
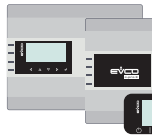


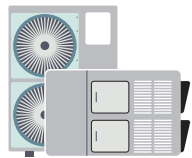
Applications



UNI-PRO



c-pro 3
programmable
controllers



Personalised
applications

c-pro 3

Programming guide
Programmable controllers

- | Completely programmable
- | Large number of inputs/outputs and the possibility of adding others using expansion modules
- | Wide choice of displays
- | Software upgrades and data download using regular USB flash drives
- | Libraries and algorithms ready to use



IMPORTANT

Read this document thoroughly before installation and before use of the device and follow all recommendations; keep this document with the device for future consultation.
Only use the device in the way described in this document; do not use the same as a safety device



CONSIDER THE ENVIRONMENT

Please read carefully and save this document



DISPOSAL

The device must be disposed of in compliance with local standards regarding the collection of electric and electronic equipment

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Introduction

UNI-PRO 3 is a development environment for programmable controllers.

UNI-PRO 3 by EVCO allows customers to write and modify the application software for programmable controllers belonging to the **c-pro 3 series** according to their individual needs, using object libraries and the C language.

The possibility of defining all the functional features (of both the user interface and the control algorithm) and the availability of application block libraries (ABL) which have already been developed and tested, ensure the system is used to its full potential. The diagnostic functions available and the integrated document management cut development times and costs.

This guide briefly illustrates how to install the application software created with **UNI-PRO 3** in the programmable controllers of the **c-pro 3 series**.



Programming the controller

The programmable controllers of the c-pro 3 series can be programmed using the binary files in the application which are generated by the UNI-PRO 3 software, in the following ways:

- With a PC and USB cable
- With a USB flash drive
- Remotely

The binary files, with the extensions .ucjb and .ucje, are compiled by the application for the particular controller.

Programming with a PC and USB cable

c-pro 3 with a standard USB port

The controller can be connected to a PC through the USB port with the relative connecting cable.

0810500018/0810500020

Allows connection via a USB to a PC or an accessory with a USB port.

The length of the cable is 2 m for code 0810500018.

The length of the cable is 0.5 m for code 0810500020.



c-pro 3 with a micro USB port (c-pro 3 Nano, c-pro 3 Giga and EPJColor)

The controller can be connected to a PC through a micro USB port with the relative USB connecting cable.

0810500023

Allows connection via a USB to a PC.

The length of the cable is 1 m.



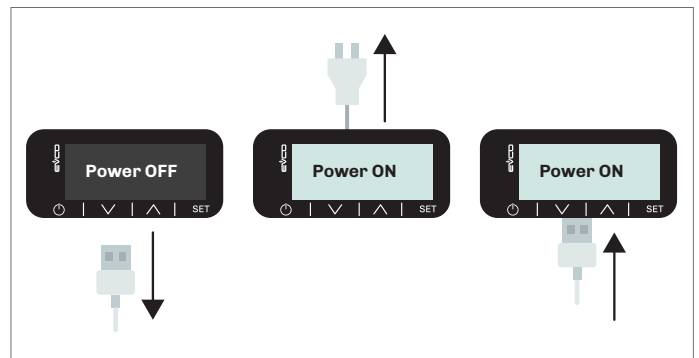
NOTE

- It is always advisable to programme the controller when it is powered by the mains, applying power as shown in the figure below. It is particularly important not to power up the controller when the USB cable is already connected to the PC.

Before powering up the controller, follow these steps:

- Disconnect the USB cable
- Plug the controller into the mains
- Reconnect the USB cable

If the controller has to be programmed when it is switched on, because it cannot be turned off, use an **insulated USB cable** to prevent damage to the USB ports.





NOTE

- Although the controller appears to be switched on when connected by the USB cable only, be careful as some of the controller's hardware functions may not be active (e.g. keys, display, relays, ...).

When programming the controller with a PC, use the *Download Manager* programme which is supplied with UNI-PRO 3 or available in the stand-alone version.

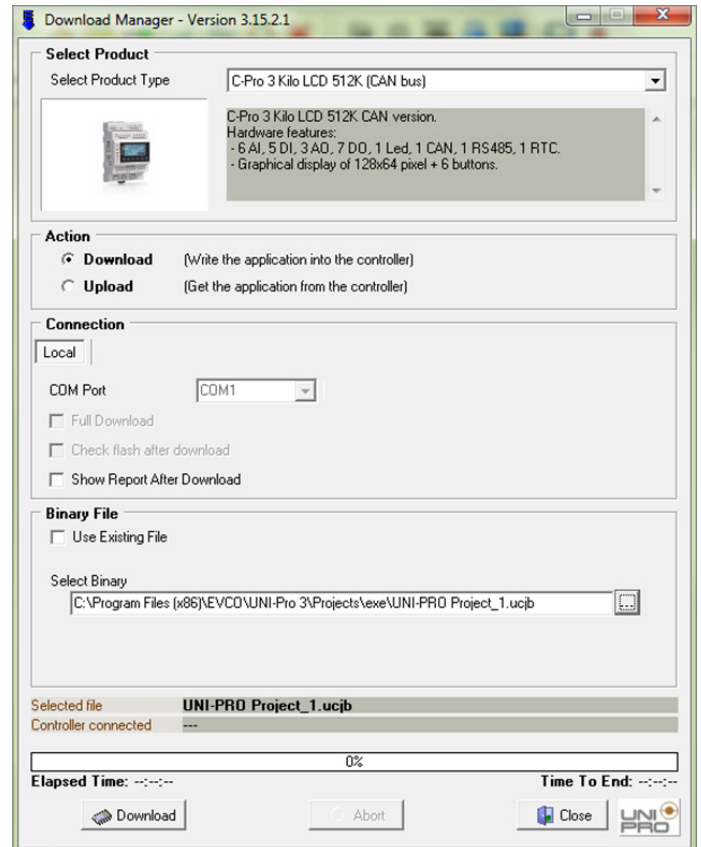
Before beginning programming, make sure the controller is powered up and correctly connected with the USB cable.

Two types of file are downloaded to the controller:

- a binary file of the application (.ucjb)
- a binary file of the EIML pages (.ucje).

The binary file (.ucjb) must be specified in the programme, while the file (.ucje) will be managed by Download Manager if it is in the same directory and has the same name as the application.

For more information, see the paragraph about Download Manager in the UNI-PRO 3 Software Manual.



Programming with a USB flash drive

c-pro 3 with a standard USB port

The flash drive can be inserted directly into the USB port on the controller after it has been powered up.

EVUSB4096M

Allows configuration upload and download.
4 GB of memory.



c-pro 3 with a micro USB port (c-pro 3 Nano, c-pro 3 Giga and EPJColor)

The flash drive can be inserted using a micro USB to USB adapter cable into the micro USB port of the controller after it has been powered up.

0810500025

Allows a USB flash drive to be connected.
The length of the cable is 2 m.

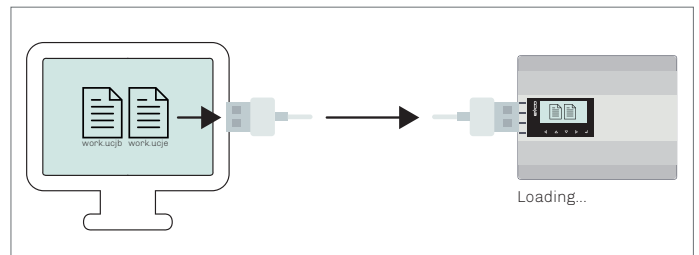


NOTE

- The USB flash drive must be formatted to FAT32
- The memory must be no larger than 8 GB
- No other files must be saved on it

When programming with a USB flash drive, it is necessary to:

- Rename the two binary files as follows
 - work.ucjb
 - work.ucje
- Insert the flash drive into the PC's USB port
- Copy the two files in the flash drive's root directory
- Remove the USB flash drive from the PC
- Insert the USB flash drive into the controller
- Wait for the controller to recognise the flash drive



Loading sequence of binary files

c-pro 3 on DIN rail:

- Alarm LED - flashing
copying the binary files to the controller
- All LEDs - fixed
programming
- All LEDs - flashing for 5 seconds
programming complete and controller rebooting with the new application installed

c-pro 3 Nano:

- No signal
copying the binary files to the controller
- Display off
programming
- Display flashes for 5 seconds
programming complete and controller rebooting with the new application installed

EPJColor:

- Display shows files copying
copying the binary files to the controller
- Progress screen
programming
- DONE message
programming complete and controller rebooting with the new application installed

VColor:

- Display shows files copying "USB working..."
copying the binary files to the controller
- Display off
programming complete and controller rebooting with the new application installed



NOTE

- When programming is complete, the controller needs time to initialise the parameter areas with the new default values (this is signalled by intermittent flashing of the alarm LED or by the system library *Init_Param*) before continuing, for example, with the configuration of the parameters from the external serial port.
- If the Datalog is enabled on the controller, it is also necessary to wait for the Datalog memory to be formatted (this is signalled by intermittent flashing of the alarm LED or by the system library *Init_DataLog*)

Remote programming

Remote programming can be carried out in the following ways:

- With Modbus Slave or Modbus TCP Slave
- Through the Web Server



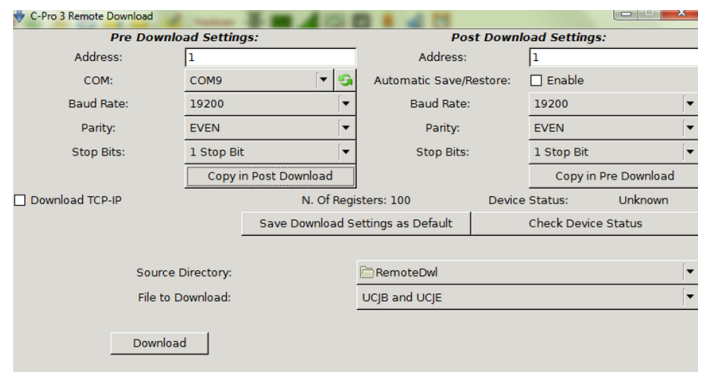
NOTE

- The following modes are available only if the relative communications ports support the protocols needed for the download

Programming with MODBUS Slave or MODBUS TCP Slave

Controllers which use the MODBUS Slave protocol on an RS-485 port, or controllers with an Ethernet port which use the MODBUS TCP Slave protocol, can be programmed within the network using the

Remote Download tool (supplied with UNI-PRO 3)



Programming through the Web Server

Controllers which use an Ethernet port with the Web Server enabled, can take advantage of the services provided by the server to copy and programme the binary files and the same files in the Web Server.

For example, by copying the example page given in UNI-PRO 3 and accessing it remotely, it is possible to individually select the type and the binary file FW (.ucjb), or EIML (.ucje) or one of the files to copy in the Web Server and press Send to start downloading.





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