

**RAYCHEM**

## NGC-20

Hardware Manager Programming guide



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## 1 PRODUCT OVERVIEW

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The nVent RAYCHEM NGC-20 is a local controller with central monitoring capabilities. The controller is capable in monitoring and controlling many heat-tracing specific parameters. All this information can be monitored remotely. The data communication goes via a Modbus communication link from the field to the central monitoring device. A RAYCHEM NGC-20 controller will have by default standard configuration (freeze protection) and communication settings.

One of the first steps at implementation time is to define the communication parameters in the controllers such that all units will have a unique address on the Modbus link. The RAYCHEM NGC-20 Hardware Manager (RHM NGC-20) will provide the option to set these parameters via a desktop application. As soon as these parameters are set the units are ready to be connected to the User Interface (NGC-UIT2 or TOUCH1500) or RAYCHEM Supervisor.

This document describes the communication parameters, possible settings and how to apply them into the controller.

## 2 THE RAYCHEM NGC-20 HARDWARE MANAGER PROGRAMMING GUIDE

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### VITAL INFORMATION

This manual is a guide for the setup of the communication parameters of the RAYCHEM NGC-20-C(L)-E controllers.

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**Should you have any questions concerning this Agreement, or if you want to contact nVent for any reason, please write to:**

**nVent**  
2415 Bay Road  
Redwood City, CA 94063-3032, U.S.A.

### 3 HOW TO RUN THE RAYCHEM NGC-20 HARDWARE MANAGER

To start the installation, double-click on the Setup icon from a CD or downloaded from the nVent website.

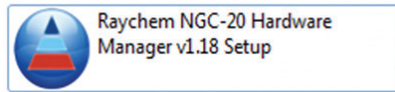


Fig. 3-1 Shortcut to RAYCHEM NGC-20 Hardware Manager

Click Next to continue.

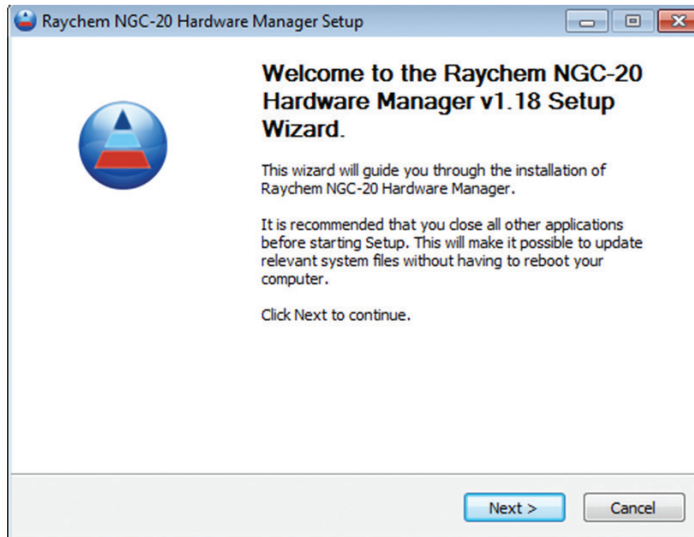


Figure 3-2: Install Screen 1

Read the License Agreement. Check the box to accept the terms of the License Agreement, then Next to continue.

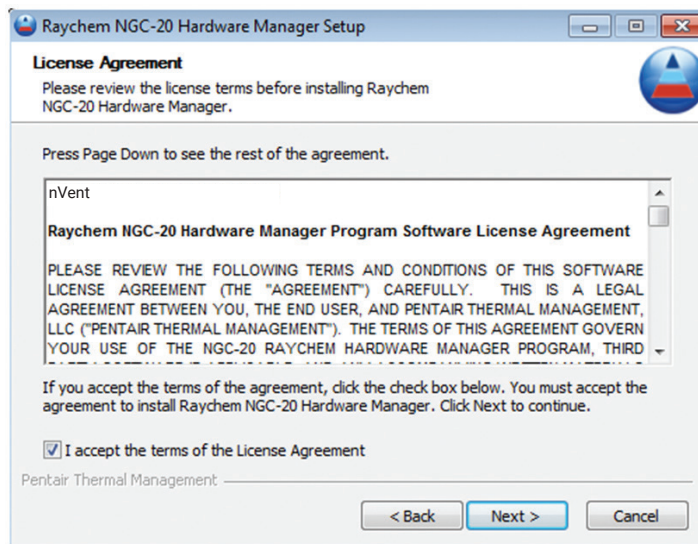


Figure 3-3: Install Screen 2

Choose an install location or accept the default, then press Install.

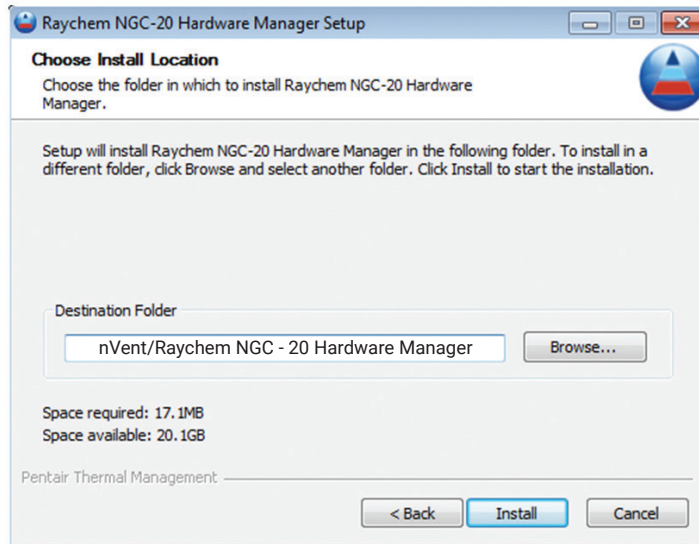


Figure 3-4: Install Screen 3

After the RAYCHEM NGC-20 Hardware Manager has been successfully installed, double-click the shortcut shown here to run the program.

When running the application for the first time a license code is required. Please contact the RAYCHEM NGC-20 Product Manager for an internal license key.



Figure 3-5: Install Screen 4

## 4 CHANGING THE LANGUAGE OF THE USER INTERFACE SCREENS

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The RAYCHEM NGC-20 Hardware Manager default language is English. Select System>Language for a list of available languages.

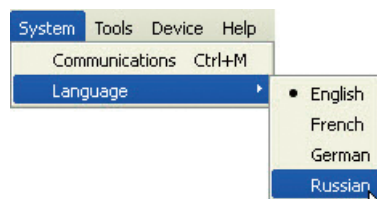


Figure 4-1: Language Menu

This Menu is for configuring the COM port settings for the computer running RAYCHEM NGC-20 Hardware Manager.

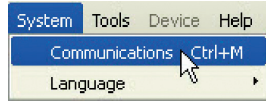


Figure 5-1: Communications Menu

### Port Configuration

The Local Port Configuration section allows users to configure the communication settings of the computers COM ports.

**Baud Rate:** This field allows you to select the baud rate of the COM communication port. Selections: 9600, 19200, 38400, 57600. Default: 9600

**Data Bits:** 7 or 8. Default is 8

Parity and other settings are given in Other Defaults.

**Other Defaults:** Parity = None, Stop Bits = 2, Transmission mode = RTU and Response timeout is 1 second.

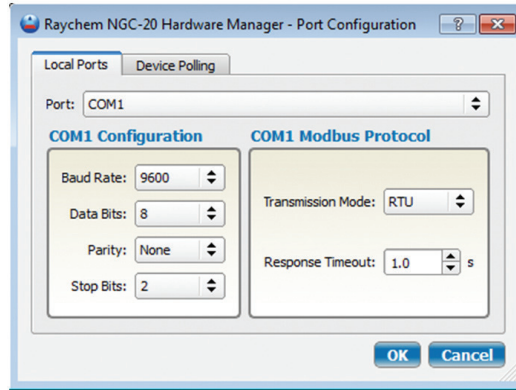


Figure 5-2: Communications, Local Ports

### Device Polling

**Polling Period:** The length of time between polls. From 1.0 seconds to 100.0 seconds.

**Number of Retries:** The number of attempts the program will make to connect with the NGC-20 before showing a communication failure.

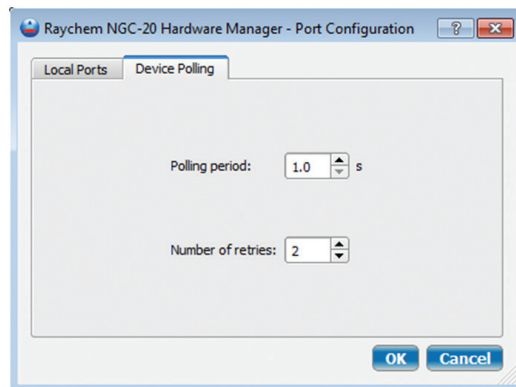


Figure 5-3: Communications, Device Polling



## 6 ESTABLISHING A CONNECTION BETWEEN THE RAYCHEM NGC-20 HARDWARE MANAGER AND RAYCHEM NGC-20 CONTROL UNITS

From the main screen, select the Select Device button located on the top left.



Figure 6-1: Select Device Button

To manually connect using RS-485, first select the Manual tab, then enter the Com port and ModBus Address of the desired NGC-20 controller.

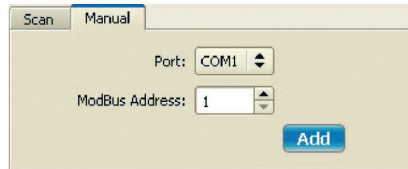


Figure 6-2: Manual Add Com1

To scan for all ModBus address or for Bluetooth devices, select the Scan tab, then the port of the desired NGC-20 Controller (Bluetooth/ COM1/ COM2/ etc). The program will now scan for all controllers on that port.

**\* Note about Bluetooth:** It may take 1 or more scans to pick up all the NGC-20 controllers in the area. If there are many controllers the scan could take a very long time. For example, to pick up 100 controllers it could take an hour or more.

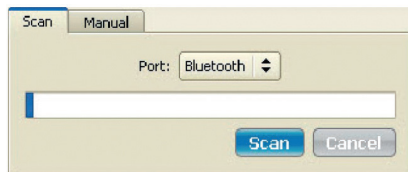


Figure 6-3: Bluetooth Scan

This example shows the details for 1 controller that was found during a Bluetooth scan.

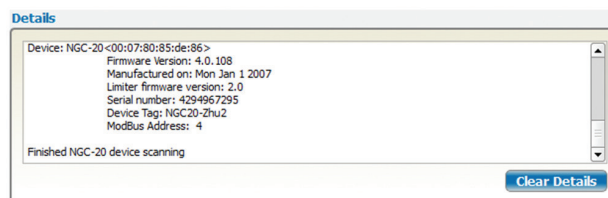


Figure 6-4: Device Details

All controllers that are discovered will appear in the Device List. Select the desired controller to highlight in blue then click on the Select button in the bottom right of the screen. You will be returned to the Main screen and information for the selected controller will be shown.

Device List

Tag	Port	Address	Firmware Version	Limiter Version	Serial Number
NGC20-zhu1	Bluetooth	2	4.0.108	Not installed	12187
ID1	Bluetooth	1	3.30.20	1.9	4294967295
NGC20-Zhu2	Bluetooth	4	4.0.108	2.0	4294967295

Figure 6-5: Device List

### Device Port Configuration

The Device Port Configuration section allows users to configure the communication settings of RAYCHEM NGC-20 control units.

**Baud Rate:** This field allows you to select the baud rate of the external communication port. Selections: 9600, 19200, 38400, 57600. Default: 9600

**Modbus Address:** The Modbus address needs to be unique on the RAYCHEM NGC-20 network. The Modbus address can have any value from 1 to 247. 247 is the maximum number of RAYCHEM NGC-20 units which can be connected to one RS-485 serial communications port.

#### Transmission Delay (TX Delay)

This field sets the time the NGC-20 will wait after it receives a message before it replies. Range: 1-50 milliseconds, Default: 20 ms

**Other Defaults:** Frame Type = RTU, 8 Data bits, No Parity and 2 stop bits. These settings may have to be adjusted in order to set up communication between RAYCHEM NGC-20 control units and non nVent Host systems like PLC's.

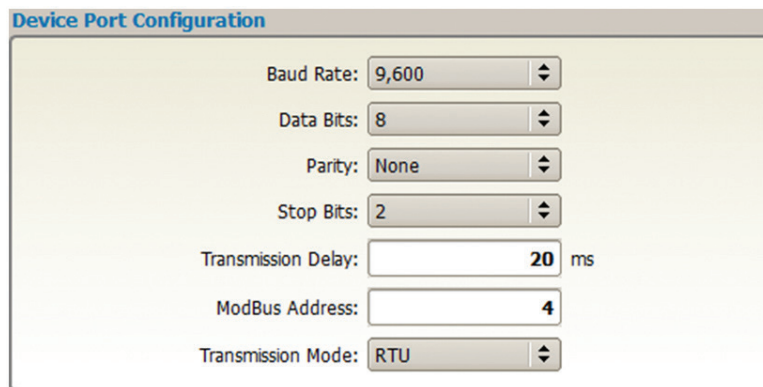


Figure 7-1: Setup Screen, Device Port Configuration

### Alarm Relay

The Alarm Output Mode defines the way the alarm relay will act in case of alarms.

**Normal Operation:** Selecting this will result in the alarm relay changing state in case of an alarm. (General alarm) This means the open contact will close and the closed contact of the SPDT alarm relay will open.

**Toggle:** Selecting toggle will cause the Alarm relay to change state each time a new alarm comes up.

**Flash:** Selecting to Flash the Alarm relay will alternatively open and close the Alarm relay. The interval itself can be user defined in the Alarm Output Toggle Time.

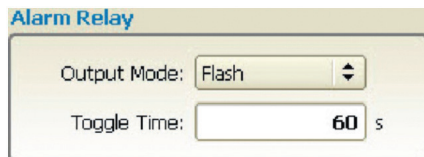


Figure 7-2: Setup Screen, Toggle Time

## 7.1 APPLYING CHANGES

When changes are made to one or more settings, a small icon appears to show that there are unsaved changes and any changed boxes turn yellow. To save the changes, select the Apply button at the bottom right of the screen.

In the example below, there are pending changes in two fields. If the user selects Apply, as shown, the highlighted changes are saved.

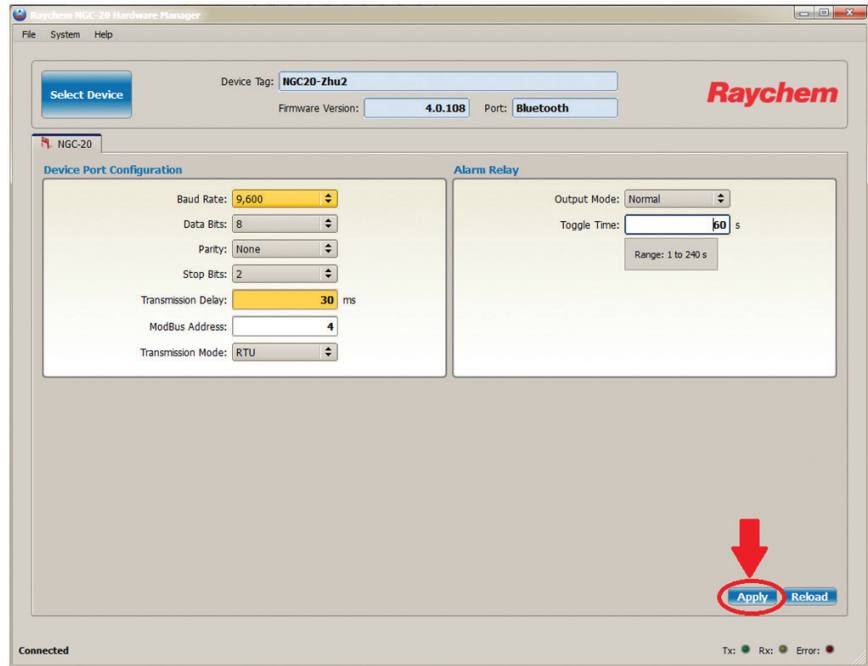


Figure 7-3: Save pending changes with the Apply Button

To discard the changes or refresh the screen, press the Reload button.

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