2017 2x2 Fault Code Register

NOTICE: This list gives Fault information when diagnosing issues using the flash codes for the 2017 2x2-A and 2x2-B Dual Electric Motorbikes. The bikes will be serial numbered on the Headtube or Mainframe Bash plate 2x2-A-XXXX.

These Fault codes relate solely to the Drive Train and not the general electrical system or the Battery.

Using the Ubco Service App

The easiest method of identifying Fault Codes is to read these codes with the UBCO Service App. Please refer to - http://www.ubcobikes.com/service-app/help/ or the instructions provided separately.

Reading the Fault Code off the Warning Light

1. The warning LED on the console flashes opposite to the flashing of the controllers inside the bike, so when viewing the Warning LED, count the gaps between flashes.
2. The warning LED is only connected to the rear motor; it will be required to remove the console to view the front motor faults. Please refer to service manual to removing the console cover.

Reading Fault Codes directly off the Controller:

First when need to get access to the controllers by removing the front console, remove the battery and take out the four fasteners on each side of the console cover. Now lean the cover back this will expose the Controllers (these are green alloy components) Plug the battery in next to the bike and turn it on. When looking at the controllers directly, they should be solid red (NO codes present) or flashing red (fault code present). In this case, we are counting the red flashes. Count the code and refer to the Flash code table.

Faults

Faults – Bit 0: Controller over voltage (flash code 1,1)	**Meaning:** The controllers are receiving above specified voltage. **Cause:** Incorrect or over charged battery. Incorrect / Faulty charger. Faulty BMS. **Recommendations:** Fit correct battery. Test battery voltage is not higher than 58.8v Test/change battery charger- Ensure we always use UBCO recommended battery charger

Faults – Bit 1: Phase over current (flash code 1, 2)	**Meaning:** The Current going to the motors has exceeded the specified limits. Has not occurred to date.

Faults – Bit 2: Current sensor calibration (flash code 1, 3)	**Meaning:** Internal calibration of controller has altered. **Cause:** Something has happened inside the controller. Calibration error **Recommendations:** Replace controller. Contact UBCO HQ and return for recalibration.

Faults – Bit 3: Current sensor over voltage (flash code 1, 4)	Has not occurred to date.

Faults – Bit 4: Controller over temperature (flash code 1, 5)	**Meaning:** Controller is above specified temperature. **Cause:** Controller is unable to get sufficient cooling and has reached thermal limit. **Recommendations:** Check front panel is clear of mud etc Ensure controllers are securely fastened to front panel with heat transfer paste. Allow controllers to cool.

Faults – Bit 5: Motor Hall sensor fault (flash code 1, 6)	**Meaning:** Controller is not receiving signals from the motor halls. **Cause:** Motor cable is unplugged or damaged. Hall sensors in side motor have failed or become wet or corroded. Faulty cable or wiring connection. **Recommendations:** Check motor cable for damage, water in the plug. Swap motors front to rear to test if the fault is in motor. If the new motor runs, then the hall fault is in the original motor (we should see this fault change to other controller) If the motor still shows fault, then the issue is in the cable or connection. Check the motor cable plugs inside the consol. Replace or repair motor/cable/connection/necessary parts

Faults – Bit 6: Controller under voltage (flash code 1, 7)	**Meaning:** Controller is receiving less than specified minimum voltage. **Cause:** Battery is flat or plugs are not fully connected or corroded. **Recommendations:** Charge your battery. Disconnect and reconnect battery plug. Ensure battery retaining clip is installed. Measure battery voltage using UBCO service app to see live voltage.

Faults – Bit 7: POST static gating test (flash code 1, 8)	**Meaning:** Component (Mosfet) inside controller has failed. Controller has failed. **Cause:** Manufacturing Error. **Recommendations:** Replace controller. Return failed controller to UBCO for replacement.

Faults – Bit 8: Network communication timeout (flash code 2,1)	Has not occurred to date.

Faults – Bit 9: Instantaneous phase over current (flash code 2,2)	**Meaning:** A current spike has exceeded specification. Controller has gone into protection mode. **Cause:** Bike received sudden shock to the drive motor. **Recommendations:** Turn key off and on to reset fault. If fault happens regularly, insure that the bike has the latest firmware and maps. If still persist replace motor.

Faults – Bit 10: Motor over temperature (flash code 2,3)	**Meaning:** Motor temp sensor has reached its specified limit **Cause :** **Most Likely** – Simply the motor on the bike is over temp. This happens with when we use the bike on lots on steep inclines or hard use on difficult terrain. Motor temp sensor is faulty Motor is over temp due to other motor damage **Recommendations:** Wait for motor to cool down Using the service App read the motor temp and assess whether the temp sensor is in range. Inspect motor for other damage that may contribute to the motor temp. Gears, Bearings etc.

Faults – Bit 11: Throttle outside of range (flash code 2,4)	**Meaning:** The signal received from the throttle is not inside the specified range. **Cause :** The controllers voltage regulator has failed, sending a higher than normal voltage to the throttle. Or, the throttle wires have disconnected or become shorted. **Recommendations:** Check for damage of the throttle cable from throttle box. Ensure connections are all connected. Test voltage between red and black wire to throttle box, should not exceed 5.5v if wires exceed 5.5v replace controller that feed the throttle. (rear). *Note:* Throttle power is supplied by one controller, so if we have a faulty controller we can swap the controller from side to side. This means you will need to re-program the controllers appropriately (Front and rear)

Faults – Bit 12: Instantaneous controller over voltage (flash code 2,5)	Has not occurred to date.

Faults – Bit 13: Internal error (flash code 2,6)	Has not occurred to date.

Faults – Bit 14: POST dynamic gating test (flash code 2,7)	**Meaning:** Component (Mosfet) inside controller has failed. Controller has failed. **Occurrence:** 7% due to manufacturing error. **Cause:** Manufacturing Error. **Recommendations:** Replace controller. Return failed controller to UBCO for replacement.

Faults – Bit 15: Instantaneous under voltage (flash code 2,8)	**Meaning:** The controller received lower than specified voltage. **Cause:** Insufficient voltage **Recommendations:** Charge your battery. Disconnect and reconnect battery plug. Ensure battery retaining clip is installed.

Warnings

Warnings – Bit 1: Hall Sensor (flash code 5,2)	**Meaning:** Controller is not receiving signals from the motor halls. **Cause:** Motor cable is unplugged or damaged. Hall sensors in side motor have failed or become wet or corroded. Faulty cable or wiring connection. **Recommendations:** Check motor cable for damage, water in the plug. Swap motors front to rear to test if the fault is in motor. If the new motor runs, then the hall fault is in the original motor (we should see this fault change to other controller) If the motor still shows fault, then the issue is in the cable or connection. Check the motor cable plugs inside the consol. Replace or repair motor/cable/connection/necessary parts.

Warnings – Bit 2: Hall stall (flash code 5,3)	**Meaning:** Motor has exceeded its time for the wheels not rotating under power to prevent over heat damage. **Cause:** Motor has stalled. Assist bike over obstacle. Check that motor can run freely under no load. **Recommendations:** Check that motor can run freely under no load. Check for motor damage replace motor components if required.

Warnings – Bit 5: Hall Illegal sector (flash code 5,6)	**Meaning:** Controller is not receiving signals from the motor halls. **Cause:** Motor cable is unplugged or damaged. Hall sensors in side motor have failed or become wet or corroded. Faulty cable or wiring connection. **Recommendations:** Check motor cable for damage, water in the plug. Swap motors front to rear to test if the fault is in motor. If the new motor runs, then the hall fault is in the original motor (we should see this fault change to other controller) If the motor still shows fault, then the issue is in the cable or connection. Check the motor cable plugs inside the consol. Replace or repair motor/cable/connection/necessary parts.

Warnings – Bit 6: Hall illegal transition (flash code 5,7)	**Meaning:** Controller is not receiving signals from the motor halls. **Cause:** Motor cable is unplugged or damaged. Hall sensors in side motor have failed or become wet or corroded. Faulty cable or wiring connection. **Recommendations:** Check motor cable for damage, water in the plug. Swap motors front to rear to test if the fault is in motor. If the new motor runs, then the hall fault is in the original motor (we should see this fault change to other controller) If the motor still shows fault, then the issue is in the cable or connection. Check the motor cable plugs inside the consol. Replace or repair motor/cable/connection/necessary parts.

Warnings – Bit 6: Hall illegal transition (flash code 5,7)	**Meaning:** Controller is not receiving signals from the motor halls. **Cause:** Motor cable is unplugged or damaged. Hall sensors in side motor have failed or become wet or corroded. Faulty cable or wiring connection. **Recommendations:** Check motor cable for damage, water in the plug. Swap motors front to rear to test if the fault is in motor. If the new motor runs, then the hall fault is in the original motor (we should see this fault change to other controller) If the motor still shows fault, then the issue is in the cable or connection. Check the motor cable plugs inside the consol. Replace or repair motor/cable/connection/necessary parts.

Warnings – Bit 8: VdcHighFLDBK (flash code 6,1)	**Meaning:** Battery has exceeded it maximum safe voltage and is reducing charge from regeneration. Regeneration breaking will stop working. **Cause:** Regen is operating excessively after a full charge. **Recommendations:** This will go away as you use the up the battery capacity.

Warnings – Bit 9: MotorTempFLDBK (flash code 6,2)	**Meaning:** Motor temp sensor has reached its specified safe limit and is now reducing power to the motors to avoid motor damage. You will feel a reduction of power as this happens. **Cause :** **Most Likely** – Simply the motor on the bike is over temp. This happens with when we use the bike on lots on steep inclines or hard use on difficult terrain. Motor temp sensor is faulty Motor is over temp due to other motor damage **Recommendations:** This code may also show with **Flash code 2-3 :Bit 10 Motor over temperature** Wait for motor to cool down Using the service App read the motor temp and assess whether the temp sensor is in range. This MotorTempFLDBK happens in the temp range between 90-100deg. Inspect motor for other damage that may contribute to the motor temp. Gears, Bearings etc..

Warnings – Bit 10: ContrlTempFLDBK (flash code 6,3)	**Meaning:** Controller is above specified temperature. Controller is reducing power to protecct from damage. **Cause:** Controller is unable to get sufficient cooling and has reached thermal limit. **Recommendations:** Check front panel is clear of mud etc. Ensure controllers are securely fastened to front panel with heat transfer paste. Allow controllers to cool.