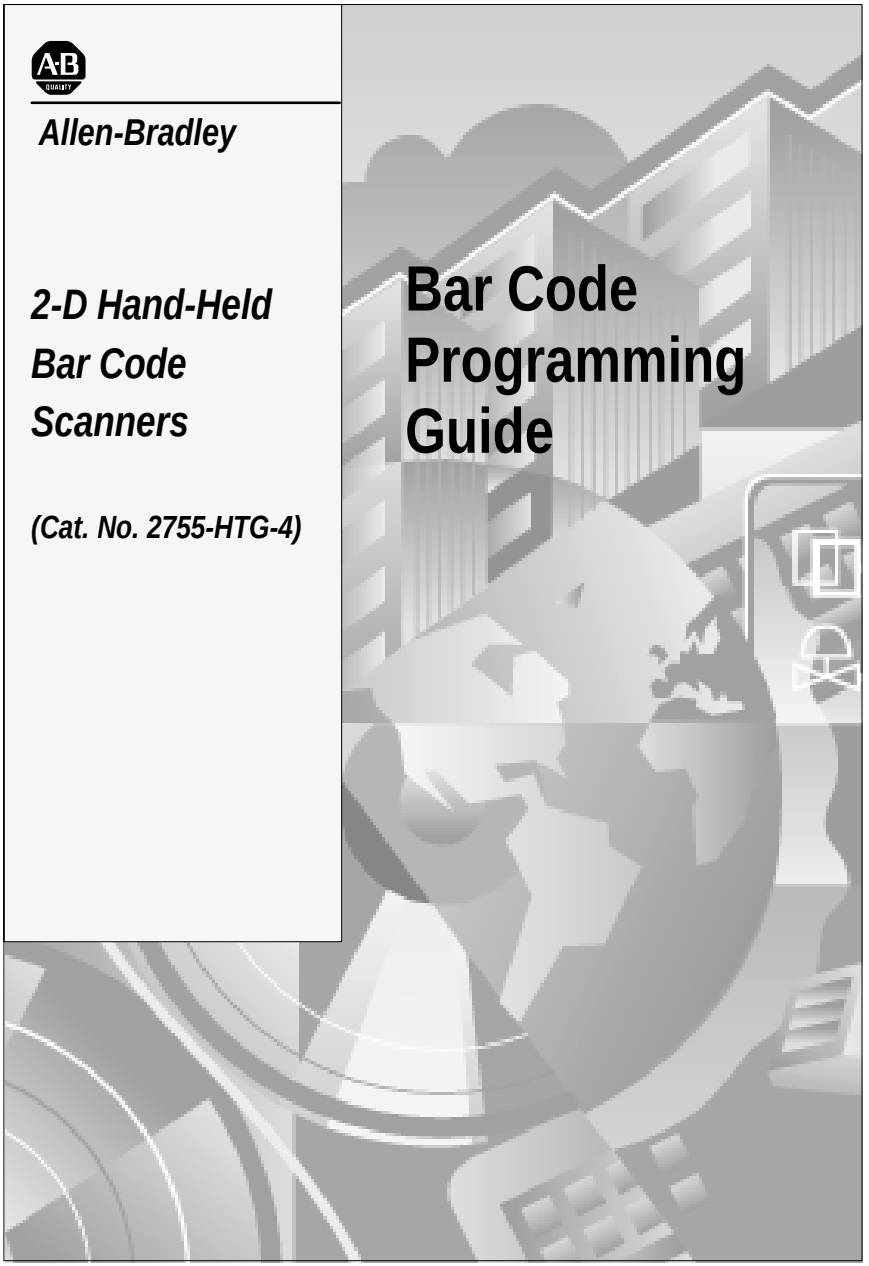
Allen-Bradley

2-D Hand-Held Bar Code Scanners

(Cat. No. 2755-HTG-4)

Bar Code Programming Guide



Important User Information

The illustrations, charts, sample programs and layout examples shown in this guide are intended solely for purposes of example. Since there are many variables and requirements associated with any particular installation, Allen-Bradley does not assume responsibility or liability (to include intellectual property liability) for actual use based upon the examples shown in this publication.

Allen-Bradley publication SGI-1.1, *Safety Guidelines for the Application, Installation, and Maintenance of Solid-State Control* (available from your local Allen-Bradley office), describes some important differences between solid-state equipment and electromechanical devices that should be taken into consideration when applying products such as those described in this publication.

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Throughout this manual we use notes to make you aware of safety considerations:

ATTENTION: Identifies information about practices or circumstances that can lead to personal injury or death, property damage or economic loss.

Attention statements help you to:

- identify a hazard
- avoid the hazard
- recognize the consequences

Important: Identifies information that is critical for successful application and understanding of the product.

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Appendix D SLC 5/03, 5/04 Application

Appendix E PLC-5 Controller Application

Appendix F DTAM Plus DeviceNet Application

Appendix G ASCII Chart

Read this First

This guide provides the configuration bar codes for the following:

- 2-D Hand-Held Bar Code Scanners
  (Catalog No. 2755-HTG-4)
- RS-232 Synapse Cables
  (Catalog No. 2755-HFC-SR2-01, 2755-HFC-SR3-01)
- IBM or Compatible Keyboard Wedge Synapse Cables
  (Catalog No. 2755-HFC-SP1-01, 2755-HFC-SP2-01)
- DEC Keyboard Wedge Synapse Cables
  (Catalog No. 2755-SV1–01, 2755-SV2-01)
- Scanner Emulation Synapse Cable
  (Catalog No. 2755-HFC-SA1-01)

Configuration Bar Code Symbols

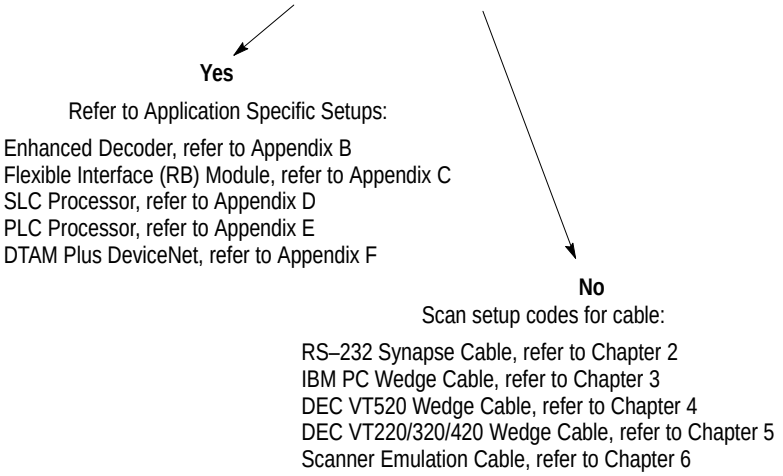
The configuration bar code symbols are all Code 128. The scanner is always enabled to read Code 128 symbols. Default settings are indicated by an asterisk.

Refer to the user manual for the 2-D Hand-Held Bar Code Scanners (Publication 2755-6.4) for descriptions of the configuration settings.

How to Use this Guide

The following shows a typical sequence for configuring a scanner.

1. Connect scanner to host and apply power.
2. Configure scanner.
3. Configure communications. Is the scanner connected to an Allen-Bradley host device?



5. If the decoded data needs to be modified before being transmitted to a host device, scan Advanced Data Format codes in Appendix A.
4. Scanner is ready for operation. Use the test codes found on the inside back cover of this guide.

Scanner Configuration

Set Default Parameters

Scan the following labels to set the scanner to default settings. The table on the next page lists the defaults.

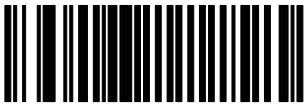
Set Defaults

The scanner is now set to these defaults:

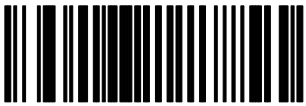
Scanner Configuration Parameters	Default Setting	Code on Page:
Set Default Parameters		1–1
Symbologies	All Enabled	1–3
Code 39 Full ASCII	Enabled	1–6
Transmit Code 39 Check Digit	Enabled	1–6
Transmit UPC-A Check Digit	Enabled	1–7
Transmit UPC-E Check Digit	Enabled	1–7
Convert UPC-E to UPC-A	Disabled	1–7
Decode UPC / EAN Supplements	Disabled	1–8
Convert EAN-8 to EAN-13	Disabled	1–9
UPC-A Preamble	System Character	1–9
UPC-E Preamble	System Character	1–9
Code 39 Code Lengths	1-55	1–10
Codabar Code Length	2-55	1–11
Interleaved 2 of 5 Code Length	14	1–12
Prefix/Suffix	Enter	1-17
Data Transmission Format	Data As Is	1–16
Transmit No-Read Message	Disabled	1–17
Transmit LRC Checksum	Disabled	1–17
Transmit Code ID Character	Disabled	1–18
Beep After Good Decode	Enabled	1–19
Beeper Tone	High	1–19
Decode Buffering	Disabled	1–19
Pause Duration	0.0 seconds	1–20
Decode Attempt Duration	0.5 seconds	1–20
Time Delay to Power Mode	30 seconds	NO TAG
Timeout Between Decodes - Same Symbol	0.6 seconds	NO TAG
Timeout Between Decodes - Different Symbols	0.0 seconds	NO TAG
Smart Raster	Enabled	1–22
Hand-Held Options	Slab Raster	1–22

Select The Symbologies You Want to Enable or Disable

Enable Code 39*



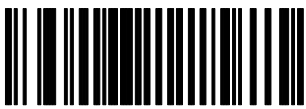
Disable Code 39



Enable UPC-A*

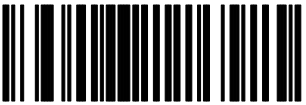
Disable UPC-A

Enable UPC-E*



Disable UPC-E

Enable Codabar

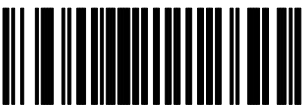


Disable Codabar*

Enable EAN 8*

Disable EAN 8

Enable EAN 13*



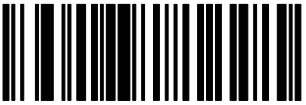
Disable EAN 13

Select The Symbologies You Want to Enable or Disable

Enable Interleaved 2 of 5

Disable Interleaved 2 of 5*

Enable UCC/EAN-128*



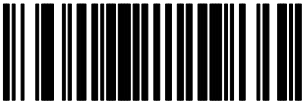
Disable UCC/EAN-128

Enable Code 128*

Disable Code 128

Note: The scanner is always enabled to read Code 128 configuration codes.

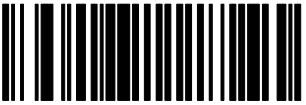
Enable PDF417 *



Disable PDF417

Select Code 39 Options

Enable Code 39 Full ASCII*



Disable Code 39 Full ASCII

Enable Code 39 Check Digit*

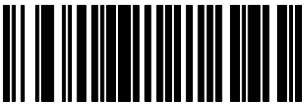
Disable Code 39 Check Digit

Transmit UPC-A / UPC-E Check Digit

Transmit UPC-A Check Digit*

Do Not Transmit UPC-A Check Digit

Transmit UPC-E Check Digit*



Do Not Transmit UPC-E Check Digit

Convert UPC-E to UPC-A

Convert UPC-E to UPC-A

Do Not Convert UPC-E to UPC-A*

Decode UPC / EAN Supplements

Decode UPC / EAN Supplemental

Ignore UPC / EAN With Supplementals*

Autodiscriminate UPC / EAN with Supplementals

Convert EAN-8 to EAN-13

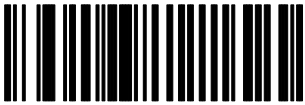
Convert EAN-8 to EAN-13

Disable Convert EAN-8 to EAN-13*

Select UPC-A Preamble

No UPC-A Preamble

UPC-A System Character Preamble*



UPC-A System Character and Country Code Preamble

Select UPC-E Preamble

No UPC-E Preamble

UPC-E System Character Preamble*

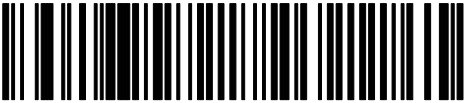
UPC-E System Character and Country Code Preamble

Select Code 39 – Code Lengths

Code 39 Any Length

Code 39 Length Within Range
(Range 01-55*)

Code 39 – One Discrete Length
(Range 01-55) Default is None



Code 39 – Two Discrete Lengths
(Range 01-55) Default is None

Select Codabar Code Lengths

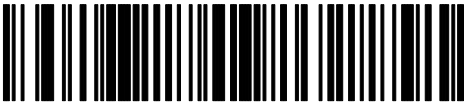
Codabar Any Length

Codabar Length Within Range
(Range 01-55) Default is 02 –55

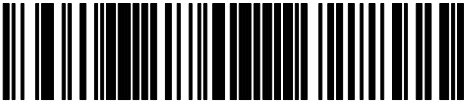
Codabar – One Discrete Length
(Range 01-55) Default is None

Codabar – Two Discrete Lengths
(Range 01-55) Default is None

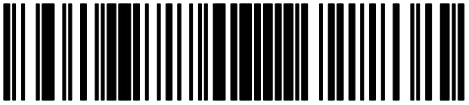
Select Interleaved 2 of 5 Code Lengths



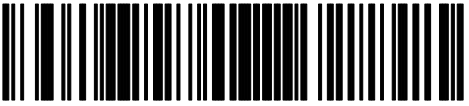
Interleaved 2 of 5 Any Length



Interleaved 2 of 5 – Length Within Range
(Range 02-55) Default is None



Interleaved 2 of 5 – One Discrete Length
(Range 02-54) Default is 14



Interleaved 2 of 5 – Two Discrete Lengths
(Range 02-54) Default is None

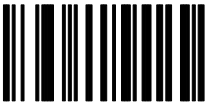
Scan 2 Digit Code Length

0

1

2

3



4

5

6

7

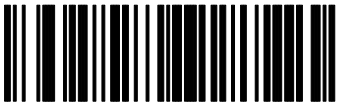
8

9

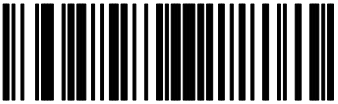
Cancel (Clears Code Length)

Select Prefix/Suffix Options

To set a suffix or prefix, scan the appropriate label below and then scan the 4 digit ASCII equivalent for the character you want to use as the prefix or suffix. See the ASCII Chart in Appendix G.



Prefix

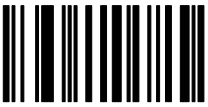


Suffix

Prefix/Suffix – 4 Digit ASCII Equivalent Value

0

1



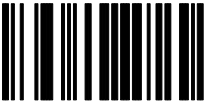
2

3

4

5

6



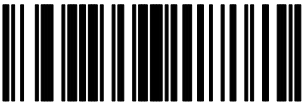
7

8

9

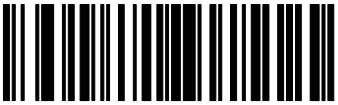
Cancel (Clears Code Length)

Data Transmission Format

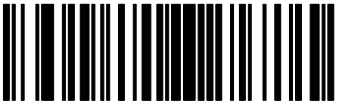


Scan this Symbol First

Send <Data> As Is*
(No Prefix or Suffix)



Send <Prefix> <Data>



Send <Data> <Suffix>

Send <Prefix> <Data> <Suffix>

Scan Enter after Scanning Option

Cancel

Transmit No-Read Message

Send NR Message When Symbol Does Not Decode

Do Not Send NR Message

Transmit LRC Checksum

Enable LRC Checksum

Disable LRC Checksum

Transmit Code ID Character

Transmit Symbol Code ID Character

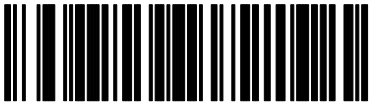
Transmit AIM Code ID Character

Do Not Transmit Code ID Character

Beeper After Good Decode / Beeper Tone

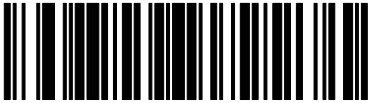
Beep After Good Decode*

Do Not Beep After Good Decode



Low Tone

Medium Tone



High Tone

Decode Buffering

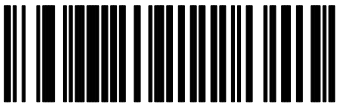
Enable Decode Buffering

Disable Decode Buffering

Pause Duration

Enter a Pause Duration
Default is 0.0 Seconds

Decode Attempt Duration



Enter a Decode Atttempt Duration
Default is 5.0 seconds

Pause/Decode Attempt Duration Values

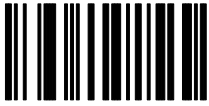
0

1

2

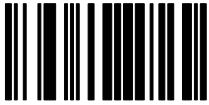
3

4



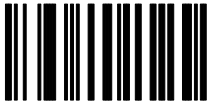
5

6



7

8



9

Cancel

Smart Raster

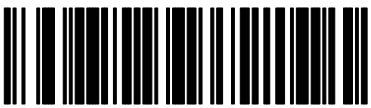
Enable Smart Raster*

Disable Smart Raster

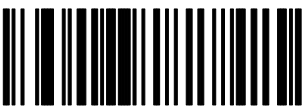
Hand-Held Options

Slab Raster*

Aiming Dot (Normal Timeout)



Aiming Dot (Extended Timeout)



Enable Always Raster

Disable Always Raster

RS-232 Synapse Cable (Communication Setup)

This chapter provides the configuration bar codes for the following RS-232 Synapse cables:

- (Catalog No. 2755-HFC-SR2-01)
- (Catalog No. 2755-HFC-SR3-01)

Set RS-232 Synapse Cable Defaults

Scan this label to set the default settings for the RS-232 Synapse cable. Defaults are indicated with an asterisk.

Set RS-232 Synapse Cable Defaults

Scan this label to set the RS-232 Synapse cable to the default settings shown below.

RS-232 Synapse Cable Parameters	Default Setting	Code on Page:
Host	Standard RS-232	2–3
Baud Rate	9600	2–4
Parity	None	2–5
Check Parity	Enabled	2–5
Stop Bits	1	2–6
Data Bits	8	2–6
RTS State	Low	2–7
Hardware Handshaking	None	2–7
Software Handshaking	None	2–8
Beep on BEL	Disabled	2–9
Unknown Characters	Send Bar Codes With Unknown Characters	2–9
Response Timeout	2 Seconds	2–10
Parameter Set	Set #1	2–12

Scan the bar code symbols for the settings you need to change.

RS-232 Synapse Cable Fixed Format Hosts

Currently only one option for fixed format hosts is available. Scan the Standard RS-232 host bar code symbol. Additional hosts may be added at a future date.

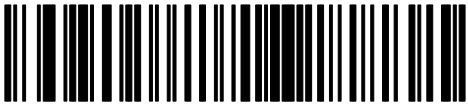
Standard RS-232 *

RS-232 Synapse Cable Baud Rate

110

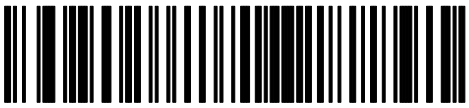
300

600



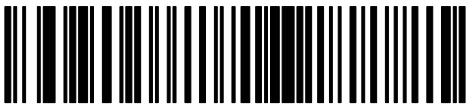
1200

2400



4800

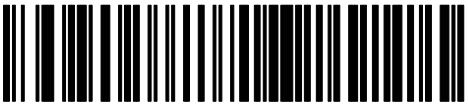
9600 *



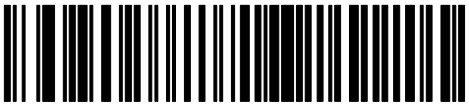
19200

RS-232 Synapse Cable Parity Options

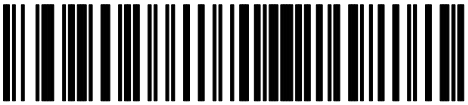
None *



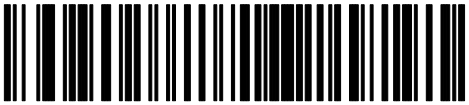
Odd



Even

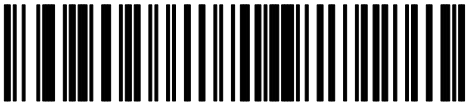


Mark



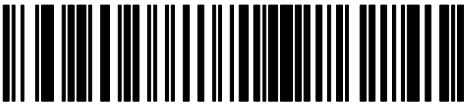
Space

Check Parity*



Do Not Check Parity

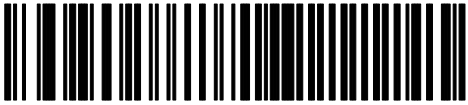
RS-232 Synapse Cable Stop and Data Bits



One Stop Bit *

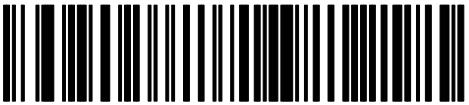
Two Stop Bits

8 Data Bits *



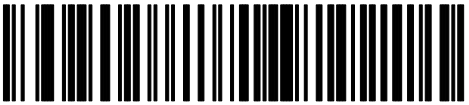
7 Data Bits

RS-232 Synapse Cable Hardware Handshaking



No Hardware Handshaking*

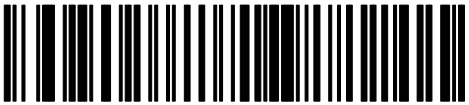
RTS / CTS Enable



RTS Low *

RTS High

RS-232 Synapse Cable Software Handshaking



No Software Handshaking*

ACK / NAK

ENQ Only

ACK / NAK with ENQ

XON / XOFF

RS-232 Synapse Cable Beep On <BEL>

Do Not Beep on <BEL> *

Beep on <BEL>

RS-232 Synapse Cable Unknown Characters

Send Bar Codes with Unknown Characters *

Do Not Send Bar Codes with Unknown Characters

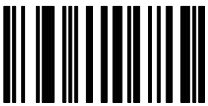
RS-232 Synapse Cable Response Timeout

Scan the following symbol followed by the two digit timeout from 0.0 to 9.9 (default is 2.0 seconds).

Enter Response Timeout

0

1



2

3

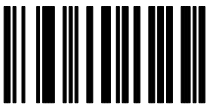
4

5

6

7

8



9

Cancel (Clears Entry)

RS-232 Synapse Cable Advanced Features

Scan the following symbols to select the current parameter set and/or set the defaults for each parameter set.

Parameter Set 1 *

Parameter Set 2

Set Cable Defaults Current Parameter Set

Set Cable Defaults Both Parameter Sets

IBM Keyboard Wedge (Communication Setup)

This chapter provides the configuration bar codes for the IBM Keyboard Wedge Synapse cables:

- (Catalog No. 2755-HFC-SP1-01)
- (Catalog No. 2755-HFC-SP2-01)

IBM Keyboard Wedge Synapse Cable Defaults

Scan the following bar code to set the IBM Keyboard Wedge Cables to their default values. Defaults are indicated with an asterisk *.

Set PC Wedge Synapse Cable Defaults

Scan this label to set the IBM PC Wedge Synapse cable to the default settings shown below.

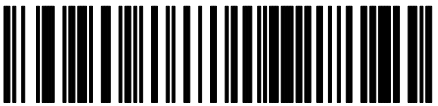
IBM Keyboard Wedge Parameters	Default Setting	Code on Page:
Host	IBM PC/AT IBM PS/2-50, 55SX, 60, 70, 80	3–2
Country	North American	3–3
Bar Codes with Unknown Characters	Send Bar Codes With Unknown Characters	3–4
Intercharacter Delay	5 milliseconds	3–4
Parameter Set	Parameter Set 1	3–5

Scan the bar code symbols for the settings you need to change.

IBM Keyboard Wedge Cable Host

IBM PC / AT *
IBM PS/2-50, 55SX, 60, 70,80

IBM PC / XT

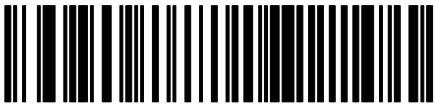


IBM PS/2-30

NCR 7052

IBM Keyboard Wedge Country Selection

North American *

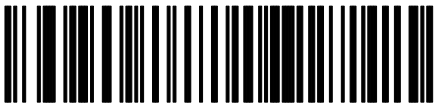


German

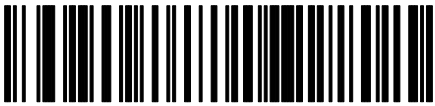
French

French International

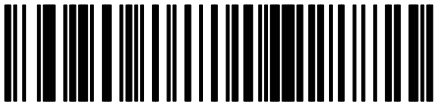
Spanish



Italian



Swedish



British

IBM Keyboard Wedge Unknown Characters

Send Bar Codes with Unknown Characters *

Do Not Send Bar Codes with Unknown Characters

IBM Keyboard Wedge Intercharacter Delay

Short 5 Millisecond Delay *

Medium 50 Millisecond Delay

Long 99 Millisecond Delay

IBM Keyboard Wedge Cable Advanced Features

Parameter Set 1 *

Parameter Set 2

Set Cable Defaults Current Parameter Set

Set Cable Defaults Both Parameter Sets

DEC VT520 Keyboard Wedge (Communication Setup)

This chapter provides the configuration bar codes for the DEC keyboard Synapse cable:

- (Catalog No. 2755-HFC-SV2-01)

DEC VT520 Keyboard Wedge Synapse Cable Defaults

Scan the following bar code to set the IBM Keyboard Wedge Cables to their default values. Defaults are indicated with an asterisk.

Set DEC VT520 Keyboard Wedge Synapse Cable Defaults

Scan this label to set the DEC VT520 Synapse cable to the default settings shown below.

DEC VT520 Keyboard Wedge Cable Parameters	Default Setting	Code on Page:
Host	DEC VT520	4–2
Country	North American	4–2
Bar Codes with Unknown Characters	Send Bar Codes With Unknown Characters	4–4
Intercharacter Delay	5 milliseconds	4–4
Parameter Set	Parameter Set 1	4–5

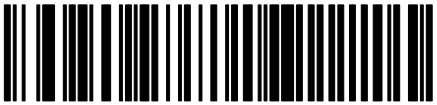
Scan the bar code symbols for the settings you need to change.

DEC VT520 Wedge Synapse Cable Host

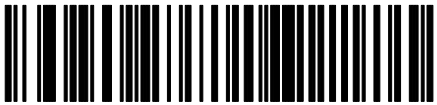
DEC VT520 *

DEC VT520 with PS/2 Keyboard

DEC VT520 Keyboard Wedge Country Selection



North American *



German

French

French International

Spanish

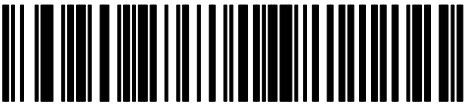
Italian

Swedish

British

DEC VT520 Cable Unknown Characters

Send Bar Codes with Unknown Characters *



Do Not Send Bar Codes with Unknown Characters

DEC VT520 Keyboard Wedge Intercharacter Delay

Short 5 Millisecond Delay *

Medium 50 Millisecond Delay

Long 99 Millisecond Delay

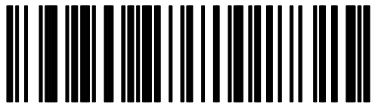
DEC VT520 Keyboard Wedge Synapse Cable Advanced Features

Scan the following symbols to select the current parameter set and/or set the defaults for each parameter set.

Parameter Set 1 *

Parameter Set 2

Set Cable Defaults Current Parameter Set



Set Cable Defaults Both Parameter Sets

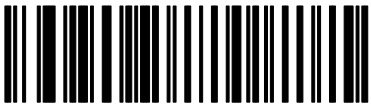
DEC VT220/320/420 Keyboard Wedge Cable (Communication Setup)

This chapter provides the configuration bar codes for the DEC VT220/320/420 keyboard wedge Synapse cable:

- (Catalog No. 2755-HFC-SV1-01)

DEC VT220/320/420 Keyboard Wedge Interface Cable Defaults

Scan the following bar code to set the DEC VT220/320/420 Keyboard Wedge Cables to their default values. Defaults are indicated with an asterisk *.



Set DEC VT220/320/420 Wedge Synapse Cable Defaults

Scan this label to set the DEC VT220/320/420 Synapse cable to the default settings shown below.

DEC VT220/320/420 Keyboard Wedge Cable	Default Setting	Code on Page:
Host	DEC VT220 / 320	5–2
Country	North American	5–2
Bar Codes with Unknown Characters	Send Bar Codes With Unknown Characters	5–4
Intercharacter Delay	5 milliseconds	5–4
Parameter Set	Parameter Set 1	5–5

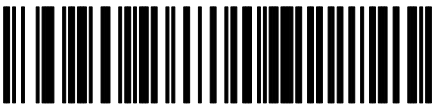
Scan the bar code symbols for the settings you need to change.

DEC VT220 / 320 / 420 Keyboard Wedge Synapse Cable Host

DEC VT220 / 320 *

DEC VT420

DEC VT220 / 320 / 420 Keyboard Wedge Country Selection

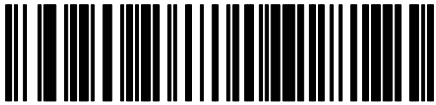


North American *

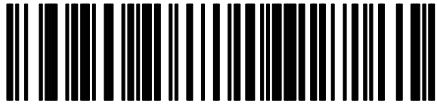
German

French

French International



Spanish



Italian

Swedish

British

DEC VT220/320/420 Keyboard Wedge Unknown Characters

Send Bar Codes with Unknown Characters *

Do Not Send Bar Codes with Unknown Characters

DEC VT220/320/420 Keyboard Wedge Intercharacter Delay

Short 5 Millisecond Delay *

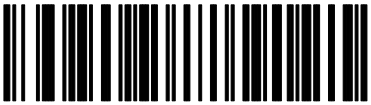
Medium 50 Millisecond Delay

Long 99 Millisecond Delay

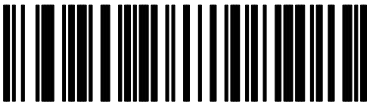
DEC VT220/320/420 Keyboard Wedge Advanced Features

Scan the following symbols to select the current parameter set and/or set the defaults for each parameter set.

Parameter Set 1 *



Parameter Set 2



Set Cable Defaults Current Parameter Set

Set Cable Defaults Both Parameter Sets

Scanner Emulation Cable (Communication Setup)

This chapter provides the configuration bar codes for the scanner emulation Synapse cable:

- (Catalog No. 2755-HFC-SA1-01)

Scanner Emulation Synapse Cable Defaults

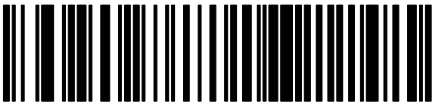
Scan the following bar code to set the scanner emulation cable to its default values. Defaults are indicated with an asterisk *.

Set Scanner Emulation Cable Defaults

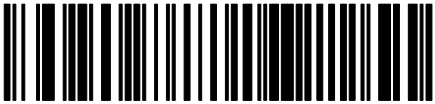
Scan this label to set the Scanner Emulation Synapse cable to the default settings shown below.

Scanner Emulation Synapse Cable	Default Setting	Code on Page:
Emulation	Standard	6–2
Leading Margin	80 Millisecond	6–3
Decode LED	Enabled	6–3
Emulation Timeout	3 Seconds	6–4
Polarity	Margin Low / Bar High	6–5
Unknown Characters	Send Bar Codes with Unknown Characters	6–5
Convert All to Code 39	Disabled	6–6
Code 39 to Code 39 Full ASCII	Disabled	6–6
Parameter Set	Parameter Set 1	6–7

Scanner Emulation Host



Standard Wand Emulation *

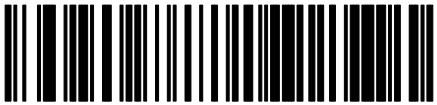


MSI Wand Emulation

Telxon Wand Emulation

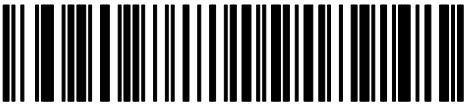
Norand Wand Emulation

Scanner Emulation Variable Leading Margin



80 Millisecond *

140 Millisecond



200 Millisecond

Scanner Emulation Check for Decode LED

Check for Decode LED *

Do Not Check for Decode LED

Scanner Emulation Timeout

3 Second Timeout *

4 Second Timeout

5 Second Timeout

10 Second Timeout

30 Second Timeout

Scanner Emulation Polarity

Margin Low / Bar High *

Margin High / Bar Low

Send Bar Codes with Unknown Characters

Send Bar Codes with Unknown Characters *

Do Not Send Bar Codes with Unknown Characters

Scanner Emulation Convert All to Code 39

Do Not Convert All to Code 39 *

Convert All to Code 39

Scanner Emulation Code 39 to Code 39 Full ASCII

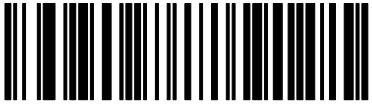
Do Not Do Not Convert Code 39 to Code 39 Full ASCII *

Convert Code 39 to Code 39 Full ASCII

Scanner Emulation Cable Advanced Features

Scan the following symbols to select the current parameter set and/or set the defaults for each parameter set.

Parameter Set 1 *



Parameter Set 2

Set Cable Defaults Current Parameter Set

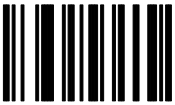
Set Cable Defaults Both Parameter Sets

ADF Bar Codes

This Appendix contains all of the bar codes for Advanced Data Formatting (ADF). The table below lists the group of ADF codes and their corresponding page numbers. See Appendix E in the Scanner Configuration manual for a description of the ADF codes.

Special Commands – Start/Save Rules

Start New Rule



Save Rule

Special Commands – Erase/Quit Rules

Erase Criteria and Start Again

Erase Actions and Start Again

Quit Entering Rules

Erase Previously Saved Rule

Erase All Rules

Special Commands – Disable Rule Sets

Disable Rule Set 1

Disable Rule Set 2

Disable Rule Set 3

Disable Rule Set 4

Disable All Rule Sets

Criteria – Code Types

You must scan code types before scanning other criteria.

Code 39

Codabar

Code 128

Interleaved 2 of 5

EAN 128

Criteria – Code Types

You must scan code types before scanning other criteria.

UPC-A

UPC-E

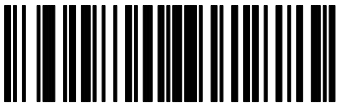
EAN-8

EAN-13

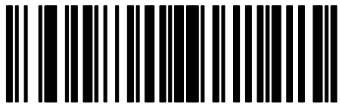
PDF417

Criteria – Code Lengths

This is not a keypad. Select one length per rule.

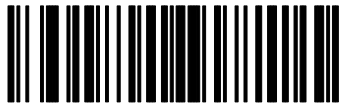


1

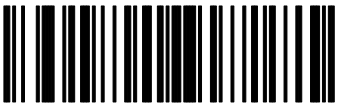


2

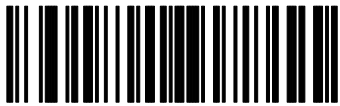
3



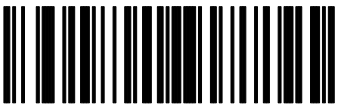
4



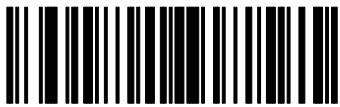
5



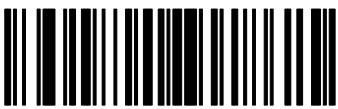
6



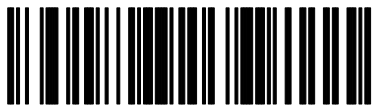
7



8



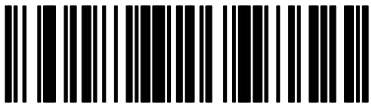
9



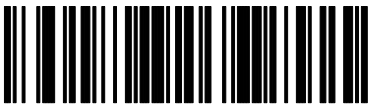
10

Criteria – Code Lengths

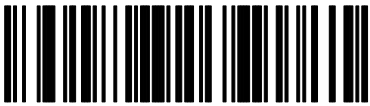
11



12

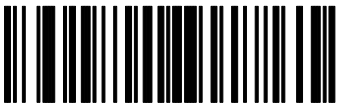


13

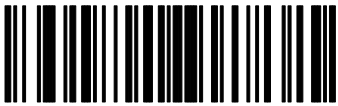


14

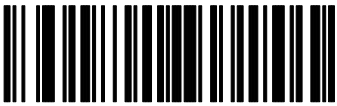
15



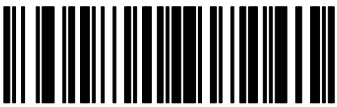
16



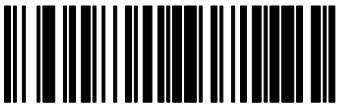
17



18

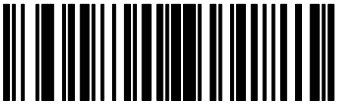


19

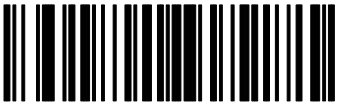


20

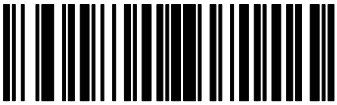
Criteria – Code Lengths



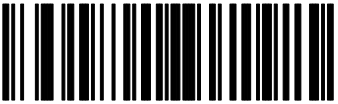
21



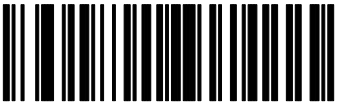
22



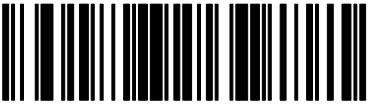
23



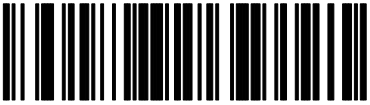
24



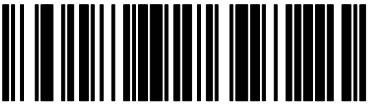
25



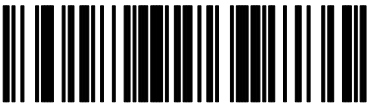
26



27



28



29

30

Criteria – Specific Data String

Specific String at Start

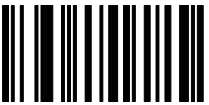
1. Go to **Alphanumeric Keyboard** (page A–49) to enter string
2. Scan **End of Message** bar code (page A–56).

Specific String Any Location

1. Scan 2-digit length on **Numeric Keypad** (page A–11) to enter location.
2. Go to **Alphanumeric Keyboard** (page A–49) to enter string.
2. Scan **End of Message** bar code (page A–56)**.**

Criteria – Numeric Keypad

0



1

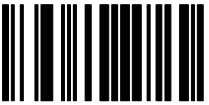
2

3

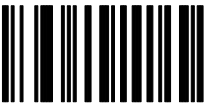
4

5

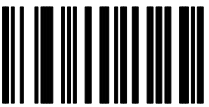
6



7



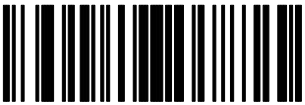
8



9

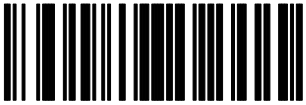
Cancel

Criteria – Specific Data String



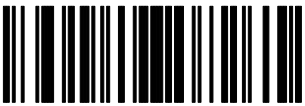
Send Up to Character ①

Note: If there is no match when the rule is interpreted and the rule fails, the next rule is checked.



Move to Character ①

Note: If there is no match when the rule is interpreted and the rule fails, the next rule is checked.



Move Past Character ①

① Enter character using **AlphaNumeric Keyboard** (page A–49).

Criteria – Rules Belongs to Sets

Rule Belongs to Set 1

Rule Belongs to Set 2

Rule Belongs to Sets 3

Rule Belongs to Set 4

Actions – Send Characters / Data

Send Pause

Send All Remaining Data

Send Next Character

Send Next 2 Characters

Send Next 3 Characters

Send Next 4 Characters

Send Next 5 Characters

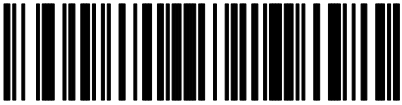
Send Next 6 Characters

Send Next 7 Characters

Actions – Send Characters / Data

Send Next 8 Characters

Send Next 9 Characters



Send Next 10 Characters

Send Next 11 Characters

Send Next 12 Characters

Send Next 13 Characters

Actions – Send Characters / Data

Send Next 14 Characters

Send Next 15 Characters

Send Next 16 Characters

Send Next 17 Characters

Send Next 18 Characters

Send Next 19 Characters

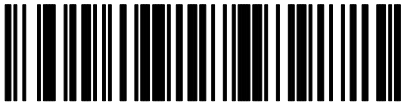
Actions – Send Characters / Data

Send Next 20 Characters

Send Next 50 Characters

Send Next 100 Characters

Send Next 150 Characters

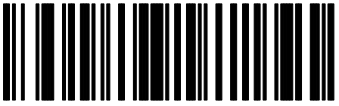


Send Next 200 Characters

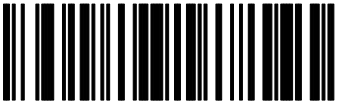
Send Next 250 Characters

Actions – Skip Ahead / Back

Skip Ahead 1 Character



Skip Ahead 2 Characters



Skip Ahead 3 Characters

Skip Ahead 4 Characters

Skip Ahead 5 Characters

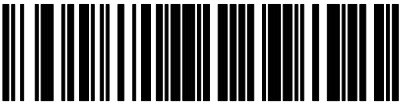
Skip Ahead 6 Characters

Skip Ahead 7 Characters

Skip Ahead 8 Characters

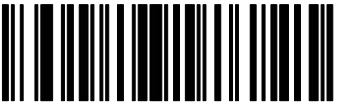
Actions – Skip Ahead / Back

Skip Ahead 9 Characters



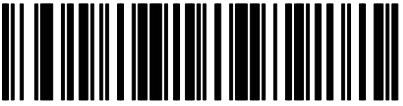
Skip Ahead 10 Characters

Skip Ahead 50 Characters



Skip Ahead 100 Characters

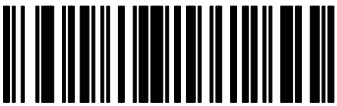
Skip Ahead 150 Characters



Skip Ahead 200 Characters

Skip Ahead 250 Characters

Actions – Skip Ahead / Back



Skip Back 1 Character

Skip Back 2 Characters

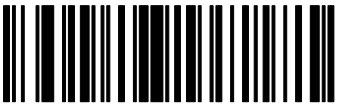
Skip Back 3 Characters

Skip Back 4 Characters

Skip Back 5 Characters

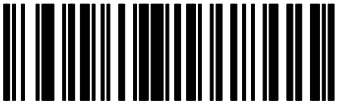
Skip Back 6 Characters

Skip Back 7 Characters

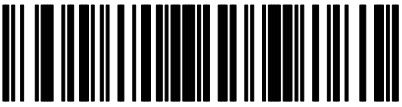


Skip Back 8 Characters

Actions – Skip Ahead / Back



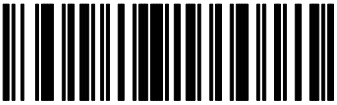
Skip Back 9 Characters



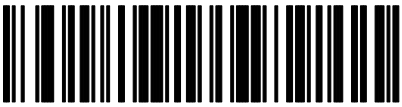
Skip Back 10 Characters

Skip Back 50 Characters

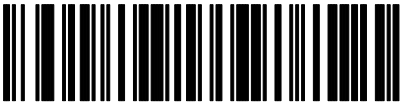
Skip Back 100 Characters



Skip Back 150 Characters



Skip Back 200 Characters

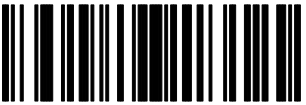


Skip Back 250 Characters

Skip to Start of Data

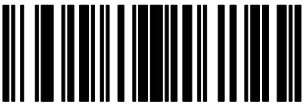
Actions – Spaces and Zeross

Remove All Spaces

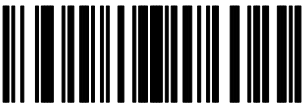


Crunch All Spaces

Stop Space Removal



Remove Leading Zeroes



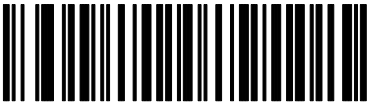
Stop Zero Removal

Actions – Send Value

Send Value 1

Send Value 2

Actions – Beeps



Beep Once ①

Beep Twice ②

Beep Three Times ②

② Choose only one beep sequence per AFD Rule

Actions – Pad Spaces

Pad Spaces to Length 1

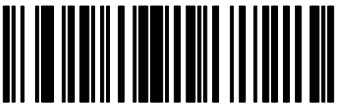
Pad Spaces to Length 2

Pad Spaces to Length 3

Pad Spaces to Length 4

Pad Spaces to Length 5

Pad Spaces to Length 6

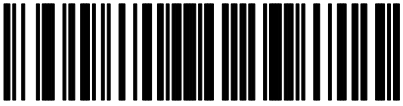


Pad Spaces to Length 7

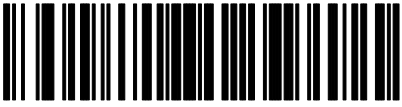
Pad Spaces to Length 8

Actions – Pad Spaces

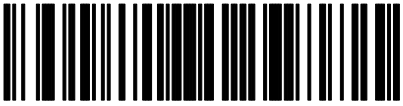
Pad Spaces to Length 9



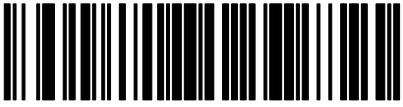
Pad Spaces to Length 10



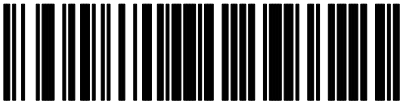
Pad Spaces to Length 11



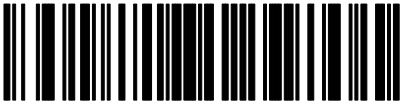
Pad Spaces to Length 12



Pad Spaces to Length 13



Pad Spaces to Length 14



Pad Spaces to Length 15

Pad Spaces to Length 16

Actions – Pad Spaces

Pad Spaces to Length 17

Pad Spaces to Length 18

Pad Spaces to Length 19

Pad Spaces to Length 20

Pad Spaces to Length 21

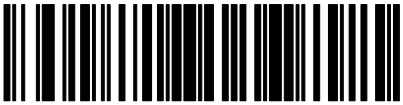
Pad Spaces to Length 22

Pad Spaces to Length 23

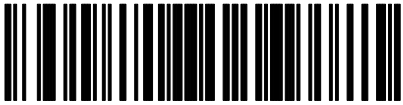
Pad Spaces to Length 24

Actions – Pad Spaces

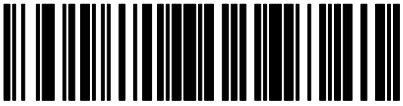
Pad Spaces to Length 25



Pad Spaces to Length 26



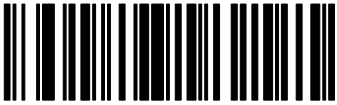
Pad Spaces to Length 27



Pad Spaces to Length 28

Pad Spaces to Length 29

Pad Spaces to Length 30



Stop Pad Spaces

Actions – Pad Zeros

Pad Zeros to Length 1

Pad Zeros to Length 2

Pad Zeros to Length 3

Pad Zeros to Length 4

Pad Zeros to Length 5

Pad Spaces to Length 6

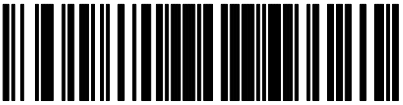
Pad Spaces to Length 7

Pad Spaces to Length 8

Actions – Pad Zeros

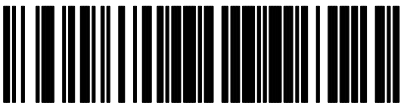
Pad Zeros to Length 9

Pad Zeros to Length 10

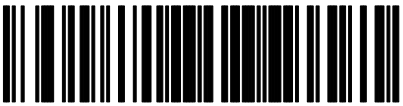


Pad Zeros to Length 11

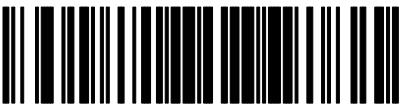
Pad Zeros to Length 12



Pad Zeros to Length 13



Pad Spaces to Length 14



Pad Spaces to Length 15

Pad Spaces to Length 16

Actions – Pad Zeros

Pad Zeros to Length 17

Pad Zeros to Length 18

Pad Zeros to Length 19

Pad Zeros to Length 20

Pad Zeros to Length 21

Pad Spaces to Length 22

Pad Spaces to Length 23

Pad Spaces to Length 24

Actions – Pad Zeros

Pad Zeros to Length 25

Pad Zeros to Length 26

Pad Zeros to Length 27

Pad Zeros to Length 28

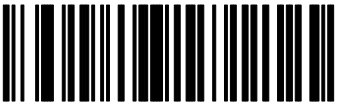
Pad Zeros to Length 29

Pad Spaces to Length 30

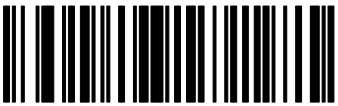
Stop Pad Zeros

Actions – Send Control Characters

Send Control 2



Send Control A



Send Control B

Send Control C

Send Control D

Send Control E

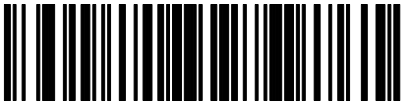
Send Control F

Send Control G

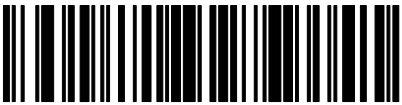
Actions – Send Control Characters

Send Control H

Send Control I



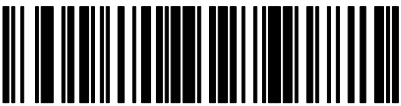
Send Control J



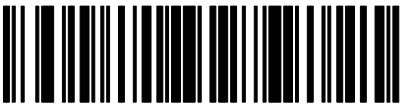
Send Control K

Send Control L

Send Control M



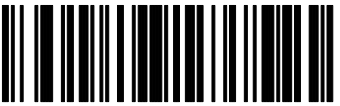
Send Control N



Send Control O

Actions – Send Control Characters

Send Control P



Send Control Q

Send Control R

Send Control S

Send Control T

Send Control U

Send Control V

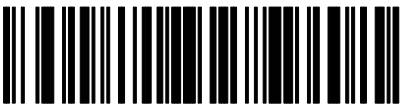
Send Control W

Actions – Send Control Characters

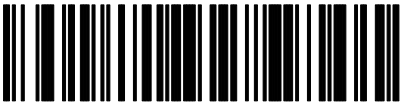
Send Control X

Send Control Y

Send Control Z



Send Control [



**Send Control **

Send Control]

Send Control 6

Send Control –

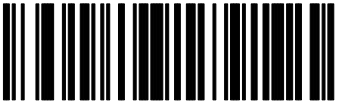
Actions – Send Keyboard Characters

Send Space

Send !

Send “

Send #



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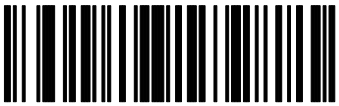

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Actions – Keyboard Characters

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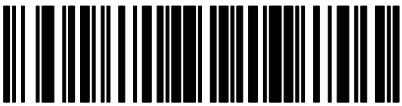
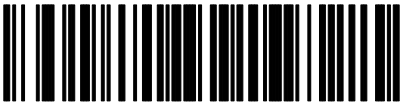
Send)

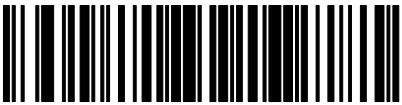


Send *

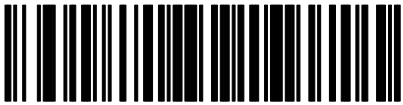
Send +



Send ,



Send -



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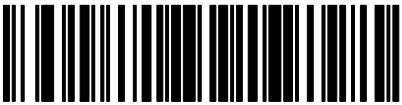

Send /

Actions – Send Keyboard Characters

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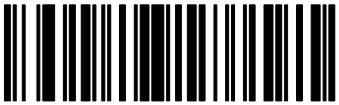

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Actions – Send Keyboard Characters

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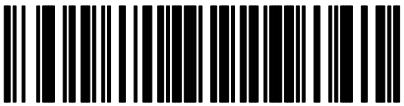

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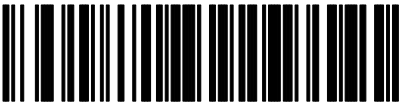

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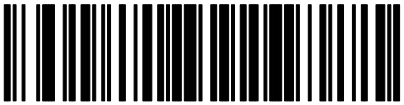

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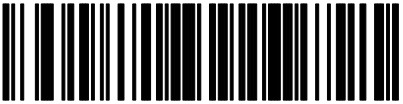
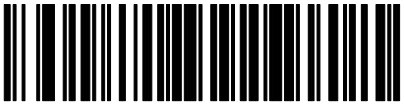
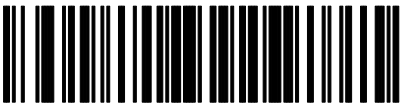


Send =



Send >



Send ?

Actions – Send Keyboard Characters

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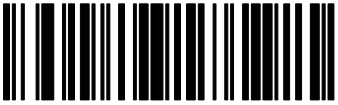

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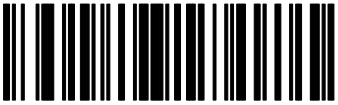

Send F

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Actions – Send Keyboard Characters

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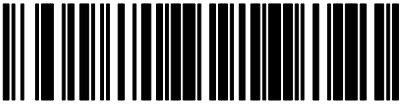

Send J

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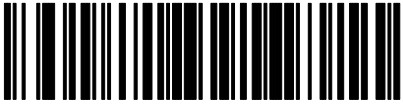

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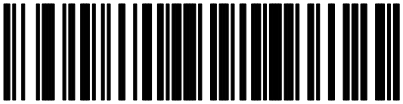

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Actions – Send Keyboard Characters

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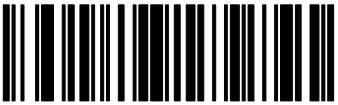

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Actions – Send Keyboard Characters

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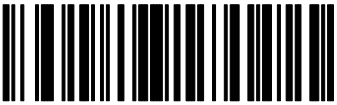
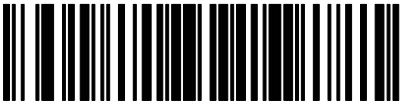


Send Y



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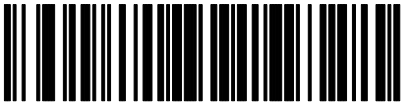
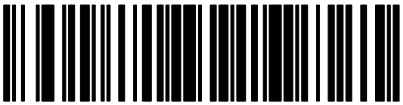


**Send **



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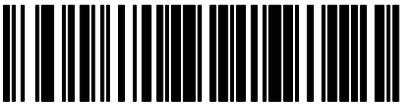

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Actions – Send Keyboard Characters

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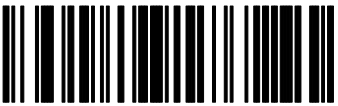
Actions – Send Keyboard Characters



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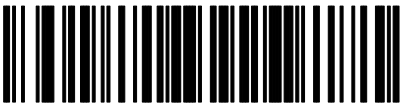
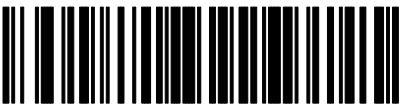
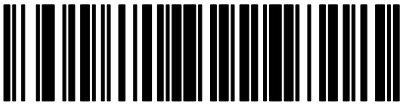


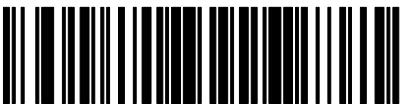
Send j



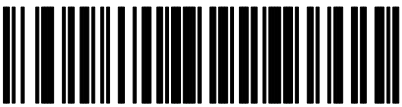
Send k



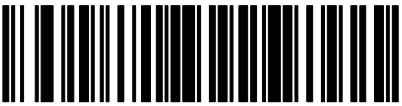
Send l



Send m



Send n



Send o

Actions – Send Keyboard Characters

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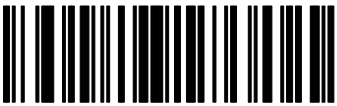
Actions – Send Keyboard Characters



Send x

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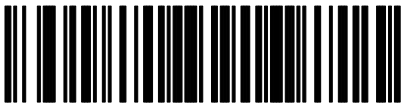
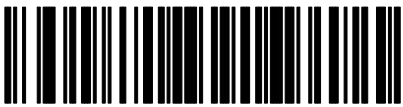


Send z



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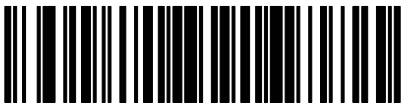

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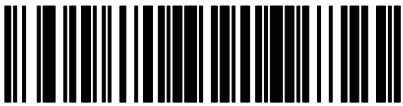
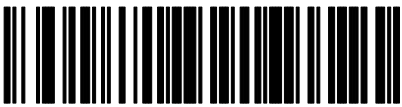


Send }



Send –

Actions – AlphaNumeric Keyboard

SPACE

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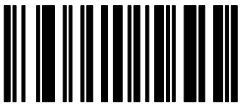

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Actions – AlphaNumeric Keyboard

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Actions – AlphaNumeric Keyboard

Do not confuse these bar codes with those on the numeric keypad.

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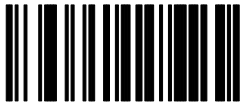

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Actions – AlphaNumeric Keyboard

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Actions – AlphaNumeric Keyboard

K

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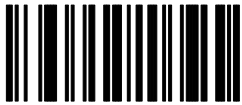

R

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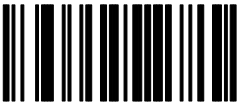
Actions – AlphaNumeric Keyboard

U

V



W

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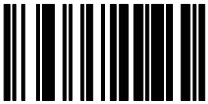
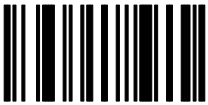
Z



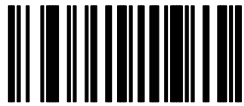
CANCEL



END OF MESSAGE

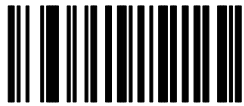
Actions – AlphaNumeric Keyboard

a



b

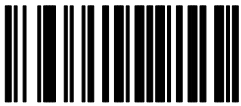
c



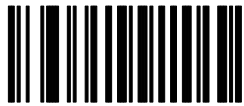
d

e

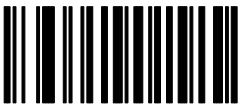
f



g



h



i

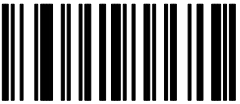
j

Actions – AlphaNumeric Keyboard

k

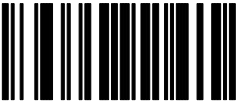
l

m



n

o



p

q

r

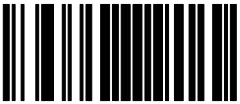
s

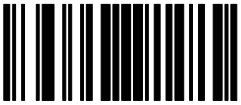
t

Actions – AlphaNumeric Keyboard

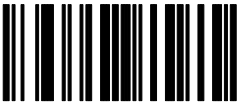

u

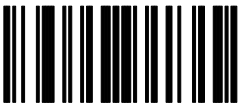

v


w

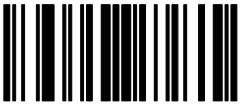

x


y


z


{

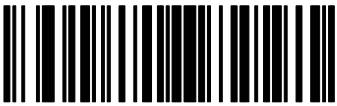

|


}

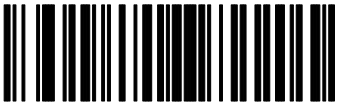

~

Actions – Turn of Rule Set

Turn on Rule Set 1

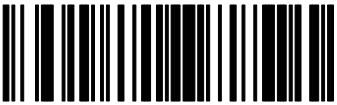


Turn on Rule Set 2



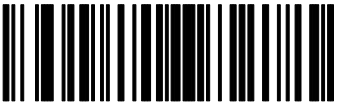
Turn on Rule Set 3

Turn on Rule Set 4



Turn off Rule Set 1

Turn off Rule Set 2



Turn off Rule Set 3

Turn off Rule Set 4

Enhanced Decoder Application

This appendix describes how to configure and operate the scanner when connected to an Allen-Bradley Enhanced Decoder (Catalog No. 2755-DD/DS).

- using the RS-232 port for output
- using the AUX port for Pass-Through

This section also provides configuration information for an Auxiliary Port Pass Through application for the enhanced decoder.

ATTENTION: Do not install the scanner emulation Synapse cable with power applied to either the Synapse cable or enhanced decoder. Failure to follow this caution may result in damage to the scanner, Synapse cable, or enhanced decoder.

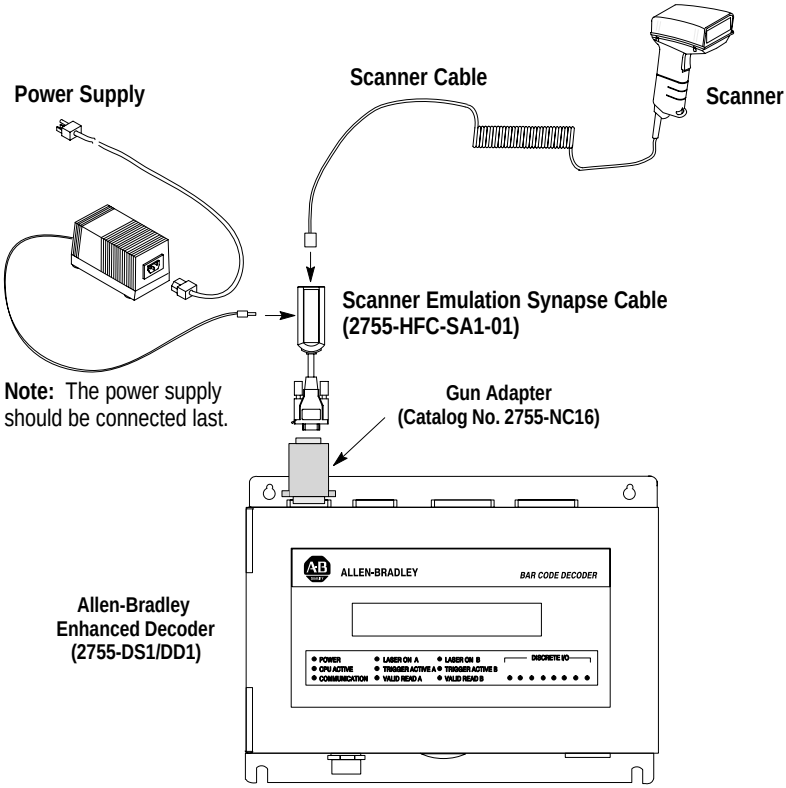
For additional reference you should refer to the following publications:

- DS/DS Enhanced Decoder User Manual (Publication No. 2755-833)
- Gun Adapter Product Data Sheet (Publication No. 2755-2.37)

Enhanced Decoder Application using Scanner Port

Hardware Connections for Scanner Output

The scanner connects to an input port on the Enhanced Decoder with a Scanner Emulation Synapse cable (Catalog No. 2755-HFC-SA1-01) and Gun Adapter (Catalog No. 2755-NC16).

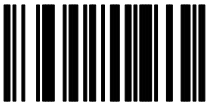


Scanner Configuration for Scanner Emulation Output

You will need to setup the scanner for operation with the cable and configure the cable as described on the next page.

Configuration Codes for Scanner Emulation Output

1. After making the necessary connections, scan the following following bar code symbol to set the scanner to its default settings.



Set Scanner Defaults

2. Set the scanner emulation cable to defaults by scanning the following:

Set Scanner Cable Defaults

3. The Scanner Emulation Synapse cable defaults will work with the enhanced decoder. Your application may have specific requirements. Chapter 7 lists the settings that can be modified.

Enhanced Decoder Setup for Scanner Input

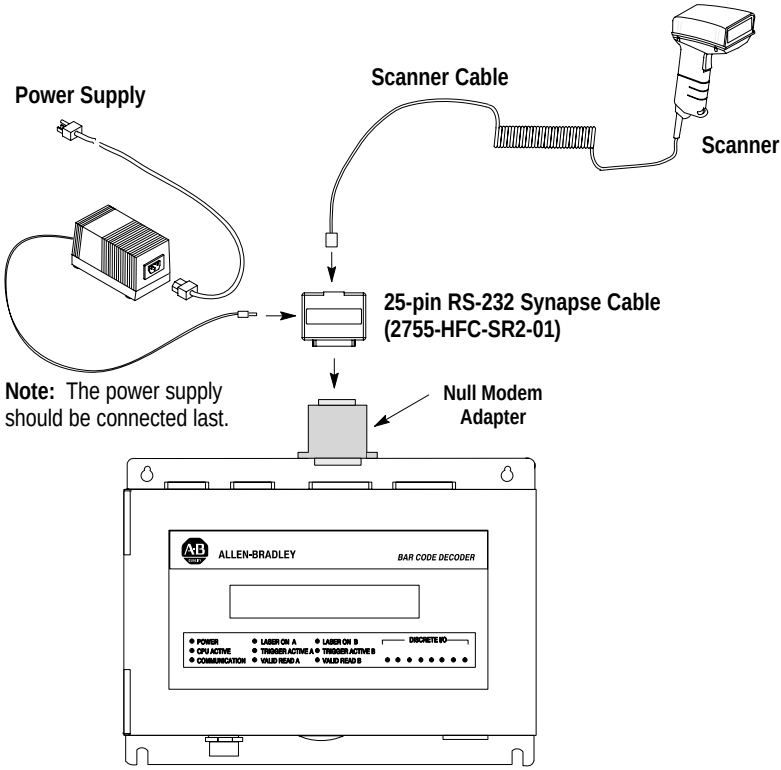
You will need to configure the Allen-Bradley Enhanced decoder. Refer to the Enhanced Decoder user manual (Publication 2755-833).

1. Set Response Mode = **Valid Package**
2. Set Package Detect Input Filter = **Yes**; Sense = **Lo** = **Package**
3. Set Laser On Mode = **Triggered**
4. Set Decode Trigger = **Package Detect**
5. No Read Timer ≅ **8000 ms**

Enhanced Decoder Application using AUX Port for Pass Through

Hardware Connections for AUX Port Pass-Through

The scanner connects to an input port on the Enhanced Decoder with a 25-pin RS-232 Synapse cable (Catalog No. 2755-HFC-SR2-01) and a null modem adapter.



Allen-Bradley Enhanced Decoder (2755-DS1/DD1)

Scanner Configuration for AUX Port Pass-Through

You will need to setup the scanner for operation with the cable and configure the cable as described on the next page.

Configuration Codes for AUX Port Pass Through

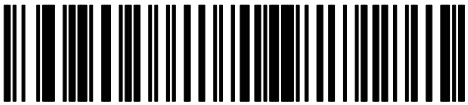
1. After making the necessary connections, scan the following following bar code symbol to set the scanner to its default settings.

Set Scanner Defaults

2. Set the RS-232 Synapse cable to defaults by scanning the following:

Set RS-232 Synapse Cable Defaults

3. Set No Parity.



Do Not Check Parity

Enhanced Decoder Setup for AUX Port Pass Through

You will need to configure the Allen-Bradley Enhanced decoder. Refer to the Enhanced Decoder user manual (Publication 2755-833).

1. Select Aux Terminal Data Entry (Screen 8) from the Main Menu.
2. Set Enable Keyboard Entry = **Yes**
3. Save and Exit the configuration.
4. Move internal selector (jumper) to the data entry position on the system board (B-5, B-6).
5. Make sure the hand-held scanner baud rate = **9600**, parity = **N**one, data bits = **8**, and stop bits = **1**.
6. See Chapter 13 of Enhanced Decoder user manual (Publication 2755-833) for additional information.

Flexible Interface Module Application

This appendix describes how to configure and operate the scanner when connected to a Flexible Interface Module (Catalog No. 2760-RB).

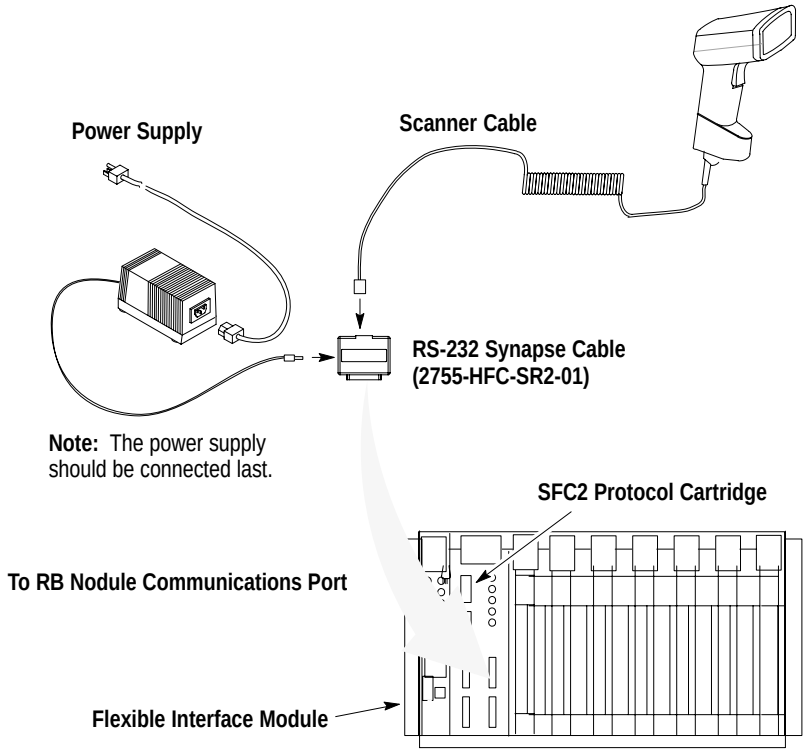
ATTENTION: Do not install the RS-232 Synapse cable with power applied to either the Synapse cable or Flexible Interface Module. Failure to follow this caution may result in damage to the scanner, Synapse cable, or Flexible Interface Module.

For additional reference you should refer to the following publications:

- Flexible Interface Module User Manual (Publication No. 2760-ND001)
- SFC1 or SFC2 Protocol Cartridge User Manuals (Publication No. 2760-ND002 and 2760-822)

Hardware Connections

The scanner connects to one of the three communication ports on the Flexible Interface Module with an RS-232 Synapse cable (Catalog No. 2755-HFC-SR2-01). The interface module requires an SFC2 Protocol Cartridge.

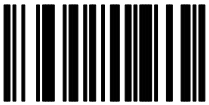


Scanner Configuration

Configure the scanner using the bar codes described in Chapter 1. The Flexible Interface Module does not require any specific scanner configuration. However, you will need to configure the cable communication parameters as described on the next page.

Configuration Codes for Flexible Interface Module Application

1. After making the necessary connections, scan the following following bar code symbol to set the scanner to its default settings.



Set Scanner Defaults

2. Set the RS-232 Synapse cable to defaults by scanning the following:

Set RS-232 Synapse Cable Defaults

3. The cable defaults will work with the Flexible Interface Module. Your application may have specific requirements. Chapter 3 lists the settings that can be modified. If you change a communication setting, make sure the Flexible Interface Module is configured to accept the change.

Flexible Interface Module Setup

You will need to configure the Flexible Interface Module. Refer to the user manual for the protocol cartridge and interface module.

1. When configuring the Flexible Interface Module, first select 90B to reset the configuration to factory defaults.
2. Configure screens 3, 21, and 11 (in this order) as shown on the following pages:

```
        2760–RB        SERIES A  REVISION J
    COPYRIGHT 1989                ALLEN–BRADLEY COMPANY, INC.
    ———————————————————————————————————————————

1X  – CONFIGURATION PARAMETERS        2X  – IDENTIFICATION NUMBERS
3   – DEVICE PORT PROTOCOL NAMES      4DM – MATCH CODE ENTRIES
5I  – DISCRETE BYTE INPUT ENTRIES     6   – THE DATA MATRIX ENTRIES
7   – THE PASS THROUGH ENTRIES        8   – NON–VOLATILE SCRATCH PAD AREA
9XF – RB MODULE FUNCTIONS             AX  – HARDWARE DIAGNOSTICS
BX  – SOFTWARE DIAGNOSTICS            C   – EXIT CONFIGURATION MODE

WHERE X (0 TO 7) AND D (1 TO 3) ARE PORT NUMBERS WHICH ARE DEFINED BELOW :

0 – RB CMMND PRCSS   2 – SERIAL PORT 2   4 – CONFIG PORT     6 – I/O RACK SLT 1
1 – SERIAL PORT 1    3 – SERIAL PORT 3   5 – I/O RACK SLT 0   7 – RESERVED

WHERE F (A TO E) ARE FUNCTIONS THAT RB CAN PERFORM WHICH ARE DEFINED BELOW :

A – RESET   B – SET DEFAULTS   C – FLUSH   D – INITIALIZE   E – CLEAR DIAGS

WHERE M (A TO T) AND I (A TO H) ARE ENTRY NUMBERS FOR THE SELECTION MADE ABOVE.

            ENTER A MAIN MENU SELECTION:
```

```
            ENTER A MAIN MENU SELECTION: 3

PORT 1 = COPYRIGHT 1989          ALLEN–BRADLEY COMPANY, INC.
 2760–SFC1 DT    , SERIES A , REVISION B    (YES/NO) = YES.

PORT 2 = COPYRIGHT 1989          ALLEN–BRADLEY COMPANY, INC.
2760–SFC1 DT    , SERIES A , REVISION B    (YES/NO) = YES.

PORT 3 = COPYRIGHT 1989          ALLEN–BRADLEY COMPANY, INC.
2760–SFC1 DT    , SERIES A , REVISION B    (YES/NO) = YES.

EDIT THIS SELECTION (YES/NO) ?
```

```
ENTER A MAIN MENU SELECTION: 21

DUMB TERM. UNSPECIFIED PROTOCOL, 13fh (YES/NO) = YES.

EDIT THIS SELECTION (YES/NO) ?
```

```
ENTER A MAIN MENU SELECTION: 11

MODEM CONTROL (ENABLE/DISABLE) = DISABLE.
9600 BITS PER SECOND (YES/NO) = YES.
8 BITS NO PARITY (YES/NO) = YES.
XON/XOFF (ENABLE/DISABLE) = DISABLE.
RS232 (YES/NO) = YES.
RECEIVE MATRIXING (ENABLE/DISABLE) = DISABLE.
BYTE SWAPPING (ENABLE/DISABLE) = ENABLE.
BINARY DATA NO CONVERSIONS (YES/NO) = YES.
HDR/TLR ON OUTPUT (ENABLE/DISABLE) = ENABLE.
HEADER BYTE LENGTH (DEC 0...4) = 0.
HEADER DATA[0] (HEX 0...ff) = 0.
HEADER DATA[1] (HEX 0...ff) = 0.
HEADER DATA[2] (HEX 0...ff) = 0.
HEADER DATA[3] (HEX 0...ff) = 0.
TRAILER BYTE LENGTH (DEC 0...4) = 2.
TRAILER DATA[0] (HEX 0...ff) = a.
TRAILER DATA[1] (HEX 0...ff) = d.
TRAILER DATA[2] (HEX 0...ff) = 0.
TRAILER DATA[3] (HEX 0...ff) = 0.
MAX DATA BYTE LENGTH (DEC 0...124) = 0.
MIN DATA BYTE LENGTH (DEC 0...124) = 0.

CONTINUE THIS SELECTION (YES/NO) ?
```

3. Make sure PLC program is written to access Flexible Interface Module data.

SLC 5/03, 5/04 Controller Application

This appendix describes how to configure and operate the scanner when connected to an SLC 5/03, 5/04 controller.

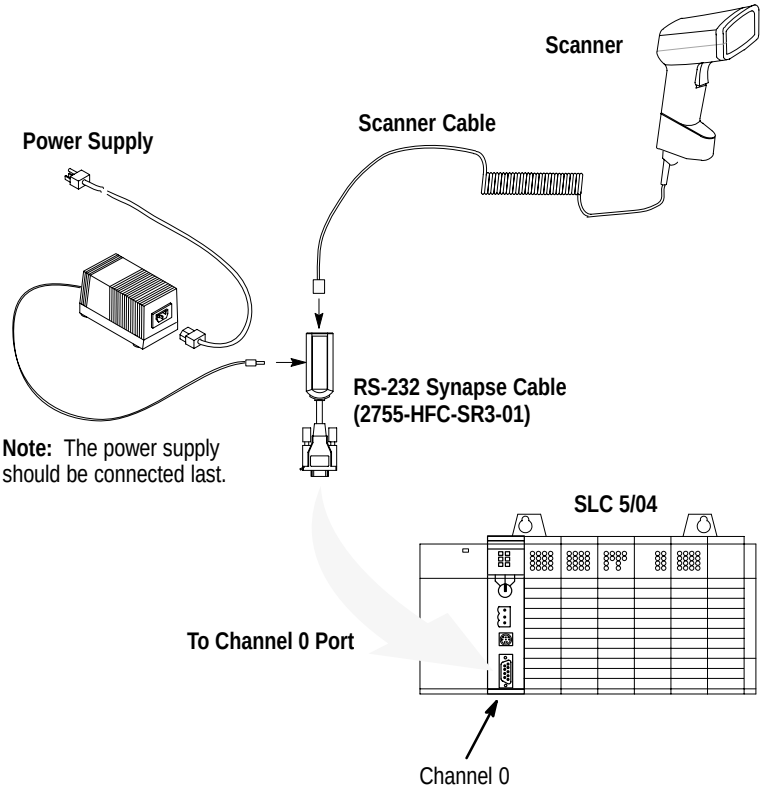
ATTENTION: Do not install the RS-232 Synapse cable with power applied to either the Synapse cable or SLC controller. Failure to follow this caution may result in damage to the scanner, Synapse cable, or SLC.

For additional reference you should refer to the following publications:

- Advanced Programming Software (APS) User Manual
- Advanced Programming Software (APS) Reference Manual

Hardware Connections

The scanner connects to the Channel 0 port of the SLC with an RS-232 Synapse cable (Catalog No. 2755-HFC-SR2-01).

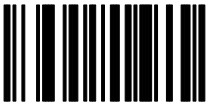


Scanner Configuration

Configure the scanner using the bar codes described in Chapter 1. The SLC controller does not require any specific scanner configuration. However, you will need to configure the cable communication parameters as described on the next page.

Configuration Codes for SLC Application

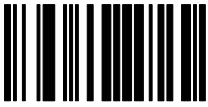
1. After making the necessary connections, scan this symbol to set the scanner to its default settings.



Set Scanner Defaults

2. Set the bar code suffix to CR LF (ASCII equivalent 7013) by scanning the following labels.

Suffix



7

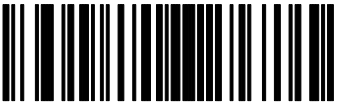
0

1

3

3. Send the data then the suffix by scanning these labels.

Scan this Symbol First



Send <Data> <Suffix>

Scan Enter after Scanning Option

4. Set the RS-232 Synapse cable to defaults by scanning the following:

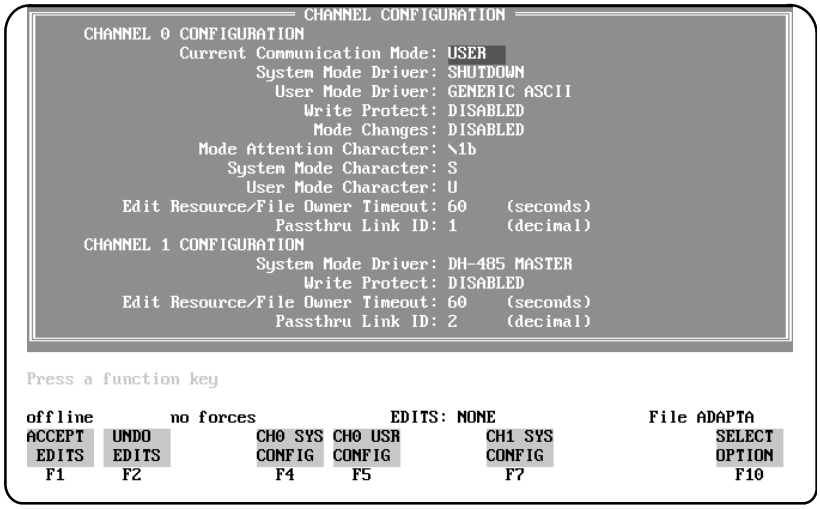
Set RS-232 Synapse Cable Defaults

5. The cable defaults will work with the SLC 5/03, 5/04. Your application may have specific requirements. Chapter 3 lists the settings that can be modified. If you change a communication setting, make sure the SLC controller is configured to accept the change.

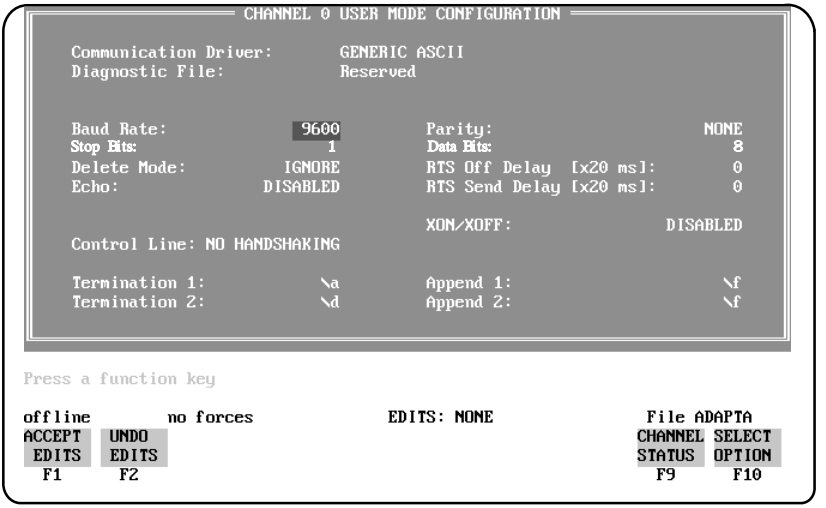
SLC 5/03, 5/04 Setup

You will need to configure the SLC, refer to the user manuals and following instructions:

1. Set the SLC Channel 0 to **User** in the Channel 0 Configuration screen



2. Configure Channel 0 in the Channel 0 User Mode Configuration screen.

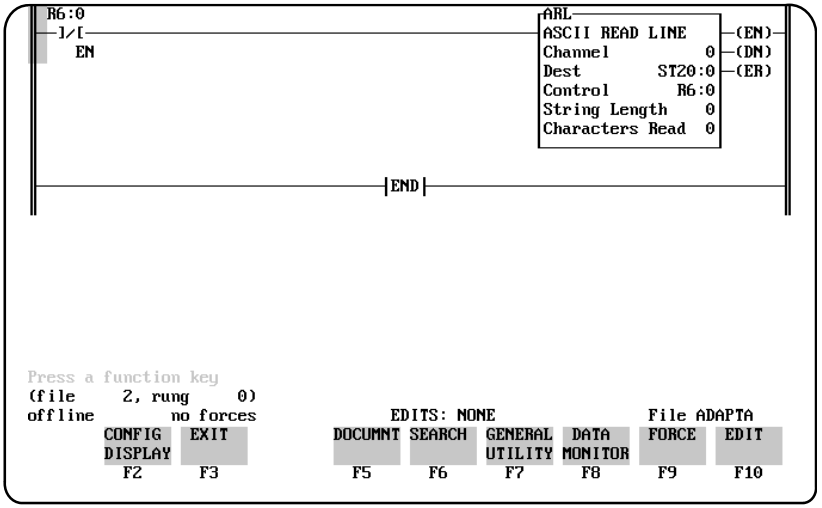


Note that Termination 1 is set for **\a** or Line Feed **[LF]**, and Termination 2 is set for **\d** or Carriage Return **[CR]**. These terminators, along with the **ARL** instruction in the SLC, allow you to read one message at a time with **[CR] [LF]** terminators.

SLC Program

The sample ladder logic listing below instructs the SLC 5/03 or 5/04 to:

Rung 2:0 – Read one string of ASCII data terminated with a **[CR] [LF]**.



Refer to the SLC 5/03 user manual for detailed information on using the SLC 5/03 or 5/04 programming software.

PLC-5 Controller Application

This appendix describes how to configure and operate the scanner when connected to a PLC-5 controller.

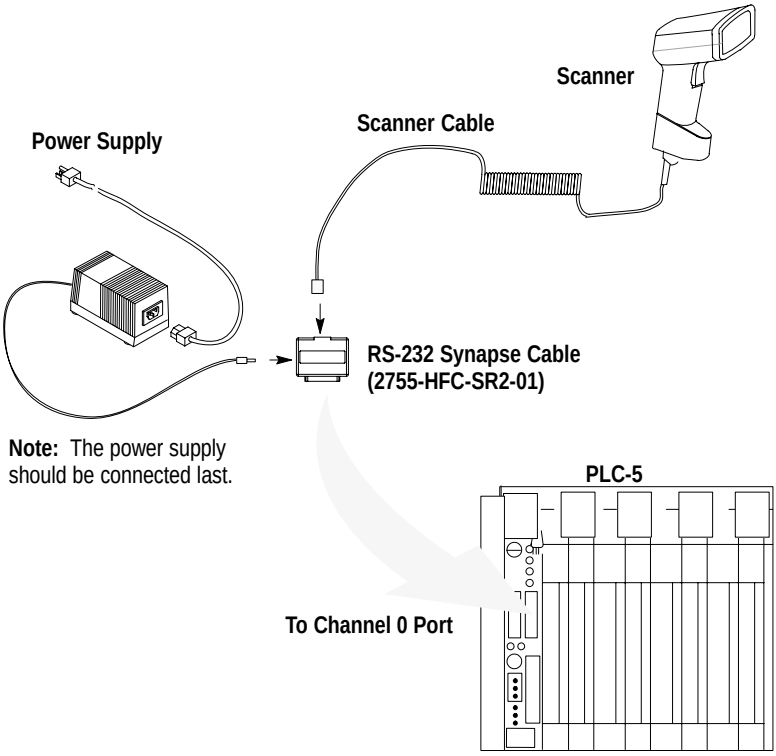
ATTENTION: Do not install the RS-232 Synapse cable with power applied to either the Synapse cable or PLC controller. Failure to follow this caution may result in damage to the scanner, Synapse cable, or PLC.

For additional reference you should refer to the following publications:

- PLC-5 User Manual
- 6200 Series Programming Software User Manual

Hardware Connections

The scanner connects to the Channel 0 port of the PLC with an RS-232 Synapse cable (Catalog No. 2755-HFC-SR2-01). The connections are shown in the scanner user manual (Publication 2755-6.2).

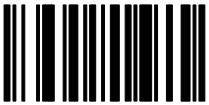


Scanner Configuration

Configure the scanner using the bar codes described in Chapter 1. The PLC controller does not require any specific scanner configuration. However, you will need to configure the cable communication parameters as described on the next page.

Configuration Codes for PLC Application

1. After making the necessary connections, scan the following following bar code symbol to set the scanner to its default settings.



Set Scanner Defaults

2. Set the RS-232 Synapse cable to defaults by scanning this label.

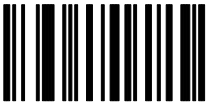
Set RS-232 Synapse Cable Defaults

3. Set the bar code suffix to CR LF (ASCII equivalent 7013) by scanning the following labels.

Suffix

7

0

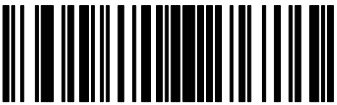


1

3

4. Send the data then the suffix by scanning these labels.

Scan this Symbol First



Send <Data> <Suffix>

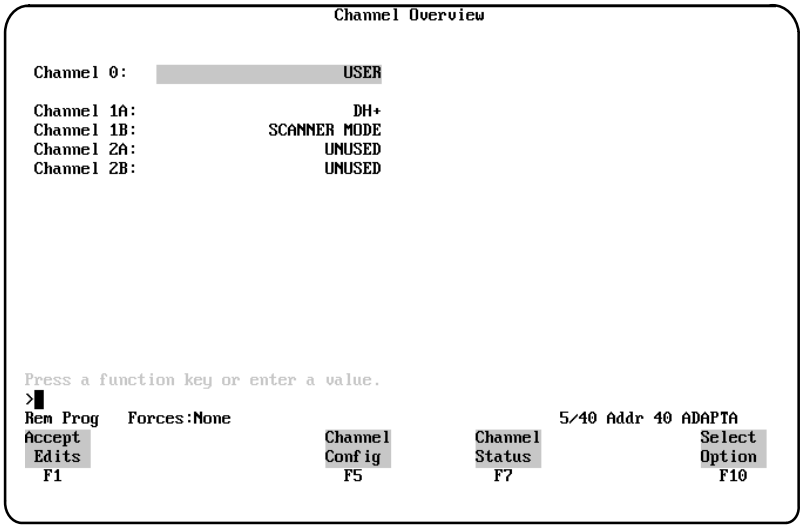
Scan Enter after Scanning Option

5. The cable defaults will work with the PLC-5. Your application may have specific requirements. Chapter 3 lists the settings that can be modified. If you change a communication setting, make sure the PLC controller is configured to accept the change.

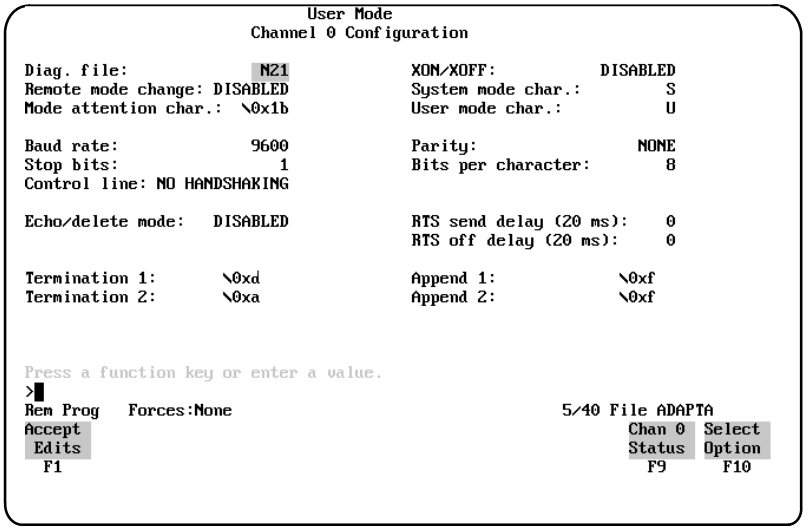
PLC-5 Setup

You will need to configure the Channel 0 port of the PLC-5. Refer to the 6200 Series Programming Software user manual and the following instructions.

1. Set the PLC-5 Channel 0 to **User** in the Channel 0 Configuration screen.



2. Configure Channel 0 in the User Mode Channel 0 Configuration screen.

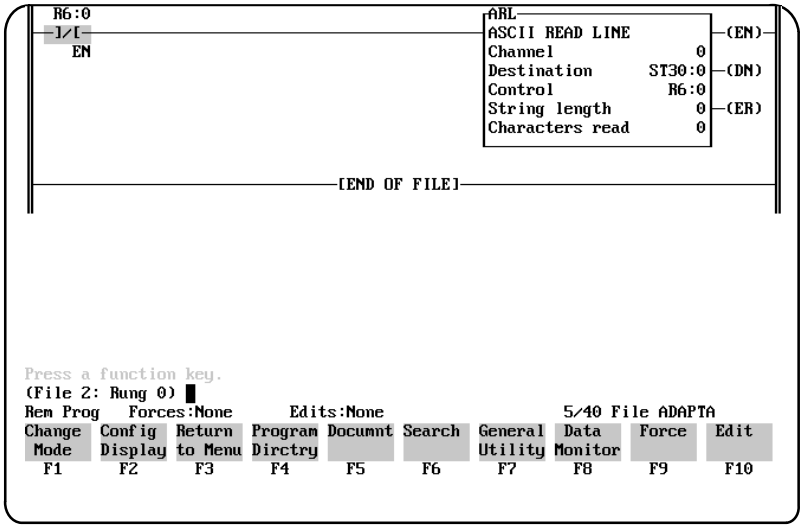


Note that Termination 1 is set for **\0xa** or Line Feed **[LF]**, and Termination 2 is set for **\0xd** or Carriage Return **[CR]**. These terminators, along with the **ARL** instruction in the PLC-5, allow you to read one message at a time with **[CR] [LF]** terminators.

PLC Program

The sample ladder logic listing below instructs the PLC-5 to:

Rung 2:0 – Read one string of ASCII data terminated with a **[CR] [LF]**.



Refer to the PLC-5 user manual for detailed information on using the PLC programming software.

DTAM™ Plus DeviceNet™ Application

This appendix describes how to configure and operate the scanner when connected to a DTAM Plus Operator Interface on a DeviceNet network.

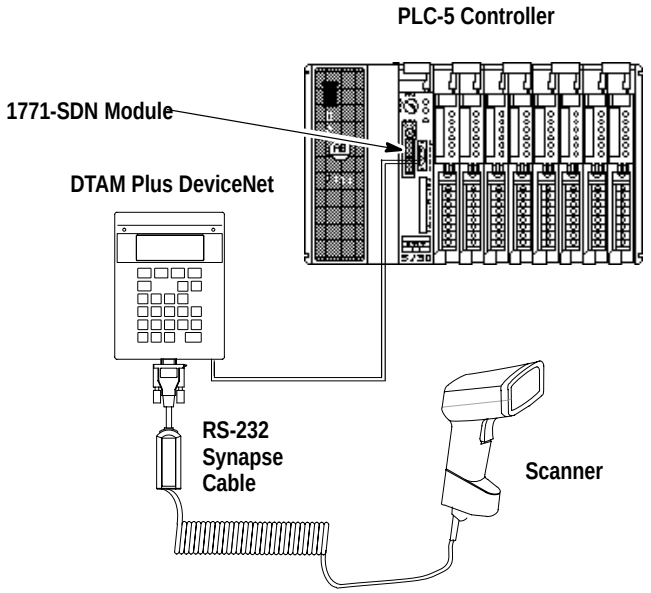
Related Publications

Below is a list of related publications you may need to refer to when using the DTAM Plus Operator Interface.

Publication No.	Title
2707-800	DTAM Plus Operator Interface Module User Manual
2707-800.5	DTAM Plus DeviceNet Operator Interface Document Update
2707-801	DTAM Programming Software Programming Manual
2707-802	Getting Started with DTAM Plus User Manual

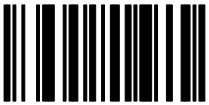
Hardware Connections

The scanner connects to the DTAM Plus with the 9-Pin RS-232 Synapse cable (Catalog No. 2755-HFC-SR3-01). The cables and connections are shown in Chapter 2 of the scanner user manual (Publication 2755-6.2).



Codes for DTAM Plus Operator Interface DeviceNet Application

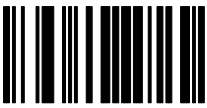
1. After making the necessary connections, scan the following following bar code symbol to set the scanner to its default settings.



Set Scanner Defaults

2. Set the bar code suffix to CR LF (ASCII equivalent 7013) by scanning the following labels.

Suffix



7

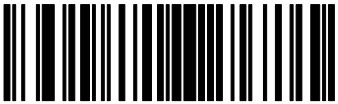
0

1

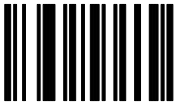
3

3. Send the data then the suffix by scanning these labels.

Scan this Symbol First



Send <Data> <Suffix>



Scan Enter after Scanning Option

4. Set the RS-232 Synapse cable to defaults by scanning this label.

Set RS-232 Synapse Cable Defaults

5. The cable defaults will work with the DTAM Plus. Your application may have specific requirements. Chapter 3 lists the settings that can be modified. If you change a communication setting, make sure the PLC controller is configured to accept the change.

DTAM Plus Operator Interface Setup

You may need to configure the DTAM Plus Operator Interface RS-232 port to accept the scanner data. Refer to the *DTAM Programming Software Programming Manual*. Configure the DTAM Plus Operator Interface serial port as shown below.

1. Open Screen Builder.

2. Open Create Screen.

3. Open Data Entry Screen.

4. Select Set Up Screen.

5. Select Data Entry.

6. Select ASCII Input.

7. Set up DTAM.

DeviceNet Operation

The DTAM Plus DeviceNet operates as a Group 2 Server on the DeviceNet network. It supports the Unconnected Message Manager (UCMM). The DTAM Plus DeviceNet implements the predefined master/slave connection set, operating as a slave device. It does not initiate communications except for a Duplicate Node Address check on power-up.

The DTAM Plus DeviceNet supports the polled I/O method of exchanging data with a master, in the following sequence:

1. The designated master writes an output image to the DTAM Plus DeviceNet using the Poll Command message.
2. The DTAM Plus DeviceNet responds to the poll command by returning an input image back to the master in a Poll Response message.

   Note: The size of the input and output images (also referred to as files) are individually configurable from 0 words to 121 words each, to optimize DeviceNet network loading.
3. The DTAM Plus DeviceNet application program interacts with data contained in the input and output files.
4. Data Display screens are used to view input and output data.
5. Data Entry screens are used to modify input and output data from the scanner.

ASCII Chart

ASCII Value	Full ASCII Code 39 Encode Char.	Character (Control Code)	ASCII Value	Full ASCII Code 39 Encode Char.	Character (Control Code)
1000	%U	NULL (CTRL 2)	1016	$P	DLE (CTRL P)
1001	$A	SOH (CTRL A)	1017	$Q	DC1 (CTRL Q)
1002	$B	STX (CTRL B)	1018	$R	DC2 (CTRL R)
1003	$C	ETX (CTRL C)	1019	$S	DC3 (CTRL S)
1004	$D	EOT (CTRL D)	1020	$T	DC4 (CTRL T)
1005	$E	ENQ (CTRL E)	1021	$U	NAK (CTRL U)
1006	$F	ACK (CTRL F)	1022	$V	SYN (CTRL V)
1007	$G	BEL (CTRL G)	1023	$W	ETB (CTRL W)
1008	$H	BS (CTRL H)	1024	$X	CAN (CTRL X)
1009	$I	HT (CTRL I)	1025	$Y	EM (CTRL Y)
1010	$J	LF (CTRL J)	1026	$Z	SUB (CTRL Z)
1011	$K	VT (CTRL K)	1027	%A	ESC (CTRL[)
1012	$L	FF (CTRL L)	1028	%B	FS (CTRL \)
1013	$M	CR (CTRL M)	1029	%C	GS (CTRL])
1014	$N	SO (CTRL N)	1030	%D	RS (CTRL 6)
1015	$O	SI (CTRL O)	1031	%E	US (CTRL _)

ASCII Value	Full ASCII Code 39 Encode Char.	Character	ASCII Value	Full ASCII Code 39 Encode Char.	Character
1032	SP	SP	1057	9	9
1033	/A	!	1058	/Z	:
1034	/B	'	1059	%F	;
1035	/C	#	1060	%G	<
1036	/D	$	1061	%H	=
1037	/E	%	1062	%I	>
1038	/F	&	1063	%J	?
1039	/G	'	1064	%V	@
1040	/H	(	1065	A	A
1041	/I	)	1066	B	A
1042	/J	*	1067	C	C
1043	/K	+	1068	D	D
1044	/L	,	1069	E	E
1045	-	-	1070	F	F
1046	.	.	1071	G	G
1047	/	/	1072	H	H
1048	0	0	1073	I	I
1049	1	1	1074	J	J
1050	2	2	1075	K	K
1051	3	3	1076	L	L
1052	4	4	1077	M	M
1053	5	5	1078	N	N
1054	6	6	1079	O	O
1055	7	7	1080	P	P
1056	8	8	1081	Q	Q

ASCII Value	Full ASCII Code 39 Encode Char.	Character	ASCII Value	Full ASCII Code 39 Encode Char.	Character
1082	R	R	1105	+I	i
1083	S	S	1106	+J	j
1084	T	T	1107	+K	k
1085	U	U	1108	+L	l
1086	V	V	1109	+M	m
1087	W	W	1110	+N	n
1088	X	X	1111	+O	o
1089	Y	Y	1112	+P	p
1090	Z	Z	1113	+Q	q
1091	%K	[	1114	+R	r
1092	%L	\	1115	+S	s
1093	%M	]	1116	+T	t
1094	%N	^	1117	+U	u
1095	%O	_	1118	+V	v
1096	%W	'	1119	+W	w
1097	+A	a	1120	+X	x
1098	+B	b	1121	+Y	y
1099	+C	c	1122	+Z	z
1100	+D	d	1123	%P	{
1101	+E	e	1124	%Q	|
1102	+F	f	1125	%R	}
1103	+G	g	1126	%S	~
1104	+H	h	1127		Undefined

ALT Key Values

ALT Key Value	Keystroke	ALT Key Value	Keystroke	ALT Key Value	Keystroke
2064	ALT 2	2075	ALT K	2086	ALT V
2065	ALT A	2076	ALT L	2087	ALT W
2066	ALT B	2077	ALT M	2088	ALT X
2067	ALT C	2078	ALT N	2089	ALT Y
2068	ALT D	2079	ALT O	2090	ALT Z
2069	ALT E	2080	ALT P	2091	ALT [
2070	ALT F	2081	ALT Q	2092	ALT \
2071	ALT G	2082	ALT R	2093	ALT]
2072	ALT H	2083	ALT S	2094	ALT 6
2073	ALT I	2084	ALT T	2095	ALT -
2074	ALT J	2085	ALT U		

Miscellaneous Key Values

Misc. Key Value	Keystroke	Misc. Key Value	Keystroke	Misc. Key Value	Keystroke
3001	PA 1	3009	CMD 7	3017	
3002	PA 2	3010	CMD 8	3018	$^1/_2$
3003	CMD 1	3011	CMD 9	3019	
3004	CMD 2	3012	CMD 10	3020	
3005	CMD 3	3013		3021	|
3006	CMD 4	3014		3022	0/00
3007	CMD 5	3015			
3008	CMD 6	3016	–		

Numeric Key Values

Numeric Key Value	Keystroke	Numeric Key Value	Keystroke	Numeric Key Value	Keystroke
6042	*	6049	1	6056	8
6043	+	6050	2	6057	9
6044	Undefined	6051	3	6058	Enter
6045	–	6052	4	6059	Num Lock
6046	.	6053	5	6060	00
6047	/	6054	6		
6048	0	6055	7		

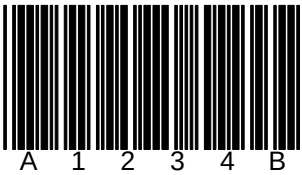
Extended Keyapd Key Values

Numeric Key Value	Keystroke	Numeric Key Value	Keystroke	Numeric Key Value	Keystroke
7001	Break	7008	Backspace	7015	Up Arrow
7002	Delete	7009	Tab	7016	Down Arrow
7003	Page Up	7010	Print Screen	7017	Left Arrow
7004	End	7011	Insert	7018	Right Arrow
7005	Page Down	7012	Home	7019	Back Tab
7006	Pause	7013	Enter		
7007	Scroll Lock	7014	Escape		

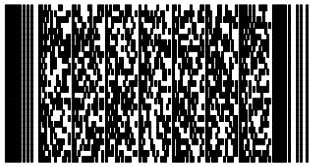
TEST SYMBOLS

Code 128

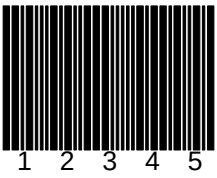
Code 93



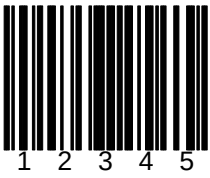
Code 39



PDF-417

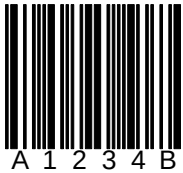


Discrete 2 of 5



EAN 128

EAN 13



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UPC E

UPC A

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Allen-Bradley Headquarters, 1201 South Second Street, Milwaukee, WI 53204 USA, Tel: (1) 414 382-2000 Fax: (1) 414 382-4444

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