SageGlass® Controls

Communications Specifications

Version 0 | February, 2017

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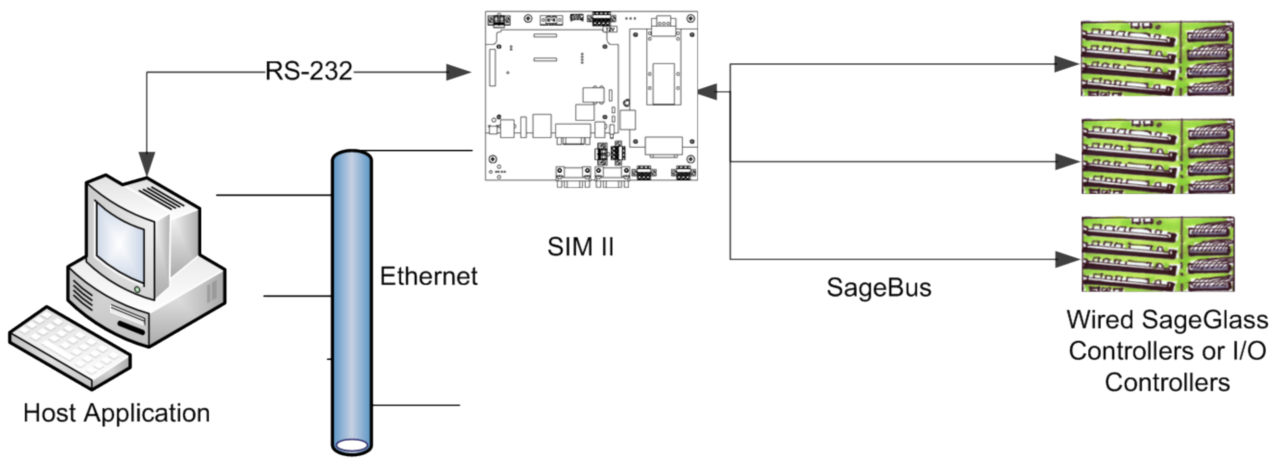
Revision History

Date	Reason For Changes	Version
February, 2017	Original Version. Formerly CON-055	0

1. Introduction

1.1 Purpose

This document describes the protocols used to communicate between the various components of a SageGlass control system. The following high level diagram shows these interfaces.



1.2 Document Scope

This document covers the following:

- Interface between a SIM II and SageGlass Controller
- Interface between a SIM II and an I/O Controller

1.3 Definitions, Acronyms and Abbreviations

SageBus	The name of the Sage proprietary Controller Area Network (CAN) bus.
Automode	The mode of operation within the controller where the controller automatically controls the tint level of a zone based on sensor values and a target lux light level.
POST	Power On Self-Test. A test performed any time a system reset occurs
IGU	Insulating Glass Unit
BMS	Building Management System
Sub-pane	A single switchable area within an IGU. For a 2 bus bar device, the term IGU and sub-panes are synonymous. A 3 bus bar device has 2 separate sub-panes; a 4 bus bar device has 3 separate sub-panes.
Broadcast Zone	Indicates zone 0. When a command with zone 0 is received, all controllers execute the command with all their IGUs
SageGlass Controller	A device that directly controls tint level of the IGU
I/O Controller	A device that provides generic input and output control to external peripherals
SIM II	System Integration Module II. A single board computer running Linux that provides an interface from a host device to the SageGlass Controllers.
Controller ID	The unique serial number of a SageGlass Controller or I/O Controller.
Zone	Groups of sub-panes that are operated together.

2. Byte and Bit Ordering

The data bytes are numbered by the order in which they are sent out or received – starting at number 0, as follows:

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7

The bits within the bytes are numbered with the least significant bit being bit 0. For a byte this is as follows:

Byte X							
Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0

For a 16 bit word, ordering would be as follows:

Byte X								Byte X + 1							
Bit 15	Bit 14	Bit 13	Bit 12	Bit 11	Bit 10	Bit 9	Bit 8	Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0

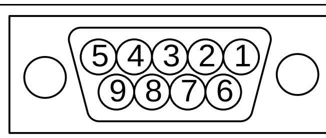
3. RS-232 Interface

3.1 Overview

The RS-232 configuration is 8 data bits, no parity, and 1 stop bit. The baud rates supported are 38.4Kb, 57.6Kb, and 115.2Kb.

The default baud rate of the SIM II is 115.2Kb.

3.2 Pin Location and Definition



Front Facing Pin Location – J2

Pin Number	Pin Description
2	Transmit
3	Receive
5	Ground

3.3 RS-232 Packet Definition

The RS-232 interface allows messages to be sent and received to the SageGlass Controller. Note that SIM II specific commands, such as those identified in section 4 are not supported using RS-232.

This section defines the high level format of the data when using an RS-232 interface. Section 5 defines the detailed byte and bit definitions for the Message Identifier and the Data Bytes. When using RS-232, section 4 can be skipped.

The RS-232 communication interface is comprised of ASCII characters in the following format:

Character 0 - 1	**Characters 2 - 9**	**Character 10**	**Characters 11 - 26**	**Character 27**
:X	Message Identifier	N or R	Data Bytes	;

Where,

:X	Start Character
Message Identifier	Message Identifier in hexadecimal ASCII format. The bit definitions are defined section 5.2. Note that the most significant 3 bits are unused.
N or R	Message Type. An R indicates an RTR message. An N indicates a non-RTR message.
Data Bytes	Data bytes in hexadecimal ASCII format. See the specific commands in section 4.3.7 for detailed definitions of the data bytes.
;	Stop Character

4. TCP Interface

4.1 Overview

The SIM II to host configuration is setup as a client/server, with the SIM II being the server, utilizing TCP sockets, and using port 8080.

Multiple hosts (clients) can connect to one SIM II at the same time.

4.2 TCP Packet Definition

As stated in the overview, the communication between a host and the SIM II is performed using TCP packets. The size of these packets is dynamic, and is determined by the packet type. The following defines the format of the TCP data packets:

Packet Identifier 1 bytes	Reserved 3 bytes	Payload Length 1 byte	Payload Variable number of bytes

The byte count and the definition of the payload are dependent on the type of packets that are being sent. The Packet Identifier defines packet type.

A client request and server response will contain the same first 4 bytes. Some requests will require multiple responses from the server. In these cases, the payload will contain identifiers to differentiate the responses.

4.3 Packet Identifiers

4.3.1 Overview

An overview of all Packet Identifiers is as follows:

Packet Identifier	Description
0x20	SageGlass Controller Interface
0x25	Get Time
0x80	Reboot SIM II

4.3.2 0x20 - SageGlass Controller Interface

This command is a pass-thru command that allows SageBus commands to be sent to the SageGlass Controllers. All of the SageGlass Controller commands that are defined in section 5 can be utilized using this TCP packet command.

The format for this command is as follows:

Byte 0	Bytes 1 - 3	Byte 4	Byte 5	Bytes 6 - 9	Byte 10	Bytes 11 - 18
Packet Identifier, 0x20	Reserved, 0x00	Payload data length – 0x0E	Message Flag	Can Message ID	Data byte length	Data

The SageGlass Controller Interface data is defined in section 5.

More details of the SageGlass Controller Interface data (bytes 5 – 16) are as follows:

Byte 5	Flag – For transmit messages to the SIM II this flag indicates whether the SageBus message is an RTR. A 1 in this field indicates an RTR, else there should be a 0 For received messages from the SIM II, this flag indicates error messages. Bit definitions are as follows: Bit 0 – TBD Bit 1 – TBD Bit 2 – TBD Bit 3 – TBD Bit 4 – TBD Bit 5 – TBD Bit 6 – TBD Bit 7 – TBD
Bytes 6 – 9	Can Message Identifier. See section 5.2. SageGlass Controller Addressing There are three methods of addressing SageGlass Controllers. These three

	methods are zone based, broadcast, and explicit. The addressing method can vary by command. Some commands support all three addressing methods, some only support one. **4.3.3 Zone Based Addressing** For zone based addressing, messages are sent to a specific zone. All matching zones will act on the message. This is the primary method of addressing that is used. **4.3.4 Broadcast Addressing** This method is as subset of the zone based addressing, where the zone is 0. A message with a zone of 0 is acted on by all zones. **4.3.5 Explicit Addressing** Explicit addressing requires that the SageGlass Controller serial number, the specific IGU, and the specific sub-pane be identified. Message Identifier for more details
Byte 10	Number of Can data bytes to send. This byte will always be 8.
Bytes 11 - 18	Data bytes. See section 5.3, Commands for the format of the data bytes.

4.3.6 0x25 – Get Time

This command gets the current date and time being tracked on the SIM II. The SIM II tracks time per UTC. The request is made to the SIM II, and the current date and time is returned from the SIM II

The format for the request to the SIM II is as follows:

Byte 0	Bytes 1 - 3	Byte 4	Byte 5
Packet Identifier, 0x25	Reserved, 0x00	Payload data length – 0x01	Reserved (0x00)

Where,

Byte 5	Reserved (0x00)

The format for the return data from the SIM II is as follows:

Byte 0	Bytes 1 - 3	Byte 4	Bytes 5 - 11
Packet Identifier, 0x25	Reserved, 0x00	Payload data length – 0x07	Current Date/Time (UTC)

Where,

Byte 5	Month, where 1 is January and 12 is December

Byte 6	Day (1-31)
Byte 7	Year MSB
Byte 8	Year LSB
Byte 9	Hour (0-23)
Byte 10	Minute (0-59)
Byte 11	Second (0-59)

4.3.7 0x80 – Reboot SIM II

This command will initiate reboot of the SIM II as soon as it is received.

The format for this command is as follows:

Byte 0	Bytes 1 - 3	Byte 4	Byte 5
Packet Identifier, 0x80	Reserved, 0x00	Payload data length – 0x01	Always 0x01

Where,

Byte 5	Is always set to 0x01

5. SageGlass Controller Interface

5.1 SageGlass Controller Addressing

There are three methods of addressing SageGlass Controllers. These three methods are zone based, broadcast, and explicit. The addressing method can vary by command. Some commands support all three addressing methods, some only support one.

5.1.1 Zone Based Addressing

For zone based addressing, messages are sent to a specific zone. All matching zones will act on the message. This is the primary method of addressing that is used.

5.1.2 Broadcast Addressing

This method is as subset of the zone based addressing, where the zone is 0. A message with a zone of 0 is acted on by all zones.

5.1.3 Explicit Addressing

Explicit addressing requires that the SageGlass Controller serial number, the specific IGU, and the specific sub-pane be identified.

5.2 Message Identifier

The implementation shall utilize extended identifiers; thus the message identifier shall be 32-bits. The message ID shall consist of the following:

Not Used 3 bits	Command 6 bits	Reserved 3 bits	Command 2 4 bits	Source ID 16 bits

5.2.1 Example

The following example shows how to decode the message identifier.

The message identifier is made up of 32 bits. The corresponding RS-232 and TCP data is highlighted below in red.

Using the example from section

RS-232:
TX: ":X1D801234N00013103010601F4;"

TCP:
RX: Header: 20 00 00 00 0E   Payload: 00 1D 80 12 34 08 00 01 31 03 01 06 01 F4

Converting the hexadecimal data to binary data we get the following:

0001 1101 1000 0000 0001 0010 0011 0100

11 1011

Source ID = 0x1234
Command 2 = 0x0
Reserved = 0x0
Command = 0x3B
Not Used = 0x0

5.2.2 Command

Six bits in the field provide for a total of 64 commands. See section 5.3 for a list of the commands and their format.

Note that all data sent in packets is little-endian (i.e. the lowest order byte is located in the lower address location). Multiple byte non-data items (e.g. the controller serial number) are sent in big-endian (i.e. the highest order byte is located in the lower address location).

5.2.3 Reserved

Three bits are reserved for future use.

5.2.4 Command 2

This field is used to augment commands in which additional command data is required. This field is command specific, and is defined in the command definition section.

5.2.5 Source Identifier

A unique 16-bit controller identifier number is assigned to each device during project commissioning. This identifier is unique to an installation only. The 16-bit field provides 65535 identifiers per installation, and is reported in hex format (i.e. not decimal or BCD).

For RTR packets, this field is the serial number of the destination. For non-RTR packets, this field contains the serial number of the source – i.e. the device sending the packet.

Controllers responding to an RTR request will populate the source identifier with their own serial number.

5.3 Commands

5.3.1 Format Overview

Each SageBus message will contain exactly eight data bytes, regardless of the number of usable data bytes. Non-used data bytes are padded with zeros.

An overview of all commands is as follows:

Command Number	Command Name	SageGlass Controller Support	I/O Support
0x02	Reset	√	√
0x05	Set Sub-pane State	√	
0x06	Set Control Parameter	√	
0x0F	Set Discrete Output		√
0x1E	Get I/O Data		√
0x3A	Automatic Data Packets	√	√
0x3B	Broadcast Zone Data	√	

5.3.2 0x02 – Reset

This command packet instructs the specified Controller ID to perform a restart.

Command 2 field is not used.

Data byte format is as follows:

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
ID MSB	ID LSB	0x00	0x00	0x00	0x00	0x00	0x00

Where,

Bytes 0 – 1	Controller ID. An ID of 0x0000 indicates all controllers.
Byte 2	Reserved, always 0x00
Byte 3	Reserved, always 0x00

Byte 4	Reserved, always 0x00
Byte 5	Reserved, always 0x00
Byte 6	Reserved, always 0x00
Byte 7	Reserved, always 0x00

5.3.2.1 Example

The following are examples of sending a reset command from host serial number 0x1234, to a controller with serial number 0x0409

RS-232:
TX: ":X01001234N0409000000000000;"

TCP:
TX: Header: 20 00 00 00 0E   Payload: 00 01 00 12 34 08 04 09 00 00 00 00 00 00

5.3.3 0x05 – Set Sub-pane State

This command packet sets the tint level of the pane. The controller is addressed either by controller ID or by zone number.

The Command 2 field is used to specify a priority and whether or not the controller should place a timeout on the priority. This request will only be acted on if its priority is greater than or equal to that of the priority of current Sub-pane State. If no timeout is placed on the priority, then the current priority will be set to 0 immediately after completion of the command.

Command 2 format is as follows:

Command 2	Description
Bits 0-1	Priority: 0 – No Priority 1 – Low Priority 2 – Medium Priority 3 – High Priority
Bit 2	Unused
Bit 3	Timeout Usage 0 – Priority expires after timeout 1 – Priority expires immediately

Data byte format is as follows:

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
ID MSB	ID LSB	Zone MSB	Zone LSB	IGU Number	Sub Pane Number	Type	Level

Where,

Bytes 0 – 1	Controller ID. An ID of 0x0000 indicates all controllers. A non-zero zone number will filter out sub-panes that are not within the specified zone. A non-zero Controller ID will trump the zone number, making the zone number field not applicable.
Bytes 2 – 3	A zone of 0x000 indicates all zones. This field is not used if the Controller ID is a non-zero number.
Byte 4	IGU number. This field is not used if the Controller ID is 0x0000 and the zone number is non-zero. In this scenario sub-panes affected are based on the zone number of the sub-pane.
Byte 5	Sub-pane numbers. This field is not used if the ID is 0x0000 and the zone number is non-zero. In this scenario sub-panes affected are based on the zone number of the sub-pane.
Byte 6	Always 0
Byte 7	Level to set sub-panes to. 0, 28, 49, 82, where 0 is Full Clear and 82 is Full Tint. A value of 255 puts the sub-pane into Hi-Z mode.

5.3.3.1 Example

The following are examples of sending variable tint level of 28 to zone 1, from host serial number 0x1234

RS-232:
TX: “:X02801234N000000010000001C;”

TCP:
TX: Header: 20 00 00 00 0E   Payload: 00 02 80 12 34 08 00 00 00 01 00 00 00 1C

5.3.4 0x06 – Set Control Parameter

This command packet sets the identified parameter to a new value. The controller is addressed either by controller ID or by zone number.

The Command 2 field is used to specify a priority and whether or not the controller should place a timeout on the priority. This request will only be acted on if its priority is greater than or equal to that of the priority of current Sub-pane State. If no timeout is placed on the priority, then the current priority will be set to 0 immediately after completion of the command.

Command 2 format is as follows:

Command 2	Description
Bits 0-1	Priority: 0 – No Priority 1 – Low Priority 2 – Medium Priority 3 – High Priority

Bit 2	Unused
Bit 3	Timeout Usage 0 – Priority expires after timeout 1 – Priority expires immediately

Data byte format is as follows:

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
ID MSB	ID LSB	Zone MSB	Zone LSB	IGU/Sub-Pane	Parameter ID	Parameter MSB	Parameter LSB

Where,

Bytes 0 – 1	Controller ID. An ID of 0x0000 indicates all controllers. A non-zero zone number will filter out controllers that are not within the specified zone. A non-zero ID will trump the zone number, making the zone number field not applicable.
Bytes 2 – 3	A zone of 0x000 indicates all zones. This field is not used if the ID is a non-zero number.
Byte 4	Only valid with a non-zero Controller ID. Device is identified by IGU and Sub-pane as follows: Bits 0-1: Sub-Pane ID (Must be specific, 00b is ignored) Bits 2-4: IGU Number (Must be specific, 000b is ignored) Bits 5-7: Not Used
Byte 5	Parameter ID. Identifies the parameter as defined by the list below
Bytes 6 - 7	New value for the identified parameter. If the parameter value is only 1 byte, then Byte 6 will be ignored.

5.3.4.1 Parameter ID Description

Parameter ID (Byte 5)	Description
0x00	Not Used, command ignored
0x01	Lux Level / 2
0x02	Open Loop Control Power-up State*
0x03	Open Loop Control State

*Command 2 is ignored for this Parameter ID

5.3.4.2 Example

The following are examples of setting the Lux Level of zone 1 to 16klx. The host serial number 0x1234

RS-232:

TX: “:X03001234N0000000100010008;”

TCP:
TX: Header: 20 00 00 00 0E Payload: 00 03 00 12 34 08 00 00 00 01 00 01 00 08

5.3.5 0x0F – Set Discrete Output

This command packet sets the level for a discrete output. The output is addressed by controller number and by I/O number (1-12).

The Command 2 field is used to specify a priority and whether or not the controller should place a timeout on the priority. This request will only be acted on if its priority is greater than or equal to that of the priority of current Discrete Output State. If no timeout is placed on the priority, then the current priority will be set to 0 immediately after completion of the command.

Command 2 format is as follows:

Command 2	Description
Bits 0-1	Priority: 0 – No Priority 1 – Low Priority 2 – Medium Priority 3 – High Priority
Bit 2	Unused
Bit 3	Timeout Usage 0 – Priority expires after timeout 1 – Priority expires immediately

Data byte format is as follows:

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
ID MSB	ID LSB	I/O Number	New Output Level	0x00	0x00	0x00	0x00

Where,

Bytes 0 – 1	Controller ID. 0x0000 is not allowed.
Byte 2	I/O number on specified controller (1-12)
Byte 3	New Output level. 1 = High, 0 = Low
Bytes 4 – 7	Not used, set to 0x00

5.3.5.1 Example

The following examples set Output 1 to a High condition, with a priority timeout of 120.

RS-232:
TX: “:X0780BEEFN0843010100000000;”

TCP:
TX: Header: 20 00 00 00 0E   Payload: 00 07 80 BE EF 08 08 43 01 01 00 00 00 00

5.3.6 0x1E – Get I/O Data

These status packets contain I/O data for the specified Controller ID. These packets are sent after receiving an RTR.

Command 2 field contains the number for the I/O whose data is being requested. A zero in this field results in data for all I/O to be returned. Valid numbers are 0 thru 12.

I/O data is sent in multiple packets. Data byte format for all packets is as follows:

5.3.6.1 Packet 1

Byte 0	**Byte 1**	**Byte 2**	**Byte 3**	**Byte 4**	**Byte 5**	**Byte 6**	**Byte 7**
Packet/IO Number	Dir/Format/Level	Upper Bound MSB	Upper Bound LSB	Lower Bound MSB	Lower Bound LSB	Current Value MSB	Current Value LSB

Where,

Byte 0	Bits 0-3 Bits 4-5 Bits 6-7	I/O Number Packet Number - Always 01 Reserved – Always 00
Byte 1	Bits 0-1 Bit 2 Bits 3-4 Bits 5-7	00 – I/O Not Avail 01 – I/O is Disabled 10 – I/O is Input 11 – I/O is Output 0 – I/O is Digital 1 – I/O is Analog 00 – Level is Undefined 01 - Level is Lo 10 – Level is Hi Reserved – always 000
Bytes 2 – 3	Input – High Threshold (mV) Output – Value used for High Setting (mV)	
Bytes 4 – 5	Input – Low Threshold (mV) Output – Value used for Low Setting (mV)	
Bytes 6 – 7	Current Value (mV)	

5.3.6.2 Packet 2

Byte 0	**Byte 1**	**Byte 2**	**Byte 3**	**Byte 4**	**Byte 5**	**Byte 6**	**Byte 7**
Packet/IO Number	Dir/Format/Level	Current Priority	Current Priority Timeout	Standard Priority Timeout	0x00	0x00	0x00

Where,

Byte 0	Bits 0-3	I/O Number
	Bits 4-5	Packet Number - Always 10
	Bits 6-7	Reserved – Always 00
Byte 1	Bits 0-1	00 – I/O Not Avail 01 – I/O is Disabled 10 – I/O is Input 11 – I/O is Output
	Bit 2	0 – I/O is Digital 1 – I/O is Analog
	Bits 3-4	00 – Level is Undefined 01 - Level is Lo 10 – Level is Hi
	Bits 5-7	Reserved – always 000
Byte 2	Current Discrete Output Priority	
Byte 3	Current Discrete Output Priority Timeout	
Byte 4	Standard Discrete Output Priority Timeout	
Bytes 5 – 7	Not Used	

5.3.6.3 Example

The following are examples of a data query for I/O1 from I/O Controller with a serial number of 0x0843. The returned channel data is converted as follows:

- I/O = Output
- I/O Type = Digital
- Level = High
- High Threshold = 6.00
- Low Threshold = 0.00
- Current Value = 6.00
- Priority = 0
- Priority Timeout Time Left = 117
- Priority Time = 120

RS-232:
TX: “:X0F010843R8;”
RX: “:X0F000843N111317700000176B;”
RX: “:X0F000843N2113007678000000;”

TCP:
TX: Header: 20 00 00 00 0E Payload: 00 0F 00 08 43 08 11 13 17 70 00 00 17 6B
RX: Header: 20 00 00 00 0E Payload: 00 0F 00 08 43 08 21 13 00 77 78 00 00 00
RX: Header: 20 00 00 00 0E Payload: 00 0F 00 08 43 08 21 01 00 00 00 00 00 00

5.3.7 0x3A – Automatic Data Packets

This packet is an automatically broadcasted packet that contains information that is potentially used by all controllers. The frequency of the broadcast data is dependent on the data type.

Command 2 field is not used.

5.3.7.1 Sensor Data

Sensor data is broadcast every 10 seconds for each active Sensor ID.

The format of the sensor data is as follows:

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
Data Type	Sensor ID MSB	Sensor ID LSB	Sensor Data MSB	Sensor Data LSB	“Stale” Flag	0x00	0x00

Where,

Byte 0	Defines the type of date that is within this packet. Always 1 for Sensor data.
Bytes 1 – 2	The ID of the sensor broadcasting the data. Valid ID are 1 – 1023
Bytes 3 – 4	The sensor data in 2 lux increments
Byte 5	“Stale” Flag – if 0x00 data is newly computed, if 0x01 data is “stale”
Byte 6	Reserved, always 0x00
Byte 7	Reserved, always 0x00

5.3.7.2 Discrete Input Data

Discrete Input data is broadcast every 12 seconds for each active Discrete Input.

The format of the input discrete data is as follows:

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
Data Type	Controller ID MSB	Controller ID LSB	Input Number	Input Level	Input Voltage MSB	Input Voltage LSB	0x00

Where,

Byte 0	Defines the type of date that is within this packet. Always 2 for Input data.
Bytes 1 – 2	The ID of the controller broadcasting the data.
Byte 3	The input number on the controller (valid numbers are 1-12)
Byte 4	The Input Level (0 is low, 1 is high)
Bytes 5-6	The Input Voltage (in mV)
Byte 7	Reserved, always 0x00

5.3.8 0x3B – Broadcast Zone Data

This status packet contains data related to the current variable tint status of a zone. It is sent every 10 seconds by any controller that is designated as the “zone master” for a zone.

Command 2 field is not used.

Data byte format is as follows:

Byte 0	Byte 1	Byte 2	Byte 3	Byte 4	Byte 5	Byte 6	Byte 7
Zone MSB	Zone LSB	VT Level	VT State	Open Loop	%T	Lux Set Point MSB	Lux Set Point LSB

				Status			

Where,

Bytes 0-1	Zone Number (1-1023)
Byte 2	Target VT Level for this zone (0-100)
Byte 3	VT State (See table below)
Byte 4	Auto Mode Status (See table below)
Byte 5	Current %T (2-63)
Bytes 6-7	Lux Set Point / 2 (value of 1000 translates to a Lux Set Point of 2000)

5.3.8.1 VT State Descriptions

VT State (Byte 3)	Description
0x00	Reset
0x01	Transition Control Step 1
0x02	Charge Integration and Test
0x03	Voltage Hold
0x04	Overshoot
0x05	Overshoot With Charge Test
0x06	Reverse Polarity
0x07	Power Up Apply 0 Volts
0x08	Power Up Check Current
0x09	Power Up Bleach
0x0A	IGU Test

5.3.8.2 Automode Status Descriptions

Auto Mode Status (Byte 4)	Description
0x00	Disabled
0x01	On
0x02	Off
0x03	Override

5.3.8.3 Example

The following are examples of a broadcast message initiating from a controller with a serial number of 0x1234. The returned broadcast data is converted as follows:

- Zone = 1
- %T = 6
- VT Level = 49
- VT State = 3
- Automode State = On
- Lux Set point = 1000

RS-232:
TX: ":X1D801234N00013103010601F4;"

TCP:
RX: Header: 20 00 00 00 0E   Payload: 00 1D 80 12 34 08 00 01 31 03 01 06 01 F4