HOST MODE PROGRAMMING

> SC4000
ID NET™ Controller

DATALOGIC

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SC4000 Host Mode Programming

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CONTENTS

1 HOST MODE PROGRAMMING

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	**Enter Host Mode**	**<ESC> [C**	**<ESC> H <CR><LF>**
	After entering this command, the device responds with the first reply message and then waits for the following command. From now on the device is in the **CONNECTED** state. Normal data flow is inhibited until it comes back to the **IDLE** state.		
2	**Enter Terminal Mode**	**<ESC>] B**	**<ESC> R <CR><LF>**
	After entering this command, the device responds with the second reply message and then waits for the following command in Terminal mode.		
3	**Enter Programming Mode**	**<ESC> c M <B0$_H$> ADDR**	**<ESC> c <CR><LF>**
	ADDR is a character indicating the address of the device in an ID-NET™ Master/Slave reading system layout **ADDR = <30$_H$> + <Device Address>** where: • **Device Address = 0**: Stand Alone device or Master ID-NET™ device • **Device Address = 1 to 31**: Slave ID-NET™ device This means: • **ADDR = <30$_H$>**: Stand Alone device or Master ID-NET™ device • **ADDR = <31$_H$> to <4F$_H$>**: Slave ID-NET™ device 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.		

2.2 DISCONNECTION FROM DEVICE

	DESCRIPTION	HOST COMMAND	REPLY MESSAGE
1	**Exit Programming Mode**	**<ESC> d M <B0$_H$> ADDR**	**<ESC> d <CR><LF>**
	Where **ADDR** 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	**Exit Terminal Mode**	**<ESC> I A <space>**	**<ESC> K <CR><LF>**
	This message must always be transmitted to exit from Terminal mode.		
3	**Exit Host Mode**	**<ESC> [A**	**<ESC> X <CR><LF>**
	This message must always be transmitted to end the programming session. From now on device is in **IDLE** 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
	Self Disconnection	**-**	**<ESC> [A**
	This message notifies a forced disconnection from the Host. This message must always be managed by the Host program to check when the device has gone back to the **IDLE** 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
	Self Disconnection	**<ESC> X <CR><LF>**	**-**
	Host must confirm the disconnection event sending this reply message. If not sent, after a timeout (about 300 ms as default) device goes back to the **IDLE** state.		

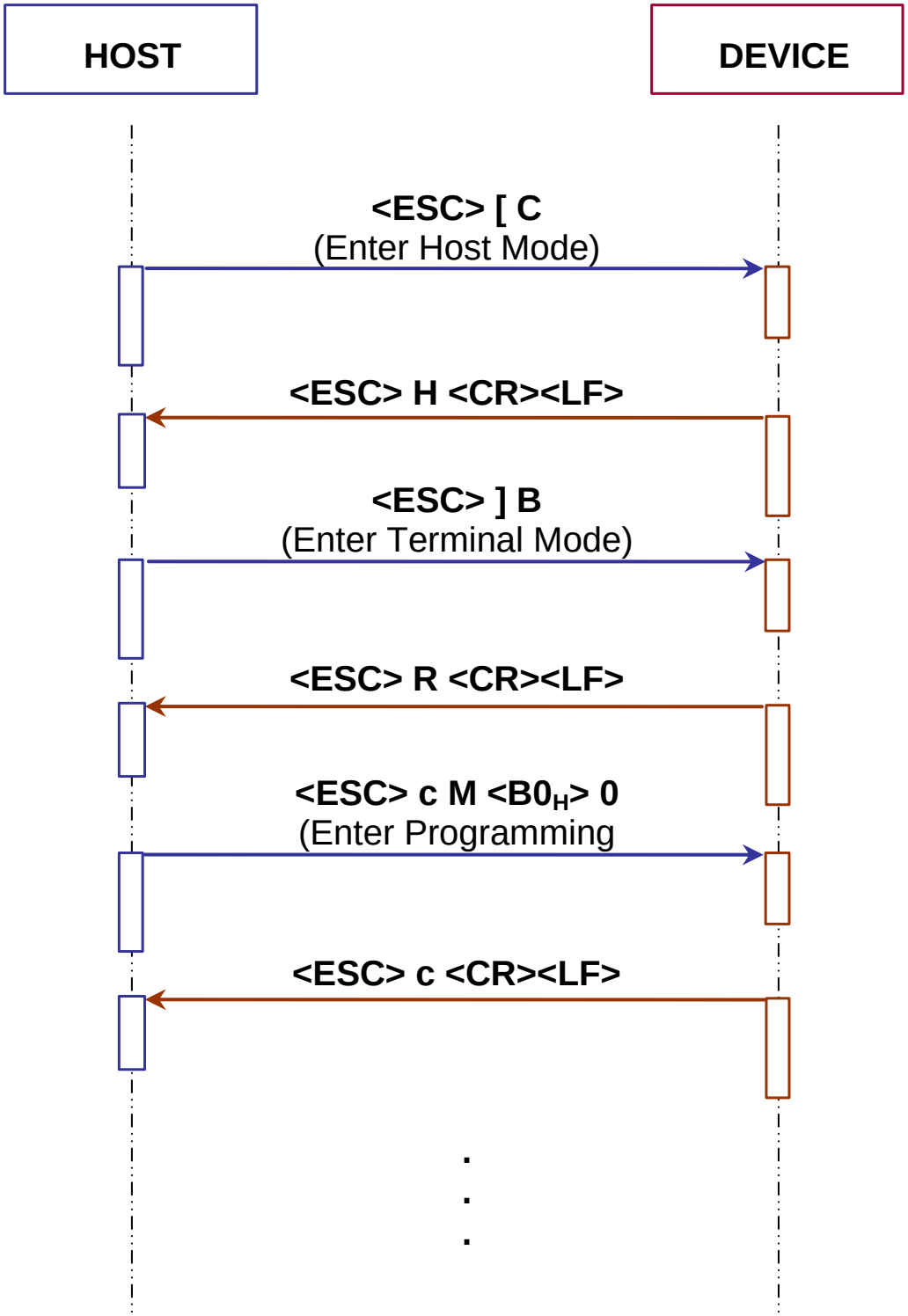

Figure 1 - Connection to Stand Alone Device

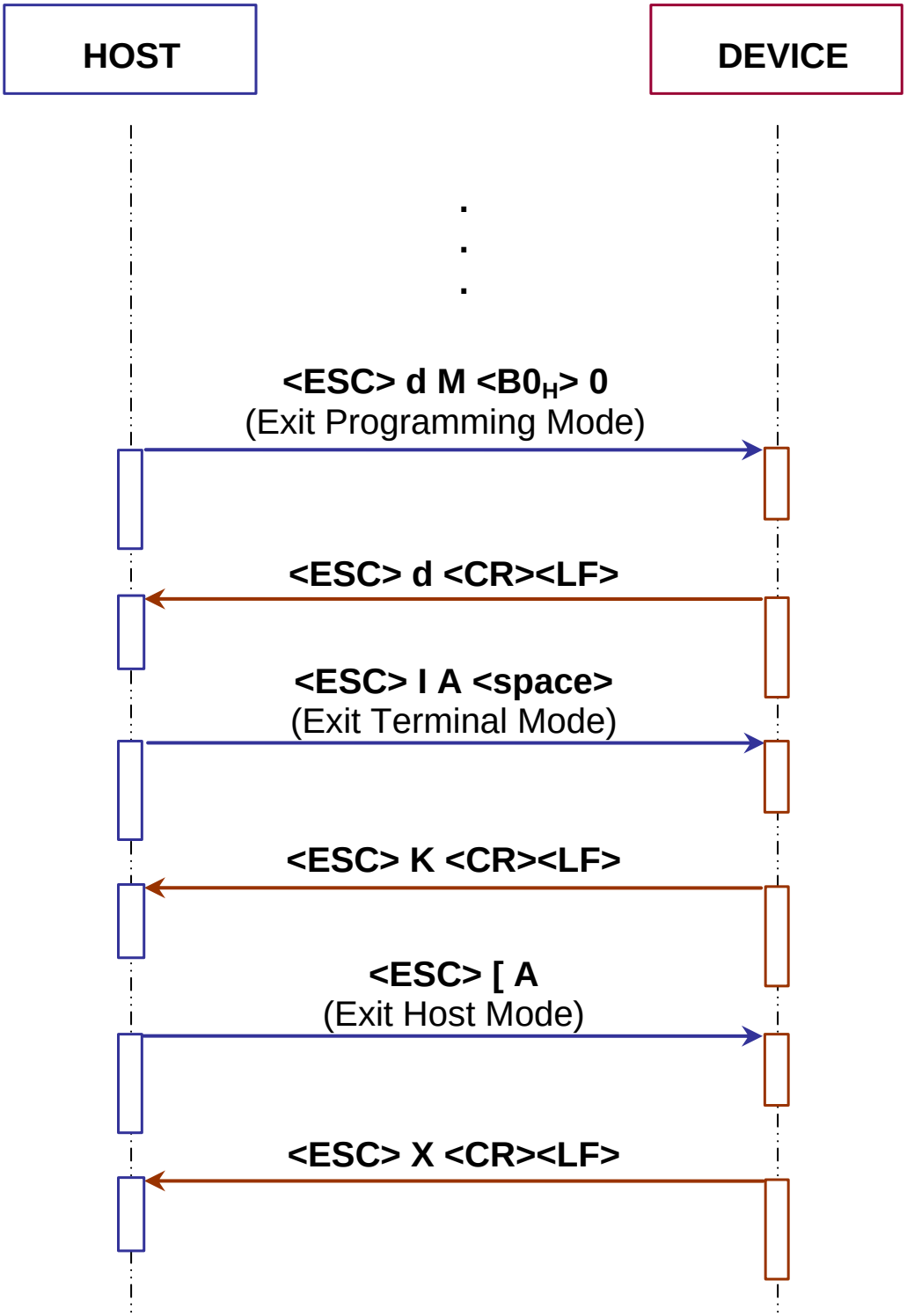

Figure 2 - Disconnection from Stand Alone Device

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:

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

The other definitions change according to the parameter type.

Integer (Type = 0)

Range
Minimum and maximum values allowed for the parameter.

Example: Reading Phase *Timeout* parameter (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
1 = Automatic
3 = Test
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.*

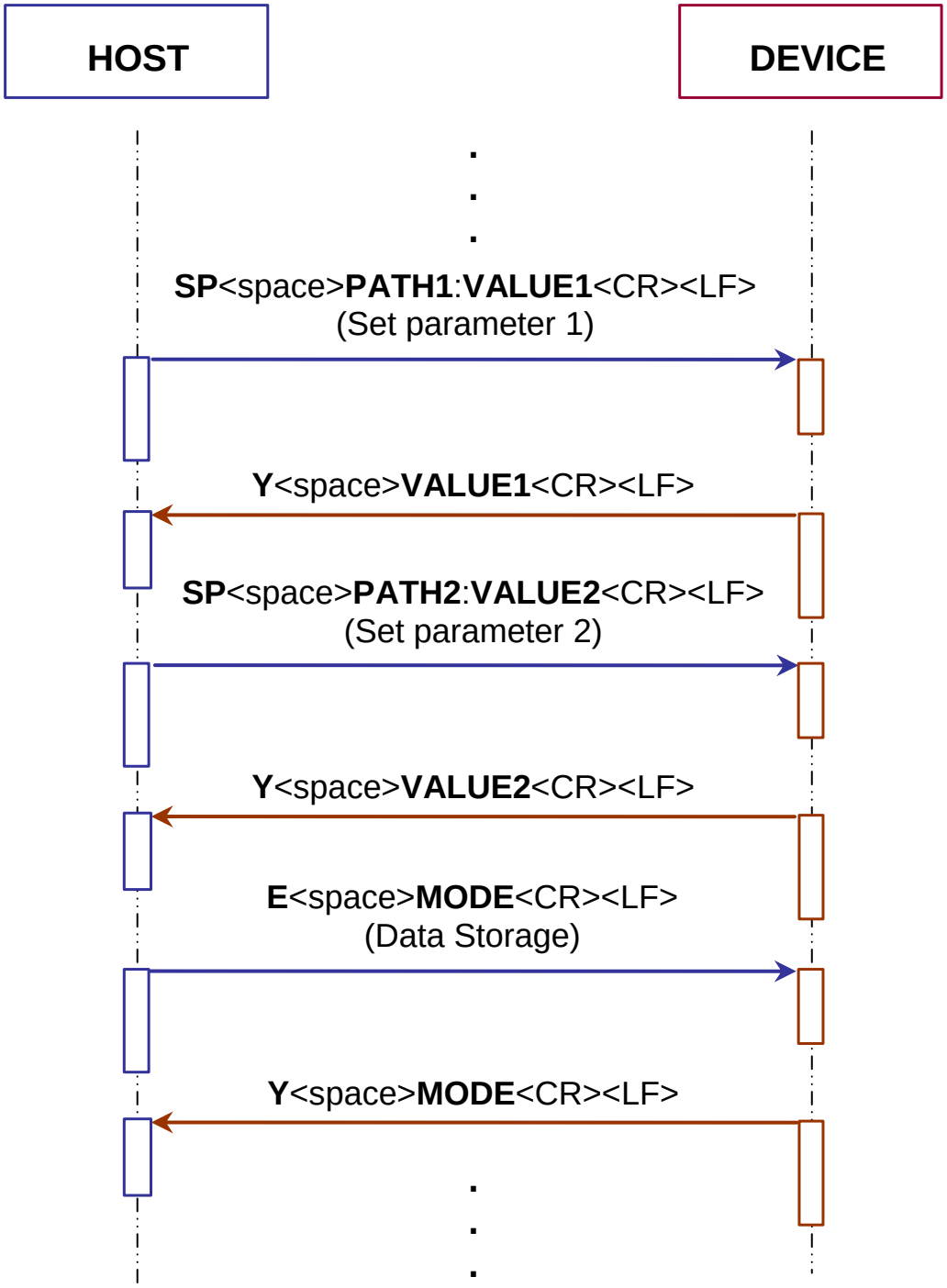

Figure 3 - Two Parameters Programming Session With Data Storage

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

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

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

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

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

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

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
				13 = 97 14 = 103 15 = 109 16 = 115 17 = 121 18 = 127 19 = 133 20 = 139 21 = 145 22 = 151 23 = 157 24 = 163 25 = 169 26 = 175 27 = 181 28 = 187 29 = 193 30 = 199 31 = 205 32 = 211 33 = 217 34 = 223 35 = 229 36 = 235 37 = 241 38 = 247 39 = 253 40 = 259 41 = 265 42 = 271 43 = 277 44 = 283 45 = 289 46 = 295 47 = 301 48 = 307 49 = 313 50 = 319 51 = 325 52 = 331 53 = 337 54 = 343 55 = 349 56 = 355 57 = 361 58 = 367 59 = 373 60 = 379 61 = 385
Bar Count (only for Code 39 Full ASCII))	/Codes /Code#N /9ElBarCountFA	85 #N	1	0 = Variable 1 = 29 2 = 39 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 58 = 599 59 = 609 60 = 619
Min Code Position Filter	/Codes /Code#N /MinCodePos	262 #N	0	Range: 0 to 255
Max Code Position Filter	/Codes /Code#N /MaxCodePos	263 #N	0	Range: 0 to 255
Check Digit	/Codes /Code#N /CheckDigit	5 #N	1	0 = Disable 1 = Enable
Check Digit Type (only for Interleaved 2 of 5)	/Codes /Code#N /CheckDigit25IL	526 #N	1	0 = Standard 1 = German 2 = DHL 3 = Daimler-Chrysler 4 = Bosch
Check Digit Type (only for Code 39)	/Codes /Code#N/ /CheckDigit39	527 #N	1	0 = Standard 1 = Mod 7
Check Digit Tx	/Codes /Code#N /CheckDigitTx	524 #N	1	0 = Disable 1 = Enable
Match String Rule	/Codes /Code#N /MatchStrRule	530 #N	1	0 = Match 1 = Do Not Match
Pattern Match String	/Codes /Code#N /PatMatch	531 #N	3	Length: 0 to 200
Match Direction Rule	/Codes /Code#N /MatchDirectionRule	529 #N	1	0 = Disable 1 = Forward 2 = Reverse
Code Label Local No Read String	/Codes /Code#N /LocNoRead	18 #N	3	Length: 0 to 48
Code Label Local Multiple Read String	/Codes /Code#N /LocMulRead	328 #N	3	Length: 0 to 48
Start Char Tx (only for Codabar)	/Codes /Code#N /StartChTx	382 #N	1	0 = Disabled 2 = Lower Case 3 = Upper Case
Stop Char Tx (only for Codabar)	/Codes /Code#N /StopChTx	383 #N	1	0 = Disabled 2 = Lower Case 3 = Upper Case

4.2 OPERATING MODES

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

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

4.3 SYSTEM LAYOUT

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

4.4 DEVICE NETWORK SETTING

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

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

4.5 DATA FORMAT

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

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

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

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

4.6 COMMUNICATION SETTINGS

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

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

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

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

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

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

PARAMETER	COMPLETE PATH	SHC	PT	VALUE
GATEWAY / TCP/IP SERVICES / USERSOCKET#1 / HEARTBEAT				
Timeout (s)	/Comms /FieldbusOptions /Services /UserSocket1 /HeartbeatSocket /TimeOutSocket1	5261	0	Range: 0 to 3600
Heartbeat Header String	/Comms /FieldbusOptions /Services /UserSocket1 /HeartbeatSocket /HeaderSocket1	5262	3	Length: 1 to 128
Heartbeat Fields Separator	/Comms /FieldbusOptions /Services /UserSocket1 /HeartbeatSocket /SeparatorSocket1	5263	3	Length: 1 to 128
Counter Module	/Comms /FieldbusOptions /Services /UserSocket1 /HeartbeatSocket /CounterModSocket1	5264	1	0 = Disable 1 = 10 2 = 100 3 = 1000 4 = 10000 5 = Custom
Custom Counter Module	/Comms /FieldbusOptions /Services /UserSocket1 /HeartbeatSocket /CustomCounterMod Socket1	5265	0	Range: 2 to 10000
Counter Starting Value	/Comms /FieldbusOptions /Services /UserSocket1 /HeartbeatSocket /CounterStartSocket1	5266	0	Range: 0 to 9999
Counter Direction	/Comms /FieldbusOptions /Services /UserSocket1 /HeartbeatSocket /CounterDirection Socket1	5267	1	0 = Up 1 = Down
System Diagnostics	/Comms /FieldbusOptions /Services /UserSocket1 /HeartbeatSocket /SysDiagSocket1	5268	1	0 = Disable 1 = Enable

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

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

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

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

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

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

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

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

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

4.7 DIGITAL I/O SETTING

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

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

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

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

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

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

4.8 DISPLAY AND KEYBOARD

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

4.9 DIAGNOSTICS

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

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

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

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

4.10 STATISTICS

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

4.11 USER INFORMATION SECTION

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

A SPECIAL COMMANDS AND TABLES

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$_H$> 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$_H$> + <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$_H$>: Stand Alone device or Master ID-NET™ device
ADDR = <31$_H$> to <4F$_H$>: Slave ID-NET™ device
ADDR = <50$_H$> 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
CODE DEFINITION	
Code Combination	Must be ≠ *Single Label* and ≠ *Code Collection* if Host Application Protocol Type = *Crisplant*. Must be ≠ Code Collection if No Read Message = *Local No Read(s) Message.*
No Read Message	Must be ≠ *Local No Read(s) Message* if Code Combination = *Single Label*. Must be ≠ *Local No Read(s) Message* if Code Combination = *Code Collection*.
Associate Same Codes When Coming From Different Scanners	Not available if Scanner Cluster Topology Role ≠ *Master Synchronized* or ≠ *Master Multidata*.
CODE LABEL SETTINGS #N (DEPTH: n = 1 to 10)	
Minimum Label Length	Value must be ≤ Maximum Label Length
Maximum Label Length	Value must be ≥ Minimum Label Length
Minimum Code Position	Value must be ≤ Maximum Code Position
Maximum Code Position	Value must be ≥ Minimum Code Position
OPERATING MODES	
On Line Options	Must be ≠ *Serial On Line* if Host Application Protocol Type = *Crisplant*.
Stop Phase Edge (only for On Line 2 Input)	Must be ≠ *Leading* if Extended Phase = *Enable*
ACK/NAK Protocol	Not available if Operating Mode Selection ≠ *On Line*. Not available if Scanner Cluster Topology Role = *Slave Synchronized*.
VERIFIER	
Code Verifier	Not available if Code Combination ≠ *Single Label*. Not available if Operating Mode Selection ≠ *On Line*
PARAMETER	**CONTROL RULES**
DATA FORMAT	
Host Application Protocol Type	Must be ≠ *Crisplant* if Operating Mode Selection ≠ *On Line*. Must be ≠ *Crisplant* if On Line Options = *Serial On Line*. Must be ≠ *Crisplant* if Host 1 Serial Port ≠ *Standard*. Must be ≠ *Crisplant* if Auxiliary Serial Port Pass Through = *Enable*.

COMMUNICATIONS SETTINGS HOST 1 SERIAL PORT	
Communication Protocol	Must be = Standard if Host Application Protocol Type ≠ *Standard*.
COMMUNICATIONS SETTINGS AUXILIARY SERIAL PORT	
Data Pass Through	Must be = Disable if Host Application Protocol Type ≠ *Standard*.
DIGITAL OUTPUT LINES SETTING	
Activation Event, Alternative Activation Event, Deactivation Event, Alternative Deactivation Event	Not available if Activate On Any Diagnostics Error = *Enabled*.

ERROR CODES TABLE

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

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

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