



**MELBOURNE
INSTRUMENTS**

ROTO-CONTROL SYSEX API

Version 1.4

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Revision History

| Version | Date | Change |
|---------|------------|---|
| 1.0 | 23/02/2025 | First release. |
| 1.1 | 07/04/2025 | Updates to support MACRO params: <ul style="list-style-type: none">• LEARN PARAM• PARAM LEARNED• SET MAPPED CONTROL NAME (new) |
| 1.2 | 23/06/2025 | General updates and updates to support Bitwig Studio: <ul style="list-style-type: none">• DAW PING RESPONSE• ROTO-DAW CONNECTED (new)• REQUEST ROTO FW VERSION (new)• ROTO FW VERSION (new)• TRACK DETAILS• PLUGIN DETAILS• DAW SELECT PLUGIN• LEARN PARAM• CONTROL MAPPED (renamed, was PARAM LEARNED)• MACRO PLUGIN PAGE INDEX (new)• CONTROL LEARNED (new)• TOGGLE REMOTE PAGE (new)• TOGGLE TRACK GROUPING (new)• DAW SELECT TRACK• REQUEST SEND TRACK NAMES (new)• SEND TRACK NAMES (new) Document formatting improvements. |
| 1.3 | 05/11/2025 | Increased number of tracks to two bytes: <ul style="list-style-type: none">• NUM TRACKS• FIRST TRACK• SET FIRST TRACK• TRACK DETAILS• ROTO SELECT TRACK• DAW SELECT TRACK• TOGGLE TRACK GROUPING Added new commands: <ul style="list-style-type: none">• REQUEST ROTO SYSEX API VERSION• ROTO SYSEX API VERSION |
| 1.4 | 26/11/2025 | Added Appendix A: Colour Scheme Table |

Compatibility

| Version | Compatibility |
|------------|---|
| 1.0 | <ul style="list-style-type: none">• ROTO-SETUP v1.0.0• ROTO-SETUP v1.1.1• ROTO-SETUP v1.1.2 |
| 1.1 | <ul style="list-style-type: none">• ROTO-SETUP v1.1.3• ROTO-SETUP v1.1.4 |
| 1.2 | <ul style="list-style-type: none">• ROTO-SETUP v2.0.0 |
| 1.3 1.4 | <ul style="list-style-type: none">• ROTO-SETUP v2.1.0 |

1. Introduction

The ROTO-CONTROL SYSEX API allows communication and configuration with an external DAW such as Ableton. The interface used is MIDI via USB.

The interface is bi-directional in that commands can be sent to ROTO-CONTROL and received from ROTO-CONTROL asynchronously.

Note 1: For conciseness ROTO-CONTROL is also referred to as ROTO throughout this document.

Note 2: All values are specified in hexadecimal.

1.2 Command Format

All ROTO-CONTROL SYSEX commands take the following format:

F0 00 22 03 02 <data> F7

Where:

- F0 = Start SYSEX message byte.
- 00 22 03 = Melbourne Instruments SYSEX ID.
- 02 = ROTO-CONTROL v1 device ID.
- <data> = The command payload.
- F7 = End SYSEX message byte.

1.3 Commands Overview

| Type | Sub-type | Description | To ROTO | From ROTO |
|--------------------|-------------------------------------|---|---------|-----------|
| 0A: GENERAL | 01: DAW STARTED | The DAW has started a session with ROTO | Y | N |
| | 02: PING DAW | Ping to check if the DAW is running | N | Y |
| | 03: DAW PING RESPONSE | Ping response from the DAW | Y | N |
| | 04: NUM TRACKS | Number of tracks | Y | N |
| | 05: FIRST TRACK | First track page index | Y | N |
| | 06: SET FIRST TRACK | Set the first track page index | N | Y |
| | 07: TRACK DETAILS | Track details in the current track page | Y | N |
| | 08: TRACK DETAILS END | Finished sending track details | Y | N |
| | 09: ROTO SELECT TRACK | ROTO-Control has selected a track | N | Y |
| | 0A: REQUEST TRANSPORT STATUS | Request the current transport status | N | Y |

| | | | | |
|-------------------|---|--|---|---|
| | 0B: TRANSPORT STATUS | The current transport status | Y | N |
| | 0C: ROTO-DAW CONNECTED | The ROTO has received the DAW PING RESPONSE, and the ROTO and DAW are now connected. | N | Y |
| | 0D: REQUEST ROTO FW VERSION | The DAW has requested the ROTO firmware version | Y | N |
| | 0E: ROTO FW VERSION | The ROTO firmware version | N | Y |
| | 0F: REQUEST ROTO SYSEX API VERSION | The DAW has requested the ROTO SYSEX API version | Y | N |
| | 10: ROTO SYSEX API VERSION | The ROTO SYSEX API version | N | Y |
| 0B: PLUGIN | 01: SET PLUGIN MODE | Set the DAW in PLUGIN mode | N | Y |
| | 02: NUM PLUGINS | Returns the number of PLUGINS on the current track | Y | N |
| | 03: FIRST PLUGIN | First PLUGIN page index | Y | Y |
| | 04: SET FIRST PLUGIN | Set the first PLUGIN page index | N | Y |
| | 05: PLUGIN DETAILS | Details of a PLUGIN | Y | N |
| | 06: PLUGIN DETAILS END | Finished sending PLUGIN details | Y | N |
| | 07: ROTO SELECT PLUGIN | The ROTO-CONTROL has selected a PLUGIN | Y | N |
| | 08: DAW SELECT PLUGIN | The DAW has selected a PLUGIN | Y | N |
| | 09: SET PLUGIN LEARN | Put the DAW in learn mode | Y | N |
| | 0A: LEARN PARAM | A param has been learned | Y | N |
| | 0B: CONTROL MAPPED | Mapped control details | N | Y |
| | 0C: SET PLUGIN ENABLE | Enable/disable a PLUGIN | N | Y |
| | 0D: SET PLUGIN LOCK | Lock/unlock PLUGINS | N | Y |
| | 0E: UNMAP CONTROL | Un-map a learned control | Y | N |

| | | | | |
|----------------|-------------------------------------|---|---|---|
| | 0F: SET MAPPED CONTROL NAME | Set the name of a mapped control | Y | N |
| | 10: MACRO PLUGIN PAGE INDEX | Current MACRO PLUGIN page index | N | Y |
| | 11: CONTROL LEARNED | A param has been learned and assigned to a control | N | Y |
| | 12: TOGGLE REMOTE PAGE | Request the DAW to toggle the remote page in a PLUGIN | N | Y |
| 0C: MIX | 01: SET MIX ALL TRACKS MODE | Set MIX into “all tracks” mode | N | Y |
| | 02: SET MIX TRACK MODE | Set MIX into “single track” mode | N | Y |
| | 03: NUM SEND TRACKS | The number of available send tracks | Y | N |
| | 04: DAW SELECT TRACK | The DAW has selected a track | Y | N |
| | 05: SET ALL TRACKS MODE | Set the “all tracks” mode | N | Y |
| | 06: TOGGLE TRACK GROUPING | Toggle track grouping on the currently selected track | N | Y |
| | 07: REQUEST SEND TRACK NAMES | Request a set of 8 send track names | N | Y |
| | 08: SEND TRACK NAMES | A set of 8 send track names | Y | N |

2. GENERAL Commands: 0A

2.1 DAW STARTED: 01

| Command |
|-------------------------|
| F0 00 22 03 02 0A 01 F7 |

| Description |
|--|
| This is sent by the DAW when it first starts (or a new session is started). The DAW should not send any further commands until it receives PING DAW from ROTO. |

| Direction | | DAW Compatibility | |
|-----------|---|-------------------|---|
| TO ROTO | Y | Ableton Live | Y |
| FROM ROTO | N | Bitwig Studio | Y |

2.2 PING DAW: 02

| Command |
|-------------------------|
| F0 00 22 03 02 0A 02 F7 |

| Description |
|--|
| This is sent by ROTO to check if a DAW is connected – it will be sent by ROTO after receiving DAW STARTED or when ROTO is plugged into a PC. The DAW should respond with DAW PING RESPONSE when this is received. The DAW should not send any further commands until it receives ROTO-DAW CONNECTED from ROTO. |
| Note: ROTO will send this command every second for 1 minute to poll for a connected DAW. |

| Direction | | DAW Compatibility | |
|-----------|---|-------------------|---|
| TO ROTO | N | Ableton Live | Y |
| FROM ROTO | Y | Bitwig Studio | Y |

2.3 DAW PING RESPONSE: 03

| Command |
|--|
| F0 00 22 03 02 0A 03 <DT> F7 |
| DT = DAW Type: Ableton Live (01), Bitwig Studio (02) |

| Description |
|---|
| This command should be sent by the DAW when it receives the PING DAW command from ROTO. |

| Direction | | DAW Compatibility | |
|-----------|---|-------------------|---|
| TO ROTO | Y | Ableton Live | Y |
| FROM ROTO | N | Bitwig Studio | Y |

2.4 NUM TRACKS: 04

| Command |
|--------------------------------|
| F0 00 22 03 02 0A 04 <NT:2> F7 |

NT = Number of tracks, formatted as two 7-bit values

Description

This command is sent from the DAW to indicate the number of tracks – either the number of audio or master-return tracks depending on the mixer mode.

| Direction | | DAW Compatibility | |
|-----------|---|-------------------|---|
| TO ROTO | Y | Ableton Live | Y |
| FROM ROTO | N | Bitwig Studio | Y |

2.5 FIRST TRACK: 05

Command

F0 00 22 03 02 0A 05 <FT:2> F7

FT = First track index in multiples of 8 (0000 = Track page 1, 0008 = Track page 2, etc.), formatted as two 7-bit values

Description

This command is sent from the DAW to indicate the current tracks page.

| Direction | | DAW Compatibility | |
|-----------|---|-------------------|---|
| TO ROTO | Y | Ableton Live | Y |
| FROM ROTO | N | Bitwig Studio | Y |

2.6 SET FIRST TRACK: 06

Command

F0 00 22 03 02 0A 06 <FT:2> F7

FT = First track index in multiples of 8 (0000 = Track page 1, 0008 = Track page 2, etc.), formatted as two 7-bit values

Description

This command is sent from ROTO to indicate when the page of tracks has been changed.

| Direction | | DAW Compatibility | |
|-----------|---|-------------------|---|
| TO ROTO | N | Ableton Live | Y |
| FROM ROTO | Y | Bitwig Studio | Y |

2.7 TRACK DETAILS: 07

Command

F0 00 22 03 02 0A 07 <TI:2 TN:0D CS GT> F7

TI = Track index, formatted as two 7-bit values

TN = Track name: 0D-byte NULL terminated ASCII string, padded with 00s if needed

CS = Colour scheme: 00 - 52 (see Appendix A)

GT = Grouped track: NO (00), YES (01)

| Description | | | |
|--|--|--|--|
| This command is sent from the DAW for each track on the current tracks page. | | | |

| Direction | | DAW Compatibility | |
|-----------|---|-------------------|---|
| TO ROTO | Y | Ableton Live | Y |
| FROM ROTO | N | Bitwig Studio | Y |

2.8 TRACK DETAILS END: 08

| Command | | | |
|-------------------------|--|--|--|
| F0 00 22 03 02 0A 08 F7 | | | |

| Description | | | |
|---|--|--|--|
| This command is sent from the DAW once all TRACK DETAILS commands have been sent. | | | |

| Direction | | DAW Compatibility | |
|-----------|---|-------------------|---|
| TO ROTO | Y | Ableton Live | Y |
| FROM ROTO | N | Bitwig Studio | Y |

2.9 ROTO SELECT TRACK: 09

| Command | | | |
|--|--|--|--|
| F0 00 22 03 02 0A 09 <TI:2> F7 | | | |
| TI = Index of the track to select, formatted as two 7-bit values | | | |

| Description | | | |
|---|--|--|--|
| This command is sent when a track is selected via ROTO. | | | |

| Direction | | DAW Compatibility | |
|-----------|---|-------------------|---|
| TO ROTO | N | Ableton Live | Y |
| FROM ROTO | Y | Bitwig Studio | Y |

2.10 REQUEST TRANSPORT STATUS: 0A

| Command | | | |
|-------------------------|--|--|--|
| F0 00 22 03 02 0A 0A F7 | | | |

| Description | | | |
|--|--|--|--|
| This command is sent from ROTO to request the current transport controls status. | | | |

| Direction | | DAW Compatibility | |
|-----------|---|-------------------|---|
| TO ROTO | N | Ableton Live | Y |
| FROM ROTO | Y | Bitwig Studio | Y |

2.11 TRANSPORT STATUS: 0B

| Command | | | |
|---------|--|--|--|
|---------|--|--|--|

F0 00 22 03 02 **0A 0B** <PS SS RS SR LS PI PO AS> F7

PS = Play status: Off (00), On (01)

SS = Stop status: Off (00), always this value

RS = Record status: Off (00), On (01)

SR = Session Record status: Off (00), On (01)

LS = Loop status: Off (00), On (01)

PI = Punch-in status: Off (00), On (01)

PO = Punch-out status: Off (00), On (01)

AS = Re-enable automation status: Off (00), On (01)

Description

This command is sent from the DAW in response to the REQUEST TRANSPORT STATUS command.

| Direction | | DAW Compatibility | |
|-----------|----------|-------------------|----------|
| TO ROTO | Y | Ableton Live | Y |
| FROM ROTO | N | Bitwig Studio | Y |

2.12 ROTO-DAW CONNECTED: 0C

Command

F0 00 22 03 02 **0A 0C** F7

Description

This is sent by ROTO once it has received and finished processing DAW PING RESPONSE from a DAW. Once the DAW has received this command it can send other commands to ROTO as needed.

| Direction | | DAW Compatibility | |
|-----------|----------|-------------------|----------|
| TO ROTO | N | Ableton Live | Y |
| FROM ROTO | Y | Bitwig Studio | Y |

2.13 REQUEST ROTO FW VERSION: 0D

Command

F0 00 22 03 02 **0A 0D** F7

Description

This command is sent from the DAW to request the ROTO firmware version.

| Direction | | DAW Compatibility | |
|-----------|----------|-------------------|----------|
| TO ROTO | Y | Ableton Live | Y |
| FROM ROTO | N | Bitwig Studio | Y |

2.14 ROTO FW VERSION: 0E

Command

F0 00 22 03 02 **0A 0E** <VX VY VZ GC:7> F7

VX = ROTO-CONTROL major version

VY = ROTO-CONTROL minor version

| |
|---|
| VZ = ROTO-CONTROL patch version GC = Short GIT commit in ASCII bytes |
|---|

| |
|--------------------|
| Description |
|--------------------|

| |
|---|
| This command is sent from ROTO after receiving the REQUEST ROTO FW VERSION command. |
|---|

| Direction | | DAW Compatibility | |
|-----------|---|-------------------|---|
| TO ROTO | N | Ableton Live | Y |
| FROM ROTO | Y | Bitwig Studio | Y |

2.15 REQUEST ROTO SYSEX API VERSION: 0F

| |
|----------------|
| Command |
|----------------|

| |
|-------------------------|
| F0 00 22 03 02 0A 0F F7 |
|-------------------------|

| |
|--------------------|
| Description |
|--------------------|

| |
|--|
| This command is sent from the DAW to request the ROTO SYSEX API version. |
|--|

| Direction | | DAW Compatibility | |
|-----------|---|-------------------|---|
| TO ROTO | Y | Ableton Live | Y |
| FROM ROTO | N | Bitwig Studio | Y |

2.16 ROTO SYSEX API VERSION: 10

| |
|----------------|
| Command |
|----------------|

| |
|---------------------------------|
| F0 00 22 03 02 0A 10 <VX VY> F7 |
|---------------------------------|

| |
|---|
| VX = ROTO-CONTROL SYSEX API major version |
|---|

| |
|---|
| VY = ROTO-CONTROL SYSEX API minor version |
|---|

| |
|--------------------|
| Description |
|--------------------|

| |
|--|
| This command is sent from ROTO after receiving the REQUEST ROTO SYSEX API VERSION command. |
|--|

| Direction | | DAW Compatibility | |
|-----------|---|-------------------|---|
| TO ROTO | N | Ableton Live | Y |
| FROM ROTO | Y | Bitwig Studio | Y |

3. PLUGIN Commands: 0B

3.1 SET PLUGIN MODE: 01

| Command |
|--------------------------------|
| F0 00 22 03 02 0B 01 F7 |

| Description |
|--|
| This command is sent from ROTO when PLUGIN mode is selected. |

| Direction | | DAW Compatibility | |
|-----------|----------|-------------------|----------|
| TO ROTO | N | Ableton Live | Y |
| FROM ROTO | Y | Bitwig Studio | Y |

3.2 NUM PLUGINS: 02

| Command |
|---|
| F0 00 22 03 02 0B 02 <NP> F7 |
| NP = Number of PLUGINS on the current track |

| Description |
|---|
| This command is sent from the DAW to indicate how many PLUGINS are on the currently selected track. |

| Direction | | DAW Compatibility | |
|-----------|----------|-------------------|----------|
| TO ROTO | Y | Ableton Live | Y |
| FROM ROTO | N | Bitwig Studio | Y |

3.3 FIRST PLUGIN: 03

| Command |
|--|
| F0 00 22 03 02 0B 03 <FP> F7 |
| FP = First PLUGIN index in multiples of 8 (00 = PLUGIN page 1, 08 = PLUGIN page 2, etc.) |

| Description |
|--|
| This command is sent from the DAW to indicate the current PLUGIN page. |

| Direction | | DAW Compatibility | |
|-----------|----------|-------------------|----------|
| TO ROTO | Y | Ableton Live | Y |
| FROM ROTO | N | Bitwig Studio | Y |

3.4 SET FIRST PLUGIN: 04

| Command |
|--|
| F0 00 22 03 02 0B 04 <FP> F7 |
| FP = First PLUGIN index in multiples of 8 (00 = PLUGIN page 1, 08 = PLUGIN page 2, etc.) |

| Description |
|---|
| This command is sent from ROTO to indicate when the page of PLUGINS has been changed. |

| Direction | | DAW Compatibility | |
|-----------|----------|-------------------|----------|
| TO ROTO | N | Ableton Live | Y |
| FROM ROTO | Y | Bitwig Studio | Y |

3.5 PLUGIN DETAILS: 05

| Command |
|---|
| F0 00 22 03 02 0B 05 <PI PH:8 PE PN:0D PT NP> F7 PI = PLUGIN index PH = PLUGIN hash PE = PLUGIN enabled status: Disabled (00), Enabled (01) PN = PLUGIN name: 0D-byte NULL terminated ASCII string, padded with 00s if needed PT = PLUGIN type: Normal (00), MACRO PLUGIN (01), Third-party PLUGIN (02) NP = Number of MACRO PLUGIN control pages, set to 00 if not a MACRO PLUGIN. Ignored if the connected DAW is Ableton Live |

| Description |
|---|
| This command is sent from the DAW for each PLUGIN on the current PLUGIN page. |

| Direction | | DAW Compatibility | |
|-----------|----------|-------------------|----------|
| TO ROTO | Y | Ableton Live | Y |
| FROM ROTO | N | Bitwig Studio | Y |

3.6 PLUGIN DETAILS END: 06

| Command |
|--------------------------------|
| F0 00 22 03 02 0B 06 F7 |

| Description |
|--|
| This command is sent from the DAW once all PLUGIN DETAILS commands have been sent. |

| Direction | | DAW Compatibility | |
|-----------|----------|-------------------|----------|
| TO ROTO | Y | Ableton Live | Y |
| FROM ROTO | N | Bitwig Studio | Y |

3.7 ROTO SELECT PLUGIN: 07

| Command |
|---|
| F0 00 22 03 02 0B 07 <PI> F7 PI = Index of the PLUGIN to select |

| Description |
|---|
| This command is sent from ROTO when a PLUGIN is selected. |

| Direction | | DAW Compatibility | |
|-----------|----------|-------------------|----------|
| TO ROTO | N | Ableton Live | Y |
| FROM ROTO | Y | Bitwig Studio | Y |

3.8 DAW SELECT PLUGIN: 08

| Command |
|---|
| F0 00 22 03 02 0B 08 <PI MP FS> F7 PI = Index of the PLUGIN to select MP = MACRO PLUGIN page index (zero-based), set to 00 if not a MACRO PLUGIN. Ignored if the connected DAW is Ableton Live FS = Force selection of the PLUGIN, overriding PLUGIN lock if needed: No force (00), Force (01) |

| Description |
|--|
| This command is sent from the DAW when a PLUGIN is selected. |

| Direction | | DAW Compatibility | |
|-----------|----------|-------------------|----------|
| TO ROTO | Y | Ableton Live | Y |
| FROM ROTO | N | Bitwig Studio | Y |

3.9 SET DEVICE LEARN: 09

| Command |
|---|
| F0 00 22 03 02 0B 09 <DL> F7 DL = Device learn status: Off (00), On (01) |

| Description |
|---|
| This command is sent from ROTO when entering or exiting learn mode. |

| Direction | | DAW Compatibility | |
|-----------|----------|-------------------|----------|
| TO ROTO | N | Ableton Live | Y |
| FROM ROTO | Y | Bitwig Studio | Y |

3.10 LEARN PARAM: 0A

| Command |
|--|
| F0 00 22 03 02 0B 0A <PI:2 PH:6 MP CI NS PP:2 PN:0D SN:NS*0D> F7 PI = Param index PH = Param hash MP = MACRO param: NO (00), YES (01) CI = Add a centre (top) indent: NO (00), YES (01). If this is set to YES, the number of steps (NS) setting is ignored. Only applies to knob controls. NS = Number of steps: 00 or 02 - 18 PP = Param position: 0 - 16383, formatted as two 7-bit values PN = Param name: 0D-byte NULL terminated ASCII string, padded with 00s if needed SN = If NS is <= 10: An array of NS x 0D-byte NULL terminated ASCII strings, each string padded with 00s if needed If NS > 10: No data |

| Description |
|--|
| This command is sent from the DAW when in learn mode and a PLUGIN param has been selected in the DAW to be learned. It is also sent from the DAW in response to each CONTROL MAPPED command received via ROTO. |

| Direction | | DAW Compatibility | |
|-----------|---|-------------------|---|
| TO ROTO | Y | Ableton Live | Y |
| FROM ROTO | N | Bitwig Studio | Y |

3.11 CONTROL MAPPED: 0B

| Command |
|---|
| F0 00 22 03 02 0B 0B <PI:2 PH:6 CT CI MP> F7 PI = Param index PH = Param hash CT = Control type: Knob (00), Switch (01) CI = Index of the control within the current PLUGIN page MP = MACRO param: NO (00), YES (01) |

| Description |
|--|
| This command is sent from ROTO for each control that is mapped on the current PLUGIN page. |

| Direction | | DAW Compatibility | |
|-----------|---|-------------------|---|
| TO ROTO | N | Ableton Live | Y |
| FROM ROTO | Y | Bitwig Studio | Y |

3.12 SET PLUGIN ENABLED: 0C

| Command |
|---|
| F0 00 22 03 02 0B 0C <PI ES> F7 PI = PLUGIN index ES = PLUGIN enabled status: Disabled (00), Enabled (01) |

| Description |
|---|
| This command is sent from ROTO when the selected PLUGIN is enabled or disabled. |

| Direction | | DAW Compatibility | |
|-----------|---|-------------------|---|
| TO ROTO | N | Ableton Live | Y |
| FROM ROTO | Y | Bitwig Studio | Y |

3.13 SET PLUGINS LOCK: 0D

| Command |
|--|
| F0 00 22 03 02 0B 0D <LS> F7 LS = PLUGINS lock status: Unlocked (00), Locked (01) |

| Description |
|--|
| This command is sent from ROTO when the selected PLUGIN is locked or unlocked. |

| Direction | | DAW Compatibility | |
|-----------|---|-------------------|---|
| TO ROTO | N | Ableton Live | Y |
| FROM ROTO | Y | Bitwig Studio | Y |

3.14 UNMAP CONTROL: 0E

| Command |
|---|
| F0 00 22 03 02 0B 0E <CT CI> F7 CT = Control type: Knob (00), Switch (01) CI = Index of the control within the current PLUGIN page |

| Description |
|---|
| This command can be sent from a DAW to unmap a mapped control on the current controls page. |

| Direction | | DAW Compatibility | |
|-----------|----------|-------------------|----------|
| TO ROTO | Y | Ableton Live | Y |
| FROM ROTO | N | Bitwig Studio | Y |

3.15 SET MAPPED CONTROL NAME: 0F

| Command |
|---|
| F0 00 22 03 02 0B 0F <PI:2 PH:6 PN:0D> F7 PI = Param index PH = Param hash PN = Param name: 0D-byte NULL terminated ASCII string, padded with 00s if needed |

| Description |
|--|
| This command can be sent from a DAW to update the displayed name of a macro param. |

| Direction | | DAW Compatibility | |
|-----------|----------|-------------------|----------|
| TO ROTO | Y | Ableton Live | Y |
| FROM ROTO | N | Bitwig Studio | Y |

3.16 MACRO PLUGIN PAGE INDEX: 10

| Command |
|---|
| F0 00 22 03 02 0B 10 <PI> F7 PI = MACRO PLUGIN Page index (zero based). Not sent if the plugin is not a MACRO PLUGIN. |

| Description |
|--|
| This command is sent from ROTO when a MACRO PLUGIN is selected, and the page of controls is changed via the arrow keys |

| Direction | | DAW Compatibility | |
|-----------|----------|-------------------|----------|
| TO ROTO | N | Ableton Live | N |
| FROM ROTO | Y | Bitwig Studio | Y |

3.17 CONTROL LEARNED: 11

| Command |
|--|
| F0 00 22 03 02 0B 11 <CT CI> F7 CT = Control type: Knob (00), Switch (01) CI = PLUGIN control index (00 - 3F) |

| Description |
|---|
| This command is sent from ROTO when a control (knob or switch) has been successfully learned. |

| Direction | | DAW Compatibility | |
|-----------|---|-------------------|---|
| TO ROTO | N | Ableton Live | Y |
| FROM ROTO | Y | Bitwig Studio | Y |

3.18 TOGGLE REMOTE PAGE: 12

| Command |
|-------------------------|
| F0 00 22 03 02 0B 12 F7 |

| Description |
|--|
| This command is sent from ROTO to request the DAW to toggle the remote page in a PLUGIN. |

| Direction | | DAW Compatibility | |
|-----------|---|-------------------|---|
| TO ROTO | N | Ableton Live | N |
| FROM ROTO | Y | Bitwig Studio | Y |

4. MIX Commands: 0C

4.1 SET MIX ALL TRACKS MODE: 01

| Command |
|--|
| F0 00 22 03 02 0C 01 <AM KM SM SI> F7 AM = All tracks mode: Audio (00), Master-Return (01) KM = Knob mode: Level (00), Pan (01), Send (02) SM = Switch mode: Mute (00), Solo (01), Arm Recording (02) SI = Send index: The (zero-based) index of the send to control if the Knob mode is Send. Ranges from 0 - Number of available sends |

| Description |
|---|
| This command is sent from ROTO to set the mixer in MIX all tracks mode. |

| Direction | | DAW Compatibility | |
|-----------|----------|-------------------|----------|
| TO ROTO | N | Ableton Live | Y |
| FROM ROTO | Y | Bitwig Studio | Y |

4.2 SET MIX TRACK MODE: 02

| Command |
|---|
| F0 00 22 03 02 0C 02 <CI> F7 CI = Track control page index in multiples of 8 (00 = Track controls page 1, 08 = Track controls page 2, etc.) |

| Description |
|--|
| This command is sent from ROTO to set the mixer in MIX track mode. |

| Direction | | DAW Compatibility | |
|-----------|----------|-------------------|----------|
| TO ROTO | N | Ableton Live | Y |
| FROM ROTO | Y | Bitwig Studio | Y |

4.3 NUM SEND TRACKS: 03

| Command |
|---|
| F0 00 22 03 02 0C 03 <NS> F7 NS = Number of available send tracks |

| Description |
|---|
| This command is sent from the DAW to indicate how many send tracks are available. |

| Direction | | DAW Compatibility | |
|-----------|----------|-------------------|----------|
| TO ROTO | Y | Ableton Live | Y |
| FROM ROTO | N | Bitwig Studio | Y |

4.4 DAW SELECT TRACK: 04

| Command |
|---|
| F0 00 22 03 02 0C 04 <TI:2 TN:0D CS GT> F7 |

TI = Track index, formatted as two 7-bit values
 TN = Track name: 0D-byte NULL terminated ASCII string, padded with 00s if needed
 CI = Colour scheme: 00 - 52 (see Appendix A)
 GT = Grouped track: NO (00), YES (01)

Description

This command is sent from the DAW when a mixer track is selected.

| Direction | | DAW Compatibility | |
|-----------|---|-------------------|---|
| TO ROTO | Y | Ableton Live | Y |
| FROM ROTO | N | Bitwig Studio | Y |

4.5 SET ALL TRACKS MODE: 05

Command

F0 00 22 03 02 0C 05 <AM> F7
 AM = All tracks mode: Audio (00), Master-Return (01)

Description

This command is sent from ROTO when the MIX all tracks mode is changed to show audio or master-return tracks.

| Direction | | DAW Compatibility | |
|-----------|---|-------------------|---|
| TO ROTO | N | Ableton Live | Y |
| FROM ROTO | Y | Bitwig Studio | Y |

4.6 TOGGLE TRACK GROUPING: 06

Command

F0 00 22 03 02 0C 06 <TI:2> F7
 TI = Track index formatted as two 7-bit values

Description

This command is sent from ROTO to toggle track grouping on the currently selected track (if grouping is applicable for that track).

| Direction | | DAW Compatibility | |
|-----------|---|-------------------|---|
| TO ROTO | N | Ableton Live | Y |
| FROM ROTO | Y | Bitwig Studio | Y |

4.7 REQUEST SEND TRACK NAMES: 07

Command

F0 00 22 03 02 0C 07 <SI> F7
 SI = SEND names index (zero based)

Description

Request a block of 8 send track names from the DAW containing the send track names index.

| Direction | | DAW Compatibility | |
|-----------|---|-------------------|---|
| TO ROTO | N | Ableton Live | N |
| FROM ROTO | Y | Bitwig Studio | Y |

4.8 SEND TRACK NAMES: 08

| Command |
|--|
| F0 00 22 03 02 0C 08 <SI SN:08*0D> > F7 SI = SEND names index (zero based) SN = An array of 8 x 0D-byte NULL terminated ASCII strings, each string padded with 00s if needed |

| Description |
|---|
| <p>This command should be sent by the DAW after receiving either the SET MIX ALL TRACKS MODE, SET MIX TRACK MODE, or REQUEST SEND TRACK NAMES commands and at least one send track is present in the DAW:</p> <ol style="list-style-type: none"> SET MIX ALL TRACKS MODE command is received: It must send a block of 8 send track names with the start index being a multiple of 8 and containing the send index received in the command. Examples: <ul style="list-style-type: none"> Send index is 00, the send track names sent should be from index 00. Send index is 07, the send track names sent should be from index 00. Send index is 08, the send track names sent should be from index 08. Send index is 14, the send track names sent should be from index 10. Note: If the track with the send index is renamed, the block of 8 track names must be re-sent to ROTO. SET MIX TRACK MODE command is received: It must send a block of 8 SEND names with the start index being calculated based on the track control page index received in the command. Examples: <ul style="list-style-type: none"> Track control page index is 00, the send track names sent should be from index 00. Track control page index is 08, the send track names sent should be from index 06. Track control page index is 10, the send track names sent should be from index 0E. REQUEST SEND TRACK NAMES command is received: It must send a block of 8 send track names with the start index being a multiple of 8 and containing the send index received in the command. <p>Note: If there is no send track name then set all 00s for that string.</p> |

| Direction | | DAW Compatibility | |
|-----------|---|-------------------|---|
| TO ROTO | Y | Ableton Live | N |
| FROM ROTO | N | Bitwig Studio | Y |

Appendix A: Colour Scheme Table

The Colour Scheme table is specified below, with the background colour in RGB and the text colour as black or white.

| Index (decimal) | Background Colour | | | Text Colour |
|--------------------|-------------------|-------|------|-------------|
| | Red | Green | Blue | |
| 0 | FF | 94 | A0 | Black |
| 1 | FF | A5 | 27 | Black |
| 2 | D3 | 99 | 25 | Black |
| 3 | FF | F4 | 77 | Black |
| 4 | C6 | FB | 00 | Black |
| 5 | 1B | FF | 2D | Black |
| 6 | 26 | FF | A2 | Black |
| 7 | 5F | FF | DF | Black |
| 8 | 90 | C5 | F6 | Black |
| 9 | 57 | 80 | DB | Black |
| 10 | 97 | A7 | F6 | Black |
| 11 | E0 | 6C | DB | Black |
| 12 | ED | 53 | 9A | Black |
| 13 | FF | FF | F6 | Black |
| 14 | FF | 36 | 34 | Black |
| 15 | FF | 6C | 02 | Black |
| 16 | 9E | 62 | 48 | Black |
| 17 | FF | F0 | 32 | Black |
| 18 | 8C | FF | 63 | Black |
| 19 | 3F | C3 | 00 | Black |
| 20 | 00 | BF | A8 | Black |
| 21 | 19 | E9 | F6 | Black |
| 22 | 10 | A4 | E5 | Black |
| 23 | 00 | 7D | B9 | Black |
| 24 | 8D | 6C | DB | Black |
| 25 | BD | 77 | BF | Black |
| 26 | FF | 39 | CC | Black |
| 27 | D8 | D0 | C8 | Black |
| 28 | EC | 68 | 56 | Black |
| 29 | FF | A3 | 6F | Black |
| 30 | DB | AD | 6D | Black |
| 31 | F6 | FF | A7 | Black |
| 32 | DA | E4 | 92 | Black |
| 33 | C1 | D0 | 6F | Black |
| 34 | A1 | C4 | 88 | Black |
| 35 | DC | FD | D9 | Black |
| 36 | D4 | F1 | EF | Black |
| 37 | C0 | C1 | DA | Black |
| 38 | D4 | BB | DB | Black |

| | | | | |
|----|----|----|----|-------|
| 39 | B4 | 98 | DC | Black |
| 40 | ED | DC | D9 | Black |
| 41 | AF | A9 | A3 | Black |
| 42 | EE | 92 | 86 | Black |
| 43 | BE | 82 | 52 | Black |
| 44 | 9E | 83 | 66 | Black |
| 45 | C6 | BA | 65 | Black |
| 46 | AC | BE | 00 | Black |
| 47 | 81 | BO | 4A | Black |
| 48 | 8D | C2 | B3 | Black |
| 49 | A1 | B3 | BD | Black |
| 50 | 8A | A5 | BF | Black |
| 51 | 88 | 93 | C4 | Black |
| 52 | AB | 95 | AE | Black |
| 53 | C6 | 9F | B7 | Black |
| 54 | C3 | 71 | 90 | Black |
| 55 | 7F | 7B | 76 | Black |
| 56 | B5 | 33 | 31 | White |
| 57 | AF | 51 | 2F | White |
| 58 | 76 | 4F | 3E | White |
| 59 | E3 | C3 | 00 | White |
| 60 | 8A | 96 | 1D | White |
| 61 | 56 | 9F | 2F | White |
| 62 | 0A | 9C | 88 | White |
| 63 | 24 | 63 | 7F | White |
| 64 | 1B | 2F | 90 | White |
| 65 | 30 | 52 | 9C | White |
| 66 | 65 | 4B | A6 | White |
| 67 | A9 | 4B | A6 | White |
| 68 | D3 | 2E | 6A | White |
| 69 | 3E | 3C | 39 | White |
| 70 | 10 | 10 | 10 | White |
| 71 | FF | 00 | 00 | White |
| 72 | 00 | FF | 00 | Black |
| 73 | FF | FF | 00 | Black |
| 74 | 00 | 00 | F6 | White |
| 75 | FF | 00 | F6 | White |
| 76 | 00 | FF | F6 | Black |
| 77 | 84 | 00 | 00 | White |
| 78 | 84 | 80 | 00 | Black |
| 79 | 00 | 80 | 00 | White |
| 80 | 00 | 80 | 7B | Black |
| 81 | 00 | 00 | 7B | White |
| 82 | 84 | 00 | 7B | White |