



# Kymeta™ u8 Satellite Terminal

## Quick Start Guide

PRODUCT CODE: U8901-10113-0

Document number: 700-00197-000 rev A

10 August 2021

# Table of contents

1	Introduction .....	3
2	Product considerations .....	5
2.1	General considerations .....	5
3	Unbox the u8 terminal .....	5
4	Plug in the terminal .....	6
4.1	Install the AC-to-DC power kit .....	6
4.1.1	Open the u8 shroud .....	6
4.1.2	Connect the AC-to-DC power kit .....	6
4.1.3	Close the shroud .....	6
4.2	Power on the u8 terminal .....	6
5	Connect .....	7
5.1	Provision and commission the u8 terminal with Kymeta™ Broadband services .....	7
5.1.1	Provision and commission the u8 terminal without Kymeta™ Broadband services .....	7
6	Mount the u8 satellite terminal .....	8
6.1	Mounting considerations .....	8
6.2	Mounting solutions .....	9
6.3	Example installation sites .....	10
7	Obtain u8 antenna status information .....	11
8	Customer support .....	11
9	Revision history .....	11
10	Copyright and trademark information .....	11
	Appendix A. u8 satellite terminal cabling diagram .....	12
	Appendix B. Network interfaces .....	14
	Appendix C. Device login information .....	16
	Appendix D. LED status indicators .....	17

# 1 Introduction

This document contains important step-by-step details for the installation and setup of the Kymeta™ u8 satellite terminal (U8901-10113-0). The Kymeta u8 satellite terminal has all the performance of the u8 antenna with an embedded iQ 200 without the multi-WAN.

For information on the Kymeta u8 antenna web-based user interface, refer to *700-00139-000 Kymeta™ u8 antenna software user guide*.

The u8 satellite terminal includes a QR code on the antenna communications module, under the side access panel, next to the LED status panel to show the as-built configuration of the system. The following is an example of the information included in the QR code:

```

PRODUCT_NAME: KYMETA U8 SAT TERMINAL, 20W
PRODUCT_CODE: U8901-10112-0
PRODUCT_SN: ABQ000K200624006
ANTENNA_SN: ABP511K200710025
MODEM_SN: 017806
HD1_SN: N/A
HD1_IMEI: N/A
IP_ADDRESS: 192.168.44.2
SIM_ID: N/A
  
```

The footprint of the u8 terminal is 89.5 cm × 89.5 cm × 14 cm (35.2 in. × 35.2 in. × 5.5 in.). Ensure you have enough mounting space.

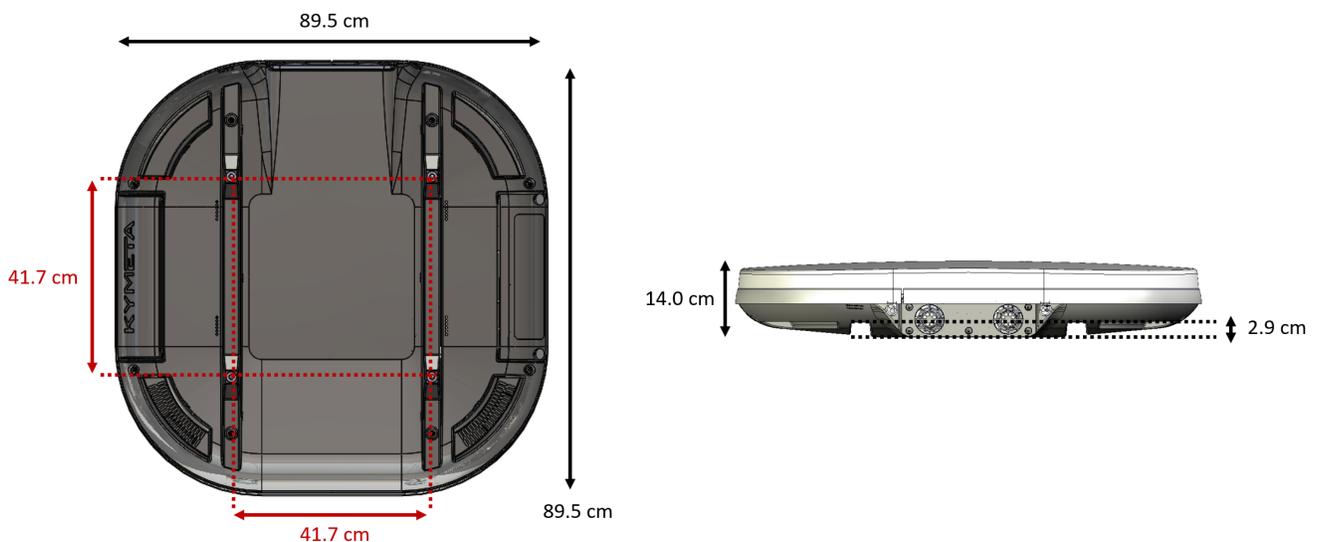


Figure 1. u8 satellite terminal dimensions

The u8 satellite terminal comes with two Ethernet jumper cables that extend the Ethernet connection outside of the shroud. For more information on u8 cabling and the u8 products cable extension kit, see [Appendix A. u8 satellite terminal cabling diagram](#).

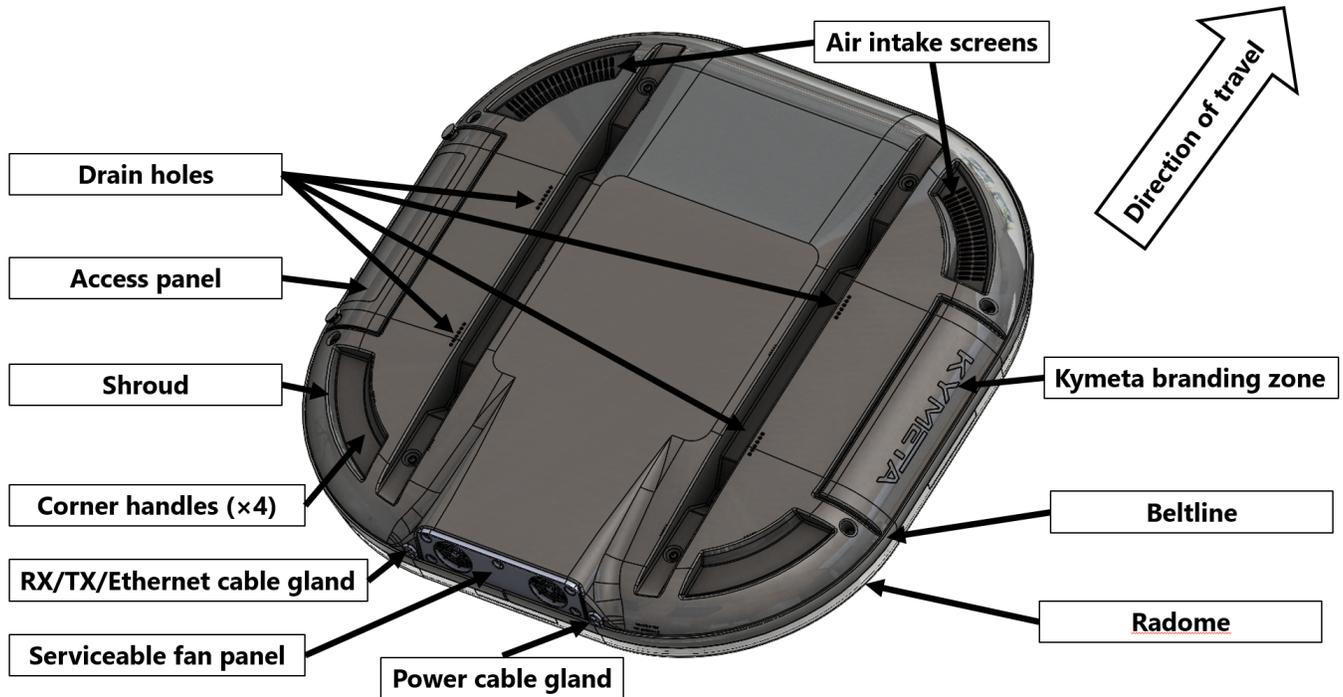


Figure 2. u8 satellite terminal external guide

## 2 Product considerations

---

### 2.1 General considerations

- » For your safety, read *700-00122-000 Kymeta™ u8 products safety and handling guide* before beginning installation.
- » Acquire all the hardware and tools required for u8 terminal installation; they aren't provided with the product.
- » Use the corner handles to lift the u8.
- » Never grab or lift the u8 by the shroud, diplexer or any other part of the RF chain. Never use the diplexer or any part of the RF chain to mount the u8 as they are not a structural part of the u8 and may be damaged if handled improperly. Avoid damaging the coating on the diplexer.
- » u8 terminals operating under Kymeta FCC blanket authorization (call sign: E170070) must limit BUC output power to 42.3 dBm to maintain compliance with RF safety labeling on the unit ensuring general public safety during transmit operations. To limit the BUC output power, in the u8 web-based user interface, go to **Pointing > Commissioning Mode** page, and select the right Power Spectral Density (PSD) table. Limiting BUC output power and mounting above the human users or appropriately marking a keep-out area ensures safe exposure limits for all users.
- » Use Mozilla Firefox to access the Kymeta web-based user interface (UI).
- » The u8 is configured by default to use a DC power source and requires a 12 VDC to 36 VDC power source. To use an AC power source for the u8, purchase the AC-to-DC converter kit (U8ACC-00044-0).
- » LAND-MOBILE: For safety to your vehicle and rack system, obey all posted speed limits and traffic cautions. Adapt your speed to the conditions of the road and the load being carried.

## 3 Unbox the u8 terminal

---

1. Clear a **flat surface** and place a piece of foam, fabric, or non-abrasive material on the clean flat surface to prevent marks or damage to the face of the u8 antenna.
2. Unpack the terminal. To open the box, lay it flat on an open area where it's easy for one person to stand on each side near the clean assembly surface.
3. With two people (one person on each side), lift the u8 out of the case, keeping the terminal parallel to the floor, and lay the antenna face down on the clean flat surface. Place a piece of foam, fabric, or non-abrasive material on the clean flat surface to prevent marks or damage to the face of the antenna.

 The u8 terminal box includes a large graygrey foam piece to protect the top of the u8 during transportation. Use this as a protective pad when working on the u8.

## 4 Plug in the terminal

⚠ The Kymeta u8 terminal operates on 12 VDC to 36 VDC maximum. Exceeding 36 VDC may cause damage to the equipment and is not covered under warranty.

The u8 terminal is configured by default to use a DC power source.

- » If you are going to use the DC power source, proceed to [4.2 Power on the u8 terminal](#).
- » If you are going to use an AC power source for the u8 terminal, install the AC-to-DC converter kit (U8ACC-00044-0) as described in [4.1 Install the AC-to-DC power kit](#).

### 4.1 Install the AC-to-DC power kit

🔧 Before installing the unit, you can open and remove the shroud without affecting the warranty or IP-rating.

#### 4.1.1 Open the u8 shroud

1. Place Kymeta u8 terminal shroud-up on a soft surface to protect the radome.
2. Remove the (×8) M6 fasteners on the shroud using the T20 Torx driver. **The cable glands on either side of the fan panel are not fixed to the shroud and must be removed to modify power cable routing.**
3. Gently lift the shroud until the fan cable connector is accessible. Disconnect the section attached to the fans and fan panel by unlocking the outdoor-rated Ethernet connector and gently pulling to release. Then, fully remove the shroud and place it aside. **Removing the fan panel from the shroud is not necessary.**
4. Access the power cable connector to install an AC-to-DC power kit.

#### 4.1.2 Connect the AC-to-DC power kit

Connect the AC-to-DC converter kit (U8ACC-00044-0) as described in the supporting instructions.

#### 4.1.3 Close the shroud

Reconnect the fan cable, and then set the shroud back and ensure the cable glands are properly secured. Pay special attention to the seating of the shroud, and the location of the cables beneath it. Ensure that the RF, power, and fan connector cables are clear of the 4 mounting points. Re-install the (×8) M6 fasteners and torque to 7.0 N-m (5.16 ft.-lb.). These fasteners have a nylon patch so Loctite is not required. See also [Appendix A. u8 satellite terminal cabling diagram](#).

## 4.2 Power on the u8 terminal

1. Ensure the u8 is in place with view of the sky; see the guidelines in [6.3 Example installation sites](#).
2. Connect all power cables.
3. Power on the u8 terminal. You may hear the shroud fans power up and then reduce speed.

## 5 Connect

Connect to the u8 terminal administrative network:

1. Open the access panel on the side of the terminal:
  - a. Remove the (×2) Thumb Screws M6×12mm thumb screws.
  - b. Slide the panel toward you to remove.
2. Connect to the Ethernet 2 port.
3. Set the static IP address of your administrative device to connect to the antenna IP address 192.168.44.2 (e.g., 192.168.44.30). Operation in motion with the access panel open or with an Ethernet 2 port connection is not recommended.

 Change your passwords after the first use. Leaving the passwords as the default is a security risk.

Physical access to the administrative network of the u8 is available by connecting to the Admin Ethernet port after opening the access panel on the side. You need to set the static IP address of your administrative device to connect to the antenna IP address 192.168.44.2 (e.g., 192.168.44.30). Operation in motion with the access panel open or with an administrative Ethernet connection is not recommended.

### 5.1 Provision and commission the u8 terminal with Kymeta™

#### Broadband services

Contact [support@kymetacorp.com](mailto:support@kymetacorp.com) to request a commissioning window. Provide your terminal serial number, contact name and number, and requested commissioning window within the hours of 07:00-18:00 PT (UTC-8).

Kymeta support will provision your terminal and provide you options files before the call, which you will load with Kymeta support during your commissioning window.

Before commissioning, ensure your administrative laptop has access to the u8 administrative network, either with the physical access under the access panel, or wirelessly on the Admin Wi-Fi network. See [Appendix C. Device login information](#) for login information.

During your commissioning window, ensure your terminal has a clear view of the sky, and then contact Kymeta support according to the instructions provided by the support team during the confirmation of your commissioning time. They will guide you through the process of connecting to the satellite for the first time.

#### 5.1.1 Provision and commission the u8 terminal without Kymeta™ Broadband services

For instructions refer to the *700-00139-000 Kymeta™ u8 antenna software user guide*, section "Software Commissioning Mode support".

You can access the u8 system for administration or monitoring. Full system status is available through the Kymeta Access application. To start using the Access portal, you need to configure the u8 terminal to connect to the Internet/Intranet to make it possible for the Access app to connect to the antenna. This application also connects you to other system components for administration. Refer to [Appendix C. Device login information](#) for details.

## 6 Mount the u8 satellite terminal

### 6.1 Mounting considerations

- » Prior to mounting, check that the terminal is grounded and the electrical power is disconnected from it.
- » Practice basic electrical safety measures. Follow local, national, and other regulations with respect to these devices.
- » During mounting, avoid obstructing the air intake screens or drain holes.
- » Mount the u8 as far from the radar/transmitter as possible and outside of the radar beam width, typically  $\pm 15^\circ$  elevation range, to avoid the u8 damage. Evaluate the performance of the u8 with all radar and transmitters operating normally before finalizing the mounting.
- » Mount the u8 in an area above accessible range of personnel within the operational range of the antenna to reduce the risk of RF exposure. Hazard zones can be set up on the antenna to prevent transmitting at specific angles relative to the antenna. Refer to *700-00139-000 Kymeta™ u8 antenna software user guide*, section "Set up hazard zones" for more information.
- » Mount the u8 as far as possible from any equipment or materials that may cause magnetic interference for faster acquisition times.
- » Satellite reacquisition is most efficient if you mount the terminal in direction of travel; refer to 8 Set up u8 antenna orientation for more details.
- » Obstructing the direct path to the satellite degrades performance and may cause a loss of connection with the satellite. The antenna should have a clear line of sight:  $15^\circ - 90^\circ$  elevation (broadside to  $75^\circ$  scan angle), full  $360^\circ$  azimuth (broadside to  $75^\circ$  scan angle).
- » Obstructing the face of the antenna degrades RF performance and could impair the GNSS capability of the antenna.
- » The u8 has all cables routed out the rear side next to the fans. Ensure when mounting the u8 that this space isn't blocked.
- » The u8 terminal fans are critical to proper thermal function. When mounting the u8, keep at least a 305 mm (12 in.) open distance behind the fans and a minimum single exhaust zone vertically (up or down), horizontally (right or left), or some combination to minimize back pressure.
- » The u8 terminal access panel on one side is removable for LED/admin Ethernet access. You need to ensure that this panel is reachable after you have mounted the u8.
- » If you ordered any u8 accessory kit(s), refer to the installation instructions shipped with the kit(s).

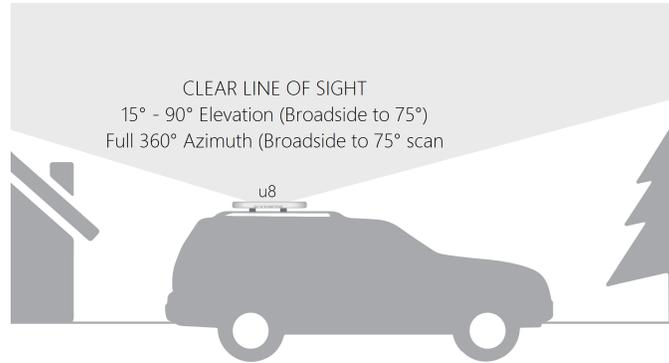
## 6.2 Mounting solutions

- » Kymeta offers universal mounting plate (U8ACC-00004-0) for **stationary installation** of the u8 terminal. Follow the instructions from the *700-00143-000 Universal mounting plate installation instructions* provided with the mounting kit.
- » Kymeta offers u8 vehicle mounting kit (U8ACC-00003-0) for **land-mobile installation** of the u8 terminal. Follow the instructions from the *700-00141-000 Kymeta u8 vehicle mount kit installation guide* provided with the mounting kit.
- » Mounting the u8 terminal on a car is similar to installing an audio amplification system. Kymeta recommends contacting an authorized auto shop to install the u8 terminal on your car. The u8 terminal accepts 12 V to 36 V DC maximum power and integrates with most platforms. Kymeta offers u8 vehicle power kit (U8ACC-00001-0) for land-mobile installation of the u8 terminal. Depending on your installation specifics, follow the *700-00111-000 Kymeta u8 terminal vehicle power kit installation instructions* provided with the power kit.
- » Any mounting solution designed for the u8 satellite terminal must allow for lateral and vertical thermal expansion and contraction of the unit. Rigid constraint of the unit may result in permanent damage to the unit, including catastrophic failure, and voids the warranty of the u8 product. Kymeta recommends a minimum clearance of 1.5 cm (0.6 in.) of clearance from the terminal edge to account for this thermal expansion.

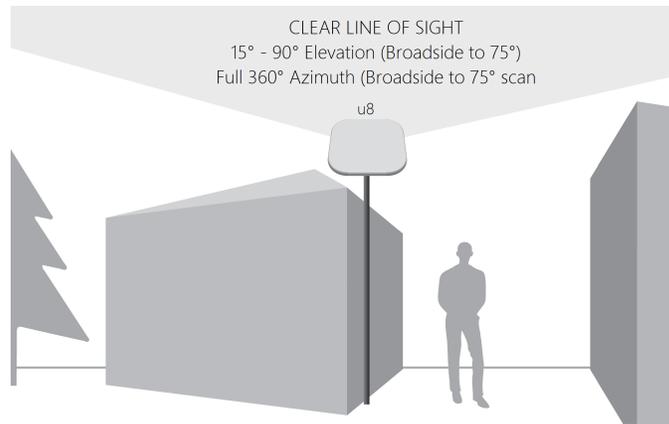
**If you need support in assessing your mounting configuration, contact Kymeta customer support at [support@kymetacorp.com](mailto:support@kymetacorp.com) for additional information.**

## 6.3 Example installation sites

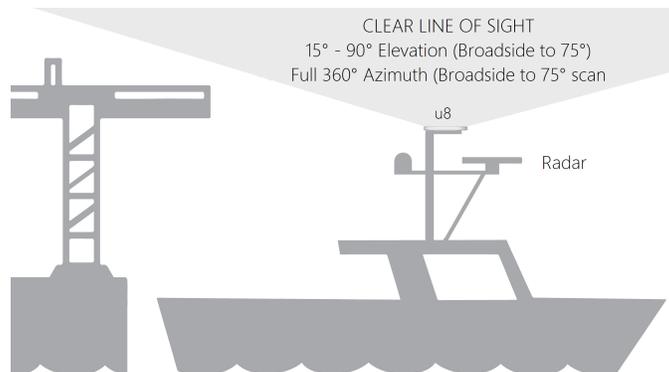
The following images show example installation sites.



*Figure 3. Land-mobile installation*



*Figure 4. Stationary installation*



*Figure 5. Maritime installation*

## 7 Obtain u8 antenna status information

After the terminal has booted, you can obtain status information in several ways.

1. Use Utilize the Kymeta Access application to view full terminal status.
2. Open the shroud access panel to view status LEDs. Solid green LEDs indicate normal functioning, and blinking blue LEDs indicate connectivity. Refer to [Appendix B. Network interfaces](#) for full LED status indicator definitions.
3. Open the shroud access panel and connect an Ethernet cable to the available port. This Ethernet connection provides Kymeta Administrative web-based UI access according the directions in the section above relevant to your configuration.

Refer to *700-00139-000 Kymeta™ u8 antenna software user guide* for details on interacting with the features of the Kymeta antenna. The software user guide provides you with details on all available features and modes of operation.

## 8 Customer support

Contact Kymeta customer support at [support@kymetacorp.com](mailto:support@kymetacorp.com) or call Kymeta **1-855-525-6638** for urgent issues.

## 9 Revision history

Revision	Change
A	Initial u8 satellite terminal version.

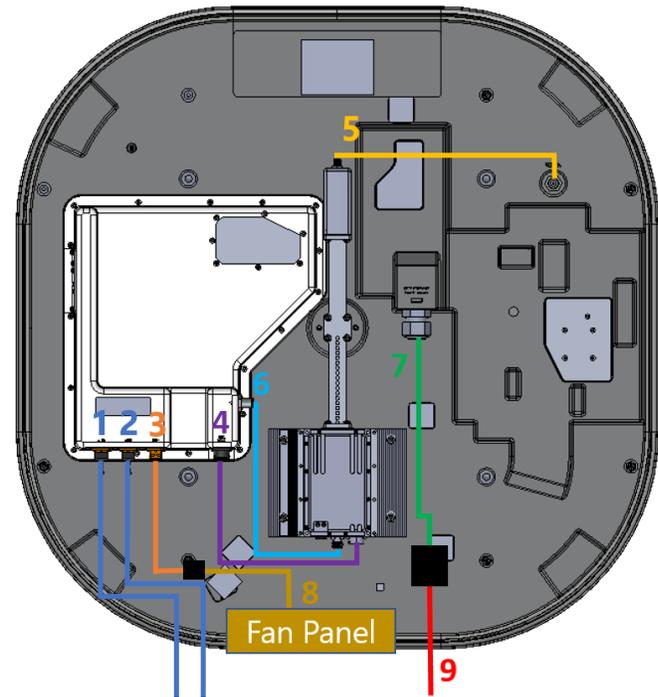
## 10 Copyright and trademark information

©2021 Kymeta Corporation. All Rights Reserved. KYMETA, KYMETA CONNECT, MAKING MOBILE GLOBAL, and CONNECTED BY KYMETA are trademarks of Kymeta Corporation, with registrations or pending applications in the U.S. and/or other countries. All other trademarks are the property of their respective owners.

## Appendix A. u8 satellite terminal cabling diagram

Six field-replaceable external cables [1, 2, 3, 4, 5, 6, and 9] reside under the u8 terminal shroud. The fan panel cable [8] can be replaced without removing the shroud. The power jumper cable [9] and Ethernet jumper cables [1 and 2] move connection interfaces outside the shroud to improve installation experience.

1. Ethernet 2 jumper cable (W57)
2. Ethernet 1 jumper cable (W57)
3. Fan power and control jumper cable (W47A)
4. BUC power, M&C cable (W44)
5. RX LNB cable (W46)
6. TX cable (W43)
7. Power main cable (W38A)
8. Fan panel cable (W47B)
9. Power jumper cable (W38C or W38B)



Cable name and product code	Cable description
Ethernet 1 jumper cable (W57) Ethernet 2 jumper cable (W57) (U8ACC-00018-0)	Ethernet 1 jumper cable leads to the iQ 200 modem and Ethernet 2 jumper cable leads to the ACU. The behaviors of these two cables can be configured in the options file of the iQ 200 modem with help from the network operations center. The Ethernet ports are for a standard 10/100/1000 network and are the primary monitor and control (M&C) and data ports. They supports multiple protocols for a web server (GUI), ACU-modem Interface (OpenAMIP), and an M2M (machine-to-machine) RESTful API. Installation engineers can make multiple connections with an external switch.
Fan power and control jumper cable (W47A) (U8ACC-00020-0)	This shielded Ethernet cable provides power and control to the fan panel. Since this cable supplies power, you cannot replace it with a standard non-POE Ethernet cable. Disconnect this cable at the outdoor-rated RJ45 connection halfway between the communication module and fan panel before removing the shroud entirely. The cable is attached to the fan panel cable (W47B).
BUC power, M&C cable (W44) (U8ACC-00019-0)	This cable connects the communication module and BUC. This cable provides power to the BUC and communication to set attenuation, mute, and read output power.

Cable name and product code	Cable description
RX LNB cable (W46) (U8ACC-00016-0)	This LMR-195 cable connects the LNB to the antenna RX IN port. The cable requires a right-angle N-type connector at the antenna end to maintain the low profile of the antenna without sharp or protruding cable bends. The cable has standard N-type connectors at each end.
TX cable (W43) (U8ACC-00029-0)	This LMR-195 cable connects the BUC to the communications module carrying the modulated waveform at intermediate frequency. The TX cable works in the frequency range from 950 MHz to 2150 MHz and passes a 10 MHz reference signal to the BUC.
Power main cable (W38A)	<p>This cable is factory-installed and non-removable. The power main cable connects the power jumper cable (W38C) (U8ACC-00017-0) to the embedded power supply.</p> <p>When attaching the power main cable, check the keying: the threads may engage slightly when the connector is rotated by 180° from the correct alignment. Ensure that the threading fully engages. If the power main cable is correctly attached and fully seated, the metal nut at the end of the cable will cover the gasket on the embedded power supply input.</p> <div style="border: 1px solid yellow; padding: 5px; margin-top: 10px;"> <p> Incorrectly seating the power connector will result in a short circuit, which will damage the cable and embedded power supply.</p> </div>
Fan panel cable (W47B) (U8ACC-00012-0)	This cable comes as a part of the shroud fan assembly. The cable is attached to the fan power and control jumper cable (W47A). The shroud fan assembly is field replaceable without removing the shroud.
Power jumper cable (W38C) (U8ACC-00017-0)	This cable is unterminated and can be connected to the u8 vehicle power kit (U8ACC-00001-0) using in-line splice blocks. If you want to use the AC-to-DC power kit (U8ACC-00002-0), replace the power jumper cable (W38C) (U8ACC-00017-0) with the cable provided with the power jumper cable (W38B) (U8ACC-00042-0) kit.

## Appendix B. Network interfaces

The u8 satellite terminal will ship to you with the following network interfaces:

Network Interface	Network Setting	Terminal value (as shipped)
Local network	IP Mode	static
Local network	IP Address	192.168.44.2
Local network	Netmask	255.255.255.0
Local network	Gateway	blank/empty
Local network	DNS Server	blank/empty
Admin VLAN	IP Mode	static
Admin VLAN	IP Address	192.168.45.2
Admin VLAN	Netmask	255.255.255.0
Admin VLAN	Gateway	blank/empty
Admin VLAN	DNS Server	blank/empty
Data VLAN	IP Mode	static
Data VLAN	IP Address	10.12.12.2
Data VLAN	Netmask	255.255.255.0
Data VLAN	Gateway	10.12.12.3
Data VLAN	DNS Server	8.8.8.8

 Failure to utilize the Data VLAN settings as shipped will result in connectivity issues with the antenna on all forms of u8 terminal connectivity except the wired Admin Ethernet Port as well as elimination of OTA Metric transmission.

If you use the antenna reset button, and depress the button for 5 seconds or longer, the u8 reverts to baseline network configuration:

Network Interface	Network Setting	Baseline configuration (after reset)
Local network	IP Mode	static
Local network	IP Address	192.168.0.10
Local network	Netmask	255.255.255.0
Local network	Gateway	blank/empty
Local network	DNS Server	blank/empty
Admin VLAN	IP Mode	static
Admin VLAN	IP Address	192.168.45.2
Admin VLAN	Netmask	255.255.255.0
Admin VLAN	Gateway	blank/empty
Admin VLAN	DNS Server	blank/empty
Data VLAN	IP Mode	static
Data VLAN	IP Address	10.12.12.2
Data VLAN	Netmask	255.255.255.0
Data VLAN	Gateway	10.12.12.3
Data VLAN	DNS Server	8.8.8.8

If you use the antenna reset button, be sure to replace the network configuration as defined by the tables above. Use the Kymeta web-based UI at **Settings** > **Network** to adjust the values to match the as-shipped configuration or as required. It is recommended you use the Admin Wired Ethernet Port to access and make corrections to reduce connectivity issues.

## Appendix C. Device login information

The table below is a collection of devices, usernames, and passwords.

 Change your passwords using the Kymeta Access application or web-based UI. Leaving the passwords as the default is a security risk.

Configuration	Device	IP address or SSID	Username	Password	Usage information
Terminal	Modem	192.168.44.1	admin	P@55w0rd!	Valid before commissioning
Terminal	Modem	192.168.44.1	admin	iDirect	Valid after commissioning when commissioning via Kymeta Broadband
Terminal	Antenna	192.168.44.2	admin	2Cfg^Ant	Access the Kymeta web-based UI.
Terminal	BUC	Use click-through from Antenna Settings page	admin	admin	Making any changes to BUC configuration may result in unexpected transmission or may cause the BUC to become unreachable.

## Appendix D. LED status indicators

### Antenna status LED indicator

LED state	Indication
Off	Antenna not powered
Solid amber	Antenna powered but not successfully booted
Solid green	Antenna powered and successfully booted
Blink green, then solid green	Antenna reset successful

### Satellite modem status LED indicator

LED state	Web-based UI indicator	Indication
Off	OFF	Satellite modem not powered
Blinking amber	WAITING	Satellite modem not powered due to attempted operations outside of operating thermal specification
Solid amber	BOOTING	Satellite modem powered but not successfully booted
Fast blink green	ON	Satellite modem successfully booted but LNB not detected
Solid green	READY	Satellite modem successfully booted and LNB detected
Slow blink blue	RX LOCK	RX lock
Fast blink blue	TX ENABLED	TX enabled
Solid blue	CONNECTED	Satellite modem in network
Solid red	ERROR	Fault detected by built-in self test