

THE BEAST EPIC V3

OPEN BETA FIRMWARE MANUAL

RELEASE NOTES

As the company dedicated for cinematographers and filmmakers we constantly improving our tools - to give you unparalleled experience, also this time.

We want to introduce you with EPIC V3 Open Beta – new absolutely exceptional features of your The Beast Gimbal.

EPIC V3 Open Beta is in “almost release” state but we need some “polishing” before the official introduction. We would like to know what is your opinion on all the news we have developed. Moreover, we would appreciate your ideas and suggestions on what you like to have in The Beast Gimbal. Why? Because we wish you have a exquisite tool to work with!

EPIC V3 firmware is recommended for personal use, not production use because you may experience minor bugs, rarely you could find critical errors that require immediate reaction.

WARNING: To update The Beast gimbal with EPIC V3 firmware, your gimbal must be upgraded to V2 with 2.1b6 firmware.

THE MOST IMPORTANT EPIC V3 IMPROVEMENTS:

- Autotune algorithm – based on setup weight.
- Ergonomics and UI – simple navigation, 4 main screens, 'wizards', animations.
- New voice banks.
- New app for updates, with change list.
- Better power management.
- Time left math and algorithm.
- Stabilization accuracy.
- Behavior when working in follow mode tilt+pan+roll (when looking straight up and down).
- Less drift on roll during high acceleration.
- Better gyro calibration process (takes slightly longer yet is more user friendly and accurate).
- Slightly improved behavior in follow mode in general.

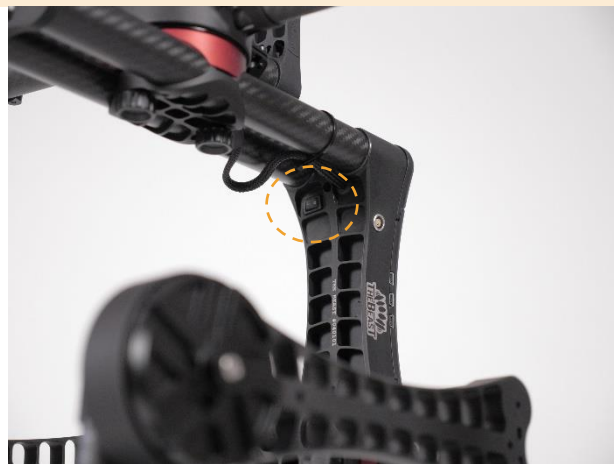
THE ONBOARD MANAGER

ACR The Beast introduces a completely new way of how the gimbal can be configured - the **OnBoard Manager**. Thanks to this advanced feature the stabilizer does not require any external devices or software to be configured or customized. Everything can be done through the built-in command center, from axis stiffness to Follow Mode settings. The voice information system provides live commands acknowledgements, error statuses and other crucial information. The sharp OLED screen is highly readable in all conditions and along with the easy-to-use control keyboard makes working with The Beast an enjoyable and intuitive experience.

LAUNCHING THE BEAST

NOTE: Always initiate the stabilizer with a balanced camera setup. The stabilizer does not operate without a camera attached. It is not supposed to be launch unarmed.

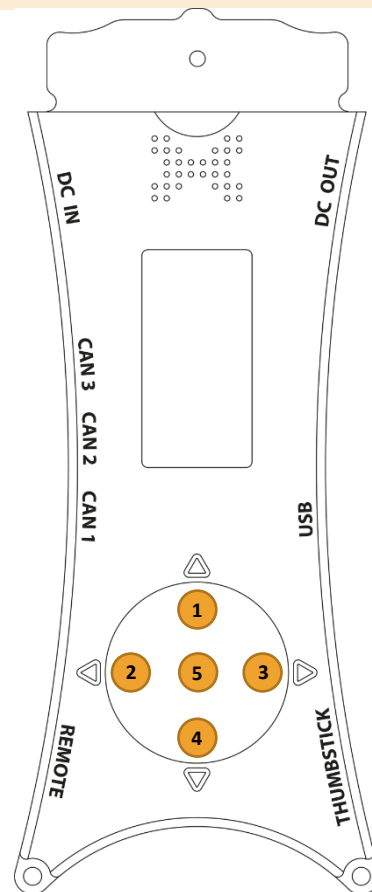
ACR The Beast is preconfigured to work straight from the box with a medium-weight camera. After properly connecting the power source and switching on the power switch the gimbal will perform a series of self-tests, which last for a few seconds and will start with the Summary Screen on the OLED display.



KEYBOARD NAVIGATION

1. **UP** – navigate to the upper screen
2. **LEFT** – on main screen – access shortcut menu / during wizard – back
3. **RIGHT** – on main screen – activate main function / during wizard – proceed
4. **DOWN** – navigate to the lower screen
5. **CENTER** – on main screen – toggle motors / during wizard – stop and save

NOTE: The navigation buttons are automatically inverted when the gimbal detects Inverted Mode. This is to not confuse the operator when the vertical arm is inverted and the OLED screen is positioned under the keyboard.



SERVICE MODE

Service Mode is used for firmware updates as well as voice banks swapping.

To enter this mode it is required to **hold the DOWN button while inserting the USB cable into the USB port**. The gimbal will be detected as a mass storage device in the computer system and files saved on the internal microSD card will become accessible.

WARNING: Do not use firmware above 2.0 for The Beast V1.

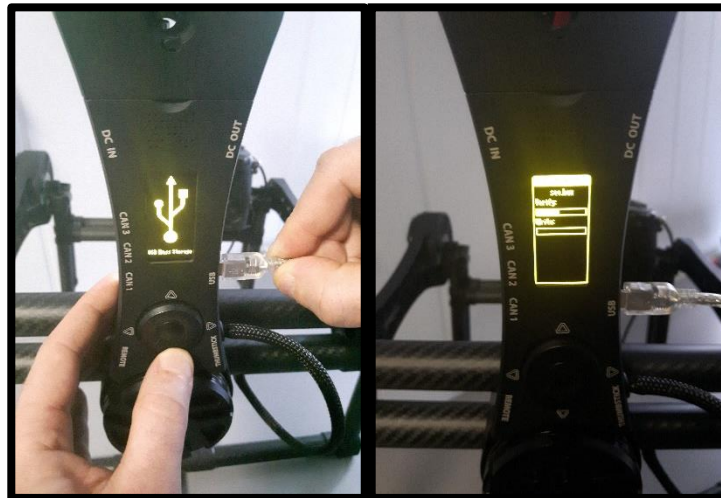
WARNING: If you want to downgrade The Beast gimbal firmware, please contact ACR Systems Support: support@acr-sys.com.

FIRMWARE UPDATE PROCEDURE

1. Download latest ACR Update Manager from <http://acr-sys.com/support/#software>.
2. Check your Internet connection before running ACR Update Manager. It requires Internet connection to work properly.
3. Prepare gimbal for firmware upgrade:
 - Batteries must be connected.
 - External additional accessories powered from gimbal must be disconnected.
4. Connect USB cable:
 - Connect USB cable to computer.
 - Press and hold DOWN button (closest to roll motor) on embedded keyboard.
 - Connect USB cable to USB port on right side of vertical arm.
 - Release DOWN button.



5. On OLED screen you should see 'USB Mass Storage'. You should see external drive connected to your computer system. Make sure that you have administrator rights.
6. Open ACR Update Manager:
 - Click "Check for updates" – all available updates will be shown in "Available" column.
 - If any update is available click "Update" – all necessary files will be downloaded.
 - Bootloader must and will be updated before Primary and Secondary firmware.
7. When all necessary files are be downloaded, disconnect USB cable and power the gimbal with batteries. Gimbal will start auto-update procedure: it will verify file and start upgrading. Process usually takes up to two minutes. After that gimbal will restart and show SUMMARY screen. **WARNING:** do not disconnect power source during this operation. It may cause upgrade error. It may damage program existing on electronic board inside gimbal.
8. If necessary, turn off the gimbal and reconnect USB to continue Primary and Secondary firmware update.



SUMMARY SCREEN

This screen is visible after ACR The Beast successfully initiates after a series of self-tests. It provides general information on current status of the stabilizer and camera position.

TOP BAR

Visible on each screen shows four monitors. From the left those are: Battery Level, Time Left, Calibration and Remote Control indicator which changes with Profile indicator.

UP TIME

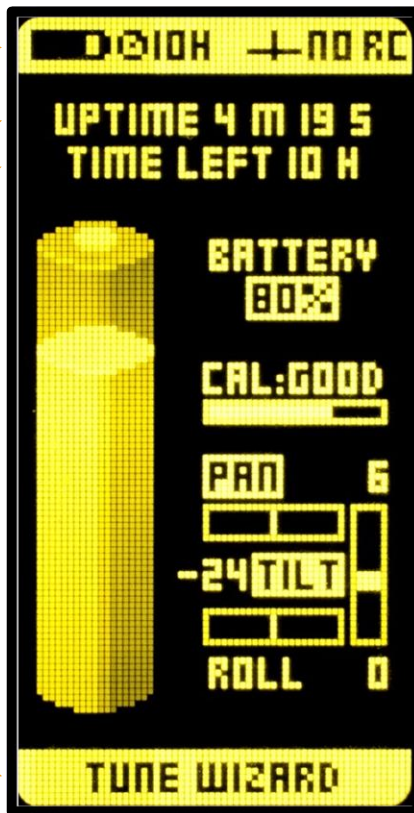
Shows the running time from the launch.

TIME LEFT

Shows approximate operating time left on the current battery. The estimation becomes more precise over time.

BOTTOM BAR

On each of four main screen there is visible bottom bar which shows current screen main function (Tune Wizard, Follow Wizard, RC Wizard, Settings Wizard).



BATTERY STATUS

Shows the current charge level of the battery.

CALIBRATION MONITOR

Shows the current status of calibration.

AXIS MODE AND POSITION INDICATOR

A yellow letters (**ROLL**) indicates that the axis is not in Follow Mode

A black letter with (**TILT**) yellow background indicates that the axis is in Follow Mode.

Shows live deviation in degrees of tilt, pan and roll axes from the calibrated zero point / horizon level.

RC SIGNAL INDICATORS

Displays current RC signal for tilt, pan and roll axes if any RC is connected to The Beast.

MENU WALKTHROUGH

SIMPLE MODE

Simple Mode is our new approach to intuitive user interface. We made setting up The Beast even simpler. It consist four main screen – Summary, Follow, Remote Control and Status. Each one has its own main function that user can activate with the RIGHT button. Beside the main function each screen has shortcut menu accessible by clicking the LEFT button.

Summary Screen – Tune Wizard will check your camera balance which is crucial for The Beast performance. It will also ask you about preferable work mode (handheld, drone or vehicle) and about your on shelf camera setup weight. After that the Autotune process will start – this mean that without user influence The Beast will choose best tune settings for current setup. The gimbal will perform a series of actions to provide optimal performance for the current camera setup. Occasional jitter and vibrations may occur during the procedure. The procedure takes around 2 minutes. After the Autotune is completed you will be asked about additional power boost, which in some situation may improve overall performance.

Summary Screen shortcuts:

- LEFT x1 – Calibration
 - Starts gimbal calibration process. It is recommended to calibrate gimbal after each start up and when Calibration Monitor shows BAD.
- LEFT x2 – Profiles
 - Enters profile selection menu where you can choose between five profiles.



Follow Screen – in Follow Wizard you can select if you want to enable follow mode and on which axis. Also you will be asked to select your currently attached lens focal length and preferred movement dynamics which will adjust The Beast for best performance in selected modes.

Follow Screen shortcuts:

- LEFT x1 – Follow Off
 - Toggles Follow Mode to Off on each axis.
- LEFT x2 – Pan + Tilt follow mode
 - Activate Follow Mode on Pan and Tilt axis.

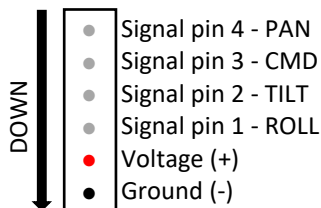


RC Screen – RC Wizard allows to easily enable remote control – The Link, Thumbstick or any PWM remote control. you will be asked to select your currently attached lens focal length and preferred movement dynamics which will adjust The Beast for best performance in selected modes. It also helps you to properly map signal channels and trim signal if necessary.

RC Screen shortcuts:

- LEFT x1 – Clear trimming
 - Clears previously set signal trimming.
- LEFT x2 – Autotrimming
 - Starts procedure of RC signals trimming procedure.

To connect PWM remote control remember that REMOTE signal pins on The Beast are mapped in following way:



Status Screen – on this screen you will find details about current status of The Beast. Eight digits number is a service code that can help our support team discover the problem and find solution much faster. Settings Wizard allows users to change speaker volume, screen brightness, set new starting point when using a new adapter and change displayed units. Also when 4 cell battery is connected (e.g. ACR Large Battery) there is possibility to enable High Power mode which should be used only in case of high power consumption when using cameras like RED or ARRI.

Status Screen shortcuts:

- LEFT x1 – Firmware
 - Displays information about the current firmware on the unit as well as QR code for accessing ACR Systems website.
- LEFT x2 – Service screen
 - Shows encoders position and other service information.
- LEFT x3 – Restore defaults
 - Overwrite current settings with defaults.
- LEFT x4 – Expert Mode
 - Switch gimbal interface to Expert Mode.



EXPERT MODE

Expert Mode is dedicated for experienced users which gives access to more advanced settings.

PERFORMANCE main menu for fine-tuning gimbal performance. Primary functions and motor powers are set here. Use the LEFT arrow to save a given setting value. Try to set the motor powers as high as possible without the vibrations kicking in. If the vibrations start, lower the strength by 5-10% and keep it there. Pay attention to which axis produces the most jitter and start adjusting there. You may need to readjust the power settings after a change in the camera setup.

Tuning method – allow the user to switch between Autotuning and Manual Tuning

Autotune – will check your camera balance which is crucial to performance for The Beast. It will also ask you about preferable work mode (handheld, drone or vehicle) and about your on shelf camera setup weight. After that autotune process will start – this mean that without user influence The Beast will choose best tune settings for current setup. The gimbal will perform a series of actions to provide optimal performance for the current camera setup. Occasional jitter and vibrations may occur during the procedure. The procedure takes around 2 minutes. After the Autotune is completed you will be asked about additional power boost, which in some situation may improve overall performance.

Manual tuning – enables advance tuning options, separately for each axis. To do so you will use following values:

Gain – sets motor response strength

Response – sets time of motor response to position changes – higher value for quicker response

Power – maximum motor power delivered – depends on power source

Setup configuration – improves gimbal performance based on camera setup weight and preferable work mode (handheld, drone or vehicle).

Tune – starts chosen tuning method

Calibration – calibrates the gimbal. The gimbal has to remain completely stationary during calibration.

FOLLOW main menu for adjusting the Follow Mode. The responsiveness settings tell a given axis how fast it should match the operators position after an operator performs a movement. Follow Mode settings define movement speed, deadband and expo define movement characteristic.

Follow mode – engage or disengage Follow Mode on an axis

Follow Tilt – engages Follow Mode on tilt axis

Follow Roll – engages Follow Mode on roll axis (**NOTE:** this will also enable Follow Mode on tilt axis as these two axes are paired together in the Follow Mode code)

Follow Pan – engages Follow Mode on pan axis

Follow Off – switches Follow Mode off on each axis and starts clean stabilization

Speed – sets the responsiveness (speed) of Follow Mode on each axis.

Deadband – sets the safe zone, where the Follow Mode does not engage. It can help eliminate human error during walking.

Expo rate – sets the acceleration of Follow Mode. Higher settings will render the Follow Mode more smooth, lower settings will render it more linear. You can imagine it like a soft curve or easing in and out for accelerating and stopping movement.

Behavior – switches between responsive (fastest reacting option which allows almost whip pans and limits overshooting while sharp movement – best while working with wide-angle lens, a lot of dynamic moves, close to the object, like skateboarding or skiing), medium and smooth (slow reacting mode simulating high mass of camera configuration on the camera shelf causing impression of fighting against inertia, final move looks like heavy configuration on steadicam – best working with actors, calm scenes leading object with long focal length lens and when not sure of your skills with working in follow mode) follow types.

CONTROL menu for settings related to the remote control devices.

Input configuration – advance remote control options

Input device – you can manually change RC channels mapping on The Beast

The Link – toggles Link activation.

Thumbstick – toggles Thumbstick activation.

RC – allow to set channel mapping for any PWM remote controller.

Tilt Invert – toggles invert for tilt axis on RC.

Speed – sets the speed of remote control for each axis.

Deadband – sets a safe zone where operating the remote control servos / joysticks does not affect the gimbal.

Expo rate – sets the smoothness of remote controlled movement. Low expo sets provide more linear movement, high expo provide smoother movement with easing-in and easing-out.

Filter – sets filter for remote control signal input. Larger filter setting renders the remote control less responsive.

Autotrimming – starts procedure of RC signals trimming procedure.

SETTINGS – allows to change basic OLED screen settings as well as battery settings.

Sound – menu for setting the sound / voice options

Commands – toggles voice command confirmations

Errors – toggles voice error information

Volume – sets voice volume

Screen – menu for OLED screen settings

Brightness – sets OLED screen brightness

Lock – enables the shortcut to lock the keyboard (RIGHT keyboard shortcut).

Battery – displays information about the battery

Battery monitor – displays large live battery status monitor

Battery calibration – gimbal will recalibrate battery voltage monitor. This should be done with fully charged small batteries – 12.4V on both.

High power – available only when using 4S battery (e.g. ACR Large Battery or V-Lock). Should be used only in case of high power consumption when using cameras like RED or ARRI.

Units – allows to change displayed unit between metric and imperial.

Adapter – toggle this setting ON if you are using adapter kit.

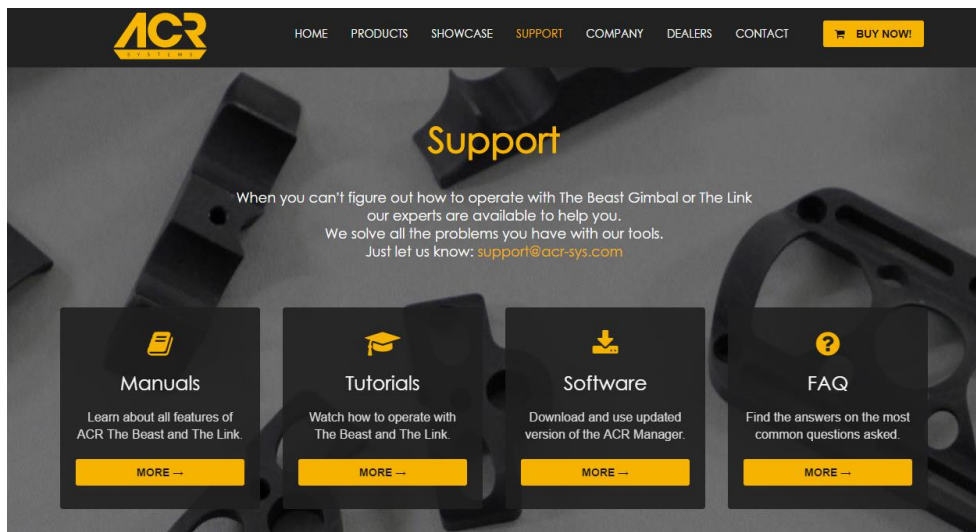
DETAILS menu for various details about the unit.

Firmware – displays information about the current firmware on the unit as well as QR code for accessing ACR Systems website.

Service screen – shows encoders position and other service information.

Restore settings – loads defaults settings or restore factory settings. **WARNING:** do not use this option unless absolutely necessary or instructed by ACR Systems technician.

Simple mode – switches operation mode to Simple



TUTORIALS

www.vimeo.com/channels/thebeast

SUPPORT & HELPDESK

support@acr-sys.com