CG-485 CLICKNGO MODULE RS485 INTERFACE (NV-820KCG2485)

USER GUIDE

INTRODUCTION

CG-485 ClickNGo Module with RS485 interface was designed to work as an expansion module for **NOVUS** line of modular controllers.

CG-485 must be attached to the controller dock (to insert the module to the controller, make sure the device is turned off). Once inserted, it will be automatically recognized. Its configuration parameters will be displayed according to the slot in which the module has been attached to the dock.

You can configure this module directly at the controller, through the **QuickTune** software, or through the **QuickTune Mobile**.

DIMENSION

Built in UL94 polycarbonate and with an IP20 protection rating, **CG-485** ClickNGo module has an identification engraving on the top and the following dimensions:
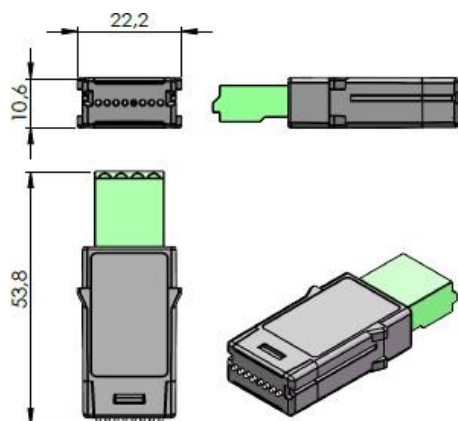

Figure 1 – Module overview

ELECTRICAL INSTALLATION

CG-485 uses 1 plug-in connector. The figure below shows the laser engraving with the electrical connections of this module:
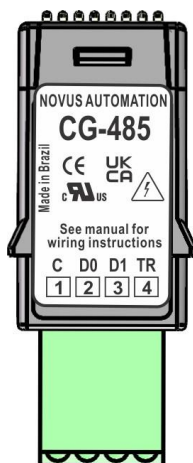

Figure 2 – Electrical connections

INSTALLATION RECOMENDATIONS

- The electrical connections must be made at the module's terminals and accept 0.32 to 2.5 mm² (28 to 11 AWG) wire. The terminals must have a torque of 0.45 Nm (4.0 lb in).
- The power supply for electronic instruments must come from a network suitable for instrumentation.
- The use of RC FILTERS (noise suppressors) in contactor coils, solenoids, etc. is recommended.
- In control applications, you must consider what can happen when any part of the system fails. The built-in safety features of the device do not guarantee total protection.

NETWORK TERMINATORS

The RS485 standard recommend that you connect the bus ends with the Network Terminators, which are 120 Ω resistors connected between **D0** and **D1** data lines.

CG-485 ClickNGo module has a built-in resistor for the network terminator function. One terminal of this resistors is already internally connected to the **D0** line. The other terminal of this resistor is available on the **TR** pin of the module connector. To use it as a network terminator, you must interconnect the **TR** and **D1** terminals of the **CG-485** ClickNGo module.
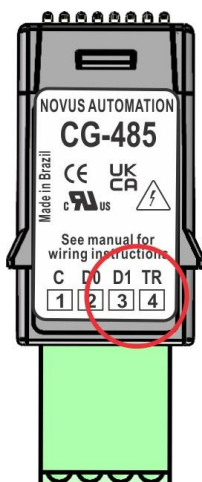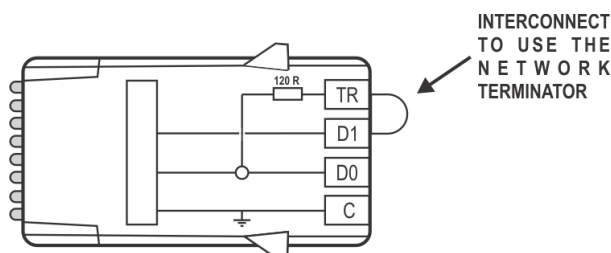

Figure 3 – TR terminal

Figure 4 – Interconnection between TR and D1 terminals

Only the two devices at the ends of the communication network should adopt the terminator. The terminator is not required for the others.

CG-485 ClickNGo module also provides the ground terminal (**C**). It is recommended to use it, interconnecting all network devices.

The indicated network cable is the twisted pair type, ground, and mesh line. It must have a minimum nominal cross section of 0.20 mm² (24 AWG). If the ground line is not used, the cable shield should be grounded at only one of its ends.

HOW TO INSERT THE MODULE TO THE DEVICE

> ⚠️ **Before you insert or remove a ClickNGo module from the device, make sure the device has been turned off.**

Once the dock has been attached to the controller, simply plug the **CG-485** ClickNGo module into the desired slot, pressing it in until it clicks into place. If the module does not click into place, it is either not properly attached, or it has been plugged into the wrong slot.

Once the **CG-485** ClickNGo module is inserted into the dock and the device has been turned on, it will be automatically recognized. You can use the navigation keys to go through the parameter cycles and access the settings of the added module (see OPERATION section of the device manual).

The module settings will be available in the parameter cycle and according to its position in the dock. A **CG-485** ClickNGo module inserted into slot 1 of the dock, for example, can be viewed within the Configuration Cycle, under module 1 (**Cfg >> Md.1**).

Once a module is removed from the dock, it will no longer be recognized by the device and the any settings made will be lost.

MODULE OPERATION

Once the module has been attached to the device, the controller will display the following parameters:

Addr *Address*	Allows you to set a serial communication address.
Prty *Parity*	Allows you to set a parity: "No parity", "Even parity" or "Odd parity".
StP.b *Stop Bits*	Allows you to set the Stop Bits: "Parity dependency", "1 Stop Bit" or "2 Stop Bits".
bAud *Baud Rate*	Allows you to set the Baud Rate: "115.2 kbps speed", "57.6 kbps speed", "38.4 kbps speed", "19.2 kbps speed", "9.6 kbps speed", "4.8 kbps speed", "2.4 kbps speed" or "1.2 kbps speed".

Table 1 – Module parameters

The parameters will be displayed in the cycle related to the position of the module in the device dock.

> ⚠️ **If the module is removed from the controller dock, all settings will be lost. Therefore, when possible, use QuickTune software or the QuickTune Mobile application to save a version of the settings you have made.**

For more information on the controller primary operation, see the OPERATION chapter of the device manual.

SERIAL COMMUNICATION

The **CG-485** ClickNGo module provides an asynchrony RS485 digital communication interface for master-slave connection with a host computer (master).

The modular controller acts as a slave and all commands are initiated by the computer, which sends a request to the slave address. The addressed unit sends back the requested response.

Broadcast commands (addressed to all devices in a multidrop network) are accepted, but in this case no response will be sent.

FEATURES

- Signals compatibles with RS485 standard. MODBUS (RTU) protocol. 2-wire connection between 1 master and up to 247 devices in bus topology. The communication signals are electrically isolated from the rest of the device.
- Maximum connection distance: 1000 meters.
- Controller disconnection time: Maximum 2 ms after last

byte. RS485 signals are:

D1	D	D+	B	Bidirectional data line.	Terminal 3
D0	$\overline{D}$	D -	A	Inverted bidirectional data line.	Terminal 2
C				Optional connection that improves communication performance.	Terminal 1
GND					

Table 2 – RS485 signals

REDUCED REGISTER TABLE FOR SERIAL COMMUNICATION

The MODBUS RHT slave is implemented. All configurable parameters can be accessed for reading or writing via the communication port. The Modbus commands available are:

03 - *Read Holding Register*

05- Force Single Coil
06- Preset Single Register

16 - *Preset Multiple Register*

To view the registers, download the **REGISTER TABLE**, available on the modular controller page of our

website. All registers are 16-bit integers.

CONFIGURATION SOFTWARE

Once you have inserted the **CG-485** ClickNGo module into the device dock, you can configure it using the **QuickTune** software, which is free and available for download on **NOVUS** official website, or the **QuickTune Mobile** app, which is also free and available on Google Play Store and Apple Store.

Information about the primary configuration of the device is available in the CONFIGURATION SOFTWARE chapter of the controller manual. **This section shows information on how to configure the parameters for this module**.

To start the configuration, simply click the **Configure** button on the home screen of the software or application. If you are using the **QuickTune Mobile** application, you must enable the Bluetooth interface of your smartphone. If you are using the **QuickTune** software, you must run the software and perform the process of identifying the device.
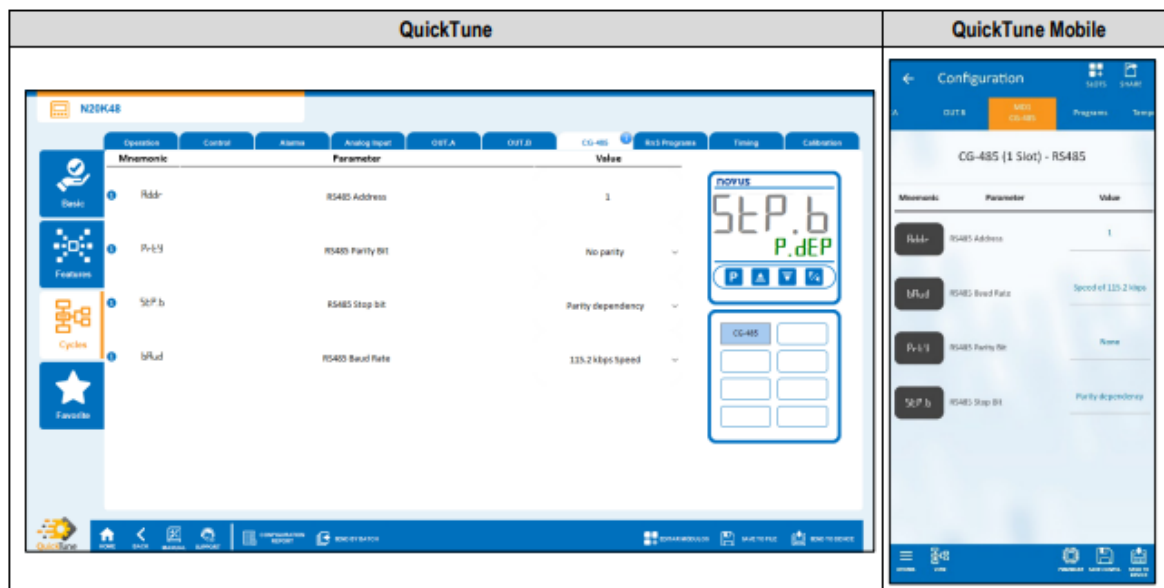

Figure 5 – Configuration software

- **RS485 Address**: Allows you to set the RS485 address.
- **RS485 Parity Bit**: Allows you to set a parity: "No parity", "Even parity" or "Odd parity".
- **RS485 Stop Bit**: Allows you to set the Stop Bits: "Parity dependency", "1 Stop Bit" or "2 Stop Bits".
- **RS485 Baud Rate**: Allows you to set the Baud Rate: "115.2 kbps speed", "57.6 kbps speed", "38.4 kbps speed", "19.2 kbps speed", "9.6 kbps speed", "4.8 kbps speed", "2.4 kbps speed" or "1.2 kbps speed".

MAINTENANCE

Connection errors and improper programming are the most common errors during controller operation. A final review can avoid wasted time and damage.
If the module is not recognized by the device, you must remove it from the dock, add it to another available slot, and restart the device.

TECHNICAL SPECIFICATION

FEATURES	CG-485 CLICKNGO MODULE
Inputs	D0, D1, Common and TR
Environmental Conditions	Operating Temperature: -20 to 60 °C (-4 to 140 °F) Relative Humidity: 80 % max. @ 30 °C (86 °F) (For temperatures above 30 °C (86 °F), reduce by 3 % for each °C) Internal use; Installation category II, Pollution degree 2; Altitude < 2000 m
Electrical Compatibility	EN 61326-1:2020
Security	EN 61010-1:2010 UL 61010- 1/A2:2012
Dimension	53.8 x 10.6 x 22.2 mm Approximated weight: 10 g
Protection Degree	IP50 when installed in controller
Plastic material	ABS+PC UL94 V-0
Software	**QuickTune** (for PC) **QuickTune Mobile** (for smartphones)
Certification	CE, UKCA

Table 3 – Technical specifications

CERTIFICATIONS

CE Mark / UKCA

This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.