

For the latest instruction manual revisions, software updates, liability policy, and warranty information, visit the KDE Direct website at: <http://www.KDEDirect.com>.

All technical inquiries, contact support@kdedirect.com.

IMPORTANT: To reduce the risk of fire, bodily injury, and damage to the equipment, read through Instruction Manual before operating ESC and always follow all instructions.

⚠ KEEP OUT OF THE REACH OF CHILDREN.

⚠ Pay attention to the maximum voltage allowed:

KDEXF-UASLV Series 7.4V (2S LiPo) – 26.1V (6S LiHV) 26.5V Max.

KDEXF-UAS Series 7.4V (2S LiPo) – 34.8V (8S LiHV) 35V Max.

KDEXF-UASHVC Series 11.1V (3S LiPo) – 52.2V (12S LiHV) 55V Max.

If model is not listed, maximum voltage is stated in specifications.

⚠ The KDEXF-UASLV, KDEXF-UAS, and KDEXF-UASHVC Series are opto-isolated and do not provide BEC power output for the peripheral equipment.

⚠ Never operate the ESC beyond the specifications stated on hardware. Serious injury or property damage can result from misuse.

⚠ Ensure the polarity is correct with the power supply to the ESC power source leads. Reverse polarity may cause fire and serious injury and will immediately damage the ESC beyond warranty coverage.

⚠ Ensure the ESC is installed in a safe location and protected to prevent any exposed connections and solder-locations to touch conductive areas.

⚠ Always use electronics-grade solder and make sure to use proper soldering techniques and equipment. Poor soldering technique is a common cause of in-flight failure and ESC damage. Ensure all connectors are protected with insulation and heat-shrink to prevent unwanted conduction and shorts.

⚠ Check all connectors for secure connection before flight. Disconnection due to vibration and flight-conditions can result in a dangerous loss of control and potential damage and serious injury.

⚠ Do not disassemble or open the ESC. Opening of the case or removal of shrink-wrap may cause damage to the internal components, void all warranty claims, and yield unsafe operation.

⚠ Install the ESC in a location with adequate airflow to maintain cool temperatures and increase continuous amperage capability.

⚠ An electric motor that is connected to the ESC can start unexpectedly and can cause serious injuries. Always remove the propeller and disengage all gearing when working on the system with power applied.

⚠ Use caution when operating in excessively wet environments or heavy rain. Water can damage the ESC and cause malfunction and failure of the electrical components.

⚠ KDE Direct is not responsible for the use of this Product(s) or for any damages or injuries caused or sustained by its usage. Always observe all laws and instructions regarding the use of this Product(s), and operation of devices using this Product(s).

⚠ This is a high-power, electromechanical device with the potential to be very dangerous – always handle with caution and be aware of proper operation.

⚠ This product may contain chemicals known to the State of California to cause cancer and/or birth defects or other reproductive harm. Do not ingest or attempt to ingest this product.

The KDE Direct UAS ESC (Electronic Speed Controller) Series is optimized for multi-rotor and single-rotor applications, and utilizes a proprietary algorithm for up to 600Hz refresh rate communication and high-speed response for optimal flight performance.

The ESC Series is specifically designed and optimized for the [KDE Direct UAS Brushless Motor Series](#); taking advantage of new technologies and specific algorithms for maximum efficiency and thrust generation.

Firmware updates and advanced programming capabilities are available via the [KDE Direct Device Manager Adapter](#) (sold-separately) and access through the dedicated programming lead (available on latest production).

ESC INSTALLATION AND WIRING



Pay close attention to proper wiring as shown in the diagram above. Ensure the polarity is correct and proper soldering techniques are used when connecting the power source and brushless motor to prevent damaging the ESC.

ESC PROGRAMMING AND OPERATION

The UAS ESC Series is optimized for the [KDE Direct UAS Brushless Motor Series](#) and will not require additional programming for most flight applications. **Throttle calibration is not required** – the ESCs are factory-calibrated and the proprietary control algorithm will dynamically adjust to the receiver (RX) and/or flight controller for simple plug-and-play operation. If manual throttle calibration is desired, this option can be selected via the [KDE Direct Device Manager Adapter](#) programming kit (sold-separately).

1. Ensure the ESC control lead is connected to the throttle channel on your receiver (RX) or flight controller, confirming correct orientation of plugs.
2. Turn on the transmitter (TX) and set the throttle-stick position to zero or low (0% throttle signal) to arm the ESC circuitry.
3. Connect the battery or power system to the ESC power source leads. The ESC will remain disarmed until a 0% throttle signal is received. An arming-tone will be heard and the number of LiPo battery cells will be heard as individual tones, followed by additional and final arming tones.
4. If arming tones are not heard, adjust the transmitter throttle end-points (ATV/AFR) values until the arming sequence is heard. Check the operation of the ESC with the receiver (RX) throttle channel for correct direction and reverse if necessary (reverse direction for Futaba systems).
 - ⚠ If the arming throttle signal (0%) is not applied when the power source is first connected to the ESC, short tones will continuously sound after approximately five (5) seconds. This is a warning tone and move the throttle to 0% throttle signal or disconnect power.
5. Check for proper rotation direction of each ESC/motor combination. To change rotation direction, swap ANY two brushless motor lead connections.

COMPATIBILITY AND OPTIMIZATIONS

New technologies incorporated into the latest production designs include:

- **Regenerative Braking** – active braking during motor deceleration phase, providing instantaneous response to the flight controller commands and matched-response to acceleration profiles (less “float” during flight).
- **Temperature-Controlled Synchronous Rectification** – new proprietary algorithm for smooth-running motors at low-throttle and improved, faster response under high-peak loads; all while significantly increasing flight-time efficiency and reducing operating temperatures.

A wide-range of [KDE Direct UAS Brushless Motors](#) are available to suit your UAS and multi-rotor applications; ranging from smaller 180-class (2S+) tuned motors, up to industrial 1400-class (14S+) and larger motors.

LIMITED WARRANTY

KDE Direct, LLC (KDE Direct) warrants to the original purchaser that the Product(s) will be free from defects in materials and workmanship for a period of one (1) year from the date of purchase. This warranty does not cover abuse, neglect, or damage to the Product(s) from preventable failure methods, such as incorrect wiring, reverse polarity, voltage exceeding the maximum specification, or amperages exceeding the maximum specification (overloading).

The full definition and terms of this limited warranty are available at: <https://www.kdedirect.com/pages/warranty-and-returns-policy>.

LIMITS OF LIABILITY

All of KDE Direct’s sales are subject to its Liability Policy, available at: <http://www.kdedirect.com/pages/liability-policy>. To the extent permitted by law, KDE Direct makes no other warranty or representation, and **HEREBY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE**. The purchaser acknowledges that they alone have determined that the Product(s) will suitably meet the requirements of the purchaser’s intended use.

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Always observe all laws and instructions regarding the use of this product, and the operation of devices using this product.

KDE Direct reserves the right to change or modify its [Warranty and Return Policy](#) and its [Liability Policy](#) at any time without prior notice.
