

415U-1 to 415U-2-C/415U-E-C Quick Connect Setup

Below is a QuickStart guide for connecting a 415U-1 Lower Power I/O radio to a 415U-2-C Condor Radio.

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Date & Time: 06-Nov-2013 18:05:40
Firmware: v1.5 Hardware: Rev2A.B

Main Menu:

a) Unit Config
b) I/O Setup
c) Set Accumulators
d) Unit Diagnostic
e) Change Password
f) Set Date & Time
g) Show/Save Configuration
h) Logout

Selection: |
    
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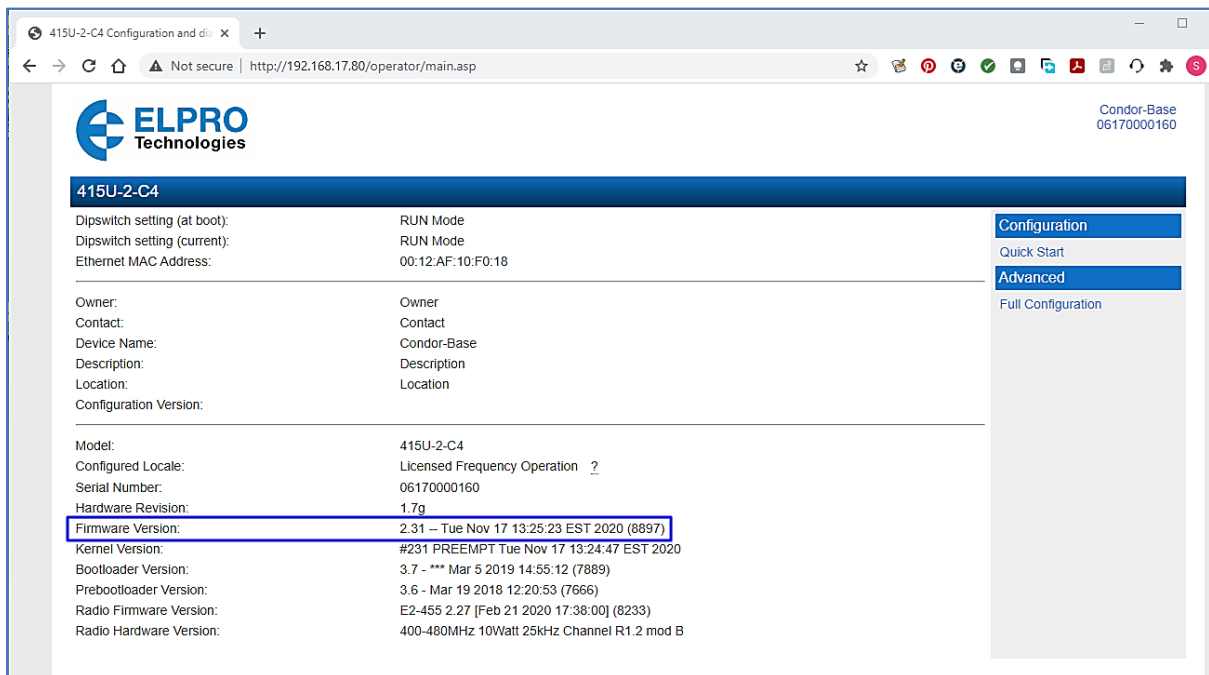
Unit Config Menu:

a) Network
b) Radio
c) I/O Quick Setup
d) Update Time
e) Paralysis Time
f) Restore Default Configuration
g) Disable Front Panel LEDs
h) Return to Main menu

Select: |
    
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First ensure the 415U-X-C firmware version is a least V2.31 or higher.

Check version by connecting to the Main webpage IP address using a browser.



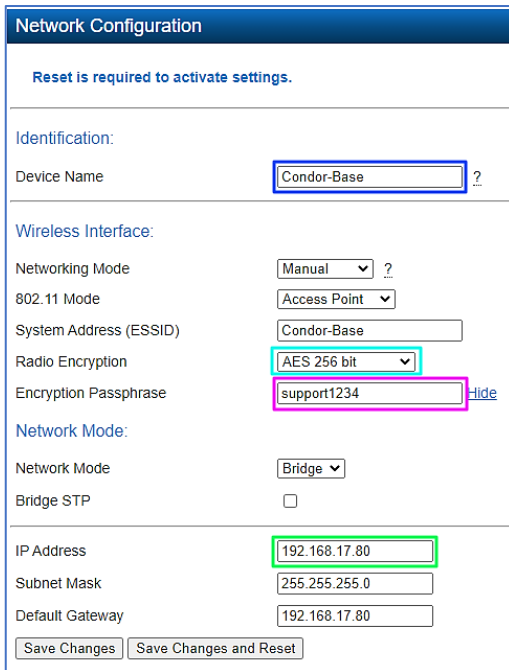
415U-X-C Condor & 415U-1 Network/Radio Configuration

Connect to the 415U-1 using a Terminal package (TerraTerm, RealTerm, Procomm, Etc) at 9600, 8, N,1.

Select "a) Engineer" and use Password "Elproeng" to get into the menu system.

Go through the Network and Radio config selections (shown below), and match the parameters between the 415U-X-C Access Point and the 415U-1 Low Power I/O.

The below screenshots show the relevant Networking parameters that you will need to configure.



Network Configuration

Reset is required to activate settings.

Identification:

Device Name:

Wireless Interface:

Networking Mode:

802.11 Mode:

System Address (ESSID):

Radio Encryption:

Encryption Passphrase:

Network Mode:

Network Mode:

Bridge STP:

IP Address:

Subnet Mask:

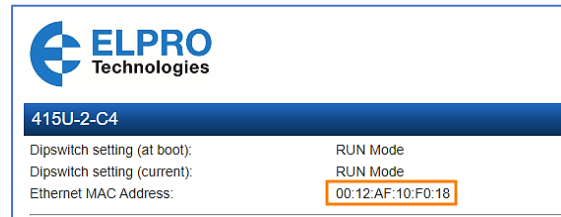
Default Gateway:

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Network Menu:

a) Station Name      : 415U-1_Support
b) Station IP Address : 192.168.17.84
c) Access Point IP Address : 192.168.17.80
d) Access Point MAC Address : [Auto]
e) System Address (ESSID) : Condor-Base
f) Radio Encryption   : AES 256 bit
g) Encryption Passphrase : support1234
h) Return to previous menu

Select:
  
```



415U-2-C4

Dipswitch setting (at boot):

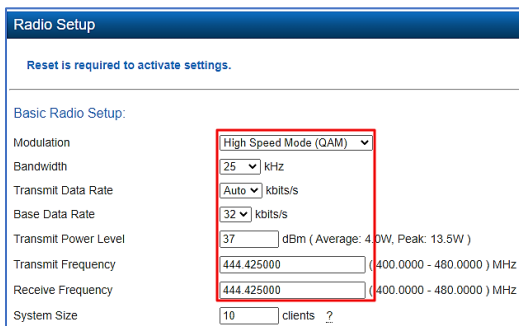
Dipswitch setting (current):

Ethernet MAC Address:

Configure AP MAC Address for "Auto" however if you have trouble connecting try configure to AP MAC which you can find on the Main Web

Note: The 415U-1 can connect to a 415U-X-C in any of the configured Networking Modes, i.e. Promesh, Fixed Links or Manual AP. Just need to make sure the ESSID matches the "Device Name" name.

Radio Configuration parameters also need to be matched, see below screenshots.



Radio Setup

Reset is required to activate settings.

Basic Radio Setup:

Modulation:

Bandwidth: kHz

Transmit Data Rate: kbits/s

Base Data Rate: kbits/s

Transmit Power Level: dBm (Average: 4.0W, Peak: 13.5W)

Transmit Frequency: (400.0000 - 480.0000) MHz

Receive Frequency: (400.0000 - 480.0000) MHz

System Size: clients

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Radio Menu:

a) Modulation      : QAM
b) Bandwidth (kHz) : 25.000
c) Data Rate       : 32 kbps
d) Base Rate       : 32 kbps
e) Tx Power (dBm)  : 37
f) Tx Frequency (Mhz) : 444.425000
g) Rx Frequency (Mhz) : 444.425000
h) Return to previous menu

Select:
  
```

When all parameters have been setup, save the 415U-1 configuration by selecting "Save Config" from the previous menu options or by going back to the main menu and selecting option "g)" "Show/save configuration" and confirming "Y" when it asks to "Save Current Config? (y/n):"

Then go to the "d) Unit diagnostics" menu and select "Test Mode Send Message" This will force the 415U-1 to send a transmission to the AP.

Check Communications

To check the communication status on the 415U-1, select “Show last connection/status” under the “Diagnostic” menu structure to show the connection status and details of the connection, i.e. Device Name, IP Address, signal level, background noise level and connection time.

Device Name:	Condor-Base		
IP Address	RSSI	BGND	Last Connected
192.168.17.80	-62 dbm	-53 dbm	0000:00:03:26

Or on to check the connection status on the 415U-X-C Access Point, check the “Connectivity” web page under “Network Diagnostics” to see what remote units are connecting.

You should be able to see the 415U-1 in the connectivity list and it will show some useful information including RSSI, connection time and Link count.

Connectivity							
Connected Wireless Devices:							
Current Frequency: Tx 444.425000MHz, Rx 444.425000MHz; Current Bandwidth: 25.000kHz							
Device Name	IP Address	Interface	Tx Rate	RSSI	Compress	Link Uptime	Link Count
415U-1_Support	192.168.17.84	radio0	32k	-57dBm	No	0000:00:00:09	1
Condor-Repeater	192.168.17.85	radio0	96k	-77dBm	Yes	0004:03:17:17	1

Configure I/O

Sensor input configuration is best completed after you have configured the Unit Config, Network & Communications from the 415U-1 main menu.

It is recommended to use the I/O Quick Setup in the Unit Config menu as it is a very fast way to setup the basic IO configuration.

To perform an “I/O Quick Setup”, select

- “a) Unit Config” from the main menu and then select
- “c) I/O Quick Setup”.

It will give a warning that it resets all I/O to the default values, Press “Y”

It will ask for a register multiplier, this is the offset that will be applied to all registers, so you can setup multiple remotes easily with different I/O offsets.

The Default I/O configurations are shown below, with some examples of multiplier locations.

Configuration Values				Example Units (Multiplier)		
Input Name	Input Type	Register	Register Type	Rem 1	Rem 3	Rem 10
Discrete I/P 1	Pulsed	37011	Unsigned 32 Bit	37011	37031	37101
Discrete I/P 2	Pulsed	37013	Unsigned 32 Bit	37013	37033	37103
Discrete I/P 3	ON/OFF	15010	Unsigned 16 Bit	15010	15030	15100
Discrete I/P 4	ON/OFF	15011	Unsigned 16 Bit	15011	15031	15101
Analog I/P 1	4-20mA	35010	Unsigned 16 Bit	35010	35030	35100
Analog I/P 2	4-20mA	35011	Unsigned 16 Bit	35011	35031	35101
Battery	Vdc	39011	Float	39011	39031	39101
Sup/Sol	Vdc	39013	Float	39013	39033	39103
RSSI	dBm	39015	Float	39015	39035	39105
Status	Bit Field	35012	Unsigned 16 Bit	35012	35032	35102

It will next ask for an “Analog Sensitivity”, this is the number of bits the analog needs to change before triggering a COS message to be sent, next it will ask for an “Analog Sample Time” and an “Analog Warmup Time” The default values are 1000 for “Sensitivity”, 15 minutes for “Analog Sample” and 10 seconds for “Analog Warmup” and these are best left at the defaults for the moment, they can be fine-tuned later once connections and values coming in have been established.

The default values are chosen for best overall current consumption, radio traffic and getting accurate and timely values.

After performing an “I/O Quick Setup” if you need to adjust or edit the register locations you can do so by selecting the “I/O setup” menu then editing the appropriate I/O settings manually.

From here you can edit the specific Input configuration parameters such as the Sensor Register, Zero/Span, Display scaling and units as well as Report Sensitivity.

When complete make sure to go back to the main menu and select “Show/Save configuration” just make sure it has saved any previously unsaved configuration changes.

You should now select “Test Mode Send Message” from the “Diagnostic” menu which will force the 415U-1 to send all I/O transmission to the Access Point.

Now you should be able to check the “Unit Diagnostic” page on the 415U-X-C’s main menu to compare values between the Input registers on the 415U-1 and the output registers on the 415U-X-C.

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External Inputs:
  Mode  Pulse      Pulse      On/Off     On/Off     4-20mA     4-20mA
  REG   37011        37013        15010      15011      35010      35011
  Format U-4          U-4          ELPRO      ELPRO      ELPRO      ELPRO
  Range 1           1           1           1           32768      32768
  Offset 0           0           0           0           16384      16384
  Sens  10          10          1           1           1000       1000
  Raw   0           0           On          Off         -0.06 mA   0.25 mA
  Value 0           0           65535      0           8075       8699

Internal Status:
  Battery  sup/sol  RSSI  Status
  REG     39011  39013  39015  35012
  Format  F-4     F-4     F-4     ELPRO
  Sens   5       5       127     1
  Value  12.76 V  0 V     -56dBm  All OK
  
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IO Diagnostics

Register

Count

Value

15010: 1 0