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AUTOMATION PERSONALLY



MANUAL E TOOL[®]



REGIN
THE CHALLENGER

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Revision P, June 2019

Software revision, Corrigo: 3.6

Software revision, Exigo: 3.4

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Chapter 1 About this manual

This manual covers using E tool[®] for heating and ventilation applications.

This manual is designed to be an aid during installation and use of E tool[®]. It describes all the functions unique to the program. The Corrigo/Exigo control parameters however are not described here. For detailed information on these, please see the manual for the controller and application in question.

Chapter 2 Installation

To install and run E tool[®] you need a PC running Windows 2000, Windows XP, Windows Vista, Windows 7 or Windows 8, Windows 8.1 or Windows 10.

To run the integrated web server in a ...W model Corrigo/Exigo, you need Internet Explorer 7.0 or later and Java.

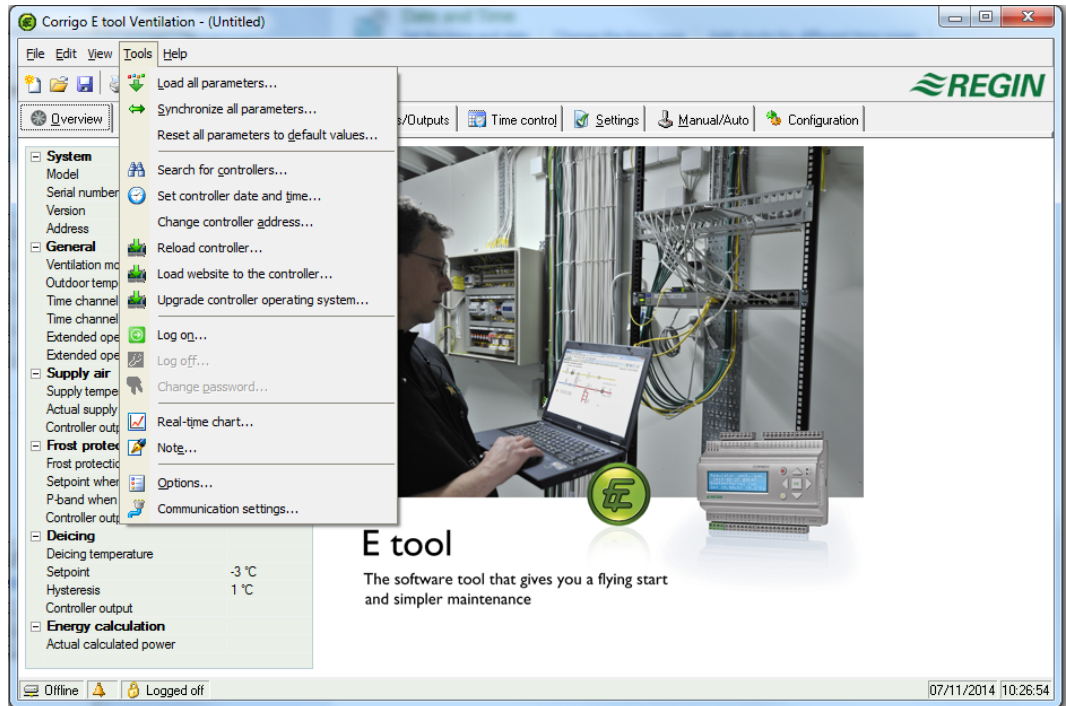
Communication with a Corrigo/Exigo requires a special communication cable, E-CABLE2-USB, or a crossover network cable for communication between a ...W model Corrigo/Exigo and a computer.

E tool[®] is a self-installing program that can be downloaded from Regin's website (www.regincontrols.com). Simply download the software and double-click the **.exe** file. Next, follow the instructions provided by the installation program.

Chapter 3 About E tool[©]

E tool[©] heating and E tool[©] ventilation are Windows-based PC programs for configuration and maintenance of the various Corrigo/Exigo series controllers.

E tool[©] has not been designed with the intention of being a fully fledged SCADA program.



The display window is divided into several parts:

At the top there is a menu bar with standard Windows type drop-down menus.

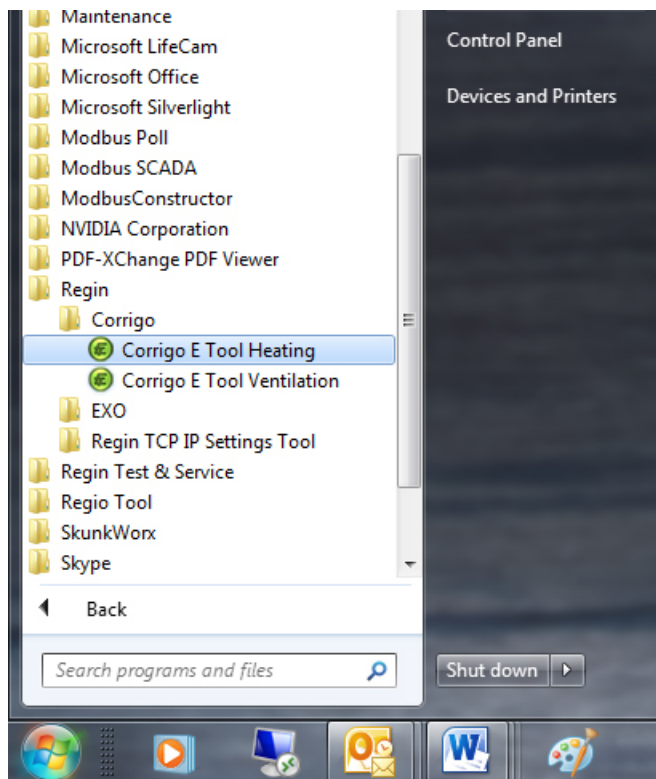
Below the menu bar is a toolbar that gives direct access to various functions. All functions in the toolbar are also accessible through the menu bar system.

Below the toolbar there is a row of folder tabs giving access to a number of folders that can be shown, one at a time in the area below the tabs.

At the bottom of the window is the status bar.

This manual will mainly describe the functions of the items in the menu bar and the buttons in the toolbar. These functions are basically the same for all Corrigo/Exigo applications. Since the contents of the folders vary depending on which of the programs you are running they will not be covered in detail in this manual. Use the appropriate Corrigo/Exigo controller manual for reference.

Chapter 4 Startup



The installation program will have placed an E tool[®] folder in the **All programs → Regin → Corrigo** folder in the Start menu. This folder contains the links to E tool[®] heating and E tool ventilation.

To start either program, click on the Start button at the lower left hand corner of the display. Then click on **All programs**, the folder **Regin**, the sub folder **Corrigo** and finally on the program you wish to run.

To avoid having to go through the Start folder, you can create a shortcut on the desktop by pointing at the program name, click and hold the right hand mouse button and drag the program name from the folder onto the desktop. Release the button and click on "Create shortcut here".

During installation under Windows 8 or Windows 8.1, E tool[®] is placed under "All apps", which can be reached using the Start screen. From here, it is only necessary to click on the relevant icon to start the program. It is also possible to create a shortcut to E tool[®] in the taskbar. To do so, right-click on the E tool[®] icon and select "Pin to taskbar" from the toolbar visible at the bottom of the screen.

On start-up E tool[®] will automatically search for any controller connected to the computer and connect to it if it is of a type suitable to the program being loaded. If no suitable controller is found, the program will start offline.

Corrigo E tool Ventilation - (Untitled)

File Edit View Tools Help

Overview Actual/Setpoint Alarm Status Input/Output Time Control Settings Manual/Auto Configuration

System	
Model	E283DW-3
Serial Number	0113062503...
Version	3.3-0-15
Address	254:254
General	
Ventilation mode	Normal run
Outdoor temperature	17.7 °C
Timechannel normal speed	On
Timechannel reduced speed	Off
Extended operation normal spe...	Off
Extended operation reduced sp...	Off
Supply Air	
Supply temperature	22.1 °C
Actual Supply setpoint	18 °C
Controller Output	0 %
Frost Protection	
Frost protection temperature	99.5 °C
Setpoint when stopped	25 °C
P-band when running	5 °C
Controller Output	0 %
Deicing	
Deicing temperature	99.8 °C
Setpoint	-3 °C
Hysteresis	1 °C
Controller Output	0 %
Energy calculation	
Actual calculated power	0 kW

E tool

The software tool that gives you a flying start and simpler maintenance

Select Model

Number of I/Os	Model
28	E283DW-3

OK Cancel

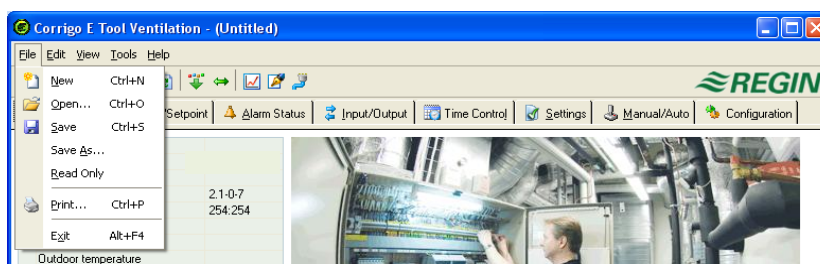
E tool[®] always starts with a box where you enter which Corrigo/Exigo model you are using. The Overview folder is also displayed. Make sure that you enter the correct model, or strange things may occur in the control and alarm handling.

Chapter 5 Menu bar

The menu bar has five drop-down menus; **File**, **Edit**, **View**, **Tools** and **Help**.

5.1 File

These items are used to handle configuration files. The data describing a configuration can be saved as a file. Any number of different configurations can be saved, the only limit being available disk space. The files will be saved using the extension **.vtc** for ventilation control and **.htc** for heating and need about 22 kb of disk space. The files contain only plain text and can be opened using regular editing programs like Notepad or WordPad.



New

New will open a new unnamed file. A box will appear, in which the relevant model of Corrigo/Exigo is selected. If you are unsure of which model you are using, the article number can be located on the right-hand (short) side of the controller. Make sure that you choose the correct model. If you load an incorrect model, unexplainable alarms, etc., may appear, as certain functions not visible in the present model may be activated.

Open

Opens a saved file.

Save

Saves the current file to disk. If the file is unnamed, you will be prompted for a name.

Save as

Saves the current file to disk using a new name of your choice.

Read only

This item can normally be ignored. Should you for some reason open two instances for the same file one of them will be marked as Read only to prevent data conflict.

Print

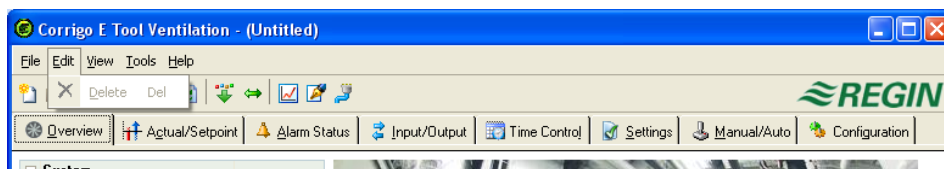
Will give a printed list showing all the configuration settings of the present file.

Exit

Close E tool[®]. If the present configuration is unsaved you will be asked if you wish to save it before closing down.

5.2 Edit

The **Edit** menu only contains one item:

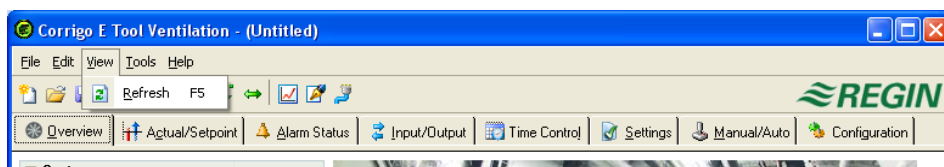


Delete

Delete is only used in conjunction with holiday periods in order to remove assigned periods.

5.3 View

The **View** menu contains one item:



Refresh

E tool[®] is not a dynamic program, meaning that if a parameter value is changed in a connected Corrigo/Exigo (such as, for instance, a temperature), the corresponding value in E tool[®] will not automatically be updated. Instead, the E tool[®] user must manually initiate reading of parameter values from the controller.

Update initiates a reading of all dynamic parameters from the connected controller. The display is updated with the new values.

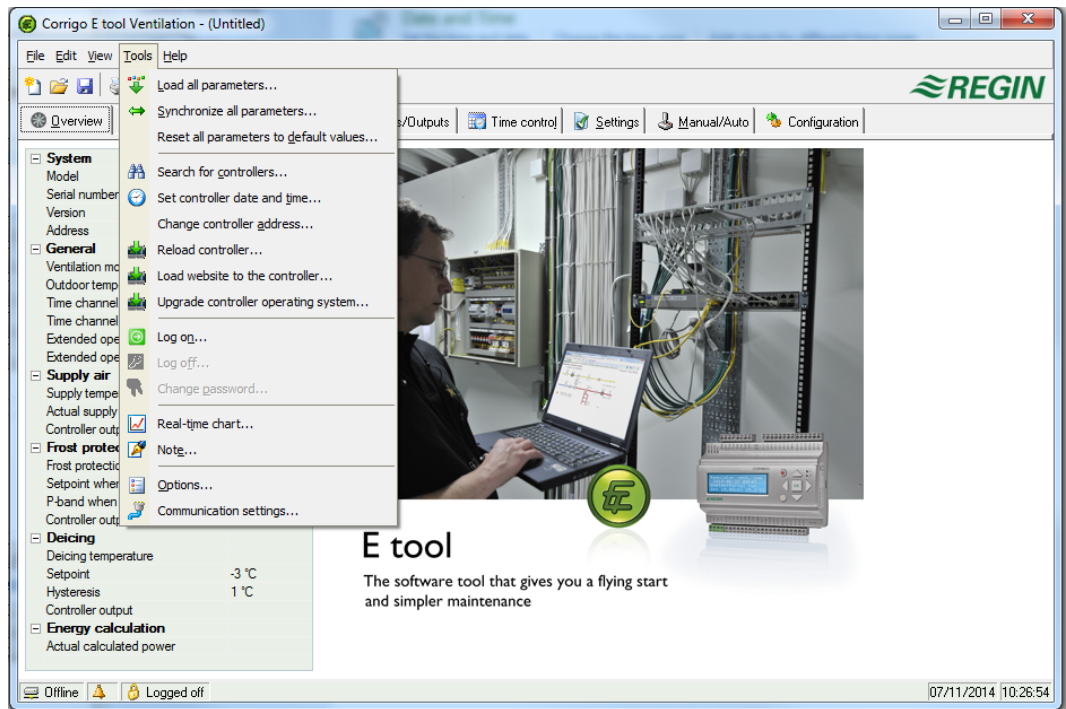
When you change between display tabs, an update is automatically initiated.

Alternatively, the **Update** button in the toolbar (see **Toolbar** below) or the F5 key on the computer keyboard can be used.

You can choose to auto refresh pictures with dynamic values, i.e. an automatic activation of the F5 update function at settable intervals. See **Options** on page 14.

If the controller revision is older than the E tool[®] revision, you are asked what you want to do to make them compatible. See chapter 9.

5.4 Tools



Load all parameters

Download all present parameters from E tool[®] to the Corrigo/Exigo controller.

Synchronize all parameters

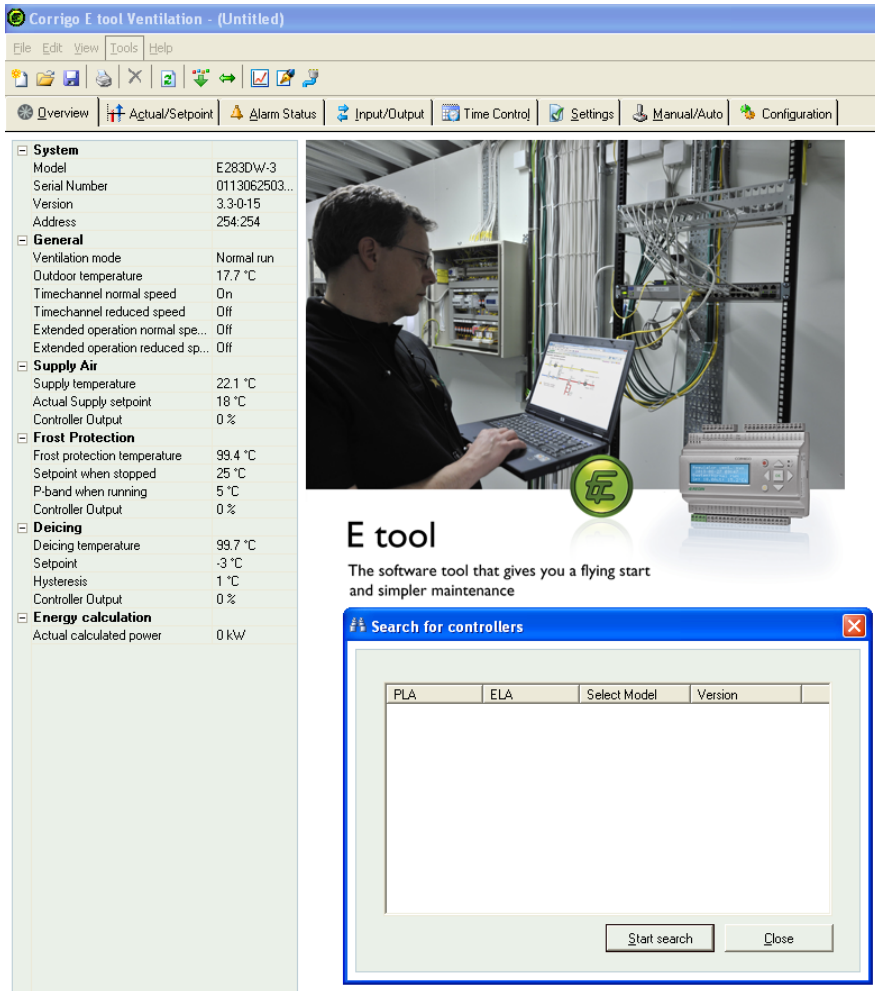
All parameter values in the Corrigo/Exigo are compared with the corresponding values in E tool[®]. All discrepancies will be listed. All items in the list are normally tick-marked. By removing the tick-mark from an item you can exclude it from the selection. You can then choose to update E tool[®] using the controller values or update the controller using the E tool[®] values.

Reset parameters to default values

Resets all E tool[®] parameter values to their default values.

Search for controllers

If, on startup, E tool[®] fails to establish contact with a connected controller it is usually due to an address mismatch. This function will search through all the possible addresses and list the addresses of the unit that is connected to the computer. These addresses are then written into the address fields in the folder **Configuration / System**.



Set controller date and time

Synchronizes the controller date and time with the computer date and time.

Change controller address

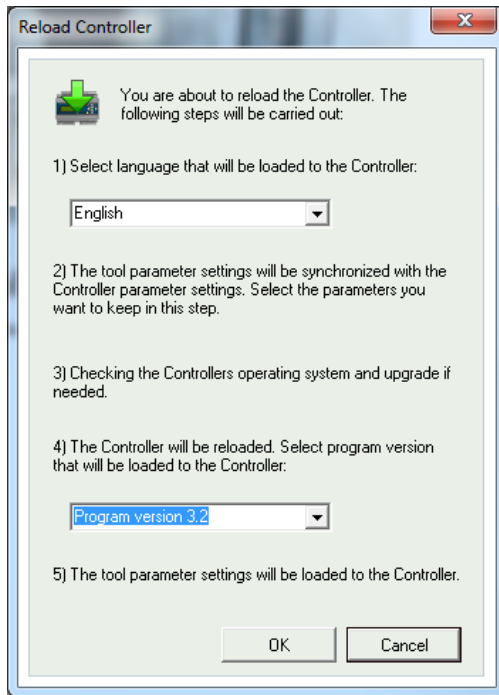
This function is used for changing the addresses of the connected controller. The address is normally 254:254. If the controller is intended to be used in an EXoline network, the addresses must be changed since the connected controllers have different addresses.

Reload the controller

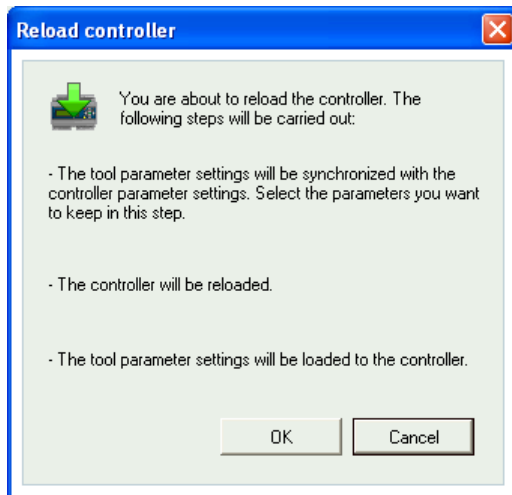
Downloads the current control program from E tool[®] to the controller.

Use this function to install updated program revisions. You can also use it to convert a Corrigo heating controller to a Corrigo ventilation and vice versa. Note, though, that since the hardware differs between controllers of different sizes, the E tool[®] program and the Corrigo model must be compatible. For example, to load a Corrigo E15, the E tool[®] program must be made for an E15. Otherwise, unexpected events may take place.

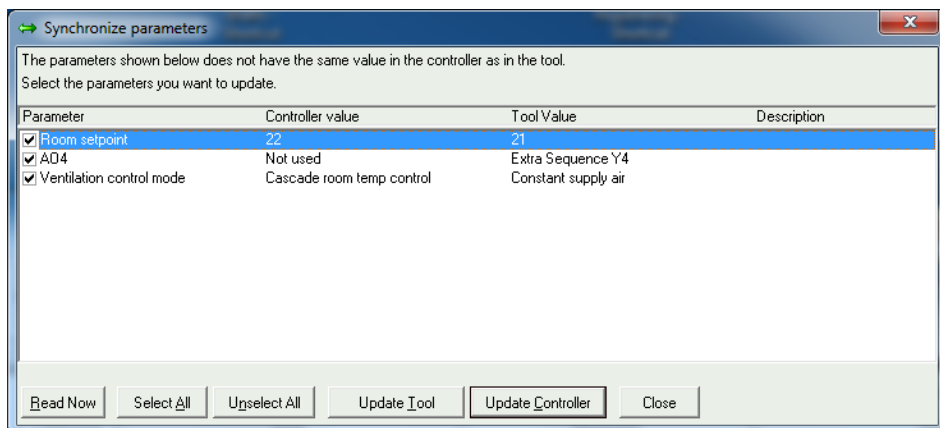
E tool[®] will automatically sense whether the Corrigo connected is a second or a third generation controller. If the Corrigo is a second generation controller, the below dialogue window will be displayed, in which it is possible to choose between program versions 2.1, 2.3 or 3.2.



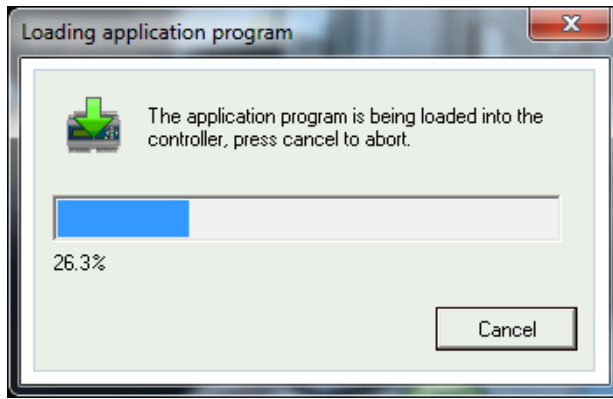
If instead the Corrigo is a third generation controller, the version of E tool[®] corresponding to that installed on the computer will instead be loaded. The below dialogue window will be displayed:



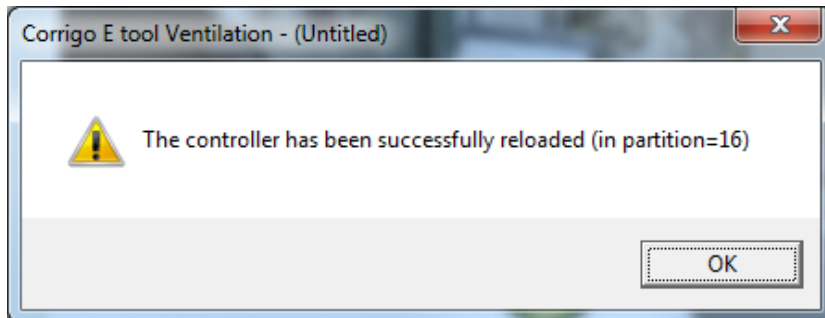
Click “OK” to reload the controller. The “Synchronize parameters” dialogue window will be displayed:



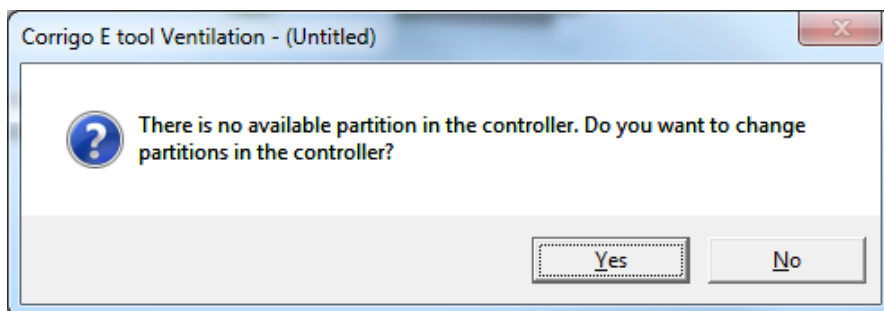
Select whether differences in parameter configuration should be updated in E tool[®] or in the controller.



After the controller has been reloaded with the new application program, the below dialogue window will be displayed:

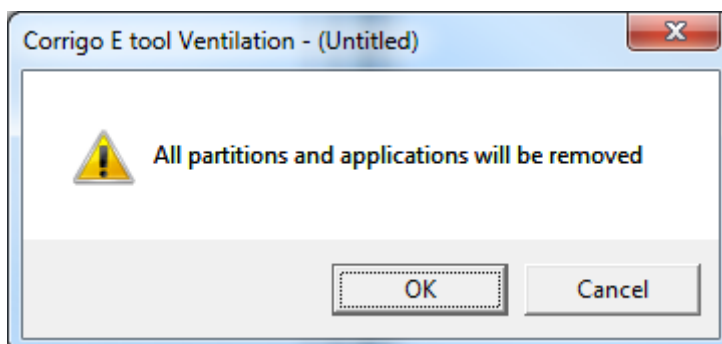


If the controller was manufactured before 2015, the following window will be displayed before it can be reloaded:



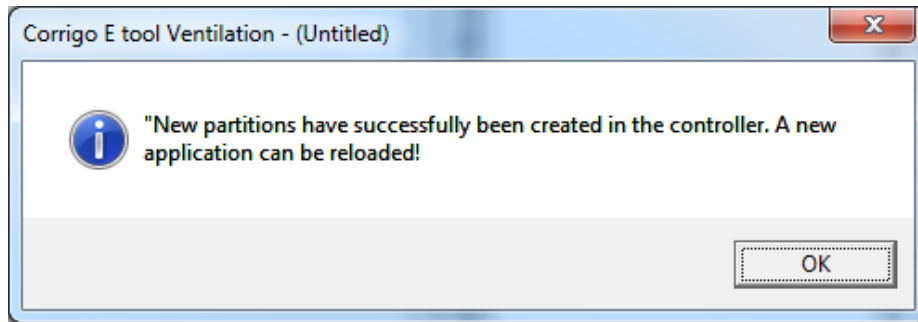
Click "Yes".

A warning message will now be displayed:



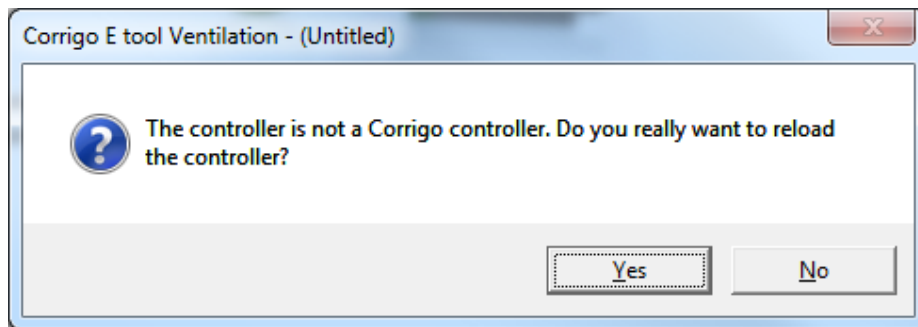
Click "OK".

The controller has now been repartitioned to make room for the application.



Next, follow the directions above for reloading the controller.

Another warning message will now be displayed:



Click “Yes”.

The web site in the controller

A web site is already loaded into the Corrigo/Exigo upon delivery. It is, however, sometimes necessary to update it:

Download the configuration to the web site integrated in the Corrigo A model with TCP/IP communication is required: **Tools → Load website to the controller**. For more information, see chapter 11.

Upgrade operating system for web server (TCP/IP) (only shown for Corrigo/Exigo with integrated web server)

Unless the Corrigo/Exigo is brand new, it is advisable to upgrade the TCP/IP operating system.

Log on

Corrigo/Exigo has four different log-on levels, 1, 2, 3 and 5.

5 is the basic level with the lowest access, 3 is the operator level giving more access, 2 is the service level giving even more access and 1 is the Admin level with full access.

E tool[®] only uses the levels **Logged off**, **Service**, **Operator** and **Admin**.

As default Corrigo/Exigo comes with the following passwords for the different levels:

Admin	1111
Service	2222
Operator	3333

Should you try to perform an operation which requires a higher access level than the one you have, you will be prompted to change log-on level.

Log off

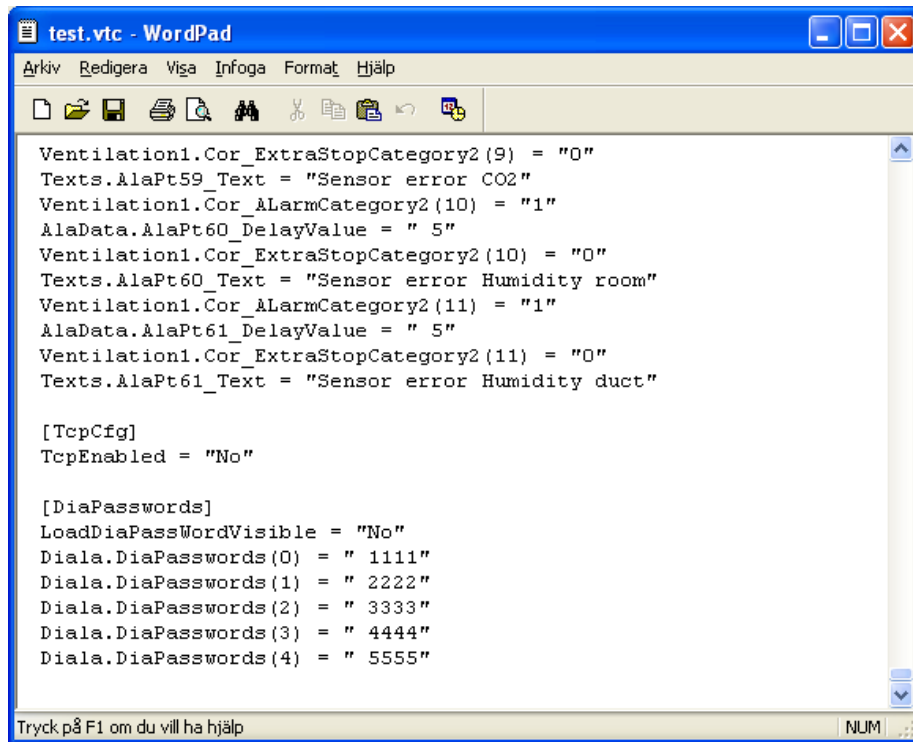
Only active if you are logged on as **Operator** or **Admin**. Enables log-off to the basic level.

Change password

Only active if you are logged on as **Operator** or **Admin**. Permits change of the password for the present log-on level.

Load new default passwords

When loading vtc-, htc-, or btc-files, it is possible to include new passwords for all the levels. The files are text files describing a configuration. Open the file, for example in Wordpad or Notepad. At the end of the vtc-file, there is a section, **DiaPasswords**, which deals with the log on codes.



```
test.vtc - WordPad
Arkiv Redigera Visa Infoga Format Hjälp
[Icons]
Ventilation1.Cor_ExtraStopCategory2(9) = "0"
Texts.AlaPt59_Text = "Sensor error CO2"
Ventilation1.Cor_AlarmCategory2(10) = "1"
AlaData.AlaPt60_DelayValue = " 5"
Ventilation1.Cor_ExtraStopCategory2(10) = "0"
Texts.AlaPt60_Text = "Sensor error Humidity room"
Ventilation1.Cor_AlarmCategory2(11) = "1"
AlaData.AlaPt61_DelayValue = " 5"
Ventilation1.Cor_ExtraStopCategory2(11) = "0"
Texts.AlaPt61_Text = "Sensor error Humidity duct"

[TcpCfg]
TcpEnabled = "No"

[DiaPasswords]
LoadDiaPassWordVisible = "No"
Diala.DiaPasswords(0) = " 1111"
Diala.DiaPasswords(1) = " 2222"
Diala.DiaPasswords(2) = " 3333"
Diala.DiaPasswords(3) = " 4444"
Diala.DiaPasswords(4) = " 5555"

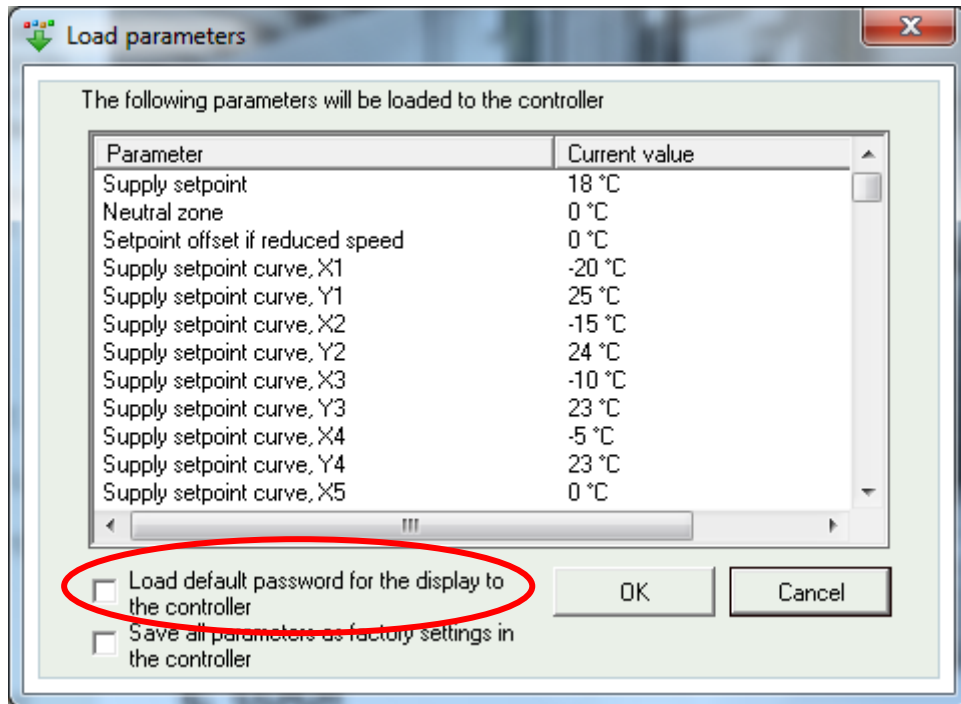
Tryck på F1 om du vill ha hjälp NUM
```

To be able to load new default passwords, change **LoadDiaPassWordVisible** from "No" to "Yes".

Change "1111", "2222" and "3333" to the values you want the levels Admin, Service and Operator to have. "4444" is not used by Corrigo/Exigo and "5555" for basic level should not be changed.

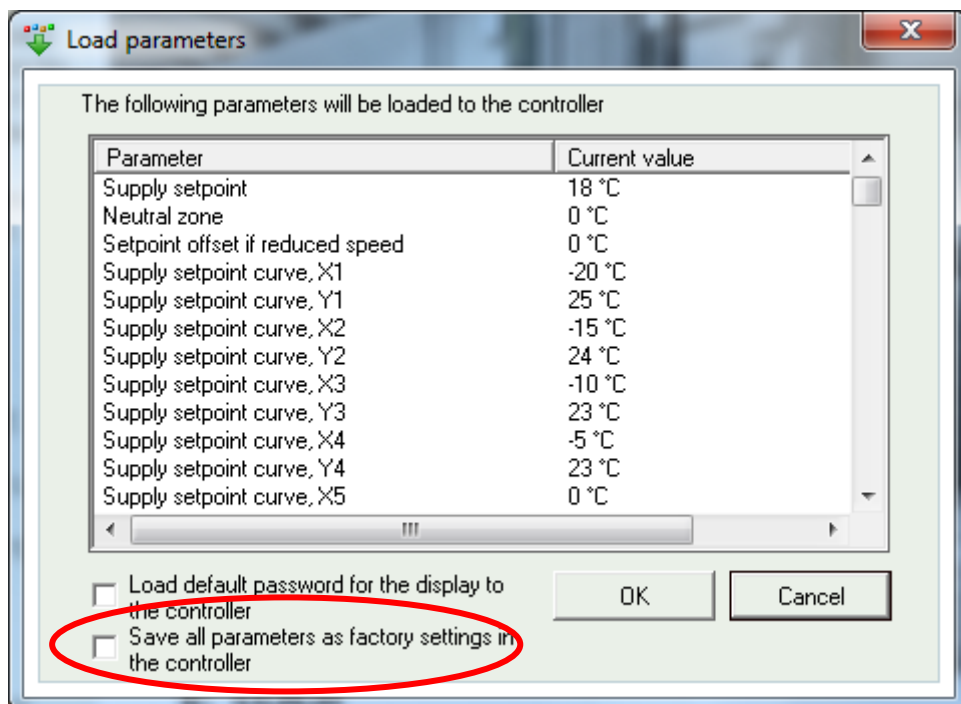
Save the vtc-file.

Start E tool[®] and import the file. When downloading parameters to the Corrigo/Exigo, a checkbox is shown which you can check if you want the passwords to be downloaded.

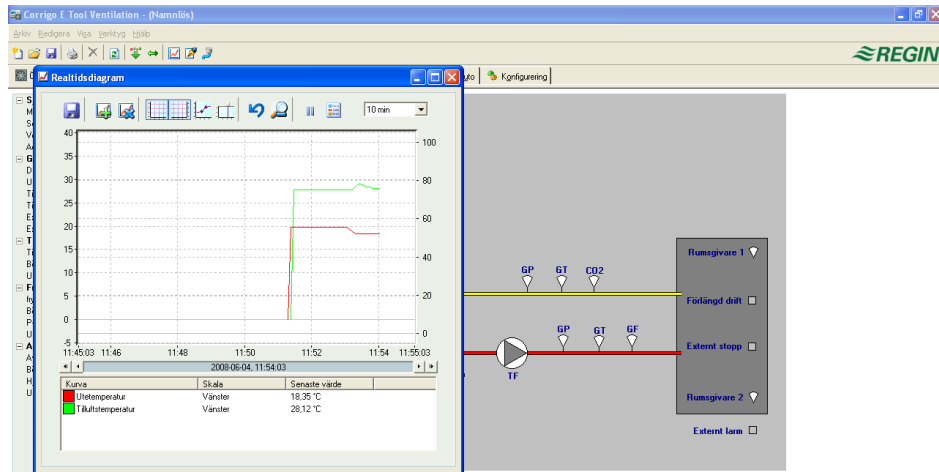


Load new factory settings (only ventilation)

If `LoadDiaPassWordVisible` has been set to "Yes", a checkbox is shown which makes it possible to save the downloaded parameters as factory settings in the controller. The values will then be used by the command **Restore factory settings in the controller**. For more information, see the Corrigo ventilation manual.



Real-time chart

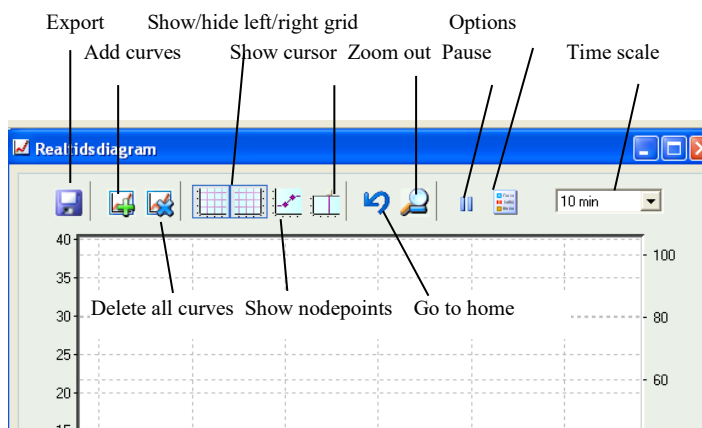


Creates a real-time chart. Up to four parameters of your choice can be logged. The diagram has vertical scales with individually settable left or right scaling. The chosen parameters are listed at the bottom of the screen together with information on colour, which of the vertical scales it is referring to and latest recorded value. The chart has left and right vertical scales with individually settable ranges. The horizontal timeline can be changed so that the chart window can show longer or shorter intervals. Using the scrollbar at the bottom of the chart you can scroll along the timeline to show any position since the recording started. Values are recorded every 5 seconds. All recorded values can be saved to a textfile for later use in, for example, a spread-sheet program such as Excel.

Several sessions of the real-time chart can be run at the same time if you wish to study more than four parameters.

The charts cannot be saved. Upon exiting, all values and settings are lost. It is however possible to use the **Alt+PrtScr** keys on the keyboard to take a screenshot of the current chart, which can then be saved.

Real-time chart tools



Export

Exports all recorded values to a .txt file. The values are tab-separated for easy import to, for example, Excel. Each line of the text file contains the values from one recording together with the time for the recording. Recorded data are saved for approximately 24 hours.

Add curve

A click on this button reveals a list of all parameters that can be displayed in the chart. Choose up to 4 parameters.

Delete all curves

Deletes all the selected curves.

Show/hide left/right grid

Chart grids scaled to the left and right scales can be displayed or hidden.

Show node points

A marker can be displayed on each curve at the point of each recording.

Show cursor

Displays a vertical line on the chart display. The cursor can be moved along the timeline. When the cursor is active, instead of showing the latest recorded values in the parameter list, the values at the cursor position are displayed. In this way you can check back on earlier record values.

Go to home

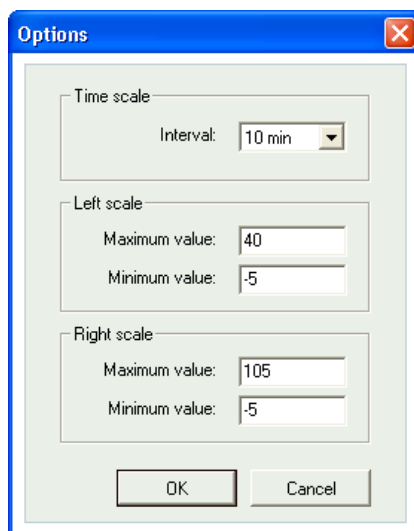
Home position is the chart position in which the "recording pens" are close to the right hand edge of the chart. If you have scrolled back along the timeline you can use this button to jump back to normal position.

Pause

Pauses entry of new curve segments into the chart. Data acquisition continues, however, and new readings are saved every 5 seconds. Pressing **Pause** again will cause all the saved readings to be added into the chart.

Options

Set various options.



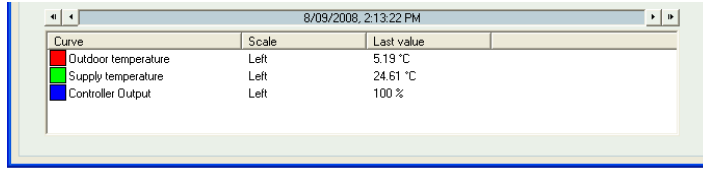
Time scale signifies the time width of the chart display.

Left scale / Right scale sets the scaling for the left and right chart scales.

Time scale

Sets the time width of the chart display.

Parameter list



Curve	Scale	Last value
Outdoor temperature	Left	5.19 °C
Supply temperature	Left	24.61 °C
Controller Output	Left	100 %

The list shows the parameters assigned to the chart. To remove a parameter, right-click on it and choose **Remove**.

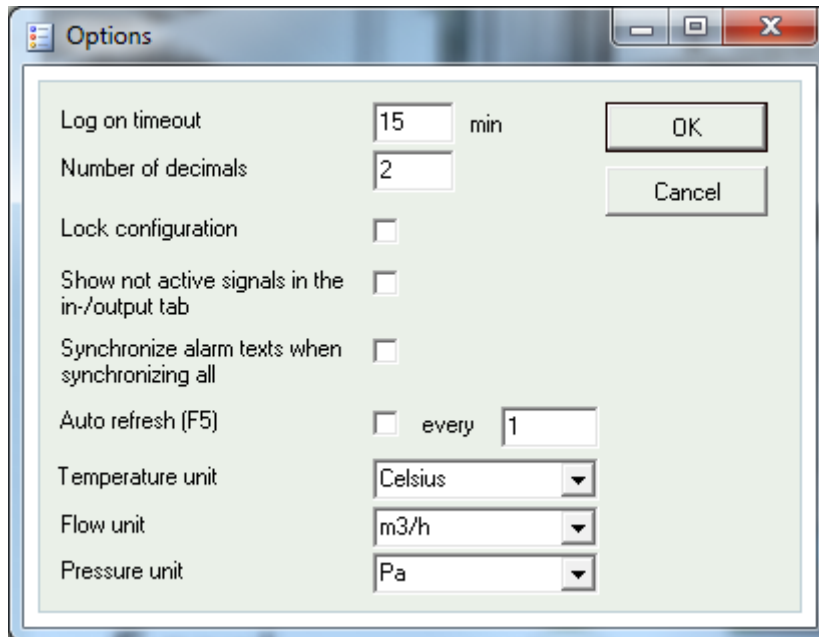
To change which of the right / left scales the parameter curve is referring to, right-click and choose properties or double-click with the left mouse-button.

Notes

Gives access to a notepad area. Any text written here is saved together with the configuration file. If you make a printout of the configuration the notepad text is included in the printout.

Options

Permits the setting of some program parameters.



You can choose to auto refresh pictures with dynamic values, i.e. an automatic activation of the F5 update function at settable intervals.

Log-on timeout

After inactivity for longer than the set time the log-on level will be set to 5.

Number of decimals

Sets the number of decimals displayed. All calculations however, are always done with full precision.

Lock configuration

Blocks access to the configuration tab.

Also show non-active signals in in/output tab

All in- and outputs are displayed under the In/Output tab.

Synchronize alarm texts when synchronizing all

When synchronizing all parameters, alarm texts will also be synchronized.

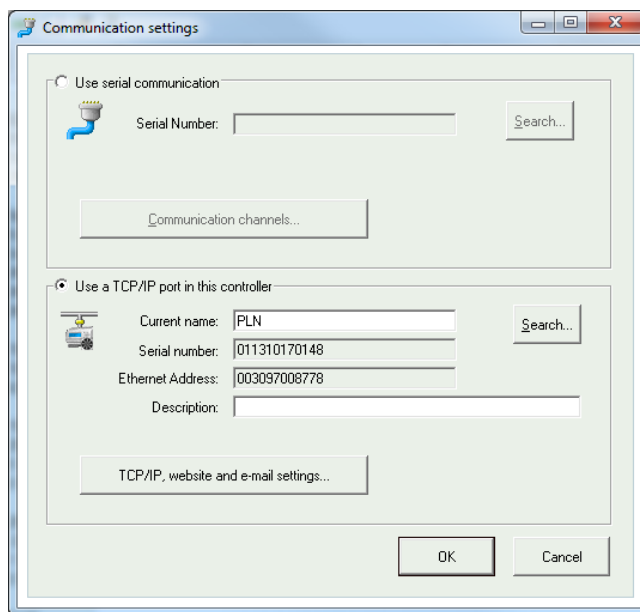
Temperature/Flow unit

Different temperature and flow units can be selected from here.

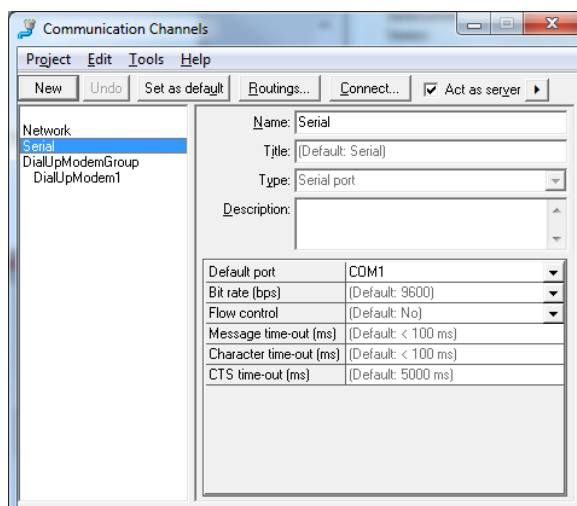
Communication

Setting of the communication between E tool[®] and controller.

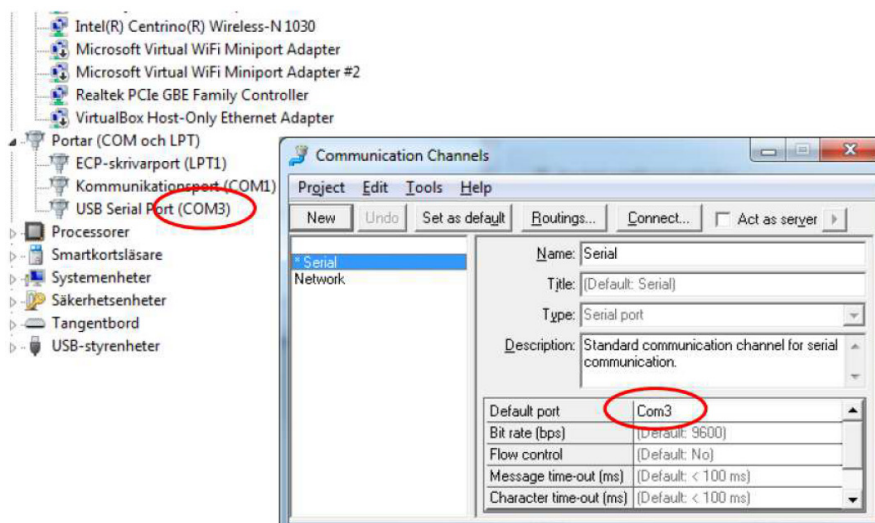
Which communication is suggested depends on which Corrigo/Exigo model has been loaded into E tool[®] at start-up. Serial communication is suggested for all models except Corrigo/Exigo with integrated web server.



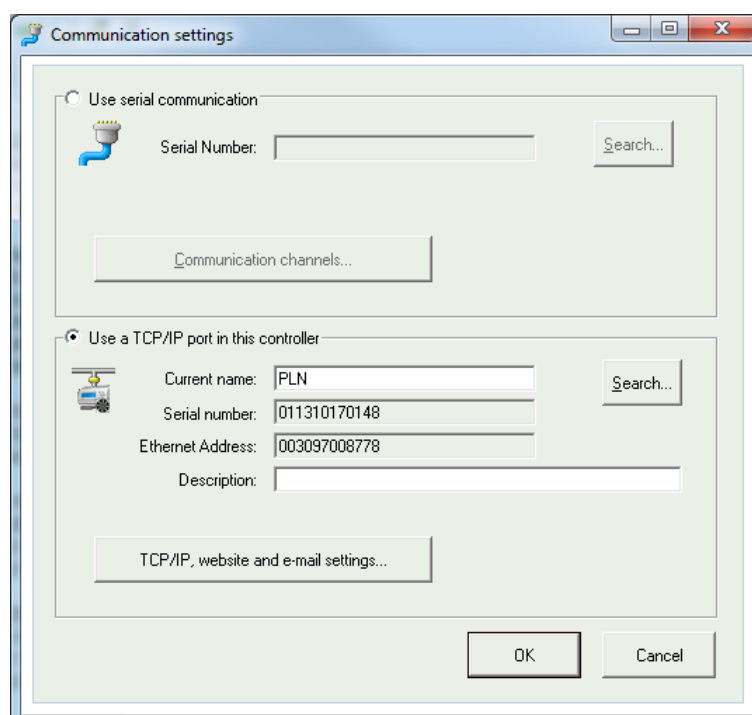
Click on **Communication channels** and then on **Serial**.



Ensure that the suggested COM port corresponds to the COM port which the computer has assigned to E-CABLE. You can see which Com port has been assigned in the **Control panel → System → Device Manager → Ports (COM & LPT)**.



If you have opened E tool[®] and selected a Corrigo/Exigo with integrated web server, you can choose if the communication should take place via E-CABLE (serial) or the TCP/IP port.



TCP/IP communication

If the controller has a TCP/IP port (E...-W-3 models), it can communicate via a TCP/IP network. This is done by selecting **Use a TCP/IP port in this controller**.

By pressing on **TCP/IP, website and e-mail settings**, you can choose between three different connection possibilities:

1. Crossover network cable
2. Automatically by DHCP (dynamic IP address)
3. Static IP address

See chapter 11 for the remaining setting options.

1. Crossover network cable

In the most basic case, a crossover network cable, E CABLE-TCP/IP, is used. The user is connected directly to the controller. Connect a crossover TCP/IP-cable directly between the controller and the computer. Start E tool[®]. Open the tool "Communication settings" from the menu **Tools** or via the icon in the toolbar.

Choose **Use a TCP/IP port in this controller**. The program will ask if you are using a crossover network cable. Answer "Yes" to this question. The program will now search for controllers. Since no DHCP is available, a "broadcast" address will be used. Therefore, it is important that the computer is only connected directly to the current controller with a crossover Cat5-cable. If the search was successful, the controller's IP-settings will be shown: IP address, Subnet mask and Default Gateway (if there is one). If no values are shown: press "Search". A search window will be opened and hopefully the controller's TCP/IP card will be found and its serial number will be shown in the window. Select the row and press "OK".

If the program cannot find a controller:

- Check the cable and contacts.
- Control if there are more active network connections via **Control panel**→**Network connections**. Inactivate all except "Local area connection". If a wireless network connection is active, it should also be deactivated.
- Press **Search** again.
- Enter the IP address, the Subnet mask and, if any, the Gateway for the controller and press **Load TCP/IP settings**.

A message will be shown if the loading was successful. Press **OK**. You may get a message that a TCP/IP-connection has been established, but a controller with the address 254:254 could not be found. Instead, a controller with another PLA:ELA address has been found. Answer "Yes" to the question whether this controller should be used instead. E tool[®] can now be used for configuration/downloading/upgrading/synchronisation etc.

The below section applies to all second generation Corrigo controllers.

If the message **Cannot read index variable 255:30.QSystem.PLA. Not responding**. is shown, there is no connection between the controller's TCP/IP card and the operating system EXOreal on the controller's base circuit board. This may be due to an old EXOreal-version combined with a certain version of components on the TCP/IP card. The problem can be solved by loading the latest EXOreal-version to the controller. However, to do this a connection must first be established (catch-22). By powering up and "Searching" multiple times, you may be able to establish a connection. Otherwise, the controller must be sent to Regin for upgrading.

2. Automatically by DHCP (dynamic IP address)

In this case, you choose the standard setting **Obtain IP settings automatically (by DHCP)**.

This configuration is suitable for most networks equipped with a DHCP server, and, above all, when it is required that the controllers are assigned their addresses dynamically.

The following requirements have to be fulfilled:

The DHCP server and the DNS server must cooperate since the controller sends its DNS name to the DHCP server. This function is supported by Windows 2000 Server, Windows 2003 Server and Windows 2008 Server. The function is also incorporated in most routers. The DHCP server gives the controller an IP address and registers the IP address and the DNS name in the DNS server.

Each DNS name must be unique.

The EXOline-TCP port, 26486, must be open from the controller to the main computer. This is especially important when the communication passes through a firewall.

When the controller and the computer running E tool[®] are on the same subnet, you do not have to specify a DNS name or a domain. When the controller and the computer are on different subnets, you have to specify the DNS name and the Domain. You get the domain name from the network administrator.

3. Static IP address

In this case, the static IP address of the controller is specified.

This configuration is most suitable for networks without a DHCP Server. You can also use it if you do not trust the network services completely, as it is the communication that has the best qualification to work when servers etc. do not. As long as routers and switches work well, this configuration alternative will work.

The following requirements have to be fulfilled: The EXOline-TCP port, 26486, must be open from the controller to the main computer. This is especially important when the communication passes through a firewall.

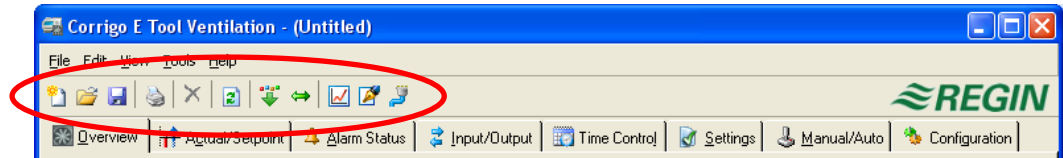
Static IP address, Net Mask and Default Gateway are obtained from the network administrator.

5.5 Help

Gives access to manuals, variable lists and the program revision information.

Chapter 6 Toolbar

The toolbar provides shortcuts to a number of functions.



By placing the cursor over a tool icon a tool tip will be displayed giving a short description of the tool.

All the tools have been described in the menu bar description above.

Chapter 7 Folders

7.1 General

The contents of the various folders depend on which of the programs E tool[®] heating or E tool[®] ventilation you are running and also on which Corrigo/Exigo model, E28, E15 or E8 the program has been configured for.

Therefore the contents will not be described in detail here.

Items in a folder that somehow belong together are grouped. Group names are displayed in bold. The groups are normally shown expanded, that is that all the items in the group are displayed, headed by the group name. A group can be compressed to show only the group name by clicking on the box with a - (minus) to the left of the group name. For a compressed group the box will contain a +. Click on it to expand the group.

Setting values

Many of the folders contain settable values. If you pass the cursor over such a value a text box (tool tip) will be displayed showing the permitted value interval.

If you have a Corrigo/Exigo connected you must download a value to the controller for it to become active.

Downloading can be done in several ways:

Right-click on any single item and choose **Load parameters**. This will download only that single parameter.

Right-click on a group name and choose **Load parameters**. This will download all parameters in the chosen group.

Click on the **Load all parameters** button on the toolbar.

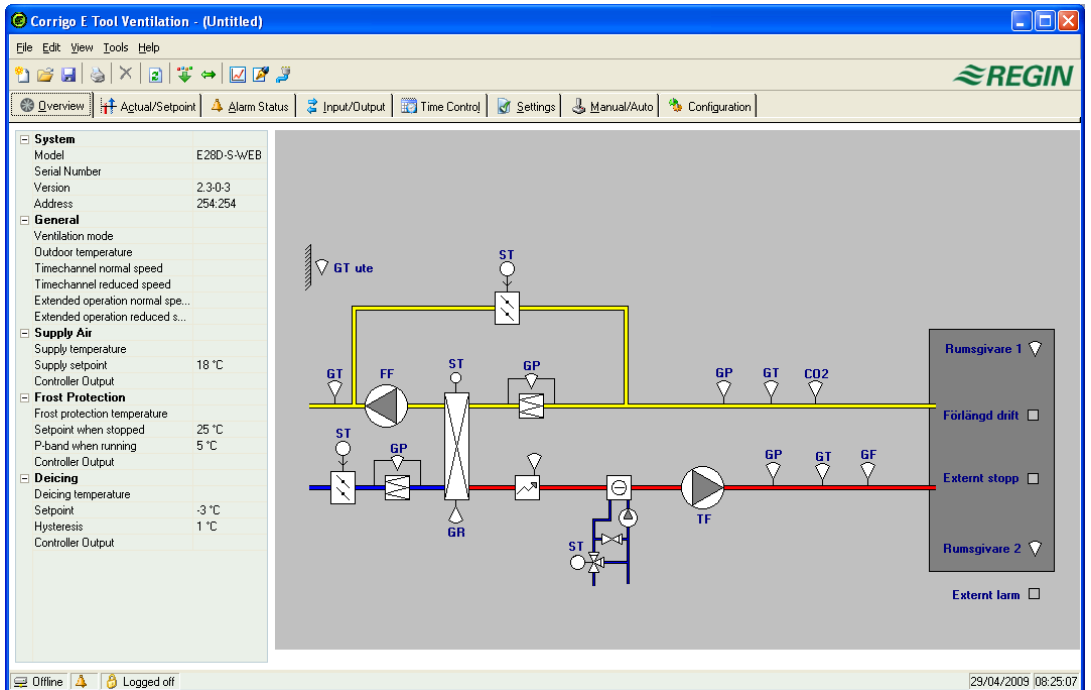
Click on **Tools** on the Menu bar and choose **Load all parameters**.

These last two methods will, as the name implies, download all parameters to the Corrigo/Exigo.

You can also synchronize parameters following the same rules as above but choose **Synchronize parameters**. A useful tool to compare the settings in the Corrigo/Exigo with the settings in E tool[®].

It is also possible to reset parameters to default values by right-clicking and choosing **Reset parameters to default values**.

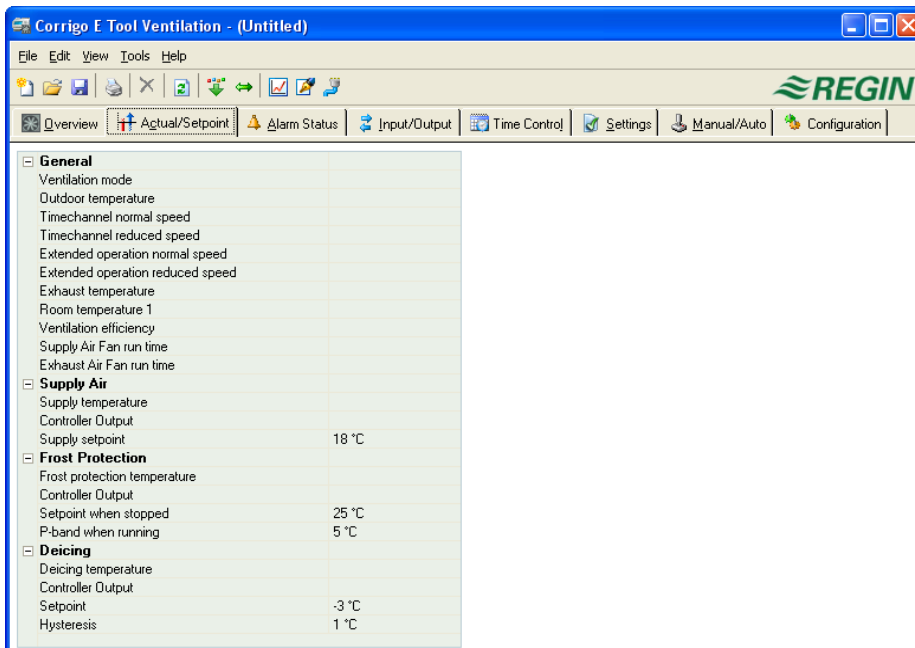
7.2 Overview



The major part of the Overview folder displays a process diagram. The diagram is a static bitmap illustration that can be edited using, for example Paint. Any number of different diagrams can be saved. Which diagram is displayed is governed by the setting of the parameter **Process picture** in the **System** subfolder in the configuration folder.

Down the left-hand edge of the Overview folder there is a list of the most important control parameters. To update the values, press F5 or click on the **refresh** button in the toolbar. You can choose to auto refresh pictures with dynamic values, i.e. an automatic activation of the F5 update function at settable intervals. See **Options** on page 14.

7.3 Actual / Setpoint

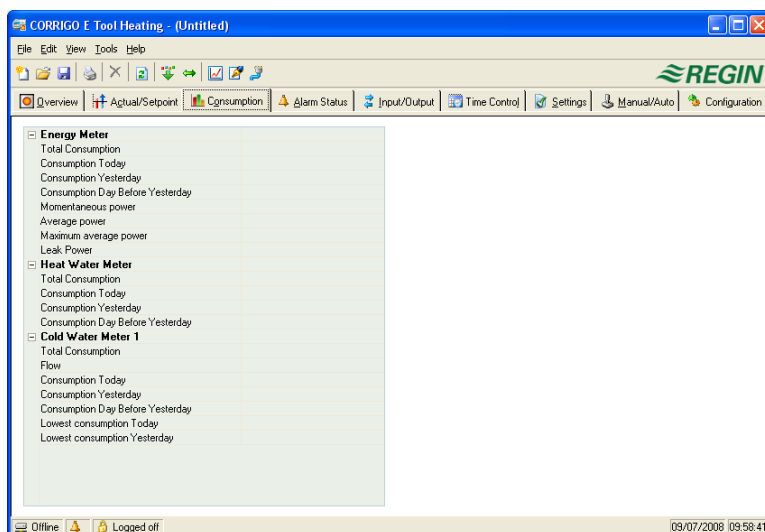


Displays relevant setpoint values and actual values.

Real-time chart

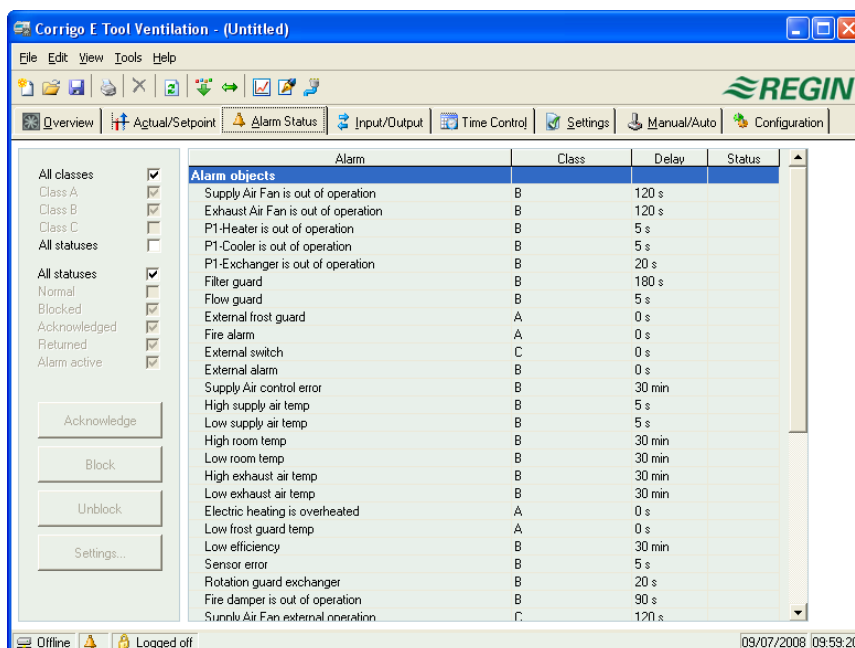
When right-clicking on some of the groups you are given the option of creating a real-time chart. This chart will be created containing the four first recordable parameters in the group.

7.4 Consumption (only E tool[®] heating)



Displays consumption values for energy meter, heat water meter and cold water meter. The values are calculated using pulse constants that are set in the submenu *Pulse constants* in the configuration folder.

7.5 Alarm status



Permits handling of all enabled alarms.

The alarm settings can be changed by either double-clicking on the alarm you wish to change or by marking the alarm and then clicking on the button **Settings**.

Alarm settings can also be changed in the folder **Settings/Alarm objects**.

NOTE: Changes made to alarm settings must be downloaded to become active.

Alarm indications

Green status box: Non-activated alarm.

Red box with an exclamation mark: Active alarm.

Red, green-bordered box: Reset, not acknowledged alarm.

Blue box with a white tick-mark: Active, acknowledged alarm.

Grey box with a black X: Blocked alarms.

Any changes made to alarm status in E tool[®] are instantly transmitted to the controller without the need to use **Load parameters**. Changes in alarm status in the controller however are not displayed in E tool[®] until you make a refresh.

To keep track of changes in alarm status when looking at other folders, look at the alarm box in the status bar at the bottom of the window.

Alarm categories

Corrigo/Exigo has three alarm categories, **Sum alarm A**, **Sum alarm B** and **Sum alarm C**.

A and B/C alarms will activate the digital outputs A-alarm and B/C alarm respectively if configured. Both will activate the **Sum alarm** output if configured.

C alarms are internal only.

C alarms need not be acknowledged. Once they reset, they automatically return to normal status.

Alarms can be shown according to class: **A**, **B**, **C** or **All classes**, and according to status: **Normal**, **Blocked**, **Acknowledged**, **Returned**, **Alarm active** and **All statuses**.

Alarm text in Corrigo/Exigo

The alarm text that is displayed in the Corrigo/Exigo on activated alarm is shown in column 2 Alarm text. This text can be changed, but only via E tool[®]. Double-clicking on the alarm text will open a dialogue box in which various alarm parameters, including the alarm text itself, can be changed.

The screenshot shows the 'Corrigo E tool Ventilation' software interface. The main window displays a table of alarm objects with columns for Alarm, Alarm text, Nbr, Class, Delay, and Status. A settings dialog box is open for the 'Malfunction P1-heater' alarm, showing its configuration parameters.

Alarm	Alarm text	Nbr	Class	Delay	Status
Malfunction supply air fan	Malfunction supply air fan	1	B	120 s	Green
Malfunction extract air fan	Malfunction extract air fan	2	B	120 s	Green
Malfunction P1-heater	Malfunction P1 heater	3	B	5 s	Red
Malfunction P1-cooler	Malfunction P1 cooler	4	B	5 s	Green
Malfunction P1-exchanger	Malfunction P1 exchanger	5	B	20 s	Green
Supply air fan external operation	Supply air fan external operation	33	C	120 s	Green
Extract air fan external operation	Extract air fan external operation	34	C	120 s	Green
Ventilation stopped	Ventilation manual mode	35	C	0 s	Green

The 'Settings' dialog for 'Malfunction P1-heater' shows the following parameters:

- Class: B
- Delay: 5 s
- Stop ventilation unit if alarm active: No
- Alarm text: Malfunction P1 heat

The alarm text, including any possible space, may not consist of more than 38 characters. These will be distributed on 2 rows of 19 characters each. If a word in the text extends past the 19th position, the whole word will be moved to the second row. To avoid this, a hyphen can be added in the 19th position, followed by a space and then the rest of the word.

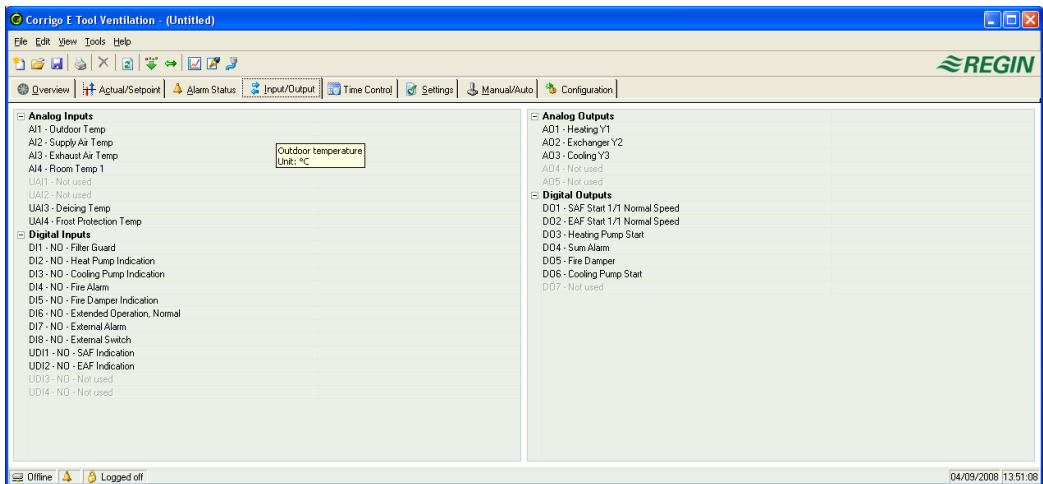
Example: The message "Sensor error relative humidity supply air" consists of 40 characters, but since the third word extends past the 19th position, the following will be shown in the display:

```
Sensor error
Relative humidity su
9 Sept 08:52 Class B
```

However, if the text is changed to: “Sensor error RH supply air”, it will instead result in:

```
Sensor error RH
supply air
9 Sept 08:52 Class B
```

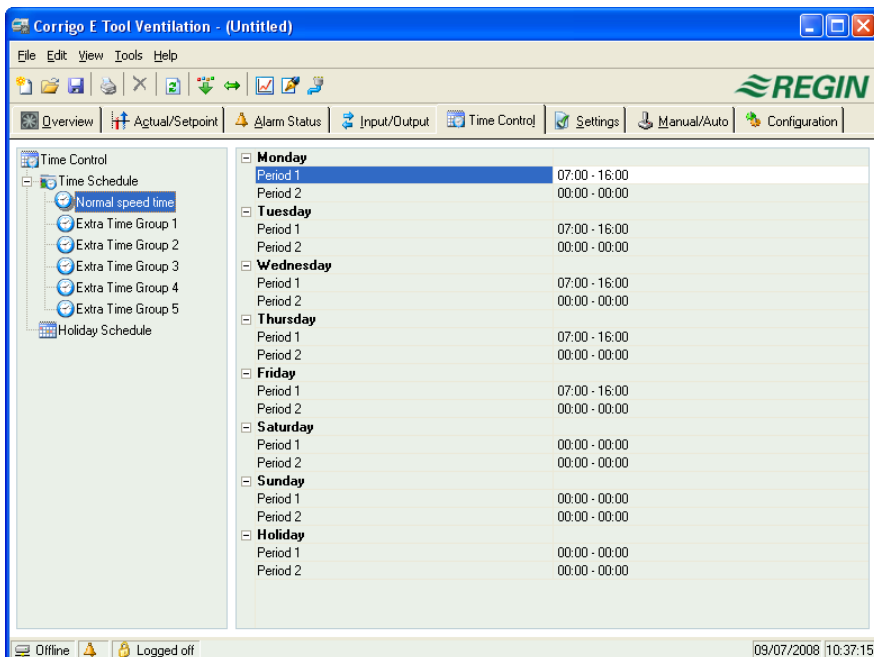
7.6 Inputs/Outputs



Shows actual values for all inputs and outputs. As this is a read-only folder, no settings can be made here.

Un-configured inputs and outputs are greyed. See the box entitled **Options** under **Tools**.

7.7 Time control



E tool[®] heating

Here you set the daily comfort periods.

Each control function has its own set of daily schedules

There are two periods for each day.

The 8th day, **Holiday**, governs the activity on all days marked as holidays in the holiday schedule, see below.

The schedules for **Timer channel output 1...5** dictate the activation of the corresponding digital output signal.

To deactivate a period, set the time to 00:00 – 00:00.

To run the unit 24 hours a day, set the time to 00:00 – 24:00.

Note: An interval cannot exceed over midnight. For example, if you want to configure a period from 18:00 to 02:00, you have to divide it into two periods: Day 1 18:00 – 24:00 and day 2 00:00 – 02:00.

E tool[®] ventilation

Here you set the daily running periods.

If single-speed fans have been configured there is only one set of daily schedules.

If two-speed or pressure controlled fans have been configured there will be two sets of daily schedules. One for normal running speed and one for reduced speed.

There are two periods for each day.

Should the running periods for normal and reduced speed overlap, normal speed will take precedence.

The 8th day, **Holiday**, governs the activity on all days marked as holidays in the holiday schedule, see below.

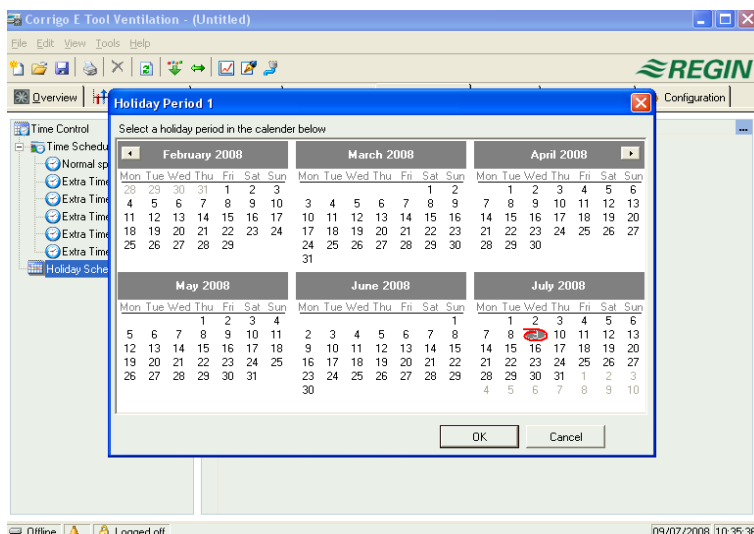
The schedules for **Timer channel output 1...5** dictate the activation of the corresponding digital output signal.

To deactivate a period, set the time to 00:00 – 00:00.

To run the unit 24 hours a day, set the time to 00:00 – 24:00.

NOTE: An interval cannot straddle midnight. For example, if you want to configure a period from 18:00 to 02:00, it must be divided into two periods: Day 1 18:00 – 24:00 and day 2 00:00 – 02:00.

Holiday schedule



Up to 24 separate holiday periods can be configured. A holiday period can be anything from one day up to 365 consecutive days.

To create a holiday period, click on the button at the right hand end of the line *Add holiday period*.

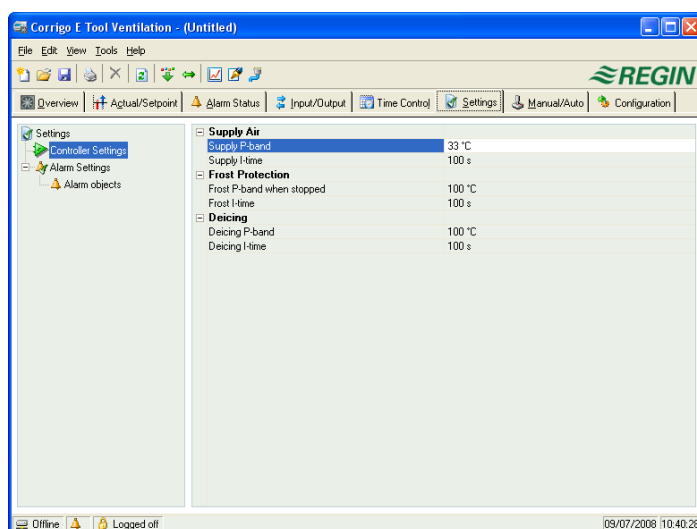
To pick a single date, click on it, a marker will indicate your choice, then click on OK. To pick a period, click and hold on the first date, drag the cursor to the last date and release the button. The period will be marked. Click OK. Alternatively, click on the first date, depress and hold the shift-key on your keyboard and click on the last date of the period. The period will be marked. Click OK.

Although the calendar seems to extend far into the distant future, holiday periods can only extend up to one year from the present date. Should you choose a date further ahead than one year, the date will be replaced by the same date within one year from the present.

To remove unwanted holiday periods, use the **Delete** button in the toolbar.

Holidays/holiday periods that have been set will be valid every year, until they are removed. This means that for example Christmas and New Year will only have to be set once and are then valid for all future.

7.8 Settings



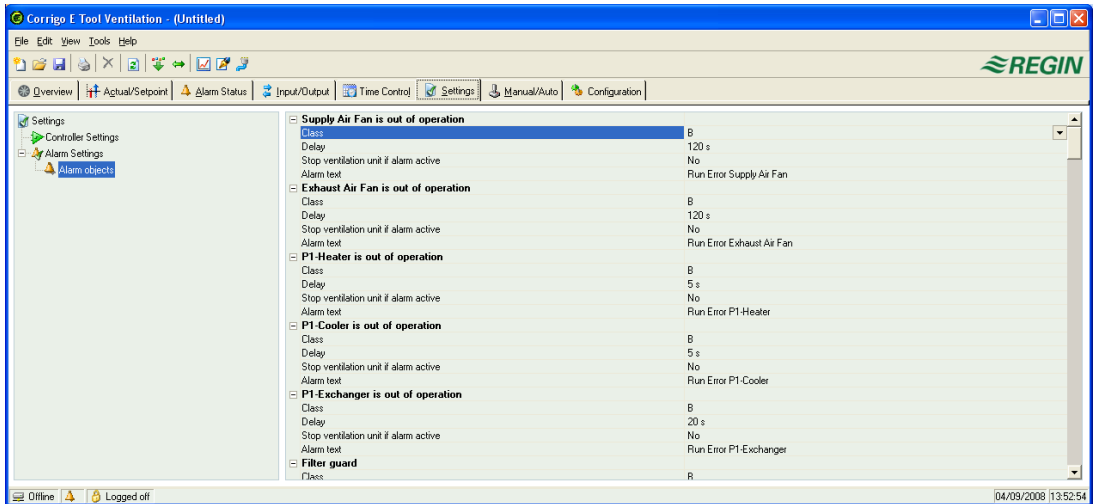
Controller settings

Setting of the control parameters, such as P band and I time.

Parameter setting-interval endpoint values and default value are displayed if you place the cursor over a parameter value.

Changes must be downloaded to the controller in order to take effect.

To download, right-click on a parameter name or a parameter group name and choose **Load parameters**, or click on **Load all parameters** in the toolbar or the E tool[®] menu.



Alarm settings / alarm objects

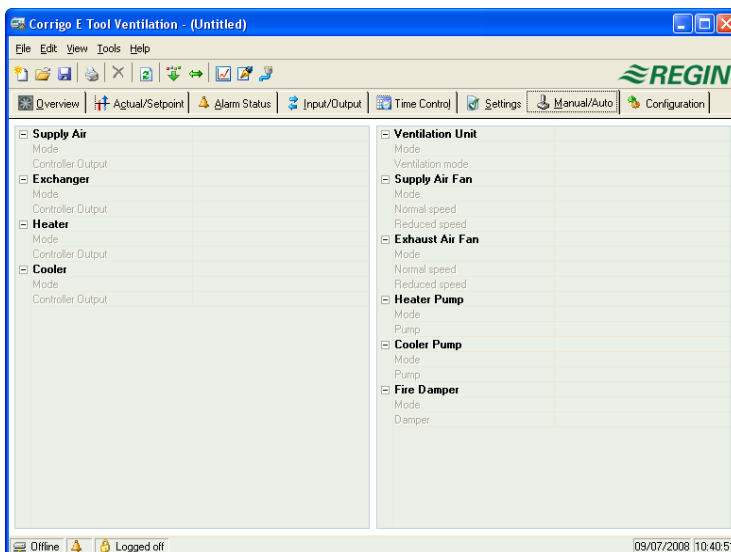
Setting of alarm parameters.

These settings can also be made in the **Alarm status** folder. See the section on **Alarm status**, above.

Disabled alarms will be removed from the alarm list in the Alarm status folder.

A and B/C alarms will activate the digital outputs A-alarm and B-alarm respectively if configured. Both will activate the Sum alarm output if configured.

7.9 Manual / Auto

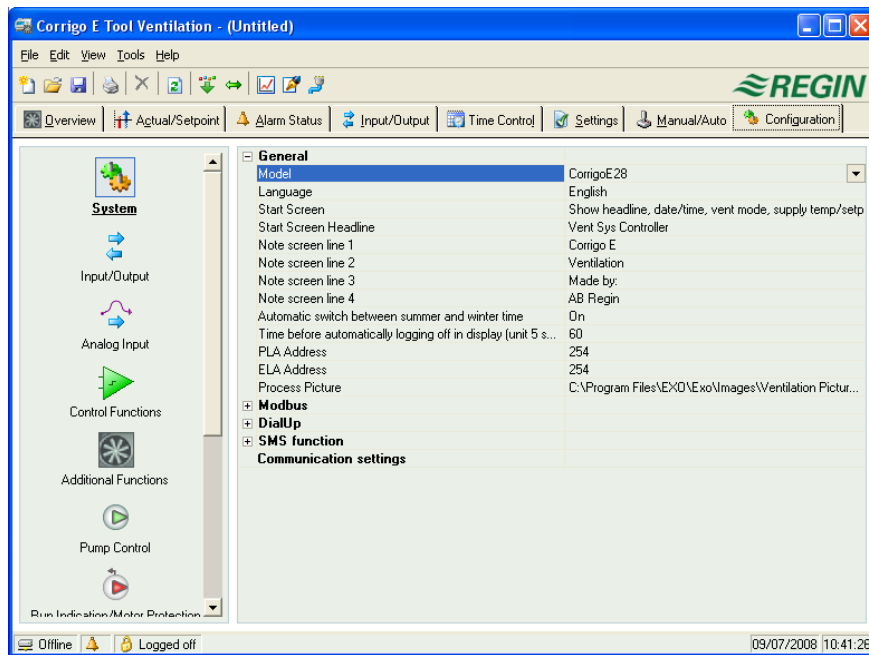


In this menu you can take manual command of most controller functions. This is highly useful for testing purposes.

Setting functions to manual command will generate alarms to ensure that control is returned to Auto.

In this menu all changes are instantly downloaded to any attached controller, it is not necessary to run **Load parameters** for changes to take effect.

7.10 Configuration



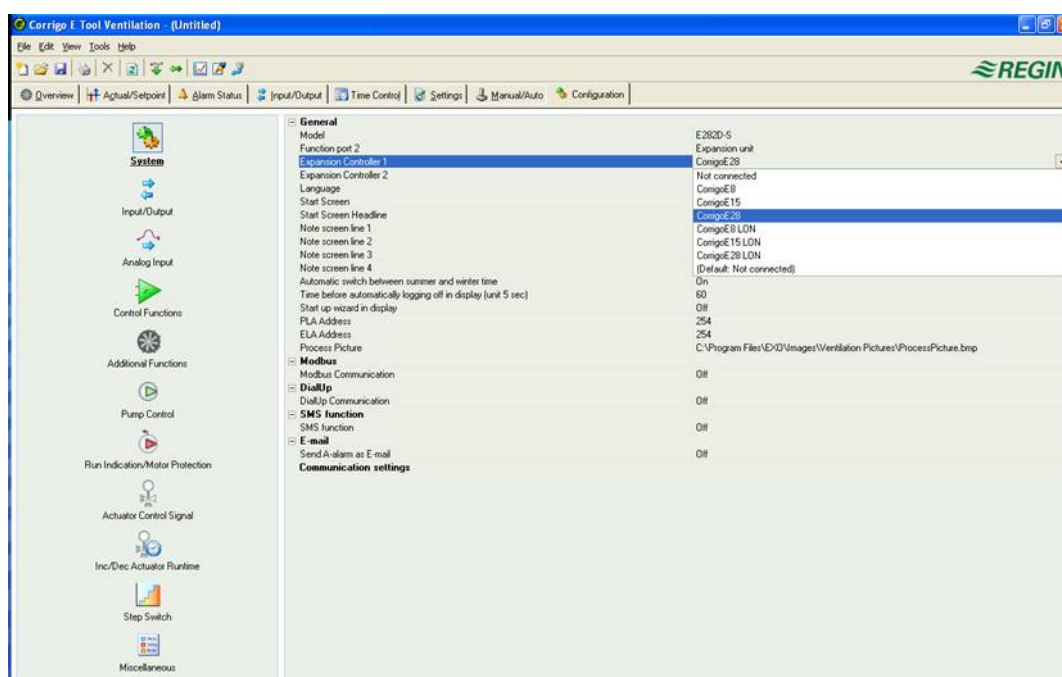
This folder contains all the configuration parameters for the Corrigo/Exigo. Since the contents are very diverse, the folder has been divided into sub-folders. These are accessed by clicking on the buttons in the left-hand button-list. For detailed information on these, please see the manual for the controller in question.

Chapter 8 Expansion units

As of version 3.0, one/two expansion units can be connected to Corrigo/Exigo. Any controller model can be used as an expansion unit but since the display will not show anything, a controller without a display is normally used.

Set the selected port to "Expansion units" and choose under **Configuration/System** which controllers you want to connect. Next, connect them to the computer. Depending on configuration, "Initiate Expansion unit 1" and/or "Initiate Expansion unit 2" will be shown under **Tools**. This initiation function is used for Corrigo models which are not factory loaded with version 3.0.

For controllers that are factory loaded with version 3.0 or later, you can select "Expansion unit 1" or "Expansion unit 2" under **Application choices** in the controller. In this case, E tool[®] is not required to set the controller as an expansion unit.



After initiating the expansion units and configuring the program, all Corrigo/Exigo units are connected. Then the master unit is connected to the computer via the chosen port in order for the configuration to be loaded. The controller is configured in the same way as is described in chapter 5.

8.1 Presigo pressure transmitter as an expansion unit (ventilation only)

In the case of controllers configured for ventilation application, it is also possible to use Regin's Presigo pressure transmitter as an expansion unit. Each transmitter contains two extra universal inputs (other than the pressure inputs), which can be configured to either an analogue or a digital function. For additional information on Presigo, see the instruction or manual for the transmitter.

Chapter 9 Updating Corrigo/Exigo

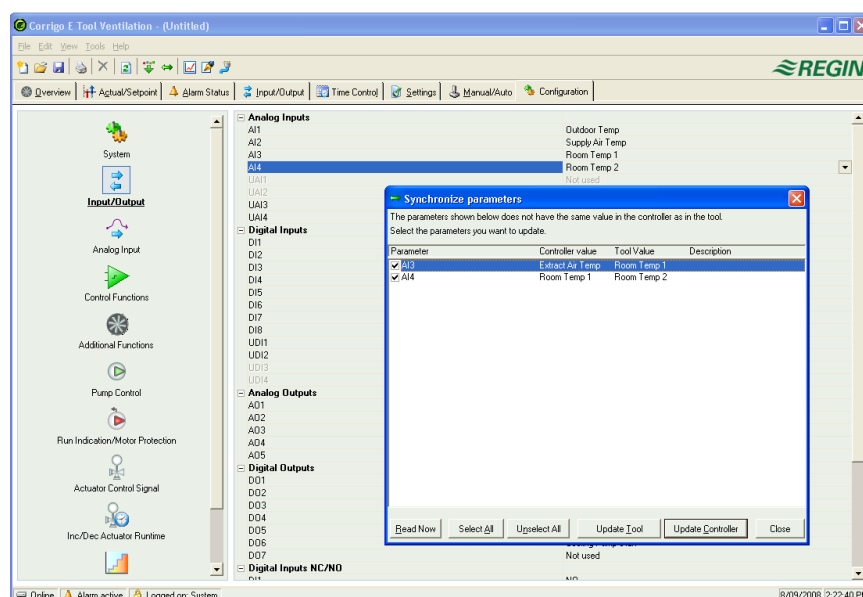
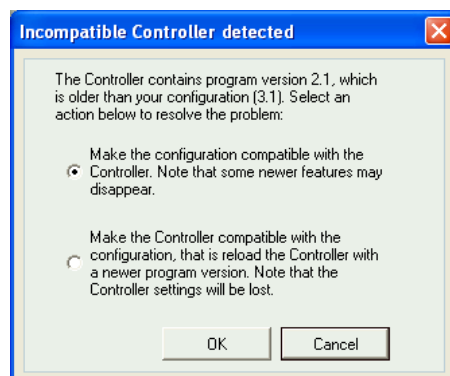
E tool[®] should always be updated with the latest program revision. If you are using the latest revision of E tool[®] and connect it to a Corrigo/Exigo with an older program revision, E tool[®] will give a warning and offer two alternatives.

One alternative is to temporarily downgrade E tool[®] to a revision corresponding to the revision in the controller. All the settings in the controller will remain intact and the controller will keep its revision.

The other alternative is to upgrade the controller to the same revision as E tool[®]. This will cause the Corrigo/Exigo-unit to temporarily stop working. Any previous settings will be permanently lost.

Take the below steps to avoid having to configure again:

- Start E tool[®] and connect it to the controller. When asked, choose to downgrade E tool[®] to the controller's revision.
- Select **Synchronize all parameters** in the **Tools** menu. Then select **Update tools**. E tool[®] should now contain an exact copy of the configuration in the controller. Select **Save as** in the menu **File** and save the configuration under a suitable name.
- Close E tool[®]. Then open it again and choose to reload the controller with a new revision.
- After reloading, open the saved configuration file, synchronize all parameters and the select **Update the controller**. The controller should now have the latest revision and be configured as it was before the upgrade. Make sure parameter settings that were not available in the old revision have suitable values.



Chapter 10 TCP/IP – network terms

10.1 Networks, subnets, routers

IP network

An **IP network** is a cluster of cables and devices, where an equipment with one IP address can communicate with any other IP addressed equipment. Internet is *one* network, and when your home computer connects to the Internet, you become part of the Internet.

Subnet

Networks are divided into *subnets*, which are linked with *routers*. Routers need some kind of map of the network (or at least of the closest subnets, and somewhere to send everything else). A computer only needs to know the address of the closest router. A local switched Ethernet network is *one* subnet. Routers can have several Ethernet ports for different Ethernet networks, or maybe an Ethernet port and an ADSL connection.

10.2 IP address, Subnet mask, Default Gateway, DNS server

IP address

Each computer or network connected controller has an IP address consisting of four numbers between 0 and 255, making up a total of 32 bits.

Subnet mask

Each computer or network connected controller also has a subnet mask consisting of 32 bits.

Example

If the IP address is 192.0.2.73 and the subnet mask is 255.255.255.0, then the subnet addresses are from 192.0.2.0 up to 192.0.2.255, and 192.0.2.73 is your address on the subnet. Sometimes the subnet mask is specified by the number of bits used (always starting at the beginning of the subnet mask). The subnet is then 192.0.2.0/24, and the IP address and the subnet mask can also be specified together: 192.02.73/24.

Default Gateway

Each computer and each controller using TCP/IP communication must know the IP address to the router that goes out from its subnet. The IP address of this router is usually called the *default gateway*. All traffic that shall be sent out of your own subnet is sent to the default gateway.

DNS name

The computer or the controller must know the address of the equipment it is going to communicate with. This can be given as an IP address or a *DNS name*. DNS is a name service which can translate hierarchical names like **exomaincomputer.regincontrols.com** to an IP address. Several DNS servers are part of the system, but you only have to know the IP address to one of them.

IP configuration, a short summary

A complete IP configuration consists of the IP address of your computer, the subnet mask, the IP address of the closest router (also called the *default gateway*) and a DNS server.

10.3 DHCP, fixed and dynamic addresses

Static and dynamic

The IP settings of a given piece of equipment can be manually configured, making it a so-called *static* IP address. It may also, upon starting up, be assigned an available IP address and additional IP settings from a special computer, a so-called DHCP server, on the subnet. This is referred to as receiving a *dynamic* IP address.

Dynamic IP addresses

The use of dynamic addresses presents a problem when other equipments try to contact the equipment, as the dynamic addresses are unknown in advance and are subject to change. To be able to contact equipment using dynamic addresses, your equipment need to use DNS, which also has to be updated when the dynamic address is changed via DHCP. This is commonly used in corporate networks and for Windows computer. However, most Internet Service Providers and several types of EXO controllers do not support the DNS update via DHCP, and must therefore use a static IP address.

10.4 White and black addresses

Black addresses

There is a shortage of IP addresses on the Internet and organizations are encouraged to use internal IP addresses on internal networks. Different companies may use the same address series, as their internal work computers never really need to connect directly to each other. This kind of addressing is called *private* or *black* addressing.

Reserved addresses

The following addresses are reserved for private nets:

192.168.0.0 - 192.168.255.255

172.16.0.0 - 172.31.255.255

10.0.0.0 - 10.255.255.255

See also: *RFC1918, Address Allocation for Private Internets* [Online document], via <http://www.ietf.org/rfc/rfc1918.txt> (last verified March 04, 2016).

White addresses

Addresses that are unique on the Internet are called public or *white* addresses. More information of the use of IP addresses can be found in the document: *RFC3330, Special-use, IPv4 addresses* [Online document], via <http://www.ietf.org/rfc/rfc3330.txt> (last verified March 04, 2016).

NAT

Firewalls can act as agents for computers with private IP addresses, when they are searching the Internet for information. A connection from a computer with a black IP address is transformed into a connection from the firewall (which has a public IP address) to the Internet server. The Internet server may then return the information to the firewall which forwards it to the computer with the black address. This is called *NAT* or *masquerading*.

EXO

In general, NAT also works with EXOscada and EXO controllers, although the connection must be initiated from within the black network and target the white network.

NAT router

You can also have a NAT router to forward traffic from the white net to a computer on the black net. This is accomplished by letting traffic to a specific TCP port or UDP port to be forwarded to an IP address on the black net.

EXO controllers

There are Internet Service Providers that target, e.g. housing co-operatives, offering only private dynamic addresses. EXO controllers with a TCP/IP port can manage controllers connected this way, provided that the main computer has a static or a DNS registered public address. The EXO system can also manage the reverse condition, and allows a main computer with a private address to contact controllers with public addresses.

10.5 Tunnels

Two private networks

Another way to manage a connection via the Internet from a work computer to a main computer on a company network that uses private IP addresses, is to create a tunnel going into the network. A tunnel means connecting two networks using private IP addresses via the Internet, by encrypting all network packages to the destination network (encryption includes IP addresses and other information). The encryption is done by the firewall of one of the networks. The package is issued a new "address label" specifying the other firewall's public address. This firewall decrypts the contents and forwards it to the destination work station within its network. Any listeners that do not have knowledge of the password will not be able to decrypt the traffic. This technology is also called VPN.

PC – black network

A tunnel can also be created between a single computer and a private network. Nowadays, it is common for travelling salesmen to connect their mobile stations via GPRS and the Internet, and then connect to the company network using a tunnel. The same technology can be used by the duty technician to work with the EXOscada work station from his home, from the service vehicle or similar.

Chapter 11 Corrigo/Exigo with integrated web server

See chapter 10 for explanations of terms used in this chapter.

11.1 Connection

The controller must be connected to a static, white IP address. The following connection methods have been tested for Corrigo/Exigo models with integrated web server:

- Connection directly to an ADSL/cable modem
- Connection to a router, which in turn is connected to an ADSL/cable modem

Corrigo/Exigo with integrated web server has not been tested with all Internet suppliers.

If the Corrigo/Exigo is to be located behind a router with a built-in firewall, the router must be configured. The router should have a fixed white IP address. It must then find the controller, either by sending an IP address to the controller or by entering the Corrigo/Exigo's MAC address. Thereafter, all incoming traffic on Ports 80 and 26486 should be NAT routed to the black IP address of the controller. See the router manual for this.

Ports 80 and 26486 on the internet modem must also be open for incoming traffic.

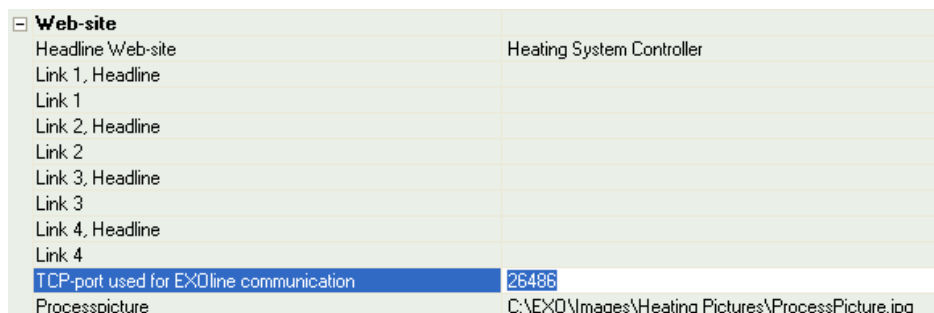
This web server technology is built into the Corrigo/Exigo and is based on the fact that it has an integrated web server. Using NAT-routing, you can also connect more than one web server behind the same white IP address.

A Corrigo/Exigo can handle a maximum of 5 connections from E tool[®], EXOscada and web browser at a time.

11.2 Two or more Corrigo/Exigo behind the same router

Two or more Corrigo/Exigo with integrated web server can be connected behind the same router, if the communication routes are defined to the router. As mentioned previously, this is known as *Port Forwarding* or *NAT routing*. Using this method, the router will know to which black IP address (LAN) it should connect communication via the different WAN ports.

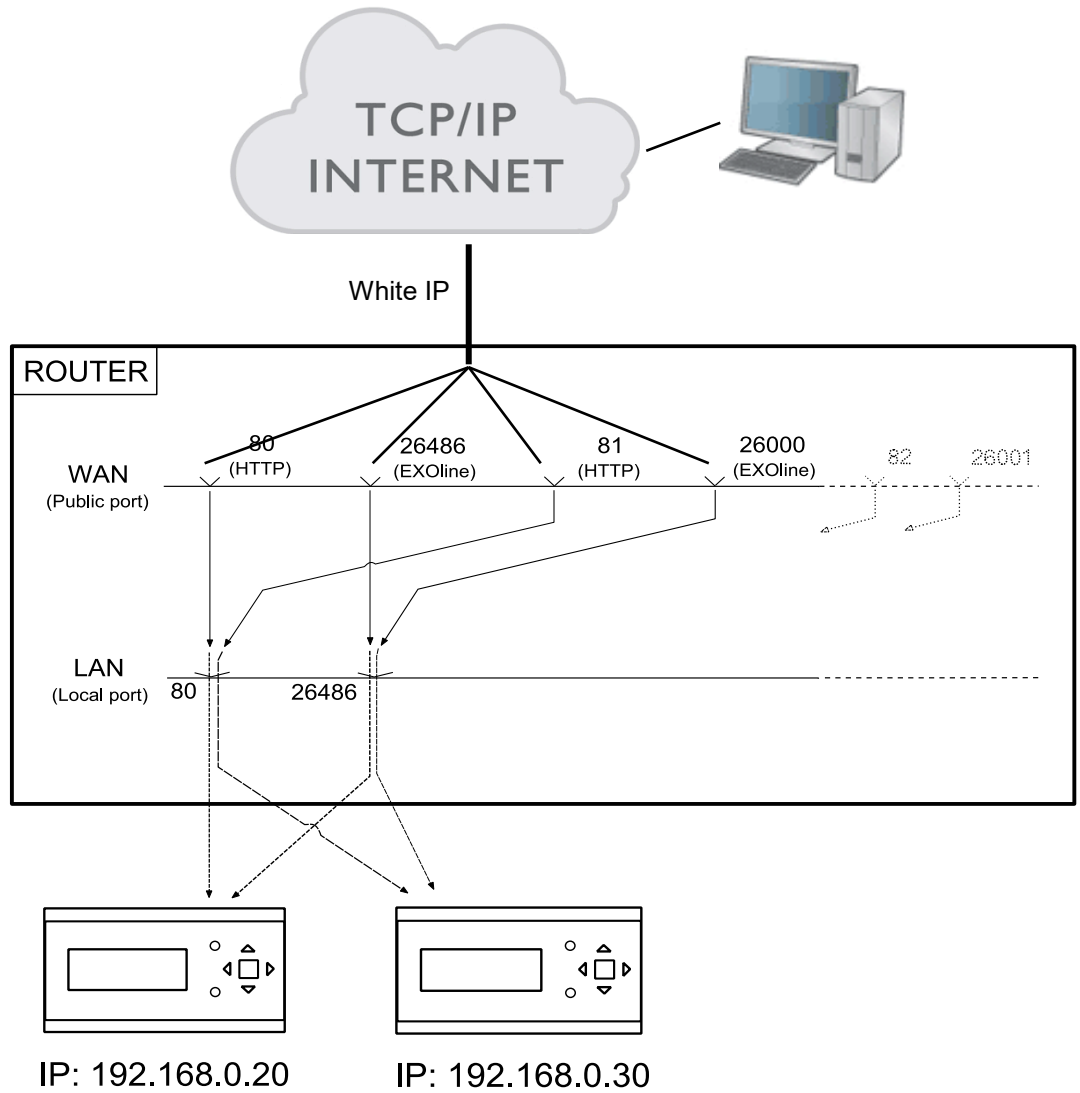
For the second Corrigo/Exigo, the communication port must be set to EXOline. This setting is made in **Configuration/System/Website**. For example, you can set the port to 26000 instead of 26486.



Web-site	
Headline Web-site	Heating System Controller
Link 1, Headline	
Link 1	
Link 2, Headline	
Link 2	
Link 3, Headline	
Link 3	
Link 4, Headline	
Link 4	
TCP-port used for EXOline communication	26486
Processpicture	C:\EXO\Images\Heating Pictures\ProcessPicture.jpg

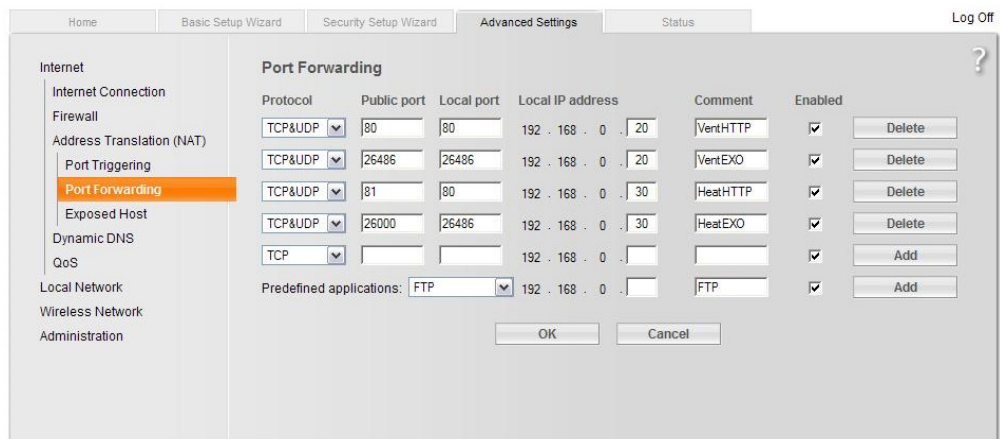
Then go to **Tools/Load website to the controller** to load the unit with the new setting. If using a third Corrigo/Exigo, it can for example be set to communicate EXOline on port 26001.

The example below visualises the communication routes in a router which has been set to NAT routing to two Corrigo/Exigo. The same pattern is followed if the number of Corrigo/Exigo units is three, four, five, and so on.



If you (as in the example) want to access the unit with black IP, 192.168.0.30, in the web browser of the client computer, you must enter the white IP or DNS of the router followed by ":81" in the address field of the web browser. Then the web server in the Corrigo/Exigo will send back information on the layout of the website to the client computer (through the same NAT routing). It will also open a Java application in the client computer which, among other things, controls the EXOnline communication.

The router settings in the example may differ depending on the manufacturer. See the example below for guidance.



11.3 Web server configuration

As before, all configuration of the controller parameters takes place via E tool[®] or directly in the display. No configuration can be done via the web server. For configuration of the controller, see the previous chapters in this manual or the manuals for Corrigo/Exigo heating and Corrigo ventilation respectively.

If the configuration of the controller's parameters is changed, the website is automatically downloaded to the web server. You only need to refresh the website if the settings for the website are changed.

Configuration of the TCP/IP port

To configure the TCP/IP port in the Corrigo/Exigo, go to **Tools/Communication settings**. Choose **Use a TCP/IP port in this controller**. Select the right cable when asked. Then press **Search** to find the correct Corrigo/Exigo.

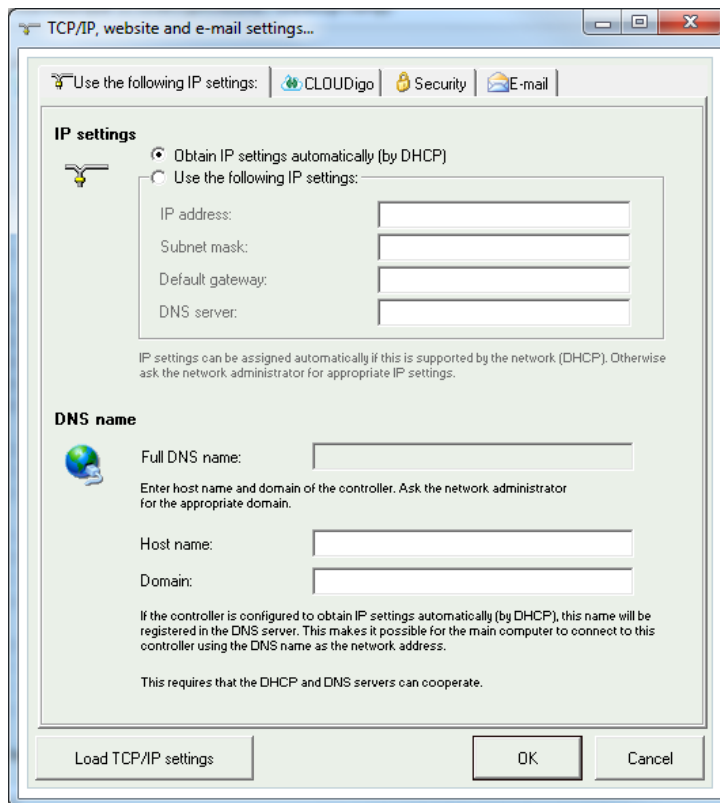
After the program has found the correct Corrigo/Exigo, select it and click "OK".

Then click the button **TCP/IP, website and e-mail settings**.

The tabs in the resulting dialogue box permits the following settings to be made:

IP settings

From here you choose if the Corrigo/Exigo should have a static IP address or whether the DHCP server should give it a dynamic IP address.



If the TCP/IP port uses fixed IP and you have given the e-mail server's network name, you must also enter a DNS server under **Use the following IP settings**. The TCP/IP port can then translate the network name into an IP address. If DHCP is used, this will take place automatically.

DNS name

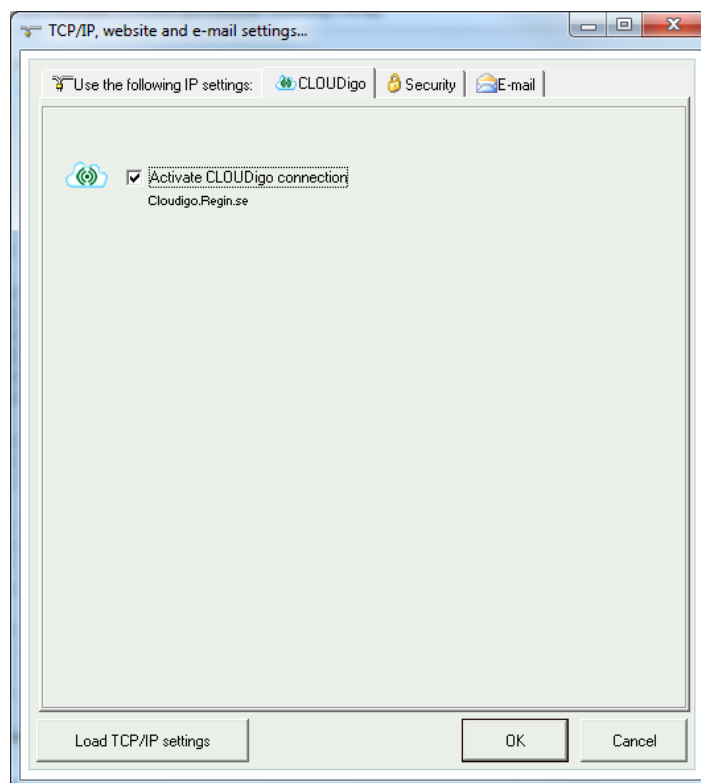
The Corrigo/Exigo can be connected to a DNS name, for example:

DNS name: Corrigo/Exigoweb, Domain: regincontrols.com.

The controller's IP address will then be connected to the DNS name **Corrigo/Exigoweb.regincontrols.com**.

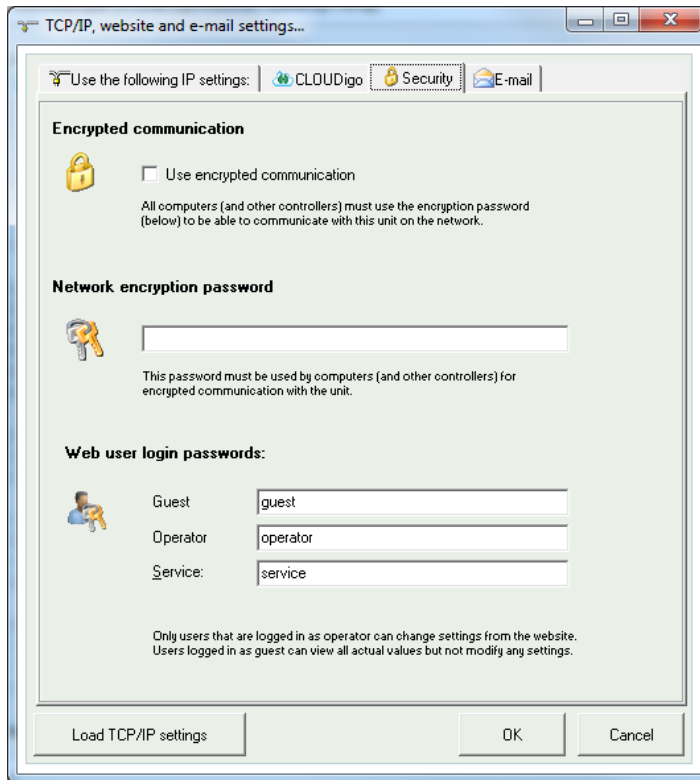
Main computer network address

To connect the Corrigo/Exigo to CLOUDigo (see chapter 13), enter the DNS name "connect2cloudigo.regin.se" into the address field. In program version 3.4 or later, simply tick the checkbox to activate the connection to CLOUDigo. For more information, see the section about CLOUDigo.



Encrypted communication

The encryption is used to prevent other users in the TCP/IP network from connecting to the Corrigo/Exigo via E tool[®].

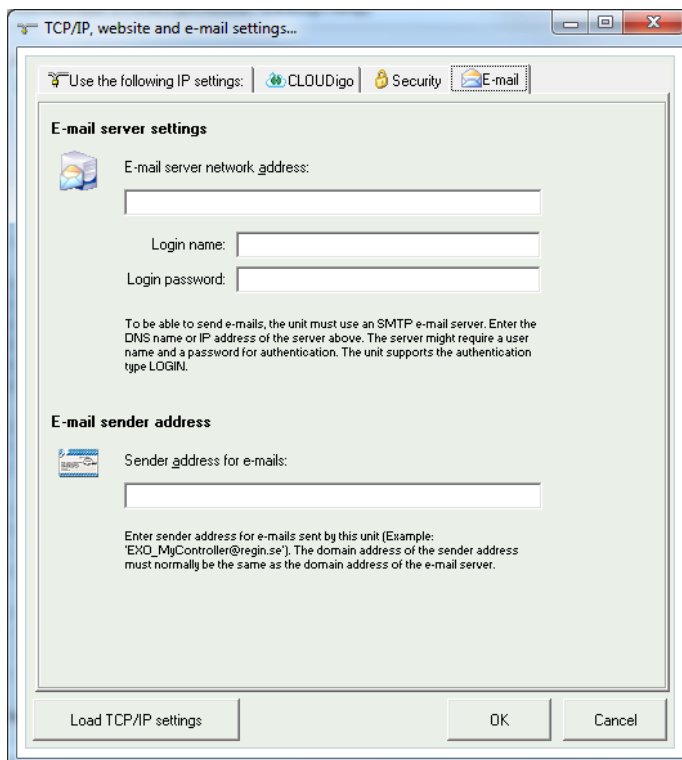


The password is only used when you want to reach the Corrigo/Exigo via E tool[®]. If you lose the password, the controller must be cleansed and reloaded.

Web user login passwords

The passwords to log on to the website. **Guests** have permission to view all values. **Operators** are authorised to view and change all setpoints and values. **Service** has the highest access level and can change all contents of the website.

E-mail server settings



Network address to the E-mail server

Here you give the outgoing SMTP e-mail server, via which the TCP/IP port should send e-mails, either as a network name (DNS name, e.g. smtp.exampledomain.se) or as an IP address. Within local area networks, you usually give an IP address. If you are connected to the Internet, network names are more common. Your network technician or Internet supplier can tell you which e-mail server you should give. Note: If you give a network name, this must be connected directly to the e-mail server. It cannot be an alias for another network name. To test if you have a directly connected network name, you can use the Windows command line interpreter (**Start menu → All programs → Accessories → Command Prompt**) to run the **Ping** command on the network name (for example Ping smtp.exampledomain.se) and see if the command reports "Pinging smtp.exampledomain.se".

Login name and Login password

These two fields are only used if the outgoing e-mail server requires logging on and supports the AUTH LOGIN method. Otherwise, leave them empty. Other log on methods or coding are currently not supported.

E-mail sender address

Here, you write the sender address that should be given in the e-mail. Certain e-mail servers and junk mail filters require that a real e-mail address is used here. Otherwise, you can give a fictitious sender address, e.g. **MyController@MyDomain.se**. Ask your network technician for advice if you are unsure.

Load TCP/IP settings

After the above settings have been made, you download the settings to the Corrigo/Exigo by clicking this button.

11.4 Settings for the website

Under the **Configuration** tab and the headlines **System/Website** as well as **E-mail**, the following settings can be made for the website:

Headline website

Here you can write a headline which should be shown on the first page when you surf to the Corrigo/Exigo website.

Link, headline

Up to four different links to small pdf files or other Internet sites can be added to the website. *Note: The total size of the pdf files and the process picture must not exceed 150 kB.* Under *Link 1, headline* you write the heading for link 1, under *Link 2, headline* you write the heading for link 2 and so on. The heading must not contain any space. Instead of, for example, "AB Regin", you must write "AB_Regin". This is the default setting for headline 4.

Link

Link 1 is used to enter the address to the pdf file or Internet site.

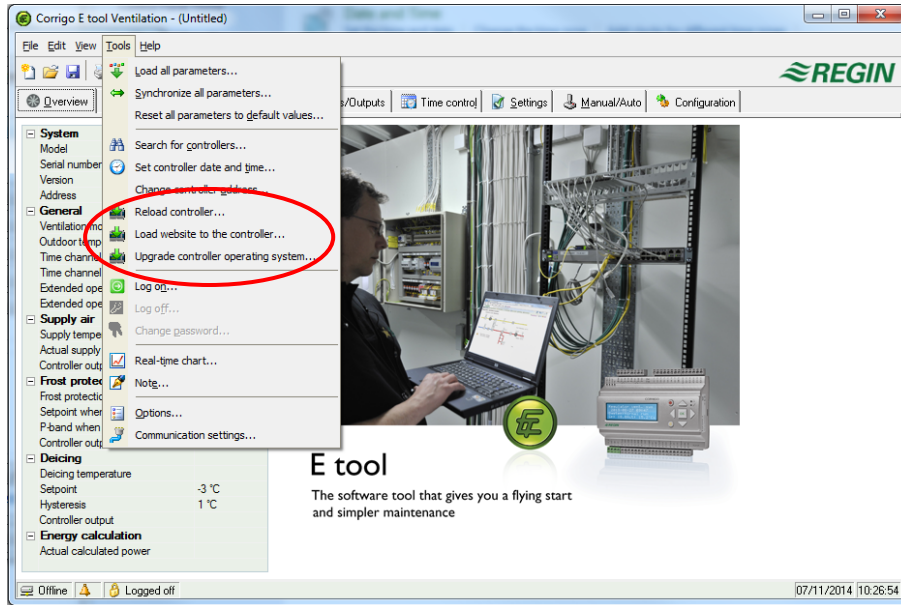
Process picture

The picture that is chosen here will be shown in the **Overview** folder on the web. The picture should be in jpg format or similar because of the lack of storage space.

E-mail

Here, you give the e-mail address to which an alarm should be sent, as well as the title and subject of the message.

After making the above settings and downloading the settings, the only thing that remains is to download all the settings to the web server in the Corrigo/Exigo. This is performed by selecting **Tools → Load website to the controller**.



11.5 Log on to the website

The illustration below displays how the login page for the Corrigo/Exigo appears when it is published on the web.



The box **Password** is used to log on using the password you have entered under **TCP/IP, website and e-mail settings**. Factory set passwords are:

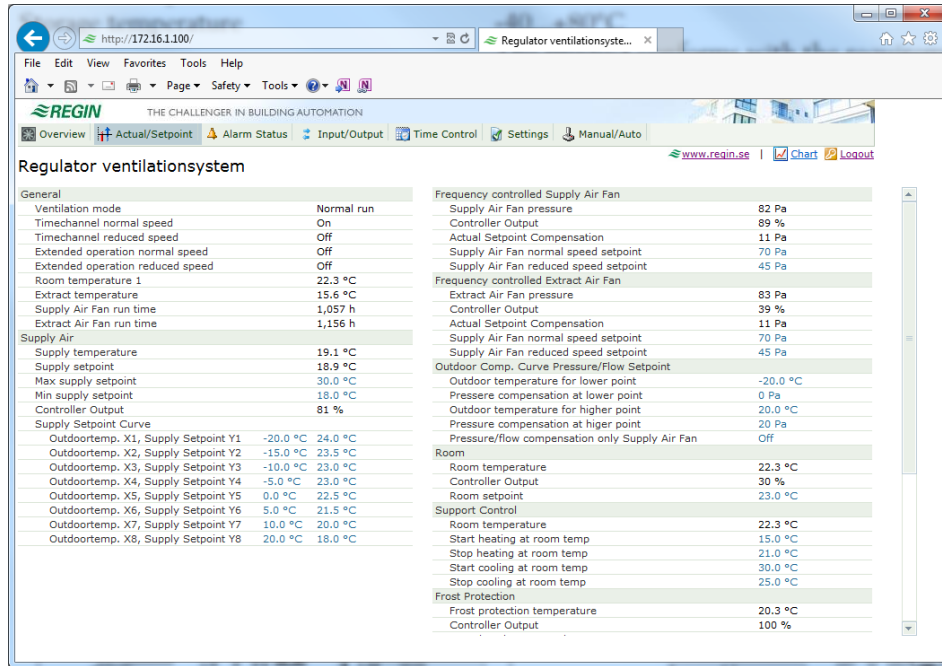
Guest: guest

Operator: operator

Service: service

...where service constitutes the highest level.

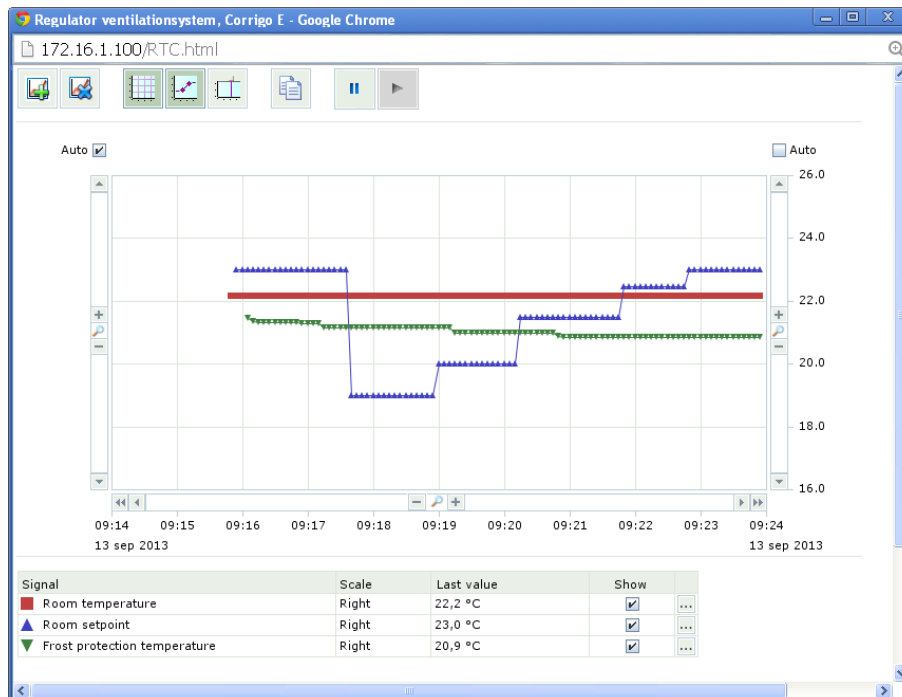
11.6 Change values on the website



All values written in blue can be changed. As soon as a value has been changed and **Enter** has been depressed, the value is downloaded to the Corrigo/Exigo.

Real-time charts in the Corrigo/Exigo website

Real-time charts can be handled in the website. The operator may use the **Copy to clipboard** command in order to copy the values currently displayed in the diagram (as tab-separated text, TSV). This text may then be pasted into, for instance, Excel.



When the **Copy to clipboard** command is executed, a dialogue window is opened in which the resolution for the values about to be copied can be selected. The following alternatives are available: 1 hour, 15 minutes, 1 minute and 5 seconds. The most suitable alternative is pre-chosen in consideration to the current interval in the diagram.

When copying takes place, a title row is first created, followed by a row for every period (using the selected resolution) for the time range and signals currently displayed in the diagram.

- The title row consists of a date, followed by the titles of the various signals with units (within parenthesis).
- The additional rows consist of a time, followed by values for the various signals (with the configured amount of decimals but with no units).

Date, times and decimal points are written in a national format, in accordance with the settings of the computer running the web browser.

For time periods for which values are missing (or are not applicable), the value will be empty strings.

Example:

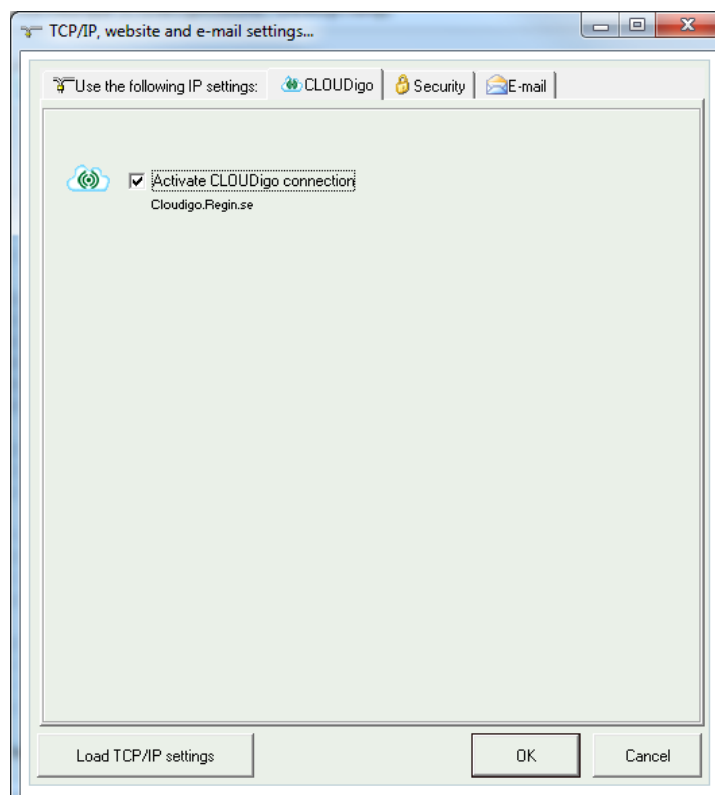
26 mar 2015	Room temperature (°C)	Room setpoint (°C)	Supply air fan pressure (Pa)	Extract air fan pressure (Pa)
10:28:00				
10:29:00	23.1	23.0	87	86
10:30:00	23.1	23.0	85	87
10:31:00	23.1	23.0	87	85
10:32:00	23.1	23.0	85	86
10:33:00	23.0	23.0	87	86
10:34:00	23.1	23.0	88	86
10:35:00	23.1	23.0	89	86
10:36:00	23.0	23.0	86	85

Chapter 12 CLOUDigo – a cloud service



It is possible to connect a Corrigo/Exigo with integrated web server to CLOUDigo, a cloud-based service that makes it easy to supervise a controller via the Internet.

To connect the controller to CLOUDigo, enter into **Communication settings**→**TCP/IP, website and e-mail settings** and check the box “Activate connection to CLOUDigo”. Next, click on “Load TCP/IP settings”. The relevant address for connecting will now be loaded into the Corrigo/Exigo.



Once this step has been completed, the controller will by itself locate the CLOUDigo server in which all settings are stored. The user then navigates to the same server and controls the air handling system from there.

For additional handling information, see the document “CLOUDigo user guide”, available for download from Regin's website: www.regincontrols.com.