



MU-series MIDI/USB Keyboard Controllers

MU25	25-note MIDI/USB Controller Keyboard	(169.011)
MU49	49-note MIDI/USB Controller Keyboard	(169.012)
MU61	61-note MIDI/USB Controller Keyboard	(169.013)

User Manual



Features

- 25/49/61 keys with touch velocity sensitivity (5 x velocity curves and selectable keyboard split)
- Assignable control pedal (switch or continuous) inputs (1 for MU25, 2 for MU49 & MU61)
- Assignable slider control
- Pitch Bend Wheel and Modulation Wheel (assignable)
- 4 x assignable rotary controls (2 banks) and 2 data entry buttons
- MIDI and USB output (powered by 9Vdc or USB)
- Compatible with Win XP/Vista and Mac OSX, plug-and-play, hot swappable
- Compatible with major audio and sequencer software

Introduction:

Thank you for choosing a Chord MU series MIDI/USB controller. This product has been designed to give ultimate control over MIDI sound modules and soundcards and form a key part of any project studio or live multi-instrument set-up. Please read the following to get the best from your keyboard controller and avoid damage through misuse.

Warning:

To prevent the risk of fire or electric shock, do not expose any of the components to rain or moisture.

If liquids are spilled on the surface, stop using immediately, allow unit to dry out and have checked by qualified personnel before further use.

Avoid impact, extreme pressure or heavy vibration to the unit.

There are no user serviceable parts inside the keyboard – refer all servicing to qualified service personnel.

Safety

- When using an optional DC adapter to power the keyboard, ensure that it is a regulated type with correct voltage & polarity
- Use only good quality USB and MIDI leads
- Only connect standard foot switch or expression pedal to the rear jack inputs.
- Do not allow any foreign particles to enter the keyboard through connectors or control apertures

Placement

- Position the keyboard on a solid, flat surface or strong, stable keyboard stand with adequate grip to hold steady
- Keep out of direct sunlight and away from heat sources.
- Keep away from damp or dusty environments.
- Ensure cables and power supplies are kept tidy and away from harm

Cleaning

- Use a clean dry cloth (or slightly damp) to clean surfaces.
- Use a soft brush to clear debris from between the keys
- Do not use strong solvents for cleaning the unit.

Functions

The keyboard is velocity sensitive with additional functions labelled above each note key.

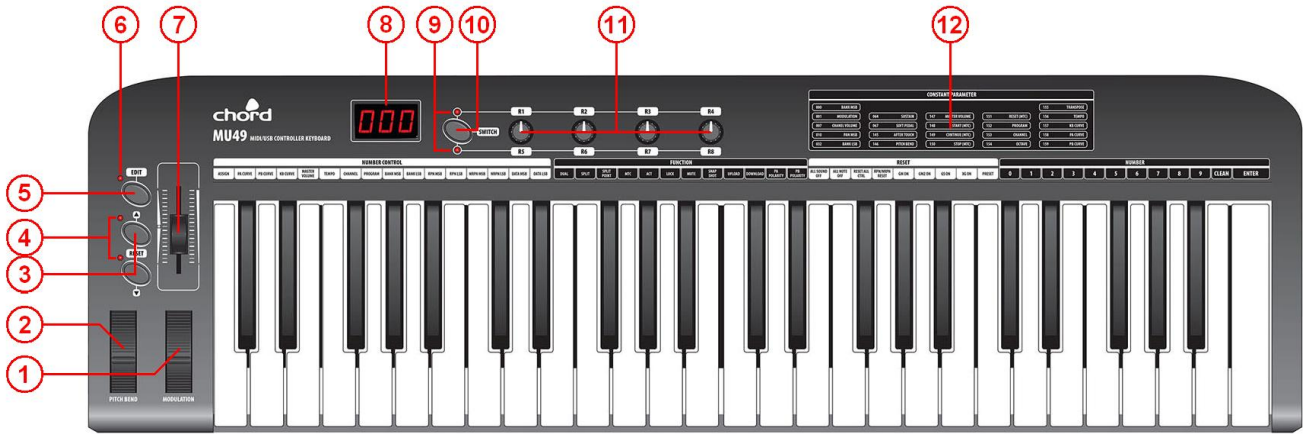
This additional function is accessed by the EDIT button.

When EDIT is pressed, the keyboard provides functions as labelled above each note key, including Program Adjustment, Dual, Touch Sensitivity Adjustment, Numerical values etc. (the range of functions varies by model)

In addition to the note keys, the MU-series keyboards have a set of controllers for setting parameter values or offering expression (creative changes/variances of the sound) for on-the-fly effects

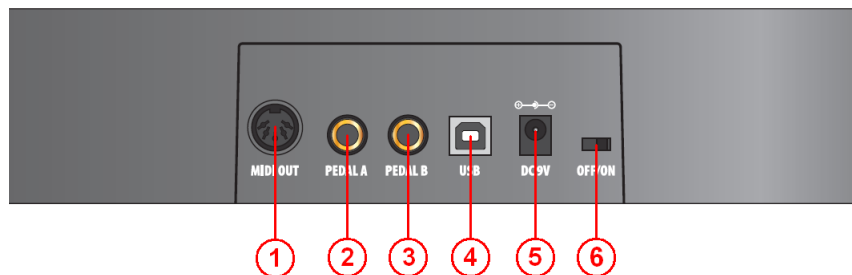
Furthermore, control pedals can be connected to the input(s) on the rear panel for even more expression control

Top Panel



1. **MODULATION Wheel** - Expression wheel, assignable to one of 148 MIDI control parameters. Initial setting is MIDI control number 1: Modulation.
2. **PITCH BEND Wheel** – Spring loaded expression wheel, assignable to one of 148 MIDI control parameters. Initial setting is MIDI control number 146: Pitch Bend
3. **DATA +/- Buttons** – Increment/decrement data entry buttons, assignable to one of 160 MIDI control parameters. Initial setting is MIDI control number 154: Octave Shift
4. **OCTAVE/TRANSPOSE Indicator** - When either of these indicators is on, it indicates that there is an upper/lower octave shift. When the indicator flashes slowly, it indicates that there is an upper/lower transpose shift. When the indicator flashes quickly, it indicates that there is a simultaneous upper/lower octave and transpose adjustment. When the indicator is off, there is no octave or transpose shift.
5. **EDIT Button** – Switches edit function of note keys on/off
6. **EDIT Indicator** – Indicates that the EDIT function is active (keys will operate as labelled above each note)
7. **SLIDER** – Fader style controller, assignable to one of 148 MIDI control parameters. Initial setting is MIDI control number 147: Master Volume
8. **3-digit LED Display** – Shows program/parameter values for MIDI and EDIT functions
9. **SWITCH Button** – Toggles the rotary dials between 2 groups of control settings: R1-R4 / R5-R8
10. **Dial Function Group LEDs** – Indicate which group of parameters is active for rotary dials.
11. **R1- R8 Dials** – 4 data entry dials, individually assignable to one of 160 MIDI control parameters, divided across 2 groups. Initial channel of R1-R4 is 0. Initial controller numbers are 152, 153, 156, 157, which control Program, Channel, Tempo and Keyboard Velocity Curve respectively. The initial channels of R5-R8 are 0-3. Initial controller number is 7, which controls the volume of channels 0-3 respectively. The parameter group of R1-R4 and R5-R8 is switched by the SWITCH button.
12. **Constant Controller Parameter chart** – A table showing standard MIDI parameter values

Rear Panel



1. **MIDI OUT** – 5-pin DIN MIDI output to control external sound module or keyboard
2. **PEDAL A** – Pedal A input 6.3mm jack for switching or continuous type pedal control, assignable to one of 152 controllers. Initial setting is Soft Pedal.
3. **PEDAL B** – Pedal B input 6.3mm jack for switching or continuous type pedal control, assignable to one of 152 controllers. Initial setting is Sustain Pedal.
4. **USB** – USB type B connector for connecting to PC or Mac computer
5. **DC9V** – Input jack for optional 9Vdc power adapter (300mA, polarity positive-to-centre)
6. **OFF/ON** – Power switch

Operation

Connection

The MU-series keyboards can be used directly with a PC or Mac computer to provide MIDI control in a software sound module or multi-track recording package. For this application, the USB socket on the rear panel should be connected to a spare USB port on the computer (a USB lead is supplied for this) – this will transfer MIDI to the computer and provide power to the MU-series keyboard. The MIDI OUT can also control external devices in this setup.

The MU-series keyboards can also control MIDI devices when not connected via a computer, by connecting the MIDI OUT to the MIDI input of the controlled device and powering the MU-series keyboard via an optional 9Vdc power adapter.

Assignable Controllers

Press the EDIT button and the EDIT LED will be light to indicate that the note keys are in EDIT mode.

Press the ASSIGN key to enter controller assign mode, the LED display will show CHO, prompting the user to “choose” the controller that needs to be assigned.

Operate the required controller to select it (e.g. to assign SLIDER, move the Slider to select it)

The LED display will show the MIDI controller number of the selected controller

Input the desired assignable parameter value with number keys (0-9), and press ENTER to confirm

(e.g. if Slider is selected, input “1”, “4”, “7” and the Slider will be set to MIDI control 147 - Master Volume).

Assignable controller reference: Appendix 1- Assignable controller List

Assignable controller parameters reference: Appendix 2 - Assignable Controller Parameter List.

Pedal Resistance Curve (MU49, MU61)

The response curve of the pedal interface can be tailored to match control pedals with different specifications and electrical resistance values. This can be adjusted by trial and error, testing the response of the pedal for various values. Alternatively, it can be calculated as follows...

To calculate the resistance curve value for Pedal A (PA CURVE) or Pedal B (PB CURVE)

$$\text{Curve} = (128 \times \text{Pedal resistance value}) / (10K + \text{Pedal resistance value}).$$

For example, if the pedal resistance value is 10K, the value of PA Curve or PB Curve is...

$$128 \times 10K / (10K + 10K) = 64.$$

For the pedal's electrical resistance value, please refer to the technical specifications provided by pedal manufacturer. The initial value of resistance curve is 64, adaptable to most control pedals in the market.

When using a switching type pedal, the recommended resistance curve value is also 64.

When DATA +/- is assigned as PA CURVE or PB CURVE, the DATA +/- buttons can be used to adjust resistance curve values.

Press both DATA + and - simultaneously to set the resistance curve value to initial 64.

When the dials (R1-R4 or R5-R8) are assigned as PA CURVE or PB CURVE, they can be used to adjust pedal resistance value.

Press EDIT button to enter keyboard multi-function mode, press PA CURVE or PB CURVE multi-functional keys to enter pedal resistance curve adjustment mode, input the pedal resistance value with numeric pad, then press ENTER to confirm.

TEMPO (MU49, MU61)

Press the EDIT button and the EDIT LED will be light to indicate that the note keys are in EDIT mode.

Press the TEMPO key to enter tempo adjustment mode, then input the tempo value with number keys. Press the ENTER key to confirm.

When DATA +/- is assigned as TEMPO, it can be used to adjust MIDI tempo.

Press both DATA + and - simultaneously to set the tempo to the initial value = 100

Likewise, the dials (R1-R4 or R5-R8) can be assigned to adjust TEMPO

PROGRAM

Press the EDIT button and the EDIT LED will be light to indicate that the note keys are in EDIT mode.

Press the PROGRAM key to enter program select mode, then enter the number with the number keys.

Press the ENTER key to confirm.

When DATA +/- is assigned as PROGRAM, DATA +/- can be used to adjust the program (or voice). Press both DATA + and - simultaneously to set the program to the initial value = 0

Likewise, the dials (R1-R4 or R5-R8) can be assigned to adjust the PROGRAM number

MIDI Channel

Press the EDIT button and the EDIT LED will be light to indicate that the note keys are in EDIT mode.

Press the CHANNEL key to enter MIDI channel select mode, then set the channel with the number keys.

Press the ENTER key to confirm.

When DATA +/- is assigned as CHANNEL, DATA +/- can be used to adjust the MIDI channel

Press both DATA + and - simultaneously to set the program to the initial value = 0

Likewise, the dials (R1-R4 or R5-R8) can be assigned to set the MIDI channel

TRANSPOSE (MIDI control number 155)

When DATA +/- is assigned as TRANSPOSE, DATA +/- can be used to shift the pitch +/- 12 semitones
Press both DATA + and - simultaneously to set the program to the initial value = 0
Likewise, the dials (R1-R4 or R5-R8) can be assigned to set the TRANSPOSE

OCTAVE (MIDI control number 154)

When DATA +/- is assigned as OCTAVE, DATA +/- can be used to shift the pitch +/- 3 octaves
Press both DATA + and - simultaneously to set the program to the initial value = 0
Likewise, the dials (R1-R4 or R5-R8) can be assigned to set the OCTAVE

DUAL

Press the EDIT button and the EDIT LED will be light to indicate that the note keys are in EDIT mode.
Press the DUAL key to enter dual layer mode, the layered program can be set as per PROGRAM above
DUAL function overrides the SPLIT function (details below)
Pressing EDIT and the DUAL key cancels this function

SPLIT (MU49, MU61)

Press the EDIT button and the EDIT LED will be light to indicate that the note keys are in EDIT mode.
Press the SPLIT key to enter split keyboard mode,
SPLIT function cannot be used at the same time as DUAL function
Pressing EDIT and the SPLIT key cancels this function

SPLIT POINT

Press the EDIT button followed by the SPLIT POINT key to select the keyboard split point.
The LED display will show CHO, prompting the user to "choose" the controller that needs to be assigned.
Press the key at the desired split point and the 2 keyboard zones will be set.

MTC

Pressing the EDIT button followed by the MTC key sets MIDI Time Code (F8) to be transmitted from the keyboard to the device it is controlling or to the computer it is attached to. Pressing EDIT and MTC again switches this function off again.

Active Sensing (MU49, MU61)

Pressing the EDIT button followed by the ACT key sets Active Sensing (FE) to be transmitted from the keyboard to the device it is controlling or to the computer it is attached to. Pressing EDIT and ACT again switches this function off again.

LOCK (MU49, MU61)

Press the EDIT button followed by the LOCK key to lock out the keyboard's controllers.
In this mode, the keyboard is active but all other controllers are deactivated.
Pressing EDIT and LOCK again cancels this function.

MUTE

Press the EDIT button followed by the LOCK key to stop the MIDI output signal from the keyboard.
Pressing EDIT and MUTE again cancels this function.

SNAP SHOT

Press the EDIT button followed by the SNAPSHOT key to send a controller snapshot.
This transmits all current controller values (PITCH/MOD/SLIDER/ROTARIES) over MIDI simultaneously.

UPLOAD/DOWNLOAD

The user settings stored in the MU-series keyboard can be stored to and re-called from a computer connected to it via USB. These settings are transmitted as a SYSEX (SYStem EXclusive) file, which can be recorded into a software MIDI sequencer. Different software packages may vary in the way these are stored and handled. Please refer to the help files in the particular software package for information on how to store SYSEX information from an external MIDI device.

Set the MIDI software package to receive or record SYSEX data
Press EDIT then UPLOAD
The LED display will show "SEu" to indicate uploading and then "don" to indicate complete

To receive stored SYSEX data from the computer, prepare the software to play back the SYSEX file.
Press EDIT then DOWNLOAD and play the file back from the MIDI software package.
The LED display will show "SEd" to indicate downloading and then "don" to indicate complete

PEDAL POLARITY (MU49, MU61)

Different switch or expression pedals may vary in the switching polarity. If the switch is on when it should be off and vice versa, the switch can be reversed by pressing EDIT and PA POLARITY or PA POLARITY

Use the DATA +/- to select the required polarity for PA (pedal A) or PB (pedal B)

ALL SOUND OFF (MU49, MU61)

Pressing the EDIT button then the ALL SOUND OFF key transmits a message to kill sound output.

The All Sound Off (controller 120) is useful if software crashes or a sound module “sticks” in play mode

ALL NOTE OFF

Pressing the EDIT button then the ALL NOTE OFF key transmits all MIDI notes off (controller 123)

This can be useful if a MIDI device or software “freezes” with notes stuck in a play state.

RESET ALL CONTROLLERS

Pressing the EDIT button then the RESET ALL CTRL key transmits MIDI reset message (controller 121)

This returns all controller values to their default settings

GM/GS/XG ON (MU25)

Pressing the EDIT button then the GM/GS/XG ON key transmits the GM/GS/XG initialisation messages

This sets any or all 3 standards on for any GM, GS or XG devices being controlled by the keyboard

GM ON (MU49, MU61)

Pressing the EDIT button then the GM ON key transmits the GM initialisation message

This switches on the General MIDI sound-set for compatible equipment controlled by the keyboard

(message = F0 7E 7F 09 01 F7)

GM2 ON (MU49, MU61)

Pressing the EDIT button then the GM2 ON key transmits the GM2 initialisation message

This switches on the General MIDI 2 sound-set for compatible equipment controlled by the keyboard

(message = F0 7E 7F 09 03 F7)

GS ON (MU49, MU61)

Pressing the EDIT button then the GS ON key transmits the GS initialisation message

This switches on the General Standard sound-set for compatible equipment

(message = F0 41 10 42 12 40 00 7F 00 41 F7)

XG ON (MU49, MU61)

Pressing the EDIT button then the XG ON key transmits the XG initialisation message

This switches on the eXtended General MIDI sound-set for compatible equipment

(message = F0 43 10 4C 00 00 7E 00 F7)

PRESET (MU49, MU61)

Pressing the EDIT button then the PRESET key returns the keyboard back to factory preset program

CLEAN (MU49, MU61)

When using number keys (0-9) to enter numbers, pressing the CLEAN key sets the number to 0

RESET (MU49, MU61)

When using DATA +/- keys to enter values, pressing the DATA+ and DATA- buttons simultaneously sets the number to

1: ASSIGNABLE CONTROLLER LIST

NO.	ITEM	INITIAL CHANNEL	PARAMETER RANGE	INITIAL PARAMETER	INITIAL PARAMETER VALUE
1	Data +/-	0	0 - 159	154	0
2	Slider	0	0 - 147	147	0
3	Wheel P	0	0 - 147	146	64
4	Wheel M	0	0 - 147	1	0
5	Pedal A	0	0 - 151	64	0
6	Pedal B	0	0 - 151	67	0
7	R1	0	0 - 159	152	0
8	R2	0	0 - 159	153	0
9	R3	0	0 - 159	156	100
10	R4	0	0 - 159	157	0
11	R5	0	0 - 159	7	100
12	R6	1	0 - 159	7	100
13	R7	2	0 - 159	7	100
14	R8	3	0 - 159	7	100

APPENDIX 2: ASSIGNABLE CONTROLLER PARAMETER LIST

CONTROLLER NO.	DEFINITION	INITIAL VALUE	VALUE RANGE
0	Bank Select MSB	0	0 - 127
1	Modulation MSB	0	0 - 127
2	Breath MSB	127	0 - 127
3	Controller	0	0 - 127
4	Foot Controller MSB	127	0 - 127
5	Portamento time MSB	0	0 - 127
6	Data Entry MSB	2	0 - 127
7	Channel Volume MSB	100	0 - 127
8	Balance MSB	64	0 - 127
9	Controller	0	0 - 127
10	Panpot MSB	64	0 - 127
11	Expression MSB	127	0 - 127
12	Effect Control 1 MSB	0	0 - 127
13	Effect Control 2 MSB	0	0 - 127
14 - 31	Controller	0	0 - 127
32	Bank Select LSB	0	0 - 127
33	Modulation LSB	0	0 - 127
34	Breath LSB	127	0 - 127
35	Controller	0	0 - 127
36	Foot Controller LSB	127	0 - 127
37	Portamento time LSB	0	0 - 127
38	Data Entry LSB	0	0 - 127
39	Channel Volume LSB	127	0 - 127
40	Balance LSB	64	0 - 127
41	Controller	0	0 - 127
42	Panpot LSB	64	0 - 127
43	Expression LSB	127	0 - 127
44 - 63	Controller	0	0 - 127
64	Sustain	0	0 - 127
65	Portamento	0	0 - 127
66	Sostenuto	0	0 - 127
67	Soft Pedal	0	0 - 127
68	Legato FootSwitch	0	0 - 127
69	Hold 2	0	0 - 127
70	Sound Controller	64	0 - 127
71	Resonance	64	0 - 127
72	Release Time	64	0 - 127
73	Attack Time	64	0 - 127
74	Cutoff	64	0 - 127
75	Decay Time	0	0 - 127
76	Vibrato Depth	64	0 - 127
77	Vibrato Depth	64	0 - 127
78	Vibrato Depth	64	0 - 127
79	Sound Controller	64	0 - 127
80 - 83	Controller	0	0 - 127
84	Portamento Control	0	0 - 127
85 - 90	Controller	0	0 - 127
91	Reverb	40	0 - 127
92	Effects	0	0 - 127
93	Chorus	0	0 - 127
94	Effects	0	0 - 127
95	Effects	0	0 - 127
96	RPN Increment	0	0 - 127
97	RPN Decrement	0	0 - 127
98	NRPN LSB	0	0 - 127
99	NRPN MSB	0	0 - 127
100	RPN LSB	0	0 - 127
101	RPN MSB	0	0 - 127
102 - 119	Controller	0	0 - 127
120	All Sound Off	0	0 - 127
121	Reset All Controllers	0	0 - 127
122	Local Control	0	0 - 127
123	All Notes Off	0	0 - 127
124	OMNI Off	0	0 - 127
125	OMNI On	0	0 - 127
126	Mono	0	0 - 127
127	Poly	0	0 - 127
128	Pitch Bend Sensitivity (RPN)	2	0 - 127
129	Channel Fine Tuning (RPN)	64	0 - 127
130	Channel Coarse Tuning (RPN)	64	0 - 127
131	Modulation Depth range (RPN)	64	0 - 127
132	Vibrato Rate (NRPN)	64	0 - 127
133	Vibrato Depth (NRPN)	64	0 - 127
134	Vibrato Delay (NRPN)	64	0 - 127
135	Filter Cutoff Frequency (NRPN)	64	0 - 127
CONTROLLER NO.	DEFINITION	INITIAL VALUE	VALUE RANGE
136	Filter Resonance (NRPN)	64	0 - 127
137	EQ Low Gain (NRPN)	64	0 - 127
138	EQ High Gain (NRPN)	64	0 - 127
139	EQ Low Frequency (NRPN)	64	0 - 127
140	EQ High Frequency (NRPN)	64	0 - 127
141	EG Attack Time (NRPN)	64	0 - 127
142	EG Decay Time (NRPN)	64	0 - 127
143	EG Release Time (NRPN)	64	0 - 127
144	Polyphonic key pressure	100	0 - 127
145	After touch	100	0 - 127
146	Pitch Bend	64	0 - 127
147	Master Volume	100	0 - 127
148	Start (MTC)	-	-
149	Continue (MTC)	-	-
150	Stop (MTC)	-	-
151	Reset (MTC)	-	-
152	Program	0	0 - 127
153	Global Channel	0	0 - 15
154	Octave	0	- 3 - 3
155	Transpose	0	- 12 to 12
156	Tempo	100	20 - 250
157	Keyboard Curve	0	0 - 4
158	Pedal A Curve	64	1 - 127
159	Pedal B Curve	64	1 - 127

APPENDIX 3: LED Status List

NO.	STATUS	DEFINITION
1	xxx	3 Digit Display
2	xx	Upper Transpose Value
3	- xx	Lower Transpose Value
4	x	Upper Octave Value
5	- x	Lower Octave Value
6	CHO	(1) Under Assign Mode: indicate the controller to be assign. (2) Under Split Point Mode: indicate keyboard Split point.
7	ON/OFF	Selected function On/Off, or pedal polarity positive/negative.
8	don	Selected function done.
9	Err	Operation error.
10	SEu	Parameters upload.
11	SEd	Parameters download.

APPENDIX 4: SPECIFICATIONS

NO.	ITEM	SPECIFICATIONS
1	Keyboard	MU25: 25 Keys, C2 - C4, Initial Touch. MU49: 49 Keys, C1 - C5, Initial Touch. MU61: 61 Keys, C1 - C6, Initial Touch.
2	Function	MIDI Data: Program Select, Bank Select, Sequencer Control, MTC, Controller Change, GM, GS, XG System Reset and etc. Controllable Parameters: Transpose, Octave, MIDI Transmit Channel, Velocity Curve Adjust, Keyboard Split Point and etc.
3	Panel & Indicator	4xAssignable Dials. 1xDial Group Function Shift Button (incl. 2 Indicators.) 2xAssignable Data +/- Buttons (incl. 2 Indicators.) 1xEdit Button (incl. 1 Indicator.)
4	Display	8 Segments, 3 Digits LED.
5	Input & Output	1xMIDI Out. 1xUSB Port. 1xPedal Input. (MU25) 2xPedal Inputs. (MU49/MU61) 1xDC Input. 1xPower Switch.
6	Power Supply	9V DC. USB Power.