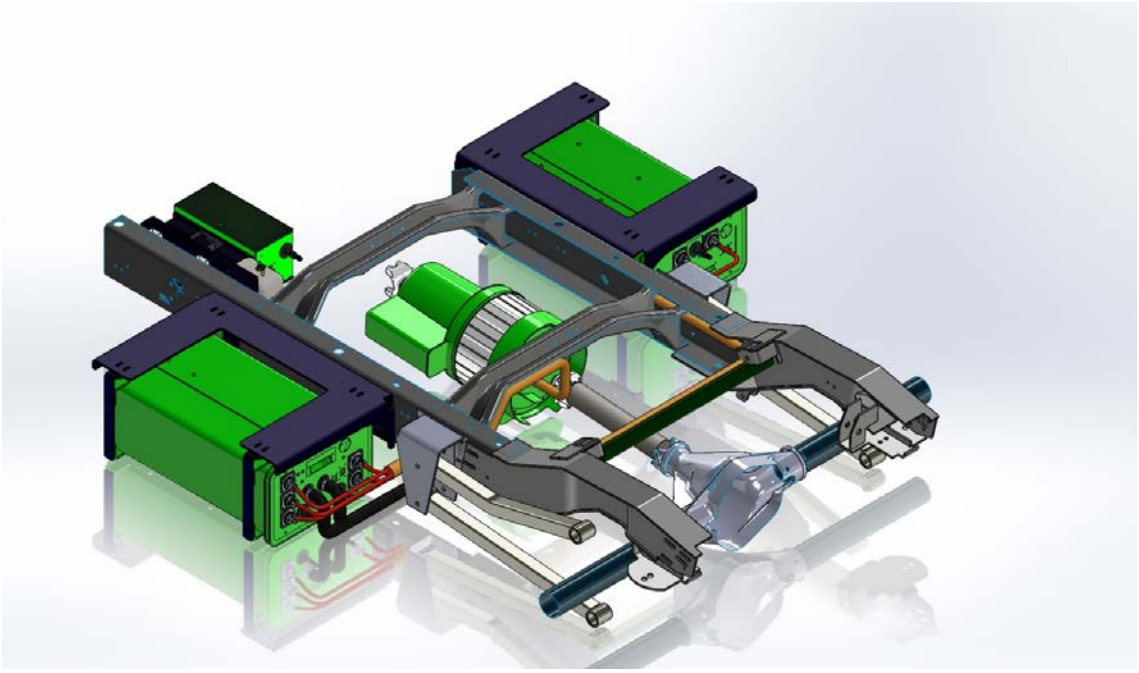
Kinetics Electric Hybrid System Troubleshooting Guide



This manual is to be used in the assistance of troubleshooting the Crosspoint Kinetics Hybrid system and components. You should not begin any work without speaking to a Crosspoint Kinetics representative first. Only certified technicians are allowed to work on the system. For further assistance or information please call 1-855-435-4301

REVISION RECORD						
REV	DCN	DESCRIPTION	BY	CHECKED	APPROVED	DATE
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Printed versions of this document are not controlled

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Note: above diagnostics assume Hybrid rocker switch ON unless otherwise noted.

Fault Codes (Reported from Hcal or Driver Display)

Introduction – The Crosspoint Kinetics (CK) hybrid drive system has been installed on your vehicle to increase vehicle MPG, reduce emissions and reduce brake wear. This system's operation is intended to be totally automatic and seamless to the driver. When the vehicle is decelerating, the CK hybrid helps the driver by braking the vehicle electrically and storing this energy for the next acceleration. This stored electricity then boosts the next vehicle acceleration, in turn, saving fuel. Brake wear, emissions and fossil fuel carbon footprint are also greatly reduced by this system.

Normal Start Up Sequence - When the vehicle ignition is turned ON, the hybrid controller performs an automatic self test. Both green and red lights on the driver panel will light for approx. 1 sec. and then go out. The driver panel rocker switch will illuminate.

- IF the driver panel rocker switch is ON, then the green light will stay ON when the hybrid system is ready (usually within 20 sec.).
- IF the driver panel rocker switch is OFF, then the green light will stay OFF and the red light will blink ON/OFF slowly to show the system is disabled (usually within 5 sec.).

Normal Running – With the ignition ON, engine running, hybrid rocker switch ON and vehicle stopped – the Green light should be ON and the red light should be OFF.

- IF the vehicle is backing, the hybrid remains on "Standby" and some driveline vibration may be noticed – this is normal and is due to the permanent magnet cogging inside the motor.
- When the vehicle is slowing down, accelerator pedal up and speed is less that 35 mph, **the green light will blink – indicating the hybrid is actively storing energy in "Regeneration" mode.**

- When the vehicle is accelerating and stored energy is above minimum, **the green light will blink – indicating the hybrid is actively using energy in "Boost" mode to save fuel.**
- When the stored energy is at minimum during "Boost" or at a maximum during "Regen", the green light will change from blinking to steady ON.
- Normal range for "Boost" is 1 - 30 mph and normal range for "Regen" is 35 mph – 1. When the hybrid is outside this range it goes on "Standby" and the green light will be ON.
- When vehicle speed is above 35 mph or when the energy level is at a minimum, the hybrid system will automatically decouple the motor magnets to eliminate drag. This insures that extended constant speed or highway MPG will not be affected.

Section descriptions

Section 1 of this troubleshooting guide focuses on the hybrid driver status panel, usually installed in the dash of the vehicle by the shift selector. Please note the various conditions and find the one most like your issue.

Section 2 focuses on additional troubleshooting of the system - checking incoming 12 VDC power, using the status lights on the controller front housing and other more detailed tests.

Section 3 has the procedures for disabling the system for safe use until repairs are able to be finished.

Section 4 The driver display hardware and software should be thought of as two systems. If either system fails, the display will not function as desired. This troubleshooting guide will help you decide which system and component in that system is not operating properly and what to do about it.

Section 1 – Driver Panel Diagnostics

I. Condition: Green light OFF, Red light ON, hybrid rocker switch ON – Hybrid will not operate
(use figure from page 5)

a. GFI trip fault – Press GFI reset button on driver panel for 1-3 sec. If red still ON, turn vehicle ignition OFF / then ON. Does fault clear? Check section 2f.
Code 10006 *in HCal.*

b. Actuator out of range with vehicle stopped – caused by low voltage, actuator response time out - turn vehicle ignition OFF / then ON, then check sections 2a and 2b.
Code 10050 & 10051 *in HCal.*

c. Actuator out of range with vehicle moving – caused by low voltage, actuator response time out or actuator encoder open connection- turn vehicle ignition OFF / then ON, then check sections 2a and 2b, unplug and reinsert motor connector.
Code 10050 &10051 *in HCal.*

d. Actuator not moving – Loss of power to actuator, controller timeout or controller actuator circuitry. Check section 2e.
Code 10050 *in HCal.*

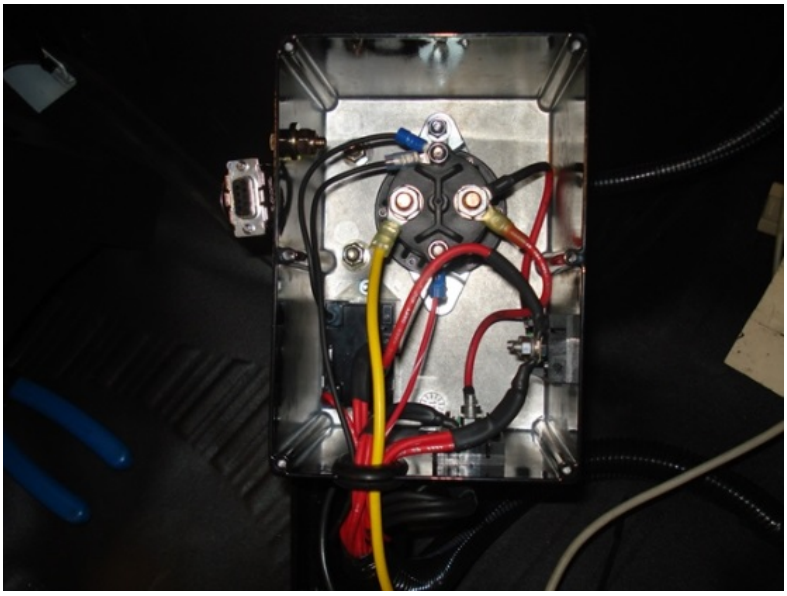
e. High Motor/ Generator temp – Is motor so hot that you can't keep your hand on it? Check section 2c. Turn vehicle ignition OFF / then ON to reset. ***Code 10003*** *in HCal.*

f. High Controller module temp – Is controller hose or housing so hot enough that you can't keep your hand on it? Check section 2c. Turn vehicle ignition OFF / then ON to reset.
Code 10003 *in HCal.*

Note: These faults will generate a code in HCal (Calibrator). Connect laptop or Android device for quicker troubleshooting of these faults.

ii. Condition: Green light OFF, Red light OFF, light in rocker switch OFF –

a. Check for + 12 V power from vehicle – Check section 2a



iii. Condition: Green light OFF, Red light blinking, hybrid rocker switch ON – This signals that the hybrid **'enable string'** is open, preventing the electrical contactors to close and get to the ready state.

a. Impact switch may have tripped. Locate impact switch in floor housing and next to driver's seat. Press down firmly on red rubber button to reset.

b. Energy storage stop switch may have been pressed – Locate Ultracapacitor box housing. Pull out on red mushroom switch to insure this is ON.

c. Check controller circuit breakers – located on the controller housing front panel, to the left of the viewing window. Press in clear domes to reset**.**

d. Check harness power connections to driver panel rocker switch and impact switch for open circuits. *Go to Wiring Diagrams.* ***Code 10002*** *in HCal.*

Note: With Driver panel switch ON: The quickest way to verify the integrity of the 'Enable String' is to check the output. Locate J206 on the

Ultracap (12 pin Deutsch conn). Check for 12 vdc on pins 3, 4 (inputs to Ucap) and 2, 11 (outputs to controller). You must backpin these as connection of J206 is required. **If OK**, enable string is good.
If Not, **Go To** 2aiii (Page 13). Check all connectors and reference wiring diagrams.

iv. **Condition: Green light OFF, Red light blinking, hybrid rocker switch OFF – This is normal.** This signals that the hybrid "enable string" is open because rocker switch is open. Press rocker switch ON to enable hybrid system. Note – whenever system is disabled (red light flashing) the motor rotor is full decoupled (actuator extended) and motor / generator is in the zero drag position.
Code 10002 *in HCal.*

v. **Condition: Green light ON, Red light ON, hybrid rocker switch ON – Hybrid drives and operates normally**

a. Indicates a low coolant level – remove coolant reservoir cap and add 50% glycol / 50% water antifreeze coolant to within ½" of neck bottom. **IF NOT –** go to e.ii.

b. Possible stuck coolant level switch – examine level switch for debris or deposits. Tap side of reservoir to loosen float. Check with ohmmeter across *SIG 29 & J205, pin 6 to check float. (*PWR M for Weatherpack connector)
IF NOT – go to e.iii. *Code 10004 in Hcal.*

c. Possible broken wire to coolant level sensor – Is the 'Coolant LVL' LED in controller window illuminated? **IF No**, Check +12 vdc at J205, pin 5. Power from controller goes through the float contacts, returns to controller and lights this LED.
Code 10004 *in Hcal.*

Note: SIG is the right round connector on the controller.
J205 is the Cooling Unit connector. (Weatherpack harness: PWR is the left black connector on controller).

vi. **Condition: Green light ON, Red light ON – Hybrid does not operate** – Vehicle parked or driving and hybrid rocker switch ON

a. Controller boot up sequence may have been interrupted - turn vehicle ignition OFF / then ON. Does red light extinguish**? IF Not,** check sections 2a

vii. **Condition: Green light ON but not blinking, Red light OFF** – Vehicle driving and hybrid rocker switch ON

a. If vehicle has been parked for several weeks, the energy storage level may be low and this is Normal. Go to g.ii.

b. Drive vehicle. During deceleration, the ***green light should flash***, showing regen charge. Further regen events should raise energy storage voltage above min level (55vdc). **IF not**, go to g.iii.

c. Check encoder signal at 2g **IF OK**, go to next step.

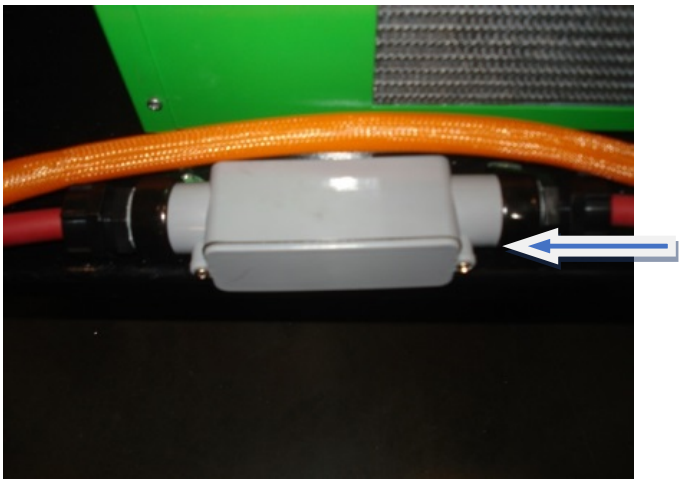
d. Go To 2d diagnostics for the throttle setup

viii. **Condition**: **Green light on during acceleration but not blinking. When foot off throttle pedal, get immediate solid Red light and no Green –** Vehicle driving and hybrid rocker switch ON

Code 10007 in Hcal.

i. Check 400 amp fuse. Located in gray conduit box inline on the power cable from positive on Ucap to positive on controller.

ii. Check with ohmmeter across hold down studs. Should read infinity. If unsure, remove and check. **If Not OK**, replace fuse. **If OK**, suspect controller.



400 Amp
Fuse Inside

j. Condition: Hybrid system won't start up and lights in controller housing window are dim – Indicates voltage too low for hybrid operation. Check battery voltage with engine running and hybrid ON.

a. Check sections 2a. **IF** less than 12 VDC, charge battery. Hybrid operation should resume after a few minutes of charging.
Code 10000 in Hcal.

i. Condition: Green and Red light may alternate back and forth. Green light on when idle – Vehicle moving and hybrid rocker switch ON

i. Check all connections and wiring.
Code 10000 in Hcal.

Section 2 – Vehicle and Component Diagnostics –

a. Check hybrid for +12 VDC and ground -

i. Are yellow lights ON in controller housing window? Refer to page 17 – LED Interpretation. **Go to next step.**

b. Check controller circuit breakers – located on the controller housing front panel, to the left of the viewing window. LEFT breaker is 20 A for controller logic. RIGHT breaker is 30 A for actuator. PRESS IN clear domes to reset**. IF OK, go to a.iii.**

c. Locate hybrid power box and check for +12 vdc vehicle power at main solenoid in power box. With key on, 12 vdc will be present at both large connections on solenoid. Check +12 VDC to ground on BOTH 40 amp hybrid system fuses. Check enable string relay in Power box for operation.

b. Check function of the motor actuator -

i. **Check for motor sounds –** With ignition ON, have an observer listen to the actuator motor, located on the drivers side of the hybrid motor. Turn hybrid rocker switch OFF for 5 seconds, ON for 20 sec. OFF for 5 sec. – The actuator motor should be heard running. **Verify by removing actuator cover. .** Verify controller LED display for 'Actuator R/G' light for illumination when the actuator **should** be moving.

ii. **IF NO –** go to section e.

c. Check function of Cooling Module –

i. **Coolant level and flow –** Remove coolant reservoir cap when vehicle is ON. Do you observe coolant flow? Is level within ½" of bottom of neck? IF not sure of flow, **Go To** step c.iv.

ii. **Is air blowing out of the radiator in the coolant module?** Check for squirrel fan rotation. At cool temps, fan runs slowly.

iii. **IF YES** go to c.i and c.ii **–** unit has power and is operating – go back to original step.

iv. **IF air blowing, but unsure of coolant flow –** check for kinked hoses in coolant system. May need to remove a hose to verify flow. Refill reservoir with 50% glycol / 50% water automotive antifreeze.

v. **IF NO** to c.i and c.ii – unplug connector on cooling module and reinsert plug firmly. **IF Not OK**, check power at J205, pins 1 & 2 (12 vdc) to 7 & 8 (ground**) IF Not OK**, Go To section a.iii (40 amp fuses).

d. Check function of the throttle switch

i. Have person step on throttle pedal, does Throttle LED on controller illuminate? When foot is off pedal, does LED extinguish? **If No** to both, locate throttle box usually located behind driver knee panel. (follow gray wire from pedal string pot).

ii. Check light inside box with pedal movement. Light should be off with foot off pedal and illuminate when pressed about ¼".

iii. If no light illuminates, pull off the square, white, 4 pin connector (J201A) and check 12 vdc on pin 4 to chassis ground. **IF Not OK**, check source at J201, pin 11. Locate J201 by pulling driver panel out of dash. It is the white, square 12 pin connector.

e. Verify actuator / position sensor operation –

i. Remove cover from forward end of actuator (left side of motor).
ii. Disconnect two pin connector on actuator harness (J203A).
iii. Connect positive and negative battery terminals to actuator motor plug. Reverse polarity if needed. Note actuator movement.
iv. Actuator should fully extend in both directions. Reverse polarity to run actuator in opposite direction. **If Not OK**, replace actuator. **If OK, go to** next step.
v. With laptop connected and Hcal running, Go to 'Position, Speed & Volts' page. Run actuator again and note correct indication of Actuator number. Fully extended: 390. Fully retracted: 20. (these numbers are approximate). **If Not OK**, replace actuator.

Note: Alternate sensor check. Check resistance across pins J203 motor connector, pins 7 & 8. Extended actuator will read approximately 9k ohms, retracted, less than 100 ohms.

f. GFI checks

i. Check motor stator to chassis ground. Remove cable boot on lower phase connection of controller (Green dot). Check to ground with ohmmeter. Should read infinity. **If Not**, replace motor. **If OK,** step ii.
ii. Pull 4 pin Deutsch connector on controller. Does GFI fault clear**? If Yes**, suspect controller. **If Not**, go to step iii.
Note: hybrid will fault if driven with connector removed
iii. Check all orange covered harnesses for frame pinching or penetration. **IF Not OK**, repair harness. **If OK**, step iv.
iv. Remove 12 pin Deustch connector on Ucap. Does fault clear? **If Yes**, suspect Ucap.

g. Encoder test (MPH signal)

a. With laptop connected and HCal running, go to 'Position, Speed & Volts' page. Start & accelerate vehicle, does 'MPH' approx. match the vehicle speedometer? **If Yes**, encoder is OK**. If not,** go to g.ii.

b. Check J103 (4 pin) at controller (not harness) for 12 vdc on Pins 1 & 4 (1 is plus, 4 is neg). **If Not OK**, replace controller**.** **If OK,** go to g.iii.

c. Check harness in between controller plug and motor plug. **If OK**, encoder board needs replaced.

h. Green Light ON, No Fault code issues

a. **Green light on but no boost**, connect your calibration tool. With your Calibration tool go to other checks page. You'll see a parameter called the Throttle Switch. When Throttle switch is pressed the box should change to 1 if not got to section 2d. If it does change to 1 but still no Boost check the 400 amp fuse 1.ii

b. **Green light on but no Regeneration,** connect your calibration tool and go to brake pedal calibration page. On this page you are checking for the brake transducer to sense the pedal being engaged. If the parameters are still in the right range and the still nothing go to brake transducer for inspection and 5 volts to the sensor.

c. **Green light on but Cooling fan doesn't run** at low or high speeds. Make sure that the system is calling for it to run if the bus just came in and has been running check the yellow and black harness to the cooling unit's main harness. These two harnesses should be calling from 2 volts to 10. Depending on temperature. If voltage appears then replace the cooling fan.
If not, then check harnessing to controller

d. **Green light on and operation okay but poor performance,** IF the all the system checks are correct and the system seems to not be providing strong Boost or Regeneration then it could be a result of miss calibration please resort to Hybrid Reconnection Manual for calibration process.

Controller LED interpretation: Left to right

LED-2-1: Upper light flashes Red indicating initialization of controller & Driver switch off. Lower light (Green) is on when Driver switch is on and system is ready.

POWER: Indicates 12 volt DC power is supplied to controller.

ACTUATOR: Indicates Green when actuator is moving rotor into stator. Red when moving rotor out of stator. Not illuminated when actuator is idle.

FWD: This light is illuminated when key is on.

DRIVE: This light is illuminated when key is on.

CR1-PRE CHARGE: Illuminated when Driver switch is on and system is ready. May be dim when Driver switch is off.

THROTTLE: Illuminates when throttle is depressed approx 3/16". (Boost mode)

ENABLE: Illuminates when Driver switch is on and system ready. May be dim when Driver switch is off.

GFI RESET: GFI Reset push button is being pressed.

COOLANT: Illuminated when coolant is at normal level.

PHASE: Contactors are closed in controller.

DC CONT: Contactors are closed in ultracap.

Section 3 – Hybrid Disabling

Warning:
In the situation where a vehicle will be operated with an inoperative hybrid system, ensuring the proper disabling /de-coupling of motor is critical. The deactivation of the hybrid system is an acceptable practice for continued operation as long as the following steps are taken.
Note: Technicians not using hybrid continued operation procedures can lead to motor failures and void the warranty.

a. **If or before a component is removed:**
   i. Remove motor actuator cover. With ignition key on, push in palm button to extend actuator. If it does not extend, go to J203B connector. Apply +12 vdc to orange wire and -12 vdc to the black wire. This will extend actuator, de-coupling motor.
   ii. Mandatory: **Go to the 'Actuator Lockout' section in the 'Maintenance Manual' and follow those steps.**

b. **To complete disabling process –**
   i. Remove 10 amp Hybrid solenoid fuse and 80 amp fuse from battery. Locations of these fuses vary.
   ii. Seal up and bag any connectors removed from component. Separate cable terminals if applicable then seal and bag. Install union on removed glycol hoses to prevent leakage.

NOTE – the motor phase cables MUST be separated and not touching – or the motor magnets will generate current while the vehicle is moving. *Driving the vehicle with the motor phase cables touching will void the warranty even if the actuator and motor magnets are fully extended.*

Section 4 - Driver Feedback Display Troubleshooting

1. **Device ID Names**

There are two systems, the Display system and the Translator system. The two systems communicate with each other by Bluetooth radio. In order to find each other and connect they must both be using the same ID Name stored in the Translator unit. The Translator is marked with an ID like SPP00008 on the bottom (the surface with bump-like feet, not screws). The Display unit is marked with the same ID on its back surface (the one with screws and the mounting attachment). Always make sure that the Display matches the Translator before looking for hardware failures.

2. **Display Power**

The display unit itself is derived from a 7" Samsung tablet and therefore may be sustained on battery power for some time after actual charging power has failed. **Power should be available to this unit at ALL times.**

> **Important! Disassembly of the display unit will not be required for the following tests.**

The operation of this system can be checked whenever the unit is turned off. The unit is turned off by putting a small cylindrical object into the power switch hole in the upper left hand corner of the bezel and holding the switch button down until the Power menu appears on the screen. Press the Power Off menu item and then ok. The display should darken and then display the status of the battery. If this does not happen or the battery appears discharged, further troubleshooting of the charging system would be indicated. At some point, the battery may need replaced and this check may also indicate the end of battery life. This should also be done if the vehicle is to be down for an extended period of time to avoid draining the battery completely.

If the tablet device will not operate at all, it may mean that the battery is completely discharged or that the device is no longer operable. The charging is provided by an inline power converter that converts vehicle power from the battery into 5V to deliver to the charging circuit of the device. The easiest way to check the power converter is to try charging the device with another charger. These are now pretty common and any other Samsung charger may work to do this if it has the universal micro USB plug. If this other charger fails also it is most likely a fault in the tablet. If it does work, the power converter circuit should be checked for power to it. Some of these units have a red light indicating that they are working. Other things that can go wrong are the wires and cables that lead to it and away from it. If it is determined that the power converter itself is not functioning, it should be replaced or repaired. The preferred method of repair is replacement.

3. Translator Power

The translator unit contains a microcontroller to talk to the hybrid controller by serial communications over a wire and provide two way communications with the driver display unit by Bluetooth radio. It is powered on whenever the ignition switch is on. Generally, the hybrid controller will also be on at this time.

If for some reason, the translator is on, but the hybrid controller is not working or not communicating, a communications error will be generated on the driver display. The presence of this error indicates that the Bluetooth link is operating, connected and most likely not a Translator power problem. Use the Crosspoint Kinetics Hycal or Hcal calibration applications to check the cable connected to the Translator as well as the controller operation.

If you still think that the power is suspect, the easiest way to check the power to the Translator is to take its temperature. The box should be warm to the touch. A three terminal regulator against one side of the box is usually hot. If none of this is true, might not have any power, we might have a blown fuse or the regulator has stopped working. The fuse can be replaced and the power into the unit can be fixed by troubleshooting but if the regulator has failed, the unit will have to be repaired or replaced. If the unit continues to blow the fuse and the power is not reversed somehow then the unit needs replaced.

Another indication of Translator power can be determined by removing the top. The radio has two LED lights that should be easily seen. When things are working normally, the red LED will be steady and the green LED will blink until the radio is connected to the tablet device. The green LED will be steady after proper pairing and connection.

4. Translator Cables

Inside the Translator, there are four cables. The power cable of course is pretty important. If it is not connected to the Translator board, the Translator will not function. A large electrolytic cap has a cable that also must be connected to the board on the connector next to the incoming power. The communications cables should be connected to P3 on one end and P6 and P7 on the other end. These communicate with the hybrid controller and the Bluetooth radio. Power is fed to the radio through pins 5 and 9 on the DB-9 connector from P7 on the board. These cables should all be inspected for obvious defects or disconnection but failure is generally not likely once they have been in operation.

5. System Resets

Once the power components have been checked, our first line of defense is the system reset. The Translator unit is reset whenever the ignition is turned on and off, so most of the time; this component has been reset several times by now. Do it again if you're not sure but usually we have shown this to be good or bad by now.

The tablet device may have been reset during the power checks but if not; reset it by pressing the power switch down until the power menu appears and choose Restart. Any program that was behaving badly due to an error should recover with this reset.

6. Possible problems with setup

Several features of the driver display are controlled by the Home Screen application. This application has replaced the original home screen and must run for the driver display functions to operate. It shuts the display down when the ignition is off, allows editing the settings and starts the chosen display screen when a Bluetooth signal from the Translator is available. If any of the settings controlled by this unit are wrong for some reason, the system may not start up or act in other undesirable ways. To start the setup menu, press the Crosspoint Kinetics logo on the home screen.

Note: The setup menu and most of its dialogs will return to the home screen after a period of inactivity.

The **Help Information** menu item presents some useful information for the operators.

The **Display Panels** menu item lets the operator choose what type of panel to show. Currently, there are three possible bar graph displays and a placeholder app for the calibrator. The calibrator does nothing at the moment. If it is turned on, press the logo in the upper right hand corner and change the displayed panel in this dialog to one of the panel options.

The **Switch Action** item is for later developments but should be set to, None. If there is trouble make sure this is set.

The **Switch Initial State** is similar to the item above. It should be set to, On at Startup.

The **Password** item allows setting a password to prevent unwanted changes to the settings. Of course the password might get set and no one knows what it is. This is a preventable situation if only qualified operators set the settings and know the password. But if the unthinkable happens and the password is set and nobody knows what it is, here is how you can get back into operation:

> *The Password may also be set and if it is, you will NOT be able to access these settings unless you know it. There is no easily opened back door. But the file that holds the password is accessible through the Samsung Kies system. This is Samsung software that can be downloaded from the Samsung site to a Windows or iOS computer. It will make it possible to connect the tablet via USB to the computer with Kies and read and modify the tablet files directly from the computer.*
>
> *The file we want to modify is: SM-T210R\OPS\setup. On a PC using notepad, create a file with a text editor (like Notepad) called setup (no extension). In this file enter "Zpanel" on the first line, "Both" on the second line and "true" on the third line (these are case sensitive so enter them just as they are here without the quotes). There should only be three lines and save it as setup. Find the connected tablet using a file manager like File Explorer and copy the new setup file to the OPS folder. Replace the old one. Press down the power button until the power menu appears and Restart the tablet. The password requirement should be gone when it returns.*

The **MAC Address** item lets you enter the radio Machine Address and Name. The first line of the MAC Address/Name dialog should have the MAC Address which is six hexadecimal values separated by colons. It should look something like this: 00:12:C8:09:ED:3D. Unfortunately, if this value is lost, you will have to contact Crosspoint Kinetics and tell them the ID Name that is on the bottom of the translator box and the back of the display. This number is on the second line of the dialog. These IDs should match and there is a MAC Address for each SPPnnnnn ID Name. Crosspoint Kinetics can look up the correct MAC Address for the ID so that you can put it back if you have to.

The **Scan** sub-function button that is part of the MAC Address item may also be able to enter this information. If the MAC address needs updated the Scan button will cause a scan for Bluetooth devices in range to be made. Power on the Translator which you want to connect and then press the Scan button. It will take a minute or two and the screen will return to the Home screen. When the scan is finished a selection list will appear. Choose the Translator ID that matches your device. It should be automatically entered to the MAC Address item and be available for the tablet to access. When prompted, enter the PIN (0000) to finish the pairing.

The **Check for Updates** item (if available) will attempt to turn on the WiFi and check for updates on the internet. To use this facility, take the tablet device to an area with WiFi that it can connect to and select this item. The first thing it will try to do is turn on the WiFi and connect to the available network. After the WiFi is connected, hold the power button down and Restart the tablet.

When the home screen reappears choose this item again and it should connect to check for updates. You may need to assist in the download and installation of new programs. When prompted to install choose Install. When prompted for Done or Run, choose Done. When all installations have been done the home screen will return and WiFi will be turned off again. If you use another network the next time, it will have to be connected again.

> Note: If all of the functions described here are not present, the Check for Updates item should be used.

The **Log Viewer** item allows scrolling through the log file. The log file contains when the display system was on and off and when errors occur in the hybrid system. This can be useful information for the troubleshooter and Crosspoint Kinetics if things go wrong either in the display or the hybrid system. There is a Reduce button which can erase old data and leave a smaller file. Occasionally the log data needs reduced or it would fill the memory and cause errors. This is something that may need to be done to get the display back on the road. In later versions there is also a Send item that can send the log file to Crosspoint Kinetics by storing it on the internet. This function does not reduce it however. After a successful upload of the log file it can be safely reduced without compromising the data.

Finally, the **Save** and **Cancel** items end the dialog and return to the home screen. The Save item keeps the changes you have made to the panel choice, switch actions and password in the setup file. The MAC Address and other actions performed are permanent immediately and either item has no effect.

Substitution of Translator Boxes

It is possible to substitute translator boxes to determine if one is bad. First record the MAC Address of both boxes. In the display unit that does not work, replace the MAC Address of the suspect unit and the ID Name with the known good unit's address and name in the MAC Address dialog. Connect the known good translator box into the hybrid system being tested. Turn on the ignition if it is off and preferably start the bus. If the problem is in the translator box, the display system should work with the known good translator box. Otherwise, additional troubleshooting will have to be done to determine the cause of the failure. Replace the known good unit and/or the display unit when finished and make sure it still works after the testing of the bad one.

Problem still Persists

If in need of help with the guide or problems are not listed above please contact Crosspoint Kinetics or check out our technical document website to receive more customer support. Our customer support number is 1-855-435-4301 and website http://crosspointkinetics.com/techdocs.html