User Instructions for the EVOLUTION 50A/100A integrated amplifier, when using the RUBY and RUBY 2 digital input module.

Thank you for purchasing the RUBY digital input Module from Creek Audio. You are now in possession of a State of the Art digital to analogue converter, with additional functions.

The Ruby module is an upgrade option, suitable only for Evolution 50A and Evolution 100A Creek Integrated Amplifiers. It should be fitted by your supplying dealer, but if that is not possible, or you bought your amplifier remotely these instructions are designed to help you install the module without danger.

The function and operation of the Ruby is deceptively simple, considering how many features it offers, all of which can be controlled remotely.

SAFETY REQUIREMENTS

Read all the following instructions carefully before installing or operating the RUBY. Keep this User Manual so you can refer to these safety instructions later if required.

FITTING THE RUBY MODULE

Safety!

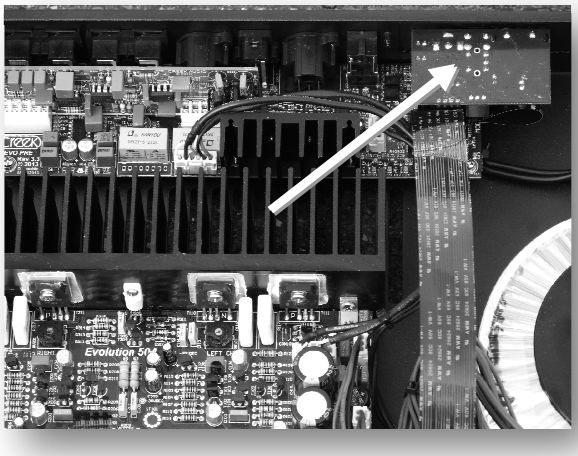
Please disconnect the amplifier from the mains power supply, by removing the mains plug from the rear IEC socket.

Remove the top cover from the EVOLUTION 50A/100A integrated amplifier, by un-screwing the 4 side screws and the 3 rear screws. Be careful to retain these screws and the cutting washer for re-fitting. Pull the cover up on one side only and peel it up and over to the other side, to avoid bending the cover in the middle.

EVOLUTION 50A amplifiers with serial/batch numbers, **'EVO50A S/B 1315 0500'** or earlier, are not capable of accepting the RUBY module.

EVOLUTION 50A amplifiers with serial/batch numbers later than quoted above, together with all EVOLUTION 100A amplifiers have RCA sockets marked LINE INPUT 5 mounted on the rear panel in an expansion slot. Input 5 sockets are mounted on 90 x 36mm (3.5 x 1.4") plate. Input 5 mounting plate is held in place with two Torx T7 screws. Remove the outer two screws that hold the plate to the back panel. Move the plate away from the back panel and pull-out the flat foil cable from the Pre-amp PCB socket, underneath it, marked **MODULE**.

Insert the 110mm (4.3 inches) Flat Foil Cable (FFC), exiting from the RUBY module, into the appropriate socket on the Pre-amp PCB below it, marked **MODULE**. The Ruby module should now be held upside-down (components facing down, bare PCB facing upwards) with the input sockets facing backwards towards the rear panel. The foil cable must not be twisted. Fold the loose FFC under the RUBY's PCB.



Line the plate up with the expansion slot in the rear panel. Using the screws previously removed, fix the RUBY module firmly onto the rear panel, using the Torx T7 screw driver, supplied in the pack.

Replace the cover as before, making sure to put the cutting washers back on the same screw position on the rear.

Digital inputs.

The RUBY module contains a very high-quality digital to analogue converter capable of accepting digital signals up to a word length of 24 bit and a maximum sample rate of 192 kHz. This will convert digital signals from various sources into an analogue format that the amplifier can handle. i.e.

INPUTS: #8 and #10, are co-axial RCA sockets for connecting from a suitable SPDIF digital source, with a maximum resolution of 24 bit 192 kHz, i.e. CD player, Satellite receiver, etc.

2 TORX sockets, #7 and #9, also provide optical inputs for SPDIF digital signals with a maximum resolution of 24 bit 192 kHz. Optical connections are effective in isolating ground paths between the source and amplifier that could possibly create interference or reduce performance.

USB type B socket #5, (printer type) enables the amplifier to be connected to a computer and used as an external sound card. The USB input will be powered by the computer, so care should be taken to avoid using non-standard cables or cables longer than 3m (10 feet). Once connected to a computer which must at first be connected to the internet. The USB circuit will search for a suitable driver, to enable your computer to communicate with the RUBY. After a short time, your computer should report that it has paired with the EVOLUTION device.

iOS devices have the potential to play high-resolution (24/192) signals natively, without specialist drivers. Creek Audio cannot accept responsibility for stability or optimisation of external devices, such as computers or operating systems.

PC computers or laptops running WIN 10 should also allow high-resolution (24/192) signal replay natively. Please consult your dealer or supplying vendor for more information, if required.

While dedicated Remote APPs may offer flexible options to navigate and play your computer-based music library, Creek have programmed the RUBY to have certain HID functions (Human Interface). Using the EVOLUTION remote handset, it is possible to Play, Stop, Pause or force tracks forward and backwards. This limited functionality is not displayed on the EVOLUTION product, so it is no substitute for having a monitor or display connected to your computer, or a remote APP running on a handheld device, such as a smart phone or tablet, to navigate more easily.

Bluetooth

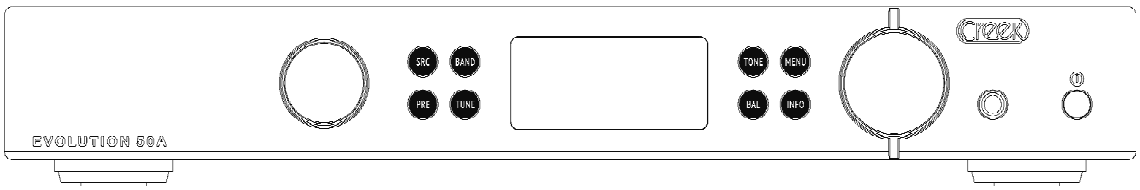
The RUBY's Bluetooth module will be inside the amplifier's metal case, so it is effectively shielded and cannot receive wireless BT signals unless a short antenna screwed into the golden F socket #6. Please find the short black antenna supplied in the packaging and screw it into the socket. It can be then bent into a position to allow other cables to pass without obstruction.

The RUBY has a Bluetooth receiver that can receive music signals from various devices. It is first necessary to look at the settings of your source device, such as a smart phone or tablet, to search for the appropriate BT device. When you see the EVOLUTION Bluetooth device listed, select it and it will be remembered on that device. If required, the smart device can also be made to forget the EVOLUTION BT if required. Normally, if the amplifier's input selector is set for BT input, it will allow the RUBY to pair with the chosen device and enabled it to pass music signals, up to a distance of 10 – 15 metres. Buildings will have different construction techniques, so depending on the materials used and the amount of obstructions in the way, reception distance may be either greater or shorter. Other wireless devices operating on or near the BT frequency may also affect the reliability of signal reception.

FM radio

GETTING STARTED IN YOUR REGION

As you may be operating the **Receiver** in a region of the world where the radio standards are different from the factory setting, it is necessary to manually select the correct, or most appropriate region first. Power-**OFF** the **Receiver**; Press and hold the **MENU** button and then press the **POWER** button to turn the **Receiver**-**ON** again. When the OLED display lights-up and the **CREEK** logo disappears, release the **MENU** button and the display will show a Set-Up menu, including **Broadcast Region**. Rotate the left-hand control knob, to select **Broadcast Region**. Press the knob once, to show all the available regions. Select your region with the control knob and press it once again. To return to normal operation, press the **MENU** button once more. After a couple of seconds delay the **amp** will work with the correct settings for your region.



EVOLUTION 50A and 100A FRONT PANEL CONTROLS & OPERATION

All input functions are selected by the left-hand control knob and 3 push buttons.

After pressing SRC, the left hand knob can be used to select the desired input. The additional inputs include USB, Bluetooth, Co-axial SPDIF and Optical SPDIF.

Tuner operation

CONNECTING ANTENNA

To get you started quickly, Creek Audio has included a 1.5 metre length of wire with a co-ax plug at one end, to act as a temporary **FM** antenna. Adjust the position of this temporary antenna for best results. However, to obtain the best **FM** signal, use a high quality, multi-element, directional external VHF - **FM** antenna. If in doubt consult your supplying Hi-Fi dealer, or a specialist antenna installation company for advice. The RUBY uses a male co-ax antenna socket. If your connection is an F socket, please use the F to co-ax converter supplied in the packaging.

To switch to the FM Tuner, press one of the three **Tuner** buttons – BAND, PRE or TUNE. To return to the amplifier's analogue or digital inputs, press the **SRC** (Source) button.

BAND, has no function with the **RUBY** module as only **FM** band is available. Only the **AMBIT** module has AM/FM.

TUNE selects between manual tuning mode and automatic **SEEK** mode. Press **TUNE** and rotate the left-hand knob to increment the frequency up or down to the desired **FM** station. Press the knob briefly to initiate **SEEK/SEARCH** in the direction last travelled by the rotary control.

PRE switches to a station preset mode. Turn the left-hand control knob to step through 99 available preset locations. Presets can be populated manually or automatically. Both methods are detailed in the paragraphs bellow.

Storing a station in a Preset location can be done several ways with the Receiver.

1. **Seek** or manually tune to a station; Press and hold **PRE** button until a Preset location number flashes on the screen in place of **FM** text. The flashing number indicates the preset location immediately following the last one in use, making it convenient to program a series of presets in a row. If you wish, you can change the offered preset location by turning the control knob. To confirm and store the tuned frequency into the selected preset location, press **PRE** again briefly. The received station is now stored in your chosen location. N.B. The flashing number will time-out and the preset store operation will be cancelled in about 9 seconds, without any user input.

2. Repeat the steps above for any subsequent station(s).

3. Automatically **SEEK** and store all stations of a usable quality in Preset locations starting from the last one in use. Press **PRE** and **TUNE** together and hold down for about 3 seconds, until the Tuner starts to **SEEK** automatically starting from the currently tuned frequency up and wrapping around the band edge to complete the seek throughout the entire active band. All

stations with a reasonable signal strength and quality encountered during seek will be memorised and given a Preset number in succession. Auto Preset can be helpful during initial use of the Tuner or upon moving antenna location to be able to quickly browse through all the available stations instead of having to seek or tune manually. With all the available stations residing in Presets, you can simply browse to the station(s) of interest and store them again into a new preset location of your choice in an order of your choice.

4. To clear all stored Pre-sets (along with all the Receiver preferences), select Factory Defaults from the SETUP MENU. See details.

RDS (RBDS in the USA) means **Radio Data Service** or Radio Broadcast Data Service**.** Most international **FM** stations broadcast **RDS**. If the received signal is strong enough and if the station is broadcasting **RDS** data, the OLED display will switch from showing frequency to **RDS** information. See further details in the **MENU section**.

DISPLAY

The EVOLUTION 50A's OLED display shows the following status of the Tuner and Amplifier:

1. Pre-Set station number **01 -99**
2. Frequency
3. **BAND** (FM only with RUBY)
4. **RDS**
5. Radio metrics show at the top of the display, in a graphical form.
6. **Signal** strength, is shown as an antenna with a bar graph.
7. Signal **Quality**, is shown as **Q** with a bar graph. It is based on a combination of Signal Strength, Signal-to-Noise Ratio and Multipath distortion.
8. **Stereo** is displayed in three settings: The Infinity symbol is full width **STEREO**, two overlapping circles means partial stereo and a single circle means **MONO**.
9. **PS**, means Program Service, indicating that station name is available.
10. **RT**, means **Radio Text** is available. Up to 64 characters of textual information about the station, DJ, music or other information may be transmitted by this method.
11. **CT,** means **Time** data is available.

The remote control IR (Infra-Red) sensor is placed at the right hand end of the display window. Do not block this area of the display or the remote control may not work properly.

TIME

If you are tuned to an **FM** station with **RDS**, it will normally transmit the real time. The default **RDS** info shown in the screen does not include **TIME**. To show time on the display from the front panel controls, press **INFO** once. From the Remote control handset, press **TIME** or **INFO** buttons once. Note: if the **FM** signal is not strong enough to show **RDS** data, **TIME** cannot be displayed.

INFO, operates in Tuner mode to display the different pages of information available from the tuner **and RDS** data. To display the different pages, it is necessary to toggle the **INFO** button several times to call-up: Pre-Set number, Frequency, Tuner metrics, (**PS**, **RT**, **CT**, see **DISPLAY** for details)

STEREO/MONO

RUBY automatically adjusts the Left/Right separation to maintain good signal to noise ratio. If the signal strength is not high enough, **Stereo** will blend proportionally into **MONO**. The infinity symbol ∞ will be displayed when full stereo operation is in operation. MONO operation will display **O** instead.

OPERATION FROM THE EVO REMOTE CONTROL

TUNER. Press the green **TUNER** button to switch to tuner. Green buttons on the remote are exclusively for Tuner functions, but many others are also functional without having to press the green TUNER button first. Here is a list of remote operation buttons:

Green buttons

LEVEL is not operational in this model.

BAND has no function as the **RUBY** is **FM** only**.**

MODE switches between **PRE**set mode and **TUNE** mode.

MONO manually forces the **FM** tuner into mono in three stages, for when an FM stereo signal may be too noisy to listen in Stereo. The **RUBY** Tuner will automatically adjust the amount of stereo separation, from full stereo to mono, to maintain a good signal to noise.

Other colour buttons

DIM changes between three levels of display brightness. Display off is not possible.

NUMBERIC buttons 0-9

1. To tuner directly to a frequency.
2. To go directly to a Pre-set address

Numeric frequency entry: To enter a known station frequency directly, press the exact numbers, without a decimal point, i.e. to tune to 101.1 MHz **FM**, enter 1011, or to tune to 909 kHz

AM, enter 909. No other entry is required and if this is a valid frequency, the Receiver will automatically jump to it. It is necessary to select the desired **BAND** first.

Numeric Pre-set entry: Select pre-set mode, via the green **MODE** button. Use the button on the handset marked -/-- once or twice to select either a 1 or 2 digit number, shown with one or two hyphens (- or --). Now press a number or numbers directly from the handset. If a valid memory address is entered, the Receiver will tune to it.

STORE adds stations to memory. Press **STORE** for 2 seconds; when the display flashes, select a number using **SEL** up / down, or use the default number flashing and press **STORE** again briefly, to memorize the station into a pre-set address.

SEL, Press the top or bottom of the blue button to tune to the next Pre-set.

<< >> TUNE moves the frequency up / down.

I<< >>I SEEKs up / down.

INFO operates the same as on the front panel.

TIME displays the actual time derived from RDS information. It cannot display unless an **FM –RDS** station is tuned.

Technical specification

FM Frequency range in total	76 - 108 MHz (selectable for region)
Tuning Increments	50, 100 and 200 kHz (selectable for region)
Pre-set stations	99
Station programming	Manual or Automatic
Sensitivity (Audio SINAD = 26dB max RF gain)	-3.5 dBuV
Image rejection	>70dB
Adjacent Channel rejection	>65dB
Alternate channel rejection	>70dB
Frequency response	30 Hz- 16 kHz -1dB
Total harmonic distortion	<0.1%
Stereo separation	>40dB
Signal to noise	>70dB (Full limiting) Stereo
De-emphasis	50 or 75 µsec selected for region

Appendix

If more than one **EVOLUTION 50s** are being used, it may help to join them together via the remote connections on the rear panel, using a special interface cable from Creek Audio. This will synchronise the operation of both products. *Check with your supplying dealer for details.*

SOFTWARE INSTALATION

*The **RUBY** module contains additional software to enable the EVO 50A/100A amp to function properly. When the amp is first turned-on, after adding the RUBY module, there may be an 8 second delay as the new software is downloaded from the module into the amp's system microcontroller. Once this is completed, the OLED display will show the extra features and the amp will work as normal.*

This is how to confirm the Software revision: Power-off, Press and hold the INFO button, then press the power button-on and release the INFO button after the Creek logo disappears. The display will show the model name, software version number and heatsink temperature. To clear the screen and use the product, press or turn any button or control knob.

N.B. No A-weighting. Noise integrated from 30 Hz to 15 kHz for audio SINAD and SNR measurements.

Aerial connections: 75 Ohm co-ax MALE. Use adapter supplied to convert to F Type socket.

The EVOLUTION 50A/100A radio, fitted with the RUBY module, can be operated virtually anywhere in the world. First select the correct mains voltage to either 115 or 230V AC – 50 to 60 Hz and then choose the correct region as described in the section above "GETTING STARTED IN YOUR REGION".

Please visit the Creek Audio website to view an instructional video, clearly showing this installation.

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