DIGITAL CONTROL CENTER
Updated 8.16.16 Firmware v3.0.0
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DIGITAL CONTROL CENTER (DCC)

A) Speed
Adjust the speed range of the motors when moving the joystick.

B) Damping
Adjust the amount of time for the motor to get up to the set speed (or down from the set speed).

C) Auxiliary (Aux)
Optional control for focus and zoom motors

D) Deadband
Adjust motor response to joystick movement.

E) Menu Button
Enter main menu & navigate backwards to the previous menus with this button.

F) Enter Button
Select items within the menus.

G) Shift Button
Toggle control between the first and second set of motors. Hold for temporary toggling or press twice to switch.

H) Play/Record Button
Record key frames for the selected motors when connected to a CineDrive Brain & kOS.

I) Joystick
Move up/down, left/right, and twist to move motors.

J) Joystick (JTK) Button
Select items within the menus. Set/lock the speed of motors when moving (cruise control).

K) USB
For firmware updates - connect to a computer.

L) Expansion
For integration with Second Shooter controller.
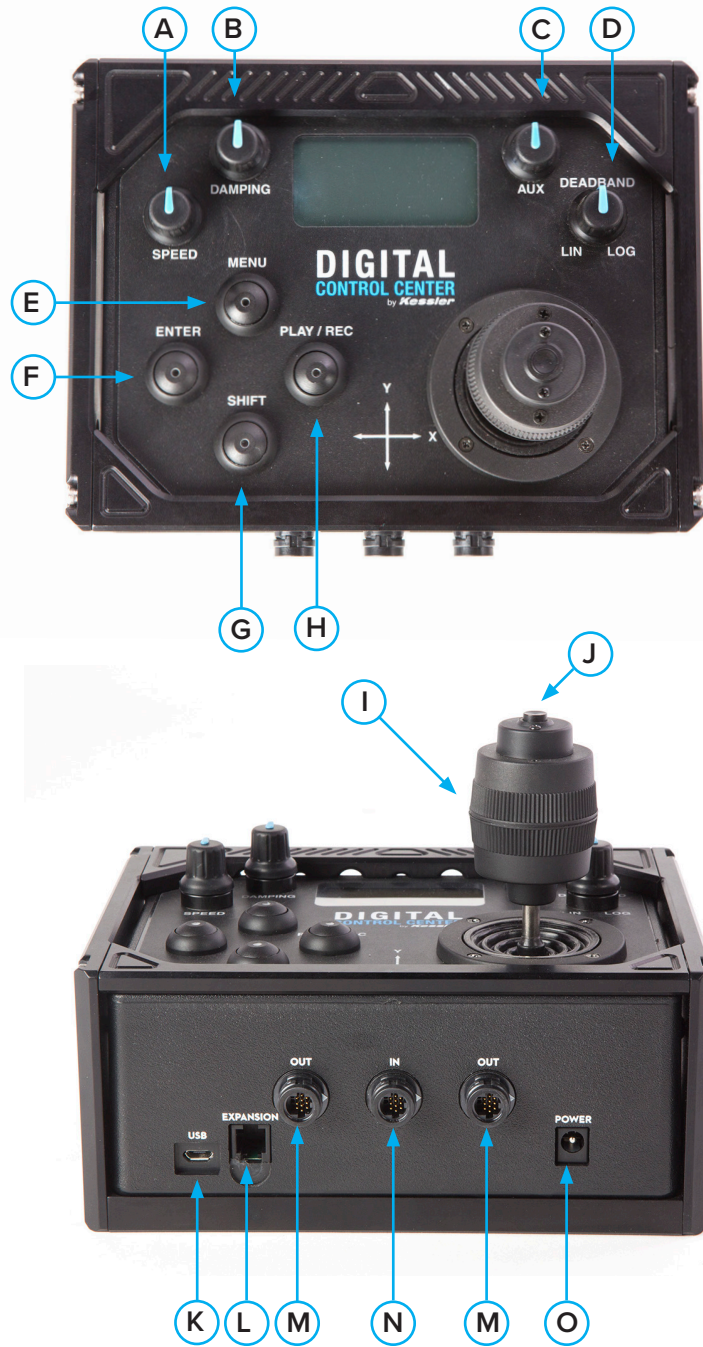
M) Out
Connect the controller to motors to run manually.

N) In
Connect the controller to a CineDrive Brain.

O) Power
Use with an AC or DC power source.

GETTING STARTED: HARDWARE SET-UP

- **CONNECTING THE MOTORS:** Connecting CineDrive Motors to the Digital Control Center allows for direct control of the motors without the need for kOS
  - Connect any Motor Control Boxes (MCB) with attached CineDrive motors, or Pan/Tilt Heads directly to the Digital Control Center's OUT port(s).
- **CONNECTING THE BRAIN:** Connecting the CineDrive Brain allows for manual recording (through the Digital Control Center) of key frames while connected to kOS. If you are playing a move via kOS (brain) any axis that are not set to active can be controlled by the Joystick during the move.
  - AC or DC power should be disconencted before before plugging CineDrive Brain into DCC into CineDrive Brain. DCC will draw power from the CineDrive Brain.
  - Connect the CineDrive Brain directly to the Digital Control Center's IN port.

POWERING UP

- **RUN SCREEN**: The Run screen shows three values at the top:
  - **SPEED (SP):** Speed range of the motor when moving the joystick
  - **DAMPING (DP):** Amount of time it will take for the motor to get up to the set max speed or down from the set max speed
  - **LIN/LOG:** How the motor responds to the joystick movement. For example, a low linear or logarithmic setting will result in movement from the motor when the joystick is barely moved, but a high linear or log setting will result in no movement until the joystick has moved 50%. Linear settings will be a constant increase of speed until the max amount of joystick movement is achieved. For example, if you move the joystick 10% you will have a 10% increase in speed and if you move the stick 50% you will have a 50% increase in speed. Logarithmic settings increase faster as the joystick is moved further away from center. The scale of log is: at 50% of stick travel there will only be a 15% increase of speed and from the 50% to 100% of stick travel the speed will increase an additional 85%. This gives you a great amount of fine control in the first 50% of stick travel and still allows you to quickly move the motors to a different subject in the last half of the stick travel.
  - The bottom half of the screen will show the connected motors as well as the corresponding motor speed when moving the joystick.
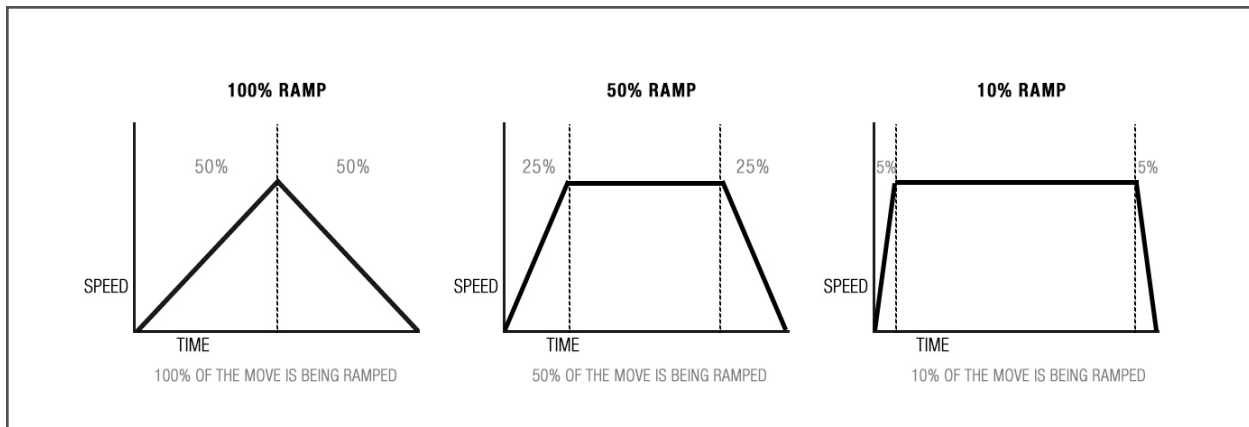
MAIN MENU

1. **RUN**: Select to exit the menu and return to the Run screen for motor control.

   • First three addressed motors are available to the joystick.

   • Double tapping SHIFT makes the next three addressed motors available to the joystick

   • You can also hold down the SHIFT key to temporarilly control the motors currently not accessable.

   • Cruise control is available while moving motors by pressing the **JTK** button. The cruise control lock is removed by pressing the **JTK** button again.

2. **PROGRAM MOVE:** Select **PROGRAM MOVE** to set the 1st (begin) and 2nd (end) key frames for the move. Moves can be set up and played back with DCC, independent of a CineDrive Brain.

   • Press **MENU** on the DCC Controller

   • Select **PROGRAM MOVE** with the joystick

      • If a prior move has been created you will see the following menu:

         • *EDIT MOVE* - *Edit key frames from previously saved move.*

         • *NEW MOVE* - *Set key frames for new move*

         • *SKIP* - *Go to Program Move menu*

   • Set 1st Key frame: Position your motors to the desired beginning position and press **JTK BUTTON/ENTER** to set 1st key frame.

   • Set 2nd Key frame: Position your motors to the desired ending position and press **JTK BUTTON/ENTER** to set 2nd key frame. You can now run your move in one of the following modes:

   • **LOOP/SCRUB**

      • Set **TIME** and **RAMP** values by selecting with joystick and adjusting by twisting the joystick left or right.

         • **TIME** - The amount of time it will take to complete entire move

         • **RAMP** - Percentage value indicates the change in speed of the movement over the entire move. The time value to the right shows how fast/slow the system gets up to the top speed or how fast/slow the camera comes to a stop.

100% RAMP   **50% RAMP**   **10% RAMP**

100% OF THE MOVE IS BEING RAMPED   50% OF THE MOVE IS BEING RAMPED   10% OF THE MOVE IS BEING RAMPED

- Select **RUN** with **JTK BUTTON/ENTER**

*** Press *MENU* to stop**

- **Scrubbing** – Move **LEFT** or **RIGHT** on the joystick while Looping to enter SCRUB mode and press **JTK BUTTON/ENTER** to return to Looping Mode. This feature will allow you to manually advance the position of the motors within the programmed move.

- **RUN ONCE**
  - Set **TIME** and **RAMP** values by selecting with joystick and adjusting by twisting the joystick left or right.
  - Select **RUN** with **JTK BUTTON/ENTER**

  *** Press *MENU* to stop**

- **TIME LAPSE**
  - Select **SHOOT/MOVE/SHOOT** or **CONTINUOUS** mode:
    - **SHOOT/MOVE/SHOOT**: Camera will only fire when not moving. That is, the camera will fire, move to next position, stop and fire.
    - **CONTINUOUS**: Camera will move without stopping and fire throughout the duration of the move.
  - Set **EXP**, **DELAY**, **PHOTOS** and select **RUNTIME**
  - Set the **RAMP** value by selecting with **JTK BUTTON/ENTER** and adjusting by twisting the **JTK LEFT** or **RIGHT**:
  - Set **ADVANCED SETTINGS**: (Optional) Set **DELAY TIME, PRE PHOTOS** and **POST PHOTOS.**

- Select **START** to begin the time lapse.
    - The motors will move into the start position (1st key frame) and the backlight will turn off. Press the **SHIFT** button to toggle the backlight on/off. Press the **JTK BUTTON/ENTER** button to Pause/Resume the time lapse move.
  - ***** *Press **MENU** to stop*

- **STOP MOTION**
  - Set values for **PHOTOS** & **RAMP**
  - Select **AUTO ADVANCE** or **MANUAL ADVANCE** by pressing **JTK BUTTON/ENTER** to toggle selections
    - **AUTO ADVANCE**: In this mode, after the camera fires, the system will automatically advance to the next position in the movement
    - **MANUAL ADVANCE:** After firing the photo, twist the joystick to move the camera into the next/previous position in the move
  - Select **NEXT** by pressing **JTK BUTTON/ENTER**.
  - **AUTO ADVANCE:** Select **SNAP** by pressing **JTK BUTTON/ENTER** to trigger the camera and repeat for auto advance.
  - **MANUAL ADVANCE:** Select **SNAP** to trigger the camera. Twist the joystick to move the camera into the next/previous position for manual advance. Repeat.
  - **GO TO:** Push **UP** on joystick and press **JTK BUTTON/ENTER**. You can now scroll through the photo count by twisting the joystick**.** Select with **JTK BUTTON/ENTER** to move motors to desired possition.

3. **PLAY/REC MOVE:** Record up to three fully manual moves that can be saved and played back.
   - Press **MENU**
   - Select **PLAY/REC MOVE**
   - The DCC has three save locations for **PLAY/REC MOVES** (MOVE1, MOVE2, MOVE3)
   - Select the desired save location
   - Select **RECORD MOVE** and the DCC will begin recording your move
   - The display will show record time and file size. The maximum record time is 26 minutes or about 1500 kbs.
   - When finished recording press **ENTER** or **MENU**.
   - Select **PLAY** to play the recorded move or **CLR MOVE** to delete the recorded move.

4. CALIBRATION: This menu will allow you to calibrate each axis (ie. mark begin and end points)

- **CAL ALL AXIS:** Calibrate all connected axis
- **CAL SINGLE AXIS:** Calibrate an individual axis
  - **AXIS**: the corresponding motor axis
  - **CALIBRATE**: shows N (no) or Y (yes) to indicate if the axis is calibrated
- **HOW TO CALIBRATE**
  1. Use **JTK BUTTON/ENTER** to select.
  2. **MBEGIN** (mark begin) will be selected. Move the joystick to move the motor into the desired begin position. Press **JTK BUTTON/ENTER** to set the position.
  3. **MEND** (mark end) will now be selected. Move the joystick to move the motor into the desired end position. Press **JTK BUTTON/ENTER** to set the position. Once the axis is calibrated, the menu will return to the main calibration menu.
  4. Repeat for additional axes.
- **HOW TO CLEAR CALIBRATION(S)**
  1. Use **JTK BUTTON/ENTER** to select any axis with Y underneath the Calibration column.
  2. Select **CLR CALIBRATION** to clear/reset the calibration for the selected axis.
  3. To exit the menu pree the **MENU** button.
  4. Repeat for additional axes if necessary.
- **CLEAR ALL CAL:** Clear All Calibrations
- **CAL BACKUP:** Backup up calibrations. Backups will be saved even after unit loses power. To auto backup press and hold **ENTER** and **PLAY/REC** while on the Run screen until the screen flashes.
- **CAL RESTORE:** Restores calibrations that have been backed up. If you have a calibration backed up you can manually restore calibration if you have unplugged a motor. Also if calibrations were backed up, you will be asked at start up if you want to restore calibrations and if the motors have been moved. Do not restore calibration if motors have been moved.
- **CALIBRATION LOCK:** Lock all calibrations
  - While on Run Screen press and hold **PLAY/REC** and **JTK BUTTON** for 5 seconds. Calibration Lock in Progress will appear on screen and then all calibrations will be locked. Repeat to unlock

5. JTK CONFIGURATION

- **AXIS:** Each axis can be controlled by any joystick movement depending on preference. For example, to move a slider motor you can set the joystick to control movement with left/right control, up/down control, or twist. **AUX** can only be set for calibrated focus and zoom motors.
- **CW/CCW:** Each axis Joystick movement can be changed between clockwise and counter clockwise
- **SETUP:** Set which joystick motion (up/down, left/right, twist, or AUX) controls a specific axis

    1. Press **MENU**
    2. Select **JTK CONFIGURATION**
    3. Only the axes that are connected to the DCC will show up in this list. The list can be navigated with the joystick. AUX only appears for a calibrated focus or zoom.
    4. Select with **JTK BUTTON** to toggle between options
    5. Press **MENU** to return to main menu

6. NAME AXIS

- You may encounter a situation where "N/A" is displayed for a motor on the Run screen. This means the motor label has been reset; a side effect of updating the motor profile for that MCB (motor control board). Name Axis allows one to apply labels to motors from a list of choices: Slider, Pan, Tilt, Focus, or Zoom. *Only one axis can be changed at a time*

7. UTILITIES

- Firmware
    1. Download the latest firmware at support.kesslercrane.com
        - There are several files within the zip file.
    2. Connect the micro USB cable from the DCC to a laptop/computer.
    3. Disconnect all MCB/motors
    3. Select **1. FIRMWARE** and **READY** will be shown.
        - The DCC will show up as "DCC" on your laptop/computer
    4. Click and drag the file "DCC.img" to the USB device titled DCC

- The DCC will show UPDATING...
- Then REBOOTING...
- The DCC will reboot.
- The DCC is now updated and ready to use.
- Emergency Stop: This allows you to stop a live move by pressing the joystick button
    1. Move the joystick up to turn on emergency stop: Y or move the joystick down to turn off: N
    2. Press **JTK BUTTON/ENTER** to accept and exit.