

Crestron **CGEIB-IP**

KNX Control Interface

Operations & Installation Guide



This document was prepared and written by the Technical Documentation department at:



Crestron International
Oude Keerbergsebaan 2
B-2820 Rijmenam - Belgium
Tel.: +32.15.50.99.50

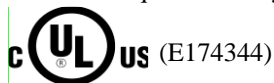
Industry Compliance

As of the date of manufacture, the Crestron CGEIB-IP has been tested and found to comply with specifications for CE marking and standards per EMC and Radiocommunications Compliance Labelling.



Industry Compliance

This Crestron CGEIB-IP has been manufactured to comply with UL's Standards for Safety in Canada and the United States.
This product is Listed to applicable UL Standards and requirements by Underwriters Laboratories Inc.



Crestron **CGEIB-IP** KNX Control Interface

Operations & Installation Guide

All brand names, product names and trademarks are the property of their respective owners.
©2009 Crestron Electronics, Inc.

Crestron **CGEIB-IP**

KNX Control Interface

Operations & Installation Guide



This document was prepared and written by the Technical Documentation department at:



Crestron International
Oude Keerbergsebaan 2
B-2820 Rijmenam - Belgium
Tel.: +32.15.50.99.50

Important Safety Instructions

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Clean only with dry cloth.
- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- Only use attachments/accessories specified by the manufacturer.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- Disconnect power prior to connecting or disconnecting equipment.
- Do not install in direct sunlight.
- The apparatus must be installed in a way that the power cord can be removed either from the wall outlet or from the device itself in order to disconnect the mains power.
- Prevent foreign objects from entering the device.

WARNING:

TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPARATUS TO RAIN OR MOISTURE. THE APPARATUS SHALL NOT BE EXPOSED TO DRIPPING OR SPLASHING. OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHOULD NOT BE PLACED ON THE APPARATUS.

WARNING:

TO PREVENT ELECTRIC SHOCK, DO NOT REMOVE COVER. THERE ARE NO USER SERVICEABLE PARTS INSIDE. ONLY QUALIFIED SERVICE PERSONNEL SHOULD PERFORM SERVICE.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING:

THIS IS AN APPARATUS WITH CLASS I CONSTRUCTION. IT SHALL BE CONNECTED TO AN ELECTRICAL OUTLET WITH AN EARTHING GROUND TERMINAL.

IMPORTANT:

The Crestron CGEIB-IP can be used with Class 2 output wiring.

Contents

KNX Control Interface: Crestron CGEIB-IP	1
Introduction	1
Features and Functions	1
Specifications	1
Physical Description	2
Setup	4
Network Wiring	4
CGEIB-IP Setup	9
Installation	12
Programming Software	13
Earliest Version Software Requirements for the PC	13
Programming with SIMPL Windows	13
Example Program	13
Uploading and Upgrading	14
Programs and Firmware	14
Operation	17
Main Module: Crestron KNX IO v3.1	17
Group Modules	17
The different types of Data Type modules	17
Data type 1 bit	18
Data type 4 bit	18
Data type 1 Byte	18
Data type 2 Byte	19
Data type 4 Byte	19
Data-type 14 Byte	20
Polling	20
Problem Solving	22
No Ethernet communication on CGEIB-IP	22
Reference Documents	28
Further Inquiries	28
Future Updates	28
Software License Agreement	29
Return and Warranty Policies	31
Merchandise Returns / Repair Service	31
CRESTRON Limited Warranty	31

KNX Control Interface: Crestron CGEIB-IP

Introduction

The Crestron CGEIB-IP is a control interface by which a Crestron control system can be coupled to a KNX installation using either RS232 or Ethernet (TCP/IP). Also, the Crestron CGEIB-IP filters the desired information out of received KNX messages and sends them to the Crestron control system via the same interface (RS232 or TCP/IP), which provides the Crestron installation with live updates of the KNX installation.

Features and Functions

- DIN-rail mountable
- Control up to 500 group addresses on a KNX/EIB network
- Equipped with an RS232 port and a TCP/IP port
- Capable of receiving live updates. No polling necessary

Specifications

Specifications for the Crestron CGEIB-IP are listed in the following table.

Crestron CGEIB-IP Specifications

SPECIFICATION	DETAILS
Power	
Power Usage	24 V AC/DC
Minimum 3-Series Control System Update File ^{1,2}	Version 3 or later
Environmental	
Temperature	32° to 131° F (0° to 55° C)
Humidity	0% to 93% RH (non-condensing)

Enclosure	
Chassis	Hard plastic
Mounting	2M wide DIN rail mounting(35mm)
Dimensions	
Height	3.54 in (9 cm)
Width	1.38 in (3.5 cm)
Depth	2.76 in (7 cm)
Weight	0.231 lbs (0.105 kg)

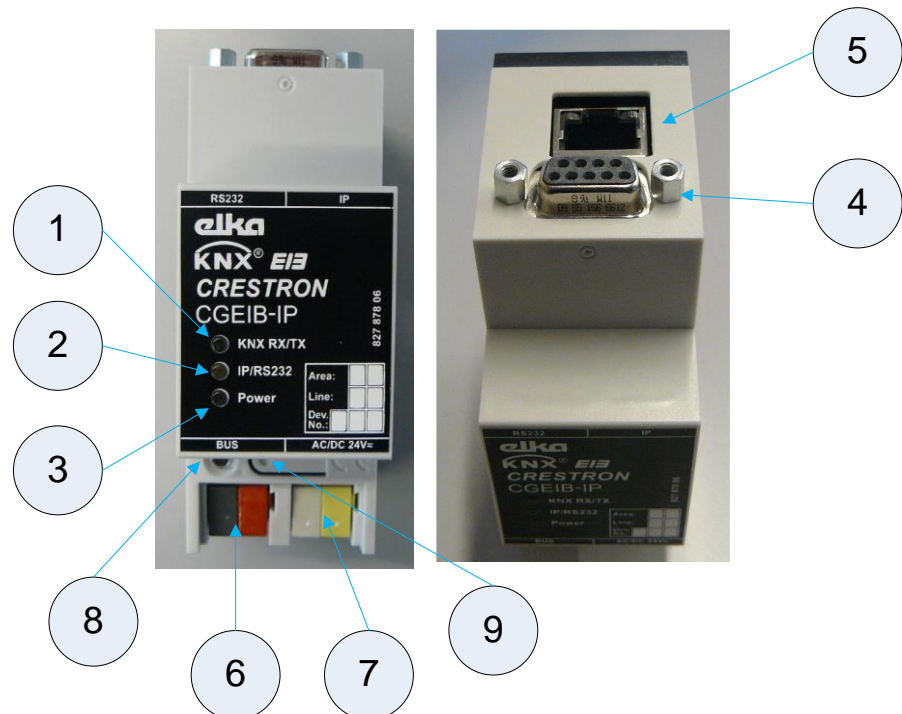
1. The latest software versions can be obtained from the Crestron website. Refer to the NOTE following these footnotes.
2. Crestron 2-Series control systems include the AV2 and PRO2. Consult the latest Crestron Product Catalog for a complete list of 2-Series control systems.

NOTE: Crestron software and any files on the website are for authorized Crestron dealers and Crestron Authorized Independent Programmers (CAIP) only. New users may be required to register to obtain access to certain areas of the site (including the FTP site).

Physical Description

This section provides information on the connections, controls and indicators available on your Crestron CGEIB-IP.

Crestron CGEIB-IP Physical View



Connectors, Controls & Indicators

#	CONNECTORS, CONTROLS & INDICATORS	DESCRIPTION
1	KNX/RX/TX LED	Color: red/green Red upon KNX data received, green upon KNX data transmitted.
2	IP/RS232 LED	Color: red Red with RS232 connected (DTR=High), green with IP connected.
3	Power LED	Color: blue Blue if operating voltage is applied.
4	RS232 Connector	DB9 female, bidirectional RS232 port
5	RJ-45 Connector	RJ-45 Socket
6	KNX BUS Connector	Wago connector that connects the CGEIB-IP with the KNX bus.
7	Power Connector	Wago connector used to power the CGEIB-IP. The CGEIB-IP should be powered with 24V AC/DC
8	KNX Programming-LED	Color: red Red when CGEIB-IP is in ETS programming mode.
9	Programming button	Press to set the unit in ETS programming mode.

Setup

Network Wiring

- **Serial Connection:**

The KNX v3.1 modules only support TCP/IP communication. The RS232 interface is described here for legacy purposes.

The CGEIB-IP can be serially controlled over RS-232 via the SUBD 9 on top of the unit. The following pins are required:

Com pin outs between Crestron COM port and CGEIB-IP RS232 SUBD 9pol.

CGEIB-IP	Crestron DB9	Crestron Phoenix
Tie pins 1 and 4		
Pin 2	Pin 2	RX
Pin 3	Pin 3	TX
Tie Pin 4 and 1		
Pin 5	Pin 5	GND
Pin 7	Pin 7	RTS
Pin 8	Pin 8	CTS

- **LAN Connection:**

The CGEIB-IP can be controlled over TCP/IP by means of the LAN port. This LAN port is automatically activated when no RS-232 cable is connected.

The LAN port starts a DHCP inquiry only after PowerOn or Reset, i.e. if a network cable is plugged after PowerOn of the CGEIB-IP, the LAN port does not fetch an IP address over DHCP. Thus the LAN port is not accessible in the network.

Best practice: Before powering up the CGEIB-IP, all other connections should be made!

The CGEIB-IP does not support POE.

- **Commissioning of the LAN port**

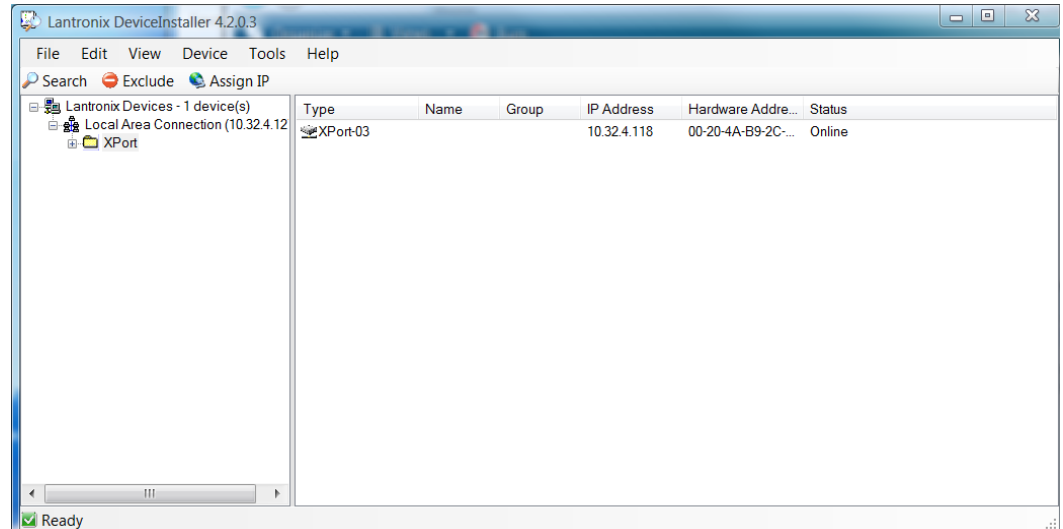
The LAN port must be connected to the network. Afterwards, the CGEIB-IP can be powered on. In case of a direct connection of the LAN port with the PC, a cross-link connection is needed.

On delivery, the LAN port is already configured.

By default, it is set to automatic inquiry of the IP address. To scan the network for the CGEIB-IP, please use the Lantronix® Deviceinstaller™.

(<http://www.lantronix.com/device-networking/utilities-tools/device-installer.html>)

- Open the Deviceinstaller™ software.
- Click on the "Search" icon or select "Search" under the menu item "Device" to look for devices.



Deviceinstaller™ will show you all CGEIB-IP's in your network and report their IP address and TCP port to communicate on.

The CGEIB-IP only configures its Ethernet port upon start up. SO, after every change in the IP configuration (DHCP or static), make sure to reboot the CGEIB-IP with the network cable plugged in.

NOTE: As described above, the Ethernet configuration only takes place when no RS-232 cable is connected. Therefore, when using Ethernet to control the CGEIB-IP, upon reboot of the unit make sure the Ethernet cable is plugged in and no RS-232 cable is present.

- **Changing the IP-address configuration**
 - Open browser (e.g. Windows Internet Explorer)
 - Browse to the IP-address of the LAN port
 - Select menu item “Network” to setup basic IP configuration (static or DHCP)

XPort **LANTRONIX**

Network Settings

Network Mode:

IP Configuration

Obtain IP address automatically

Auto Configuration Methods

BOOTP: Enable Disable

DHCP: Enable Disable

AutoIP: Enable Disable

DHCP Host Name:

Use the following IP configuration:

IP Address:

Subnet Mask:

Default Gateway:

DNS Server:

Ethernet Configuration

Auto Negotiate

Speed: 100 Mbps 10 Mbps

Duplex: Full Half

- Select menu item “Serial Settings” and make sure the baudrate is set to 57600.
This is not the RS-232 baud rate the unit would use to communicate serially. It is in fact the baudrate used internally to translate TCP/IP communication to RS_232

XPort **LANTRONIX**

Serial Settings

Channel 1

Disable Serial Port

Port Settings

Protocol: **RS232** Flow Control: **None**

Baud Rate: **57600** Data Bits: **8** Parity: **None** Stop Bits: **1**

Pack Control

Enable Packing

Idle Gap Time: **12 msec**

Match 2 Byte Sequence: Yes No Send Frame Immediate: Yes No

Match Bytes: **0x00** **0x00** Send Trailing Bytes: None One Two
(Hex)

Flush Mode

Flush Input Buffer

With Active Connect: Yes No

With Passive Connect: Yes No

At Time of Disconnect: Yes No

Flush Output Buffer

With Active Connect: Yes No

With Passive Connect: Yes No

At Time of Disconnect: Yes No

OK

- Select menu item “Connection”, make sure “Accept Incoming” is set to “Yes” and verify the port used.

Connection Settings

Channel 1

Connect Protocol
Protocol: TCP

Connect Mode
Passive Connection:
Accept Incoming: Yes
Password Required: Yes No
Password:
Modem Escape Sequence Pass Through: Yes No

Active Connection:
Active Connect: None
Start Character: 0x0D (in Hex)
Modem Mode: None
Show IP Address After RING: Yes No

Endpoint Configuration:
Local Port: 10001
Remote Port: 0
 Auto increment Local Port for active connect
Remote Host: 0.0.0.0

Common Options:
Telnet Com Port Cntrl: Disable
Connect Response: None
Terminal Name:
Use Hostlist: Yes No
LED: Blink

Disconnect Mode
On Mdm_Ctrl_In Drop: Yes No
Hard Disconnect: Yes No
Check EOT(Ctrl-D): Yes No
Inactivity Timeout: 0 : 0 (mins : secs)

OK

- Select menu item “Configurable pins” and make sure the settings are as below.

Configurable Pin Settings

CP	Function	Direction	Active Level
1	General Purpose I/O	<input checked="" type="radio"/> Input <input type="radio"/> Output	<input checked="" type="radio"/> Low <input type="radio"/> High
2	General Purpose I/O	<input checked="" type="radio"/> Input <input type="radio"/> Output	<input checked="" type="radio"/> Low <input type="radio"/> High
3	General Purpose I/O	<input checked="" type="radio"/> Input <input type="radio"/> Output	<input checked="" type="radio"/> Low <input type="radio"/> High

OK

CGEIB-IP Setup

As described above (1. Functional Description), a Crestron CGEIB-IP can be setup to communicate with other KNX units based on Group Addresses.

When using Group Addresses the Crestron programmer needs to know how the KNX installation has been programmed exactly. He/she needs to know which KNX objects are programmed on which Group Addresses so that the Crestron CGEIB-IP can then directly control those Group Addresses.

With Group Address oriented programming, since an object (e.g. the state of a lamp) can be set by multiple Group Addresses the Crestron processor might need to monitor multiple Group Addresses to decide on the state of an object.

KNX-units send information over the network which contains the following:

- Hardware Address from the transmitting unit.
- Group Address of the function that has to be controlled.
- Data that will trigger the function.

In Group Address oriented programming, the hardware addresses are not important for Crestron, the Group Addresses and expected data format however are. The installer uses the Group Addresses to define what functions can be controlled by the KNX installation. For example every controllable light zone will have at least one. By sending a value to this address the particular function will be triggered. E.g. sending the value 0 to this address will result in the light switching off. A group address list shows the Crestron programmer which functions are possible and how they can be triggered.

Extra to every group address you have information about the data - type, meaning the format of the expected data. The type is specified by the number of bits used; the general types are 1, 4, 8, 16, 24 or 32 Bit. The KNX installer can produce the group-list with the ETS projection software.

This is an example of a series of Group Addresses to control two dimmers. Each dimmer is controlled using three different Group Addresses: one for switching, one for dimming and one for setting the value.

The group addresses themselves exist out of three numbers divided by a forward slash, e.g. 1/0/13. The data types in this example are 1 bit (switching), 4 bit (dimming) and 1 byte (absolute value).

The ETS software can be set to use either “triple” Group Addresses (e.g. 0/1/0) or “double” group addresses (e.g. 0/15).

The possible values of the “triple” group addresses are: HG/MG/UG

- HG: 0..15
- MG: 0..7
- UG: 0..255

Number	Name	Object Function	Description	Group Addresses	Length	C	R	W	T	U	Data Type	Priority
0	output 1	switching		0/0/1	1 bit	C	-	W	-	-		Low
1	output 2	switching		0/0/2	1 bit	C	-	W	-	-		Low
2	output 1	dimming		0/0/3	4 bit	C	-	W	-	-		Low
3	output 2	dimming		0/0/4	4 bit	C	-	W	-	-		Low
4	output 1	brightness value		0/0/5	1 Byte	C	-	W	-	-		Low
5	output 2	brightness value		0/0/6	1 Byte	C	-	W	-	-		Low

The possible values of the “dual” group addresses are: HG/UG

- HG: 0..15
- UG: 0..2047

Number	Name	Object Function	Description	Group Addresses	Length	C	R	W	T	U	Data Type	Priority
0	output 1	switching		0/1	1 bit	C	-	W	-	-		Low
1	output 2	switching		0/2	1 bit	C	-	W	-	-		Low
2	output 1	dimming		0/3	4 bit	C	-	W	-	-		Low
3	output 2	dimming		0/4	4 bit	C	-	W	-	-		Low
4	output 1	brightness value		0/5	1 Byte	C	-	W	-	-		Low
5	output 2	brightness value		0/6	1 Byte	C	-	W	-	-		Low

○ Inserting Group Addresses in the CGEIB-IP

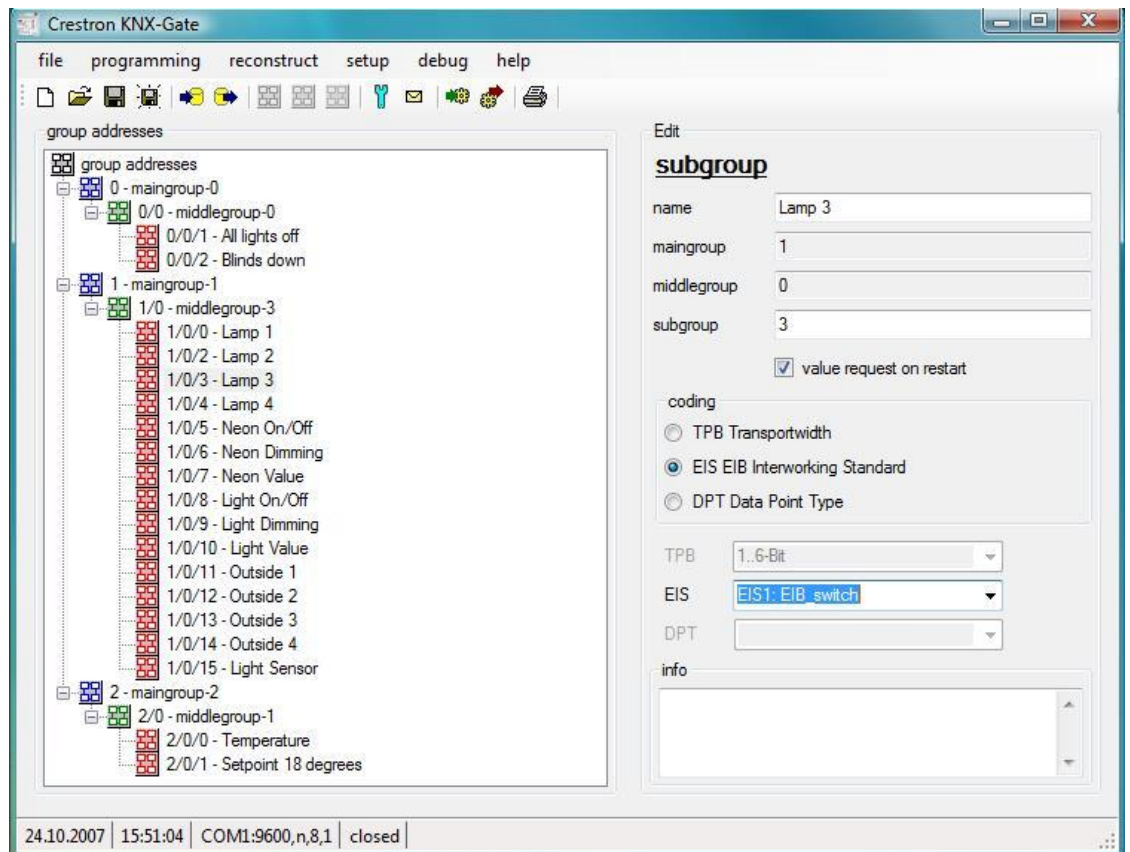
Once it is clear which Group Addresses and data types are required they have to be inserted in the CGEIB-IP. The CGEIB-IP uses an internal comparison table with the required addresses, so it will only pass through the telegrams from and to the bus when the Group Addresses that are listed in the table. Therefore it is required to insert all the used addresses in the Crestron CGEIB-IP with the help of the configuration software, **KNX-Gate**. To make this easier it is best to create a data file containing all relevant information. Alternatively you can import the ETS configuration in CSV format (export file) straight into the CGEIB-IP. It is also possible to transfer an old project, in EGT format, from a previous CGEIB-IP configuration.

If you need more information to import ETS files, please type "F1 → Functions → Import and export file" in the KNX-Gate software for further information.

The list will be sent from the PC to the CGEIB-IP over a direct serial connection. The RS-232 cable must be a “full” cable – all pins connected!

Please be careful with the option “Value request on restart”. After a reset Group Addresses marked as such will automatically be asked for their current status which on its turn will increase the bus traffic. This however only is the case when the CGEIB-IP is set to have no transmission limits (more info in this document). All parameters/setting should be discussed with the KNX programmer.

When you experience problems during the upload of software or firmware, temporarily disconnecting the KNX bus will help.



Use KNX Gate to do the following

- Insert Group Addresses and their corresponding data type
- Change the CGEIB-IP baud rate: 9600 or 38400
- Set KNX transmission settings (Telegrams per second, Transmission limits)
- Import ETS3 project files
- Import .egt data from an older CGEIB-IP configuration
- Export tables in ETS-CSV format to allow import in the ETS. This simplifies the creation of filter tables.
- Download the last loaded filter table from the CGEIB-IP with the option “Start reconstruction”
- Set CGEIB-IP communication parameters like: “Transmit for received data” and “Acknowledge for transmit”

Communication parameters

Under “Setup → Gateway setup” you can change the following options:

- Transmit for received data on KNX:
The Crestron controller will automatically receive data from the KNX units when their values change.
Example: KNX Group Address 0/0/1 changes the value from 0 to 1 – this information will then be transmitted to the Crestron controller. It is advised to have this **“always activated”**.
- Acknowledge for transmit on KNX:
The Crestron controller receives a confirmation from the transmitted telegram, when this changed the setting in the KNX bus unit.

Example: When the Crestron controller changes the value of the KNX group address 0/0/1 from 0 to 1, the CGEIB-IP will return this command resulting in immediate feedback on the button. It is advised to have this **“always activated”**.

- Baudrate:

Choose between 9600 and 38400. **It is advised to use 38400.**

- Transmit limit:

Transmission limitation of telegrams: 2, 5 or none. **It is advised to use 5**

Important: this can influence the bus-load, for example the response speed to Crestron. Switching of the limiter should only be done when possible, after verification with the KNX installer.

Be aware that adjustments to checkboxes described above need to be uploaded with the address list to confirm the adjustment.

More information on these options can be found in the KNX software.

Information about the gateway
Firmware Version 7.03 should be loaded into the gateway.

Changes on the EIB bus are automatically reported back to the Crestron processor.

Acknowledge is sent back (from EIB on RxS) for every telegram sent to a bus participant.

EIB telegrams sent out per second

Baudrate 9600 or 38400

Note

Minimal software requirements: Microsoft.NET Framework 2.0 or higher. (Freely available from the Microsoft website)

The CGEIB-IP should be loaded with firmware 7.03. Every CGEIB-IP can be updated with this firmware via the KNX-Gate software. (Firmware Gateway_Flash_C7v03.H86)

Installation

- Attach the Crestron CGEIB-IP to the DIN rail.
- Connect the serial or the CAT5 cable
- Connect the KNX bus
- Connect the power source to power up the CGEIB-IP

Programming Software

Have a question or comment about Crestron software?

Answers to frequently asked questions (FAQs) can be viewed in the Online Help section of the Crestron website. To post a question or view questions you have submitted to Crestron's True Blue Support, log in at <http://support.crestron.com>. First-time users will need to establish a user account.

Earliest Version Software Requirements for the PC

NOTE: Crestron recommends that you use the latest software to take advantage of the most recently released features. The latest software is available from the Crestron website.

Crestron has developed an assortment of Windows®-based software tools to develop a controlled system. You can create a program to control the Crestron CGEIB-IP control system using the Crestron programming tool SIMPL Windows.. For the minimum recommended software versions, visit the Version Tracker page of the Crestron website (www.crestron.com/versiontracker).

Programming with SIMPL Windows

SIMPL Windows is Crestron's premier software for programming Crestron control systems. It is organized into two separate but equally important "Managers".

Configuration Manager

Configuration Manager is the view where programmers "build" a Crestron control system by selecting hardware from the *Device Library*.

- To incorporate the Crestron CGEIB-IP into the system, drag the Crestron KNX IO from the User module | Product module folder after copying the modules to the User macro folder or the same folder where the project is stored

CProgram Manager

Program Manager is the view where programmers "program" a Crestron control system by assigning signals to symbols.

The symbol can be viewed by double clicking on the icon or dragging it into *Detail View*. Each signal in the symbol is described in the SIMPL Windows help file (**F1**). The Crestron KNX IO module should be placed in the user database specified in the SIMPL Windows software.

Example Program

An example program for the Crestron CGEIB-IP is available from the Crestron website.

Uploading and Upgrading

Crestron recommends using the latest programming software and that each device contains the latest firmware to take advantage of the most recently released features. However, before attempting to upload or upgrade it is necessary to establish communication. Once communication has been established, files (for example, programs or firmware) can be transferred to the device).

Programs and Firmware

Program or firmware files may be distributed from programmers to installers or from Crestron to dealers. Firmware upgrades are available from the Crestron website as new features are developed after product releases. One has the option to upload the CGEIB-IP firmware via the KNX-Gate software (RS-232 only).

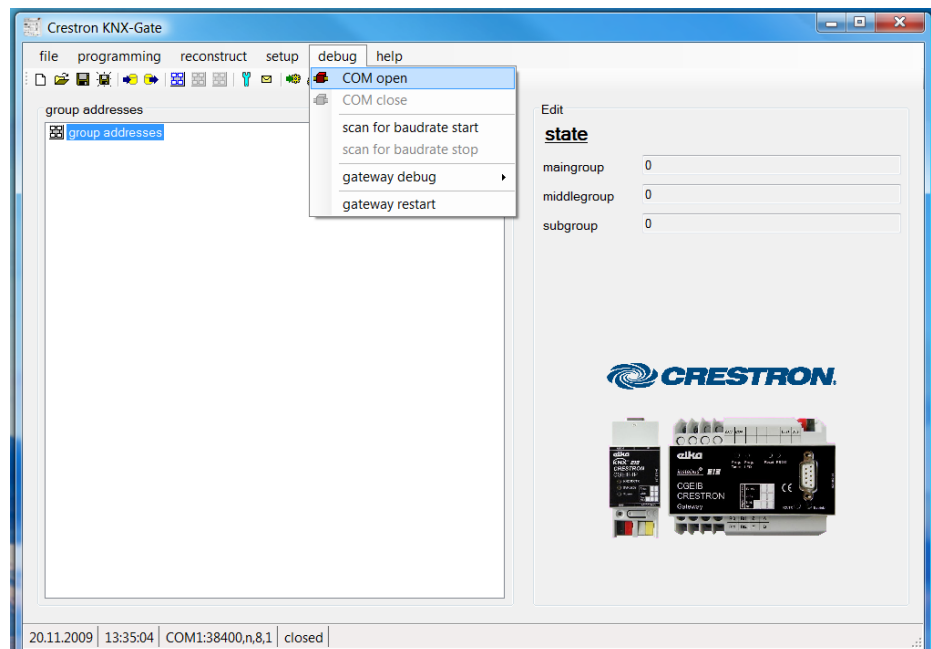
SIMPL Windows

If a SIMPL Windows program is provided, it can be uploaded to the control system using SIMPL Windows or Crestron Toolbox

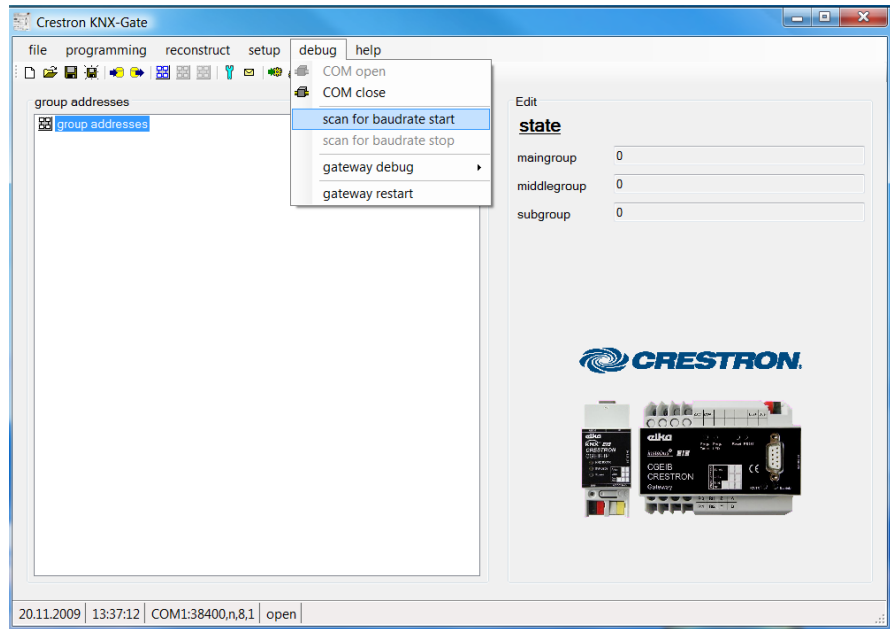
Firmware

Check the Crestron website to find the latest firmware. (New users may be required to register to obtain access to certain areas of the site, including the FTP site.) Follow the following procedure to upload a new firmware.

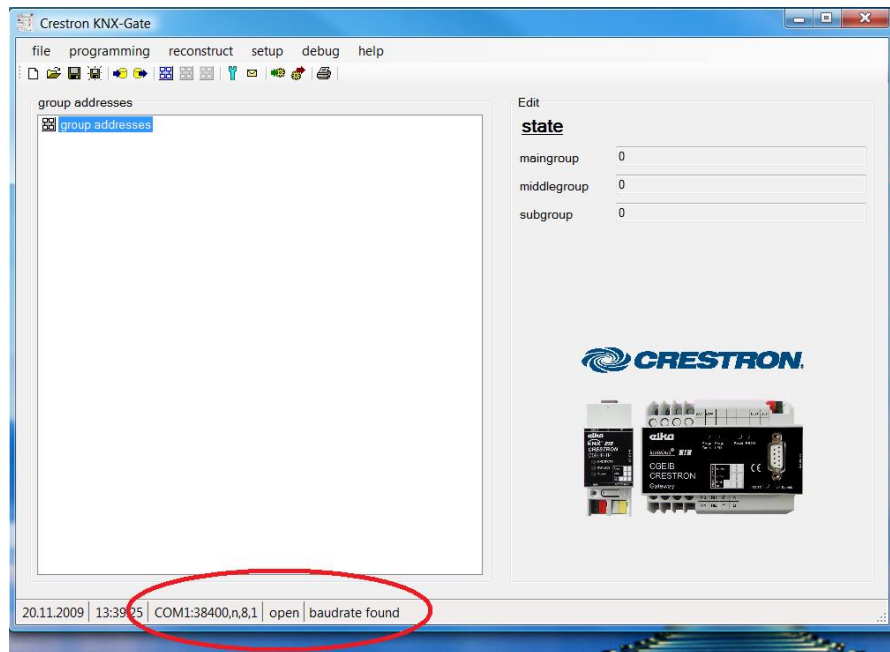
- 1) **Open KNX-Gate**
- 2) **Open the COM port**



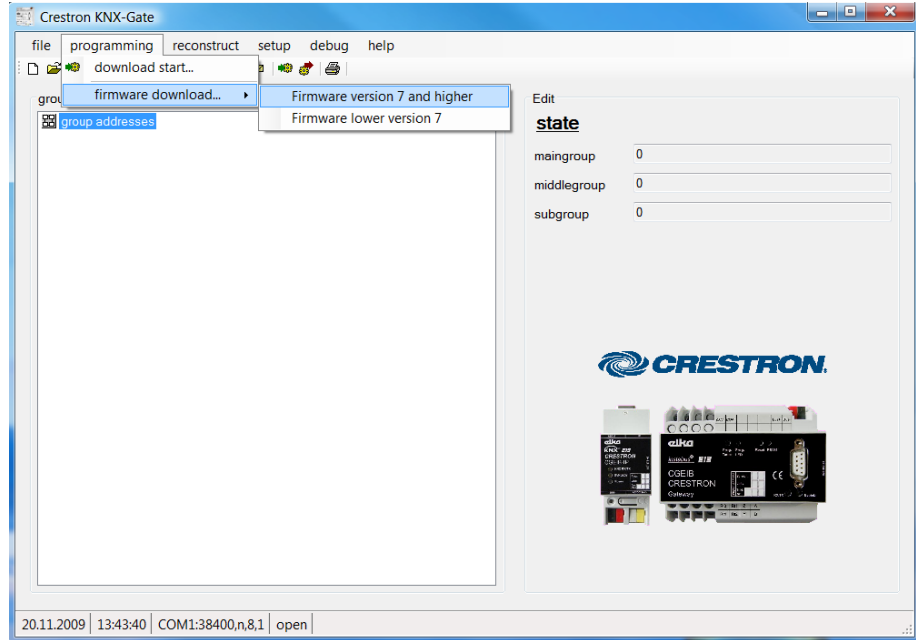
3) Scan for the correct baudrate



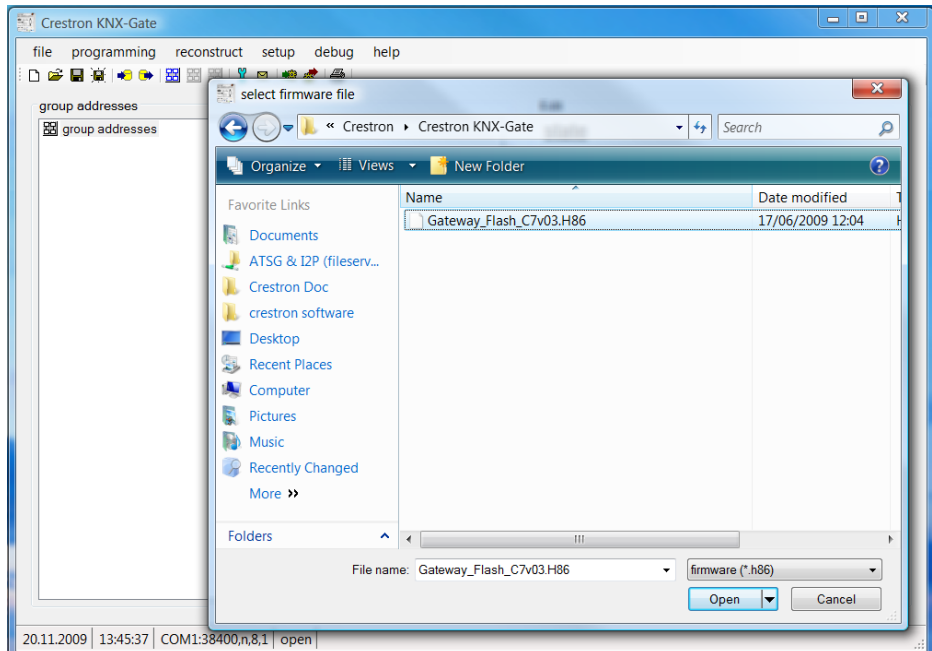
4) Wait until a baudrate is found



5) **Select Programming, then firmware download and then Firmware version 7 and higher**



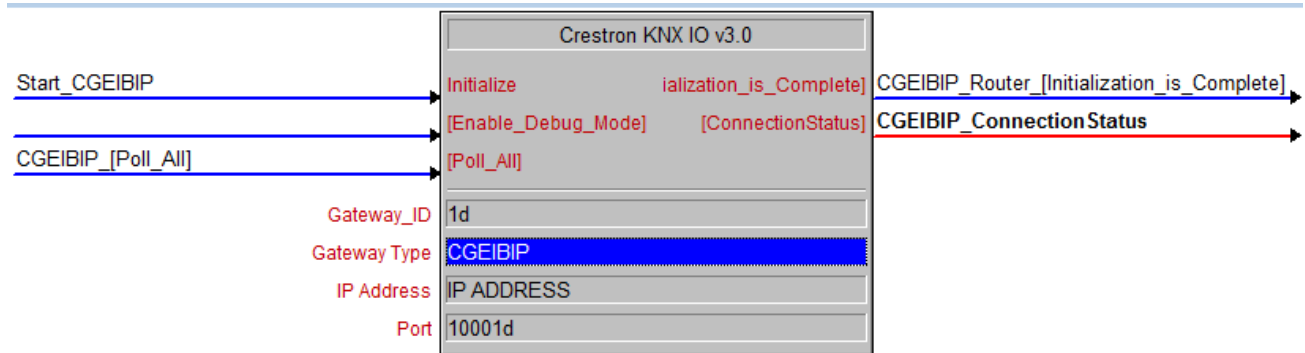
6) **Select firmware and click open**



The CGEIB-IP will now be updated with the new firmware

Operation

Main Module: Crestron KNX IO v3.1



The “Crestron KNX IO v3.1” module deals with the CGEIB-IP communication. The module communicates via TCP/IP with the CGEIB-IP. To configure the module the user should fill in the correct IP address and Gateway ID. The Gateway ID is used to associate the IO module with other KNX data type modules in the program. Up to 500 KNX data type modules can be linked to one IO module. This module is ALWAYS required.

The Initialize input needs to be pulsed once to start the module. This is required to connect the IO module with all KNX data type modules with the same Gateway ID. Once the Initialization_is_Complete output latches high to indicate that the modules are ready to be used.

The ConnectionStatus output provides feedback on the current status of the TCP/IP connection with the CGEIB-IP.

Other functionality includes polling the value for all associated KNX data type modules and enabling/disabling debug mode.

Debug mode should be turned off during normal operation.

Group Modules

Basically for every Group Address that needs to be controlled a KNX data type will need to be inserted, no matter if it deals with control, feedback or both.

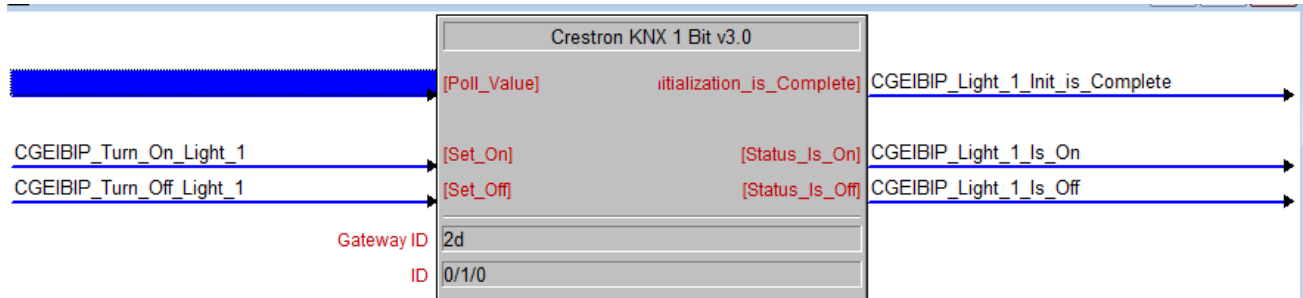
For every data-type (number of data-bits) there is a separate module. The principle is however identical for all of them. Every module has a parameter field that needs to contain the Group address of the unit to be communicated with. Other signals and parameters depend on the data-types.

The different types of Data Type modules

For every different data type in the KNX system (also called EIS type) there is a specific Crestron module, this will allow you to send or read out any specific KNX command or signal.

Data type 1 bit

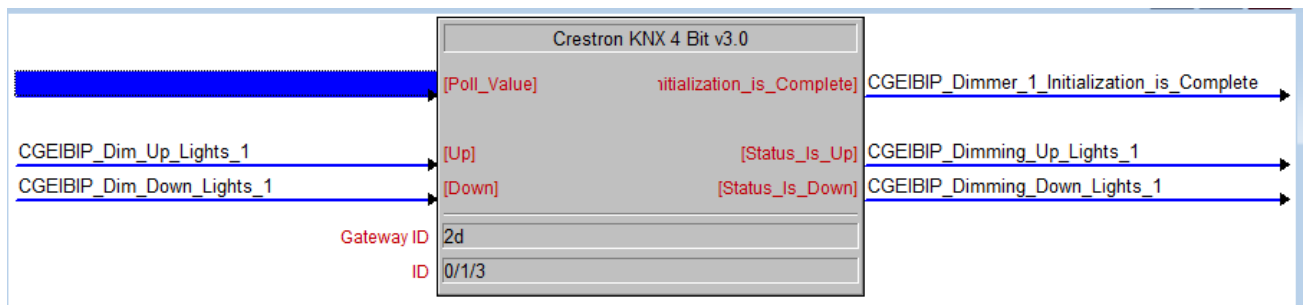
The most used data types are binary switch functions (on/off). They are used for a lot of different purposes like switching lamps, triggering presets, activate alarm functions...



When the inputs for “On” or “Off” go high the required commands are triggered. The “Status_Is_On” and “Status_Is_Off” will be triggered accordingly to represent the status of the data type.

Data type 4 bit

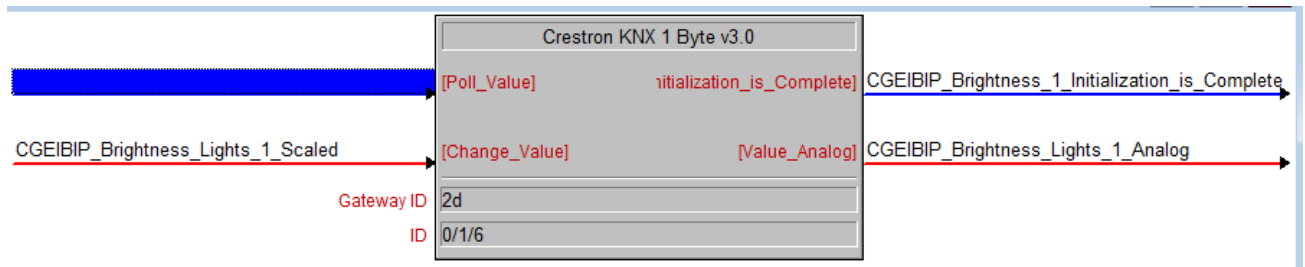
The dimming data-type is a 4-bit type and is commonly used to control dimmers. The 4 bit module requires the usual address parameters. Dimming speed is set standard to 1 although the KNX has 7 different dimming speeds. Speed 1 (slow) is standard as this proved to be sufficient. The feedback shows the dimming up and dimming down activity only, not the light level.



The feedback is independent from the dimming speed. Even when an KNX button panel controls the same dimmer with a different speed the feedback will still be produced.

Data type 1 Byte

The 1 Byte values are being used for all sorts of things with KNX, however in most of the cases it is used for controlling dimmer with absolute values (e.g. level 70%). Therefore the KNX 1Byte module requires an analog value on its input, it also gives out an analog value as feedback:



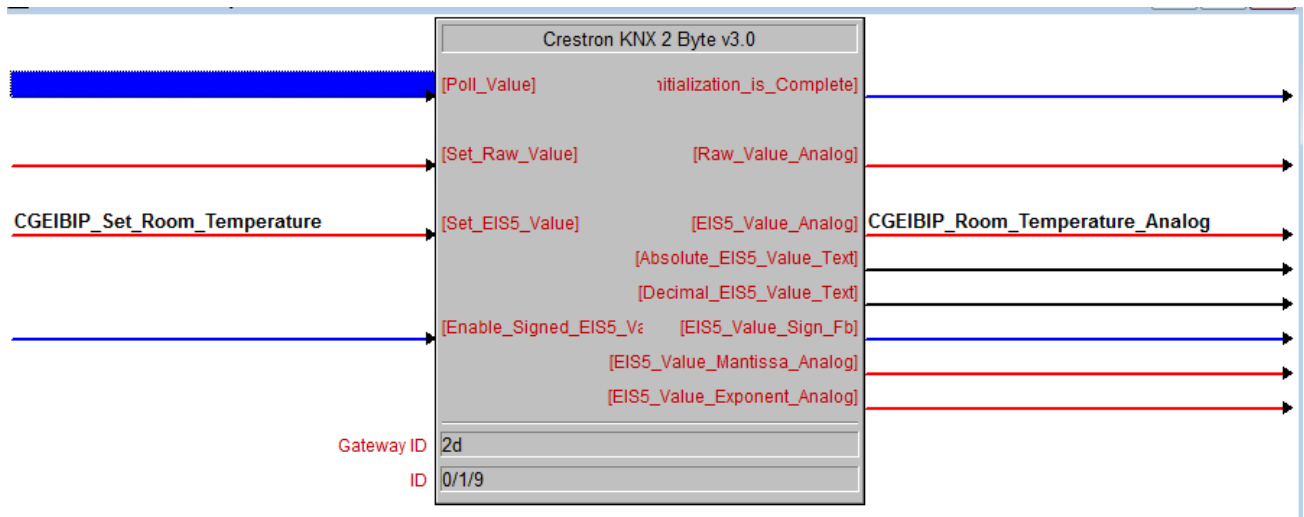
Every change of the input signal will result in a string being sent out. It uses the lower 8 bits of the analog signal. The value of the input signal should therefore range between 0 and 255. The analog input signal can be generated by an Analog Initialize symbol (see above).

Also the output signal ranges from 0 to 255 (low byte).

Data type 2 Byte

The 2 byte data type is almost identical to the 1 Byte data type. In this case however the value to be controlled and read out is 16 bit (0d to 65535d). 2Byte modules are mostly used to read out analog values like temperature.

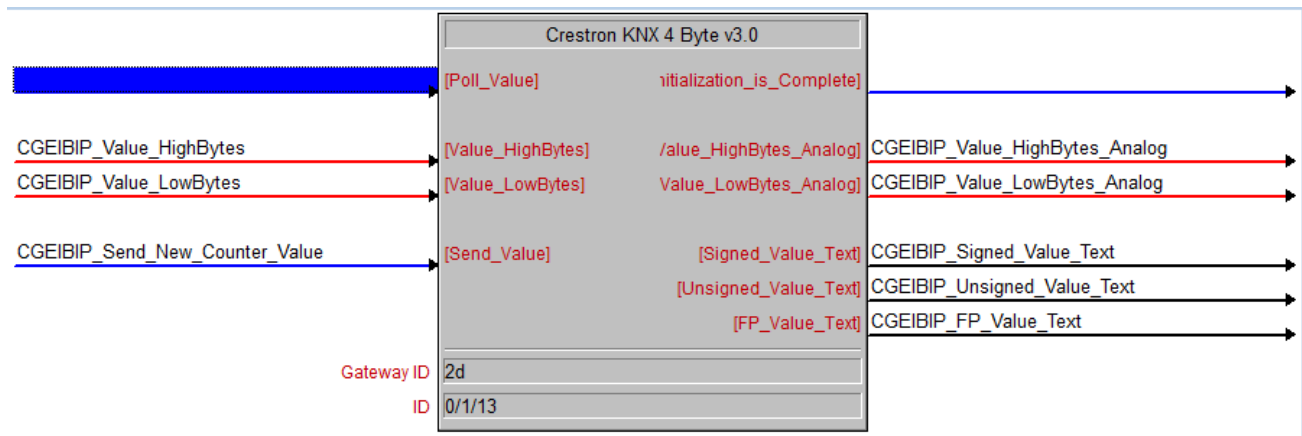
The module also offers inputs and outputs to use the EIS type. EIS5 is a KNX data type that is commonly used to send a 2 Byte decimal value to the KNX system. E.g. Set the “Set_EIS5_Value” input to 2550 to send 25,5 to the KNX system.



Values to set the correct temperature (1800d, 2200d) depend on the KNX device.

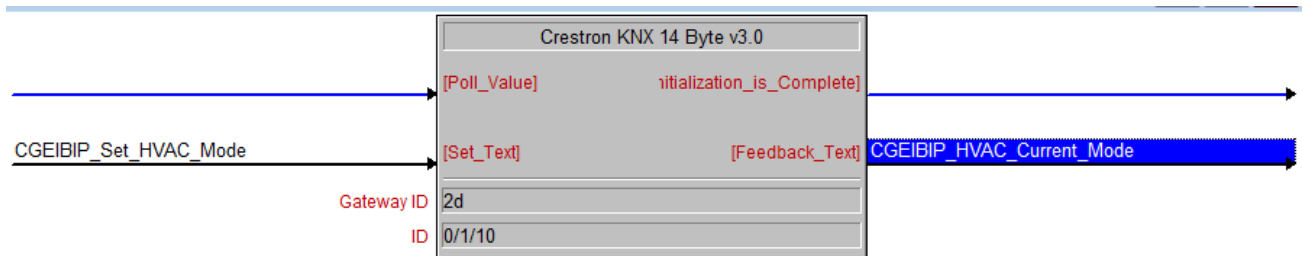
Data type 4 Byte

The 4 byte module is almost identical to the “Crestron CI-KNX 2 Byte v1.6” module. In this case however the value to be controlled and read out is 32 bit (0d to 4294967295d). SMPL windows only supports 16 bit analog signals so the 32 bit value is split into two 16 bit signals. These signals represent the 16 high and low bits. The module also offers a signed and unsigned and Floating Point serial outputs to display the 4 Byte value.



Data-type 14 Byte

The 14 byte module sends and receives ASCII text messages from the KNX network. With this module you can request a status (e.g. “Door open”) or send text to a display (ex. Radio RDS text). If the strings being sent are less than 14 bytes then the module will automatically add “zero” bytes.

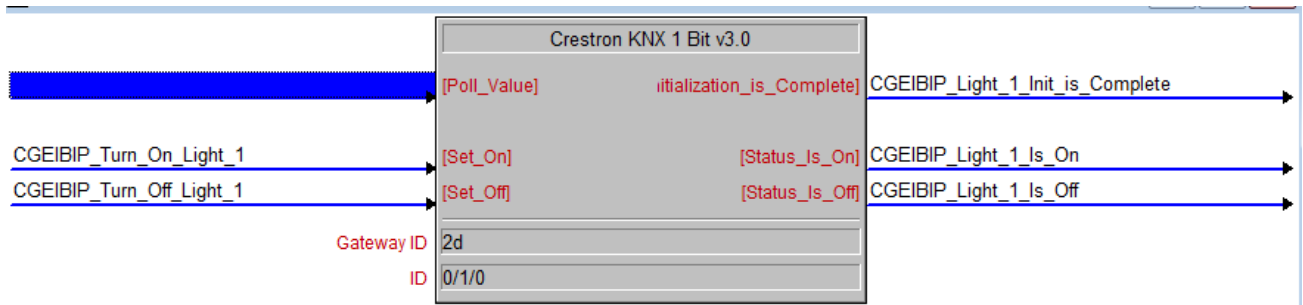


Polling

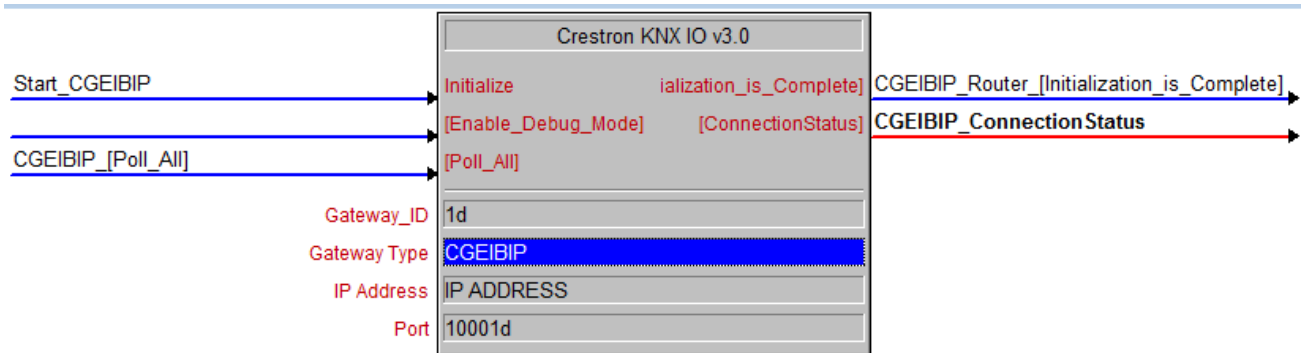
The challenge when working with a KNX system is that feedback signals are not always generated automatically for every change on the network.

E.g. a dimmer can have multiple group addresses via which it is controlled. It can, for example, use 3 addresses: One to switch on/off (1 bit), one to dim up/down (4 bit) and one to create a level-feedback value (absolute value – 1byte).

With every action the light level can change, so the momentary level feedback should also change when dimming takes place. One can choose to not get live feedback as such, by deselecting the “Transmit for received data” checkbox (page 9-10). Therefore, KNX Data Type module contains a digital input called “Poll_Value” for polling the value for the KNX data type.



When the “Poll_All” input of the “KNX IO v3.1” module is pulsed, the module polls for feedback of every used Group Address. The answer is processed by the normal group modules and appears at the particular feedback output.



The “Poll_All” input should only be used at the start of the program to sync all KNX modules.

Use the “Poll_Value” inputs on the KNX Data Type modules to poll for individual values once the program is started.

Polling is only possible if you enable the “Read” flag in the ETS software.

Problem Solving

No Ethernet communication on CGEIB-IP

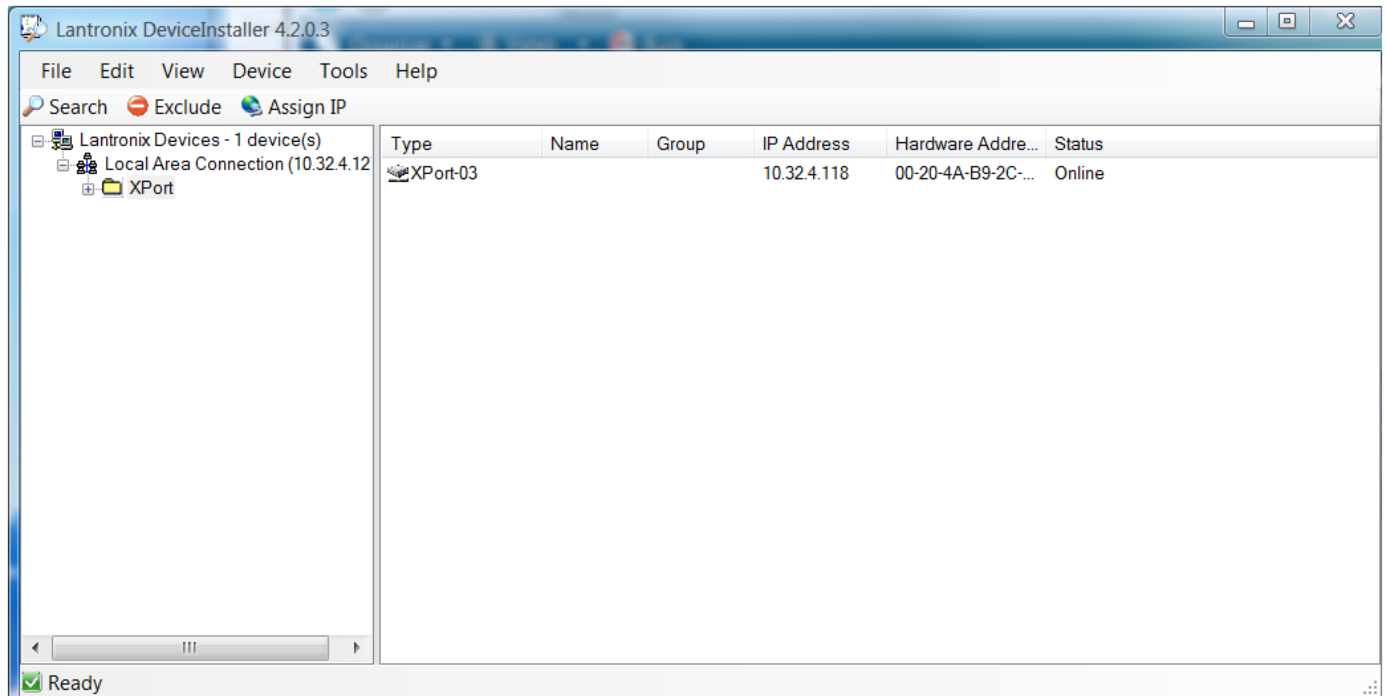
Recently we have been working with the manufacturer of the CGEIB-IP to include a more Crestron friendly web interface. This web interface will make it possible to set up your CGEIB-IP with group addresses by using only your web browser. That way, there will be no need to connect to your CGEIB-IP with the KNX-Gate software.

Since our older CGEIB was completely sold out, we already released the CGEIB-IP with the original web interface. This web interface can be used to set up the TCP-IP communication with the CGEIB-IP, but does not allow you to set up the device with group addresses. You'd still need to use KNX-Gate to set the group addresses via RS-232.

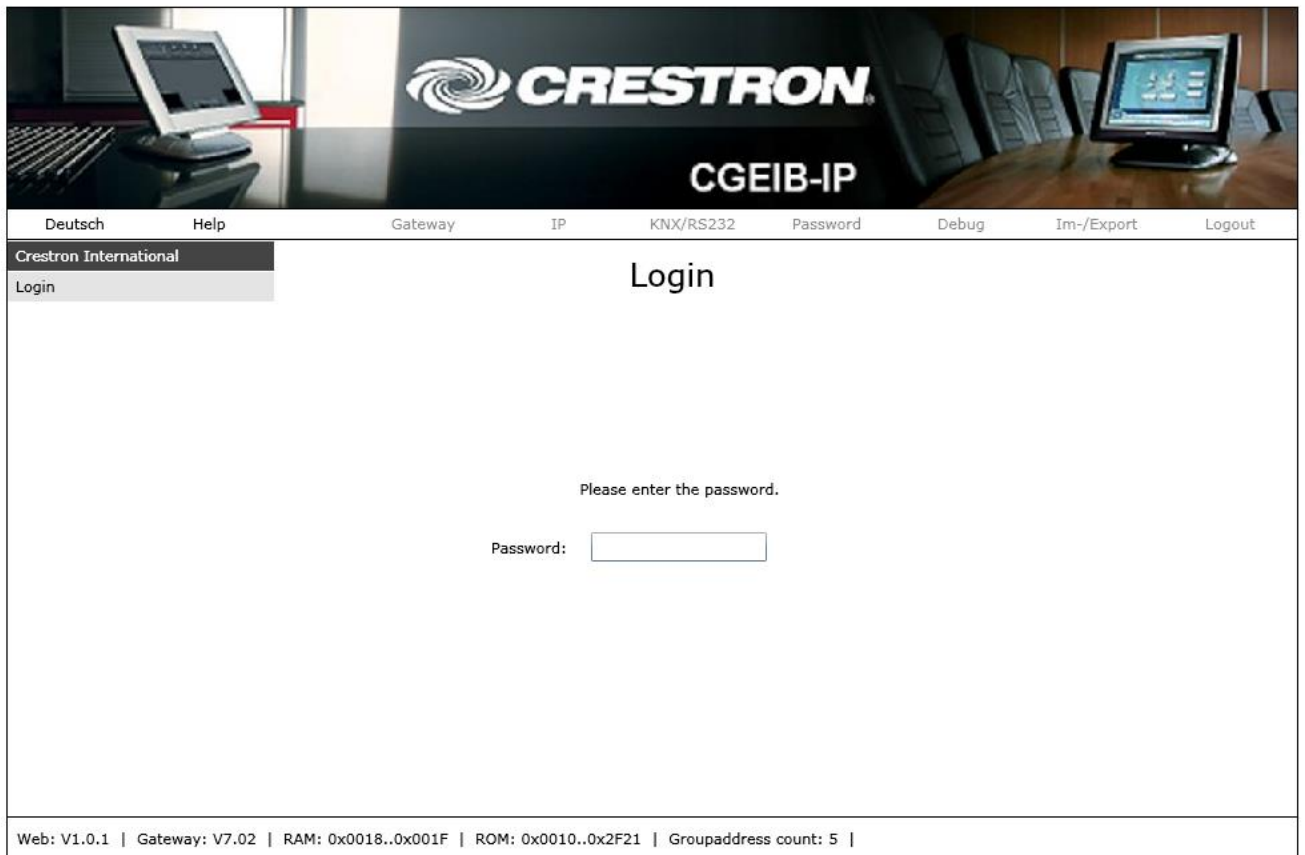
Now, there has been a wrong shipment of CGEIB-IP's that included a beta version of our new Crestron friendly web interface. You will not be able to connect to these CGEIB-IP's via TCP-IP. We will describe how to roll back to the original web interface and set it up for TCP-IP communication.

Note that the CGEIB-IP has two separate firmwares. One firmware defines the web interface; the other defines the Crestron communication. This document describes how to roll back the web firmware to the original web interface. The Crestron firmware still needs to be 7.03 and can be uploaded with the latest KNX-Gate software.

- 1) Please use the Deviceinstaller™ software to examine the Ethernet address of the CGEIB-IP. By default it is set up as DHCP, so it should be assigned an address by the DHCP server automatically. In Deviceinstaller™, select „Device“ → „Search“ to autodiscover the CGEIB-IP.

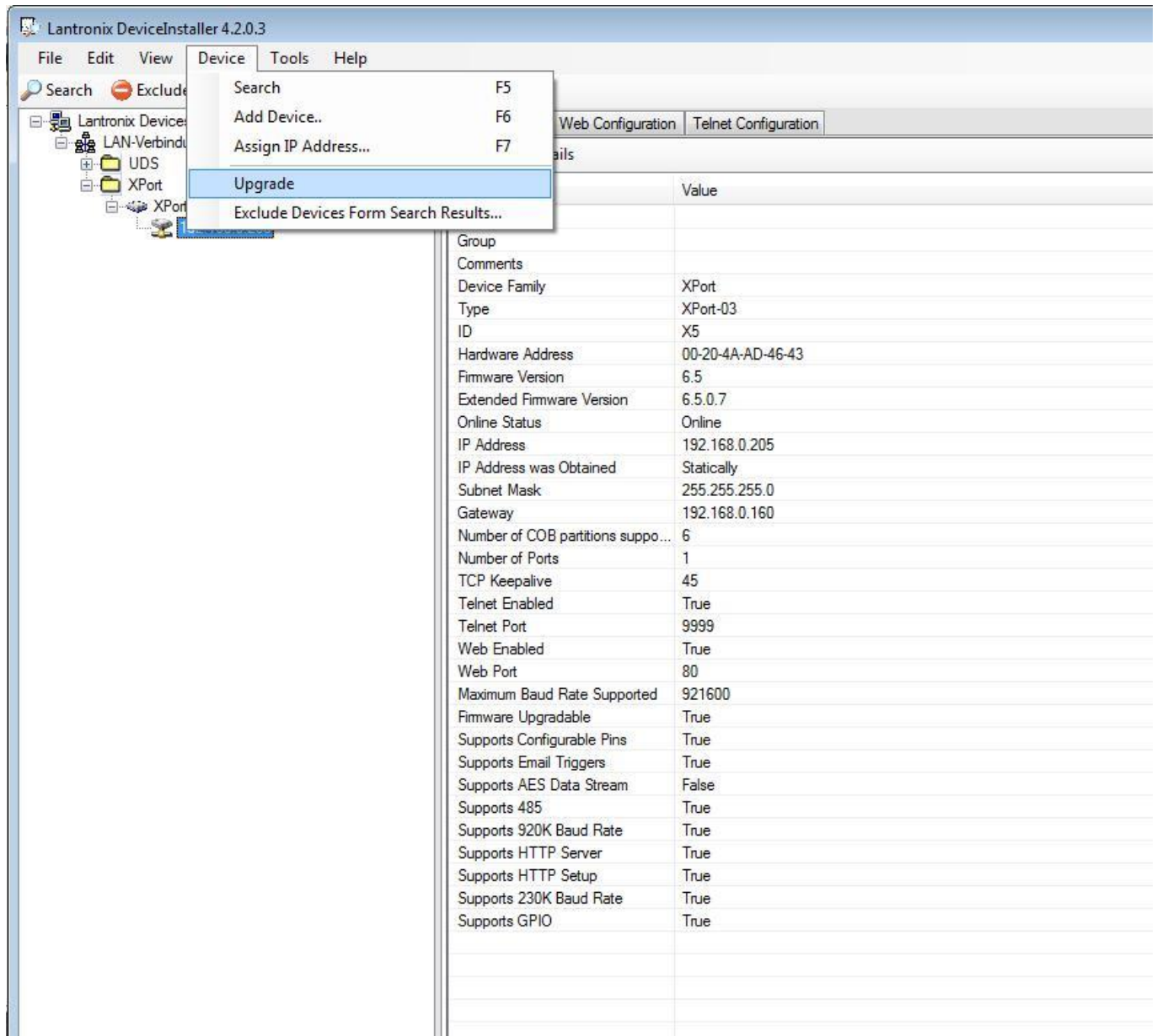


- 2) Use your web browser to browse to this IP address. In case your browser displays a web interface as the one below (with a Crestron banner) the web firmware of the CGEIB-IP needs to be updated.



- 3) Use the Lantronix Device Installer software (Version 4.2) and select „Device“ → „Search“. Select the CGEIB-IP in the list on the left hand side, highlight it and select „Device“ → „Upgrade“. When asked for, select the „XPort03-ROM6507COB1602.lxi“ file and start the upgrade.

Please contact Crestron Technical Support for the XPort03-ROM6507COB1602.lxi file.



- 4) After a successful upgrade, the web interface should be changed to the version below. (If you are prompted for username and password, you can just leave these blank and press „Enter“.)

Lantronix XPort Device Server - Windows Internet Explorer

http://10.32.4.129/secure/ltx_conf.htm

Favorites | Aanbevolen websites | MSN | My MSN | MSN Money | MSN Entertainment | MSNBC | Live Search Tra

Lantronix XPort Device Server

LANTRONIX[®] Firmware Version: V6.5.0.7
MAC Address: 00-20-4A-AD-4A-B2

Home

XPort[™]

Device Server Configuration Manager
Version 1.6.0.2

Navigation Menu:

- Home
- Network
- Server
- Serial Tunnel
 - Hostlist
- Channel 1
 - Serial Settings
 - Connection
- Email
 - Trigger 1
 - Trigger 2
 - Trigger 3
- Configurable Pins
- Apply Settings
- Apply Defaults

- 5) Refer to **Changing the IP-address configuration** on page 6 of this manual to correctly set up you CGEIB-IP

Reference Documents

The latest version of all documents mentioned within the guide can be obtained from the Crestron website (www.crestron.com/manuals). This link will provide a list of product manuals arranged in alphabetical order by model number.

List of Related Reference Documents

DOCUMENT TITLE
2-Series Control Systems Reference Guide

Further Inquiries

If you cannot locate specific information or have questions after reviewing this guide, please take advantage of Crestron's award winning customer service team by calling Crestron at +32-15-509920.

You can also log onto the online help section of the Crestron website (www.crestron.com/onlinehelp) to ask questions about Crestron products. First-time users will need to establish a user account to fully benefit from all available features.

Future Updates

As Crestron improves functions, adds new features and extends the capabilities of the Crestron CGEIB-IP, additional information may be made available as manual updates. These updates are solely electronic and serve as intermediary supplements prior to the release of a complete technical documentation revision.

Check the Crestron website periodically for manual update availability and its relevance. Updates are identified as an “Addendum” in the Download column.

Software License Agreement

This License Agreement (“Agreement”) is a legal contract between you (either an individual or a single business entity) and Crestron Electronics, Inc. (“Crestron”) for software referenced in this guide, which includes computer software and as applicable, associated media, printed materials and “online” or electronic documentation (the “Software”).

BY INSTALLING, COPYING OR OTHERWISE USING THE SOFTWARE, YOU REPRESENT THAT YOU ARE AN AUTHORIZED DEALER OF CRESTRON PRODUCTS OR A CRESTRON AUTHORIZED INDEPENDENT PROGRAMMER AND YOU AGREE TO BE BOUND BY THE TERMS OF THIS AGREEMENT. IF YOU DO NOT AGREE TO THE TERMS OF THIS AGREEMENT, DO NOT INSTALL OR USE THE SOFTWARE.

IF YOU HAVE PAID A FEE FOR THIS LICENSE AND DO NOT ACCEPT THE TERMS OF THIS AGREEMENT, CRESTRON WILL REFUND THE FEE TO YOU PROVIDED YOU (1) CLICK THE DO NOT ACCEPT BUTTON, (2) DO NOT INSTALL THE SOFTWARE AND (3) RETURN ALL SOFTWARE, MEDIA AND OTHER DOCUMENTATION AND MATERIALS PROVIDED WITH THE SOFTWARE TO CRESTRON AT: CRESTRON ELECTRONICS, INC., 15 VOLVO DRIVE, ROCKLEIGH, NEW JERSEY 07647, WITHIN 30 DAYS OF PAYMENT.

LICENSE TERMS

Crestron hereby grants You and You accept a nonexclusive, nontransferable license to use the Software (a) in machine readable object code together with the related explanatory written materials provided by Crestron (b) on a central processing unit (“CPU”) owned or leased or otherwise controlled exclusively by You and (c) only as authorized in this Agreement and the related explanatory files and written materials provided by Crestron.

If this software requires payment for a license, you may make one backup copy of the Software, provided Your backup copy is not installed or used on any CPU. You may not transfer the rights of this Agreement to a backup copy unless the installed copy of the Software is destroyed or otherwise inoperable and You transfer all rights in the Software.

You may not transfer the license granted pursuant to this Agreement or assign this Agreement without the express written consent of Crestron.

If this software requires payment for a license, the total number of CPUs on which all versions of the Software are installed may not exceed one per license fee (1) and no concurrent, server or network use of the Software (including any permitted back-up copies) is permitted, including but not limited to using the Software (a) either directly or through commands, data or instructions from or to another computer (b) for local, campus or wide area network, internet or web hosting services or (c) pursuant to any rental, sharing or “service bureau” arrangement.

The Software is designed as a software development and customization tool. As such Crestron cannot and does not guarantee any results of use of the Software or that the Software will operate error free and You acknowledge that any development that You perform using the Software or Host Application is done entirely at Your own risk.

The Software is licensed and not sold. Crestron retains ownership of the Software and all copies of the Software and reserves all rights not expressly granted in writing.

OTHER LIMITATIONS

You must be an Authorized Dealer of Crestron products or a Crestron Authorized Independent Programmer to install or use the Software. If Your status as a Crestron Authorized Dealer or Crestron Authorized Independent Programmer is terminated, Your license is also terminated.

You may not rent, lease, lend, sublicense, distribute or otherwise transfer or assign any interest in or to the Software.

You may not reverse engineer, decompile or disassemble the Software.

You agree that the Software will not be shipped, transferred or exported into any country or used in any manner prohibited by the United States Export Administration Act or any other export laws, restrictions or regulations (“Export Laws”). By downloading or installing the Software You (a) are certifying that You are not a national of Cuba, Iran, Iraq, Libya, North Korea, Sudan, Syria or any country to which the United States embargoes goods (b) are certifying that You are not otherwise prohibited from receiving the Software and (c) You agree to comply with the Export Laws.

If any part of this Agreement is found void and unenforceable, it will not affect the validity of the balance of the Agreement, which shall remain valid and enforceable according to its terms. This Agreement may only be modified by a writing signed by an authorized officer of Crestron. Updates may be licensed to You by Crestron with additional or different terms. This is the entire agreement between Crestron and You relating to the Software and it supersedes any prior representations, discussions, undertakings, communications or advertising relating to the Software. The failure of either party to enforce any right or take any action in the event of a breach hereunder shall constitute a waiver unless expressly acknowledged and set forth in writing by the party alleged to have provided such waiver.

If You are a business or organization, You agree that upon request from Crestron or its authorized agent, You will within thirty (30) days fully document and certify that use of any and all Software at the time of the request is in conformity with Your valid licenses from Crestron or its authorized agent.

Without prejudice to any other rights, Crestron may terminate this Agreement immediately upon notice if you fail to comply with the terms and conditions of this Agreement. In such event, you must destroy all copies of the Software and all of its component parts.

PROPRIETARY RIGHTS

Copyright. All title and copyrights in and to the Software (including, without limitation, any images, photographs, animations, video, audio, music, text and “applets” incorporated into the Software), the accompanying media and printed materials and any copies of the Software are owned by Crestron or its suppliers. The Software is protected by copyright laws and international treaty provisions. Therefore, you must treat the Software like any other copyrighted material, subject to the provisions of this Agreement.

Submissions. Should you decide to transmit to Crestron’s website by any means or by any media any materials or other information (including, without limitation, ideas, concepts or techniques for new or improved services and products), whether as information, feedback, data, questions, comments, suggestions or the like, you agree such submissions are unrestricted and shall be deemed non-confidential and you automatically grant Crestron and its assigns a non-exclusive, royalty-free, worldwide, perpetual, irrevocable license, with the right to sublicense, to use, copy, transmit, distribute, create derivative works of, display and perform the same.

Trademarks. CRESTRON and the Swirl Logo are registered trademarks of Crestron Electronics, Inc. You shall not remove or conceal any trademark or proprietary notice of Crestron from the Software including any back-up copy.

GOVERNING LAW

This Agreement shall be governed by the laws of the State of New Jersey, without regard to conflicts of laws principles. Any disputes between the parties to the Agreement shall be brought in the state courts in Bergen County, New Jersey or the federal courts located in the District of New Jersey. The United Nations Convention on Contracts for the International Sale of Goods shall not apply to this Agreement.

CRESTRON LIMITED WARRANTY

CRESTRON warrants that: (a) the Software will perform substantially in accordance with the published specifications for a period of ninety (90) days from the date of receipt and (b) that any hardware accompanying the Software will be subject to its own limited warranty as stated in its accompanying written material. Crestron shall, at its option, repair or replace or refund the license fee for any Software found defective by Crestron if notified by you within the warranty period. The foregoing remedy shall be your exclusive remedy for any claim or loss arising from the Software.

CRESTRON shall not be liable to honor warranty terms if the product has been used in any application other than that for which it was intended or if it as been subjected to misuse, accidental damage, modification or improper installation procedures. Furthermore, this warranty does not cover any product that has had the serial number or license code altered, defaced, improperly obtained or removed.

Notwithstanding any agreement to maintain or correct errors or defects, Crestron shall have no obligation to service or correct any error or defect that is not reproducible by Crestron or is deemed in Crestron’s reasonable discretion to have resulted from (1) accident; unusual stress; neglect; misuse; failure of electric power, operation of the Software with other media not meeting or not maintained in accordance with the manufacturer’s specifications or causes other than ordinary use; (2) improper installation by anyone other than Crestron or its authorized agents of the Software that deviates from any operating procedures established by Crestron in the material and files provided to You by Crestron or its authorized agent; (3) use of the Software on unauthorized hardware or (4) modification of, alteration of or additions to the Software undertaken by persons other than Crestron or Crestron’s authorized agents.

ANY LIABILITY OF CRESTRON FOR A DEFECTIVE COPY OF THE SOFTWARE WILL BE LIMITED EXCLUSIVELY TO REPAIR OR REPLACEMENT OF YOUR COPY OF THE SOFTWARE WITH ANOTHER COPY OR REFUND OF THE INITIAL LICENSE FEE CRESTRON RECEIVED FROM YOU FOR THE DEFECTIVE COPY OF THE PRODUCT. THIS WARRANTY SHALL BE THE SOLE AND EXCLUSIVE REMEDY TO YOU. IN NO EVENT SHALL CRESTRON BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL, SPECIAL OR PUNITIVE DAMAGES OF ANY KIND (PROPERTY OR ECONOMIC DAMAGES INCLUSIVE), EVEN IF A CRESTRON REPRESENTATIVE HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES OR OF ANY CLAIM BY ANY THIRD PARTY. CRESTRON MAKES NO WARRANTIES, EXPRESS OR IMPLIED, AS TO TITLE OR INFRINGEMENT OF THIRD-PARTY RIGHTS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTIES, NOR AUTHORIZES ANY OTHER PARTY TO OFFER ANY WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY FOR THIS PRODUCT. THIS WARRANTY STATEMENT SUPERSEDES ALL PREVIOUS WARRANTIES.

Return and Warranty Policies

Merchandise Returns / Repair Service

1. No merchandise may be returned for credit, exchange or service without prior authorization from CRESTRON. To obtain warranty service for CRESTRON products, contact an authorized CRESTRON dealer. Only authorized CRESTRON dealers may contact the factory and request an RMA (Return Merchandise Authorization) number. Enclose a note specifying the nature of the problem, name and phone number of contact person, RMA number and return address.
2. Products may be returned for credit, exchange or service with a CRESTRON Return Merchandise Authorization (RMA) number. Authorized returns must be shipped freight prepaid to CRESTRON, 6 Volvo Drive, Rockleigh, N.J. or its authorized subsidiaries, with RMA number clearly marked on the outside of all cartons. Shipments arriving freight collect or without an RMA number shall be subject to refusal. CRESTRON reserves the right in its sole and absolute discretion to charge a 15% restocking fee plus shipping costs on any products returned with an RMA.
3. Return freight charges following repair of items under warranty shall be paid by CRESTRON, shipping by standard ground carrier. In the event repairs are found to be non-warranty, return freight costs shall be paid by the purchaser.

CRESTRON Limited Warranty

CRESTRON ELECTRONICS, Inc. warrants its products to be free from manufacturing defects in materials and workmanship under normal use for a period of three (3) years from the date of purchase from CRESTRON, with the following exceptions: disk drives and any other moving or rotating mechanical parts, pan/tilt heads and power supplies are covered for a period of one (1) year; touchscreen display and overlay components are covered for 90 days; batteries and incandescent lamps are not covered.

This warranty extends to products purchased directly from CRESTRON or an authorized CRESTRON dealer. Purchasers should inquire of the dealer regarding the nature and extent of the dealer's warranty, if any.

CRESTRON shall not be liable to honor the terms of this warranty if the product has been used in any application other than that for which it was intended or if it has been subjected to misuse, accidental damage, modification or improper installation procedures. Furthermore, this warranty does not cover any product that has had the serial number altered, defaced or removed.

This warranty shall be the sole and exclusive remedy to the original purchaser. In no event shall CRESTRON be liable for incidental or consequential damages of any kind (property or economic damages inclusive) arising from the sale or use of this equipment. CRESTRON is not liable for any claim made by a third party or made by the purchaser for a third party.

CRESTRON shall, at its option, repair or replace any product found defective, without charge for parts or labor. Repaired or replaced equipment and parts supplied under this warranty shall be covered only by the unexpired portion of the warranty.

Except as expressly set forth in this warranty, CRESTRON makes no other warranties, expressed or implied, nor authorizes any other party to offer any warranty, including any implied warranties of merchantability or fitness for a particular purpose. Any implied warranties that may be imposed by law are limited to the terms of this limited warranty. This warranty statement supersedes all previous warranties.

Trademark Information

All brand names, product names and trademarks are the sole property of their respective owners. Windows is a registered trademark of Microsoft Corporation. Windows95/98/Me/XP/Vista and WindowsNT/2000 are trademarks of Microsoft Corporation.

