

UniStream[®]

Display

Installation Guide

**USL-050-B05, USL-070-B05,
USL-101-B05, USL-156-B05**

This guide provides basic installation information for UniStream[®] Display models. Displays are compatible with UniStream[®] PLCs.

Technical specifications may be downloaded from the Unitronics website.

General Description

UniStream[®] Display models comprise resistive color touch-screens that support VNC client, and are available in different dimensions.

Via VNC, UniStream[®] PLCs can access Displays to show HMI screens.

In addition to HMI screens, Displays support UniApps[™], a built-in system that enables the user to access communication settings, and manage the device.

Exact features are detailed in the product specification sheets.

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| Features | <ul style="list-style-type: none">▪ Resistive Color Touch-screens▪ 1 Built-in RJ45 Ethernet port (USL-156-B05 has 2 ports)▪ 1 USB host port for firmware updates (USL-156-B05 has 2 ports) |
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General Features of the UniStream PLC Series

Unitronics' UniStream PLCs are DIN-rail mounted Programmable Logic Controllers (PLCs) with a built-in I/O configuration.

The series is available in three versions: Pro, Standard, and Basic.

Note that a model number that includes:

- **B10** refers to Pro version (e.g. USC-B**10**-T24)
- **B5** refers to Standard version (e.g. USC-B**5**-RA28)
- **B3** refers to Basic version (e.g. only for USC-B**3**-T20)

Page 2 contains a comparison table detailing the features offered by the different models. Exact features are detailed in the product specification sheets.

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| Power Features | <ul style="list-style-type: none">▪ Built-in Trends and Gauges, auto-tuned PID, data tables, data sampling, and Recipes▪ UniApps[™]: Access & edit data, monitor, troubleshoot & debug and more▪ Security: Multi-level password protection▪ Alarms: Built-in system, ANSI/ISA standards |
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| COM Options | <ul style="list-style-type: none">▪ Built-in ports: 2 Ethernet, 1 USB host, 1 USB device port▪ Add-on ports (UAC-CB), available by separate order:<ul style="list-style-type: none">➢ 1 CANbus port may be added to all models➢ RS232/485 ports: according to model technical specifications |
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| COM Protocols | <ul style="list-style-type: none">▪ Fieldbus: CANopen, CAN Layer2, MODBUS, EtherNet/IP and more. Implement any serial RS232/485, TCP/IP, or CANbus third-party protocols via Message Composer▪ Advanced: SNMP Agent/Trap, e-mail, SMS, modems, GPRS/GSM, FTP Server/Client, Web Server, SQL, and MQTT.▪ Remote Access via any device that supports VNC. |
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Programming Software	All-in-One UniLogic software for hardware configuration, communications, PLC and HMI applications; free download.
HMI	All UniStream® PLCs can display HMI screens on the following devices: <ul style="list-style-type: none"> • UniStream Display (USL) • UniStream Modular HMI panel (USP) • UniStream Built-in (on the panels integral to the device) • Any device screen that supports VNC
HMI	HMI screens are designed in UniLogic. In addition to the HMI screens, UniStream® PLCs offer built-in HMI features, including: <ul style="list-style-type: none"> • UniApps™: Access & edit data, monitor, troubleshoot, debug, and more • Security: Multi-level password protection <p>Alarms: Built-in system, ANSI/ISA standards</p>

USB Action files	Programmers can create files in UniLogic and save them to a USB mass storage device, such as a flash drive. This enables the end user to implement certain actions such as to update firmware, update network settings, download applications, extract log files and more.
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Differences between B10, B5, and B3	Feature	B10 Pro	B5 Standard	B3 Basic
	I/O Expansion via Uni-I/O	Yes		No
	Remote I/O Expansion via Ethernet I/O Adapter (URB)	Up to 8		1
	VFD	32		2
	MicroSD	Yes		No*
	Add-on COM modules	3		2
	System Memory	6GB	3GB	3GB
	MODBUS Slaves	Unlimited		Up to 8
	Ethernet/IP Scanners	16		1
	Ethernet/IP Adapters	32		8
	Web Server	Yes	No	No
	SQL Client	Yes	No	No
	MQTT	Yes		
	PID Loops	64		2
	Data Sampler/Trends	Yes		No
	CSV files: creating/ reading	Yes		No
	FTP, server/client	Yes		No
Saving Data Tables to SD	Yes		No*	
Screenshots	Yes		No	
Sending email attachments	Yes		No	
USB device (programming port)	Yes		No**	

* Note that B3 models do not support features requiring SD cards. In addition, Alarm History is not retained after PLC reset.

** Note that B3 models may be programmed only via Ethernet cable.

Before You Begin

Before installing the device, the user must:

- Read and understand this document.
- Verify the Kit Contents.

NOTE ▪ Throughout this document, images based on the USL-050-B05 apply to all models.

Alert Symbols and General Restrictions

When any of the following symbols appear, read the associated information carefully.

<i>Symbol</i>	<i>Meaning</i>	<i>Description</i>
	<i>Danger</i>	<i>The identified danger causes physical and property damage.</i>
	<i>Warning</i>	<i>The identified danger could cause physical and property damage.</i>
<i>Caution</i>	<i>Caution</i>	<i>Use caution.</i>

- All examples and diagrams are intended to aid understanding, and do not guarantee operation. Unitronics accepts no responsibility for actual use of this product based on these examples.
- Please dispose of this product according to local and national standards and regulations.
- This product should be installed only by qualified personnel.

-  ▪ Failure to comply with appropriate safety guidelines can cause severe injury or property damage.
- Do not attempt to use this device with parameters that exceed permissible levels.
- Do not connect/disconnect the device when power is on.

Environmental Considerations

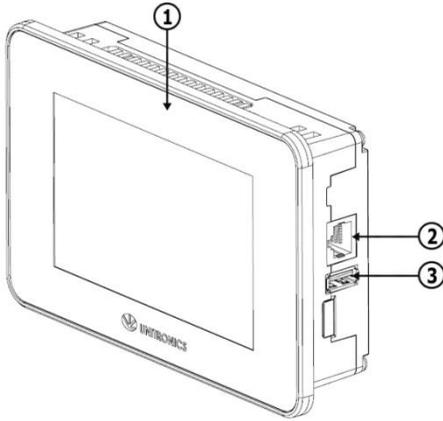
-  ▪ Ventilation: 10mm space is required between the device top/bottom edges and the enclosure's walls
- Do not install in areas with: excessive or conductive dust, corrosive or flammable gas, moisture or rain, excessive heat, regular impact shocks or excessive vibration, in accordance with the standards and limitations given in the product's technical specification sheet.
- Do not place in water or let water leak onto the unit.
- Do not allow debris to fall inside the unit during installation.
- Install at maximum distance from high-voltage cables and power equipment.

Kit Contents

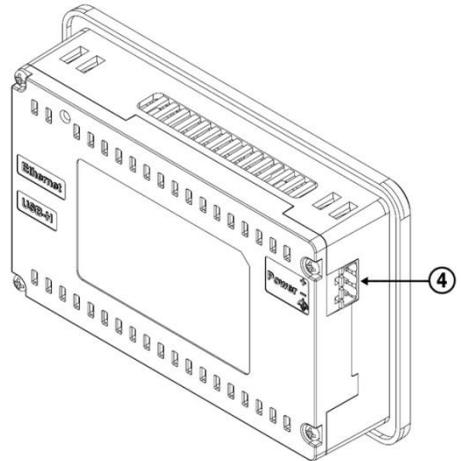
- 1 UniStream Display
- 4 mounting brackets (USL-050-B05, USL-070-B05)
- 8 mounting brackets (USL-101-B05)
- 10 mounting brackets (USL-156-B05)
- 1 panel mounting seal
- 2 panel supports (except USL-050-B05)
- 1 power terminal block

Product Diagram

Front



Rear



1	Screen Protection	A plastic sheet attached to the screen for protection. Remove it during installation.
2	Ethernet port	Enables you to connect the Display to the UniStream PLC via Ethernet cable. Note that USL-156-B05 has 2 Ethernet ports.
3	USB Host port	Provides the interface for system updates and system log access. Note that USL-156-B05 has 2 USB Host ports.
4	Power Supply Input	Connection point for the Display power source. Connect the Terminal Block supplied with the kit to the end of the power cable.

Installation Space Considerations

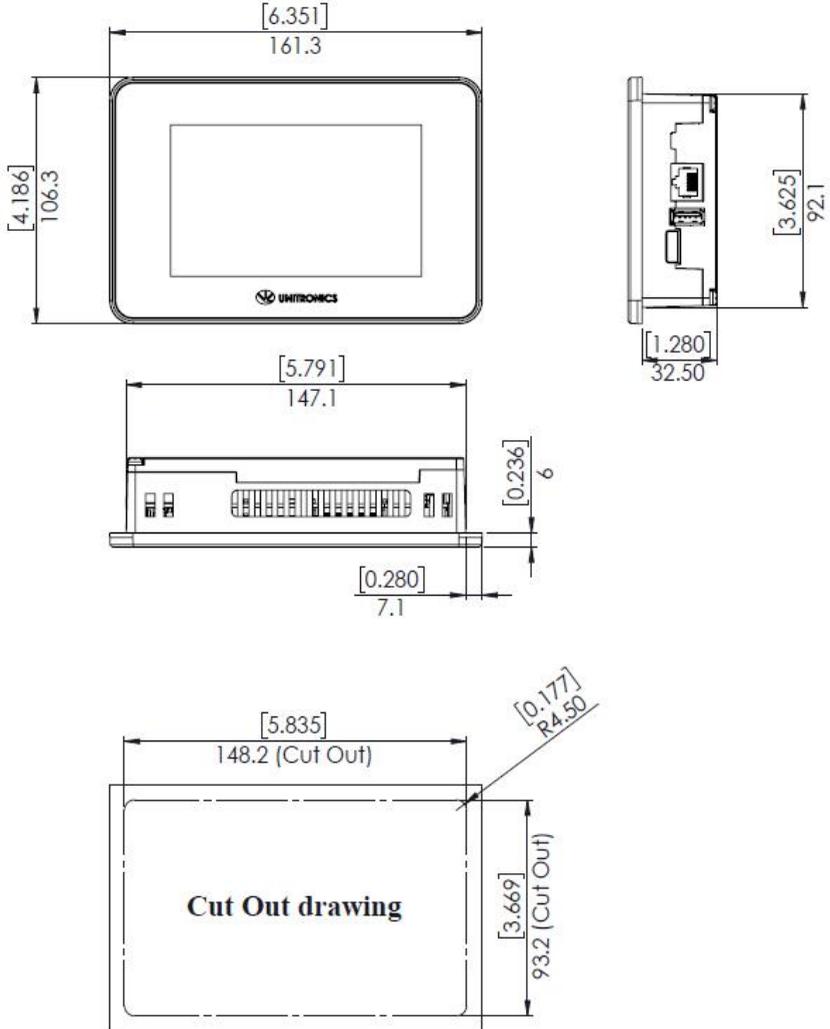
Allocate space for:

- the device
- access to ports

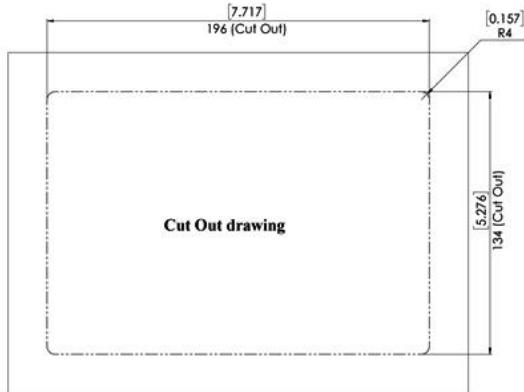
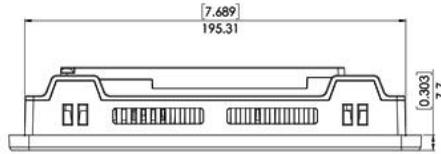
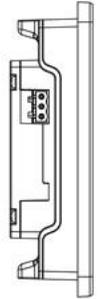
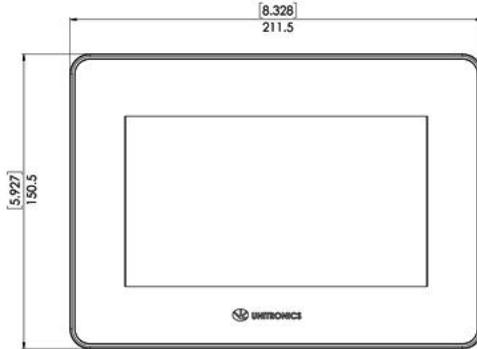
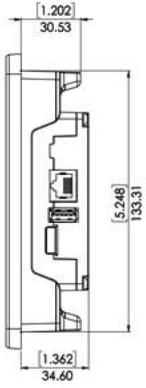
For exact dimensions, please refer to the Mechanical Dimensions shown below.

Mechanical Dimensions

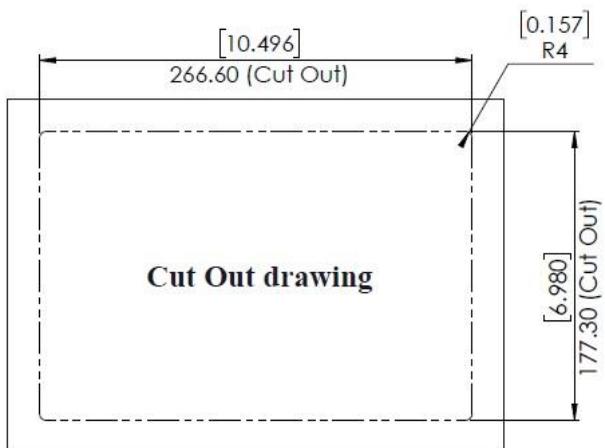
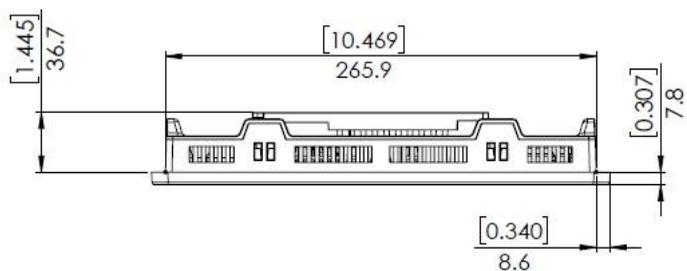
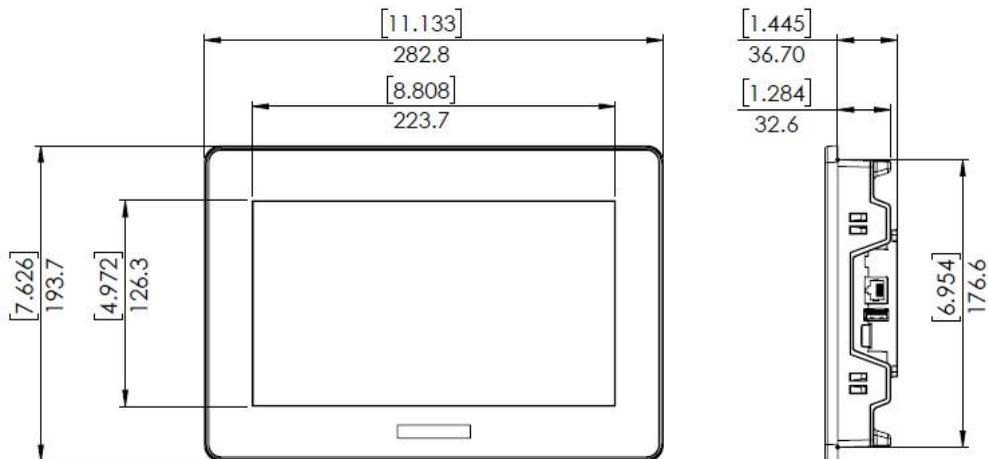
USL-050-B05



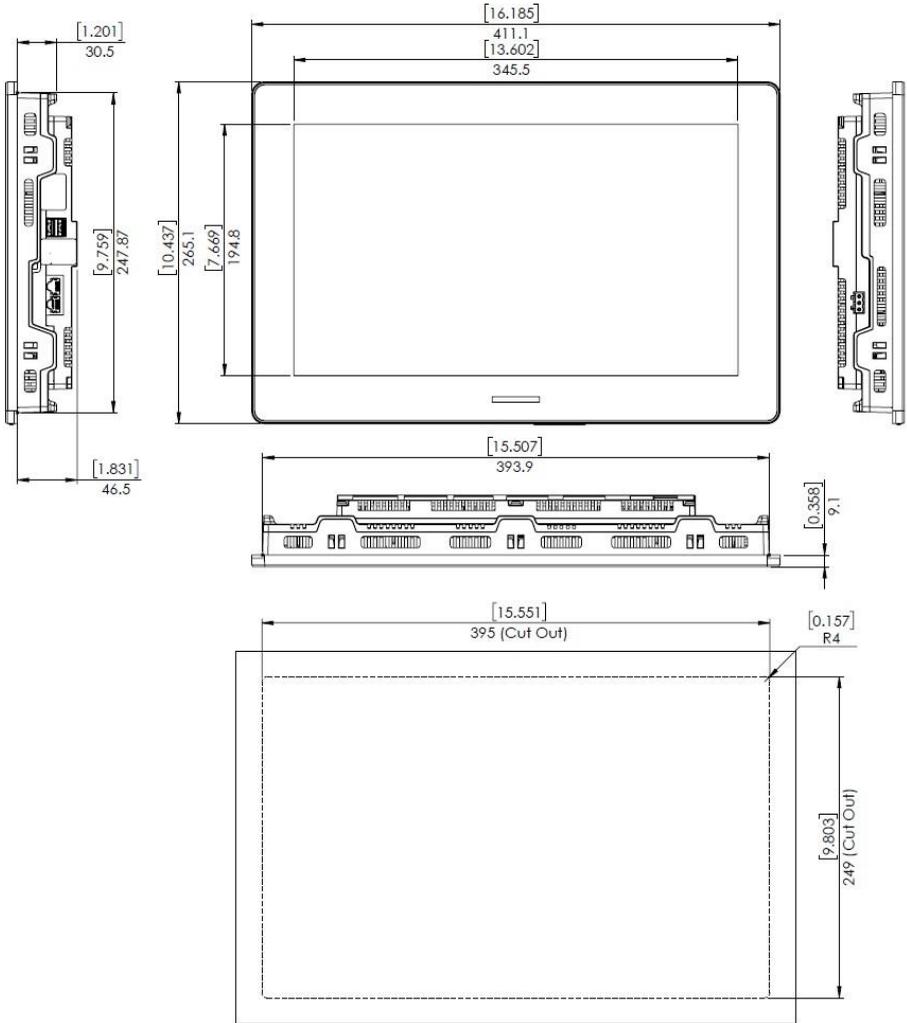
USL-070-B05



USL-101-B05



USL-156-B05

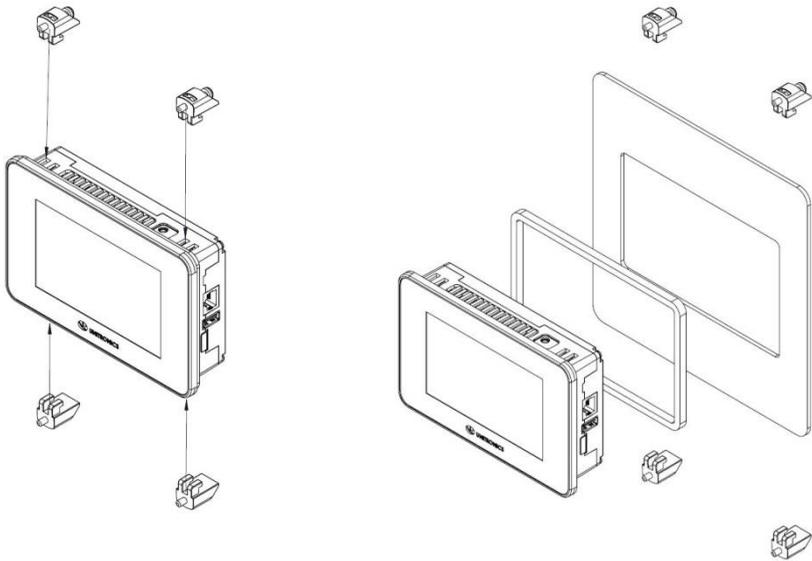


Panel Mounting

- NOTE**
- Mounting panel thickness must be less or equal to 5mm (0.2”).
 - Ensure that the space considerations are met.

1. Prepare a panel cut-out according to the dimensions as shown in the previous section.
2. Slide the device into the cut-out, ensuring that the Panel Mounting Seal is in place as shown below.
3. Push the mounting brackets into their slots on the sides of the panel as shown below. Note that USL-050-B05 and USL-070-B05 models have 4 brackets, USL-101-B05 has 8 brackets and USL-156-B05 model has 10 brackets.
4. Tighten the bracket screws against the panel. Hold the brackets securely against the unit while tightening the screws.

When properly mounted, the device is squarely situated in the panel cut-out as shown below.



- Caution**
- The necessary torque is 0.35 N·m (3.5 kgf·cm).

Wiring



- This equipment is designed to operate only at SELV/PELV/Class 2/Limited Power environments.
- All power supplies in the system must include double insulation. Power supply outputs must be rated as SELV/PELV/Class 2/Limited Power.
- Do not connect either the 'Neutral' or 'Line' signal of the 110/220VAC to device's 0V point.
- Do not touch live wires.
- All wiring activities should be performed while power is OFF.
- Use over-current protection, such as a fuse or circuit breaker, to avoid excessive currents into the power supply connection point.
- Unused points should not be connected (unless otherwise specified). Ignoring this directive may damage the device.
- Double-check all wiring before turning on the power supply.

Caution

- To avoid damaging the wire, use a maximum torque of 0.5 N·m (5 kgf·cm).
- Do not use tin, solder, or any substance on stripped wire that might cause the wire strand to break.
- Install at maximum distance from high-voltage cables and power equipment.

Wiring Procedure

Use crimp terminals for wiring; use 26-12 AWG wire (0.13 mm² –3.31 mm²)

1. Strip the wire to a length of 7±0.5mm (0.250–0.300 inches).
2. Unscrew the terminal to its widest position before inserting a wire.
3. Insert the wire completely into the terminal to ensure a proper connection.
4. Tighten enough to keep the wire from pulling free.

Wiring Guidelines

In order to ensure that the device will operate properly and to avoid electromagnetic interference:

- Use a metal cabinet. Make sure the cabinet and its doors are properly earthed.
- Individually connect each functional ground point (⚡) to the earth of the system (preferably to the metal cabinet chassis).
Use the shortest and thickest wires possible: less than 1m (3.3') in length, minimum thickness 14 AWG (2 mm²).
- Connect the power supply 0V to the earth of the system.
- Earthing the cables' shield:
 - Connect the cable shield to the earth of the system (preferably to the metal cabinet chassis). Note that the shield must be connected only at one end of the cable; it is recommended to earth the shield at the Display-side.
 - Keep shield connections as short as possible.
 - Ensure shield continuity when extending shielded cables.

NOTE For detailed information, refer to the document System Wiring Guidelines, located in the Technical Library in the Unitronics' website.

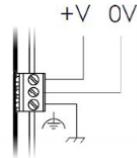
Wiring the Power Supply

The device requires an external power supply.



- In the event of voltage fluctuations or non-conformity to voltage power supply specifications, connect the device to a regulated power supply.
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Connect the +V and 0V terminals as shown in the accompanying figure.



Connecting Ports

- Ethernet CAT-5e shielded cable with RJ45 connector
- USB Host Standard USB Type-A plug

Uninstalling the Device

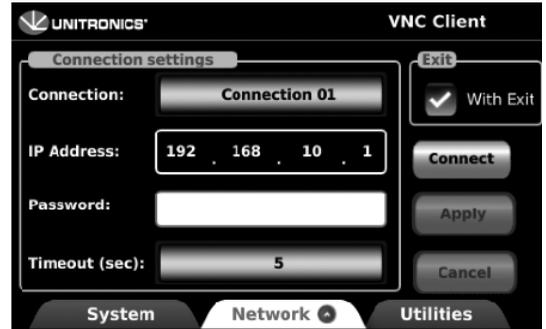
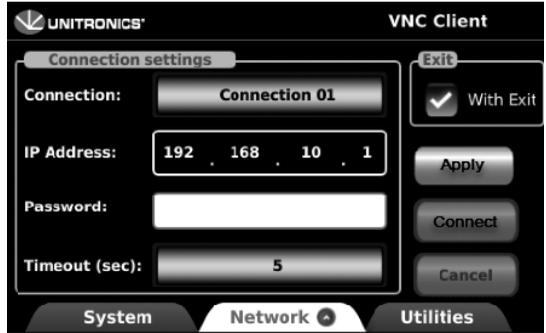
1. Disconnect the power supply.
2. Remove all wiring.
3. Unscrew and remove the mounting brackets, taking care to support the device to prevent it from falling during this procedure.

Connecting the Display to a UniStream®

1. After the device is powered on, select the Network tab at the bottom of the screen.
2. Enter the IP Address for the VNC connection, a password if one is required by the VNC server, edit the timeout if required, and then tap Apply.

To add connections, tap the Connection scroller and repeat the steps above

1. When a connection is defined, the Connect button is activated; tap it to initiate the VNC connection.



With Exit

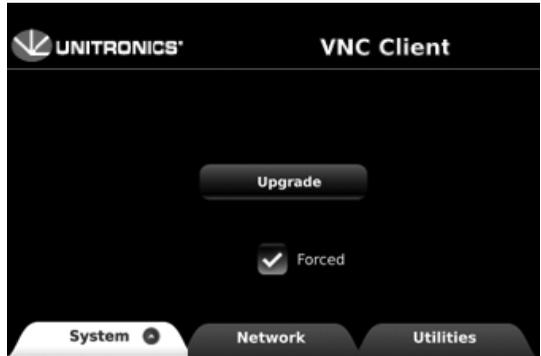
Selecting the With Exit option places an Exit VNC button on screen during a VNC session. This can be tapped in order to exit to UniApps.



Upgrading Firmware

1. Place a USB flash drive containing the firmware update into the USB port.
2. Select the System tab, tap Upgrade, and follow the on-screen instructions.

Note that Firmware updates are located on the Unitronics website, on the [UniLogic page, under Download Software](#).



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