REV	DESCRIPTION OF CHANGE	ECO	DATE	BY	ENG
A	RELEASE	10410	11-04-94	KRD	RT
B	CORRECT SEC. 7.3.1.16 & FORMAT TO WORD	10656	01-30-95	JRH	
C	UPDATES FOR COMET: ADDED PSC FORMAT, CORRECTED SEC. 7.1.2, RENUMBERED SEC. 7.3.2.10 TO 7.3.2.9.1, INSERTED NEW SCANNER ONLY ENABLE CMD AT SEC. 7.3.1.3, ADDED HIGH BAUD RATES TO SEC. 6.1, MADE MINOR FORMATTING CHANGES	44377	12/09/02	LIR	RM
D	ADDED HOST DOWNLOAD, EAS, BUTTON, AND DIAGNOSTIC REPORTING COMMANDS, REFERENCE VAF SPEC R90-0060, REVIEW INPUT, ACME SUPPORT	47282	01/08/04	JRH	RM
E	UPDATES FOR MR5: ADDED LASER/LED BEHAVIOR FOR DISABLE COMMANDS, 200MS TIMEOUT, NCR TYPE STATUS REPLY, SCALE CALIBRATION DATE COMMAND, AND NEW NCR COMMANDS;CHANGED PSC TO DATALOGIC SCANNING;ADDED DETAILS ON HIGH PRECISION WEIGHT DATA	5764	04/04/12	BKM	RM/MGL

GENERAL TOLERANCES PER DOCUMENT NO. C-5124	CONFIDENTIAL DATALOGIC ADC PROPRIETARY	.X ±.1 XX ±.01 .XXX ± .005 TOLERANCES UNLESS OTHERWISE SPECIFIED	MM: ± ANGLES ± 30' SURF. FIN:	

	NAME	DATE	DESCRIPTION		
COMPILED BY	RANDY TURKAL	12-93	**SINGLE CABLE RS232** **INTERFACE SPECIFICATION**		
CHECKED BY					
ENGINEER	RANDY TURKAL	11-06-94	SCALE: N/A	REV: E	SHT 1 OF 47
MANUFACTUR'G			PART NUMBER: R96-1671		

TABLE OF CONTENTS

1. SCOPE

This document specifies the hardware, signaling characteristics, communications protocol and processing considerations of the Single Cable RS232 Interface. Peripherals that were manufactured before the release date of this document do not necessarily conform to the specifications detailed by this document.

2. APPLICABLE DOCUMENTS

The following documents were utilized in assembling this specification:

R96-0999	RS232 Interface Specification
R96-4222	Flash Programming Interface Specification
DR9000060	Value Added Features Specification

3. CONVENTIONS

ASCII characters shall be shown in this document inside single quotes. Examples: the letter capital R is shown as 'R', or the characters 123abc are shown as '123abc' in ASCII notation.

Hexadecimal characters shall be shown in this document with a prefix of '0x'. Examples: the letter 'R' is shown as 0x52, or the number '4' is shown as 0x34, or the numbers '123' are shown as 0x313233 in hexadecimal notation.

4. GLOSSARY OF TERMS

Active	Abbreviation used to denote that the associated RS-232 function is considered ON in the control or timing of an RS-232 interchange circuit.
ASCII	Abbreviation for "American Standard Code for Information Interchange".
Bit	Basic representation of binary data. Values of 1 or 0.
Byte	Digital data consisting of 7 or 8 bits. The LSB is referenced as bit zero and the MSB as bit 6 or 7.
'CR'	Abbreviation for ASCII Carriage Return character.
DLS	Datalogic Scanning, formerly PSC
EIA	Abbreviation for Electronic Industries Association.
Full Duplex	An RS-232 channel capable of operating in both directions simultaneously.
Gated Scanner	A scanner that incorporates an indicating device which indicates (to the scanner) when an item that is desired to be scanned has entered the scan volume and when the item has left the scan volume.
Gateless Scanner	A scanner which does not incorporate the indicating device detailed in the definition for a "Gated Scanner".
Host	Point Of Sale terminal.
I/F	Abbreviation for "Interface".
Inactive	Abbreviation used to denote that the associated RS-232 function is considered OFF in the control or timing of an RS-232 interchange circuit.
Logic "0"	Abbreviation used to denote the binary state ZERO during the transmission of data in an RS-232 interchange circuit.
Logic "1"	Abbreviation used to denoted the binary state ONE during the transmission of data in an RS-232 interchange circuit.
LSB/MSB	Abbreviations for Least Significant Bit/Most Significant Bit.
Message	A byte, or string of bytes, transmitted from one device to another to convey information.
MSD	Abbreviation for Most Significant Digit.
Pacesetter	The name NCR uses to reference their UPC/EAN edge decoding algorithms.

Peripheral	Scanner/Scale or Scanner only.
Price/Weight Display	A device which is used to display weight information from a scale, and is also used to display item price information received from the host.
Signal Ground	A common reference for all RS-232 interchange circuits.
TBD	Abbreviation for "To Be Determined".
Toad Mode	This mode is used by NCR Corporation for NCR scanners. When a scanner is in this mode, the scanner will continually read and discard (not send to the host) bar code labels. This is used for diagnostic purposes.

5. OVERVIEW

The Single Cable RS232 Interface is a full duplex interface which will allow a host device to communicate with a bar code scanner over a single RS232 communications link, or to communicate with a bar code scanner with an integrated scale and a price / weight display over a single RS232 communications link.

6. SINGLE CABLE RS232 PHYSICAL CHARACTERISTICS

The following sections give a brief description of the physical characteristics of the Single Cable RS232 Interface. For a complete description of the interface circuits between the host and the peripheral, refer to the RS232 Interface Specification and the RS-232-C EIA RS-232-D Standard for Communications.

6.1. Single Cable RS232 Interface Signals

The following signals are used by the Single Cable RS232 Interface, and all are with respect to the host.

6.1.1. Signal Ground (GND)

This circuit establishes the common ground reference potential for all interchange circuits.

6.1.2. Transmitted Data (TXD)

Signals on this circuit are generated by the host to convey information (commands) to the peripheral. This circuit shall be held in the inactive state when no data is being transmitted to the peripheral.

6.1.3. Received Data (RXD)

Signals on this circuit are generated by the peripheral to convey information to the host. This circuit shall be held in the inactive state when no data is being transmitted to the host.

6.1.4. Request To Send (RTS)

Signals on this circuit are generated by the peripheral for hardware flow control of information being transmitted by the peripheral to the host. This signal is used only for the purpose of a handshake signal, and not for the purpose of byte by byte flow control.

6.1.5. Clear To Send (CTS)

Signals on this circuit are generated by the host for hardware flow control of information being transmitted by the peripheral to the host. This signal is used only for the purpose of a handshake signal, and not for the purpose of byte by byte flow control.

6.2. Single Cable RS232 Timing Considerations

Refer to the EIA RS-232-D Standard for Communications for all timing considerations.

6.3. Single Cable RS232 Interface Connections

The Single Cable RS232 interface connections for each different peripheral will be detailed in that peripheral's functional specification and/or hardware specification.

7. SINGLE CABLE RS232 LINK CHARACTERISTICS

This section gives an overview of the general format of the link characteristics for the Single Cable RS232 Interface.

7.1. Single Cable RS232 Baud Rate

The Single Cable RS232 Interface shall be configurable to support baud rates of 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200.

7.2.   Single Cable RS232 Parity

The Single Cable RS232 Interface shall be configurable to support Odd parity, Even parity, or No parity. If the peripheral attached to the host is a scanner with an integrated scale, either Odd parity or Even parity shall be used (If No parity is chosen, the scanner with integrated scale peripheral will ignore the No parity option and use Odd parity). If the peripheral attached to the host is a scanner only, Odd parity, Even parity, or No parity shall be supported.

7.3.   Single Cable RS232 Character Length

The single cable RS232 Interface shall be configurable to support either a seven or eight bit ASCII character. When configured for a seven bit ASCII character, Bit 0 - Bit 6 are data bits and Bit 7 shall be the parity bit. When configured for an eight bit ASCII character, Bit 0 - Bit 7 are data bits and Bit 8 is the parity bit. Bit 0 shall be the LSB for both seven bit and eight bit ASCII characters.

7.4.   Single Cable RS232 Stop Bits

The single cable RS232 interface shall be configurable to support either 1 or 2 stop bits, with the following exceptions.

•   If configured for seven data bits with no parity two stop bits shall be used.

•   If configured for eight data bits and configured for parity (either odd parity or even parity) only one stop bit shall be used.

7.5.   Single Cable RS232 Hardware Flow Control

The peripheral shall be configurable to support the following modes of using RTS and CTS for hardware flow control.

•   RTS held in low state and CTS is ignored.

•   RTS held in high state and CTS is ignored.

•   Assert RTS, wait for CTS to be asserted.

•   Assert RTS and ignore CTS.

•   RTS held in low state and wait for CTS to be asserted.

•   RTS held in high state and wait for CTS to be asserted.

Only one of the above modes shall be active at a time.

7.6.   Single Cable RS232 Software Flow Control

The Single Cable RS232 Interface shall be configurable to support XON / XOFF software flow control, ACK / NAK software flow control, or no software flow control. XON / XOFF and ACK / NAK software flow control may be enabled simultaneously.

7.7.   XON/XOFF Software Flow Control

These shall be single byte commands transmitted to the peripheral to control character data flow to the host. If the XOFF command is received, the peripheral shall finish transmitting the byte currently being transmitted to the host (if any), and then cease all communication with the host (i.e. no scanner, scale, or display information shall be transmitted) until the XON command is received. If the peripheral receives an XON command from the host, the peripheral shall transmit data to the host at the selected baud rate if data is available for transmission.

7.7.1.   ACK/NAK Software Message Control

The interface shall be configurable to use single byte ASCII commands by both the host and the peripheral to either acknowledge ('ACK') or not acknowledge ('NAK') a command or command response. The peripheral shall either acknowledge ('ACK') each command successfully received or not acknowledge ('NAK') each command unsuccessfully received from the host except for an 'ACK', 'NAK', XON, XOFF, or any commands noted as not requiring a response (see section 8.3). If the peripheral responds to a command with a command response, the command response shall be considered both a response and an 'ACK'. If the peripheral receives a NAK in response to a message transmitted to the host, the message shall be transmitted to the host again.

The host shall either acknowledge ('ACK') or not acknowledge ('NAK') each response transmitted by the peripheral. It is important to note that this procedure can affect the normal data flow from the peripheral to the host (i.e. if the peripheral transmits bar code label data to the host, and the host does not 'ACK' or 'NAK' the bar code label data response, scale or display data cannot be transmitted to the host until the 'ACK' or 'NAK' for the bar code label data response has been received by the peripheral). However, any valid command (other than 'NAK', XON, or XOFF) received from the host serves as an ACK as long as the transmission of the command from the host has not been started before the peripheral has completed the message transmission to the host.

8. NCR SINGLE CABLE RS232 COMMANDS/PROCESSING REQUIREMENTS

This section gives an overview of the general format for host commands transmitted to the peripheral and command responses received from the peripheral, as defined for NCR Single Cable RS232. The parity bit is not shown in any of the host commands or peripheral responses. Any command that changes the operating parameters of the peripheral results in the configuration change being stored in volatile memory until the Save and Reset command has been received.

8.1. Host Command / Peripheral Response Information Fields

Host commands and peripheral responses contain several information fields; some are required and some are optional. These information fields differ if the peripheral is a scanner only, or a scanner with an integrated scale. (Note: This description does not include label responses from the peripheral to the host.) These fields are listed below:

Prefix Byte Field	Address Byte Field	Function Code Field	Data Field	Terminator Byte Field	BCC Byte Field

8.1.1. Prefix Byte Field

This shall be an optional field for both a scanner only peripheral and a scanner with integrated scale peripheral. The value for this field shall be configurable from 0x01 to 0x7F, but the default shall be an 'STX' (0x02).

8.1.2. Address Byte Field

This field shall be used when the peripheral is a scanner with integrated scale. If the peripheral is a scanner only, this field shall not be used. Valid addresses are as follows:

- 0x30 = Scanner Address
- 0x31 = Scale Address
- 0x32 = Display Address
- 0x33 = Special Function Address

8.1.3. Function Code Field

This field shall be zero, one, two, or three bytes depending on the host command or peripheral response.

8.1.4. Data Field

This field is dependent on the message transmitted (by both the host and the peripheral) and is only used when the command or response requires a data field.

8.1.5. Terminator Byte Field

This field is used to signal the end of a host command or peripheral response. It is the last byte of the command / response unless the optional BCC byte is used, in which case it precedes the BCC. This is a required field if the peripheral is a scanner with integrated scale. If the peripheral is a scanner only, this field is required only when host commands and command responses are transmitted to/from the peripheral. The value for this field shall be configurable from 0x01 to 0x7F, but it is recommended to use ASCII control characters such as an 'ETX' (0x03), an 'EOT' (0x04), or a 'CR' (0x0D).

8.1.6. Block Check Character (BCC) Field

The Single Cable RS232 Interface shall be configurable to either transmit or not transmit a BCC character with the commands and responses. The BCC shall be the exclusive OR of all the bytes in a given command or response except for the prefix byte (see section 8.1.1). If parity is used, the BCC byte must also have proper parity.

8.1.7. Command Timeout

If an incomplete host command is received, such as when the 'ETX' or BCC character is not received, the scanner will discard the incomplete command after 200mS of inactivity.

8.2. Single Cable RS232 Label Message Format

This section will detail the valid bar codes supported by the Single Cable RS232 I/F, and the format of a bar code label message transmitted to the host. Label messages are not solicited by the host and are transmitted by the peripheral to the host whenever they are available (assuming the peripheral has not been disabled via a host command).

8.2.1. Pacesetter Plus Trailer Data Field

The peripheral shall have the configurable option to add trailer information to a decoded UPC/EAN label data message. This trailer information contains information about the readability of a UPC or EAN bar code label. The Pacesetter Plus Trailer Data is formatted as follows:

ST	PPDT1	PPDT2

where:

ST = 0x43
PPDT1- Pacesetter Plus Data Trailer 1
PPDT2- Pacesetter Plus Data Trailer 2
PPDT1 = 0x30 for label was decoded without major problems.
PPDT1 = 0x31 for decoding was difficult; may be inconsistent printing.
PPDT1 = 0x32 for fragmented or folded label or inconsistent printing.
PPDT1 = 0x33 for decoding was difficult due to fragmented, folded, or inconsistently printed label.
PPDT1 = 0x39 for if a particular label intermittently shows this code, the label should be analyzed more closely for out of specification conditions, even though the label may show a "code 00" when it does scan (printing may be inconsistent).
PPDT2 = 0x30 for label was decoded without major problems.
PPDT2 = 0x21 for label appears to be highly underprinted.
PPDT2 = 0x32 for label appears to be highly overprinted.
PPDT2 = 0x34 for label appears to have missing bars or margins.
PPDT2 = 0x35 for label appears to be highly underprinted and to have missing bars or margins.
PPDT2 = 0x36 for label appears to be highly overprinted and to have missing bars or margins.
PPDT2 = 0x39 if a particular label intermittently shows this code, the label should be analyzed more closely for out of specification conditions, even though the label may show a "code 00" when it does scan (printing may be inconsistent).

8.2.2. Valid Bar Code Label Types

The peripheral shall have the ability to transmit the following bar code label symbologies to the host.

- UPC-E
- UPC-A
- UPCD1 - UPCD5
- EAN8
- EAN13
- C128
- C39
- I25

8.2.3. Bar Code Label Check Digits

The Single Cable RS232 Interface shall have the configurable option to either transmit or not transmit the bar code check digit (if applicable) with the bar code label data. The default settings are listed below.

Label Type	Programmable Check Digit	Default Mode
UPC-E	Yes	Do Not Transmit
UPC-A	Yes	Transmit
UPC-D	Yes	Transmit
EAN8	Yes	Transmit
EAN13	Yes	Transmit
Code 128	Not Applicable	N/A
Code 39	Yes	Do Not Transmit
I25	Yes	Do Not Transmit

8.2.4. Bar Code Label Identifier Options

The Interface shall have the configurable option to transmit one, two, or no common characters and one unique character for each label type (Note: The word common does not imply that these characters are the same for each label type. The word "common" is used only to preserve the NCR naming convention). If the label type is UPC-D1 - UPC-D5, the I/F shall have the configurable option to transmit one version number character. The Label I.D. is the combination of the two common characters and the unique character (and in the case of UPC-D labels the version number character). The Label Identifiers shall be configurable to be sent as a prefix, as a suffix, or not to be sent at all. If the peripheral has been configured to not transmit the Label Identifiers, neither the common characters nor the unique character (and in the case of UPC-D labels the version number character) shall be transmitted to the host for any label type.

If any of the label identifiers (common characters 1 & 2, the unique character, and the version number character for UPC-D) are configured to 0x00, that character shall not be transmitted to the host. The following table details the recommended Label Identifiers.

DEFAULT	**LABEL**	**IDENTIFIERS**		
Label Type	Common Byte 1	Bytes Byte 2	Unique Byte	Version Number
UPC-A	0x41	0x00	0x00	N/A
UPC-E	0x45	0x30	0x00	N/A
UPCD1	0x44	0x00	0x00	0x31
UPCD2	0x44	0x00	0x00	0x32
UPCD3	0x44	0x00	0x00	0x33
UPCD4	0x44	0x00	0x00	0x34
UPCD5	0x44	0x00	0x00	0x35
EAN8	0x46	0x46	0x00	N/A
EAN13	0x46	0x00	0x00	N/A
Code39	0x42	0x31	0x00	N/A
I25	0x42	0x32	0x00	N/A
Code 128	0x42	0x33	0x00	N/A

8.2.5. Label Data Format

The format of scanner label data consists of alpha-numeric data sequences read from a bar code symbol, the Label I.D., and the label check digit. The formatted bar code label data may have the Label I.D. as a prefix or the Label I.D. as a suffix, but cannot have both. The formatting of the bar code label is as follows.

Label Identifiers as Prefix	Label Data	Check Digit	Label Identifiers as Suffix
see section 8.2.4	X1 - Xn	see section 8.2.3	see section 8.2.4

where:

X1 - Xn = Bar Code Label Data

Label data can contain PIR-CT data, which when enabled, provides additional information to the POS. See the Value Added Features Specification, R90-0060 for a description of PIR-CT data.

8.2.6. Bar Code Label Data Message to Host

The Single Cable RS232 Interface has specific formats for bar code label messages depending if the peripheral is a scanner only or a scanner with integrated scale. These formats are detailed below.

8.2.6.1. Bar Code Label Message Format

P	Address	RC	Formatted Label Data	PPDT	Term	BCC

where:

P = Optional Prefix (see section 8.1.1)
Address = Peripheral Address (only used when peripheral is a scanner with integrated scale).
RC = 0x38 (only used when peripheral is a scanner with integrated scale).
Formatted Label Data = Formatted Bar Code Label (see section 8.2.5)
PPDT = Optional Pacesetter Plus Trailer Data (see section 8.2.1)
Term = Optional Terminator (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3. Single Cable RS232 Host Commands / Peripheral Responses

The section will detail the host commands transmitted to the peripheral and the peripheral responses transmitted to the host for both scanner only peripherals and for peripherals that incorporate an integrated scale.

If the scanner is configured to ignore host commands, most of the host commands will not execute, but will give a generic response, or respond with 'ACK'/'NAK' (if configured), or give no response if none is required. Some commands, such as weight request and status, are not ignored. See the individual command descriptions to identify the commands that are not ignored.

8.3.1. Scanner Only Peripheral Commands & Responses

The section will detail the scanner host commands transmitted to the peripheral and the scanner responses transmitted to the host when the peripheral is a scanner only. No parity is shown for any of the host commands or the peripheral responses.

8.3.1.1. Soft Reset Command

This command clears all label data in the scanner label buffers and scanner transmit buffers. This command will not be acknowledged. The command is formatted as follows.

P	FC1	FC2	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
FC1 = 0x32 (function code 1)
FC2 = 0x30 (function code 2)
Term = Required Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.1.2. Hard Reset Command

This command causes the peripheral to branch to the power on reset vector in the micro-code. The peripheral will not acknowledge this command. The command is formatted as follows.

P	FC1	FC2	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
FC1 = 0x32 (function code 1)
FC2 = 0x31 (function code 2)
Term = Required Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.1.3. Enable Scanner Command

This command is used to enable the scanner for bar code scanning. Note: The scanner is enabled following a reset of the peripheral, and this command is used only to remove the peripheral from the Not-On-File mode (see section 8.3.1.14) or the Disable modes (see section 8.3.1.4 and section 8.3.1.6). The Enable command is formatted as follows:

P	FC1	FC2	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
FC1 = 0x32 (function code 1)
FC2 = 0x33 (function code 2)
Term = Required Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

The peripheral will acknowledge this command only if the 'ACK' / 'NAK' option (see section 7.7.1) is configured.

8.3.1.4. Disable Scanner - Light Flashing Command

This command will instruct the peripheral to discard all data in the transmit buffers, inhibit decoding of any further bar code labels, and continuously flash the LED/light. If the peripheral is configured to leave the laser on while disabled, the laser will remain on. Otherwise the laser will be turned off. Either an Enable Command, Soft Reset, or Hard Reset can be used to terminate the Disable Mode. The command is formatted as follows.

P	FC1	FC2	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
FC1 = 0x32 (function code 1)
FC2 = 0x42 (function code 2)
Term = Required Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

The peripheral will acknowledge this command only if the 'ACK' / 'NAK' option (see section 7.7.1) is configured.

8.3.1.5. Set Parameters to Default Command

This command will instruct the peripheral to load the operating parameters stored in EEPROM into the peripherals working parameters location. This command will also cause the peripheral to execute a hard Reset. The peripheral will not acknowledge this command. The command is formatted as follows.

P	FC1	FC2	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
FC1 = 0x32 (function code 1)
FC2 = 0x43 (function code 2)

Term = Required Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.1.6. Disable Scanner - No Indication Command

This command will instruct the peripheral to turn off the laser, discard all data in the transmit buffers, and inhibit decoding of any further bar code labels. If the peripheral is configured to leave the laser on while disabled, the laser will remain on and the LED/light will not flash. Otherwise the laser will be turned off and the LED/light will flash. Either an Enable Command, Soft Reset, or Hard Reset can be used to terminate the Disable Mode. The command is formatted as follows.

P	FC1	FC2	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
FC1 = 0x32 (function code 1)
FC2 = 0x44 (function code 2)
Term = Required Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

The peripheral will acknowledge this command only if the ACK / NAK option (see section 7.7.1) is configured.

8.3.1.7. Enable Tone Command

This command will instruct the peripheral to enable the good read tone. The command is formatted as follows.

P	FC1	FC2	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
FC1 = 0x32 (function code 1)
FC2 = 0x46 (function code 2)
Term = Required Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

The peripheral will acknowledge this command only if the ACK / NAK option (see section 7.7.1) is configured.

8.3.1.8. Beep Good Tone Command

This command will instruct the peripheral to beep the good read tone. The duration of the good read beep tone shall be the duration stored in non-volatile memory. The command is formatted as follows.

P	FC1	FC2	Term	BCC

where:

P = Optional Prefix Byte (see 8.1.1)
FC1 = 0x33 (function code 1)
FC2 = 0x34 (function code 2)
Term = Required Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

The peripheral will acknowledge this command only if the ACK / NAK option (see section 7.7.1) is configured.

8.3.1.9. Shutdown - Perform Soft Power Down Command

This command instructs the peripheral to turn off the motor and laser. The Soft Reset or Hard Reset will remove the peripheral from this mode. The command is formatted as follows.

P	FC1	FC2	Term	BCC

where:

> **P** = Optional Prefix Byte (see section 8.1.1)
> **FC1** = 0x33 (function code 1)
> **FC2** = 0x35 (function code 2)
> **Term** = Required Terminator Byte (see section 8.1.5)
> **BCC** = Optional BCC (see section 8.1.6)

The peripheral will acknowledge this command only if the ACK / NAK option (see section 7.7.1) is configured.

8.3.1.10. Send Status to Host Command

This command will instruct the peripheral to send the current operating status to the host. The command is formatted as follows.

P	FC1	FC2	Term	BCC

where:

> **P** = Optional Prefix Byte (see section 8.1.1)
> **FC1** = 0x33 (function code 1)
> **FC2** = 0x36 (function code 2)
> **Term** = Required Terminator Byte (see section 8.1.5)
> **BCC** = Optional BCC (see section 8.1.6)

This command is not affected by the "ignore host commands" setting.

8.3.1.10.1. Send Status Response

The peripheral will acknowledge this command by transmitting the following response to the host. NOTE - If the peripheral is configured to send an NCR type status response, the FC1 and FC2 bytes are removed from the response.

P	FC1	FC2	Data1	Data 2	Term	BCC

where:

> **P** = Optional Prefix Byte (see section 8.1.1)
> **FC1** = 0x33 (function code 1)
> **FC2** = 0x36 (function code 2)
> **Data1** = 0x33 for Normal Mode
>   0x32 for Disable Mode
>   0x33 for Toad Mode
>   0x32 for Shutdown Mode
> **Data2** = 0x30 for Normal Mode
>   0x42 for Disable Mode
>   0x41 for Toad Mode
>   0x42 for Shutdown Mode (same as disable)
> **Term** = Required Terminator Byte (see section 8.1.5)
> **BCC** = Optional BCC (see section 8.1.6)

8.3.1.11. Save and Reset Command

This command instructs the peripheral to store the current working parameters into EEPROM, and to execute a Hard Reset. The peripheral will not acknowledge this command. The command is formatted as follows.

P	FC1	FC2	Term	BCC

where:

> **P** = Optional Prefix Byte (see section 8.1.1)
> **FC1** = 0x33 (function code 1)
> **FC2** = 0x37 (function code 2)
> **Term** = Required Terminator Byte (see section 8.1.5)
> **BCC** = Optional BCC (see section 8.1.6)

8.3.1.12. Disable Tone Command

This command instructs the peripheral to disable the good read tone. The command is formatted as follows.

P	FC1	FC2	Term	BCC

where:

> **P** = Optional Prefix Byte (see section 8.1.1)
> **FC1** = 0x33 (function code 1)
> **FC2** = 0x39 (function code 2)
> **Term** = Required Terminator Byte (see section 8.1.5)
> **BCC** = Optional BCC (see section 8.1.6)

The peripheral will acknowledge this command only if the 'ACK' / 'NAK' option (see section 7.7.1) is configured.

8.3.1.13. Enter Toad Mode Command

This command will instruct the peripheral to enter the "Toad Mode". Either a Soft Reset or Hard Reset is required to remove the peripheral from this mode. The command is formatted as follows.

P	FC1	FC2	Term	BCC

where:

> **P** = Optional Prefix Byte (see section 8.1.1)
> **FC1** = 0x33 (function code 1)
> **FC2** = 0x41 (function code 2)
> **Term** = Required Terminator Byte (see section 8.1.5)
> **BCC** = Optional BCC (see section 8.1.6)

The peripheral will acknowledge this command only if the 'ACK' / 'NAK' option (see section 7.7.1) is configured.

8.3.1.14. Not-On-File Command

This command will instruct the peripheral to turn off the laser, clear all data in the transmit buffers, inhibit decoding of any further bar code labels, illuminate the LED/light, and sound the error tone 3 times. Either an Enable Command, Soft Reset, or Hard Reset can be used to terminate the Not-On-File Mode, at which point the LED/light will extinguish. The command is formatted as follows.

P	FC1	FC2	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
FC1 = 0x33 (function code 1)
FC2 = 0x46 (function code 2)
Term = Required Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

The peripheral will acknowledge this command only if the 'ACK' / 'NAK' option (see section 7.7.1) is configured.

8.3.1.15. Read Pacesetter Tally Command

This command will instruct the peripheral to output the requested Pacesetter Tally (see section 8.3.1.15.1). The command is formatted as follows.

P	FC1	FC2	Data	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
FC1 = 0x3D (function code 1)
FC2 = 0x32 (function code 2)
Data = Pacesetter Tally Number (0x31 – 0x35)
Term = Required Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

This command is not affected by the "ignore host commands" setting.

8.3.1.15.1. Read Pacesetter Tally Response

The peripheral will acknowledge this command by transmitting the following response to the host.

P	PPTD	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
PPTD = Pacesetter Plus Tally Data (see section 8.3.1.15.1)
Term = Required Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

Pacesetter Plus Tally Data:

This field is used to supply the Pacesetter Tally information to the host. This field is formatted as follows.

3D	3X	3Y

where:

3D = 0x3D
3X = Tally number requested (valid numbers are 0x31 – 0x35)

3Y =   Seven characters representing the value of the requested tally (ASCII data representing decimal values).

8.3.1.15.2. Tally Definitions

This section details the various Pacesetter Plus Tallies and the Tally numbers.

Tally Number	Description	Max Count
0x31	Good Reads	1,000,000
0x32	No reads due to lack of a full label (bars missing, folded labels, etc.)	65,535
0x33	Good reads with overprinted bars	65,535
0x34	Good Reads with underprinted bars	65,535
0x35	Missing Margins	65,535

8.3.1.16. Reset Pacesetter Tally Command

This command will instruct the peripheral to reset (set to zero) all the pacesetter tallies (see section 8.3.1.15.1). The command is formatted as follows.

P	FC1	FC2	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
FC1 = 0x3D (function code 1)
FC2 = 0x3C (function code 2)
Term = Required Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

The peripheral will acknowledge this command only if the 'ACK' / 'NAK' option (see section 7.7.1) is configured.

8.3.1.17. Enable Pacesetter Plus Trailer Command

This command will instruct the peripheral to enable sending additional data as a trailer to the bar code label data with each read of UPC and EAN bar codes (see section 8.2.1). The command is formatted as follows.

P	FC1	FC2	Data	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
FC1 = 0x3D (function code 1)
FC2 = 0x3E (function code 2)
Data = 0x3E
Term = Required Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

The peripheral will acknowledge this command only if the 'ACK' / 'NAK' option (see section 7.7.1) is configured.

8.3.1.18. Disable Pacesetter Plus Trailer Command

This command will instruct the peripheral to disable sending additional data as a trailer to the bar code label data with each read of UPC and EAN bar codes (see section 8.2.1). The command is formatted as follows.

P	FC1	FC2	Data	Term	BCC

where:

> **P** = Optional Prefix Byte (see section 8.1.1)
> **FC1** = 0x3D (function code 1)
> **FC2** = 0x3F (function code 2)
> **Data** = 0x3F
> **Term** = Required Terminator Byte (see section 8.1.5)
> **BCC** = Optional BCC (see section 8.1.6)

The peripheral will acknowledge this command only if the 'ACK' / 'NAK' option (see section 7.7.1) is configured.

8.3.1.19. Configuration Request Command

This command will instruct the peripheral to send a preset configuration response to the host. The command is formatted as follows.

P	FC1	FC2	Term	BCC

where:

> **P** = Optional Prefix Byte (see section 8.1.1)
> **FC1** = 0x30 (function code 1)
> **FC2** = 0x41 (function code 2)
> **Term** = Required Terminator Byte (see section 8.1.5)
> **BCC** = Optional BCC (see section 8.1.6)

This command is affected by the "interface options" setting, but is not affected by the "ignore host commands" setting.

8.3.1.19.1. Configuration Response

The peripheral will acknowledge this command by transmitting the following preset response to the host:

P	Configuration Data	Term	BCC

where:

> **P** = Optional Prefix Byte (see section 8.1.1)
> **Configuration Data (shown in Hex):**
> 41 30 31 30 2C 14 14 14 14 14 14 14 14 14 2C 2C 39 33 2d 33 36 32
> 30 36 37 39 31 2C 34 39 37 2d 30 34 32 37 36 35 38 2C 20 41 30
> **Term** = Required Terminator Byte (see section 8.1.5)
> **BCC** = Optional BCC (see section 8.1.6)

8.3.1.20. Device Configuration Request Command

This command will instruct the peripheral to send a preset device configuration response to the host. The command is formatted as follows.

P	FC1	FC2	Term	BCC

where:

> **P** = Optional Prefix Byte (see section 8.1.1)
> **FC1** = 0x30 (function code 1)
> **FC2** = 0x42 (function code 2)
> **Term** = Required Terminator Byte (see section 8.1.5)
> **BCC** = Optional BCC (see section 8.1.6)

This command is affected by the "interface options" setting, but is not affected by the "ignore host commands" setting.

8.3.1.20.1.Device Configuration Response

The peripheral will acknowledge this command by transmitting the following preset response to the host:

P	Device Configuration Data	Term	BCC

where:

> **P** = Optional Prefix Byte (see section 8.1.1)
> **Device Configuration Data (shown in Hex):**
> 30 30 30 32 30 30 30 30 30 30 30 30 30 30 30 30 30 30
> 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30
> 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30 30
> 30 30 30 30 30 30
> **Term** = Required Terminator Byte (see section 8.1.5)
> **BCC** = Optional BCC (see section 8.1.6)

8.3.1.21.ROM Version Request Command

This command will instruct the peripheral to send a preset ROM version response to the host. The command is formatted as follows.

P	FC1	FC2	FC3	FC4	FC5	Term	BCC

where:

> **P** = Optional Prefix Byte (see section 8.1.1)
> **FC1** = 0x33
> **FC2** = 0x31
> **FC3** = 0x30
> **FC4** = 0x32
> **FC5** = 0x30
> **FC6** = 0x30
> **Term** = Required Terminator Byte (see section 8.1.5)
> **BCC** = Optional BCC (see section 8.1.6)

This command is not affected by the "ignore host commands" setting.

8.3.1.21.1.ROM Version Response

The peripheral will acknowledge this command by transmitting the following preset response to the host:

P	ROM version Data	Term	BCC

where:

> **P** = Optional Prefix Byte (see section 8.1.1)
> **ROM Version Data (shown in Hex):**

```
32 30 33 34 33 39 33 37 32 44
33 30 33 34 33 33 35 33 35 32
34 44 33 30 32 30 35 32 34 35
34 43 33 32 32 30 34 36 36 35
36 32 32 30 33 31 33 30 32 30
33 32 33 30 33 30 33 34 32 30
```
Term = Required Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.1.22. Firmware Update Command

This command is used to update the scanner firmware. The data field contains S-records, of which the format is defined in the Flash Programming Interface Specification (document R96-4222). Processing of the S-record shall follow the requirements given in the Flash Programming Interface Specification (document R96-4222). Upon receiving the Firmware Update Command from the host, the peripheral will accept only the Firmware Update Command and any of the variations of the Hard Reset command. Normal command processing shall resume when a hard reset occurs. The command is formatted as follows:

P	FC1	FC2	Data	Term	BCC

where:

    P = Optional Prefix Byte (see section 8.1.1)
    FC1 = 0x70 (function code 1)
    FC2 = 0x30 (function code 2)
    Data = S-record of up to 248 characters
    Term = Required Terminator Byte (see section 8.1.5)
    BCC = Optional BCC (see section 8.1.6)

8.3.1.22.1. Firmware Update Response

The peripheral will acknowledge this command by transmitting the following response to the host.

P	FC1	FC2	A	Term	BCC

where:

    P = Optional Prefix Byte (see section 8.1.1)
    FC1 = 0x70 (function code 1)
    FC2 = 0x30 (function code 2)
    A = 0x30 if the command was processed successfully.
        0x31 if the S-record is unsupported or is invalid, or if the S-record checksum failed.
        0x32 if the S-record was not processed correctly and the host should <u>stop</u> the firmware update process.
    Term = Required Terminator Byte (see section 8.1.5)
    BCC = Optional BCC (see section 8.1.6)

8.3.1.23. Scanner Identification Request Command

This command instructs the peripheral to send its scanner Identification parameters.

P	FC1	FC2	Term	BCC

where:

    P = Optional Prefix Byte (see section 8.1.1)
    FC1 = 0x70 (function code 1)
    FC2 = 0x3C (function code 2)
    Term = Required terminator Byte (see section 8.1.5)

BCC = Optional BCC (see section 8.1.6)

8.3.1.23.1.Scanner Identification Response

P	FC1	FC2	Data	Term	BCC

where:

P = Prefix Byte = 0x02
FC1 = 0x70
FC2 = 0x3C
Data field = multiple text frames, each consisting of an 'SOH' character (0x01), a frame ID character, message characters (standard ASCII characters), and terminated with an 'EOT' (0x04) character, if host commands are enabled. If host commands are disabled, the Data field shall contain 0x30. See *Value Added Features Specification DR9000060* for a definition of the message characters contained in the text frame. An example of the data field as defined for Single Cable RS232 with host commands enabled is shown below:

   <'SOH'>**AR96-1234**<'EOT'><'SOH'>**BR96-9999**<'EOT'><'SOH'>**Mx1235ab**<'EOT'>

Term = Terminator byte = 0x03
BCC = Optional BCC

8.3.1.24.Scanner Health Request Command

This command instructs the peripheral to send its scanner health parameters.

P	FC1	FC2	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
FC1 = 0x70 (function code 1)
FC2 = 0x3D (function code 2)
Term = Required terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.1.24.1.Scanner Health Response

P	FC1	FC2	Data	Term	BCC

where:

P = Prefix Byte = 0x02
FC1 = 0x70
FC2 = 0x3D
Data field = multiple text frames, each consisting of an 'SOH' character (0x01), a frame ID character, message characters (standard ASCII characters), and terminated with an 'EOT' (0x04) character, if host commands are enabled. If host commands are disabled, the Data field shall contain 0x30. See *Value Added Features Specification DR9000060* for a definition of the message characters contained in the text frame. An example of the data field as defined for Single Cable RS232 with host commands enabled is shown below:

   <'SOH'>**hOK**<'EOT'><'SOH'>**vFAIL**<'EOT'><'SOH'>**mOK**<'EOT'><'SOH'>**sCAL**<'EOT'>

Term = Terminator byte = 0x03
BCC = Optional BCC

8.3.1.25. Extended Status Request Command

This command instructs the peripheral to send its scanner status parameters.

P	FC1	FC2	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
FC1 = 0x70 (function code 1)
FC2 = 0x3E (function code 2)
Term = Required terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.1.25.1. Extended Status Response

P	FC1	FC2	Data	Term	BCC

where:

P = Prefix Byte = 0x02
FC1 = 0x70
FC2 = 0x3E
Data field = multiple text frames, each consisting of an 'SOH' character (0x01), a frame ID character, message characters (standard ASCII characters), and terminated with an 'EOT' (0x04) character, if host commands are enabled. If host commands are disabled, the Data field shall contain 0x30 See *Value Added Features Specification DR9000060* for a definition of the message characters contained in the text frame. An example of the data field as defined for Single Cable RS232 with host commands enabled is shown below:

<'SOH'>**m23**<'EOT'><'SOH'>**I16**<'EOT'><'SOH'>**z0**<'EOT'><'SOH'>**c0**<'EOT'><'SOH'>**L1234**<'EOT'>

8.3.1.26. Scale Calibration Date Command

This command instructs the peripheral to update its calibration date setting. The data can be retrieved with the Extended Status Request command (see section 8.3.1.25).

P	FC1	FC2	Date	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
FC1 = 0x70 (function code 1)
FC2 = 0x3F (function code 2)
Date: 24 bytes of ASCII data representing the calibration date
Term = Required terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

The peripheral will acknowledge this command only if the 'ACK' / 'NAK' option (see section 7.7.1) is configured.

8.3.2. Scanner with Integrated Scale Commands & Responses

The section will detail the scanner host commands accepted and the scanner responses transmitted to the host when the peripheral is a scanner with integrated scale. No parity is shown for any of the host commands or the peripheral responses.

8.3.2.1. Hard Reset Command

This command will cause the peripheral to execute a hard reset. This command can be sent to any valid address and it will be honored. All data within the scanner, scale, and display will be lost upon receipt of this command. The reset command is formatted as follows:

P	Address	FC	Term	BCC

where:

> **P** = Optional Prefix Byte (see section 8.1.1)
> **Address** = 0x30 or 0x31 or 0x32 or 0x33
> **FC** = 0x30 (function code)
> **Term** = Required terminator Byte (see section 8.1.5)
> **BCC** = Optional BCC (see section 8.1.6)

8.3.2.1.1. Scanner Hard Reset Response

There is no response to the scanner reset command.

8.3.2.2. Scanner Enable Command

This command is used to enable the scanner for bar code scanning. Note: The scanner is enabled following a reset of the peripheral, and this command is used only to remove the peripheral from the Not-On-File mode (see section 8.3.2.6) or the Disable modes (see section 8.3.2.3 and section 8.3.2.7). The Enable command is formatted as follows:

P	Address	FC	Term	BCC

where:

> **P** = Optional Prefix Byte (see section 8.1.1)
> **Address** = 0x30
> **FC** = 0x31 (function code)
> **Term** = Required terminator Byte (see section 8.1.5)
> **BCC** = Optional BCC (see section 8.1.6)

8.3.2.2.1. Scanner Enable Response

P	Address	FC	Term	BCC

where:

> **P** = Optional Prefix Byte (see section 8.1.1)
> **Address** = 0x30
> **FC** = 0x30 (function code)
> **Term** = Terminator Byte (see section 8.1.5)
> **BCC** = Optional BCC (see section 8.1.6)

8.3.2.3. Scanner Disable - No Indication Command

This command will instruct the peripheral to clear all data in the transmit buffers and inhibit decoding of any further bar code labels. If the peripheral is configured to leave the laser on while disabled, the laser will remain on and the LED/light will not flash. Otherwise the laser will be turned off and the LED/light will flash. Either an Enable Command or Reset Command can be used to terminate the Disable Mode. The command is formatted as follows.

P	Address	FC	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x30
FC = 0x32 (function code)
Term = Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.2.3.1.Scanner Disable - No Indication Response

P	Address	FC	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x30
FC = 0x30 (function code)
Term = Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.2.4. Scanner Status Command

This command is used to solicit the scanner for the current scanner operating parameters. The Status command is formatted as follows:

P	Address	FC	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x30
FC = 0x33 (function code)
Term = Required terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.2.4.1. Scanner Status Response

P	Address	FC	A	B	C	D	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x30
FC = 0x33 (function code)
A = 0x30
B = 0x31
C = 0x30 if scanner is disabled
      0x31 if scanner is enabled
D = 0x30
Term = Terminator byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.2.5. Scanner Switch Read Command

This command is normally used while testing the peripheral, but it can be issued to the scanner whenever the host desires to get the switch settings of the peripheral. This command is not affected by the "ignore host commands" setting. The "Switch Read" command is formatted as follows:

P	Address	FC	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x30
FC = 0x34 (function code)
Term = Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.2.5.1. Scanner Switch Read Response

P	Address	FC	A	B	C	D	E	F	G	H	I	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x30
FC = 0x33 (function code)
A = 0x30
B = 0x31
C = 0x30
D = 0x30
E = 0x30
F = 0x30
G = 0x31
H = 0x30
I = 0x32
Term = Terminator byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.2.6. Scanner Not On File Command

This command is used to put the scanner into the "Not On File" mode. When in this mode scanning shall be disabled, the LED/light on the scanner shall illuminate, and the peripheral shall sound the error tone 3 times. The scanner shall exit the "Not On File" mode upon receipt of either the Enable command or the Reset Command and the LED/light shall turn off.

The "Not On File" command is formatted as follows:

P	Address	FC	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x30
FC = 0x35 (function code)
Term = Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.2.6.1. Scanner Not On File Response

P	Address	FC	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x30
FC = 0x30 (function code)
Term = Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.2.7. Scanner Disable - Light Flashing Command

This command shall instruct the peripheral to clear all data in the transmit buffers, inhibit decoding of any further bar code labels, and flash the LED/light. If the peripheral is configured to leave the laser on while disabled, the laser will remain on. Otherwise the laser will be turned off. Either an Enable Command or Reset Command can be used to terminate the Disable Mode. The command is formatted as follows.

P	Address	FC	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x30
FC = 0x36 (function code)
Term = Required terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.2.7.1. Scanner Disable - Light Flashing Response

P	Address	FC	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x30
FC = 0x30 (function code)
Term = Terminator Byte (see section 8.1.5)

BCC = Optional BCC (see section 8.1.6)

8.3.2.8. Scale Weight Request Command

This command is used to solicit the scale for valid weight data. Valid weight data is defined as any weight other than the following:

- A zero weight.
- A weight that is under zero.
- A weight that exceeds the scale capacity.
- An In-Motion weight.
- High precision weight data when configured for 4 digits of weight data

If valid weight data is not available upon receipt of a scale weight request command from the host, the scale shall not transmit a response to the host. After receipt of the scale weight request command and a valid weight becomes available, the scale responds by sending the scale weight request response. The scale will cancel the weight request when a scale cancel command has been received from the host or a valid weight request response has been transmitted to the host.

The scale weight data bytes are in ASCII format, with the most significant byte sent first, followed by each successive byte, and the least significant byte sent last. The number of scale weight data bytes is configurable to be either 4 or 5 digits; when configured for 4 weight digits, the 'A' field in the response shall be '0' (0x30) (see section 8.3.2.8.1).

P	Address	FC	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x31
FC = 0x31 (function code)
Term = Required terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.2.8.1. Scale Weight Request Response

This command is not affected by the "ignore host commands" setting. The following response will be transmitted to the host.

P	Address	FC	A	B	C	D	E	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x31
FC = 0x31 (function code)
A = 0x30 for English or 4 digit weight, 10's digit for Metric weight or 5 digit weight (fifth weight digit)
B = 10's digit for English weight, 1's digit for Metric weight
C = 1's digit for English weight, 10th's digit for Metric weight
D = 10th's digit for English weight, 100th's digit for Metric weight
E = 100th's digit for English weight, 1000th's digit for Metric weight
Term = Terminator byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.2.9. Scale Cancel Command

This command is used to cancel a scale weight request. The scale "Cancel" command is formatted as follows:

P	Address	FC	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x31
FC = 0x32 (function code)
Term = Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.2.9.1.Scale Cancel Response

This command is not affected by the "ignore host commands" setting. The following response will be transmitted to the host.

P	Address	FC	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x31
FC = 0x30 (function code)
Term = Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.2.10.Scale Status Command

This command is used to solicit the scale for the current operating parameters. The Status command is formatted as follows:

P	Address	FC	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x31
FC = 0x33 (function code)
Term = Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.2.10.1.Scale Status Response

This command is not affected by the "ignore host commands" setting. The following response will be transmitted to the host.

P	Address	FC	A	B	C	D	E	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x31
FC = 0x33 (function code)
A = 0x30 if English Weight
    0x31 if Metric Weight
B = 0x30 if scale is enabled
    0x31 if scale is disabled
C = 0x31
D = 0x32
E = 0x30 if Scale is not ready
    0x31 if Non-Stable Weight
    0x32 if Stable Weight over 30.00 Lb (9.995 Kg)
    0x33 if Stable Zero Weight
    0x34 if Stable Non-Zero Weight Available
    0x35 if Current Stable Above Zero Weight Transmitted to host

Term = Terminator byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.2.11.Scale Monitor Command

This command is used to solicit current scale weight or status for the purpose of maintaining a live weight display on the host. The command is formatted as follows:

P	Address	FC	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x31
FC = 0x34 (function code)
Term = Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.2.11.1.Scale Monitor Responses

This command is not affected by the "ignore host commands" setting. If the scale has a stable non-zero weight or if the scale is not ready, the following response will be transmitted to the host.

P	Address	FC	A	B	C	D	E	F	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x31
FC = 0x34 (function code)
A = 0x30 if Scale Not Ready
    0x34 if Stable Non-Zero Weight
B = 0x30 for English weight, 10's digit for Metric weight.
C = 10's digit for English weight, 1's digit for Metric weight.
D = 1's digit for English weight, 10th's digit for Metric weight.
E = 10th's digit for English weight, 100th's digit for Metric weight.
F = 100th's digit for English weight, 1000th's digit for Metric weight.
Term = Terminator byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

If the scale has a stable zero weight, is under zero, is over the capacity of the scale, or is unstable, the following response will be transmitted to the host.

P	Address	FC	A	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x31
FC = 0x34 (function code)
A = 0x31 if Scale Unstable
    0x32 if Scale Over Capacity
    0x33 if Stable Zero Weight
    0x35 if Scale Under Zero
Term = Terminator byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.2.12.Display Data Command

This command is used to instruct the display to display the data which is embedded within the command. It is important to note that the price/weight display will accept and display the last seven characters which follow the function code byte, and then only if the data is an ASCII numeric digit, an ASCII decimal point (0x2E), or an ASCII dash (0x2D).

P	Address	FC	Data	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x32
FC = 0x31 (function code)
Data = data to display on LCD display
Term = Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.2.12.1.Display Data Response

This command is not affected by the "ignore host commands" setting. The following response will be transmitted to the host.

P	Address	FC	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x32
FC = 0x30 (function code)
Term = Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.2.13.Display Status Command

This command is used to solicit the display operating parameters. The Display Status command is formatted as follows:

P	Address	FC	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x32
FC = 0x33 (function code)
Term = Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.2.13.1.Display Status Response

P	Address	FC	A	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x32
FC = 0x33 (function code)
A = 0x30 if LCD display is price / weight display
    0x31 if LCD is weight only display
    0x32 if alpha numeric display (not supported)
Term = Terminator byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

8.3.2.14. Scanner with Integrated Scale Special Function Commands

The Special Function commands are the same commands used for the scanner only interface (see section 8.3.1) except they are preceded (but after the 'STX' character if used) by an address byte of 0x33 The responses to these commands will be the same as the responses used in the scanner only interface, except for Send Status, Configuration Request, Device Configuration Request, and Read ROM Version commands, which will have the special function address (0x33) pre-pended to the response data. These commands must be used with caution as they can significantly affect the operation of the scanner with integrated scale unit.

8.3.3. Scanner Only Command Summary

All the data shown in the summary below is in hexadecimal with no parity shown. It is assumed that the prefix byte is equal to 0x02, the terminator byte is equal to 0x03, the BCC option is chosen, and the ACK/NAK option is chosen.

Command Data	Command Definition	Command Response
02,32,30,03,BCC	Soft Reset	None (see section 8.3.1.1)
02,32,31,03,BCC	Hard Reset	None (see section 8.3.1.2)
02,32,33,03,BCC	Enable Scanner	'ACK' / 'NAK' (see section 8.3.1.3)
02,32,42,03,BCC	Disable Scanner, Light Flashing	'ACK' / 'NAK' (see section 8.3.1.4)
02,32,43,03,BCC	Set Parameters To Default	None (see section 8.3.1.5)
02,32,44,03,BCC	Disable Scanner, No Indication	'ACK' / 'NAK' (see section 8.3.1.6)
02,32,46,03,BCC	Enable Tone	'ACK' / 'NAK' (see section 8.3.1.7)
02,33,34,03,BCC	Beep Good Tone	'ACK' / 'NAK' (see section 8.3.1.8)
02,33,35,03,BCC	Shutdown, Perform Soft Power Down	'ACK' / 'NAK' (see section 8.3.1.9)
02,33,36,03,BCC	Send Status To Host	See section 8.3.1.10
02,33,37,03,BCC	Save and Reset	None (see section 8.3.1.11)
02,33,39,03,BCC	Disable Tone	'ACK' / 'NAK' (see section 8.3.1.12)
02,33,41,03,BCC	Enter Toad Mode	'ACK' / 'NAK' (see section 8.3.1.13)
02,33,46,03,BCC	Not-On-File	'ACK' / 'NAK' (see section 8.3.1.14)
02,3D,32,(31 - 35), 03,BCC	Read Pacesetter Tally	See section 8.3.1.15
02,3D,3C,03,BCC	Reset Pacesetter Tallies	'ACK' / 'NAK' (see section 8.3.1.16)
02,3D,3E,3E,03,BCC	Enable Pacesetter Plus Trailer	'ACK' / 'NAK' (see section 8.3.1.17)
02,3D,3F,3F,03,BCC	Disable Pacesetter Plus Trailer	'ACK/NAK' (see section 8.3.1.18)
02,30,41,03,BCC	Configuration Request	See section 8.3.1.19.1
02,30,42,03,BCC	Device Configuration Request	See section 8.3.1.20.1
02,33,31,30,32,30,30,03,BCC	Read ROM Version	See section 8.3.1.21.1
02,70,30,Data,03,BCC	Firmware Update	See section 8.3.1.22.1
02,70,3C,03,BCC	Scanner Identification Request	See section 8.3.1.23.1
02,70,3D,03,BCC	Scanner Health Request	See section 8.3.1.24.1
02,70,3E,03,BCC	Extended Status Request	See section 8.3.1.25.1
02,70,3F,(24 data bytes) 03,BCC	Scale Calibration Date	'ACK' / 'NAK' (see section 8.3.1.26)

8.3.4. Scanner with Integrated Scale Command Summary

All the data shown in the summary below is in hexadecimal with no parity shown. It is assumed that the prefix byte is equal to 0x02, the terminator byte is equal to 0x03, the BCC option is chosen, and the ACK/NAK option is chosen.

Command Data	Command Definition	Command Response
02,30,30,03,BCC	Hard Reset	None (see section 8.3.2.1.1)
02,30,31,03,BCC	Enable Scanner	02,30,30,03,BCC (see section 8.3.2.2.1)
02,30,32,03,BCC	Disable Scanner, No Indication	02,30,30,03,BCC (see section 8.3.2.3.1)
02,30,33,03,BCC	Scanner Status	See section 8.3.2.4.1
02,30,34,03,BCC	Scanner Switch Read	02,30,33,30,31,30,30, 30,30,31,30,32,03,BCC (see section 8.3.2.5.1)
02,30,35,03,BCC	Scanner Not-On-File	02,30,30,03,BCC (see section 8.3.2.6.1)
02,30,36,03,BCC	Scanner Disable, Light Flashing	02,30,30,03,BCC (see section 8.3.2.7.1)
02,31,30,03,BCC	Hard Reset	None (see section 8.3.2.1.1)
02,31,31,03,BCC	Scale Weight Request	See section 8.3.2.8.1
02,31,32,03,BCC	Scale Cancel	02,31,30,03,BCC (see section 8.3.2.9.1)
02,31,33,03,BCC	Scale Status	See section 8.3.2.10.1
02,31,34,03,BCC	Scale Monitor	See section 8.3.2.11.1
02,32,30,03,BCC	Hard Reset	None (see section 8.3.2.1.1)
02,32,31,Data,03,BCC	Display Data	02,32,30,03,BCC (see section 8.3.2.12.1)
02,32,33,03,BCC	Display Status	See section 8.3.2.13.1
02,33,32,30,03,BCC	Soft Reset	None (see section 8.3.1.1)
02,33,32,31,03,BCC	Hard Reset	None (see section 8.3.1.2)
02,33,32,33,03,BCC	Enable Scanner	'ACK' / 'NAK' (see section 8.3.1.3)
02,33,32,42,03,BCC	Disable Scanner, Light Flashing	'ACK' / 'NAK' (see section 8.3.1.4)
02,33,32,43,03,BCC	Set Parameters To Default	None (see section 8.3.1.5)
02,33,32,44,03,BCC	Disable Scanner, No Indication	'ACK' / 'NAK' (see section 8.3.1.6)
02,33,32,46,03,BCC	Enable Tone	'ACK' / 'NAK' (see section 8.3.1.7)
02,33,33,34,03,BCC	Beep Good Tone	'ACK' / 'NAK' (see section 8.3.1.8)
02,33,33,35,03,BCC	Shutdown, Perform Soft Power Down	'ACK' / 'NAK' (see section 8.3.1.9)
02,33,33,36,03,BCC	Send Status To Host	See section 8.3.1.10.1
02,33,33,37,03,BCC	Save and Reset	None (see section 8.3.1.11)
02,33,33,39,03,BCC	Disable Tone	'ACK' / 'NAK' (see section 8.3.1.12)
02,33,33,41,03,BCC	Enter Toad Mode	'ACK' / 'NAK' (see section 8.3.1.13)
02,33,33,46,03,BCC	Not-On-File	'ACK' / 'NAK' (see section 8.3.1.14)
02,33,3D,32,(31 - 35), 03,BCC	Read Pacesetter Tally	See section 8.3.1.15
02,33,3D,3C,03,BCC	Reset Pacesetter Tallies	'ACK' / 'NAK' (see section 8.3.1.16)
02,33,3D,3E,3E,03,BCC	Enable Pacesetter Plus Trailer	'ACK' / 'NAK' (see section 8.3.1.17)
02,33,3D,3F,3F,03,BCC	Disable Pacesetter Plus Trailer	'ACK' / 'NAK' (see section 8.3.1.18)
02,33,30,41,03,BCC	Configuration Request	See section 8.3.1.19.1
02,33,30,42,03,BCC	Device Configuration Request	See section 8.3.1.20.1
02,33,70,30,Data,03,BCC	Firmware Update	See section 8.3.1.22.1
02,33,70,3C,03,BCC	Scanner Identification Request	See section 8.3.1.23.1
02,33,70,3D,03,BCC	Scanner Health Request	See section 8.3.1.24.1
02,33,70,3E,03,BCC	Extended Status Request	See section 8.3.1.25.1
02,33,70,3F,(24 data bytes) 03,BCC	Scale Calibration Date	'ACK' / 'NAK' (see section 8.3.1.26)
02,33,33,31,30,32,30,30,03,BCC	Read ROM Version	See section 8.3.1.21.1

9.   DLS SINGLE CABLE RS232 COMMANDS/PROCESSING REQUIREMENTS

This section gives an overview of the general format for host commands transmitted to the peripheral and command responses received from the peripheral, as defined for DLS Single Cable RS232. Note that this section will only list deviations from the NCR Single Cable RS232 format listed in section 8.

9.1.   Host Command / Peripheral Response Information Fields

DLS Single Cable RS232 shall follow the guidelines listed in section 8.1 for the general format of host commands and peripheral responses.

9.2.   DLS Single Cable RS232 Label Message Format

This section will detail the valid bar codes supported by the DLS Single Cable RS232 I/F, and the format of a bar code label message transmitted to the host. Label messages are not solicited by the host and are transmitted by the peripheral to the host whenever they are available (assuming the peripheral has not been disabled via a host command).

9.2.1.   Pacesetter Plus Trailer Data Field

DLS Single Cable RS232 shall follow the guidelines listed in section 8.2.1 for the Pacesetter Plus Trailer Data field.

9.2.2.   Valid Bar Code Label Types

The peripheral shall have the ability to transmit the following bar code label symbologies to the host.

- UPC-E
- UPC-A
- UPCD1 - UPCD5
- EAN8
- EAN13
- C128
- C39
- I25
- EAN128
- Codabar
- Code 93
- Std. 2 of 5
- IATA
- MSI/Plessey
- PDF417
- RSS-14
- RSS Expanded
- RSS Limited
- ISBN
- Pharmacode 39

9.2.3. Bar Code Label Check Digits

The Single Cable RS232 Interface shall have the configurable option to either transmit or not transmit the bar code check digit (if applicable) with the bar code label data. The default settings are listed below.

Label Type	Programmable Check Digit	Default Mode
UPC-E	Yes	Do Not Transmit
UPC-A	Yes	Transmit
UPC-D	Yes	Transmit
EAN8	Yes	Transmit
EAN13	Yes	Transmit
Code 128	No	N/A
Code 39	Yes	Do Not Transmit
I25	Yes	Do Not Transmit
EAN128	No	N/A
Codabar	Yes	Transmit
Code 93	No	N/A
Std. 2 of 5	Yes	Transmit
IATA	Yes	Transmit
MSI/Plessey	Yes	Transmit
PDF417	No	N/A
RSS-14	Yes	Transmit
RSS Expanded	No	N/A
RSS Limited	No	N/A
ISBN	No	N/A
Pharmacode 39	Yes	Transmit

9.2.4. Bar Code Label Identifier Options

The Interface shall have the configurable option to transmit one, two, or no common characters and one unique character for each label type (Note: The word common does not imply that these characters are the same for each label type. The word "common" is used only to preserve the NCR naming convention). If the label type is UPC-D1 – UPC-D5, the I/F shall have the configurable option to transmit one version number character. The Label I.D. is the combination of the two common characters and the unique character (and in the case of UPC-D labels the version number character). The Label Identifiers shall be configurable to be sent as a prefix, as a suffix, or not to be sent at all. If the peripheral has been configured to not transmit the Label Identifiers, neither the common characters nor the unique character (and in the case of UPC-D labels the version number character) shall be transmitted to the host for any label type.

If any of the label identifiers (common characters 1 & 2, the unique character, and the version number character for UPC-D) are configured to 0x00, that character shall not be transmitted to the host. The following table details the recommended Label Identifiers.

DEFAULT	LABEL	IDENTIFIERS		
Label	Common	Bytes	Unique	Version
Type	Byte 1	Byte 2	Byte	Number
UPC-A	0x41	0x00	0x00	N/A
UPC-E	0x45	0x30	0x00	N/A
UPCD1	0x44	0x00	0x00	0x31
UPCD2	0x44	0x00	0x00	0x32
UPCD3	0x44	0x00	0x00	0x33
UPCD4	0x44	0x00	0x00	0x34
UPCD5	0x44	0x00	0x00	0x35
EAN8	0x46	0x46	0x00	N/A
EAN13	0x46	0x00	0x00	N/A
Code39	0x42	0x31	0x00	N/A
I25	0x42	0x32	0x00	N/A
Code 128	0x42	0x33	0x00	N/A
EAN128	0x00	0x00	0x00	N/A
Codabar	0x25	0x00	0x00	N/A
Code 93	0x26	0x00	0x00	N/A
Std. 2 of 5	0x69	0x00	0x00	N/A
IATA	0x69	0x00	0x00	N/A
MSI/Plessey	0x40	0x00	0x00	N/A
PDF 417	0x4C	0x00	0x00	N/A
RSS-14	0x52	0x34	0x00	N/A
RSS Expanded	0x52	0x58	0x00	N/A
RSS Limited	0x52	0x4C	0x00	N/A
ISBN	0x49	0x00	0x00	N/A
Pharmacode 39	0x70	0x00	0x00	N/A

9.2.5. Label Data Format

DLS Single Cable RS232 shall follow the guidelines listed in section 8.2.5 for the label data format.

9.2.6. Bar Code Label Data Message to Host

DLS Single Cable RS232 shall follow the guidelines listed in section 8.2.6 for the bar code label message format.

9.3. DLS Single Cable RS232 Host Commands / Peripheral Responses

The section will detail the host commands transmitted to the peripheral and the peripheral responses transmitted to the host for both scanner only peripherals and for peripherals that incorporate an integrated scale.

9.3.1. Scanner Only Peripheral Commands & Responses

The section will detail the scanner host commands transmitted to the peripheral and the scanner responses transmitted to the host when the peripheral is a scanner only. No parity is shown for any of the host commands or the peripheral responses.

9.3.1.1. Soft Reset Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.1.1 for the Soft Reset Command.

9.3.1.2. Hard Reset Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.1.2 for the Hard Reset Command.

9.3.1.3. Enable Scanner Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.1.3 for the Enable Scanner Command.

9.3.1.4. Disable Scanner – Light Flashing Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.1.4 for the Disable Scanner – Light Flashing Command.

9.3.1.5. Set Parameters to Default Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.1.5 for the Set Parameters to Default Command.

9.3.1.6. Disable Scanner – No Indication Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.1.6 for the Disable Scanner – No Indication Command.

9.3.1.7. Enable Tone Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.1.7 for the Enable Tone Command.

9.3.1.8. Beep Good Tone Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.1.8 for the Beep Good Tone Command.

9.3.1.9. Shutdown – Perform Soft Power Down Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.1.9 for the Shutdown – Perform Soft Power Down Command.

9.3.1.10.Send Status to Host Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.1.10 for the Send Status to Host Command.

9.3.1.11.Save and Reset Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.1.11 for the Save and Reset Command.

9.3.1.12.Disable Tone Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.1.12 for the Disable Tone Command.

9.3.1.13. Enter Toad Mode Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.1.13 for the Enter Toad Mode Command.

9.3.1.14. Not-On-File Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.1.14 for the Not-On-File Command.

9.3.1.15. Read Pacesetter Tally Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.1.15 for the Read Pacesetter Tally Command.

9.3.1.16. Reset Pacesetter Tally Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.1.16 for the Reset Pacesetter Tally Command.

9.3.1.17. Enable Pacesetter Plus Trailer Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.1.17 for the Enable Pacesetter Plus Trailer Command.

9.3.1.18. Disable Pacesetter Plus Trailer Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.1.18 for the Disable Pacesetter Plus Trailer Command.

9.3.1.19. Configuration Request Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.1.19 for the Configuration Request Command.

9.3.1.20. Device Configuration Request Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.1.20 for the Device Configuration Request Command.

9.3.1.21. Read ROM Version Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.1.21 for the Read ROM Version Command.

9.3.1.22. Firmware Update Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.1.22 for the Firmware Update Command.

9.3.1.23. Scanner Identification Request Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.1.23 for the Scanner Identification Request Command.

9.3.1.24. Scanner Health Request Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.1.24 for the Scanner Health Request Command.

9.3.1.25. Extended Status Request Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.1.25 for the Extended Status Request Command.

9.3.1.26. Scale Calibration Date Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.1.26 for the Scale Calibration Date Command.

9.3.1.27. Turn EAS Detect ON Command

This command instructs the peripheral to turn on EAS detection. This allows the EAS system to detect labels.

P	FC1	FC2	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
FC1 = 0x70 (function code 1)
FC2 = 0x31 (function code 2)
Term = Required terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

The peripheral will acknowledge this command only if the ACK / NAK option (see section 7.7.1) is configured.

9.3.1.28. Turn EAS Detect OFF Command

This command instructs the peripheral to turn off EAS detection.

P	FC1	FC2	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
FC1 = 0x70 (function code 1)
FC2 = 0x32 (function code 2)
Term = Required terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

The peripheral will acknowledge this command only if the 'ACK' / 'NAK' option (see section 7.7.1) is configured.

9.3.1.29. Turn EAS Deactivation ON Command

This command instructs the peripheral to turn on EAS deactivation for the duration specified in "timeout" parameter. If "timeout" is zero, EAS deactivation will remain on indefinitely. Non-zero values specified in the "timeout" byte will cause EAS deactivation to remain on for the duration of timeout x 50mS.

P	FC1	FC2	T1	T2	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
FC1 = 0x70 (function code 1)
FC2 = 0x33 (function code 2)
T1/T2 = Two ASCII bytes representing a decimal number ranging from 0 to 99 that specifies how long to turn EAS deactivation on, in 50mS increments. T1 is the MSB and T2 is the LSB. Example: 0x3230 represents 20 decimal, which results in a timeout period of 1.0 second.
Term = Required Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

The peripheral will acknowledge this command only if the 'ACK' / 'NAK' option (see section 7.7.1) is configured.

9.3.1.30. Turn EAS Deactivation OFF Command

This command instructs the peripheral to turn EAS deactivation off.

P	FC1	FC2	Term	BCC

where:

>> **P** = Optional Prefix Byte (see section 8.1.1)
>> **FC1** = 0x70 (function code 1)
>> **FC2** = 0x34 (function code 2)
>> **Term** = Required Terminator Byte (see section 8.1.5)
>> **BCC** = Optional BCC (see section 8.1.6)

The peripheral will acknowledge this command only if the 'ACK' / 'NAK' option (see section 7.7.1) is configured.

9.3.1.31. EAS Status Request Command

This command instructs the peripheral to send its EAS status parameters.

P	FC1	FC2	Term	BCC

where:

>> **P** = Optional Prefix Byte (see section 8.1.1)
>> **FC1** = 0x70 (function code 1)
>> **FC2** = 0x35 (function code 2)
>> **Term** = Required terminator Byte (see section 8.1.5)
>> **BCC** = Optional BCC (see section 8.1.6)

9.3.1.31.1. EAS Status Response

This command is not affected by the "ignore host commands" setting. The following response will be transmitted to the host.

P	FC1	FC2	A	B	C	D	Term	BCC

where:

>> **P** = Optional Prefix Byte (see section 8.1.1)
>> **FC1** = 0x70
>> **FC2** = 0x35
>> **A =** 0x30 if EAS_detect_en is off
>>   0x31 if EAS_detect_en is on
>> **B =** 0x30 if EAS health is not ok
>>   0x31 if EAS health is ok
>> **C =** 0x30 if EAS_deact_en is off
>>   0x31 if EAS_deact_en is on
>> **D =** 0x30 if EAS_lbl_detect signal is inactive
>>   0x31 if EAS_lbl_detect signal is active
>> **Term** = Required terminator Byte (see section 8.1.5)
>> **BCC** = Optional BCC (see section 8.1.6)

9.3.1.32. Simulate EAS Exception Button Press Command

This command instructs the peripheral to execute the functions that occur when the EAS Exception button is pressed.

P	FC1	FC2	Term	BCC

where:

> **P** = Optional Prefix Byte (see section 8.1.1)
> **FC1** = 0x70 (function code 1)
> **FC2** = 0x36 (function code 2)
> **Term** = Required terminator Byte (see section 8.1.5)
> **BCC** = Optional BCC (see section 8.1.6)

The peripheral will acknowledge this command only if the 'ACK' / 'NAK' option (see section 7.7.1) is configured.

9.3.1.33. Disconnect EAS Exception Button Command

This command instructs the peripheral to disable its hardware EAS Exception button. The button can then be accessed only with the Simulate EAS Exception Button Press Command.

P	FC1	FC2	Term	BCC

where:

> **P** = Optional Prefix Byte (see section 8.1.1)
> **FC1** = 0x70 (function code 1)
> **FC2** = 0x37 (function code 2)
> **Term** = Required terminator Byte (see section 8.1.5)
> **BCC** = Optional BCC (see section 8.1.6)

The peripheral will acknowledge this command only if the 'ACK' / 'NAK' option (see section 7.7.1) is configured.

9.3.1.34. Simulate Scanner Button Press Command

This command instructs the peripheral to execute the functions that occur when the Scanner button is pressed.

P	FC1	FC2	Term	BCC

where:

> **P** = Optional Prefix Byte (see section 8.1.1)
> **FC1** = 0x70 (function code 1)
> **FC2** = 0x38 (function code 2)
> **Term** = Required terminator Byte (see section 8.1.5)
> **BCC** = Optional BCC (see section 8.1.6)

The peripheral will acknowledge this command only if the 'ACK' / 'NAK' option (see section 7.7.1) is configured.

9.3.1.35. Disconnect Scanner Button Command

This command instructs the peripheral to disable its hardware Scanner button. The button can then be accessed only with the Simulate Scanner Button Press Command.

P	FC1	FC2	Term	BCC

where:

> **P** = Optional Prefix Byte (see section 8.1.1)
> **FC1** = 0x70 (function code 1)
> **FC2** = 0x39 (function code 2)
> **Term** = Required terminator Byte (see section 8.1.5)
> **BCC** = Optional BCC (see section 8.1.6)

The peripheral will acknowledge this command only if the 'ACK' / 'NAK' option (see section 7.7.1) is configured.

9.3.2. Scanner with Integrated Scale Commands & Responses

9.3.2.1. Hard Reset Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.2.1 for the Hard Reset Command.

9.3.2.2. Scanner Enable Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.2.2 for the Scanner Enable Command.

9.3.2.3. Scanner Disable – No Indication Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.2.3 for the Scanner Disable – No Indication Command.

9.3.2.4. Scanner Status Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.2.4 for the Scanner Status Command.

9.3.2.5. Scanner Switch Read Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.2.5 for the Scanner Switch Read Command.

9.3.2.6. Scanner Not-On-File Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.2.6 for the Scanner Not-On-File Command.

9.3.2.7. Scanner Disable – Light Flashing Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.2.7 for the Scanner Disable – Light Flashing Command.

9.3.2.8. Scale Weight Request Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.2.8 for the Scale Weight Command.

9.3.2.9. Scale Cancel Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.2.9 for the Scale Cancel Command.

9.3.2.10. Scale Status Command

This command is used to solicit the scale for the current operating parameters. The Status command is formatted as follows:

P	Address	FC	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x31
FC = 0x33 (function code)
Term = Terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

9.3.2.11. Scale Status Response

This command is not affected by the "ignore host commands" setting. The following response will be transmitted to the host.

P	Address	FC	A	B	C	D	E	Term	BCC

where:

> **P** = Optional Prefix Byte (see section 8.1.1)
> **Address** = 0x31
> **FC** = 0x33 (function code)
> **A** = 0x30 if English Weight
>   0x31 if Metric Weight
> **B** = 0x30 if scale is enabled
>   0x31 if scale is disabled
> **C** = 0x31
> **D** = 0x32
> **E** = 0x30 if Scale is not ready
>   0x31 if Non-Stable Weight
>   0x32 if Stable Weight over 30.00 Lb (9.995 Kg)
>   0x33 if Stable Zero Weight
>   0x34 if Stable Non-Zero Weight Available
>   0x35 if Current Stable Above Zero Weight Transmitted to host
>   0x70 if Scale is in Calibration Phase 1 (Empty scale and press scale calibration button)
>   0x71 if Scale is in Calibration Phase 2 (Calibrating zero weight)
>   0x72 if Scale is in Calibration Phase 3 (Add high calibration weight and press scale button)
>   0x73 if Scale is in Calibration Phase 4 (Calibrating high weight
>   0x74 if Scale is in Calibration Phase 5 (Calibration done. Press scale button)
>   0x75 if Scale Recalibration Required
> **Term** = Terminator byte (see section 8.1.5)
> **BCC** = Optional BCC (see section 8.1.6)

9.3.2.12. Scale Monitor Command

This command is used to solicit current scale weight or status for the purpose of maintaining a live weight display on the host. The number of scale weight data bytes is configurable to be either 4 or 5 digits; when configured for 4 weight digits, the 'B' field in the response shall not exist (see section 9.3.2.12.1). The command is formatted as follows:

P	Address	FC	Term	BCC

where:

> **P** = Optional Prefix Byte (see section 8.1.1)
> **Address** = 0x31
> **FC** = 0x34 (function code)
> **Term** = Terminator Byte (see section 8.1.5)
> **BCC** = Optional BCC (see section 8.1.6)

9.3.2.12.1. Scale Monitor Responses

This command is not affected by the "ignore host commands" setting. If the scale has a stable non-zero weight or if the scale is not ready, the following response will be transmitted to the host.

P	Address	FC	A	B	C	D	E	F	Term	BCC

where:

> **P** = Optional Prefix Byte (see section 8.1.1)
> **Address** = 0x31
> **FC** = 0x34 (function code)
> **A** = 0x34 if Stable Non-Zero Weight

B = 0x30 for English weight, 10's digit for Metric weight.
C = 10's digit for English weight, 1's digit for Metric weight.
D = 1's digit for English weight, 10th's digit for Metric weight.
E = 10th's digit for English weight, 100th's digit for Metric weight.
F = 100th's digit for English weight, 1000th's digit for Metric weight.
Term = Terminator byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

If the scale has a stable zero weight, is under zero, is over the capacity of the scale, or is unstable, the following response will be transmitted to the host.

P	Address	FC	A	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x31
FC = 0x34 (function code)
A = 0x30 if Scale Not Ready
    0x31 if Scale Unstable
    0x32 if Scale Over Capacity
    0x33 if Stable Zero Weight
    0x35 if Scale Under Zero
    0x70 if Scale is in Calibration Phase 1 (Empty scale and press scale calibration button)
    0x71 if Scale is in Calibration Phase 2 (Calibrating zero weight)
    0x72 if Scale is in Calibration Phase 3 (Add high calibration weight and press scale button)
    0x73 if Scale is in Calibration Phase 4 (Calibrating high weight
    0x74 if Scale is in Calibration Phase 5 (Calibration done. Press scale button)
    0x75 if Scale Recalibration Required
Term = Terminator byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

9.3.2.13. Display Data Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.2.12 for the Display Data Command.

9.3.2.14. Display Status Command

DLS Single Cable RS232 shall follow the guidelines listed in section 8.3.2.13 for the Display Status Command.

9.3.2.15. Simulate Scale Button Press Command

This command instructs the peripheral to execute the functions that occur when the Scale button is pressed.

P	Address	FC1	FC2	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x33
FC1 = 0x70 (function code 1)
FC2 = 0x3A (function code 2)
Term = Required terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

The peripheral will acknowledge this command only if the 'ACK' / 'NAK' option (see section 7.7.1) is configured.

9.3.2.16. Disconnect Scale Button Command

This command instructs the peripheral to disable its hardware Scale button. The button can then be accessed only with the Simulate Scale Button Press Command.

P	Address	FC1	FC2	Term	BCC

where:

P = Optional Prefix Byte (see section 8.1.1)
Address = 0x33
FC1 = 0x70 (function code 1)
FC2 = 0x3B (function code 2)
Term = Required terminator Byte (see section 8.1.5)
BCC = Optional BCC (see section 8.1.6)

The peripheral will acknowledge this command only if the 'ACK' / 'NAK' option (see section 7.7.1) is configured.

9.3.2.17. DLS Scanner with Integrated Scale Special Function Commands

The DLS Special Function commands are the same commands used for the scanner only interface (see section 9.3.1) except they are preceded (but after the 'STX' character if used) by an address byte of 0x33. The responses to these commands will be the same as the responses used in the DLS scanner only interface, except for the Send Status, Configuration Request, Device Configuration Request, and Read ROM Version commands, which will have the special function address (0x33) pre-pended to the response data. These commands must be used with caution as they can significantly affect the operation of the scanner with integrated scale unit.

9.3.3. DLS Scanner Only Command Summary

All the data shown in the summary below is in hexadecimal with no parity shown. It is assumed that the prefix byte is equal to 0x02, the terminator byte is equal to 0x03, the BCC option is chosen, and the 'ACK'/'NAK' option is chosen.

Command Data	Command Definition	Command Response
02,32,30,03,BCC	Soft Reset	None (see section 8.3.1.1)
02,32,31,03,BCC	Hard Reset	None (see section 8.3.1.2)
02,32,33,03,BCC	Enable Scanner	'ACK' / 'NAK' (see section 8.3.1.3)
02,32,42,03,BCC	Disable Scanner, Light Flashing	'ACK' / 'NAK' (see section 8.3.1.4)
02,32,43,03,BCC	Set Parameters To Default	None (see section 8.3.1.5)
02,32,44,03,BCC	Disable Scanner, No Indication	'ACK' / 'NAK' (see section 8.3.1.6)
02,32,46,03,BCC	Enable Tone	'ACK' / 'NAK' (see section 8.3.1.7)
02,33,34,03,BCC	Beep Good Tone	'ACK' / 'NAK' (see section 8.3.1.8)
02,33,35,03,BCC	Shutdown, Perform Soft Power Down	'ACK' / 'NAK' (see section 8.3.1.9)
02,33,36,03,BCC	Send Status To Host	See section 8.3.1.10
02,33,37,03,BCC	Save and Reset	None (see section 8.3.1.11)
02,33,39,03,BCC	Disable Tone	'ACK' / 'NAK' (see section 8.3.1.12)
02,33,41,03,BCC	Enter Toad Mode	'ACK' / 'NAK' (see section 8.3.1.13)
02,33,46,03,BCC	Not-On-File	'ACK' / 'NAK' (see section 8.3.1.14)
02,3D,32,(31 - 35), 03,BCC	Read Pacesetter Tally	See section 8.3.1.15
02,3D,3C,03,BCC	Reset Pacesetter Tallies	'ACK' / 'NAK' (see section 8.3.1.16)
02,3D,3E,3E,03,BCC	Enable Pacesetter Plus Trailer	'ACK' / 'NAK' (see section 8.3.1.17)
02,3D,3F,3F,03,BCC	Disable Pacesetter Plus Trailer	'ACK' / 'NAK' (see section 8.3.1.18)
02,70,30,Data,03,BCC	Firmware Update	See section 8.3.1.22
02,70,31,03,BCC	Turn EAS Detect on	'ACK' / NAK' (see section 9.3.1.27)
02,70,32,03,BCC	Turn EAS Detect off	'ACK' / NAK' (see section 9.3.1.28)
02,70,33,T1,T2,03,BCC	Turn EAS Deactivation on	'ACK' / NAK' (see section 9.3.1.29)
02,70,34,03,BCC	Turn EAS Deactivation off	'ACK' / NAK' (see section 9.3.1.30)
02,70,35,03,BCC	EAS status request	See EAS Status Response (section 9.3.1.31.1)
02,70,36,03,BCC	Simulate EAS exception button press	'ACK' / 'NAK' (see section 9.3.1.32)
02,70,37,03,BCC	Disconnect EAS exception button	'ACK' / 'NAK' (see section 9.3.1.33)
02,70,38,03,BCC	Simulate Scanner button press	'ACK' / 'NAK' (see section 9.3.1.34)
02,70,39,03,BCC	Disconnect scanner button	'ACK' / 'NAK' (see section 9.3.1.35)
02,70,3C,03,BCC	Scanner Identification Request	See Scanner Identification Response (section 8.3.1.23.1)
02,70,3D,03,BCC	Scanner Health Request	See Scanner Health Response (section 8.3.1.24.1)
02,70,3E,03,BCC	Extended Status Request	See Extended Status Response (section 8.3.1.25.1)
02,30,41,03,BCC	Configuration Request	See section 8.3.1.19.1
02,30,42,03,BCC	Device Configuration Request	See section 8.3.1.20.1
02,33,31,30,32,30,30,03,BCC	Read ROM Version	See section 8.3.1.21.1
02,70,3F,(24 data bytes) 03,BCC	Scale Calibration Date	See section 8.3.1.26

9.3.4. DLS Scanner with Integrated Scale Command Summary

All the data shown in the summary below is in hexadecimal with no parity shown. It is assumed that the prefix byte is equal to 0x02, the terminator byte is equal to 0x03, the BCC option is chosen, and the 'ACK'/'NAK' option is chosen.

Command Data	Command Definition	Command Response
02,30,30,03,BCC	Hard Reset	None (see section 8.3.2.1.1)
02,30,31,03,BCC	Enable Scanner	02,30,30,03,BCC (see section 8.3.2.2.1)
02,30,32,03,BCC	Disable Scanner, No Indication	02,30,30,03,BCC (see section 8.3.2.3.1)
02,30,33,03,BCC	Scanner Status	See section 8.3.2.4.1
02,30,34,03,BCC	Scanner Switch Read	02,30,33,30,31,30,30, 30,30,31,30,32,03,BCC (see section 8.3.2.5.1)
02,30,35,03,BCC	Scanner Not-On-File	02,30,30,03,BCC (see section 8.3.2.6.1)
02,30,36,03,BCC	Scanner Disable, Light Flashing	02,30,30,03,BCC (see section 8.3.2.7.1)
02,31,30,03,BCC	Hard Reset	None (see section 8.3.2.1.1)
02,31,31,03,BCC	Scale Weight Request	See section 8.3.2.8.1
02,31,32,03,BCC	Scale Cancel	02,31,30,03,BCC (see section 8.3.2.9.1)
02,31,33,03,BCC	Scale Status	See section 9.3.2.11
02,31,34,03,BCC	Scale Monitor	See section 9.3.2.12
02,32,30,03,BCC	Hard Reset	None (see section 8.3.2.1.1)
02,32,31,Data,03,BCC	Display Data	02,32,30,03,BCC (see section 8.3.2.12.1)
02,32,33,03,BCC	Display Status	See section 8.3.2.13.1
02,33,32,30,03,BCC	Soft Reset	None (see section 8.3.1.1)
02,33,32,31,03,BCC	Hard Reset	None (see section 8.3.1.2)
02,33,32,33,03,BCC	Enable Scanner	'ACK' / 'NAK' (see section 8.3.1.3)
02,33,32,42,03,BCC	Disable Scanner, Light Flashing	'ACK' / 'NAK' (see section 8.3.1.4)
02,33,32,43,03,BCC	Set Parameters To Default	None (see section 8.3.1.5)
02,33,32,44,03,BCC	Disable Scanner, No Indication	'ACK' / 'NAK' (see section 8.3.1.6)
02,33,32,46,03,BCC	Enable Tone	'ACK' / 'NAK' (see section 8.3.1.7)
02,33,33,34,03,BCC	Beep Good Tone	'ACK' / 'NAK' (see section 8.3.1.8)
02,33,33,35,03,BCC	Shutdown, Perform Soft Power Down	'ACK' / 'NAK' (see section 8.3.1.9)
02,33,33,36,03,BCC	Send Status To Host	See section 8.3.1.10
02,33,33,37,03,BCC	Save and Reset	None (see section 8.3.1.11)
02,33,33,39,03,BCC	Disable Tone	'ACK' / 'NAK' (see section 8.3.1.12)
02,33,33,41,03,BCC	Enter Toad Mode	'ACK' / 'NAK' (see section 8.3.1.13)
02,33,33,46,03,BCC	Not-On-File	'ACK' / 'NAK' (see section 8.3.1.14)
02,33,3D,32,(31 - 35), 03,BCC	Read Pacesetter Tally	See section 8.3.1.15
02,33,3D,3C,03,BCC	Reset Pacesetter Tallies	'ACK' / 'NAK' (see section 8.3.1.16)
02,33,3D,3E,3E,03,BCC	Enable Pacesetter Plus Trailer	'ACK' / 'NAK' (see section 8.3.1.17)
02,33,3D,3F,3F,03,BCC	Disable Pacesetter Plus Trailer	'ACK' / 'NAK' (see section 8.3.1.18)
02,33,70,30,Data,03,BCC	Firmware Update	See section 8.3.1.22.1
02,33,70,31,03,BCC	Turn EAS Detect On	'ACK' / 'NAK' (see section 9.3.1.27)
02,33,70,32,03,BCC	Turn EAS Detect Off	'ACK' / 'NAK' (see section 9.3.1.28)
02,33,70,33,T1,T2,03,BCC	Turn EAS Deactivation On	'ACK' / 'NAK' (see section 9.3.1.29)
02,33,70,34,03,BCC	Turn EAS Deactivation Off	'ACK' / 'NAK' (see section 9.3.1.30)
02,33,70,35,03,BCC	EAS status request	See EAS Status Response (section 9.3.1.31.1)
02,33,70,36,03,BCC	Simulate EAS exception button press	'ACK' / 'NAK' (see section 9.3.1.32)
02,33,70,37,03,BCC	Disconnect EAS exception button	'ACK' / 'NAK' (see section 9.3.1.33)
02,33,70,38,03,BCC	Simulate Scanner button press	'ACK' / 'NAK' (see section 9.3.1.34)
02,33,70,39,03,BCC	Disconnect scanner button	'ACK' / 'NAK' (see section 9.3.1.35)
02,33,70,3A,03,BCC	Simulate Scale button press	'ACK' / 'NAK' (see section 9.3.2.15)
02,33,70,3B,03,BCC	Disconnect scale button	'ACK' / 'NAK' (see section 9.3.2.16)
02,33,70,3C,03,BCC	Scanner Identification Request	See Scanner Identification Response (section 8.3.1.23.1)
02,33,70,3D,03,BCC	Scanner Health Request	See Scanner Health Response (section 8.3.1.24.1)
02,33,70,3E,03,BCC	Extended Status Request	See Extended Status Response (section

		8.3.1.25.1)
02,33,30,41,03,BCC	Configuration Request	See section 8.3.1.19.1
02,33,30,42,03,BCC	Device Configuration Request	See section 8.3.1.20.1
02,33,33,31,30,32,30,30,03,BCC	Read ROM Version	See section 8.3.1.21.1
02,33,70,3F,(24 data bytes) 03,BCC	Scale Calibration Date	See section 8.3.1.26

10. DOCUMENT CHANGE HISTORY

This section describes changes made to the document between revisions. The format is as follows:

Previous revision section / Current revision section (paragraph x, sentence x) Description of change.

10.1. Rev A.0 / Rev A.1
Added spec review comments.

10.2. Rev A.1 / Rev A.2
Added comments from Donelda H. and changed the way the 'ACK'/'NAK' feature works.

10.3. Rev A.2 / Rev A.3
In section 7.3.1.14.1 changed the word "six" to "seven".

10.4. Rev A / Rev B
In section 7.3.1.16 changed "32" to "3E".

10.5. Rev B / Rev C.0
Added PSC format, corrected Sec. 7.1.2, renumbered section 7.3.2.10 to 7.3.2.9.1, inserted Enable Scanner Command at section 7.3.1.3, added high baud rates to section 6.1, made minor formatting changes.

10.6. Rev C.0 / Rev C.1

Added spec review comments, added Pharmacode 39 to PSC format.

10.7. Rev C.1 / Rev C.2

Changed Calibration Phase 1 in sections 8.3.2.10.1 and 8.3.2.11.1 to read "…press scale calibration button" instead of "…press scale button. Added Disable Pacesetter Plus Trailer command to the table in section 7.3.4.

10.8. Rev C / Rev D

Added host download, EAS, button, and diagnostic reporting commands and responses to the PSC scanner and scanner-scale section.

10.9. Rev D1 / Rev D2

Added spec review comments – change EAS address 70 to special function address 33, clarified names of EAS commands.

10.10. Rev D2 / Rev D3

Refer to VAF spec DR9000060 for PIR-CT label data, added review input, ACME support.

10.11. Rev E

MR5 changes