



RAYCHEM

nVent RAYCHEM Elexant 5010i

Hardware Manager Programming Guide

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1 PRODUCT OVERVIEW

The nVent RAYCHEM Elexant 5010i and nVent RAYCHEM NGC-20 are a local controller with central monitoring capabilities. The controllers are 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 devices.

These controllers 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 nVent RAYCHEM Elexant 5010i Hardware Manager 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-UIT3 or TOUCH1500) or nVent RAYCHEM Supervisor.

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

NVENT RAYCHEM ELEXANT 5010i HARDWARE MANAGER

The Elexant 5010i Hardware Manager is the 'toolbox' for the commissioning and maintenance engineer interrogating the Elexant 5010i and the NGC-20. The Elexant 5010i Hardware Manager is available in two different versions:

- A basic version is available on customer request
- A full version is available for internal use only

THIS DOCUMENT DESCRIBES THE CAPABILITIES OF THE FULL VERSION

The Elexant 5010i Hardware Manager offers the possibility to interrogate the Elexant 5010i and NGC-20 in its full extend. All parameters are available to the engineer for further analyses. The tool offers the possibility to analyse the communication to the controller and see if any issues exist. Communication settings can be easily checked and changed if needed. Firmware can be upgraded where the original configuration will be reloaded into the controller after the firmware upgrade. The link to the controllers can be established via RS-485 and Bluetooth.

This document describes in detail the possibilities of the Elexant 5010i Hardware Manager.

2 LICENSE AGREEMENT

VITAL INFORMATION

This manual is a guide to set up the communication parameters of the nVent RAYCHEM Elexant 5010i(-LIM) and nVent RAYCHEM NGC-20-C(L)-E controllers.

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U.S.A.

3 HOW TO RUN THE NVENT RAYCHEM ELEXANT 5010i HARDWARE MANAGER

To start the installation double-click on the Setup icon.

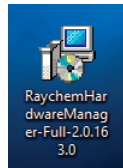


Figure 3-1: Shortcut to the Hardware Manager

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 click "Next" to continue.

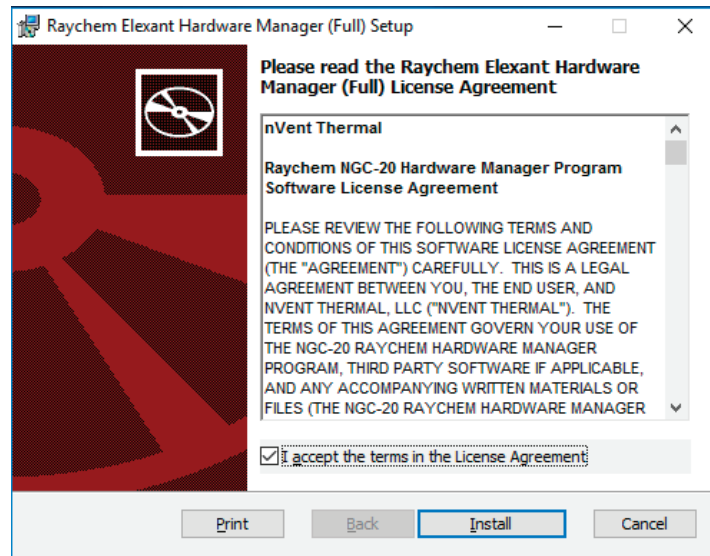


Figure 3-3: Install Screen 2

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

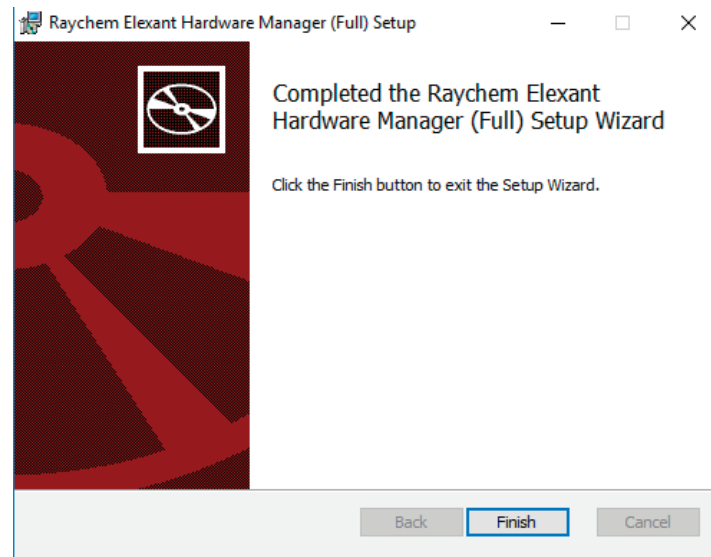


Figure 3-4: Install Screen 4

4 CHANGING THE LANGUAGE OF THE USER INTERFACE SCREENS

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

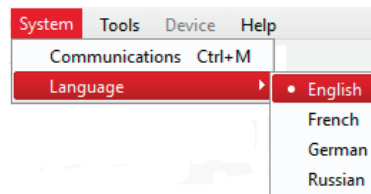


Figure 4-1: Language Menu

5 COMMUNICATIONS MENU

This Menu is for configuring the COM port settings for the computer running Hardware Manager.

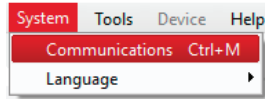


Figure 5-1: Communications Menu

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

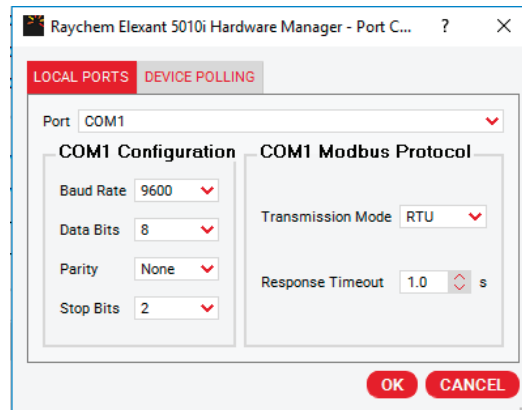


Figure 5-2: Communications, Local Ports

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 Elexant 5010i or the NGC-20 before showing a communication failure.

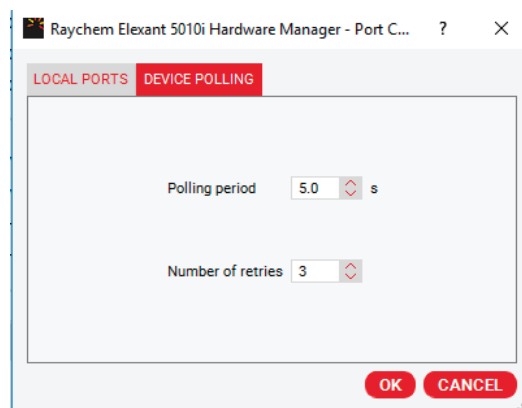


Figure 5-3: Communications, Device Polling

6 CONNECTING THE HARDWARE MANAGER WITH THE CONTROLLERS

6.1 SCANNING FOR DEVICES

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

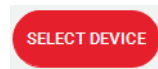


Figure 6-1: Select Device Button

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

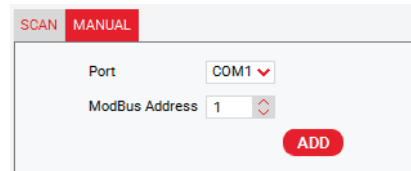


Figure 6-2: Manual Add Com1

To scan for all ModBus address or for Bluetooth devices, select the Scan tab, then the port of the desired 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 Elexant 5010i and 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.

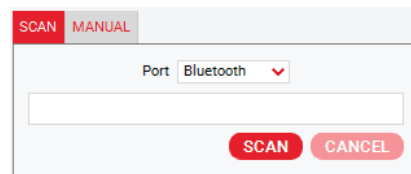


Figure 6-3: Bluetooth Scan

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

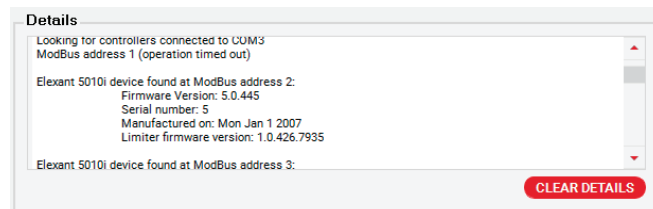
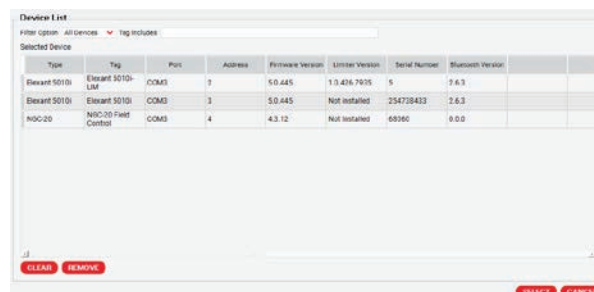


Figure 6-4: Device Details

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.



Type	Tag	Port	Address	Firmware Version	Limiter Version	Serial Number	Bluetooth Version
Elexant 5010i	Elexant 5010i-LIM	COM3	1	5.0.445	1.0.416.7935	5	2.6.3
Elexant 5010i	Elexant 5010i	COM3	3	5.0.445	Not installed	254738433	2.6.3
NGC-20	NGC-20 Field Control	COM3	4	4.3.12	Not installed	68560	0.0.0

Figure 6-5: Device List

7 CHANGING THE COMMUNICATION SETTINGS

Device Port Configuration

The Device Port Configuration section allows users to configure the communication settings of 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 nVent network. The Modbus address can have any value from 1 to 247. 247 is the maximum number of controllers which can be connected to one RS-485 serial communications port.

Transmission Delay (TX Delay)

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

Other defaults are: 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 nVent control units and non nVent Host systems like PLC's.

Device Port Configuration	
Baud Rate	19,200
Data Bits	8
Parity	None
Stop Bits	2
Transmission Delay	20 ms
ModBus Address	2
Transmission Mode	RTU

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**.

Alarm Relay	
Output Mode	Normal

Figure 7-2: Setup Screen, Alarm Relay

Alarm Relay	
Output Mode	Flash
Toggle Time	60 s

Figure 7-3: Setup Screen, Toggle Time

LED Display

The LED display on the controller can be changed to show the measured temperature in degrees Celsius or Fahrenheit.

LED Display	
Temperature Units	Celsius

Figure 7-4: Setup Screen, LED Display Units

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.

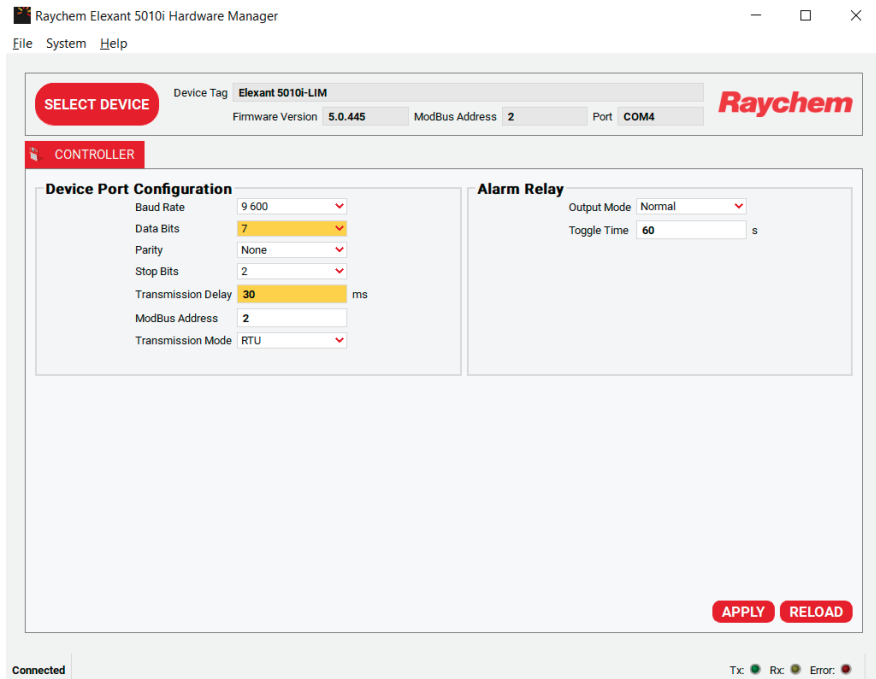


Figure 7-5: Save pending changes with the Apply Button

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

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