

# panoptigon chord controller



owner's manual

# IMPORTANT SAFETY INSTRUCTIONS

- 1 – Read and keep these instructions.
- 2 – Heed all warnings and follow all instructions.
- 3 – **WARNING:** To prevent fire or electric shock, do not expose this equipment to rain or moisture. Do not use this apparatus near water.
- 4 – Clean only with a dry cloth.
- 5 – **WARNING:** To prevent excessive temperature rise, operate product only in free air with unrestricted ventilation. Do not install in confined spaces or near heat sources such as radiators, heat registers, stoves, or other apparatus that produce heat.
- 6 – Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding plug has two blades and a grounding prong. The wide blade or third prong is provided for your safety. If the provided plug does not fit your outlet, consult an electrician for the replacement of the obsolete outlet.
- 7 – Protect the power cord from being walked on or pinched, particularly plugs, convenience receptacles, and the point where they exit from the apparatus.
- 8 – Unplug the apparatus during lightning storms or when unused for long periods of time.
- 9 – The appliance coupler (or attachment plug) is the mains disconnect device and should remain readily accessible when the unit is in use.
- 10 – Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
- 11 – This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
- 12 – Changes or modifications made by the user that are not expressly approved by the manufacturer may void your authority to operate the unit.



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



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

**CAUTION: DO NOT REMOVE THE COVER. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.**



**WARNING:** Do not expose this equipment to rain or moisture.

# Panoptigon Chord Controller Package

Please verify that your package includes the following. If there are any issues, visit Quilter Labs support at [QuilterLabs.com](http://QuilterLabs.com).

- Panoptigon Chord Controller
- Power cable jumper
- Owner's manual
- Deluxe case

Note: Please retain the shipping carton and packing materials in the unlikely event that your Panoptigon Chord Controller needs servicing.

## Introduction

The Panoptigon Chord Controller is an accessory for the Panoptigon Disc Player that provides a button array and rocker-switches for playing the chord and special effects tracks on Optigan discs. Additionally it offers sustained chord accompaniment when playing Orchestron and Panoptigon discs by sending the appropriate notes over MIDI. There is even a mode for playing the chord tracks in the iOptigan app for the iPhone or iPad. It also can be connected to a MIDI sound module to add chord accompaniment!





## MIDI Out Channel Knob

This selects the MIDI transmit data channel for the Chord Controller. The channels available include 1 through 7 and 10. MIDI channel 10 is often used for drums or percussion sound modules, so this allows for the possibility of using the Chord Controller as a simple drum module controller.

## Mode Select Knob

This knob selects from eight different modes that correspond to four mappings, and a normal or radio operation for each mapping. These are explained in detail in the paragraphs on the following page.

MODE NUMBER	MAPPING	OPERATION
1	Optigan	Normal
2		Radio
3	iOptigan App	Normal
4		Radio
5	Orchestron	Normal
6		Radio
7	Panoptigan	Normal
8		Radio

## Mapping

- Optigan:
  - Selecting this mode will cause the Chord Controller to send out MIDI data mapped to the chord and special effects tracks when playing Optigan discs on a Panoptigan disc player. This mapping imitates the function found on vintage Optigans and retains the peculiar assignments of diminished chords to the A major and E major buttons (more on this later).
- iOptigan:
  - This position is for use with the iOptigan app ([ioptigan.com](http://ioptigan.com)). It functions just like the Optigan mode above, but the track assignment is changed to match that of the app. Use this mode when using the Chord Controller to provide physical chord buttons and special effects switches to an iPhone or iPad running the iOptigan app (a MIDI adapter is also required).
- Orchestron:
  - This mode sends MIDI data consisting of the three sustained notes that make up the chord shown above the button. The chords are open voiced, with the middle note of the chord moved up an octave. So a 1-3-5 major chord will be voiced as 1-5 plus 3 an octave up. Minor chords are generated in a similar way: 1-  $\flat$ 3-5 will be voiced 1-5 plus  $\flat$ 3 an octave up. Diminished chords are voiced 1-  $\flat$ 5 plus  $\flat$ 3 an octave up. The rocker-switches are not mapped to any tracks/sounds in this mode.
- Panoptigan:
  - This mode is the same as the Orchestron mode above, but is shifted down an octave to take advantage of the extended range of the Panoptigan disc format.

# Operation

- Normal:
  - This selection (odd numbered modes) will send a MIDI NOTE ON command when a chord button is pushed or a rocker-switch is toggled forward or back from its middle position. When a button is released or a rocker-switch is returned to its middle position, a NOTE OFF message is sent. The buttons and rockers work independently from one another: You can press multiple buttons at the same time and toggle multiple rocker-switches. The rocker-switches are disabled in Orchestron and Panoptigon modes.
- Radio
  - This selection (even numbered modes) latches buttons by sending a MIDI NOTE ON command with a button press, and does nothing on button releases. Button presses will cause the associated tracks to play until other buttons are selected and the previously selected buttons are released. This is done by sending MIDI NOTE OFF commands for the released buttons and NOTE ON commands for the newly pressed buttons. You can press multiple buttons at the same time. Pressing the same button twice releases the latch and will cancel (silence) the associated track. The rocker-switch behavior differs for each mode:
    - In Optigan and iOptigan modes, the rocker-switches operate the same as in normal mode, i.e., they operate independently from the buttons. Changing the position of a rocker-switch has no effect on button behavior.
    - In Orchestron and Panoptigon modes, moving a rocker-switch will cancel any latched buttons. Rocker-switches will not send MIDI NOTE ON commands, so no sounds will be triggered by engaging them.

When changing modes, the Chord Controller will silence all notes that are playing. This is done to prevent stuck notes.

## MIDI Merge

The Chord Controller will merge MIDI data from its MIDI IN jack with the MIDI data generated internally by the Chord Controller and send the combined data to the MIDI OUT jack.

Highly sensitive MIDI operations, like lengthy System Exclusive messages, are not recommended while performing with the Chord Controller. The resulting delays may affect note timing.

# MIDI Merge (Cont'd)

In Orchestron and Panoptigon modes, the Chord Controller will keep track of MIDI NOTE ON and NOTE OFF data sent from a MIDI device connected to the MIDI IN jack and MIDI data generated internally by the Chord Controller. This is so notes played from a keyboard controller will not be cancelled by the Chord Controller, and notes played by the Chord Controller will not be cancelled by the keyboard controller. Notes will turn off only when both controllers release the notes.

# Hook Up (Power Supply Connections)

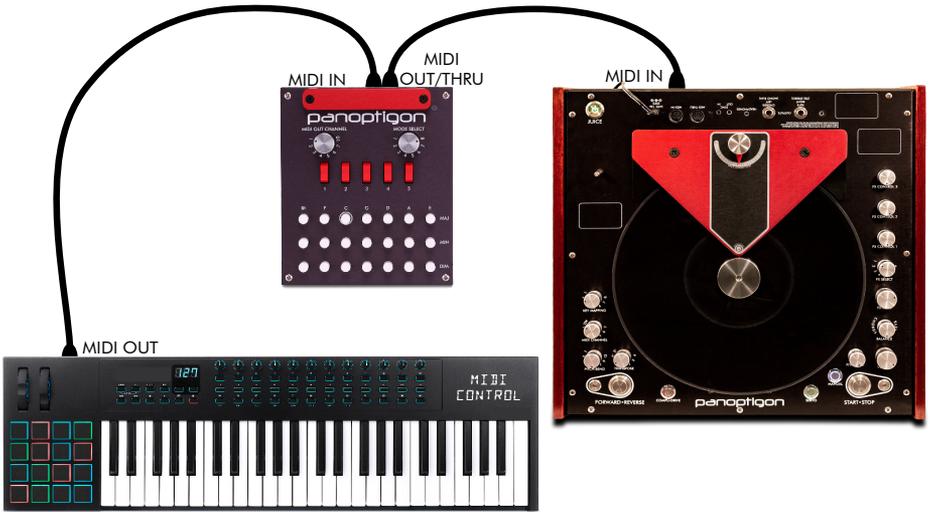
The Chord Controller is powered from 24VDC. The Quilter Labs PS-24 power supply should be used to provide the proper source of this DC power. If you already have a Panoptigon, you can run both the Chord Controller and the Panoptigon from the Panoptigon's PS-24 supply. To do this, plug the DC plug from the PS-24 into the Chord Controller's rear power input jack marked IN, then using the supplied power cable jumper, plug the jumper from the power jack marked OUT to the power jack of the Panoptigon (see picture below). If using the Chord Controller without a Panoptigon, you can purchase a PS-24 from Quilter Labs, and plug the supply's output plug into the jack marked IN, leaving the OUT jack open.

After connecting the power supply to the Chord Controller, plug the AC cord from the power supply into an AC outlet. Confirm that the green light on the power supply is lit, and the red light (near the top right) of the Chord Controller is lit. If using the Panoptigon Disc Player as a sound source, it can now be turned on.

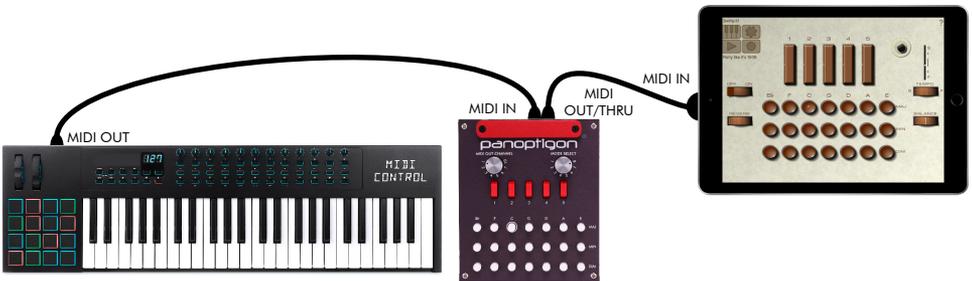


# MIDI Connections

The standard MIDI connection for use with a keyboard controller and a Panoptigon Disc Player is shown below. Using two 5-pin DIN MIDI cables, install one end of the first cable from the MIDI OUT jack of the keyboard controller to the MIDI IN jack of the Chord Controller. Install one end of the second cable from the MIDI OUT/THRU jack of the Chord Controller to the MIDI IN jack of the Panoptigon Disc Player.



To connect to an iPhone or iPad, refer to the picture below. You will need one 5-pin DIN MIDI cable and a MIDI adapter, like the iConnectMIDI1 interface from [connectivity.com](http://connectivity.com), which adapts USB and Apple Lightning connectors to standard 5-pin DIN jacks. Install one end of the MIDI cable from the MIDI OUT jack of the keyboard controller to the MIDI IN jack of the Chord Controller. Install the MIDI IN plug of the adapter from the MIDI OUT/THRU jack of the Chord Controller, and the Lightning connector to the jack of the iPhone or iPad. Note: Older iPads and iPhones used the 30-pin dock connector. To connect to these older devices, you will need an adapter that connects USB or Lightning to the 30-pin dock jack.



# Operation

## Panoptigon Disc Player

- Put a disc in the Panoptigon (refer to the Panoptigon's Owner's Manual). Select the proper mapping on the Panoptigon Disc Player for the disc you are using (Optigan, Orchestron, or Panoptigon).
- Select the mode on the Chord Controller that matches the disc type (Optigan, Orchestron, or Panoptigon), and select one of the Operation types (normal or radio).
- Select the MIDI output channel on the keyboard and Chord Controller that matches the receiving MIDI channel on the Panoptigon (or use the ALL MIDI channel selection on the Panoptigon to confirm operation).
- Set levels and ensure that the disc is spinning.
- Use the white buttons to play chords. For Optigan discs, the rocker-switches will play the sound effects tracks.

## iOptigan App

- You can use the iOptigan app plus a Chord Controller with or without a keyboard controller.
- Ensure one of the iOptigan modes is selected (either normal or radio).
- Confirm in the app settings that the adapter is recognized and that the device is set up to receive MIDI.
- Confirm the MIDI OUT channel on the Chord Controller agrees with the MIDI receive channel in the app.
- If using a keyboard controller, confirm the MIDI channel is properly set to the same channels as the Chord Controller and app.

## Other MIDI players

- You can use the Chord Controller with another MIDI sound module as long as it can respond to MIDI NOTE ON and NOTE OFF messages in the range of MIDI note number 38 to 80 (D2 to G#5).
- Use either the Orchestron mode or the Panoptigon mode (an octave lower than Orchestron mode), and select one of the operations (either normal or radio).
- Confirm the MIDI OUT channel on the Chord Controller agrees with the MIDI receive channel in the module.
- If using a keyboard controller with the Chord Controller, the sound module may support different note ranges and may receive on multiple MIDI channels. Please check for compatibility in the device's owner's manual.

# Troubleshooting

Although there's always the possibility of a factory defect, the vast majority of problems are due to other elements used in conjunction with the Panoptigon Chord Controller (e.g., a bad cable), a mis-set control, or a setting on the MIDI sound module or player.

## No Power

- Check that the AC cord's IEC plug is inserted fully and firmly into the power adapter.
- Verify that the power adapter cord is plugged into a working AC outlet.
- The PS-24 power supply has a green LED power indicator. If the power supply is receiving power but the green LED is not glowing, then the power supply is defective and should be replaced.
- Check that the red light on the top right of the Chord Controller is lit. It should be illuminated if the power adapter is working.

## No Sound when playing the Chord Controller

- Confirm that the Chord Controller's MIDI channel matches the channel selected by the MIDI CHANNEL on the receiving unit (or app). Put receiving unit in OMNI mode. If this doesn't solve the problem, check the MIDI cable connecting your controller to the sound module.
- Check volume levels.

## Unexpected notes from the MIDI player

- Make sure the proper mode is selected on the Chord Controller.

## A major and E major Chords sound wrong in Optigan and iOptigan modes.

- Yes. Yes they do. Optigan discs have 57 soundtracks—these provide recordings of real musicians playing riffs, chord patterns and other effects. 37 of these tracks are reserved for the keyboard sounds—a different recording for each note. This leaves 20 tracks for the rocker-switches and chord buttons. The rocker-switches use 5 of these tracks, leaving 15 tracks. The problem is that you only have 15 tracks for 21 chord buttons: C, D, E, F, G, A and B $\flat$  major, plus their parallel minor and diminished counterparts. 7 buttons assigned to diminished chords share 3 tracks, leaving 12 tracks for the 14 buttons (major and minor chords). So the Optigan recycles the D diminished chord track for E major and the G diminished chord for A major. Perhaps the Optigan manufacturer, Mattel, felt that most of the notes matched anyway, so why waste the extra disc space? Consequently, playing anything in A or E major using these buttons sounds questionable at best.

# Care and Maintenance

## Panoptigon Disc Player

- Unplug the power supply and disconnect it from the Chord Controller when not in use.
- Use a microfiber cloth to clean your Chord Controller's surfaces. Avoid using liquids, because some of the surfaces and internal circuitry can be damaged by water.



# MIDI Implementation Chart

Function		Transmitted	Recognized	Remarks
Basic Channel	Default	1-7, 10	X	Set via rotary switch
	Changed	1-7, 10	X	
Mode	Default	X	X	Set via rotary switch
	Messages	X	X	
	Altered	X	X	
Note Number		32-80, 90-95	X	Set by Key Mapping switch
	True Voice	X	X	
Velocity	Note On	X	X	
	Note Off	X	X	
Aftertouch	Keys	X	X	
	Channels	X	X	
Pitch Bend		X	X	
Control Change	1	X	X	
	64	X	X	
Program Change		X	X	
	True #	X	X	
System Exclusive		X	X	
System Common	Song Pos	X	X	
	Song Sel	X	X	
	Tune	X	X	
System Real Time	Clock	X	X	
	Messages	X	X	
Aux Messages	All Sound Off	X	X	
	Reset All Controllers	X	X	
	Local On/Off	X	X	
	All Notes Off	X	X	
	Omni Mode Off	X	X	
	Omni Mode On	X	X	
	Mono Mode On	X	X	
	Poly Mode On	X	X	
	Active Sensing	X	X	
System Reset	X	X		
Mode 1: OMNI ON, POLY	Mode 2: OMNI ON, MONO	X	X	0: Yes
Mode 3: OMNI OFF, POLY	Mode 4: OMNI OFF, MONO	X	X	X: No

# Track Assignment

The following reference chart shows the button and rocker-switch disc track assignments with their associated MIDI note numbers.

Switch/Button	Optigan Mode		iOptigan Mode		Orchestron Mode		Panoptigan Mode	
	MIDI Note No.	Track No.	MIDI Note No.	Track No.	MIDI Note Nos.	Track Nos.	MIDI Note Nos.	Track Nos.
Special Effects 1	90	1	91	1				
Special Effects 2	91	2	92	2				
Special Effects 3	92	3	93	3				
Special Effects 4	93	4	94	4				
Special Effects 5	94	5	95	5				
B $\flat$ MAJ	38	6	46	6	58, 65, 74	26, 25, 22	46, 53, 62	56, 43, 28
F MAJ	41	9	47	9	53, 60, 69	37, 36, 21	41, 48, 57	55, 42, 39
C MAJ	43	11	48	11	60, 67, 76	36, 23, 20	48, 55, 64	42, 41, 26
G MIN	44	12	49	13	55, 62, 71	35, 34, 14	43, 50, 59	53, 40, 37
D MIN	46	14	50	15	62, 69, 78	34, 21, 13	50, 57, 66	40, 39, 36
A MAJ	50	18	51	18	57, 64, 73	33, 32, 17	45, 52, 61	51, 38, 35
E MAJ	51	19	52	19	64, 71, 80	32, 19, 4	52, 59, 68	38, 37, 34
B $\flat$ MIN	39	7	39	7	58, 65, 73	26, 25, 17	46, 53, 61	56, 43, 35
F MIN	40	8	40	8	53, 60, 68	37, 36, 16	41, 48, 56	55, 42, 46
C MIN	42	10	41	10	60, 67, 75	36, 23, 15	48, 55, 63	42, 41, 33
G MAJ	45	13	42	12	55, 62, 70	35, 34, 19	43, 50, 58	53, 40, 44
D MAJ	47	15	43	14	62, 69, 77	34, 21, 6	50, 57, 65	40, 39, 31
A MIN	48	16	44	16	57, 64, 72	33, 32, 24	45, 52, 60	51, 38, 30
E MIN	49	17	45	17	64, 71, 79	32, 19, 11	52, 59, 67	38, 37, 29
B $\flat$ DIM	50	18	32	18	58, 64, 73	26, 32, 17	46, 52, 61	56, 38, 35
F DIM	51	19	33	19	53, 59, 68	37, 31, 16	41, 47, 56	55, 49, 46
C DIM	52	20	34	20	60, 66, 75	36, 18, 15	48, 54, 63	42, 48, 33
G DIM	50	18	35	18	55, 61, 70	35, 29, 14	43, 49, 58	53, 47, 44
D DIM	51	19	36	19	62, 68, 77	34, 16, 13	50, 56, 65	40, 46, 31
A DIM	52	20	37	20	57, 63, 72	33, 27, 24	45, 51, 60	51, 45, 30
E DIM	50	18	38	18	64, 70, 79	32, 14, 11	52, 58, 67	38, 44, 29

# Important Information for Owners

## Factory Service

Please retain the shipping carton and packing materials in the unlikely event your Panoptigon Chord Controller needs servicing.

To return a product to Quilter Labs for service under the warranty policy, please contact Quilter Labs by phone or email. Mail can be sent to Quilter Labs at 1700 Sunflower, Suite A, Costa Mesa, CA 92626. Please include the serial number of the product and a copy of your sales receipt. Instructions on how to send your product will be provided.

Do not attempt to open the product and service it yourself. Any attempt to service the product by a non-authorized service technician may void your warranty.

## FCC Notice

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver
- Connect the product into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## Warranty

For warranty or service information visit us online at [QuilterLabs.com](http://QuilterLabs.com)



Be sure to also check out the Panoptigon!



P/N 001223 rev. a