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Solicitation No. - N° de l'invitation 21120-188387/A	**Amendment No. - N° modif.** 003
Client Reference No. - N° de référence du client 21120-188387	**Date** 2017-11-08
GETS Reference No. - N° de référence de SEAG PW-$$HN-445-73523	
File No. - N° de dossier hn445.21120-188387	**CCC No./N° CCC - FMS No./N° VME**
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Cette modification 003 est augmentée pour prolonger la date de clôture jusqu'au 30 novembre 2017 et fournir le document TM-8045/001/00 (ci-joint) tel que demandé par les fournisseurs.

SUPPEMER : le 16 novembre 2017

INSÉRER : le 30 novembre 2017

Tous les autres termes et conditions demeurent inchangées.

TM-8045/001/00
AUTHOR : B. Eng
REVIEWER :
DATE : 27 April, 1997

TECHNICAL MEMORANDUM

Starcom Communications Protocol

Version 2.0

Interface Specification

Distribution:

Senstar Stellar

Revision History

Date	Changes
February, 1986	Original Release
May, 1993	Document rewritten
March 25,1994	Appendix A updated to include following Starcom messages implemented in Senstar 100 V3.3 and later versions DATE/TIME messages DATA LOGGER TEXT message
February 28, 1996	changes made to pages: A1 of 7 A2 of 7 A3 of 7 A5 of 7
April 2, 1997	Appendix A updated to include generation of Data Logger Text message implemented in Senstar 100 V5.2 and later versions.

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Appendix B : PIU FAAS Implementation of Starcom Protocol V2.0

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1.0 Introduction

The Starcom protocol is a serial data interface that allow communications between Senstar Corporation's security systems (such as Senstar 100) and other security sub-systems. This data interface allows alarm collection sub-systems to deliver security alarm point data to Senstar's security systems for processing. It also allows Senstar's security systems to send output messages based on the alarm input states, the site data base, operator actions and other system states to another sub-system (e.g. a mimic panel).

In this document, Senstar Corporation's security systems are referred to as the system controllers and other security sub-systems are referred to as devices.

2.0 Starcom Protocol

2.1 Physical Communication Link

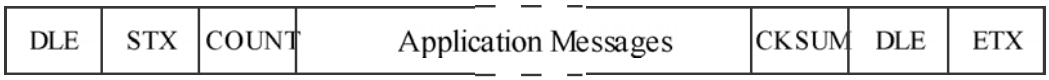
The Starcom data communication conforms to the RS232 serial, bit synchronous, character asynchronous format.

The data transmission format is as follows:

baud rate can be set to 1200, 2400, 4800, or 9600 baud
8 data bits
no parity bit
1 start bit
1 stop bit

2.2 Message Format

Message packets used in the Starcom protocol have the following format :



where

DLE	:	data link escape byte (10h)
STX	:	start of text byte (02h)
COUNT	:	number of bytes in the application messages field
Application Messages	:	data bytes of application messages to be sent or received
CKSUM	:	checksum byte
ETX	:	end of text byte (03h)

The application message data is transmitted as 8-bit hex numbers in the range 00h to FFh. The messages are packaged using control code bytes. To ensure that data in the application messages field is not interpreted as control codes, all control codes are preceded by the Data Link Escape (DLE) code (10h). Following is a list of control codes that must be preceded by the DLE code :

DLE STX	(10h, 02h)	:	start of text
DLE ETX	(10h, 03h)	:	end of text
DLE ACK	(10h, 06h)	:	acknowledge
DLE XON	(10h, 11h)	:	transmit on / buffer empty
DLE XOFF	(10h, 13h)	:	transmit off / buffer full
DLE NAK	(10h, 15h)	:	negative acknowledge

If a 10h must appear within the message data as a data value, it must be preceded by the DLE code so that the following byte is not interpreted as a control code. Thus the data byte 10h is sent as

DLE DLE (10h, 10h) : 10h as data byte

Message packets have variable length. They start with DLE STX (start of text) bytes and end with DLE ETX (end of text) bytes. The COUNT field is a byte showing the total number of bytes, excluding added DLEs, that are present in the Application Messages field. The Application Messages field contains a variable number of data bytes that make up the messages. The CKSUM byte is used for error detection.

2.3 Error Detection

Error detection is done using the message checksum, CKSUM.

The sending unit calculates a checksum by summing the bytes of the message packet using two's complement byte arithmetic, excluding DLE STX and DLE ETX, and taking the "two's complement" of the sum. This checksum will make all bytes between DLE STX and DLE ETX add up to zero. If a 10h is used as data in the COUNT field or Application Message field, it is preceded by the DLE (10h) code. Only the 10h data byte is used in the checksum calculation. The DLE code (10h) preceding the 10h data byte is ignored in the checksum calculation. The checksum is sent in the CKSUM field of the message.

When the entire message packet is properly received, the receiving unit sums all the bytes in the received message packet between DLE STX and DLE ETX. If the sum is zero, the message is received correctly and is accepted. The receiving unit acknowledges receipt of the message packet by responding with DLE ACK. If the sum is not zero, there is an error in the received data. The receiving unit responds with a DLE NAK. The sending device shall monitor for DLE NAK messages and repeat the last transmission until it has been successfully acknowledged.

Transmission of DLE ACK and DLE NAK is asynchronous to the transmission of messages, i.e. they can be send at any time. If a message is being transmitted, DLE ACK and DLE NAK bytes can be embedded within the message and are not included in the message packet checksum.

2.4 Flow Control

Hardware handshaking is not supported.

Flow control is by by means of XON / XOFF.

Both the sending and receiving units can dynamically control the rate at which they receive messages. This is implemented using XON/XOFF protocol. When the receiving unit's receiver buffer is too full to accept any more data, it sends a DLE XOFF message to stop the transmitter of the transmitting unit. Upon receiving a DLE XOFF, the transmitting unit must cease all transmissions and buffer all further messages. When the receiving unit is ready to accept more data, it sends a DLE XON to restart the transmitter of the transmitting unit.

Transmission of DLE XON and DLE XOFF is asynchronous to the transmission of messages, i.e. they can be send at any time. If a message is being transmitted, DLE XON and DLE XOFF bytes can be embedded within the message and are not included in the message packet checksum.

3.0 Starcom Application Messages

The Application Messages, consisting of short commands and data, are used to pass information between the system controller and the various devices in the system. The messages that are supported are intended to cover the basic information that all security systems should be able to process. These basic messages provide the following information :

1) alarm point status
2) hardware fault status
3) data-logging

The data-logging feature is intended to allow data-logging messages from devices to be passed to the system controller that has a printer. This capability is only available to devices that communicates both alarm data and data-logging data through the same serial port.

3.1 Application Message Format

The Application Messages field can contain any number of application messages.

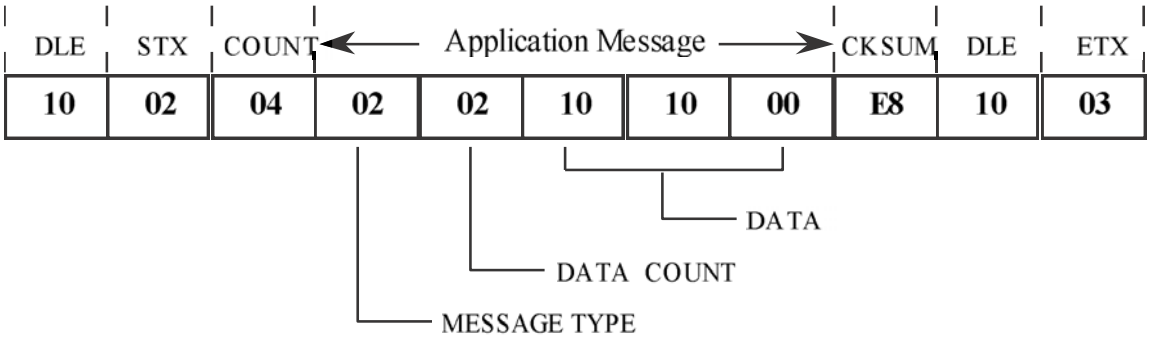
Each application message consists of the MESSAGE TYPE, the DATA COUNT, and the DATA.

The MESSAGE TYPE is a single hexadecimal byte (00h to FFh) that indicates what the following data bytes are used for.

The DATA COUNT is a single hexadecimal byte (00h to FFh) that indicates the number of data bytes that follow.

The DATA can be from 1 to 255 bytes in length. The number of data bytes depends on the message type. The data bytes are in hexadecimal and each byte can have a value from 00h to FFh. If a data byte has a value of 10h, it must be preceded by another byte with 10h (DLE code).

A sample message is shown below. This message selects point 16 (0010h).



Byte #	Hex	Description	
1	10	DLE	
2	02	STX :	start of text
3	04	COUNT :	An Application Message byte count of 4. Note that the additional DLE in the message did not increase the byte count to 5.
4	02	MESSAGE TYPE :	set point number
5	02	DATA COUNT :	A Data byte count of 2, excluding DLE
6	10	DATA :	DLE to indicate next byte is data
7	10		LS Byte for point 16 (0010h)
8	00		MS Byte for point 16 (0010h)
9	E8	CKSUM :	2'complement of (04+02+02+10+0)
10	10	DLE	
11	03	ETX :	end of text

3.2 Application Message Definition

The messages types that are supported by Starcom are as follows:

FUNCTION	MESSAGE TYPE NUMBER
RESET	00
SET DEVICE NUMBER	01
SET POINT NUMBER	02
ALARM STATUS	03
HARDWARE STATUS	04
DATE/TIME	05
PRINT DATA-LOGGER TEXT	06
DATA-LOGGER TEXT XOFF	07
DATA-LOGGER TEXT XON	08

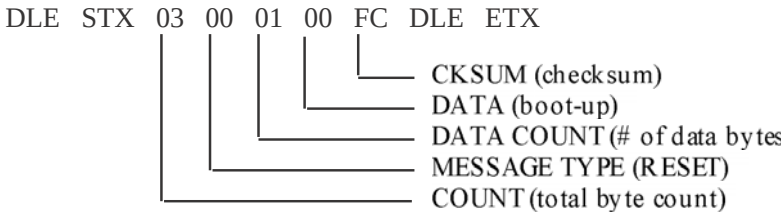
3.2.1 RESET (00h)

The RESET message is sent from the system controller to the device when the system controller boots up or when it detects a communication failure to the device.

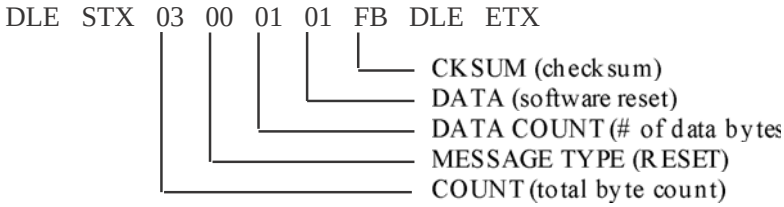
Format :	MESSAGE TYPE :	00
	DATA COUNT :	01
	DATA :	00 or 01

If the reset is due to the system controller boot-up, the DATA byte is 00 (hard reset). If the reset is due to communication failure, the DATA byte is 01 (software reset).

Example 1: message sent on system controller boot-up



Example 2: message sent for software reset



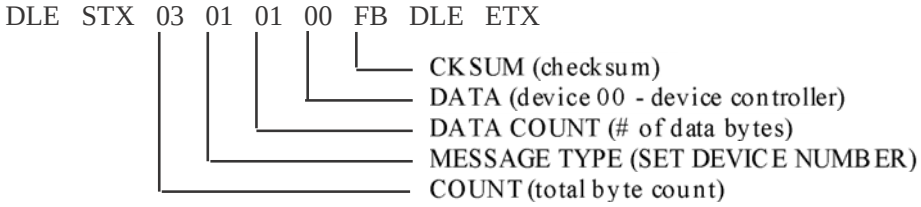
3.2.2 SET DEVICE NUMBER (01h)

The device number is used to select a device in a system that has a device controller serving a number of devices. The SET DEVICE NUMBER message allows the system controller to know which device generated the message and allows the device controller to know which device a message is for.

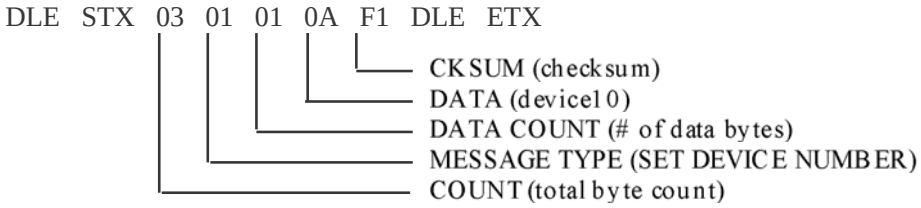
Format :	MESSAGE TYPE :	01
	DATA COUNT :	01
	DATA :	00 to FFh

The DATA byte contains the device number. A device number of 00 refers to the device controller itself.

Example 1: set device number to 00 to reference the device controller



Example 2: set device number to 0Ah to reference device number 10



The device number goes to the unset condition with the start of receipt of each new message packet. For most applications, the SET DEVICE NUMBER message is only useful if followed by either an ALARM STATUS or HARDWARE STATUS application message within the same message packet.

3.2.3 SET POINT NUMBER (02h)

The SET POINT NUMBER message allows the system to indicate which point the following messages are referring to.

The messages that follow are either ALARM STATUS or HARDWARE STATUS.

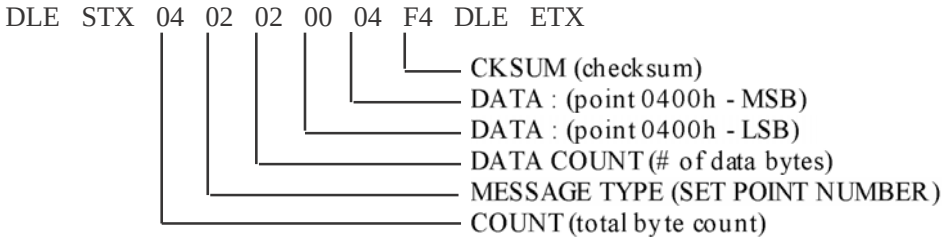
If ALARM STATUS follows, the point number indicates a point on the device.

If HARDWARE STATUS follows, the point number indicates a card or other hardware unit on the device.

Format :	MESSAGE TYPE :	02	
	DATA COUNT :	02	
	DATA :	byte 1	00 to FFh
		byte 2	00 to FFh

The two DATA bytes contain the point number. The least significant byte (LSB) of the point number is the first byte and the most significant byte (MSB) of the point number is the second byte. As an example, point number 1024 (0400h) is sent as a byte containing 00 followed by a byte containing 04.

Example 1: set point number to 1024 (0400h)



The point number goes to the unset condition with the start of receipt of each new message packet. For most applications, the SET POINT NUMBER message is only useful if followed by either an ALARM STATUS or HARDWARE STATUS application message within the same message packet.

3.2.4 ALARM STATUS (03h)

The ALARM STATUS message allows the system to request and receive alarm status for points in the system.

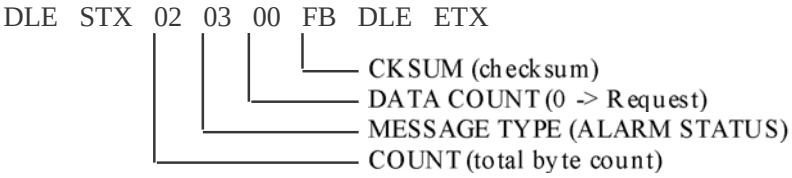
3.2.4.1 ALARM STATUS REQUEST

The ALARM STATUS REQUEST message is denoted by the DATA COUNT byte being 00.

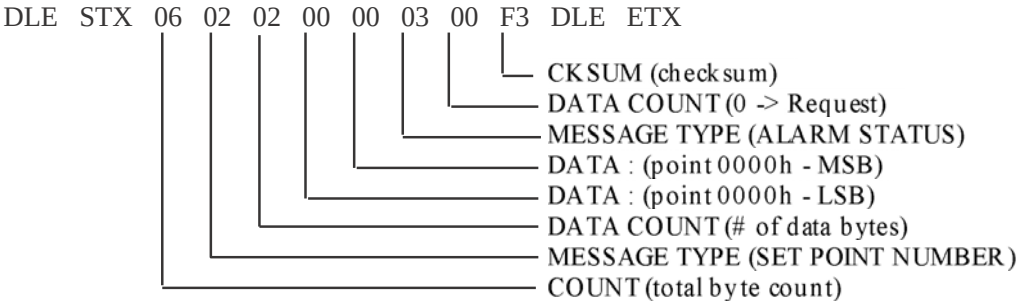
If the device number and point number are set as part of the message packet, the alarm status for the selected device and point is requested. If a point number has not been set, then the alarm status of all points on the selected device are requested. If a device number has not been set, then the alarm status of all points connected to the port are requested.

Format : MESSAGE TYPE : 03
DATA COUNT : 00

Example 1: request alarm status of all points



Example 2: select point 0 and request its status

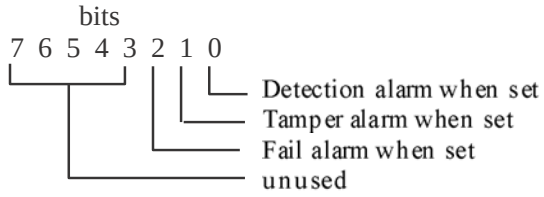


3.2.4.2 ALARM STATUS VALUE

The ALARM STATUS VALUE message is denoted by the DATA COUNT byte being 01 or greater.

If a device number was not set in the message packet, the default device number is 00 (device controller). If a point number was not set in the message packet, the default point number is 0.

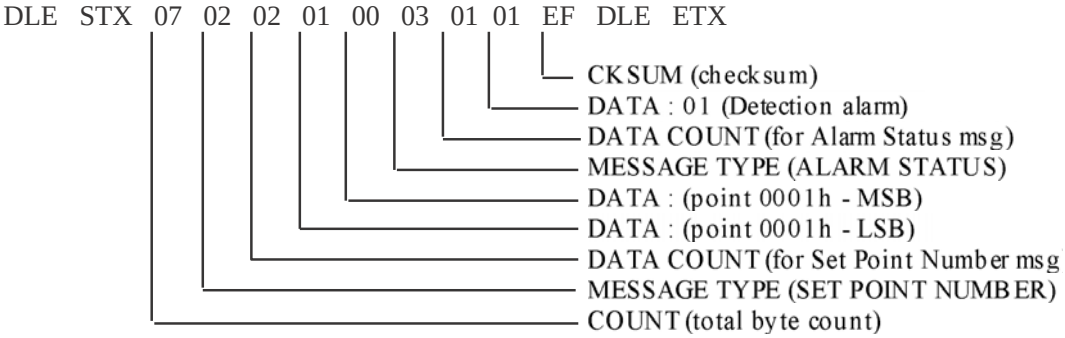
Format : MESSAGE TYPE : 03
DATA COUNT : 01 to N
DATA : byte 1



bytes 2 - N

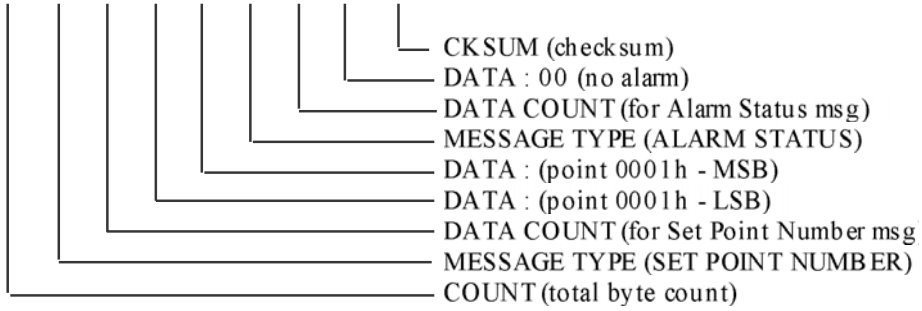
The first byte in the DATA field contains the alarm status as defined above. Subsequent bytes are ignored by most Starcom devices. Some device may send extra status information in these bytes since some Starcom devices may be able to use this information.

Example 1: select and show point 1 in Detection alarm



Example 2: select and show point 1 in non-alarm state

DLE STX 07 02 02 01 00 03 01 00 F0 DLE ETX


CKSUM (checksum)
DATA : 00 (no alarm)
DATA COUNT (for Alarm Status msg)
MESSAGE TYPE (ALARM STATUS)
DATA : (point 0001h - MSB)
DATA : (point 0001h - LSB)
DATA COUNT (for Set Point Number msg
MESSAGE TYPE (SET POINT NUMBER)
COUNT (total byte count)

3.2.5 HARDWARE STATUS (04h)

The HARDWARE STATUS message allows the system to request and receive hardware status for devices in the system.

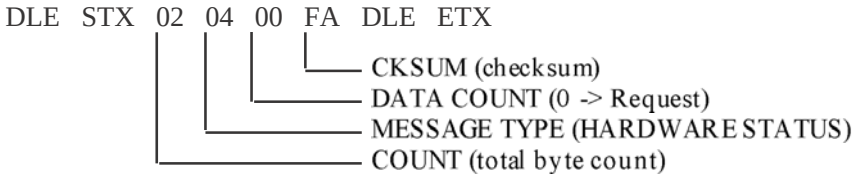
3.2.5.1 HARDWARE STATUS REQUEST

The HARDWARE STATUS REQUEST message is denoted by the DATA COUNT byte being 00.

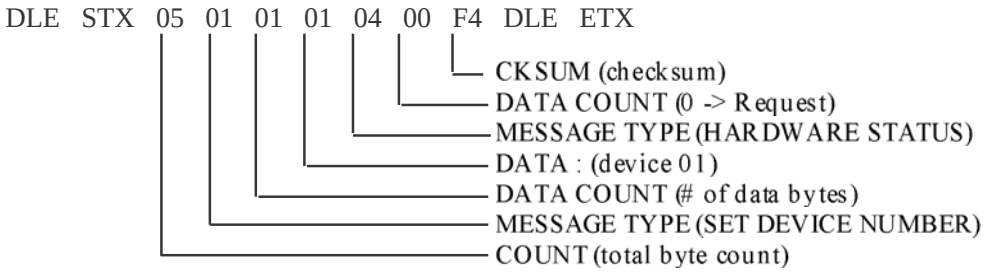
If the device number had previously been set, the hardware status for the selected device is requested. If a device number has not been set, then the hardware status for device 00 (device controller) is requested.

Format : MESSAGE TYPE : 04
DATA COUNT : 00

Example 1: request hardware status of device 00 (device controller)



Example 2: select device 01 and request its hardware status

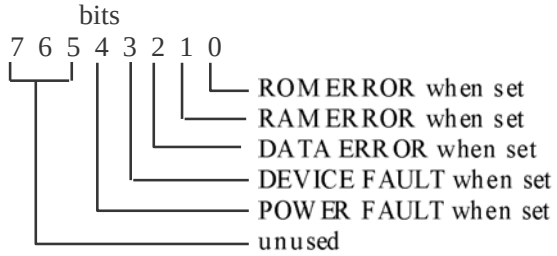


3.2.5.2 HARDWARE STATUS VALUE

The HARDWARE STATUS VALUE message is denoted by the DATA COUNT byte being 01 or greater.

If a device number was not set as part of the message packet, the default device number is 00 (device controller).

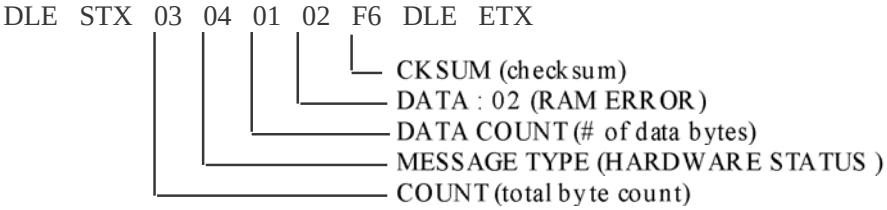
Format : MESSAGE TYPE : 04
DATA COUNT : 01 to N
DATA : byte 1



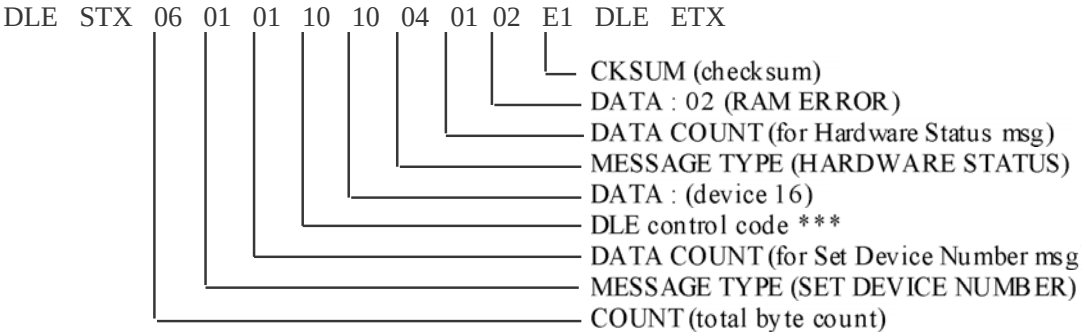
bytes 2 - N

The first byte in the DATA field contains the hardware status as defined above. Subsequent bytes are ignored by most Starcom devices. Some device may send extra status information in these bytes since some Starcom devices may be able to use this information.

Example 1: RAM ERROR in device 00 (device controller)



Example 2: RAM ERROR in device 16



*** The DLE control code (10h) is inserted before the data value 10h. It does not affect COUNT or the CKSUM.

3.2.6 DATE/TIME (05h)

The DATE/TIME message allows the system to request the date and time from and to send the date and time to devices in the system.

3.2.6.1 DATE/TIME REQUEST

The DATE/TIME REQUEST message is denoted by the DATA COUNT byte being 00.

If a device receives this message, it must send its current date and time to the sending device.

Format : MESSAGE TYPE : 05
DATA COUNT : 00

Example 1: request current date and time

DLE STX 02 05 00 F9 DLE ETX

- F9 — CKSUM (checksum)
- 00 — DATA COUNT (0 -> Request)
- 05 — MESSAGE TYPE (DATE/TIME)
- 02 — COUNT (total byte count)

3.2.6.2 DATE/TIME VALUE

The DATE/TIME VALUE message is denoted by the DATA COUNT byte being 06.

If a device receives this message, it should use the received date/time value to set its internal clock.

Format : MESSAGE TYPE : 05
DATA COUNT : 06

DATA :	byte 1 year	byte 4	hours
	byte 2 month	byte 5	minutes
	byte 3 date	byte 6	seconds

Example 1: set date and time to 93/04/29 12:30:00

DLE STX 08 05 06 5D 04 1D 0C 1E 00 45 DLE ETX

- 45 — CKSUM (checksum)
- 00 — DATA : Second
- 1E — DATA : Minute
- 0C — DATA : Hour
- 1D — DATA : Date
- 04 — DATA : Month
- 5D — DATA : Year
- 06 — DATA COUNT (# of data bytes)
- 05 — MESSAGE TYPE (DATE/TIME)
- 08 — COUNT (total byte count)

3.2.7 DATA LOGGER TEXT (06h)

The DATA LOGGER TEXT message allows devices to send data logging text strings to the system controller that has a printer for hardcopy output.

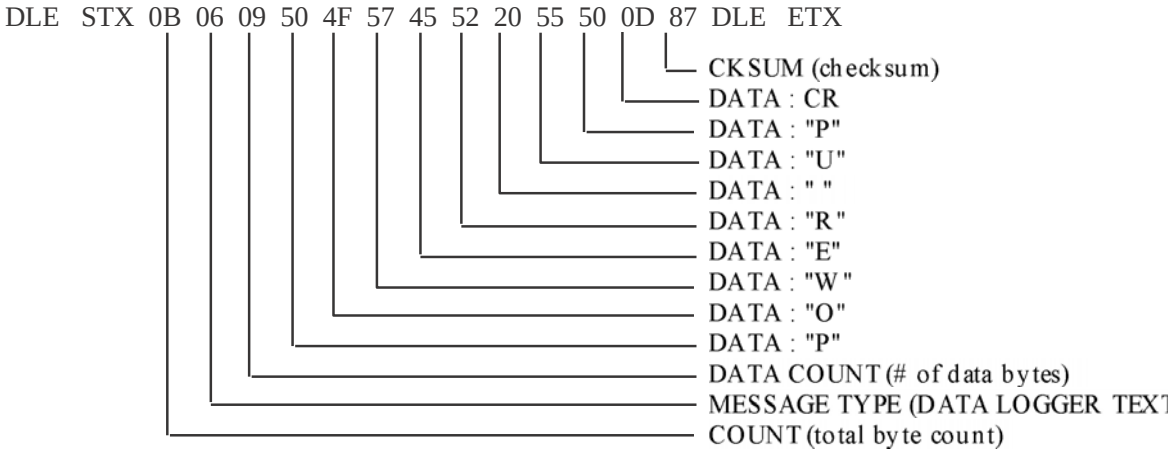
Format :	MESSAGE TYPE :	06
	DATA COUNT :	01 to 82 (52h)
	DATA :	ASCII text characters

The DATA field consists of 1 to 80 text characters and a line terminator (CR, LF, or CR LF). The text is placed in the data logger output buffer and is not changed in any manner (i.e. the current date/time or line numberis not added to the message). ASCII control characters such as FormFeed (FF) are discarded before printing.

The receiving device will interpret the occurrence of CR, LF, or CR LF as a single line terminator. Multiple line terminators are reduced to a single CR as follows:

CR	- one carriage return
LF	- one carriage return
CR LF	- one carriage return
CR CR	- two carriage returns
LF LF	- two carriage returns
CR LF LF	- two carriage returns
CR CR LF	- two carriage returns

Example 1: print "POWER UP" message on the printer



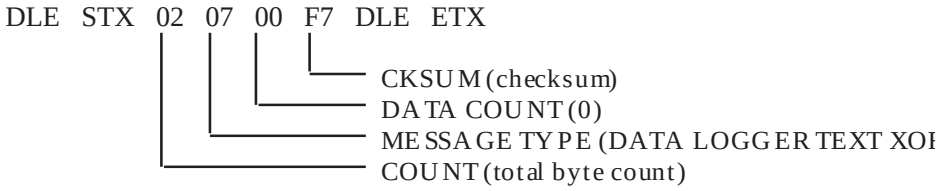
3.2.8 DATA LOGGER TEXT STOP (07h)

The DATA LOGGER TEXT STOP message tells the sending device that there is no room remaining in the system controller's input buffer. This facility is provided to prevent buffer overflow and can also be used to prevent high volume data logging messages from blocking the transmission of more important messages such as ALARM STATUS messages.

When a device receives this message, it should stop sending all data logging messages to the system controller until a DATA LOGGER TEXT START message is received.

Format : MESSAGE TYPE : 07
DATA COUNT : 00

Example 1: inform device 00 (device controller) not to send any more data logging messages



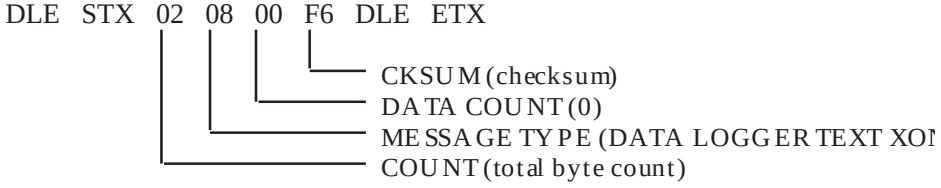
3.2.9 DATA LOGGER TEXT START (08h)

The DATA LOGGER TEXT START message tells the sending device that there is room in the system controller's input buffer.

When a device receives this message, it can continue to send data logging messages to the system controller. This message would have been preceded by a DATA LOGGER TEXT STOP message.

Format : MESSAGE TYPE : 08
DATA COUNT : 00

Example 1: inform device 00 (device controller) to send data logging messages



4.0 Starcom Implementations

The Starcom protocol has been implemented in Senstar Corporation's Display and Control products, Senstar 100 and PIU FAAS Controller.

For details of the Starcom implementation in Senstar 100, refer to Appendix A.

For details of the Starcom implementation in the PIU FAAS Controller, refer to Appendix B.

Appendix A
Senstar 100 Implemenataion
of
Starcom Protocol V2.0

Appendix A : Senstar 100 Implementation of Starcom Protocol V2.0

A1.0 Introduction

Senstar 100 has a built-in Starcom device driver to allow communications with other security sub-systems.

Not all messages in the Starcom protocol are implemented in Senstar 100. This appendix details the Senstar 100 implementation of the Starcom protocol.

A2.0 Implementation Details

A2.1 Supported Messages

Senstar 100 supports the Starcom messages listed below:

Message Type	Message Name
00	RESET
02	SET POINT
03	ALARM STATUS
04	HARDWARE STATUS
05	DATE/TIME (implemented in Senstar 100 V3.3 and later versions only)
06	DATA LOGGER TEXT (implemented in Senstar 100 V3.3 and later versions only)

Senstar 100 always addresses a Starcom device as device 00 (device controller). Therefore, it is not necessary to send the device number within any Starcom messages since the default device number is 00 if no device number is sent.

For the ALARM STATUS message, Senstar 100 only supports the Detection alarm and Tamper alarm states. Senstar 100 does not handle the Fail alarm state.

A2.2 Input Point Capacity and Messaging

Senstar 100 can process a maximum of 1024 input points per Starcom device.

Senstar 100 is informed of the status (Detection, Tamper, or no alarm) of a Starcom input point when it receives an ALARM STATUS VALUE message (examples in section 3.2.4.2) from the Starcom device.

The Starcom device must send the ALARM STATUS VALUE message to Senstar 100 whenever there is a change in status to one of its monitored points or in response to an ALARM STATUS REQUEST message (example 2 in section 3.2.4.1) from Senstar 100.

A2.3 Output Point Capacity and Messaging

Senstar 100 can process a maximum of 1024 output points per Starcom device.

Senstar 100 sets a Starcom output point to an alarm state (Detection or no alarm) by sending an ALARM STATUS VALUE message (examples in section 3.2.4.2) to the Starcom device.

Senstar 100 sends the ALARM STATUS VALUE message to the Starcom device whenever there is a change in status to one of its Starcom output points and as part of the background status audit (see section A2.5).

A2.4 ACK/NAK Processing

Senstar 100 will acknowledge a message from the Starcom device when the entire message is correctly received. It does this by sending a DLE ACK to the Starcom device.

If the message from the Starcom device is incorrect, as determined by the message checksum (CKSUM), Senstar 100 will reject the message, clear its input buffer, and ask for a re-transmission of the message by sending a DLE NAK to the Starcom device.

When Senstar 100 transmits a message to the Starcom device, it expects a response from the Starcom device. If the response from the Starcom device is a DLE ACK, Senstar 100 will go on to the next message. If the response from the Starcom device is a DLE NAK, Senstar 100 will re-transmit the current message. Senstar 100 will re-transmit the current message a maximum of 5 times. If Senstar 100 is unsuccessful in transmitting the current message after 5 attempts, it will discard the current message and go on to the next message.

A2.5 Status Auditing

As a background audit, Senstar 100 will request the status of all configured Starcom input points (ALARM STATUS REQUEST message), send the status of all configured Starcom output points (ALARM STATUS VALUE message), and request the hardware status of the Starcom controller (HARDWARE STATUS REQUEST message).

This auditing is done one point at a time, in sequential order, at regular intervals. The input point status request and the output point status value for the same point number are send together if both points are available. For example, if there is an input point 80 and an output point 80, then the ALARM STATUS REQUEST for input point 80 and the ALARM STATUS VALUE for output point 80 are sent one after the other in the same time interval.

The rate at which these audit messages are sent is determined by the Senstar 100 time-out period set for the Starcom device. These messages are sent 4 times at regular intervals within the time-out period. For example, if the Starcom device time-out period is set to 40 seconds, a STATUS REQUEST and/or STATUS VALUE message(s) will be send every 10 seconds. If a time-out period for the Starcom device has not been set in Senstar 100, i.e. a time-out period of 0, then the audit messages will be send every 5 seconds.

A2.6 Communication Link Fail Processing

If a Starcom device time-out period has not been set in Senstar 100, Senstar 100 will not detect and process Starcom communication fail alarms.

If a Starcom device time-out period is set in Senstar 100, Senstar 100 will monitor incoming messages from the Starcom device to detect the loss of communications. If Senstar 100 does not received any message (ALARM STATUS VALUE, HARDWARE STATUS VALUE, DATE/TIME REQUEST, or DATA LOGGER TEXT) from the Starcom device within the time-out period, Senstar 100 will declare a Starcom communication fail alarm. Therefore, in order to prevent Senstar 100 from declaring a communication fail alarm, the Starcom device must maintain a minimum message rate to Senstar 100. This can be achieved by responding to the Senstar 100 audit messages which are sent 4 times during the time-out period.

If Senstar 100 has not received any message from the Starcom device half way through the time-out period, Senstar 100 will send a DLE XON message to the Starcom device in case it has previously received a DLE XOFF message.

If Senstar 100 has declared a Starcom communication fail alarm, it will try to re-establish communication with the Starcom device every 60 seconds by sending it a DLE XON message and a software RESET message (example 2 in section 3.2.1).

Upon receiving a RESET message, the Starcom device should invoke a device restart.

A2.7 Date/Time Processing

Senstar 100 sends the DATE/TIME VALUE to the Starcom device upon Senstar 100 startup, at hourly intervals, and in response to a DATE/TIME REQUEST from the Starcom device.

A3.0 Implementation Examples

A3.1 Senstar 100 Initiated Messages

1) Senstar 100 : sends a software RESET message
DLE STX 03 00 01 01 FB DLE ETX

Starcom device : i) acknowledges receipt of message
DLE ACK

ii) performs device restart

2) Senstar 100 : sends an XOFF
DLE XOFF

Starcom device : buffers all further messages and do not send to Senstar 100

3) Senstar 100 : sends an XON
DLE XON

Starcom device : resumes sending messages to Senstar 100
DLE ACK

4) Senstar 100 : sends an ACK
DLE ACK

Starcom device : sends next message

5) Senstar 100 : sends a NAK
DLE NAK

Starcom device : resends last message

6) If input points configured for device,
Senstar 100 : sends an ALARM STATUS REQUEST message for input point 1
DLE STX 06 02 02 01 00 03 00 F2 DLE ETX

Starcom device : i) acknowledges receipt of message
DLE ACK

ii) sends ALARM STATUS VALUE message for point 1 (e.g.Detection alarm)
DLE STX 07 02 02 01 00 03 01 01 EF DLE ETX

7) If output points configured for device,
Senstar 100 : sends ALARM STATUS VALUE message to set output point 1 (e.g. close a relay)
DLE STX 07 02 02 01 00 03 01 00 F0 DLE ETX

Starcom device : i) acknowledges receipt of message
DLE ACK

ii) performs processing for closing relay point 1

8) Senstar 100 : sends HARDWARE STATUS REQUEST message
DLE STX 02 04 00 FA DLE ETX

Starcom device : i) acknowledges receipt of message
DLE ACK

ii) sends HARDWARE STATUS VALUE message (e.g. RAM error)
DLE STX 03 04 01 02 F6 DLE ETX

9) Senstar 100 : sends DATE/TIME VALUE message (e.g. 93/04/29 12:30:00)
DLE STX 08 05 06 5D 04 1D 0C 1E 00 45 DLE ETX

Starcom device : i) acknowledges receipt of message
DLE ACK

ii) performs processing for setting date/time

10) If Starcom port configured for Event Logging
Senstar 100: sends DATA LOGGER TEXT message
(e.g. “#### 12:59:29 POWER UP”)
DLE STX 48 06 46 23 23 23 20 31 32 3A 35 39 3A 32 39 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 20 50 4F 57 45 52 20 55 50 9E DLE ETX

Starcom device: i) acknowledges receipt of message
DLE ACK
ii) performs processing of DATA LOGGER TEXT message

A3.2 Starcom Device Initiated Messages

1) Starcom Device : input buffer nears full capacity, sends an XOFF
   DLE XOFF

   Senstar 100 : buffers all further messages and do not send to Starcom device

   Starcom Device : must send XON within the timout period in order to prevent communication failure declaration by Senstar 100

2) Starcom device : sends an XON
   DLE XON

   Senstar 100 : resumes sending messages to Starcom device

3) Starcom device : sends an ACK
   DLE ACK

   Senstar 100 : sends next message

4) Starcom device : sends a NAK
   DLE NAK

   Senstar 100 : i) resends last message

   ii) after 5 retrys, Senstar 100 will discard current message and proceed to send next message

5) Starcom device : i) detects a change in alarm state for one of its points (e.g. point 1 goes into detection alarm state)

   ii) sends a ALARM STATUS VALUE message for point 1
   DLE STX 07 02 02 01 00 03 01 01 EF DLE ETX

   Senstar 100 : acknowledges receipt of message
   DLE ACK

6) Starcom device : i) detects a change in hardware status (e.g. RAM error)

ii) sends a HARDWARE STATUS VALUE message
DLE STX 03 04 01 02 F6 DLE ETX

Senstar 100 : acknowledges receipt of message
DLE ACK

7) Starcom device : sends a DATE/TIME REQUEST message
DLE STX 02 05 00 F9 DLE ETX

Senstar 100 : i) acknowledges receipt of message
DLE ACK

ii) sends DATE/TIME VALUE message

8) Starcom device : sends a DATA LOGGER TEXT message (e.g. "POWER UP")
DLE STX 0B 06 09 50 4F 57 45 52 20 55 50 0D 87 DLE ETX

Senstar 100 : i) acknowledges receipt of message
DLE ACK

ii) prints "POWER UP" on printer

Appendix B
PIU FAAS Implementation
of
Starcom Protocol V2.0

Appendix B : PIU FAAS Implementation of Starcom Protocol V2.0

B1.0 Introduction

To be completed