Ivie
Technologies, Inc.

Setup Guidelines for LDS Standard Plan Systems Using the i*Flex* 1280 Mixer

Checkout Procedure Guidelines

For Standard and
"Head End Replacement" Systems

Why this Setup Guide?

The i*Flex* 1280 "Head End Replacement" is a new approach to replacing older LDS sound systems where the system electronics can be upgraded and replaced very economically without replacing the rest of the system (speakers, wiring, Cultural Center controls, etc.). Yet even with the economies provided, a significant improvement of the system can be realized because:

- Narrow-band equalization is added
- Older system components that have proven over time to be weak points (zone switching relays, on/off relays, etc.) are removed.
- Practically all of the work is done inside the rack. Time for replacement is kept to a minimum. This cuts cost and down-time.

While being almost completely transparent to the user, we are actually lifting up the hood and driving under it a new car. New cars have new controls and new systems. i*Flex* hardware and Sonata software are intuitive for the installer and consultant, but they are different. This Setup Guideline for the i*Flex* 1280 "Head End Replacement" system will show you how you can make some of those improvements and changes work to your advantage. We'll walk you through the new system in just a few pages. We think you'll find this information very helpful in getting the job done efficiently.

No Setup Manual can take the place of training. We strongly recommend that you download the standard i*Flex* / Sonata manuals and become familiar with them. And you should avail yourself of the training available from your own organization and from Ivie.

We also strongly recommend that you use the **standard Sonata Layout templates** *as they are provided*. With the flexibility a mode-based system such as i*Flex*, there are virtually endless ways to design a system to perform in a certain way. Ivie simply cannot support a large number of Sonata files (setup/layout files) based on individual preferences and different approaches. We CAN support the standard Sonata files because we know them very well. If you call us for support on a standard Sonata file we will know how to help you. If you call us for support on a Sonata file that has been substantially or conceptually modified, we will be in the dark to begin with and support will take much longer. With non-standard Sonata files, on-site support may be impossible.

### "Head End Replacement" System Components

i*Flex* 1280 Mixer
"Heart of the system". All audio inputs and outputs connect directly to the i*Flex* 1280 Since there are 12 inputs and 8 outputs, new possibilities are available for LDS buildings; but this manual will consider the standard system as constituted in the Heritage/Legacy/Sage 98 plans, or even earlier implementations. Some remote controls can be connected directly to the 1280, and some to the RMPC-12LDS.

Note: The 1280 is not compatible with power supplies from earlier mixers such as the 884+ or 1026.

LDS Power/Relay board

1280 mixers ordered for LDS installations should come with this optional daughter-board already installed inside the 1280. The LDS Power/Relay board takes the place of the "PWR RLY" connection on the back of an 884IF or 1026IF. It also takes the place of the "Overflow Relay" on an IF.
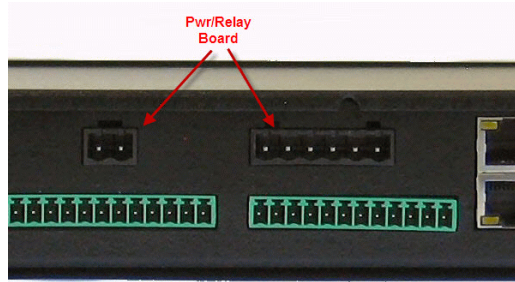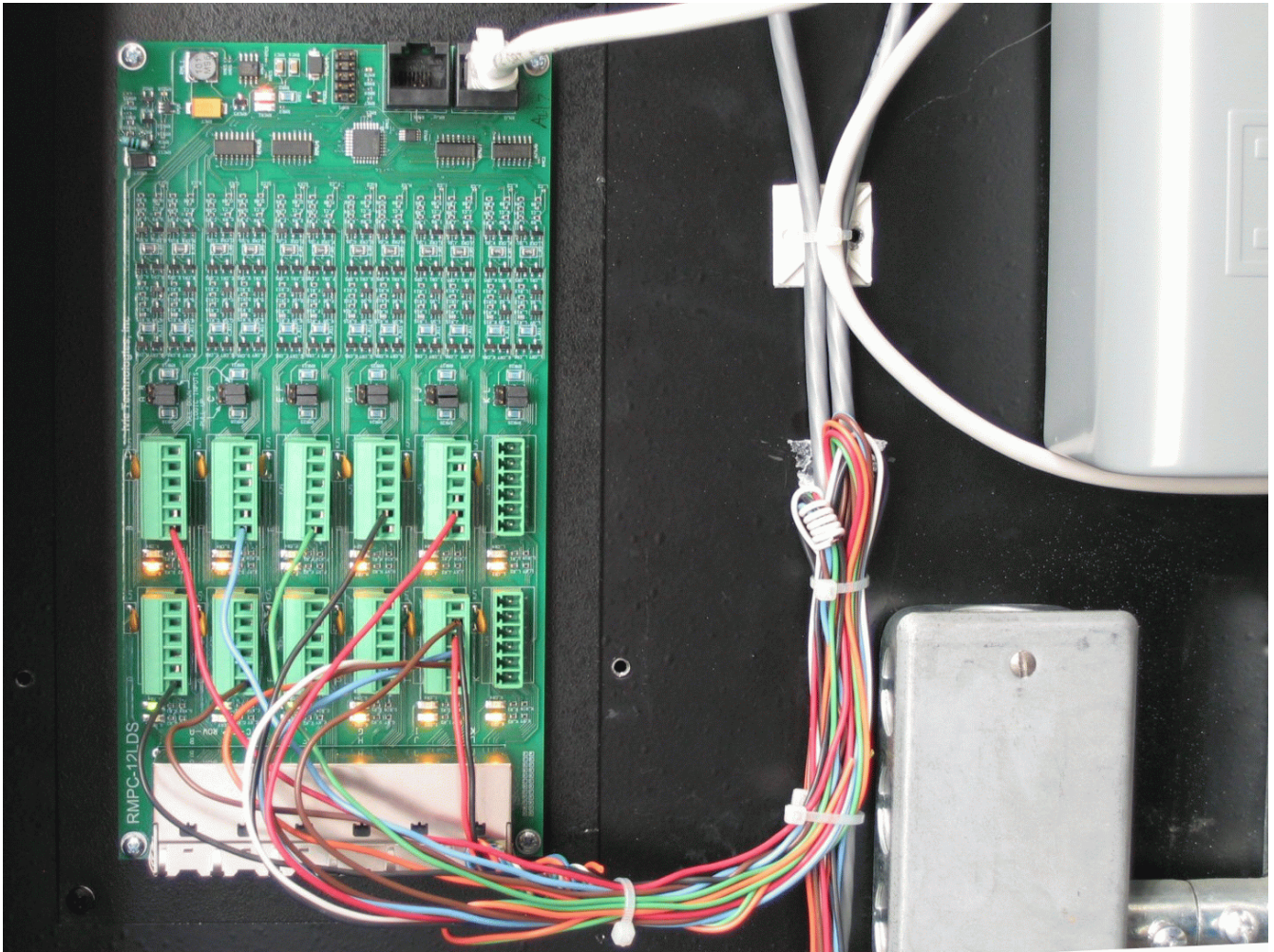

RMPC-12-45

Euro-block connections, as well as RJ-45 connections are supplied on the RMPC-12-45. You can connect the now-standard RJ-45/Cat-5e remotes and sensors to the RMPC-12-45, and you can also connect LDS system microphone remote controls, selector switches and sensors that are wired with the older multi conductor cables. Thus you can do "head end" replacements" of older systems without pulling in new cables. *(Note: Cat-6 is also acceptable)*

The RMPC-12-45 also physically replaces the relays on the back wall of the rack in most of these older systems. All connections that went to the relays now terminate at the RMPC-12LDS.
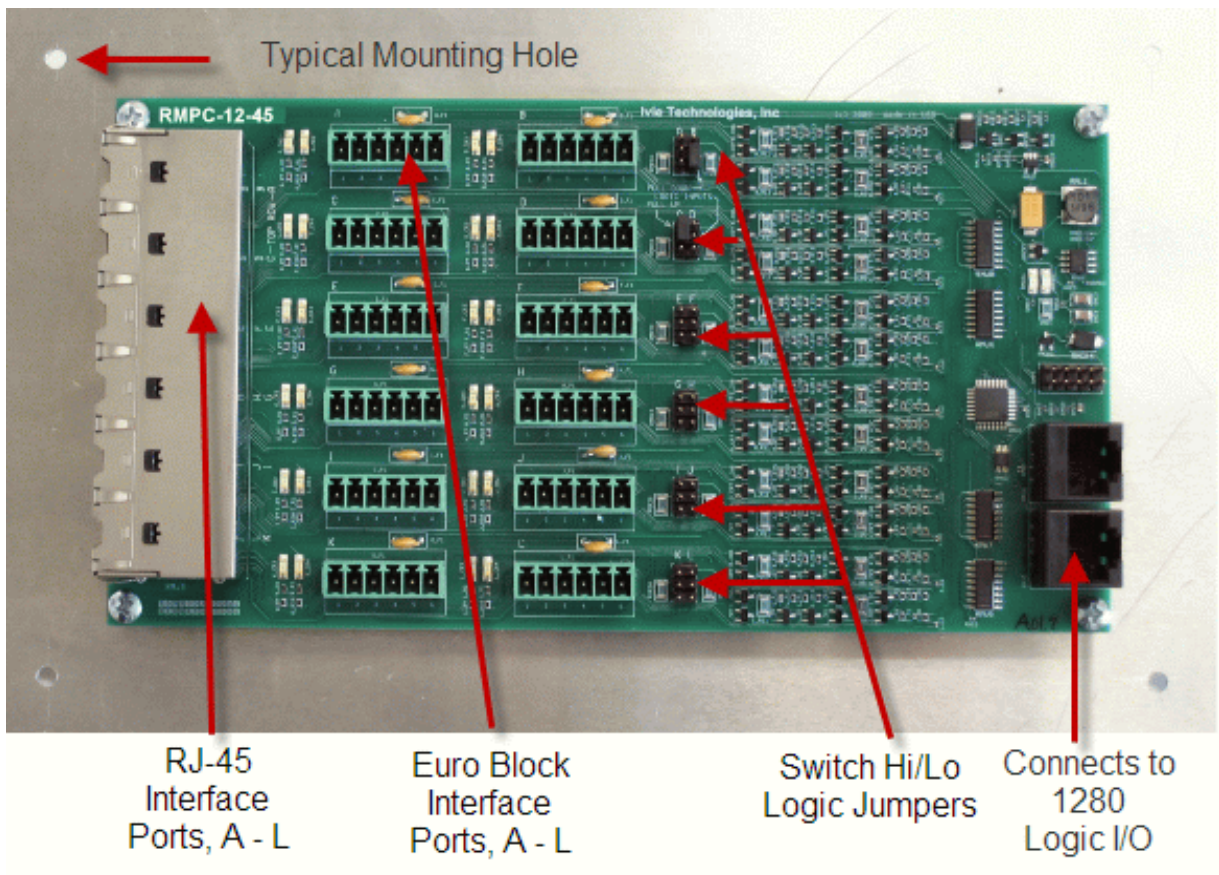
See Appendix A Port Assignments and Instructions

RMPC-12-45 Shown in Typical Installation

RMI-CP

The RMI-CP corresponds to the familiar CP-884. If you are using multi conductor cable from an old installation, you will need an RJ-45 "pig tail" to plug into the RMI-CP and connect to the multi-conductor cable. Another "pig tail" will be needed to connect the rack end of the multi conductor cable to one of the I/O ports on the 1280. <u>Because the RMI-CP is a pulse-type up/down level control, it will need to be plugged directly into an I/O port on the 1280 rather than into the RMPC-12-LDS</u>.

As with all "SmartControls", **a minimum wiring standard of CAT-3 should be provided.** In some older buildings this may not be possible due to the running of "DC" cables (3, 2-conductor shielded mic cables). Where this older cable is found, an attempt might be made to pull in new cable. If that is not practical, then another strategy would be to use an RMPC-4 in the bishop's pedestal to connect both MI-CP and RMI-CS together for one cable run back to the equipment rack.

Note: If the installer attempts to use the older DC cable, reliability and stability may suffer. Even then, every attempt must be made to keep the RMI-CP data line (RJ-45 pin 1) and the ground (RJ-45 pins 7 & 8) in the same 2-conductor shielded cable.

RMI-CS

The RMI-CS corresponds to the earlier CS-884. By means of an RJ-45 to bare wire "pigtail" you can connect an RMI-PS to the RMPC-12LDS using an already-installed multi conductor cable.

** Please see the note above regarding DC cable.

Physical Connections

Inputs and outputs: Mic and line inputs connect to the Euro-block connectors on the back of the 1280. Outputs connect directly to the connectors on the back of the 1280. See the supplied drawing on assigned input/output connections.

Remote controls and sensors: Older systems using multi conductor cabling connect to the RMPC-12LDS using that cabling. Screw-down Euro-block terminals are provided. Newer RJ-45/Cat-5e controls can also connect to the RMPC-12LDS via the supplied RJ-45 connectors. The RMPC-12LDS connects to any of the 1280 Logic I/O ports via a single RJ-45/Cat-5e cable.

Troubleshooting aid: *Ivie makes a small tester (model CT-1) that will plug onto the remote control end of a Cat-5e cable connected to a Logic I/O port of the iFlex. This small tester will confirm proper wiring AND communication on the Cat-5e line. Lights on the tester will tell you that there is power, proper voltages, proper RS-485 communication, etc.*

The CT-1 tester does not take the place of a Cat-5e cable tester. A standard Cat-5e tester should be used on all lines prior to connection to iFlex. AFTER connection to iFlex, the Ivie CT-1 tester will check for proper voltages, proper ground, and proper communication with iFlex.

Note: Since most of the external controls and sensors will connect to the system via the RMPC-12LDS it is necessary to pay special attention to making those connections. A large amount of trouble shooting time can be avoided if special care is taken to assure that all connections to the RMPC-12LDS are correct.

When a 1280 LDS system is ordered, the 1280 mixer and the RMPC-12LDS come pre-configured to a *standard LDS design* that has been approved by Church Engineering. See the diagram in APPENDIX A that shows wiring connections to the RMPC-12LDS. If the various remote controls, sensors and selector switches are connected to the RMPC per the APPENDIX A diagram, the system should function properly "out of the box."

Software Setup and Connection

Sonata Software: i*Flex* is a new concept. The i*Flex*/Sonata software approach is at once simple to see and understand, but very different from the way others do it. Don't expect to "figure it out" on the job site. You'll need some orientation. Consultants will be involved with virtually every head end replacement. They are very conversant with the software and will be able to make changes to match any non-standard applications in unusual buildings.

An LDS system is designed to be ultra simple for the customer to use and operate. But the flexibility to provide all of the features, the "behind the curtain logic", etc. needed for an LDS system requires that the system be set up in a specific way. For this reason there are standard LDS templates ("Sonata files") available for the standard LDS designs, both old and new. APPENDIX B in this System Guide will help you match the necessary Sonata file to the install building. ***Ivie provides support for the standard templates***. *If the templates are modified it becomes much more difficult to support because we have no way of knowing what changes have been made and how changes affect the over-all behavior of the system. On-site support for substantially modified files may be impossible.*

The standard iFlex/Sonata manual will be very valuable as background orientation for the Sonata software. It is available from Ivie's website. It will answer most of your questions. We suggest you take a hard copy of the iFlex manuals with you to any iFlex job.

If you DO need support from your own home office or from Ivie, remember that it may not be possible for the support person to know what changes you have made to the layout, or how you have made them, or what the consequences are. Therefore, be prepared to load back in one of the standard, supplied Sonata setup files before you call for support.

Connecting your PC to the iFlex 1280: Your PC can be connected to an iFlex mixer by one of two means:

USB: We recommend that you connect using USB if you are working close to the rack.. It will be faster and simpler. By means of a standard USB A-B cable, simply "plug in". (You will hear the standard USB "connect sound"). Start the Sonata software. Click on the icon in the tool bar or use the "File" drop-down menu and select "Connect." A "Connect to Mixer" box will appear, where the mixer is identified in the "iFlex Hardware" box. Select the mixer by clicking on it and then click on the "Connect" button.

Note: The first time you connect to an iFlex 1280 your Microsoft USB port will detect the 1280 as new hardware and issue a "Found New Hardware" message. The "Welcome to the Found New Hardware Wizard" screen will pop up. Choose, "No, not at this time" and go to the next screen.


The next screen will ask you if you want the Wizard to automatically install the USB software or install from a specific location. THE FIRST TIME your PC computer ever connects to an iFlex 1280 you will need to select "Install from a list or specific location." The correct specific location is the directory on your hard drive where the executable file for Sonata resides. [The default directory for a Sonata install is: C:\Program Files\Ivie Technologies\Sonata].
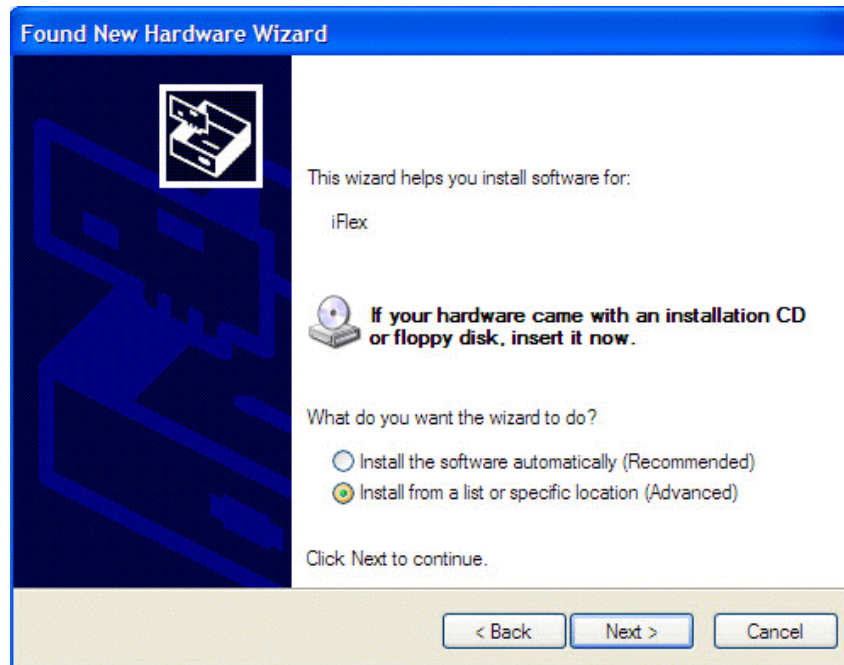
Any time AFTER YOU HAVE FIRST CONNECTED WITH A 1280 for that particular USB port, your PC should know where the file is located. Thus any time after the first time, you can select "Install the software automatically. (See below)
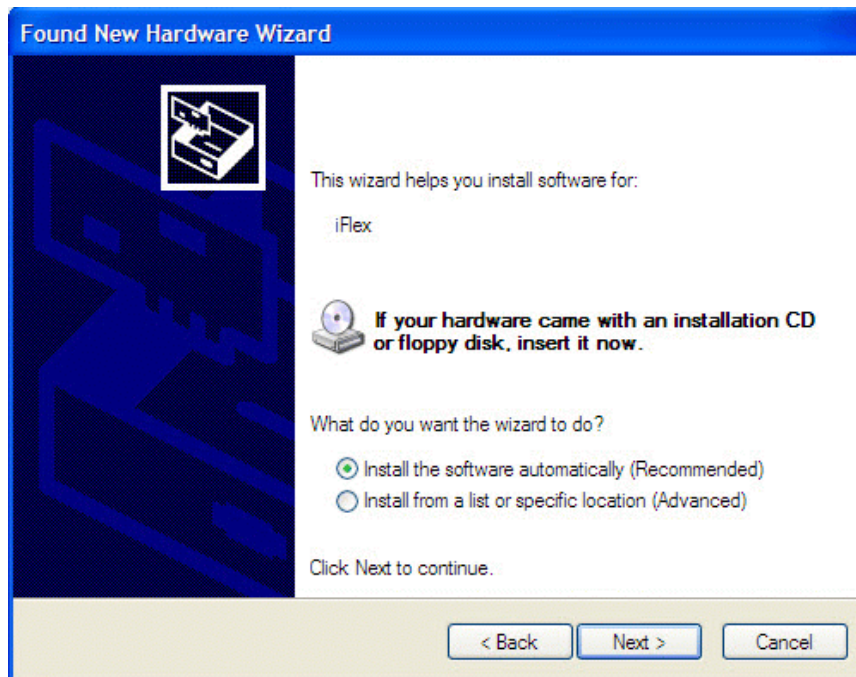
After the first 1280 connection, for subsequent new
1280 mixers, use the "automatic install" choice.
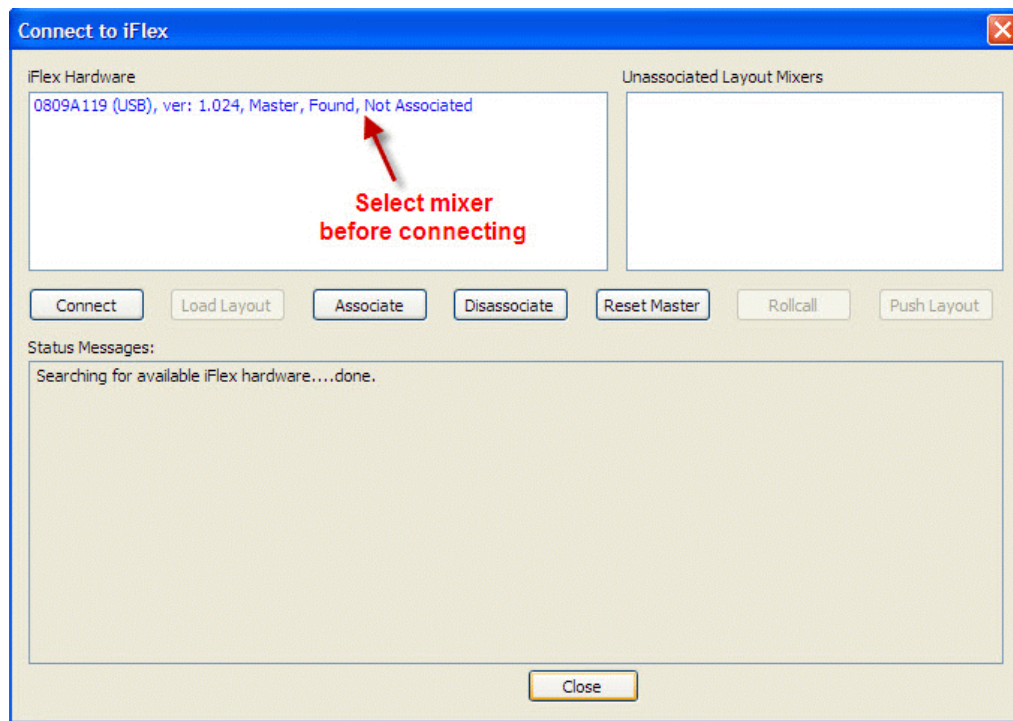
Note: The information shown in the mixer info line in the connect box is very useful. It will tell you the mixer serial number, the firmware version number, what type of connection (in this case, USB) etc.

Network: Using TCP/IP protocol, you can connect to the mixer via the network port. While consultants may wish to use this means since it makes equalization simpler when the PC can be in the room being equalized, it is slightly more involved but can be very useful.

Method 1: Router with DHCP server
We recommend using the router method if you desire a network connection because it is more "automatic" and will provide a more trouble free connection. Connect the DHCP router to the iFlex network connection. Connect the PC to the DHCP router. Allow time for the greetings, secret handshakes, salutations, etc. (watch the little network icon in your SysTray), then start the Sonata software and go through the same connection procedure as described in "USB" above.

Method 2: Direction network connection
The standard IP address in each 1280 is 192.168.1.xxx (where "xxx" is a three digit number associated with the individual 1280). Subnet mask is 255.255.255.0. If your computer is set to the same domain as that of the 1280 you should be able to connect directly, without a DHCP router. To use the direct connection method, set your computer IP address to: 192.168.1.101 and make a direct connection. The 1280 will accept either a straight-through EtherNet cable or a crossover cable.

When you tell Sonata to connect to the mixer, the software will automatically download the Sonata file (setup template) from the mixer as a part of the connect process. It will appear on your software screen. The standard Sonata file shipped from the factory will show a three-zone overflow with selector "red/green" on/off switches for that each overflow. If your building has a two overflow zone/switch or single overflow zone/switch layout, simply load the appropriate Sonata file into the mixer.
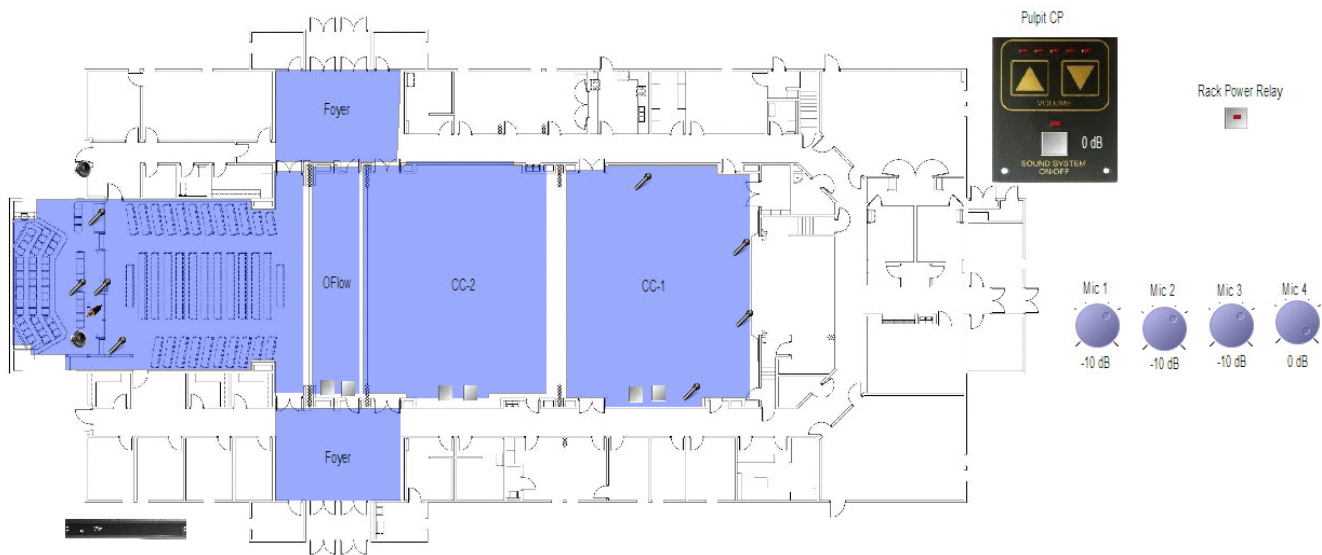
File Name: 1280_HeadEnd_3 (for three section overflow)

<u>If necessary, load a Sonata layout file into the mixer:</u> With your PC physically connected and with the Sonata software open but with the mixer not yet selected and connected to Sonata, do the following:
1. Select the desired (see Appendix B) Sonata file from your PC hard drive and open it so that it now appears on your Sonata software screen.

2. Open the connect screen, select your mixer, and then click on the "Reset Master" button.

3. Select your mixer in the left-hand screen, select "Mixer 1" in the right hand screen and click on "Associate".

4. Click on "Connect". Once connected, click on "Push Layout" and the layout on your screen will be "pushed" into the mixer. Your new file will now be loaded.

With the PC and mixer connected physically, the Sonata software loaded and connected to the mixer, and the correct Sonata layout file loaded, you are ready for system setup and checkout.

Hardware Programmer

Using the Hardware Programmer is an essential step in setting up a system with the iFlex 1280. After making sure that the correct Sonata layout is loaded into your mixer you are ready to connect the remote controls (RMPC-12-45, RMI-CP, red/green switches or RMI-IR-3's, etc). To do this, you will need to program these items using the Hardware Programmer. The Hardware Programmer is found in the "View" pull-down menu in Sonata. **Please see Appendix A** for more information on making assignments with the hardware programmer.

Sound System Checkout Suggestions

After confirming that the Sonata setup file is correct for the room, test the level controls, selector switches, etc. You should see their action in the on-screen layout if the software is in the "Run" mode. See the drawing above. Each of the on/off switches, selector switches, volume controls, etc., is represented. When you change a control setting in the room you should see it on the screen. Verify that the proper actions take place on-screen when the system is turned on and the controls operated.

Confirming proper function of these external devices will
accomplish 90% of your trouble shooting up front.

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Do not bother to adjust any EQ at this time.
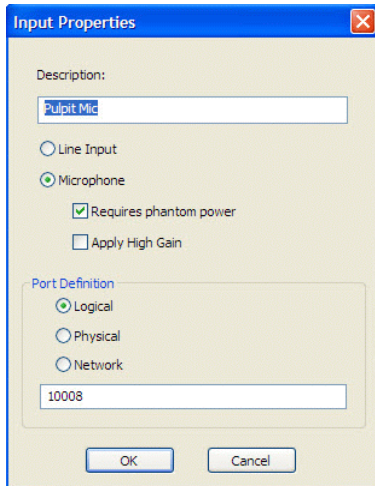
Input Properties: With an LDS template loaded, parameters for the various inputs should be pre-set correctly. If you need to change any parameters, right click on the desired input on the layout screen and select "Properties". An "Input Properties" box will open. Here you can define the input. Among other things, you can turn on/off Phantom Power, add gain to the input, etc.

Do an audio "rough check" by "talking the system out." During this process you can set rough levels on the inputs and outputs. Start by setting the level of the pulpit mic (the setup file will have most levels set at a good starting point). If necessary, set the Trim control to about 0 and adjust the output for the chapel so that level in the chapel is about right. Once the pulpit mic is set and the output level to the chapel is appropriate, set other inputs for appropriate levels. Standard installation practices always apply. Generally, you should move the gain closer to the front (input stages) of the box.

Special Note: By clicking on the "Save Levels" button you will save the levels you have set into all modes of the system. The Save Levels function works much the same way as in the 884 and the 1026. It is a way to quickly propagate levels throughout the system without copying and pasting.

Using the ALC Feature (Automatic Level Control)

Setting ALC. The 1280 mixer adds increased flexibility to your system in that there is a separate ALC function for each input. This allows you to separately set ALC for the pulpit microphone, where the ALC function is probably most critical. ALC in LDS chapels is an "attenuate only" type of Automatic Level Control.

ALC Setup Procedure: With the power amps off, set ALC for the pulpit microphone. Turn the system on, either from the software or from the RMI-CP. Amplifiers should be switched off or unplugged. You do not need to listen to the sound system at this point. In fact, listening to the system while you make these adjustments may well affect your ALC setting adversely.
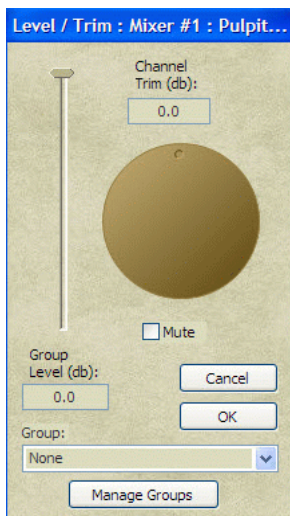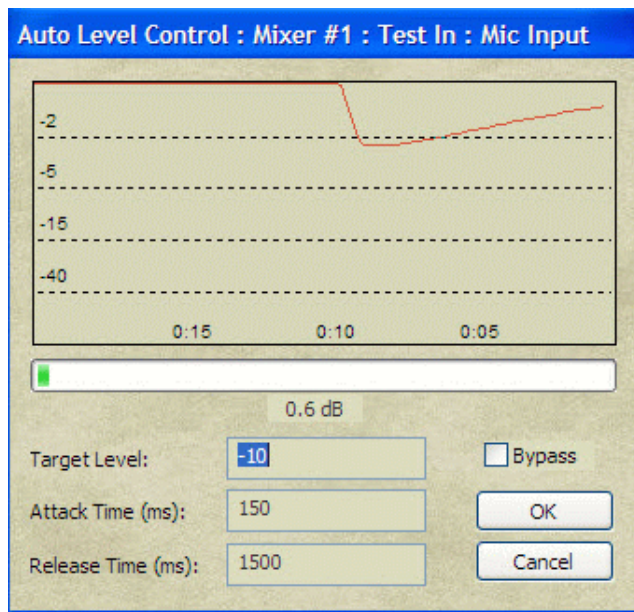
Bring up the pulpit microphone level control on-screen by clicking on the pulpit mic in the layout, then clicking on the level control icon at the bottom of the Layout Screen. Adjust the pulpit microphone software level slider to "0". Leave the level control screen in view.

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You can access the ALC function for the pulpit microphone in at least two ways. Clicking on the pulpit microphone in the layout screen will expose the processing string for that input at the bottom of the screen. Going to the "Processing" tab in the software will also allow you to access ALC. For purposes of this Setup Guide, we will use the Layout screen.

In the Layout screen, click on the ALC icon in the displayed processing string at the bottom of the screen. This will bring up the ALC Control window. You will see a "virtual chart recorder" in the ALC Control window. Attack and Release Time settings should be the "Default" settings (attack = 150, Release = 1500).

Set the ALC "Target Level" at -10 (simply type in the number). This will temporarily set ALC so that gain reduction will begin to occur when a -10dBu level is present at the input to the matrix bus of the mixer.

Confirm that the pulpit mic software input level control is set to 0. Now have someone speak into the pulpit microphone in a "normal" speaking voice. Adjust the software rotating input "trim" control for the pulpit microphone until normal speech causes the red chart recorder pen to just begin to slightly "bobble" at the upper levels of normal speech.

Having set the pulpit microphone input trim to achieve some very slight "pen bobbling" with normal speech at a target level of -10 dBu, now change the Target Level setting to -6. Doing so will allow 4 dB more ALC "dynamic headroom," which gives speech a very natural sound and masks the operation of the ALC.

Note: *You have set the pulpit mic for proper ALC action. If you wish, you can set ALC action on other inputs independently. You can also copy and paste the settings of the control from on input to another. You can choose which inputs you want to use ALC with.*

With the amplifiers back on, touch up the gain through the signal chain for the pulpit mic for proper gain before feedback. Use gain settings after the mic input (since ALC target levels are based on the existing settings). This will be a "final set" for the pulpit mic.

Now set the other input levels in the chapel, relative to the already-set pulpit mic. Reminder: when settings levels in the room, you should temporarily turn off the ALC function on the microphones. To do this, access the ALC control for the pulpit mic and click on the "bypass" box. *Remember that you will have to "unclick" the box when you are done setting levels!*

<div align="center">**Setting Levels**</div>

Setting levels is most efficiently done from the "Processing " page of Sonata. To the right of each input or output is a "processing string" that includes a level control. First, use the Mode combo box to select an appropriate Mode for the input our output (Chapel On), for example. Click on the level control to bring up the "Level / Trim" window. Set the Trim from this window. When you are satisfied with the level for this input or output, close the Level / Trim window. Then right-click on the level control on the processing string and select "Copy Function" Then right-click on the far right of the processing string (to the right of the "+" sign) and select "Paste Function All." This will past the level control to all modes associated with that input our output. If you don't "Past Function All" you may find that the level will shift as the system moves from one mode to another when switches, doors, sensors, are changed.

Alternatively, you can right-click on the processing string outside the "+" signs, select "Copy String", and then right click in the same place and select "Past String All." This will copy and past all of the DSP signal processing functions (including the level control) to all modes associated with that input or output.

<div align="center">**Sticky Level**</div>

The RMI-CP has the Sticky Level feature built into it. You will not have to set up Sticky Level in this system. By turning off the system with the CP and waiting about ten seconds, the system will come back on in the -4 dB gain position automatically. This is true even when the CC System is still on.

<div align="center">**A Word About Gain Settings**</div>

In setting up the iFlex 1280 there are a few guidelines for setting gain through the unit that will maximize signal and minimize noise. These guidelines follow general good practice in system gain. There are several points in the 1280 where gain can be adjusted or affected. These general guidelines will help to maximize the performance of the system.

1. Push as much gain as possible toward the "front" of the system. This prevents you from amplifying noise picked up along the way.

2. Minimize overall gain. The mixer / amplifier combination has much more gain than is needed. Modern amplifiers are at least 20 dB more sensitive than older designs. All too often the installer is reluctant to set the amplifier's gain down to match the mixer's output. This results in far too much gain, far too late in the signal chain, and your signal-to-noise ratio is not optimal. In LDS systems, the standard procedure is to leave amplifier gain settings full up so as to give the "well meaning local technician" fewer settings to adjust. This, unfortunately, can mean that more careful gain adjustments are needed in the 1280. As a general rule, however:

> - Remove output trim to compensate
> - Eliminate excess gain. Avoid gain stages followed by attenuation stages.

Appendix A

RMPC-12-45 General Information

The RMPC-12-45 is an interface card designed to provide flexibility and increased capability, where needed, by connecting multiple remote control lights, switches, and pots to iFlex products via a single Cat-5e cable. Twelve channels of remote connection are provided (each channel provides control for a switch, a light, and a pot). In addition, RMPC's can be daisy-chained to provide even more connections if needed.

While a series of iFlex RS-485 controls can be connected directly to iFlex products, it is inefficient to use the Logic I/O ports on the iFlex to connect "dumb" controls and sensors. The RMPC-12-45 is provided to allow connection of multiple switches, lights, pots, sensors, etc., to the iFlex with a single Cat-5e cable.

Input Ports

The RMPC-12-45 provides for connection of remote switches, sensors, lights, etc., via two means. Twelve Euro-block connectors, labeled A through L, allow for connection via discreet wires (as in a multi-conductor cable). In addition, twelve RJ-45 connectors are provided; they are connected in parallel with the Euro-block connectors. If Cat-5e cables are already installed in the system, it may be much more convenient to install remote controls such as the CP iFlex using the RJ-45 connectors. The Euro-block connectors and the RJ-45's are in parallel and have the same functions for each input. See the pin-out key for these connectors on a following page.
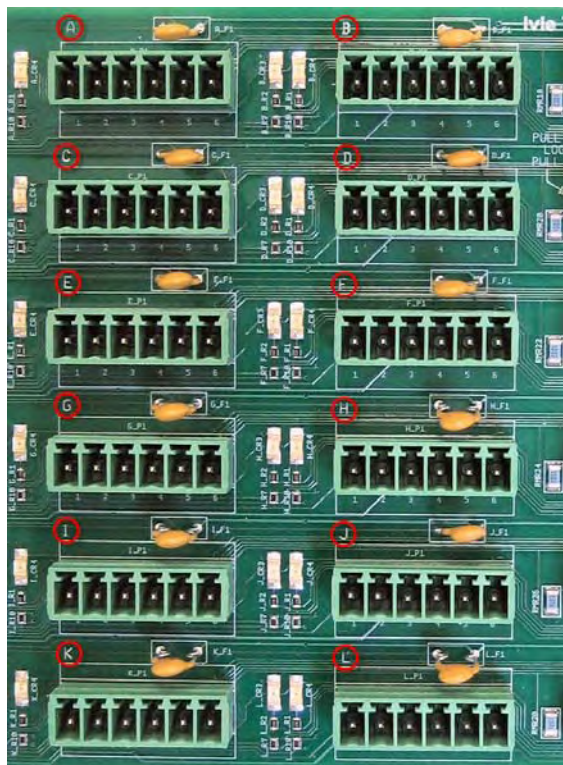
RJ-45 Connectors, A - L

Euro-block connectors A - L
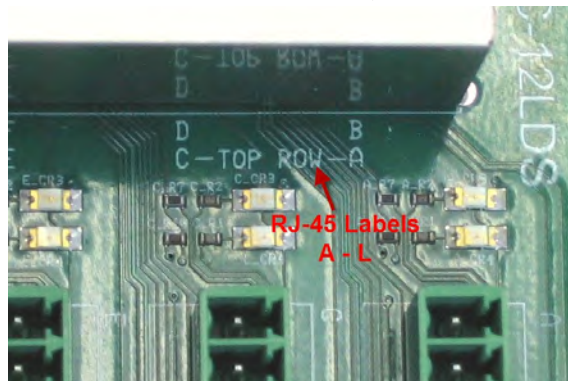
RJ-45 Labels (silk screened) , A - L

iFlex Logic I/O Connections

Connection to the iFlex mixer is done via a standard Cat-5e cable (straight through connection, pin to pin). Connect from one of the Logic I/O RJ-45 connectors on the RMPC-12-45 to one of the Logic I/O connectors on the back of the iFlex.

Remote Switch Logic Jumpers

If you are connecting a remote switch (such as the "Red/Green overflow selector switches in an older LDS building) or even an IR-3 to a port on the RMPC-12-45, the Remote Switch Logic Jumper allows you to select whether the switch connection will short to ground, or will connect +24 VDC.

In many of the older buildings the Red/Green switches connect +24 VDC when selected. Most of the modern buildings are wired so that selector switches (including the iFlex IR-3) short to ground when connected. You have to "tell" each of the ports on the RMPC that will connect to a remote switch whether to be looking for a short or for +24.

This is done by setting a jumper on the appropriate Remote Switch Logic pins. A jumper configures for "Switch High" will tell the RMPC to be looking for a +24 VDC connection when the switch is selected. A jumper set for "Switch Low" will tell the RMPC to be looking for a short to ground when the switch is activated. Each port can be set separately by means of its own jumper.

1. "Switch High" jumper sets the RMPC to look for +24 VDC when the switch is activated (and an open circuit when the switch is in the "off" position). *Red/Green switches usually use active high*.

2. A "Switch Low" jumper sets the RMPC to look for a short to ground when the switch is activated (and an open circuit when the switch is in the "off" position). *IR-3 door sensors use active low*.
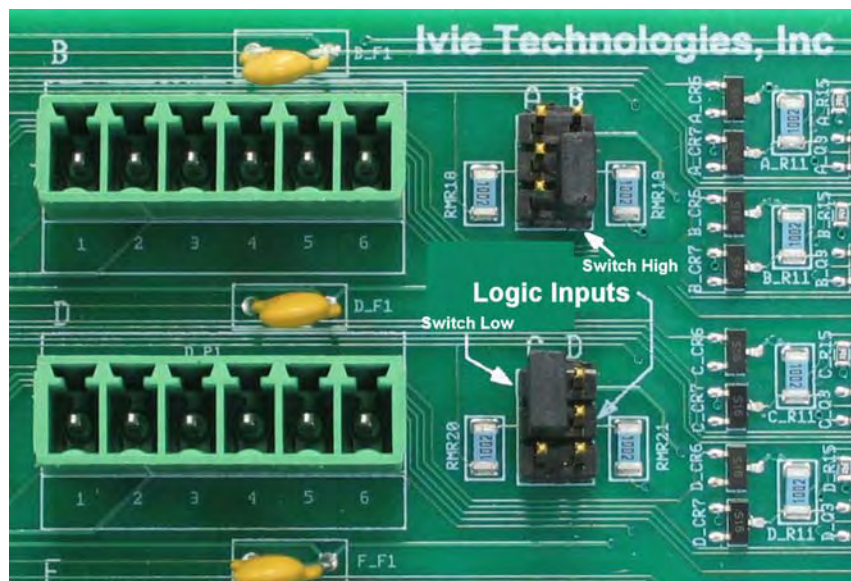
Port B is jumpered "Switch High", Port C is "Switch Low"

Mounting

The RMPC-12-45 is provided already mounted to a metal plate with standoffs. Mounting holes on the corners of the plate allow physically mounting the plate and the attached RMPC-12-45 to the inside metal wall in the back of the rack.

Connection Pin-out Key

The following is a key for input connections using either the Euro-block connectors or the RJ-45 connectors. These connections follow the Ivie standard for all Ivie products.

RMPC-12-45
Euro Block Key

Pin #	Assignment
1	Switch in
2	Pot wiper
3	Remote + (10 VDC)
4	+24 VDC
5	Ground
6	LED out

RMPC-12-45
RJ-45 Connector Key

Pin #	Assignment
1	Switch in (RS-485 Data A)
2	Pot wiper (RS-485 Data B)
3	Remote + (10 VDC)
4	+24 VDC
5	+24 VDC
6	LED out
7	Ground
8	Ground

Note: The +24 and ground lines are doubled for better current handling on small conductors.

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**Mixer Input / Output / Logic I/O and RMPC-12-45 Assignments and Connections
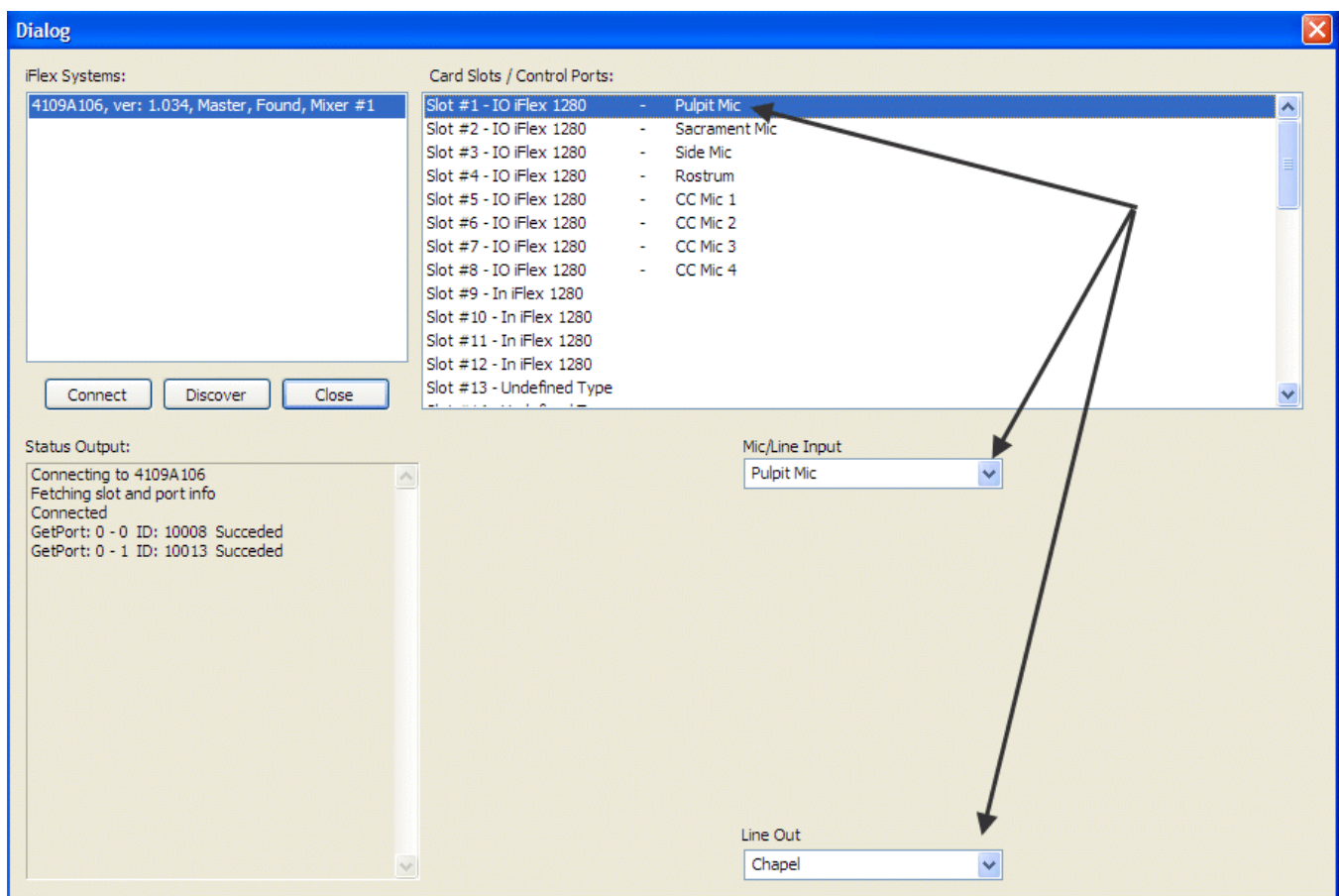and using the Hardware Programmer**

Standard connections of the various switches and controls in an LDS building is necessary. If the standard is not followed it will be difficult if not impossible to provide technical support to contractors or consultants on the job site.

The following page shows the standard connection assignments for LDS buildings using the iFlex 1280 mixer. Please be very careful to follow these connection standards so we can support you in the field and so that any contractors or other who come later to the building may quickly be able to determine what is installed.

The Hardware Programmer is the tool you use to make assignments and associations for remote controls, the RMPC, the RMI-CP, etc. Additionally, the Hardware Programmer is used to assign functions to the input and output audio ports on the 1280. The first items in the "Card Slots/Control Ports" window are the Input and Output assignments. The 1280 has twelve inputs and 8 outputs. When you select any of the first eight inputs in the Hardware Programmer you will have the opportunity to assign one of the outputs as well (think of the first eight inputs on the 1280 as dual channel cards with one input and one output). See the example below.

When you open the Hardware Programmer (from the "View" menu), you should select the mixer and "Connect" to the mixer. You can then select the hardware you want to program. A lot of the hardware is connected to the mixer via the RMPC-12-45. in the first graphic below you will see an example of how inputs and outputs are assigned with the Hardware Programmer. The combo box choices for inputs and outputs show a list of the ins and outs that are in the Sonata layout you are using. The in/out assignments shown immediately below are the standard assignments for a 3-door "Head End Replacement" system.

Note in this example that Slot 1 has the Pulpit Mic assigned as its input and the Chapel Output Zone assigned as its output.

When you select the RMPC-12-45 in the Hardware Programmer, a special screen comes up showing each port on the RMPC-12-45. It is from this screen that you can assign hardware such as sensors and remote controls to their proper locations and functions.

The screen immediately below shows the port assignments in the Hardware Programmer display for a Head End Replacement, three door, red/green switch layout.   The RMPC-12-45 is shown as the selected hardware.
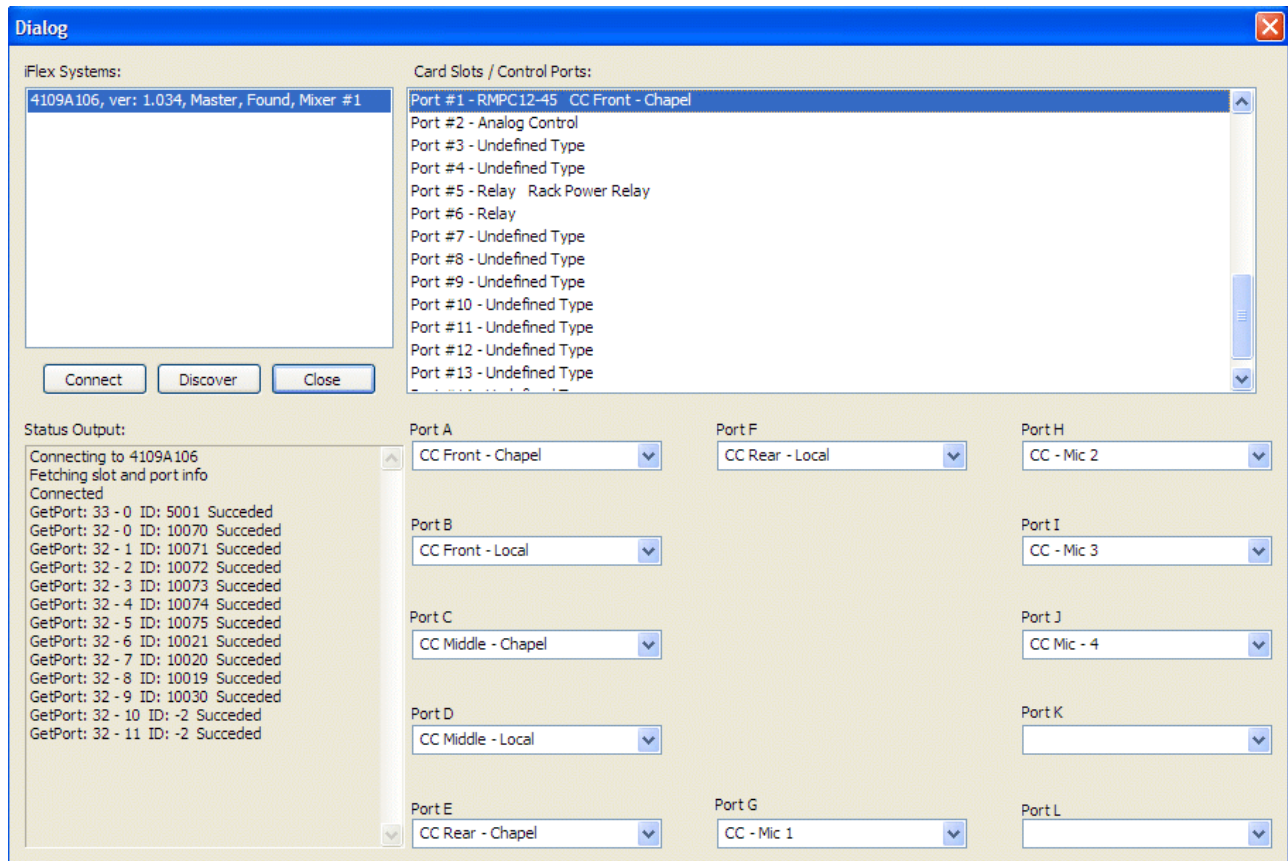
The standard I/O port assignments in the Hardware Programmer for a 1280 system are:

Port 1: RMPC-12-45
Port 2: "Analog Control" - this is the RMI-CP
Port 3: RMI-CC (*if using an 884-CC, connect through the RMPC-12-45*)
Port 5: LDS Power Relay
Port 6: Overflow Relay (you don't need to assign it if you are not going to use it)

These are the Hardware Programmer standard port assignments for a Head End Replacement. The arrows show that the Port #2 "Analog Control" is assigned to be the Chapel RMI-CP control. Note also that the Rack Power Relay is assigned to Port #5 (the rack power relay is on the LDS Power/Relay card which is an optional accessory installed inside the mixer.
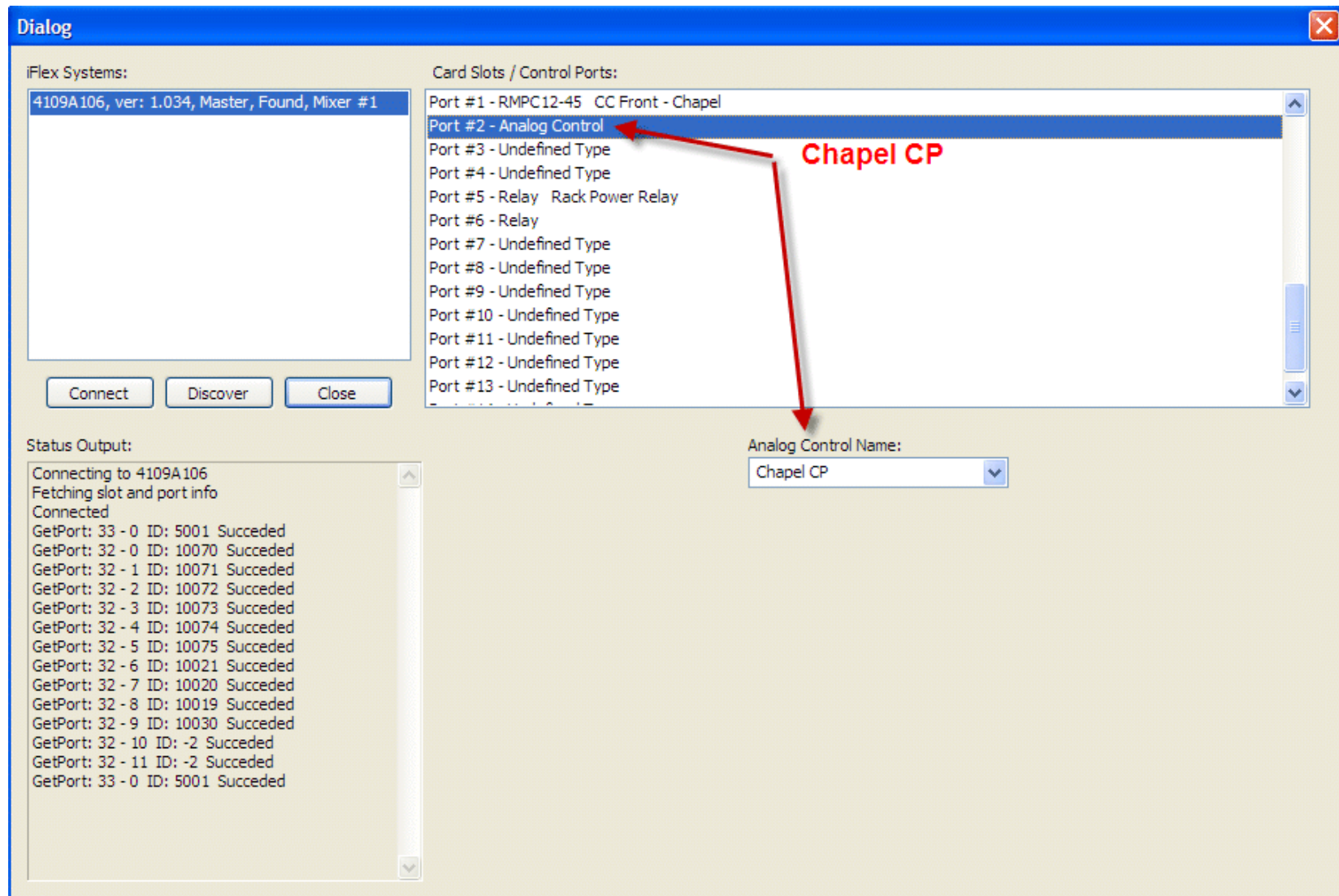
1280 i*Flex* – Input / Output / Logic I/O / RMPC-12-45 Assignments
For "Head End Replacement" and Standard LDS Systems

|	**Mixer Inputs**	**Mixer Outputs**	**1280 Logic I/O**		**RMPC-12-45**
1	Pulpit	Chapel	RMPC-12-45	**A**	**Red**/Green Zone 1 / (RMI-IR3 - Front)**
2	Sacrament	Chapel	RMI-CP	**B**	Red / **Green** Zone 1 / (RMI-IR3 - Middle)**
3	Side	CC - Front	(RMI-CC)**	**C**	**Red**/Green Zone 2 / (RMI-IR3 - Rear)**
4	Rostrum	CC - Middle		**D**	Red / **Green** Zone 2
5	CC Mic 1	CC - Rear		**E**	**Red**/Green Zone 3
6	CC Mic 2	Perimeter		**F**	Red / **Green** Zone 3
7	CC Mic 3	ALS		**G**	RMA6-1 / (CC-884 - Pot 1 + CC on/off switch)##
8	CC Mic 4	Record		**H**	RMA6-2 / (CC-884 - Pot 2 + CC Auto/Manual)##
9	Satellite			**I**	RMA6-3 / (CC-884 - Pot 3)##
10	W			**J**	RMA6-4
11	Organ			**K**	
12				**L**	RMI-CS

** items in parenthesis used only in "standard full" installations

in the event that an old, or existing, CC-884 is present in a building and the consultant/contractor wishes to use the existing CC-884 rather than install a new RMI-CC, the CC-884 needs to be connected to the system via the RMPC-12-45. Three ports are needed. Ports G, H, and I should be used.

Hardware connections to the RMPC-12-45 can be made with either the Euro-block style connectors or the RJ-45 connectors. The Euro-blocks and the RJ-45s are in parallel with each other so they can be used interchangeably.

A red/green switch is actually two switches, so two ports on the RMPC-12-45 are used. The graphic below shows how a red/green switch typically would be connected to the RMPC-12-45. The connection shown would be for the "CC Front" section.

Note that Euro-bloc connector pin #4 is +24 VDC. The pin #4 terminals on all of the Euro-block connectors provide the same, common, +24 VDC. The same is true for connector pin #4, which is ground. Pin #5 on all connectors provides a common ground.
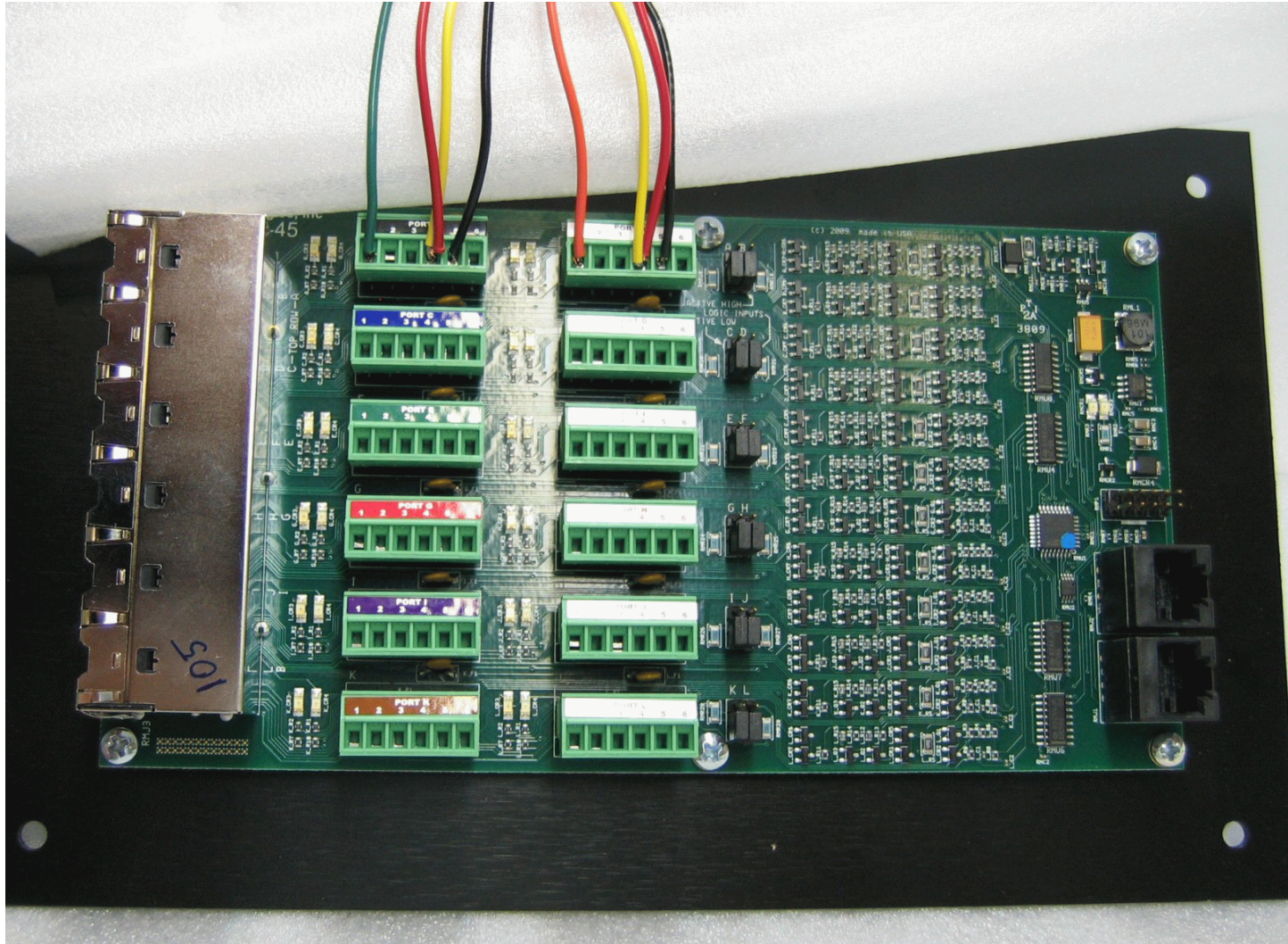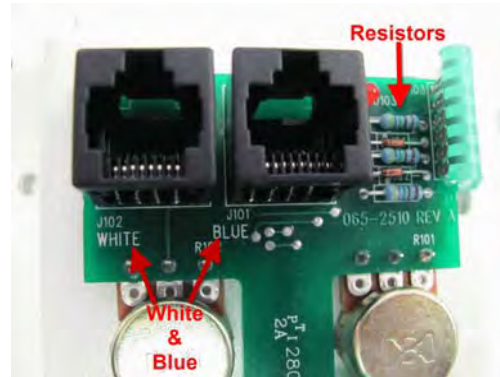
The new RMI-CC replaces the CC-884. Either one can be used with an iFlex 1280, but they are connected differently. How do you tell the difference? It's pretty easy.

CC-884
The CC-884 has the front panel label "CC-884", the PC board has resistors beside the RJ-45 connectors, and the labels "White"and "Blue" on the PC board to define the two Cat5e lines that are required for connection.


RMI-CC
The RMI-CC has the front panel label "RMI-CC", and there is an IC chip beside the RJ-45 connectors. There are there are orange dots on the chip and on the edge of an RJ-r5 connector, and the silk screened label identifies the RMI-CC.
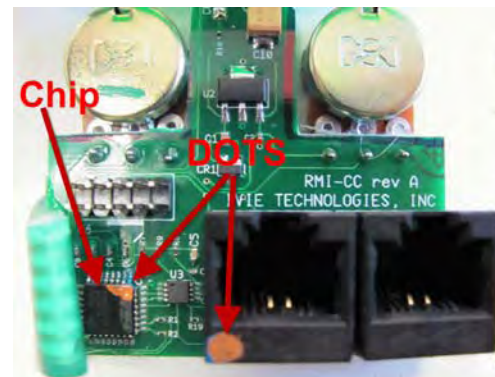

The new RMI-CC uses a single Cat5e cable to connect directly to the 1280 via one of the Logic I/O ports. It will appear in the Hardware Programmer as a separate item, rather than as a listing in the RMPC-12-45. (See p 23)

If a new RMI-CC is connected to one of the Logic I/O ports (in the case below, Port 4), it will appear in the hardware programmer. The three CC mic controls are programmed in CC-1, CC-2, and CC-3. A fourth CC control is provided for in the software for future use only. (Note that the CC On/Off switch and light are a part of CC-1 and the Auto/Manul switch and light are a part of CC-2.)
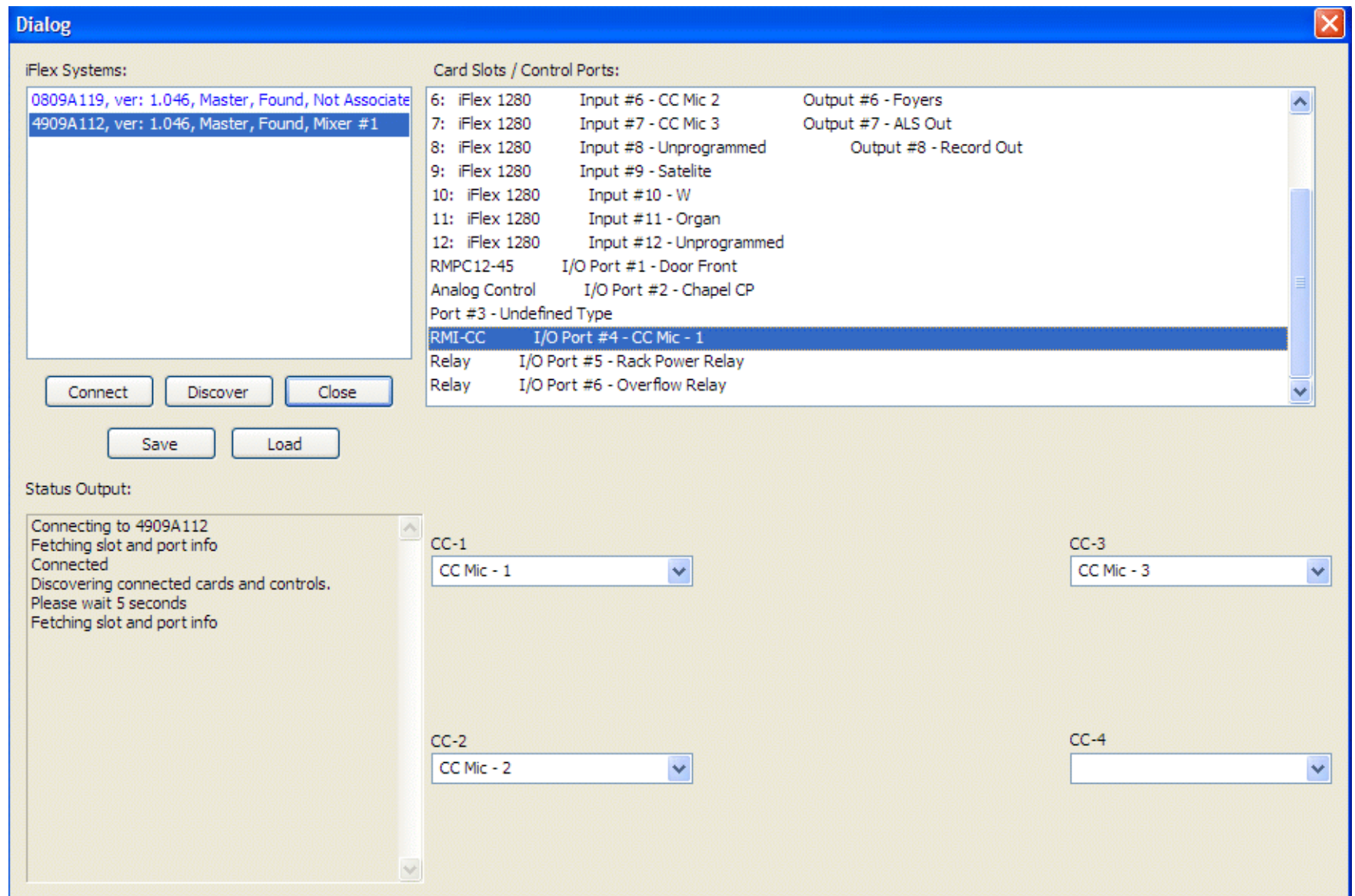
An older CC-884 control (used with 884's and 1026's) can be connected to an iFlex system. The newer control (RMI-CP) connects with a single Cat-5e cable, directly to one of the I/O ports on the 1280 mixer. However, the older CC-884 is not a SmartControl and therefore must be connected to the system via the RMPC-12-45. The graphic below shows how a CC-884 is connected to the RMPC-12-45. Ports G, H, and I are used for the CC-884 connection.
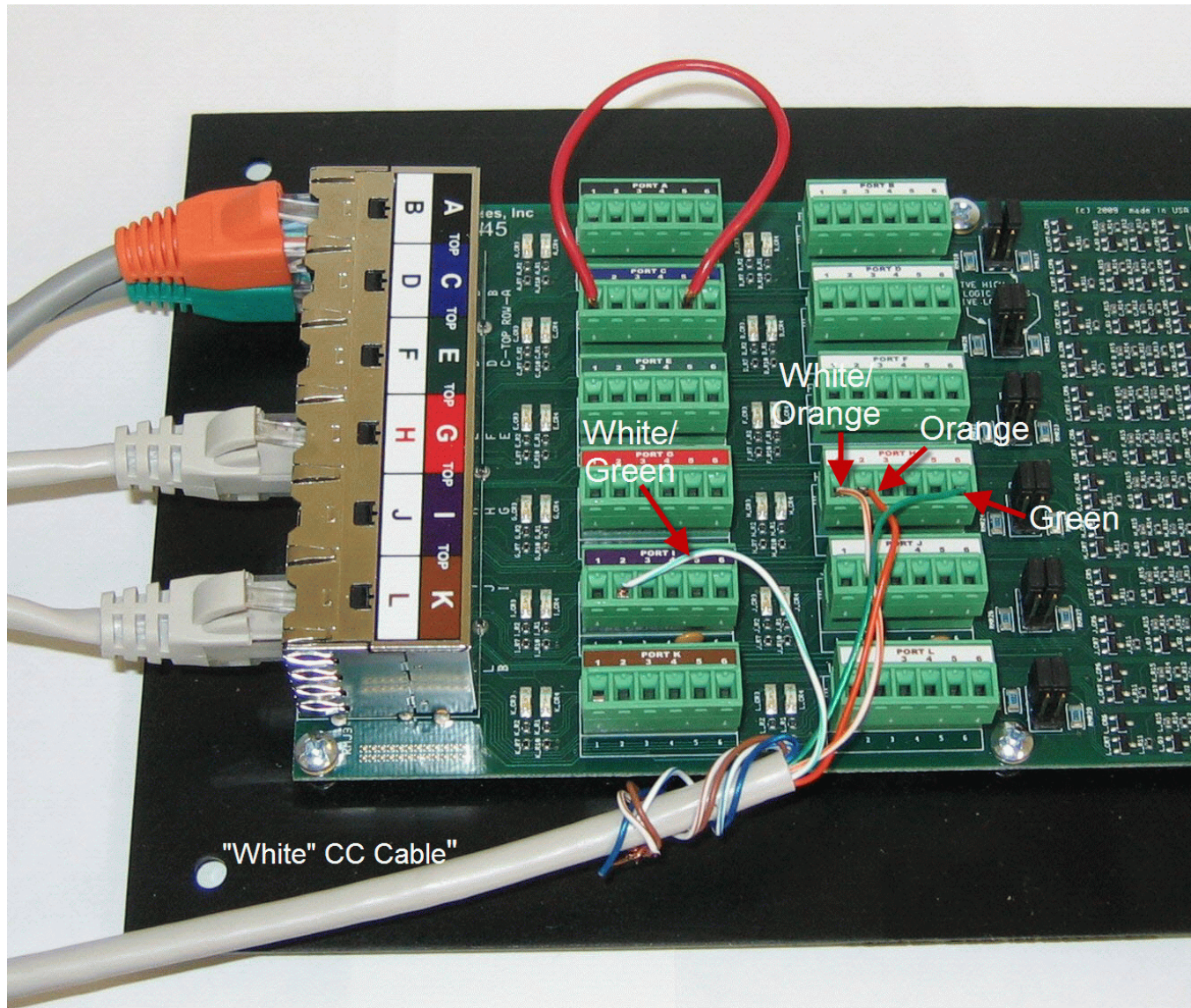
Note in the graphic above that the "Blue" Cat-5e from the CC-884 can be connected directly, via Cat-5e cable, to Port G. The "White" Cat-5e from the CC-884 must be split between two ports, and therefore must be connected using the Euro-block connectors H, and I. See the hand-notated diagram below and note that only one conductor from the "White" Cat-5e (the white/green) is split out to Port "I". *Since the RJ-45's and the Euro-block ports are in parallel, you can connect the BLUE Cat-5e either directly to the Port G RJ-45, or discreetly to the Port G Euro-block.*
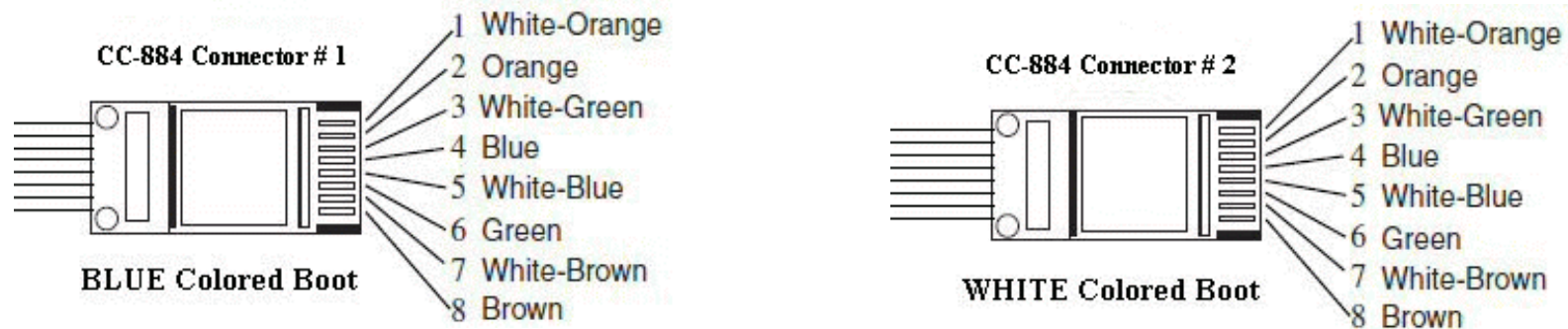

CC-884 Cat-5e / RJ-45 Conductor Color codes
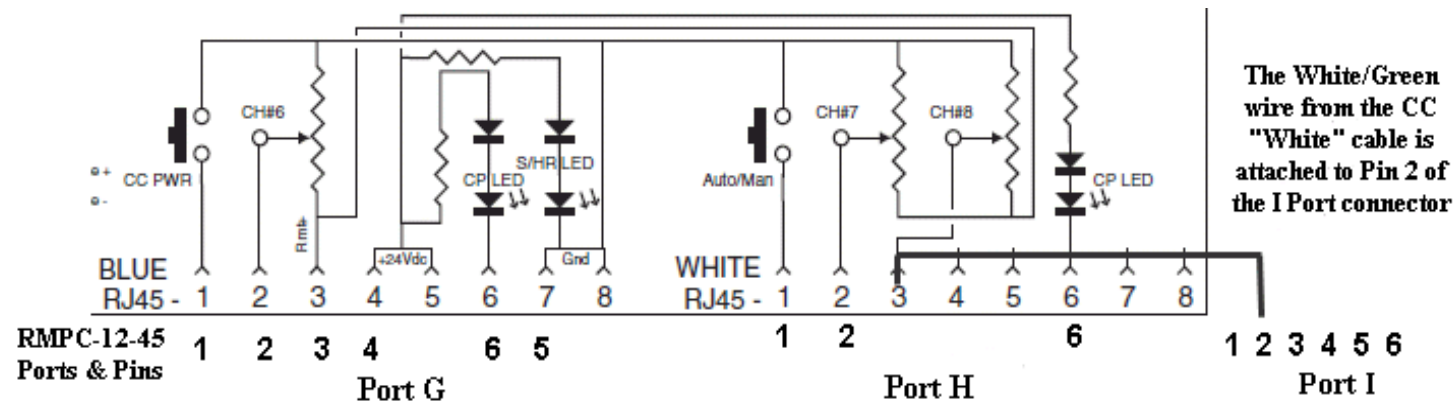
Connecting a CC-884 to the RMPC-12-45, these are the pin/port assigns.

25

For purposes of expediency, a standard 3-door Legacy plan may also be used for two door and one door plans. Though the Sonata layout graphic looks a little odd, it will work quite well if door jumpers are used, just as they can be used on existing 1026 installs where jumpers are used to tell the system logic that doors are always open.

The graphic below shows jumpers in place for the CC-Middle and CC-Rear doors on an RMPC-12-45. This example would be used if this were a 1-door building. Note that the jumpers go between Pin 1 and Pin 5 on the Euro-block connector. The same thing could be accomplished by jumpering Pin 1 to Pin 8 on the corresponding RJ-45. RMPC-12-45 Port B is the CC Middle zone and Port C is the CC Rear Zone.
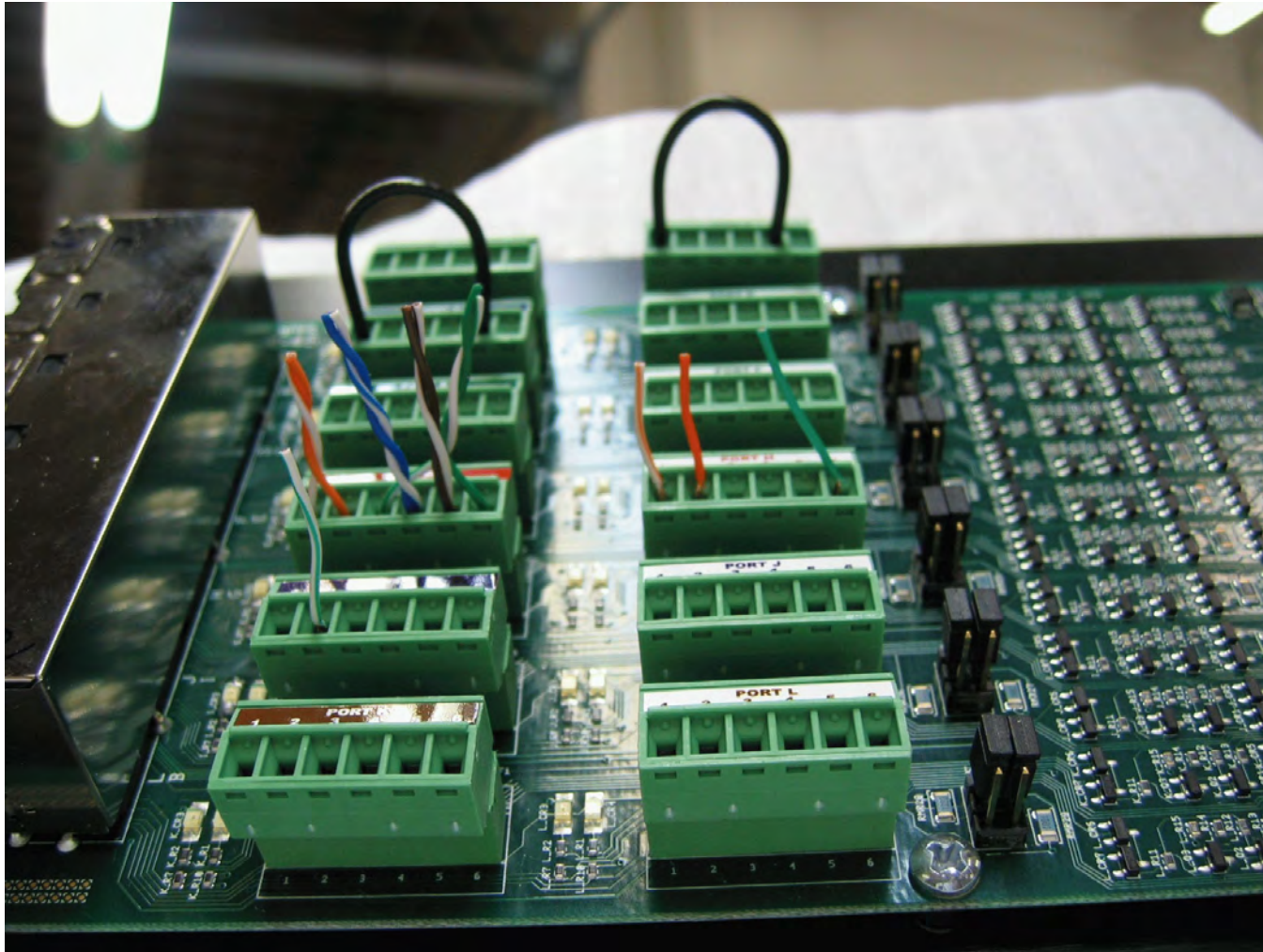
The   is an infrared sensor system designed to be used in conjunction with Ivie's programmable i*Flex*, 1026, and 884+ matrix mixers, but will work with any equipment that has logic capable of responding to a contact closure.

The RMI-IR3 provides a logical signal to the mixer indicating whether a door is open or closed. A mixer can be programmed to reconfigure the sound system based on which doors are open, combining rooms, changing levels,
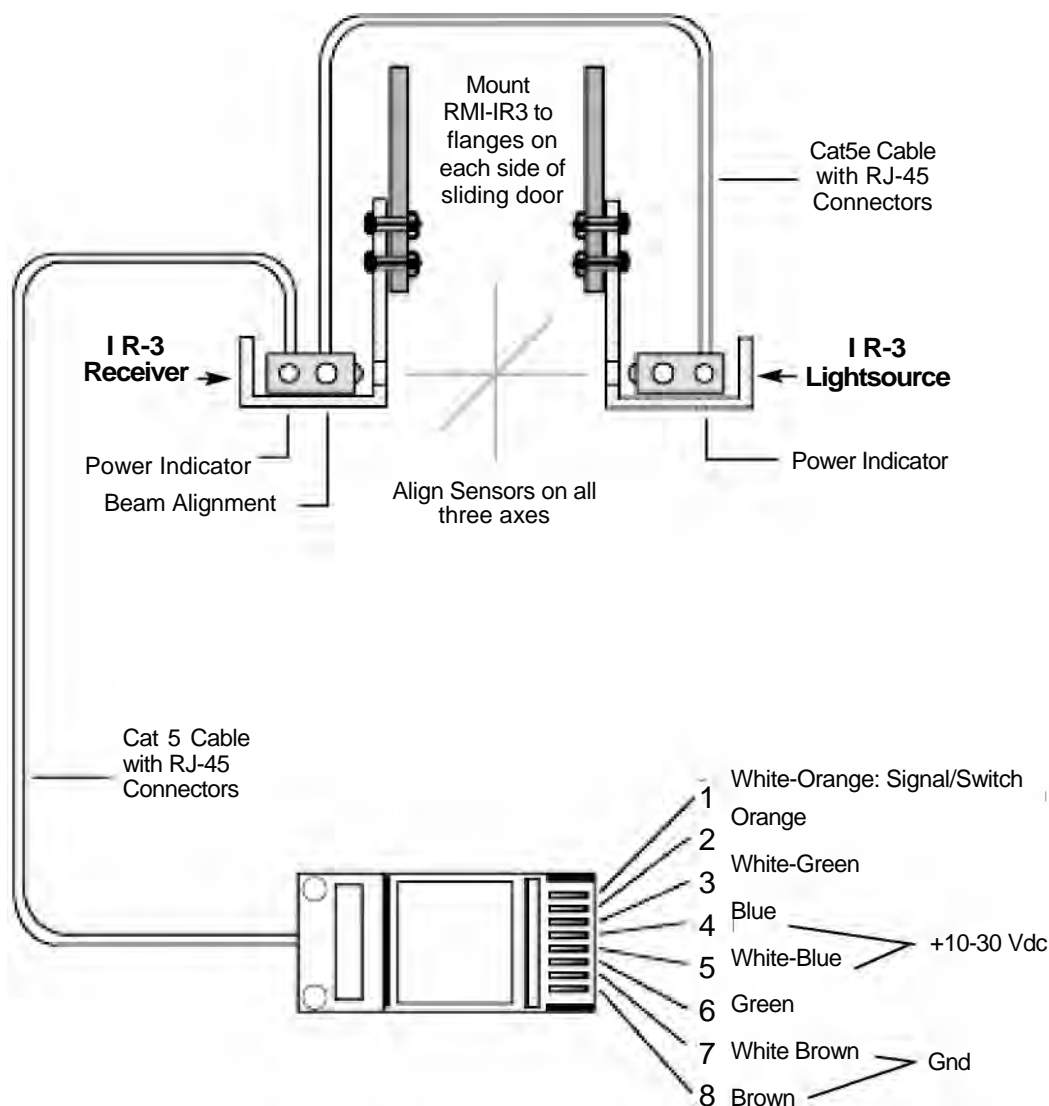
mix parameters, routing signals, EQ, and other DSP parameters to meet the need of the desired configuration for that state.

The RMI-IR3 is comprised of two pieces, a Lightsource and a Receiver. The two units appear identical, with the exception that the Receiver has two RJ-45 connectors and the Lightsource has only one.

The Lightsource/Receiver combination is designed for easy installation with the inclusion of a beam alignment indicator

on the Receiver unit. When the Receiver is illuminated by the infrared Lightsource, the red beam alignment LED will light, indicating proper alignment. Special circuitry is employed to assure that the Receiver will respond only to infrared light from the Lightsource.

RJ-45 connectors are used on the Lightsource and Receiver brackets. The RMI-IR3 is a Smart Contol© designed for use with Ivie Technologies i*Flex* mixers and is compatible with previous models such as the 884 and 1026 series..

Mount RMI-IR3 to flanges on each side of sliding door

Cat5e Cable with RJ-45 Connectors

I R-3 Receiver

I R-3 Lightsource

Power Indicator

Beam Alignment

Align Sensors on all three axes

Power Indicator

Cat 5 Cable with RJ-45 Connectors

1 — White-Orange: Signal/Switch
2 — Orange
3 — White-Green
4 — Blue
5 — White-Blue   +10-30 Vdc
6 — Green
7 — White Brown   Gnd
8 — Brown

RMI-IR3
INFRARED DOOR SENSOR

Installation Instructions

Method of Operation: The RMI-IR3 employs an open collector switch to ground, capable of sinking approx. 100 mA.

Physical Installation: Mount the Lightsource and Receiver on either side of the sliding door track, directly across from each other. The Lightsource and Receiver need to be aligned on all three axes (x, y, z).

Testing Alignment: For convenience, a 9 volt battery can be temporarily connected to the units to check alignment. If this temporary test and alignment setup is desired see the pin out wiring diagram on page 1 of this sheet to see where the 9 V should be connected. With the units powered by the 9 V battery or by the mixer, physically align the two units.

If the units are properly aligned, the red beam alignment LED will light. If the beam alignment indicator is not lit, then move one unit or the other (Lightsource or Receiver) until they are properly aligned, as indicated by the beam alignment LED. When alignment and testing are complete, remove the battery and setup harness.

Electrical Installation: A standard Cat5e (or better) cable coming from a 1026 IF, an 884 IF or an i*Flex* is connected directly by an RJ-45 connector to either of the two connectors on the Receiver. A shorter Cat5e cable is run from the other RJ-45 jack on the Receiver to the RJ-45 jack on the Lightsource.

> **Connecting the RMI-IR3 to iFlex and Other Systems**
> The RMI-IR3 is a Smart Control© when used with iFlex mixers. When used with a 1026 or 884+ mixer (or other non-iFlex device), the selection jumper shown to the right should remain in place. **ONLY when connecting to an iFlex mixer directly, via the iFlex back panel Logic I/O ports should the jumper be removed.**

Specifications

Supply Voltage: 10 to 30 Vdc
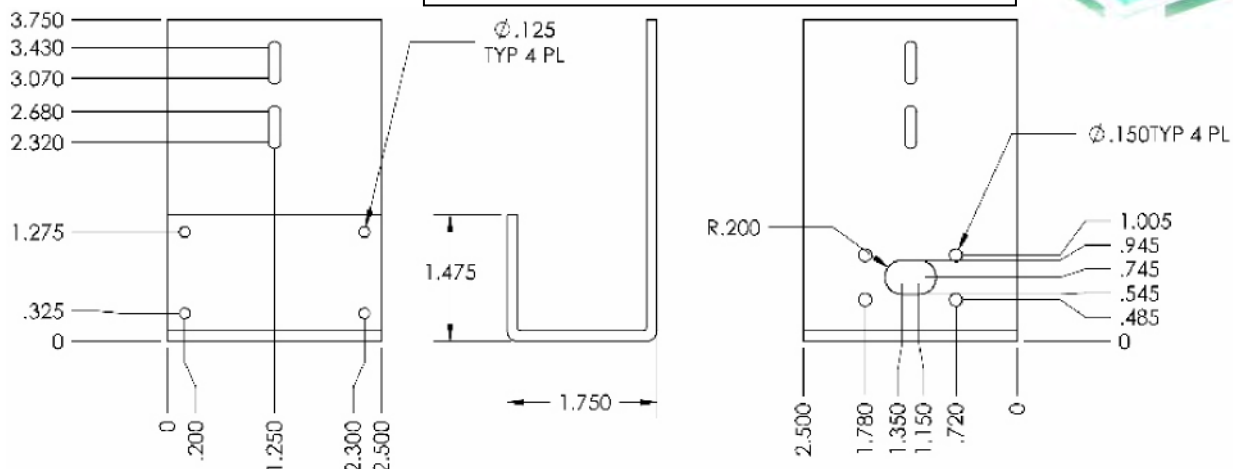
Note: When connecting the RMI-IR3 to a mixer or some other hardware, if the relay or logic supply is >5V, then you must remove the option jumper and connect to Pin #2 (instead of Pin #1) for switch/sensing output!

1605 N. West State Street
Lehi, Utah 84043
Phone: (801) 766-7600
Fax: (801) 766-8282
Internet: www.ivie.com
Email: ivie@ivie.com

Revised: Feb 2010

Front

Rear
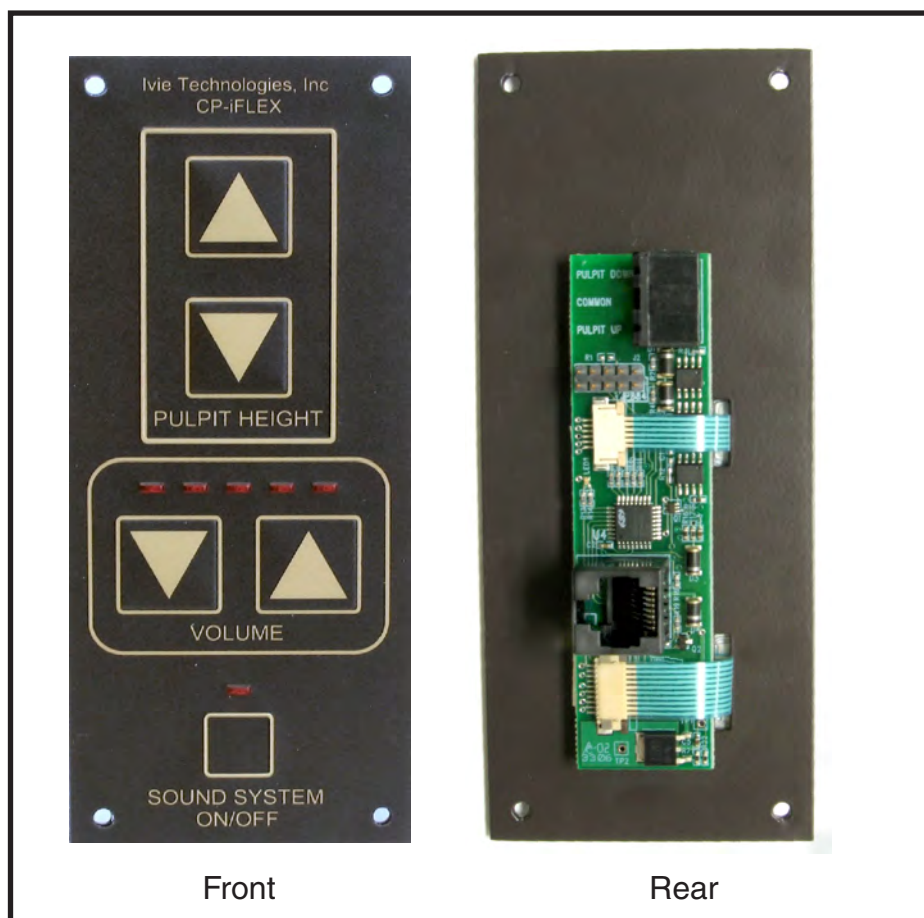
The RMI-CP remote control is intended for use in LDS meetinghouse audio systems which employ Ivie i*Flex* mixers. The RMI-CP provides the remote control functions for the Chapel portion of the system and is connected to the iFlex 2400 or 1280 mixers by means of an RJ45 connector.

A five LED bargraph indicates the current level setting.

The connection to the podium Up/Down controls is via a three pin euro-block connector. The RMI-CP provides a switched +24Vdc to the podium.
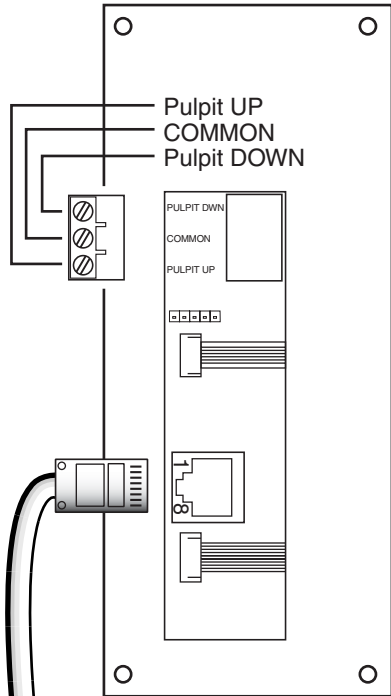
Specifications

Electrical: LED 24Vdc
All switches - SPST momentary
Podium Up/Down supplies +24Vdc

LED Level indicator

Physical: Color - Brown & Gold
Size - W 2.5 in   H 6.0 in
(no escutcheon supplied)

RMI-CP connection to Ivie iFlex Mixers

The RMI-CP provides a **switched +24Vdc** to activate the pulpit relays.

Pulpit UP
COMMON
Pulpit DOWN

PULPIT DWN
COMMON
PULPIT UP

Wiring between the RMI-PC and an iFlex mixer is accomplished using a conventional CAT-5 cable conforming to the EIA 568B standard.

Black

For iFlex mixers, connect to any of the Logic I/O ports

EIA/ 568B Color Code for RJ45

Pin	Color
8	Brown/White
7	White/Brown
6	Green/White
5	White/Blue
4	Blue/White
3	White/Green
2	Orange/White
1	White/Orange

Contact side showing
Tab on back

1026 Jumper

The RMI-CP is shipped with no jumper in place. Use the RMI-CP to connect directly to the Logic I/O port of an iFlex mixer.

An RMI-CP can be configured to connect to a 1026 IF for 1026 systems. To do this, add a jumper as shown below. The jumper will configure for a 1026 mixer. The 884 mixer series is not supported.

PULPIT UP
1026 Jumper
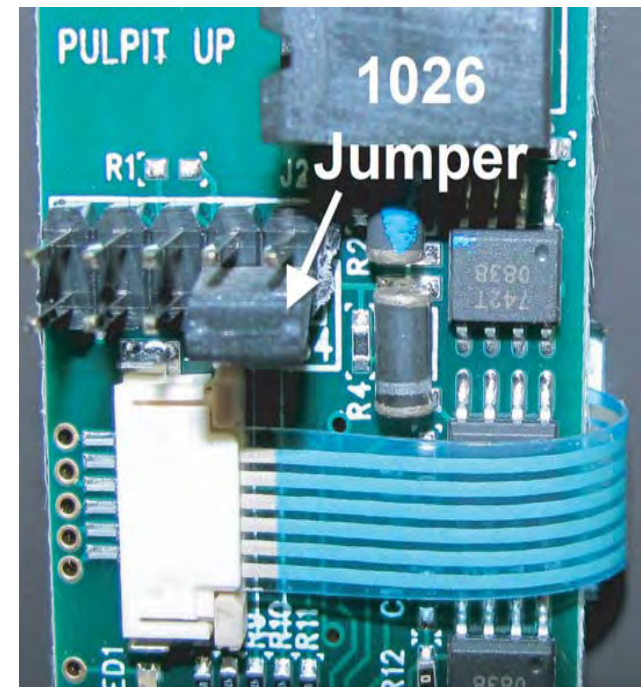
The **RMI-CC Wall Mounted 3-input Remote Control** is a wall mountable unit intended for installation in areas where control of up to three inputs (and an additional, local stereo to mono line input) may be useful.

The RMI-CC provides three microphone inputs, and two line inputs (resistively mixed to mono). There are three level controls corresponding to the mic and line inputs, an illuminated on/off button, and an illuminated assignable momentary switch (Auto/Manual).

The front cover of the unit is a hinged door with latch. The door swings 180 degrees.

The back of the RMI-CC features dual RJ-45 EtherNet style connectors, either of which may be used to connect the unit to the mixer via Cat5e or better cable.

The RMI-CC is a SmartContol™ designed for use with Ivie Technologies iFlex™ LDS mixers.

Note: Cat5e or better cable must be used to connect the RMI-CC to the iFlex mixer.