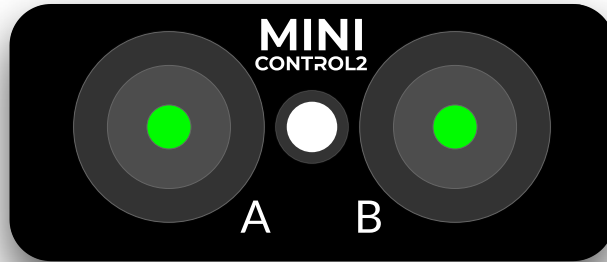


MINI CONTROL 2

User guide

Firmware 2.4 - September 2024



The **Mini Control 2** (“MC2”) is a versatile compact MIDI controller designed to work with Sound Devices 8-Series mixer/recorders. It provides convenient control of channels not easily accessible on the host device’s front panel.

The MC2 operates through a three-way toggle switch and rotary encoder selections, which provide real-time visual feedback through LED colour changes, flashes and pulses in five main colours: red, green, blue, white and yellow.

Background

Originally, the MC2 was designed to control gain, fader and pan of channels 7 and 8 of the Sound Devices 833. The aim was to fit it into a narrow gap between the 833 + SL2 and the edge of a small Orca bag, leaving enough space for other accessories. The first prototype was very small, measuring just 80 x 60 x 30 mm and weighing only 70 grams.

After undergoing extensive testing by UK-based sound recordists, the physical design was refined and new features were added to address the (then new) Sound Devices +4 option.

Over the subsequent years, a series of firmware updates has increased the MC2’s feature set and brought compatibility with the full range of Sound Devices 8-Series machines (833, 888, Scorpio).

I hope you enjoy using it.

Matt Morris.



Original prototype

Operational overview

The functionality of the MC2 is based on three main paradigms:

- **Configuration**
- **Mode**
- **Sub-Mode**

- **Configurations** are set via the MC2's configuration menu (new as of Firmware 2.3 / June 2023), and sets up the way that the MC2's **Modes** work. Any configuration changes are saved to the MC2, and the device will continue to work in this way until changed by a further configuration change.

Firmware 2.4 provides 4 main device configurations, and 5 additional optional configurations:

- **Device configurations:**

- 833 Configuration** sets the MC2 to control channels 7-8 on the 833.

- 833+4 Configuration** sets the MC2 to control channels 7-12 on the 833 with the +4 option installed.

- 888 Configuration** sets the MC2 to control channels 9-16* on the 888.

- Scorpio Configuration** sets the MC2 to control channels 13-20* on the Scorpio.

- **Optional configurations:**

- Rolling channels** on/off.

- Additional channels** on/off*.

- Strict Controller Configuration** on/off.

- Free Configuration** on/off.

- Level meters** on/off.

** By default, the MC2 is set up to control a maximum of 6 channels.*

- **Modes** are part of the general operation of the MC2 and can be changed with a simple toggle switch sequence. The current Mode selection is saved to the MC2, meaning that the device will always boot into the Mode that was being used before the previous power down.

Firmware 2.4 provides 3 main Modes:

- **Gain Focused Mode** (indicated by 3 x **red** LED pulses) controls the gain level of the current channel pairs.
- **Fader Focused Mode** (indicated by 3 x **green** LED pulses) controls the fader level of the current channel pairs.
- **Combi Mode*** (indicated by 3 x **blue** LED pulses) controls the gain **or** fader level of the current channel pairs.

- **Sub-Modes** are *generally* used to change the channel that the MC2 is controlling and are quickly changed using the toggle switch.

Firmware 2.4 provides a maximum of 4 Sub-Modes.

- **Sub-Mode red** controls channels:
 - 7+8 in **833+4 Configuration**.
 - 9+10 in **888 Configuration**.
 - 13+14 in **Scorpio Configuration**.
- **Sub-Mode green** controls channels:
 - 9+10 in **833+4 Configuration**.
 - 11+12 in **888 Configuration**.
 - 15+16 in **Scorpio Configuration**.
- **Sub-Mode blue** controls channels:
 - 11+12 in **833+4 Configuration**.
 - 13+14 in **888 Configuration**.
 - 17+18 in **Scorpio Configuration**.
- **Sub-Mode white** is optional and is enabled via the configuration menu. It controls channels:
 - 15+16 in **888 Configuration**.
 - 19+20 in **Scorpio Configuration**.

** When in **Combi Mode**, **Sub-Mode red** controls the gain level, and **Sub-Mode green** controls the fader level of channels:*

- 7+8 in **833 and 833+4 Configuration**.
- 9+10 in **888 Configuration**.
- 13+14 in **Scorpio Configuration**.

In addition to the operation described above, the MC2 also offers a number of additional features:

- **Channel select.**
- **Channel solo/PFL** (available whilst in Gain Focused Mode or Combi Mode only).
- **Quick Gain** (available whilst in Fader Focused Mode only).
- **Send MIDI control changes**, which can be mapped to custom functions on an 8-Series device.
- **Change LED brightness.**
- **Standby.**
- **Wake.**
- **Configuration Menu.**
- **Reboot MC2.**
- **Hard reset MC2.**
- **Display current Firmware version.**

Powering

The MC2 is powered directly from a Sound Devices 8-Series mixer/recorder's USB A port. Right-angled USB cables are provided to fit the mixer and sit cleanly within a bag.

Recommended 8-Series settings




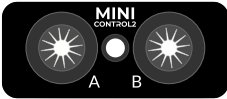





To ensure stability and avoid unexpected behaviour, please set your 8-Series to the following settings while using your MC2:

- Main Menu > Power > USB-A Charge Output > 1.5A.
- Main Menu > Controllers > Soft Fader/Trim Pickup > Off*.
- Main Menu > Controllers > Third Party Controllers > Multiple Controllers > Individual.

** Firmware 2.3 (June 2023) introduced an optional **Strict Controller Configuration** ([details below](#)). When turned on, this configuration **must** to be used with Soft Fader/Trim Pickup set to "on", otherwise the front panel knobs of the 8-Series will be locked as per Sound Devices' desired functionality - [8-Series manual link](#).*

While describing the operation of the MC2 in these terms may make it sound complicated to use, in practice its operation is very simple. It is recommended to experiment with the device, while referencing the tables below and the demo videos at the Mini Control [YouTube channel](#) and [Instagram profile](#).

Power on > ready for use flow table

Display	Description
	MC2 off.
	Power on - White LED on, fade to LEDs off.
	
Firmware update detected? Or Hard-reset requested by the user with an encoder / switch combination? (See below). 2 x white LED pulses.	
	If a hard-reset was requested - device configuration set to 833, all configuration options set to "off", LED brightness to 100% and stored fader values to 0 (-Inf).
Configuration menu requested by the user with an encoder / switch combination? (See below).	
	Configuration Menu acknowledgement - Encoder A LED fades up to white and back to off.
	MC2 branches into Configuration Menu (see below).
Firmware version display requested by the user with an encoder / switch combination? (See below).	
	Firmware is indicated by LED pulses. Encoder A LED indicates the major number. Encoder B LED indicates the minor number. I.e. Firmware version 2.4 will display as 2 x pulses on Encoder A LED, then 4 x pulses on Encoder B LED.
	LEDs off.
Was the MC2 was previously powered down whilst in standby? YES ↓	
	LEDs stay off and the MC2 will enter <u>standby</u> . Connection negotiation is done in the background.

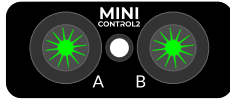
Was the MC2 was previously powered down whilst in standby?

NO ↓



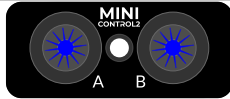
MC2 boots into the last mode used when powered off:
Gain Focused Mode starting - 3 x red pulses.

OR ↓

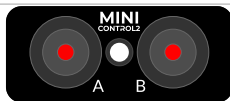


Fader Focused Mode starting - 3 x green pulses.

OR ↓



Combi Mode starting - 3 x blue pulses.



MC2's LEDs fade up to solid solid colour indicating Sub-Mode ([see channel target table below](#)).



x 3 per 1s

If the MC2 requires negotiation with the host device (i.e. fresh boot), 3 x short LED flashes every second.

Connection negotiation successful?

NO ↓



If the MC2 was unable to elicit a response from the host device, its LEDs will fade to off and it enters standby. MC2 is now in low-power mode and will not respond to Encoder changes.

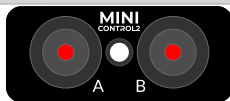
When “awoken” from standby after a failed negotiation attempt, the MC2 will simulate a USB disconnect / reconnect and attempt to re-negotiate a valid connection [as above](#).

Connection negotiation successful?

YES ↓

Has level metering been turned on in the configuration menu? ([See below](#)).

NO ↓



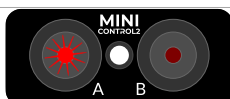
MC2 ready for use.

Has level metering been turned on in the configuration menu? ([See below](#)).

YES ↓


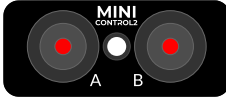


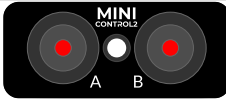

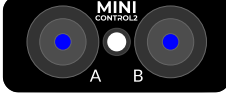


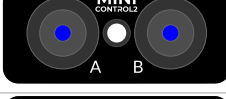


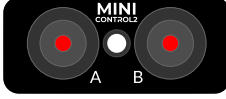

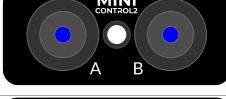
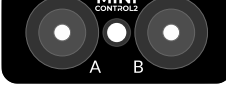


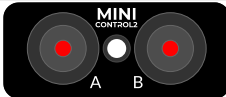
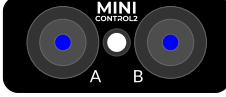

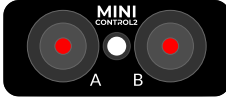



MC2's LEDs fade down to 1%.
MC2 ready for use.







The LED brightnesses are now being modulated by the incoming audio levels to the target channels ([see below](#)).

Configuration > Mode > Sub-Mode channel targets




Configuration	Mode	Sub-Mode	Display	Description
833	Gain	Red		Control gain level of channels 7+8
833	Fader	Red		Control fader level of channels 7+8
833	Combi	Green		Control fader level of channels 7+8
833	Combi	Red		Control gain level of channels 7+8
833+4	Gain	Red		Control gain level of channels 7+8
833+4	Gain	Green		Control gain level of channels 9+10
833+4	Gain	Blue		Control gain level of channels 11+12
833+4	Fader	Red		Control fader level of channels 7+8
833+4	Fader	Green		Control fader level of channels 9+10
833+4	Fader	Blue		Control fader level of channels 11+12
833+4	Combi	Green		Control fader level of channels 7+8
833+4	Combi	Red		Control gain level of channels 7+8
888	Gain	Red		Control gain level of channels 9+10
888	Gain	Green		Control gain level of channels 11+12
888	Gain	Blue		Control gain level of channels 13+14
888	Gain	White		Control gain level of channels 15+16 (optional)

888	Fader	Red		Control fader level of channels 9+10
888	Fader	Green		Control fader level of channels 11+12
888	Fader	Blue		Control fader level of channels 13+14
888	Fader	White		Control fader level of channels 15+16 (optional)
888	Combi	Green		Control fader level of channels 9+10
888	Combi	Red		Control gain level of channels 9+10
Scorpio	Gain	Red		Control gain level of channels 13+14
Scorpio	Gain	Green		Control gain level of channels 15+16
Scorpio	Gain	Blue		Control gain level of channels 17+18
Scorpio	Gain	White		Control gain level of channels 19+20 (optional)
Scorpio	Fader	Red		Control fader level of channels 13+14
Scorpio	Fader	Green		Control fader level of channels 15+16
Scorpio	Fader	Blue		Control fader level of channels 17+18
Scorpio	Fader	White		Control fader level of channels 19+20 (optional)
Scorpio	Combi	Green		Control fader level of channels 13+14
Scorpio	Combi	Red		Control gain level of channels 13+14

Boot-time user functions

Description	User operation	Display
Hard Reset - resets device configuration to 833, all configuration options to "off", LED brightness to 100% and stored fader values to 0 (-Inf).	Hold toggle switch up with Encoder A and B buttons held down.	
Encoder A and B LEDs display 2 x white pulses before proceeding to boot as normal.		
Display current Firmware version number	Hold toggle switch down with Encoder A and B buttons held down.	
Firmware version is indicated by LED pulses. Encoder A LED indicates the major number. Encoder B LED indicates the minor number. MC2 then proceeds to boot as normal.		

Accessing the configuration menu

Description	User operation	Display
Open configuration menu.	Hold toggle switch up and Encoder A button down.	
LEDs will fade to off.		
Configuration menu starting - Encoder A LED fades up to white and back to off.		

Configuration menu

The MC2's configuration menu provides a convenient way of changing settings that the MC2 will base its operation upon. Selections are made through Encoder A and B button presses and toggle switch selections.

The configuration menu times out after 6 seconds of inactivity. Each time an encoder button is pushed or the toggle switch selection is made, the 6 second countdown will restart.

After 6 seconds of inactivity the configuration is saved to the device and a reboot takes place. The MC2 will then boot as normal with the new settings applied.

The colours shown on Encoder A and Encoder B indicate the status of each configuration option.

Pressing the Encoder A button cycles through 8-Series device configurations:

- Encoder A **red** - 833 Configuration.
- Encoder A **green** - 833+4 Configuration.
- Encoder A **blue** - 888 Configuration.
- Encoder A **white** - Scorio Configuration.

Note - Make sure to set your MC2 to the device that you are planning to use it with or you **will** have unexpected results.

Encoder B is used to display numerous on/off toggle options. Pressing Encoder B will turn the applicable LED colour on/off - setting the configuration option on/off. Pressing the toggle switch up or down will cycle through the options and indicate whether it is turned on/off.

Firmware 2.4 provides 5 on/off configuration options:

- Encoder B **red** - Rolling channels on/off.
- Encoder B **green** - Additional channels on/off.
- Encoder B **blue** - Strict Controller Configuration on/off.
- Encoder B **white** - Free Configuration on/off.
- Encoder B **yellow** - Level metering on/off.

- **Rolling Channels**

When this option is turned on, Sub-Mode changes will roll over when at the channel extremes. I.e. When controlling an 833+4 in Fader Focused Mode > Blue (controlling channels 11+12), pressing down on the toggle switch will change to Sub-Mode red (controlling channels 7+8). Similarly, then pressing the toggle switch up will return to Sub Mode blue (controlling channels 11+12). This saves needing to toggle through multiple channel pairs when needing to make quick changes.

- **Additional Channels**

When this option is turned on, an additional Sub-Mode (white) is added that allows control of an additional 2 channels with the MC2.

Note - under 833 and 833+4 configuration, additional channels are only available when the MC2 is configured to use Free Configuration ([see below](#)).

- **Strict Controller Configuration**

When this option is turned on, a full 2-way communication connection is established between the MC2 and the 8-Series. This means that all fader levels are synchronised between both devices.

For example, if you make a fader level change to channel 7-12 on an 833+4 using the SD remote app, these changes are then synchronised to the MC2. Any subsequent fader changes you make on Encoder A or B of the MC2 will start from these values, preventing any abrupt fader “jumps”.

Some new features introduced in Firmware 2.4 are also dependant on Strict Controller Configuration being on - i.e. yellow “pulses” indicating channel PFL and [level metering](#).

Note - 8-Series Main Menu > Controllers > Soft Fader/Trim Pickup **must** be set to “on” when Strict Controller Configuration is enabled, or your 8-Series front panel knobs **will be locked** as per Sound Devices’ desired functionality - [8-Series manual link](#).

Pay attention to your 8-Series front panel knob changes when “Soft Fader/Trim Pickup” is turned on as they may well need turning past certain points before becoming responsive. **This can be disconcerting** for users not aware of it.

- **Free Configuration**

When this option is turned on, all bank moves are disabled and the MC2 is set to start controlling channel 1 onwards. Additionally enabling “Additional Channels” ([see above](#)) will give you control over channels 1-8 on all 8-Series machines.

Do you have a scenario where you need to put your 8-Series into in a backpack or container but still control it externally? Combine Free Configuration and Strict Controller Configuration to enable complete control. You could even map “record” to one of the MC2’s MIDI control change shortcuts ([see below](#)).






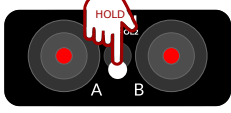


- **Level metering**

When this option is turned on, both MC2's LED brightnesses will modulate in sympathy with the incoming audio level to the channels that it is currently controlling. The LED levels modulate from a dim brightness of 1% up to the maximum brightness percentage that you have set your MC2 to. You can adjust this "maximum" brightness range by holding up the toggle switch and dialling in the brightness with encoder A. The modulation range will then adjust accordingly (see "Adjust LED brightness" below).

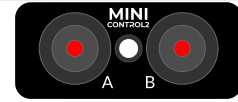
Note - for level metering to work, "Strict Controller Configuration" **must** also be active (see [above](#)).

At the time of writing, level metering is working correctly for 833, 888, and Scorpio - not 833+4. A fix is anticipated at some time in the future.

General user operation

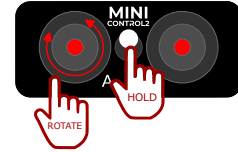
Description	User operation	Display
Set MC2 to standby.	Hold the toggle switch down	
	MC2's LEDs will fade to off. MC2 is now in low-power mode and will not respond to Encoder changes.	
	Note - the MC2's standby status is saved to memory. If the MC2 is powered down while in standby, the device will boot into standby for subsequent boots.	
Wake MC2 from standby.	When in standby, hold toggle switch down	
	MC2 wakes to the last used Mode (indicated by 3 x LED pulses) and Sub-Mode.	
	MC2 ready for use - solid colour.	
Switch between modes.	Hold toggle switch down to set MC2 to standby.	
	When in standby, hold toggle switch up.	
	MC2 wakes to new Mode - indicated by 3 x red green or blue LED pulses.	

MC2 ready for use - solid colour.



Adjust LED brightness.

Hold toggle switch up and rotate Encoder A to taste. Setting is saved to device.

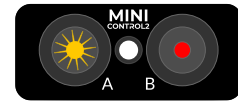


“Select” channel.

“Click” Encoder A or Encoder B buttons.

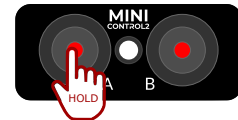


Selected encoder pulses yellow (if “Solo follows select” enabled in 8-Series menu and MC2 Strict Controller Configuration enabled).



Solo/PFL channel.
Note - Available in Gain Focused Mode and Combi Mode only.

Press and hold Encoder A or Encoder B buttons.



Solo encoder pulses yellow (if Strict Controller Configuration enabled).



Toggle Quick Gain on/off.
Note - Available in Fader Focused Mode only.

Press and hold Encoder A or Encoder B button.



Encoder LEDs will rapidly flash while Quick Gain is enabled.

Encoders are now set to control gain, allowing users to make gain adjustments without requiring a change to Gain Focused Mode.

All other functionality is still enabled, i.e. channel select, channel pair change etc.

Press and hold Encoder A or Encoder B buttons to disable Quick Gain and return to regular Fader Focused Mode operation.

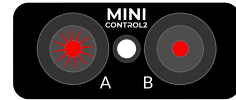


Send mappable MIDI control change message (use “Learn” in 8-Series “Controllers > Mapping” menu).

“Double-click” Encoder A or Encoder B buttons.



Double-clicked encoder will flash rapidly indicating that the MIDI control change message has been sent.



Reboot MC2.

Hold toggle switch up and Encoder B button down.



LEDs will fade to off, then the MC2 will reboot.



Fader levels

Firmware 2.4 (September 2024) introduces a new feature, allowing the MC2 to keep track of its fader level data across power cycles. Any changed fader levels are saved to internal memory at set intervals.

On a practical level, this means that there should not be any “fader jumps” when first booting the MC2 as per previous Firmware releases.

Fader levels are always reset to “-Inf” (faders at their lowest) after switching between Device Configurations, switching in/out of Free Configuration or after a Hard Reset.

A memory cycling scheme has been put in place to avoid errors when approaching the memory cell write limit. A very conservative estimate has the MC2 lasting for approximately 15 years of operation before the memory write limit is hit. At this point the fader memory is no longer written to or read from, leading to all fader values starting at “-Inf” (faders at their lowest) on first boot as per previous Firmware releases (unless working in Strict Controller Configuration).

Note - the MC2 stores fader data for 8 channels of the MCU bank/s that it expects to be controlling. Unless the MC2 is in Strict Controller Configuration, it not recommended to use the mappable MIDI control-change function of the MC2 to send “fader bank” messages to the host device in order to manually transverse MCU banks. This will likely lead to fader level “jumps”. However, Strict Controller Configuration provides a solution to this as all fader levels across all banks are always synchronised between the host device and the MC2.

Additional controller compatibility

MC2 works without issue alongside MCU controllers, the Sound Devices CL-12 and additional MC2 units, **provided the 8-Series is always set to “Individual”** under Main Menu > Controllers > Third Party Controllers > Multiple Controllers.

Multiple MC2 units can be connected to an 8-series mixer/recorder through a USB hub and set to control different channels / parameters simultaneously.

Specifications

- Power consumption: 32-117mA @ 5v (dependant on LED brightness).
- Dimensions: 23mm x 54mm x 80mm.
- Weight: 115g

Firmware updates



MC2 will be updated with new features from time to time, with all files available to existing customers at minicontrol.co.uk

New firmware can be flashed by either sending your unit back to us or remotely via the MacOS updater app, compatible with Intel and Apple Silicon Macs.

Disclaimer

Mini Control 2 was tested in the field for 12 months prior to release with no issues found. It has been tested with the latest Sound Devices firmware at time of writing (10.01) and no issues were found. However, the MC2 is not officially supported by Sound Devices and could technically have its functionality affected/disabled by a future firmware update. This is doubtful as Sound Devices have made statements about supporting open standards, but it is possible.

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