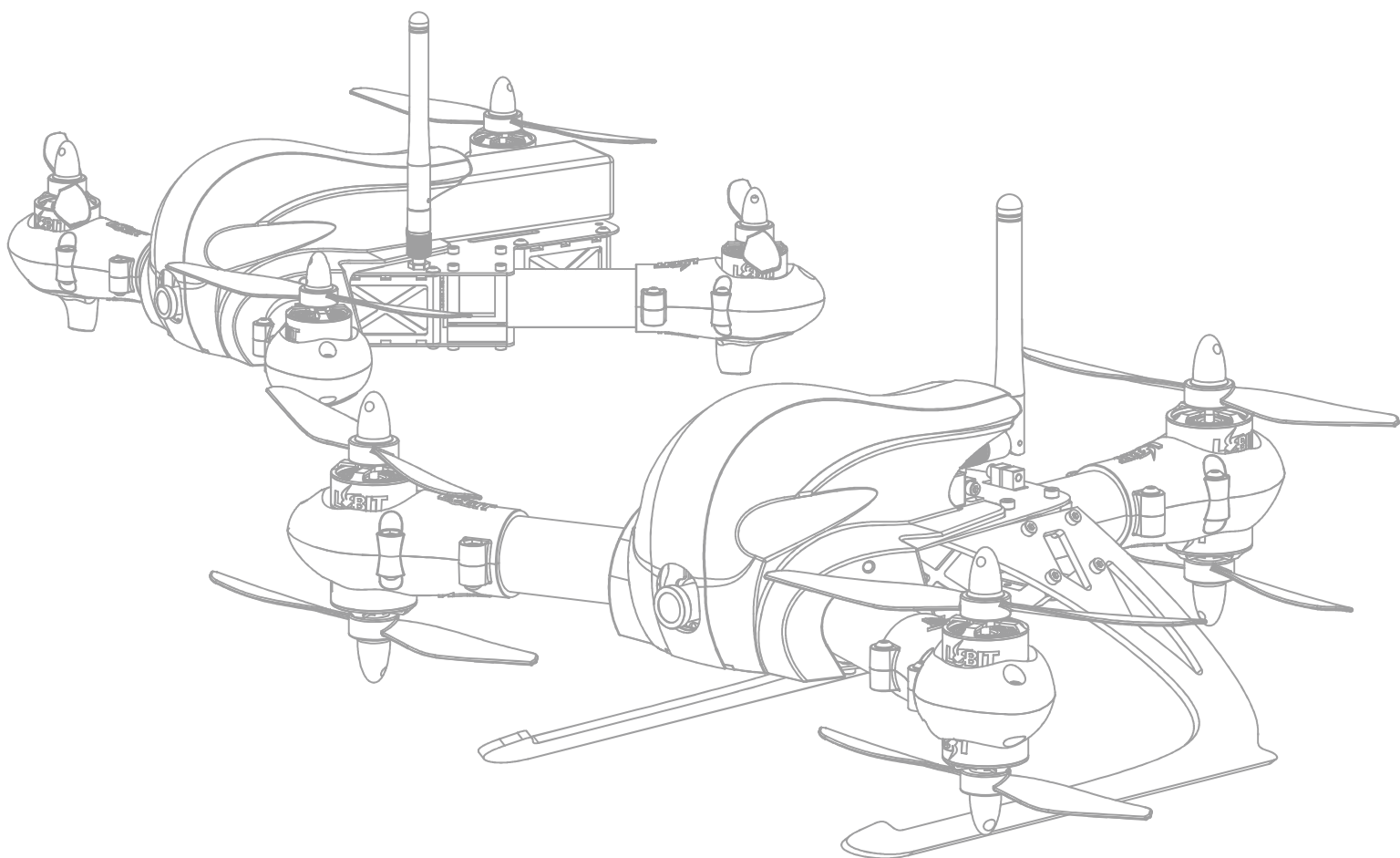


Ages 14+

LOBIT 300GT & 320R

INSTRUCTION MANUAL

This instruction manual is made for Lobit 300GT and Lobit 320R.
Please read this instruction manual carefully before use.

**DROGEN****LOBIT**

Intro

Thank you for choosing Lobit, Lobit is a FPV sports drone. Lobit is very easy to use and assemble. Please keep your manual safe at all times. Check the manual when you have questions or problems for a safer flight. Drogen will always be with you for fun and safe flights.

► FPV : Thrilling drone flight experience through first-person view.

Call us 'DRONE GENERATION'

Drogen will lead you into a whole new area of sports with sports drone.

You can enjoy the sport with people all around the world with Droge n's innovative technology.

As a R&D based company with international competitiveness, we have successfully designed and developed mainboard, firmware, motor, propeller, frame and canopy with our own technology.

We are also developing new frames (100~600mm), PCB, F/Cs, 2207&2204&1806 BLDC motors, ROS technology and etc.

For the FAST , For the FUN , For the SAFE

Drogen will keep on creating and challenging for better, more fun and safer drones.

SAFETY PRECAUTION

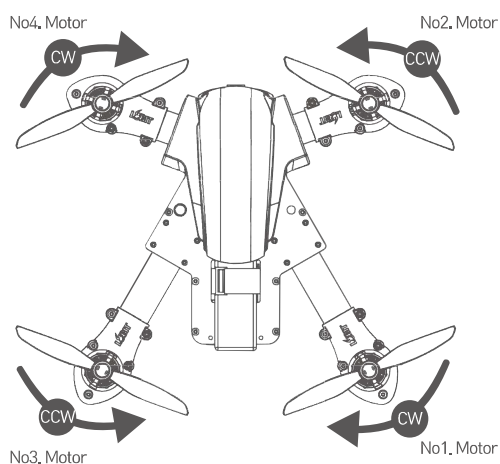
1. Check your drone carefully whether the drone has any problems before flying.
If any trouble is found, check and repair the broken parts.
2. Fly only in wide open areas to avoid crowds and buildings.
3. If you fly your drone near transmission lines, your drone can be out of control due to electronic jamming signals.
4. Do not fly your drone in case of rain, strong wind and at night.
5. Age available : Over 14 years-old.
6. Beginner pilot should fly drone under guidance of coaching pilot.
7. Manufacturers and vendors are not responsible for any accidents caused by pilot's operation mistakes.
8. Turn off your drone motor or disconnect battery and remove propellers when you set up functions.
9. Turn on your transmitter first before you turn on your drone.
10. Turn off your drone first before you turn off your transmitter.
11. Please read battery instruction manual carefully to fully understand precautions.
12. Charge batteries enough for your drone and transmitter before use.
13. Do not get close to your drone when your drone is flying. Never hold or touch your flying drone.

FEATURES

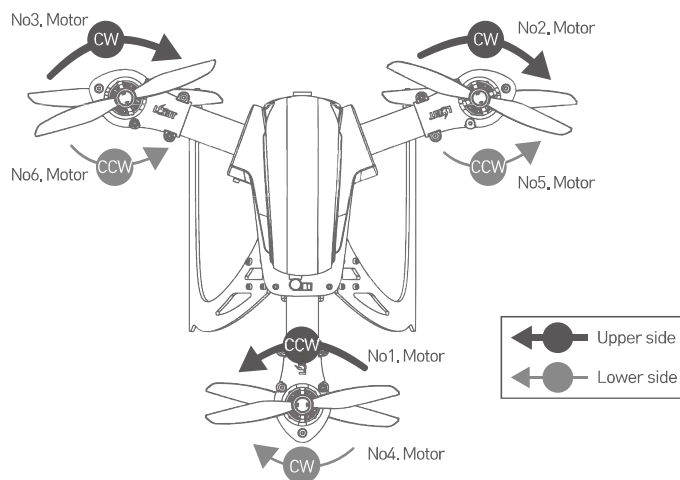
Aerodynamic design	: Flight stability
Mechanical engineering design	: Accurate center of gravity
Impressive mobility	: Maximum speed of 100 ~ 130km
Minimizing damages	: Carbon frame, body protecting canopy and motor mounts
Easy maintenance	: Push & lock and assembly system
Customization ready	: Canopy and other parts customizable
Self-developed hardware	: Motor, ESC, camera, FC, main PCB board, propeller and etc. All optimized for sports drone

Installing propellers

:: Lobit uses 6-inch propellers.



LOBIT 300 GT



LOBIT 320R

Components

:: Please check your drone model name and all the components before use.

:: Components are subject to change under certain circumstances.

Model name	Components
LOBIT 300GT+ LOBIT 320R+	Drone ----- 1 set Frame kit FC Main PCB Board CMOS Camera Motor - 300GT+ : 4ea - 320R+ : 6ea ESC - 300GT+ : 4ea - 320R+ : 6ea Canopy Transmitter ----- 1 set Propeller 6045 ---- 1 set - 300 : 8pc - 320 : 12pc Instruction manual - 1 ea Sticker ----- 1 ea Hex wrench ----- 1 ea

Model name	Components
LOBIT 300GT LOBIT 320R	Drone ----- 1 set Frame kit FC Main PCB Board CMOS Camera Motor - 300GT : 4ea - 320R : 6ea ESC - 300GT : 4ea - 320R : 6ea Canopy Propeller 6045 ---- 1 set - 300 : 8pc - 320 : 12pc Instruction manual - 1 ea Sticker ----- 1 ea Hex wrench ----- 1 ea

Technical Information

Model Name	LOBIT 300GT	
Wheel Base	300mm	
FC	Lobit FC Accelerometer + Gyroscope 3-axis magnetometer Barometric Pressure sensor	
Motors	LOBIT 2207 Shaft M5, Kv: 2200 Max continuous current/power: 18A/350W Max lipo cell: 2~4Cell	
ESC	20A opto HW Voltage: 2 - 4Cell LiPo Output Current: 20A(Max 25)	
Propeller Size	6045 (6x4.5)	
OSD	LOBIT Optimized	
GPS	LOBIT Optimized (Optional)	
Camera	1/3" CMOS 700TVL	
Battery	4Cell 2200mah , 30C, Charger: 2-4Cell	
Voltage Regulator	5V, 12V Out Port	
Frame Material	Full Carbon	
Full Weight	670g	
Dimensions (LxWxH)	268 x 260 x 100 mm	

Model Name	LOBIT 320R	
Wheel Base	320mm	
FC	Lobit FC Accelerometer + Gyroscope 3-axis magnetometer Barometric Pressure sensor	
Motors	LOBIT 2207 Shaft M5, Kv: 2200 Max continuous current/power: 18A/350W Max lipo cell: 2~4Cell	
ESC	20A opto HW Voltage: 2 - 4Cell LiPo Output Current: 20A (Max 25)	
Propeller Size	6045 (6x4.5)	
OSD	LOBIT Optimized	
GPS	LOBIT Optimized (Optional)	
Camera	1/3" CMOS 700TVL	
Battery	4Cell 2200mah , 30C, Charger: 2-4Cell	
Voltage Regulator	5V, 12V Out Port	
Frame Material	Full Carbon	
Full Weight	730g	
Dimensions (LxWxH)	333 x 291 x 136 mm	

Lipo battery safety management

Lithium polymer battery is lighter than general battery.

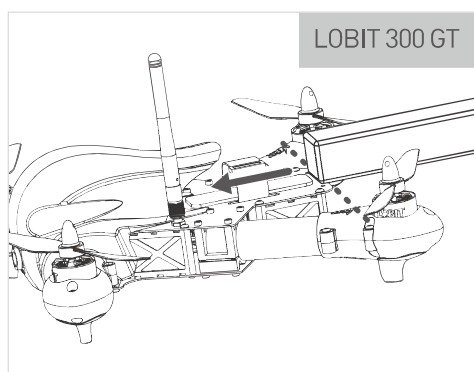
Lithium polymer battery can be easily damaged. Managing risks of fire and explosion is required.

- Do not discharge your battery below 3.7v. Do not charge your battery above 4.2v.
- Do not use your battery if it has any external damages.
- Fully discharge your battery when to discard it.
- There can be fire or explosion when battery overheats.
- battery performance drops at low temperatures.

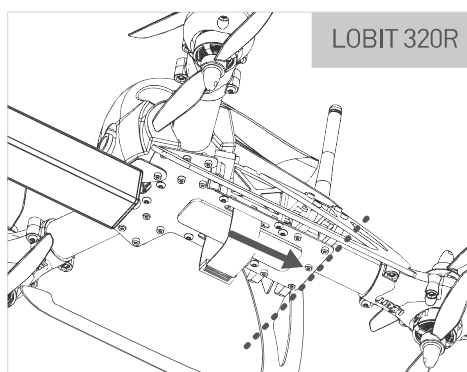
Lipo battery installation

Slide the battery into its compartment and connect to plug.

: : Overcharging and over-discharging are fatal to battery life.



LOBIT 300 GT



LOBIT 320R

〈 Slide the battery to the dotted line to get a good center of gravity. 〉

recommended battery (common)
Capacity: 2200mAh
Voltage: 3S~4S
(4Cell 30C~14.8v recommended)
Dimensions: about 109x35x34mm
Discharge plug : XT60

Charging Lipo battery

Charging starts automatically when you connect 12v adapter to battery balance connector.

Charging status is shown on display and charging finishes automatically when the battery is fully charged.

It takes about 150minutes to fully charge the battery.



〈 Option 〉

Flight preparation and completion procedures

:: Please read and remember procedures.

Flight preparation (ON) procedures

1. Turn on your controller.
2. Move ON/OFF switch to OFF.
3. Throttle MUST be pulled down to the bottom.
4. Connect battery.
5. Put your drone on a flat surface.
6. Your drone makes beeping sounds three times when it is ready.
7. Stay 5cm away from your drone.
8. Select your flight mode.
9. Move ON/OFF switch to ON.
10. Start flying your drone by raising throttle slowly.



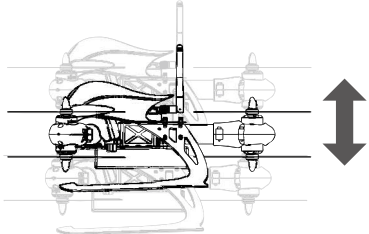


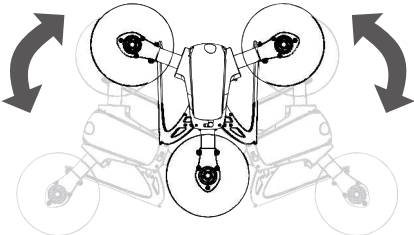


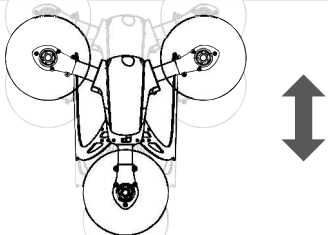


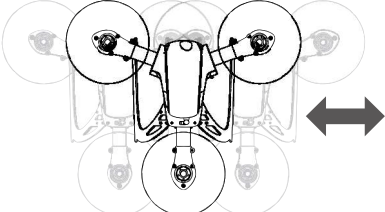
* Please try again from the first step if drone does not start.

Flight completion (OFF) procedures

1. Land your drone and move ON/OFF switch to OFF.
2. Remove battery from your drone.
3. Turn off your controller.

Controller sticks

:: Fully understand how to control sticks before use.

	MODE 1	MODE 2	Moving direction
Throttle climb & descend			
Yaw pivot			
Pitch forwards & backwards			
Roll left & right			

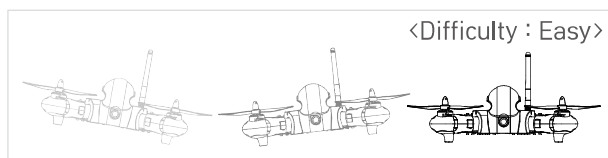
Flight mode ANGLE , HORIZON, GPS HOME&ACRO

:: Graupner mz-12 standards.

Your drone makes a beeping sound when you change flight mode.

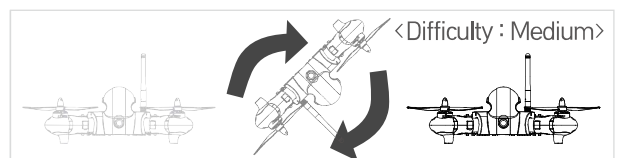


ANGLE MODE



This mode is recommended for beginners.
Your drone automatically levels off.

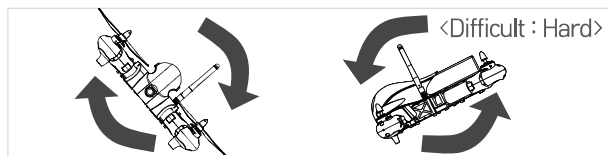
HORIZON MODE



Your drone levels off while the pitch/roll stick is near center, but rate mode when you move the stick fast to one direction. This allows a pilot to fly in a stabilized manner, but still perform rolls and flips.

* You need to practice a lot to perform rolls and flips. Beginner pilots should be cautious.

RATE MODE (Manual Mode or Acro Mode)



Your drone moves according to how much you move your stick.
Your drone does not automatically level off.
You should constantly control your drone in this mode.

AUTO RETURN MODE



Your drone returns directly to its starting position when this mode is selected, GPS is needed for this mode.

* GPS module is optional.

Please see page 10 for GPS and Compass calibration details.

Start switch ON/OFF & Beeper

:: Graupner mz-12 standards.

Please check all precautions and warnings before use.



Start switch ON

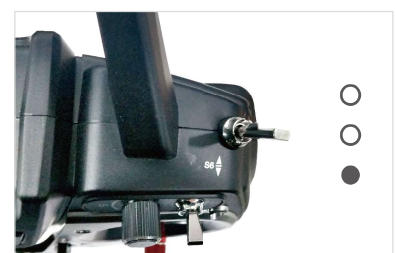
Raise throttle after moving start switch to ON to spin propellers.



Start switch OFF

Move start switch to OFF after flight.
Propellers will not move.

* Move start switch to OFF when you are not flying your drone.



BEEP switch ON

You can find your drone when it is lost by listening to beeping sounds your drone makes.
(Beeping sounds will not be made if your drone's battery is not connected)

Cleanflight Setting program (Internet connection required to update)

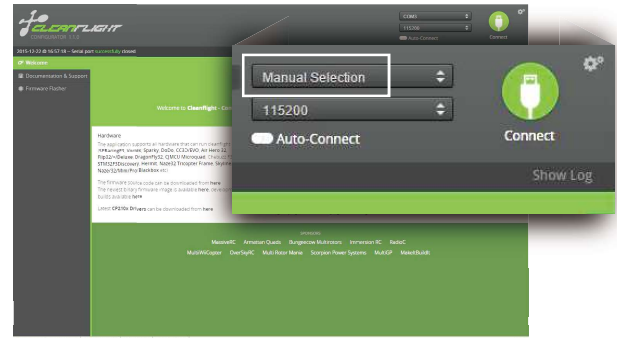
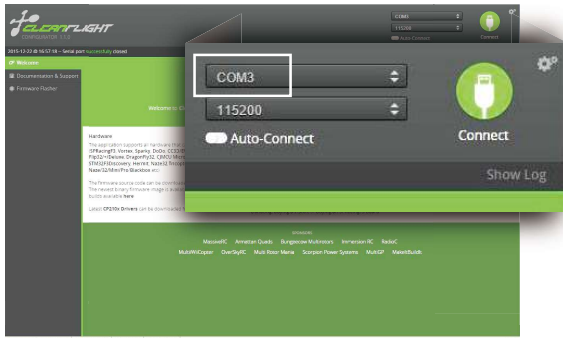
:: Lobit has already been configured. But, you can also make adjustments to default setting to suit your preference.

Pictures below explain the default setting.

For more detailed information, please visit our web-site, Internet or Youtube.

Download : Google → Install Chrome browser → Install Chrome app store → Install Cleanflight

STEP 1. Comport Driver



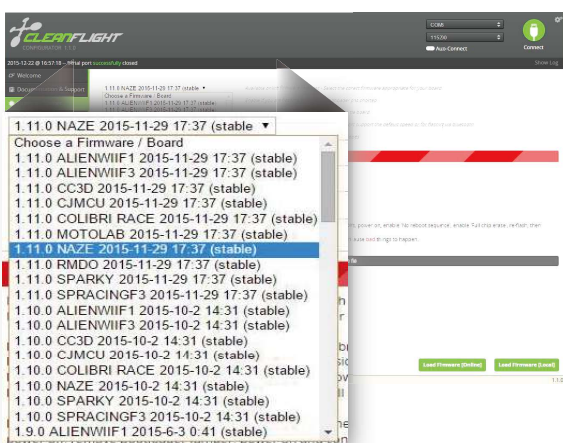
Connect Micro-USB (optional) to your drone's USB port.
They are well connected if COM port is displayed
with a certain number as the picture shows.



In case of connection error

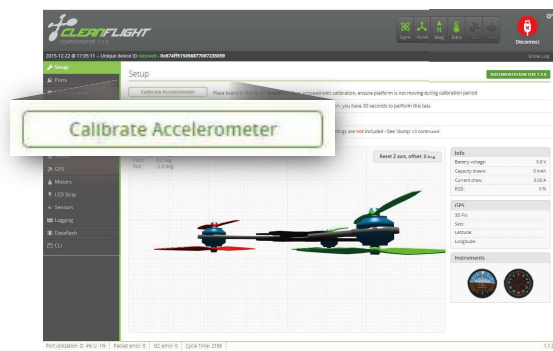
Look for CP210xDrivers on the initial screen page and download it.
Check if the port has been installed successfully.
Also, check the port number too at device management.
Click connect button again in Cleanflight to check the connection.

STEP 2. Firmware



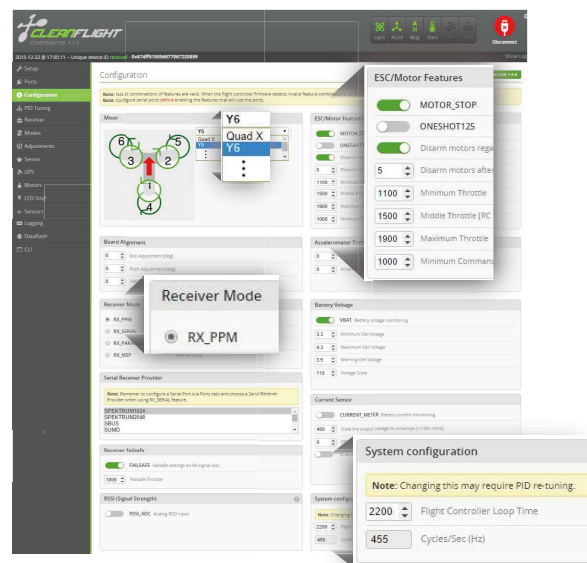
Select the most recent firmware in Firmware Flasher tab.
Activate Full chip erase.
Click Load Firmware [Online] and check Release info.
Click on Flash Firmware button to finish this process.

STEP 3. Calibrate Accelerometer



Use this function when your drone is not level.
Place your drone on a level surface. Select 'Setup' and select 'Calibrate Accelerometer' to recalibrate.
(Flight errors may happen if your drone is not level)

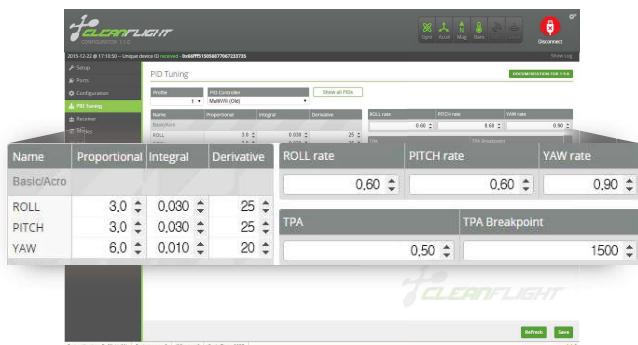
STEP 4. Configuration



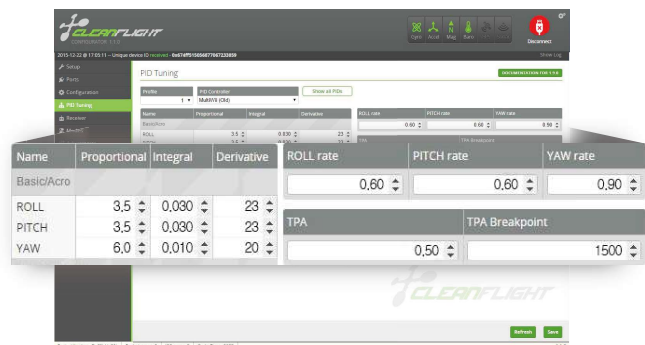
Configure basic options.
(The other options stay the same)

- **Mixer**
Select your drone type
320 : Y6, 300 : Quad X
- **ESC/Motor Features**
Activate MOTOR_STOP : Motors are not working when throttle is pulled down to its lowest position,
Minimum Throttle : Adjust minimum throttle value to 1100
Maximum Throttle : Adjust maximum throttle value to 1900
(Resolution value stays at about 800)
- **Receiver Mode**
Graupner GR-16 (Transmitter) : Select RX-PPM
(Refer to appropriate instruction manuals for other controllers/transmitters)
- **System Configuration**
Flight Controller Loop Time to 2200

STEP 5. PID Tuning



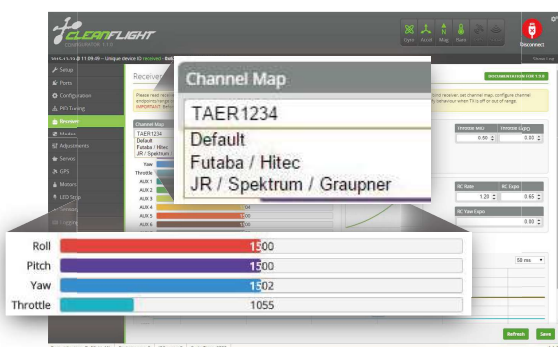
300 predetermined PID value



320 predetermined PID value

STEP 6. Receiver

Configure controller's direction of control stick/value



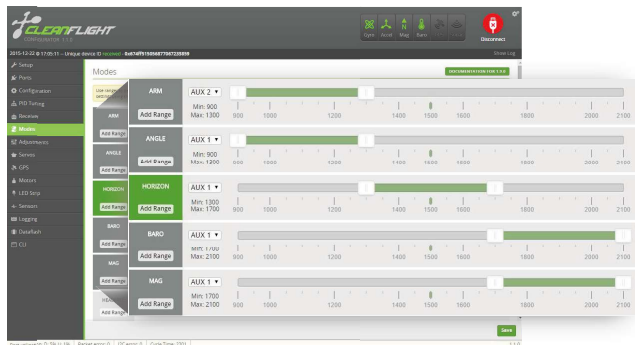
Simply select your controller's brand in **Channel Map**.
Adjust channel values. Check the direction of controller stick.
(Reverse the controller channel if the direction of controller stick is opposite to your actual drone movement direction)

Adjust **Roll, Pitch, Yaw values** to 1500 through your controller's trim
(Default value)

Under Configuration tab, adjust **throttle value** to 1050,
which is 50 less than the minimum throttle value.
(Your drone may not start properly if gap between throttle values is not given)

STEP 7. Modes

Flight mode and switch configuration.

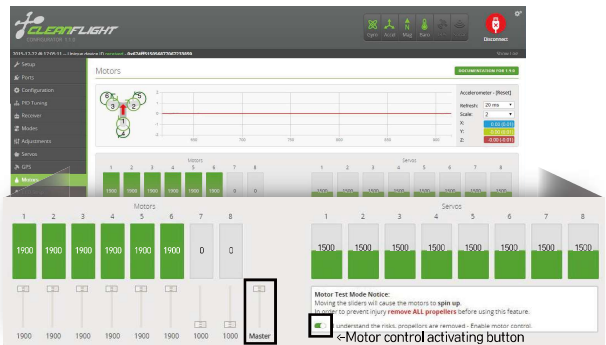


Graupner MZ-12 : AUX1=S6, AUX2=S4 Switch.
Put green bars in appropriate blanks as the picture shows.
Switch1=AUX1, Switch2=AUX2 for other controllers.

ARM (AUX2) Horizontal bar on the left : Start ON
Horizontal bar in the center : Start OFF
BEEPER (AUX2) Horizontal bar on the right : Beeping sounds for location notification
ANGLE (AUX1) Horizontal bar on the left : Self levelling mode
HORIZON (AUX1) Horizontal bar in the center : New multiWii mode
BARO, MAG, GOHOME (AUX1)
Horizontal bar on the right : Return to home

STEP 8. Motors

Motor rotation/speed check and ESC calibration.



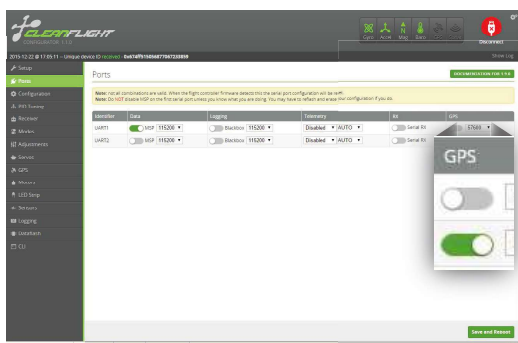
: Remove propellers for safety.

1. Activate motor control. Turn off your drone battery.
2. Turn master volume up to its maximum volume.
Turn on your drone battery.
3. If beeping sounds are made several times and stop,
turn master volume down to its minimum volume.
4. Turn master volume up slowly to check if motors are
spinning at the same time.
5. Check rotation direction of each motor with volume switch.

* If all the motors are not spinning at the same time, do double-check.

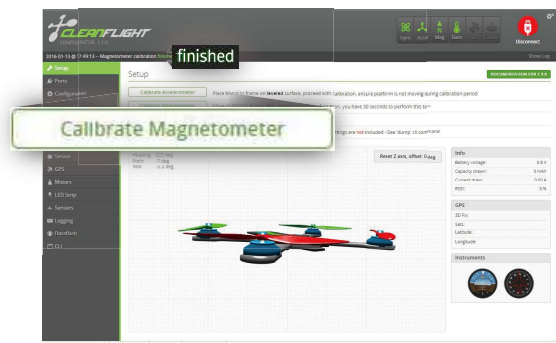
GPS Module installation and Settings < GPS is optional >

STEP 1. Ports



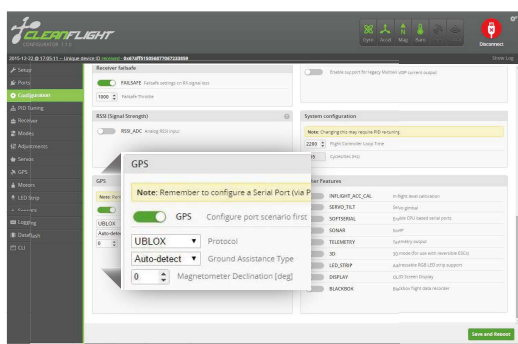
Port → Uart2 → Activate GPS
(Deactivate GPS if it is not installed)

STEP 2. Calibrate Magnetometer



Use this function if direction settings of your drone have not yet been configured. First, place your drone on a level surface.
Setup → Calibrate Magnetometer.
Your drone will rotate to set directions.

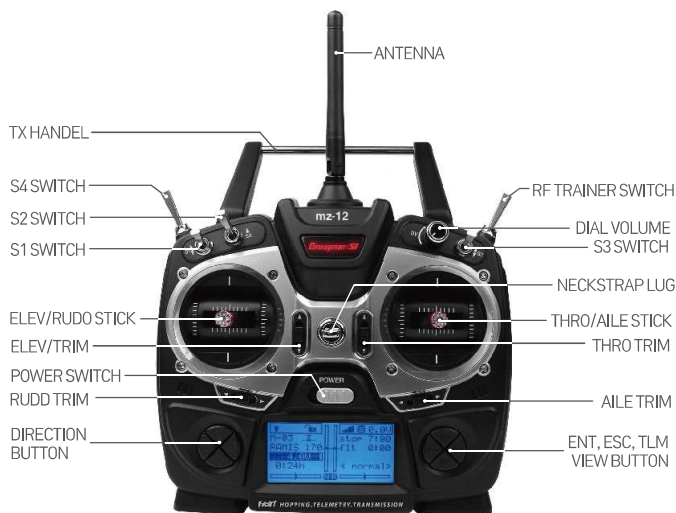
STEP 3. Configuration



Activate this only when you install GPS module.
Activate 'GPS Configure port scenario first'
Activate UBLOX or NMEA (Depending on your GPS module)

mz-12 Controller

mz-12 Controller and GR_16L (support 8-channel PPM) receiver.
 GR-12L receiver supports SUMD, Connect control cable (S+ -) to GR-16L channel 8 and GR-12L channel 6.
 For more detailed information, check instruction manual for your controller.



mz-12 Controller basic value configuration for LOBIT

:: Always remember warnings and precautions.

GR-16L Receiver sumo 08 ppm setting

STEP : TLM → RX SERVO TEST
 → CH OUT TYPE : SUMO 08

RX SERVO TEST	<
ALL-MAX	: 1850usec
ALL-MIN	: 1350usec
TEST	: STOP
ALARM VOLT	: 4.0v
ALARM TEMP+	: 75°C
ALARM TEMP-	: -07°C
>CH OUT TYPE :	SUMO 08

You can choose receiver's signal output type with CH OUT TYPE function.
 CH OUT TYPE should be SUMO 08
 (For GR-12L, choose SUMD)

Stick direction/ Trim adjustment

STEP : ENT → SERVO SETT

► S1 =>	0%	113%	100%
S2 <=	1%	100%	100%
S3 =>	-1%	100%	100%
S4 <=	1%	100%	100%
▼ rev cent		-trv	+

Refer to the picture on the left.
 Set all the numbers as the picture shows.
 Trim values vary depending on which drone you use.
 CleanFlight can be helpful for trim adjustment.

Mode/ Start switch setting

STEP : ENT → CONT SETT

► I5	free	+100%	+100%
I6	free	+100%	+100%
▼		-trv	+

Select I5 and ENT.
 You will see 'operate desired switch or control.'
 Move S4 switch when this message appears to allocate.
 Allocate I6 to S6. You can do I6 allocation in the same way.

Connecting controller receiver

GR-12L

Connecting control cable

- + 6



CH OUT TYPE : SUMD

GR-16L

Connecting control cable

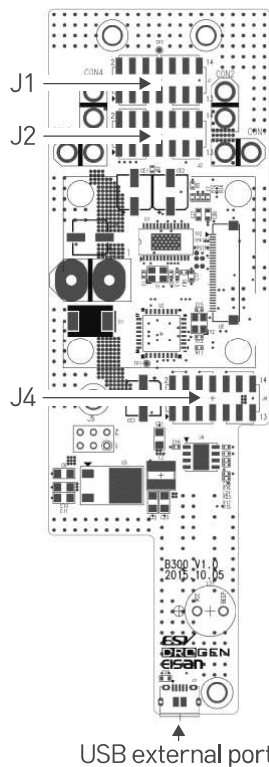
- + 8



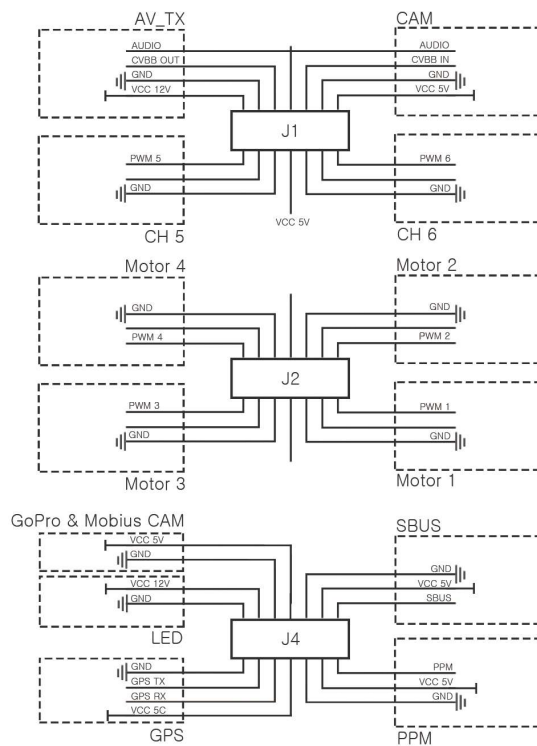
CH OUT TYPE : SUMO 08

LOBIT 300GT Wiring diagram

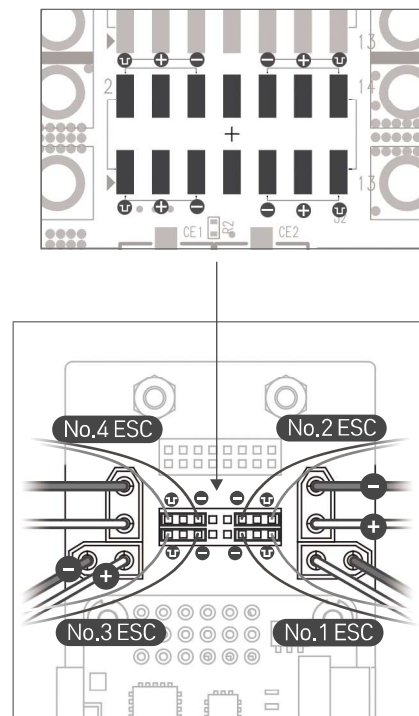
< 300 Main PCB Board >



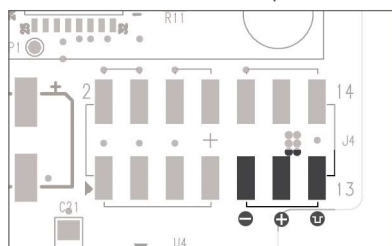
< Connector wiring diagram >



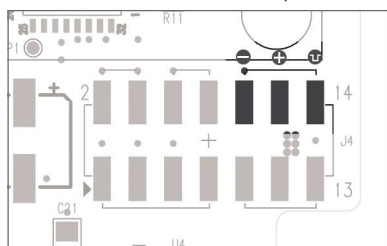
< ESC connector / J2 >



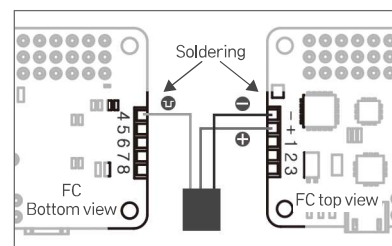
< J4 : PPM Setup >



< J4 : S-BUS Setup >



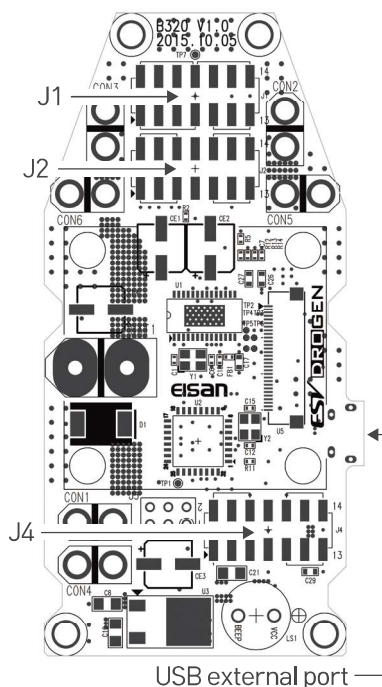
< DSMx / SUMD >



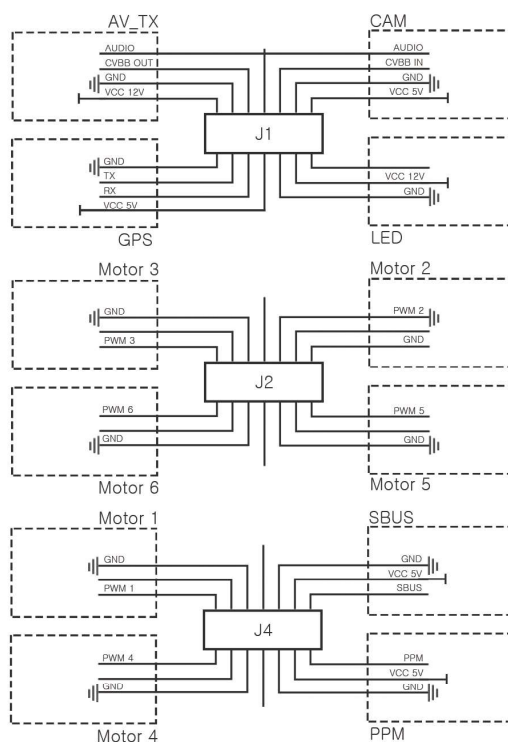
GPS module detached
Serial system receiver and GPS cannot be used at the same time.

LOBIT 320R Wiring diagram

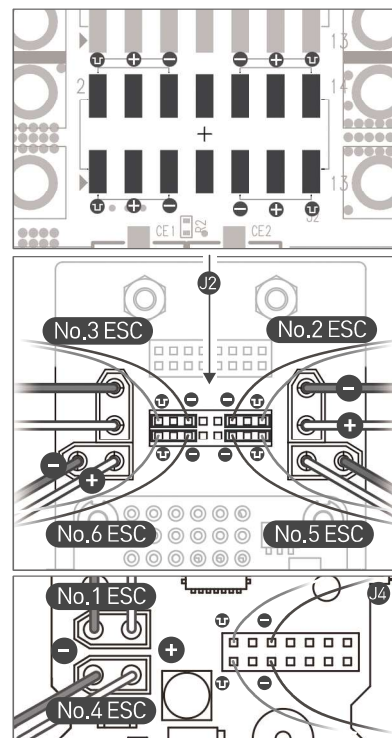
< 320 Main PCB Board >



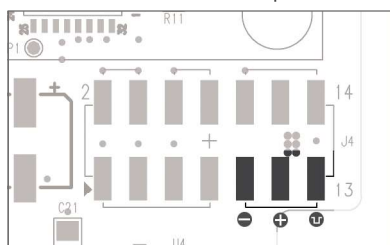
< connector wiring diagram >



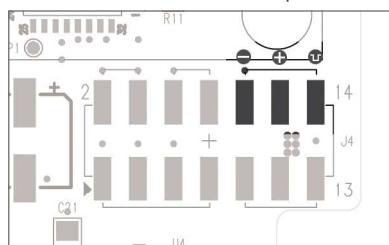
< ESC connector / J2 >



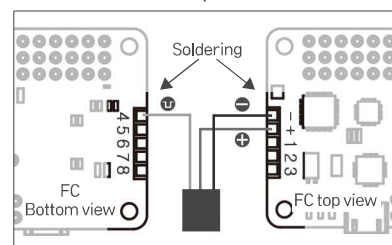
< J4 : PPM Setup >



< J4 : S-BUS Setup >



< DSMx / SUMD >



GPS module detached

Serial system receiver and GPS cannot be used at the same time.

No-fly Zones for Drones

What is 'No Fly Zones for Drones?'

No Fly Zones for Drones are zones in which drone flights are prohibited under aviation law. To fly drones (hobby use drones included) in the zones, permissions are needed.

Safety guidelines

Individuals flying for hobby or recreation are strongly encouraged to follow safety guidelines, which include:

1. Fly below 400 feet and remain clear of surrounding obstacles
2. Keep the aircraft within visual line of sight at all times
3. Remain well clear of and do not interfere with manned aircraft operations
4. Don't fly within 5 miles of an airport unless you contact the airport and control tower before flying
5. Don't fly near people or stadiums
6. Don't fly an aircraft that weighs more than 55 lbs
7. Don't be careless or reckless with your unmanned aircraft. You could be fined for endangering people or other aircraft

* from http://www.faa.gov/uas/model_aircraft/

* Please refer to the following web-site for more detailed information regarding Unmanned Aircraft Systems (UAS) in US.
<http://www.faa.gov/uas/>

It is strongly advised that you always do double-check local regulations and always follow local regulations.

Product Warranty

Thank you for choosing LOBIT.

Please read instruction manual carefully before use.

Free repair may not be provided if you do not have this warranty.

Warnings and precautions in this instruction manual are provided to keep your safety and to prevent any property damages.

If any problem happens, please read the instruction manual.

You can also make an inquiry by visiting stores, agencies and service centers.

Damages which are made while your drone is being used properly as the manual instructs, can be repaired for free under product warranty period which lasts for 1 Year.

Product warranty period : 1 Year after initial purchase

Inquiry : (+82) 70-5066-1231

Service Center : (+82) 70-5066-1232

Home page : www.lobit.co.kr

Company address : D-1004, Smartvalley, Sandomirae-ro 30, Yeonsu-gu, Incheon, Korea

Regulations on replacement, refund and repair.

1. You can apply for replacement or refund under the following conditions.

- Visit retailers or manufacturers within 14 days after initial purchase.
Replacement or refund decisions will be made after careful consideration.
- Freight charge is covered if product is defective.
But you cover all the freight charges if you got what you wanted but simply changed your mind.
- You should only use specified courier company, otherwise, you cover freight charge.

2. You cannot apply for replacement or refund under the following conditions.

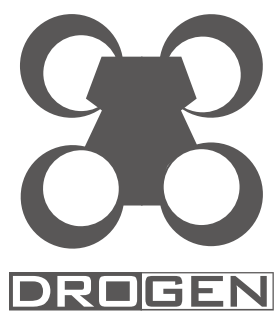
- If you already unpacked your package. Safety stickers have been damaged. 14 days have passed since initial purchase.
- Damages made due to misusing.
- If you have purchased your product through unauthorized third party.
- You have used your product.
- Products are not resellable because of decreased product value and loss of any parts.
- We follow electronic commercial law and consumer protection law's consumer injury compensation rule.

3. Guide to replacement and refund.

- You should contact retailer or Drogen first.
If you send product which is not notified to retailer or Drogen beforehand, the product may be lost or process can be delayed.

4. Guide to repair

- You can apply for repair service to retailer after checking damages.
- Repair time varies depending on inventory and warehousing situations.
- Additional repairing fees can be charged depending on types of repairs.
- Basic tests are conducted but flight tests are not provided.



WWW.LOBIT.CO.KR

Serial Number

--