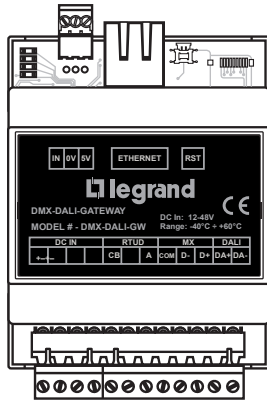


DMX-DALI-GW

Country of Origin: Made in Italy



OVERVIEW

The DMX DALI GATEWAY (DDG) simultaneously processes information to/from DMX and/or DALI devices. The DDG station provides a full DMX universe of 512 channels, from which 64 channels may be used for DALI control. The information is transmitted via Ethernet, in controlled packets, to the controller which acts as the central control point. The controller conversely transmits controlled packets back to the DDG to be distributed to each connected bus. The controller manages the information, load status and levels; making the interface simple to use.

This product is very versatile and its capabilities and limits must be fully understood to use effectively. Read all of these instructions before installing.

FEATURES AND OPERATION OVERVIEW

- Standard RJ45 Ethernet terminal connector
- Phoenix type screw terminals
 - Easy power and bus connections
- 4-LED Communication status indicators
 - Ethernet, Bus 1, Bus 2, and Bus 3
- Firmware updateable*
- Support for DMX and/or DALI devices simultaneously
 - Bus 2 is DMX
 - Bus 3 is DALI
- Reset button
 - **Boot Loader Mode:** Standard press and release, do not hold
 - Reboots station into boot loader mode, LEDs may flicker and then go off
 - Boot loader mode is used when upgrading firmware
 - Repower the station to exit boot loader mode
 - **Factory Reset:** Press and hold just over four seconds
 - Resetting to factory settings - LEDs go off until the station reboots to factory settings. All load channels are set back to default
 - Resets the IP address to factory settings

REFERENCE STANDARDS

- EC 61547: Equipment for general lighting purposes – EMC immunity requirements
- IEC 61000-3-2: Electromagnetic compatibility (EMC) – Part 3-2: Limits – Limits for harmonic current emissions (equipment input current 16A per phase)
- EN 55015: Limits and methods of measurement of radio disturbance characteristics of electrical lighting and similar equipment
- IEC/EN 62386-101: Digital addressable lighting interface – Part 101: General requirements - System
- IEC/EN 62386-102: Digital addressable lighting interface – Part 102: General requirements – Control gear
- IEC/EN 62386-207: Digital addressable lighting interface – Part 207: Particular requirements for control gear – LED modules (device type 6)
- ANSI E 1.3: Entertainment Technology – Lighting Control Systems – 0 to 10V Analog Control Specification
- ANSI E 1.11: Entertainment Technology – USITT DMX512-A – Asynchronous Serial Digital Data Transmission Standard for Controlling Lighting Equipment and Accessories
- ANSI E 1.20: Entertainment Technology-RDM-REMOTE Device Management over USITT DMX512 Networks – Lighting Control Systems – 0 to 10V Analog Control Specification

SPECIFICATIONS

Description	Specification
Dimensions, HWD	3.5" x 2.8" x 2.4" (90mm x 72mm x 62mm)
Weight	4.8 oz (136g)
Input Voltage	12VDC • 320mA - 48VDC • 80mA
Mounting	35mm DIN Rail (EN 50 022: 1977)
Connects to System Via	Ethernet, RJ45 - 10/100Mbit
Maximum Power Draw	500mA
Minimum Power Draw	40mA
Max. DDG Loads (channels)	512
DMX Bus 2, full DMX universe support for NSC, SIP, RDM	512 DMX Channels - NSC, SIP, RDM NSC: Null Start Code SIP: System Information Packet RDM: Remote Device Management
DALI Bus 3	64 Channels, 125mA power supply (DALI TYPE 6 only)
DMX/DALI Channels	Duplicate DMX and DALI channel assignments are shared on both buses
DALI Groups 1-16	Control from 1 to 16 DALI groups - see <i>Using DALI Groups</i>
4-LED Communication Status Indicators	1 LED for each: Ethernet, Bus 1, Bus 2, and Bus 3
Local Contact (n.o.) Input	Stand-alone mode, not used with InFusion application
Ambient Operating Temperature	Min. -40° F to max. 140° F (Min. -40° C to max. 40° C)
Ambient Operating Humidity	Non-condensing environment
CE Certified	Yes

FIRMWARE UPDATE

Before installing the Vantage DDG, make sure the firmware has been updated to the latest release. See *Steps to Update Station Firmware* in this document. After a firmware update the station's new factory setting IP address is 192.168.1.225. However, updating firmware does not change the IP address to the factory setting. Only a factory reset will change the IP address to the factory setting – see *Reset Button* (previous page).

DMX-DALI-GATEWAY/DGM CONFIGURATION STEPS

The DGM Configuration software is built-in the DDG station and is accessed by connecting to the station's IP address via most internet browsers – test with: Mozilla Firefox™, Google Chrome™, Microsoft Edge™. Try a different browser if problems occur running DGM Watch.

NOTE: The DGM Config tool has to connect to the DDG station via the default IP address when the station is in default mode or an assigned IP address if the station is not in default mode and has been assigned a new IP address. The steps below may require the default IP address of 192.168.1.225 be substituted with 192.168.1.4 -or- if the station has previously been assigned a new IP address, and is not in default mode, substitute the new IP address.

DMX-DALI-GATEWAY/DGM CONFIGURATION STEPS (continued)

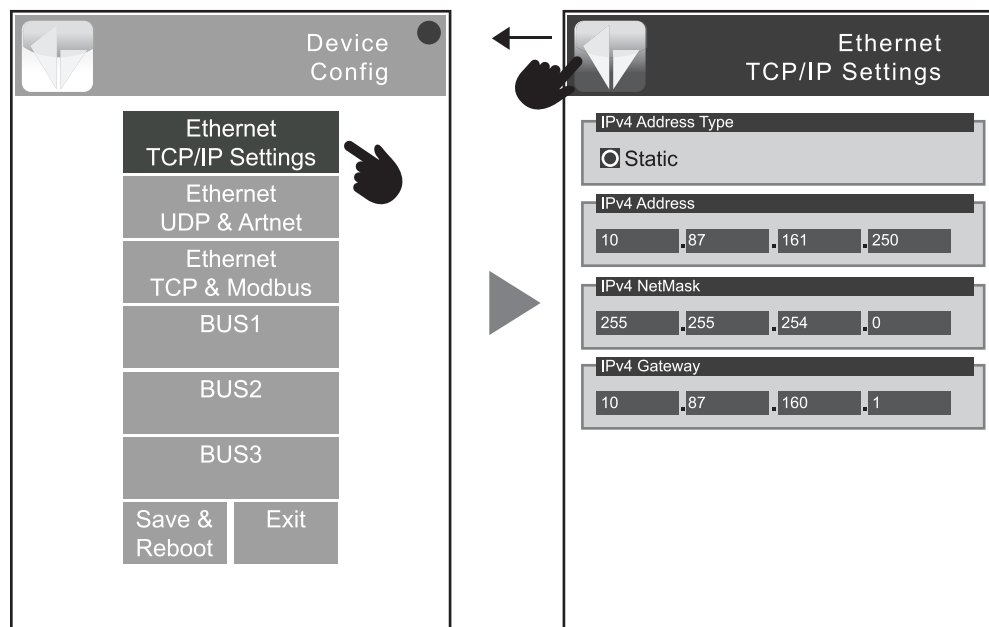
1. Power on the station with the correct power supply
2. The station comes with a static IP Address of 192.168.1.225 or 192.168.1.4. The 192.168.1.225 IP address is from newer firmware releases
3. Follow the **A** or **B** section steps below depending on the local network


SECTION A

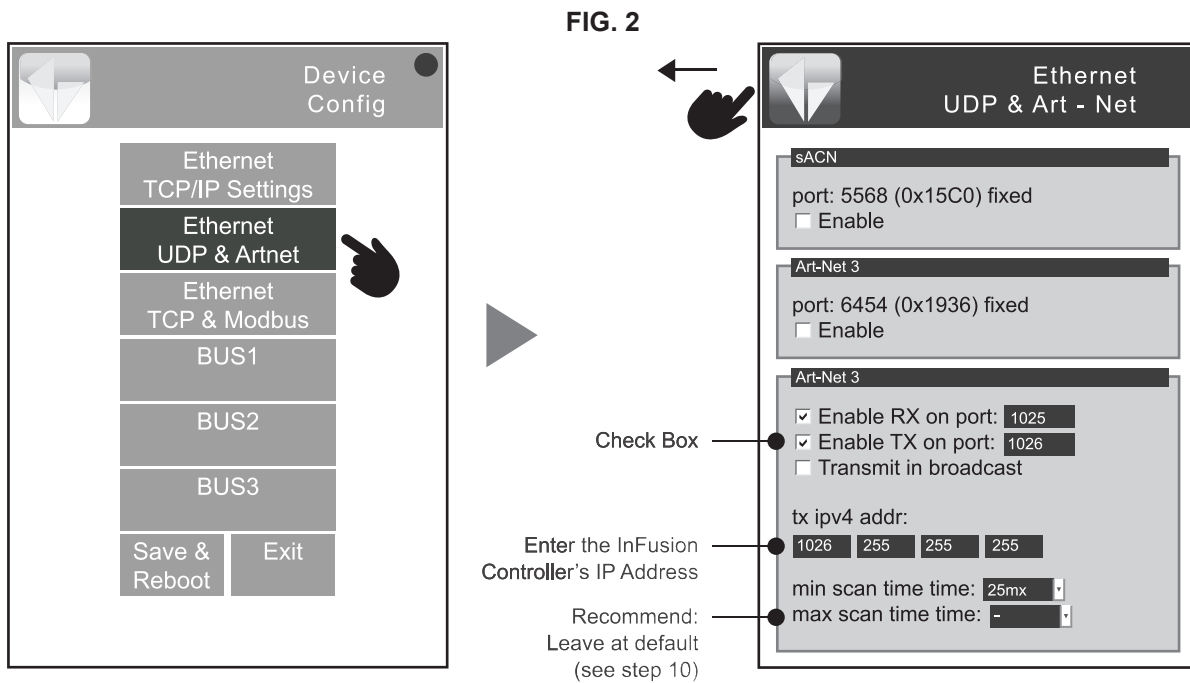
If the local network **is not on** the 192.168.1.x subnet and the DDG station is set to default mode:

1. Configure the local network's router to reserve a static IP address for the DDG station – record for later use
2. Disconnect the computer from the main network
3. Connect the computer directly to the DMX-DALI-GATEWAY; the DDG station must be powered
4. Modify the computer's network adapter settings to have a static IP address of 192.168.1.5
5. Type <http://192.168.1.225/config.html> in a browser to start the DGM Configuration interface tool. (TIP: If unable to connect, try the other default IP address 192.168.1.4 or perform a factory reset to the station and try both IP addresses again)
6. Click the Ethernet TCP/IP Settings button (fig. 1)

FIG. 1



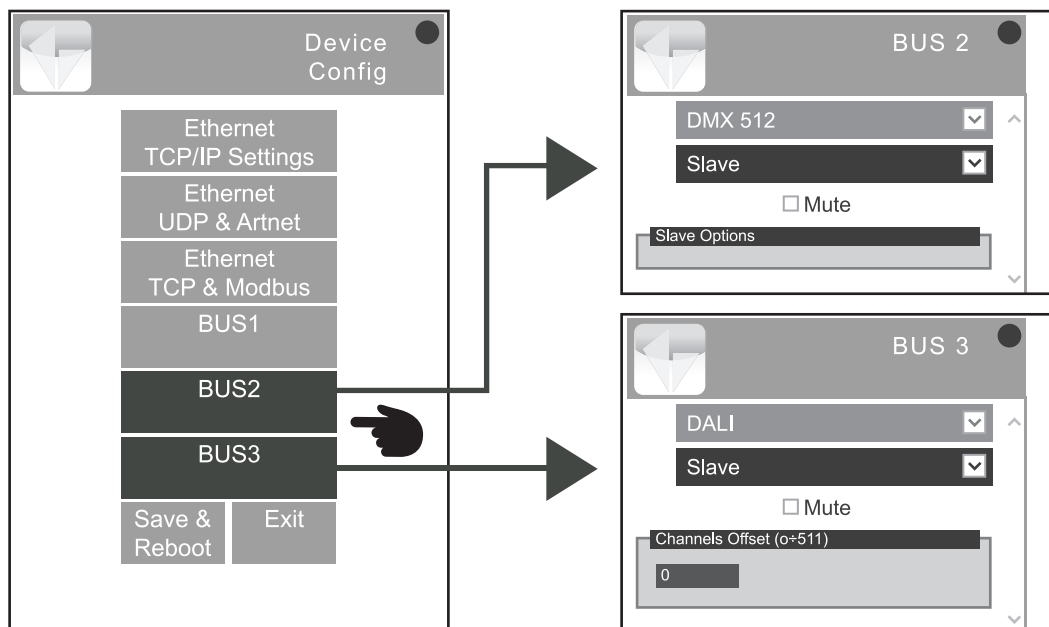
7. Change the Static IP to the reserved address in Step 1 above and set NetMask and Gateway as needed. Record the IP Address assigned to the DDG device for later use in Design Center
8. Return to the DGM Config home page by click on the Vantage icon 
9. If using the DDG station in *Slave Mode*, continue to set 10, otherwise skip to step 13.
10. For *Slave Mode*, change the *Ethernet UDP & Artnet* settings by clicking on the button as shown on next page (Fig. 2)
 - Check Enable TX on port: 1026
 - In the *tx ipv4 addr*: field, enter the InFusion controller's IP address
 - It is recommended to leave the min/,ax scan time at default:
 - a. Min. 25ms -
 - b. Max, -) (*blank*)
 - c. Set the *tx scan time* in ms (milliseconds) for min. to seconds for max. Load feedback is sent within these intervals when there is no traffic
 - d. To disable feedback when there is no traffic, leave the min. and max. fields blank



11. Click on the Vantage icon to return to the DGM Config home page
12. Select Bus 2 and change to *Slave Mode*, exit back to home page and save. Repeat for Bus 3 (see fig. 3)
13. Click on *Save & Reboot* to commit the changes
14. Remember to reset the computer's network adapter and reconnect to the local network. Connect the DDG station to network.

FIG. 3

NOTE: Always change both DMX and DALI buses to *Slave* or *Master* mode together




SECTION B

If your network **is on** the 192.168.1 subnet:

1. Power up and connect the DMX-DALI-GATEWAY to the network
2. On the router, make sure to set up a reserved/static address for the device. The default address of 192.168.1.225 may be used if available on local network.

To Change IP Address:

3. Type `http://192.168.1.225/config.html` in a browser to start the *DGM Configuration* interface tool
4. Click the Ethernet TCP/IP Settings button. (see Fig. 1 in Section A)
5. Change the Static IP to a desired address on the same subnet as the controller
6. Record the IP Address assigned to the DDG device so this may be added in Design Center
7. Return to the DGM Config home page, click on the Vantage icon. (Also see Master or Slave Mode of Operation, below).
8. If using the DDG station in *Slave Mode* see steps 10-12 in section A, otherwise skip to step 9, section B.
9. Click on *Save & Reboot* to commit the changes 

MASTER OR SLAVE MODE of OPERATION

The DDG station ships with all buses in Master Mode by default. To place the DMX and DALI buses in *Slave Mode* type `http://192.168.1.225/config.html` or current IP address, in a browser. See, DMX-DALI-GATEWAY / DGM Configuration Steps (pg1). Always change both buses to the same mode.*

MASTER MODE OPERATION

In *Master Mode* the InFusion system controller is the master controller for all connected DMX and/or DALI systems. The DDG is the managing gateway for information between the InFusion controller and connected DMX and/or DALI buses in real time.

SLAVE MODE OPERATION

In *Slave Mode* the InFusion controller uses the DDG to *monitor* information - no Design Center control - from the DMX and/or DALI buses. Note: Feedback information may be used to trigger Design Center tasks. See DMX-DALI-GATEWAY / DGM Configuration Steps page 1-2 if using *Slave Mode*.

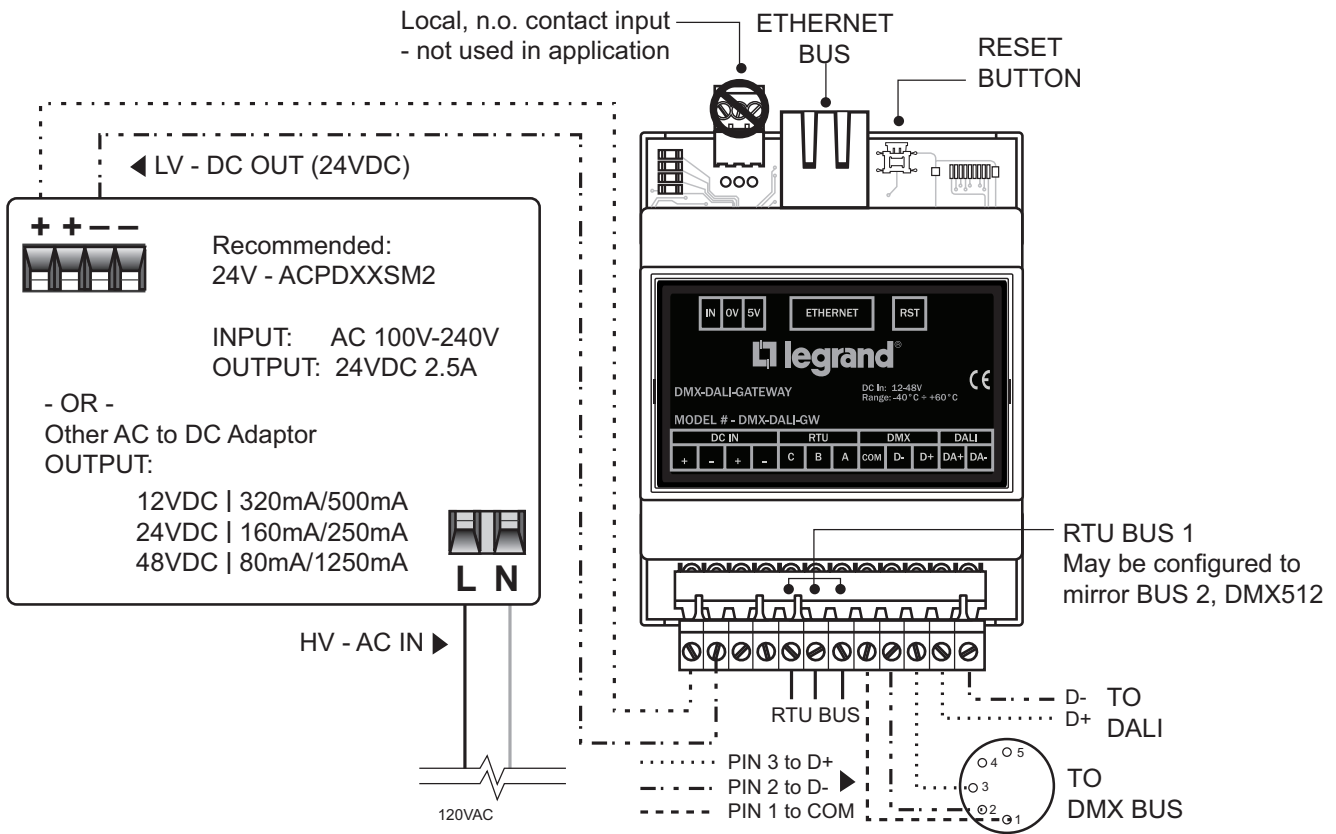
IMPORTANT: Using the DGM Configuration tool, it is possible to independently place each bus, DMX and DALI, in Master or Slave mode, however, Vantage does not support mixed Master/Slave configurations. When changing either bus to Master or Slave mode, *always* change *both* buses to the same mode. Remember to click the *Save & Reboot* button when changing any settings in the DGM Configuration tool.

INSTALLATION

PRE-INSTALLATION

- Installation and maintenance must only be performed by qualified personnel in compliance with current regulations
- Mount using standard 35mm DIN Rail (EN 50 022: 1977)
- Product must be installed in an electrical panel protected against over-voltages
- High-voltage to the power supply must be kept separate from all low-voltage power connections to the DDG station
- Screw terminals are provided allowing easier connection of power and bus wires
- A standard Ethernet RJ45 terminal is provided for the station to connect to the local network
- A 120 – 240 volt power supply adaptor must be properly installed. Power adaptor must have a DC output sufficient to operate the station – adaptor output can be 12Vdc to 48Vdc
- The Vantage ACPDXXSM2 power supply is recommended
 - Input Power- AC 100-240V-1.22-0.66A 50/60
 - Output Power- 24V DC 2.5A 60W Max

INSTALLATION (continued)



- Commission DMX and DALI lighting channels before setting up the DDG station in Design Center. This allows the correct load channels to be created in Design Center
- Have the person commissioning DMX/DALI channels, avoid using duplicate channel numbers for DMX and DALI channels. When different devices share the same channel, overlapping channels may cause unwanted irregularities when performing ramp/fade cycles.
- Obtain a list* of the commissioned DMX/DALI loads with their respective channel numbers. Also obtain the location/room for each load for better integration in the Equinox lighting widget. **IMPORTANT:** Avoid assigning DMX and DALI channels the same channel number for independent load operation
- ***IMPORTANT:** DALI uses 0-base addressing. See Using the DALI Bus, (page 5). The DALI bus addresses are automatically changed to 1 base addresses in the DDG station making them automatically match Design Center and DGM Watch

TIPS:

- During DALI load commissioning, Vantage recommends starting the DALI loads at channel 0 and stopping at the highest number of loads needed for the DALI loads. (TIP: 0 becomes 1, 1 becomes 2 etc. in Design Center)
- When connecting both DMX and DALI buses to the same station always start the DMX channels at a higher number than the highest DALI channel to avoid overlapping channels
- Be aware that DALI channels may be assigned an offset number – see USING the DALI Bus, pg5. If the DALI bus has a high offset number, the DMX loads may need to start at a lower number to avoid overlapping channels
- In Design Center, when connecting both DMX and DALI buses, make sure to assign the load channels to match the list of commissioned loads. The DALI list may be off by a factor of 1, see USING the DALI Bus, pg5. Also see DMX-DALI-GW Design Center Setup Steps below.
- DMX only systems may use the full DMX universe, 512 channels.
- DALI systems may use up to 64 channels or 16 groups. Each DALI group is considered a single load in Design Center

LOAD CHANNELS

DDG STATION	DMX (Bus 2)	DALI (Bus 3)
	Channels 1 to 512	Channels 1 to 64 (default)
It is recommended to <i>avoid</i> channel overlap	<ul style="list-style-type: none"> • DMX can use all 512 channels • DALI can use up to 64 channels and may start with an offset number using the <i>DGM Device Config</i> tool (DALI TYPE 6 only) 	
Example no overlap	DMX	DALI
	65 to 512	1 to 64

POST INSTALLATION (After loads have been commissioned)

CHANGES TO PRE-COMMISSIONED LOAD CHANNELS

- To change DMX or DALI commissioned channel assignments, after they have already been commissioned, communication between the DDG station and the InFusion system must be closed. To stop communication with Vantage, Mute the buses using the DGM Configuration tool. Type <http://192.168.1.225/config.html> or current IP address into a browser on the same network as the DDG station. Click on Bus 2 and check the box for Mute – repeat for Bus 3. Return to the configuration home page and click Save & Reboot for the Mute operation to be active.
- Once the channel assignments have been changed/re-commissioned, remember to un-mute buses 2 and 3 by following these same steps and un-checking the Mute box.

DMX-DALI-GW DESIGN CENTER SETUP

1. Add the DDG station to the project in Design Center (Fig. 1)
 - A. Click in the *Object Explorer | Stations, Other*
 - B. Double click or drag the *DMX DALI Gateway station* into the project
2. With the station selected in the Design Center grid section, type the IP address of the DDG station in the *Object Editor*
3. Right click on the station in Design Center and select Add Load, (this adds non-color loads). Repeat to add loads up to 512. Loads may also be added by clicking the *Add Channel* load icon in *Object Editor* (Fig. 2)
4. Drag loads into specific areas and set a concise display name to include the area for easier load recognition in the Equinox lighting widget; example, meeting room.
5. In the *Object Editor* make sure each load has the correct Channel assignment by selecting the load and clicking Position (channel number). This opens a list of available channels from the 512 loads available to the DDG station. Note, already used loads are removed in the list (Fig. 3)
6. Confirm the IP Address for the DDG station in the *Object Editor*, step 2 above.
7. After a full system program it may take approximately 90 seconds for the DDG station to begin communicating with the InFusion Controller. Once connected, test the loads from Design Center tasks or the Equinox lighting widget.

FIG. 1

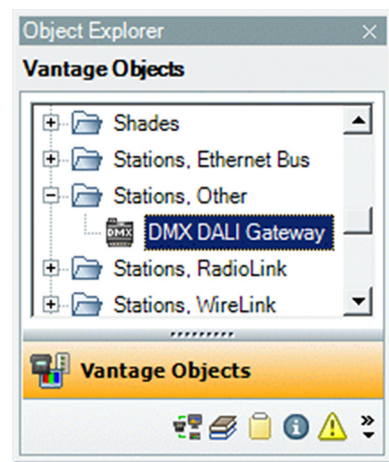


FIG. 2

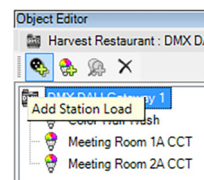
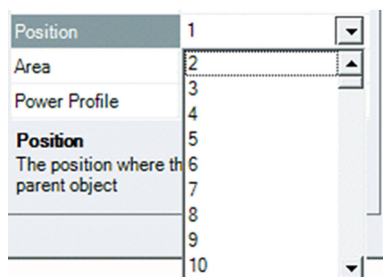


FIG. 3



ADDING COLOR LOADS

To create DDG color loads in Design Center select the DDG station in the grid section.


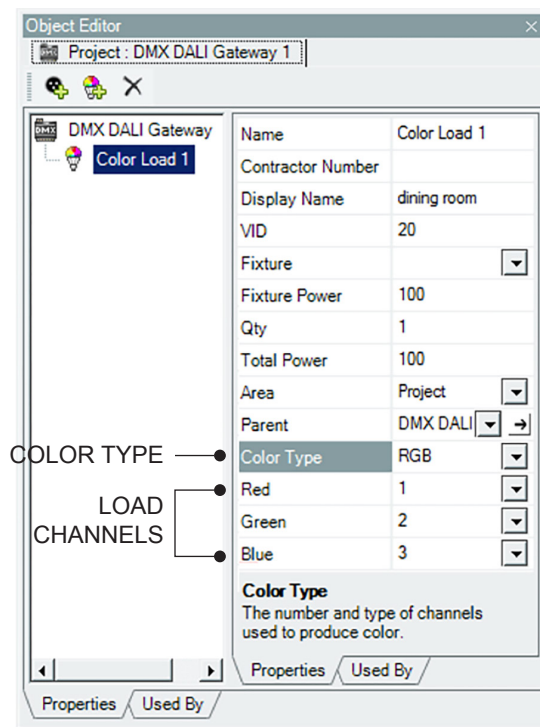
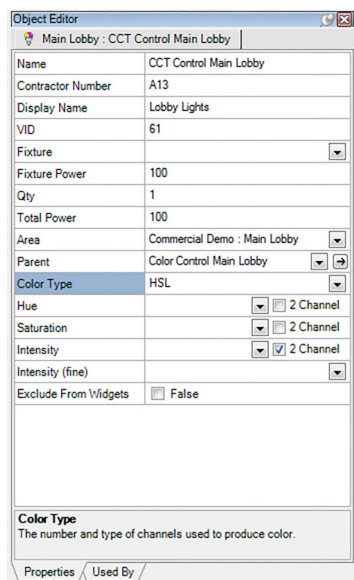
- In the *Object Editor* click the *Add Color Load* icon. 
- The Object Editor updates to the image at right (Fig. 1)
- Select Color Type in the Object Editor. The selected color type slightly changes the image at the right
- Confirm the color channels are correct for the color device
 - Each channel counts as one DMX load.
 - Each color load group counts as one load in Design Center and Equinox
- When controlling in DMX, you have the option to use 8bit or 16bit control. For example, using an HSL type load, the intensity channel could have 2 addresses/channels assigned, and if checked, would now be in 16bit mode. In 16bit mode, this would support the ability to have a fine channel of control and a coarse channel of control.
- Note: the default is 8-bit and the 16-bit/2 channel option is only supported in HSL, CCT, and HSIC configurations.

FIG. 1

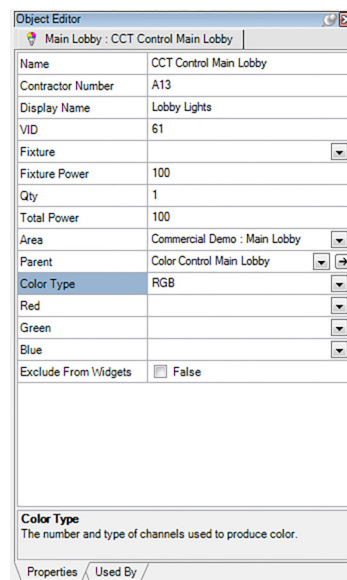


COLOR LOADS

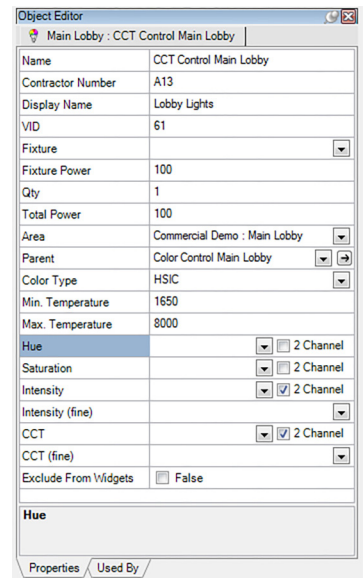
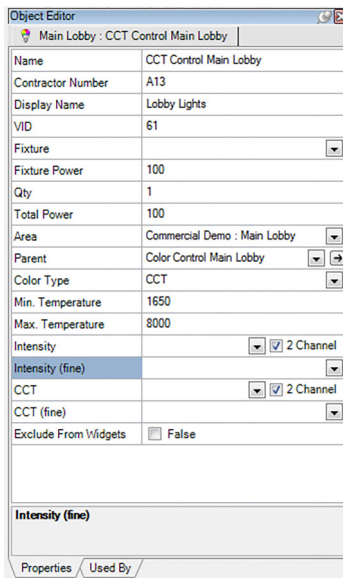
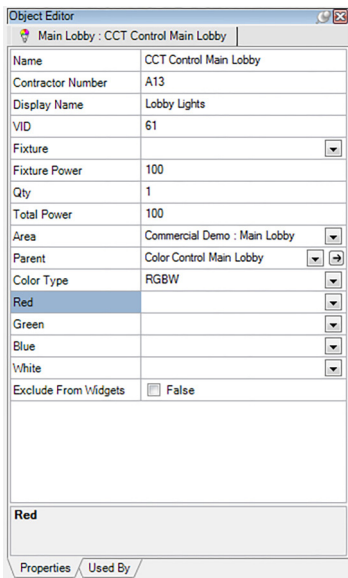


HSL - Assigns the intensity, saturation, and hue with support of 8-bit or 16-bit control for the appropriate channels. HSL load type uses 3-6 DMX channels and counts as one load in Design Center.

NOTE: If the HSL load only has 1 Hue channel do not use Hue2. But, remember the Hue2 channel number is still used in the HSL color load creation – this is an unused channel in the HSL load. The HSL Load channels may need to be reassigned to keep the numbers consecutive to match the commissioned load list.



RGB - Assign each of the three colors the appropriate channel number. RGB uses three DMX channels and counts as one load in Design Center.



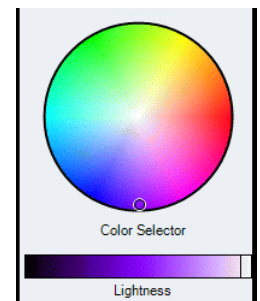
RGBW - Assign each of the four colors the appropriate channel number. RGBW uses four DMX channels and counts as one load in Design Center.

CCT - Assigns the intensity and CCT (correlated color temperature) with support of 8-bit or 16-bit control for the appropriate channels. CCT load types uses 2-4 DMX channels and counts as one load in Design Center.

HSIC - Assigns intensity, CCT, hue, and saturation with support of 8-bit or 16-bit control for the appropriate channels. HSIC load type uses 4-8 DMX channels and counts as one load in Design Center.

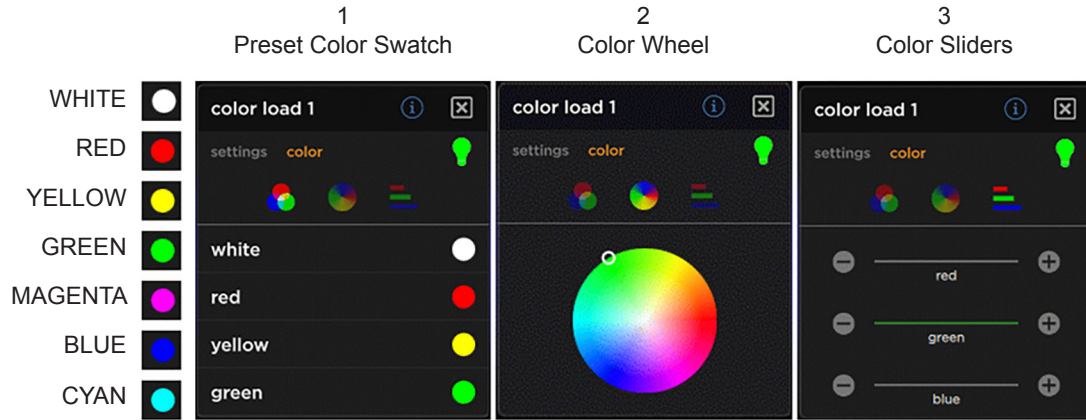
- Edit the rest of the properties in the Object Editor as needed
- LIVE: Adjusting color values in Design Center – requires Design Center be connected to the controller and the DDG station be configured (Fig. 2)
- Drag the selector in the Color Selector wheel to dynamically adjust the color load value
- Drag the rectangle selector in the Lightness bar to increase/decrease the loads brightness level
- The last values selected in the Color Selector and Lightness bar are saved in the controller until these values are changed again from any source
- Color changes made from here or from Equinox will override this change and become the new saved value in the controller
- Use tasks in Design Center to create permanent preset* colors
 - *The Equinox lighting widget also allows load presets to be saved. Saved Presets only save the light level not the preset color values at this time

FIG. 2



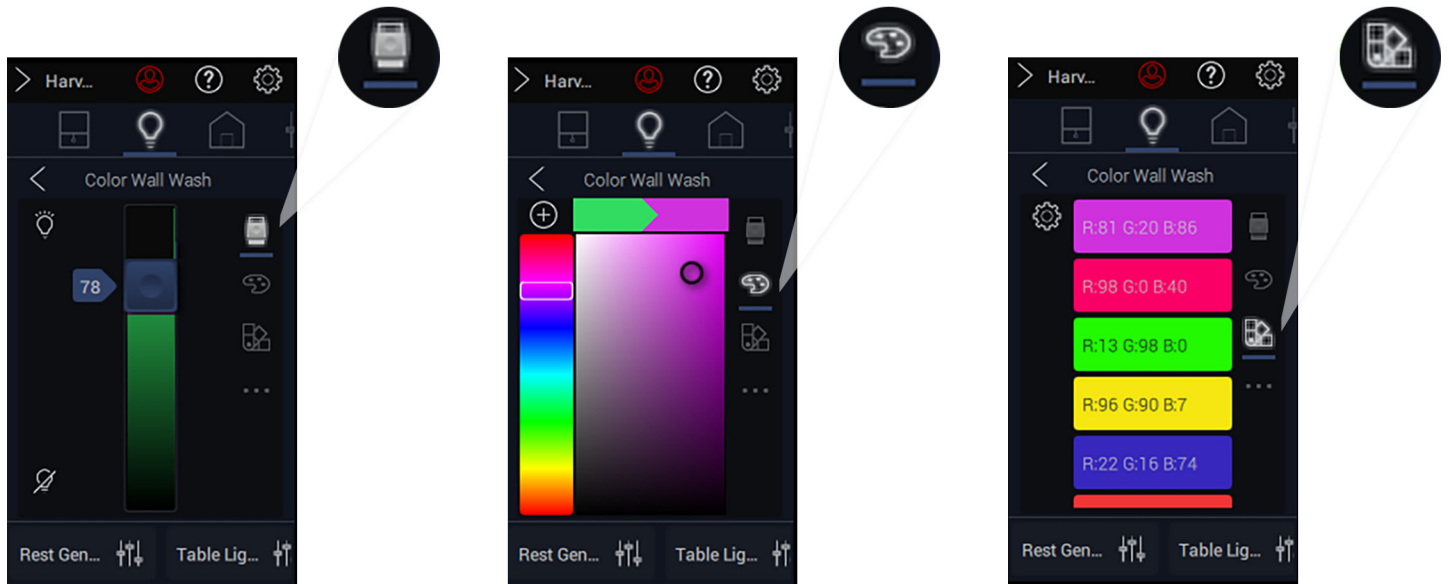
COLOR LOADS AND EQUINOX - RESIDENTIAL

The Preset Color Switch must be scrolled to see all colors. In the Equinox lighting widget multi color loads may have their color set in one of three ways:



COLOR LOADS AND EQUINOX - COMMERCIAL

Define and save custom colors related to a project. Recall them through the swatch library of saved colors for quick programming.



Using the slider allows for pinpoint control within a 0-100% color range.

Define a custom color in the palette using sliders for color range and the circle within the range to get the right shade. Save the swatch for future use.

Access saved switch favorites for repeat in different areas.

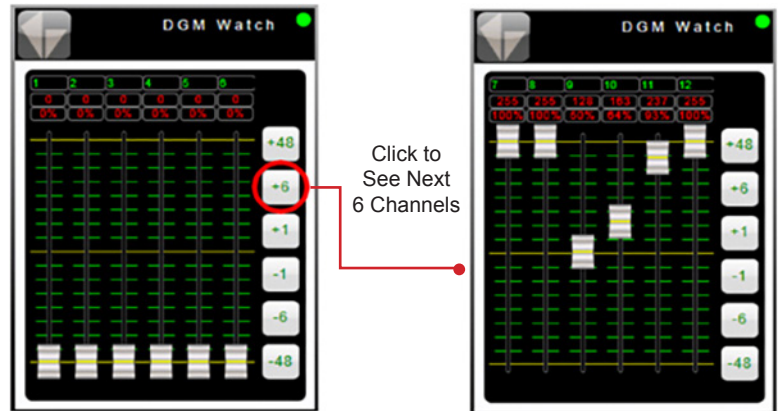
COLOR LOADS AND EQUINOX

- Color values are not saved as preset colors, however, color loads will always turn on to the last color used.
- Preset Levels (light intensity) are savable in the lighting widget and are unique for each profile. The color selected in the previous bullet will be turned on to the saved preset (light intensity) level.

DGM WATCH

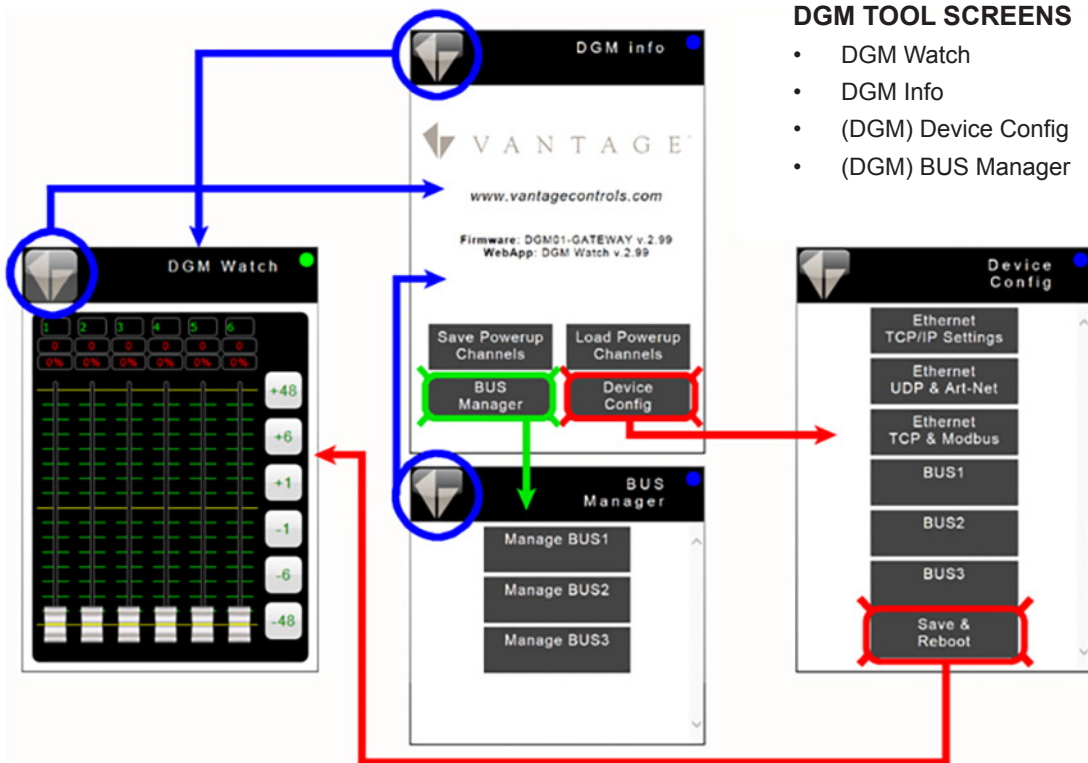
- All 512 loads may be monitored/controlled using the *DGM Watch* interface tool.
- Type <http://192.168.1.225> or the assigned IP address in a browser window to open the tool. The DDG station must be powered and connected to the computer or the computer and DDG must be connected to the same network for this application to work.
- The following screen is opened:

- It is possible to scroll through all 512 loads by clicking the “+” plus and “-” minus buttons (+ or -48, + or -6, and + or -1).
- The *DGM Watch* tool has sliders for all 512 loads
- The sliders may be moved to change load values
- When loads are changed from Design Center, the sliders update (the DDG station must be in Master mode to change loads from Design Center)
- The *DGM Watch* tool is helpful in testing addressed loads



DGM NAVIGATION

- Navigate between DGM Watch, DGM Info, DGM Config, and BUS Manager apps



DGM TOOL SCREENS

- DGM Watch
- DGM Info
- (DGM) Device Config
- (DGM) BUS Manager

USING THE DALI BUS

IMPORTANT NOTE FOR DALI BUS

- DALI loads are always commissioned using addresses 0-63
 - The DDG station automatically adds one (1)* to the DALI channel making it 1-based and may also have an offset value applied to the channel - the default offset value is zero (0)
 - Formula: DALI channel +1 + offset
 - ***NOTE:** The DDG station automatically adds 1 to the DALI channel number when receiving data and subtracts 1 from the channel number when sending data making it match the DALI 0-based number system
- Typically, the DALI channel list, obtained from the DALI load commissioning person will require adding 1 to each channel number on said list plus the offset value if an offset exists. For example, the DALI list may need to be changed as follows:

DDG STATION WITH DEFAULT OFFSET OF 0				DDG STATION WITH AN OFFSET OF 50			
DALI CHANNEL	DESIGN CENTER/ DGM Watch CHANNEL		DALI CHANNEL	DESIGN CENTER/ DGM Watch CHANNEL			
0	+1	+1	1	0	+1	+50	51
1	Added By DDG	Added By DDG	2	1	Added By DDG	Offset Value	52
2			3	2			53
ETC.				ETC.			

SETTING GROUPS FOR DALI BUS

If the DALI installation has been set up as DALI groups, follow the steps below to configure the DDG station:

1. Type <http://192.168.1.225/config.html> in a browser
 - Replace the 192.168.1.225 with the IP address saved in the *DMX-DALI-GATEWAY Setup Steps* above
2. Click BUS 3 to open the DALI bus configuration screen

Click to return to home screen

Click to access DALI Bus 3 screen

DO NOT USE these settings with the Vantage system. These settings are only for stand alone applications.

USING THE DALI BUS

3. In the *Transmit as* section, click *Groups (up to 16ch)*
4. Return to the home page and select *Save & Reboot*
5. With this change made, when DALI channels 1 through 16 are sent from the InFusion Controller, the DDG station will automatically convert and send the correct command for groups 1 through 16
6. No special considerations need to be made in Design Center other than the DALI channels are now DALI groups with a maximum of 16

NOTE: The options in the green arrow section as indicated in image above are for standalone installs. These settings are available by scrolling down in the DALI bus window.

COMMISSIONING DALI LOADS

Legrand recommends Diginet Control Systems, to commission DALI loads
Please visit: <http://www.diginet.net.au/> for more information



UPDATING STATION FIRMWARE STEPS

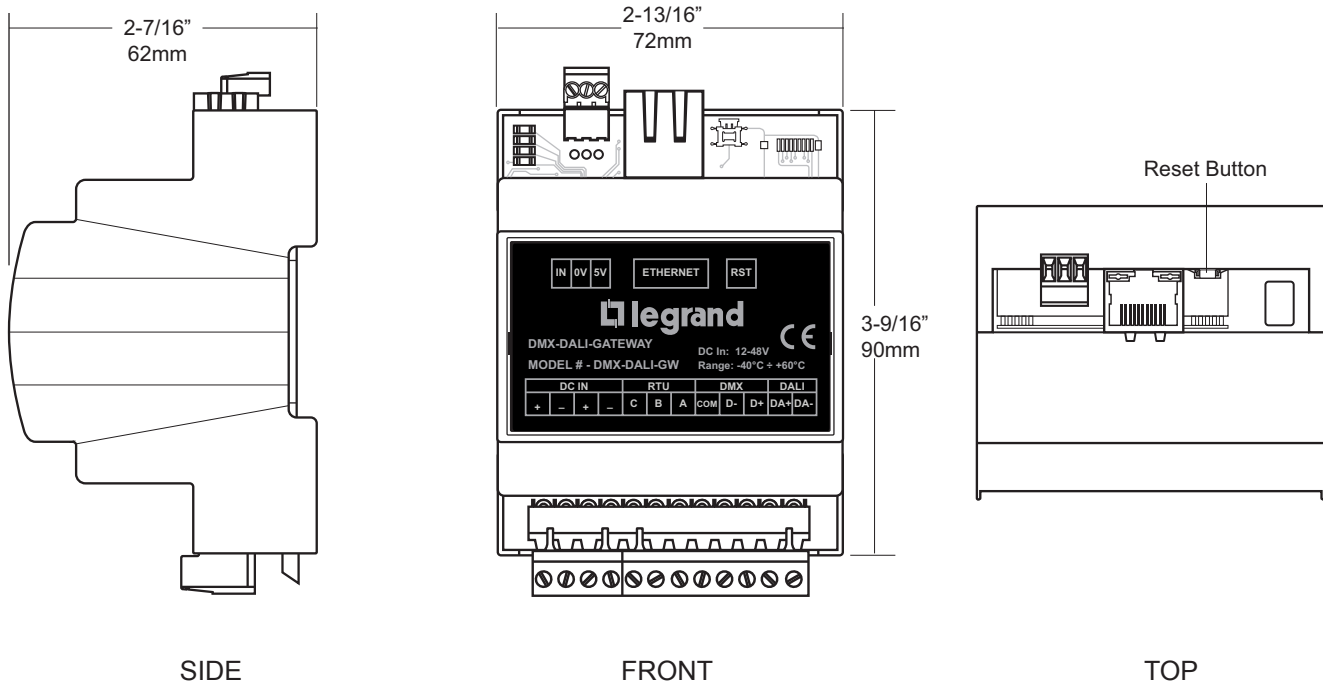
Close communication between the DDG station and any connected devices by pressing the Reset button.

- Press and release the reset button – do not hold it in
 - The DDG station reboots into boot loader mode, LEDs may flicker and then go off
 - The station is now ready for the new firmware to be downloaded.
- Download the firmware update file from the Vantage dealer site. The file name should be similar to: DGM01_FW_2_99_VANTAGE.HTML
- Double click on the downloaded HTML file to open the internet firmware updater window
- Enter the DDG station IP address, step 2) in illustration above
- Click the Update button, step 3) in illustration above right
- When the update is complete a message similar to the one at the right should open
- Cycle power to the DDG station to reboot the station out of boot loader mode
- Firmware update is complete

Trouble Shooting, General Information & Tips

- Equinox Devices – If all 512 loads are created in Design Center it is recommended to select the Exclude From Widgets box all loads not wanted in the Equinox Lighting Widget
- DALI Scan Time (DALI Bus 3) – The DALI default scan time is set to 25ms. This may not be long enough for some load types. Increase the scan time until all lights respond correctly. Scan times may be as high as 500ms or even 1 second, etc.
- The DALI scan time is set in the DGM Configuration tool
- Light levels are restored after a power outage.
- When controlling DMX and DALI on the same DDG station, it is important to know that the practice of overlapping DMX and DALI channels is not recommended. Overlapping channels may cause unwanted ramp/fade cycles when different devices share the same channel.
- After a full system program, communication between the station and the InFusion Controller takes about 90 seconds. If communication does not begin:
 - Double check the IP address entered in Design Center,
 - Cycle power to the DDG station and re-program the system from Design Center,Vantage Controls Inc., Vantage, InFusion Design Center, InFusion Driver Tools, RadioLink, Equinox and other names used by Vantage Controls are trademarks or registered trademarks of Vantage Controls Inc. All other art work, brand and product names are copyrighted, trademarks or registered trademarks of their respective companies and/or artists.

MULTI-VIEW LINE DRAWING



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800.555.9891
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