sub>H</sub>) or <LF> (0A<sub>H</sub>)  
 In order to be recognized the character must be transmitted as <DLE> (10<sub>H</sub>)  
 followed by its complementary character:  
 <~DLE> (EF<sub>H</sub>), <~ESC> (E4<sub>H</sub>), <~CR> (F2<sub>H</sub>) or <~LF> (F5<sub>H</sub>)  
**NOTE** Example: <ESC> (1B<sub>H</sub>) must be transmitted as <DLE><~ESC> (10<sub>H</sub>E4<sub>H</sub>).*

### Length

List of the allowed values of the parameter

Example: *Header String* parameter ([DATA FORMAT](#) folder).

Path: /Comms/OutForm/Standard/Header  
 Shortcut: 6  
 Type: 3  
 Label: Header String  
 Length: 0 to 128  
 Default: <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.

Example: *Max Angle* parameter ([OSCILLATING MIRROR](#) folder).

Path:	/Reading/Oscillating/ContMaxAngle
Shortcut:	257
Type:	4
Label:	Max Angle
Range:	-2.5 to 37.5
Default:	25

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

## 3.2 HOW TO SEND SINGLE PARAMETER TO THE READER

**NOTE**

*To guarantee the complete compatibility with future software releases, It is strongly suggested to use the shortcuts programming strings.*

### Using Complete Parameter Path

The 'Set Parameter' programming string must have the following format:

**SP**<space>**PATH:VALUE**<CR><LF>

Where:

- **SP:** 'Set Parameter' command
- **PATH:** Complete Parameter Path
- **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 DEC value)

For information on Error Codes see the "Error Codes Table" in the Appendix.

## Using Short Parameter Description (Shortcut)

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

**SS**<space>**SHORTCUT:VALUE**<CR><LF>

Where:

- **SS:** 'Set Shortcut' command
- **SHORTCUT:** Short Parameter Description (SHC)
- **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 DEC value)

For information on Error Codes see the "Error Codes Table" in the Appendix.



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

**NOTE**

*To guarantee the complete compatibility with future software releases, It is strongly suggested to use the shortcuts programming strings.*

#### Using Complete Parameter Path

The 'Get Parameter' programming string must have the following format:

**GP**<space>**PATH**<CR><LF>

Where:

- **GP:** 'Get Parameter' command.
- **PATH:** Complete Parameter Path.

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:

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

Where:

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

For information on Error Codes see the "Error Codes Table" in the Appendix.

## Using Short Parameter Description (Shortcut)

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

**GS**<space>**SHORTCUT**<CR><LF>

Where:

- **GS**: 'Get Shortcut' command.
- **SHORTCUT**: Short Parameter Description (SHC).

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:

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

Where:

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

For information on Error Codes see the "Error Codes Table" in the Appendix.

## 3.4 HOW TO ACCESS INSTALLER PARAMETERS

### Set Right Parameter Description

The '**Set Right**' programming string allows the user to access some particular parameters not available as standard user:

**SR**<space>**L**<space>**PASSWORD**<CR><LF>

Where:

- **SR**: 'Set Right' command
- **L**: Access Level Description
- **PASSWORD**: Password for the Level accessing

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>**L**<CR><LF>

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 DEC value)

For information on Error Codes see the "Error Codes Table" in the Appendix.



**NOTE**

To set the **INSTALLER** level (the only one available outside the Datalogic Company) use:

**SR**<space>**1**<space>**STHD**<CR><LF>

### 3.5 SAVE AND RESTORE 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 DEC value).

For information on Error Codes see the "Error Codes Table" in the Appendix.

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** = Factory Default

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 DEC value)

For information on Error Codes see the "Error Codes Table" in the Appendix.



**CAUTION**

*This programming command will be applied to all **Configuration** and **Environmental** parameters. Refer to the Genius™ Help On Line of the selected device for further details.*

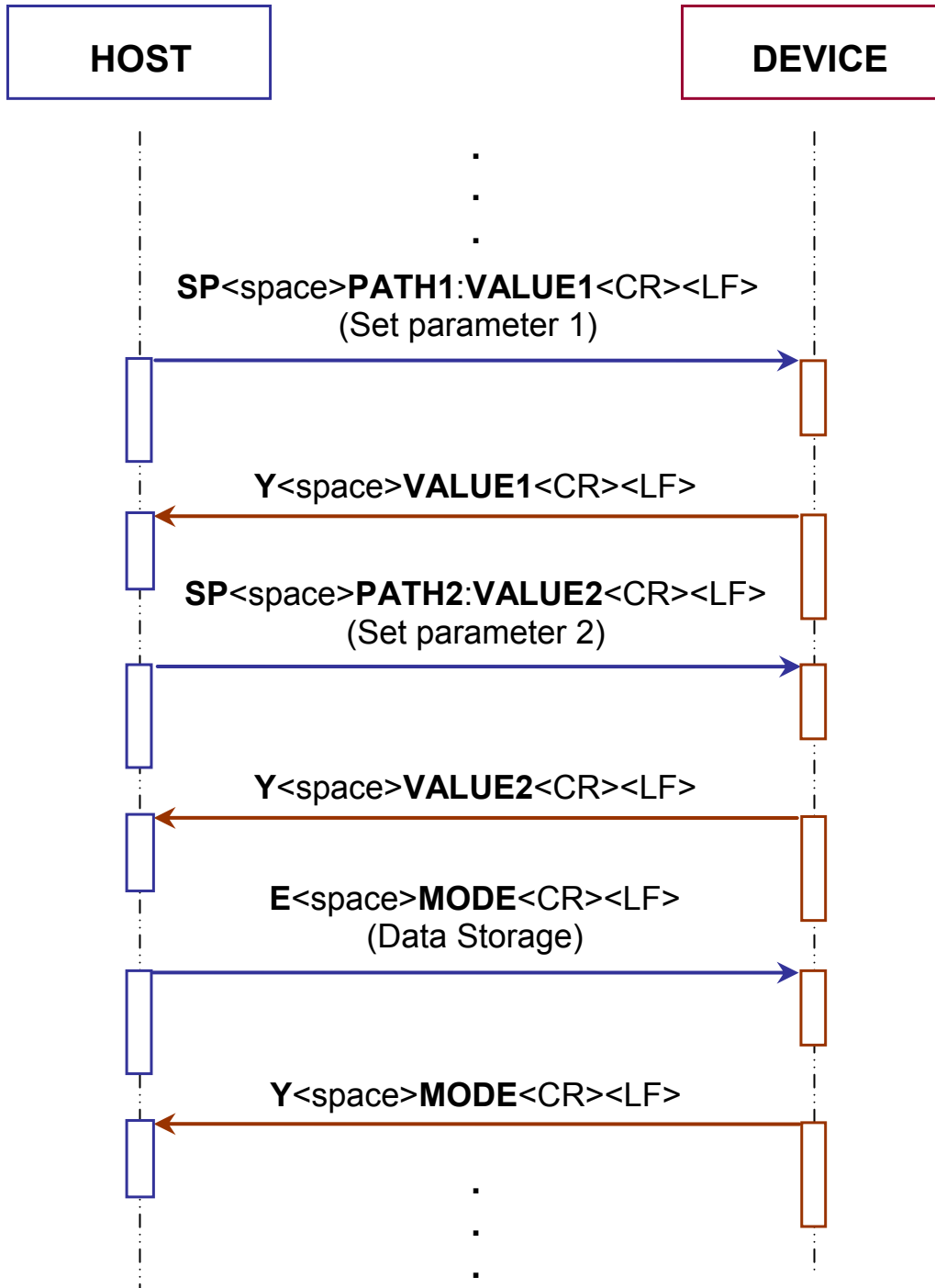


Figure 3 - Two Parameters Programming Session With Data Storage

### 3.6 EXAMPLES

- 1 -

Set *Minimum Label Length* parameter in [CODE LABEL SETTING #2](#) folder:

Path:        /Codes/Code#2/MinLength  
 Shortcut:   3  
 Type:       0 (Integer)  
 Range:      1 to 60  
 Value:      4

The 'Set Parameter' programming string is:

```
SP<space>/Codes/Code#2/MinLength:4<CR><LF>
```

The 'Set Shortcut' programming string is:

```
SS<space>3#2:4<CR><LF>
```

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

```
Y<space>4<CR><LF>
```

- 2 -

Set *Operating Mode Selection* parameter in [OPERATING MODES](#) folder:

Path:        /Operating/Selection  
 Shortcut:   31  
 Type:       1 (Enumeration)  
 Item List:  0 = On Line  
             1 = Automatic  
             3 = Test  
             4 = Continuous  
             5 = PackTrack  
 Value:      1 (Entry 1 → Automatic)

The 'Set Parameter' programming string is:

```
SP<space>/Operating/Selection:1<CR><LF>
```

The 'Set Shortcut' programming string is:

```
SS<space>31:1<CR><LF>
```

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

```
Y<space>1<CR><LF>
```

**- 3 -**

Set *Device Name* parameter in [USER INFORMATION SECTION](#) folder:

Path: /UserInfo/Name  
Shortcut: 522  
Type: 2 (String)  
Length: 0 to 128  
Value: 6K\_FAMILY

The 'Set Parameter' programming string is:

```
SP<space>/UserInfo/Name:6K_FAMILY<CR><LF>
```

The 'Set Shortcut' programming string is:

```
SS<space>522:6K_FAMILY<CR><LF>
```

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

```
Y<space>6K_FAMILY<CR><LF>
```

**- 4 -**

Set *Header String* parameter in [DATA FORMAT](#) folder:

Path: /Comms/OutForm/Standard/Header  
Shortcut: 6  
Type: 3 (Binary String)  
Length: 0 to 128  
Value: HEADER (HEX value: 48H 45H 41H 44H 45H 52H)

The 'Set Parameter' programming string is:

```
SP<space>/Comms/OutForm/Standard/Header:6<space>484541444552<CR><LF>
```

The 'Set Shortcut' programming string is:

```
SS<space>6:6<space>484541444552<CR><LF>
```

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

```
Y<space>6<space>484541444552<CR><LF>
```



**- 5 -**

Set *Min Angle* parameter in [OSCILLATING MIRROR](#) folder:

Path: /Reading/Oscillating/ContMinAngle  
Shortcut: 256  
Type: 4 (Floating Point)  
Range: -2.5 to 37.5  
Value: -1.5

The 'Set Parameter' programming string is:

```
SP<space>/Reading/Oscillating/ContMinAngle:-1.5 <CR><LF>
```

The 'Set Shortcut' programming string is:

```
SS<space>256:-1.5<CR><LF>
```

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

```
Y<space>-1.5<CR><LF>
```

**- 6 -**

Get value of Digital Output 3 *Activation Event* parameter in [DIGITAL OUTPUT LINES](#) folder:

Path: /IO/Out/Out2/Active  
Shortcut: 28  
Type: 1 (Enumeration)  
Current Value: 2 (Entry 2 → Partial Read)

The 'Get Parameter' programming string is:

```
GP<space>/IO/Out/Out2/Active<CR><LF>
```

The 'Get Shortcut' programming string is:

```
GS<space>28<CR><LF>
```

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

```
Y<space>2<CR><LF>
```

- 7 -

Get value of *No Read String* parameter in [CODE DEFINITION](#) folder:

Path:                /Codes/NoReadStr  
Shortcut:           9  
Type:                3 (Binary String)  
Current Value:      Empty string

The 'Get Parameter' programming string is:

```
GP<space>/Codes/NoReadStr<CR><LF>
```

The 'Get Shortcut' programming string is:

```
GS<space>9<CR><LF>
```

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

```
Y<space>0<CR><LF>
```

## 4 PARAMETERS LIST

### 4.1 CODE DEFINITION

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
<b>CODE DEFINITION</b>				
Code Combination	/Codes /MultiLabel	72	1	0 = Single Label 1 = Standard Multi Label 2 = Logical Combination 3 = Code Collection
Logical Combination Rule	/Codes /LogicalComb	191	2	Length: 0 to 64
No Read Message	/Codes /NoRead	14	1	0 = Disable No Read Message 1 = Global No Read Message 2 = Local No Read(s) Message
No Read String	/Codes /NoReadStr	9	3	Length: 0 to 128
Multiple Read Message	/Codes /Mulread	15	1	0 = Disable 1 = Enable
Multiple Read String	/Codes /MulReadMsg	16	3	Length: 1 to 128
Send All Multiple Read Labels	/Codes /SendAllMultipleLabels	3026	1	0 = Disable 1 = Enable
Partial Read Is Treated As	/Codes /PartialReadAs	-	1	0 = No Read 1 = Good Read 3 = Partial Read
Multi Filters	/Codes /Multifilter	-	1	0 = Disable 1 = Enable
Codes Different When Scan Gap Is Greater Than	/Codes /ScanDistCheck	-	0	Range: 0 to 32765
Codes Different When Code Position Gap Is Greater Than	/Codes /PositionDistCheck	-	0	Range: 0 to 255
Associate Same Codes When Read By Different Scanners	/Codes /NetCodeAssociate	534	1	0 = Disable 1 = Enable
<b>LOCAL NO READ STRINGS #N (DEPTH: N = 1 to 15)</b>				
Group Label Local No Read String	/Codes /LocNoReadComb /LocalNoRead#N	17	3	Length: 0 to 48
<b>LOCAL MULTIPLE READ STRINGS #N (DEPTH: N = 1 to 15)</b>				
Group Label Local Multiple Read String	/Codes /LocMultReadComb /LocalMulRead#N	327	3	Length: 0 to 48

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
<b>MULTI FILTER SETTINGS</b>				
Contained Filter	/Codes/Filters /FirstLevelFilter Contained	-	1	0 = Disable 1 = Enable
Max Number of Different Characters	/Codes/Filters /ContainedFilter NumberOfChar	-	0	Range: 0 to 5
Voting Filter	/Codes/Filters /SecondLevelFilter Voting	-	1	0 = Disable 1 = Enable
Max Number of Different Characters	/Codes/Filters /VotingFilterNumber OfChar	-		Range: 1 to 5
Filter Out Low Height Codes	/Codes/Filters /SecondLevelFilterNEL	-	1	0 = Disable 1 = Enable
Strip Filter	/Codes/Filters /SecondLevelFilterStrip	-	1	0 = Disable 1 = Enable
<b>STRIP FILTER PARAMETERS</b>				
Strip All Non Printable Chars	/Codes/Filters /StrepFilterPar /StripFilterAllNoStpChars	-	1	0 = Disable 1 = Enable
Char(s) to be Striped	/Codes/Filters /StrepFilterPar /StripFilterString	-	3	Length: 0 to 128
StripFilterCollapse	/Codes/Filters /StrepFilterPar /StripFilterCollaps	-	1	0 = Disable 1 = Enable
Replacement Char	/Codes/Filters /StrepFilterPar StripFilterRepChar	-	3	Length: 1
<b>FILTER OUT LOW HEIGHT CODES PARAMETERS</b>				
Filter Out Single Readings	/Codes/Filters /SecondLevelFilterNELP /FOSR	-	1	0 = Disable 1 = Enable
Minimum Difference in Readings Between Scanners	/Codes/Filters /SecondLevelFilterNELP /MRDBS	-	1	0 = Disable 1=1 2=2 3=3 4=4 5=5 6=6 7=7 8=8 9=9 10=10
<b>CODE LABEL SETTING #N (DEPTH: N = 1 to 10)</b>				
Enable	/Codes /Code#N/Enable	1	1	0 = Disable 1 = Enable

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
Code Symbology	/Codes /Code#N /Type	2	1	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 16 = GS1 Databar 26 = GS1 Databar Limited 27 = GS1 Databar Expanded
EAN AddOn	/Codes /Code#N /AddOn	32	1	0 = No Add On 1 = 2 digits Add On 2 = 5 digits Add On
Label Length	/Codes /Code#N /Length	70	1	0 = Variable 1 = 1 2 = 2 3 = 3 4 = 4 5 = 5 6 = 6 ... 60 = 60
Minimum Label Length	/Codes /Code#N /MinLength	3	0	Range: 1 to 60
Maximum Label Length	/Codes /Code#N /MaxLength	4	0	Range: 1 to 60
Label Length (GS1 Databar Expanded)	/Codes /Code#N/ LengthGS1Expanded	5578	1	0 = Variable 2 = 2 3 = 3 4 = 4 5 = 5 6 = 6 ... 74 = 74
Minimum Label Length (GS1 Databar Expanded)	/Codes /Code#N /MinLengthGS1Expanded	5579	0	Range: 2 to 74
Maximum Label Length (GS1 Databar Expanded)	/Codes /Code#N /MaxLengthGS1Expanded	5580	0	Range: 2 to 74
Bar Count (only for Code 128, GS1-128)	/Codes /Code#N /6EIBarCount	71	1	0 = Variable 1 = 25 2 = 31 3 = 37 4 = 43

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
				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
				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

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
				58 = 367 59 = 373 60 = 379
Bar Count (only for Code 93)	/Codes /Code#N /6EIBarCount1	85	1	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 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

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
				50 = 325 51 = 331 52 = 337 53 = 343 54 = 349 55 = 355 56 = 361 57 = 367 58 = 373 59 = 379 60 = 385
Min Code Position Filter	/Codes /Code#N /MinCodePos	262	0	Range: 0 to 255
Max Code Position Filter	/Codes /Code#N /MaxCodePos	263	0	Range: 0 to 255
Check Digit	/Codes /Code#N /CheckDigit	5	1	0 = Disable 1 = Enable
Check Digit Type (only for Interleaved 2 of 5)	/Codes /Code#N /CheckDigit25IL	526	1	0 = Standard 1 = German 2 = DHL 3 = Daimler-Chrysler 4 = Bosch
Check Digit Type (only for Code 39)	/Codes /Code#N/ /CheckDigit39	527	1	0 = Standard 1 = Mod 7
Check Digit Transmission	/Codes /Code#N /CheckDigitTx	524	1	0 = Disable 1 = Enable
Ink Spread Equalization	/Codes /Code#N/InkSpread	-	1	0 = Disable 1 = Enable
Decoding Safety	/Codes /Code#N/DecSaf	261	0	Range: 1 to 100
Decoding Severity	/Codes /Code#N/Severity	525	0	Range: 1 to 5
Match String Rule	/Codes /Code#N /MatchStrRule	-	1	0 = Match 1 = Do Not Match
Pattern Match String	/Codes /Code#N /PatMatch	-	3	Length: 0 to 200
Match Direction Rule	/Codes /Code#N /MatchDirectionRule	-	1	0 = Disable 1 = Forward 2 = Reverse
Code Label Local No Read String	/Codes /Code#N /LocNoRead	18	3	Length: 0 to 48
Code Label Local Multiple Read String	/Codes /Code#N /LocMulRead	328	3	Length: 0 to 48



PARAMETER	COMPLETE PATH	SHC	PT	VALUE
Start Character Transmission (only for Codabar)	/Codes /Code#N /StartChTx	382	1	0 = Disabled 2 = Lower Case 3 = Upper Case
Stop Character Transmission (only for Codabar)	/Codes /Code#N /StopChTx	383	1	0 = Disabled 2 = Lower Case 3 = Upper Case
Stacked Code Margin	/Codes /Code#N /StackedCodeMargin	713	1	0 = Disable 1 = Enable

## 4.2 OPERATING MODES

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
<b>OPERATING MODES</b>				
Operating Mode Selection	/Operating /Selection	31	1	0 = On Line 1 = Automatic 3 = Test 4 = Continuous 5 = PackTrack
On Line Options	/Operating /OnLOpt	73	1	0 = On Line 1 input 1 = On Line 2 input 2 = Serial On Line
Extended Phase	/Operating /ExtendedPhase	-	1	0 = Disable 1 = Enable
Test Mode Send Data	/Operating /TestSend	500	1	0 = Send Data To All Selected Channels 1 = Send Data To Aux Serial Only 2 = Do Not Send Data
Serial Start String	/Operating /SerialStart	86	3	Length: 1 to 32
Start Input Number	/Operating /ONLStartIn	74	0	Range: 1 to 4
Start Input Active Level	/Operating /ONLStartInLev	75	1	0 = Active Closed 1 = Active Open
Serial Stop String	/Operating /SerialStop	87	3	Length: 1 to 32
Stop Input Number	/Operating /ONLStopIn	76	0	Range: 1 to 4
Stop Input Active Level	/Operating /ONLStopInLev	77	1	0 = Active Closed 1 = Active Open
Stop Phase Edge	/Operating /PhaseOffLeadEdge	-	1	0 = Trailing 1 = Leading
Reading Phase Timeout	/Operating /OnLTimOutEn	78	1	0 = Disable 1 = Enable
Timeout (ms)	/Operating /ONLTimeOut	79	0	Range: 40 to 15000
Timeout Counting From	/Operating /ONLToutStart	-	1	0 = Start 1 = Stop

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
Stop Priority	/Operating /ONLStopPrio	80	1	0 = Input / SerialStop 1 = Always Timeout
Automatic Threshold (number of scans)	Operating /AutomaticThreshold	501	0	Range: 10 to 32765
Continuous Threshold (number of scans)	/Operating /ContThreshold	-	0	Range: 10 to 32765
Physical Encoder	/Operating /PhyEnc	200	1	0 = Disable 1 = Enable
Encoder Step (hundredths of millimeter)	/Operating /EncStep	201	0	Range: 1 to 10000
Conveyor Speed (mm/sec)	/Operating /PktrSpeed	216	0	Range: 50 to 10000
Ps Line (mm)	/Operating /PktrPsLine	202	0	Range: -32767 to 32767y
Presence Sensor Input	/Operating /PktrPsIn	203	0	Range: 1 to 4
Presence Sensor Input Level	/Operating /PktrPsLev	204	1	0 = Active Closed 1 = Active Open
Distance from PS Line to TX Line (mm)	/Operating /PktrTxLineDist	205	0	Range: 100 to 20000
Transmission Edge	/Operating /PktrTxLineEdge	206	1	0 = Leading 1 = Trailing
Max Number of Packs	/Operating /PktrMaxPacks	207	0	Range: 2 to 40
Minimum Distance Error Behaviour	/Operating /PktrMinDistEn	211	1	0 = Ignore Error 1 = Compose 2 = Discard Last
Minimum Distance Between Packs (mm)	/Operating /PktrMinDist	208	0	Range: 10 to 10000
Minimum Pack Length Error Behaviour	/Operating /PktrMinLenEn	212	1	0 = Ignore Error 1 = Discard Item
Minimum Pack Length (mm)	/Operating /PktrMinLen	209	0	Range: 50 to 1000
Window Dimension (mm)	/Operating /PktrWinDim	210	0	Range: 0 to 1000
Encoder Delay Error Behaviour	/Operating /PktrEncErr	214	1	0 = Ignore Error 1 = Fast Resync 2 = Safe Resync
Max. Encoder Delay For Code	/Operating /PktrEncMaxDelay	213	0	Range: 50 to 100000
Max. Consecutive Delayed Codes For Node	/Operating /PktrMaxDelayOfCode	-	0	Range: 0 to 255
Max. Safe Resync For Node	/Operating /PktrMaxNodeResync	-	0	Range: 0 to 255
Bidirectional	/Operating /Bidirectional	-	1	0 = Disable 1 = Enable

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
Direction Input	/Operating /PktrInDir	-	0	Range: 1 to 4
Reverse Direction Level	/Operating /PktrInDirLev	-	1	0 = Closed 1 = Open
Reverse Presence Sensor Input	/Operating /PktrPsRev	-	0	Range: 1 to 4
Reverse Presence Sensor Input Level	/Operating /PktrPsRevLev	-	1	0 = Active Closed 1 = Active Open
Distance from PS to Reverse PS (mm)	/Operating /PktrRevOffsY	-	0	Range: 100 to 20000
Start Input from Bus (Profibus Models Only)	/Operating /PbusOnl	-	1	0 = Disable 1 = Enable
Start Input from Bus (Ethernet Models Only)	/Operating /EthOnl	-	1	0 = Disable 1 = Enable
Use Encoder (Continuous Mode Only)	/Operating /ContOpt	-	1	0 = Disable 1 = Physical Encoder 2 = Auto Encoder
Encoder Step (hundredths of millimeter)	/Operating /ContEncEncStep	-	0	Range: 1 to 10000
Conveyor Speed (mm/sec)	/Operating /ContEncSpeed	-	0	Range: 50 to 10000
Encoder Delay Error Behaviour	/Operating /ContEncErr	-	1	0 = Ignore Error 1 = Fast Resync 2 = Safe Resync
Max. Encoder Delay For Code	/Operating /ContEncMaxDelay	-	0	Range: 50 to 10000
Max. Consecutive Delayed Codes For Node	/Operating /ContEncMaxDelayOf Code	-	0	Range: 0 to 255
Max. Safe Resync For Node	/Operating /ContEncMaxNode Resync	-	0	Range: 0 to 255
Replicate same code when symbologies don't match	/Operating /CodTypeFiltEn	-	1	0 = Disable 1 = Enable
Code Filter Depth	/Operating /CodeFilterDepth	502	0	Range: 0 to 127
Code Filter	/Operating /CodFiltToutEncEn	-	1	0 = Disable 1 = Timeout 2 = Encoder Steps 3 = Tx Line
Filter Timeout Value (ms)	/Operating /FilterTimeout	-	0	Range:40 to 15000
Filter Number of Encoder Steps	/Operating /FilterNumEncStep	-	0	Range:1 to 15000
Distance from (x,y,z) origin to Tx Line (mm)	/Operating /ContTxLineDist	-	0	Range:100 to 20000

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
Replicate same code when X positions don't match	/Operating /CodUseCoordinateX	-	1	0 = Disable 1 = Enable
Replicate same code when Y positions don't match	/Operating /CodUseCoordinateY	-	1	0 = Disable 1 = Enable
Replicate same code when Z positions don't match	/Operating /CodUseCoordinateZ	-	1	0 = Disable 1 = Enable
Protocol Index	/Operating /ProtocollIndex	-	1	0 = Disable 1 = Enable
Hybrid System	/Operating /HybridSystem	-	1	0 = Disable 1 = Use as Master 2 = Use as Slave
<b>VERIFIER</b>				
Enable	/Operating/Verifier /EnVerifier	5121	1	0 = Disable 1 = Enable
Verifier Code	/Operating/Verifier /VerifierCode	5126	3	Length: 1 to 128
Store Input	/Operating/Verifier /Input	5124	1	1 = 1 2 = 2 3 = 3 4 = 4
Active Level	/Operating/Verifier /VerifInLev	5125	1	0 = Active Closed 1 = Active Open
Wrong Code Tx	/Operating/Verifier /EnWrongCode	5127	1	0 = Disable 1 = Enable
Wrong String Tx	/Operating/Verifier /EnWrong	5123	1	0 = Disable 1 = Enable
Wrong String	/Operating/Verifier /WrongString	5122	3	Length: 1 to 128
<b>PROTOCOL INDEX PARAMETERS / AUX</b>				
Use Aux Serial Port	/Operating /ProtocollIndexParameters /AuxPar/AuxEn	-	1	0 = Disable 1 = Enable Without Request Message 2 = Enable With Request Message
Header	/Operating /ProtocollIndexParameters /AuxPar/StrAux	-	3	Length: 0 to 1
Terminator	/Operating /ProtocollIndexParameters /AuxPar/StpAux	-	3	Length: 0 to 1

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
Protocol Index Length	/Operating /ProtocolIndexParameters /AuxPar/PILengthAux	-	1	0 = Length In Message 1 = Variable length 3 = 3 4 = 4 5 = 5 ... 12 = 12
No Index Char	/Operating /ProtocolIndexParameters /AuxPar/NOIndexCharAux	-	3	Length: 0 to 1
Protocol Index Request Message	/Operating /ProtocolIndexParameters /AuxPar/PIReqMsgAux	-	3	Length: 0 to 32
Distance from Protocol Index to Trigger Line (mm)	/Operating /ProtocolIndexParameters /AuxPar/TxPtFromRef_aux	-	0	Range:0 to 65532
<b>PROTOCOL INDEX PARAMETERS / MAIN</b>				
Use Main Serial Port	/Operating /ProtocolIndexParameters /MainPar/MainEn	-	1	0 = Disable 1 = Enable Without Request Message 2 = Enable With Request Message
Header	/Operating /ProtocolIndexParameters /MainPar/StrMain	-	3	Length: 0 to 1
Terminator	/Operating /ProtocolIndexParameters /MainPar/StpMain	-	3	Length: 0 to 1
Protocol Index Length	/Operating /ProtocolIndexParameters /MainPar/PILengthMain	-	1	0 = Length In Message 1 = Variable length 3 = 3 4 = 4 5 = 5 ... 12 = 12
No Index Char	/Operating /ProtocolIndexParameters /MainPar/NOIndexCharMain	-	3	Length: 0 to 1
Protocol Index Request Message	/Operating /ProtocolIndexParameters /MainPar/PIReqMsgMain	-	3	Length: 0 to 32
Distance from Protocol Index to Trigger Line (mm)	/Operating /ProtocolIndexParameters /MainPar/TxPtFromRef_main	-	0	Range:0 to 65532

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
<b>PROTOCOL INDEX PARAM. / ETH1 / PIUSER SOCKET #N (DEPTH: N = 1 to 3)</b>				
Use Socket	/Operating /ProtocolIndexParameters /Eth1/PIUserSocket#N /SockEn	-	1	0 = Disable 1 = Enable Without Request Message 2 = Enable With Request Message
Header	/Operating /ProtocolIndexParameters /Eth1/PIUserSocket#N /StrSock	-	3	Length: 0 to 1
Terminator	/Operating /ProtocolIndexParameters /Eth1/PIUserSocket#N /StpSock	-	3	Length: 0 to 1
Protocol Index Length	/Operating /ProtocolIndexParameters /Eth1/PIUserSocket#N /PILengthSock	-	1	0 = Length In Message 1 = Variable length 3 = 3 4 = 4 5 = 5 ... 12 = 12
No Index Char	/Operating /ProtocolIndexParameters /Eth1/PIUserSocket#N /NOIndexCharSock	-	3	Length: 0 to 1
Protocol Index Request Message	/Operating /ProtocolIndexParameters /Eth1/PIUserSocket#N /PIReqMsgSock	-	3	Length: 0 to 32
Distance from Protocol Index to Trigger Line (mm)	/Operating /ProtocolIndexParameters /Eth1/PIUserSocket#N /TxPtFromRef_Sock	-	0	Range:0 to 65532
<b>NVS9000 HYBRID SYSTEM SLAVE PARAMETERS</b>				
Enable NVS	/Operating/NVSHS/NVS	-	1	0 = Disable 1 = Simple 2 = Advanced
First NVS9000 Number	/Operating/NVSHS /NVSTransportInt	-	0	Range: 1 to 31
Number of NVS9000s in Cluster	/Operating/NVSHS /NVSFirstSlaveNB	-	0	Range: 0 to 9
Select User Socket or Serial Port	/Operating/NVSHS /NVSFirstSlaveNB	-	1	1 = User Socket 1 2 = User Socket 2 3 = User Socket 3 4 = Auxiliary Serial Port 5 = Main Serial Port
Select Serial Port	/Operating/NVSHS /NVSFirstSlaveNB	-	1	4 = Auxiliary Serial Port 5 = Main Serial Port

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
<b>NVS9000 HYBRID SYSTEM SLAVE PARAMETERS / READ INFO MESSAGE</b>				
Distance from Read Info Message to Trigger Line (mm)	/Operating/NVSHS/NVSRI /NVSSockTxRI	-	0	-
Distance From NVS Trigger Line And 6/8K Reference Line (mm)	/Operating/NVSHS/NVSRI /NVSDDELTA	-	0	-
Encoder Synchronization Input	/Operating/NVSHS/NVSRI /NVSENCIN	-	1	1 = Input 1 3 = Input 3 4 = Input 4
Group Separator	/Operating/NVSHS/NVSRI /NVSGS	-	3	Length: 0 to 1
Label Separator	/Operating/NVSHS/NVSRI /NVLSL	-	3	Length: 0 to 1
Field Separator	/Operating/NVSHS/NVSRI /NVSFS	-	3	Length: 0 to 1
Global Header	/Operating/NVSHS/NVSRI /NVSGH	-	3	Length: 0 to 1
Global Field Separator	/Operating/NVSHS/NVSRI /NVSGFS	-	3	Length: 0 to 1
Local No Read	/Operating/NVSHS/NVSRI /NVSLNR	-	3	Length: 0 to 1
<b>NVS9000 HYBRID SYSTEM SLAVE PARAMETERS / DIAG. INFO MESSAGE</b>				
Diagnostic Info Timeout (sec)	/Operating/NVSHS/NVSDI /NVSSockTimeOutDI	-	0	Range: 5 to 3600
<b>NVS9000 HYBRID SYSTEM SLAVE PARAMETERS / 6/8K SCANNER HEARTBEAT MSG</b>				
6/8K Scanner Heartbeat Timeout (sec)	/Operating/NVSHS/NVSHB /NVSSockTimeOutHB	-	0	Range: 5 to 3600
<b>NVS9000 HYBRID SYSTEM SLAVE PARAMETERS / NVS9000 HEARTBEAT MSG</b>				
NVS9000 Heartbeat Timeout (sec)	/Operating/NVSHS /NVSSlvHB /NVSSlaveSockTimeOutHB	-	0	Range: 5 to 3600
<b>NVS9000 HYBRID SYSTEM SLAVE PARAMETERS / CONVEYOR INFO MSG</b>				
Send Conveyor Info Message	/Operating/NVSHS/NVSCI /NVSSendCI	-	1	0 = Disable 1 = Enable
<b>6/8K SCANNER HYBRID SYSTEM SLAVE PARAMETERS</b>				
Enable Scanner	/Operating/SLVHS /SLVEnableSlave	-	1	0 = Disable 1 = Enable
Select User Socket	/Operating/SLVHS /SLVTransportInt	-	1	1 = User Socket 1 2 = User Socket 2 3 = User Socket 3

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
<b>6/8K SCANNER HYBRID SYSTEM SLAVE PARAMETERS / HEARTBEAT MSG</b>				
6/8K Scanner Heartbeat Timeout (sec)	/Operating/SLVHS/SLVHB /SLVHBSockTimeOutHB	-	0	Range: 5 to 3600

### 4.3 READING SYSTEM LAYOUT

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
<b>READING SYSTEM LAYOUT</b>				
Device Assignment	/Layout/DevAssO	196	1	0 = Alone 1 = Master RS232 (Type A) 2 = Master Lonworks and RS232 (Type A) 3 = Slave RS232 (Type A) 4 = Controller Lon Old8k
Number of Slaves (Type A)	/Layout/NumSISer	34	0	Range: 1 to 9
Number of LonWorks Slaves	/Layout/NumSIOld8k	-	0	Range: 1 to 14
Number of LonWorks Slaves	/Layout/NumSINet	36	0	Range: 1 to 31
Display Installer Info	/Layout/ShowDbg	38	1	0 = Disable 1 = Enable
Modify&Backup Lon Slave Configuration	/Layout/Update	64	1	0 = Disable 1 = Enable
Enable A.S.R.	/Layout/EnableASR	706	1	0 = Disable 1 = Enable
Motor Delay (ms)	/Layout/EnableASR	-	0	Range: 500 to 5000
<b>LONWORKS SLAVES COMMON PARAMETERS (for backward compatibility)</b>				
<b>CODE PARAMETERS</b>				
Code 3 of 9	/Layout/SlvPar/CodPar /Cod39	140	1	0 = Disable 1 = Enable
Code 2 of 5 Interleaved	/Layout/SlvPar/CodPar /Cod25	141	1	0 = Disable 1 = Enable
Code 2 of 5 Compressed	/Layout/SlvPar/CodPar /Cod25Cmp	150	1	0 = Disable 1 = Enable
Code Codabar	/Layout/SlvPar/CodPar /CodBar	152	1	0 = Disable 1 = Enable
Code 93	/Layout/SlvPar/CodPar /Cod93	151	1	0 = Disable 1 = Enable
Code 128	/Layout/SlvPar/CodPar /Cod128	142	1	0 = Disable 1 = Enable
Code EAN 128	/Layout/SlvPar/CodPar /CodEAN128	143	1	0 = Disable 1 = Enable
Code EAN 13	/Layout/SlvPar/CodPar /EAN13	144	1	0 = Disable 1 = Enable



PARAMETER	COMPLETE PATH	SHC	PT	VALUE
Code EAN 8	/Layout/SlvPar/CodPar /EAN8	145	1	0 = Disable 1 = Enable
Code UPC A	/Layout/SlvPar/CodPar /UPCA	146	1	0 = Disable 1 = Enable
Code UPC E	/Layout/SlvPar/CodPar /UPCE	147	1	0 = Disable 1 = Enable
EAN/UPC ADD ON 2	/Layout/SlvPar/CodPar /AddOn2	148	1	0 = Disable 1 = Enable
EAN/UPC ADD ON 5	/Layout/SlvPar/CodPar /AddOn5	149	1	0 = Disable 1 = Enable
<b>CODE 3 OF 9 PARAMETERS</b>				
Decoding Severity	/Layout/SlvPar/CodPar /Code39Par/DecSev	161	0	Range: 0 to 4
Check Digit	/Layout/SlvPar/CodPar /Code39Par/ChkDgt	162	1	0 = Disable 1 = Enable
Length Type	/Layout/SlvPar/CodPar /Code39Par/Lentyp	180	1	0 = Variable 1 = Fixed
<b>CODE 3 OF 9 FIXED LENGTH #N (DEPTH: N = 1 to 12)</b>				
Fixed Length	/Layout/SlvPar/CodPar /Code39Par/Digit#N	163	0	Range: 0 to 50
<b>CODE 2 OF 5 INTERLEAVED PARAMETERS</b>				
Decoding Severity	/Layout/SlvPar/CodPar /Code25Par/DecSev	164	0	Range: 0 to 4
Check Digit	/Layout/SlvPar/CodPar /Code25Par/ChkDgt	165	1	0 = Disable 1 = Enable
Length Type	/Layout/SlvPar/CodPar /Code25Par/Lentyp	181	1	0 = Variable 1 = Fixed
<b>CODE2 OF 5 INTERLEAVED FIXED LENGTH #N (DEPTH: N = 1 to 12)</b>				
Fixed Length	/Layout/SlvPar/CodPar /Code25Par/Digit#N	166	0	Range: 0 to 50
<b>CODE 2 OF 5 COMPRESSED PARAMETERS</b>				
Decoding Severity	/Layout/SlvPar/CodPar /Code25CmpPar /DecSev	167	0	Range: 0 to 4
Check Digit	/Layout/SlvPar/CodPar /Code25CmpPar/ChkDgt	168	1	0 = Disable 1 = Enable
Length Type	/Layout/SlvPar/CodPar /Code25CmpPar/Lentyp	182	1	0 = Variable 1 = Fixed
<b>CODE2 OF 5 COMPRESSED FIXED LENGTH #N (DEPTH: N = 1 to 12)</b>				
Fixed Length	/Layout/SlvPar/CodPar /Code25CmpPar/Digit#N	169	0	Range: 0 to 50
<b>CODABAR PARAMETERS</b>				
Check Digit	/Layout/SlvPar/CodPar /CodBarPar/ChkDgt	170	1	0 = Disable 1 = Enable

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
Length Type	/Layout/SlvPar/CodPar /CodBarPar/Lentyp	183	1	0 = Variable 1 = Fixed
<b>CODABAR FIXED LENGTH #N (DEPTH: N = 1 to 12)</b>				
Fixed Length	/Layout/SlvPar/CodPar /CodBarPar/Digit#N	171	0	Range: 1 to 50
<b>CODE 93 PARAMETERS</b>				
Decoding Severity	/Layout/SlvPar/CodPar /Code93Par/DecSev	172	0	Range: 0 to 4
Ink Spread	/Layout/SlvPar/CodPar /Code93Par/InkSp	173	1	0 = Disable 1 = Enable
Length Type	/Layout/SlvPar/CodPar /Code93Par/Lentyp	184	1	0 = Variable 1 = Fixed
<b>CODE 93 FIXED LENGTH #N (DEPTH: N = 1 to 12)</b>				
Fixed Length	/Layout/SlvPar/CodPar /Code93Par/Digit#N	174	0	Range: 0 to 50
<b>CODE 128 PARAMETERS</b>				
Decoding Severity	/Layout/SlvPar/CodPar /Code128Par/DecSev	177	0	Range: 0 to 4
Ink Spread	/Layout/SlvPar/CodPar /Code128Par/InkSp	178	1	0 = Disable 1 = Enable
Length Type	/Layout/SlvPar/CodPar /Code128Par/Lentyp	185	1	0 = Variable 1 = Fixed
<b>CODE 128 FIXED LENGTH #N (DEPTH: N = 1 to 12)</b>				
Fixed Length	/Layout/SlvPar/CodPar /Code128Par/Digit#N	179	0	Range: 0 to 50
<b>CODE GS1-128 (ex EAN 128) PARAMETERS</b>				
Length Type	/Layout/SlvPar/CodPar /CodeEAN128Par /Lentyp	186	1	0 = Variable 1 = Fixed
<b>CODE GS1-128 (ex EAN 128) FIXED LENGTH #N (DEPTH: N = 1 to 12)</b>				
Fixed Length	/Layout/SlvPar/CodPar /CodeEAN128Par /Digit#N	187	0	Range: 0 to 50
<b>CODE EAN-UPC PARAMETERS</b>				
Decoding Severity	/Layout/SlvPar/CodPar /CodeEANUPCPar /DecSev	175	1	0 = Variable 1 = Fixed
Ink Spread	/Layout/SlvPar/CodPar /CodeEANUPCPar /InkSp	176	0	Range: 0 to 50
<b>RECONSTRUCTION PARAMETERS</b>				
Overflow	/Layout/SlvPar/RecPar /Ovrflw	153	0	Range: 2 to 50

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
Reconstruction Severity	/Layout/SlvPar/RecPar/RecSev	154	0	Range: 1 to 5
Max Stacked Codes	/Layout/SlvPar/RecPar/MaxStCd	155	0	Range: 1 to 3
Out Codes Per Cluster	/Layout/SlvPar/RecPar/OutCdPC	156	0	Range: 1 to 3
Inter Character Gap	/Layout/SlvPar/RecPar/InterChG	157	0	Range: 2 to 8
<b>LONWORKS SINGLE SLAVES PARAMETERS (for backward compatibility)</b>				
<b>SLAVE NUMBER #N (DEPTH: N = 1 to 31)</b>				
Max Scan Gap	/Layout/SngSlv/Slave#N/MaxScG	158	0	Range: 1 to 10000
Direction	/Layout/SngSlv/Slave#N/X_Y_Inversion	-	1	0 = 0 (Forward) 3 = 90 1 = 180 (Reverse) 2 = 270
PS Offset (mm)	/Layout/SngSlv/Slave#N/Y_Adjust	-	0	Range: 0 to 65535
Reading Condition 8K	/Layout/SngSlv/Slave#N/ReadingCondition8K	707	1	0 = Standard 1 = Skew 45 2 = Low Contrast 3 = External Mirror 4 = Max Gain Boost"
Reading Condition 6K	/Layout/SngSlv/Slave#N/ReadingCondition6K	708	1	0 = Standard 1 = Low Contrast 2 = Toggle Standard/Low Contrast"

## 4.4 READING PARAMETERS

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
<b>READING PARAMETERS</b>				
Beam Shutter	/Reading/BeamSh	8	1	0 = Disable 1 = Triggered 2 = Enable
Beam Shutter Timeout	/Reading /PktrBeamShutterTimeout	-	1	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"
Overflow Start Ratio	/Reading/Overflow	286	0	Range: 1 to 50
Overflow Stop Ratio	/Reading/StopOverflow	604	0	Range: 1 to 50
Reading Mode	/Reading/Linear	285	1	0 = Reconstruction 1 = Linear
Reading Condition (8KA Only)	/Reading /ReadingCondition8K	709	1	0 = Standard 1 = Skew 45 2 = Low Contrast 3 = External Mirror 4 = Max Gain Boost 5=External Mirror with Skew 45°
Reading Condition (6K Only)	/Reading /ReadingCondition6K	710	1	0 = Standard, 1 = Low Contrast 2 = Toggle Standard/Low Contrast"
<b>RECONSTRUCTION PARAMETERS</b>				
Stacked Codes Enhancement	/Reading/Reconstruction /SafeStackedCodes	504	1	0 = Disable 1 = Enable
<b>RECONSTRUCTION PARAMETERS / EXTENDED</b>				
MinMatch	/Reading/Reconstruction /Extended/MinMatch	-	0	Range: 0 to 500
Position Tolerance	/Reading/Reconstruction /Extended /PositionTolerance		0	Range: 1 to 100
Duration Tolerance	/Reading/Reconstruction /Extended /DurationTolerancePerc		0	Range: 1 to 100
Min Start/Stop Number	/Reading/Reconstruction /Extended /MinStartStopNumber	-	0	Range: 1 to 50
Inter Char Gap	/Reading/Reconstruction /Extended/InterCharGap	-	0	Range: 2 to 8
Addon Overflow Start	/Reading/Reconstruction	-	0	Range: 1 to 50

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
Ratio	/Extended/AddonOverflow			
Addon Overflow Stop Ratio	/Reading/Reconstruction/Extended/AddonOverflowStop	-	0	Range: 1 to 50
Max Distance between EAN/UPC and Addon (in modules)	/Reading/Reconstruction/Extended/AddonDistance	-	0	Range: 1 to 256
<b>SCAN LINE AMPLITUDE</b>				
Amplitude Settings Enable	/Reading/ScanAmp/Enable	282	1	0 = Disable 1 = Enable
Laser Turn On Position	/Reading/ScanAmp/OnPos	283	0	Range: 0 to 255
Laser Turn Off Position	/Reading/ScanAmp/OffPos	284	0	Range: 0 to 255
Zero Position Offset	/Reading/ScanAmp/ZeroOff	-	0	Range: -127 to 127
<b>FLASH (DS6400 models only)</b>				
Flash Mode	/Reading/Flash/Mode	219	1	0 = Off Line 1 = Fixed 2 = Triggered 3 = Continuous 6 = DFlash
Fixed Distance (cm)	/Reading/Flash/FixedDist	220	0	Range: 0 to 255
Min Distance (cm)	/Reading/Flash/ContMin	221	0	Range: 0 to 255
Max Distance (cm)	/Reading/Flash/ContMax	222	0	Range: 0 to 255
Frequency (Hz)	/Reading/Flash/ContFreq	223	1	2 = 0.1 Hz 3 = 0.2 Hz 5 = 0.3 Hz 6 = 0.4 Hz 7 = 0.5 Hz 9 = 0.6 Hz 10 = 0.7 Hz 11 = 0.8 Hz 12 = 0.9 Hz 13 = 1 Hz 20 = 1.5 Hz 27 = 2.0 Hz 33 = 2.5 Hz 40 = 3.0 Hz 67 = 5.0 Hz 134 = 10.0 Hz 201 = 15.0 Hz 255 = 19.0 Hz"
Stand-by Distance (cm)	/Reading/Flash/NoPackDist	224	0	Range: 0 to 255
Input 1 Distance (cm)	/Reading/Flash/In1Dist	225	0	Range: 0 to 255
Input 2 Distance (cm)	/Reading/Flash/In2Dist	226	0	Range: 0 to 255
Input 3 Distance (cm)	/Reading/Flash/In3Dist	227	0	Range: 0 to 255
Input 4 Distance (cm)	/Reading/Flash/In4Dist	228	0	Range: 0 to 255

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
Angle 1 (degrees)	/Reading/ADRAngle1	233	0	Range: -2,5 to 37,5
Angle 2 (degrees)	/Reading/ADRAngle2	234	0	Range: -2,5 to 37,5
Angle 3 (degrees)	/Reading/ADRAngle3	235	0	Range: -2,5 to 37,5
Angle 4 (degrees)	/Reading/ADRAngle4	236	0	Range: -2,5 to 37,5
Angle 5 (degrees)	/Reading/ADRAngle5	237	0	Range: -2,5 to 37,5
Angle 6 (degrees)	/Reading/ADRAngle6	238	0	Range: -2,5 to 37,5
Angle 7 (degrees)	/Reading/ADRAngle7	239	0	Range: -2,5 to 37,5
Distance 1 (cm)	/Reading/ADRDist1	241	0	Range: 0 to 255
Distance 2 (cm)	/Reading/ADRDist2	242	0	Range: 0 to 255
Distance 3 (cm)	/Reading/ADRDist3	243	0	Range: 0 to 255
Distance 4 (cm)	/Reading/ADRDist4	244	0	Range: 0 to 255
Distance 5 (cm)	/Reading/ADRDist5	245	0	Range: 0 to 255
Distance 6 (cm)	/Reading/ADRDist6	246	0	Range: 0 to 255
Distance 7 (cm)	/Reading/ADRDist7	247	0	Range: 0 to 255
Distance 8 (cm)	/Reading/ADRDist8	248	0	Range: 0 to 255
<b>FLASH (DS6400 models only) / DFLASH</b>				
DFlash Behaviour	/Reading/Flash/DFlash /DFlashBeha	300	1	0 = Nearest 1 = Background Suppression
Distance 1 (cm)	/Reading/Flash/DFlash /MinDFlashD1	272	0	Range: 0 to 255
Distance 2 (cm)	/Reading/Flash/DFlash /MinDFlashD2	273	0	Range: 0 to 255
Distance 3 (cm)	/Reading/Flash/DFlash /MinDFlashD3	274	0	Range: 0 to 255
Distance 4 (cm)	/Reading/Flash/ DFlash /MinDFlashD4	275	0	Range: 0 to 255
Distance 5 (cm)	/Reading/Flash/DFlash /MinDFlashD5	276	0	Range: 0 to 255
Distance 6 (cm)	/Reading/Flash/ DFlash /MinDFlashD6	277	0	Range: 0 to 255
Distance 7 (cm)	/Reading/Flash/DFlash /MinDFlashD7	278	0	Range: 0 to 255
Distance 8 (cm)	/Reading/Flash/DFlash /MinDFlashD8	279	0	Range: 0 to 255
Stand-by Distance (cm)	/Reading/Flash/DFlash /MinDFlashStandBy	326	1	0 = Distance 1 1 = Distance 2 2 = Distance 3 3 = Distance 4 4 = Distance 5 5 = Distance 6 6 = Distance 7 7 = Distance 8
Offset Distance	/Reading/Flash/DFlash /Offset	325	0	Range: -255 to +255
Leg 1: Ignore From Start (%)	/Reading/Flash/DFlash /FilterOnStart	307	0	Range: 0 to 100
Leg 1: Ignore From Stop (%)	/Reading/Flash/DFlash /FilterOnStop	308	0	Range: 0 to 100
Leg 2: Ignore From Start (%)	/Reading/Flash/DFlash /FilterOnXStart	468	0	Range: 0 to 100

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
Leg 2: Ignore From Stop (%)	/Reading/Flash/DFlash /FilterOnXStop	469	0	Range: 0 to 100
<b>OSCILLATING MIRROR (DS6X00-105-XXX and 8KA-XXX5 models only)</b>				
Oscillating Mode	/Reading/Oscillating /Mode	254	1	0 = Off Line 1 = Fixed 2 = Continuous
Angle	/Reading /Oscillating/FixedAngle	255	4	Range: -2.5 to +37.5
Min Angle	/Reading /Oscillating/ContMinAngle	256	4	Range: -2.5 to +37.5
Max Angle	/Reading /Oscillating/ContMaxAngle	257	4	Range: -2.5 to +37.5
Frequency (Hz)	/Reading /Oscillating/ContFreq	258	4	Range: 0 to 19
Triggered	/Reading /Oscillating/Triggered	-	1	0 = Disable 1 = Enable
Second Zone Trigger	/Reading/Oscillating /TriggerIn	-	1	0 = Phase 1 = Input 1 2 = Input 2 3 = Input 3 4 = Input 4
Second Zone Trigger Level	/Reading /Oscillating/TriggerInLev	-	1	0 = Active Closed 1 = Active Open
Second Zone Oscillating Mode	/Reading /Oscillating/Mode1	-	1	0 = Off Line 1 = Fixed 2 = Continuous
Second Zone Angle	/Reading /Oscillating/FixedAngle1	-	4	Range: -2.5 to +37.5
Second Zone Min Angle	/Reading/Oscillating /ContMinAngle1	-	4	Range: -2.5 to +37.5
Second Zone Max Angle	/Reading/Oscillating /ContMaxAngle1	-	4	Range: -2.5 to +37.5
Second Zone Frequency (Hz)	/Reading/Oscillating /ContFreq1	-	4	Range: 0 to 19

#### 4.5 DATA COMMUNICATION SETTING

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
<b>DATA COMMUNICATION SETTING</b>				
Host Application Protocol Type	/Comms/Application	84	1	0 = Standard 1 = Crisplant 2 = Cargoscan
<b>DATA FORMAT</b>				
Header TX Start	/Comms/OutForm /HeadTx	505	1	0 = With Data 1 = After Reading Phase On

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
Termination after No Read Message	/Comms /OutForm /TermAfter	506	1	0 = Disable 1 = Enable
Message Tx selection (On Line Operating Mode)	/Comms /OutForm /TxTrigSel	507	1	0 = On Decoding 1 = After Reading Phase Off
Message TX Selection (Automatic Operating Mode)	/Comms/OutForm /AutoTxTrig	-	1	0 = On Decoding 1 = After Reading Phase Off
Format Type	/Comms/OutForm /FormatType	330	1	0 = Standard 1 = Advanced
Master Max Tx Delay After Phase Off (ms)	/Comms/OutForm /TX_TimeoutMaster	-	1	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
Stand Alone Max Tx Delay After Phase Off (ms)	/Comms/OutForm /TX_TimeoutAlone	5177	1	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
Code Identifier	/Comms /OutForm /codeID	399	1	0 = Disabled 1 = Standard AIM ID 2 = Custom



PARAMETER	COMPLETE PATH	SHC	PT	VALUE
<b>DATA FORMAT / CUSTOM CODE IDENTIFIER STRINGS</b>				
Code 128 Identifier String	/Comms/OutForm /codIDStr/cod128	400	3	Length: 1 to 32
Code Interleaved 2/5 Identifier String	Comms/OutForm /codIDStr/cod25IL	401	3	Length: 1 to 32
Code 39 Standard Identifier String	Comms/OutForm /codIDStr/cod39	402	3	Length: 1 to 32
Code GS1-128 Identifier String	/Comms/OutForm /codIDStr/codEAN128	403	3	Length: 1 to 32
Code EAN 13 Identifier String	Comms/OutForm /codIDStr/codEAN13	404	3	Length: 1 to 32
Code EAN 8 Identifier String	Comms/OutForm /codIDStr/codEAN8	405	3	Length: 1 to 32
Code UPCA Identifier String	/Comms/OutForm /codIDStr/codUPCA	406	3	Length: 1 to 32
Code UPCE Identifier String	/Comms/OutForm /codIDStr/codUPCE	407	3	Length: 1 to 32
Code Codabar Identifier String	/Comms/OutForm /codIDStr/codBAR	409	3	Length: 1 to 32
Code 93 Identifier String	/Comms/OutForm /codIDStr/cod93	410	3	Length: 1 to 32
Code EAN 13 Addon 2 Identifier String	/Comms/OutForm /codIDStr/codEAN13ADD2	419	3	Length: 1 to 32
Code EAN 8 Addon 2 Identifier String	/Comms/OutForm /codIDStr/codEAN8ADD2	420	3	Length: 1 to 32
Code UPC A Addon 2 Identifier String	/Comms/OutForm /codIDStr/codUPCAADD2	421	3	Length: 1 to 32
Code UPC E Addon 2 Identifier String	/Comms/OutForm /codIDStr/codUPCEADD2	422	3	Length: 1 to 32
Code EAN 13 Addon 5 Identifier String	/Comms/OutForm /codIDStr/codEAN13ADD5	423	3	Length: 1 to 32
Code EAN 8 Addon 5 Identifier String	/Comms/OutForm /codIDStr/codEAN8ADD5	424	3	Length: 1 to 32
Code UPC A Addon 5 Identifier String	/Comms/OutForm /codIDStr/codUPCAADD5	425	3	Length: 1 to 32
Code UPC E Addon 5 Identifier String	/Comms/OutForm /codIDStr/codUPCEADD5	426	3	Length: 1 to 32
GS1 DataBar Identifier String	/Comms/OutForm /codIDStr/GS1DataBar	441	3	Length: 1 to 32
GS1 DataBar Limited Identifier String	/Comms/OutForm /codIDStr /GS1DataBarLimited	444	3	Length: 1 to 32
GS1 DataBar Exp. Identifier String	/Comms/OutForm /codIDStr /GS1DataBarExpanded	445	3	Length: 1 to 32
<b>DATA FORMAT / STANDARD PARAMETERS</b>				
Header String	/Comms/OutForm /Standard/Header	6	3	Length: 0 to 128
Code Position Tx	/Comms/OutForm /Standard/CodePosition	-	1	0 = Disable 1 = Enable

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
Code Direction Identifier Enable	/Comms/OutForm /Standard/DirEn	508	1	0 = Disable 1 = Enable
Forward Direction String	/Comms/OutForm /Standard/FwDirection	509	3	Length: 0 to 32
Reverse Direction String	/Comms/OutForm /Standard/RvDirection	528	3	Length: 0 to 32
Unknown Direction String	/Comms/OutForm /Standard/NoDirection	550	3	Length: 0 to 32
Termination String	/Comms/OutForm /Standard/Terminator	7	3	Length: 0 to 128
Data Packet Separators	/Comms/OutForm /Standard/Separator	82	3	Length: 0 to 128
Code Field Length Setting	/Comms/OutForm /Standard/FieldType	45	1	0 = Variable Length 1 = Fixed Length
Code Field Length	/Comms/OutForm /Standard/FieldLen	46	0	Range: 0 to 48
Data Justification	/Comms/OutForm /Standard/FillDir	47	1	0 = Left 1 = Right
Fill Character	/Comms/OutForm /Standard/FillCh	48	3	Length: 1
<b>DATA FORMAT / MULTIDATA</b>				
Address TX	/Comms/OutForm /Multidata/Address	-	1	0 = Disable 1 = Enable
Header	/Comms/OutForm /Multidata/AddrHeader	-	3	Length: 0 to 32
Separator	/Comms/OutForm /Multidata/AddrSeparator	-	3	Length: 0 to 32
<b>CRISPLANT PARAMETERS</b>				
Crisplant Manufacturer ID	/Comms/CrispPar /ID	61	2	Length: 1
Heartbeat Message	/Comms/CrispPar /HBEnable	-	1	0 = Disable 1 = Enable
Heartbeat Message Timing (ms)	/Comms/CrispPar /HBTime	-	0	Range: 40 to 60000
Type of Crisplant Protocol	/Comms/CrispPar /Protocol	-	1	0 = CSC 1 = CMC 2 = P10
Reading Mask Tx	/Comms/CrispPar /ReadMask	-	1	0 = Disable 1 = Enable
Code Type Tx	/Comms/CrispPar /CodeType	-	1	0 = Disable 1 = Enable
GS1-128 AI Stripping	/Comms/CrispPar /Gs1128AIStrip	-	1	0 = Disable 1 = Enable
Discard Reading in case of Missed Index Telegram	/Comms/CrispPar /MissedIdxDisc	715	1	0 = Disable 1 = Enable
<b>CARGOSCAN PARAMETERS</b>				
Code Field Length Setting	/Comms/CargoPar /FieldType	-	1	0 = Variable Length 1 = Fixed Length

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
Code Field Length	/Comms/CargoPar /FieldLen	-	0	Range: 0 to 48
Data Justification	/Comms/CargoPar/FillDir	-	1	0 = Left 1 = Right
Fill Character	/Comms/CargoPar/FillCh	-	3	Length: 1
Header String	/Comms/CargoPar/Header	-	3	Length: 0 to 128
Termination String	/Comms/CargoPar /Terminator	-	3	Length: 0 to 128
S/W Divide Encoder Frequency	/Comms/CargoPar/DivEnc	-	1	0 = Disable 1 = Enable
<b>CARGOSCAN PARAMETERS / OUTPUT MESSAGES SETTING</b>				
Add AIM Prefix	/Comms/CargoPar /OutMsg/AddAimPrefix	-	1	0 = Disable 1 = Enable
Purolator Custom Check	/Comms/CargoPar /OutMsg /PurolatorCustomCheck	-	1	0 = Disable 1 = Enable
AM/PM Behaviour	/Comms/CargoPar /OutMsg/AMPM	-	1	0 = Disable 1 = Enable
AM Message Target	/Comms/CargoPar /OutMsg/AMPort	-	1	0 = Main 1 = Aux 2 = Socket1 3 = Socket2 4 = Socket3
Heartbeat Function	/Comms/CargoPar /OutMsg/HBEn	-	1	0 = Disable 1 = Enable
Heartbeat Timeout (ms)	/Comms/CargoPar /OutMsg/HBTimeOut	-	0	Range: 40 to 60000
Heartbeat String	/Comms/CargoPar /OutMsg/HBString	-	3	Length: 0 to 18
Conveyor Directionality Input	/Comms/CargoPar /OutMsg/ConvDirIn	-	1	1 = Input 1 3 = Input 3 4 = Input 4"
Photoeye Counter Function	/Comms/CargoPar /OutMsg/PhtECnt	-	1	0 = Disable 1 = Enable
Photoeye Counter Function Input	/Comms/CargoPar /OutMsg/PhtEIn	-	1	1 = Input 1 3 = Input 3 4 = Input 4"
Photoeye Leading Edge Message	/Comms/CargoPar /OutMsg/PhtEMsg	-	3	Length: 0 to 16
Spontaneous Status Message	/Comms/CargoPar /OutMsg/ExtDiag	-	1	0 = Disable 1 = Enable
Multi Tx Transport Disabled	/Comms/CargoPar /OutMsg/MTxEnable	-	1	0 = Disable 1 = Enable
Diagnostic Data On Main Serial Channel	/Comms/CargoPar /OutMsg/DiagSerMain	-	1	0 = Disable 1 = Enable
Diagnostic Data on Auxiliary Serial Channel	/Comms/CargoPar /OutMsg/DaigSerAux	-	1	0 = Disable 1 = Enable
Diagnostic Data on User Socket (depth: N = 1 to 3)	/Comms/CargoPar /OutMsg/DiagUsrSock#N	-	1	0 = Disable 1 = Enable

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
Debug Data on Main Serial Channel	/Comms/CargoPar /OutMsg/DbgSerMain	-	1	0 = Disable 1 = Enable
Debug Data on Auxiliary Serial Channel	/Comms/CargoPar /OutMsg/DbgSerAux	-	1	0 = Disable 1 = Enable
Debug Data on User Socket (depth: N = 1 to 3)	/Comms/CargoPar /OutMsg/DbgUsrSock#N	-	1	0 = Disable 1 = Enable
<b>CARGOSCAN PARAMETERS / CODE FILTERS</b>				
Enable UPS Code Filter	/Comms/CargoPar /CarCodes/UPSFlt	-	1	0 = Disable 1 = Enable
Enable German Post 2/5 IL Code Filter	/Comms/CargoPar /CarCodes/GPFlt	-	1	0 = Disable 1 = Enable
Enable SSCC-18 Code Filter	/Comms/CargoPar /CarCodes/EANFlt	-	1	0 = Disable 1 = Enable
Enable DPD Code Filter	/Comms/CargoPar /CarCodes/DPDFltEn	-	1	0 = Disable 1 = Enable
<b>CARGOSCAN PARAMETERS / CODE FILTERS / UPS CODE TYPE FILTERS</b>				
UPS codes 1Z Type	/Comms/CargoPar /CarCodes /UPSFilter/UPS1Z	43	1	0 = Disable 1 = Enable
Service Upgrade, '403' Start String length 8	/Comms/CargoPar /CarCodes /UPSFilter/UPSServ	-	1	0 = Disable 1 = Enable
Transmit all codes PTN type except codes below that must be selected	/Comms/CargoPar /CarCodes /UPSFilter/PTN/UPSPTN	44	1	0 = Disable 1 = Enable
Including codes that start with '400...'	/Comms/CargoPar /CarCodes /UPSFilter/PTN/PTN400	-	1	0 = Disable 1 = Enable
Including codes that start with '420...'	/Comms/CargoPar /CarCodes /UPSFilter/PTN/PTN420	-	1	0 = Disable 1 = Enable
Including codes that start with '421...'	/Comms/CargoPar /CarCodes /UPSFilter/PTN/PTN421	-	1	0 = Disable 1 = Enable
Including codes that start with '51L...'	/Comms/CargoPar /CarCodes /UPSFilter/PTN/PTN51L	-	1	0 = Disable 1 = Enable
Including codes that start with '52L...'	/Comms/CargoPar /CarCodes /UPSFilter/PTN/PTN52L	-	1	0 = Disable 1 = Enable
Including codes that start with '54L...'	/Comms/CargoPar /CarCodes /UPSFilter/PTN/PTN54L	-	1	0 = Disable 1 = Enable
Including codes that start with '55L...'	/Comms/CargoPar /CarCodes /UPSFilter/PTN/PTN55L	-	1	0 = Disable 1 = Enable

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
Start with '420' length 8 or 12	/Comms/CargoPar /CarCodes /UPSFilter/POS/POS420	-	1	0 = Disable 1 = Enable
Start with '421' length from 6 to 15	/Comms/CargoPar /CarCodes /UPSFilter/POS/POS421	-	1	0 = Disable 1 = Enable
Start with '51L' length 8, 9, 12	/Comms/CargoPar /CarCodes /UPSFilter/POS/POS51L	-	1	0 = Disable 1 = Enable
Start with '52L' length 8, 9, 12	/Comms/CargoPar /CarCodes /UPSFilter/POS/POS52L	-	1	0 = Disable 1 = Enable
Start with '54L' length from 6 to 19	/Comms/CargoPar /CarCodes /UPSFilter/POS/POS54L	-	1	0 = Disable 1 = Enable
Start with '55L' length from 6 to 19	/Comms/CargoPar /CarCodes /UPSFilter/POS/POS55L	-	1	0 = Disable 1 = Enable
<b>CARGOSCAN PARAMETERS / CODE FILTERS / DPD CODE TYPE FILTERS</b>				
Enable codes 2/5 with length 10 digits filter	/Comms/CargoPar /CarCodes /DPDFit/DPD10	-	1	0 = Disable 1 = Enable
Enable codes 2/5 with length 12 digits filter	/Comms/CargoPar /CarCodes /DPDFit/DPD12	-	1	0 = Disable 1 = Enable
Enable codes 2/5 with length 4 digits starting with '0...' filter	/Comms/CargoPar /CarCodes /DPDFit/DPD0	-	1	0 = Disable 1 = Enable
Enable codes 2/5 with length 4 digits starting with '90..' filter	/Comms/CargoPar /CarCodes /DPDFit/DPD90	-	1	0 = Disable 1 = Enable
Enable codes 128 with length 28 digits filter	/Comms/CargoPar /CarCodes /DPDFit/DPD128	-	1	0 = Disable 1 = Enable
<b>MAIN SERIAL PORT</b>				
Main Serial Interface Dedicated to ID-NET	/Comms/SerMain /Slavelface	712	1	0 = Disable 1 = Enable
Data Tx	/Comms/SerMain /SerMain	510	1	0 = Disable 1 = Enable
Heartbeat	/Comms/SerMain /Heartbeat	-	1	0 = Disable 1 = Enable Unconditioned 2 = Enable Conditioned
Heartbeat Timeout	/Comms/SerMain /HeartbeatTimeOut	-	0	Range: 1 to 3600
Heartbeat Header String	/Comms/SerMain /heartbeatStart	-	3	Length: 0 to 32
Heartbeat Terminator String	/Comms/SerMain /HeartbeatStop	-	3	Length: 0 to 32

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
Send Diagnostic Info	/Comms /SerMain/SDSMAN	-	1	0 = Disable 1 = Enable
<b>MAIN SERIAL PORT PARAMETERS</b>				
Main Port Communication Mode	/Comms/SerMain /Line/Mode	33	1	0 = Standard 1 = MUX 32 Slave 2 = Siemens 3964 3 = Siemens RK512
Main Port Electrical Interface	/Comms/SerMain /Line/MainHW	10	1	0 = RS232 1 = RS485 Full Duplex
MUX 32 Protocol Address	/Comms/SerMain /Line/Addr	58	0	Range: 0 to 31
Handshake (RS232)	/Comms/SerMain /Line/FlowCtrl	57	1	0 = None 1 = Hardware (RTS/CTS) 2 = Software (Xon/Xoff)
Handshake (RS485)	/Comms/SerMain /Line/Flow485	60	1	0 = None 1 = Software (Xon/Xoff)
Baud Rate	/Comms/SerMain /Line/StdBaud	49	1	8 = 1200 1 = 2400 2 = 4800 3 = 9600 4 = 19200 5 = 38400 6 = 57600 7 = 115200
Baud Rate (Mux32 Slave)	/Comms/SerMain /Line/MuxBaud	59	1	1 = 2400 2 = 4800 3 = 9600 4 = 19200 5 = 38400 6 = 57600
Parity	/Comms/SerMain /Line/Parity	50	1	0 = None 1 = Odd 2 = Even
Data Bits	/Comms/SerMain /Line/Data	51	1	0 = 7 1 = 8
Stop Bits	/Comms/SerMain /Line/Stop	52	1	0 = 1 1 = 2
Checksum (Siemens)	/Comms/SerMain /Line/S3964Chk	-	1	0 = Disable 1 = Enable
Priority (Siemens)	/Comms/SerMain /Line/S3964Prio	-	1	0 = Low 1 = High
Header n. 5 (Siemens RK512)	/Comms/SerMain /Line/SRKHead5	-	3	Length: 1
Header n. 6 (Siemens RK512)	/Comms/SerMain /Line/SRKHead6	-	3	Length: 1
Header n. 9 (Siemens RK512)	/Comms/SerMain /Line/SRKHead9	-	3	Length: 1
Header n. 10 (Siemens RK512)	/Comms/SerMain /Line/SRKHead10	-	3	Length: 1
Filler Character (Siemens RK512)	/Comms/SerMain /Line/SRKFillChar	-	3	Length: 1

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
Filler Position (Siemens RK512)	/Comms/SerMain /Line/SRKFillerPos	-	1	0 = Before Data 1 = After Data
<b>AUXILIARY SERIAL PORT</b>				
Search For Backup Memory at Device Startup	/Comms/SerAux /SearchForCBX	5247	1	0 = Disable 1 = Enable
Data Tx	/Comms/SerAux /SerAux	511	1	0 = Disable 1 = Enable
Heartbeat	/Comms/SerAux /Heartbeat	-	1	0 = Disable 1 = Enable Unconditioned 2 = Enable Conditioned
Heartbeat Timeout	/Comms/SerAux /HeartbeatTimeOut	-	0	Range: 1 to 3600
Heartbeat Header String	/Comms/SerAux /heartbeatStart	-	3	Length: 0 to 32
Heartbeat Terminator String	/Comms/SerAux /HeartbeatStop	-	3	Length: 0 to 32
Pass Through	/Comms/SerAux /PTSource	512	1	0 = Disable 1 = Enable
Send Diagnostic Info	/Comms/SerAux /SDSAUX	-	1	0 = Disable 1 = Enable
<b>PASS THROUGH OPTIONS</b>				
String Max Length	/Comms/SerAux /PTOpt/PTMaxDim	513	0	Range: 0 to 32767
Termination String	/Comms /SerAux/PTOpt /PTTerm	514	3	Length: 1 to 32
<b>AUXILIARY SERIAL PORT PARAMETERS</b>				
Baud Rate	/Comms/SerAux /Line/StdBaud	53	1	8 = 1200 1 = 2400 2 = 4800 3 = 9600 4 = 19200 5 = 38400 6 = 57600 7 = 115200
Parity	/Comms/SerAux /Line/Parity	54	1	0 = None 1 = Odd 2 = Even
Data Bits	/Comms/SerAux /Line/Data	55	1	0 = 7 1 = 8
Stop Bits	/Comms/SerAux /Line/Stop	56	1	0 = 1 1 = 2
<b>ETHERNET / LINE PARAMETERS</b>				
Status	/Comms/Ethernet /System/Status	90	1	0 = Disable 1 = Enable
SW Release (Read-only)	/Comms/Ethernet /System/Sw_release	91	2	Length: 0 to 10

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
MAC Address (Read-only)	/Comms/Ethernet /System/MAC	92	2	Length: 0 to 16
Ethernet Speed	/Comms/Ethernet /System/Eth_speed	94	1	0 = Auto 1 = 10Mbit Half 2 = 10Mbit Full 3 = 100Mbit Half 4 = 100Mbit Full"
DHCP	/Comms/Ethernet /System/DHCP	95	1	0 = Disable 1 = Enable
IP Address	/Comms/Ethernet /System/IP_address	96	2	Length: 0 to 16
Subnet Address	/Comms/Ethernet /System/IP_netmask	97	2	Length: 0 to 16
Gateway Address	/Comms/Ethernet /System/IP_gateway	98	2	Length: 0 to 16
DNS Address 1	/Comms/Ethernet /System/IP_dns1	99	2	Length: 0 to 16
DNS Address 2	/Comms/Ethernet /System/IP_dns2	100	2	Length: 0 to 16
<b>ETHERNET / SERVICES / ETHERNET IP</b>				
Status	/Comms/Ethernet /Services/EthernetIP /Status	66	1	0 = Disable 1 = Enable
Input 1 Echo	/Comms/Ethernet /Services/EthernetIP /IO/In/Input1	291	1	0 = Disable 1 = Enable
Input 2 Echo	/Comms/Ethernet /Services/EthernetIP /IO/In/Input2	292	1	0 = Disable 1 = Enable
Input 3 Echo	/Comms/Ethernet /Services/EthernetIP /IO/In/Input3	293	1	0 = Disable 1 = Enable
Input 4 Echo	/Comms/Ethernet /Services/EthernetIP /IO/In/Input4	294	1	0 = Disable 1 = Enable
Phase Echo	/Comms/Ethernet /Services/EthernetIP /IO/In/PhaseEcho	295	1	0 = Disable 1 = Enable
Output 1	/Comms/Ethernet /Services/EthernetIP /IO/Out/Output1	296	1	0 = Disable 1 = Enable
Output 2	/Comms/Ethernet /Services/EthernetIP /IO/Out/Output2	297	1	0 = Disable 1 = Enable
Output 3	/Comms/Ethernet /Services/EthernetIP /IO/Out/Output3	298	1	0 = Disable 1 = Enable



PARAMETER	COMPLETE PATH	SHC	PT	VALUE
<b>ETHERNET / SERVICES / MODBUS CLIENT</b>				
Status	/Comms/Ethernet /Services/ModbusClient /Status	125	1	0 = Disable 1 = Enable
Data Tx	/Comms/Ethernet /Services/ModbusClient /ModbusC	-	1	0 = Disable 1 = Enable
Server Address	/Comms/Ethernet /Services/ModbusClient /Server_address	126	2	Max Length: 256
Start Register Number	/Comms/Ethernet /Services/ModbusClient /Start_reg	127	0	Range: 0 to (231-1)
Number Of Registers	/Comms/Ethernet /Services/ModbusClient /Num_reg	128	0	Range: 1 to (231-1)
<b>ETHERNET / SERVICES / WEBSENTINEL CLIENT</b>				
Enable	/Comms/Ethernet /Services/SentinelClient /Enable	-	1	0 = Disable 1 = Enable
WebSentinel Socket	/Comms/Ethernet /Services/SentinelClient /SentinelSocket	-	1	0 = Socket 1 1 = Socket 2 2 = Socket 3
Conveyor Speed Check Type	/Comms/Ethernet /Services/SentinelClient /ConvSpeedCheck /ConvSpeedCheckType	-	1	0 = Percent 1 = Absolute
Max Conveyor Speed Percent Error (%)	/Comms/Ethernet /Services/SentinelClient /ConvSpeedCheck /MaxConvSpeed PercentError	-	0	Range: 0 to 20
Max Conveyor Speed Absolute Error (mm/s)	/Comms/Ethernet /Services/SentinelClient /ConvSpeedCheck /MaxConvSpeedAbs Error	-	0	Range: 0 to 3000
Input timeout (secs)	/Comms/Ethernet /Services/SentinelClient /InputCheck /InputTimeOut	-	0	Range: 3 to 10
Send Autoconfiguration Message	/Comms/Ethernet /Services/SentinelClient /SentinelAuto configurationMessage	-	1	0 = Disable 1 = Enable
Send Extended Parcel Message	/Comms/Ethernet /Services/SentinelClient /SentinelExteNded Parcel	-	1	0 = Disable 1 = Enable

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
<b>ETHERNET / SERVICES / USER SOCKET #N (DEPTH: N = 1 to 3)</b>				
Status	/Comms/Ethernet /Services/UserSocket#N /Status	134	1	0 = Disable 1 = Enable
Data Tx	/Comms/Ethernet /Services/UserSocket#N /Sock	-	1	0 = Disable 1 = Enable
Heartbeat	/Comms/Ethernet /Services/UserSocket#N /Heartbeat	-	1	0 = Disable 1 = Enable Unconditioned 2 = Enable Conditioned
Heartbeat Timeout	/Comms/Ethernet /Services/UserSocket#N /HeartbeatTimeOut	-	0	Range: 1 to 3600
Heartbeat Header String	/Comms/Ethernet /Services/UserSocket#N /heartbeatStart	-	3	Length: 0 to 32
Heartbeat Terminator String	/Comms/Ethernet /Services/UserSocket#N /HeartbeatStop	-	3	Length: 0 to 32
Send Diagnostic Info	/Comms/Ethernet /Services/UserSocket#N /SDSSOCK	-	1	0 = Disable 1 = Enable
Socket Type	/Comms/Ethernet /Services/UserSocket#N /Type	135	1	0 = Server 1 = Client
Server Address	/Comms/Ethernet /Services/UserSocket#N /Server_address	136	2	Length: 0 to 256
Protocol	/Comms/Ethernet /Services/UserSocket#N /Protocol	137	1	0 = TCP 1 = UDP
Port Number	/Comms/Ethernet /Services/UserSocket#N /Port	138	0	Range: 0 to 65535
<b>DEVICENET</b>				
Data Tx	/Comms/DeviceNet /DeviceNet	381	1	0 = Disable 1 = Enable
<b>DEVICENET / INTERNAL PARAMETERS</b>				
Parameters Updating	/Comms/DeviceNet /System/UpdatePar	-	1	0 = Disable 1 = Enable
<b>DEVICENET / DATA PORT PROTOCOL</b>				
Serial Protocol	/Comms/DeviceNet /SerialData/Protocol	-	1	0 = Generic/Std 1 = Generic/Rev 4 = Header/Std 5 = Header/Rev
Termination Char Enable	/Comms/DeviceNet /SerialData /InStrSuffixEnable	-	1	0 = Disable 1 = Enable

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
Termination Char Value	/Comms/DeviceNet /SerialData /InStrSuffixValue	-	0	Range: 0 to 31
Buffer Flush Enable	/Comms/DeviceNet /SerialData /BufFlushEnable	-	1	0 = Disable 1 = Enable
Buffer Flush Delay (milliseconds)	/Comms/DeviceNet /SerialData /BufFlushDelay	-	0	Range: 8 to 9999
<b>DEVICENET / BUS COMMUNICATION</b>				
Data Rate	/Comms/DeviceNet /BusData/BusRate	-	1	0 = 125K 1 = 250K 2 = 500k
Node Address (MAC ID)	/Comms/DeviceNet /BusData/NodeAddr	-	0	Range: 0 to 63
Protocol	/Comms/DeviceNet /BusData/Protocol	-	1	0 = Polled 1 = Bit Strobe 2 = Change of State
Master Input Area Size	/Comms/DeviceNet /BusData/TxMsgSize	-	0	Range: 0 to 254
Master Output Area Size	/Comms/DeviceNet /BusData/RxMsgSize	-	0	Range: 0 to 254
<b>PROFIBUS</b>				
Data Tx	/Comms/ProfiBus /ProfiBus	266	1	0 = Disable 1 = Enable
Heartbeat	/Comms/ProfiBus /Heartbeat	-	1	0 = Disable 1 = Enable Unconditioned 2 = Enable Conditioned
Heartbeat Timeout	/Comms/ProfiBus /HeartbeatTimeOut	-	0	Range: 1 to 3600
Heartbeat Header String	/Comms/ProfiBus /heartbeatStart	-	3	Length: 0 to 32
Heartbeat Terminator String	/Comms/ProfiBus /HeartbeatStop	-	3	Length: 0 to 32
Send Diagnostic Info	/Comms/ProfiBus /SDSPBUS	-	1	0 = Disable 1 = Enable
Host Heartbeat	/Comms/ProfiBus /HostHeartbeat	-	1	0 = Disable 1 = Enable
Host Heartbeat Timeout	/Comms/ProfiBus /HostHeartbeatTimeOut	-	0	Range: 0 to 3600
<b>PROFIBUS / BUS COMMUNICATION</b>				
Node Address	/Comms/ProfiBus /BusData/NodeAddr	268	0	Range: 0 to 125
Data Flow Control (up to SW 6.85)	/Comms/ProfiBus /BusData/FlowControl	269	1	0 = Disable 1 = DPD Driver 2 = DAD Driver 3 = SDP Driver

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
Data Flow Control (SW 7.00 and later)	/Comms/ProfiBus /BusData/Fieldbus FlowControl	717	1	0 = Disable 1 = DPD Driver 2 = DAD Driver
Data Consistency	/Comms/ProfiBus /ConsistencyAbil	290	1	0 = Disable 1 = Enable
<b>PROFIBUS / DIGITAL I/O CONDITIONING</b>				
Input 1 Echo	/Comms/ProfiBus /BusData/IO/In/Input1	-	1	0 = Disable 1 = Enable
Input 2 Echo	/Comms/ProfiBus /BusData/IO/In/Input2	-	1	0 = Disable 1 = Enable
Input 3 Echo	/Comms/ProfiBus /BusData/IO/In/Input3	-	1	0 = Disable 1 = Enable
Input 4 Echo	/Comms/ProfiBus /BusData/IO/In/Input4	-	1	0 = Disable 1 = Enable
Phase Echo	/Comms/ProfiBus /BusData/IO/In/PhaseEcho	-	1	0 = Disable 1 = Enable
Output 1	/Comms/ProfiBus /BusData/IO/Out/IOOutput1	-	1	0 = Disable 1 = Enable
Output 2	/Comms/ProfiBus /BusData/IO/Out/IOOutput2	-	1	0 = Disable 1 = Enable
Output 3	/Comms/ProfiBus /BusData/IO/Out/IOOutput3	-	1	0 = Disable 1 = Enable

#### 4.6 DIGITAL I/O SETTING

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
<b>DIGITAL INPUT LINES</b>				
Debouncing For Input 1, 3 and 4	/IO/In/Debounce_0_2_3	11	1	1 = 500 $\mu$ s 3 = 5 ms
Debouncing For Input 2	/IO/In/Debounce_1	13	1	1 = 500 $\mu$ s 3 = 5 ms
Input 1 Active Level Overridden by Operating Mode	/IO/In/In1Lev	229	1	0 = Active Closed 1 = Active Open
Input 2 Active Level Overridden By Operating Mode	/IO/In/In2Lev	230	1	0 = Active Closed 1 = Active Open
Input 3 Active Level Overridden By Operating Mode	/IO/In/In3Lev	231	1	0 = Active Closed 1 = Active Open
Input 4 Active Level Overridden By Operating Mode	/IO/In/In4Lev	232	1	0 = Active Closed 1 = Active Open
<b>DIGITAL OUTPUT LINES / OUTPUT 1</b>				
Line State	/IO/Out/Out0/Idle	19	1	0 = Normally Open 1 = Normally Closed

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
Activation Event	/IO/Out/Out0/Active	20	1	0 = None 1 = Complete Read 2 = Partial Read 3 = No Read 5 = Phase On 6 = Phase Off 8 = Multiple Read 9 = Right 10 = Wrong
Alternative Activation Event	/IO/Out/Out0/Active1	515	1	0 = None 1 = Complete Read 2 = Partial Read 3 = No Read 5 = Phase On 6 = Phase Off 8 = Multiple Read 9 = Right 10 = Wrong
Deactivation Event	/IO/Out/Out0/Deactive	21	1	0 = None 7 = Timeout 5 = Phase On 6 = Phase Off
Alternative Deactivation Event	/IO/Out/Out0/Deactive1	516	1	0 = None 5 = Phase On 6 = Phase Off
Activate On Any Diagnostics Error	/IO/Out/Out0/ActiveDiagnoErr	-	1	0 = Disable 1 = Enable
Deactivate When All Diagnostic Errors Recovered	/IO/Out/Out0/DeactiveDiagnoNoErr	-	1	0 = Disable 1 = Enable
Deactivation Timeout (ms)	/IO/Out/Out0/Timeout	22	0	Range: 40 to 15000
<b>DIGITAL OUTPUT LINES / OUTPUT 2</b>				
Line State	/IO/Out/Out1/Idle	23	1	0 = Normally Open 1 = Normally Closed
Activation Event	/IO/Out/Out1/Active	24	1	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	COMPLETE PATH	SHC	PT	VALUE
Alternative Activation Event	/IO/Out/Out1/Active1	517	1	0 = None 1 = Complete Read 2 = Partial Read 3 = No Read 5 = Phase On 6 = Phase Off 8 = Multiple Read 9 = Right 10 = Wrong
Deactivation Event	/IO/Out/Out1/Deactive	25	1	0 = None 7 = Timeout 5 = Phase On 6 = Phase Off
Alternative Deactivation Event	/IO/Out/Out1/Deactive1	518	1	0 = None 5 = Phase On 6 = Phase Off
Activate On Any Diagnostics Error	/IO/Out/Out1/ActiveDiagnoErr	-	1	0 = Disable 1 = Enable
Deactivate When All Diagnostic Errors Recovered	/IO/Out/Out1/DeactiveDiagnoNoErr	-	1	0 = Disable 1 = Enable
Deactivation Timeout (ms)	/IO/Out/Out1/Timeout	26	0	Range: 40 to 15000
<b>DIGITAL OUTPUT LINES / OUTPUT 3</b>				
Line State	/IO/Out/Out2/Idle	27	1	0 = Normally Open 1 = Normally Closed
Activation Event	/IO/Out/Out2/Active	28	1	0 = None 1 = Complete Read 2 = Partial Read 3 = No Read 5 = Phase On 6 = Phase Off 8 = Multiple Read 9 = Right 10 = Wrong
Alternative Activation Event	/IO/Out/Out2/Active1	519	1	0 = None 1 = Complete Read 2 = Partial Read 3 = No Read 5 = Phase On 6 = Phase Off 8 = Multiple Read 9 = Right 10 = Wrong
Deactivation Event	/IO/Out/Out2/Deactive	29	1	0 = None 7 = Timeout 5 = Phase On 6 = Phase Off
Alternative Deactivation Event	/IO/Out/Out2/Deactive1	520	1	0 = None 5 = Phase On 6 = Phase Off

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
Activate On Any Diagnostics Error	/IO/Out/Out2 /ActiveDiagnoErr	-	1	0 = Disable 1 = Enable
Deactivate When All Diagnostic Errors Recovered	/IO/Out/Out2 /DeactiveDiagnoNoErr	-	1	0 = Disable 1 = Enable
Deactivation Timeout (ms)	/IO/Out/Out2 /Timeout	30	0	Range: 40 to 15000

## 4.7 SCANNER CLUSTER

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
<b>LOCAL DEVICE NETWORK SETTING</b>				
Cluster Description	/Cluster/Descr	197	2	Length: 0 to 32
Topology Role	/Cluster/TopRole	193	1	0 = Master (Synchronized) 1 = Master (Multidata) 2 = Slave (Synchronized) 3 = Other 12 = Slave (Multidata)
Lonworks Slave Address	/Cluster/SlAddr	35	1	1 = Slave1 2 = Slave2 3 = Slave3 ... 29 = Slave29 30 = Slave30 31 = Slave31 100 = Slave Jolly
<b>DEVICE IDENTIFICATION #N (DEPTH: N = 1 to 31)</b>				
Device Enable	/Cluster/Device#N /Enable	198	1	0 = Disable 1 = Enable
Device Cluster	/Cluster/Device#N /Descr	199	2	Length: 0 to 32

## 4.8 DIAGNOSTICS

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
<b>DIAGNOSTICS</b>				
PackTrack Debug Message Tx	/Diagno /PkTrDbg_MsgTx	-	1	0 = Disable 1 = Enable
PackTrack Debug Message Target	/Diagno/MsgPort	-	1	0 = Main 1 = Aux 2 = Socket1 3 = Socket2 4 = Socket3

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
PackTrack Debug Message Digital Input	/Diagno/PkTrDbg_Input	-	1	0 = None 1 = Input 1 2 = Input 2 3 = Input 3 4 = Input 4
Enable	/Diagno/Enable	-	1	0 = Disable 1 = Enable
Conveyor Info	/Diagno/ConveyorInfo	-	1	0 = Not Available 1 = Available
Conveyor Info Provider	/Diagno /ConveyorInfoProvider	-	1	0 = Application SW 1 = Input_1 2 = Input_2 3 = Input_3 4 = Input_4
Refresh Time	/Diagno/RefreshT	-	1	1 = 1 sec 2 = 2 sec 5 = 5 sec 10 = 10 sec 30 = 30 sec 60 = 1 min
Slave Diagnostics	/Diagno/NetDiag	37	1	0 = Disable 1 = Enable
Local Network Failure	/Diagno/LocalNetBoard	-	1	0 = Disable 1 = Enable
No Scan	/Diagno/NoScan	-	1	0 = Disable 1 = Enable
No Sync	/Diagno/NoSync	-	1	0 = Disable 1 = Enable
Start/Stop Input Failure	/Diagno/InFail	-	1	0 = Disable 1 = Enable
No Phase Timeout	/Diagno/NoPhaseTO	-	1	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	/Diagno/PSFail	-	1	0 = Disable 1 = Enable
Presence Sensor Stuck Timeout	/Diagno/PSStuck	-	1	0 = Disable 1 = 1 sec 2 = 2 sec 5 = 5 sec 10 = 10 sec 30 = 30 sec 60 = 1 min



PARAMETER	COMPLETE PATH	SHC	PT	VALUE
Encoder Failure Timeout	/Diagno/EncFailTO	-	1	0 = Disable 1 = 1 sec 2 = 2 sec 5 = 5 sec 10 = 10 sec 30 = 30 sec 60 = 1 min
Encoder Failure	/Diagno/EncFail	-	1	0 = Disable 1 = Enable
DIGITIZER: Motor Warning	/Diagno/DgtzMotWarn	-	1	0 = Disable 1 = Enable
DIGITIZER: Motor Failure	/Diagno/DgtzMotFail	-	1	0 = Disable 1 = Enable
DIGITIZER: Motor Life End	/Diagno/DgtzMotEnd	-	1	0 = Disable 1 = Enable
DIGITIZER: Laser Fail	/Diagno/DgtzLasFail	-	1	0 = Disable 1 = Enable
DIGITIZER: Laser Life End	/Diagno/DgtzLasEnd	-	1	0 = Disable 1 = Enable
OSCILLATING MIRROR: Motor Failure	/Diagno/OmMotFail	-	1	0 = Disable 1 = Enable
FLASH: Motor Failure	/Diagno/AfMotFail	-	1	0 = Disable 1 = Enable
Protocol Index Alarms	/Diagno/ProtocolIndexEn	-	1	0 = Disable 1 = Enable
<b>DIAGNOSTICS / ACTIONS</b>				
TX Mode	/Diagno/Actions /TxMode	-	1	0 = On Timeout 1 = With Code"
TX Refresh	/Diagno/Actions /AsyncTO	-	1	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	/Diagno/Actions /SyncOpt	-	1	0 = Append to Code 1 = Replace Code
Aux	/Diagno/Actions /SerAuxTx	-	1	0 = Disable 1 = Enable
Main	/Diagno/Actions /SerMainTx	-	1	0 = Disable 1 = Enable
Ethernet IP	/Diagno/Actions /Eth/ethIP	-	1	0 = Disable 1 = Enable
Modbus Client	/Diagno/Actions /Eth/modBusC	-	1	0 = Disable 1 = Enable
User Socket#N (Depth: N = 1 to 3)	/Diagno/Actions /Eth/UsrSocket#N	-	1	0 = Disable 1 = Enable

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
<b>DIAGNOSTICS / FORMAT</b>				
Header String	/Diagno/Format /Header	-	3	Length: 1 to 128
Terminator String	/Diagno/Format /Terminator	-	3	Length: 1 to 128
Error Message Type	/Diagno/Format /MsgType	-	1	0 = Numeric 1 = Global String
Global String	/Diagno/Format /GlobalStr	-	3	Length: 1 to 32

## 4.9 STATISTICS

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
<b>STATISTICS</b>				
Enable	/Statisti/Enable	217	1	0 = Disable 1 = Enable
Separator	/Statisti/Separator	-	3	Length: 0 to 32
Time (hh mm)	/Statisti/Clock_hm	-	1	0 = Disable 1 = Enable
Phase Counter	/Statisti/PhaseCnt	-	1	0 = Disable 1 = Enable
Good Read Counter	/Statisti/GoodrCnt	-	1	0 = Disable 1 = Enable
Partial Read Counter	/Statisti/PartialRCnt	-	1	0 = Disable 1 = Enable
No Read Counter	/Statisti/NoRCnt	-	1	0 = Disable 1 = Enable
Motor OFF Counter	/Statisti/MotorOFFCnt	-	1	0 = Disable 1 = Enable
Multiple Read Counter	/Statisti/MulRCnt	-	1	0 = Disable 1 = Enable

## 4.10 ENERGY SAVING

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
<b>ENERGY SAVING</b>				
Energy Saving Configuration	/ES/ESE	-	1	0 = Disable 1 = Enable
<b>ACTIVATION &amp; DEACTIVATION</b>				
Use Digital Input For	/ES/ESAD/ADdi	-	1	0 = None 1 = Deactivation 2 = Activation 3 = Activation & Deactivation

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
Select Digital Input	/ES/ESAD/Di	-	1	1 = Input 1 3 = Input 3 4 = Input 4"
Use Auxiliary Port For	/ES/ESAD/ADAux	-	1	0 = None 1 = Deactivation 2 = Activation 3 = Activation & Deactivation
Header	/ES/ESAD/AuxPar /ADStrAux	-	3	Length: 0 to 1
Terminator	/ES/ESAD/AuxPar /ADStpAux	-	3	Length: 0 to 1
Activation String	/ES/ESAD/AuxPar /ADActStringAux	-	2	Length: 0 to 10
Deactivation String	/ES/ESAD/AuxPar /ADDeactStringAux	-	2	Length: 0 to 10
Use Main Port For	/ES/ESAD/ADMain	-	1	0 = None 1 = Deactivation 2 = Activation 3 = Activation & Deactivation
Header	/ES/ESAD/MainPar /ADStrMain	-	3	Length: 0 to 1
Terminator	/ES/ESAD/MainPar /ADStpMain	-	3	Length: 0 to 1
Activation String	/ES/ESAD/MainPar /ADActStringMain	-	2	Length: 0 to 10
Deactivation String	/ES/ESAD/MainPar /ADDeactStringMain	-	2	Length: 0 to 10
Use Encoder For	/ES/ESAD/ADEnc	-	1	0 = None 1 = Deactivation 2 = Activation 3 = Activation & Deactivation
Activation Encoder Timeout	/ES/ESAD/ACEncT	-	1	5 = 5 min 10 = 10 min 15 = 15 min 20 = 20 min 25 = 25 min 30 = 30 min"
Deactivation Encoder Timeout	/ES/ESAD/DCEncT	-	1	5 = 5 sec 10 = 10 sec 20 = 20 sec 30 = 30 sec 1 = 1 min 2 = 2 min"
<b>ETHERNET / USER SOCKET #N (DEPTH: N = 1 to 3)</b>				
Use User Socket For	/ES/ESAD/ADBitEth /ADUserSocket#N /ADBit	-	1	0 = None 1 = Deactivation 2 = Activation 3 = Activation & Deactivation

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
Header	ES/ESAD/ADBitEth /ADUserSocket#N /ADBitStrSock	-	3	Length: 0 to 1
Terminator	ES/ESAD/ADBitEth /ADUserSocket#N /ADBitStpSock	-	3	Length: 0 to 1
Activation String	ES/ESAD/ADBitEth /ADUserSocket#N /ADActStringBitSock	-	2	Length: 0 to 10
Deactivation String	ES/ESAD/ADBitEth /ADUserSocket#N /DDeactStringBitSock	-	2	Length: 0 to 10

#### 4.11 USER INFORMATION SECTION

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
<b>USER INFORMATION SECTION</b>				
User Name	/UserInfo/EndUser	521	2	Length: 0 to 32
Device Name	/UserInfo/Name	522	2	Length: 0 to 128
Line Name	/UserInfo/Line	523	2	Length: 0 to 128

## A SPECIAL COMMANDS AND TABLES

### CONTROL RULES TABLE

This paragraph provides a list of the most important control rules that can be applied to the 6K and 8KA Family 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="#">Host Application Protocol Type</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="#">Scanner Cluster Topology Role</a> $\neq$ <i>Master Synchronized</i> or $\neq$ <i>Master Multidata</i> .
<b>CODE LABEL SETTINGS #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>
Minimum Code Position	Value must be $\leq$ <a href="#">Maximum Code Position</a>
Maximum Code Position	Value must be $\geq$ <a href="#">Minimum Code Position</a>
<b>OPERATING MODES</b>	
Operating Mode Selection	Must be $\neq$ <i>Automatic</i> and $\neq$ <i>Continuous</i> if <a href="#">Host Application Protocol Type</a> = <i>Crisplant</i> . Must be $\neq$ <i>Continuous</i> if <a href="#">Code Combination</a> $\neq$ <i>Single Label</i> . Must be $\neq$ <i>Automatic</i> and $\neq$ <i>Continuous</i> if <a href="#">Scanner Cluster Topology Role</a> = <i>Master Synchronized</i> . Must be $\neq$ <i>Automatic</i> and $\neq$ <i>Continuous</i> if <a href="#">Scanner Cluster Topology Role</a> = <i>Slave Synchronized</i> .
On Line Options	Must be $\neq$ <i>Serial On Line</i> if <a href="#">Host Application Protocol Type</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>

PARAMETER	CONTROL RULES
<b>VERIFIER</b>	
Code Verifier	Not available if <a href="#">Code Combination</a> ≠ <i>Single Label</i> . Not available if <a href="#">Operating Mode Selection</a> ≠ <i>On Line</i> and ≠ <i>Automatic and</i> ≠ <i>Continuous</i> .
<b>READING SYSTEM LAYOUT</b>	
Device Assignment	Must be ≠ <i>Master RS232 (Type A)</i> and ≠ <i>Slave RS232 (Type A)</i> if <a href="#">Auxiliary Serial Port Data TX</a> = <i>Enable</i> . Must be ≠ <i>Master RS232 (Type A)</i> and ≠ <i>Slave RS232 (Type A)</i> if <a href="#">Auxiliary Serial Port Pass Through</a> = <i>Enable</i> .
<b>DATA COMMUNICATION SETTING</b>	
Host Application Protocol Type	Must be ≠ <i>Crisplant</i> if <a href="#">Operating Mode Selection</a> ≠ <i>On Line</i> or ≠ <i>PackTrack</i> . Must be ≠ <i>Cargoscan</i> if <a href="#">Operating Mode Selection</a> ≠ <i>Continuous</i> . Must be ≠ <i>Crisplant</i> and ≠ <i>Cargoscan</i> if <a href="#">On Line Options</a> = <i>Serial On Line</i> . Must be ≠ <i>Crisplant</i> and ≠ <i>Cargoscan</i> if <a href="#">Main Port Communication Mode</a> ≠ <i>Standard</i> . Must be ≠ <i>Crisplant</i> and ≠ <i>Cargoscan</i> if <a href="#">Auxiliary Serial Port Pass Through</a> = <i>Enable</i> .
<b>MAIN SERIAL PORT</b>	
Main Port Communication Mode	Must be = <i>Standard</i> if <a href="#">Host Application Protocol Type</a> ≠ <i>Standard</i> .
<b>AUXILIARY SERIAL PORT</b>	
Data Transmission	Must be = <i>Disable</i> if <a href="#">Device Assignment</a> = <i>Master RS232 (Type A)</i> or = <i>Slave RS232 (Type A)</i> .
Pass Through	Must be = <i>Disable</i> if <a href="#">Host Application Protocol Type</a> ≠ <i>Standard</i> . Must be = <i>Disable</i> if <a href="#">Device Assignment</a> = <i>Master RS232 (Type A)</i> or = <i>Slave RS232 (Type A)</i> .
<b>DIGITAL OUTPUT LINES SETTING</b>	
Activation Event, Alternative Activation Event, Deactivation Event, Alternative Deactivation Event	Not available if <a href="#">Activate On Any Diagnostics Error</a> = <i>Enabled</i> .
<b>STATISTICS</b>	
Enable	Not available if <a href="#">Scanner Cluster Topology Role</a> = <i>Slave Synchronized</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	60
FF	0C	6	36	b	61
CR	0D	7	37	c	62
SO	0E	8	38	d	63
SI	0F	9	39	e	64
DLE	10	:	3A	f	65
DC1	11	;	3B	g	66
DC2	12	<	3C	h	67
DC3	13	=	3D	i	68
DC4	14	>	3E	j	69
NAK	15	?	3F	k	6A
SYN	16	@	40	l	6B
ETB	17	A	41	m	6C
CAN	18	B	42	n	6D
EM	19	C	43	o	6E
SUB	1A	D	44	p	6F
ESC	1B	E	45	q	70
FS	1C	F	46	r	71
GS	1D	G	47	s	72
RS	1E	H	48	t	73
US	1F	I	49	u	74
SPACE	20	J	4A	v	75
!	21	K	4B	w	76
"	22	L	4C	x	77
#	23	M	4D	y	78
\$	24	N	4E	z	79
%	25	O	4F	{	7A
&	26	P	50		7B
'	27	Q	51	}	7C
(	28	R	52	~	7D
)	29	S	53	DEL	7E
		T	54		7F



