

Troubleshooting for T238 switch sensor version DTU for Gearbox V2

Fault	Fault Analysis	Solution
No reaction after connecting the battery	The connection of motor or battery is abnormal	Please use brushed 480 motor and battery which the voltage is higher than 7.4V , make sure battery and motor is functional, reconnect motor to make sure the circuit is closed then test the DTU with battery
Only pre-loading function works	1.The connection of motor is abnormal 2. Fault of motor	Please confirm motor and gearbox are functional, reconnect motor then test the DTU with battery
Magazine keeps feeding after it is attached	For DTU with pre-loading function , circuit for pre-loading function maybe overload For DTU without pre-loading function , negative of magazine could be connected improperly	1.Automatic pre-loading function is disabled, please return it to retailer for repair 2.For DTU without pre-loading function, the negative wire of magazine should be connected to negative of motor instead of negative of battery
Magazine cannot feed gel/BB	Fault of magazine Fault of gearbox Diameter of gel is improper Power supply wire of magazine anomaly	Please reconnect terminals for magazine, make sure the connection between magazine power supply and DTU is functional, then do troubleshooting for magazine/gearbox/ diameter of gel such external factors.
1 long 'beep' following by 3 short 'beeps' after battery is connected, no reaction after the trigger is pulled	One long 'beep' following by 3 short 'beeps' indicate that DTU is entering 'quick' model, it means trigger is pulled while selector plate is at 'semi' position. If trigger is not pulled , it means trigger cannot block sensor while it is released , DTU detects that trigger is pulled.	Trigger sensor is pulled is because it is pressed by wires or other things and it cannot reset. Please disassemble gearbox to check
Only 3 short 'beeps' after battery is connected, no reaction after trigger is pulled	3 short 'beep' means the DTU has Entered shooting mode successfully, it means initialization of DTU is successful. No reaction after the trigger is pulled might be caused by that trigger sensor is blocked by wires or other things or the travel of trigger is not	Please investigate wires of gearbox; Since travel of trigger might not be enough, it is needed to modify the trigger limit of trigger on gearbox to make the trigger is able to reach the trigger sensor; If the trigger cannot reach the switch, please thicken the end of trigger until it can reach the switch

	enough to reach the trigger sensor or the end of trigger is too far away from the switch of trigger	
4 short 'beep'	4 short 'beep' is the warning for low voltage warning, it means battery is out or the setting for battery protection is wrong.	Fully charge battery, then set the first term to 5 before testing with battery
'semi' mode only	There is a 'beep' while changing Mode, if there is not, it means selector switch cannot detect selector plate at 'auto' position, it means the width of selector plate is not enough	Please make sure the linkage between selector plate and selector is normal and selector can move freely on gearbox. Thicken selector plate properly to make sure that it can press the selector switch well at 'auto' position.
'auto' mode only	There is a 'beep' while changing Mode, if there is not, it means selector switch cannot detect selector plate at 'semi' position, it means the selector plate is too wide and it press the selector switch at this position	Please make sure the linkage between selector plate and selector is normal, selector plate can move freely on gearbox. Then cut the selector plate properly to ensure that selector switch cannot be blocked by selector plate at 'semi' position
'semi' or 'auto' mode is unclear	The position of selector plate is inaccurate, it is located in between 'auto' and 'semi' position. It is shifting between 2 modes due to vibration or the loose of circuit cause the contact of gear switch and sector gear is insufficient or the contact of trigger and trigger switch is insufficient so it cannot press the trigger switch well which leads to the sensor is pressed repeatedly and multiple shots	Please make sure the linkage between selector plate and selector is normal, selector plate can move freely on gearbox. Modify the selector plate properly, so the selector plate can press selector switch well at 'auto' position; Based on actual situation, extend or shorten the cam of sector gear to ensure the cam can trigger the switch once for rotating a round; Alter the angle and distance of trigger and trigger switch, place shim properly on trigger to adjust the distance between trigger and trigger switch
Long 'Beep' after Motor rotates few rounds	Long 'beep' is the alarm for motor stall, DTU detect gears are not rotating, it could be: 1. Motor does not drive gears rotating 2. Gear sensor is close to gear which it cannot reset smoothly 3. Gear sensor is down	Disassemble gearbox and check the gear switch can reset smoothly then enter the quick testing mode to check the reaction of gear switch. If the reaction of the switch is normal, it is recommended to modify gear or gear switch. If the lever of the gear switch is too long, it is suggested to cut the lever off for 1mm then test it again. If the lever is short, use glue and plastic piece to lengthen the lever

Motor heating	Frequent motor heating is mainly caused by high start and shut current and frequent shut. Active Brake of DTU needs to transfer the kinetic energy to heat energy for brake. It is related to the performance of motor; heating of motor is normal phenomenon, and it is unavoidable.	Set the position of piston to 4 or higher in programming model can reduce or close active brake function to reduce motor heating. In addition, change the motor to high torque and low RPM ones can also reduce motor heating.
Battery heating	Critical battery heating is mainly caused by that the torque of motor is not enough for load or load is too large. Normally, it is because gears are too tight or the main spring is too strong; it could also be caused by discharge of battery is not enough or it is at overloading status for a long time	Battery with higher discharge rate and capacity is recommended. In addition, connector for battery, it is recommended to use XT30 or mini-Tamiya connector. Investigate the tightness of gears, the strength of main spring and smoothness of gearbox. Change the motor to a high-torque one can relieve this issue.
Critical wire heating	Critical heating of wire is because torque of motor is not enough for load or the load is too much (Gears are too tight or main spring is too strong); It could also be the discharge rate of battery is not enough or the battery is at overload situation for a long time	Battery with higher discharge rate and capacity is recommended. In addition, for connectors of battery, it is recommended to use XT30 or mini-Tamiya connector. Investigate the tightness of gears, the strength of main spring and smoothness of gearbox. Change the motor to a high-torque one can relieve this issue.
Firing instantly after battery is connected	FET chip has damaged	Please investigate battery connectors and motor connectors are reversal or not. Please check is there a short circuit or damage on wires or circuit boards, Please contact after-sales for solution
DTU burn down instantly after battery is connected	Battery is connected reversely	Please check the connector of battery is Reversal or not, Please contact after-sales for solution
DTU burn down instantly after trigger is pulled	Polarities of motor (Gearbox) are connected reversely Short circuit occurs on the wire that connects motor	Please check connector of motor is reversal or not, is there a short circuit or damage in wire, Please contact after sales for solution.
Influent single Shot but the 'auto' mode is normal	Gear is too close to gear sensor or the circuit board is loose.	Please fix the circuit board on gearbox and modify the lever on the gear switch based on actual situation then reassemble the DTU to test