# DARK FIRE

## RGB PADS FOR NATIVE TRAKTOR EXPERIENCE
## MULTI LAYER CLASS COMPLIANT MIDI CONTROLLER

## TECHNICAL SPECIFICATIONS

### CHASSIS

- Full metal chassis, available in single or double height (double height via optional Xpander)
- CNC made panels, brushed and double black anodized 3mm aluminium, polished bare metal side surfaces
- Engraved logo, product name (no painting, no laser cut)
- Dimension (single height): 207 x 65 x 38/52, with Xpander: 207 x 65 x 76/90
- Weight: 450 grams (650 grams with Xpander)

### CONTROL ELEMENTS

- RGB PADs: 10 translucent silicon rubber button PADs, RGB illuminated. Optimized for high force presses, conductive contacts without moving parts guarantees long-term durability
- RGB PAD LEDs: each pad LED supports 125 mixed colors via MIDI values (RGB 5x5x5 cube)
- ENCODER: 2 original Panasonic encoder, soft click (low pressure) push rotate encoder, 20 TPR. Full metal knobs with concave top shape
- BUTTONS: 5 original MEC tactile switches (US made), single and bicolor illuminated LEDs (1 blue, 3 red/green, 1 yellow/green), MIDI receive on all LEDs (flashing supported)
- INDICATOR LEDs: 2 unicolor LEDs between encoders (orange and blue), MIDI receive on both LEDs (flashing supported)

### PRINTED CIRCUIT BOARD

- Bottom layer PCB: Dark Board (CAD factory made PCB, dual layer, black glossy surface, immersion gold contacts). Mounted CPU: Teensy 3.2 (72 MHz 32 bit ARM processor)
- Top layer sandwich PCB: Dark Fire control elements carrier PCB, SMD QFN components soldered in SMT (surface-mount technology), I2C bus connected to Dark Board

### IN/OUTPUTS

- USB-B IN: Connects Dark Fire to MIDI host. USB bus powered (no power adapter needed), low power consumption: 60-110 mA
- USB-A OUT (optionally): Available if an active hub is mounted on board. Intended use: connect additional MIDI devices in daisy chain
- DC Power IN (5.5/2.5mm, center pin +5V): Only available if USB-A OUT and hub is mounted. Intended use: Relieve any power consumption from USB-B IN and powering daisy chain connected devices on USB Out

### FIRMWARE

- MIDI class compliant, no driver needed
- Multi-deck and multi-layer support. Built in 'Power-On Configuration Setup' to customize user settings/preferences
- Supporting: 1-4 channels, multiple layers, multiple devices

# DARK FIRE FEATURES

## ENHANCED MIDI MAPPING CONCEPT

- Each control sends and/or receives unique MIDI messages for individual MIDI mapping. MIDI class compliant protocol, no drivers or additional software needed
- Additional firmware features: 3 buttons are highly customizable: DECK SELECT, SHIFT and BANK (via built in 'Power-On Configuration Setup'). These buttons can be customized as 'normal buttons/LEDs' with MIDI In/Outbound OR as full automated controls (the firmware covers all logic, the mapping keeps lean)
- Examples: DECK can toggle between decks (A/B, A/C, ABCD...), SHIFT can add an additional layer, BANK can enable 2-4 bank layers
- Users can customize 'their' Dark Fire to their needs - from a single 1 deck controller with a few control to a multi-layer multi-deck device
- This concept allows easy mappings with one mapping file, independent of the number of decks or connected Dark Fire controllers

## DECK SELECT BUTTON

- Typically customized to toggle between decks (MIDI channel). User can customize behaviour (e.g. button only, deck assignments etc.)
- Bicolor illuminated button (red/green), MIDI I/O mappable or firmware triggered
- Dark Fire stores selected user mode and last used deck/channel on next Power-On

## RGB PADS

- All PADs can be separately mapped to different MIDI actions or LED colors. Unique layer notes allow multiple assignments
- The 10 translucent PADs with RGB LEDs complement perfectly, allowing to assign DJ APP SPECIFIC COLORS, as well as DISTINGUISHING ACTIONS in different layers
- DJ APP SPECIFIC COLORS - Example: Mapping of all Traktor hotcue type colors to the PADs (e.g. CUE=blue, LOOP=green etc), or adding additional colors (e.g. RED for deleting HC)
- DISTINGUISHING ACTIONS - Unique colors simplify multiple layer mappings considerably, allowing intuitive and easy to memorize. Example: the 2 bottom PADs could be mapped to CUE (orange) and PLAY (green), on SHIFT layer as NUDGE pair with any different colors
- RGB LEDs consist of 3 LED colors (R, G and B), each support 5 intensities, resulting in 125 mix colors in total (5x5x5 cube model), values: R=0,25,50,75,100 | G=0,5,10,15,20 | B=0,1,2,3,4. All PADs can be color triggered with MIDI note values (e.g. 52=red50+green0+blue2, results in mid intensive magenta, or e.g 124=full white)
- Dark Fire offers an inbuilt COLOR EXPLORER in the 'Power-On Configuration Setup'. This feature allows exploration of all supported colors, calculates the mixed color value automatically and presents as note value in any MIDI monitor
- LED BOOSTER: PADs can be adjusted on-the-fly, allowing adapting between bright daylight or dark club night settings: Press & hold DECK SELECT and push left ENCODER to toggle thru 3 intensities (dimmed/normal/boosted)

## ENCODER

- Two Push/Rotate Encoder (20 TPR) with full metal knobs and top shapes. The low pressure and short-stroke encoder feels very pleasant
- Free for mapping, in Traktor typically mapped to Beat jump (left), Looping On/Off/Size (right) and e.g. to FX controls in additional layers
- Two unicolor LEDs (orange, blue) close encoder with MIDI receive inbound

## SHIFT BUTTON

- Bicolor illuminated button (red/green), MIDI I/O mappable or firmware triggered
- Users can customize SHIFT button behaviour as 'normal button/LED' with MIDI In/outbound or a button which activates a 2nd SHIFT layer (modifying notes of other controls)
- SHIFT layer can be activated during hold (default), optimally also latching toggle mode possible (this allows the usage of SHIFT as an additional BANK button)

## MID BOTTOM BUTTON

- Unicolor illuminated button (LED blue), free for user MIDI mapping
- MID Button offers layer specific notes (same as on all buttons) and a global note to simplify mappings of DJ application SHIFT notes

## BANK LAYER BUTTON

- Bicolor illuminated button (red/green), MIDI I/O mappable or firmware triggered
- Users can customize BANK button behaviour as 'normal button/LED' with MIDI In/outbound or a button which activates 2 or 4 banks (modifying notes of other controls)
- BANK button can be customized similar to SHIFT (2nd bank on hold, kind of an additional SHIFT), or in latching mode (default). Button walks thru all 4 banks in 4 bank mode
- Any combination with SHIFT supported, results in max. 2x4=8 layer in total (32 in 4 deck mode)

## POWER-ON CONFIGURATION SETUP

Holding a BUTTON during power on activates the 'Power-On Configuration Setup', allowing customizing user settings/preferences

All changes are stored permanently. Supported setting options (holding dedicated button, using Hotcue 1-4 to select favourite mode):

- 4 DECK MODES: normal button/LED - 2nd deck on hold - 2nd deck latching - 4 decks toggling
- 4 ABCD MODES for 2 decks: A/B - A/C - B/D - C/D
- 3 SHIFT MODES: normal button/LED - SHIFT layer on hold - SHIFT layer latching
- 4 BANK MODES: normal button/ LED - BANK 2 on hold - BANK 2 latching - 4 BANKS

Additional customizing, holding:

- SHIFT + BANK on power on: RESET to default settings
- PUSH RIGHT ENCODER at Power-On: Activating built in COLOR EXPLORER

# DARK FIRE MIDI CHART

| MIDI SEND | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CONTROL ELEMENT | | NORMAL MODE | | | | SHIFT MODE | | | |
| | | BANK 1 | BANK 2 | BANK 3 | BANK 4 | BANK 1 | BANK 2 | BANK 3 | BANK 4 |
| MIDI Channel (top button) | | **01** | 02 | 03 | 04 | 61 | 62 | 63 | 64 |
| Left Encoder | Push | **CC 10** | CC 11 | CC 12 | CC 13 | CC 70 | CC 71 | CC 72 | CC 73 |
| | Rotate | **CC 14** | CC 15 | CC 16 | CC 17 | CC 74 | CC 75 | CC 76 | CC 77 |
| Right Encoder | Push | **CC 18** | CC 19 | CC 20 | CC 21 | CC 78 | CC 79 | CC 80 | CC 81 |
| | Rotate | **CC 22** | CC 23 | CC 24 | CC 25 | CC 82 | CC 83 | CC 84 | CC 85 |
| PAD 1 Left | | **05** | 06 | 07 | 08 | 65 | 66 | 67 | 68 |
| PAD 2 Left | | **09** | 10 | 11 | 12 | 69 | 70 | 71 | 72 |
| PAD 3 Left | | **13** | 14 | 15 | 16 | 73 | 74 | 75 | 76 |
| PAD 4 Left | | **17** | 18 | 19 | 20 | 77 | 78 | 79 | 80 |
| PAD 1 Right | | **21** | 22 | 23 | 24 | 81 | 82 | 83 | 84 |
| PAD 2 Right | | **25** | 26 | 27 | 28 | 85 | 86 | 87 | 88 |
| PAD 3 Right | | **29** | 30 | 31 | 32 | 89 | 90 | 91 | 92 |
| PAD 4 Right | | **33** | 34 | 35 | 36 | 93 | 94 | 95 | 96 |
| Center knob | | **37** | 38 | 39 | 40 | 97 | 98 | 99 | 100 |
| PAD 5 Left | | **41** | 42 | 43 | 44 | 101 | 102 | 103 | 104 |
| PAD 5 Right | | **45** | 46 | 47 | 48 | 105 | 106 | 107 | 108 |
| SHIFT (bottom left button) | | **49** | 50 | 51 | 52 | 49 | 50 | 51 | 52 |
| Mid (bottom mid) | | **53** | 54 | 55 | 56 | 113 | 114 | 115 | 116 |
| BANK (bottom right button) | | **57** | | | | 117 | | | |

- Buttons and PADs send Notes (NoteOn 0x9 message, value 127/0), Encoder send CC (Control Change 0xB)
- 3 buttons (MIDI Channel, SHIFT, BANK) are highly customizable (via Power-On Configuration Setup), MIDI Channel, SHIFT and BANK 2-4 are optional, can be enabled or disabled in Setup (defaults: **bold)**
- Supporting DJ app features (SHIFT): Mid (bottom) control sends Note 123 in ALL layers
- Supporting DJ app features (PADs): BANK or MIDI CH change send Note 124 (BANK1), Note 125 (BANK2)

| MIDI RECEIVE (LED) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CONTROL ELEMENT | LED | NORMAL MODE | | | | SHIFT MODE | | | |
| | | BANK 1 | BANK 2 | BANK 3 | BANK 4 | BANK 1 | BANK 2 | BANK 3 | BANK 4 |
| MIDI Channel | green/red | **01** | 02 | 03 | 04 | 61 | 62 | 63 | 64 |
| Encoder (upper LED) | orange | **CC 10** | CC 11 | CC 12 | CC13 | CC 70 | CC 71 | CC 72 | CC 73 |
| Encoder (lower LED) | blue | **CC 18** | CC 19 | CC 20 | CC 21 | CC 78 | CC 79 | CC 80 | CC 81 |
| PAD 1 Left | RGB | **05** | 06 | 07 | 08 | 65 | 66 | 67 | 68 |
| PAD 2 Left | RGB | **09** | 10 | 11 | 12 | 69 | 70 | 71 | 72 |
| PAD 3 Left | RGB | **13** | 14 | 15 | 16 | 73 | 74 | 75 | 76 |
| PAD 4 Left | RGB | **17** | 18 | 19 | 20 | 77 | 78 | 79 | 80 |
| PAD 1 Right | RGB | **21** | 22 | 23 | 24 | 81 | 82 | 83 | 84 |
| PAD 2 Right | RGB | **25** | 26 | 27 | 28 | 85 | 86 | 87 | 88 |
| PAD 3 Right | RGB | **29** | 30 | 31 | 32 | 89 | 90 | 91 | 92 |
| PAD 4 Right | RGB | **33** | 34 | 35 | 36 | 93 | 94 | 95 | 96 |
| Center knob | green/yellow | **37** | 38 | 39 | 40 | 97 | 98 | 99 | 100 |
| PAD 5 Left | RGB | **41** | 42 | 43 | 44 | 101 | 102 | 103 | 104 |
| PAD 5 Right | RGB | **45** | 46 | 47 | 48 | 105 | 106 | 107 | 108 |
| SHIFT | green/red | **49** | 50 | 51 | 52 | N/A | | | |
| Mid (bottom mid) | blue | **53** | 54 | 55 | 56 | 113 | 114 | 115 | 116 |
| BANK | green/red | **57** | N/A | | | 117 | N/A | | |

- Buttons and PADs LED receive Notes (NoteOn 0x9), Encoder LED receive CC (CC 0xB), value=COLOR
- COLOR - Unicolor LED (encoder and bottom mid LEDs): 0=OFF, 1(or 127)=ON, 2=Color flash
- COLOR - Bicolor LED: 0=OFF, 1/127=1$^{st}$ Color, 2=2$^{nd}$ Color, 3=1$^{st}$ Color flash, 4=2$^{nd}$ flash, 5=1$^{st}$<>2$^{nd}$ flash
- COLOR - RGB PAD values: each PAD has 3 LEDs (RGB), each LED supports 5 intensities, results in 125 mix colors in total (5x5x5 cube model). Values: **RED**=0,25,50,75,100 | **GREEN**=0,5,10,15,20 | **BLUE**=0,1,2,3,4. Mix colors by adding values, e.g: 0=OFF, 31=dark white(25+5+1), 4=bright blue, 52=mid intensive magenta (red50+blue2), 30/60/90/120= yellow's (red+green in same ratio, add more red for orange), 124=full white
- 3 LEDs (MIDI Channel, SHIFT, BANK) receive MIDI messages only if related firmware triggering is disabled (mode 1), SHIFT and BANK 2-4 LED only available if related layer is enabled, default notes/CC: **bold**
- Supporting DJ app features (SHIFT): Mid (bottom) LED receives Note 123 (127/0) in ALL layers
- Supporting DJ app features (PADs Auto Color): Note Value '125' on PADs 1-4 are converted to BLUE (3) or to RED (75) if Mid bottom knob is pressed (ALL layers)