AuVerte

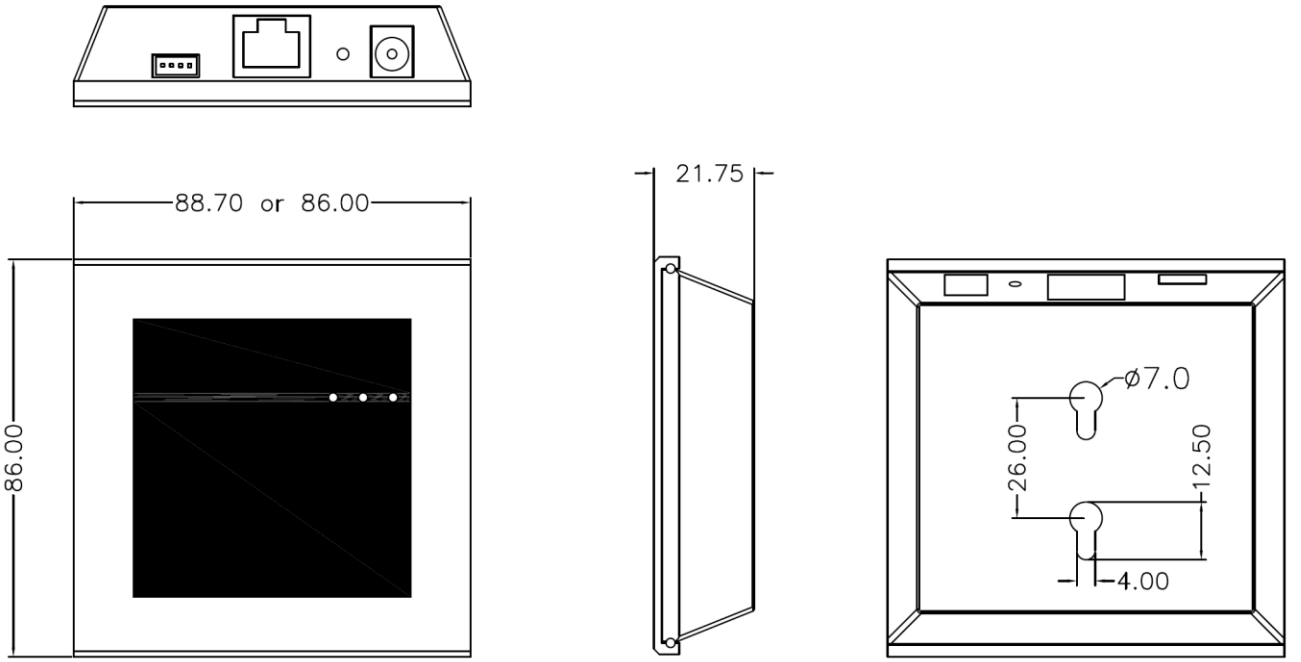
ER513 RimSpan Floor Bridge

Contents

Overview

The ER513 RimSpan floor bridge from AuVerte is part of a modern room automation solution. This device bridges an RF mesh network to a wired Ethernet backhaul network. This device supports both, IPv4 and IPv6 to provide forward compatibility with future IT requirements.

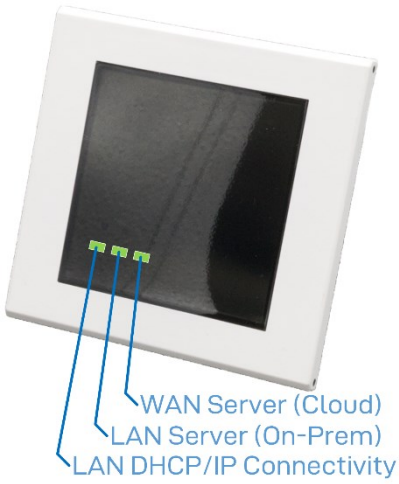
This packet router does not perform application-level protocol conversions, such as being the case with IoT gateways. Delegating the applications to the end nodes improves future proofing as these gateway applications are not a limiting element to the functionalities of the bridged IoT functionality.



Depending on the type of application, an ER513 floor bridge can support over 500 rooms. This is for example the case for simple EMS-type installation where the routed traffic is limited to telemetry and very little control. If we have room automation systems with robust APIs and where latencies are critical, then the number of rooms served by an ER513 might be much lower, all the way to the possibility of one floor bridge per room. The correct number of rooms per floor bridge is also governed by spatial constraints in the building or by limitations to signal propagation as observed.

Operating

Status LED



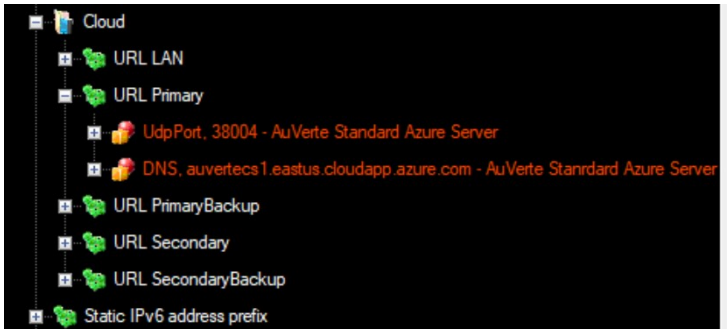
The ER513 features three LEDs on its front side. The LED on the left shows the basic Ethernet connectivity status, such as when the device has a valid IP address. If the LED blinks slowly, the device does not have a valid IP configuration (IP address, netmask). When the blinking turns fast, the device has obtained successfully an IP configuration. If the configuration is not static, it is normally assigned by a DHCP server serving the LAN.

The middle LED indicates if the ER513 has an ongoing connection with a LAN-attached server. This on-prem server is often used to connect the system to the PMS and BMS. Blinking slowly means that there is no local server while blinking rapidly means the presence of a local server.

The right LED indicates if the ER513 has at least one wide-area (cloud) connected server. Blinking slowly indicates that no cloud server is present while fast blinking means that the device maintains a link with at least one cloud server.

Configuration

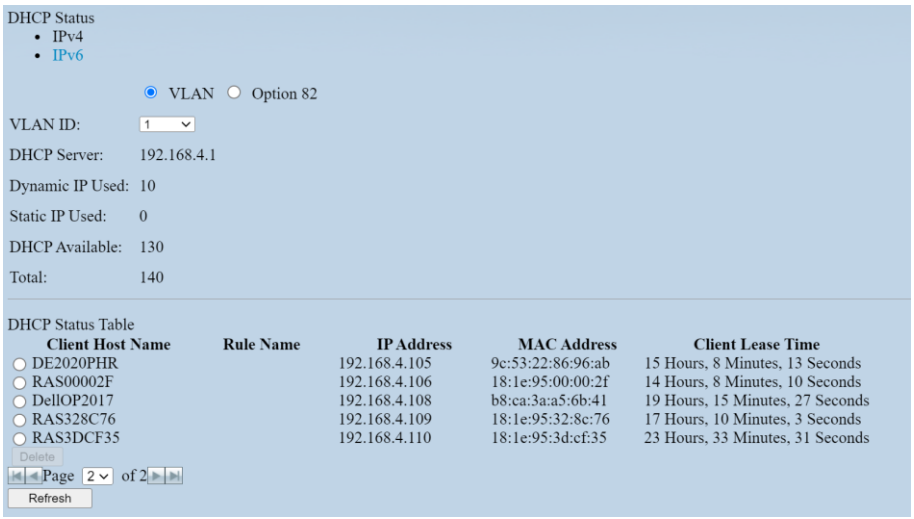
To link the ER513 with the default AuVerte cloud server, configure the AvEWB project file for the site as follows:



URL: **auvertecs1.eastus.cloudapp.azure.com**

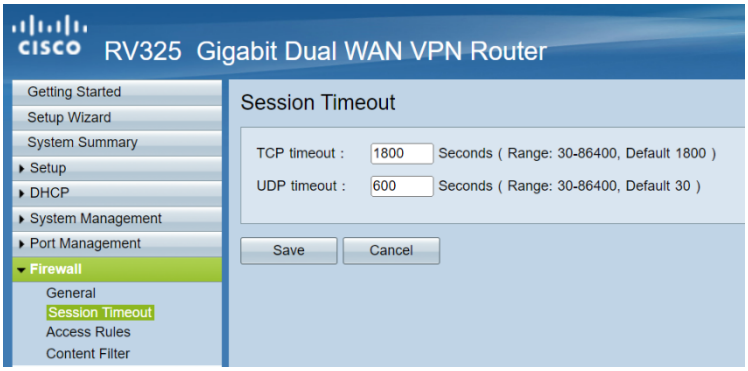
DHCP

AuVerte Ethernet devices are most of the time using a DHCP-assigned IPv4 address. They sign-on to the DHCP server with their logical name “RASxxxxxx” where RAS stands for “room automation system” and where xxxxxx is a hexadecimal notation of a system-wide unique device address.



Router and Firewall Setup

Set the UDP session timeout to 10 minutes so that the packets from the cloud to the edge router can be properly routed.



FCC Warning

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Specifications

User Interface

Display	3 LEDs
Keys	Push button

Radio

Standard	IEEE 802.15.4
Frequency band	ISM 2.4 GHz
Interference immunity	DSSS (Direct sequence spread spectrum)
Data rate	250 kbps
Antenna	Built-in
Indoor range	Up to 50 m (150 ft)
Transmit power	+3 dBm
Receiver sensitivity	-95 dBm
Channels	16 (11 to 26, default 25)
Protocol	AuVerte mesh, IPv6 over 802.15.4 with forward error correction (FEC-ECC)

Software

IPv4	ICMP, IP, UDP, DHCP (C413 model only)
IPv6	ICMPv6, IP, UDP, CoAP
Encryption	AES128
Hashing	SHA256, AES-CMAC
Key Exchange	ECDH
Routing	UDP – AuVerte mesh IPv6 – IPv6 over 802.15.4
App Security	DTLS

Device

Network Power	802.3af (PoE)
Bandwidth Requirements	Approx. 100 kbps or less
Power	12VDC/150mA (alternate if PoE is not available)
Mounting	Surface mount, holding screws
Cleaning	Mild cleaning liquid, soft towel

Environmental and Physical Specification

Dimensions	86mm x 86mm x 22mm
Weight	0.018 kg, 0.42oz
Operating temperature	10 °C to 40 °C (50 °F to 104 °F)
Storage temperature	-20 °C to 50 °C (--4 °F to 122 °F)
Operating humidity	10 % to 95 %RH, non-condensing
Storage humidity	5 % to 90 %RH, non-condensing
Electromagnetic emissions	FCC Part 15C EN 62311 (EMR) ETSI EN 300 328 (2.5GHz ISM Band) ETSI EN 301489 (EMC)
Safety approvals	EN62368-1
Environmental	RoHS
Recycling	6.5g ABS, 5.5g electronics

Ordering Information

Part numbers	003089.ER513
Package content	1 ER513
Frame Material Options	• Plastic • Aluminium
Color Options	• Plastic: Black and White • Aluminium: See color specification
Options	RDX909 RS232 Interface

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