



## **Enhanced Decoder to SLC 5/03 Enhanced (FRN 6.0) or SLC 5/04 Processor**

### **Overview**

The SLC-5/03<sup>®</sup> Enhanced and SLC 5/04 processors from Allen-Bradley have a user port that can be used to interface a single point 2755-DS/DD Enhanced Decoder using RS-232 communication.

This document includes cable diagrams and configuration information for the 2755-DS/DD decoder, as well as an example SLC<sup>®</sup> 500 program necessary to establish communication through Channel 0 on the SLC-5/03 (FRN 6.0 or later) or SLC 5/04.

**Note:** In this document, SLC 500 refers to the SLC 5/03 Enhanced (FRN 6.0 or later) and SLC 5/04 processors.

### **Hardware Requirements**

Implementation of the procedure described in this application note requires the following Allen-Bradley hardware:

- 2755-DS/DD Enhanced Bar Code Decoder and related manuals.
- Bulletin 1747 SLC 5/03 Enhanced or 5/04 processor.
- Bulletin 1746 rack.
- Bulletin 1746 power supply.
- Bulletin 1747-PIC module for communication to the processor from a personal computer.
- Appropriate cables to program the SLC-5/03 or 5/04 and configure the 2755-DS/DD decoder. Refer to hardware manuals for cable requirements.

### **Software Requirements**

Implementation of the procedure described in this application note requires the following Allen-Bradley software:

- SLC 500 Advanced Programming Software.
- Terminal Emulation Package (such as Procomm<sup>®</sup> or Windows<sup>®</sup> Terminal) to configure the 2755-DS/DD with a personal computer.

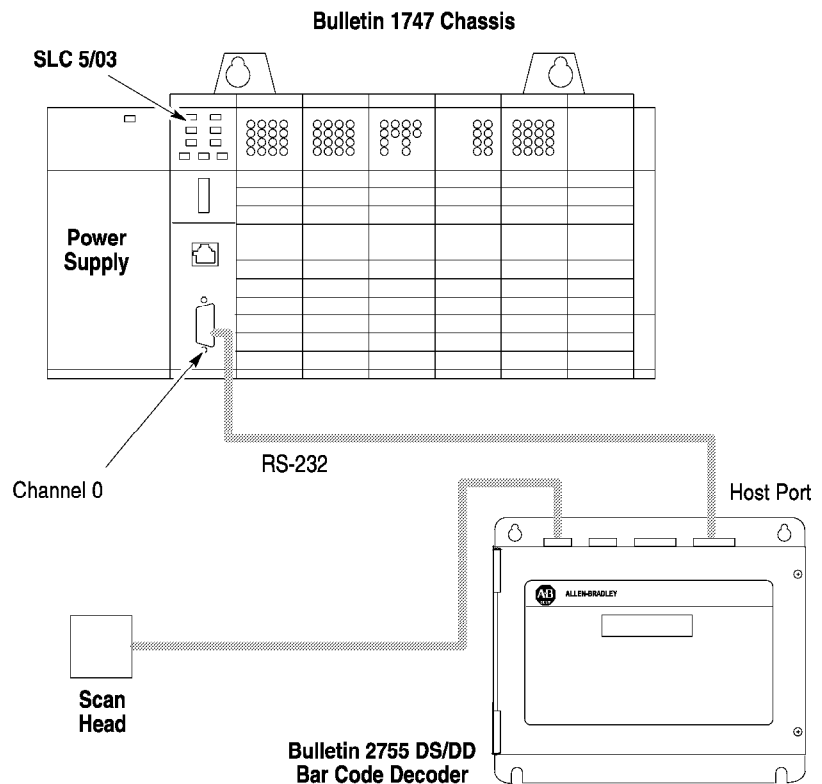
## Related Publications

This document refers to the following publications, which should be available for reference while working through this application note:

Publication Number	Title
1747-6.1	User Manual for your SLC 500
9939-XXX	Programming Manuals for APS software.
2755-833	Bulletin 2755-DS/DD Series B Enhanced Decoder User Manual

## Configuration

The SLC occupies the first slot in a 1746 rack. Power is supplied externally to the chassis. Refer to the following illustration for connections between the SLC 5/03 or 5/04 and Bulletin 2755 DS/DD decoder.

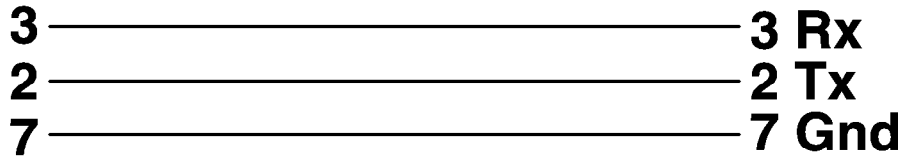


## Cabling

Cabling connecting the Host port of the Bulletin 2755–DS/DD Enhanced Decoder to Channel 0 on the SLC 5/03 must be constructed. Refer to the figures below for cabling diagrams.

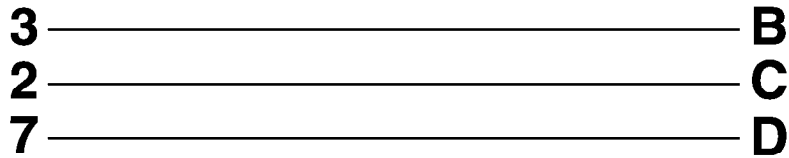
Enhanced SLC 5/03 or SLC 5/04  
Channel 0

2755-DS/DD NEMA1  
Host Port



Enhanced SLC 5/03 or SLC 5/04  
Channel 0

2755-DS/DD NEMA4  
Host Port



## SLC 500 Configuration

Set the SLC 500 "Channel 0" to **USER** as shown in the Channel Overview Screen (see below). Configure Channel 0 as shown in the User Mode Channel 0 User 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 500, allow the User port to read in one message at a time with [**CR**] [**LF**] terminators.

### Channel Overview Screen

```

CHANNEL CONFIGURATION
CHANNEL 0 CONFIGURATION
  Current Communication Mode: USER
  System Mode Driver: SHUTDOWN
  User Mode Driver: GENERIC ASCII
  Write Protect: DISABLED
  Mode Changes: DISABLED
  Mode Attention Character: \1b
  System Mode Character: S
  User Mode Character: U
  Edit Resource/File Owner Timeout: 60 (seconds)
  Passthru Link ID: 1 (decimal)
CHANNEL 1 CONFIGURATION
  System Mode Driver: DH+
  Write Protect: DISABLED
  Edit Resource/File Owner Timeout: 60 (seconds)
  Passthru Link ID: 2 (decimal)

```

### Channel 0 User Configuration Screen

```

CHANNEL 0 USER MODE CONFIGURATION
Communication Driver:  GENERIC ASCII
Diagnostic File:      Reserved

Baud Rate:           9600          Parity:                NONE
Delete Mode:         IGNORE        RTS Off Delay [x20 ms]: 0
Echo:                DISABLED      RTS Send Delay [x20 ms]: 0
Control Line: NO HANDSHAKING
XON/XOFF:            DISABLED

Termination 1:       \a            Append 1:               \d
Termination 2:       \d            Append 2:               \a

```

### 2755-DS/DD Enhanced Bar Code Decoder Configuration

An example configuration for the 2755-DS/DD Enhanced Decoder follows. Notice that the **END MESSAGE** is set to **[CR] [LF]**. Note that the settings illustrated below represent only *part* of the configuration required for the 2755-DS/DD Enhanced Decoder to work in a given application. Refer to the decoder documentation for complete details on decoder configuration.

#### 2755-DS/DD Host Communications Configuration Screen.

```

-----
HOST COMMUNICATIONS
BAUD RATE*: 3600
BITS/CHAR*: 8 Data 1 Stop
PARITY*: None
HOST PROTOCOL*: RS232
DEVICE ADDRESS*: 1
ACK CHAR*: None 255
NAK CHAR*: None 255

*Save and Restart required for these parameters to take effect.

SCANNER A    SCANNER B
START SCAN CHAR: None 255 None 255
STOP SCAN CHAR: None 255 None 255

LARGE BUFFER: No
SEND HOST MESSAGE: At End of Trigger
TRANSMISSION CHECK: None

-----
Commands:ESC    Change:SPACE    Cursor Control:ARROWS
-----
    
```

#### 2755-DS/DD Host Message Format Configuration Screen.

```

START CHARACTER: None 255
SOURCE IDENTIFIER for (AUX): (A): (B):
HEADER STRING:
FIELD DELIMITER: None 255 NUMBER OF FIELDS IN MESSAGE: ALL
SEND SYMBOLGY: No SEND PACKAGE COUNT: No
SEND BAR CODE STRINGS: Yes SEND DECODER PERFORMANCE: No
END MESSAGE: CrLf
DEFAULT NO-READ STRING: NO READ

FIELD NUMBER NO-READ REPLACEMENT STRING FIELD NUMBER NO-READ REPLACEMENT STRING
1 9
2 10
3 11
4 12
5 13
6 14
7 15
8 16

-----
EDIT -- Cancel:ESC Enter:RETURN Erase Char:BACKSPACE
-----
    
```

## SLC 500 Program

The sample ladder logic listing that follows instructs the SLC to:

- Rung 2:0 – Read one string of ASCII data terminated with a **[CR]** **[LF]**.
- Rung 2:1 – Based on the done bit from the ARL instruction in rung 2:0, copy the string data into an integer file in the SLC.

**Note:** The Length variable in the Copy File instruction is set to 12. This value includes a one word header and a one word trailer.

```

| Rung 2:0
| R6:0
+---] / [-----+ARL-----+-----+
|          EN          |Channel          0+- (EN) -+
|                   |Dest          ST28:0+
|                   |Control        R6:0+- (DN) -+
|                   |String Length  0+
|                   |Characters Read 0+- (ER) -+
|                   +-----+
| Rung 2:1
| R6:0
+---] [-----+COP-----+-----+
|          DN          |Source      #ST28:0 |
|                   |Dest          #N7:50 |
|                   |Length        12 |
|                   +-----+
| Rung 2:2
+-----[END OF FILE]-----+

```

**Note:** ARL instruction can be substituted for any ASCII READ instruction in the SLC, depending on the desired format of the data. Refer to the SLC 500 user documentation for detailed information on using the programming software.

## Notes

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