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## SC4000 ID-NET™ Controller



### Host Mode Programming

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SC4000 Host Mode Programming

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This manual refers to software release 003 or later.

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# 1 HOST MODE PROGRAMMING

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An alternative method of programming the SC4000 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 Host 1 RS232/RS485 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**

*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.

## 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 ID-NET™ 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 ID-NET™ device</li> <li>• <b>Device Address = 1 to 31:</b> Slave ID-NET™ 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 ID-NET™ device</li> <li>• <b>ADDR = &lt;31<sub>H</sub>&gt; to &lt;4F<sub>H</sub>&gt;:</b> Slave ID-NET™ 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 ID-NET™ 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.<br>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.<br>If not sent, after a timeout (about 300 ms as default) device goes back to the <b>IDLE</b> state. |                  |                |



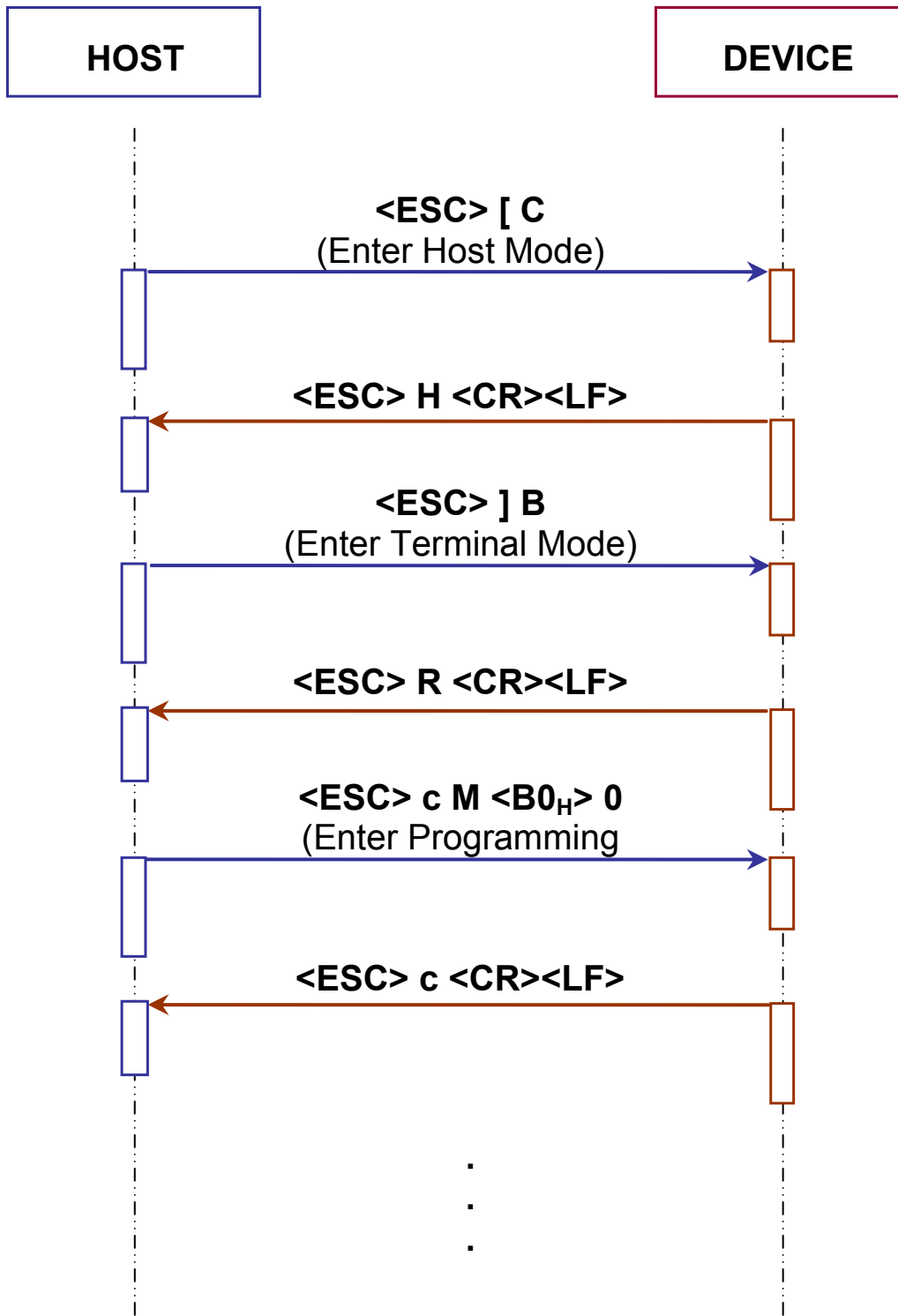


Figure 1 - Connection to Stand Alone Device

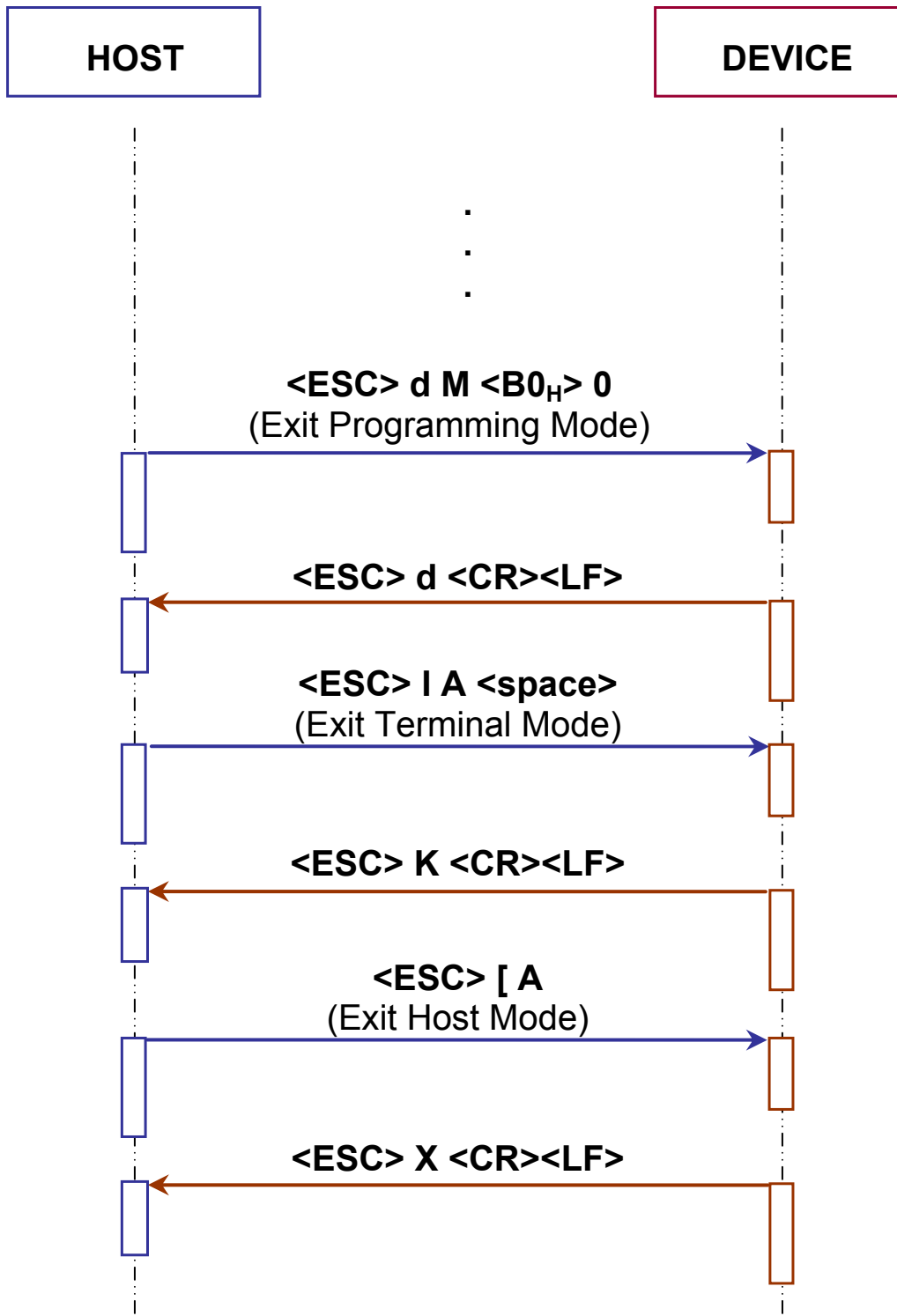


Figure 2 - Disconnection from Stand Alone Device

## 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 to implement shorter programming string) 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:  | 100                   |

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* parameter ([OPERATING MODES](#) folder).

|            |  |
|------------|--|
| Path:      | /Operating/Selection                                       |
| Shortcut:  | 31   |
| Type:      | 1  |
| Label:     | Operating Mode Selection                                   |
| Item List: | 0 = On Line<br>1 = Automatic<br>3 = Test<br>4 = Continuous |
| 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  
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)

### 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.

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

## 3.2 HOW TO SEND A 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 A 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.*

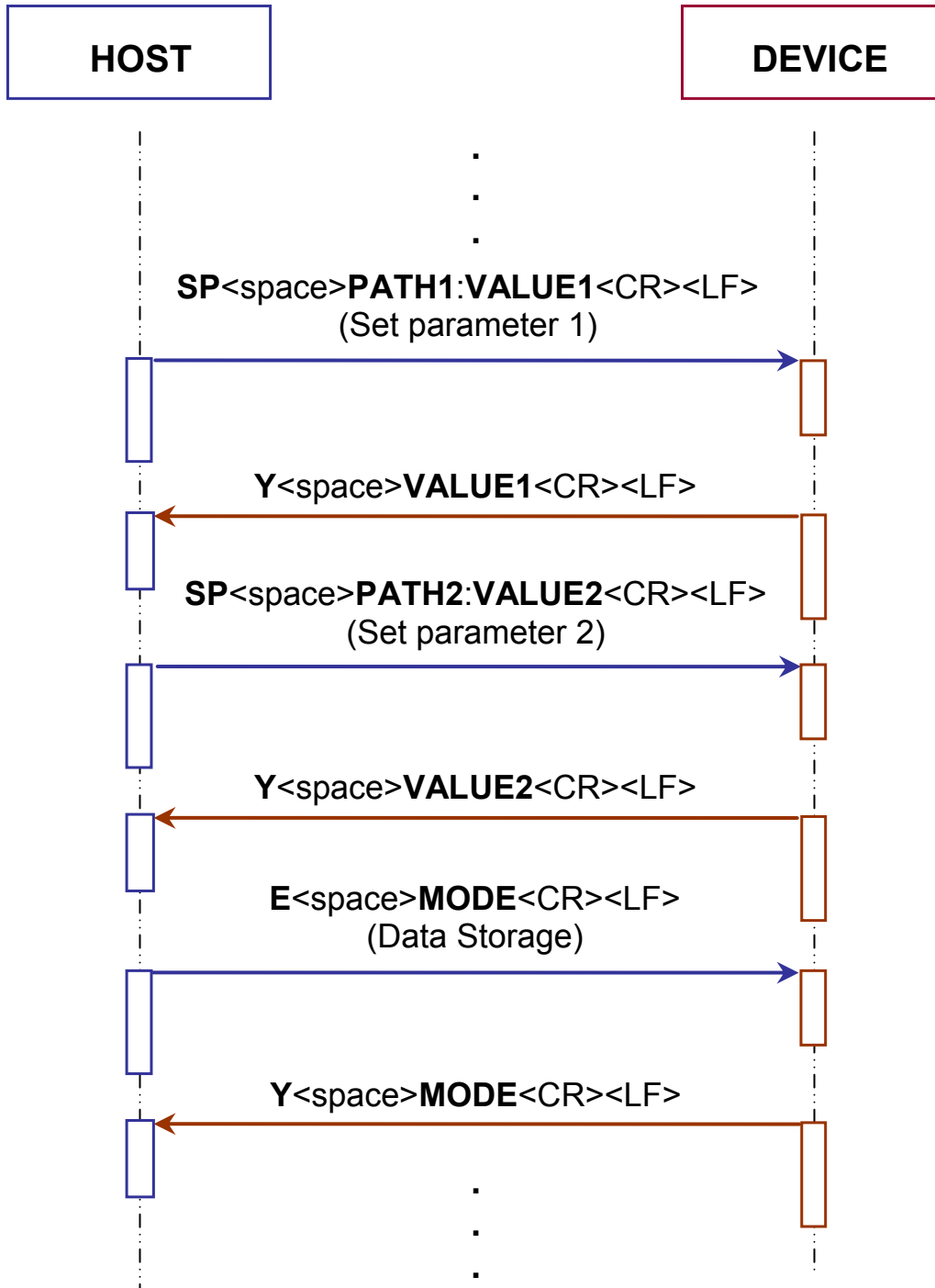


Figure 3 - Two Parameters Programming Session With Data Storage

## 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:       0 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  
             4 = Continuous  
Value:       0 (Entry 0 → On Line)

The 'Set Parameter' programming string is:

```
SP<space>/Operating/Selection:0<CR><LF>
```

The 'Set Shortcut' programming string is:

```
SS<space>31:0<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: SC4000

The 'Set Parameter' programming string is:

SP<space>/UserInfo/Name:SC4000<CR><LF>

The 'Set Shortcut' programming string is:

SS<space>522:SC4000<CR><LF>

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

Y<space>SC4000<CR><LF>

**- 4 -**

Set *Local No read String* parameter in [LOCAL NO READ STRING #2](#) folder:

Path: /Codes/LocNoReadComb/LoNoRead#2  
Shortcut: 17  
Type: 3 (Binary String)  
Length: 0 to 48  
Default: <CAN> (HEX value: 18H)

The 'Set Parameter' programming string is:

SP<space>/Codes/LocNoReadComb/LoNoRead#2:1<space>18<CR><LF>

The 'Set Shortcut' programming string is:

SS<space>17:1<space>18<CR><LF>

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

Y<space>1<space> 18<CR><LF>

**- 5 -**

Get value of Digital Output 2 *Activation Event* parameter in [DIGITAL OUTPUT LINES SETTING](#) folder:

Path: /IO/Out1/Active  
Shortcut: 24  
Type: 1 (Enumeration)  
Current Value: 2 (Entry 2 → Partial Read)

The 'Get Parameter' programming string is:

```
GP<space>/IO/Out1/Active<CR><LF>
```

The 'Get Shortcut' programming string is:

```
GS<space>24<CR><LF>
```

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

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

**- 6 -**

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 SC4000 PARAMETERS LIST

### 4.1 CODE DEFINITION

| PARAMETER  | COMPLETE PATH                                 | SHC       | PT | VALUE  |
|--|---|-----------|----|--|
| <b>CODE DEFINITION</b>                                     |   |           |    |  |
| Code Combination   | /Codes<br>/MultiLabel                         | 72        | 1  | 0 = Single Label<br>1 = Standard Multi Label<br>2 = Logical Combination<br>3 = Code Collection |
| Logical Combination Rule                                   | /Codes<br>/LogicalComb                        | 191       | 2  | Length: 0 to 64  |
| No Read Message  | /Codes<br>/NoRead                             | 14        | 1  | 0 = Disable No Read Message<br>1 = Global No Read Message<br>2 = Local No Read(s) Message      |
| No Read String   | /Codes<br>/NoReadStr                          | 9         | 3  | Length: 0 to 128   |
| Multiple Read Message                                      | /Codes<br>/Mulread                            | 15        | 1  | 0 = Disable<br>1 = Enable  |
| Multiple Read String                                       | /Codes<br>/MulReadMsg                         | 16        | 3  | Length: 1 to 128   |
| Codes Different When Scan Gap Is Greater Than              | /Codes<br>/ScanDistCheck                      | 532       | 0  | Range: 1 to 32765  |
| Codes Different When Code Position Gap Is Greater Than     | /Codes<br>/PositionDistCheck                  | 533       | 0  | Range: 0 to 255  |
| Associate Same Codes When Read By Different Scanners       | /Codes<br>/NetCodeAssociate                   | 534       | 1  | 0 = Disable<br>1 = Enable  |
| <b>LED INDICATION</b>                                      |   |           |    |  |
| Partial Read Is Treated As                                 | /Codes<br>/LedIndic<br>/PartialReadAs         | 5037      | 1  | 0 = No Read<br>1 = Good Read   |
| Multiple Read is treated as                                | /Codes<br>/LedIndic<br>/MultipleReadAs        | 5036      | 1  | 0 = No Read<br>1 = Good Read   |
| <b>LOCAL NO READ STRINGS #N (DEPTH: N = 1 to 15)</b>       |   |           |    |  |
| Group Label Local No Read String                           | /Codes<br>/LocNoReadComb<br>/LocalNoRead#N    | 17<br>#N  | 3  | Length: 0 to 48  |
| <b>LOCAL MULTIPLE READ STRINGS #N (DEPTH: N = 1 to 15)</b> |   |           |    |  |
| Group Label Local Multiple Read String                     | /Codes<br>/LocMultReadComb<br>/LocalMulRead#N | 327<br>#N | 3  | Length: 0 to 48  |

| PARAMETER   | COMPLETE PATH  | SHC  | PT | VALUE  |
|---|--|------|----|--|
| <b>FAMILY SETTING / CODE 128 - EAN 128 - ISBT 128</b> |  |      |    |  |
| Decoding Safety                                       | /Codes<br>/Symbology<br>/Cod128Par<br>/DecSaf            | 5038 | 0  | Range: 1 to 100  |
| Decoding Severity                                     | /Codes<br>/Symbology<br>/Cod128Par<br>/DecSev            | 5039 | 0  | Range: 1 to 5  |
| Ink Spread Equalization                               | /Codes<br>/Symbology<br>/Cod128Par<br>/InkSp             | 5040 | 1  | 0 = Disable<br>1 = Enable  |
| ISBT 128 Concatenation                                | /Codes<br>/Symbology<br>/Cod128Par<br>/ConcatenationISBT | 5000 | 1  | 0 = Do Not Chain<br>1 = Optional Chain<br>2 = Mandatory Chain  |
| Chain 1: Left -                                       | /Codes<br>/Symbology<br>/Cod128Par<br>/Chain1Left        | 5002 |    | 0 = None<br>1 = Donation ID<br>2 = Blood Group<br>3 = Expiration Date<br>4 = Expiration Date-Time<br>5 = Collection Date<br>6 = Collection Date-Time<br>7 = Product Code<br>8 = Donor ID<br>9 = Manufacturer ID<br>10 = Manufacturer Lot |
|   |  |      |    | 11 = Staff Member<br>12 = Nat. Product Code<br>13 = Nat. Special Testing<br>14 = Nat. Use Bar Code<br>15 = Nat. CUE Status<br>16 = Nat. Donor ID   |
| Chain 1: - Right                                      | /Codes<br>/Symbology<br>/Cod128Par<br>/Chain1Right       | 5003 | 1  | 0 = None<br>1 = Donation ID<br>...<br>16 = Nat. Donor ID   |
| Chain 2: Left -                                       | /Codes<br>/Symbology<br>/Cod128Par<br>/Chain2Left        | 5004 | 1  | 0 = None<br>1 = Donation ID<br>...<br>16 = Nat. Donor ID   |
| Chain 2: - Right                                      | /Codes<br>/Symbology<br>/Cod128Par<br>/Chain2Right       | 5005 | 1  | 0 = None<br>1 = Donation ID<br>...<br>16 = Nat. Donor ID   |
| Chain 3: Left -                                       | /Codes<br>/Symbology<br>/Cod128Par<br>/Chain3Left        | 5006 | 1  | 0 = None<br>1 = Donation ID<br>...<br>16 = Nat. Donor ID   |

| PARAMETER                                  | COMPLETE PATH                                      | SHC  | PT | VALUE  |
|--|--|------|----|--|
| Chain 3: - Right                           | /Codes<br>/Symbology<br>/Cod128Par<br>/Chain3Right | 5007 | 1  | 0 = None<br>1 = Donation ID<br>...<br>16 = Nat. Donor ID |
| Chain 4: Left -                            | /Codes<br>/Symbology<br>/Cod128Par<br>/Chain4Left  | 5008 | 1  | 0 = None<br>1 = Donation ID<br>...<br>16 = Nat. Donor ID |
| Chain 4: - Right                           | /Codes<br>/Symbology<br>/Cod128Par<br>/Chain4Right | 5009 | 1  | 0 = None<br>1 = Donation ID<br>...<br>16 = Nat. Donor ID |
| Chain 5: Left -                            | /Codes<br>/Symbology<br>/Cod128Par<br>/Chain5Left  | 5010 | 1  | 0 = None<br>1 = Donation ID<br>...<br>16 = Nat. Donor ID |
| Chain 5: - Right                           | /Codes<br>/Symbology<br>/Cod128Par<br>/Chain5Right | 5011 | 1  | 0 = None<br>1 = Donation ID<br>...<br>16 = Nat. Donor ID |
| Chain 6: Left -                            | /Codes<br>/Symbology<br>/Cod128Par<br>/Chain6Left  | 5012 | 1  | 0 = None<br>1 = Donation ID<br>...<br>16 = Nat. Donor ID |
| Chain 6: - Right                           | /Codes<br>/Symbology<br>/Cod128Par<br>/Chain6Right | 5013 | 1  | 0 = None<br>1 = Donation ID<br>...<br>16 = Nat. Donor ID |
| Chain 7: Left -                            | /Codes<br>/Symbology<br>/Cod128Par<br>/Chain7Left  | 5014 | 1  | 0 = None<br>1 = Donation ID<br>...<br>16 = Nat. Donor ID |
| Chain 7: - Right                           | /Codes<br>/Symbology<br>/Cod128Par<br>/Chain7Right | 5015 | 1  | 0 = None<br>1 = Donation ID<br>...<br>16 = Nat. Donor ID |
| Chain 8: Left -                            | /Codes<br>/Symbology<br>/Cod128Par<br>/Chain8Left  | 5016 | 1  | 0 = None<br>1 = Donation ID<br>...<br>16 = Nat. Donor ID |
| Chain 8: - Right                           | /Codes<br>/Symbology<br>/Cod128Par<br>/Chain8Right | 5017 | 1  | 0 = None<br>1 = Donation ID<br>...<br>16 = Nat. Donor ID |
| <b>FAMILY SETTING / INTERLEAVED 2 OF 5</b> |  |      |    |  |
| Decoding Safety                            | /Codes<br>/Symbology<br>/Cod25Par<br>/DecSaf       | 5041 | 0  | Range: 1 to 100  |

| PARAMETER  | COMPLETE PATH   | SHC  | PT | VALUE                     |
|--|---|------|----|---------------------------|
| Decoding Severity                                    | /Codes<br>/Symbology<br>/Cod25Par<br>/DecSev          | 5042 | 0  | Range: 1 to 5             |
| <b>FAMILY SETTING / CODE 39 - CODE 39 FULL ASCII</b> |   |      |    |                           |
| Decoding Safety                                      | /Codes<br>/Symbology<br>/Cod39Par<br>/DecSaf          | 5043 | 0  | Range: 1 to 100           |
| Decoding Severity                                    | /Codes<br>/Symbology<br>/Cod39Par<br>/DecSev          | 5044 | 0  | Range: 1 to 5             |
| Inter Character Gap                                  | /Codes<br>/Symbology<br>/Cod39Par<br>/InterCharGap    | 5045 | 0  | Range: 1 to 12            |
| <b>FAMILY SETTING / EAN-UPC</b>                      |   |      |    |                           |
| Decoding Safety                                      | /Codes<br>/Symbology<br>/EanUpc<br>/DecSaf            | 5053 | 0  | Range: 1 to 100           |
| Decoding Severity                                    | /Codes<br>/Symbology<br>/EanUpc<br>/DecSev            | 5054 | 0  | Range: 1 to 5             |
| Ink Spread Equalization                              | /Codes<br>/Symbology<br>/EanUpc<br>/InkSp             | 5055 | 1  | 0 = Disable<br>1 = Enable |
| Addon Overflow Start Ratio                           | /Codes<br>/Symbology<br>/EanUpc<br>/AddonOverflow     | 5052 | 0  | Range: 1 to 50            |
| Addon Overflow Stop Ratio                            | /Codes<br>/Symbology<br>/EanUpc<br>/AddonOverflowStop | 5275 | 0  | Range: 1 to 50            |
| Max Distance between EAN/UPC and Addon (in modules)  | /Codes<br>/Symbology<br>/EanUpc<br>/EANAddonDistance  | 5198 | 0  | Range: 1 to 256           |
| <b>FAMILY SETTING / CODABAR-ABC CODABAR</b>          |   |      |    |                           |
| Decoding Safety                                      | /Codes<br>/Symbology<br>/CodBarPar<br>/DecSaf         | 5049 | 0  | Range: 1 to 100           |

| PARAMETER   | COMPLETE PATH  | SHC     | PT | VALUE   |
|---|--|---------|----|---|
| Decoding Severity                                 | /Codes<br>/Symbology<br>/CodBarPar<br>/DecSev                  | 5050    | 0  | Range: 1 to 5   |
| Inter Character Gap                               | /Codes<br>/Symbology<br>/CodBarPar<br>/InterCharGap            | 5051    | 0  | Range: 1 to 12  |
| ABC Codabar Concatenation                         | /Codes<br>/Symbology<br>/CodBarPar<br>/ConcatenationABCcodabar | 5001    | 1  | 0 = Do Not Chain<br>1 = Optional Chain<br>2 = Mandatory Chain |
| <b>FAMILY SETTING / CODE 93</b>                   |  |         |    |   |
| Decoding Safety                                   | /Codes<br>/Symbology<br>/Cod93Par<br>/DecSaf                   | 5046    | 0  | Range: 1 to 100   |
| Decoding Severity                                 | /Codes<br>/Symbology<br>/Cod93Par<br>/DecSev                   | 5047    | 0  | Range: 1 to 5   |
| Ink Spread Equalization                           | /Codes<br>/Symbology<br>/Cod93Par<br>/InkSp                    | 5048    | 1  | 0 = Disable<br>1 = Enable                                     |
| <b>FAMILY SETTING / PHARMACODE</b>                |  |         |    |   |
| Decoding Safety                                   | /Codes<br>/Symbology<br>/Pharmacode<br>/DecSaf                 | 5056    | 0  | Range: 1 to 100   |
| Decoding Severity                                 | /Codes<br>/Symbology<br>/Pharmacode<br>/DecSev                 | 5057    | 0  | Range: 1 to 5   |
| <b>FAMILY SETTING / PLESSEY</b>                   |  |         |    |   |
| Decoding Safety                                   | /Codes<br>/Symbology<br>/Pharmacode<br>/DecSaf                 | 5271    | 0  | Range: 1 to 100   |
| Decoding Severity                                 | /Codes<br>/Symbology<br>/Pharmacode<br>/DecSev                 | 5272    | 0  | Range: 1 to 5   |
| <b>CODE LABEL SETTING #N (DEPTH: N = 1 to 10)</b> |  |         |    |   |
| Enable  | /Codes<br>/Code#N<br>/Enable                                   | 1<br>#N | 1  | 0 = Disable<br>1 = Enable                                     |

| PARAMETER   | COMPLETE PATH                     | SHC      | PT | VALUE   |
|---|-----------------------------------|----------|----|---|
| Code Symbology  | /Codes<br>/Code#N<br>/Type        | 2<br>#N  | 1  | 0 = Code 128<br>1 = Interleaved 2 of 5<br>2 = Code 39<br>3 = Code EAN 128<br>4 = EAN-13<br>5 = EAN-8<br>6 = UPC-A<br>7 = UPC-E<br>8 = All EAN-UPC<br>9 = Codabar<br>10 = Code 93<br>19 = Code 39 Full ASCII<br>20 = ABC Codabar<br>22 = ISBT 128<br>23 = Pharmacode<br>25 = Plessey |
| EAN AddOn   | /Codes<br>/Code#N<br>/AddOn       | 32<br>#N | 1  | 0 = No Add On<br>1 = 2 digits Add On<br>2 = 5 digits Add On   |
| Label Length  | /Codes<br>/Code#N<br>/Length      | 70<br>#N | 1  | 0 = Variable<br>1 = 1<br>2 = 2<br>3 = 3<br>4 = 4<br>5 = 5<br>6 = 6<br>...<br>54 = 54<br>55 = 55<br>56 = 56<br>57 = 57<br>58 = 58<br>59 = 59<br>60 = 60  |
| Minimum Label Length  | /Codes<br>/Code#N<br>/MinLength   | 3<br>#N  | 0  | Range: 1 to 60  |
| Maximum Label Length  | /Codes<br>/Code#N<br>/MaxLength   | 4<br>#N  | 0  | Range: 1 to 60  |
| Bar Count<br>(only for Code 128,<br>ISBT 128, CODE 93<br>and EAN 128) | /Codes<br>/Code#N<br>/6EIBarCount | 71<br>#N | 1  | 0 = Variable<br>1 = 25<br>2 = 31<br>3 = 37<br>4 = 43<br>5 = 49<br>6 = 55<br>7 = 61<br>8 = 67<br>9 = 73<br>10 = 79<br>11 = 85<br>12 = 91   |

| PARAMETER                                      | COMPLETE PATH                       | SHC      | PT | VALUE   |
|--|-------------------------------------|----------|----|---|
|  |                                     |          |    | 13 = 97<br>14 = 103<br>15 = 109<br>16 = 115<br>17 = 121<br>18 = 127<br>19 = 133<br>20 = 139<br>21 = 145<br>22 = 151<br>23 = 157<br>24 = 163<br>25 = 169<br>26 = 175<br>27 = 181<br>28 = 187<br>29 = 193<br>30 = 199<br>31 = 205<br>32 = 211<br>33 = 217<br>34 = 223<br>35 = 229<br>36 = 235<br>37 = 241<br>38 = 247<br>39 = 253<br>40 = 259<br>41 = 265<br>42 = 271<br>43 = 277<br>44 = 283<br>45 = 289<br>46 = 295<br>47 = 301<br>48 = 307<br>49 = 313<br>50 = 319<br>51 = 325<br>52 = 331<br>53 = 337<br>54 = 343<br>55 = 349<br>56 = 355<br>57 = 361<br>58 = 367<br>59 = 373<br>60 = 379<br>61 = 385 |
| Bar Count<br>(only for Code 39 Full<br>ASCII)) | /Codes<br>/Code#N<br>/9EIBarCountFA | 85<br>#N | 1  | 0 = Variable<br>1 = 29<br>2 = 39<br>3 = 49  |

| PARAMETER | COMPLETE PATH | SHC | PT | VALUE    |
|-----------|---------------|-----|----|----------|
|           |               |     |    | 4 = 59   |
|           |               |     |    | 5 = 69   |
|           |               |     |    | 6 = 79   |
|           |               |     |    | 7 = 89   |
|           |               |     |    | 8 = 99   |
|           |               |     |    | 9 = 109  |
|           |               |     |    | 10 = 119 |
|           |               |     |    | 11 = 129 |
|           |               |     |    | 12 = 139 |
|           |               |     |    | 13 = 149 |
|           |               |     |    | 14 = 159 |
|           |               |     |    | 15 = 169 |
|           |               |     |    | 16 = 179 |
|           |               |     |    | 17 = 189 |
|           |               |     |    | 18 = 199 |
|           |               |     |    | 19 = 209 |
|           |               |     |    | 20 = 219 |
|           |               |     |    | 21 = 229 |
|           |               |     |    | 22 = 239 |
|           |               |     |    | 23 = 249 |
|           |               |     |    | 24 = 259 |
|           |               |     |    | 25 = 269 |
|           |               |     |    | 26 = 279 |
|           |               |     |    | 27 = 289 |
|           |               |     |    | 28 = 299 |
|           |               |     |    | 29 = 309 |
|           |               |     |    | 30 = 319 |
|           |               |     |    | 31 = 329 |
|           |               |     |    | 32 = 339 |
|           |               |     |    | 33 = 349 |
|           |               |     |    | 34 = 359 |
|           |               |     |    | 35 = 369 |
|           |               |     |    | 36 = 379 |
|           |               |     |    | 37 = 389 |
|           |               |     |    | 38 = 399 |
|           |               |     |    | 39 = 409 |
|           |               |     |    | 40 = 419 |
|           |               |     |    | 41 = 429 |
|           |               |     |    | 42 = 439 |
|           |               |     |    | 43 = 449 |
|           |               |     |    | 44 = 459 |
|           |               |     |    | 45 = 469 |
|           |               |     |    | 46 = 479 |
|           |               |     |    | 47 = 489 |
|           |               |     |    | 48 = 499 |
|           |               |     |    | 49 = 509 |
|           |               |     |    | 50 = 519 |
|           |               |     |    | 51 = 529 |
|           |               |     |    | 52 = 539 |
|           |               |     |    | 53 = 549 |
|           |               |     |    | 54 = 559 |
|           |               |     |    | 55 = 569 |
|           |               |     |    | 56 = 579 |



| PARAMETER   | COMPLETE PATH                            | SHC       | PT | VALUE  |
|---|--|-----------|----|--|
|   |  |           |    | 57 = 589<br>58 = 599<br>59 = 609<br>60 = 619                               |
| Min Code Position Filter                          | /Codes<br>/Code#N<br>/MinCodePos         | 262<br>#N | 0  | Range: 0 to 255  |
| Max Code Position Filter                          | /Codes<br>/Code#N<br>/MaxCodePos         | 263<br>#N | 0  | Range: 0 to 255  |
| Check Digit                                       | /Codes<br>/Code#N<br>/CheckDigit         | 5<br>#N   | 1  | 0 = Disable<br>1 = Enable  |
| Check Digit Type<br>(only for Interleaved 2 of 5) | /Codes<br>/Code#N<br>/CheckDigit25IL     | 526<br>#N | 1  | 0 = Standard<br>1 = German<br>2 = DHL<br>3 = Daimler-Chrysler<br>4 = Bosch |
| Check Digit Type<br>(only for Code 39)            | /Codes<br>/Code#N/<br>/CheckDigit39      | 527<br>#N | 1  | 0 = Standard<br>1 = Mod 7  |
| Check Digit Tx                                    | /Codes<br>/Code#N<br>/CheckDigitTx       | 524<br>#N | 1  | 0 = Disable<br>1 = Enable  |
| Match String Rule                                 | /Codes<br>/Code#N<br>/MatchStrRule       | 530<br>#N | 1  | 0 = Match<br>1 = Do Not Match  |
| Pattern Match String                              | /Codes<br>/Code#N<br>/PatMatch           | 531<br>#N | 3  | Length: 0 to 200   |
| Match Direction Rule                              | /Codes<br>/Code#N<br>/MatchDirectionRule | 529<br>#N | 1  | 0 = Disable<br>1 = Forward<br>2 = Reverse                                  |
| Code Label Local No Read String                   | /Codes<br>/Code#N<br>/LocNoRead          | 18<br>#N  | 3  | Length: 0 to 48  |
| Code Label Local Multiple Read String             | /Codes<br>/Code#N<br>/LocMulRead         | 328<br>#N | 3  | Length: 0 to 48  |
| Start Char Tx<br>(only for Codabar)               | /Codes<br>/Code#N<br>/StartChTx          | 382<br>#N | 1  | 0 = Disabled<br>2 = Lower Case<br>3 = Upper Case                           |
| Stop Char Tx<br>(only for Codabar)                | /Codes<br>/Code#N<br>/StopChTx           | 383<br>#N | 1  | 0 = Disabled<br>2 = Lower Case<br>3 = Upper Case                           |

## 4.2 OPERATING MODES

| PARAMETER                 | COMPLETE PATH                            | SHC  | PT | VALUE  |
|---------------------------|--|------|----|--|
| <b>OPERATING MODES</b>    |  |      |    |  |
| On Line Options           | /Operating<br>/OnLOpt                    | 73   | 1  | 0 = On Line 1 input<br>1 = On Line 2 input<br>2 = Serial On Line |
| Extended Phase            | /Operating<br>/ExtendedPhase             | 5115 | 1  | 0 = Disable<br>1 = Enable  |
| Serial Start String       | /Operating<br>/SerialStart               | 86   | 3  | Length: 1 to 32  |
| Start Input Number        | /Operating<br>/ONLStartIn                | 74   | 0  | Range: 1 to 2  |
| Start Input Active Level  | /Operating<br>/ONLStartInLev             | 75   | 1  | 0 = Active Closed<br>1 = Active Open                             |
| Serial Stop String        | /Operating<br>/SerialStop                | 87   | 3  | Length: 1 to 32  |
| Stop Input Number         | /Operating<br>/ONLStopIn                 | 76   | 0  | Range: 1 to 2  |
| Stop Input Active Level   | /Operating<br>/ONLStopInLev              | 77   | 1  | 0 = Active Closed<br>1 = Active Open                             |
| Stop Phase Edge           | /Operating<br>/PhaseOffLeadEdge          | 5120 | 1  | 0 = Trailing<br>1 = Leading                                      |
| Reading Phase Timeout     | /Operating<br>/OnLTimOutEn               | 78   | 1  | 0 = Disable<br>1 = Enable  |
| Timeout (ms)              | /Operating<br>/ONLTimeOut                | 79   | 0  | Range: 40 to 15000   |
| Timeout Counting From     | /Operating<br>/ONLToutStart              | 5119 | 1  | 0 = Start<br>1 = Stop  |
| Stop Priority             | /Operating<br>/ONLStopPrio               | 80   | 1  | 0 = Input / SerialStop<br>1 = Always Timeout                     |
| Start Input from Fieldbus | /Operating<br>/FieldbusOnI               | 5313 | 1  | 0 = Disable<br>1 = Enable  |
| ACK/NAK Protocol          | /Operating<br>/ACKPrt                    | 5114 | 1  | 0 = Disable<br>1 = Enable  |
| Energy Saving             | /Operating<br>/EnergySavingEnab          | 5129 | 1  | 0 = Disable<br>1 = Enable  |
| Serial Motor On           | /Operating<br>/SerialMotorOn             | 5133 | 3  | Length: 0 to 32  |
| Serial Motor Off          | /Operating<br>/SerialMotorOff            | 5132 | 3  | Length: 0 to 32  |
| <b>VERIFIER</b>           |  |      |    |  |
| Enable                    | /Operating<br>/Verifier<br>/EnVerifier   | 5121 | 1  | 0 = Disable<br>1 = Enable  |
| Verifier Code             | /Operating<br>/Verifier<br>/VerifierCode | 5126 | 3  | Length: 1 to 128   |
| Right Code Tx             | /Operating<br>/Verifier<br>/EnRightCode  | 5560 | 1  | 0 = Disable<br>1 = Enable  |

| PARAMETER       | COMPLETE PATH                           | SHC  | PT | VALUE                     |
|-----------------|---|------|----|---------------------------|
| Wrong Code Tx   | /Operating<br>/Verifier<br>/EnWrongCode | 5123 | 1  | 0 = Disable<br>1 = Enable |
| Wrong String Tx | /Operating<br>/Verifier<br>/EnWrong     | 5122 | 1  | 0 = Disable<br>1 = Enable |
| Wrong String    | /Operating<br>/Verifier<br>/WrongString | 5128 | 3  | Length: 1 to 128          |

### 4.3 SYSTEM LAYOUT

| PARAMETER                      | COMPLETE PATH             | SHC  | PT | VALUE   |
|--------------------------------|---------------------------|------|----|---|
| <b>SYSTEM LAYOUT</b>           |                           |      |    |   |
| ID-NET Network Baud Rate (bps) | /Layout<br>/NetBaudMS     | 5144 | 1  | 1 = 19200<br>2 = 38400<br>3 = 57600<br>4 = 125Kb<br>5 = 250Kb<br>6 = 500Kb<br>7 = 1Mb   |
| Host 1 Serial Port Type        | /Layout<br>/CBXModuleType | 5303 | 1  | 0 = Serial<br>1 = Profibus<br>2 = DeviceNet<br>3 = Ethernet/IP<br>(Ethernet/IP - TCP/IP)<br>4 = CC-Link<br>5 = CANopen<br>6 = Profinet<br>(Profinet IO - TCP/IP)<br>8 = Modbus TCP<br>(Modbus TCP - TCP/IP)<br>9 = Ethernet/TCP |

### 4.4 DEVICE NETWORK SETTING

| PARAMETER              | COMPLETE PATH        | SHC | PT | VALUE  |
|------------------------|----------------------|-----|----|--|
| <b>SCANNER CLUSTER</b> |                      |     |    |  |
| Cluster Description    | /Cluster<br>/Descr   | 197 | 2  | Length: 0 to 32  |
| Topology Role          | /Cluster<br>/TopRole | 193 | 1  | 0 = Master (Synchronized)<br>1 = Master (Multidata)<br>3 = Other<br>12 = Slave (Multidata) |

| PARAMETER  | COMPLETE PATH                             | SHC       | PT | VALUE   |
|--|---|-----------|----|---|
| Slave Address  | /Cluster<br>/SIAddr                       | 35        | 1  | 1 = Slave 1<br>2 = Slave 2<br>3 = Slave 3<br>4 = Slave 4<br>...<br>28 = Slave 28<br>29 = Slave 29<br>30 = Slave 30<br>31 = Slave 31 |
| <b>DEVICE IDENTIFICATION #N (DEPTH: N = 1 to 31)</b> |   |           |    |   |
| Device Enable  | /Cluster<br>/Device#N<br>/Enable          | 198<br>#N | 1  | 0 = Disable<br>1 = Enable   |
| Device Cluster                                       | /Cluster<br>/Device#N<br>/Descr           | 199<br>#N | 2  | Length: 0 to 32   |
| Low level address                                    | /Cluster<br>/Device#N<br>/LowLevelAddress | 701<br>#N | 2  | Length: 0 to 64   |

#### 4.5 DATA FORMAT

| PARAMETER                                | COMPLETE PATH                 | SHC  | PT | VALUE  |
|--|-------------------------------|------|----|--|
| <b>DATA FORMAT</b>                       |                               |      |    |  |
| Host Application Protocol Type           | /OutForm<br>/Application      | 84   | 1  | 0 = Standard<br>1 = Crisplant  |
| Header TX Event                          | /OutForm<br>/HeadTx           | 505  | 1  | 0 = With Data<br>1 = After Reading Phase On  |
| Termination after No Read Message        | /OutForm<br>/TermAfter        | 506  | 1  | 0 = Disable<br>1 = Enable  |
| Message TX Event                         | /OutForm<br>/TxTrigSel        | 507  | 1  | 0 = On Decoding<br>1 = After Reading Phase Off"  |
| Format Type                              | /OutForm<br>/FormatType       | 330  | 1  | 0 = Standard<br>1 = Advanced   |
| Master Max Tx Delay After Phase Off (ms) | /OutForm<br>/TX_TimeoutMaster | 5178 | 1  | 50 = 50<br>60 = 60<br>70 = 70<br>80 = 80<br>90 = 90<br>100 = 100<br>110 = 110<br>120 = 120<br>130 = 130<br>140 = 140<br>150 = 150<br>160 = 160<br>170 = 170<br>180 = 180 |

| PARAMETER   | COMPLETE PATH                      | SHC | PT | VALUE   |
|---|------------------------------------|-----|----|---|
|   |                                    |     |    | 190 = 190<br>200 = 200<br>250 = 250<br>300 = 300<br>500 = 500 |
| Code Identifier                                     | /OutForm<br>/codeID                | 399 | 1  | 0 = Disabled<br>1 = Standard AIM ID<br>2 = Custom             |
| <b>DATA FORMAT / CUSTOM CODE IDENTIFIER STRINGS</b> |                                    |     |    |   |
| Code 128  | /OutForm//codIDStr<br>/cod128      | 400 | 3  | Length: 1 to 32   |
| Code IL 2/5   | /OutForm/codIDStr<br>/cod25IL      | 401 | 3  | Length: 1 to 32   |
| Code 39 Standard                                    | /OutForm/codIDStr<br>/cod39        | 402 | 3  | Length: 1 to 32   |
| Code GS1-128  | /OutForm/codIDStr<br>/codEAN128    | 403 | 3  | Length: 1 to 32   |
| Code EAN 13   | /OutForm/codIDStr<br>/codEAN13     | 404 | 3  | Length: 1 to 32   |
| Code EAN 8  | /OutForm/codIDStr<br>/codEAN8      | 405 | 3  | Length: 1 to 32   |
| Code UPC A  | /OutForm/codIDStr<br>/codUPCA      | 406 | 3  | Length: 1 to 32   |
| Code UPC E  | /OutForm/codIDStr<br>/codUPCE      | 407 | 3  | Length: 1 to 32   |
| Code CODABAR  | /OutForm/codIDStr<br>/codBAR       | 409 | 3  | Length: 1 to 32   |
| Code 93   | /OutForm/codIDStr<br>/cod93        | 410 | 3  | Length: 1 to 32   |
| Code EAN 13<br>Addon 2                              | /OutForm/codIDStr<br>/codEAN13ADD2 | 419 | 3  | Length: 1 to 32   |
| Code EAN 8<br>Addon 2                               | /OutForm/codIDStr<br>/codEAN8ADD2  | 420 | 3  | Length: 1 to 32   |
| Code UPC A<br>Addon 2                               | /OutForm/codIDStr<br>/codUPCAADD2  | 421 | 3  | Length: 1 to 32   |
| Code UPC E<br>Addon 2                               | /OutForm/codIDStr<br>/codUPCEADD2  | 422 | 3  | Length: 1 to 32   |
| Code EAN 13<br>Addon 5                              | /OutForm/codIDStr<br>/codEAN13ADD5 | 423 | 3  | Length: 1 to 32   |
| Code EAN 8<br>Addon 5                               | /OutForm/codIDStr<br>/codEAN8ADD5  | 424 | 3  | Length: 1 to 32   |
| Code UPC A<br>Addon 5                               | /OutForm/codIDStr<br>/codUPCAADD5  | 425 | 3  | Length: 1 to 32   |
| Code UPC E<br>Addon 5                               | /OutForm/codIDStr<br>/codUPCEADD5  | 426 | 3  | Length: 1 to 32   |
| Code 39 Full ASCII                                  | /OutForm/codIDStr<br>/cod39FA      | 427 | 3  | Length: 1 to 32   |
| Code ISBT 128                                       | /OutForm/codIDStr<br>/cod128ISBT   | 428 | 3  | Length: 1 to 32   |
| ABC Codabar   | /OutForm/codIDStr<br>/ABCcodBAR    | 429 | 3  | Length: 1 to 32   |

| PARAMETER                                 | COMPLETE PATH                                   | SHC  | PT | VALUE                                   |
|---|---|------|----|---|
| Code PHARMACODE                           | /OutForm/codIDStr<br>/PHARMA                    | 431  | 3  | Length: 1 to 32                         |
| Code Plessey                              | /OutForm/codIDStr<br>/Plessey                   | 432  | 3  | Length: 1 to 32                         |
| <b>DATA FORMAT / STANDARD PARAMETERS</b>  |   |      |    |   |
| Header String                             | /OutForm/Standard<br>/Header                    | 6    | 3  | Length: 0 to 128                        |
| Code Position Tx                          | /OutForm/Standard<br>/CodePosition              | 547  | 1  | 0 = Disable<br>1 = Enable               |
| Code Direction Identifier Enable          | /OutForm/Standard<br>/DirEn                     | 508  | 1  | 0 = Disable<br>1 = Enable               |
| Forward Direction String                  | /OutForm/Standard<br>/FwDirection               | 509  | 3  | Length: 0 to 32                         |
| Reverse Direction String                  | /OutForm/Standard<br>/RvDirection               | 528  | 3  | Length: 0 to 32                         |
| Unknown Direction String                  | /OutForm/Standard<br>/NoDirection               | 550  | 3  | Length: 0 to 32                         |
| Motor OFF Message                         | /OutForm/Standard<br>/MotorOFFFail              | 548  | 1  | 0 = Disable<br>1 = Enable               |
| Motor OFF String                          | /OutForm/Standard<br>/MotorOFFFailMsg           | 549  | 3  | Length: 0 to 128                        |
| Termination String                        | /OutForm/Standard<br>/Terminator                | 7    | 3  | Length: 0 to 128                        |
| Data packet Separators                    | /OutForm/Standard<br>/Separator                 | 82   | 3  | Length: 0 to 128                        |
| Info Field Separators                     | /OutForm/Standard<br>/InfoFieldSeparator        | 83   | 3  | Length: 0 to 128                        |
| Code Field Separators                     | /OutForm/Standard/<br>BarCodeField<br>Separator | 5249 | 3  | Length: 0 to 128                        |
| Code Field Length Setting                 | /OutForm/Standard<br>/FieldType                 | 45   | 1  | 1 = Fixed Length<br>0 = Variable Length |
| Code Field Length                         | /OutForm/Standard<br>/FieldLen                  | 46   | 0  | Range: 0 to 60                          |
| Data Justification                        | /OutForm/Standard<br>/FillDir                   | 47   | 1  | 0 = Left<br>1 = Right                   |
| Fill Character                            | /OutForm/Standard<br>/FillCh                    | 48   | 3  | Length: 1                               |
| <b>DATA FORMAT / MULTIDATA</b>            |   |      |    |   |
| Address TX                                | /OutForm/Multidata<br>/Address                  | 544  | 1  | 0 = Disable<br>1 = Enable               |
| Header                                    | /OutForm/Multidata<br>/AddrHeader               | 545  | 3  | Length: 0 to 32                         |
| Separator                                 | /OutForm/Multidata<br>/AddrSeparator            | 546  | 3  | Length: 0 to 32                         |
| <b>DATA FORMAT / CRISPLANT PARAMETERS</b> |   |      |    |   |
| Crisplant Manufacturer ID                 | /Comms<br>/CrispPar<br>/ID                      | 61   | 2  | Length: 1                               |

| PARAMETER                     | COMPLETE PATH                    | SHC  | PT | VALUE                     |
|-------------------------------|----------------------------------|------|----|---------------------------|
| Heartbeat Message             | /Comms<br>/CrispPar<br>/HBEnable | 67   | 1  | 0 = Disable<br>1 = Enable |
| Heartbeat Message Timing (ms) | /Comms<br>/CrispPar<br>/HBTime   | 68   | 0  | Range: 40 to 60000        |
| Type of Crisplant Protocol    | /Comms<br>/CrispPar<br>/Protocol | 69   | 1  | 0 = CSC<br>1 = CMC        |
| Reading Mask Tx               | /Comms<br>/CrispPar<br>/ReadMask | 5314 | 1  | 0 = Disable<br>1 = Enable |
| Code Type Tx                  | /Comms<br>/CrispPar<br>/CodeType | 5315 | 1  | 0 = Disable<br>1 = Enable |

#### 4.6 COMMUNICATION SETTINGS

| PARAMETER                  | COMPLETE PATH   | SHC  | PT | VALUE   |
|----------------------------|---|------|----|---|
| <b>GATEWAY</b>             |   |      |    |   |
| Status                     | /Comms<br>/FieldbusOptions<br>/Status                                   | 5412 | 1  | 0 = Disable<br>1 = Enable   |
| Data Tx                    | /Comms<br>/FieldbusOptions<br>/FieldbusDataTx                           | 5287 | 1  | 0 = Disable<br>1 = Enable   |
| Heartbeat                  | /Comms<br>/FieldbusOptions<br>/HeartbeatEnFieldbus                      | 5288 | 1  | 0 = Disable<br>1 = Enable Unconditioned<br>2 = Enable Conditioned       |
| <b>GATEWAY / HEARTBEAT</b> |   |      |    |   |
| Timeout (s)                | /Comms<br>/FieldbusOptions<br>/HeartbeatFieldbus<br>/TimeOutFieldbus    | 5297 | 0  | Range: 1 to 3600  |
| Heartbeat Header String    | /Comms<br>/FieldbusOptions<br>/HeartbeatFieldbus<br>/HeaderFieldbus     | 5294 | 3  | Length: 1 to 128  |
| Heartbeat Fields Separator | /Comms<br>/FieldbusOptions<br>/HeartbeatFieldbus<br>/SeparatorFieldbus  | 5295 | 3  | Length: 1 to 128  |
| Counter Module             | /Comms<br>/FieldbusOptions<br>/HeartbeatFieldbus<br>/CounterModFieldbus | 5290 | 1  | 0 = Disable<br>1 = 10<br>2 = 100<br>3 = 1000<br>4 = 10000<br>5 = Custom |

| PARAMETER                           | COMPLETE PATH   | SHC  | PT | VALUE   |
|-------------------------------------|---|------|----|---|
| Custom Counter Module               | /Comms<br>/FieldbusOptions<br>/HeartbeatFieldbus<br>/CustomCounterMod<br>Fieldbus | 5292 | 0  | Range: 2 to 10000   |
| Counter Starting Value              | /Comms<br>/FieldbusOptions<br>/HeartbeatFieldbus<br>/CounterStartFieldbus         | 5291 | 0  | Range: 0 to 9999  |
| Counter Direction                   | /Comms<br>/FieldbusOptions<br>/HeartbeatFieldbus<br>/CounterDirection<br>Fieldbus | 5289 | 1  | 0 = Up<br>1 = Down  |
| System Diagnostics                  | /Comms<br>/FieldbusOptions<br>/HeartbeatFieldbus<br>/SysDiagFieldbus              | 5296 | 1  | 0 = Disable<br>1 = Enable   |
| Network Diagnostics                 | /Comms<br>/FieldbusOptions<br>/HeartbeatFieldbus<br>/DevDiagFieldbus              | 5293 | 1  | 0 = Disable<br>1 = Enable   |
| Heartbeat Terminator String         | /Comms<br>/FieldbusOptions<br>/HeartbeatFieldbus<br>/TerminatorFieldbus           | 5304 | 3  | Length: 1 to 128  |
| <b>GATEWAY / BUS COMMUNICATION</b>  |   |      |    |   |
| Baud Rate (CC-LINK)                 | /Comms<br>/FieldbusOptions<br>/BusData<br>/CCLinkBaudRate                         | 5426 | 1  | 0 = 156 Kbps<br>1 = 625 Kbps<br>2 = 2.5 Mbps<br>3 = 5 Mbps<br>4 = 10 Mbps |
| Version                             | /Comms<br>/FieldbusOptions<br>/BusData<br>/FieldbusVersion                        | 5413 | 0  | Range: 1 to 2   |
| Master Input Area Size (Profibus)   | /Comms<br>/FieldbusOptions<br>/BusData<br>/ProfibusInputSize                      | 270  | 0  | Range: 8 to 144   |
| Master Input Area Size (DeviceNet)  | /Comms<br>/FieldbusOptions<br>/BusData<br>/DeviceNetInputSize                     | 5278 | 0  | Range: 8 to 144   |
| Master Input Area Size (EthernetIP) | /Comms<br>/FieldbusOptions<br>/BusData<br>/EthernetIPInputSize                    | 5282 | 0  | Range: 8 to 144   |
| Master Input Area Size (CC-LINK)    | /Comms<br>/FieldbusOptions<br>/BusData<br>/CCLinkInputSize                        | 5355 | 0  | Range: 2 to 126   |



| PARAMETER                            | COMPLETE PATH   | SHC  | PT | VALUE           |
|--------------------------------------|---|------|----|-----------------|
| Master Input Area Size (CANOpen)     | /Comms<br>/FieldbusOptions<br>/BusData<br>/CANOpenInputSize     | 5322 | 0  | Range: 8 to 144 |
| Master Input Area Size (Profinet)    | /Comms<br>/FieldbusOptions<br>/BusData<br>/ProfinetInputSize    | 5325 | 0  | Range: 8 to 56  |
| Master Input Area Size (Modbus)      | /Comms<br>/FieldbusOptions<br>/BusData<br>/ModbusRtuInputSize   | 5372 | 0  | Range: 8 to 144 |
| Master Input Area Size (Modbus TCP)  | /Comms<br>/FieldbusOptions<br>/BusData<br>/ModbusTcpInputSize   | 5373 | 0  | Range: 8 to 144 |
| Master Output Area Size (Profibus)   | /Comms<br>/FieldbusOptions<br>/BusData<br>/ProfibusOutputSize   | 271  | 0  | Range: 8 to 144 |
| Master Output Area Size (DeviceNet)  | /Comms<br>/FieldbusOptions<br>/BusData<br>/DeviceNetOutputSize  | 5280 | 0  | Range: 8 to 144 |
| Master Output Area Size (EthernetIP) | /Comms<br>/FieldbusOptions<br>/BusData<br>/EthernetIPOutputSize | 5283 | 0  | Range: 8 to 144 |
| Master Output Area Size (CC-LINK)    | /Comms<br>/FieldbusOptions<br>/BusData<br>/CCLinkOutputSize     | 5356 | 0  | Range: 2 to 128 |
| Master Output Area Size (CANOpen)    | /Comms<br>/FieldbusOptions<br>/BusData<br>/CANOpenOutputSize    | 5321 | 0  | Range: 8 to 144 |
| Master Output Area Size (Profinet)   | /Comms<br>/FieldbusOptions<br>/BusData<br>/ProfinetOutputSize   | 5326 | 0  | Range: 8 to 56  |
| Master Output Area Size (Modbus)     | /Comms<br>/FieldbusOptions<br>/BusData<br>/ModbusRtuOutput Size | 5374 | 0  | Range: 8 to 144 |
| Master Output Area Size (Modbus TCP) | /Comms<br>/FieldbusOptions<br>/BusData<br>/ModbusTcpOutput Size | 5375 | 0  | Range: 8 to 144 |

| PARAMETER                         | COMPLETE PATH   | SHC  | PT | VALUE  |
|-----------------------------------|---|------|----|--|
| Node Address (Profibus)           | /Comms<br>/FieldbusOptions<br>/BusData<br>/ProfibusNodeAddr     | 268  | 0  | Range: 0 to 126  |
| Node Address (MAC ID) (DeviceNet) | /Comms<br>/FieldbusOptions<br>/BusData<br>/DeviceNetNodeAddr    | 5279 | 0  | Range: 0 to 63   |
| Node Address (CC-LINK)            | /Comms<br>/FieldbusOptions<br>/BusData<br>/CCLinkNodeAddr       | 5319 | 0  | Range: 1 to 64   |
| Node Address (CANOpen)            | /Comms<br>/FieldbusOptions<br>/BusData<br>/CANOpenNodeAddr      | 5323 | 0  | Range: 1 to 127  |
| Node Address (Modbus)             | /Comms<br>/FieldbusOptions<br>/BusData<br>/ModbusRtuNodeAddr    | 5427 | 0  | Range: 1 to 127  |
| Data Flow Control                 | /Comms<br>/FieldbusOptions<br>/BusData<br>/FlowControl          | 269  | 1  | 0 = Disable<br>2 = DAD Driver                              |
| Data Consistency                  | /Comms<br>/FieldbusOptions<br>/BusData<br>/ConsistencyAbil      | 290  | 1  | 0 = Disable<br>1 = Enable                                  |
| Process Active Timeout ms         | /Comms<br>/FieldbusOptions<br>/BusData<br>/ProcessActiveTimeout | 5421 | 0  | Range: 0 to 65535  |
| Connection Timeout ms             | /Comms<br>/FieldbusOptions<br>/BusData<br>/ConnectionTimeout    | 5423 | 0  | Range: 0 to 65535  |
| <b>GATEWAY / LINE PARAMETERS</b>  |   |      |    |  |
| IP Addressing                     | /Comms<br>/FieldbusOptions<br>/Ethernet<br>/IPAddressing        | 95   | 1  | 0 = Static Assignment<br>1 = DHCP<br>2 = Remote Assignment |
| IP Addressing (BM200)             | /Comms<br>/FieldbusOptions<br>/Ethernet<br>/IPAddressingBm200   | 5550 | 1  | 0 = Static Assignment<br>1 = DHCP                          |
| IP_address                        | /Comms<br>/FieldbusOptions<br>/Ethernet<br>/IP_address          | 96   | 2  | Max Length: 16   |

| PARAMETER                                     | COMPLETE PATH   | SHC  | PT | VALUE                     |
|---|---|------|----|---------------------------|
| IP_netmask                                    | /Comms<br>/FieldbusOptions<br>/Ethernet<br>/IP_netmask      | 97   | 2  | Max Length: 16            |
| IP_gateway                                    | /Comms<br>/FieldbusOptions<br>/Ethernet<br>/IP_gateway      | 98   | 2  | Max Length: 16            |
| IP_address (BM2x0)                            | /Comms<br>/FieldbusOptions<br>/Ethernet<br>/IP_addressBm200 | 5551 | 2  | Max Length: 16            |
| IP_netmask (BM2x0)                            | /Comms<br>/FieldbusOptions<br>/Ethernet<br>/IP_netmaskBm200 | 5552 | 2  | Max Length: 16            |
| IP_gateway (BM2x0)                            | /Comms<br>/FieldbusOptions<br>/Ethernet<br>/IP_gatewayBm200 | 5553 | 2  | Max Length: 16            |
| Station Name                                  | /Comms<br>/FieldbusOptions<br>/Ethernet<br>/StationName     | 5425 | 2  | Max Length: 32            |
| <b>GATEWAY / DIGITAL INPUTS CONDITIONING</b>  |   |      |    |                           |
| Input#1 Echo                                  | /Comms<br>/FieldbusOptions<br>/In/Input1                    | 5298 | 1  | 0 = Disable<br>1 = Enable |
| Input#2 Echo                                  | /Comms<br>/FieldbusOptions<br>/In/Input2                    | 5299 | 1  | 0 = Disable<br>1 = Enable |
| Input#3 Echo                                  | /Comms<br>/FieldbusOptions<br>/In/Input3                    | 5503 | 1  | 0 = Disable<br>1 = Enable |
| Phase Echo                                    | /Comms<br>/FieldbusOptions<br>/In/ PhaseEcho                | 5300 | 1  | 0 = Disable<br>1 = Enable |
| <b>GATEWAY / DIGITAL OUTPUTS CONDITIONING</b> |   |      |    |                           |
| Output#1                                      | /Comms<br>/FieldbusOptions<br>/Out/Output1                  | 5301 | 1  | 0 = Disable<br>1 = Enable |
| Output#2                                      | /Comms<br>/FieldbusOptions<br>/Out/Output2                  | 5302 | 1  | 0 = Disable<br>1 = Enable |
| Output#3                                      | /Comms<br>/FieldbusOptions<br>/Out/Output3                  | 5504 | 1  | 0 = Disable<br>1 = Enable |

| PARAMETER                                       | COMPLETE PATH   | SHC  | PT | VALUE   |
|---|---|------|----|---|
| <b>GATEWAY / TCP/IP SERVICES / USERSOCKET#1</b> |   |      |    |   |
| Status  | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket1<br>/Status1               | 134  | 1  | 0 = Disable<br>1 = Enable   |
| Data Tx   | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket1<br>/Sock1                 | 5251 | 1  | 0 = Disable<br>1 = Enable   |
| Heartbeat                                       | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket1<br>/HeartbeatEnSocket1    | 5260 | 1  | 0 = Disable<br>1 = Enable Unconditioned<br>2 = Enable Conditioned |
| Type  | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket1<br>/Type                  | 135  | 1  | 0 = Server<br>1 = Client  |
| Server Address                                  | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket1<br>/Server_address        | 136  | 2  | Max Length: 256   |
| Protocol  | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket1<br>/Protocol              | 137  | 1  | 0 = TCP<br>1 = UDP  |
| Port  | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket1/Port                      | 138  | 0  | Range: 0 to 64538   |
| Use As WebSentinel Client                       | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket1<br>/EnableSentinel1       | 5254 | 1  | 0 = Disable<br>1 = Enable   |
| Partial Read is treated as                      | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket1<br>/SentinelPartialReadAs | 5328 | 1  | 0 = No Read<br>1 = Good Read<br>3 = Partial Read"                 |
| Master Diagnostic Check Period (secs)           | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket1<br>/InputTimeOut          | 5259 | 0  | Range: 3 to 10  |

| PARAMETER   | COMPLETE PATH   | SHC  | PT | VALUE   |
|---|---|------|----|---|
| <b>GATEWAY / TCP/IP SERVICES / USERSOCKET#1 / HEARTBEAT</b> |   |      |    |   |
| Timeout (s)   | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket1<br>/HeartbeatSocket<br>/TimeOutSocket1          | 5261 | 0  | Range: 0 to 3600  |
| Heartbeat Header String                                     | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket1<br>/HeartbeatSocket<br>/HeaderSocket1           | 5262 | 3  | Length: 1 to 128  |
| Heartbeat Fields Separator                                  | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket1<br>/HeartbeatSocket<br>/SeparatorSocket1        | 5263 | 3  | Length: 1 to 128  |
| Counter Module  | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket1<br>/HeartbeatSocket<br>/CounterModSocket1       | 5264 | 1  | 0 = Disable<br>1 = 10<br>2 = 100<br>3 = 1000<br>4 = 10000<br>5 = Custom |
| Custom Counter Module                                       | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket1<br>/HeartbeatSocket<br>/CustomCounterModSocket1 | 5265 | 0  | Range: 2 to 10000   |
| Counter Starting Value                                      | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket1<br>/HeartbeatSocket<br>/CounterStartSocket1     | 5266 | 0  | Range: 0 to 9999  |
| Counter Direction   | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket1<br>/HeartbeatSocket<br>/CounterDirectionSocket1 | 5267 | 1  | 0 = Up<br>1 = Down  |
| System Diagnostics  | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket1<br>/HeartbeatSocket<br>/SysDiagSocket1          | 5268 | 1  | 0 = Disable<br>1 = Enable   |

| PARAMETER                                       | COMPLETE PATH   | SHC  | PT | VALUE   |
|---|---|------|----|---|
| Network Diagnostics                             | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket1<br>/HeartbeatSocket<br>/DevDiagSocket1    | 5269 | 1  | 0 = Disable<br>1 = Enable   |
| Heartbeat Terminator String                     | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket1<br>/HeartbeatSocket<br>/TerminatorSocket1 | 5270 | 3  | Length: 1 to 128  |
| <b>GATEWAY / TCP/IP SERVICES / USERSOCKET#2</b> |   |      |    |   |
| Status  | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket2<br>/Status2                               | 5329 | 1  | 0 = Disable<br>1 = Enable   |
| Data Tx   | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket2<br>/Sock2                                 | 5330 | 1  | 0 = Disable<br>1 = Enable   |
| Heartbeat                                       | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket2<br>/HeartbeatEnSocket2                    | 5331 | 1  | 0 = Disable<br>1 = Enable Unconditioned<br>2 = Enable Conditioned |
| Type  | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket2<br>/Type2                                 | 5342 | 1  | 0 = Server<br>1 = Client  |
| Server Address                                  | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket2<br>/Server_address2                       | 5343 | 2  | Max Length: 256   |
| Protocol  | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket2<br>/Protocol2                             | 5344 | 1  | 0 = TCP<br>1 = UDP  |
| Port  | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket2<br>/Port2                                 | 5345 | 0  | Range: 0 to 64538   |

| PARAMETER   | COMPLETE PATH   | SHC  | PT | VALUE   |
|---|---|------|----|---|
| <b>GATEWAY / TCP/IP SERVICES / USERSOCKET#2 / HEARTBEAT</b> |   |      |    |   |
| Timeout (s)   | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket2<br>/HeartbeatSocket<br>/TimeOutSocket2              | 5332 | 0  | Range: 0 to 3600  |
| Heartbeat Header String                                     | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket2<br>/HeartbeatSocket<br>/HeaderSocket2               | 5333 | 3  | Length: 1 to 128  |
| Heartbeat Fields Separator                                  | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket2<br>/HeartbeatSocket<br>/SeparatorSocket2            | 5334 | 3  | Length: 1 to 128  |
| Counter Module  | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket2<br>/HeartbeatSocket<br>/CounterModSocket2           | 5335 | 1  | 0 = Disable<br>1 = 10<br>2 = 100<br>3 = 1000<br>4 = 10000<br>5 = Custom |
| Custom Counter Module                                       | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket2<br>/HeartbeatSocket<br>/CustomCounterMod<br>Socket2 | 5336 | 0  | Range: 2 to 10000   |
| Counter Starting Value                                      | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket2<br>/HeartbeatSocket<br>/CounterStartSocket2         | 5337 | 0  | Range: 0 to 9999  |
| Counter Direction   | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket2<br>/HeartbeatSocket<br>/CounterDirection<br>Socket2 | 5338 | 1  | 0 = Up<br>1 = Down  |
| System Diagnostics  | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket2<br>/HeartbeatSocket<br>/SysDiagSocket2              | 5339 | 1  | 0 = Disable<br>1 = Enable   |

| PARAMETER   | COMPLETE PATH   | SHC  | PT | VALUE                     |
|---|---|------|----|---------------------------|
| Network Diagnostics                               | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket2<br>/HeartbeatSocket<br>/DevDiagSocket2    | 5340 | 1  | 0 = Disable<br>1 = Enable |
| Heartbeat Terminator String                       | /Comms<br>/FieldbusOptions<br>/Services<br>/UserSocket2<br>/HeartbeatSocket<br>/TerminatorSocket2 | 5341 | 3  | Length: 1 to 128          |
| <b>GATEWAY / TCP/IP SERVICES / MODBUS TCP</b>     |   |      |    |                           |
| Status  | /Comms<br>/FieldbusOptions<br>/Services<br>/Modbus<br>/Status                                     | 125  | 1  | 0 = Disable<br>1 = Enable |
| Data Tx   | /Comms<br>/FieldbusOptions<br>/Services<br>/Modbus<br>/Modbus                                     |      | 1  | 0 = Disable<br>1 = Enable |
| Type  | /Comms<br>/FieldbusOptions<br>/Services<br>/Modbus<br>/Type3                                      |      | 1  | 0=Server<br>1=Client      |
| Server Address                                    | /Comms<br>/FieldbusOptions<br>/Services<br>/Modbus<br>/Server_address                             | 126  | 2  | Max Length: 256           |
| Start Register Number                             | /Comms<br>/FieldbusOptions<br>/Services<br>/Modbus<br>/Start_reg                                  | 127  | 0  | Range: 0 to 256           |
| Number of Registers<br>(valid when Type = Client) | /Comms<br>/FieldbusOptions<br>/Services<br>/Modbus<br>/Num_reg                                    | 128  | 0  | Range: 1 to 256           |
| Number of Registers<br>(valid when Type = Server) | /Comms<br>/FieldbusOptions<br>/Services<br>/Modbus<br>/MaxNumReg                                  | 5620 | 0  | Range: 1 to 256           |



| PARAMETER  | COMPLETE PATH   | SHC  | PT | VALUE   |
|--|---|------|----|---|
| <b>GATEWAY / TCP/IP SERVICES / ETHERNET/IP</b>         |   |      |    |   |
| Status   | /Comms<br>/FieldbusOptions<br>/Services<br>/EthernetIP<br>/Status | 5609 | 1  | 0 = Disable<br>1 = Enable   |
| <b>GATEWAY TCP/IP / DIGITAL INPUT LINES</b>            |   |      |    |   |
| Input#1 Echo<br>(BM2x0 Module)                         | /Comms<br>/FieldbusOptions<br>/InEthIp/Input1                     | 5590 | 1  | 0 = Disable<br>1 = Enable   |
| Input#2 Echo<br>(BM2x0 Module)                         | /Comms<br>/FieldbusOptions<br>/InEthIp/Input2                     | 5591 | 1  | 0 = Disable<br>1 = Enable   |
| Input#3 Echo<br>(BM2x0 Module)                         | /Comms<br>/FieldbusOptions<br>/InEthIp/Input2                     | 5593 | 1  | 0 = Disable<br>1 = Enable   |
| Phase Echo<br>(BM2x0 Module)                           | /Comms<br>/FieldbusOptions<br>/InEthIp/ PhaseEcho                 | 5592 | 1  | 0 = Disable<br>1 = Enable   |
| <b>GATEWAY / TCP/IP / DIGITAL OUTPUTS CONDITIONING</b> |   |      |    |   |
| Output#1<br>(BM2x0 Module)                             | /Comms<br>/FieldbusOptions<br>/OutEthIp/Output1                   | 5613 | 1  | 0 = Disable<br>1 = Enable   |
| Output#2<br>(BM2x0 Module)                             | /Comms<br>/FieldbusOptions<br>/OutEthIp/Output2                   | 5614 | 1  | 0 = Disable<br>1 = Enable   |
| Output#3<br>(BM2x0 Module)                             | /Comms<br>/FieldbusOptions<br>/OutEthIp/Output3                   | 5615 | 1  | 0 = Disable<br>1 = Enable   |
| <b>HOST 1 SERIAL PORT</b>                              |   |      |    |   |
| Data TX  | /Comms<br>/SerHost1<br>/SerHost1                                  | 510  | 1  | 0 = Disable<br>1 = Enable   |
| Heartbeat  | /Comms<br>/SerHost1<br>/HeartbeatEnM                              | 5069 |    | 0 = Disable<br>1 = Enable Unconditioned<br>2 = Enable Conditioned |
| <b>HOST 1 SERIAL PORT / HEARTBEAT</b>                  |   |      |    |   |
| Timeout (s)  | /Comms<br>/SerHost1/HeartbeatM<br>/TimeOutM                       | 5079 | 0  | Range: 1 to 3600  |
| Heartbeat Header<br>String                             | /Comms<br>/SerHost1/HeartbeatM<br>/HeaderM                        | 5075 | 3  | Length: 0 to 128  |
| Heartbeat Fields<br>Separator String                   | /Comms<br>/SerHost1/HeartbeatM<br>/SeparatorM                     | 5076 | 3  | Length: 0 to 128  |

| PARAMETER                                   | COMPLETE PATH  | SHC  | PT | VALUE   |
|---|--|------|----|---|
| Counter Module                              | /Comms<br>/SerHost1/HeartbeatM<br>/CounterModM       | 5071 | 1  | 0 = Disable<br>1 = 10<br>2 = 100<br>3 = 1000<br>4 = 10000<br>5 = Custom                           |
| Custom Counter Module                       | /Comms<br>/SerHost1/HeartbeatM<br>/CustomCounterModM | 5073 | 0  | Length: 2 to 10000  |
| Counter Starting Value                      | /Comms<br>/SerHost1//HeartbeatM<br>/CounterStartM    | 5072 | 0  | Length: 0 to 9999   |
| Counter Direction                           | /Comms<br>/SerHost1/HeartbeatM<br>/CounterDirectionM | 5070 | 1  | 0 = Up<br>1 = Down  |
| System Diagnostics                          | /Comms<br>/SerHost1//HeartbeatM<br>/SysDiagM         | 5077 | 1  | 0 = Disable<br>1 = Enable   |
| Network Diagnostics                         | /Comms<br>/SerHost1/HeartbeatM<br>/DevDiagM          | 5074 | 1  | 0 = Disable<br>1 = Enable   |
| Heartbeat Terminator String                 | /Comms<br>/SerHost1/HeartbeatM<br>/TerminatorM       | 5078 |    | Length: 0 to 128  |
| <b>HOST 1 SERIAL PORT / LINE PARAMETERS</b> |  |      |    |   |
| Communication Protocol                      | /Comms<br>/SerHost1/Line<br>/Mode                    | 33   | 1  | 0 = Standard<br>1 = MUX 32 Slave<br>2 = Siemens 3964<br>3 = Siemens RK512                         |
| Electrical Interface                        | /Comms<br>/SerHost1/Line<br>/MainHW                  | 10   | 1  | 0 = RS232<br>1 = RS485 Full Duplex  |
| MUX 32 protocol address                     | /Comms<br>/SerHost1/Line<br>/Addr                    | 58   | 0  | Range: 0 to 31  |
| Handshake (RS232)                           | /Comms<br>/SerHost1/Line<br>/FlowCtrl                | 57   | 1  | 0 = None<br>1 = Hardware (RTS/CTS)<br>2 = Software (Xon/Xoff)                                     |
| Handshake (RS485)                           | /Comms<br>/SerHost1/Line<br>/Flow485                 | 60   | 1  | 0 = None<br>1 = Software (Xon/Xoff)   |
| Baud Rate                                   | /Comms<br>/SerHost1/Line<br>/StdBaud                 | 49   | 1  | 8 = 1200<br>1 = 2400<br>2 = 4800<br>3 = 9600<br>4 = 19200<br>5 = 38400<br>6 = 57600<br>7 = 115200 |

| PARAMETER                           | COMPLETE PATH                             | SHC  | PT | VALUE   |
|-------------------------------------|---|------|----|---|
| Baud Rate                           | /Comms<br>/SerHost1/Line<br>/MuxBaud      | 59   | 1  | 1 = 2400<br>2 = 4800<br>3 = 9600<br>4 = 19200<br>5 = 38400<br>6 = 57600 |
| Parity                              | /Comms<br>/SerHost1/Line<br>/Parity       | 50   | 1  | 0 = None<br>1 = Odd<br>2 = Even   |
| Data Bits                           | /Comms<br>/SerHost1/Line/Data             | 51   | 1  | 0 = 7<br>1 = 8  |
| Stop Bits                           | /Comms<br>/SerHost1/Line/Stop             | 52   | 1  | 0 = 1<br>1 = 2  |
| Checksum (Siemens)                  | /Comms<br>/SerHost1/Line<br>/S3964Chk     | 535  | 1  | 0 = Disable<br>1 = Enable   |
| Priority (Siemens)                  | /Comms<br>/SerHost1/Line<br>/S3964Prio    | 536  | 1  | 0 = Low<br>1 = High   |
| Header n. 5<br>(Siemens RK512)      | /Comms<br>/SerHost1/Line<br>/SRKHead5     | 540  | 3  | Length: 1   |
| Header n. 6<br>(Siemens RK512)      | /Comms<br>/SerHost1/Line<br>/SRKHead6     | 541  | 3  | Length: 1   |
| Header n. 9<br>(Siemens RK512)      | /Comms<br>/SerHost1/Line<br>/SRKHead9     | 542  | 3  | Length: 1   |
| Header n. 10<br>(Siemens RK512)     | /Comms<br>/SerHost1/Line<br>/SRKHead10    | 539  | 3  | Length: 1   |
| Filler Character<br>(Siemens RK512) | /Comms<br>/SerHost1/Line<br>/SRKFillChar  | 537  | 3  | Length: 1   |
| Filler Position<br>(Siemens RK512)  | /Comms<br>/SerHost1/Line<br>/SRKFillerPos | 538  | 1  | 0 = Before Data<br>1 = After Data                                       |
| <b>HOST 2 SERIAL PORT</b>           |   |      |    |   |
| Data TX                             | /Comms<br>/SerHost2<br>/SerHost2          | 5450 | 1  | 0 = Disable<br>1 = Enable   |
| Heartbeat                           | /Comms<br>/SerHost2<br>/HeartbeatEnM2     | 5451 | 1  | 0 = Disable<br>1 = Enable Unconditioned<br>2 = Enable Conditioned       |
| Data Pass Through                   | /Comms<br>/SerHost2<br>/PTSource2         | 5480 | 1  | 0 = Disable<br>1 = Enable   |

| PARAMETER   | COMPLETE PATH   | SHC  | PT | VALUE   |
|---|---|------|----|---|
| <b>HOST 2 SERIAL PORT / HEARTBEAT</b>                 |   |      |    |   |
| Timeout (s)   | /Comms<br>/SerHost2/HeartbeatM<br>/TimeOutM2              | 5452 | 0  | Range: 1 to 3600  |
| Heartbeat Header String                               | /Comms<br>/SerHost2/HeartbeatM<br>/HeaderM2               | 5453 | 3  | Length: 0 to 128  |
| Heartbeat Fields Separator                            | /Comms<br>/SerHost2/HeartbeatM<br>/SeparatorM2            | 5454 | 3  | Length: 0 to 128  |
| Counter Module  | /Comms<br>/SerHost2/HeartbeatM<br>/CounterModM2           | 5455 | 1  | 0 = Disable<br>1 = 10<br>2 = 100<br>3 = 1000<br>4 = 10000<br>5 = Custom |
| Custom Counter Module                                 | /Comms<br>/SerHost2/HeartbeatM<br>/CustomCounterMod<br>M2 | 5456 | 0  | Length: 2 to 10000  |
| Counter Starting Value                                | /Comms<br>/SerHost2/HeartbeatM<br>/CounterStartM2         | 5457 | 0  | Length: 0 to 9999   |
| Counter Direction                                     | /Comms<br>/SerHost2/HeartbeatM<br>/CounterDirectionM2     | 5458 | 1  | 0 = Up<br>1 = Down  |
| System Diagnostics                                    | /Comms<br>/SerHost2/HeartbeatM<br>/SysDiagM2              | 5459 | 1  | 0 = Disable<br>1 = Enable   |
| Network Diagnostics                                   | /Comms<br>/SerHost2/HeartbeatM<br>/DevDiagM2              | 5460 | 1  | 0 = Disable<br>1 = Enable   |
| Heartbeat Terminator String                           | /Comms<br>/SerHost2/HeartbeatM<br>/TerminatorM2           | 5461 | 3  | Length: 0 to 128  |
| <b>HOST 2 SERIAL PORT / DATA PASS THROUGH OPTIONS</b> |   |      |    |   |
| Termination string                                    | /Comms<br>/SerHost2/ PTOpt2<br>/PTTerm2                   | 5482 | 3  | Length: 1 to 32   |
| Data Destination:<br>Host 1 Serial Port               | /Comms<br>/SerHost2/PTOpt2<br>/PTDestHost1                | 5884 | 1  | 0 = Disable<br>1 = Enable   |
| Data Destination:<br>Gateway                          | /Comms<br>/SerHost2/PTOpt2<br>/PTDestFieldbus2            | 5508 | 1  | 0 = Disable<br>1 = Enable   |
| Data Destination: ID-<br>NET                          | /Comms<br>/SerHost2/PTOpt2<br>/PTDestNet2                 | 5483 | 1  | 0 = Disable<br>1 = Enable   |

| PARAMETER                                | COMPLETE PATH                                      | SHC  | PT | VALUE   |
|--|--|------|----|---|
| <b>AUXILIARY SERIAL PORT</b>             |  |      |    |   |
| Data TX                                  | /Comms<br>/SerAux<br>/SerAux                       | 511  | 1  | 0 = Disable<br>1 = Enable   |
| Heartbeat                                | /Comms<br>/SerAux<br>/HeartbeatEnA                 | 5068 | 1  | 0 = Disable<br>1 = Enable Unconditioned<br>2 = Enable Conditioned       |
| Data Pass Through                        | /Comms<br>/SerAux<br>/PTSource                     | 512  | 1  | 0 = Disable<br>1 = Enable   |
| BM100 Module Support                     | /Comms<br>/SerAux<br>/SearchForCBX                 | 5247 | 1  | 0 = Disable<br>1 = Enable   |
| <b>AUXILIARY SERIAL PORT / HEARTBEAT</b> |  |      |    |   |
| Timeout (s)                              | /Comms<br>/SerAux/HeartbeatA<br>/TimeOutA          | 5067 | 0  | Range: 1 to 3600  |
| Heartbeat Header String                  | /Comms<br>/SerAux/HeartbeatA<br>/HeaderA           | 5063 | 3  | Length: 0 to 128  |
| Heartbeat Fields Separator               | /Comms<br>/SerAux/HeartbeatA<br>/SeparatorA        | 5064 | 3  | Length: 0 to 128  |
| Counter Module                           | /Comms<br>/SerAux/HeartbeatA<br>/CounterModA       | 5059 | 1  | 0 = Disable<br>1 = 10<br>2 = 100<br>3 = 1000<br>4 = 10000<br>5 = Custom |
| Custom Counter Module                    | /Comms<br>/SerAux/HeartbeatA<br>/CustomCounterModA | 5061 | 0  | Length: 2 to 10000  |
| Counter Starting Value                   | /Comms<br>/SerAux/HeartbeatA<br>/CounterStartA     | 5060 | 0  | Length: 0 to 9999   |
| Counter Direction                        | /Comms<br>/SerAux/HeartbeatA<br>/CounterDirectionA | 5058 | 1  | 0 = Up<br>1 = Down  |
| System Diagnostics                       | /Comms<br>/SerAux/HeartbeatA<br>/SysDiagA          | 5065 | 1  | 0 = Disable<br>1 = Enable   |
| Network Diagnostics                      | /Comms<br>/SerAux/HeartbeatA<br>/DevDiagA          | 5062 | 1  | 0 = Disable<br>1 = Enable   |
| Heartbeat Terminator String              | /Comms<br>/SerAux/HeartbeatA<br>/TerminatorA       | 5066 | 3  | Length: 0 to 128  |

| PARAMETER  | COMPLETE PATH                                | SHC  | PT | VALUE   |
|--|--|------|----|---|
| <b>AUXILIARY SERIAL PORT / LINE PARAMETERS</b>           |  |      |    |   |
| Baud Rate  | /Comms<br>/SerAux/Line<br>/StdBaud           | 53   | 1  | 8 = 1200<br>1 = 2400<br>2 = 4800<br>3 = 9600<br>4 = 19200<br>5 = 38400<br>6 = 57600<br>7 = 115200 |
| Parity   | /Comms<br>/SerAux/Line<br>/Parity            | 54   | 1  | 0 = None<br>1 = Odd<br>2 = Even   |
| Data Bits  | /Comms<br>/SerAux/Line<br>/Data              | 55   | 1  | 0 = 7<br>1 = 8  |
| Stop Bits  | /Comms<br>/SerAux/Line<br>/Stop              | 56   | 1  | 0 = 1<br>1 = 2  |
| <b>AUXILIARY SERIAL PORT / DATA PASS THROUGH OPTIONS</b> |  |      |    |   |
| Termination string                                       | /Comms<br>/SerAux/PTOpt<br>/PTTerm           | 514  | 3  | Length: 1 to 32   |
| Data Destination:<br>Host 1 Serial Port                  | /Comms<br>/SerHost2/PTOpt<br>/PTDestHost1    | 5485 | 1  | 0 = Disable<br>1 = Enable   |
| Data Destination:<br>Gateway                             | /Comms<br>/SerHost2/PTOpt<br>/PTDestFieldbus | 5509 | 1  | 0 = Disable<br>1 = Enable   |
| Data Destination: ID-<br>NET                             | /Comms<br>/SerHost2/PTOpt<br>/PTDestNet      | 5248 | 1  | 0 = Disable<br>1 = Enable   |

## 4.7 DIGITAL I/O SETTING

| PARAMETER   | COMPLETE PATH           | SHC  | PT | VALUE                                |
|---|-------------------------|------|----|--------------------------------------|
| <b>BUILT-IN DIGITAL I/Os</b>                              |                         |      |    |                                      |
| Input#1 Active Level<br>(Overridden by<br>Operating Mode) | /IO<br>/In1Lev          | 229  | 1  | 0 = Active Closed<br>1 = Active Open |
| Input#2 active level<br>(Overridden By<br>Operating Mode) | /IO<br>/In2Lev          | 230  | 1  | 0 = Active Closed<br>1 = Active Open |
| Input#3 Active Level<br>(Overridden by<br>Operating Mode) | /IO<br>/In3Lev          | 5502 | 1  | 0 = Active Closed<br>1 = Active Open |
| Debounce Filter (ms)                                      | /IO<br>/InputTimeFilter | 5035 | 0  | Range: 5 to 1000                     |

| PARAMETER                               | COMPLETE PATH                  | SHC  | PT | VALUE   |
|---|--------------------------------|------|----|---|
| <b>BUILT-IN DIGITAL I/Os / OUTPUT#1</b> |                                |      |    |   |
| Use                                     | /IO<br>/Out0<br>/Use_0         | 5316 | 1  | 1 = Local<br>2 = External Fieldbus  |
| Line State                              | /IO<br>/Out0<br>/Idle          | 19   | 1  | 0 = Normally Open<br>1 = Normally Closed  |
| Activation Event                        | /IO<br>/Out0<br>/Active        | 20   | 1  | 0 = None<br>1 = Complete Read<br>2 = Partial Read<br>3 = No Read<br>5 = Phase On<br>6 = Phase Off<br>8 = Multiple Read<br>9 = Right<br>10 = Wrong<br>11 = Ready<br>12 = Quality Counter < Threshold |
| Activation Event (Multidata)            | /IO<br>/Out0<br>/ActiveMulti   | 5525 | 1  | 0 = None<br>11 = Ready  |
| Alternative Activation Event            | /IO<br>/Out0<br>/Active1       | 515  | 1  | 0 = None<br>1 = Complete Read<br>2 = Partial Read<br>3 = No Read<br>5 = Phase On<br>6 = Phase Off<br>8 = Multiple Read<br>9 = Right<br>10 = Wrong<br>11 = Ready<br>12 = Quality Counter < Threshold |
| Deactivation Event                      | /IO<br>/Out0<br>/Deactive      | 21   | 1  | 0 = None<br>7 = Timeout<br>5 = Phase On<br>6 = Phase Off<br>8 = Quality Counter >= Threshold  |
| Deactivation Event (Multidata)          | /IO<br>/Out0<br>/DeactiveMulti | 5527 | 1  | 0 = None<br>7 = Timeout   |
| Alternative Deactivation Event          | /IO<br>/Out0<br>/Deactive1     | 516  | 1  | 0 = None<br>5 = Phase On<br>6 = Phase Off<br>8 = Quality Counter >= Threshold   |
| Deactivation Timeout (ms)               | /IO<br>/Out0<br>/Timeout       | 22   | 0  | Range: 40 to 15000  |

| PARAMETER                                       | COMPLETE PATH                                | SHC  | PT | VALUE   |
|---|--|------|----|---|
| Deactivation Timeout (ms) (Multidata)           | /IO<br>/Out0<br>/TimeoutMulti                | 5402 | 0  | Range: 40 to 15000  |
| Activate On Any Diagnostics Error               | /IO<br>/Out0<br>/ActiveDiagnoErr             | 551  | 1  | 0 = Disable<br>1 = Enable   |
| Deactivate When All Diagnostic Errors Recovered | /IO<br>/Out0<br>/DeactiveDiagnoNoErr         | 552  | 1  | 0 = Disable<br>1 = Enable   |
| Event Counter                                   | /IO<br>/Out0<br>/EventCounter                | 553  | 0  | Range: 1 to 70000   |
| Event Counter Mode                              | /IO<br>/Out0<br>/EventCounterMode            | 554  | 1  | 0 = Consecutive<br>1 = Not Consecutive  |
| Quality Counter Threshold                       | /IO<br>/Out0<br>/QualityCounter<br>Threshold | 5273 | 0  | Range: 1 to 100   |
| <b>BUILT-IN DIGITAL I/Os / OUTPUT#2</b>         |  |      |    |   |
| Use   | /IO<br>/Out1<br>/Use_1                       | 5317 | 1  | 1 = Local<br>2 = External Fieldbus  |
| Line State                                      | /IO<br>/Out1<br>/Idle                        | 23   | 1  | 0 = Normally Open<br>1 = Normally Closed  |
| Activation Event                                | /IO<br>/Out1<br>/Active                      | 24   |    | 0 = None<br>1 = Complete Read<br>2 = Partial Read<br>3 = No Read<br>5 = Phase On<br>6 = Phase Off<br>8 = Multiple Read<br>9 = Right<br>10 = Wrong<br>11 = Ready<br>12 = Quality Counter < Threshold |
| Activation Event (Multidata)                    | /IO<br>/Out1<br>/ActiveMulti                 | 5528 | 1  | 0 = None<br>11 = Ready  |



| PARAMETER                                       | COMPLETE PATH                             | SHC  | PT | VALUE   |
|---|---|------|----|---|
| Alternative Activation Event                    | /IO<br>/Out1<br>/Active1                  | 517  | 1  | 0 = None<br>1 = Complete Read<br>2 = Partial Read<br>3 = No Read<br>5 = Phase On<br>6 = Phase Off<br>8 = Multiple Read<br>9 = Right<br>10 = Wrong<br>11 = Ready<br>12 = Quality Counter < Threshold |
| Deactivation Event                              | /IO<br>/Out1<br>/Deactive                 | 25   | 1  | 0 = None<br>7 = Timeout<br>5 = Phase On<br>6 = Phase Off<br>8 = Quality Counter >= Threshold  |
| Deactivation Event (Multidata)                  | /IO<br>/Out1<br>/DeactiveMulti            | 5530 | 1  | 0 = None<br>7 = Timeout   |
| Alternative Deactivation Event                  | /IO<br>/Out1<br>/Deactive1                | 518  | 1  | 0 = None<br>5 = Phase On<br>6 = Phase Off<br>8 = Quality Counter >= Threshold   |
| Deactivation Timeout (ms)                       | /IO<br>/Out1<br>/Timeout                  | 26   | 0  | Range: 40 to 15000  |
| Deactivation Timeout (ms) (Multidata)           | /IO<br>/Out1<br>/TimeoutMulti             | 5403 | 0  | Range: 40 to 15000  |
| Activate On Any Diagnostics Error               | /IO<br>/Out1<br>/ActiveDiagnoErr          | 555  | 1  | 0 = Disable<br>1 = Enable   |
| Deactivate When All Diagnostic Errors Recovered | /IO<br>/Out1<br>/DeactiveDiagnoNoErr      | 556  | 1  | 0 = Disable<br>1 = Enable   |
| Event Counter                                   | /IO<br>/Out1<br>/EventCounter1            | 557  | 0  | Range: 1 to 70000   |
| Event Counter Mode                              | /IO<br>/Out1<br>/EventCounterMode1        | 558  | 1  | 0 = Consecutive<br>1 = Not Consecutive  |
| Quality Counter Threshold                       | /IO<br>/Out1<br>/QualityCounter Threshold | 5274 | 0  | Range: 1 to 100   |
| <b>BUILT-IN DIGITAL I/Os / OUTPUT#3</b>         |   |      |    |   |
| Use   | /IO<br>/Out2<br>/Use_2                    | 5490 | 1  | 1 = Local<br>2 = External Fieldbus  |

| PARAMETER                             | COMPLETE PATH                    | SHC  | PT | VALUE   |
|---------------------------------------|----------------------------------|------|----|---|
| Line State                            | /IO<br>/Out2<br>/Idle            | 5491 | 1  | 0 = Normally Open<br>1 = Normally Closed  |
| Activation Event                      | /IO<br>/Out2<br>/Active          | 5492 |    | 0 = None<br>1 = Complete Read<br>2 = Partial Read<br>3 = No Read<br>5 = Phase On<br>6 = Phase Off<br>8 = Multiple Read<br>9 = Right<br>10 = Wrong<br>11 = Ready<br>12 = Quality Counter < Threshold |
| Activation Event (Multidata)          | /IO<br>/Out2<br>/ActiveMulti     | 5531 | 1  | 0 = None<br>11 = Ready  |
| Alternative Activation Event          | /IO<br>/Out2<br>/Active1         | 5493 | 1  | 0 = None<br>1 = Complete Read<br>2 = Partial Read<br>3 = No Read<br>5 = Phase On<br>6 = Phase Off<br>8 = Multiple Read<br>9 = Right<br>10 = Wrong<br>11 = Ready<br>12 = Quality Counter < Threshold |
| Deactivation Event                    | /IO<br>/Out2<br>/Deactive        | 5494 | 1  | 0 = None<br>7 = Timeout<br>5 = Phase On<br>6 = Phase Off<br>8 = Quality Counter >= Threshold  |
| Deactivation Event (Multidata)        | /IO<br>/Out2<br>/DeactiveMulti   | 5533 | 1  | 0 = None<br>7 = Timeout   |
| Alternative Deactivation Event        | /IO<br>/Out2<br>/Deactive1       | 5495 | 1  | 0 = None<br>5 = Phase On<br>6 = Phase Off<br>8 = Quality Counter >= Threshold   |
| Deactivation Timeout (ms)             | /IO<br>/Out2<br>/Timeout         | 5498 | 0  | Range: 40 to 15000  |
| Deactivation Timeout (ms) (Multidata) | /IO<br>/Out2<br>/TimeoutMulti    | 5404 | 0  | Range: 40 to 15000  |
| Activate On Any Diagnostics Error     | /IO<br>/Out2<br>/ActiveDiagnoErr | 5496 | 1  | 0 = Disable<br>1 = Enable   |

| PARAMETER                                       | COMPLETE PATH                                | SHC  | PT | VALUE                                  |
|---|--|------|----|--|
| Deactivate When All Diagnostic Errors Recovered | /IO<br>/Out2<br>/DeactiveDiagnoNoErr         | 5497 | 1  | 0 = Disable<br>1 = Enable              |
| Event Counter                                   | /IO<br>/Out2<br>/EventCounter1               | 5499 | 0  | Range: 1 to 70000                      |
| Event Counter Mode                              | /IO<br>/Out2<br>/EventCounterMode1           | 5500 | 1  | 0 = Consecutive<br>1 = Not Consecutive |
| Quality Counter Threshold                       | /IO<br>/Out2<br>/QualityCounter<br>Threshold | 5501 | 0  | Range: 1 to 100                        |

#### 4.8 DISPLAY AND KEYBOARD

| PARAMETER                         | COMPLETE PATH               | SHC  | PT | VALUE   |
|-----------------------------------|-----------------------------|------|----|---|
| <b>DISPLAY AND KEYBOARD</b>       |                             |      |    |   |
| Display Language                  | /Display<br>/Displaylang    | 5199 | 1  | 0 = English (United States)<br>1 = French (France)<br>2 = German (Germany)<br>3 = Italian (Italy)<br>4 = Japanese (Japan) |
| Keyboard                          | /Display<br>/keyAccess      | 5111 | 1  | 1 = Unlocked<br>2 = Locked  |
| Reset Last Reading Result Timeout | /Display<br>/ReadResultTime | 5535 | 1  | 0 = Disable<br>5 = 5 sec<br>10 = 10 sec<br>30 = 30 sec<br>60 = 1 min<br>120 = 2 min<br>300 = 5 min<br>600 = 10 min        |

#### 4.9 DIAGNOSTICS

| PARAMETER                 | COMPLETE PATH             | SHC  | PT | VALUE                     |
|---------------------------|---------------------------|------|----|---------------------------|
| <b>DIAGNOSTICS</b>        |                           |      |    |                           |
| Enable                    | /Diagno<br>/Enable        | 5100 | 1  | 0 = Disable<br>1 = Enable |
| ID-NET Slaves Diagnostics | /Diagno<br>/NetDiag       | 37   | 1  | 0 = Disable<br>1 = Enable |
| ID-NET Controller Failure | /Diagno<br>/LocalNetBoard | 5105 | 1  | 0 = Disable<br>1 = Enable |
| Start/Stop Input Failure  | /Diagno<br>/InFail        | 5103 | 1  | 0 = Disable<br>1 = Enable |

| PARAMETER                            | COMPLETE PATH                             | SHC  | PT | VALUE   |
|--------------------------------------|---|------|----|---|
| No Phase Timeout                     | /Diagno<br>/NoPhaseTO                     | 5107 | 1  | 0 = Disable<br>1 = 1 sec<br>2 = 5 sec<br>3 = 10 sec<br>4 = 20 sec<br>5 = 1 min<br>6 = 5 min<br>7 = 10 min<br>8 = 20 min |
| BM100: Wrong Rotary Switch Selection | /Diagno<br>/WrongRSPosition               | 5307 | 1  | 0 = Disable<br>1 = Enable   |
| BM100: Communication Failure         | /Diagno<br>/CBXCommFail                   | 5308 | 1  | 0 = Disable<br>1 = Enable   |
| Fieldbus Failure                     | /Diagno<br>/FBusFailure                   | 5305 | 1  | 0 = Disable<br>1 = Enable   |
| Fieldbus Mismatch                    | /Diagno<br>/FBusMisMatch                  | 5306 | 1  | 0 = Disable<br>1 = Enable   |
| Fieldbus Configuration Error         | /Diagno<br>/FBusConfErr                   | 5400 | 1  | 0 = Disable<br>1 = Enable   |
| Fieldbus DHCP Problem                | /Diagno<br>/FBusDhcpProblem               | 5401 | 1  | 0 = Disable<br>1 = Enable   |
| <b>ACTIONS</b>                       |   |      |    |   |
| TX Mode                              | /Diagno<br>/Actions<br>/TxMode            | 5096 | 1  | 0 = On Timeout<br>1 = With Code"  |
| TX Refresh                           | /Diagno<br>/Actions<br>/AsyncTO           | 5092 | 1  | 1 = 1 sec<br>2 = 2 sec<br>5 = 5 sec<br>10 = 10 sec<br>20 = 20 sec<br>30 = 30 sec<br>60 = 1 min<br>300 = 5 min           |
| Message Position                     | /Diagno<br>/Actions/SyncOpt               | 5095 | 1  | 0 = Append to Code<br>1 = Replace Code  |
| Host 1                               | /Diagno<br>/Actions<br>/SerHost1Tx        | 5094 | 1  | 0 = Disable<br>1 = Enable   |
| Host 2                               | /Diagno<br>/Actions<br>/SerHost2Tx        | 5488 | 1  | 0 = Disable<br>1 = Enable   |
| Aux                                  | /Diagno<br>/Actions<br>/SerAuxTx          | 5093 | 1  | 0 = Disable<br>1 = Enable   |
| Fieldbus                             | /Diagno<br>/Actions<br>/DiagnoFieldbus    | 5358 | 1  | 0 = Disable<br>1 = Enable   |
| UserSocket#1                         | /Diagno<br>/Actions<br>/DiagnoUserSocket1 | 5354 | 1  | 0 = Disable<br>1 = Enable   |

| PARAMETER                             | COMPLETE PATH   | SHC  | PT | VALUE  |
|---------------------------------------|---|------|----|--|
| UserSocket#2                          | /Diagno<br>/Actions<br>/DiagnoUserSocket2                   | 5357 | 1  | 0 = Disable<br>1 = Enable                                  |
| <b>FORMAT</b>                         |   |      |    |  |
| Header String                         | /Diagno<br>/Format<br>/Header                               | 5101 | 3  | Length: 1 to 128   |
| Terminator String                     | /Diagno<br>/Format<br>/Terminator                           | 5102 | 3  | Length: 1 to 128   |
| Node Identification                   | /Diagno<br>/Format<br>/NodeIdentification                   | 5253 | 3  | Length: 1 to 128   |
| Diagnostic Message Format             | /Diagno<br>/Format<br>/UseCabledMsg                         | 5080 | 1  | 0 = Internal Numeric Messages<br>1 = User Defined Messages |
| <b>FORMAT / USER DEFINED MESSAGES</b> |   |      |    |  |
| No Phase Timeout                      | /Diagno<br>/Format/UserDefMsg<br>/PSWarnigMsg               | 5087 | 3  | Length: 1 to 128   |
| Start/Stop Input Failure              | /Diagno<br>/Format/UserDefMsg<br>/StartStopInputFailureMsg  | 5091 | 3  | Length: 1 to 128   |
| ID-NET Controller Failure             | /Diagno<br>/Format/UserDefMsg<br>/LocalNetErrorMsg          | 5082 | 3  | Length: 1 to 128   |
| ID-NET Slave No Reply                 | /Diagno<br>/Format/UserDefMsg<br>/SlaveNoReplyMsg           | 5090 | 3  | Length: 1 to 128   |
| ID-NET Slave Address Duplication      | /Diagno<br>/Format/UserDefMsg<br>/SlaveAddrDuplicationMsg   | 5088 | 3  | Length: 1 to 128   |
| ID-NET Slave Net Configuration        | /Diagno<br>/Format/UserDefMsg<br>/SlaveNet ConfigurationMsg | 5089 | 3  | Length: 1 to 128   |
| BM100: Wrong Rotary Switch Selection  | /Diagno<br>/Format/UserDefMsg<br>/WrongRSPositionMsg        | 5310 | 3  | Length: 1 to 128   |
| BM100: Communication Failure          | /Diagno<br>/Format/UserDefMsg<br>/CBXCommFailMsg            | 5309 | 3  | Length: 1 to 128   |
| Fieldbus Failure                      | /Diagno<br>/Format/UserDefMsg<br>/FieldBusFailureMsg        | 5312 | 3  | Length: 1 to 128   |
| Fieldbus Mismatch                     | /Diagno<br>/Format/UserDefMsg<br>/FieldBusMismatch Msg      | 5311 | 3  | Length: 1 to 128   |

| PARAMETER                    | COMPLETE PATH  | SHC  | PT | VALUE            |
|------------------------------|--|------|----|------------------|
| Fieldbus Configuration Error | /Diagno<br>/Format/UserDefMsg<br>/FieldBusConfErrMsg     | 5410 | 3  | Length: 1 to 128 |
| Fieldbus DHCP Problem        | /Diagno<br>/Format/UserDefMsg<br>/FieldBusDhcpProblemMsg | 5411 | 3  | Length: 1 to 128 |

#### 4.10 STATISTICS

| PARAMETER             | COMPLETE PATH             | SHC  | PT | VALUE                     |
|-----------------------|---------------------------|------|----|---------------------------|
| <b>STATISTICS</b>     |                           |      |    |                           |
| Enable                | /Statisti<br>/Enable      | 217  | 1  | 0 = Disable<br>1 = Enable |
| Separator             | /Statisti<br>/Separator   | 5141 | 3  | Length: 0 to 32           |
| Time (hh mm)          | /Statisti<br>/Clock_hm    | 5134 | 1  | 0 = Disable<br>1 = Enable |
| Phase Counter         | /Statisti<br>/PhaseCnt    | 5140 | 1  | 0 = Disable<br>1 = Enable |
| Good Read Counter     | /Statisti<br>/GoodrCnt    | 5135 | 1  | 0 = Disable<br>1 = Enable |
| Partial Read Counter  | /Statisti<br>/PartialRCnt | 5139 | 1  | 0 = Disable<br>1 = Enable |
| No Read Counter       | /Statisti<br>/NoRCnt      | 5138 | 1  | 0 = Disable<br>1 = Enable |
| Multiple Read Counter | /Statisti<br>/MulRCnt     | 5137 | 1  | 0 = Disable<br>1 = Enable |

#### 4.11 USER INFORMATION SECTION

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

## A SPECIAL COMMANDS AND TABLES

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### ID-NET™ SPECIAL COMMANDS

The following special command allows to send strings to a Slave #N through the Master device in an ID-NET™ reading system layout. In order to send this special command, it is not necessary to switch the reader into **Host Mode**.

This special command can be used to send [Serial Start String](#) and [Serial Stop String](#) (for [Serial On Line](#) operating mode option) to a Slave device in an ID-NET™ reading system layout.

The SC4000 '**Send String To Slave Device #N**' special command must have the following format:

**<ESC> ( <B0<sub>H</sub>> ADDR STRING ) <ESC>**

Where:

- **ADDR:** Device Address
- **STRING:** String To Send (Length: 1 to 32)

**ADDR** is a character indicating the address of the device in an ID-NET™ Master/Slave reading system layout:

**ADDR = <30<sub>H</sub>> + <Device Address>** where:

- Device Address = 0:** Stand Alone device or Master ID-NET™ device
- Device Address = 1 to 31:** Slave ID-NET™ device
- Device Address = 32:** ID-NET™ broadcast address

This means:

- ADDR = <30<sub>H</sub>>:** Stand Alone device or Master ID-NET™ device
- ADDR = <31<sub>H</sub>> to <4F<sub>H</sub>>:** Slave ID-NET™ device
- ADDR = <50<sub>H</sub>>** ID-NET™ broadcast address

## CONTROL RULES TABLE

This paragraph provides a list of the most important control rules that can be applied to the SC4000 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> .<br>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> .<br>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>                                   |  |
| 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>  |
| ACK/NAK Protocol   | Not available if <a href="#">Operating Mode Selection</a> $\neq$ <i>On Line</i> .<br>Not available if <a href="#">Scanner Cluster Topology Role</a> = <i>Slave Synchronized</i> .  |
| <b>VERIFIER</b>  |  |
| Code Verifier  | Not available if <a href="#">Code Combination</a> $\neq$ <i>Single Label</i> .<br>Not available if <a href="#">Operating Mode Selection</a> $\neq$ <i>On Line</i>  |
| <b>PARAMETER</b>   | <b>CONTROL RULES</b>   |
| <b>DATA FORMAT</b>                                       |  |
| Host Application Protocol Type                           | Must be $\neq$ <i>Crisplant</i> if <a href="#">Operating Mode Selection</a> $\neq$ <i>On Line</i> .<br>Must be $\neq$ <i>Crisplant</i> if <a href="#">On Line Options</a> = <i>Serial On Line</i> .<br>Must be $\neq$ <i>Crisplant</i> if <a href="#">Host 1 Serial Port</a> $\neq$ <i>Standard</i> .<br>Must be $\neq$ <i>Crisplant</i> if <a href="#">Auxiliary Serial Port Pass Through</a> = <i>Enable</i> . |



| <b>COMMUNICATIONS SETTINGS HOST 1 SERIAL PORT</b>  |  |
|--|--|
| Communication Protocol   | Must be = Standard if <a href="#">Host Application Protocol Type</a> ≠ <i>Standard</i> . |
| <b>COMMUNICATIONS SETTINGS AUXILIARY SERIAL PORT</b>   |  |
| Data Pass Through  | Must be = Disable if <a href="#">Host Application Protocol Type</a> ≠ <i>Standard</i> .  |
| <b>DIGITAL OUTPUT LINES SETTING</b>  |  |
| Activation Event, Alternative<br>Activation Event, Deactivation Event, Alternative<br>Deactivation Event | Not available if <a href="#">Activate On Any Diagnostics 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    | 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  |

