UniStream®Local Expansion Adapter Kits

Installation Guide
UAG-XKxxx, UAG-XKPxxx,
UAG-CX-XKPxxx, UAG-CX-XKPLxxxx,
and UAG-XKPLxxxx

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Local Expansion Adapter Kits allow you to increase the number of I/Os connected to a single UniStream® by enabling you to link the controller to additional Uni-I/O™ modules.

This guide provides specifications for Unitronics' Short Range and Long Range Local Expansion Adapter Kit for Uni-I/O™.

All Kits comprise a Base unit, an End unit, and a connecting cable. The cable length varies according to kit model.
- Short-range adapter Kits
  Up to 3 meters
- Long-range adapter Kits
  3 meters and up

Kits whose models contain the letter 'P' include a built-in power supply; a powered adapter module supports a greater number of I/O modules.

There are two main classes of adapters:

- **UAG-XK**
  Both the Base and End units of these adapters have DIN-rail clips. You can:

  - Snap the base onto the DIN-rail type structure on the back of **UniStream Modular** HMI

  - Snap the base directly onto a **UniStream PLC**

- **UAG-CX**
  The base unit of these adapters has a plug; the end unit has DIN-rail clips. You can plug the base unit only into the **I/O Expansion Jack** offered by the **UniStream Built-in series**.

Note that the maximum number of modules supported by a single controller is provided in the controller's technical specifications.

Technical specifications are available in Unitronics' Technical Library at www.unitronicsplc.com.

Adapter Models

The 'x's in the model numbers are placeholders for the cable lengths.

Model	Installation Options	Integrated Power Supply	Module Support
UAG-XKxxx	DIN-rail structure DIN-rail	No	8, **includes** any modules directly connected to the controller
UAG-XKxxx		Yes	16, in **addition** to any modules directly connected to the controller
UAG-XKxxxx			
UAG-CX-XKPxxx, UAG-CX-XKPLxxxx	Plug into controller Jack	Yes	16
UAG-CX-XKPLxxxx			

Before You Begin

Before installing the device, the installer must:

▪ Read and understand this document and related technical specifications and documents, located in the Technical library section of the Unitronics website.

▪ Verify the Kit Contents.

Alert Symbols and General Restrictions

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

Symbol	Meaning	Description
⚡	Danger	The identified danger causes physical and property damage.
⚠	Warning	The identified danger could cause physical and property damage.
Caution	Caution	Use caution.

▪ 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.
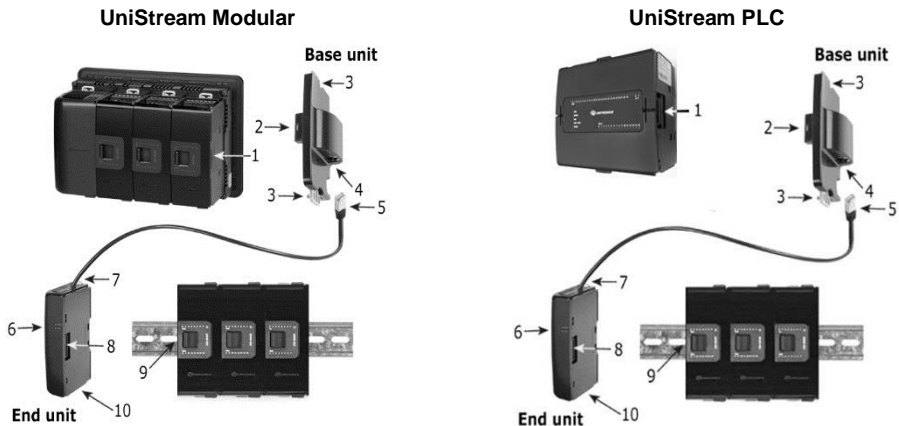
Environmental Considerations

⚠ ▪ Ventilation: 10mm (0.4") of 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

Item	Qty	UAG-XKxxx	UAG-XKPxxx UAG-CX-XKPxxx	UAG-CX-XKPLxxxx UAG-XKPLxxxx
Local Expansion Base Unit	1	√	√	√
Local Expansion End Unit	1	√	√	√
Requires connection to external Power Supply	-	-	√	√
Cable	1	Integrated	Integrated	√
Terminal Block	1	√	√	√

Item P/N	Accessories P/N		
Item	**Base Unit**	**Cable**	**End Unit**
UAG-XKxxx	UAG-XKxxx	CEXP-125 / 300	UAG-XKxxx
UAG-XKPxxx	UAG-XKPxxx	CEXP-125 / 300	UAG-XKPxxx
UAG-XKPLxxxx	UAG-XKPLxxxx	CEPL-600 / 1200 / 1500 / 2000 / 3000	UAG-XKPLxxxx
UAG-CX-XKPxxx	UAG-CX-XB-01	CEXP-125 / 300	UAG-CX-XKPxxx
UAG-CX-XKPLxxx	UAG-CX-XBL-01	CEPL-600 / 1200 / 1500 / 2000 / 3000	UAG-CX-XKPLxxx

Assembly Diagram: Short-range Adapters UAG-XKxxx and UAG-XKPxxx

UniStream Modular   **UniStream PLC**
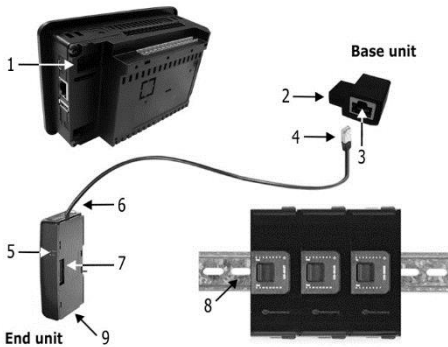

1. Bus connector
2. Base Unit plug
3. Clips
4. Base Unit's cable port
5. Cable with RJ45 connector
6. End Unit LED indicators
7. DIN-rail clips, top and bottom
8. End Unit I/O bus connector
9. I/O Bus - Left side connector
10. Model-dependent:
    - UAG-XKxxx earth point connector
    - UAG-XKPxxx power supply connector

Caution ▪ Please note that although they appear similar, the Base Units and End Units of Short-range and Long-range adapters are **not interchangeable**.

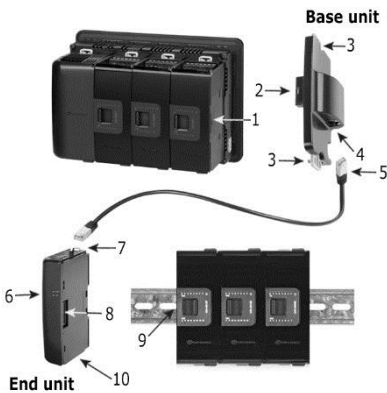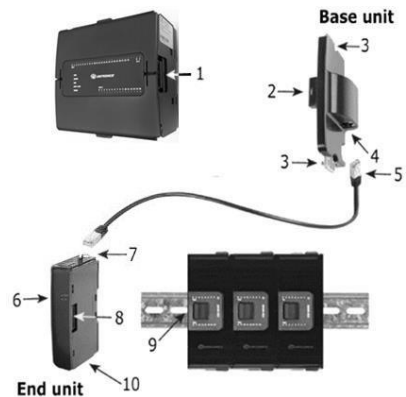## Assembly Diagram: Short-range Adapters UAG-CX-XKPxxx, UAG-CX-XKPLxxxx

UniStream Built-in

1 I/O Expansion Jack
2 I/O Expansion Connector
3 Base Unit's cable port
4 Cable with RJ45 connector
5 End Unit LED indicators
6 DIN-rail clips, top and bottom
7 End Unit I/O bus connector
8 I/O Bus - Left side connector
9 Power supply connector

Assembly Diagram: Long-range Adapters UAG-XKPLxxxx

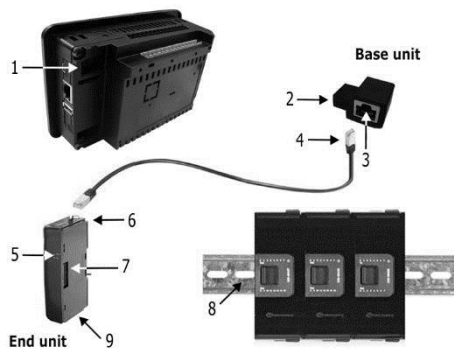**UniStream Modular**   **UniStream PLC**

1   Bus connector
2   Base Unit plug
3   Clips
4   Base Unit's cable port. (blue RJ45)
5   Cable with RJ45 connectors
6   End Unit LED indicators
7   DIN-rail clips, top and bottom
8   End Unit I/O bus connector
9   I/O Bus - Left side connector
10 Power supply connector

Caution	▪ Please note that although they appear similar, the Base Units and End Units of Short-range and Long-range adapters are **not interchangeable**.

Assembly Diagram: Long-range Adapters UAG-CX-XKPLxxxx

UniStream Built-in

1 I/O Expansion Jack
2 I/O Expansion Connector
3 Base Unit's cable port
   Note: the port on this specific Base Unit is framed in blue.
4 Cable with RJ45 connectors
5 End Unit LED indicators
6 DIN-rail clips, top and bottom
7 End Unit I/O bus connector
8 I/O Bus - Left side connector
9 Power supply connector

Installation Space Considerations

Allocate space for the Base Unit and End Unit according to the dimensions in the kit's technical specifications. Also, consider the space required to install and connect them, as shown in the following Installation instructions.

Installation

⚠ ▪ Turn off system power before connecting or disconnecting any modules or devices.
   ▪ Use proper precautions to prevent Electro-Static Discharge (ESD).

This kit enables you to connect a UniStream™ controller to a row of Uni-I/O modules located on a DIN-rail. To do this, you must:
- Connect the Base Unit to the controller.
- Connect the End Unit to the first module in a row of Uni-I/O modules.
- Link the End Unit into the Base Unit via the connecting cable.
- If you are using a:
- UAG-XKPxxx, UAG-CX-XKPxxx, UAG-CX-XKPLxxxx, UAG-CX-XKPLxxxx or the UAG-XKPLxxxx, connect it to a power source
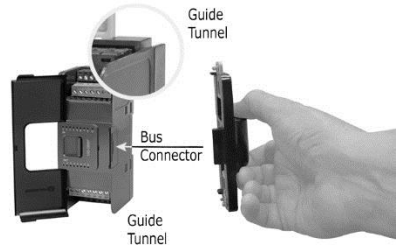- UAG-XKxxx, only earth it.

Connecting the Adapter's Base Unit: UniStream Modular

Note that:
- Any Uni-COM™ modules snapped to the back of the UniStream HMI panel must be connected directly to the CPU-for-Panel or to another Uni-COM module.
- You must plug the Base Unit into the last element on the back of the UniStream™ HMI Panel. This may be a Uni-COM™, or Uni-I/O™ module.
- If the CPU-for-Panel is the only element that is plugged onto the back of the HMI Panel, plug the Base unit into it.
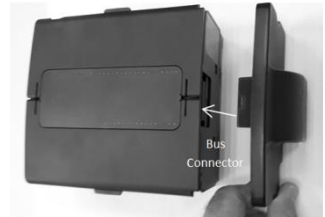
UAG-XKxxx, UAG-XKPxxx and UAG-XKPLxxxx

1. Hold the Base Unit as shown in the accompanying figure, and plug it into the last device installed on the back of the HMI panel.
   Verify first that its Bus Connector is not covered.

2. Click the top and bottom clips into the Guide Tunnel of the last device.

Connecting the Adapter's Base Unit: UniStream PLC

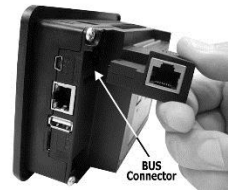### UAG-XKxxx, UAG-XKPxxx and UAG-XKPLxxxx

1. Hold the Base Unit as shown in the accompanying figure, and plug it into the Bus Connector on the right side of the UniStream PLC.
   Verify first that the connection point is not covered.

2. Click the top and bottom clips down onto the PLC.

Connecting the Adapter's Base Unit: UniStream Built-in

UAG-CX-XKPxxx, UAG-CX-XKPLxxxx and UAG-CX-XKPxxx, UAG-CX-XKPLxxxxx

1. Hold the Base Unit as shown in the accompanying figure, and plug it into the I/O Expansion Jack in the rear of the device.

Connecting the Adapter End Unit

1. Push the End Unit onto the DIN-rail until the clips located at the top and bottom of the unit have snapped onto the DIN-rail.

2. Install Uni-I/O™ modules to the right of the End unit. Please refer to the specific Installation Guide of each Uni-I/O™ module.

3. Slide the Bus Connector Lock of the first module all the way to the left.
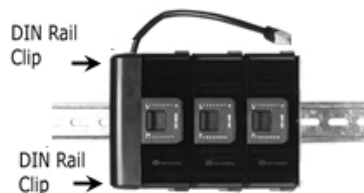
Connecting the Cable

Short-range kit: Link the adapter's units by plugging the RJ45 of the End Unit's cable into the port at the bottom of the Base Unit.

Long-range kit: Connect both sides of the blue cable to the RJ45 ports of the adapter's Base and End units. Please refer to the Long Range Adapter Assembly Diagram, page 5 .

Connecting the Power Supply and Earth

If you are using a UAG-XKxxx, only earth it.

All other models: connect it to a power source as described on page 8.

⚠ ▪ Do not connect the cable to any device other than the Base Unit.

   ▪ Do not connect the Base Unit's cable port to any other cable or device.

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 UAG-XKPxxx, UAG-CX-XKPxxx, UAG-CX-XKPLxxxx, or UAG-XKPLxxxx supply port.

▪ 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 mm^2 –3.31 mm^2).

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.

▪ Use wires that are properly sized for the load.

▪ Connect the 0V point of the UAG-XKPxxx, UAG-CX-XKPxxx, UAG-CX-XKPLxxxx, or UAG-XKPLxxxx directly to the power supply 0V terminal.

▪ Connect the 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 mm^2).

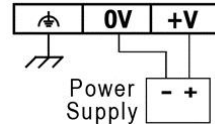▪ Connect the power supply 0V to the earth of the system.

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

Wiring the Power Supply (UAG-XKPxxx, UAG-CX-XKPxxx, UAG-CX-XKPLxxxx, or UAG-XKPLxxxx)

These end units require an external 12 or 24VDC power supply.

⚠️ ▪ The 0V of these end units must be connected to the controller's 0V. Ignoring this directive may damage the device.

▪ In the event of voltage fluctuations or non-conformity to voltage power supply specifications, connect the device to a regulated power supply.

Connect the +V and 0V terminals as shown in the accompanying figure.

Removing the Expansion Adapter

1. Turn off the system power.

2. Remove the Power/Earth terminal block from the bottom of the End unit.

3. Disconnect the cable:
   - Short-Range: Unplug the cable from the RJ45 port on the Base Unit.
   - Long-Range: Unplug the blue cable from the RJ45 ports of the Base and the End units.

4. To remove the Base unit:
   - UAG-XKPxxx, UAG-XKxxx, UAG-XKPLxxxx
     Pull the top clip up and the bottom clip down, and pull the unit slowly away until the plug disengages.
   - UAG-CX-XKPxxx, UAG-CX-XKPLxxxx, UAG-CX-XKPLxxxx
     Pull the unit slowly away until the plug disengages.

5. To remove the End unit:
   - Locate the Bus connector lock of the Uni-I/O™ module connected to the End Unit and slide it to the right.
   - Pull the End Unit's top DIN-rail clip up and the bottom clip down.
   - Pull the End Unit out of its place (away from the DIN rail).