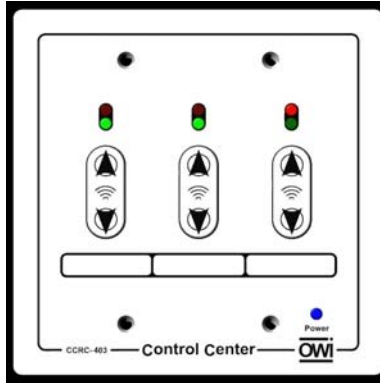


Installation Instructions

Model CCRC403 / CCRC403RS232

CONTROL CENTER by OWI



Established 1978

OWI Incorporated
17141 Kingsview Ave. Carson CA 90746 USA
Tel. 310-515-1900
www.owi-inc.com

Technical Support: 310-515-1900



CAUTION
RISK OF ELECTRIC SHOCK



DO NOT OPEN

**CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK
DO NOT REMOVE COVER (OR BACK)
NO USER-SERVICEABLE PARTS INSIDE
REFER SERVICING TO QUALIFIED PERSONNEL**



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



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

The apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.

IMPORTANT SAFETY INSTRUCTIONS

1. Read these instructions - All the safety and operation instructions should be read before this OWI product is operated.
2. Keep these instructions - The safety and operating instructions should be kept for future reference.
3. Heed all warnings - All warnings on this product and in these operating instructions should be followed.
4. Follow all instructions - All operating and other instructions should be followed.
5. Do not use this apparatus near water - for example, near a bathtub, washbowl, kitchen sink, laundry tub, in a wet basement, near a swimming pool, swamp or salivating St. Bernard dog, etc.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions. - This OWI product should be situated so that its location or position does not interfere with its proper ventilation. For example, the Component should not be situated on a bed, sofa, rug, or similar surface that may block any ventilation openings, or placed in a built-in installation such as a bookcase or cabinet that may impede the flow of air through ventilation openings.
8. Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wider blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit the apparatus.
11. Only use attachment/accessories specified by the manufactures.
12. Use only with the cart, stand, tripod, bracket or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.



13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped. The user should not attempt to service this OWI product beyond those means described in this operating manual. All other servicing should be referred to the OWI Service Department.
15. To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
16. To prevent electric shock, do not use this polarized plug with an extension cord, receptacle or other outlet unless the blades can be fully inserted to prevent blade exposure.
17. Exposure to extremely high noise levels may cause permanent hearing loss. Individuals vary considerably in susceptibility to noise-induced hearing loss, but nearly everyone will lose some hearing if exposed to sufficiently intense noise for a period of time. The U.S. Government's Occupational Safety and Health Administration (OSHA) has specified the permissible noise level exposures shown in the following chart. According to OSHA, any exposure in excess of these permissible limits could result in some hearing loss. To ensure against potentially dangerous exposure to high sound pressure levels, it is recommended that all persons exposed to equipment capable of producing high sound pressure levels use hearing protectors while the equipment is in operation. Ear plugs or protectors in the ear canals or over the ears must be worn when operating the equipment in order to prevent a permanent hearing loss if exposure is in excess of the limits set forth here.
18. OWI recommends that this apparatus is to be placed on a switched power outlet, one that switches both sides of the line and has contact separation of at least 3mm.

<u>Duration Per Day</u>	<u>Sound Level dab</u>	<u>Typical</u>
In Hours	Slow Response	Example
8	90	Duo in small club
6	92	
4	95	Subway Train
3	97	
2	100	Very loud classical music
1.5	102	
1	105	Patrice screaming at Ron about deadlines
0.5	110	
0.25 or less	115	Loudest parts at a rock concert



Installation Instructions Model CCRC403 & Model CCRC403RS232

CCRC403 carton includes the following items:	CCRC403RS232 carton includes the following items:
One (1) each CCRC403	One (1) each CCRC403
One (1) each UL Listed Power Supply	One (1) each UL Listed Power Supply
One (1) set Instructions	One (1) each RS232 cable
	One (1) set Instructions

Introduction:

Congratulations on purchasing the Control Center by OWI.

The OWI CONTROL CENTER is a 50-Watt (25 x 2) High Fidelity Amplifier, Mixer and Room Combiner all in a small package that fits into a double gang box. This high quality durable unit is capable of powering up to 4 speakers per side for voice, music and paging. The Control Center has 3 independent inputs that can be used for Line or Mic input. It is projector compatible, RS232 controllable and it comes with a 15V DC power supply.

This product represents very advanced electronics and circuits that in some cases have never been installed into a two gang box. The three inputs represent the latest designs for Microphone input circuits. The line input circuits also are instrumentation grade, balanced and differential circuits. They represent complete DC isolation from outside wiring and high common mode rejection of noise. Input wiring can be as long as 3000 ft.

Mic and Line Inputs

Both the Mic and Line inputs enjoy a very advanced Limiter circuit. It will allow a wide variation in input level or mic level depending on the speaker holding the microphone close or farther away.

Before starting

We recommend that the power supply be located above the ceiling in an electrical box with a cover. It will fit into a 3 or 4 gang box. The power supply is very special and should not be replaced with an off the shelf 12 volt supply. This is a 15 volt supply and is designed to deliver full power when combined with the CCRC main board. The power supply is UL rated and will operate anywhere in the world. The power cord will have to be changed for the appropriate style.

Selection of Mic or Line is done just before installation by moving a red jumper to either the designated Mic or Line position. Once installed, this jumper is away from prying fingers.

The Amplifier

The amplifier used is the choice of many a Hi Fi installations. Operating at more than 80% efficiency, it is a Class D. It will generate 25 watts times two. Two separate outputs each can deliver 25 watts into 4 Ohms. In the case of many speakers operating at 1 or 2 watts, we recommend purchase of the OWI 70 volt 30 watt transformer. You can use of two of them, one on each output. These two transformers will fit into a three gang electrical box to keep them away from prying hands.

The Line Out

The Line Output is a fully professional balanced line driver suitable for use in Hotels, Convention Centers, Public buildings, schools and colleges. It is fully capable of driving long distances of up to 3000 ft. Twisted pair wire with shield such as Beldon 9451 or equivalent will give excellent results. Line out is factory set to a nominal 1 volt.

Line Out tying the shields

Normally the shield is connected only at the far end. Leave the shield taped back at the originating CCRC. This is most often the optimum grounding for minimum hum.

Ventilation

Please make sure that the three holes on the top of the CCRC are visible as are the 3 holes on the bottom. In fact the installer should be able to see light from behind the CCRC since there is a clear path flowing up through the front panel. The front panel is welded cold roll steel. It is designed to be strong against any bumping.

Face Plate

The smooth face plate is done so that it can survive people and tray tables bumping.

Room Designators

There is a paper pull tag on the face plate. This pull tag will open the access to room designator space for all three inputs. Using the P Touch ¼ in labeling machine, experiment to get the exact spacing for Input Designation.

Audio Present indicators

Each input has a green light associated with the input level control. Immediately above the control is the audio present lamp. Just above that is the overload lamp. If that is flashing red, the amplifier is in clipping and the level should be turned down.

Microcontroller

The CCRC uses one of the most popular and reliable microcontrollers available. It makes possible many of the advanced features of the CCRC.

Room Combiner

There are several configurations of room combining the CCRC will support.

Background music on Ch 3

In this configuration, Background music is run to the CH3 inputs of all the rooms with background music. In this case, two sets of wires will be on the Ch 3 input. The connector will easily hold this quantity of 22 ga. Wire. The same rule of shields applies here. Going into Ch3 the shield is attached. Going out of the same connector and on to the next CCRC, do not connect the shield. In this configuration, there are two available inputs to be used for Line or Mic inputs for each room. As the room is set up, the background music can be adjusted appropriately. Similarly, two styles of music can be available on Ch's 2 and 3 leaving Ch 1 for the room input.

With the popularity of small audio mixers being used in hotel rooms, any number of microphones can be used and plug into a wall connector that wires to Input 1.

Two Room Combiner

Let's call them rooms A and B.

The A, CCRC then has room B on its input Ch 2. If the rooms are combined then both levels are turned up. If not, then Ch 2 (room B) is left off. Again, Background Music can be placed on Ch3.

Three Room Combiner

Let's call them rooms A,B, and C. There is a CCRC in each of the rooms. There is CCRC (A), CCRC (B) and CCRC (C). The line out of each CCRC is now needed. For simplicity, we'll call Ch1 room (A), Ch2 room (B) and Ch 3 room (C). Each of the Line outputs will need to be wired to their inputs on the other two rooms.

Room A's line output will wire to the other two A inputs in room B and C. Following the same rules of how to tie down the shields. When you connect two CCRC's, the line out shield is NOT connected. Connect it at the Ch inputs. This simple rule will keep hum out of the system.

For Room Combining, we have a special feature

There is a need for privacy between the Cosmetics company in room A, a school meeting in room B and the police association in room C. We don't want any embarrassing mistakes. Room A can be made private by pressing simultaneously on Ch 1 (room A) up and down arrows. This will cause the overload lamp to turn on continuously as a signal that the room has been made private.

To combine the rooms for an evening dinner, press the up and down arrow simultaneously and the lamp will turn off indicating the privacy feature is off.

Installation:

The CCRC403 is designed to fit into a standard electrical two gang box with mud ring. In the case of an electrical box with no mud ring, then an adapter plate will be needed.

It is best used with the OWI Model ICT82A In-ceiling Aluminum Speakers and other OWI Speakers.

ASSEMBLY STEPS:

RETROFIT - Please note that the GANGBOX SHOULD BE cut and placed into the wall and all wires are best to be run in the wall. Mark the wall where you will be cutting and make sure that nothing is behind the wall before you cut. Be sure that nothing is going to disturb the placement of the INWALL AMPLIFIER.

The CONTROL CENTER Class "T" amplifier is small and gives off very little heat.

Important!

All connections should be made with the power turned **OFF!**

Note: Strip all wires 3/16" and place the wires in the connector and tighten screw to the right.

Note: this must be done for each input.

- 1) Run all your wires to the location where the CONTROL CENTER is going to be.
- 2) Disconnect the Green Phoenix connectors that you are going to use and connect the appropriate wires for your source/s to the Green Phoenix connector. Then Plug them back into the desired input (1, 2, or 3) of the CONTROL CENTER*. Be sure that the RED jumper is in the correct location for either Line or Mic.
- 3) Disconnect the Speaker Phoenix connectors and connect the speaker wires to the SPKR CH1 (Red to +, Black to -) phoenix connectors SPKR CH 2 (Red to +, Black to -) phoenix connectors. These are both 25 watts each.
- 4) Connect the UL listed 15-Volt transformer (supplied) to input the amplifier. The wires must not be crossed and will damage the Control Center if this is done. Please note that the power supply must be plugged in to a 110-volt outlet.* You may need to place the power supply into a 3 or 4 gang box, or placed above the ceiling tiles.
- 5) Finish terminating all the wiring before powering up the CONTROL CENTER.
- 6) Turn on amplifier and test system.
- 7) Next place the amplifier into the gang box and add the screws to the face screws and add the screws to the faceplate and test the system one last time.

Connecting the Control Centers to another Control Center

Note: If you are going to do this please note that you will lose one of the inputs on all of the additional CONTROL CENTERS.*

- 1) Connect a line between the Control Center to the other CONTROL CENTERS with either a 2 conductor wire or CAT-5 (only use one pair of the CAT-5) Plug them into the desired input (1,2, or 3) be sure that the jumper (red plastic) is in the Line spot. Be sure to label the location for the combining location.
- 2) Connect the other local equipment in the room (microphone/s or Sources) to the CONTROL CENTER to the other desired input (1, 2, or 3) be sure that the jumper (red plastic) is in the correct Mic or line spot.
- 3) Connect the speaker wires to the SPKR CH1 phoenix connectors SPKR CH 2.

*** Everything from the first CONTROL CENTER will be heard on all the speakers if the slide switch is greater than the off position.**

System is now fully operational.

Cleaning the face plate

Use Windex or the like. It is a durable surface, the volume controls are rated in the millions of actuations. Instead of the popular plastic contacts, the CCRC is all steel for longer life.

Features:

Inputs:	Four (4)
Type	Selectable Mic or Line and one direct to mix buss
Input	Balanced Instrumentation Grade parts
Power Supply	15 VDC, Reg 4 amp,.(UL/CUL/GS/PSE)
Mechanical	2 Gang Electrical Box
Limiting	Yes
Signal Present LED's	Yes
Overload LED's	Yes
Input Level Controls	Yes
Type	Digital Level Controls
Output Amplifier	Class D
Power Level	25Watts 4 Ohm
Maximum Power	50 Watts 2 Ohm (With higher current power supply)
Frequency Range	50Hz to 20kHz
Fidelity	Excellent, used by top Hi Fi Mfrs.
Applications	Schools, Hotel/Motel meeting room combiner, Restaurant, Meeting rooms. Conference facilities.
Output Power Control	The unit is designed such that the input levels are matched closely to the output level so that a Master level control is not needed.
Mounting Requirements	A standard 2 gang electrical box with mud ring.
Heat dissipation	This unit operates at nearly 85% efficiency allowing cooling through the internal metalwork.
Digital Control	RS232 Control
Warranty	One (1) year












Instructions: RS232 Remote Control of the OWI CCRC403 Control Center.



The communications settings are 9600 baud, 8 bits, no parity, 1 stop bit. On the computer keyboard, use UPPER CASE letters for the commands.



Backview of CCRC403 showing RS232 connection

<u>Typed Letter</u>	<u>Action</u>	<u>Typed Letter</u>	<u>Action</u>
	Decrease channel 1 volume		Decrease channel 3 volume
	Increase channel 1 volume		Increase channel 3 volume
	Decrease channel 2 volume		Toggle channel 1 in and out of the line out mix
	Increase channel 2 volume		Toggle channel 2 in and out of the line out mix
			Toggle channel 3 in and out of the line out mix

The **J,K,L** keys do not affect the power amplifier output to the speakers or the three volume settings.

Except for the **J,K,L** keys, holding a key down (**A,S,D,F,G,H**) smoothly moves the volume up or down.

When a letter is typed, the CCRC403 sends back that same letter.

It is not necessary or desirable to press the enter key after a letter entry.

The last volume setting of a channel is stored in a special memory. When the CCRC403 is turned off and then back on, the stored volume settings are restored to their respective channels.

The volume controls have stops at both ends so that the volume setting won't wrap around from minimum volume to maximum volume and vice versa.

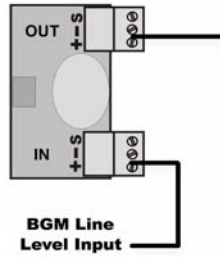
In addition, decreasing the volume of a given channel past a certain minimum will mute that channel.

When a channel is isolated from the line-out feed, the red overload LED for that channel on the CCRC Control Panel will remain on steadily.

Tech Support: 310-515-1900

4TH INPUT CHANNEL WIRING

MONO VOLUME CONTROL
Model AMP-MOVC



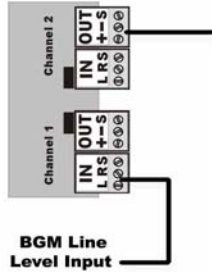
CONTROL CENTER by OWI
Model CCRC403



12 inch cable

Extra Cable Added

STEREO VOLUME CONTROL
Model AMP-STVC



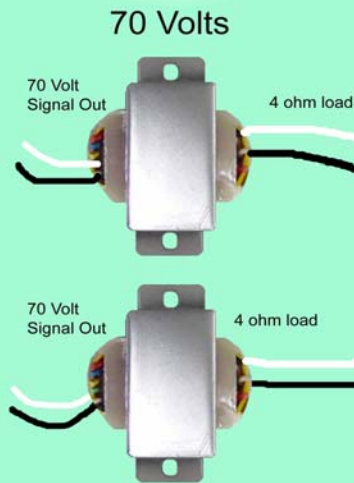
CONTROL CENTER by OWI
Model CCRC403



12 inch cable

Extra Cable Added

70 VOLT TRANSFORMER AND CONTROL CENTER WIRING DIAGRAM



CONTROL CENTER by OWI (CCRC403)

LIMITED WARRANTY

1. The CCRC403 has been thoroughly tested and inspected at the factory. It is warranted for one (1) year from date of purchase.
IT IS THE OWNERS' RESPONSIBILITY TO ESTABLISH THE DATE OF PURCHASE BY ACCEPTABLE EVIDENCE AT TIME SERVICE IS SOUGHT.
2. Any unit, which in the judgment of OWI INC. is defective or develops defects under normal use will be replaced or repaired without cost within the warranty period.
3. This warranty will be considered void if unit has been dropped, misused, abused, altered in any manner, overdriven with excessive amplification exceeding manufacturer's specification, improperly serviced or accidental damage.
4. OWI Inc. shall have no liability whatsoever for consequential damage. The sole responsibility and discretion of OWI Inc. under this warranty shall be limited to the repair of the product or replacement thereof.
5. IMPORTANT: This warranty is void unless the attached card is completed and mailed to OWI Inc. within 10 days following the date of purchase. Units must be sent to OWI Inc. or to the dealer where purchased.

OWI INCORPORATED
17141 Kingsview Ave
Carson, CA 90746

Date Purchased: _____
Model Number: _____
Serial Number: _____

(Keep this part for your record)

-----CUT AND MAIL-----



OWI INCORPORATED
17141 Kingsview Ave
Carson, CA 90746

LIMITED WARRANTY

Model Number: _____

Model Name: _____

Serial No. _____

Date of Purchase: Month: _____ Day _____ Year _____

Owner's Name: _____

Address: _____

City: _____ State _____ Zip _____

Dealer's Name: _____ City _____ State _____

Purchased from (please check one):
Video __, Electronic __, Mail Order __, Mass Merchandiser __, Installer __

Others (please specify) _____

Remarks: _____
