



UC-331-UCX Dual Path Communication Module

Installation Manual

Introduction	4	
Included in the Box	4	
Important Notes before Proceeding	5	
1	Installing the UC-331-UCX	6
1.1	Basic Keyswitch Arm/Disarm Wiring	7
1.2	Terminal descriptions	7
1.3	UC-331-UCX Terminal Layout	8
1.4	Tamper Switch Wiring	9
1.5	Connecting to Alarm Panels.....	10
1.5.1.	Recommended NetworX Panel Wiring	11
1.5.2.	Recommended Concord Panel Wiring.....	12
1.5.3.	Connecting to Alarm Panels via ASIAL Serial	13
1.6	Start-Up Sequence	14
1.7	LED Diagnostics	15
2	Configuring the UC-331-UCX	16
2.1	Configure with Direct Connection and Web browser	16
2.2	Configure with LAN Connection and Web browser	17
2.3	Configure remotely from the UltraSync Web Portal.....	17
2.4	Configuration with the UltraSync™ application .	18
3	Menus (Accessed with Installer Credentials)	19
3.1	Details	19
3.2	Status.....	20
3.3	Network setup, DHCP Method	21
3.4	Network setup, Static IP method	22
3.5	Cellular.....	24

3.6	Users	25
3.7	GPIO	26
3.8	Keyswitch Configurations	29
3.9	UltraSync.....	32
4	Access via UltraSync app.....	33
4.1	Troubleshooting the UltraSync Setup.....	35
	Appendices.....	36
A.1	Installation and Commissioning Checks.....	36
A.2	Restore installer access	36
A.3	Default UC-33-UCX.....	36
A.4	NetworX/Concord Zone Circuit.....	37
A.5	UC-331-UCX GPIO Output Circuit	38
	Specifications.....	39
	Regulatory Approvals.....	39
	Important information.....	41
	Index	45

Introduction

The UC-331-UCX is a Public Switched Telephone Network (PSTN) replacement product supporting Dual Path reporting with supervised IP and cellular communications. Central station connectivity is enabled via UltraSync services. Verify that your central station is UltraSync capable before attempting to install the UC-331-UCX.

Additionally, UltraSync™, an Apple® iOS® or Android® application, is available for remote keyswitch arming and disarming of the security panel if desired.

If keyswitch arming is not desired, the UC-331-UCX does not require any configuration (unless a static IP address needs to be assigned to the UC-331-UCX) and only needs to be provisioned in the UltraSync Web Portal to begin IP reporting, minimizing onsite installation time.

Upload/Download capability is supported for all compatible security panels with the exception of Honeywell Vista® panels. EDS and DL 900/DLX 900 versions of Upload/Download software is supported on Interlogix Concord® and NetworX™ branded security panels respectively. The UC-331-UCX itself is not configurable with EDS or DL 900/DLX 900 versions of Upload/Download software.

The web browser interface can be accessed remotely via the UltraSync Web Portal for remote configuration of the UC-331-UCX. Additionally, remote configuration of the UC-331-UCX is available via the UltraSync application.

Included in the Box

- UC-331-UCX unit in enclosure
- Tamper switch with lead
- Jumper
- Antenna
- 6P2C and 4P2C panel cables
- ASIAL cable
- Power and panel cable
- (3) 2KΩ resistor, (3) 3.3KΩ resistors
- UltraSync Quick Reference Guide

Important Notes before Proceeding

This manual assumes the installer is familiar with programming of the security system that will interface with the UC-331-UCX. It also assumes that the installer is familiar with basic computer networking and Apple iOS or Android smart devices.

Record the 12 digit serial number and the eight digit Web Access Passcode of the UC-331-UCX on the back of the UltraSync Quick Reference Guide that is included in the product packaging. The Quick Reference Guide should be provided to the security system owner if keyswitch arming is implemented. The serial number and Web Access Passcode is located on UC-331-UCX product label that is attached to the PCB.

1 Installing the UC-331-UCX

The UC-331-UCX can be quickly installed as a simple PSTN replacement product without any configuration. Connection to the alarm panel's auxiliary power and PSTN connection is all that is required. For remote arming and disarming of the panel with the UltraSync application, additional wiring and configuration is required.

The UC-331-UCX must be provisioned in the UltraSync Web Portal to enable reporting to the central monitoring station.

1. Determine where to mount the UC-331-UCX. The selected location should provide optimal cellular signal strength and wiring access back to the main alarm panel.

Caution: Remove all power (AC and battery) to the security system before proceeding. Failing to do so could result in possible damage to the product. Polarity is not important for the dialer interface.

2. Connect the UC-331-UCX as detailed in the following sections of this document..
3. Reconnect the alarm panel power. Review the power requirements of the whole alarm system including the current draw of the UC-331-UCX. Reference the UC-331-UCX current draw in the specifications of this document. The alarm system backup battery must be capable of supplying its existing load and the UC-331-UCX in the event of an AC power failure. Recalculate the AUX power current draw to stay within the alarm panel's specifications.

1.1 Basic Keyswitch Arm/Disarm Wiring

The UC-331-UCX includes input and output ports that can be used to:

- Remotely arm a panel through keyswitch control via the UltraSync application
- Report the alarm panel's arm/disarm status to the UltraSync application
- Alert the user locally when there is a communications failure

Keyswitch operation is optional and must be configured in the UC-331-UCX and alarm panel by the installer. See [Section 2](#) for detailed configuration instructions when connecting to Interlogix branded NetworX, Challenger, and Concord panels.

1.2 Terminal descriptions

Panel A	Connect to alarm panel phone line
Panel B	Connect to alarm panel phone line
PWR+	Connect to alarm panel AUX power
BUS1A	Connect to Panel RX for ASIAL Serial
BUS1B	Connect to Panel TX for ASIAL Serial
0V	Connect to alarm panel common or ground terminal
BUS2A	Connect to Panel Zone Input for Keyswitch Arming
BUS2B	Connect to Panel Output for Keyswitch Arming
GPIO1	General Purpose Input/Output
GPIO2	General Purpose Input/Output
ETHERNET	Connect to customer router
USBNAV	Perform local firmware upgrades
TAMPER	Connect to supplied internal box tamper switch
CFG MODE	Enables restoration of Installer PIN

1.3 UC-331-UCX Terminal Layout

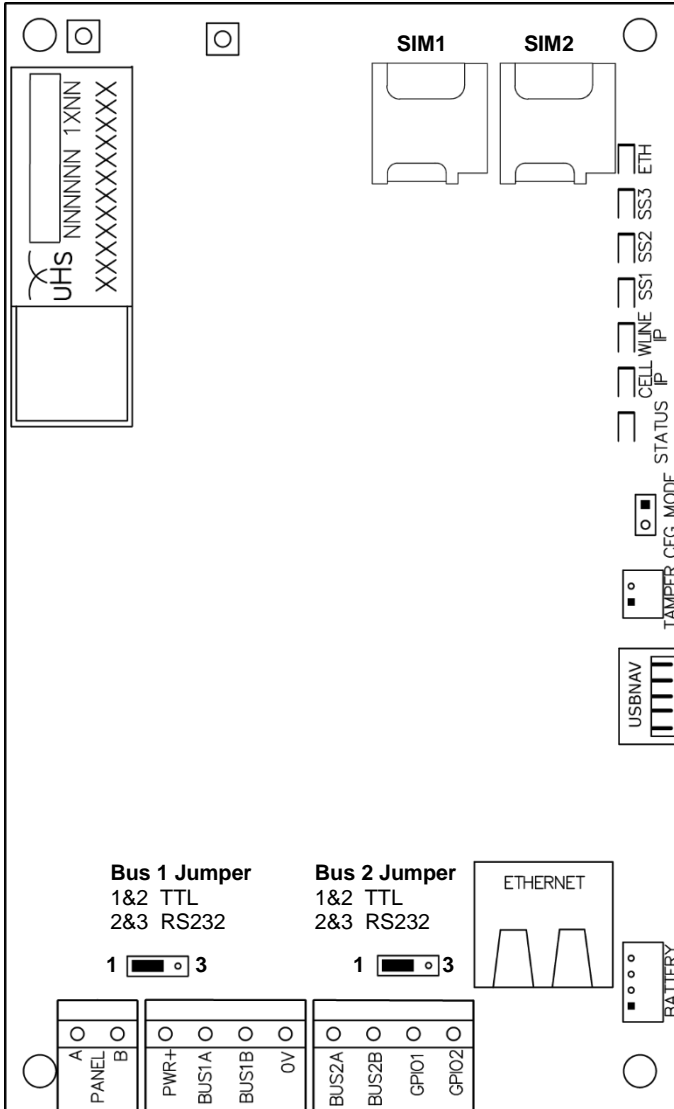


Figure 1: UC-331-UCX Terminal Layout

1.4 Tamper Switch Wiring

The tamper switch sits in a plastic bracket next to the antenna with the arm facing down. It is physically wired to the TAMPER header.

Correct mounting of the tamper switch: Align the hole in the micro-switch with the protrusion on the plastic bracket. Ensure your switch is oriented as shown in Figure 2 for proper operation.

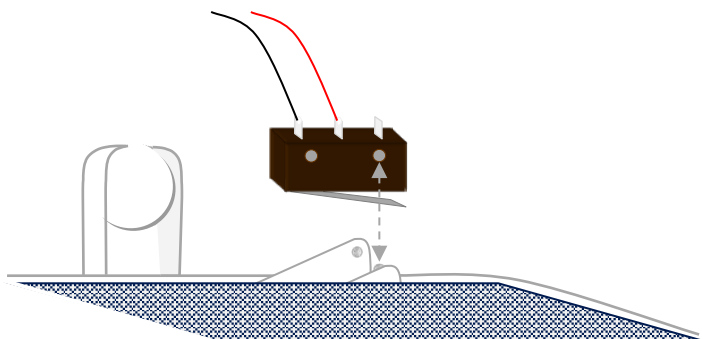


Figure 2: Tamper switch mounting

1.5 Connecting to Alarm Panels

1.5.1. Recommended Keyswitch Wiring

Connections to NetworX, Challenger, and Concord alarm panels are shown in Figures 3 and 4 respectively. The wiring below details the recommended panel wiring that includes optional keyswitch arming.

The BUS2A output of the UC-331-UCX provides either a low (0V) or high impedance (open) depending on the UC-331-UCX configuration settings and user selections in the UltraSync Application (Arm or Disarm). This connection is wired to a zone input on the security panel that is configured for keyswitch arming.

The BUS2B input of the UC-331-UCX is used to determine the armed state of the security panel. The UC-331-UCX will report the armed state of the panel to the UltraSync application. The output must be configured to follow the armed state of the security panel.

GPIO1 is used to report a communications failure of the two communications paths (Ethernet and cellular) to the security panel for local notifications.

Please consult the Key Switch and GPIO Settings section of this manual for further details.

1.5.2. Recommended NetworX Panel Wiring

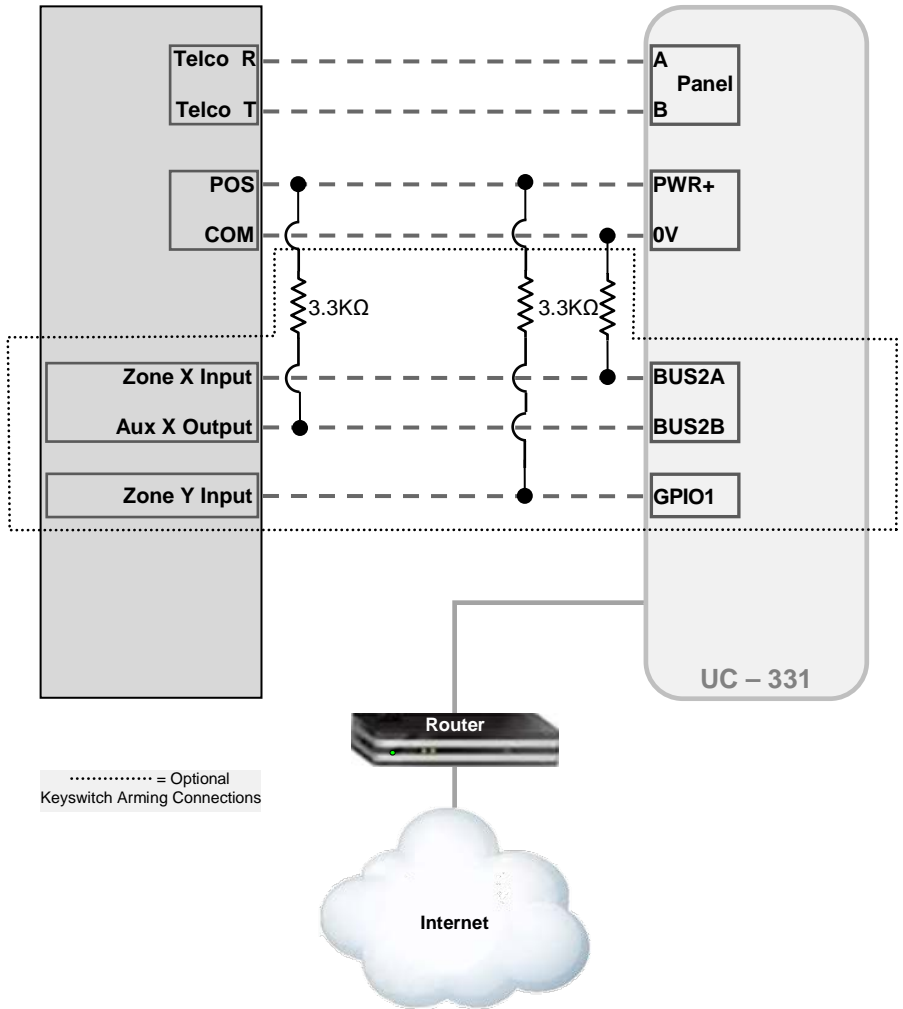


Figure 3: NetworX panel wiring

1.5.3. Recommended Concord Panel Wiring

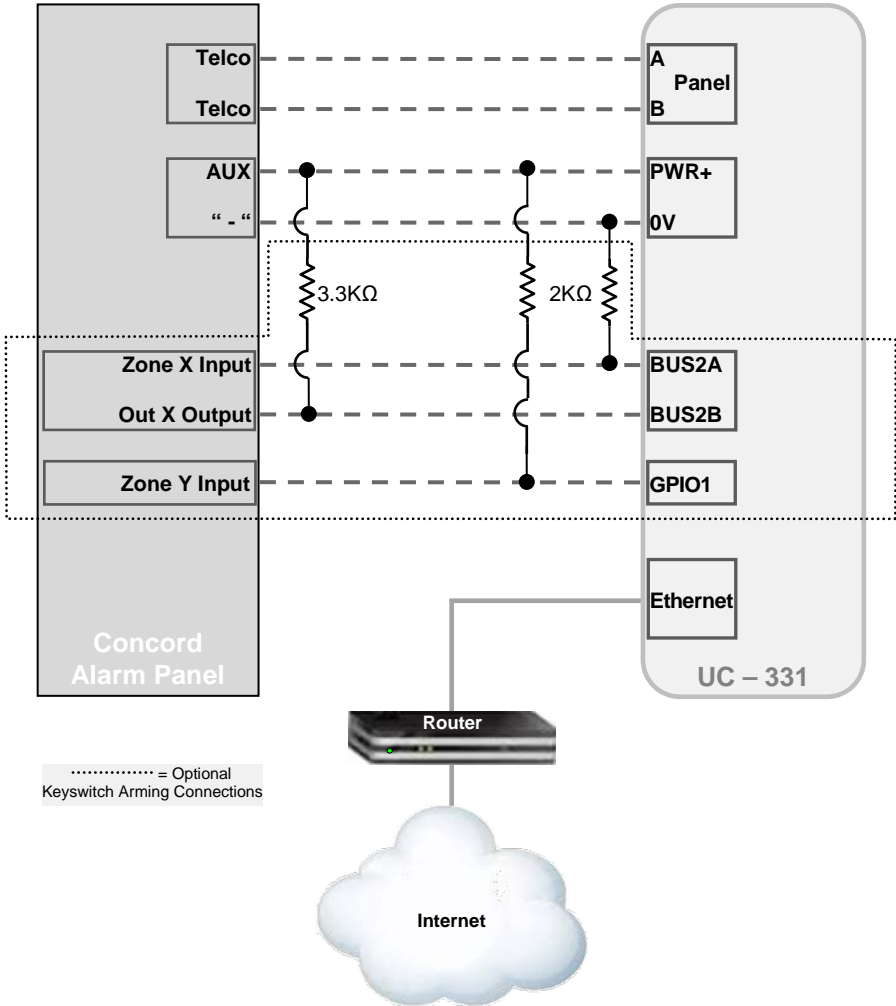


Figure 4: Concord panel wiring

Note: Configure the UC-331-UCX (Keyswitch and GPIO) and security panel (zones and outputs) for keyswitch arming per the sections below.

Note: In the unlikely event that the Internet router is not configured to automatically assign an IP address (DHCP), you will have to manually assign an IP address and network settings to the UC-331-UCX. Instructions to manually assign the network settings are included in the [manual network setup](#) page later in this document.

1.5.4. Connecting to Alarm Panels via ASIAL Serial

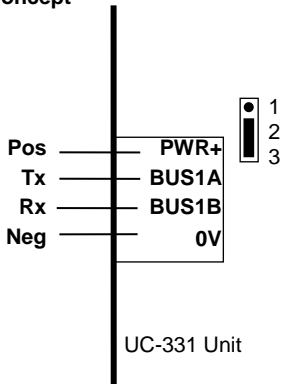
Note that for Class 3 and Class 4 installations ASIAL Serial must be used. Alarm panels supporting the ASIAL Serial format are connected to BUS1A and BUS1B:

- PWR+ only connect this if the UC-331-3G is being powered by the alarm panel. If the unit is being supplied by its own plug-pack and battery, then do not connect this pin.
- BUS1A connect to the RX connection on the alarm panel.
- BUS1B connect to the TX connection on the alarm panel.
- 0V always connect this to 0V or GND on the alarm panel.

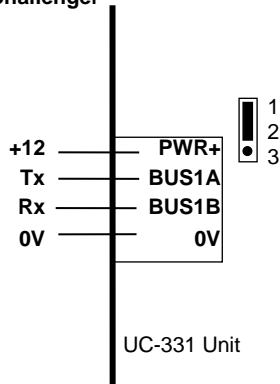
Note that depending on the panel type, the TX and RX connections should be configured for RS-232 or TTL via BUS1 jumper as shown below:

RS232 – Set BUS1 jumper 2 & 3	TTL – Set BUS1 jumper 1 & 2
MCM Icon Range	Tecom Challenger
Concept 2000	GE NetworX
Concept 3000	

Example 1 – Wiring for an InnerRange Concept



Example 2 – Wiring for a Tecom Challenger



1.6 Start-Up Sequence

For a typical UC-331-UCX, the expected start-up sequence is as follows:

1. Within 30s, the CELL IP and WLINE IP LED should start to flash slowly, while the UC-331-UCX is *attempting* to connect to the UltraSync servers.
2. Within 60s, the CELL IP and or WLINE IP LED should go solid, indicating *connection* to the UltraSync servers has been established.

If the Cell and WLINE IP LEDs flash quickly, the UC-331-UCX has not been provisioned in the UltraSync Web Portal. Complete the provisioning process in the UltraSync Web Portal before proceeding.

Once connected, the normal LED status is:

- STATUS: Solid
- CELL IP: Solid
- WLINE IP: Solid
- SS1, SS2, SS3: LEDs indicating cellular signal strength
- ETH: Solid

1.7 LED Diagnostics

The LEDs on the edge of the circuit board indicate unit status. Italics indicate troubleshooting action.

STATUS	CELL IP	WLINE IP	ETH
<p>Off: Means the connected alarm panel is temporarily off-hook.</p> <p>Solid: The unit is powered.</p>	<p>Off: Unit does not have IP connectivity over the cellular network, SIM not activated or wireless authentication failed.</p> <p>Slow Flashing: Unit has an IP address but is not connected to UltraSync.</p> <p>Fast Flashing: Connection has been made to UltraSync, but unit has not been provisioned in the UltraSync Web Portal</p> <p>Solid: Unit has established a secure communications session with UltraSync via the cellular radio</p> <p>Wink: Alarm acknowledgment has just been received on this path</p>	<p>Off: No connection to UltraSync</p> <p><i>-- check network access and routing is allowed for network server on port 443 TCP --</i></p> <p>Slow Flashing: Unit has an IP address but is not connected to UltraSync.</p> <p>Fast Flashing: Connection has been made to UltraSync, but unit has not been provisioned, in the UltraSync Web Portal</p> <p>Solid: Unit has established a secure communications session with UltraSync via the Ethernet connection</p> <p>Wink: Alarm acknowledgement has just been received on this path</p>	<p>Off: Unit has no Ethernet cable connected.</p> <p>Flashing: Ethernet packet has been sent or received</p> <p>Solid: Ethernet cable is connected</p>

SS1	SS2	S33	← Cellular signal strength indicators	
Off	Off	Off	No reading available	(e.g. modem is being reset)
Flash	Off	Off	Attempting to register on the cellular network	<i>Relocate the UC-331-UCX to a location that has adequate cellular signal strength.</i>
On	Off	Off	<-95 dBm Unacceptable	<i>Below -95 dBm the cellular signal strength is inadequate for reliable communications. To optimize performance, move the UC-331-UCX until SS2 is flashing or solid.</i>
On	Flash	Off	-90dBm to -94 dBm Poor	
On	On	Off	-85dBm to -89 dbm Good	
On	On	Flash	-80dBm to -84 dBm Very Good	
On	On	On	> -80 dBm Excellent	

2 Configuring the UC-331-UCX

If you are enabling keyswitch arming or need to manually configure a static IP address for the Ethernet connection, you will be required to configure the UC-331-UCX.

You have four options to configure the device:

1. A connection between the UC-331-UCX and a computer with a web browser
2. Remotely from the UltraSync Web Portal
3. A LAN connected computer with a web browser
4. Via the UltraSync application on an Apple iOS or Android device

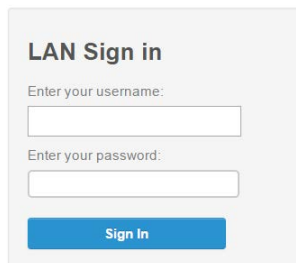
Note: Configuration of the UC-331-UCX with a web browser and the UltraSync application is virtually identical. Also see the [UltraSync](#) setup in Section 4.

2.1 Configure with Direct Connection and Web browser

1. Connect the Ethernet cable directly to the Ethernet port on the UC-331-UCX
2. [Tamper switch](#) must be open, otherwise web page will not be available
3. Connect standard Ethernet cable to the computer
4. Manually set your computer IP address to:
192.168.222.1 netmask: 255.255.255.0
5. In a web browser type the following IP address into the address bar:
192.168.222.222

Note: If the tamper switch is NOT installed the web browser interface is always available.

6. The sign in page will appear:



The image shows a web form titled "LAN Sign in". It contains two input fields: "Enter your username:" and "Enter your password:". Below the password field is a blue button labeled "Sign In".

7. Use the default username and password of the UC-331-UCX: **installer** and **9-7-1-3**. **Note:** Logging in as **installer** **does** not allow programming of the alarm panel.

2.2 Configure with LAN Connection and Web browser


Note: This method assumes the installer has access to the settings for the on premise router to retrieve the IP address of the UC-331-UCX. This option does not require the Tamper switch to be open.

1. Connect the UC-331-UCX to the router via Ethernet.
2. Connect the computer or smart device to the router via Ethernet or Wi-Fi.
3. Enter the router's IP address in the computer or smart device browser.
3. In the router network settings menus, find the DHCP client table.
4. Note the IP address of the UC-331-UCX from the DHCP client table.
5. In the web browser enter the UC-331-UCX IP address.
6. The sign in page will appear.
7. Use the default username and password of the UC-331-UCX: **installer** and **9-7-1-3**.

Note: If the router or UC-331-UCX is reset, power cycled, or a long period of time has expired since you retrieved the IP address, the router may assign a new IP address to the UC-331-UCX. Repeat the LAN connection steps above to obtain the new address.

2.3 Configure remotely from the UltraSync Web Portal

Note: This method assumes the installer has access to the UltraSync Web Portal. An Ethernet Internet connection for the UC-331-UCX is not required for this procedure. If an Ethernet Internet connection is not available (e.g. a fixed IP address needs to be programmed into the UC-331-UCX) the UC-331-UCX must have established a cellular connection to the UltraSync Servers. This option does not require the Tamper switch to be open.

4. Provision the UC-331-UCX in the UltraSync Web Portal.
5. Verify that the Cell IP LED is solid. This indicates that the UC-331-UCX is communicating to the UltraSync servers and the unit is provisioned properly.
6. Connect the UC-331-UCX to the router via Ethernet.
8. Log into the UltraSync Web Portal and navigate to the UC-331-UCX in Operational Status.
9. Click on the  (Retrieve live status) associated with the UC-331-UCX.
10. Click on the Remote Control tab
11. The sign in page will appear.
12. Use the default username and password of the UC-331-UCX: **installer** and **9-7-1-3**.

2.4 Configuration with the UltraSync™ application

Note: The UC-331-UCX must be provisioned in the UltraSync Web Portal before this operation is performed.

The UC-331-UCX must have established connectivity to the UltraSync servers before this configuration method can be attempted. When the Cell IP and/or WLINE IP LEDs are lit solid, connectivity to the UltraSync servers has been achieved.

Follow the instructions in [Section 4](#) for installing and connecting to the UC-331-UCX via the UltraSync application.

3 Menus (Accessed with Installer Credentials)

3.1 Details



Figure 5: Details settings page

	Item	Description
D e t a i l s M e n u	Serial Number	12 digit serial number of the UC-331-UCX
	Ethernet MAC Address	Ethernet MAC address of the UC-331-UCX
	Firmware Version	Application Firmware version of the UC-331-UCX
	Hardware Version	Physical Hardware Index Number
	Bootloader Version	Application Bootloader version of the UC-331-UCX
	Device Region	Settings are preconfigured for this region

3.2 Status

The screenshot shows a 'Settings Selector' box at the top with a 'Status' dropdown menu and three buttons: 'Up', 'Down', and 'Save'. Below this are three sections of settings:

- UltraSync:** Status (Online), LAN (Offline), Cellular (Online).
- LAN:** LAN Status (Connected), LAN Media (Ethernet).
- Cellular:** Status (Registered), Technology (3G WCDMA), Signal Strength (-85 dBm), Operator ID (310260).

Figure 6: Status settings page

		Item	Description
Status Menu	UltraSync	Status	Online: The UC-331-UCX is connected to UltraSync on either wireline or cellular paths. Offline: The UC-331-UCX is unable to connect to UltraSync on either wireline or cellular paths.
		Ethernet	Online: The UC-331-UCX is connected to UltraSync on the wireline path. Offline: The UC-331-UCX is NOT connected to UltraSync on the wireline path.
		Cellular	Online: The UC-331-UCX is connected to UltraSync on the cellular path. Offline: The UC-331-UCX is NOT connected to UltraSync on the cellular path.
	LAN	Status	Connected: An Ethernet cable is plugged in and connected to the UC-331-UCX. Disconnected: An Ethernet cable is not detected, check the cable.
		Media	Will always display Ethernet.
	Cellular	Status	Registered: Cellular registration is successful. Trying to Register: Cellular registration is being attempted.
Technology		2G GPRS,2G EDGE,3G WCDMA,3G HSDPA,3G HSUPA,3G HSDPA & HSUPA: States the cellular technology currently in use by the UC-331-UCX.	

	Signal Strength	-51dBm to -113dBm: Shows the current signal strength in dBm.
	Operator	Provides the current cellular operator the UC-331-UCX is registered on.

3.3 Network setup, DHCP Method

When **DHCP** is selected, the UC-331-UCX will automatically receive its IP address from the network router provided the router has DHCP enabled. If the router does not have DHCP enabled, please see section 3.4 to assign a static IP address to the UC-331-UCX.

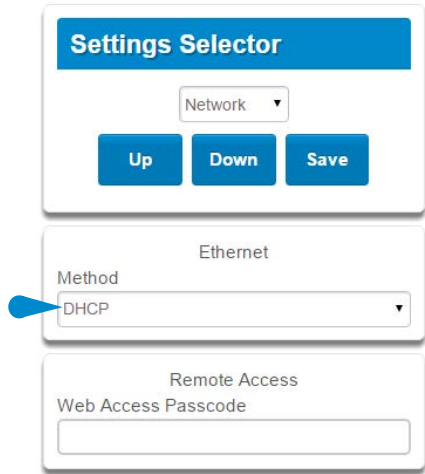


Figure 7: DHCP network method

	Item	Description
DHCP Setup Network Menu	Web Access Passcode	<p>This unique 8-digit code is assigned to the device. It allows the UltraSync iPhone and Android applications to connect to the UC-331-UCX. A label with the number can be found on the PCB. A value of 00000000 disables UltraSync application support.</p> <p>Record the Web Access Passcode on the back of the UltraSync Quick Reference Guide to facilitate end-user access.</p>

3.4 Network setup, Static IP method

When **Static** is selected, this menu appears. In the unlikely event that the Internet router is not configured to automatically assign an IP address, you will have to manually assign the IP address and network settings to the UC-331-UCX. The network settings must be assigned by the router's network administrator. Enter the values provided by the network administrator on this page.

Figure 8: Static network method

		Item	Description
Static Setup Network Menu	If the Network setup method is selected as <i>Static</i> , all of these fields are editable.		
		IP Address	IP address of the UC-331-UCX module.
		Subnet Mask	Subnet mask of the local area network (LAN).
		Gateway	Only Applies if configured for method "Static".
		DNS1	IP address of the primary DNS server.
		DNS2	IP address of the secondary DNS server.
		Web Access Passcode	This unique 8-digit code is assigned to the device. It allows the UltraSync iPhone and Android applications to connect to the UC-331-UCX. A label with the number can be found on the PCB. A value of 00000000 disables UltraSync application support.

		Record the Web Access Passcode on the back of the UltraSync Quick Reference Guide to facilitate end-user access.
--	--	--

3.5 Cellular

Settings Selector

Cellular ▾

Up
Down
Save

Cellular

Cellular
Enabled ▾

Smart Roaming
Enabled ▾

SIM1

APN*

Username*

Password*

* Optional

Figure 9: Cellular settings page

		Item	Description
C e l l u l a r M e n u	Cellular	Cellular	Enabled/Disabled: Enabled/Disable the cellular modem on the UC-331-UCX. (Cellular network operators require this feature on products to allow for disabling the modem before disabling the SIM.)
		Smart Roaming	Enabled/Disabled: Enable/Disable the smart roaming algorithm between cellular operators.
	SIM1	APN	Access Point Name: The name of the gateway for the cellular data network. Check with the SIM card provider for the correct setting.
		Username	User name for the APN. Check with the SIM card provider for the correct setting.
		Password	Password for the APN. Check with the SIM card provider for the correct setting.

3.6 Users

UC-331-UCX users are managed independently of the security panel.

The login PIN of the UC-331-UCX must match the PINs stored in the security panel.

The UC-331-UCX supports 24 users and 1 installer. By default the following users are programmed into the UC-331-UCX:

User Number	Default Name	Default PIN	Authority
1	installer	9 7 1 3	Master Installer
2	User 1	1 2 3 4	Master
3			
4			

The screenshot shows a web interface for configuring users. At the top is a blue button labeled 'Configure Users'. Below it are four buttons: 'Add' (blue), 'Edit' (grey), 'Delete' (blue), and 'Save' (blue). The 'Edit' button is selected, leading to a form titled 'Edit an Existing User'. The form contains the following fields: 'User' (a dropdown menu showing 'installer (1)'), 'Name' (a text input field containing 'installer'), 'PIN' (a text input field containing '....'), and 'Type' (a dropdown menu with 'Master Installer' selected and a list of options: 'Master Installer', 'Master', and 'Standard').

Figure 10: Users settings page

Users Menu	Item	Description
	Name	Username to log into the UC-331-UCX via the UltraSync Web Portal (webportal.ultraconnect.com) or via iPhone/Android App.
	PIN	PIN code for the selected user.
	Level	Master Installer: Has access to Keyswitch, Events, Users & Settings. Master: Has access to Keyswitch, Events, Users and Status. Standard: Has access to Keyswitch and Events.

3.7 GPIO

The UC-331-UCX provides two general purpose input/output (GPIO) ports that can be configured to perform various functions. This section describes the functionality of the two GPIO ports and includes a recommended configuration for NetworX, Challenger, and Concord security panels.

Each port can be configured independently as an input or output port, or disabled. There is a built-in pull-up resistor for each port that can also be enabled or disabled.

Note: The pull-up resistor configuration applies to both ports and cannot be applied independently to each port.

Configuration as an Input port:

When configured as an input, the user can determine whether a low or high signal will trigger an alarm relay event to be sent to the monitoring station. Configuring the Alarmed State as High will send an event on a high signal (> 2.0 VDC) to the GPIO port. Configuring the Alarmed State as Low sends an event on a low signal (< 1.3 VDC) to the GPIO port. The following Contact ID event codes will be sent to the monitoring station:

	CID Event Code	Zone
GPIO1	323	901
GPIO2	323	902

Configuration as an Output port:

When configured as output, the UC-331-UCX will indicate that it has experienced a communication fault on *both* the Ethernet and Cellular paths (i.e. connectivity to the UltraSync servers has been lost resulting in the loss of reporting ability). If one of the paths is available, the output will be inactive indicating that communications is available.

Note: The output will not trigger until the path filter time has expired. The path filter time is configured via the UltraSync service grade.

The Output Active State configuration should be configured as follows:

Output Active State	Description
Low	When in Comms failure, the terminal is pulled low
High	When in Comms failure, the terminal is pulled high

See Appendix A.4 for output circuit details.

It is recommended that the UC-331-UCX output port is wired to a panel input zone so it can be used to alert the panel user that communications have been lost.

It is recommended to configure the zone as a 24-hour silent type (e.g. zone type 10 on a NetworX panel) so a local alarm is not generated in the event of a communications failure. The zone should be named such that any local notification to a security system user will clearly indicate a communications failure (e.g. set zone name to “Communication Failure”). The Pull-up should be disabled when configuring the system in this manner.

Settings Selector

GPIO ▾

Up
Down
Save

	GPIO1	GPIO2
Mode	Output ▾	Disabled ▾
Pull-up	Disabled ▾	
Alarmed State	High ▾	Low ▾
Output	Comms F ▾	Comms F ▾
Output Active State	Low ▾	High ▾

Figure 11: GPIO settings page

Mode:
 Disabled/Input/Output:
 Modes configure the GPIO as an Input PIN or Output PIN.

	GPIO1	GPIO2
Mode	Output ▾	Disabled ▾
Pull-up	Disabled ▾	
Alarmed State	High ▾	Low ▾
Output	Comms F ▾	Comms F ▾
Output Active State	Low ▾	High ▾

Pull-up:

Selecting **Enable** applies an internal 4.7KΩ pull-up resistor to the UC-331-UCX's 12V input voltage, on both GPIO1 and GPIO2. See Appendix A.4 for circuit details.

	GPIO1	GPIO2
Mode	Output ▾	Disabled ▾
Pull-up	Disabled ▾	
Alarmed State	High ▾	Low ▾
Output	Comms F ▾	Comms F ▾
Output Active State	Low ▾	High ▾

Alarmed State:

This is only applicable when the GPIO is configured in "Input" mode..

Low/High:

Low=Alarm is raised when the voltage on GPIO is less than 1.3V. Alarm is restored when the voltage on GPIO is above 2.0V

High=Alarm is raised when the voltage on GPIO is above 2.0V. Alarm is restored then the voltage on GPIO is below 1.3V

	GPIO1	GPIO2
Mode	Output ▾	Disabled ▾
Pull-up	Disabled ▾	
Alarmed State	High ▾	Low ▾
Output	Comms F ▾	Comms F ▾
Output Active State	Low ▾	High ▾

Output:

The output pin indicates a communications failure (IP and cellular) on the UC-331-UCX. This is not a selectable field.

Comms Fault = Output is active when both paths (IP and Cellular) of the UC-331-UCX are in fault.

	GPIO1	GPIO2
Mode	Output ▾	Disabled ▾
Pull-up	Disabled ▾	
Alarmed State	High ▾	Low ▾
Output	Comms F ▾	Comms F ▾
Output Active State	Low ▾	High ▾

Output Active State :

This is only applicable when the GPIO is configured in "Output" mode.

High = When active, the output will be determined by the configuration of the Pull-up setting. If the Pull-up is Enabled, the output will be pulled high through the internal 4.7 K ohm resistor. If the Pull-up is Disabled, the output will be an open circuit. Output will be pulled low to 0V when not active.

Low = Output will be pulled low to 0V when output is active. When not active, the output will be determined by the configuration of the Pull-up setting. If the Pull-up is Enabled, the output will be pulled high through the internal 4.7 K ohm resistor. If the Pull-up is Disabled, the output will be an open circuit.

3.8 Keyswitch Configurations

The UC-331-UCX provides the ability to arm and disarm an alarm panel via the simulation of a keyswitch into a zone on the security panel. The UC-331-UCX supports two modes of keyswitch: maintained and pulse.

Item	Description	
Mode	Maintained = The output level of the UC-331-UCX is held at a constant level to indicate the desired arm/disarm state. This is to simulate a positional key-switch.	
	Pulse = The output level of the UC-331-UCX is pulsed for a programmable period of time to toggle the current arming state. This is to simulate a momentary key-switch.	
	Disabled = Disables keyswitch arming	
Name	Editable name for the UC-331-UCX. This appears when you log in to the panel with the UltraSync app. See Section 4 Figure 16	
Configure Maintained or Pulse operation per below.		
Mode	BUS2A Arming Output	Action when Arm is requested
Maintained	Arm = Low, Disarm = High	Terminal will go low to arm, high to disarm
	Arm = High, Disarm = Low	Terminal will go high to arm, low to disarm
Pulse	Low	Terminal will pulse from high to low
Pulse	High	Terminal will pulse from low to high
Output Pulse Period	Length of time to hold the output pulse active, in milliseconds	
BUS2B Armed State Input	Armed=Low Disarmed=High	Low signal on Terminal indicates panel is armed High signal on Terminal indicates panel is disarmed
	Armed=High Disarmed=Low	High signal on Terminal indicates panel is armed Low signal on Terminal indicates panel is disarmed

The screenshot shows the 'Settings Selector' interface for a NetworkX panel. At the top, there is a blue header with the text 'Settings Selector'. Below the header is a dropdown menu labeled 'Keyswitch' with a downward arrow. Underneath are three blue buttons: 'Up', 'Down', and 'Save'. Below this is a larger white box with a title 'Keyswitch'. It contains several configuration fields: 'Mode' is a dropdown menu set to 'Pulse'; 'Name' is a text input field containing 'Global'; 'BUS1A: Arming Output' is a dropdown menu set to 'Low'; 'Output Pulse Period (ms)' is a text input field containing '1000'; 'BUS1B: Armed State Input' is a dropdown menu set to 'Armed=Low, Disarmed=High'.

Figure 13: Configure UC-331 - NetworX

The screenshot shows the 'Settings Selector' interface for a Concord panel. It has the same layout as Figure 13. The 'Mode' dropdown is set to 'Pulse', the 'Name' text input is 'Global', the 'BUS1A: Arming Output' dropdown is 'Low', the 'Output Pulse Period (ms)' text input is '1000', and the 'BUS1B: Armed State Input' dropdown is set to 'Armed=High, Disarmed=Low'.

Figure 134: Configure UC331 - Concord

Configure the UC-331-UCX for NetworX panel Pulse mode as shown in Figure 13.

Configure the UC-331-UCX for Concord panel Pulse mode as shown in Figure 14.

The *editable* name example used here is “Global”. This appears when you log in to the panel in the UltraSync+ app. See Section 4 Figure 16.

NetworX Panels

The steps required for configuring a NetworX panel for keyswitch arm/disarm in Pulse mode are shown below.

The example is used for Output1 | Partition 1

1. Enter Programming Mode on the NetworX panel
2. Program Zone X as a **Zone Type “11”** for Keyswitch
3. Program Zone Y as a Zone Type “10” and zone text as Communications Failure
4. Programming for Auxiliary Output1 Terminal (to indicate panel armed state)

Location **45**: Auxiliary Output 1-4 PartIA: Selection
Segment 1 **Bit 1 ON** for partition one
Turn **Bits 2-8 OFF** for partitions 2-8

Location **46**: Auxiliary Outputs 1 to 4 Special Timing
Segment 1 **Bit 2 ON** (Output latches)

Location **47** Auxiliary Output 1 Event and Times

Segment 1 = **54** (Armed Stay activates Output 1)

Segment 2 = **0** (Output follows event)

5. Wire the UC-331-UCX and NetworX panel together per **Figure 3**.

Concord Panels

The following sequence describes the procedure to configure a Keyswitch for a single partition. Each step begins by the user entering a shortcut from the System Programming Mode.

To enter the System Programming Mode, until the message SYSTEM PROGRAMMING MODE is displayed on the keypad.

The steps required for configuring a Concord panel for keyswitch arm/disarm are:

Select zone/sensor for "Keyswitch".

Enter short cut **0014**. Enter sensor number (1..96) and then #.

Configure Keyswitch style

1. Enter shortcut **0015**. Enter: 0015 - 0096 (must match the sensor number in previous step)
2. Enter **1** then # for Transition style – **2** then # for Maintained style.
3. Learn the sensor into the panel memory.
4. Enter short cut **080**, **LEARN SENSOR** is displayed.
5. Enter the sensor that is associated with the Keyswitch above and then #.
6. Enter the partition number then #. **SENSOR GROUP** is displayed.
7. Enter 28 then # for the sensor group. **TRIP SENSOR n** is displayed.
8. Learn the sensor into the panel memory.
9. Program Zone Y as a Zone Type "10" and zone text as Communications Failure

Configure Output1 to indicate the Arming Status of the panel

1. From SYSTEM PROGRAMMING MODE enter #, until **SECURITY** is displayed.
2. Enter **B** until **ONBOARD OPTIONS** is displayed.
3. Enter # to select this, **INPUTS** is displayed.
4. Enter **B** until **OUTPUT PROGRAMMING** is displayed.
5. Enter #, **OUTPUT 1** is displayed.
6. Enter #, **PARTITION ASSIGN 1** is displayed.
7. Enter the partition number (1 ... 6) selected above.
8. Enter # to accept the partition number.
9. Enter **B** until **CONFIGURATION XXXX** is displayed where **XXXX** is the current configuration.
10. Enter the new configuration 00903.
11. Wire the UC-331-UCX and Concord panel together per **Figure 4**.

3.9 UltraSync

Figure 15: UltraSync settings page

UltraSync Menu	Item	Description
	LAN URLs	LAN URLs for UltraSync servers hostname:port
Cellular URLs	Cellular URLs for UltraSync servers hostname:port	

Note: The URLs listed above should not be changed from their default values.

Note: The configuration procedure with the UltraSync+ app is identical to the procedure described above for a web browser. Follow the instructions below to install and configure the UltraSync+ app.

4 Access via UltraSync app

The UC-331-UCX can also be accessed from the dedicated UltraSync app. UltraSync is available to download from the Apple App Store™ or Google Play™ store. Carrier charges may apply and an iTunes® or Google account is required. All functionality available from the web server is available within the app.

- 1) On your smart device, go to the Apple App Store or Google Play store.
- 2) Search for UltraSync.
- 3) Install the UltraSync app (not UltraSync +).
- 4) Launch the UltraSync app.
- 5) Press + in the upper right corner of the screen to add a new site location.



- 6) Enter the details of the security system:
 - **Site Name:** Enter a unique name for the site.
 - **Description:** Enter a description for the site.
 - **Serial Number:** Enter the 12 digit serial number of the UC-331-UCX. This is located on the label attached to the circuit board.
 - **Passcode:** Enter the 8-digit numerical Web Access Passcode. The passcode is pre-programmed into the UC-331-UCX. This is located on the label attached to the circuit board.
 - **User Name:** Default User Name is **installer**
 - **PIN:** You can elect to remember the PIN or not. If you turn Remember PIN on, you can enter the PIN into the application and the application will launch automatically without requiring the user to enter their PIN. Default PIN is **9713**.
- 7) Press the **Add Site** button to save.
- 8) Press the name of the Site, the app will now connect you to the UC-331-UCX.

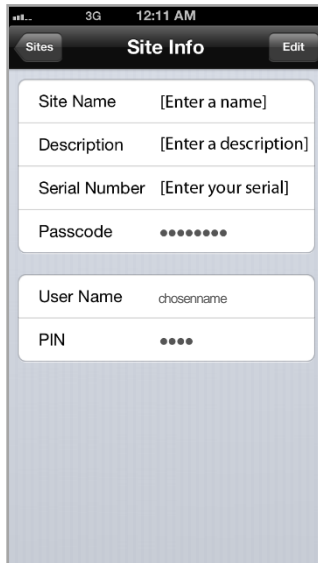


Figure16: Building a new UltraSync site

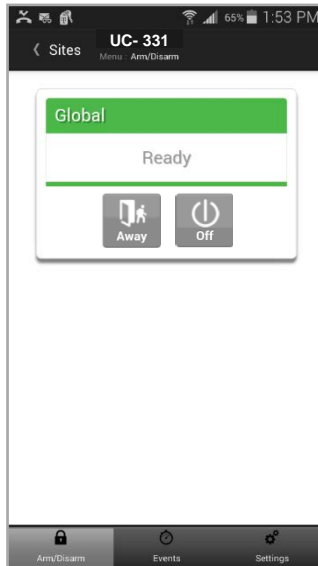


Figure 17 UC-331 unit named "Global"

4.1 Troubleshooting the UltraSync Setup

1. UltraSync Site Creation fails	
Cause	Solution
Settings are entered incorrectly	<i>Check the serial number, web access passcode, user name and PIN codes.</i>
	<i>Web Access Passcode must not be 00000000.</i>
2. Network connections fail	
Cause	Solution
Ethernet not working	<i>If connected by Ethernet, check that the cable is plugged in and the connection is working. The Wireline IP LED should be lit solid.</i>
3. Cannot get IP address	
Cause	Solution
The router may not be configured for automatic DHCP or certain security settings may be enabled.	<i>Check your router and UC-331-UCX IP settings and try again.</i>
4. Cannot access internet	
Cause	Solution
Mobile device has no access	<i>Open a web browser on your mobile device to double check access.</i>
	<i>Try disabling Wi Fi on your device once the UC-331-UCX is configured, and using the 3G/4G data connection of your device with the UltraSync+ app.</i>
5. Server connections fail	
Cause	Solution
Server addresses are incorrect	<i>Check the UltraSync servers are correct.</i> <i>a. Ethernet Server 1 - dc1.ultrasync.com:443</i> <i>b. Ethernet Server 2 - dc1.zerowire.com:443</i> <i>c. Wireless Server 1 - dc1w.ultrasync.com:8081</i> <i>d. Wireless Server 2 - dc1w.zerowire.com:8081</i>
6. Configuration setting changes fail	
Cause	Solution
Devices are not responding	<i>Re-initialize equipment. Power cycle connected equipment including UC-331-UCX and customer supplied router(s).</i>
7. Arm/Disarm does not function properly	
Cause	Solution
Panel or UC-331-UCX setup incorrect	<i>Re-check the wiring, the settings on the alarm panel and the settings on the UC-331-UCX.</i>

Appendices

A.1 Installation and Commissioning Checks

Before leaving the site, please complete the following installation checks:

1. The UC-331-UCX is mounted in a tamper-proof enclosure.
2. The UC-331-UCX is powered from a battery-backed power system and the power budget has been checked.
(The UC-331-UCX draws an average current of 110mA, peak of 150mA)
3. The wireless signal strength is in acceptable range or better.
4. The UC-331-UCX is communicating with the UltraSync servers (CELL IP LED is solid, and/or WLINE IP LED should be solid)
5. Alarms have been generated from the alarm panel and correct reception has been confirmed at the central monitoring station

A.2 Restore installer access

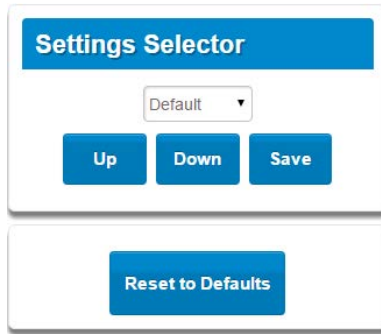
The installer account can be reset to factory default without affecting other settings:

1. Short the CFG_MODE pins with a jumper.
2. Power cycle the UC-331-UCX.
3. The installer username and PIN will restore to **installer** and **9713**. This does not change Master or User accounts (users 2-4).
4. Remove the jumper.

A.3 Default UC-33-UCX

To default the UC-331-UCX to factory default settings:

1. Login as installer.
2. Select Default from the drop down menu.
3. Press the Reset to Defaults button.

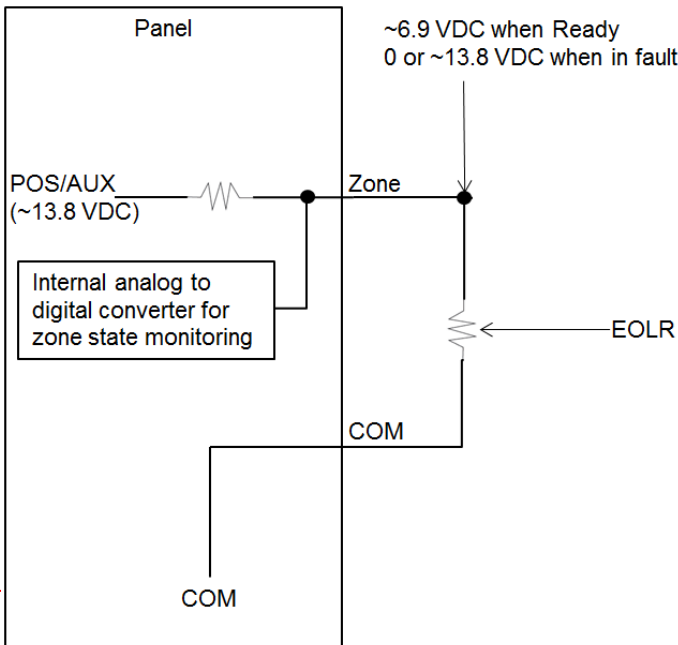


A.4 NetworX/Challenger/Concord Zone Circuit

The diagram below depicts a NetworX, Challenger, and Concord security panel zone electrical circuit. When in a ready state, there will be approximately 6.9 VDC (1/2 of the POS/AUX voltage) present at the Zone terminal.

When the Zone input is grounded or the circuit with the EOLR is opened, the voltage present at the Zone terminal will go to 0V or ~ 13.8 VDC respectively. The panel monitors this voltage to determine the zone state.

When connecting outputs of the UC-331-UCX to the zone terminal, the UC-331-UCX will present an open circuit from the BUS2A output or GPIO (as long as the pull-up is disabled in GPIO settings) to indicate a normal state.

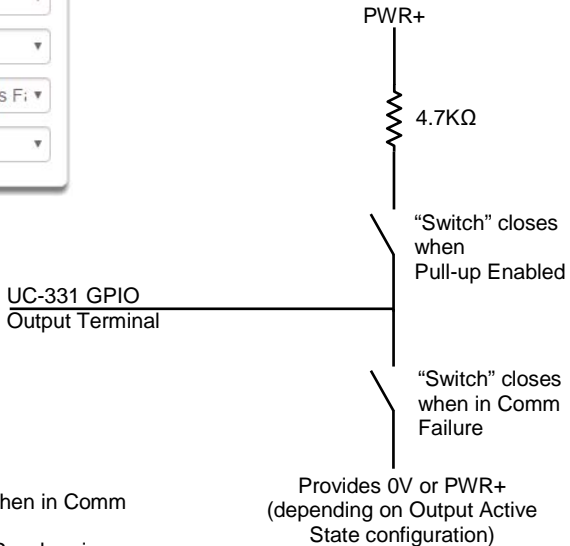


A.5 UC-331-UCX GPIO Output Circuit

When the GPIO mode selection is Output, the output terminal will indicate if the UC-331-UCX is in a communication failure state (connection to UltraSync servers is lost on both Ethernet and Cellular communications paths).

The diagram below depicts the UC-331-UCX GPIO output circuit. When Pull-up is enabled, an internal 4.7 kohm resistor will be inserted into the circuit. When the UC-331-UCX enters the Comms Failure state, the UC-331-UCX will provide either 0V or PWR+ (~13.8 VDC) to the GPIO output terminal, depending on the Output Active State setting. When in a normal state, the output terminal will present an open circuit when the Pull-up is disabled (Pull-up is normally disabled).

	GPIO1	GPIO2
Mode	Output ▾	Disabled ▾
Pull-up	Disabled ▾	
Alarmed State	High ▾	Low ▾
Output	Comms F ▾	Comms F ▾
Output Active State	Low ▾	High ▾



Output Active State

Low provides connection to 0V when in Comm Failure
High provides connection to PWR+ when in Comm Failure

Specifications

Power	Voltage range 10VDC – 18VDC
Current	12V 110mA average, 150mA peak
GPIO output current	< 2V at 50mA
Product Dimensions	103 x 180 x 34mm 4.05 x 7.09 x 1.3inch
Environmental conditions	-10° to +70°C +14° to +158°F 5% – 90% relative humidity non-condensing
Panel Interface	Dial Capture, ASIAL Serial including Contact ID sub-format (Challenger 10)
Panel Formats	Ademco® ContactID, Fast SIA 1/2/3
Remote Servicing	Upload download via: - DLX 900 for NetworX - EDS for Concord - Titan for Challenger
Cellular Interface	3G+GPRS
Cellular Frequency	850/900/1800/2100 MHz

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Regulatory Approvals



Tested To Comply
With FCC Standards
For Home or Office Use

**Regulatory
Information**

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.

Changes or modifications not expressly approved by UTC Fire and Security could void the user's authority to operate the equipment.

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

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In accordance with FCC requirements of human exposure to radiofrequency fields, the radiating element shall be installed such that a minimum separation distance of 20 cm is maintained from the general population.

FCC: XPYLISAU200

IC: 8595A-LISAU200

This Class B digital apparatus complies with Canadian ICES-3B. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

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DO NOT CONNECT TO A RECEPTACLE CONTROLLED BY A SWITCH.

THIS UNIT INCLUDES AN ALARM VERIFICATION FEATURE THAT WILL RESULT IN A DELAY OF THE SYSTEM ALARM SIGNAL FROM THE INDICATED CIRCUITS. THE TOTAL DELAY (CONTROL UNIT PLUS SMOKE DETECTORS) SHALL NOT EXCEED 60 SECONDS. NO OTHER SMOKE DETECTOR SHALL BE CONNECTED TO THESE CIRCUITS UNLESS APPROVED BY THE LOCAL AUTHORITY HAVING JURISDICTION.

WARNING: The equipment should only be operated with an approved power adapter with insulated live pins.

Caution: Risk of explosion if battery is replaced by an incorrect type. Dispose of batteries according to the instructions. Contact your supplier for replacement batteries.

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The illustrations in this manual are intended as a guide and may differ from your actual unit as ZeroWire is continually being improved.

Intended Use

Use this product only for the purpose it was designed for; refer to the data sheet and user documentation. For the latest product information, contact your local supplier or visit us online at www.utcfireandsecurity.com.

The system should be checked by a qualified technician at least every 3 years and the backup battery replaced as required.

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Advisory messages alert you to conditions or practices that can cause unwanted results. The advisory messages used in this document are shown and described below.

WARNING: Warning messages advise you of hazards that could result in injury or loss of life. They tell you which actions to take or to avoid in order to prevent the injury or loss of life.

Caution: Caution messages advise you of possible equipment damage. They tell you which actions to take or to avoid in order to prevent the damage.

Note: Note messages advise you of the possible loss of time or effort. They describe how to avoid the loss. Notes are also used to point out important information that you should read.

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This product uses FreeRTOS V8.2.0, the FreeRTOS source code can be obtained by a request in writing to UHS Pty Ltd, PO Box 6264, South Sydney Business Hub, Alexandria, NSW, 2015, Australia

Appendices.....	36
ASIAL Serial	13
Basic Keyswitch Arm/Disarm Wiring	7
Before Proceeding.....	5
Configuration GPIO as Input	26
Configuration GPIO as Output	26
Configuration options UC 331	16
Configure using Direct Connection	16
Configure using UltraSync.....	18
Connecting to Alarm Panels.....	10
Included in the Box.....	4
Installation and Commissioning Checks	36
Installing the UC-331	6
Introduction.....	4
Keyswitch configuration, Concord Panel.....	31
Keyswitch configuration, NetworX Panel	30
Keyswitch, Concord panel pulse mode	30
Keyswitch, Networx panel pulse mode	30
LED Diagnostics.....	15
Menu, Cellular	24
Menu, Details	19
Menu, GPIO.....	26
Menu, Keyswitch	29
Menu, Status	20
Menu, UltraSync.....	32
Menu, Users	25
Network setup, DHCP Method	21
Network setup, Static IP method.....	22
Restore installer access	36

Specifications	38
Start-Up Sequence	14
Terminal Descriptions	7
Terminal Layout	8
Troubleshooting UltraSync	35
Wiring the UC-331	6
Wiring, Concord Panel	12
Wiring, NetworX Panel	10, 11
Wiring, Tamper Switch	9