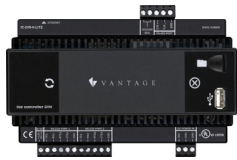








Overview

The IC-DIN-II-LITE Controller is ideal for smaller Vantage projects or when an additional controller is wanted for a small addition to an existing project/system. IC-DIN-II-LITE offers an economical solution for single rooms, theaters, boardrooms, boutiques, hotel applications, and etc. Installation kits may be ordered for easy setup including power and RadioLink pre-wired connections.





IC-DIN-II-LITE Order Information

US Part Numbers	Description	
IC-DIN-II-LITE	• IC-DIN-II-LITE controller - US plug - type-B	
IC-DIN-II-LITE-RF	• IC-DIN-II-LITE controller - US plug - type-B • RF Enabler • 15ft. cable connect controller to RF enabler	
INTERNATION Part Numbers	Description	
IC-DIN-II-LITE-EU	• IC-DIN-II-LITE controller - EU plug	
IC-DIN-II-LITE-BR	• IC-DIN-II-LITE controller - BR plug	
IC-DIN-II-LITE-AU	• IC-DIN-II-LITE controller - AU plug	
IC-DIN-II-LITE-UK	• IC-DIN-II-LITE controller - UK plug	
Also included with all part numbers above	• Power supply 36VDC, 100W • Power supply DIN rail bracket • 35 mm DIN rail - aluminum 17.0"	

Features


- No front panel display – interface through Design Center.
- No more than two IC-DIN-II-LITE controllers on a project.
- IC-DIN-II-LITE Controllers must be addressed as 1 or 2 (The address is set in Design Center).
- IC-DIN-II-LITE Controllers can be installed with IC-DIN-II and/or IC-24/36-II controllers as long as the IC-DIN-II-LITE controllers are addressed as 1 or 2.
 - If the standard controllers are using *Controller Bus* communication on a *mixed* controller system, at least *one* of the standard controllers must use C2C communication and Controller Bus communication.
 - Controller Bus is not supported on IC-DIN-II-LITE controllers.
- 35 mm DIN rail for easy installs.
- Two RS-232 ports.
- One RS-485 port (address = RS-485 Port 2).
- One station bus run.
- IC-DIN-II-LITE maximum station support:
 - 20* WireLink™
 - 60 RadioLink™, and
 - 16* Equinox 40
 - 20 Ethernet stations
- * NOTE: Design Center *automatically* reduces the maximum number of WireLink and Equinox 40 keypads when mixed.
- Supports *one* RadioLink Enabler.
- Uses same programming features as standard IC-II controllers.
- The Controller runs independent of a PC after initial setup and programming.
- Secure access – password protected.
- Design Center connection through local network or offsite.
 - Remote full or minor program changes are possible.
 - Diagnostics.
 - Read system.
 - Project control.
- Built-in Ethernet jack.
- Type A to A USB port (future features ready).
 - USB port is not used for programming on any IC-IIs.
- Micro SD card support (included).
- System Backups to *micro SD* card.
 - Manually from Design Center.
 - Automatic within 24 hours of programming system.

-then-

- Weekly.
- Up to 52 backups total.
- Oldest backup is replaced when 52 limit is reached.
- Restore entire system from System Backups via Design Center.
 - Undo option from last Restore via Design Center.
- Ram and Flash memory.
- Lithium battery retains time and status in a power outage.
- Maintains real and astronomical time clocks.
- Application code is upgradeable through Design Center.
- Manual Override – not used in DIN *only* systems.
- Reset button on front  re-boots controller.
- *Factory Reset* button on front  clears all programming and settings on controller – press and hold for 5 seconds required.
- The Vantage InFusion Controller Network can have up to thirty-one Controllers when connected via Ethernet as long as the IC-DIN-II-LITE is in position/controller number 1 and/or 2 and C2C is enabled (see bullet 4, previous column).

IC-DIN-II-LITE Controller Specifications

Description	Specification
Dimensions HWD	85.7mm x 157.2mm x 61.9mm 3.38" x 6.19" x 2.44"
Weight	361 g / 0.8 lb.
Mounting	35 mm DIN Rail (EN 50 022: 1977)
Power Supply Included	36VDC, 100 watt
Lightning / Surge Protection Static Shock IO.	IEC 61000-4-2
All Ports/Case	Low Voltage, ITU-T K.20
C2C, IC Network	Ethernet
Station Bus Specification	2C, 16AWG / 1.31mm2, twisted, non-shielded, <30pF per foot. Separate a minimum of 12" / 30.5cm from other parallel communication and/or high voltage runs.
Station Bus Power Supply	Station Bus = 36VDC, 50W*
Station Support (Station bus view may show available power when 20 station limit is reached. Extra power is intentional for headroom operation.)	<ul style="list-style-type: none"> • 20 keypads or 16 Equinox 40 stations. <ul style="list-style-type: none"> ◦ Keypad and Equinox 40 maximum number is reduced when mixed. • 60 RadioLink™, and • 20 Ethernet – Equinox 41/73, IRX II, etc. – stations
Max. Wire Length Station Bus	305m / 1,000ft of cabling max. on the station bus. No station more than 152m / 500ft from Controller.
Wire Configuration of Station Bus	Daisy Chain, Branch, Star (contact support for <i>Station Bus Best Practices</i>)
Cooling	Convection
Lithium Battery Backup	Disk battery CR2032, 3Volt 2.5 yrs. un-powered or 20 yrs. powered (field replaceable – see <i>Caution</i> at end)
Ambient Operating Temperature	0-40°C / 32-104°F
Ambient Operating Humidity	5-95% non-condensing
CE Certified	YES

***CAUTION:** 36V stations have a symbol  on the Serial Number sticker. Any station, not displaying this symbol, should not be connected to a 36Volt Station Bus.

Software/Firmware/Installation Requirements

Installation of Vantage products should be performed or supervised by a *Certified Vantage Installer*. Design Center Software, version 3.4 or higher must be used to program IC-DIN-II-LITE controllers.

- IC-DIN-II-LITE controllers must *only* be used with other IC-DIN-II-LITE, IC-36-II, or IC-24-II controllers.
- **Do not use** IC-DIN-II-LITE controllers with any generation one controller's that have one of the following part numbers:
 - IC-DIN
 - IC-DIN-LITE
 - IC-24-1
 - IC-36-1
 - IC-24
 - IC-36
- All controllers must use the same firmware. *Disconnect power when plugging in or un-plugging the controller's power connector.*

Powering the DIN Controller

Use a dedicated breaker to power the controller. Multiple InFusion Controllers may share the same breaker when in close proximity. The IC-DIN-II-LITE controller must be wired to the power supply provided with the controller. **DO NOT USE ANY OTHER POWER SUPPLY.**

Important, DIN Power Enclosure

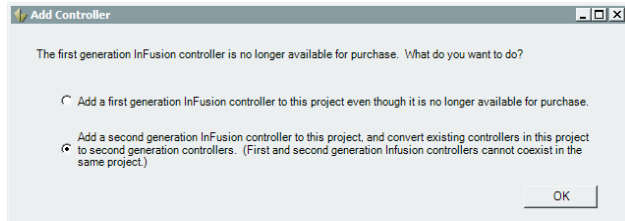
The controller, supplied power supply, and supplied 35 mm DIN Rail must be mounted in a properly ventilated enclosure.

The earth ground on the DIN Controller and power supply should be the **ONLY** earth ground connection in this DIN Controller's immediate system.

Design Center IC-DIN-II-LITE Setup Steps

It is recommended that the Design Center project file be open when following these steps.

1. In Design Center | Vantage Objects, click on Controllers and *select the IC-DIN-II-LITE.

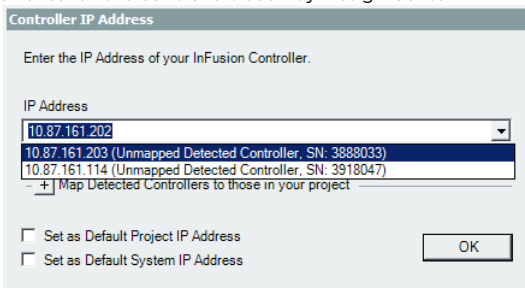


- Select the second option in the screen above if it appears.
- Delete the standard controllers if this is a new project with only an IC-DIN-II-LITE. Only 2 IC-DIN-II-LITE controllers are allowed per project.

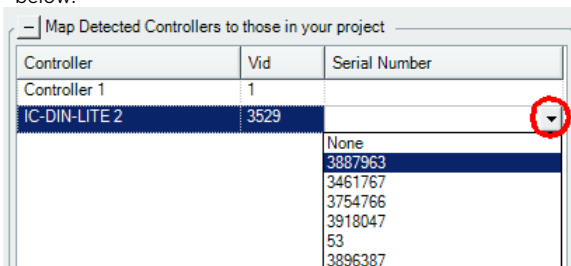
*NOTE: The IC-DIN-II-LITE may be setup to be the default controller in *Settings | System Preferences*. When set as default, it is not necessary to add a controller starting a new project.

2. Obtaining the IC-DIN-II-LITE controller's IP address (initially set to DHCP).

- Connect the IC-DIN-II-LITE to the local network and power via the supplied power supply.
- Record the IC-DIN-II-LITE's serial number for later use.
- From Design Center, identify the IP address of the IC-DIN-II-LITE by clicking on *Connection | IP Address...*. This opens the *Controller IP Address* window.
- Click the drop-down arrow to the right of the IP Address field to reveal all the controllers seen by Design Center



- Select the IC-DIN-II-LITE controller via serial number.
- Map the controller to your project by clicking the plus button in front of *Map Detected Controllers to those in your project*. The *Controller IP Address* window expands to include the information below.

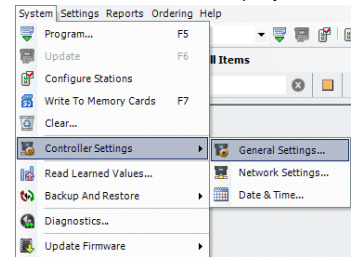


- Move the mouse over the end of the *Serial Number* field to expose the drop-down arrow (see red circle). Click the to reveal a list of serial numbers. Select the correct serial number to complete the map. When mapped, Design Center identifies the controller with the VID and serial numbers. This helps identify the correct controller in other Design Center views if multiple controllers from other projects are seen.
- If wanted, with the correct controller selected in the IP Address field, select either/both *Set as Default Project IP Address* (recommended) and/or *Set as Default System IP address*.

3. Set the IC-DIN-II-LITE's physical address - 1 or 2 only.

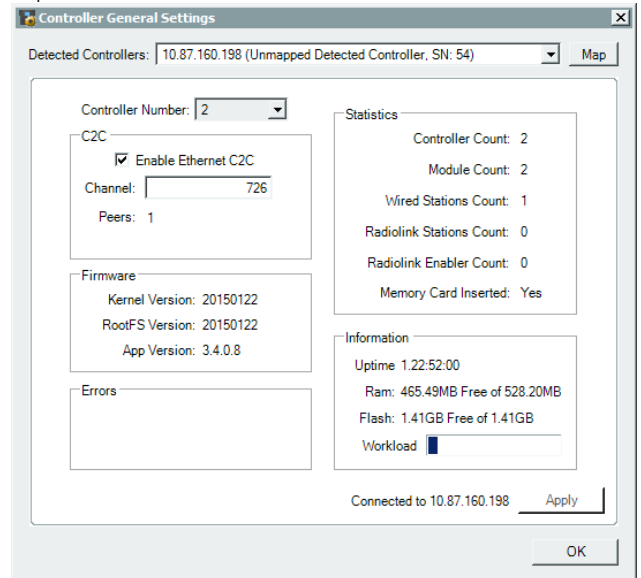
NOTE: The *Controller General Settings...* window will not open if Design Center is not able to connect to a controller in the project file.

- Click on *System | Controller Settings | General Settings* to open the *Controller General Settings* window (below).
- Make sure no other controllers have the same address of 1 or 2.

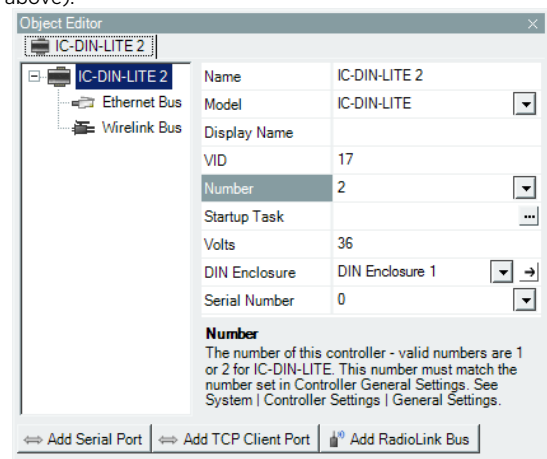


Controller General Settings

- The *Controller General Settings* window is opened.



- The information in this window is "live" via the selected controller in the *Detected Controllers* field (top field). This is the same information shown on standard controllers.
- The controller's physical address may be changed by selecting 1 or 2 next to *Controller Number* and clicking *Apply*. CAUTION: Do not accidentally change the *Controller Number*. Only change the *Controller Number* for IC-DIN-II-LITE controllers. Make sure the physical address number of the IC-DIN-II-LITE matches in *Enclosure View | Object Editor | Number* (image below and above).



- On projects with more than one controller all IC-DIN-II-LITE controllers and at least one standard controller must have C2C enabled with a common channel, see *C2C Channels* below.
- To see other controller's "live" settings on a project, change the selected controller in the *Detected Controllers* (top) field, (see *Controller General Settings* window previous page) - *not* the controller number. Wait for the window to update when changing to another controller. Enter security credentials if prompted.

Controller General Settings (continued)

Firmware

Quickly see the Kernel, RootFS, and App. Versions without going into Diagnostics.

Errors

Reports controller errors, (e.g., Station Bus Short).

Statistics

Confirm peripheral hardware directly connected to the selected controller.

- **Controller Count** - number of controllers seen by selected controller.
- **Module Count** - number of modules seen by selected controller - should always be zero for IC-DIN-II-LITE controllers.
- **Wired Stations Count** - number of station bus stations connected to selected controller.
- **RadioLink Stations Count** - number of RF stations connected to selected controller.
- **RadioLink Enabler Count** - number of RF1000 enablers connected to selected controller - should not be more than one for IC-DIN-II-LITE controllers.

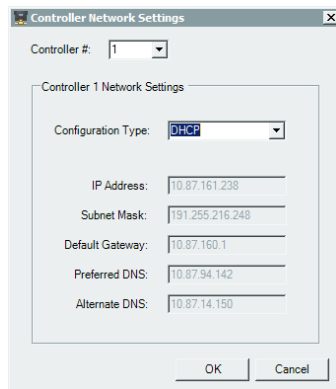
Information

- **Uptime** - the amount of time the IC has been operating without losing power, reported in *days:hours:minutes*.
- **RAM** - Free Memory / Total Memory
 - RAM: This is the active memory, Random Access Memory and is volatile.
- **Flash** - Free Memory / Total Memory
 - Flash memory is nonvolatile like the Hard-Drive on a computer. This is the main memory storage area for all programming. Data is compressed when downloaded.

Workload - Graphical display of the controller processor's workload.

4. How to change the controller's IP address.

- Complete the first 5 bullets in step 2 (above) before changing the IP address to static.
- Click on **System | Controller Settings | Network Settings** to open the **Controller Network Settings** window (right).
- Make sure the correct controller is selected.
- Select the **Configuration Type** pull down list and then select **Static**.
- Typically the Subnet Mask, Default Gateway, Preferred and Alternate DNS settings are already correct - correct if needed.
- Click OK to save the change to the IC-DIN-II-LITE controller.
- **Configuration Type** selections are:
 - DHCP,
 - Default (192.168.0.<controller number>),
 - Static, and
 - None.
- Caution, setting the IP to **None** on an IC-DIN-II-LITE requires the **Factory Reset** button be activated. See **Front Buttons** on next page.

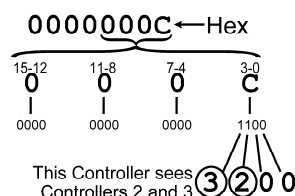


C2C Channels

Controller to controller communication is required on all IC-DIN-II-LITE controllers with more than one controller on the system. A **Channel** number must also be assigned if the network contains more than one InFusion System.

Channel: Because more than one InFusion System may be on a single network a unique channel number may be assigned to the controllers for each InFusion System. The **Peer** number is assigned automatically. Example, it is possible to have multiple IC-1 and/or IC-DIN-II-LITE controllers with address 1, address 2, etc., in a large building containing two or more InFusion systems. These InFusion systems may all be on one network. Assigning a unique channel number to each Controller group allows the identically addressed controllers to operate as independent systems on the same network.

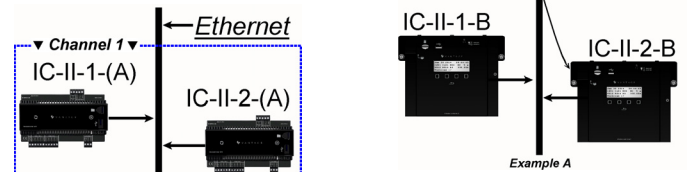
Peers: This is a bitmask of all controllers visible to this controller displayed in HEX. Convert to binary to see controllers position. Each "1" in binary, is a Controller.



Example Channels -

Example A:

IC-II-1-A sees IC-II-2-A and IC-II-2-B controllers. It does not know which IC-II-2 belongs to its network. At the same time IC-II-1-B also has the same problem.



Example B:

The "A" controllers and the "B" controllers have been assigned **channel** numbers, channels 1 & 2 respectively:

- **Channel 1** for IC-II-1-A and IC-II-2-A.
 - **Channel 2** for IC-II-1-B and IC-II-2-B.
- This allows each controller on the network to only talk to its co-controllers ignoring other controllers.

Programming the InFusion Controller

Programming is created and edited in Design Center software and saved as a project file. Projects are then downloaded to the system controllers via a local or remote connection through a network connection.

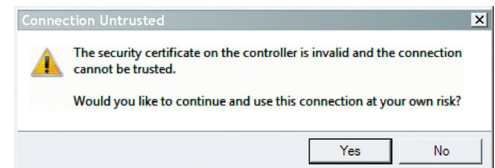
Program Controller Using a Direct Connection from Computer

If the controller is not connected to the local network, it is possible to program the controller by connecting the computer directly to the controller via an Ethernet cable (recommended) - standard or cross-over type.

- Set the controller IP address to Default 192.168.0.<controller number>
- Set the computer's IP address to 192.168.0.40 or similar (USB connection between Design Center and IC-II controllers is not supported.)

Ethernet Port Settings

- In Design Center select either a standard or secure (SSL) Ethernet connection.
- If using **Secure Ethernet** protocol, **Secure Sockets Layer (SSL)**, recommended, Design Center checks a security certificate against a security certificate stored on the controller. If they do not match this warning is displayed. It is recommended to double check the IP address of the controller. If the IP address is correct, change the connection to standard Ethernet and re-download the controller firmware. This procedure will also require the system to be re-programmed after the firmware update. Updating all controller's firmware, shipped with Design Center 3.3 or higher, should clear this error for future SSL connections.



Remote Programming and Maintenance

Remote programming and update capability may save unnecessary trips to actual sites. With remote updates, care should be taken to ensure that updates are complete and the system's new programming functions properly. Do not update firmware, via a remote connection, to any generation 1 controllers.

Remote Access Ethernet Port Settings

- For standard Ethernet connections, forward ports 2001 and 3001 to the IP address of the InFusion Controller.
- For Secure Ethernet connections (SSL), forward ports 2010 and 3010 to the IP address of the InFusion Controller.
- **When using a static IP address on the controller the gateway must also be setup on the controller.**
 - Set the gateway for IC-DIN-II-LITE in **System | Controller Settings | Network Settings**.
- Allow the **Ping** operation in router setup - used by Design Center to verify its connection.
- In Design Center enter the IP Address of the router or modem assigned from the ISP. Design Center may also require a User Name and Password if security has been enabled.

Backup Memory via SD Card

An SD flash card slot is provided for program backup and allows automatic backups periodically performed by the controller.

- Stores backup of all programming for project file.
 - Stores graphic rich web interface (i.e., WebPoint Lite).
 - SD cards can be directly accessed using Design Center Diagnostics.
 - An IC-DIN-II-LITE system's programming may be restored from the SD card using Design Center's *Backup And Restore* feature, see *Backup And Restore From Design Center (later in these instructions)*.
- NOTE: If the system contains at least one standard IC-DIN / IC-24/36 controller, the system may be restored via the front panel buttons on the standard controller without running Design Center. The SD card may be in either the IC-DIN-II-LITE or a standard controller for this to work.*
- Typically, only one SD card is recommended per system.
 - Replace the existing SD card when inserting an Equinox multiple license SD card.

Controller to Controller Wiring

C2C Ethernet Bus

Today's integrated devices use ever increasing amounts of metadata. C2C Ethernet communication must be used in systems containing two IC-DIN-II-LITE controllers or in mixed systems. In multiple controller systems, each controller should have its own Ethernet connection to the local network. In turn the local network should have access to the internet.

Controller Bus



Controller Bus: Not used by IC-DIN-II-LITE controllers.

Terminator Switch

Terminator Switch: Not used in C2C communication.

Front Buttons

There are two buttons on the front of the IC-DIN-II-LITE controller to re-boot or perform a factory reset.

- **Reset** button on left side of front panel  re-boots the controller and keeps all programming and settings. It is rare to have a controller become locked, however if this is suspected, use this button to reset.
- **Factory Reset** button on right side of front panel  executes with a 5 second press and hold. **CAUTION:** All programming, security settings and IP settings will be cleared. Controller must then be re-programmed from Design Center after a Factory Reset.

New Controller Features In Design Center 3.3

- Security
- Backup and Restore
- Enhanced Email Support
- Remote Location Firmware Updater – IC-II only

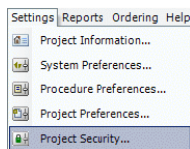
SECURITY

Security Levels and Users Table

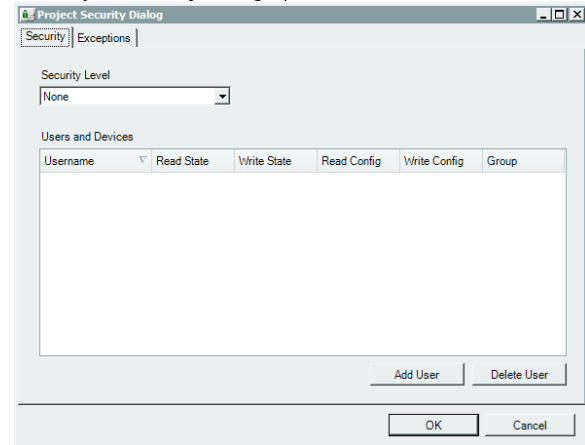
Security Levels	Level Requirements For Groups	
	Admin	User
None	<ul style="list-style-type: none"> • No credentials required from any connection 	<ul style="list-style-type: none"> • No credentials required from any connection
Remote	<ul style="list-style-type: none"> • Credentials required for all remote connections including Design Center 	<ul style="list-style-type: none"> • Credentials required for all remote connections using Host Commands • Connections from Design Center; not allowed
Local	<ul style="list-style-type: none"> • Credentials required for all local or remote connections including Design Center 	<ul style="list-style-type: none"> • Credentials required for all local or remote connections using Host Commands • Connections from Design Center; not allowed

Setting Up Controller/Project Security

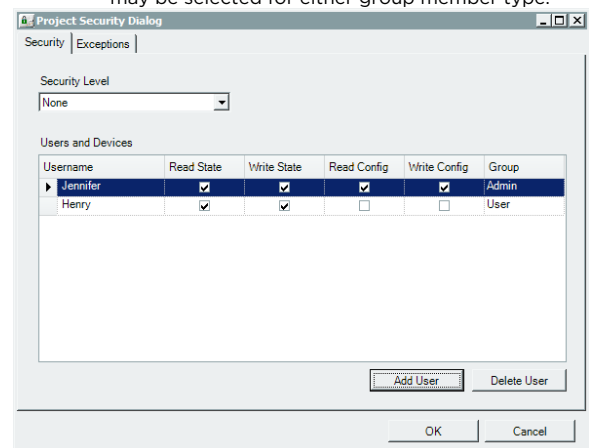
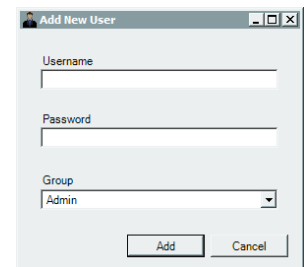
1. By default project security will be OFF when a new project is started.
2. To turn on project security in a new or existing project, click on *Settings* and select *Project Security*.



The *Project Security Dialog* opens.



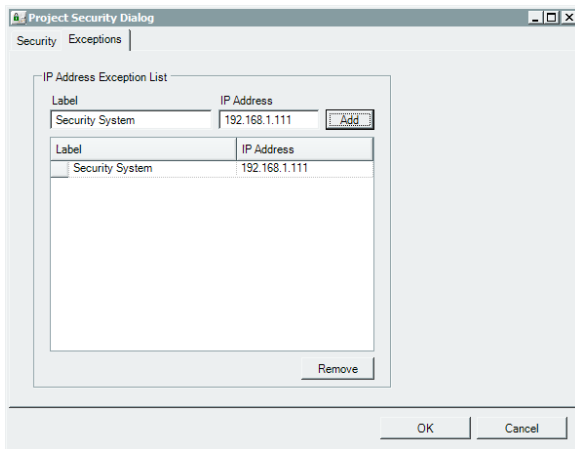
3. Initially the *Security Level* is set to *None* and no *Users and Devices* exist. If the security level is changed to *Local* or *Remote*, at least one *Admin* user must be added before exiting the dialog box.
4. To create a user press *Add User*. The *Add New User* dialog box opens.
5. Enter a *Username* and *Password* and select *Admin* or *User* to assign a group.
6. Press *Add* to add the new user.
 - a. *Admin*, have all permissions selected by default. *Admin* is required by Design Center with security enabled.
 - b. *Users*, cannot connect to the controller from Design Center. *Users* only have *Read State* and *Write State* permissions using Host Commands.
 - i. Custom permissions may be selected for either group member type.



7. The *Remote* security level requires proper credentials for any remote connection.
8. The *Local* security level requires proper credentials for local or remote connections – highest security level.
9. The security setting is sent to the controller when programming or updating the system.
10. All security settings are saved with the project.

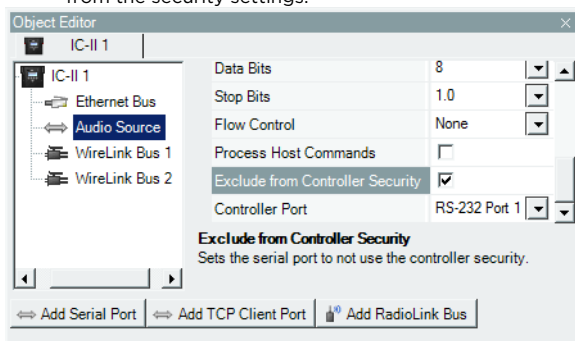
Exceptions to Security

1. Be sure to include any InFusion Media devices, TPT1210s, 700s and computers with InFusion Media Client USB Enabled – IMC-USB.
2. IP Address Exception List
 - a. If a third party device is not capable of sending a username/password, the IP Address of that device can be entered into the exception list. This excludes the device at that IP Address from security settings.



3. Serial Port Exception

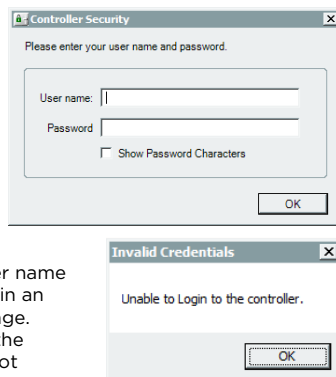
- If a third party device connected to a serial port is unable to send a username/password, check the *Exclude from Security* checkbox in *Object Editor*. This excludes the device from the security settings.



Serial Port Exception in Object Editor

Connecting Design Center With Security Enabled

- If the *Security Level* is set to *None*, connecting to controller proceeds normally.
- If the *Security Level* is set to *Remote*, local connections proceed normally while remote connections require proper credentials.
- With security enabled Design Center prompts for a user name and password.
 - Entering an Incorrect user name and/or password results in an *Invalid Credentials* message.
- If authentication is accepted, the username and password are not required again while the project is open and the IP address remains the same.



Ethernet Connection

- The dealer will be allowed to choose if they want a secure connection or an unsecured connection. For remote connections forward ports to the IP address of the InFusion Controller.
 - Secured ports (SSL) are: 2010, 3010
 - Standard ports are: 2001 and 3001

Temporary Security Override

IC-DIN-II-LITE does not have a *Security Override*. If the credentials are not available the *Factory Reset* button must be pressed and held for 5 seconds. The system must be re-programmed after resetting.

BACKUP AND RESTORE

Using backup and restore

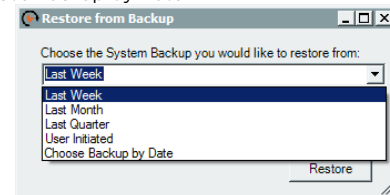
The backup and restore feature requires that one or more controllers on the system contain an SD Card.

- Recommendation: The Controller used to connect Design Center contains the system's SD card.
- Recommendation: Install one SD card per system.

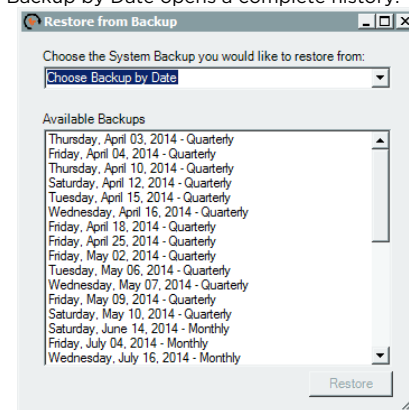
Backup and Restore From Design Center

- In Design Center click on *System | Backup And Restore* and select from:
 - Full System Backup

- Full System Restore
 - Restore Equinox Data From Backup.
 - Option "c", restores Equinox profile information on controller and opens programming screen.
- If Backup is selected the system writes the current controller programming to the sd card.
 - If Restore is selected the system opens a selection menu. *This will re-program all of the controllers on the system from the selected backup.* When a backup has been manually executed an *Undo* option appears in the backup history list.
 - Last Week
 - Last Month
 - Last Quarter
 - User Initiated (only shows when a manual backup operation has been selected)
 - Choose Backup by Date



- Choose Backup by Date opens a complete history.

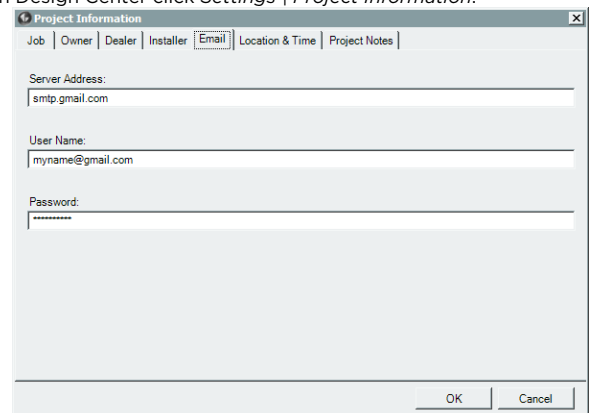


Expanded Email Options

- Design Center 3.3 comes with new controller firmware containing enhanced email support.
 - Gmail
 - Yahoo
 - Outlook.com
 - Etc.

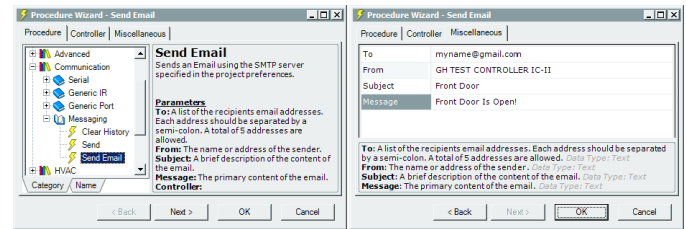
NOTE: IC-DIN-II-LITE and IC-DIN-II-LITE could differ in email support - IC-DIN-II-LITE has a smaller *OpenSSL* library due to memory restrictions. Test to verify email operation on all email services.

- In Design Center click *Settings | Project Information*.



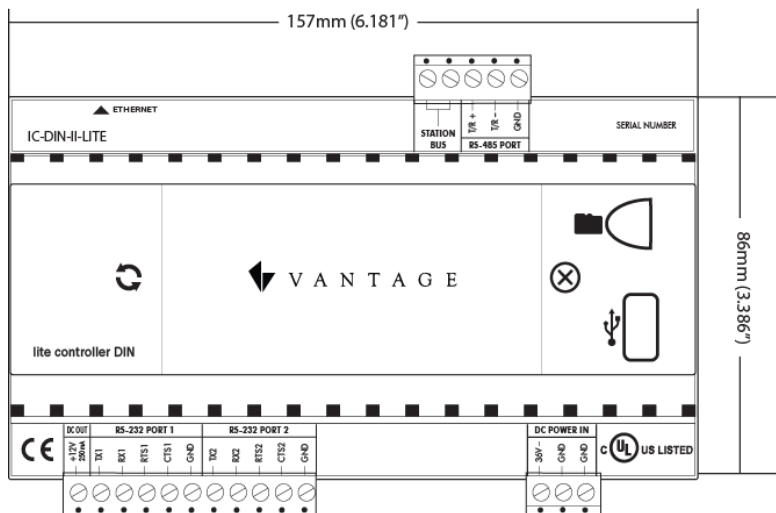
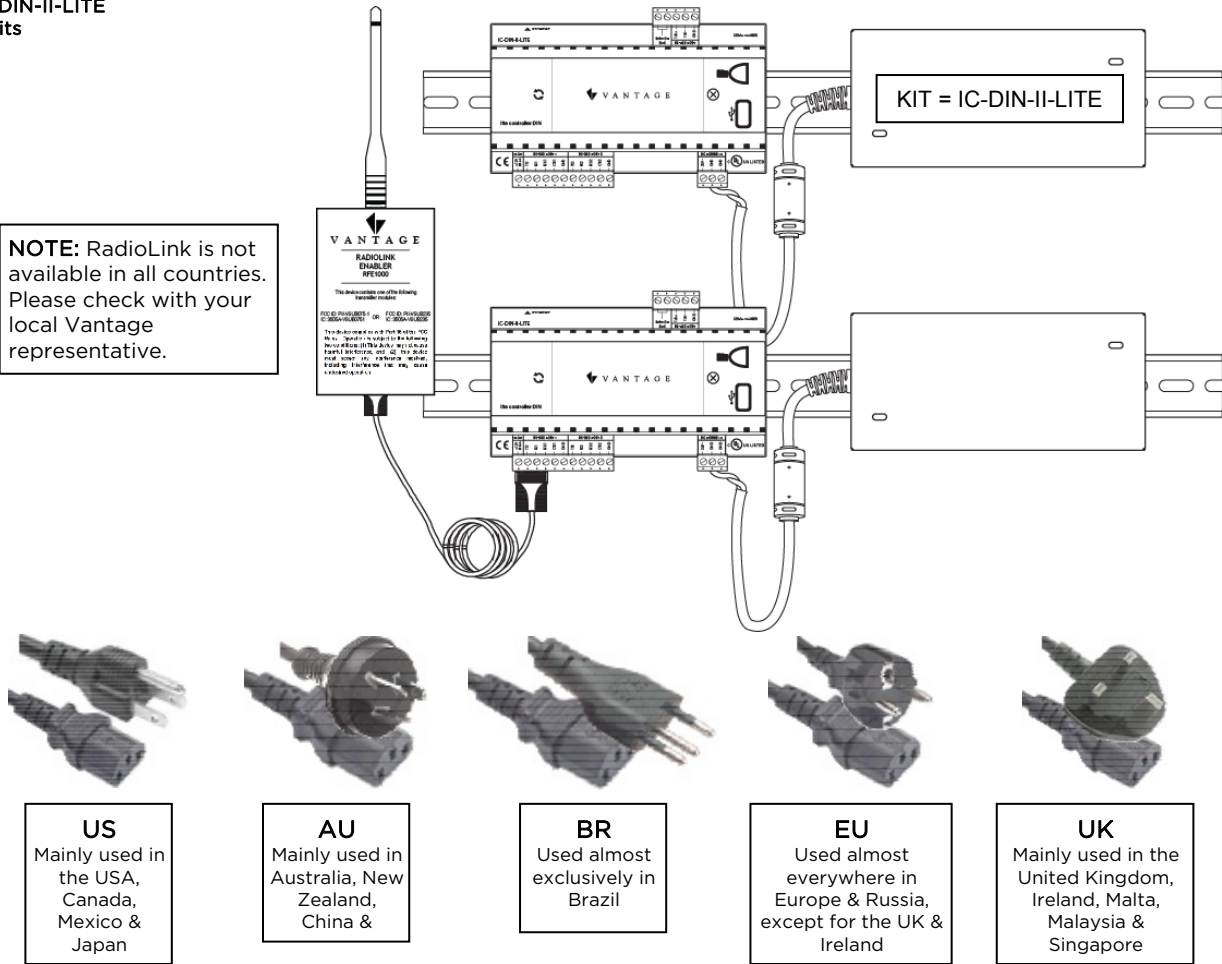
- In the *Project Information* window, select the *Email* tab to open the email setup window.
- The *Server Address* is the SMTP server information, for example, *smtp.gmail.com*. The correct SMTP server information is needed for the Email service being used. Please check with the email service provider for the specific SMTP Server information.
- The *User Name* is the user name used when setting up an email account, for example, *myname@gmail.com*.
- Finally the *Password* is the password required to access your email account.
- Click OK when finished.

8. Tasks may be assigned to send emails as part of their execution process. NOTE: Email setup in any Design Center project helps the project be future ready for new features.
9. In Design Center select *Communication | Messaging | Send Email*.

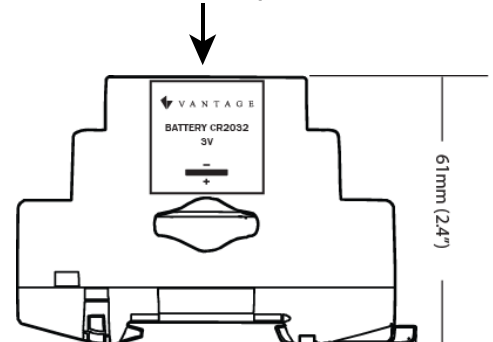


InFusion IC-DIN-II-LITE Controller Kits

NOTE: RadioLink is not available in all countries. Please check with your local Vantage representative.



CAUTION: BATTERY MAY EXPLODE IF MISTREATED. DO NOT RECHARGE, DISASSEMBLE, OR DISPOSE OF IN FIRE. REPLACE ONLY WITH THE SAME OR EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISPOSE OF USED BATTERIES ACCORDING TO THE MANUFACTURE'S INSTRUCTIONS.
Lithium Battery CR2032, 3Volt
(remove tab before using first time)



Possible Ground Loop Issues

All RS-232/RS-485 connections between *third party* equipment and RS-232/RS-485 connections on the DIN Controller, *may* produce a ground loop. Often the third party connected RS-232/RS-485 device is not using the same power source or is far away from the DIN Controller resulting in a possible ground loop or data noise condition. If this condition is suspected, Vantage recommends a third party RS-232/RS-485 Opto (optical) Isolation Module. Opto Isolation provides a communications link and is an important consideration if a system uses different power sources, has noisy signals or must operate at different ground potentials.