

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 the 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	No	8, includes any modules directly connected to a controller
UAG-XKPxxx	DIN-rail	Yes	16, in addition to any modules directly connected to a controller
UAG-XKPLxxxx		Yes	
UAG-CX-XKPxxx	Plug into controller Jack	Yes	16
UAG-CX-XKPLxxxx			

Power Supply

- Adapters without an integrated power supply:
UniStream Modular and UniStream PLC controllers can supply power to a maximum of 8 modules. Adapters that do not have a power supply draw power from UniStream and supply it to the modules. This means, for example, that if there are 3 modules directly connected to the controller, you can add an additional 5 via this type of adapter.
- Adapters with integrated power supply:
must be connected to a 24VDC power source. The adapter can then supply up to 16 modules with power, regardless of any directly connected to the controller.

Installation Guides are available in the Unitronics Technical Library at www.unitronicsplc.com.

Power Supply	UAG-XKxxx	UAG-XKPxxx, UAG-CX-XKPxxxx, UAG-CX-XKPLxxxx, UAG-XKPLxxxx
Input voltage	Not applicable	12 or 24 VDC
Permissible range	Not applicable	10.2 to 28.8 VDC
Max. current consumption	Not applicable	0.9@12VDC, 0.5A@24VDC

Available Cable Length	
Module	Length
UAG-XK125	125cm (49")
UAG-XKP125	125cm (49")
UAG-CX-XKP125	125cm (49")
UAG-XK300	300cm (118")
UAG-XKP300	300cm (118")
UAG-CX-XKP300	300cm (118")
UAG-CX-XKPL600	600cm (20')
UAG-CX-XKPL1200	1200cm (40')
UAG-CX-XKPL1500	1500cm (50')
UAG-CX-XKPL2000	2000cm (66')
UAG-CX-XKPL3000	3000cm (98')
UAG-XKPL600	600cm (20')
UAG-XKPL1200	1200cm (40')
UAG-XKPL1500	1500cm (50')
UAG-XKPL2000	2000cm (66')
UAG-XKPL3000	3000cm (98')

LED Indications			
Base Unit	There are no LEDs in the Base Unit.		
End Unit	Green	Output state	Comment
UAG-XKxxx	Link	Off	Cable is not connected, or no power from the Base unit
		On	Link has been established with the base unit
UAG-XKPxxx UAG-CX-XKPxxxx UAG-XKPLxxxx UAG-CX-XKPLxxxx	Power	Off	No external power
		On	External power is connected to the unit
	Link	Off	Cable is not connected, or no power from the Base unit
		On	Link has been established with the base unit

Daisy-Chaining: Extending and Expanding I/Os

Up to five Local Expansion Adapters may be chained to each other. The maximum number of I/O modules that can be connected to a single controller is:

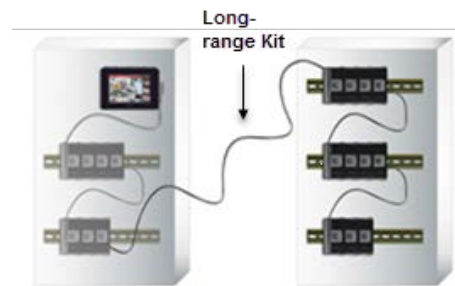
- 85, for UniStream modular. This includes modules directly connected to the controller.
- 88, for UniStream PLC. This includes modules directly connected to the controller.
- 80, for UniStream built-in with I/O Expansion Jack.

UniStream can be expanded locally in a single cabinet, using Short range Adapters of up to 3 meters each (UAG-XKxxxx , UAG-XKPxxxx and UAG-CX-XKPxxxx).

It can also be expanded further to another cabinet, using the Long Range Expansion Adapter (UAG-XKLxxxx, UAG-CX-XKPLxxxx) as shown in the following drawings:



Single Cabinet



Two Cabinets

Daisy-chaining Rules

- In order to connect a UniStream™ controller to more than one row of I/O modules via Local I/O Expansion adapters, you must follow these rules:
- UniStream Modular and UniStream PLC
- Up to 2 Short-range adapters can be daisy-chained to the controller or to any of the modules that are connected directly to the controller. These may be either two UAG-XKPxxxx (that include an integrated power-supply), or one UAG-XKPxxxx and one UAC-XKxxxx.
- When daisy chaining, you can include only 1 Long-range adapter. You may connect it directly to the controller or to any of the elements that are expanded from it.

UniStream Built-in

- Up to 2 Short-range adapters can be daisy-chained to the controller. A UAG-CX-XKPxxx must be plugged into the jack, and may be followed by a UAG-XKPxxxx or one UAC-XKxxxx.
- UniStream™ controllers of all series
- Since long range adapters have integrated power supplies, you may follow any Long-range adapter by daisy-chaining up to 2 Short range adapters. These may be either two UAG-XKPxxxx, or one UAG-XKPxxxx and one UAG-XKxxxx.

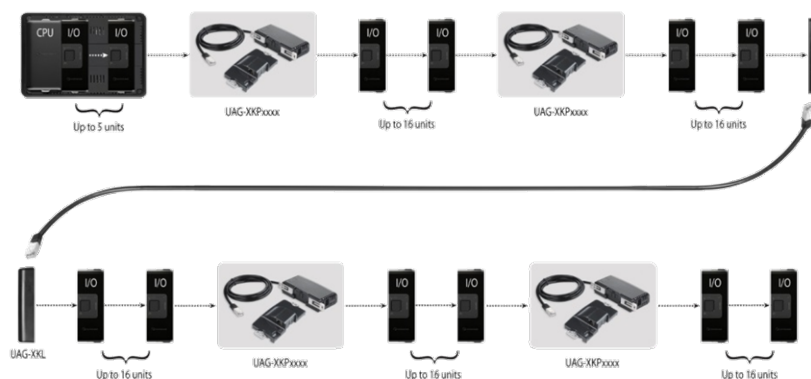
Configuration Examples

Notes:

1. All examples use the USP-104-B10 10.4" HMI panel.
2. The amount of modules at all examples relate to Uni-I/O modules. You can mix Uni-I/O modules with Uni-I/O Wide modules, considering that 1 Uni-I/O Wide module equals 1½ Uni-I/O module.

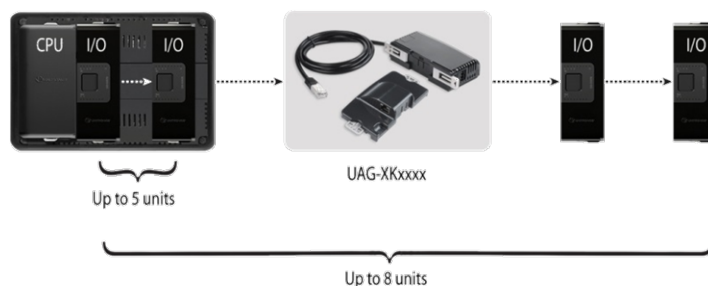
Configuring for maximum I/Os

The figure below shows the greatest number of I/O modules that can be connected to a single UniStream™ controller using Uni-I/O modules and 5 Local I/O Expansion adapters with power supplies.

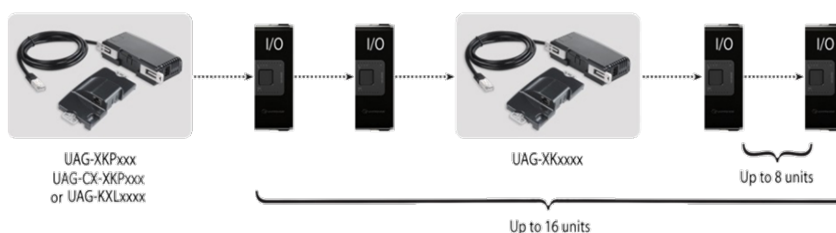


Configurations with Short-range adapter, no Power Supply (UAG-XKxxxx).

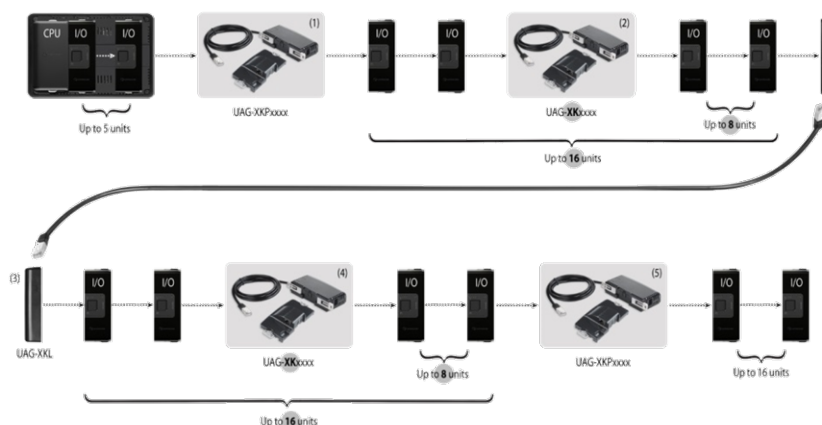
If UAG-XKxxxx is the only adapter connected to the controller, the system can support up to 8 modules.



If a UAG-XKxxxx follows another adapter with an integrated power supply, the support capacity of that powered module limits the number of Uni-I/Os that can be connected to the UAG-XKxxxx; in any event, no more than 8 Uni-I/Os can follow a UAG-XKxxxx adapter.



This example combines all types of adapters:



Daisy-chaining Configuration Summary

UniStream Modular and UniStream PLC

The tables below show the possible configurations between two cabinets.

Optional configurations in the cabinet
with the UniStream Controller

Controller	1st	2nd	Max. UniStream Modular 7"	Max. UniStream Modular 10.4",15.6"	Max. UniStream PLC
	-	-	3	5	8
	XK	-	8	8	8
	XKP	-	19	21	24
	XKP	XK	19	21	24
	XK	XKP	24	24	24
	XKP	XKP	35	37	40

Optional configurations
in the other cabinet

3rd	4th	5th	Max. Modules
	-	-	16
	XK	-	16
	XKP	-	32
	XKP	XK	32
	XK	XKP	32
	XKP	XKP	48

XK-UAG-XKxxxx (Short Range Local Expansion Adapter without power supply)

XKP-UAG-XKPxxxx (Short Range Local Expansion Adapter with power supply)

XKL-UAG-XKLxxxx (Long Range Local Expansion Adapter)

NOTE	Each combination in the right table can be used with each combination in the left table. They are independent of each other and the total number of I/O modules that are supported is the sum of the two tables.
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UniStream™ built-in

You must use the UAG-CX-XKPxxx or UAG-CX-XKPLxxx, and it must be the adapter that is directly connected to the controller.

Optional configurations in the cabinet
with the UniStream Controller

Controller	1st	2nd	Max. Modules
	-	-	0
		-	16
	CX	XK	24
		XKP	32

Optional configurations
in the other cabinet

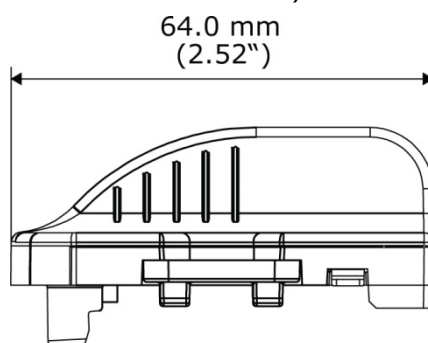
3rd	4th	5th	Max. Modules
	-	-	16
	XK	-	16
	XKP	-	32
	XKP	XK	32
	XK	XKP	32
	XKP	XKP	48

Environmental

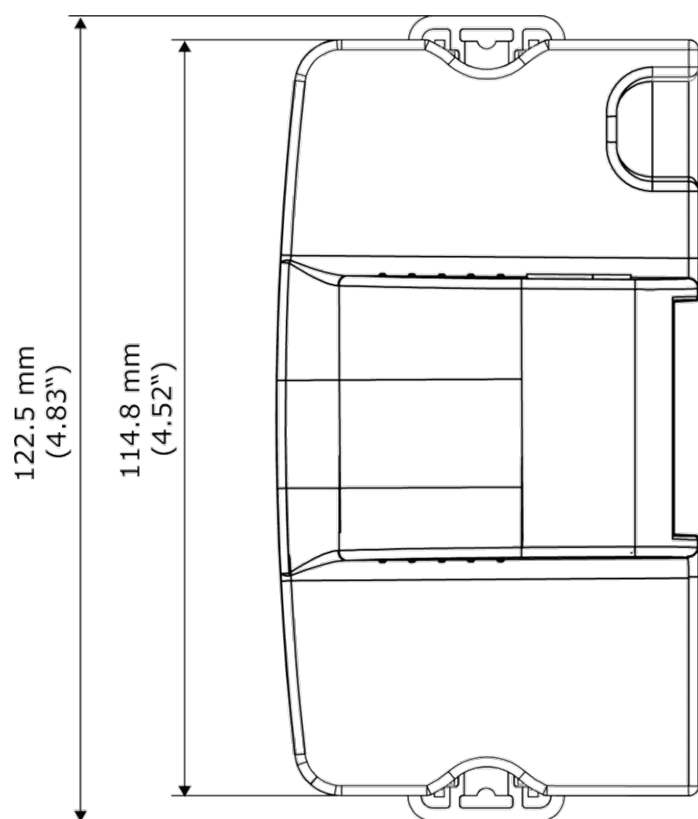
Protection	IP20, NEMA1
Operating Temperature	-20°C to 55°C (-4°F to 131°F)
Storage Temperature	-30°C to 70°C (-22°F to 140°F)
Relative Humidity (RH)	5% to 95% (non-condensing)
Operating Altitude	2,000 m (6,562 ft)
Shock	IEC 60068-2-27, 15G, 11ms duration
Vibration	IEC 60068-2-6, 5Hz to 8.4Hz, 3.5mm constant amplitude, 8.4Hz to 150Hz, 1G acceleration

Dimensions	UAG-XKxxx	UAG-XKPxxx	UAG-XKPLxxxx	UAG-CX-XKPxxx	UAG-CX-XKPLxxxx
Weight	Base: 65 g (0.14 lb) End: 142 g (0.31 lb)	Base: 65 g (0.14 lb) End: 150 g (0.33 lb)	Base: 64 g (0.14 lb) End: 92 g (0.2 lb)	Base: 15 g (0.033 lb) End: 150 g (0.33 lb)	Base: 15 g (0.14 lb) End: 92 g (0.2 lb)
Size	Refer to the images below				

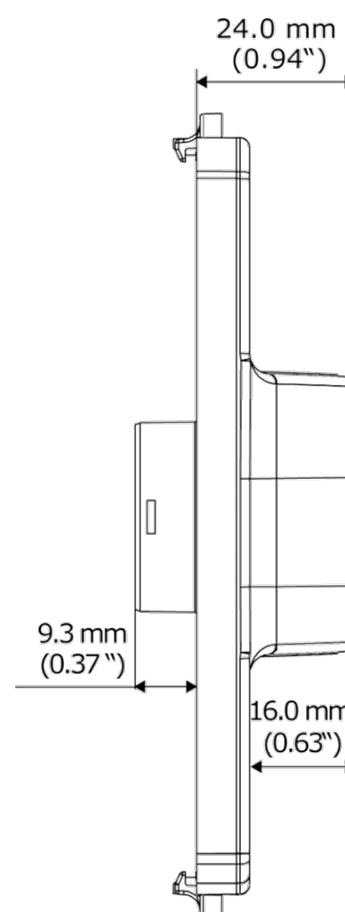
Base Unit (UAG-XKxxx, UAG-XKPxxx and UAG-XKPLxxxx)



Top View

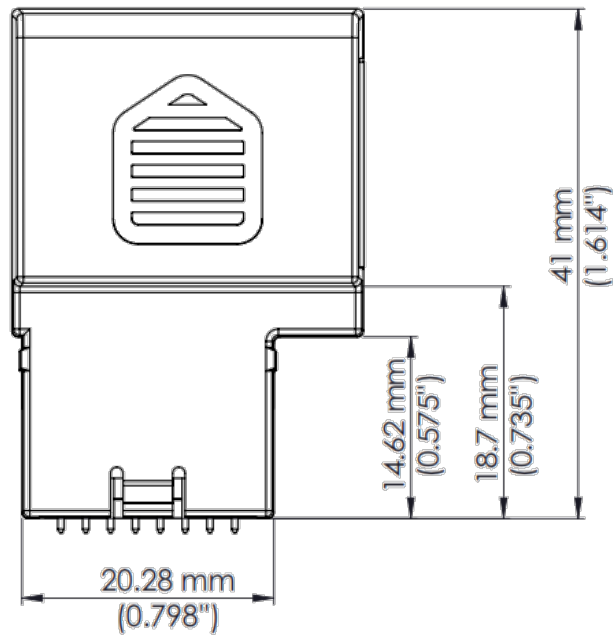


Side View

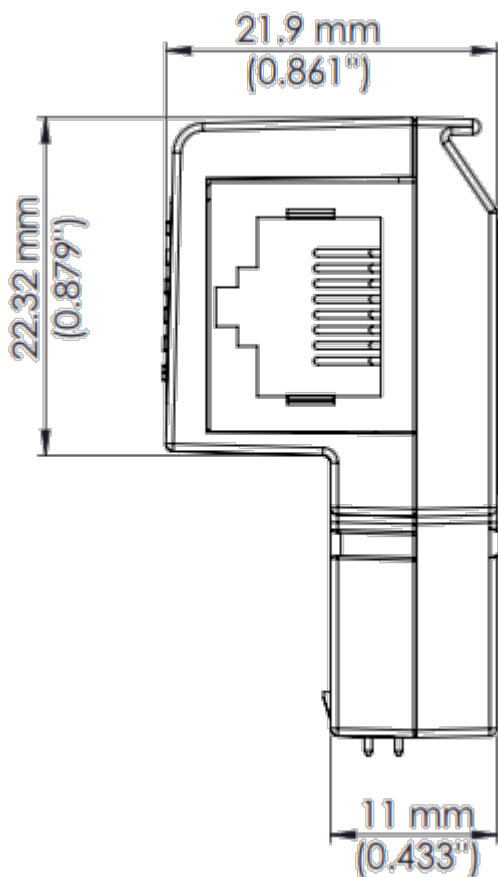


Front View

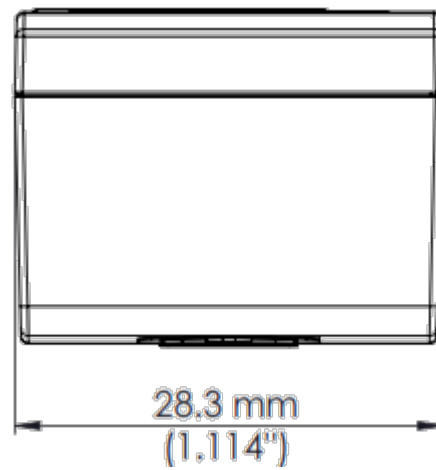
Base Unit (UAG-CX-XKPxxx, UAG-CX-XKPLxxxx)



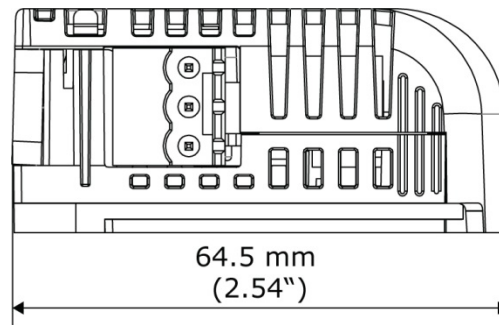
Top View



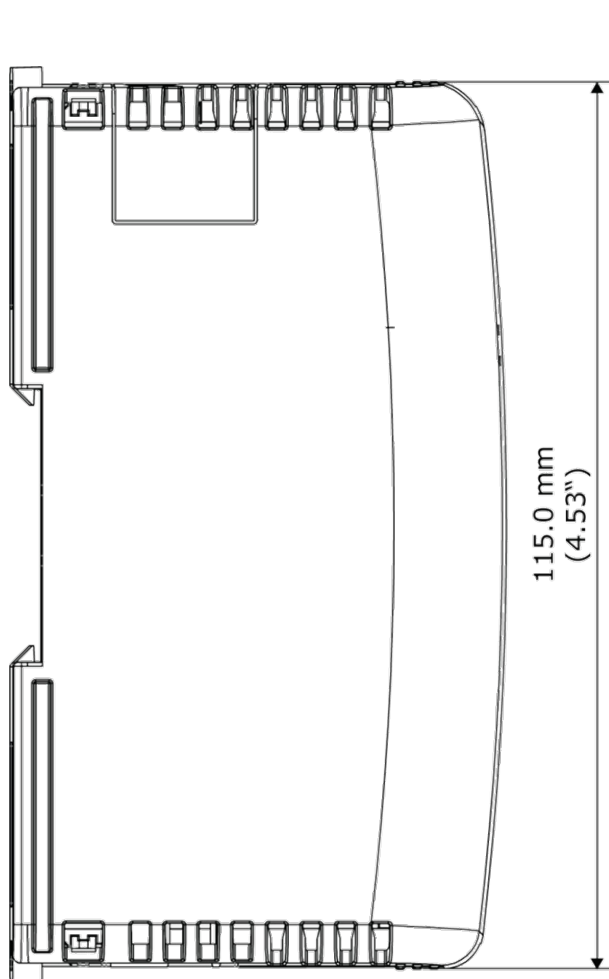
Side View



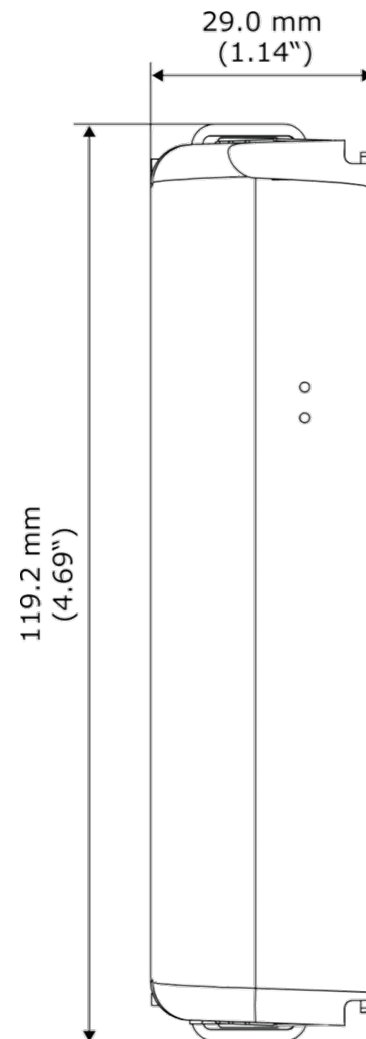
Front View

End Unit

Top View



Side View



Front View

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