SAM, Remote Access Module

Application Specification ASCII Protocol Information

NOTE: Read the entire instruction manual before starting the installation.

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Safety Considerations

Improper installation, adjustment, alteration, service, maintenance, or use can cause explosion, fire, electrical shock, or other conditions which may cause death, personal injury or property damage. Consult a qualified installer, service agency or your distributor or branch for information or assistance. The qualified installer or agency must use factory-authorized kits or accessories when modifying this product. Refer to the individual instructions packaged with the kits or accessories when installing.

Follow all safety codes. Wear safety glasses, protective clothing, and work gloves. Have a fire extinguisher available. Read these instructions thoroughly and follow all warnings and cautions included in literature and attached to the unit. Consult local building codes and the current edition of the National Electrical Code (NEC) NFPA 70.

In Canada, refer to the current editions of the Canadian Electrical Code CSA C22.1.

Recognize safety information. When you see this symbol ⚠ on the unit and in instructions or manuals, be alert to the potential for personal injury.

Understand the signal words **DANGER**, **WARNING**, and **CAUTION**. These words are used with the safety-alert symbol. **DANGER** identifies the most serious hazards, which **will** result in severe personal injury or death. **WARNING** signifies hazards, which **could** result in personal injury or death. **CAUTION** is used to identify unsafe practices, which **may** result in minor personal injury or product and property damage. **NOTE** is used to highlight suggestions which **will** result in enhanced installation, reliability, or operation.

YOU WILL MEET YOUR EXPECTATIONS; AND (iii) ANY

Introduction

This specification outlines the ASCII character interface requirements and protocol for an independent home automation system to connect with the System Access Module (SAM) or Remote Access Module for a Bryant® Evolution® Communicating HVAC system. The term “ASCII” is an acronym for American Standard Code for Information Interchange, and generally refers to characters—letters, numbers, and control flags—expressed in digital form.

Refer to the latest version of the appropriate System Access Module (SAM) Installation Instructions for information on compatible systems with individual SAM devices, as well as installation requirements and practices.

Note that the SAM is used differently for previous generation Evolution systems using the UID/UIZ wall controls, versus the newer Evolution® Connex™ systems.

For previous generation Evolution systems using the UID/UIZ wall controls, the SAM provides remote access between an Evolution system and a Bryant server via the SkyTel wireless network, or home wired or wireless Local Area Network (LAN) connected to the Internet, depending on the SAM version. The SAM also allows access between a home automation system and the Evolution HVAC system via an ASCII-character-based, RS-232 communication port that is described in this document.

YOUR USE OF THE ASCII/RS-232 COMMUNICATION PORT (“ASCII PORT”) IS AT YOUR SOLE RISK. ANY DATA OR INFORMATION DOWNLOADED OR OTHERWISE OBTAINED THROUGH THE USE OF THE ASCII PORT IS ACCESSED AT YOUR OWN DISCRETION AND RISK. YOU WILL BE SOLELY RESPONSIBLE FOR ANY MALFUNCTION OF, DAMAGE TO, OR INCOMPATIBILITY WITH YOUR COMPUTER SYSTEM, THE EVOLUTION SYSTEM, ANY THIRD PARTY DEVICE, OR OTHER HARDWARE, FIRMWARE OR SOFTWARE THAT RESULTS FROM YOUR USE OF THE ASCII PORT AND THIS SPECIFICATION.

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Compatible Devices

For SYSTXBBSAM01: previous generation UID/UIZ controls with software Version 12 or earlier, ONLY.

For SYSTXBBRCT01, SYSTXNNRCT01 and SYSTXBBRWF01: previous generation UID/UIZ controls with software Version 14 or later; and newer generation Evolution controls with software Version 08 or later.

Evolution® Remote Access and Home Automation Interface

For previous generation Evolution systems using the UID/UIZ wall controls, the System Access Module allows homeowners to monitor and change their comfort settings from anywhere in the world via the Internet. For both the previous generation systems, and the newer generation Evolution Connex systems, the SAM provides an interface to home automation systems via its RS-232 communication port.

For previous generation Evolution systems utilizing UID/UIZ wall controls, only, see the SAM Installation Instructions for details on use of the SAM (Part Numbers: SYSTXBBSAM01, SYSTXBBRCT01, SYSTXNNRCT01 or SYSTXBBRWF01) for remote access of the Evolution system via the Internet. Remote monitoring via the Internet, along with maintenance and system fault notifications by email may require a subscription fee to Bryant for access. Refer to the system website at www.MyEvolution.Bryant.com for more information.

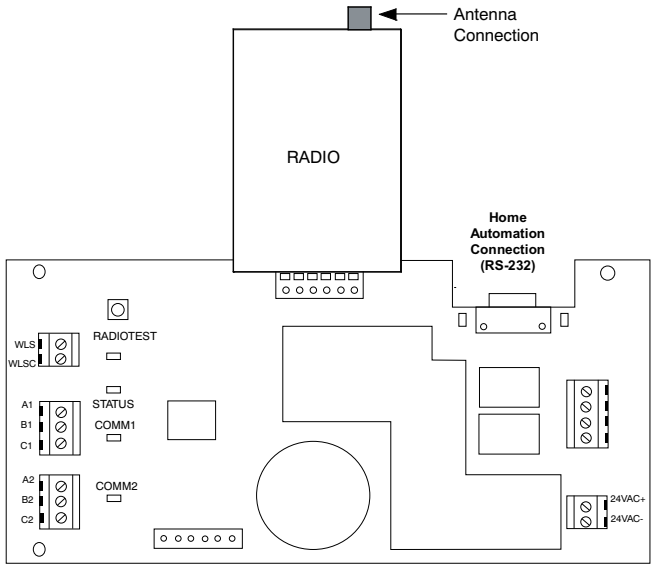
The System Access Module may be used for home automation access, only, if desired. Any applicable fee for remote access via the Internet is not required if only home automation connection via the SAM is desired.

Remote access via the Internet for newer generation Evolution Connex systems is accomplished with the Wi-Fi-enabled models of those products. Contact your Bryant dealer for more information, or visit www.MyEvolution.Bryant.com.

Interface between the Evolution system and a home automation system is provided by the System Access Module (Part Numbers: SYSTXBBSAM01, SYSTXNNRCT01, SYSTXBBRCT01 or SYSTXCBBWF01) in conjunction with third-party software/hardware.

Third parties currently offering automation solutions for the Evolution system include, but are not limited to:

Crestron (www.crestron.com),
Home Logic (www.homelogic.com), and
AMX (www.AMX.com),
...among others.



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Evolution® System Access Module

(Appearance may vary with different versions of SAM)

The System Access Module provides a connection to a home automation system through an RS-232 (DB9) serial communication port supplied with the SAM. The home automation system supplier is responsible for developing any hardware or software to connect the Evolution system to their equipment. This specification may be provided to home automation companies to perform this work. The proper operation of the interface is the responsibility of the home automation supplier.

Each System Access Module supports connection of up to two Evolution systems to a home automation system.

NOTE: The SAM is designed for operation with the previous generation UID/UIZ wall control systems. As such, it will operate “as-is” with the newer generation Evolution Connex systems, and may display status codes that are unique to the previous generation UID/UIZ systems, but are irrelevant when the SAM is used with the newer Evolution Connex systems. In addition, some features of the ASCII/RS-232 home automation interface will NOT be available with the newer Evolution Connex systems. The differences between the applications are detailed in the Tables, below. The features that are shaded in the Tables are NOT supported by newer generation Evolution Connex systems.

Through the RS-232 home automation connection port, the user can perform and view many of the functions available on the Evolution user interface, if implemented by the home automation system. Note that not all of the features listed below are available with the newer generation Evolution Connex systems through the SAM:

- Temperature set points
- Humidity set points
- Operating mode
- Fan settings
- Comfort program schedule
- Vacation schedule
- Current room temperature
- Current humidity level
- Outdoor temperature
- Accessory life remaining
- Dealer name/phone number

A sample Crestron home automation system screen for the HVAC system is shown, below:

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Notification of system malfunctions, routine maintenance reminders, and equipment diagnostics are not available over the ASCII/RS-232 home automation port. This requires remote monitoring via the Internet and may require a fee as described earlier.

Home Automation ASCII Port (RS232)

Overview

This section defines the requirements for connecting the SAM to non-Evolution home automation equipment via the ASCII port.

Input

RS232 ASCII Messages from non-Evolution equipment.

Output

RS232 ASCII Messages to non-Evolution equipment.

RS-232 Connector Hardware Configuration

The SAM has a female, DB-9 connector that contains standard +/-9V RS232 RxD, TxD, and GND connections. The SAM is configured as a subset DCE (Data Circuit-terminating Equipment) device, as follows:

Pin 1 – Not Connected (DCD)
Pin 2 – RxD (Data received at DTE/PC)
Pin 3 – TxD (Data transmitted from DTE/PC)
Pin 4 – Not Connected (DTR)
Pin 5 – GND (Signal Ground)
Pin 6 – Not Connected (DSR)
Pin 7 – Not Connected (RTS)
Pin 8 – Not Connected (CTS)
Pin 9 – Not Connected (RI)

A standard DB-9 extension cable can be used to connect the SAM (DCE configuration) to a PC (Data Terminal Equipment—DTE—configuration), or other RS232 devices.

Process (Algorithm)

The intent of the SAM ASCII interface is to provide easy home automation system access into select portions of the Evolution system. The SAM ASCII interface will respond to the messages in the Tables, below, as long as they are formatted as follows:

Data Rate: . . . . . 9600 bits per second, half-duplex

Data Bits: 8

Parity: . . . . . None

Stop Bits:. 1

Command Terminator: . . . . . CR/LF

- All ASCII characters will be converted, and parsed as uppercase by the SAM. The host may send ASCII characters as either upper or lower case.
- All commands will be terminated by a carriage return and line feed (CR/LF).
- Upon receipt of the CR/LF, the SAM will process any characters in the incoming command buffer and respond as necessary.
- The maximum message length is 64 characters, including the CR/LF.
- A message timeout will be invoked and the receive buffer reset if a five-second delay occurs between received characters.
- A NAK reply will be sent if it takes the SAM more than five seconds to build a response message from the received data.

General Message Formatting

- All messages are formatted using a “drill down” system hierarchy where the system number is requested first.
- Hierarchy is as follows:
  Level 1:
  System (S1 or S2 - up to 2 systems supported)
  Level 2:
  Zone (Z1 thru Z8 - up to 8 zones supported)
  Level 3:
  User settings (accessible from the normal screens)
  Service settings
- Two systems are supported by each SAM. Additional systems will be addressed as System 1 or 2 to a separate PIN number.
- Table 2 and Table 3 describe each command and the expected response

Abnormal Conditions and Responses

⚠ CAUTION

EQUIPMENT DAMAGE HAZARD

Failure to follow this caution may result in equipment damage or improper operation.

Improper wiring will cause the system to operate improperly. Check to make sure all wiring is correct before proceeding with installation or turning on of power.

- Mis-wired Rx and Tx connections to the RS232 port must not cause electrical damage, loss of CCN communications, or loss of wireless communications to the SAM module.
- It is the responsibility of the home automation provider or designated representative to ensure proper wiring.
- Communication errors will be reported as follows:
  Invalid command: Echo command with :NAK CMD
  Invalid parameter: Echo command with :NAK VAL
  CCN Error: Echo command with :NAK
  Response Timeout: Echo command with :NAK

Response Timeout

The SAM module shall send a response within five seconds of receiving an ASCII command. If the SAM is unable to send a response within five seconds, it will ignore the command, return a NAK, and wait for the external device to resend the command.

SAM ASCII Protocol Definition

Message Definitions

- The notation SnZn is used to indicate a specific System and Zone. Where the notation S1 or Z1 appears in the messages, below, replace “1” with the appropriate System or Zone number to be addressed.
- If the specified System or Zones do not exist, a NAK will be returned from the SAM.
- Messages that are shaded in the Tables are those that are NOT supported by the newer generation Evolution Connex systems. A NAK will be returned by the SAM if these messages are attempted when using newer generation Evolution Connex systems.

- Note that some message definitions change when used between the previous generation Evolution systems utilizing the UID/UIZ wall controls, and the newer generation Evolution Connex systems. The responsibility for interpreting these messages correctly is the responsibility of the home automation system provider.

ACSII Message Examples

As stated earlier, the SAM is designed for operation with the previous generation UID/UIZ wall control systems. As such, it will operate “as-is” with the newer generation Evolution Connex systems, and may have different responses to commands than the previous generation UID/UIZ controls when the SAM is used with the newer Evolution Connex systems. In addition, some features of the ASCII/RS-232 home automation interface will NOT be available with the newer Evolution Connex systems. The differences between the applications are detailed in the Tables, below. The features that are shaded in the Tables are NOT supported by newer generation Evolution Connex systems.

The examples shown immediately below in Table 1 assume use with the previous generation Evolution systems utilizing the UID/UIZ wall controls. The newer generation Evolution Connex systems will respond in a similar fashion, per the detailed message definitions in Table 2 and Table 3.

Table 1 – Example Commands and Responses

#	Command	Response	Description
1.	S1MODE?	S1MODE:COOL2	The current mode for System 1 is Cool. A demand currently exists for cooling, and number of cool stages is 2.
2.	S2MODE!AUTO	S2MODE: ACK	Set mode for System 2 to Auto.
3.	S1Z2HOLD?	S1Z2HOLD:OFF	Program hold is inactive for System 1, Zone 2.
4.	S1Z2HOLD!ON	S1Z2HOLD: ACK	Sets hold to active for System 1, Zone 2.
5.	S1DAY?	S1DAY: TUESDAY	Current day of the week for System 1 is Tuesday.
6.	S1DAY!0	S1DAY: ACK	Sets current day for System 1 for Sunday.
7.	S2TIME?	S2TIME:01:59 P	Current time of day for System 2 is 1:59 PM.
8.	S2TIME!08:10A	S2TIME: ACK	Sets current time for System 2 to 8:10 AM.
9.	S2TIME! 8:10A	S2TIME: NAK VAL	Invalid value; the 8 must be preceded by a leading 0.
10.	S1Z5HTSP?	S1Z5HTSP:60°F	Heat setpoint for System 1, Zone 5 is 60°F.
11.	S1Z5HTSP!68, 01:30	S1Z5HTSP: ACK	Sets heat setpoint for System 1, Zone 5 to 68 at current system units. An override timer is initiated at 1 hour 30 minutes.
12.	S1CFGEM?	S1CFGEM: C	Current thermostat units is metric.
13.	S1CFGEM!M	S1CFGEM: ACK	Sets the units of thermostat to metric.
14.	S1Z1PGMMONWAKE?	S1Z1PGMMONWAKE:06:00 A, 68°F, 76°F, AUTO	Time for System 1, Zone 1, Monday Wake Period is 6:00 AM. Heat setpoint is 68°F, cool setpoint is 76°F and fan is set to auto.
15.	S1Z1PGMMON-WAKE!06:30 A, 70, 72, AUTO	S1Z1PGMMONWAKE:ACK	Sets time for the Monday Wake Period to 6:30 AM. Heat setpoint is set to 70 and cool setpoint to 72, at current system units. Fan is set to Auto.
16.	S1Z5RT?	S1Z5RT:NAK CMD	Zone 5 is not present.
17.	S1Z5RT!	S1Z1RT:NAK CMD	Set command not supported.
18.	S1Z1MODE?	S1Z1MODE:NAK CMD	Command does not include the zone parameter.
19.	S1MODE!AUTO	S1MODE!NAK VAL	System is a heat only configuration, AUTO is invalid for the system.
20.	S2MODE?	S2MODE:NAK CMD	System 2 not present.
21.	S1MODE:HEAT	S1MODE:HEAT:NAK CMD	Invalid command, missing '!'
22.	S1DAY!9	S1DAY:NAK VAL	Invalid parameter, valid values are 0 to 6.

ASCII Status Commands

Table 2 details the messages/commands which are used by the home automation system to retrieve data and information from Evolution systems. These commands do not change the information in the wall control. The features that are shaded are NOT supported by newer generation Evolution Connex systems.

NOTE: The responses of the SAM and/or wall controls may change when the newer generation Evolution Connex controls are used with the SAM, versus the previous generation UID/UIZ controls. See the Table below for details.

Table 2 – Status Commands (?)

Evolution® System Access Module (SAM) Data Requests Status Commands (?) - Requests for information sent from Home Automation System to Wall Control via SAM RS-232 port				
Description	Command	Response	When using legacy UID/UIZ wall controls	When using Connex wall controls
Retrieve displayed room temperature.	S1Z1RT?	S1Z1RT: xxxºF/C	Returns room temperature as displayed for the specified zone.	Returns room temperature as displayed for the specified zone.
Retrieve displayed humidity.	S1Z1RH?	S1Z1RH: xx%	Returns room humidity as displayed. There is currently only one humidity sensor in the Evolution system. The zone designation will remain for future expansion. The maximum value that can be returned is 99%, anything larger will be returned as 99%.	Returns room humidity as displayed. There is currently only one humidity sensor in the Evolution system. The zone designation will remain for future expansion. The maximum value that can be returned is 99%, anything larger will be returned as 99%.
Retrieve outdoor temperature.	S1OAT?	S1OAT: xxxºF/C	Returns the outdoor temperature as displayed for the specified system.	Returns the outdoor temperature as displayed for the specified system.
Retrieve fan setting.	S1Z1FAN?	S1Z1FAN: (AUTO, LOW, MED, HIGH)	Returns the fan setting for the specified zone.	Returns the fan setting for the specified zone. AUTO indicates that continuous fan is OFF.
Retrieve Mode.	S1MODE?	S1MODE: (HEAT, COOL, AUTO, OFF) #	Returns the current mode setting for the specified system. A numeric value after the mode will indicate that there is a demand for that mode - the value will indicate the number of heat or cool stages. The zone parameter is omitted for this command.	Returns the current mode setting for the specified system. A numeric value after the mode will indicate that there is a demand for that mode - the value will indicate the number of heat or cool stages. The zone parameter is omitted for this command.
Retrieve Hold Status.	S1Z1HOLD?	S1Z1HOLD: ON/OFF	Returns the hold permanent status for the specified zone. ON indicates that program hold is active (the thermostat is not following the program settings and is held at the current temperature settings). OFF indicates that program HOLD is inactive (the thermostat is following the programmed temperature settings).	Returns the ”hold permanent” status for the specified zone. ON indicates that program hold is active (the thermostat is not following the program schedule and is held at the current temperature settings). OFF indicates that a ”hold permanent” is not active for the specified zone.
Retrieve Unoccupied Status.	S1Z1UNOCC?	S1Z1UNOCC: ON/OFF	Returns the unoccupied status of the specified zone. ON indicates that the zone is configured as an unoccupied space and is using the unoccupied temperature settings. OFF indicates that the zone is set to occupied (the thermostat is following the programmed temperature settings if hold is OFF).	Returns the unoccupied (AWAY, ”hold permanent”) status of the specified zone. ON indicates that the zone is configured as an unoccupied space and is using the AWAY temperature settings in a ”hold permanent” state. OFF indicates that the zone is set to occupied (the thermostat is following the programmed temperature settings).
Retrieve the current heat setpoint.	S1Z1HTSP?	S1Z1HTSP: xxxºF/C	Returns the active heating setpoint for the specified zone.	Returns the active heating setpoint for the specified zone.
Retrieve the current cool setpoint.	S1Z1CLSP?	S1Z1CLSP: xxxºF/C	Returns the active cooling setpoint for the specified zone.	Returns the active cooling setpoint for the specified zone.
Retrieve the current humidification target.	S1Z1RHTG?	S1Z1RHTG: xx%	Returns the humidification target for the specified zone. Currently the system supports a single humidification setpoint. The zone number is intended for future expansion.	Returns the humidification target for the specified zone. Currently the system supports a single humidification setpoint. The zone number is intended for future expansion. The maximum value that can be returned is 99%, anything larger will be returned as 99%.
Retrieve the current humidifier state.	S1HUMID?	S1HUMID: ON/OFF	Returns the state of the humidifier output for the specified system.	Returns the state of the humidifier output for the specified system.
Retrieve the current day.	S1DAY?	S1DAY: (MONDAY, TUESDAY, etc.)	Returns the day of the week for the specified system.	Returns the day of the week for the specified system.
Retrieve the current time.	S1TIME?	S1TIME: HH:MM A/P	Returns displayed time in 12-hour format for the specified system.	Returns displayed time in 12-hour format for the specified system.
Retrieve the override state.	S1Z1OVR?	S1Z1OVR: ON/OFF	Returns the state of the ”hold until” override timer for the specified zone. A value of ON indicates that the ”hold until” override timer is active.	Returns the state of the ”hold until” override timer for the specified zone. A value of ON indicates that the ”hold until” override timer is active.
Retrieve the override timer.	S1Z1OTMR?	S1Z1OTMR: HH:MM	Returns the value of the override timer (remaining time) in HH (Hours) MM (Minutes) format. The command will return a value of 00:00 if the override timer is not active.	Returns the value of the ”hold until” override timer (remaining time) in HH (Hours) MM (Minutes) format. The command will return a value of 00:00 if the override timer is not active.

Table 2 – Status Commands (?) (Continued)

Evolution® System Access Module (SAM) Data Requests Status Commands (?) - Requests for information sent from Home Automation System to Wall Control via SAM RS-232 port				
Description	Command	Response	When using legacy UID/UIZ wall controls	When using Connex wall controls
Retrieve the current zone number.	S1ZONE?	S1ZONE: 1-8	Returns the zone number of the zone currently displayed on the thermostat (a value of 1-8) for the specified system. In an unzoned system this command will always return 1.	Returns the zone number of the zone currently displayed on the thermostat (a value of 1-8) for the specified system. In an unzoned system this command will always return 1.
Retrieve the zone name for zone #.	S1Z1NAME?	S1Z1NAME: (11 characters max)	Returns the ASCII name of the specified zone. Name will be truncated if necessary.	Returns the ASCII name of the specified zone. Name will be truncated if necessary.
Retrieve Filter Life.	S1FILTRLVL?	S1FILTRLVL: xxx%	Returns the filter use percentage of the specified system.	Returns the filter use percentage of the specified system.
Retrieve UV Lamp Life.	S1UVLVL?	S1UVLVL: xxx%	Returns the UV lamp use percentage of the specified system.	Returns the UV lamp use percentage of the specified system.
Retrieve Humidifier Pad Life.	S1HUMLVL?	S1HUMLVL: xxx%	Returns the humidifier lamp use percentage on the specified system.	Returns the humidifier lamp use percentage on the specified system.
Retrieve Filter Reminder Settings.	S1FILTRRMD?	S1FILTRRMD: ON/OFF	Returns the advance setting configuration for filter reminder. ON indicates that the Filter Reminder is active.	Returns the advance setting configuration for filter reminder. ON indicates that the Filter Reminder is active.
Retrieve UV Lamp Reminder Setting.	S1UVRMD?	S1UVRMD: ON/OFF	Returns the advance setting configuration for the UV lamp reminder. ON indicates that the UV lamp reminder is active.	Returns the advance setting configuration for the UV lamp reminder. ON indicates that the UV lamp reminder is active.
Retrieve Humidifier Pad Reminder.	S1HUMRMD?	S1HUMRMD: ON/OFF	Returns the advance setting configuration for the Humidifier Pad reminder. ON indicates that the Humidifier Pad reminder is active.	Returns the advance setting configuration for the Humidifier Pad reminder. ON indicates that the Humidifier Pad reminder is active.
Retrieve the Backlighting Setting.	S1BLIGHT?	S1BLIGHT: ON/OFF	Returns the advance setting configuration for the backlight option for the specified system. ON indicates continuous backlighting is active.	Returns the advance setting configuration for the backlight option for the specified system. ON indicates continuous backlighting is at or above Level 3. OFF indicates continuous backlighting is at or below Level 2.
Retrieve the Vacation State.	S1VACAT?	S1VACAT: ON/OFF	Returns vacation state. ON indicates that the thermostat is operating using vacation settings.	Returns vacation state. ON indicates that the thermostat is operating using vacation settings.
Retrieve the Vacation Days.	S1VACDAYS?	S1VACDAYS: # # #	Returns the number of vacation days remaining.	Returns the number of vacation days remaining.
Retrieve the Vacation Minimum Temperature	S1VACMINT?	S1VACMINT: # # xxxºF/C	Returns the minimum vacation temperature setting for the specified system.	Returns the minimum vacation temperature setting for the specified system.
Retrieve the Vacation Maximum Temperature	S1VACMAXT?	S1VACMAXT: # # xxxºF/C	Returns the maximum vacation temperature setting for the specified system.	Returns the maximum vacation temperature setting for the specified system.
Retrieve the Vacation Minimum Humidity	S1VACMINH?	S1VACMINH: # # xxx%	Returns the minimum vacation humidity setting for the specified system.	Returns the minimum vacation humidity setting for the specified system. 0% indicates NONE.
Retrieve the Vacation Maximum Humidity	S1VACMAXH?	S1VACMAXH: # # xxx%	Returns the maximum vacation humidity setting for the specified system.	Returns the maximum vacation humidity setting for the specified system. 100% indicates NONE.
Retrieve the Vacation Fan Setting	S1VACFAN?	S1VACFAN: (AUTO, LOW, MED, HIGH)	Returns the fan setting for vacation operation for the specified system.	Returns the fan setting for vacation operation for the specified system. AUTO indicates continuous fan is OFF.
Retrieve Units of the thermostat	S1CFGEM?	S1CFGEM: F/C	Returns the units configuration (F - English / C - Metric) of the thermostat.	Returns the units configuration (F - English / C - Metric) of the thermostat. Note that when units are commanded, ”E” or ”M” is commanded, but when units are received, ”F” or ”C” is received.
Retrieve the Auto Configuration of the thermostat	S1CFGAUTO?	S1CFGAUTO: ON/OFF	Returns the configuration for the Auto Mode enabled option of the thermostat. ON indicates that Auto Mode is enabled. OFF indicates that Auto Mode has been disabled and cannot be selected.	Returns the configuration for the Auto Mode enabled option of the thermostat. ON indicates that Auto Mode is enabled. OFF indicates that Auto Mode has been disabled and cannot be selected.

Table 2 – Status Commands (?) (Continued)

Evolution® System Access Module (SAM) Data Requests Status Commands (?) - Requests for information sent from Home Automation System to Wall Control via SAM RS-232 port				
Description	Command	Response	When using legacy UID/UIZ wall controls	When using Connex wall controls
Retrieve the System Type	S1CFGTYPE?	S1CFGTYPE: COOL/HEAT/HEATCOOL	Returns system type (heat only, cool only, or heat and cool) for the specified system.	Returns system type (heat only, cool only, or heat and cool) for the specified system.
Retrieve the Deadband for the thermostat	S1CFGDEAD?	S1CFGDEAD: #	Returns the configured heat/cool deadband (minimum separation between heating and cooling setpoints) setting for the thermostat.	Returns the configured heat/cool deadband (minimum separation between heating and cooling setpoints) setting for the thermostat.
Retrieve the Cycles per hour of the thermostat	S1CFGCPH?	S1CFGCPH: #	Returns the maximum cycles per hour setting of the thermostat.	Returns the maximum cycles per hour setting of the thermostat.
Retrieve the Programmable Fan Setting	S1CFGFAN?	S1CFGFAN: ON/OFF	Returns the programmable fan setting of the thermostat. ON indicates that Programmable Fan is selected.	ON will always be returned. Programmable fan is always enabled.
Retrieve the current program period	S1PER?	S1PER: WAKE, DAY, EVE, SLEEP	Returns the current programming period of the specified system.	A NAK will be returned. This type of programming is not supported.
Retrieve the number of periods allowed for programming	S1CFGPER?	S1CFGPER: #	Returns the number of periods per day setting (2 or 4) for the specified system.	A NAK will be returned. This type of programming is not supported.
Retrieve the programming state of the thermostat	S1CFGPGM?	S1CFGPGM: ON/OFF	Returns the programming setting of the thermostat. ON indicates that programming is enabled.	Returns the programming setting of the thermostat. ON indicates that programming is enabled.
Retrieve programming information for <day> WAKE period.	S1Z1PGM<day> WAKE!TIME (HH:MM A/P), HEAT, COOL, FAN	S1Z1PGM<day>WAKE: ACK/NACK	Set the time, heat setpoint, cool setpoint, and fan setting for the <day> WAKE period. If programmable FAN is set to OFF, the fan setting will be ignored. Time must be sent in 12-hour format with leading zeros for hour and minute values less than 10.	A NAK will be returned. This type of programming is not supported.
Retrieve programming information for <day> DAY period.	S1Z1PGM<day> DAY!TIME (HH:MM A/P), HEAT, COOL, FAN	S1Z1PGM<day>DAY: ACK/NACK	Set the time, heat setpoint, cool setpoint, and fan setting for the <day> DAY period. If programmable FAN is set to OFF, the fan setting will be ignored. Time must be sent in 12-hour format with leading zeros for hour and minute values less than 10.	A NAK will be returned. This type of programming is not supported.
Retrieve programming information for <day> EVE period.	S1Z1PGM<day> EVE!TIME (HH:MM A/P), HEAT, COOL, FAN	S1Z1PGM<day>EVE: ACK/NACK	Set the time, heat setpoint, cool setpoint, and fan setting for the <day> EVE period. If programmable FAN is set to OFF, the fan setting will be ignored. Time must be sent in 12-hour format with leading zeros for hour and minute values less than 10.	A NAK will be returned. This type of programming is not supported.
Retrieve programming information for <day> SLEEP period.	S1Z1PGM<day> SLEEP!TIME (HH:MM A/P), HEAT, COOL, FAN	S1Z1PGM<day>SLEEP: ACK/NACK	Set the time, heat setpoint, cool setpoint, and fan setting for the <day> SLEEP period. If programmable FAN is set to OFF, the fan setting will be ignored. Time must be sent in 12-hour format with leading zeros for hour and minute values less than 10.	A NAK will be returned. This type of programming is not supported.
Retrieve Dealer Name	S1DEALER?	S1DEALER: JOE'S HVAC (18 characters max)	Returns the name of the servicing dealer. Name will be truncated if necessary.	Returns the name of the servicing dealer. Names longer than 18 characters will be truncated.
Retrieve Dealer Phone	S1DEALERPH?	S1DEALERPH: 1-800-HVACMAN (18 characters max)	Returns the phone number of the servicing dealer. Phone will be truncated if necessary.	Returns the phone number of the servicing dealer. Phone numbers longer than 18 characters will be truncated.

ASCII Configuration Commands

Table 3 details the messages/commands which are used by the home automation system to change data and information in the Evolution systems. These commands do change the information in the wall control. The features that are shaded are NOT supported by newer generation EvolutionConnex systems.

NOTE: The responses of the SAM and/or wall controls may change when the newer generation Evolution Connex controls are used with the SAM, versus the previous generation UID/UIZ controls. See the Table below for details.

⚠ CAUTION

PROPERTY DAMAGE HAZARD

Care should be taken when changing data in the wall controls as errors may cause comfort problems to the occupants, or damage to the structure due to freezing pipes or mold accumulation.

Table 3 – Configuration Commands (!)

Evolution® System Access Module (SAM) Data Requests Configuration Commands (!) - Change commands sent from Home Automation System to Wall Control via SAM RS-232 port				
Description	Command	Response	When using legacy UID/UIZ wall controls	When using Connex wall controls
Set fan setting	S1Z1FAN!(AUTO, LOW, MED, HIGH)	S1Z1FAN: ACK/NAK	Sets the fan setting for the specified zone.	Sets the fan setting for the specified zone. AUTO will set continuous fan to OFF.
Set the thermostat mode	S1MODE!(HEAT, COOL, AUTO, OFF, EHEAT)	S1MODE: ACK/NAK	Sets the current mode setting for the specified system. A NAK will be returned if the system cannot support the mode specified. For example, if the system is a heat only configuration attempting to set mode to AUTO or COOL will result in a NAK.	Sets the current mode setting for the specified system. A NAK will be returned if the system cannot support the mode specified. For example, if the system is a heat only configuration attempting to set mode to AUTO or COOL will result in a NAK. (EHEAT can be commanded, but will always result in a NAK.)
Set Hold Status	S1Z1HOLD!ON/OFF	S1Z1HOLD: ACK/NAK	Sets the Hold status of the specified zone. ON will set Hold to active.	Sets the ”hold permanent” status of the specified zone. ON will issue a ”hold permanent” for the currently executing zone activity.
Set Unoccupied Status	S1Z1UNOCC!ON/OFF	S1Z1UNOCC: ACK/NAK	Sets the unoccupied status of the specified zone. A NAK will be returned if this command is sent to an unzoned system. ON will set unoccupied to TRUE.	Sets the unoccupied status of the specified zone. ON will set the specified zone to the AWAY state in a ”hold permanent”. OFF will set the specified zone to the HOME state in a ”hold permanent”.
Set the current Heat Setpoint	S1Z1HTSP!XX, HH:MM (time is optional)	S1Z1HTSP: ACK/NAK	Sets the current heat setpoint for the specified system zone. An override timer will be initiated at the default of 3 hours 00 minutes. Follow with override time if a different value is desired. A NAK will be return if the heat setpoint is not valid for the current unit type. It is the system integrator’s responsibility to ensure that correct setpoint values are sent for the current units (English/Metric) setting. Setpoint, hours and minutes must be sent with a leading zero for values less than 10. E.g.: S1Z1HTSP!06, 01:00 for 6 deg C and an override of 1 hour.	Sets the current heat setpoint for the specified system zone. A ”hold until” in MANUAL activity will be issued if a time duration is specified, otherwise a ”hold permanent” in MANUAL activity will be issued if not already in the MANUAL activity. It is the system integrator’s responsibility to ensure that correct setpoint values are sent for the current units (English/Metric) setting, therefore, temperature units should be read before issuing this command. If the temperature is outside the acceptable range for the current temperature units, the value will be adjusted accordingly. The cool setpoint (or possibly the newly commanded heat setpoint) may be modified to comply with the deadband setting. Setpoint, hours and minutes must be sent with a leading zero for values less than 10. E.g.: S1Z1HTSP!06, 01:00 for 6 deg C and an override of 1 hour.

Table 3 – Configuration Commands (!) (Continued)

Evolution® System Access Module (SAM) Data Requests Configuration Commands (!) - Change commands sent from Home Automation System to Wall Control via SAM RS-232 port				
Description	Command	Response	When using legacy UID/UIZ wall controls	When using Connex wall controls
Set the current Cool Setpoint	S1Z1CLSP!XX, HH:MM (time is optional)	S1Z1CLSP: ACK/NAK	Sets the current cool setpoint for the specified system zone. An override timer will be initiated at the default of 2 hours 00 minutes. Follow with override time if a different value is desired. A NAK will be return if the cool setpoint is not valid for the current unit type. It is the system integrator's responsibility to ensure that correct setpoint values are sent for the current units (English/Metric) setting. Setpoint, hours and minutes must be sent with a leading zero for values less than 10. e.g.: S1Z1HTSP!06, 01:00 for 6 deg C and an override of 1 hour.	Sets the current cool setpoint for the specified system zone. A "hold until" in MANUAL activity will be issued if a time duration is specified, otherwise a "hold permanent" in MANUAL activity will be issued if not already in the MANUAL activity. It is the system integrator's responsibility to ensure that correct setpoint values are sent for the current units (English/Metric) setting, therefore, temperature units should be read before issuing this command. If the temperature is outside the acceptable range for the current temperature units, the value will be adjusted accordingly. The heat setpoint (or possibly the newly commanded cool setpoint) may be modified to comply with the deadband setting. Setpoint, hours and minutes must be sent with a leading zero for values less than 10. E.g.: S1Z1CLSP!06, 01:00 for 6 deg C and an override of 1 hour.
Set the Current Day	S1DAY!0-6	S1DAY: ACK/NAK	Sets the current day for the specified system. Valid values range from 0 to 6 (0 - Sunday, 6 - Saturday). A NAK will be returned for any value outside this range.	Not Supported. A NAK will be returned. The ING calculates the day of the week based on the date, so explicitly setting the day is not permitted.
Set the Current Time	S1TIME!HH:MM A/P	S1TIME: ACK/NAK	Sets current time for the specified system. Time must be sent in 12-hour format with leading zeros for hour and minute values less than 10. e.g.: S1TIME!09:01P for 9:01 PM.	Sets current time for the specified system. Time must be sent in 12-hour format with leading zeros for hour and minute values less than 10. e.g.: S1TIME!09:01P for 9:01 PM.
Set the override timer	S1Z1OTMR!HH:MM	S1Z1OTMR: ACK/NAK	Sets the value of the override timer for the specified system. A "hold until" is canceled by sending 0 hours, 0 minutes time duration. A NAK will be returned for values that exceed the maximum allowed value of 23:59. Time must be sent with leading zeros for hour and minute values less than 10. e.g.: S1Z1OTMR!01:05 for 1 hour 5 minutes.	Sets the value of the "hold until" timer for the specified zone, putting that zone into the MANUAL activity. A "hold until" is canceled by sending 0 hours, 0 minutes time duration. A NAK will be returned for values that exceed the maximum allowed value of 23:59. Time must be sent with leading zeros for hour and minute values less than 10. Time values will be truncated down to the nearest 15-minute interval when received by the thermostat. e.g.: S1Z1OTMR!01:05 for 1 hour 5 minutes.
Set the Current Zone Number	S1ZONE!1	S1ZONE: ACK/NAK	Changes the thermostat display to the zone specified. Zone numbers must be in the range 1-8. A NAK will be returned for an invalid zone number.	Changes the thermostat display to the zone specified. Zone numbers must be in the range 1-8. A NAK will be returned for an invalid zone number.
Set the Zone Name for Zone #	S1Z1NAME:ABCDEF123456	S1Z1NAME: ACK/NAK	Changes the zone name for the zone number specified. The zone name may have a maximum of 11 characters (plus a NUL) and may contain characters in both upper and lower case.	Changes the zone name for the zone number specified. The zone name may have a maximum of 11 characters (plus a NUL) and may contain characters in both upper and lower case.

Table 3 – Configuration Commands (!) (Continued)

Evolution® System Access Module (SAM) Data Requests Configuration Commands (!) - Change commands sent from Home Automation System to Wall Control via SAM RS-232 port				
Description	Command	Response	When using legacy UID/UIZ wall controls	When using Connex wall controls
Reset Filter Life	S1FILTRLVL!0	S1FILTRLVL: ACK/NAK	Resets the clean filter monitor to 0% (Note that doing so without actually cleaning the filter can result in a faster accumulation of percentage used and degraded system performance).	Resets the clean filter monitor to 0% (Note that doing so without actually cleaning the filter can result in a faster accumulation of percentage used and degraded system performance).
Reset UV Lamp Life	S1UVLVL!0	S1UVLVL: ACK/NAK	Resets the UV lamp monitor to 0% (Note that doing so without actually replacing the lamp(s) can result in a faster accumulation of percentage used and degraded system performance). Percentages other than 0 will result in a NAK.	Resets the UV lamp monitor to 0% (Note that doing so without actually replacing the lamp(s) can result in a faster accumulation of percentage used and degraded system performance). Percentages other than 0 will result in a NAK.
Reset Humidifier Pad Life	S1HUMLVL!0	S1HUMLVL: ACK/NAK	Resets the humidifier pad monitor to 0% (Note that doing so without actually cleaning the pad can result in a faster accumulation of percentage used and degraded system performance). Percentages other than 0 will result in a NAK.	Resets the humidifier pad monitor to 0% (Note that doing so without actually cleaning the pad can result in a faster accumulation of percentage used and degraded system performance). Percentages other than 0 will result in a NAK.
Reset Ventilator Pad Life	S1VENTLVL!0	S1VENTLVL: ACK/NAK	Resets the ventilator filter life to 0% (Note that doing so without actually cleaning the pad can result in a faster accumulation of percentage used and degraded system performance). Percentages other than 0 will result in a NAK.	Resets the ventilator filter life to 0% (Note that doing so without actually cleaning the pad can result in a faster accumulation of percentage used and degraded system performance). Percentages other than 0 will result in a NAK.
Set Filter Reminder Setting	S1FILTRMD!ON/OFF	S1FILTRRMD: ACK/NAK	Sets the filter reminder setting for the specified system. A value of ON will activate the reminder.	Sets the filter reminder setting for the specified system. A value of ON will activate the reminder.
Set UV Lamp Reminder Setting	S1UVRMD!ON/OFF	S1UVRMD: ACK/NAK	Sets the UV lamp reminder setting for the specified system. A value of ON will activate the reminder.	Sets the UV lamp reminder setting for the specified system. A value of ON will activate the reminder.
Set the Humidifier Pad Reminder Setting	S1HUMRMD!ON/OFF	S1HUMRMD: ACK/NAK	Sets the humidifier pad reminder setting for the specified system. A value of ON will activate the reminder.	Sets the humidifier pad reminder setting for the specified system. A value of ON will activate the reminder.
Set Ventilator Pad Reminder Setting	S1VENTRMD!ON/OFF	S1VENTRMD: ACK/NAK	Sets the ventilator pad reminder setting for the specified system. A value of ON will activate the reminder.	Sets the ventilator pad reminder setting for the specified system. A value of ON will activate the reminder.
Set the Backlight Setting	S1BLIGHT!ON/OFF	S1BLIGHT: ACK/NAK	Sets the backlight setting for the specified system. ON requests continuous backlighting.	Sets the backlight setting for the specified system. ON requests continuous backlighting, and will set the backlight to the factory default level (Level 8). OFF will set the backlight to Level 2.
Set the Vacation State	S1VACDAYS!###	S1VACDAYS: ACK/NAK	Sets vacation state to true for the specified system. Number of vacation days will be set to the number specified, with a maximum of 365 days. Setting days to 0 will terminate an active vacation. Number of days must be sent with leading zeros for numbers less than 100. e.g.: S1VACDAYS!001 for 1 day vacation	Sets vacation state to true for the specified system. Number of vacation days will be set to the number specified, with a maximum of 365 days. Setting days to 0 will terminate an active vacation. Number of days must be sent with leading zeros for numbers less than 100. e.g.: S1VACDAYS!001 for 1 day vacation

Table 3 – Configuration Commands (!) (Continued)

Evolution® System Access Module (SAM) Data Requests Configuration Commands (!) - Change commands sent from Home Automation System to Wall Control via SAM RS-232 port				
Description	Command	Response	When using legacy UID/UIZ wall controls	When using Connex wall controls
Set the Vacation Minimum Temperature	S1VACMINT!XX	S1VACMINT: ACK/NAK	Sets minimum temperature for vacation operation for the specified system. A NAK will be returned if the minimum temperature is not valid for the current unit type. Note that the vacation maximum temperature setting may also change in order to satisfy the deadband setting. Correct temperature values must be sent for the current units (English/Metric) configuration. Temperature must be sent with leading zeros for values less than 10. e.g.: S1VACMINT!06 for 6 deg C	Sets minimum temperature for vacation operation for the specified system. The vacation maximum temperature setting may change in order to satisfy the deadband setting. If the temperature value is outside the acceptable range for the current temperature units, the value will be adjusted accordingly. Temperature must be sent with leading zeros for values less than 10. e.g.: S1VACMINT!06 for 6 deg C
Set the Vacation Maximum Temperature	S1VACMAXT!XX	S1VACMAXT: ACK/NAK	Sets maximum temperature for vacation operation for the specified system. A NAK will be returned if the maximum temperature is not valid for the current unit type. Note that the vacation minimum temperature setting may also change in order to satisfy the deadband setting. Correct temperature values must be sent for the current units (English/Metric) configuration. Temperature must be sent with leading zeros for values less than 10. e.g.: S1VACMINT!06 for 6 deg C	Sets maximum temperature for vacation operation for the specified system. The vacation minimum temperature setting may change in order to satisfy the deadband setting. If the temperature value is outside the acceptable range for the current temperature units, the value will be adjusted accordingly. Temperature must be sent with leading zeros for values less than 10. e.g.: S1VACMINT!06 for 6 deg C
Set the Vacation Minimum Humidity	S1VACMINH!XXX	S1VACMINH: ACK/NAK	Sets minimum humidity for vacation operation for the specified system. Valid values are 0, 10, 15, and 20. Values less than 100 must be sent with leading zeros.	Sets minimum humidity for vacation operation for the specified system. Valid values are 0 (NONE), 5, 10, 15, 20, 25, 30, 35, 40, and 45. Values less than 100 must be sent with leading zeros.
Set the Vacation Maximum Humidity	S1VACMAXH!XXX	S1VACMAXH: ACK/NAK	Sets maximum humidity for vacation operation for the specified system. Valid values are 55, 60, 65, and 100 (NONE). Values less than 100 must be sent with leading zeros.	Sets maximum humidity for vacation operation for the specified system. Valid values are 50, 55, 60, 65, and 100 (NONE). Values less than 100 must be sent with leading zeros.
Set the Vacation Fan Setting	S1VACFAN!(AUTO, LOW, MED, HIGH)	S1VACFAN: ACK/NAK	Sets the vacation fan setting for the specified system.	Sets the vacation fan setting for the specified system. AUTO will set continuous fan during the vacation to OFF.
Set Units of the thermostat.	S1CFGEM!E/M	S1CFGEM: ACK/NAK	Sets the units of the thermostat to English (E) or Metric (M).	Sets the units of the thermostat to English (E) or Metric (M). Note that when units are commanded, ”E” or ”M” is commanded, but when units are received, ”F” or ”C” is received.
Set the Auto Configuration of the thermostat	S1CFGAUTO!ON/OFF	S1CFGAUTO: ACK/NAK	Sets the auto mode setting of the thermostat. ON will enable Auto Mode selection. A NAK will be returned for Heat only or Cool only units.	A NAK will be returned. Not Supported; wall control algorithms changed to remove need for this command.
Set the Deadband of the thermostat	S1CFGDEAD!#	S1CFGDEAD: ACK/NAK	Sets the heat/cool deadband (minimum separation between heating and cooling setpoints) of the thermostat. Values may be in the range of 0-6, values outside this range will result in a NAK response.	A NAK will be returned. Not Supported; wall control algorithms changed to remove need for this command.

Table 3 – Configuration Commands (!) (Continued)

Evolution® System Access Module (SAM) Data Requests Configuration Commands (!) - Change commands sent from Home Automation System to Wall Control via SAM RS-232 port				
Description	Command	Response	When using legacy UID/UIZ wall controls	When using Connex wall controls
Set the Cycles per hour of the thermostat	S1CFGCPH!#	S1CFGCPY: ACK/NAK	Sets the cycles per hour of the thermostat. Values may be in the range of 2-6, values outside this range will result in a NAK response.	A NAK will be returned. Not Supported; wall control algorithms changed to remove need for this command.
Set the Programmable Fan Setting	S1CFGFAN!ON/OFF	S1CFGFAN: ACK/NAK	Sets programmable FAN setting. If set to ON programmable fan is allowed.	A NAK will be returned. This type of programming is not supported.
Set the number of periods allowed for programming	S1CFGPER!#	S1CFGPER: ACK/NAK	Sets the number of programming periods per day. Valid values are 2 or 4, values outside this range will result in a NAK response.	A NAK will be returned. This type of programming is not supported.
Set the programming state of the thermostat.	S1CFGPGM!ON/OFF	S1CFGPGM: ACK/NAK	Sets the programming state of the thermostat. If set to ON programming is enabled.	A NAK will be returned. This type of programming is not supported.
Set programming information for <day> WAKE period.	S1Z1PGM<day>WAKE!TIME (HH:MM A/P), HEAT, COOL, FAN	S1Z1PGM<day>WAKE: ACK/NAK	Sets the time, heat setpoint, cool setpoint, and fan setting for the <day> WAKE period. If programmable FAN is set to OFF, the fan setting will be ignored. Time must be sent in 12-hour format with leading zeros for hour and minute values less than 10.	A NAK will be returned. This type of programming is not supported.
Set programming information for <day> DAY period.	S1Z1PGM<day>DAY!TIME (HH:MM A/P), HEAT, COOL, FAN	S1Z1PGM<day>DAY: ACK/NAK	Sets the time, heat setpoint, cool setpoint, and fan setting for the <day> DAY period. If programmable FAN is set to OFF, the fan setting will be ignored. Time must be sent in 12-hour format with leading zeros for hour and minute values less than 10.	A NAK will be returned. This type of programming is not supported.
Set programming information for <day> EVE period.	S1Z1PGM<day>EVE!TIME (HH:MM A/P), HEAT, COOL, FAN	S1Z1PGM<day>EVE: ACK/NAK	Sets the time, heat setpoint, cool setpoint, and fan setting for the <day> EVE period. If programmable FAN is set to OFF, the fan setting will be ignored. Time must be sent in 12-hour format with leading zeros for hour and minute values less than 10.	A NAK will be returned. This type of programming is not supported.
Set programming information for <day> SLEEP period.	S1Z1PGM<day>SLEEP!TIME (HH:MM A/P), HEAT, COOL, FAN	S1Z1PGM<day>SLEEP: ACK/NAK	Sets the time, heat setpoint, cool setpoint, and fan setting for the <day> SLEEP period. If programmable FAN is set to OFF, the fan setting will be ignored. Time must be sent in 12-hour format with leading zeros for hour and minute values less than 10.	A NAK will be returned. This type of programming is not supported.
Reset Factory Defaults	S1CFG!A5A5 S1CFG!RESET	S1CFG: ACK/NAK S1CFG: ACK/NAK	This command sequence restores factory default settings. The commands must be sent in succession. Any command received in between will abort the reset. If the first command is not followed by a reset request within 10 seconds, the reset will be cancelled.	Not Supported. A NAK will be returned.
Set Dealer Name	S1DEALER!ABCDEFG123546 (Maximum of 18 characters)	S1DEALER: ACK/NAK	Sets the servicing dealer name. Dealer name may have a maximum of 18 characters and may contain both upper and lower case letters.	A NAK will be returned. Not Supported, Dealer Name/Phone is set via direct online connection or USB device.
Set Dealer Phone	S1DEALERPH!1-800-HVACMAN (Maximum of 18 characters)	S1DEALERPH: ACK/NAK	Sets the servicing dealer phone number. Phone number may contain a maximum of 18 characters.	A NAK will be returned. Not Supported, Dealer Name/Phone is set via direct online connection or USB device.

Training

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