

MAJOR Drilling

DURALITE 1000

ROCK5

DIAGNOSTICS

GUIDE

QUALITY • SAFETY • RESULTS



All Devices

- Chuck Pressure
- Footclamp Pressure
- Azimuth Sensor
- Water Pressure
- Wireline Pressure
- Holdback Pressure
- Feed Pressure
- Rotation Pressure
- Water Flow RPM
- Head RPM
- Wireline RPM
- Mast Angle
- Head Position
- Power Harness
- Starlink

Pressures and Azimuth Sensors

The sensors listed below can be troubleshooted the same way. The only Difference is the Part Number

- Chuck Pressure Part No: PT5500
- Footclamp Pressure Part No: PT5500
- Azimuth Sensor Part No: HCM508B-485
- Water Pressure Part No: PT5502
- Wireline Pressure Part No: PV7000
- Holdback Pressure Part No: PV7000
- Feed Pressure Part No: PV7000
- Rotation Pressure Part No: PV7000

Pressures and Azimuth Sensors

99% of the time it will be the Cable or the Sensor that has broken.

To determine if the Cable is Broken:

1. Take a brand new M12 Cable
2. Unplug the current M12 Cable from the Rock5 Unit
3. Plug in the brand-new cable to the Rock5 unit.
4. Plug in the brand-new cable's female end directly into the sensor.

If the sensor's diagnostic light goes green and we start reading good values again, The original cable was damaged. Replace the Cable to fix the problem.

Pressures and Azimuth Sensors

99% of the time it will be the Cable or the Sensor that is broken.

To determine if the Sensor is Broken:

1. Take a brand-new sensor of the same Part No (See Table in Previous Slide).
2. Unplug the current sensor.
3. Plug in the brand-new sensor into the Female M12 end.

If the Diagnostics Light goes green, The installed sensor is damaged. Replace the sensor with the exact same part number to fix problem

Digital Sensors

The Proxy Sensors listed Below all transmit a digital signal back to the Rock5.

- Water Flow RPM Proxy Part Number: (IFM205)
- Head RPM Proxy Part Number: (IFM205)
- Wireline RPM Proxy Part Number: (IFM205)

The diagnostic Light on the Rock5 is Grey whilst inactive and green when activity is sensed in the last 5 seconds. If the Cable or Sensor is broken, we will only see Grey Diagnostic Lights, not red like other sensors.

Digital Sensors



To determine if the Cable is broken

1. Take a brand new M12 Cable
2. Unplug the current M12 Cable from the Rock5 Unit
3. Plug in the brand-new cable to the Rock5 unit.
4. Plug in the brand-new cable's female end directly into the Proxy sensor.
5. Rapidly touch a metallic object against the proxy's face to manually fake an RPM.

If the Diagnostic lights turns from Grey to Green, the Old Cable is Damaged, Replace the Cable to fix the problem.

Digital Sensors



To determine if the Sensor is broken

1. Take a brand-new Proxy sensor (IFM205).
2. Unplug the current Proxy sensor.
3. Plug the new sensor into the M12 Plug.
4. Rapidly touch a metallic object against the proxy's face to manually fake an RPM.

Rapidly touch a metallic object against the proxy to manually fake an RPM, If the Diagnostic lights turns from Grey to Green, the Old Sensor is Damaged, Replace to fix problem.

CAN Bus Sensors

The Sensors listed Below all communicate with the Rock5 via the CAN Bus Network

- Draw wire For Head Position Part No: Kubler C100
- Mast Angle Inclinometer Part No: JN2100

CAN Bus Sensors

The Can Sensors have a certain order to be functional. We need to connect the ROCK5's "CAN1" port to the JN2100's Male M12 Port (Left). Then from the JN2100's Female M12 Port (Right), we connect to the Draw wire's only M12 Port. This means if the JN2100 is damaged, it is possible for the Draw wire and IO Board (Black) to not be functional.

Can Devices Need 5 Wire M12 Cables, See Glossary



CAN Bus Sensors



Always Ensure the JN2100 (Mast Angle) is Operational

1. Go to Diagnostics, Observe the Data and Status of the Mast Angle Display. If it is Red, firstly test if the cable is damaged.
2. Unplug the current M12 5 Wire cable from the Bottom of the Rock5's M12 Port labelled "CAN1"
3. Plug a brand new M12 5 Wire cable into the Rock5's "CAN1" Port
4. Disconnect all cables from the JN2100 and only connect the brand-new M12 Cable from "CAN1" into the JN2100. If the light goes Green, The Old Cable was damaged. Replace to fix Problem
5. If the Light is still red, We must plug a Brand new JN2100 sensor into the Brand-New M12 "CAN1" Cable.

If the Diagnostic Light turns Green, The old Sensor was broken. Swap to fix problem.

CAN Bus Sensors



Confirm the Draw-wire is working. After Confirming Mast Angle

- Plug the M12 5 Wire Cable from the Mast Angle's Male M12 Port (Right) into the Draw wire's M12 Female Port.
- Go to Diagnostics, Observe the Data and Status of the Head Position Display.
- If the Communications is Red, Firstly test for a faulty cable by replacing the Cable with a brand new M12 5-Wire Cable.
- If the Light goes Green, Replace the faulty cable.
- If it is Still Red, Plug in a brand-new Draw wire.
- If the diagnostic light goes Green, Replace the Draw wire.

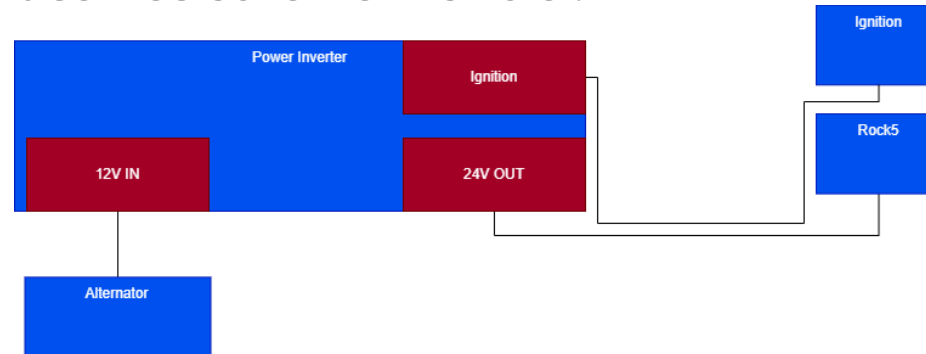
Power Components

The system runs a 12V to 24V Inverter to power the Rock5 Unit, Naturally the Inverter is in standby mode until the Drill's ignition is Powered on.

Once the drills ignition is on the system should start supplying 24-27V to the Rock5's 2 pin plug.

There are Status lights on the Inverter to help troubleshoot power problems.

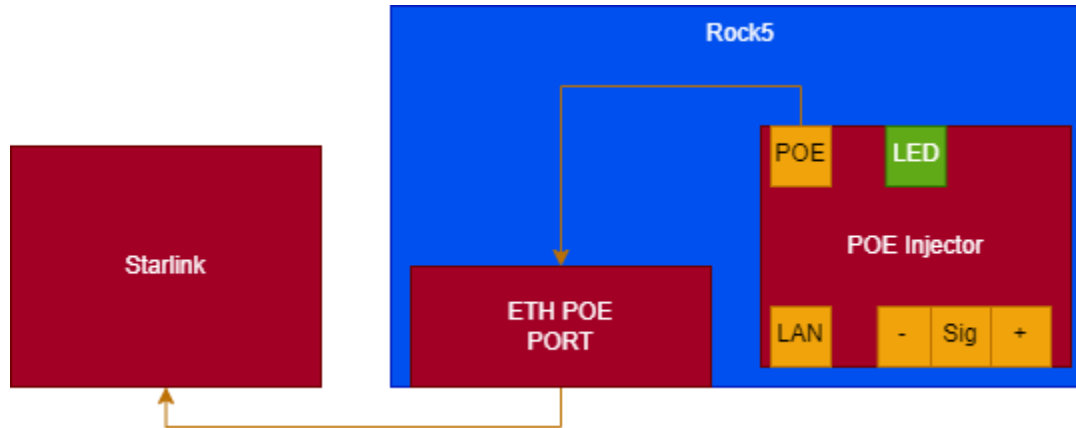
The Inverter is connected to the Alternator.



Starlink

Check Starlink App to Verify Starlink is Powered on

The Starlink is Connected to the system by 1 plug. A Power over Ethernet RJ-45 Ethernet Cable. This cable handles Everything for the Starlink Dish.



Starlink



Check App to Verify Power

1. Restart the ROCK5 Unit. Wait for the Wi-Fi to start up.
2. Connect to Rock5 Wi-Fi – SSID: ROCK5_XXXXXXX, PWD: MajorDr1lling.
3. Open the Starlink App and see if the Starlink Dish is powered up.

If the Starlink is connected on the app, The device is working correctly. If you do not have internet, it could be bad coverage or account problems.

If the device is offline, We start trouble shooting the power on the next slide.

Starlink



Fix Power

1. Check LED for Light, If there is no Light Contact Support
2. If there the LED is on, The Cabling must have damage
3. Check cable for Damage.
4. Check Connections for Dirt.
5. Try a brand-new POE Starlink Cable.
6. If the new cable does not work, Call Support.

GLOSSARY

Draw Wire – C100



JN2100 – Mast Angle



IFM204 – Proxy for RPMs



PT5500 – Pressure Sensor

PT5502 – Pressure Sensor

PV7000 – Pressure Sensor





M12 5 Wire Cable – A cable that has 5 Cores inside of it. Needed for CAN communications.



M12 4 Wire Cable – Typical Sensor Cable, suitable for all Non-CAN sensors.



Starlink RJ-45 Ethernet Connector to Rock 5

- POE Injector – Takes Power from the drill to power the Starlink
- POE Port – Port that connects to the Starlink
- Status LED – Light to see if the POE Injector is working

