Kymeta™ u8 DC Power Kit Installation Instructions

Document number: 700-00111-000 rev 01

Product code: U8ACC-00001-0

31 October 2024

Table of contents

1 About this document

This document describes how to install the u8 DC power kit (U8ACC-00001-0) for the Kymeta™ Hawk u8, Kymeta™ Goshawk u8, and Kymeta™ Peregrine u8 user terminals, herein after referred to as “UT”. The kit includes wiring to cleanly and efficiently tie antenna power-on to vehicle or vessel power-on.

> ✎ The instructions provided in this document detail cable routing for vehicles. For cable routing on vessels, consult a qualified marine integrator to explore cabling alternatives and modifications for this kit. If you are unfamiliar with the power systems of your vehicle or vessel, or with making modifications to them, seek assistance from a qualified integrator company for installation support. Refer to the Kymeta u8 terminal user manual for your product, accessible via the Kymeta Access portal.

2 What's in the kit

The following parts are included in the DC power kit.

- (1) 4 AWG black wire, 7.5 m (25 ft.)
- (1) 4 AWG red wire, 7.5 m (25 ft.)
- (1) 18 AWG blue wire, 7.5 m (25 ft.)
- (1) W38C cable
- (10) cable tie mount
- (4) 4 AWG 5/16 inch ring terminal connector
- (3) 2-to-14 AWG in-line splice connector
- (1) 5 A ATO blade fuse installed in 16 AWG inline fuse holder
- (1) 100 A circuit breaker
- (2) black braided nylon wire shielding, 3 m (10 ft.)
- (1) black heat-shrink tubing, 6 in.
- (10) cable tie

3 Installation tools and materials checklist

Before beginning the installation, verify that you have all the necessary tools. The product package does not include installation tools. Below is a recommended list of tools; however, the specific tools required may differ based on the installation method and the type of vehicle/vessel for the power kit installation.

Required tools:

- Wire cutters
- Wire strippers
- Wire crimpers
- Razor blade
- Flat head screwdriver
- Electrical tape (rated for the intended application)

Optional tools or materials:

- Additional wire cutters (if not already included in the required tools)
- Assorted disassembly or reassembly Tools, such as:
  - Socket drivers
  - Sockets
  - Screwdrivers
  - Torx drivers
  - Push and trim clip popper
- On/Off switch (rated for the intended application)
- Shrinkwrap
- Heat gun
- Pass-through rubber grommets

4 Before you start

Before installing any components, refer to *Kymeta u8 products safety and handling guide (700-00122-000)* to familiarize yourself with the key steps to remember while installing the DC power kit.

5 Install DC power kit without penetrating vehicle roof

To install the DC power kit without penetrating the roof of your vehicle, follow the instructions below.

5.1 Mount the UT onto the vehicle

1. Lay the UT onto a clean, flat surface, like a workbench or table.
2. Locate the flying leads to your UT.

or

3. Strip about 1 inch of wire casing from the 4 AWG red positive wire, 4 AWG black ground wire, and 18 AWG red ACC wire extending from the UT, and then twist the exposed wiring.
4. Attach one of the included in-line splice connector to the 4 AWG red DC positive wire, the 4 AWG black ground wire, and the 18 AWG red ACC wire. For each splice, remove the protective caps from the splice connector, back out the securing screw, insert the cable, and tighten the securing screw to secure the cable.

or

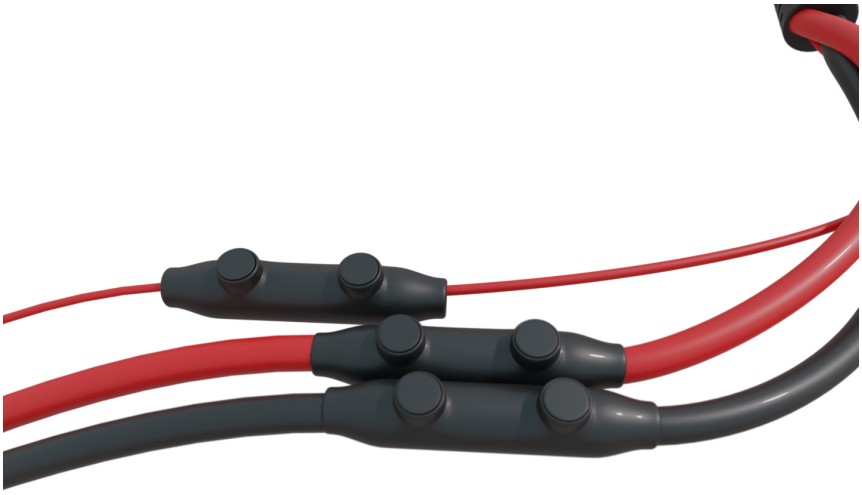
5. Place the UT in the appropriate location on the vehicle. For detailed instructions on installing the UT onto a vehicle, refer to the following documents:
   - For GEO UTs: *Kymeta u8 vehicle mount kit installation guide (700-00141-000)*
   - For LEO and GEO UTs: *Kymeta vehicle rack mount kit installation instructions (700-00214-000)*

5.2 Route the wires

1. Open the engine compartment and access the battery. Disconnect the ground UT from the battery to avoid accidental electric discharge.
2. Route the two 4 AWG wires and the 18 AWG ACC wire from the UT flying leads, down the A-pillar, and into the engine bay.
3. Determine the best location in either the engine bay or the chassis to ground the antenna, and then determine a location for the circuit breaker near the battery. Trim the wires so they are long enough to reach the ground and circuit breaker locations. Keep the excess trimmed wires.
4. Starting from the end near the UT, work the black braided nylon wire shielding over the 4 AWG ground wires to protect the wire as it runs along the windshield. Trim any excess wire shielding and tape the ends of the braided sleeve to the wire with electrical tape to prevent slippage.
5. Starting from the end near the UT, work the black braided wire shielding over the 4 AWG power wire and the 18 AWG ACC wire so that it protects the wires as they run along the windshield. It may help to tape the ends of the 4 AWG wire and the 18 AWG wire together before attempting to insert them into the braided sleeve. Trim any excess wire shielding and tape the ends of the braided sleeve to the wires with electrical tape to prevent slippage.

6. Place evenly spaced cable tie mounts along the wire run up the A-pillar and on the vehicle's roof of the vehicle toward the back of the UT.
7. Bind the wires to the cable tie mounts using cable ties. Trim the excess cable tie ends.

8. Connect the wires to the supplied in-line splice connectors, which are already attached to the UT flying leads:
    a. Remove rubber plugs: use a pick tool or a thin flathead screwdriver to remove the rubber plugs from each in-line splice connector carefully.
    b. Loosen the flathead bolts on all the in-line splice connectors to prepare them for wire insertion.
    c. Connect ground wires:
        - Strip the ends of the 4 AWG black ground wire near the UT.
        - Connect this wire to the UT's 4 AWG black ground wire within the in-line splice connector.
        - Tighten both flathead bolts to secure the connection.
    d. Connect positive wires:
        - Strip the ends of one 4 AWG red positive wire near the UT.
        - Connect this wire to the UT's 4 AWG red positive wire within the in-line splice connector.
        - Ensure both flathead bolts are tightened to secure the connection.
    e. Connect ACC wires:
        - Strip the ends of the 18 AWG blue ACC wire near the UT.
        - Connect this wire to the UT's 14 AWG red ACC wire within the in-line splice connector.
        - Tighten both flathead bolts to ensure a secure connection.
    f. Reinstall rubber plugs: once all connections are made, press the rubber plugs back into the tensioner bolt holes of each in-line splice connector to protect the connections.



5.3 Connect the power and ground wires

1. Prepare ground wire:
    a. Strip approximately 1.25 cm to 2.54 cm (½ inch to 1 inch) of insulation from the end of the 4 AWG black ground wire located in the engine bay.
    b. Attach a ring UT to the stripped end of the wire.
    c. Crimp the ring UT onto the wire to ensure a secure connection.

2. Connect the ring UT with a 5/16 inch bolt to your chosen grounding point in the vehicle.

3. Open the provided 100 A circuit breaker and mount it in a suitable location near the battery.
4. Prepare a positive wire for the breaker:
    a. If necessary, measure the length of the 4 AWG red positive wire to the circuit breaker and trim the wire accordingly, keeping any excess wire.
    b. Strip approximately 1.25 cm to 2.54 cm (½ inch to 1 inch) of insulation from the end of the trimmed 4 AWG red positive wire.
    c. Attach a ring UT to the stripped end and crimp it to ensure a secure connection

5. Attach the 4 AWG red positive wire to the input UT of the 100 A circuit breaker.

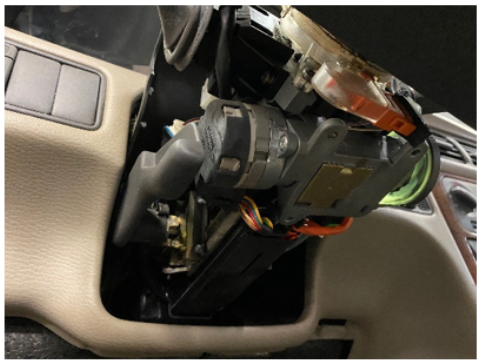
6. Connect to battery:
    a. Using the excess 4 AWG red positive wire, measure the distance from the positive battery UT to the breaker and trim the wire to the required length.
    b. Attach a ring UT to each end of this wire segment.
    c. Use this double-ended ring UT wire to connect from the input of the circuit breaker to the positive battery UT.
7. Securely mount the circuit breaker in the chosen location near the battery.

5.4 Connect the ACC wire

Before starting this section, consult your vehicle manual and find an acceptable location to connect your ACC line. This connection should provide 12 volts of current when the car is turned on.

1. Route the 18 AWG blue ACC wire into the vehicle through an OEM grommet. You may have to drill a hole. Always use a grommet to shield the cable if it passes through a metal hole.
2. Select an OEM ACC wire to tap into. It could be at the ignition switch, an OEM 12 V accessory location, or a physical switch.

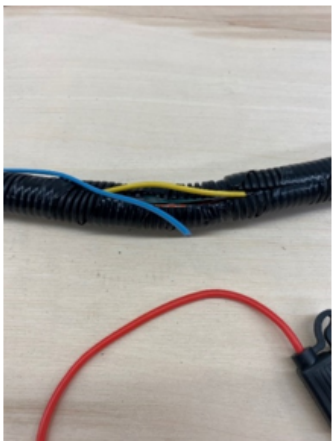
> ✎ Some users elect to use an existing or add an accessory switch (not included). In those cases follow the switch manufacture's instructions for adding the switch to the vehicles wiring harness and add the fuse link per the instructions wiring diagram.
> Alternatively, you may use a splice kit (not included) or equivalent method. If using an alternative, follow the manufacturer's directions.



3. Use the ATO fuse holder:
    a. **Note**: The fuse holder may be an open-style holder that does not exactly match one of the images below. If the fuse holder is open, ensure it is in a semi-shielded or environmentally protected area of the compartment or engine bay.

OR If using a closed loop, cut the loop open to create two exposed ends.

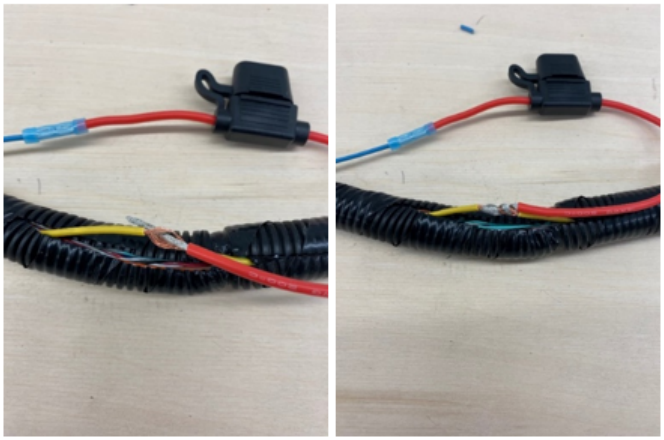
b. To tap in the fuse holder, cut open the wire housing to expose the identified signal wire to be tapped into.



c. Using a wire stripper, cut through the wire casing in two locations about 1.25 cm to 2.54 cm (½ in. to 1 in.) apart.

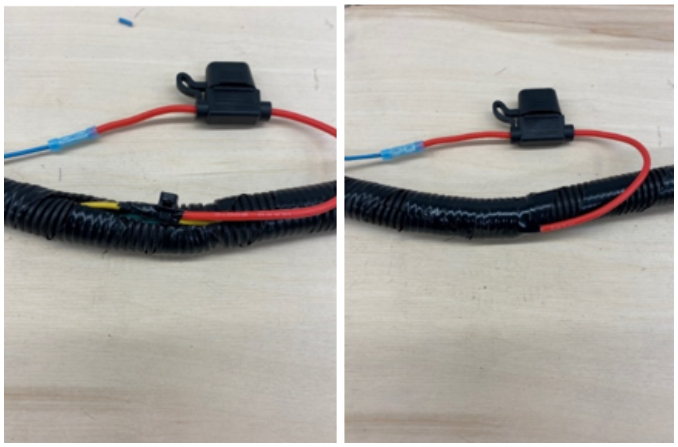
d. Using a razor blade, cut a vertical line between the cuts and remove the casing.
e. Create a hole in the wire.

f. Insert the 18 AWG blue ACC wire into the hole and wrap the wires around each other to create a firm bind. Note that soldering wires creates an inflexible junction that may break if stressed.



g. Insulate the splice joint with electrical tape.

h. Embed the spliced wire into the wire protector and bind it with electrical tape.



4. When complete, reconnect the vehicle's battery and replace any removed upholstery or interior parts. Double check all connections (positive, negative/ground, fuse holder, circuit breaker), all fixing points (make sure cable ties are tight, tape, screws, or other fasteners or adhesives are tight, and grommet(s) are in place if used). Recheck these things after initial use and if any troubleshooting is required.
5. Close the circuit breaker in the engine compartment to enable power to the UT, reconnect the battery ground, replace any safety covers, and close the hood.
6. If any cables outside of the cabin or engine bay have not been secured, finalize wire retention up to the UT and ensure everything is secure and safe for highway driving.
7. If you connected the remote wire to the ignition, when you turn on your car, the UT will automatically power on and come online if provisioned. If a switch was installed, the switch needs to be in the on position for the UT to power on. If the remote wire was bypassed, the circuit breaker could be used to connect and disconnect power from the UT.
   Caution: Always disconnect the circuit breaker when the vehicle is not in use or running to prevent battery drain, which can result in your vehicle being unable to start.

5.5 Alternate methods for routing wires up the A-pillar

The following are two alternative methods for routing wires up the A-pillar.

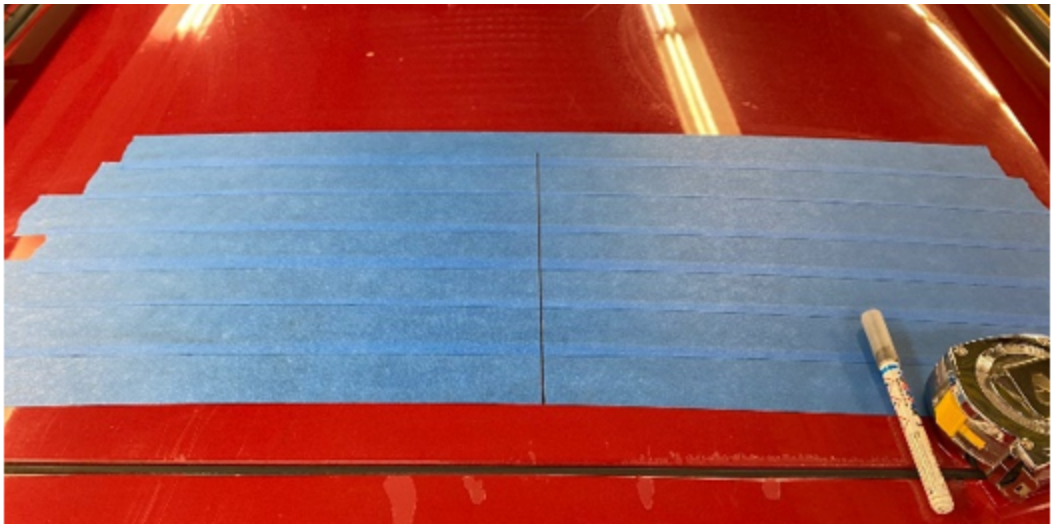
Alternate method A: Route the wiring inside the PVC pipe and use a heat gun to mold the pipe to the vehicle's shape. Double-stick the pipe to the A-pillar.

Alternate method B: Use foam to create a plug that blends with the OEM trim layout and create a fiberglass channel to route the wires up the A-pillar.

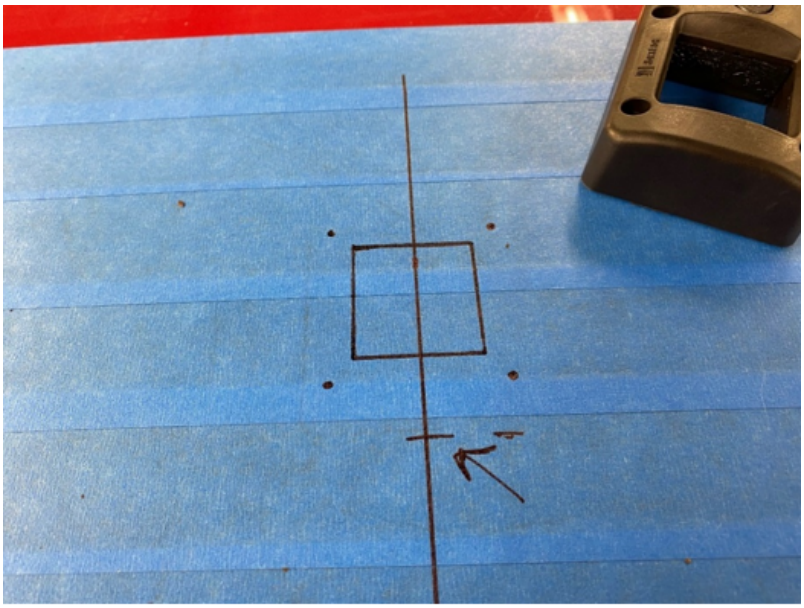
6 Install power kit by penetrating vehicle roof

To install the power kit by penetrating the roof of your vehicle, follow the instructions below.

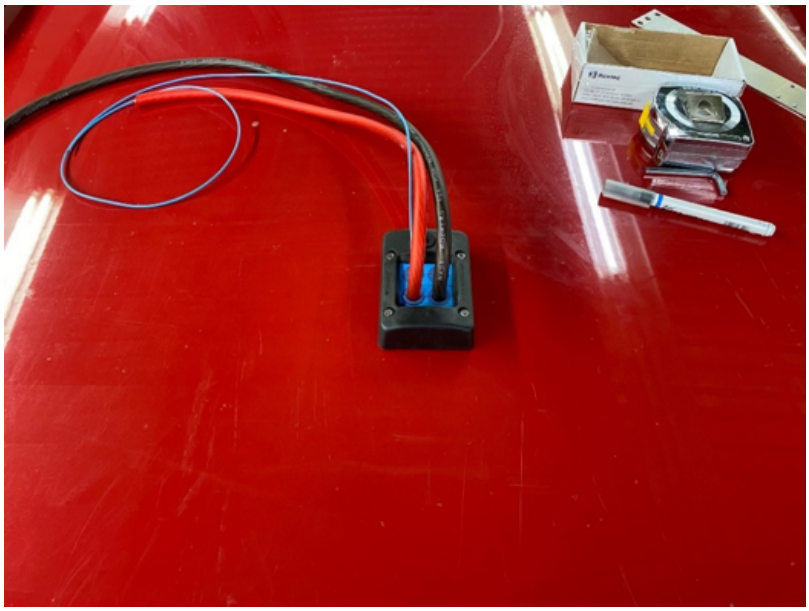
1. Source a weatherproof cable gland capable of at least three wires. Kymeta recommends Roxtec EZEntry 4/4.
2. Lay out potential keep-out areas to avoid drilling into any critical structural or electrical components.



3. Trace an area to drill/cut for placing the waterproof cable gland.



4. Install the cable gland and shield the exterior wiring.



5. Find a location inside the vehicle to ground the UT. Scrape the paint off before grounding to ensure metal-to-metal contact. Re-coat or insulate as appropriate to prevent corrosion.

6. Route the power wire through the vehicle as needed. Follow the wire connection procedures described in the section *Section 5 Install DC power kit without penetrating vehicle roof*.

7 Revision history

Revision	Change
A	Initial Production version.
B	Updated for clarity and accuracy throughout.
C	Minor kit content correction.
D	Updated the length of 115-00444-000, 115-00445-000, and 115-00446-000 parts.
E	Replaced 115-00444-000 and 115-00445-000 with 115-00517-000. Minor document updates.
F	Added instructions for LEO UT configurations.
G	Updated the list of materials and improved clarity.
01	Added the Goshawk u8 UT to the list of compatible terminals.

8 Copyright and trademark information