CORSATEC ESC setup manual

For detailed APP instructions please visit www.corsatec.info

User Safety guidelines:

This product is designed specifically for professional racing and should be used exclusively by expert racers. To ensure the safety of both children and adults, please exercise caution and adhere to the following guidelines:

1. After each use, make sure to turn off the Electronic Speed Controller (ESC) and disconnect the battery.
2. Avoid storing the vehicle or ESC with the battery wires connected.
3. In the event of excessive ESC overheating, cease driving or using the device immediately and disconnect the battery as soon as possible.
4. When installing power wires, pay close attention to the A-B-C wire sequence on the ESC and motor, and connect them accordingly.
5. Be mindful of the battery and ESC polarity. Do not connect the positive (+) and negative (-) battery wires incorrectly, as doing so may cause permanent damage to the ESC.
6. CORSATEC cannot be held liable for any damage resulting from improper use of this product.

Installation and startup guidance

IMPORTANT NOTICE: For the CT30010 1/10 220A Electronic Speed Controller (ESC), the sensor mode can be utilized without any disruptions, providing exceptional throttle response and boost/turbo activations. In case of sensor malfunction, the ESC will automatically switch to sensor-less mode for undisturbed usage. Kindly read and adhere to the following cautions and warnings before usage.

Power On/Off Instructions:

1. To power on the ESC, briefly press the power button.
2. To power off the ESC, press and hold the power button.
3. Be sure to disconnect the battery immediately after powering off the ESC.

Throttle/ESC Calibration Procedure:

Please refer to below text, or/and below visual explanation of the procedure. If you are not sure or experience any difficulties, please refer to the video on www.corsatec.info from our Top Driver David Ronnefalk.

1. Activate your transmitter/radio and then connect the battery to the ESC.
2. Press and hold the power button until the LED indicator turns **solid blue** and the motor emits a long beep.
3. Release the button; the LED will turn **solid red**, indicating calibration mode.
4. Move the throttle trigger to the full throttle position. The blue LED will blink three times and the motor will beep once, confirming that the full throttle position has been saved.

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5. Move the throttle trigger to the full brake position. The blue LED will blink three times and the motor will beep twice, confirming that the full brake position has been saved.
6. Return the throttle trigger to the neutral position. The blue LED will blink three times and the motor will beep three times, signifying that the throttle calibration has been completed. Turn off the ESC.
7. When you power on the ESC again, it will be calibrated and ready for use.

IMPORTANT Firmware Upgrade notification

ANDROID

iOS

Before using the ESC in competition Racing, install the app following the above QR code, and update the ESC with the latest firmware to maximize performance and reliability of the ESC. We constantly improve the performance of the ESC integrating new input from our professional Racing Team.

1. In the event of a failed ESC firmware upgrade, please restart the ESC and ensure that the firmware is upgraded through the APP once more. Note that all other functions remain inaccessible until the successful completion of the firmware upgrade. Failed ESC firmware updates are often caused by (wifi) network ireegularities
2. During firmware upgrade mode, the ESC will display a faintly blinking Red LED, while a faintly blinking Blue LED indicates data transmission is taking place.
3. It is crucial not to turn off the ESC while the firmware upgrade process is ongoing. The ESC can be switched off only after pressing the power button for approximately 5 seconds.

Bluetooth Connectivity

1. Reset Password: To restore the default Bluetooth password (0000), turn on the ESC and hold the power button for roughly 10 seconds.
2. Utilizing Bluetooth, users can connect to the CORSATEC app for programming parameters, upgrading firmware, and checking real-time ESC data.
3. Please be aware that the operational range of Bluetooth is approximately 10 meters, which may be affected by the presence of metals, strong interference signals, or physical obstacles.
4. The Bluetooth name cannot be modified.
5. Bluetooth connections will fail during the ESC throttle calibration process.

Real-Time Data

1. Real-time data is only accessible when the ESC receives a throttle signal.
2. Please note that the real-time data is intended for reference purposes, with an accuracy margin of ±10%. For more accurate measurement, the use of professional equipment is recommended.
3. For a detailed description of real-time data items please note last table on page 4.

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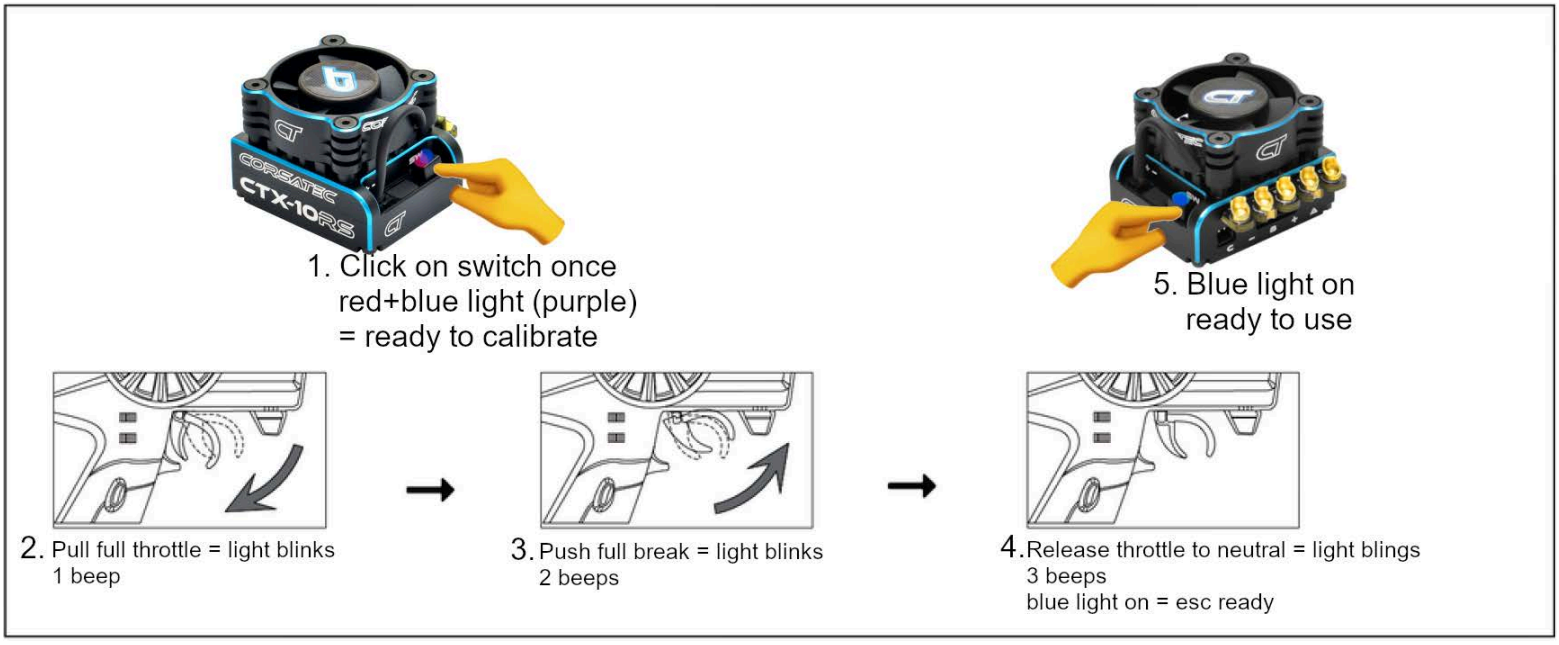
ESC LED indications and warnings

Upon activation of any protective measure, the RED LED will remain steadily illuminated once the power button is pressed.

1. A single, recurring flash of the RED LED at one-second intervals, appearing as "¤ ¤ ¤," signifies an abnormal voltage reading.
2. A double flash of the RED LED at one-second intervals, appearing as "¤¤ ¤¤ ¤¤," indicates that the ESC temperature reading is abnormal.
3. An alternating single and double flash of the RED LED at one-second intervals, appearing as "¤ ¤¤ ¤ ¤¤ ¤ ¤¤," demonstrates simultaneous abnormal voltage and temperature readings.
4. In the absence of any detected signal, the RED LED will not respond or provide any indication, even if there are abnormal voltage or temperature readings.
5. A double flash of the BLUE LED at two-second intervals, appearing as "¤¤ ¤¤ ¤¤," signifies an abnormal throttle reading. This may be due to a missing throttle signal and/or the throttle not being in a neutral position.

please check below the visual references



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Troubleshoot Master File CORSATEC RS Series		
Observation	**Possible causes**	**Solution**
ESC unable to startup, no reaction	Switch error	Switch damage, contact CORSATEC dealer and replace
	BEC cable not connected correctly	Check connection and cable position
	Observe if cross connection (reverse polarity) has appeared	Send ESC to CORSATEC dealer and repair
Loss of power, stuttering, no start of motor	Motor magnet is damaged	Contact CORSATEC dealer for replacement magnet
	Motor connection is poor	Check connections and resolder
	Low Voltage protection mode (refer to LED flash indications)	Check battery quality and V (adjust LV protection setting)
	ESC component malfunction (crash/water)	Contact CORSATEC dealer and repair
Motor runs backwards	ABC connection incorrect	Change ABC setting in APP, or cross 2 of ABC wires
	Radio setting incorrect	EPA FW or REV/BRAKE is not at 100%, neutral trim setting
	Calibration incorrect/not finished	Follow the instruction how to calibrate (make sure 100% EPA)

If you have carefully checked and observed all possible above causes while the ESC/and or motor still malfunctions, please inquire support@corsatec.net and send below:

1) Detailed description of your observation/problem
2) A picture of the ESC while installed in the car
3) Add a video showing the issue you observe, maximum 30 seconds, or a link where we can observe/download

Our highly experienced support Team will come back to you ASAP; please note that due to time zone differences the reply could take longer as expected
Thank you for your patience and trust using CORSATEC Racing Products

Data logging understanding

Item		Description
1	Input Throttle	Throttle input from the receiver to ESC
2	Output Throttle	Throttle output from the ESC to the motor
3	Voltage min	Battery voltage monitored by the ESC
4	Voltage max	Minimum voltage detected by the ESC.
5	Temperature	ESC temperature.
6	Max Temperature	Maximum recorded temperature by the ESC
7	RPM	Motor revolutions per minute (RPM)
8	Max RPM	Maximum RPM detected by ESC
9	Advance Timing	The cumulative ESC timing, including Boost and Turbo.

CTX-10RS

APP commands	Values	Effect
POWER CONTROL		
1st division limit	0/100%	Dividing of the power curve; zero to value sector 1 (for example, 0-30%)
2nd division limit	0/100%	Dividing of the power curve; set value sector 1 to value sector 2 (for example, 30-70%)
1st activation	0.1/3ms	Power delivery response (acceleration feeling) 1st sector. The lower the value, the reponse increases (faster) Recommended range 0.3/1ms
2nd activation	0.1/3ms	Power delivery response (acceleration feeling) 2nd sector. The lower the value, the reponse increases (faster) Recommended range 0.3/1ms
3rd activation	0.1/3ms	Power delivery response (acceleration feeling) 3rd sector (from value set 2nd division to 100%). The lower the value, the reponse increases (faster) Recommended range 0.3/1ms
min throttle	2/16%	Throttle sensitivity from neutral point. Recommended setting is default
neutral range	3/12%	Width of neutral setting. This to widen in case of "sensitive finger" or extreme fast servo movement
coast	0/30%	Off power delay (when thottle is released). More coast > roll more free when "reduce power"
neutral coast	On/Off	Off power delay (when thottle is released to neutral immediately). More coast > roll more free when "off power in neutral position"
power force	50/100%	Maximum power delivered by esc. In slippery conditions we suggest 85-90%
reverse force	50/100%	Maximum power delivered by esc when reverse power is activated (only active when the running mode is set to FBR)
BRAKE CONTROL		
division limit	0/100%	Dividing of the brake force curve; zero to value sector 1 (for example, 0-30%)
1st activation	0,1/3ms	Brake delivery response (brake feeling) 1st sector. The lower the value, the reponse increases (faster) Recommended range 0.3/1ms
2nd activation	0,1/3ms	Brake delivery response (brake feeling) 2nd sector. The lower the value, the reponse increases (faster) Recommended range 0.3/1ms
pwm freq	0,1/16khz	Brake feeling frequency. Normally,by lowering the value the response increases (more aggressive). 1/4 khz is adviced range
min brake force	0/50	Minimum setting before ESC initiates brake
max brake force	10/100	Maximum brake force setting
drag brake force	0/100%	Brake force when throttle is at neutral position: max value recommended 10%
drag brake response	0,1/3ms	Time delay to drag brake activation (lower is faster response)
TURBO SETTING		
turbo timing	0/64	Turbo activation point (only with sensor attached). Increases top speed, but decreases runtime and increases motor temperature
delay	0/2s	Time delay of turbo activation
angle inc rate	1/64/0,1s	Value (force) of turbo activation. max value recommendation is 4deg
angle dec rate	1/64/0,1s	Value (force) of turbo de-activation. max value recommendation is 4deg. A different rate will lead to faster responses
ESC SET UP		
running mode		Forward/brake is common racing mode, however FBR (forward brake reverse) works fine too.
motor rotation	CC-CCW	CW = clockwise, CCW = counter clock wise
motor pole	2 to 8 poles	Motor pole setting. 4P is most commonly used setting for 1/8 buggy or GT, check the motor manual specs in case not sure.
bec output	6/7.4v	Voltage delivered to servo (more V make servo faster/stronger)
cut off voltage	0 to 3.9v/cell	Battery cell cut off voltage, recommended is 3.2V/cell. Lower is Ok but might lead to battery damage if low C/high cycle life batteries are used (case swelling)
drive pwm freq	1 to 32khz	Highest setting is smoothest power delivery. MIN set up adviced 8KHZ
button off	0.5 to 4s	Time delay to switch off ESC while holding the push button (recommend 1 second)
race rule	IFMAR/ROAR	ROAR mode to be used to disactivate the bluetooth connection. Once activated, unplug the receiver plug and reconnect to reactivate the BT
POWER BOOST (TURBO)		
Boost timing	0-64	Amount of timing
Trigger	throttle/rpm	Turbo activation by either throttle position or RPM detection
Throttle threshold	10-90%	Throttle turbo activation position
RPM threshold	8.0-50kr/min	RPM turbo activation number
Initial angle	1.0-64	Activation start (1= low, 64=maximum)
Angle inc rate	1.0-64	Activation increase from initial angle (on-power)
Angle dec rate	1.0-64	Activation decrease from initial angle (off-power