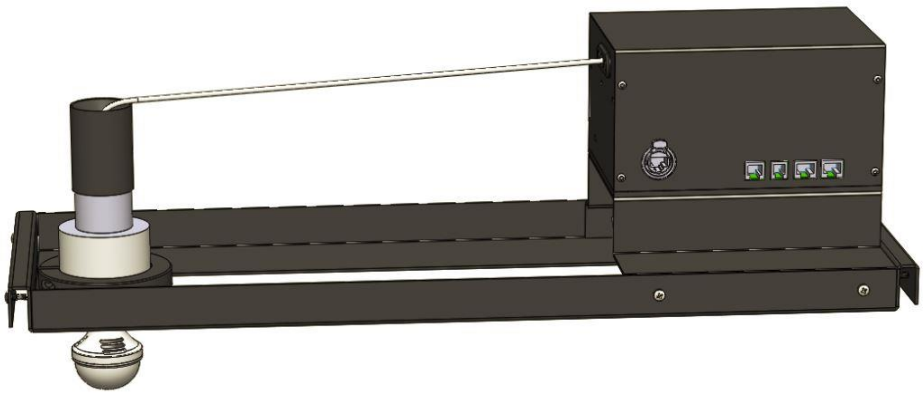
CCRM 4000-C 303 Retracta Motorized Ceiling Microphone



Installation Manual and user Guide

Contents

	Page
Contents	1
Features	2
Parts supplied	3
Connections	4
Installation / Controls	5-8
DSP Connections	9
Mute Control	10
Master to DSP Connections	11
Slave Connections	12
IR Remote Control	13
Remote Control Information	14
Programming Master Cable Height	15
Programming Slave Cable Height	16
Horizontal / Vertical Mounting	17
Slave Communication Link	18
Cautions / Troubleshooting	19
Specifications	20
Warranty	21

IMPORTANT SAFETY INSTRUCTIONS

- Read these instructions carefully as they contain important information concerning safety and safe operation of this equipment.
- Heed all warnings in this manual they are there for the safety of you and safety of others.
- Keep these instructions in a safe place in case they need to be referred to later.
- Do not install near sources of heat or water. Clean with dry cloth only.
- Use only with the bracket supplied.
- Do not burn or incinerate the remote control battery. Danger of explosion.

WARNING: Do not connect a supply Voltage until the CCRM 4000 is fixed securely in place, IR sensor connected (if fitted / Master only), Ceiling bezel is mounted in the ceiling tile and all other connections have been made.

Features

- Control ports allow DSP connection and Link / daisy chain expansion to other CCRM 4000 Retracta units.
- A positive (+2.5V to +12V) signal applied to the MASTER DSP control port will simultaneously operate all slave units connected to the master.
- Logic Hi / Lo for DSP mute detection port.
- Master & Slave units are identical in construction. Two rotary 0-9 digital decimal encoders are used to set Master (00) and 01 – 99 determines slave designation. The factory default is set to Master (00).
- RJ45 socket allows easy and fast connection of the audio to mixer or DSP. A 9-48 Volt phantom power is required.
- IR remote control is supplied with the master unit. Remote control can be used to activate the units in the absence of a DSP.
- IR receiver sensor with integral green programme mode LED and red range LED (supplied with master unit).
- Audio cable length 2.5 Metres.
- Supplied with a Tri element microphone.
- Up to 99 slave units can be daisy chained to the master.
- Ceiling bezel fitted with detection switch.
- Universal mains switched mode power supply available as separate item. Operates up to 4 units.
- Automatic safety detection for cable hang-ups.

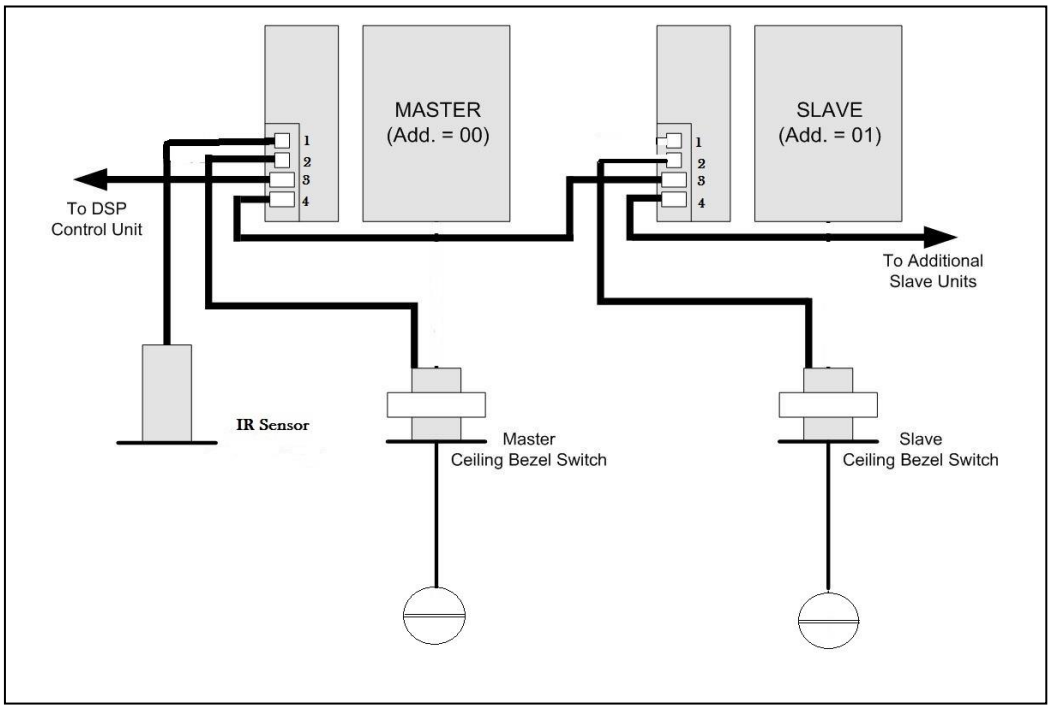
Parts supplied with CCRM 4000-C 303 Master

1. CCRM 4000-C 303 Retracta unit complete with Tri element microphone
2. IR receiver sensor (CCRM-4000-IR)
3. IR remote control (CCRM-4000-R)
4. Audio link cable
5. Safety 4 x eye bolts and wire harness
6. Installation manual
7. Ceiling tile fixing bracket (CCRM-4000-Rack)
8. White ceiling Bezel (CCRM-4000-BW)
9. 18 VDC universal power supply (PS-018)

Parts supplied with CCRM 4000-C 303 Slave

1. CCRM-4000 Retracta unit complete with Tri element microphone
2. White ceiling Bezel (CCRM-4000-BW)
3. Audio link cable
4. Safety 4 x eye bolts and wire harness
5. Installation manual
6. Ceiling tile fixing bracket (CCRM-4000-Rack)

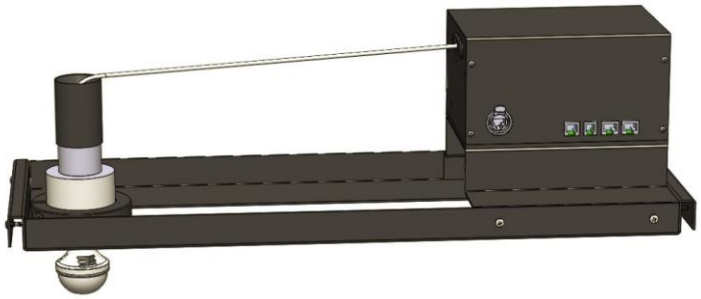
CONNECTIONS BLOCK DIAGRAM



Important: When using a DSP to control the system make sure that the DSP control signal is already outputting +V to SK3 on the CCRM 4000 master (+2.5 to 12 Volts) before powering the system up otherwise the DSP command will not be recognised by the system and will fail to operate.

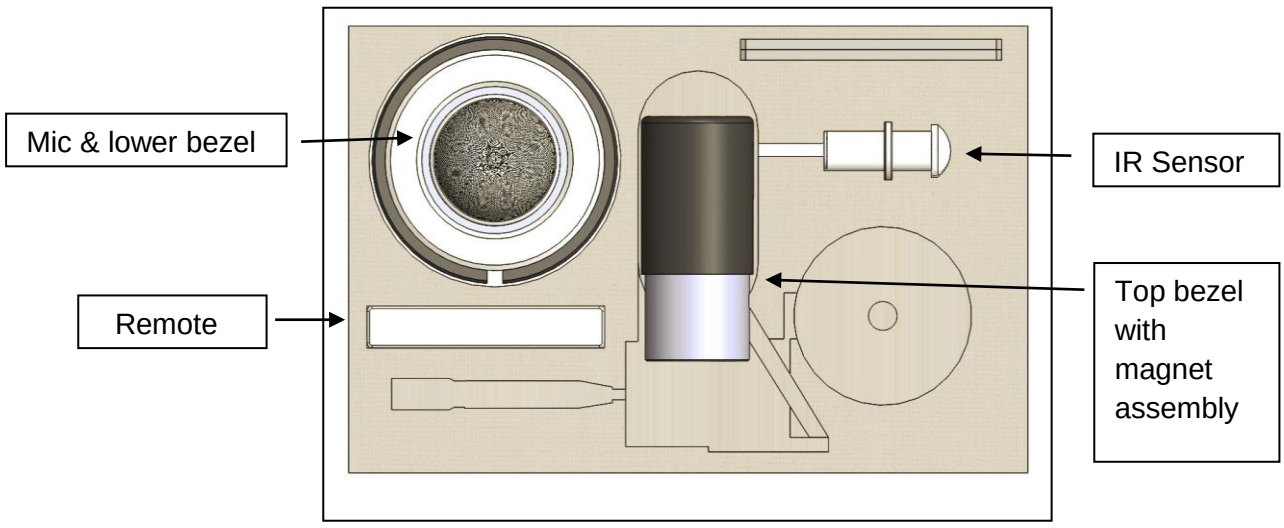
Installation

The CCRM 4000-C 303 is supplied partially disassembled and requires simple push to fit reassembly. The image below shows a fully assembled unit.

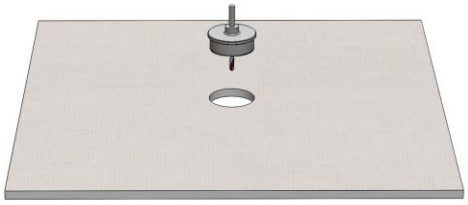


To prevent unnecessary damage to the system it's vitally important to follow the instructions below:

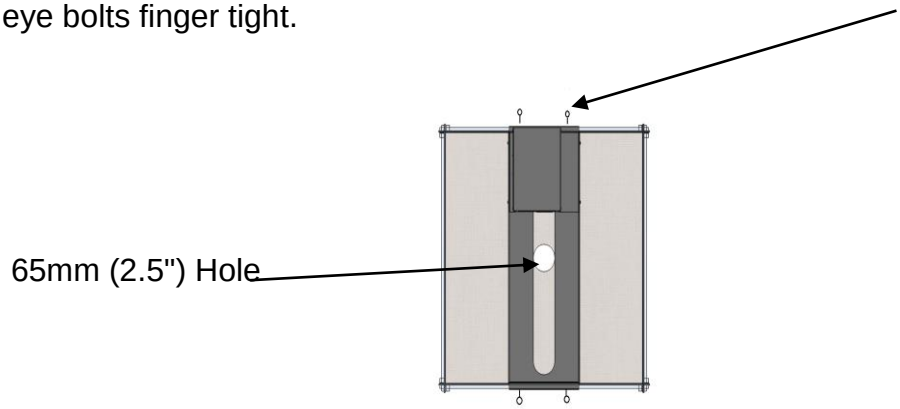
1. Remove the CCRM 4000-C 303 system from its transportation box and remove the 2 foam end caps. The transportation box and packing should be stored as this is the best packaging to use in the unlikely event of returning the system to your dealer.
2. Cut the tape securing the large cardboard box to the large black ceiling frame.
3. Remove the small cardboard box located under the CCRM 4000. This contains the PSU (master only).
4. Now open the large cardboard box and remove from the packaging the microphone and large lower bezel with bezel clamp.



To install this system a 65 mm (2.5") hole must be cut into the ceiling tile to allow the large lower bezel, just removed from the packaging, to be fixed to the tile. The hole should ideally be cut in the centre of the tile and **must not be closer than 76mm (3")** from the edge of the tile or it will not be possible to align the CCRM 4000 support bracket over the hole.



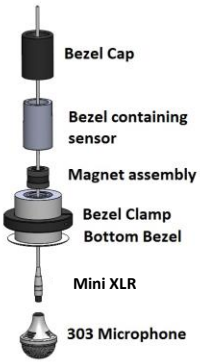
Take the entire CCRM 4000 kit up to the final location site. Carefully align the CCRM 4000 complete with ceiling tile bracket so that the large slot is directly over the hole that has previously been cut in the ceiling for the bezel. Make sure that the front and back of the bracket fits snugly over the ceiling tile “T-Bar rails”. Secure the ceiling bracket to the T Bar rails using the supplied four eye bolts finger tight.



Insert the bottom part of the bezel up through the ceiling tile through the hole and slot in the tile bracket. Secure the bezel in place with the securing ring using a 5mm Allen key.

Now carefully remove from the foam packing the IR sensor, remote control and safety cable fixing kits and set aside. Next remove the top bezel containing the magnet assembly and Mini XLR microphone connector.

1. Carefully feed the Mini XLR microphone connector through the lower bezel and push fit the top part of the bezel over the lower bezel, making sure the magnet assembly is inside the top part of the bezel.



2. Connect the microphone on to the Mini XLR connector (push fit).

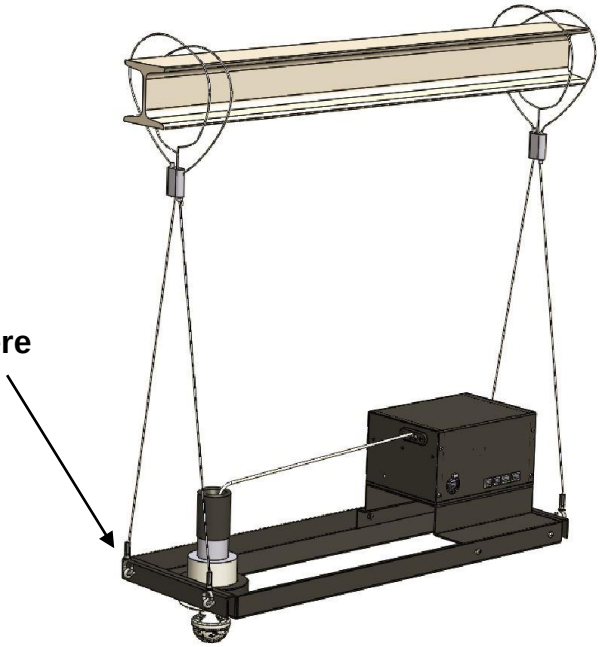
Any kinks or bends in the cable can be straightened by gripping the cable with your hands and passing it through a clean dry cloth a few times. Connect the ceiling bezel plug into SK2 on the main unit,

IMPORTANT: For safety reasons the frame to ceiling tile fixing eye bolt (2 at each end of the bracket) are used to secure the frame in place and also used to suspend the CCRM 4000 and bracket. It is suggested that the cable hook is attached to the eye bolts leaving the bare wire end to a secure fixing such as a ceiling truss or any structure capable of taking 7Kgs of weight. The cable length is 2 Metres (78").

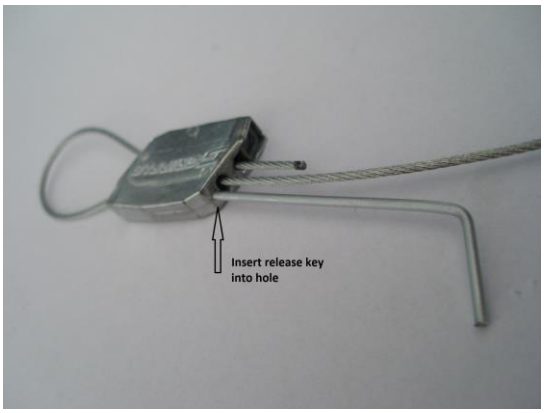
Safety harness

For safety reasons the frame to ceiling tile fixing eye bolt (2 at each end of the bracket) are used to secure the frame and also used to suspend the CCRM 4000 and bracket. Unravel the Y cable harnesses and attach the hooks to the eye bolts at each end of the ceiling tile bracket.

Eye bolts fixed here



Push the free end of the cable harness through one of the holes located on the Gripper. Now loop the free end of the cable over a secure fixing such as a ceiling truss, eye bolt, or any structure capable of taking 2Kgs of weight. Now pass the cable through the remaining hole in the Gripper and then pull on the cable to adjust / take up the slack. Do the same with the other Y cable at the other end of the ceiling tile bracket. Cable can be slackened or removed by inserting the supplied release key into the hole as shown below:



Insert key to release cable

Controls and Connections

Not used (for production use only)

Decimal rotary (Units)

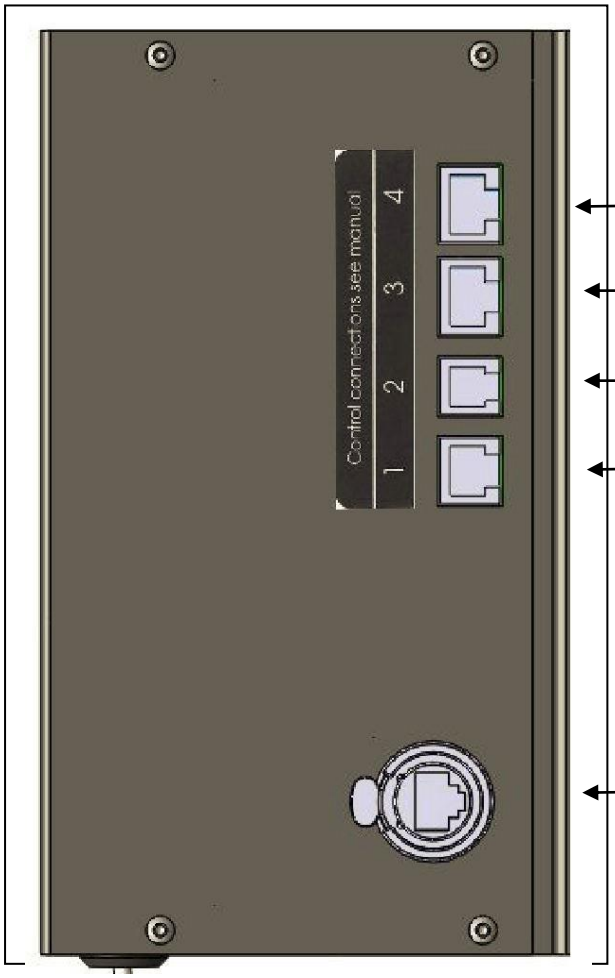
Decimal rotary (Tens)

Termination impedance switch

18Vdc power In/Out socket

- Negative

+Positive



Sk4 Coms link to slave

Sk3 DSP/Mute connection

Sk2 Ceiling bezel connection

Sk1 IR connection

Audio Out connection

Connections

The table below lists the pin functions for DSP control signals to the master unit. Slave units require just a daisy cable link (standard straight RJ45 male to male cable required) between master and slave units. Check that the DSP control signal is present logic +2.5 to 12 Volts is required. It is important that the DSP +V command signal is already present before powering the system up.
The logic control signal (pin 1) is an optically isolated input with a dedicated return connection (pin 2). Voltages as low as 2.5V DC are recognised as a 'logic high' input which will command the master unit (and any connected slaves) to deploy their microphones to a preset height. A 'logic low' (0V DC) will command all units to raise their microphones to the ceiling.

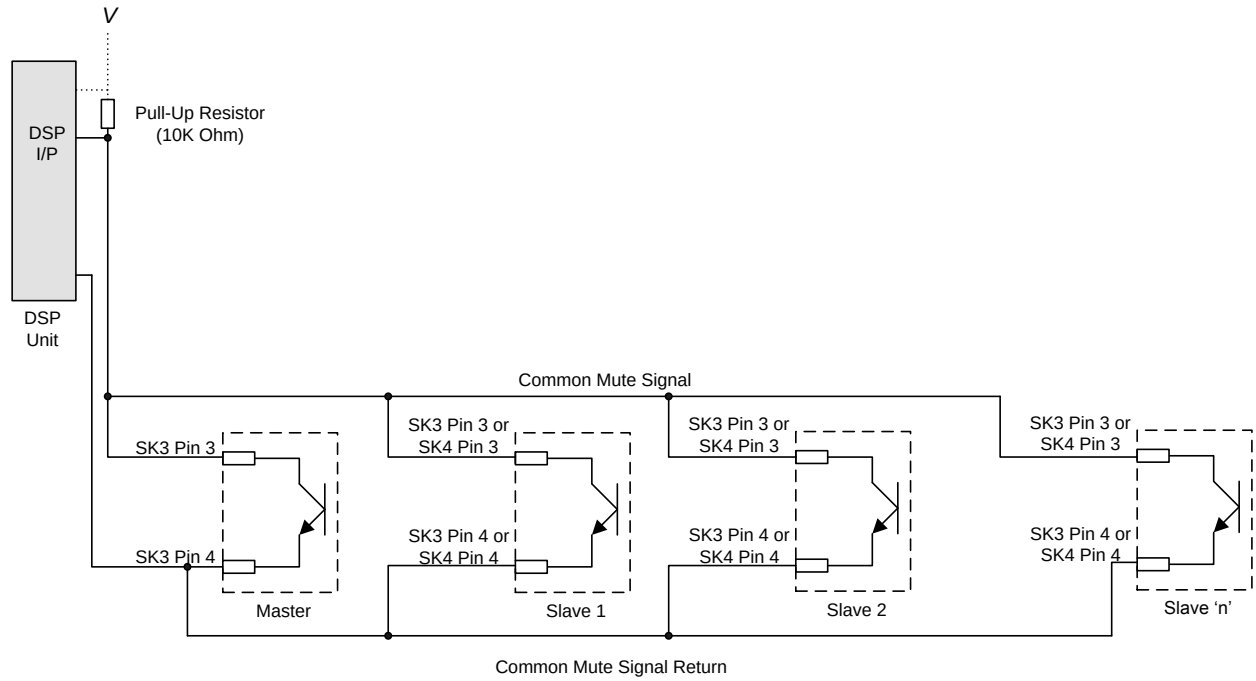
SK3 Pin No.	Function:
DSP MUTE FEEDBACK	
1	Logic Control Signal Input: Between +2.5V DC and +12V DC: Microphones down to set-height. 0V: Microphones up to ceiling bezel switch.
2	GND Return for Logic Control Signal. **Note: This is not a common GND for the unit, it is the return leg of an optically isolated input.**
3	Mute Feedback Signal. Open collector output that requires a pull-up resistor (10K Ohm) at the DSP to function correctly. 0V: Microphones not deployed (Mute) High Impedance (Pulled-Up to voltage): Microphone deployed (Un-Mute)
4	GND Return for Mute Feedback Signal. **Note: This is not a common GND for the unit, it is the return leg of an optically isolated output.**
5	RS485 (+) Communications (Not used on master unit)
6	RS485 (-) Communications (Not used on master unit)
7	RS485 0V (Not used on master unit)
8	Unused

DSP Mute Control

As detailed on the previous page, each unit is provided with an optically isolated open-collector output for the mute signal, which is accessed through the DSP socket on the master. Muting of the microphones has to be performed by a DSP. If using IR remote then it will not be possible to mute.

The drawing below represents an equivalent circuit for the mute signal which shows how the open collector output on each Retracta is connected in parallel when the units are connected together using the correct RJ45 connection cable.

Mute Signal Equivalent Circuit



To function correctly, the common mute signal from all units must be connected via an external pull-up resistor (not supplied) to an arbitrary voltage (V) at the DSP as illustrated above. The arbitrary pull-up voltage (e.g. 5V DC or 12V DC) can either be supplied by the DSP itself (preferred option), or by an external voltage source, although if an external voltage source is used, the 0V return must be common with the DSP 0V.

When the microphones are not deployed, the voltage on the common mute signal will be pulled to the common signal return (logic low at the DSP input). The DSP input will only switch to the logic high state when all microphones are deployed and resting at the preset height.

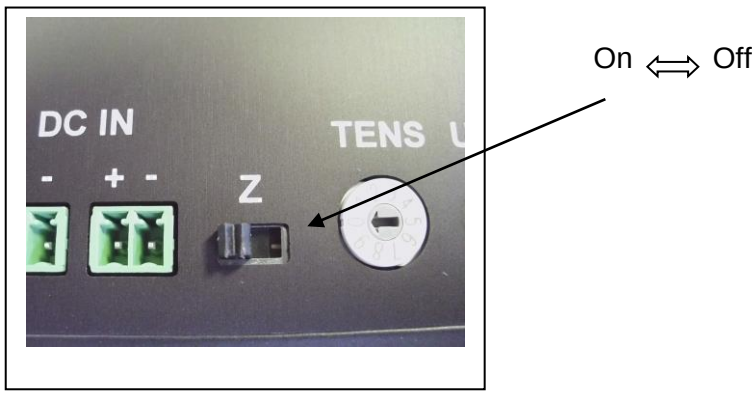
Note that the common mute signal must be provided with an external voltage through a 10K Ohm pull-up resistor, the mute signal will not function without this.

Master Unit Cable Wiring Connections using a DSP

1. Connect socket (3) to the DSP making sure that all parameters are met in accordance to the instructions shown under “Mute Control” and Logic Hi /Lo 2.5V – 12V required for activation.
2. Connect the RJ45 microphone audio output to DSP audio input. If connected to a mixer then the mute will not be detected and the microphone will always be live. The DSP is used to mute the microphone. **Note Phantom power must be supplied to the RJ45 microphone socket.**

Termination Impedance (Z switch)

On each of the units is a slide switch “Z” in a multi system 10 or more units it is only the final slave unit that needs to have this switch ON and all other units switches must be OFF.



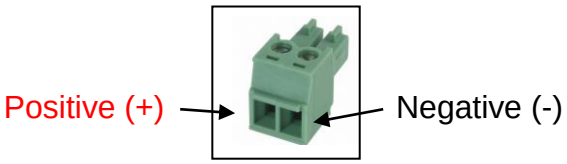
IR SENSOR INSTALLATION

Mount the IR sensor in a position (ceiling or wall) where it will be convenient to see all the Retracta movements whilst maintaining good line of site with the IR sensor. Do not place any obstruction in front of the sensor as this will prevent operation. Drill a 16mm (5/8") diameter hole. Pass the sensor through the hole and secure it using the C clip. Connect the cable to the IR sensor input socket number 1 on the Retracta unit. IR sensor has 2 coloured LED’s: Green = In programme mode, Red = will show each time a button is pressed on the remote.

Slave wiring connections

When adding a second Retracta unit (slave 01)

1. Connect a DC supply cable between the Master and slave DC input sockets. Make sure that the correct polarity is applied to the Phoenix plug supplied



2. Connect socket (4) on the master to socket (3) on the slave unit using an RJ45 straight through cable. If further slaves are connected then link between socket (4) and socket (3) of the next slave and so on (daisy chain).
3. Bezel cable. Connect the cable to socket (2) on the slave.
4. Connect the DSP microphone audio input to the RJ45 audio out socket.
5. Make sure that the “Units” decimal rotary switch is set to “1” (01)

Further Slave wiring connections

1. Up to 99 Slaves can be linked together in the same / identical way as described above under “adding a second cable Retracta”.
2 Repeat the same instructions shown under heading of Slave wiring connections and link between / daisy chain between sockets 3 and 4 of each slave unit.
3 Make sure that the “Units” decimal rotary switch on each subsequent slave units are set to “2” for the 2nd slave, “3” for the 3rd slave etc etc....

IR Remote control operation

The remote is primarily intended to allow the initial programming of the desired height for each individual winch in the system. The preferred operation is then by logic input from a DSP logic high of 2.5V to 12V is required to release microphone to programmed height and a logic 0 low will raise the microphone. The IR remote Up/Down buttons can be used if a DSP is not used. Open the battery compartment pull and remove the battery insulator / protector.

Warning: **Do not use both the IR Remote control and DSP together it will not work. The microphones must be at the ceiling bezel then use the remote or DSP to operate the unit**.

IR Remote Layout

Aux: Used to programme the remote.
Up: Used to rewind cable upwards.
Down: Used to deploy cable downwards.
Enter: Used to complete / store a programme.
Setup: Only used to programme the remote.
Numeric buttons: Used to input Master / slave designation and programme remote.

The red LED indicator shows with each press of any button. If the LED fails to light then replace the battery.

Replacement battery type: Lithium 3V CR2025

WARNING: DANGER OF EXPLOSION DO NOT BURN OR INCINERATE THE BATTERY.

Remote code 0515

When the battery is replaced it may be necessary to re code the remote. Press Aux, Press and hold Setup until red led lights, enter 0515 on the key pad. Remote coding is now set.

IR REMOTE CONTROL ADDITIONAL INFORMATION

- When programming an incorrect address code for example 32 when there are only 3 units connected it will just be ignored / nothing will happen if either the up-arrow & down-arrow keys are then pressed. Wait 5 seconds and re enter the correct address code.

- During initial programming of the cable height the Up & Down buttons work on a press and hold basis, where the microphone will continue to move either up or down all the time the button is pressed. The cable will stop when either button is released.

- If there is a pause of longer than 5 seconds between button pressing before the ENTER button is pressed the sequence will need to be started again from the beginning. Once the green programme LED is lit there is no time out limit.

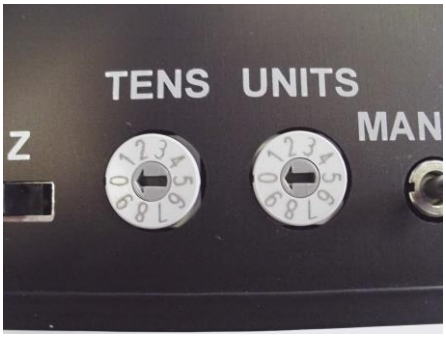
- A green LED will light on the IR sensor to indicate that programme mode has been entered. The LED will extinguish when you exit the programme mode (press Enter). Thereafter each time a remote button is pressed a red LED will flash indicating a command has been received and the transmitter is in range.

- IR range is approximately 7.5M (25 feet). Do not use the IR remote control if a DSP is being used to operate the Retracta. Only use the IR remote for setting the height after installation.

- Do not mix IR and DSP operation together i.e. when microphones are at the ceiling bezel if IR is used to deploy the microphones then the IR must be used to retract the microphones. If the microphone is at the ceiling bezel and DSP is used to deploy the microphones then the DSP must be used to retract the microphones.

Programming cable height on master unit

The remote control is used to set up the cable height and also to deploy and retract the microphone. For a single unit installation (Master) this has already been factory defaulted to Master (Master unit decimal code setting is 00)



- Point the remote at the IR receiver and press 00 followed by the ENTER button (green LED will light on the IR sensor showing it's in programme mode). Press the Up / Down buttons on the remote set the correct height of the microphone, press the ENTER button to store this height position into the memory (green LED will go out). Immediately afterwards the microphone will retract to the ceiling bezel to confirm that the operation has been successful.

- Test by briefly pressing the Down button on the remote and the microphone will move down and stop at the programmed height. Press the Up button and the microphone will retract back up to the Bezel. If an incorrect height has been programmed then repeat the above instructions.

Programming cable height on a second unit (slave designation 01)

Make sure 01 has been selected on the slave "unit.

Point the remote at the IR Sensor press 01 followed by the ENTER button (green programme LED on the IR sensor will light). Press the Up / Down buttons on the remote set the correct height of the microphone, press the ENTER button to store the desired height in the memory (green LED will extinguish).

Immediately afterwards the microphone will retract to the ceiling bezel to confirm that the operation has been successful.

Briefly press the Down button and the microphone will drop down and stop at the programmed height. Press the up button and the microphone will retract back up to the Bezel. If an incorrect height has been programmed then repeat the above instructions

Programming multiple units

As each additional slave units is added it will be necessary on each of the slaves to change the **"units"** decimal rotary address switch to "2" for the 2nd slave / "3" on the 3rd slave etc… then as described above repeat the button sequences on the remote to set each of the cable heights on each of the slaves in turn. Don't forget to enter the slaves assigned number on the remote (02 or 03, 04 etc) before completing the programming sequence. If 10 or more Retractas are being used then it will be necessary to change the **Tens** rotary address on the 10th slave to "1" and Units rotary switch to "0" (10), for the 11th slave select "11" and so on. If you have now completed the installation of several Retractas you can now check that all cables are deployed simply by pressing the down button.

NOTE: If the cable hits an obstruction such as a desk / floor or is held preventing the upward motion (0.5lbs pull) of the cable motor will immediately stop. Remove the obstruction and then press the up or down button on the remote, or up or down command if using a DSP. The unit can now be operated normally. Should this fail to restore normal operation disconnect and reconnect the supply Voltage to the CCRM 4000-C 303.

Horizontal / Vertical mounting

Fig a shows a unit mounted horizontal using a pair of metal brackets (fixed using 6 x M4 x 12 countersunk screws) don't forget that the further away the unit is mounted from the microphone the less cable will be available for the cable drop (cable length is 2.5 Metres (8ft 2in.) max). Wall fixing brackets are available as an optional extra.

Fig a

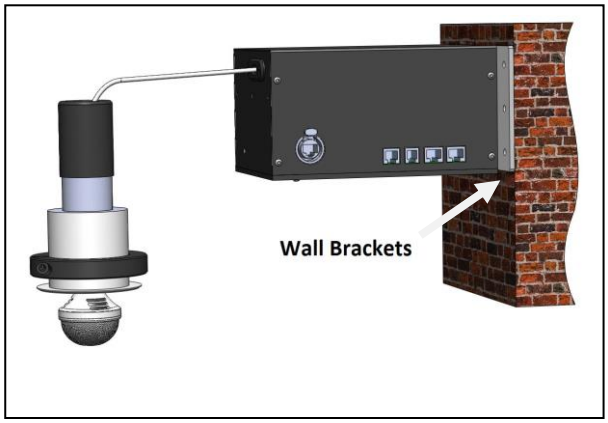
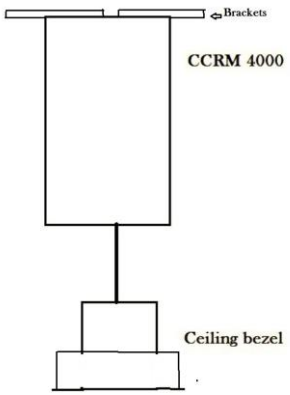


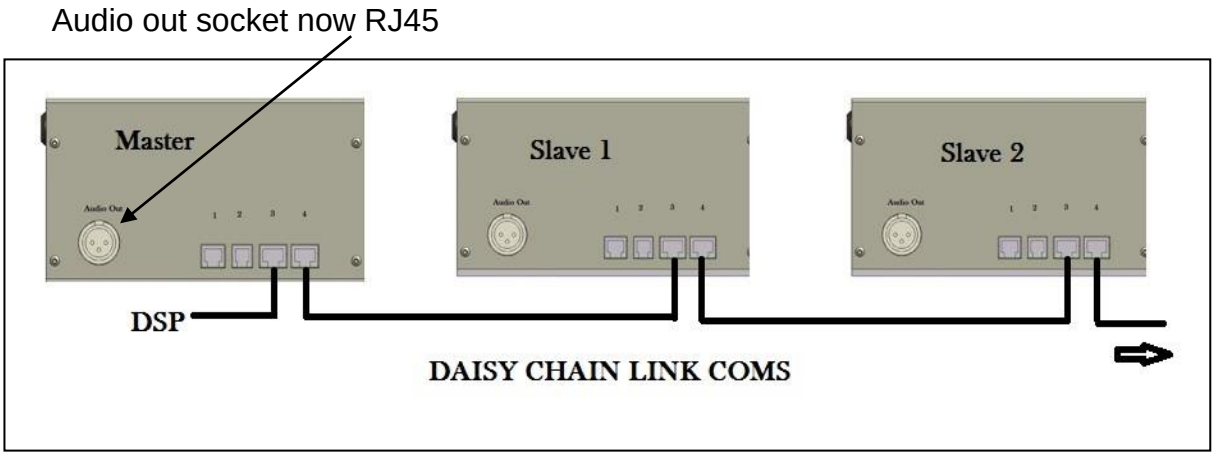
Fig b shows unit mounted vertical and inline with the bezel.

Fig b



Slave wiring communication link connections

When adding slave units to the master, connect RJ45 (straight in line connections) from socket 4 on the master to socket 3 on the 1st slave then connect socket 4 on the 1st slave to socket 3 on the next slave in line etc etc....

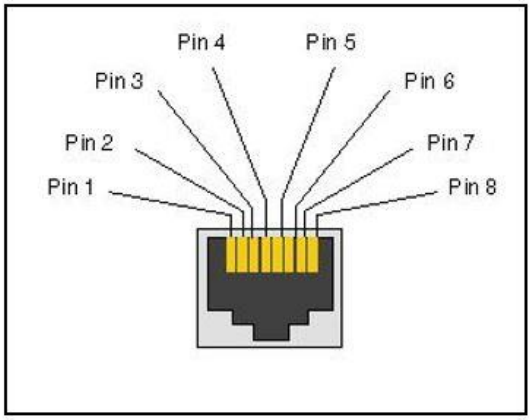


Audio Out Socket

A RJ45 audio output socket is provided for connection to a mixer or DSP. Phantom power adaptor is inbuilt but requires an external 9-48VDC phantom power to be applied.

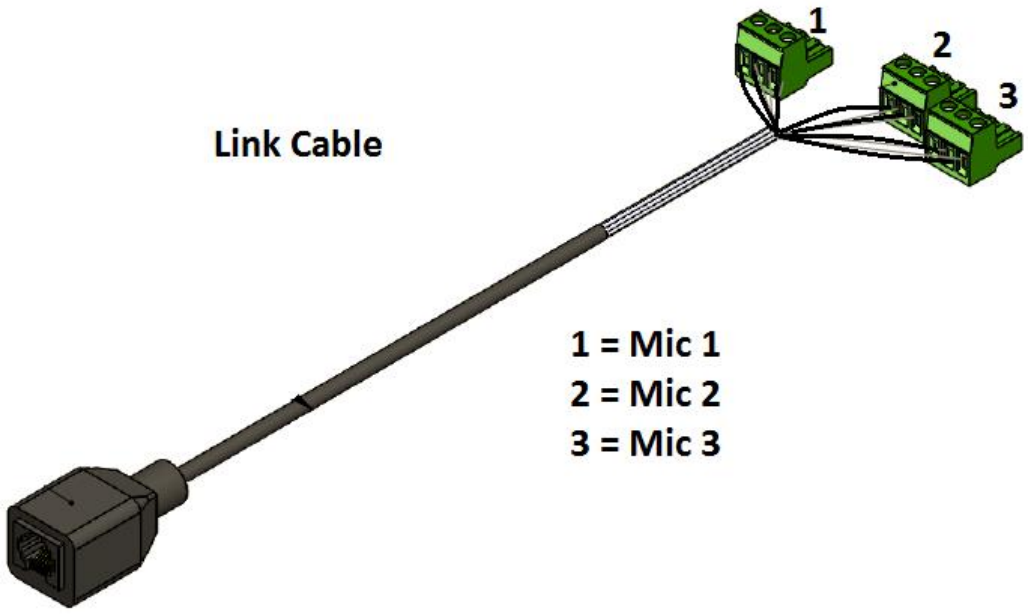
Audio Out socket Pin configuration

Pin 1: Ground all Mics (Phantom power to be applied here).
Pin 2: Phase + Mic 1
Pin 3: Phase – Mic 1
Pin 4: Phase + Mic 2
Pin 5: Phase – Mic 2
Pin 6: Phase + Mic 3
Pin 7: Phase – Mic 3
Pin 8: not used.



Audio Link Cable

Supplied with the CCRM 4000-C 303 is a link cable to enable fast connection of the audio output to your preferred audio device (DSP / Mixer) Connect a straight wired cable fitted with an RJ45 to RJ45 Male connector plug (not supplied) to the RJ45 socket on the link cable. Note **9-48V Phantom power is required.** Connect the other end of the link cable with the 3 x Pheonix connectors to your preferred audio device (mixer / DSP).



Link cable colour code

Orange phase + mic 1
Green / white Phase - mic 1
Orange / white Phase ground all
Blue Phase + mic 2
Blue / white phase – mic 2
Green Phase + mic 3
Brown / white Phase – mic 3

Cautions

1. Never grab hold of or stop the cable whilst the cable is being deployed. This may cause jamming of the mechanism of the cable.
2. Do Not Exceed the Maximum carrying weight of 0.5lbs on the cable. This will cause the internal safety device to operate and stop the unit operating.
3. Do not add / extend the cable length. There is insufficient space to accommodate any extra cable length.
4. Do not operate the mechanism in any other angle / position than specified.

IMPORTANT DO NOT ATTEMPT ANY OTHER DISSASEMBLY OF OTHER PARTS WITHOUT PRIOR PERMISSION FROM CLOCKAUDIO.

Troubleshooting guide

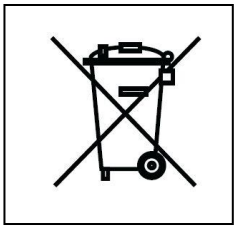
Microphone does not move up or down	• Check that the DSP control signal is present logic +2.5 to 12 Volts is required. It is important that the DSP command signal is already present before powering the system up. • Check DC supply is present (microphone will move down and up when power is applied). • Check logic input cable connections between DSP and DSP input port • Perform a reset by switching the dc supply off / on.
Microphone is picking up noise as it is being raised / lowered.	• This is normal. The microphone must be muted by the DSP during the raising / lowering transitions.
Remote control not operating	• Have you removed the battery insulator before use? • Check that there is clear view of transmitter to IR sensor. The red LED on the IR sensor should light each time a button is pressed. • Check remote red LED is showing when buttons are pressed. Check or replace the remote battery. • Check remote sensor is connected to the remote sensor socket on the Master unit. • Check that the correct code (if adjusting height) for the winch has been inputted followed by the enter button green LED should show.

Specifications

Power supply requirements: 18VDC 0.5A
Weight: 2.7Kg (5.95lb) (6Kgs (13.22lb) with bracket)
Dimensions: 140mm (5.51") W x 170mm (6.69") H x 104mm (4.09") D
Cable length 2.5 Metres (8.20ft).
Microphone Polar response for each capsule is cardioid with 120 Degree coverage (total 360 degree when all capsules are activated).
Ceiling tile bracket dimensions L 620mm (24.5") W 215mm (8.5") H with CCRM4000 180mm (7").
Safety harness cable capable of holding 10Kg (22lb) each Total 40Kg (88lb).

At the end of the life of this equipment

Dispose of according to local regulations



Warranty

Thank you for purchasing a Clockaudio product. We are confident that this product will give you many years of trouble free operation and is backed up with a 1-2 year warranty.

This product is guaranteed for 12- 24 months from the date of purchase. Any defect that arises due to faulty materials or workmanship will either be replaced, or repaired free of charge by the agent from whom you purchased the unit. Please note charges will be incurred on any product returned for service / repair not in warranty or has been subject to customer abuse or incorrect wiring.

The guarantee is subject to the following provisions:

- The warranty does not cover accidental damage, misuse, cabinet parts, knobs, batteries or consumable items. Any product returned to Clockaudio failing to meet the terms listed will incur a repair and postage charge.
- The product must be correctly installed and operated in accordance with the instructions supplied with the product.
- Unauthorised modifications and alterations to the original specifications will render the warranty void
- The product must be used for the sole purpose that it was designed for.
- The warranty given is strictly with the original owner and becomes invalid if the product is resold or becomes damaged by inexpert repair.
- Product purchased outside of the countries served by Clockaudio designated / approved Agents are not covered by the warranty.
- Specifications / improvements are subject to change without notice.
- Clockaudio disclaims any liability for incidental or consequential damages.
- The warranty is in addition to and does not diminish your statutory legal rights
- As part of a continuous product improvement programme we reserve the right to change specification without prior notice.
- Clockaudio reserves the right to change the design and specifications without prior notification

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CLOCKAUDIO IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES INCLUDING LABOUR COSTS FOR REMOVING AND REPLACING DEFECTIVE PRODUCTS OR PARTS. THIS DOES NOT AFFECT YOUR STATUTORY RIGHTS.

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