R1WURKS

DIGITAL PRO

1/10 RC ELECTRONIC SPEED CONTROLLER

INSTRUCTION MANUAL

VERSION 1.0

INSTALLATION / CALIBRATION / OPERATION

READ BEFORE USE Read this manual before installing or operating. Incorrect wiring can damage the ESC and void the warranty. **No reverse-polarity protection:** verify battery polarity and check for shorts before connecting power.

01 SPECIFICATIONS

Processor / motor	32-bit / sensored 540 brushless
Input voltage	6-9.5 V
Current	175 A continuous / 800 A peak
Motor limit	Over 4.5 turns
Dimensions / weight	32 × 34 × 20.8 mm (L × W × H) 45 g including BEC cable
BEC	7 A @ 6 V / 7 V
Internal capacitors	No
Reverse-polarity protection	No
Default running mode	Forward/Brake

02 INSTALLATION & CONNECTIONS

1. Battery: solder a suitable connector to the battery wires: red to positive (+), black to negative (-).

2. Receiver: plug the ESC lead into the throttle channel. Match the receiver pin orientation (- / + / S).

3. Motor: match ESC outputs A, B and C to the corresponding motor tabs. Direct soldering is recommended; connectors may also be used.

4. Soldering: do not hold the iron on one joint for more than 5 seconds. Check for stray strands and solder bridges before powering on.

03 RADIO & THROTTLE CALIBRATION

Radio settings: throttle travel 100%; brake travel 100%; throttle exponential 0%; throttle trim centered at 0. Reverse the throttle channel as needed for your radio.

1. Connect a charged battery, checking polarity. Bind the transmitter and receiver first if required.

2. Turn on the transmitter. Hold **full brake**, then power on the ESC. Listen for **two beeps**.

3. Pull **full throttle**. Listen for **two more beeps**.

4. Release to **neutral**. A final beep confirms calibration.

If the beep sequence differs: reverse the throttle channel and repeat calibration.

04 BLUETOOTH APP & PROGRAMMING

Use the **R1Wurks Digital Pro app** with the R1Wurks Bluetooth module (sold separately) to customize the ESC.

1. Connect a charged battery. Connect the Bluetooth module to the ESC setting port and open the app.

2. Turn on the ESC. It connects to the app; wait for **Loading** to finish and for **R1Wurks Digital Pro** and **Program** to appear.

3. Tap **Enter** for Program Mode. Select the motor link configuration, **A+B-C** or **C+B-A**, and confirm with Enter. It must match the app's Initial Setup selection.

WARNING: an incorrect motor link configuration can damage the ESC.

4. Choose the required profile/mode. Firmware profiles: **Blinky, Modify, Open Stock and Off-Road**. Program Mode includes Blinky Mode and Open Stock Mode.

5. Tap items to open, scroll to browse and use **Back** to return. Tap **Enter** to send changes, overwriting current ESC settings. If changes are detected, the ESC beeps and the app asks for confirmation.

Reset: use factory reset to restore defaults and start again.

05 DATA RECORDING & FIRMWARE

Select **Program**, **Data Record** or **Update** in the app. Each mode operates independently and needs its own setup.

Data Record: live readings show battery voltage, ESC and motor temperature, throttle position and motor RPM. Tap **Record** to log minimum voltage, peak ESC/motor temperature and maximum RPM.

Update: open Update and tap Enter to view the current firmware. Browse available versions, select one and tap Enter to install. Allow about one minute.

06 LIMITED WARRANTY & REPAIRS

By using this product, you agree to the R1Wurks warranty terms. Coverage is **90 days from purchase** for product defects. Proof of purchase is required; coverage does not transfer to second-hand purchases. Abuse or misuse voids coverage.

Customer pays shipping to R1WURKS for warranty claims. For non-warranty repairs, customer pays shipping both ways and the cost of repair parts.

Exclusions: consumables (including batteries or protective coatings designed to wear), unless defective in materials or workmanship; cosmetic damage; damage caused by incompatible third-party components, accident, misuse, fire, liquid contact, operation outside published guidelines, or service by anyone other than an authorized R1Wurks representative.

07 PARAMETER GUIDE

Throttle Feel 1-5: soft, gradual response to aggressive, immediate response.

Punch 1-15: initial acceleration power. Higher values add power and increase wheel-spin risk.

Timing 0-100° in 1° steps. Higher timing generally raises RPM but may reduce efficiency and increase heat.

Turbo Timing 0-100° in 1° steps. Adds punch and top speed while Turbo is active.

Turbo Down Rate How quickly turbo timing falls when throttle drops below Turbo Start.

Drag Brake 0-10% automatic braking at neutral to help stabilize the car through corners.

Brake Type Normal: linear. Progressive: starts soft, builds toward full brake. Exponential: strongest initially, then tapers.

PWM Frequency ESC switching frequency. Higher values smooth response but increase switching losses and heat.

Compress Low-speed torque. Higher percentages add off-the-line torque and heat.

Timing Start Throttle percentage where timing begins ramping. Higher settings sharpen initial response but may cause low-speed cogging.

Timing End Throttle percentage where timing stops increasing; timing then stays constant to full throttle.

Turbo Delay Delay after throttle reaches Turbo Start before Turbo activates.

Turbo Start Throttle percentage where Turbo can activate after Turbo Delay.

Turbo Punch Timing angle applied immediately when Turbo activates.

Brake Frequency Braking switching frequency. Higher values feel smoother but increase switching losses and heat.

Initial Brake Brake force applied immediately when the brake trigger is pulled.

Max Brake Force Maximum braking force the ESC can apply.

08 INITIAL SETUP DEFAULTS

Running Mode	Forward/Brake
Battery Type	LiPo
Cut Off Voltage	Low
ESC Over Heat	120*
Motor Over Heat	120*
Neutral Range	6%
BEC Output	6 V
Motor Action	CCW

*Temperature units are not stated in the supplied manual.

09 PROFILE DEFAULTS

Setting	Blinky	Modify	Off-Road	Open Stock
Throttle Feel	-	3	4	5
Punch	14	5	7	10
Timing	-	5	1	46
Turbo Timing	-	50	1	97
Turbo Down Rate	-	-8	-	-10
Drag Brake	0%	6%	0%	3%
Brake Type	1	1	1	1
PWM (Hz)	6500	10500	12500	-
Compress	16%	3%	3%	-
Timing Start	-	22%	20%	-
Timing End	-	51%	42%	-
Turbo Delay	-	0.1 s	0.1 s	-
Turbo Start	-	90%	95%	-
Brake Freq (Hz)	1100	1600	1900	-
Initial Brake	4%	3%	3%	-
Max Brake Force	75%	85%	75%	-

- = value not supplied in the original mode table; does not mean zero or disabled. Values shown are factory starting points.

Party Mode and PM Limiter do not apply to this ESC.

Tuning note: higher timing, Compress and switching frequencies can increase heat. Tune to suit your motor, racing class and track conditions.

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