

This guide provides basic installation information for Unitronics' Uni-COM™ CB Modules. Use them to add communication ports to specific models of the UniStream® family of Programmable Logic Controllers. Compatible models comprise a Uni-COM™ CB COM Module Jack which provides the connection point for the module.

Refer to the specifications of your UniStream model to check whether it is compatible with CB modules.

UAC-CB-01RS2 offers one RS232 port, UAC-CB-01RS4 offers one RS485 port, and UAC-CB-01CAN offers one CANbus port.

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



Before You Begin

Before installing the device, the installer must:


- Read and understand this document.
- 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.

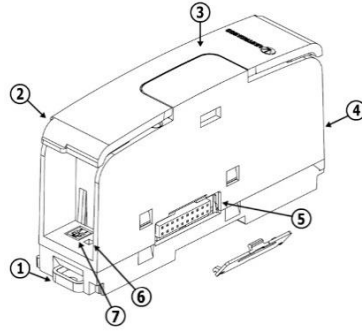
UL Compliance

The following models: UAC-CB-01RS2, UAC-CB-01RS4, UAC-CB-01CAN are UL listed for Ordinary Location.

Kit Contents

UAC-CB-01RS2	UAC-CB-01RS4	UAC-CB-01CAN
<ul style="list-style-type: none">▪ 1 UAC-CB-01RS2 module	<ul style="list-style-type: none">▪ 1 UAC-CB-01RS4 module▪ 1 RS485 terminal block	<ul style="list-style-type: none">▪ 1 UAC-CB-01CAN module

Uni-COM™ CB Diagram



1	DIN-rail clips, Top and Bottom	These clips secure the module to the DIN-rail
2	COM Module Plug (not shown)	Plug this into the COM Module Jack located on a compatible device
3	Door	Open door to allow easy access to LEDs and DIP switch
4	Communication Port (not shown)	The type of port depends upon the module
5	COM Module Jack and cover	This is the connection point for additional modules; leave covered when not in use
6	Communication LEDs	Green. Refer to the device's technical specifications
7	DIP switches	Use these to set RS485/CANbus network termination

Installation

- ⚠ Turn off system power before connecting or disconnecting any module or device.
- Use proper precautions to prevent Electro-Static Discharge (ESD).
- The module is shipped with its COM module jack covered. To protect the jack from debris, damage, and ESD, you must leave it covered when not in use.
- The final module in a row must have its jack covered.

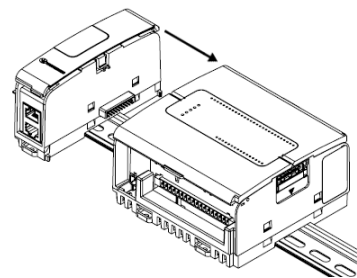
NOTE UAC-CB modules can only be installed onto compatible devices, such as UniStream PLCs, or connected to other UAC-CB modules.

Installing UAC-CB Modules

- NOTE**
- Mount on a standard DIN-rail next to a compatible device.
 - Ensure there is sufficient space to install/uninstall modules.
 - In the first figure below, the module being installed is UAC-CB-01CAN; the second figure shows a UAC-CB-01RS2 being connected to the UAC-CB-01CAN.

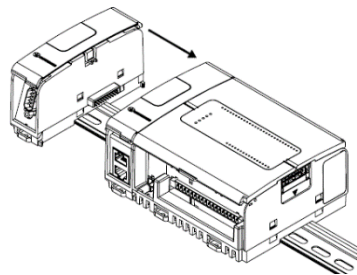
Installing the first module onto the side of the controller:

1. Check the controller to verify that its COM module jack is not covered. If the Uni-COM™ CB module the last one in the configuration, leave the COM jack covered.
2. Push the module onto the DIN-rail until the clips located at the top and bottom of the unit have snapped onto the DIN-rail.
3. Slide the module as shown in the accompanying figure, until the COM module plug is firmly seat in the other devices' COM module jack.



Connecting additional modules onto the first:

1. Check the module that is already installed to verify that its COM jack is not covered. If the UAC-CB module is to be the last one in the configuration, do not remove the cover of its COM jack.
2. Insert the module's connection plug into the jack until it is firmly seated.



NOTE If you mount vertically, place a DIN-rail stop or end clamp under the final module in the configuration. This is especially recommended if vibrations are present.

Removing a Module

You must remove the end module in a row before removing the next one.

1. Turn off the system power.
2. Disconnect any wires or cables connected to the module.
3. Press the clips on the top and bottom of the modules, and carefully pull the module from its place.

Wiring



- All wiring activities should be performed while power is OFF.
- 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 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 shielded cables.

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

UAC-CB-01RS2 - RS232 module

- Use shielded cable

Pin Number	Pin Name	Direction	Description
1	-	-	Not connected
2	RXD	In	Receive Data
3	TXD	Out	Transmit Data
4	-	-	Not connected
5	SG	Return	Signal Ground
6 (see note)	-	-	Connected to Pin 7
7 (see note)	-	-	Connected to Pin 6
8, 9	-	-	Not connected

NOTE Pins 6 and 7 are not connected to internal circuits.

UAC-CB-01RS4 – RS485 module

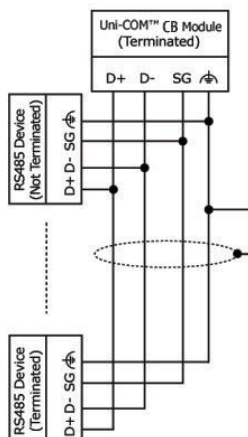
Wiring Procedures

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 (0.275±0.020 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.

Use the RS485 port to create a multi-drop network.

The UAC-CB-01RS4 is shipped with a 4 pin RS485 terminal block. This connector is marked with a pin assignment that is identical to the corresponding marking on the module.



RS485 Wiring

- D+ Tx/Rx+ (B)
- D- Tx/Rx- (A)
- SG Signal Ground
- ⏏ Functional Ground



- Use shielded twisted-pair cable in compliance with EIA RS485 specifications.
- When wiring each node, connect the cable shield to the functional ground point of the RS485 terminal block.

Caution In order to avoid ground-loops, do not connect the RS485 functional ground terminal to the earth of the system, as it is internally connected to the controller’s functional ground point.

RS485 Termination

Use the DIP switches shown in the diagram on page 2 to set the RS485 termination according to this table.

The device is shipped with both its DIP switches set to ON; change settings if the device is not at one of the ends of the RS485 network.

Position		DIP Switch State
1	2	
ON	ON	Terminated (factory default)
OFF	OFF	Not Terminated

UAC-CB-01CAN - CANbus module

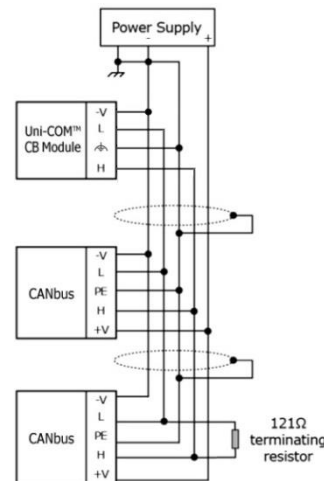
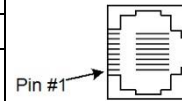
There are two RJ45 connectors on the top of this module.

Connect one connector to your CANbus network. The other connector may be used to daisy-chain to another device.

CANbus Wiring

- Use CAT-5e shielded cable with RJ45 connector.
- When wiring each node, connect the cable shield to the shield of the RJ45 connector.
- Connect the CANbus cable shield to the system earth at only one point near the power supply.

Pin #	Description
shield	⏏ Functional Ground
1	H CAN High
2	L CAN Low
3	-V CANbus Signal Common
4	Not connected
5	Not connected
6	Not connected
7	Not connected
8	Not connected



CANbus Termination

Use the DIP switches shown in the diagram on page 2 to set the CANbus termination according to this table.

The device is shipped with both its DIP switches set to ON; change settings if the device is not at one of the ends of the CANbus network.

Position		DIP Switch State
1	2	
ON	ON	Terminated (factory default)
OFF	OFF	Not Terminated

Technical Specifications

Communication

UAC-CB-01RS2 (RS232 module)

Number of ports	1
Voltage limits (receiver)	±20 VDC maximum, relative to Signal Ground (SG) pin
Baud rate range	1,200 – 115,200 bps
Isolation voltage	500VAC for 1 minute
Connector type	D-Sub 9 pin, male
Cable type	Shielded
Cable length	Maximum 15 m (50 ft)
Indicator LEDs	
Tx:	Green: Blinking when data is Transmitted
Rx:	Green: Blinking when data is Received

UAC-CB-01RS4 (RS485 module)

Voltage limits	-7 to +12 VDC maximum, Common+Differential
Baud rate range	1,200 – 115,200 bps
Nodes	Up to 32
Isolation voltage	500VAC for 1 minute
Cable type	Shielded twisted pair, in compliance with EIA RS485
Cable length	Maximum 1,200 m (4,000 ft)
Indicator LEDs	
Tx:	Green: Blinking when data is Transmitted
Rx:	Green: Blinking when data is Received
Termination	Set using DIP Switches

UAC-CB-01CAN (CANbus module)

Power requirement	None. The CANbus port is internally powered.
Isolation voltage	500VAC for 1 minute
Cable type	DeviceNet® or CAT-5e shielded twisted pair
Indicator LED	
Tx/Rx	Green: Blinking when data is Transmitted/Received

Baud rate and maximum trunk line length

Baud rate (bps)	DeviceNet ® Thick cable	DeviceNet ® Mid cable	DeviceNet ® Thin cable or CAT-5e cable
1M	25m (82 ft)	25m (82 ft)	10m (32 ft)
500k	100m (328 ft)	100m (328 ft)	100m (328 ft)
250k	250m (820 ft)	250m (820 ft)	100m (328 ft)
125k, 100k	500m (1,640 ft)	300m (984 ft)	100m (328 ft)
50k, 20k, 10k	1,000m (3,280 ft)	300m (984 ft)	100m (328 ft)

Maximum drop line (stub) length The maximum cable distance from any device on a branching drop line to the trunk line is 2 m (6.5 ft) with any cable thickness.

Maximum cumulative drop line (stub) length per baud rate

Baud rate (bps)	Cumulative drop line length
1M	5m (16 ft)
500k	25m (32 ft)
250k	60m (197 ft)
125k, 100k	100m (328 ft)
50k, 20k, 10k	100m (328 ft)
Nodes	Up to 64
Termination	Set using DIP Switches

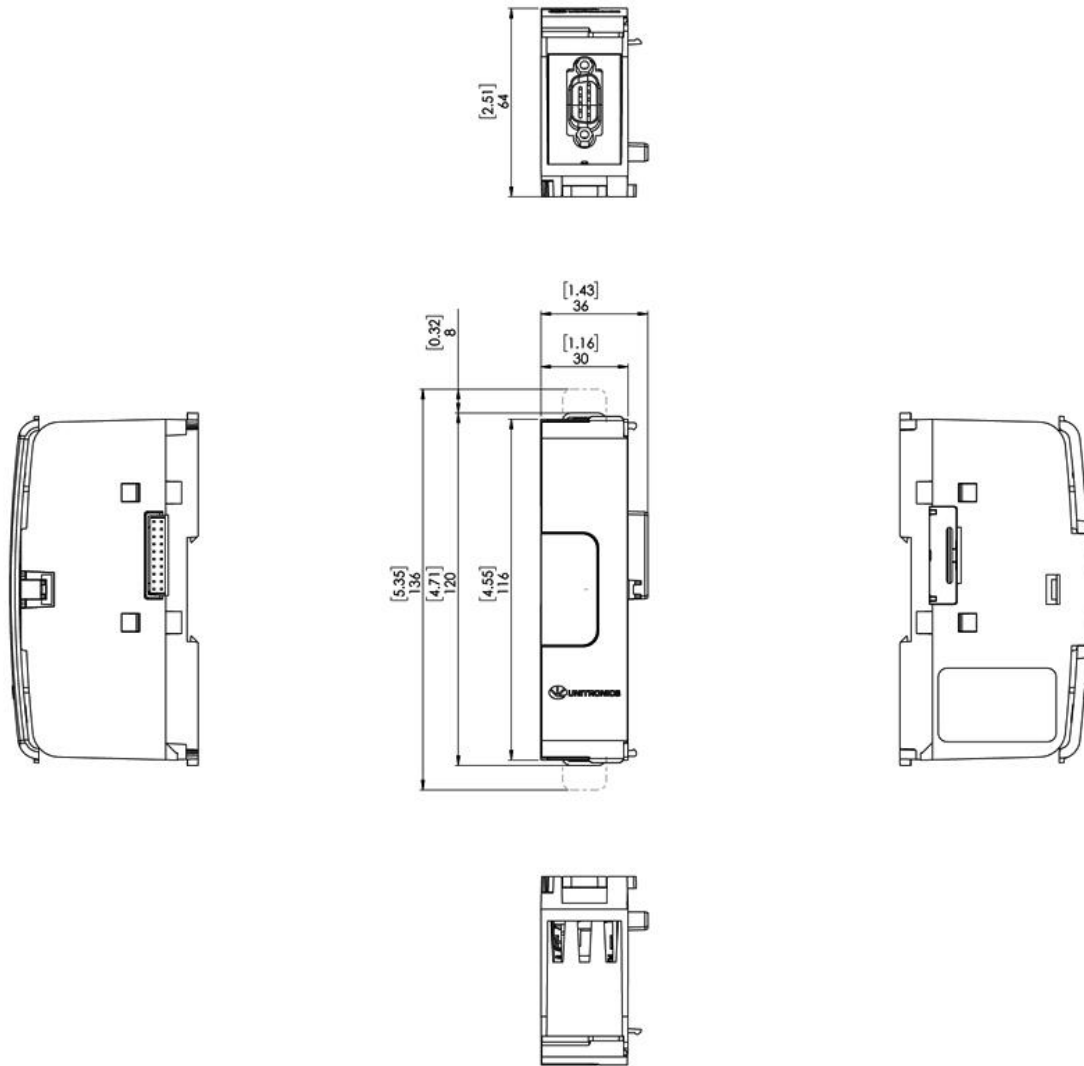
Environmental

Ingress Protection	IP20, NEMA 1
Operational temperature	-20°C to 55°C (-4°F to 131°F)
Storage temperature	-30°C to 70°C (-22°F to 158°F)
Relative Humidity (RH)	5% to 95% (non-condensing)
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.

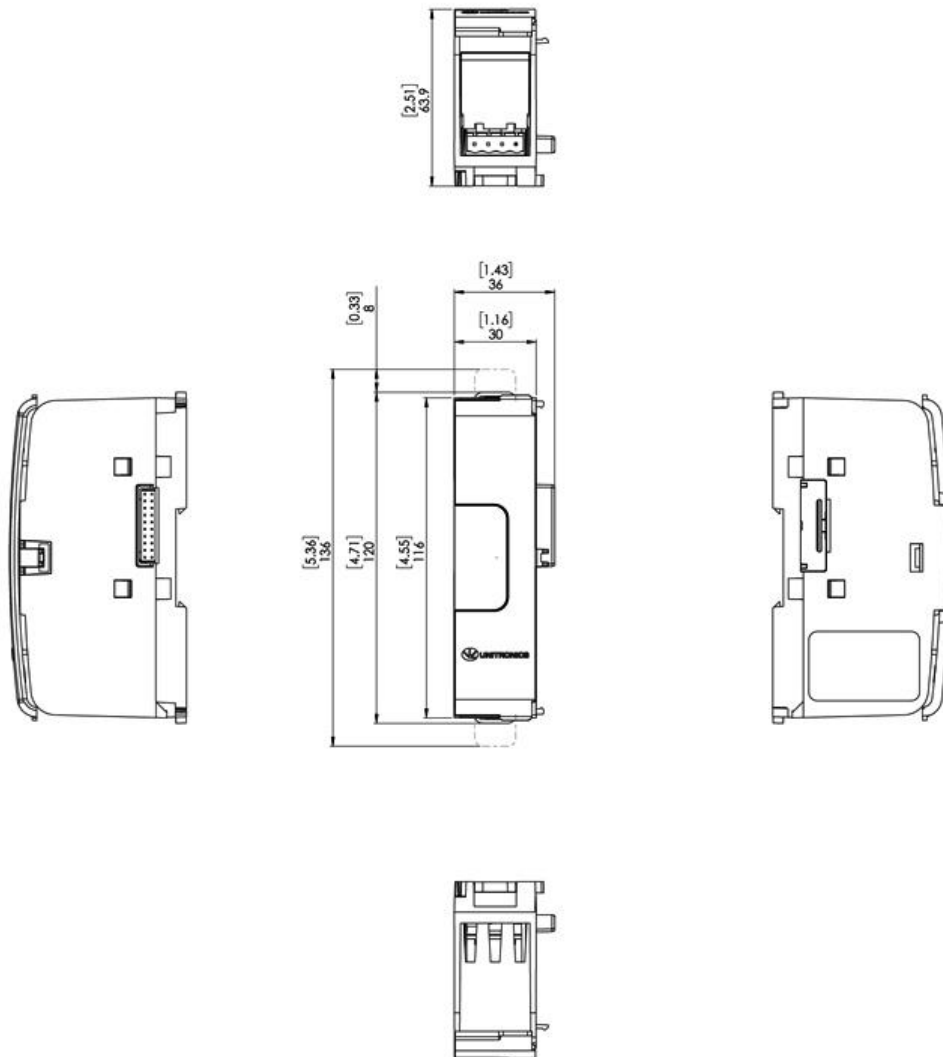
Dimensions

Weight	UAC-CB-01RS2	UAC-CB-01RS4	UAC-CB-01CAN
	100 g (0.22 lb)	89 g (0.19 lb)	105 g (0.23 lb)
Size	As shown in the images below		

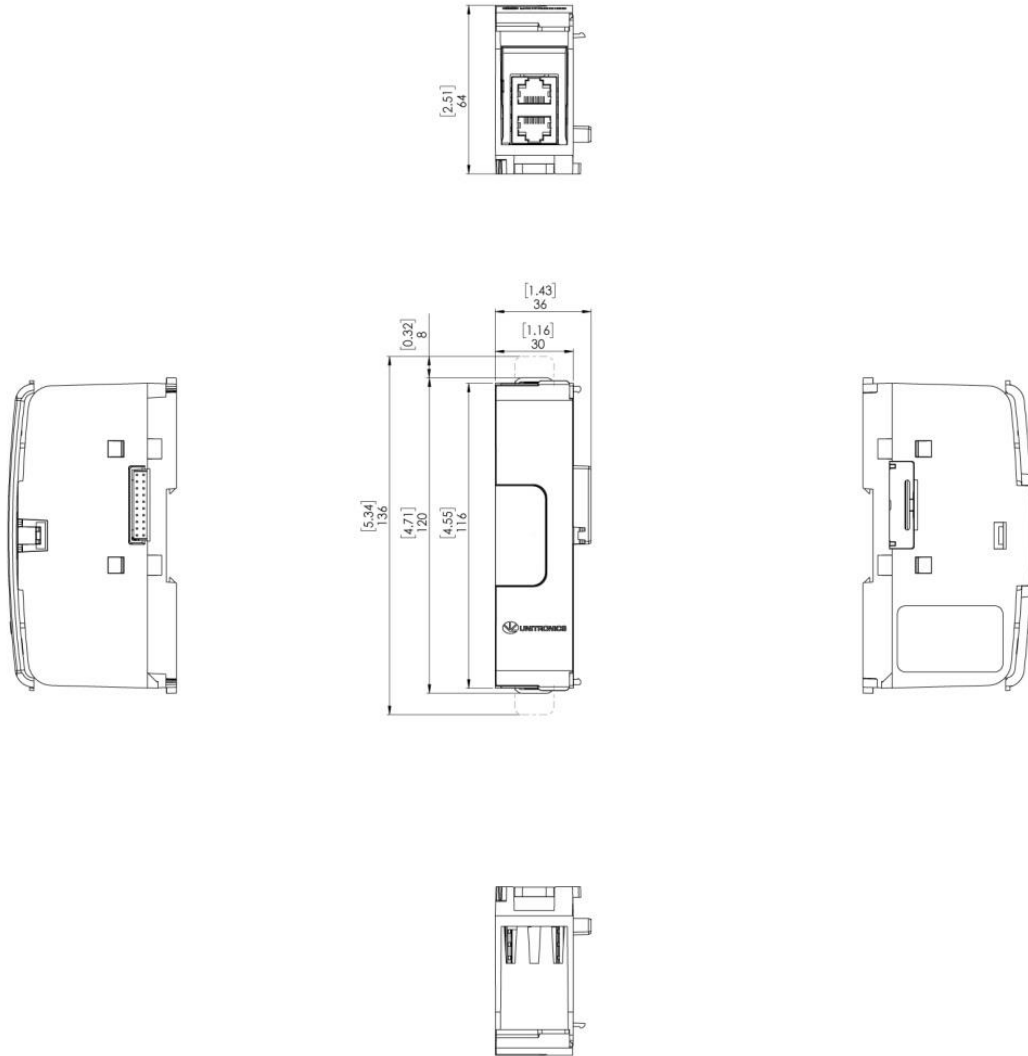
UAC-CB-01RS2



UAC-CB-01RS4



UAC-CB-01CAN



The information in this document reflects products at the date of printing. Unitronics reserves the right, subject to all applicable laws, at any time, at its sole discretion, and without notice, to discontinue or change the features, designs, materials and other specifications of its products, and to either permanently or temporarily withdraw any of the foregoing from the market.

All information in this document is provided "as is" without warranty of any kind, either expressed or implied, including but not limited to any implied warranties of merchantability, fitness for a particular purpose, or non-infringement. Unitronics assumes no responsibility for errors or omissions in the information presented in this document. In no event shall Unitronics be liable for any special, incidental, indirect or consequential damages of any kind, or any damages whatsoever arising out of or in connection with the use or performance of this information.

The tradenames, trademarks, logos and service marks presented in this document, including their design, are the property of Unitronics (1989) (R^oG) Ltd. or other third parties and you are not permitted to use them without the prior written consent of Unitronics or such third party as may own them