KIMO®

INSTRUMENTS

AKiVISiON CFR

Logiciel d'acquisition A
Acquisition software

www.kimo.fr

....Summary

I – Minimum system requirements

I 1 - Minimum configuration required
* Windows 2000, XP and Vista
* Communication Port USB and RS 232
* CD drive
* Internet Explorer 6.0
* RAM 256 Mo
* Free disk space 1Go

I 2 - Software Un-installation
Using « Start », « Parameters », « Configuration panel », « Add/Delete programme », select « AKIVISION A » and follow Windows instructions to uninstall the application.

I 3 – Application launching
The AKIVISION-A application can be launched by :
• Using the appropriate « ▨ » icon created on your desktop.

or

• Using « Start », « Programmes », « KIMO Instruments » and then click on "AKIVISION-A".

II – Software installation

1. Software installation.
DO NOT PLUG SECURITY KEY
Insert CD into CD-ROM drive. The installation auto runs. If not, use your browser to launch the « SetupAKIVISION.exe » file from the installation CD.

2. Security key installation.
TO PLUG SECURITY KEY,
The installation auto runs. Follows recommendations, click on 'Next' and then on "Finish"'.

SECURITY KEY
• Plug the security key **once the software installation is done**.
• In use, the software is checking for the key every 5 minutes, if the key is not connected, the application is aborted.

III – Software presentation

III 1 – Home page
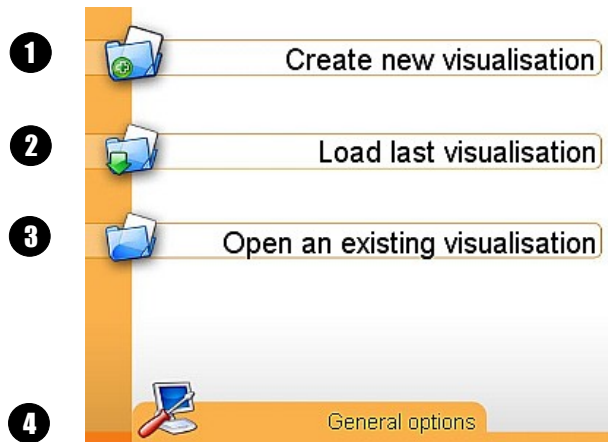
III1-1- Create new visualisation ❶

Click on " " icon to create a new visualisation and follow recommendations further explained in "Create new visualisation" chapter see p14.

III1-2- Load last visualisation ❷

Click on " " icon, and then click on "yes" to validate or click on "No" to cancel.
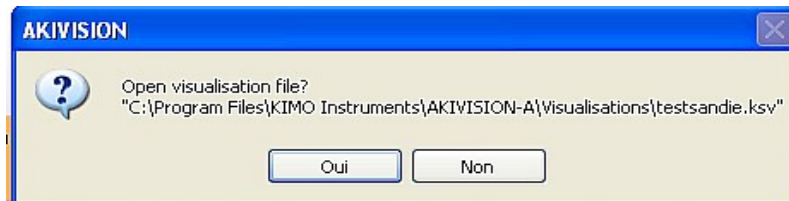
III1-3- Open an existing visualisation ❸

Click on " " icon to open the existing visualisation. A new window appears, select the required visualisation

and then click on "**Open**". Click on "**Cancel**" to return to home page.

III1-4- General options ❹

Click on " " icon to access general options.

The following icons give access to :

COM port	**Alarms**	**Files**	**Security**	**E-mail**
Communication port	**Messages and alarm sounds**	**Data files : path by default**	**User management and automatic restart**	**Sending an email alarm**
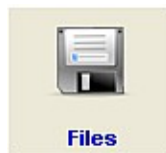
III-1-4-a Communication port

Select the port used to download data from instrument to PC.

Communication port

Default communication port

Default COM port :   1
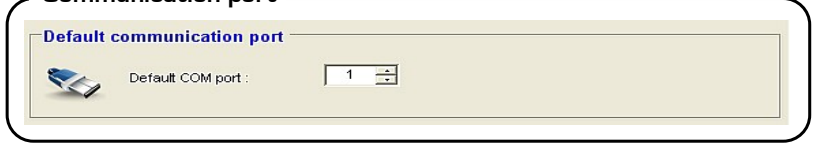
III-1-4-b Messages and alarm sounds

• Enable / disable an alarm message (See "Alarm acknowledgement" p37)
• Enable/disable a sound on alarm condition. It is also possible to select the buzzer type.

Messages and alarm sounds

Messages and alarm sounds

☑ Display a message when alarms are not acknowledged

☐ Play sound on alarm condition   Basic system sound ▶
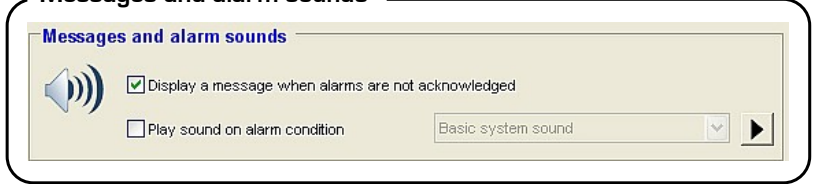
III-1-4-c Data files

• Select files destination for data backup (See "File destination" p40) by clicking on "**Browse**".
• Allows to activate the multistation configuration : tick the box **"Using multistation configuration : Database updated in real time"** then choose a location for the database by clicking on **"Browse"**.

A database file will be created in the specified folder and will be regularly updated all along the acquisition.

Data files

Data files : default paths

Select directory for creation files :

C:\KIMO AKIVISION\DATA   Browse ...

Select directory for copy files :   Browse ...

Multistation configuration

☑ Using multistation configuration : Database updated in real time

Location of the multistation database :   Browse ...
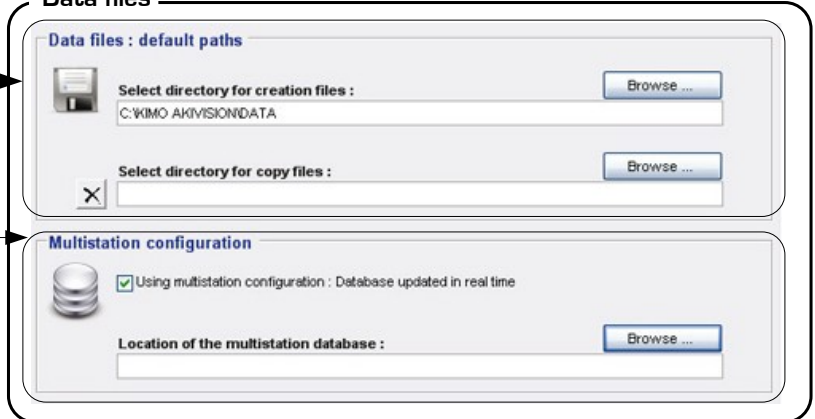
⚠ **Database location shall be a file available for all computers needing an access to the the monitoring.**

III-1-4-d Security

"Security" tab allows to access user management and automatic restart.

- Automatic restart
• Tick the box to restart automatically the the application and acquisition after a reboot.

User management and automatic restart

User management

Open user and group management window

Automatic restart

☑ Restart automatically application and acquisition after reboot
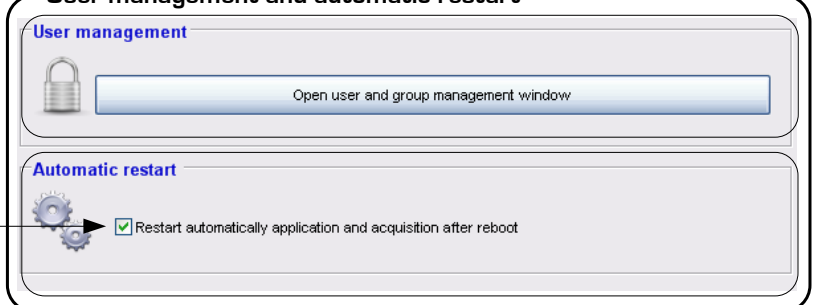
- Users management

⚠️ **Required rights are compulsory to have access to administration of groups and users.**

⚠️ **When installing, two accounts are automatically created : one user account with "user" as username and password and one administrator account with "admin" as username and password.**

The users management window has 3 tabs : **General tab**, **Users tab** and **Groups tab**.

• **General tab :** this tab allows to activate and deactivate user management and specify the location of user database (default location is : C:\Documents and setting\All users\Documents\KIMO\ AKIVISION\akivision.accdb). To modify this location, just click on "Browse".
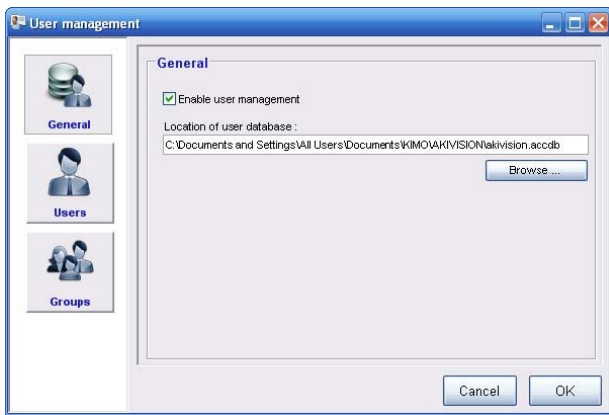
• **User tab :** this tab allows to add, modify or delete any users accounts of Akivision software.
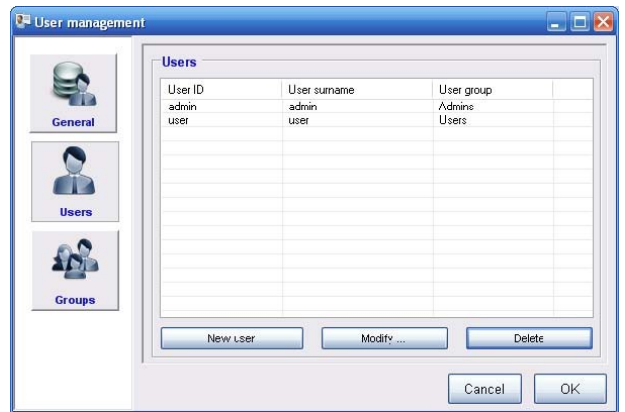
When creating user account, the following window appears :

To create an account, fill in all fields, in particular "Username" and "Password" fields. Both will allow user connection.

⚠️ **Connection is impossible if user does not belong to any group.**

Account creation

When changing user account, the following window appears :

The changing user account window is the same as creating one, unless for password administration. It is possible to change password (old password will be asked for checking) or reset it.
In case of password reset, password and username will be identical. So, a password changing is recommended to ensure account security.

Account modification

• **Group tab :** this tab allows to add, modify or delete users groups of Akivision software.
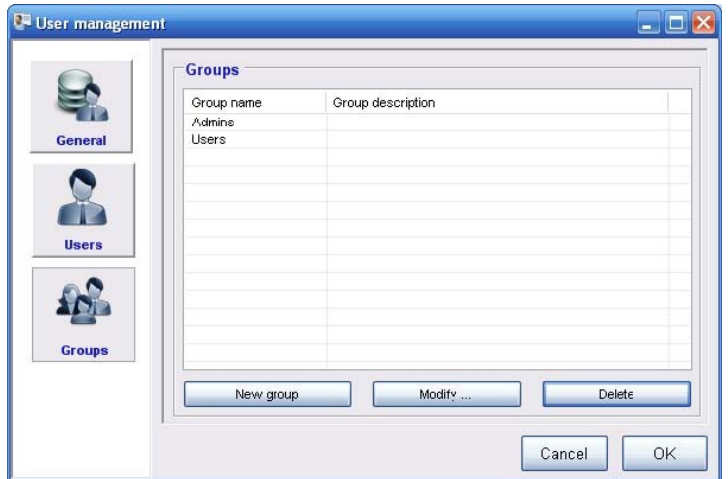
When creating a new user group, the following window appears :

To create a group, fill in all fields and define all the permissions which will be dedicated to users belonging to this new group.
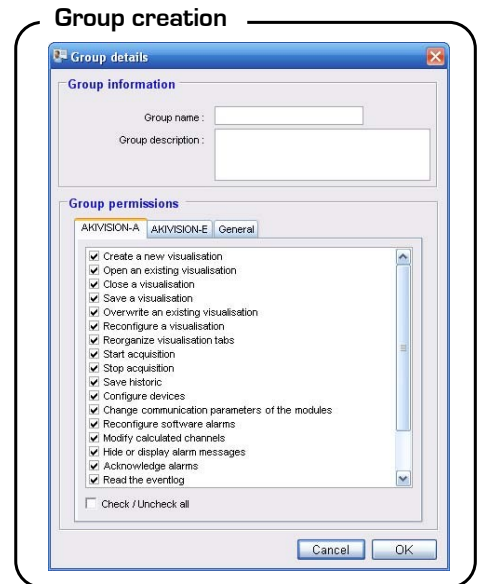
Group creation

Here is the permission list that could be dedicated to a group :
• General tab :
➢ Manage users
➢ Change password
➢ View log
➢ Sign recordings

• AKIVISION-A tab :
➢ Create a new visualization
➢ Open an existing visualization
➢ Close a visualization
➢ Save a visualization
➢ Overwrite an existing visualization
➢ Reconfigure a visualization
➢ Reorganize visualization tabs
➢ Start acquisition
➢ Stop acquisition
➢ Save data history
➢ Configure devices
➢ Change communication parameters of the modules
➢ Reconfigure software alarms
➢ Modify calculated channels
➢ Hide or display alarm messages
➢ Acknowledge alarms
➢ Read the eventlog
➢ Modify general options
➢ Modify graph options
➢ Modify default graphic options
➢ Modify synoptic in creation mode

• AKIVISION-E tab
➢ Create a new visualization
➢ Open an existing visualisation
➢ Save a visualisation
➢ Overwrite an existing visualization
➢ Export data
➢ Print
➢ Change logo for printings
➢ Add a calculated channel
➢ Modify a calculated channel
➢ Delete a calculated channel
➢ Add comments
➢ Modify comments
➢ Delete comments
➢ Modify graph options
➢ Show the eventlog
➢ Show configuration summary

To modify a group, window is the same as group creation : it is possible to modify name, description and permissions.

⚠️ **Administrator group can not be modified or deleted.**

User menu

• **User login :** If user management is activated, most of software functions require a permission. User has to be connected.

Then, user enters his username and password.

Connexion

A user who has not necessary permissions for an action will be informed by the following message :

Unauthorized action

NOTE   User menu also allows to log out and change password.

⚠️ **More than 10 minutes of inactivity leads to an automatic user logout.**

User logged in

When user is logged in, his username is shown in the status bar.

User logged in : user
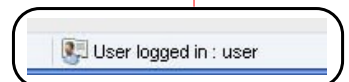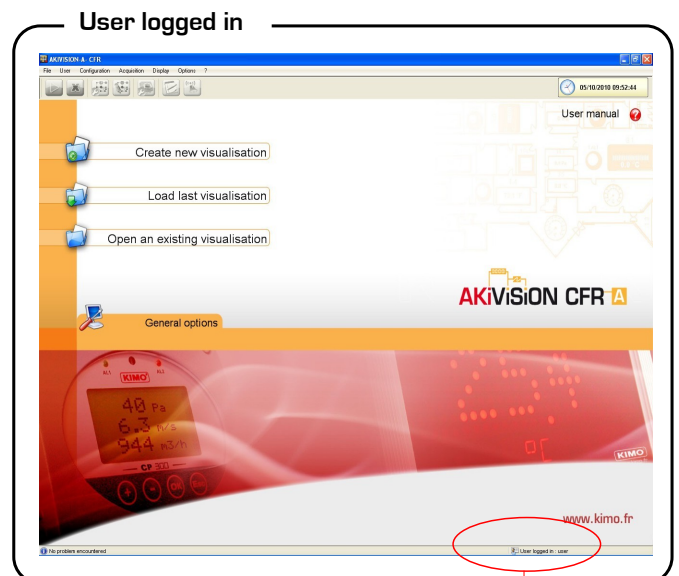
III-1-4-e E-mail

• messaging configuration :
- Sender email address: e-mail address used to send messages.
- Mail server address : Name of the SMTP server used to send messages.
- message subject.
- Message format : raw text or html.
- « Send an email for test » button allows to test the messaging configuration by sending an e-mail to a contact chosen in the list or typed in the displayed dialog box.
- Contacts list : allows to add, modify or delete contacts and distribution list (email groups).

Email service configuration
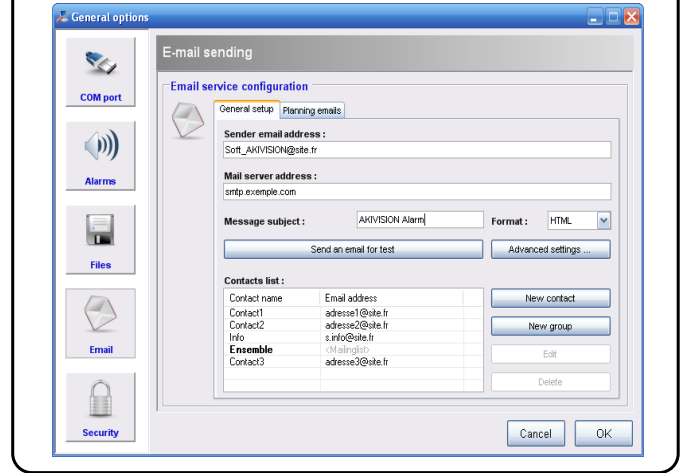
Contact properties
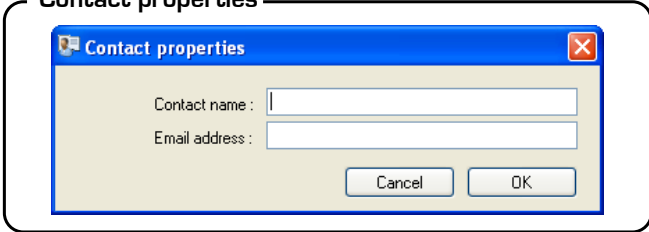
To add or modify a contact : addition or modification of a contact is made through a window which allows to enter a name and an email.

Planning emails

Planning emails : this tab allows to define activation period of sending emails, by 30 minutes time slot.

Mailing list

To add or modify a mailing list : a window allows to choose the name of the group and contacts belonging to the mailing list that you want to modify or create. Only "simple contacts" can be added to the list, existing groups of mailing do not appear. It is possible to add or edit contacts from this window.

Configuring the outgoing server

Configuring the outgoing server : this window allows to configure the outgoing SMTP server.

⚠ **Modifications will not occur on former configurations. Only new configurations will be changed.**

III 2 – Interface

Acquisition state :
- Acquisition in progress or
- Acquisition stopped or
- Creation mode

Clock

Menus

Tool bar

Page title

Acquisition in progress

21/04/2008 09:55:54

Factory plan

List of slaves and alarms .

Synoptic visualisation

Graphic visualisation

Navigation tabs

Real time acquisition visualisation

- Display **elements :** On left side of the window, select element displayed ticking/unticking the related box ✔.

III2-1- Tool bar

The tool bar is composed of icons. Icons allow quick access to functions which are also available from menus.

Icon	Function
▶	Start acquisition
✖	Stop acquisition
🔧	Acquisition configuration
✏	Creation mode
🔧	Configuration of selected element
✏	Event log
📢	List of non acknowledged alarms

III2-2– Graphic display

III2-2a- General graph tab
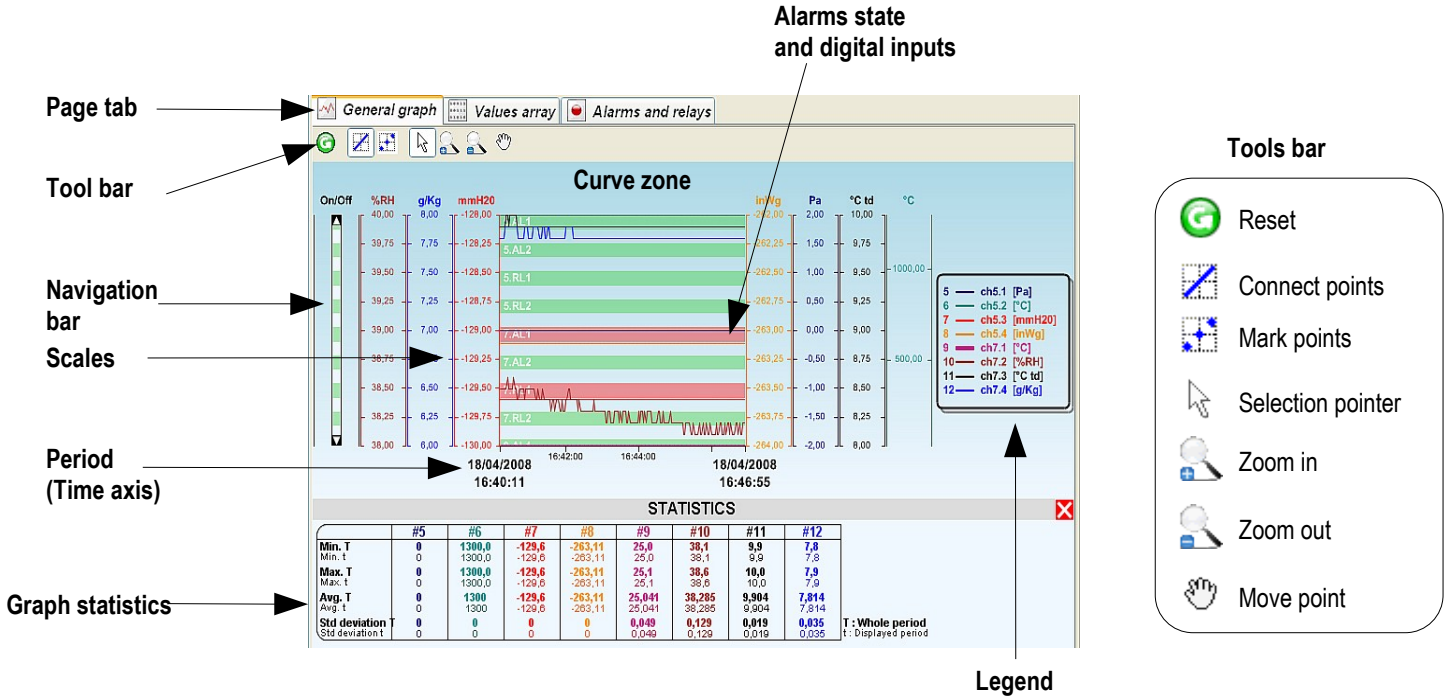
Theoretically, an infinite number of curves can be displayed, only the performances of the PC will limit the number of displayable curves. The left/right scales and the time axis are reactive zones, i.e. dedicated menus/tools boxes will appear using the right-click function of your wheel mouse.

The "**Statistics**" panel with minimum, maximum, average, standard deviation and the measurement value of each channel can be hidden/displayed by clicking on ⊗ or using △ and ▽ keys.

III2-2b- Values arrays
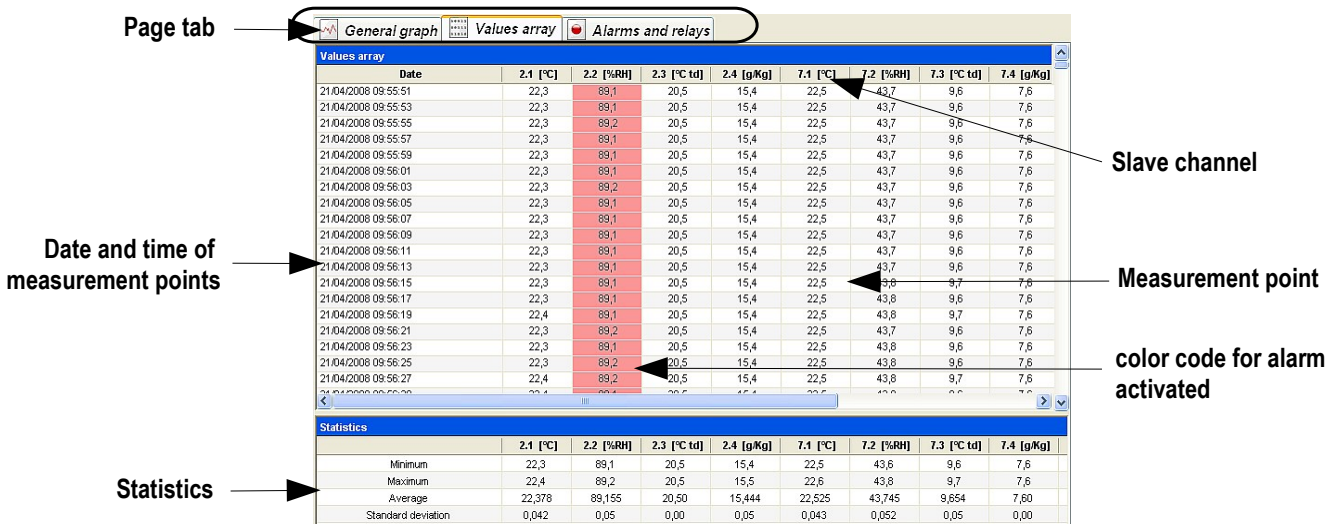
Chart array

The chart array respectively features (in rows) : date, time and value of each channel.
The value above the upper alarm limit are listed in red.

Statistics chart

The statistics chart features (for each channel) :
• Min. value
• Max. value
• Average value
• Standard deviation

III2-2c- Alarms and relays

Date and time of measurement point

State of software alarms   State of slave alarms   State of relays
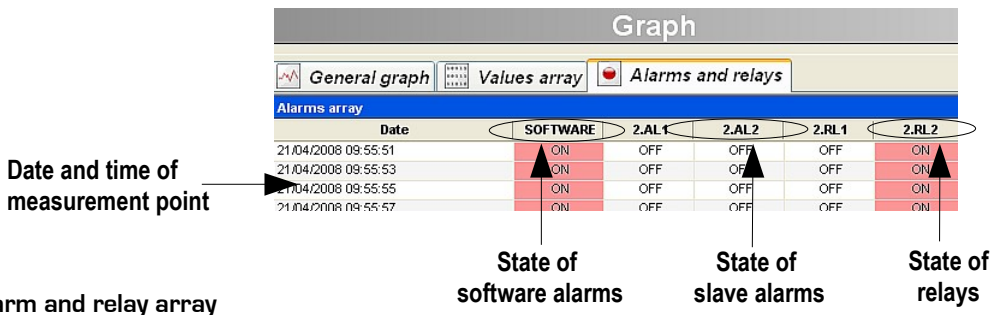
Alarm and relay array

The array respectively features (in rows) the state of :

• Software alarms,
• Slave alarms,
• Digital inputs,
• Relays.

The alarms and relays activated are listed in red

III2-3– Synoptic display

The synoptic visualisation shows slaves and alarms on a tag format.

Slaves displayed

Relay

Background

Alarm

Circular gauge

Customized synoptic visualisation
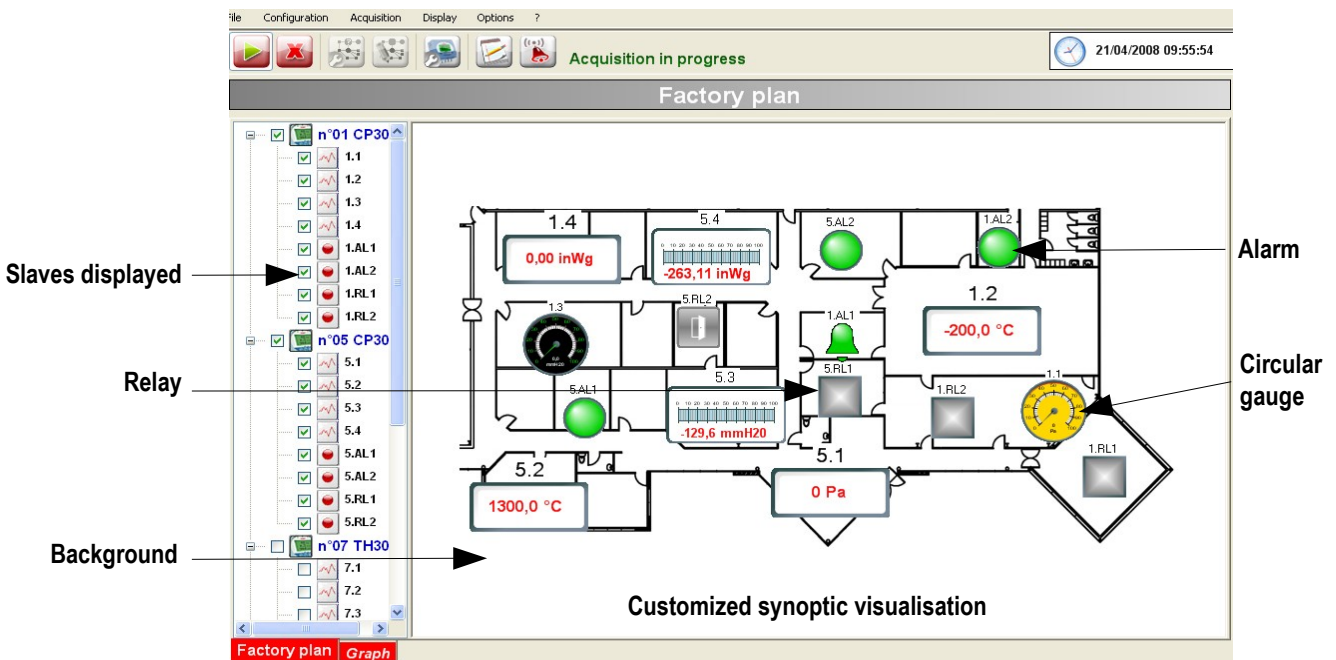
III2-4- Menus

III2-4a- File

• **New visualization** : allows the creation of a new visualisation
• **Open a visualization** : allows opening of a file located on the available disks.
• **Close** : To quit the software. Before quiting, a new window will appear to save the acquisition.
• **Save / Save as** : allows to save modifications done on the current file.
• **Save historic** : allows to save data between two backups**.**
• **Last opened file .**
• **View log :** allows to open the viewing window of events (see page ???)
• **Quit** the software.

III2-4b- User

• **Login** : allows user to log in
• **Logout** : allows user to log out
• **Change password** : allows user to change password

III2-4c- Configuration

• **Creation mode :** See p. 41.
• **Reconfigure element** : allows reconfiguration of slaves and software alarms. See p.17.
• **Change visualization** : allows on a stopped acquisition the reconfiguration of : slaves, software alarms, pages and parameters. See p. 17-41. When you click on "Finish", you must save the new visualization by erasing the previous one or by renaming the new one.
• **Configuration parameters of modules** **:** function only available from the home page. Allows to modify the module communication speed and its slave number. Follow carefully the assistant recommendations for module configuration which occurs in 3 steps :

Fist step : Module initialization
1. Power the module off
2. For MD100 MD160 push the button on INIT. For MD120 MD140 MD180 MR100 plug INIT with GND.
3. Power the module on
4. Click on "**Next**" to validate.

Second step : Slave number and communication speed
This window allows to modify communication parameters :
• Slave number
• Speed of communication
Click on "**next**" to validate.

Third step : Back to normal mode
1. Power the slave off
2. For MD100 MD160 push the button back to normal mode. For MD120 MD140 MR100 modules remove the cable plugged between INIT and GND.
3. Power the slave on
4. Click on "**Finish**".

File menu
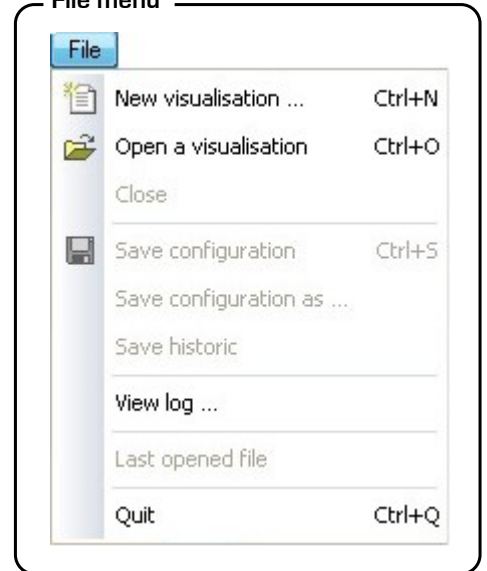
Assistant for module configuration

First step

Second step

Third step

III2-4d- Acquisition

Acquisition menu allows to :
• **Start acquisition.**
• **Stop acquisition.**

Acquisition menu

Acquisition
Start acquisition
Stop acquisition

III2-4e- Display

The visualisation menu allows to show :
• **Tool bar**
• **List of elements**
• **Alarm messages**. Once you chose to acknowledge an alarm, a message will come out each time the alarm is activated or deactivated. See "Alarm acknowledgement" p37.
• **Non acknowledged alarm list**. To quit click on "Close". See "Alarm acknowledgement" p37.
• **Event log**. The event log is a report of all happenings which occurred during data acquisition :

• Date
• Source (slave / software)
• Name
• Category (deleting / acquisition launching, configuration modification etc...)
• Alarms description (alarm, relay etc...)
• Acknowledgement
• Comment
• User logged in (if user administration is activated)

Display menu

Display
☑ Tool bar
☑ List of elements
  Alarm messages
⚠ Non acknowledged alarms
  Event log ...
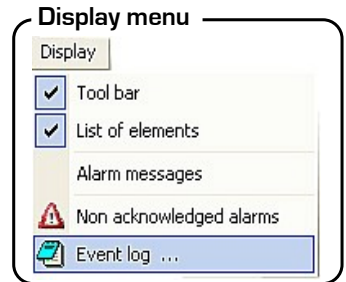
The period allows to show all happenings that occurred during a period of time. You must select "from" and "to" and enter dates and hours of the required period and validate by clicking on "Refresh". Quit by clicking on "Close".

Color code :
• *Blue*, acquisition started, stopped or security key failure and results of email alarm sending
• *Red*, alarm or relay activated
• *Green*, alarm or relay not activated
• *yellow*, elements reconfigured or no answering slave.
• *Orange*, state modification of digital inputs

Event log
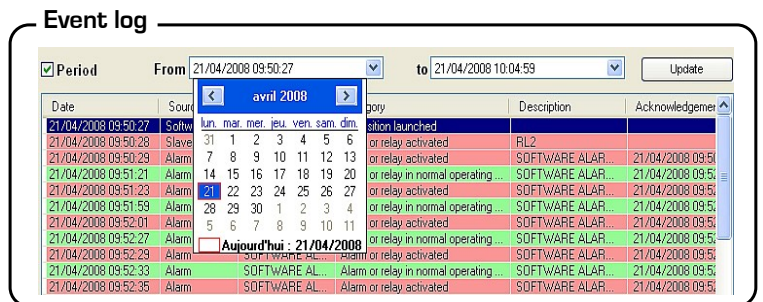
III2-4f- Options

The options menu gives access to :
• **General options**. See page 6.
• **User management.** See page 7.
• **Alarm sound.** Choice of alarm sound (none, information, warning, error, question, default, basic).
• **Graphic visualisation**. You can access to "graphic colors" which allows to select color by default of channel and background.
• **Synoptic visualisation.** The synoptic visualisation allows to access "Option of channels " (See "Channels properties" p 44) and "color of alarms and relays" (See "Alarms and relays appearance" p43).
• **Choice of language.**

Options menu

Options
  Generic options ...
🔊 Alarm sound ▶
📊 Graph mode ▶
  Synoptic mode ▶
  Language ▶

Graphic colors

Background and grid
Background colour :   Grid colour :

Curves colour
Curve colour 1 :   Curve colour 6 :
Curve colour 2 :   Curve colour 7 :
Curve colour 3 :   Curve colour 8 :
Curve colour 4 :   Curve colour 9 :
Curve colour 5 :   Curve colour 10 :

Cancel   OK
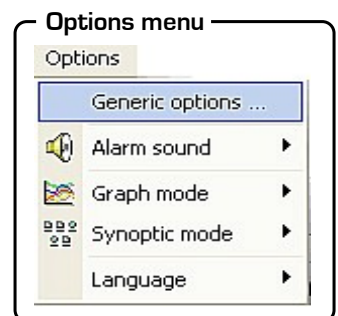
III2-4g- Help

The "Help" menu allows to access to :
• **User manual**. The manual is also available at the end of the installation procedure, from the "Home page" by using F1 button.
• **Software version** ("About" window).
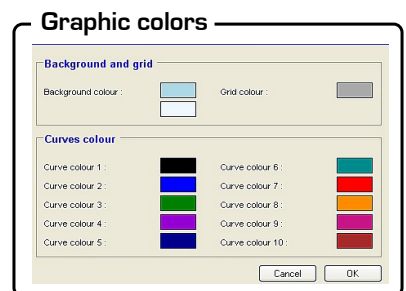
IV – Create new visualisation

From the home page, click on "Create new visualisation" or from the 'file menu' click on "New visualisation". At this point, you enter the **creation mode**.

IV 1 – Search of slaves

- Click on "**Search of slaves**", in order to detect connected slaves.
- And click on "**Next**".
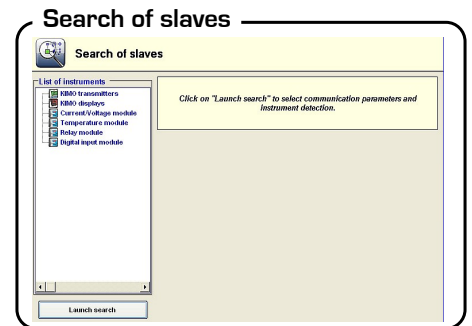
Search of slaves

Search options
The options allow to select :

- Communication port number
- Numbers of slaves that must be found
- Communication speed
- Validate by clicking on "**OK**".

Options
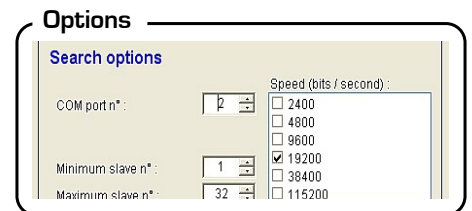
⚠️ • **Communication speed must be the same for all the slaves**
• **If the communication speed is unknown, see module datasheet.**
• **If slaves are configured with different communication speed, for visualisations and sensor please refer to related datasheets in order to reconfigure the instruments. For modules, please refer to configuration menu "Configuration of module parameters" (p.15).**

Detection of instruments
Once the search is completed, a message with the number of slaves found will appear. Click on 'OK' to go to next step.

If none of the slaves are detected, it is recommended to check the communication port and the communication speed (see the following chapter).

Detection of instruments
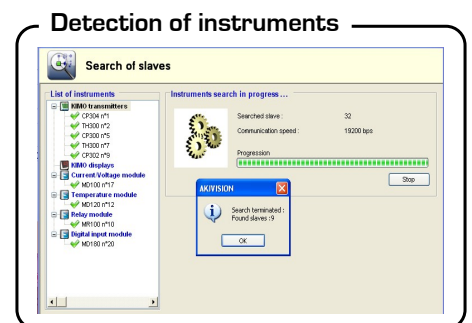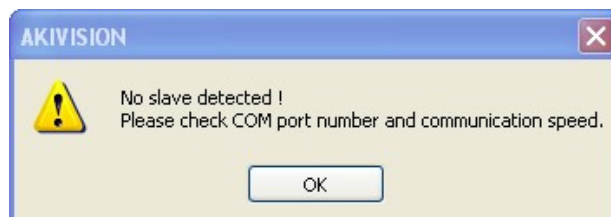
IV 2 – Instrument configuration

Select the slave to be configured and its details will be presented on the main panel (number, type, channels).
Click on "**Configure**" to modify parameters or click on "**Next**" to go to next step.

List of detected slaves

Device configuration
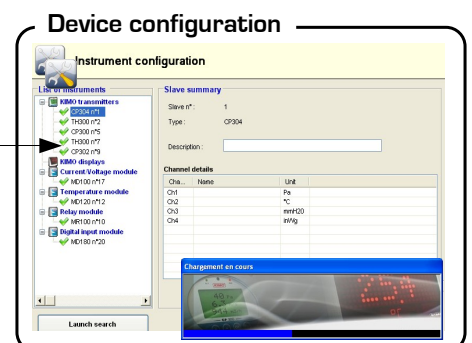
IV2-1- General tab

The tab "General" gives you access to different information regarding the transmitter communication, to its visualisation and keypad :

- Transmitter channel for the infrared remote control .
- RS 232 communication.
- Slave address (Modbus).
- Keyboard locking.
- Backlight.
- Display contrast setting.
- Click on "Write **configuration**" to validate.

General tab

| Generalities | Channels | Input/output | Alarms | Parameters | Air velocity/flow | Purge Mode |

Description: CP302

Software version: 1.8

Serial N°: 05.10.0864

Contrast setting: 2

Backlight: ● ON ○ OFF

SPI serial N°: 05.10.3297

RS-232 communication: ○ Transmission mode ● Reception mode

Keyboard locking: ○ ON ● OFF

Options: Display Modbus Air velocity/flow

Remote control code: 0

Slave N° (Modbus): 9

Baud Rate: 19200 Bps

Close   Write configuration

IV2-1a- Channel of the transmitter for the infrared remote control

You can change the transmitter channel number for the reception of the infrared remote control signal. The advantage is that you can pilot several transmitters with only one remote control, especially when transmitters are side by side.

NOTE The default channel number of the transmitter is 0.

Channel

Remote control code: 0

To change the channel number of the transmitter, use the arrows on the right side of the zone "Remote control code", or directly enter the value.
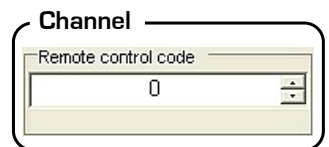
IV2-1b- RS 232 Communication

Transmitters from class 300 have a RS232 output and a RS485 digital output (Modbus network system - optional). Via the RS232, you can receive the data (2 measurement channels maximum) measured by a transmitter from class 200/300 or send the data to another transmitter from Class 300.

⚠️ **If you wish the transmitter to send its data to another transmitter via the RS232, then you will not be able to use the RS485 digital output (Modbus)**

To send data via the RS232, select "Transmission mode" in the field "RS 232 Communication".
To receive data via the RS232, select "Reception mode" in the field "RS 232 Communication".

RS 232

RS-232 communication: ○ Transmission mode ● Reception mode
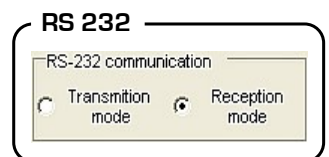
IV2-1c- Slave address :

To modify the transmitter slave address (Modbus network), use the arrows on the right side of the zone "Slave number (Modbus)" or directly enter the number.

Modbus

Slave N° (Modbus): 1
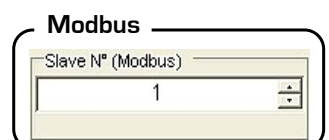
IV2-1d- Keypad locking

For safety reasons, you can lock the keypad. When locked, the keypad will not respond (same as on mobile phone).
To lock the keypad, select "ON" in "Keyboard locking".
To unlock the keypad, select "OFF".

Keypad

Keyboard locking
○ ON   ● OFF

IV2-1e- Backlight :

The back lighting makes the reading easier when the ambient light is too faint.
To activate the back lighting, select "ON" in "Backlight".
To deactivate the back lighting, select "OFF".

Backlight

Backlight
● ON   ○ OFF

IV2-1f- Display contrast setting :

To modify the contrast of the visualisation, use the arrows on the right side of the zone "Contrast setting" or directly enter the value (from 0 to 10).

Contrast setting

Contrast setting
2
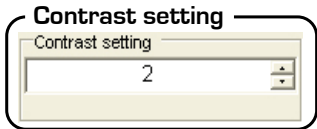
IV2-1g- Input configuration

ATT 300 and ATE 300 visualisations have both 3 analogue inputs (0-10V or 4-20mA), 1 RS 232 digital input, and one RS 485 digital input (MODBUS system). 2 different inputs are available: analogue and digital inputs. The tab "General Info" gives access to the selection of input required.

Input type

Input Mode
○ Numeric   ● Analogic
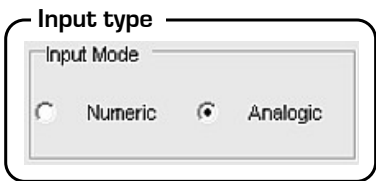
2 configuration types available

☐ 0-10V analogue input   ⬭ RS 485 digital input   ⬜ RS 232 digital input

1- Display of a measuring system values, via

2- Display of a measuring system values via

Analogue inputs and RS 232

If you want to use the analogue inputs, **first of all**, you have to **position the DIP switch** according to the signal input you require (see page 2 of the display user manual).

When connecting a Class 200/300 transmitter via RS 232 cable, **2 solutions of connection** are available:
1> Class 200/300 transmitter sends **2 values = 1 analogue input** 0-10V / 4-20mA available **(Channel 3)**
2> Class 200/300 transmitter sends **1 value = 2 analogue inputs** 0-10 / 4-20mA available **(Channel 3** +Channel 1 or Channel 2 according to the configuration of Class 200/300 transmitter, see user manual of Class 200/300).

Digital input

Example the supervision system gets the data from transmitters 1, 2 and 3, and displays them on the display, via the RS 485 connection.

IV2-2- Units and channels configuration

The tab "Channels" gives access to the measurement channels of the transmitter. Transmitters from class 300 have 4 measurement channels. You can activate 1, 2, 3 or 4 channels and select a measurement unit for each channel.
A channel is activated when a measurement unit is visualizationed.
A channel is deactivated when the visualisation shows "None".
To modify a measurement unit or deactivate a channel, click on the arrow on the right side of the zone corresponding to the involved channel : the list of the pre-set units, including "None", is visualizationed.

To change the name of a channel write inside the zone "Name".
Click on "Write **configuration**" to validate.

Channels

- Units channel 1: Pa
- Units channel 2: mmH2O
- Units channel 3: inWg
- Units channel 4: mbar

Transmitters	Available units

CP300 — Pa - mmH2O - inWg - mbar - °C - °F - m/s - fpm - m³/h - L/s - cfm - m³/s
TH300 — °C - °F - %HR - g/Kg (Absolute Humidity p) - °C (Dew Point Td) - °F (Dew Point Td) - °C (Wet Temperature Tw) - °F (Wet temperature Tw) - KJ/KG (enthalpy i)
TT300 — °C - °F
ATT300/ATE300 m/s - fpm - m³/h - L/s - cfm - m³/s - °C - °F - %HR - PSI - Pa - mmH2O - inWg - KPa - mmHG - mbar - g/Kg - °C (Dew Point Td) - °F (Dew Point Td) - °C (Wet Temperature Tw) - °F (Wet Temperature Tw) - KJ/Kg

NOTE   For CP300 series, the transmitter must have the SQR option in order to activate the velocity and flow units.

• Management of configurable units :

The ATE300 and ATT300 visualisations can have a specific unit : the configurable unit. It allows to add a new unit to the existing list of pre-set units.

• Select one channel.
• Select "Configurable Unit"". On the right of the channel, the outlines of the 4 digits appear (figure 1). Click on the segments required to activate it.
• Repeat the process till the unit you need is created (see figure 2).

Creation of configurable units

Segment — Digit
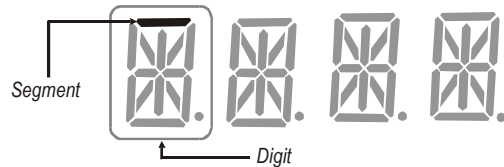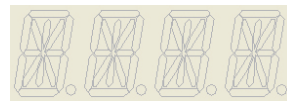
Figure 1   Figure 2
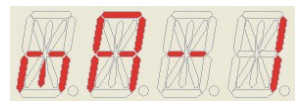
IV2-3- Management of analogue outputs :

IV2-3a- Setting analogue output

This function allows you to modify the measuring range of your transmitter and to link the limits of this new measuring range to the analogue output (0-10V or 4-20mA).
You must enter the measuring range required.

⚠️ **The values depend on the selected measurement unit and not on the transmitter measuring range.**

Example : the minimum and maximum limits on a pressure transmitter type CP303 (0 to ±1000 Pa) with reading in mmH$_2$O must be configured on a measuring range from 0 to ±102 mmH$_2$O. See conversion chart for measurements units (page 18).

Analog output tab
Input/output | Alarms | Parameters | Air velocity/flow

- Minimum output value of channel 1: -1000 Pa
- Maximum output channel 1: 1000 Pa
- Minimum output value of channel 2: -100,0 mmH2O
- Maximum output channel 2: 100,0 mmH2O
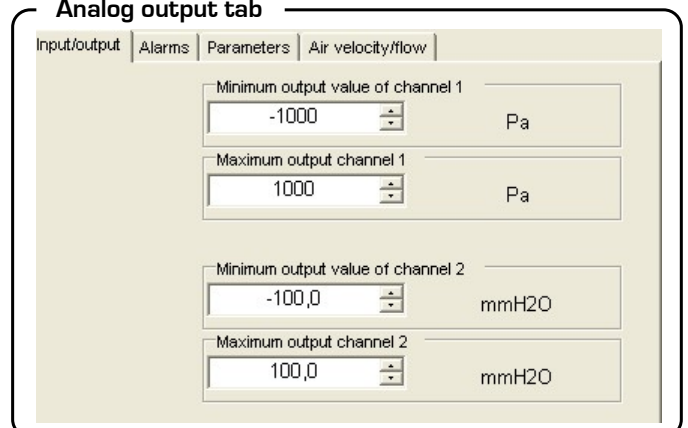
To modify the minimum and maximum value of the transmitter analogue output(s), please use the arrows located on the right side of zone "Minimum output value..." and zone "Maximum output channel...', or directly enter the new values.

⚠️ *Our recommendation : delta between minimum and maximum > 5% of the measuring range.*

📝 **In case the measurement unit was modified while configurating the analogue outputs, then the outputs will have to be configured again with the new measurement unit.**

IV2-3b- Activating / deactivating the analogue inputs

You may activate or deactivate the analogue inputs of the ATE300 and ATT300 visualisations in order to show 1, 2 or 3 channels.
To activate an analogue input, choose the channel you need and select "ON" in the zone shown beside.
To deactivate the analogue input, select "OFF".

You may also modify the position of the decimal point : click on the right side of the zone "Set decimal point position" to visualisation the list of the pre-set options (see beside).

analogue inputs
Select channel 1
● ON   ○ OFF
Set decimal point position
0.00

Point position
Set decimal point position
0.0
0
0.0
0.00
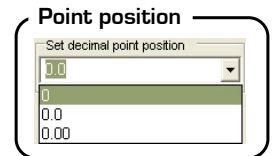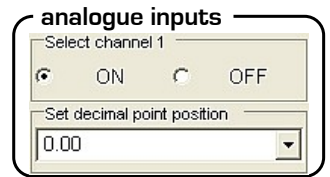
IV2-3c- Conversion chart

Pressure

	Pa	mmH2O	inWg	mbar	mmHg
CP 301	0 to ±100	0 to ±10.2	0 to ±0.401	0 to ±1.00	-
CP 302	0 to ±500	0 to ±51.0	0 to ±2.005	0 to ±5.00	-
CP 303	0 to ±1000	0 to ±102.0	0 to ±4.015	0 to ±10.00	-
CP 304	0 to ±10000	0 to ±1020.0	0 to ±40.15	0 to ±100.00	0 to ±75.00

Temperature

	°C	°F
TH 300 – St. Steel probe	-40.0 to +180.0	-40.0 to +356.0
TH 300 – PC probe	-20.0 to +80.0	-4.0 to +176.0
TT 300 – St. Steel probe	-40.0 to +180.0	-40.0 to +356.0
TT 300 – PC probe	-20.0 to +80.0	-4.0 to +176.0

IV2-4- Setting of slave / relay alarms :

The tab "Alarms" gives access to all the information relative to the configuration of the slave/relay alarms :

- Activate / deactivate the buzzer.
- Security level of alarms.
- Tags for alarms / relays and LED color control.
- Select the channel for visual alarms and relays.
- Explanations of alarms mode available.
- Set the set points and time-delay.
- Use and configuration of email alarm message

Alarms

Generalities | Channels | Input/output | Alarms | Parameters | Air velocity/flow | Purge Mode

Buzzer
○ ON ● OFF

Security level of alarms
○ Positive ● Negative

Relay 1 | Relay 2 | LED 1 | LED 2

Select channel
1   Pa

Alarm selection
Rising edge mode and delay

Setpoint 1 of the alarm
100   Pa

Delay
0   Sec.

Setpoint 2 of the alarm
0   Pa

Email alarm
☐ Email alarm message ?

Acknowledge
○ Yes ● No
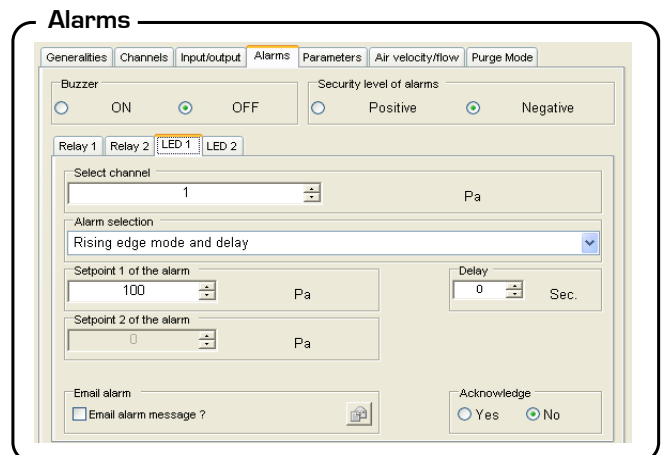
IV2-4a- Activating / deactivating the buzzer :

In case of alarm, a beep is activated.
For more information on the setting of the set points, see page 23.
To activate the beep, select "ON" in the "Buzzer" zone.
To deactivate the beep, select "OFF".

Buzzer

Buzzer
○ ON   ● OFF

IV2-4b- Security level of alarm :

The relay outputs are pre-set on negative security level : the relay is excited in case of alarm . Via the software, you can configure the relays on positive security level : then the relay is deexcited in case of alarm or power cut.

Security level of alarms

Security level of alarms
○ Positive   ● Negative

To select the negative alarm condition, click on "Negative" in "Security level of alarms" zone.
To select the positive alarm condition, click on "Positive".

IV2-4c- Tags for alarms/relays and LED color control :

Visual and audible alarms :

Transmitters from class 300 (except the visualisations) have 2 visual /audible alarms located on the front of the transmitter. In case of alarm, they give an immediate visual and audible signal.

LED color control for alarms

Green	The alarm is activated, but there is no alarm condition.
Red	The alarm is activated and the transmitter is in alarm condition.
None	The alarm is not activated.

NOTE   When the LED turns red, it means that not only the setpoints but also the time-delay and the edge were taken into account. See page 20-21 for more information.

Beep

Once the alarm is activated, the beep remains on as long as the condition is respected.

NOTE   The buzzer must be activated to get the beep.

Relays :

Transmitters from class 300 (except the visualisations) have 2 visible relays on their electronic card . Each one of these 2 relays have a LED for an immediate visualisation in case of test.

Relay n°1 ← → Relay n°2

LED of relay n°1 ← → LED of relay n°2
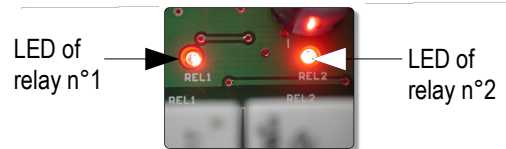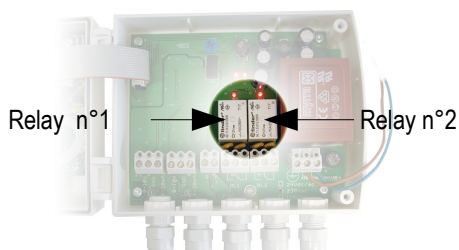
LED color control for relays

Red	The relay is activated
None	The relay is not activated or was not configured

When the light turns red, it means that not only the setting of the set points but also the setting of the time-delay, of the edge and most particularly of the level of alarm security were taken into account.
Set points, time-delay and edge : see page 25
Secure the alarms : see page 22

IV-2-4d- Selecting the channel for visual alarms and relays :

Transmitters from class 300 (except visualisations) have 4 alarms :
- 2 visual and audible alarms (LED 1 and LED 2)
- 2 relay alarms (Relay 1 and Relay 2).

BEEP alarm

Relay 1 | Relay 2 | LED 1 | LED 2

Select channel

1   Pa
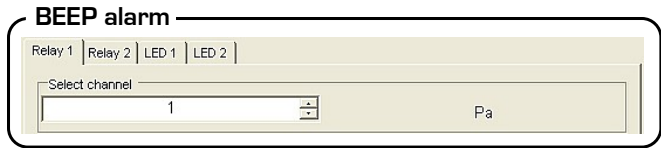
Therefore, the transmitter can be configured according to 4 different types of security recommendations.
To select the channel to which you want to send the recommendation, use the arrows located on the right side of the zone "Select channel", or directly enter the value (from 1 to 4).

IV2-4e- Explanations of available alarm modes :

Description :

Set point
The set point is a limit that, once exceeded, will activate an alarm or a relay (for more information on negative security, see page 19).

Time-delay
Once the set point is exceeded, the time-delay will postpone the activation of the alarm/relays. Once the delay (secondes) is over, and in case the set point is still exceeded, the alarm/relay will be activated (in negative security).

Edge
The edge allows to decide of the alarm action (rising or falling) or the excitation of the relay.
   • **Rising edge** : the alarm is activated when the measurement goes over the set point
   • **Falling edge** : the alarm is activated when the measurement goes under the set point.
   • **Regulation mode** : the set points values will determine the action type.
   • **Survey** : the alarm is activated once measurement is **above the upper** setpoint or **under the lowest** setpoint

Configuration N°1 : 2 set points and time-delay

Set point 1 > Set point 2

Measurement

Alarm condition
<T> Time-delay

Set point 1

Set point 2

Time

Excited
Not excited
Position of the relay
Negative security

Excited
Not excited
Position of the relay
Positive security

Set point 2 > Set point 1

Measurement

Alarm condition
<T> Time-delay

Set point 2

Set point 1

Time

Excited
Not excited
Position of the relay
Negative security

Excited
Not excited
Position of the relay
Positive security

Configuration N°2 : 1 set point, time-delay and rising edge

Measurement

Alarm condition
<T> Time-delay

Set point 1

Time

Excited
Not excited

Position of the relay
Negative security

Excited
Not excited

Position of the relay
Positive security
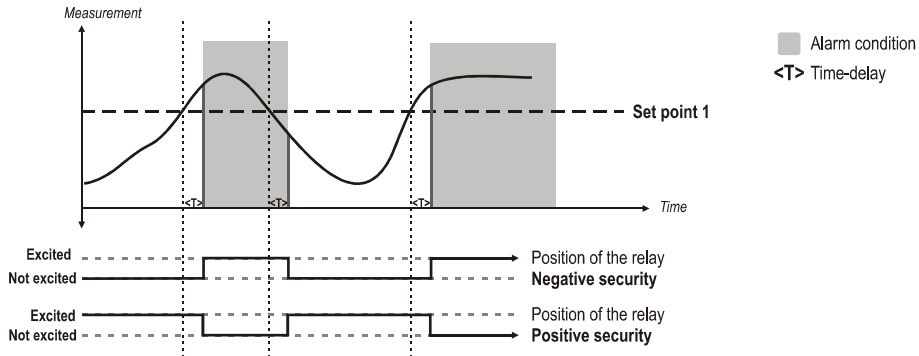
Configuration N°3 : 1 set point, time-delay and falling edge

Measurement

Alarm condition
<T> Time-delay

Set Point 1

Time

Excited
Not excited

Position of the relay
Negative security

Excited
Not excited

Position of the relay
Positive security

Configuration N°4 : 2 setpoints and   time-delay   (Survey mode)

Measurement

Alarm condition
<T> Time - delay

Setpoint 1

Setpoint 2

Time

Excited
Not excited

Position of the relay
Negative security

Excited
Not excited

Position of the relay
Positive security
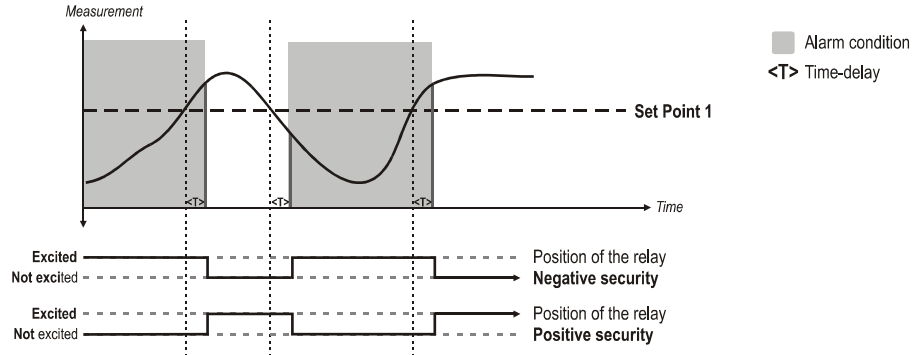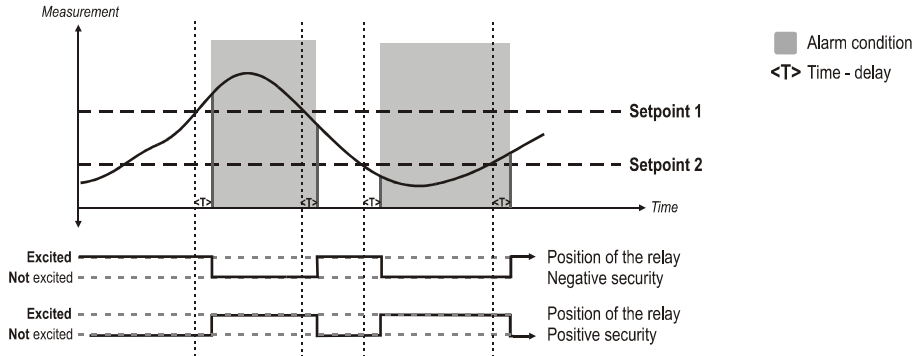
IV2-4f- Alarm selection :

To select the alarm mode, click on the arrow on the right side of the
zone "Alarm selection" to visualisation the list of the pre-set
functions :
 - No alarm.
 - Control mode (Set point 1, Set point 2 and delay) (N° 1 see page 23).
 - Rising edge mode and delay   (N°2 see above).
 - Falling edge mode and delay (N° 3 see figure above).

Alarm selection

Alarm selection

Rising edge mode and delay

No alarm
Control mode (Setpoint1, Setpoint2 and delay)
Rising edge mode and delay
Falling edge mode and delay
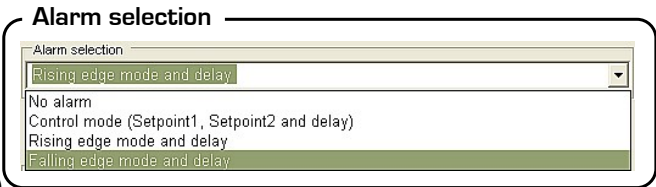
⚠ **It is possible to select 1 different mode of alarm for each relay (Relay 1 and 2) and for each visual alarm
(LED 1 and 2).**

IV2-4g- Setting the set points and time-delay :

Set points :

To set the alarms set points, use the arrows on the right side of the zone "Setpoint 1 of the alarm" and "Setpoint 2 of the alarm", or directly enter the value.

Set points

Setpoint 1 of the alarm		
10,00		inWg
Setpoint 2 of the alarm		
20,00		inWg
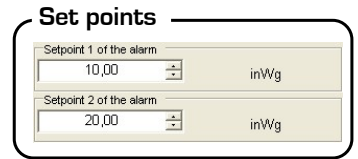
⚠️ **The values to enter depend on the measurement unit selected and not on the measuring range of the transmitter.**

Ex. For a pressure transmitter type CP303 (0 to ±1000 Pa) with reading in mmH_2O, the set points must be configured on a measuring range between 0 and ±102 mmH_2O. See conversion chart page 21.

NOTE • If, after setting the set points, the measurement unit has changed (see page 20), then you must re-configure the set points according to the new measurement unit.

Delay :

To adjust the time-delay, use the arrows on the right side of the zone "Delay", or directly enter the value (from 0 to 60 sec.).

Delay

Delay
0 Sec.
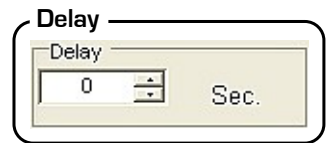
IV2-4h- Alarm acknowledgement

Alarm acknowledgement allows you to check activated slave or software alarms and allows to add a commentary to each of them. If you want to acknowledge an alarm, tick the box shown beside. See "alarm acknowledgement" p37.
Click on "write a configuration" to validate.

Alarm aknowledgement

Acknowledgement
○ ON ◉ OFF
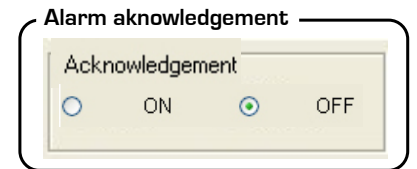
IV2-4i- Email alarm messages

Configuration of an email alarm message allows to choose a contact list to by email to each change of status of concerned alarm.

See « Email alarm configuration » p.38.

Email alarm

Email alarm message ? ☑ 🗐
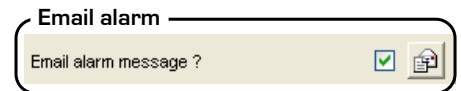
IV-2-5- Configuration of pressure measurement :

IV2-5a- Pressure integration coefficient

The integration factor allows to smooth the measurement to avoid inadvertent fluctuations.
New value displayed =
[((10 - factor) x New value) + (Factor x Old value)] /10
This formula can be applied when the fluctuation is lower than
+/- (Factor x 10 Pa)

Settings

Generalities | Channels | Input/output | Alarms | Parameters | Air velocity/flow

Pressure integration coefficient (0 to 9)
5

Autocalibration delay in minutes (0 (off) -> 60 min)
1
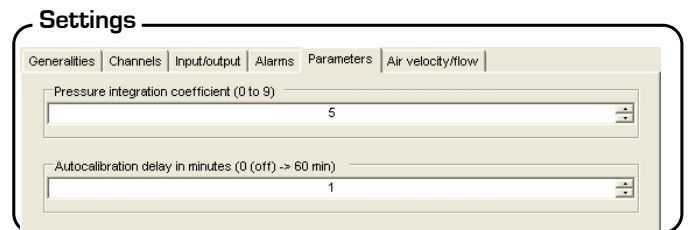
Example : CP303 (0-1000 Pa) - Previous measurement : 120 Pa - New measurement : 125 Pa
The pressure source being stable, the user chooses a low integration. Integration : 1, maximum fluctuation authorized
+/-10 Pa. The fluctuation is inferior to 10 Pa, therefore we can use the formula to calculate the integration.
Next measurement displayed : ((9 * 125) + (1 *120))/10 = 124.5 that is 124 Pa. If the new value had been 131 Pa, the next value showed would have been 100% of the new value, that is to say 131 Pa.

To set the integration value, click on tab "Parameters" and use the arrows located on the right side of the zone "Pressure integration coefficient", or directly enter the value (from 0 to 9).
Factor 0 : no integration.
Factor 9 : maximum integration, reading more stable.

IV2-5b- Time-delay between 2 self-calibrations

To set the time-delay between 2 self-calibrations, click on tab "Settings" and use the arrows located on the right side of the zone "Time-delay between 2 self-calibrations", or directly enter the value (from 0 to 60 min).
Time-delay 0 : no self-calibration.
Time-delay 60 : maximum delay between 2 self-calibrations (60 min).

IV2-6- Humidity measurement configuration:

IV2-6a- Setting of offset in humidity and temperature :

In order to avoid any drift of the measurement, you can add an offset to the value displayed by the TH 200 / 300 via our reference portable instrument EHK 500 or via the LCC 300 software.

⚠️ Function only available on humidity transmitters TH 300

The EHK 500 is a reference portable instrument (optional) which enables you to adjust in humidity and temperature, via the RS232 connection cable. This new system is time-saving : no need to return the transmitter to our factory, you can carry out on-site adjusting.
Your transmitter is always available. See technical data sheet and user manual of EHK 500.

IV2-6b- Resetting of offset:

For transmitters with version <= 1.6

If your transmitter is adjusted in humidity and temperature with the EHK 500, you can reset the offset whenever you want.
Click on the tab "Settings" then on the box "Initialization" of the window "Offsets of humidity and temperature".

For transmitters with version => 1.6

In the tab "Settings", you can enter the offset in humidity and temperature.
Nota : the offset in temperature can be entered either in °C or in °F (automatic conversion).

Offset ranges	
%RH	-50.0 to +50.0
°C	-50.0 to +50.0
°F	-90.0 to +90.0
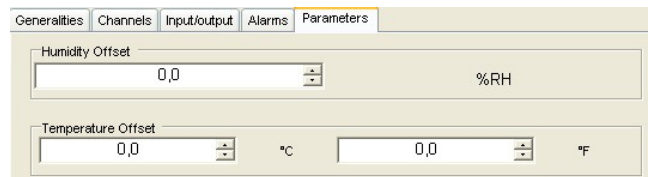
IV2-7- Configuration of air velocity measurement :

The tab "Air velocity / flow" gives access to all the information about air velocity and air flow measurement :
- Temperature compensation mode.
- Select air velocity probe.
- Select air velocity correction coefficient.
- Select duct type or flow coefficient.

IV2-7a- Type of temperature compensation :
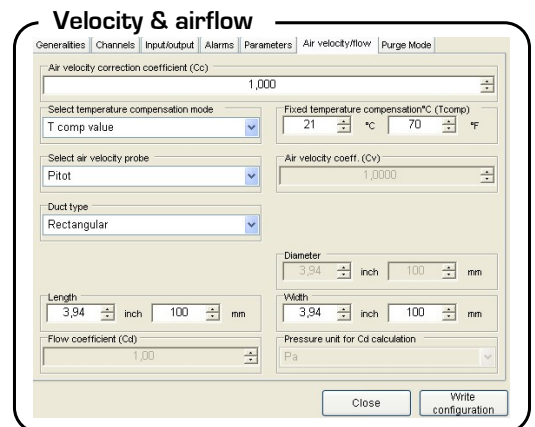
It is possible to modify the temperature compensation value. Indeed, the air velocity and the airflow measured with a Pitot tube and/or Debimo (or with any other differential probe) depends on the working temperature. Therefore, it is necessary to enter the working temperature in order to get more coherent results.
This value can be either entered manually or with the help of a thermocouple K probe for an automatic temperature compensation.

Automatic compensation :

For automatic setting of the temperature compensation, select "External probe temperature" in zone "Select temperature compensation mode".

⚠️ Once the configuration process of the temperature compensation is over, make sure the connection of the thermocouple K probe is OK.

Manual compensation :

For manual setting of the temperature compensation, select "Temperature compensation Value" in the zone "Select temperature compensation mode".
The zone "Fixed temperature compensation °C" is activated. Then you can enter the working temperature in °C or °F. Use the arrows located on the right side of the zone or directly enter the value.

Manual compensation

Select temperature compensation mode
T comp value

Fixed temperature compensation°C (Tcomp)
93   °C   199   °F

📝 If you compensate the temperature in Celsius degrees, the software will automatically make the conversion into Farenheit and vice versa.

IV2-7b- Selecting the air velocity coefficient :

Since pressure and differential probe are used to calculate the air velocity, you must enter the differential probe coefficient value.
The coefficient of the Pitot tube and of the Debimo are both integrated in the transmitter.

⚠️ This function is only available on pressure transmitters type CP 300 + optional SQR

Automatic input of coefficient :

For automatic setting of the air velocity coefficient, select "Debimo" or "Pitot" in the zone "Select air velocity probe" according to the differential probe to be used.

Automatic input of coefficient

Select air velocity probe
Air velocity coefficient (Cv)

Pitot
Debimo
Air velocity coefficient (Cv)

Manual input of coefficient :

For manual setting of the air velocity coefficient, select "Air velocity coefficient (Cv)" in the zone "Select air velocity probe".
The zone "Air velocity coeff. (Cv)" is activated. Use the arrows located on the right side of the zone or directly enter the value required.

Manual input of coefficient

Select air velocity probe
Air velocity coefficient (Cv)

Air velocity coeff. (Cv)
1,2345

IV2-7c- Input of air velocity correction coefficient :

With this correction coefficient, you may adjust the transmitter according to the air velocity data of your installation.

⚠️ This function is only available on transmitters type CP 300 + optional SQR

How to calculate the coefficient :
For example, you know that the air velocity in your duct is equal to 17 m/s and that the transmitter shows 16.6 m/s. Then the coefficient to be applied is 17 / 16,6 that is to say 1.024

Input of coefficient :
Use the arrows located on the right side of the zone or directly enter the value requested (from 0,200 to 2,000).

Air velocity correction coefficient

Air velocity correction coefficient (Cc)
0,200

IV2-7d- Selecting the duct type and the flow coefficient :

Duct type

Duct type
Rectangular

It is possible to work from a type of section (rectangular or circular) or from flow coefficient for airflow measurement.

Rectangular duct :

⚠️ This function is only available on transmitters type CP300 + SQR

For rectangular duct, select "Rectangular" in the zone "Duct type ".
The zones "Length" and "Width" are activated. You can then enter the rectangular duct length and width (in inch or mm). Use the arrows on the right side of the zones or directly enter the required value.

> **NOTE** If you enter the length and width in "inch", then the software will automatically make the conversion into "mm" and vice versa.

Rectangular duct

Duct type
Rectangular

Length
3,94 inch 100 mm

Width
1,97 inch 50 mm

Circular duct :

> ⚠ This function is only available on transmitters type CP 300 + SQR

For circular duct, select "Circular" in the zone "Duct type".
The zone "Diameter" is activated. You can then enter the circular duct diameter (in inch and mm). Use the arrows located on the right side of the zones or directly enter the required value.

> **NOTE** If you enter the diameter in "inch", then the software will automatically make the conversion into "mm" and vice versa.

Circular duct

Duct type
Circular

Diameter
0,39 inch 10 mm

Flow coefficient :

This coefficient allows to calculate airflow using pressure. It is indicated by the manufacturer who supplies the system provided with pressure intakes (+ et -). The square root of the measured pressure (Delta P) and the factor will enable you to get the airflow.

$$\text{Airflow} = CD \times \sqrt{\triangle \text{ Pressure}}$$

> ⚠ This function is only available on transmitters type CP 300 + SQR.
> With this calculating process, you will not be able to read air velocity anymore. If you activate this calculating process and a velocity channel, then the transmitter will show an error type 4.
> To avoid this situation :
> • Select an airflow unit for channel 1, 2, 3 or 4
> • Instead, select the airflow factor, a circular or rectangular duct in the zone "Duct type"

For airflow coefficient, select "Flow coefficient" in the zone "Duct type".
The zones "Flow coefficient (Cd)" and "Pressure unit for Cd calculation" are activated. You can then enter an airflow factor and a pressure unit. Use the arrows located on the right side of the first zone or directly enter the airflow factor value required (from 0,01 to 999,99).
Click on the arrow on the right side of the second zone to visualisation the list of the pre-set- units, according to the transmitter used.

Rectangular duct

Duct type
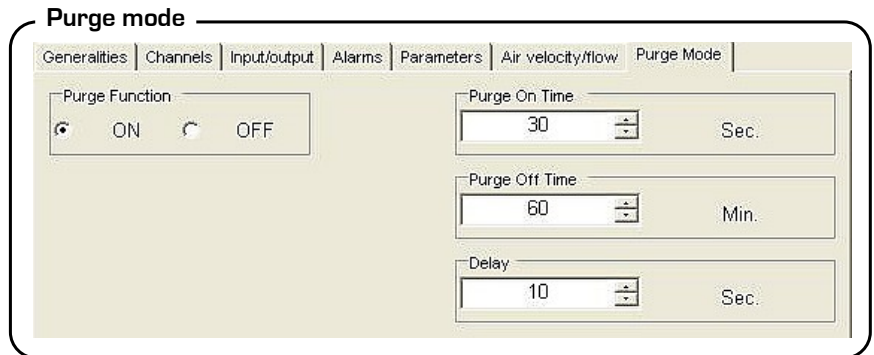Flow coefficient

Flow coefficient (Cd)
1,02

Pressure unit for Cd calculation
mmH2O

|	CP301/302/303	CP304
01	Pa	Pa
02	mmH2O	mmH2O
03	inWg	inWg
04	mbar	mbar
05	-	mmHg

IV2-8- Purge Mode

The purge mode enables to freeze the measurement when being displayed, enables to lock the analogue outputs, and to activate the relay 1, in order to actuate a de-dust system of an air movement conditions.

Purge mode

| Generalities | Channels | Input/output | Alarms | Parameters | Air velocity/flow | Purge Mode |

Purge Function: ● ON ○ OFF

Purge On Time: 30 Sec.

Purge Off Time: 60 Min.

Delay: 10 Sec.

IV2-8a- Activation / deactivation of purge mode :

To activate the purge mode, select "ON" in "Fonction Purge" zone. To deactivate the purge mode, select "OFF".

Purge fonction

Purge Function: ● ON ○ OFF
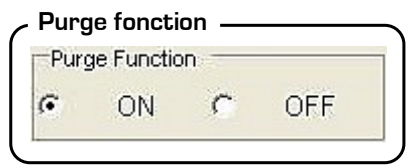
IV2-8b- Working duration of purge mode :

For manual setting of working duration of purge mode, use the arrows located on the right side of the "Purge on time" zone or enter the value directly (from 1 to 60 sec).

Purge on time

Purge On Time: 30 Sec.
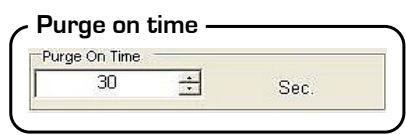
IV2-8c-Frequency :

For manual setting of frequency, use the arrows located on the right side of the "Purge off time" zone or enter the value directly (from 1 to 9999 min).

Frequency

Purge Off Time: 60 Min.
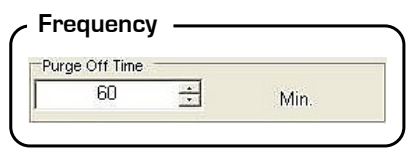
IV2-8d- Time-delay :

Once the purge is finished, time-delay is a time period before the transmitter returns to measurement mode and before the analogue outputs are reactivated.

For manual setting of time-delay, use the arrows located on the right side of the "Delay" zone or enter the value directly (from 0 to 60 sec).

Delay

Delay: 10 Sec.
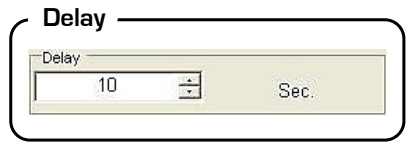
IV2-9- Error codes

Code	Problem	Solutions
01	Configuration conflict between the alarms setting and the displayed (activated) channels.	• Check the condition of the 4 alarms and of the 4 channels. Ex. : If an alarm is configured on an inactive channel (1,2,3 or 4), the error mode is activated. You must deactivate the channel on which you want to set an alarm condition. Activating a channel : see page 20 Configuration of alarms and relays : see page 21
02	No activated channel.	• You must at least activate 1 channel to avoid this error code. Activating a channel : see page20
03	Humidity probe (TH 300) or SPI (CP 300 / CPE 300) not connected Temperature probe (TT300) not connected	• Connect the probe / SPI (see SPI user manual)
04	Only for CP 300. One channel is configured for velocity (see page 15) and the function to calculate airflow (page 25) is on position 02 (airflow factor). This combination is not allowed.	• Select an airflow unit for channel 1, 2, 3 or 4 (see configuration of the channels, page 20) • Instead of the airflow factor, select a circular or rectangular duct.

IV2-10- Module configuration

IV2-10a- Temperature modules

Each channel can be configured. You can :
• Record the channel.
• Name a channel by writing on the "Description" zone.
• Select input type (NTC, PT, Balco, Ni RTD etc...).
• Select input unit (°C, °F).
• Offset setting : in order to avoid any drift of the measurement,
  you can add an offset to the displayed value (Max. ± 10).

• The integration factor allows to smooth the measurement to avoid
  inadvertent fluctuations :
  New value displayed = [((10 - factor) x new value) + (factor x old value)] /10
• Click on "**OK**" to validate.

Temperature module configuration
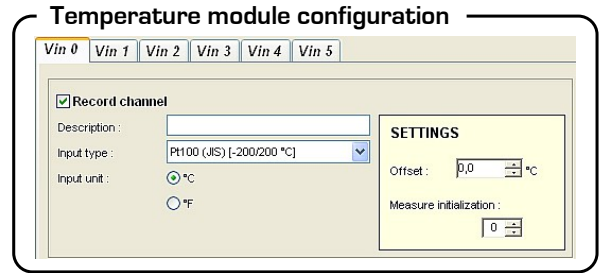
IV2-10b- Relay module

The relays output are pre-set on negative security : the relay is excited in case of alarm. Via the software, you can configure relays in positive security : the relay is not excited in case of alarm condition or a power cut.
To choose a negative security click on the negative box inside the "relay security" panel.
To be on positive security click on the positive box.
You can configure each of the 7 channels and each channel can have several alarms added. In order to create a new alarm, click on "Add a condition" and follow recommendations further explained in chapter "**IV-4-2 Software alarm configuration**" p 36.
It's possible to choose the sending of email alarm message for each relay.

Relay module configuration
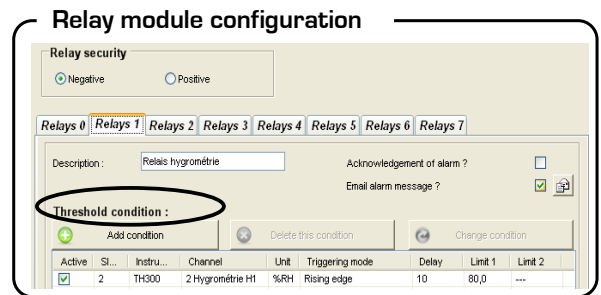
IV2-10c- Current/voltage module

You can configure each channel. You can :
• Record the channel.
• Select input type (Voltage, current).
• Name a channel by writing on the "Description" zone.
• Select input conversion
• Select input unit and decimal. Select the minimum and maximum of the scale.
• Offset setting : in order to avoid any drift of the measurement, you can add an offset to the displayed value (Max. ± 10).
The integration factor allows to smooth the measurement to avoid inadvertent fluctuations : New value displayed = [((10 - factor) x new value) + (factor x old value)] /10
• Click on "**OK**" to validate

Current / voltage module
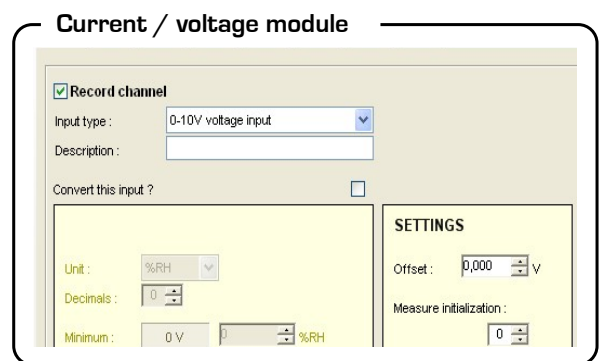
IV2-10d- Digital input module

You can configure each channel. You can :

• Record channel.
• Name a channel by writing on the "Description" zone.
• Select the operating mode "Normal" or "Reversed"
• Click on "**OK**" to validate

Digital input module
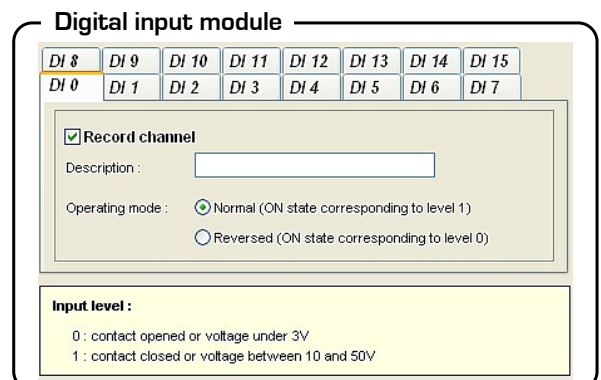
IV2-10e- Pulse counter module

MD 190 pulse counter module has 7 inputs, each one can be independently configured and have therefore a different operation mode :
• Digital Input mode
• Counter mode
• Latch mode (low to high or high to low)
• Frequency mode

1. Digital Input mode

Digital Inputs of the pulse counter module are controlled like ones of MD 180 module. Unit is "ON / OFF". These inputs are shown as alarms in visualizations.
You can :
• Choose to record channel.
• Name channel by writing in "Description" field.
• Choose to invert logic level.
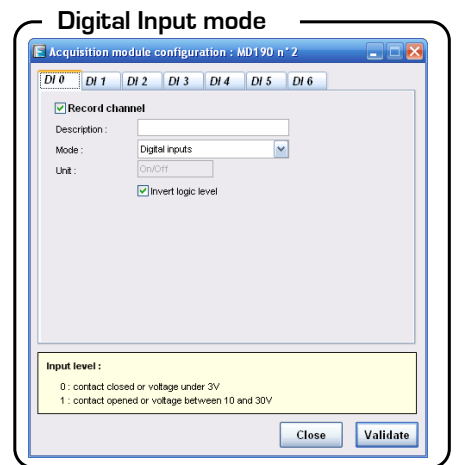
Digital Input mode

2. Latch mode (low to high or high to low)

Latch mode is an extension of Digital Input mode. Difference is that input keeps the high or low level, according to the chosen edge, until input is reinitialized.
So user is sure to not miss an event which could occur between 2 records.
Used unit is "ON / OFF". These inputs are shown as alarms in visualizations.
You can :
• Choose to record channel.
• Name channel by writing in "Description" field.
• Choose to reset input after each reading or after an acknowledged only.

Latch mode
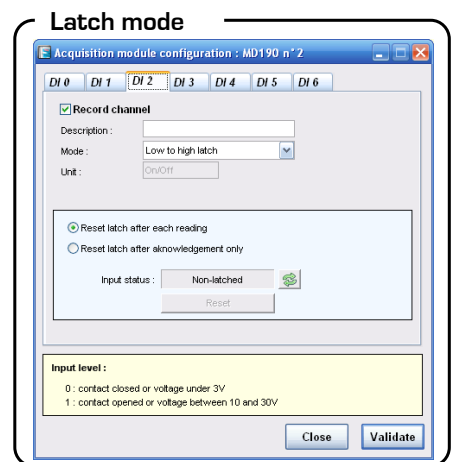
⚠ **Reinitialization of latch via « Reset » button is possible only if acquisition is stopped.**

NOTE   State of latch is indicated in this window. A refresh button allows to update it (by recovering last value recorded by the acquisition if acquisition is ongoing or by interrogating the module if acquisition is stopped).

3. Counter mode

Counter mode allows to count pulses with frequency between 0 and 3 kHz. Unit is free and adjustable by the user.
"Counters" are represented like measurement channels in visualizations (curves in graph and gauges in synoptic).
They keep last value after power off.
You can :
• Choose to record channel.
• Name channel by writing in "Description" field.
• Choose unit.
• Choose to invert logic level.
• Choose to enable digital filter and specifying minimum lengths of high and low signals.

Running of Counter mode :
• Counter is automatically launched when acquisition is started.
• Counter is automatically stopped when acquisition is stopped.
• Counter can be reset only if acquisition is stopped.
• Counter can be manually stopped only if the counter is launched and acquisition has not start.
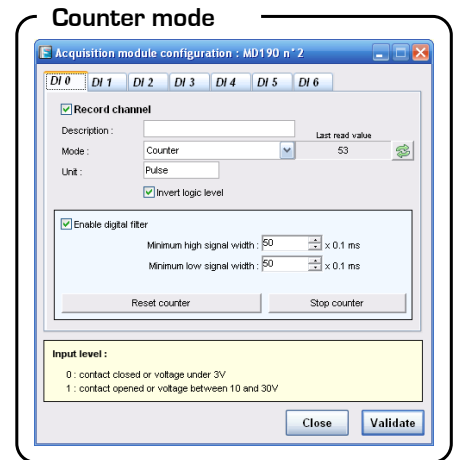
Counter mode

NOTE : State of latch is indicated in this window. A refresh button allows to update it (by recovering last value recorded by the acquisition if acquisition is ongoing or by interrogating the module if acquisition is stopped).

4. Frequency mode

Frequency mode runs between 0 and 3 kHz. Unit is Hz. Frequency inputs are represented like measurement channels in visualizations (curves in graph and gauges in synoptic).
You can :
• Choose to record channel.
• Name channel by writing in "Description" field.

Frequency mode
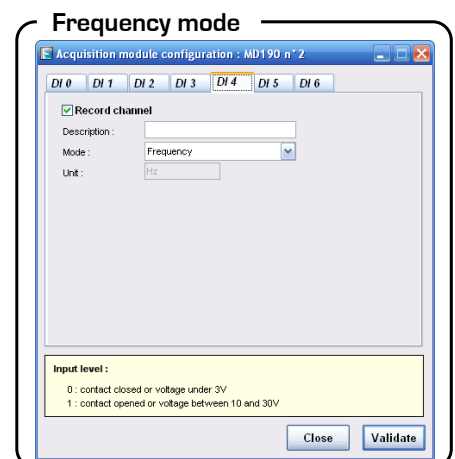
IV3 – Addition of calculated channels

Once the instrument configuration is completed, and once you have validated by clicking on 'Next', the "Addition on calculated channels" window will appear.
Select a calculated channel in the list to view details. It is possible to modify the calculation with « Modify the calculation » button.

IV3-1- To create or delete a calculated channel

It is possible to create calculated channels. Quantity is unlimited. You can add or delete channels by clicking on corresponding buttons.

Addition of calculated channels
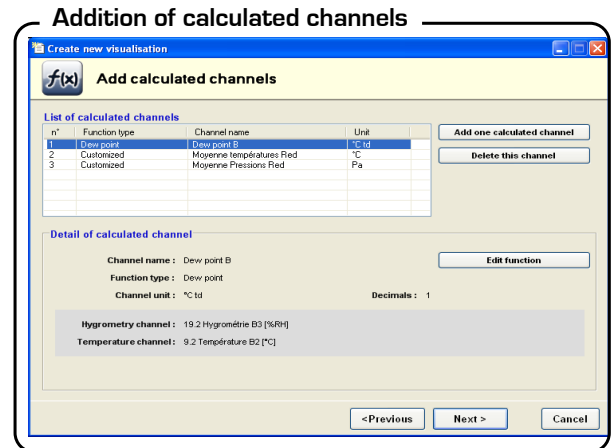
IV3-2 – Configuration of a calculated channel

It is possible to create 2 types of calculation function :
• Customized functions
• Predefined calculation function (absolute humidity, dew point, wet temperature, enthalpy and analogue conversion).
Some predefined calculation functions can be blocked if channels required for their calculation are not available.
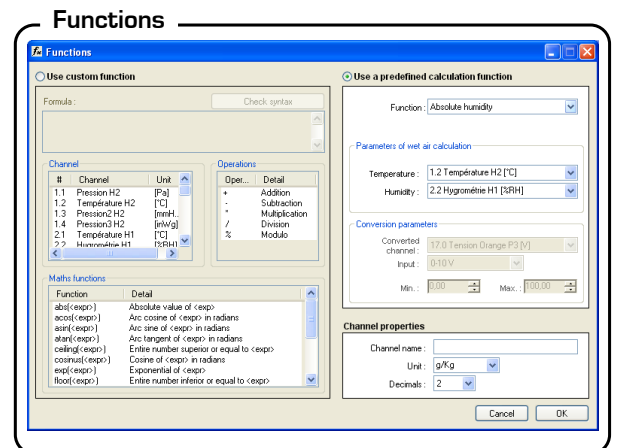
Functions

Note about calculated channels :
• Calculated channels can not be used for the calculation of others channels.
• Calculation functions of calculated channels that are saved with AKIVISION-A software can not be modified with AKIVISION-E software.
• Only channels of ATT-ATE viewers in analogue mode will be used for the calculation of a channel

1. Operations

How to create an operation :

• **Create formula.** *Click twice on the channel and click twice on the operator (See table below).*
  IE: #001 - #008.
• **Check syntax.** If syntax is right go to next step otherwise please correct the formula.
• **Select channel properties.** (Name, units, decimales).
• Validate by clicking on "**OK**"

Operator table

+, -, *, /	Addition, substraction, multiplication and division.
%	Modulo . Example : 13 % 3 = 1

2. Maths functions

How to create math function:

• **Create formula.** Click twice on math function (see Table of math function below) and click twice on the channel or add appropriated number.
• **Check syntax.** If syntax is right go to next step otherwise please correct the formula.
• **Select channel properties.** (Name, units, decimales).
• Validate by clicking on "**OK**"

abs (<expr>)	Absolute value calculation. ABSV(*NameChannel1*) calculate absolute value of channel Namechannel1 if it is positive, or the opposite otherwise. ABS(V(*NameChannel1*)*10.3+V(*NameChannel2*)) evaluation of expression V(*NameChannel*1)*10.3+V(*NameChannel*2) and equals the absolute value.
Acos (<expr>)	Arc cosinus of expression in rad acos (0) equals 1.5708 acos (-1) equals 3.1416
Asin (<expr>)	Arc sinus of expression in rad asin (1) equals 1.5708 asin (0) equals 3.1416
Atan (<expr>)	Arc tangente of expression in rad atan (1) equals 0.7854 atan (0) equals 0
Ceiling (<expr>)	Whole number greater or equal to expression CEIL (2.9) equals 3 CEIL (-2.9) equals -2
Cosinus (<expr>)	Cosinus of expression in rad cos (1.5708) equals 0 cos (3.1416) equals -1
Exp (<expr>)	Exponential of expression
Floor (<expr>)	Whole number smaller or equal to expression Floor (2.9) equals 2 Floor (-2.9) equals -3
Ln (<expr>)	Napierian Logarithm of expression (expression must be positive)
Log10 (<expr>)	Decimal logarithm of expression Log 100 equals 2. Log(V(Namechannel1)*10.3+V(Namechannel2)) evaluation of expression V(Namechannel1)*10.3+V(Namechannel2) and calulate its decimal logarithm. (expression must be positive).
Pow (<expr> ; <pw>)	Potency raising : <expr> potency raised <pw>. IE : pow (5;3) = 125
Round (<expr>)	Rounded value of operator to the closest whole number. Round (2.4) equals 2 Round (2.6) equals 3
Sin (<expr>)	Sinus of expression in rad Sin (1.5708) equals 1 Sin (3.1416) equals 0
Sqrt (<expr>)	Square root of expression
Tangent (<expr>)	Tangent of expression in rad Tan (0.7854) equals 1 Tan (3.1416) equals 0

3. Predifined calculation function

How to use a predifined calculation function:

• **Tick the box** *"Use predifined calculation function"*.
• **Select function** *(See table below for details)*.
• **Select channels** *corresponding to parameters implicated in calculation*
• **Select channel properties.** Name and decimals, units are automatically selected.
• **Validate** by clicking on "**OK**".

Absolute humidity	The amount of water vapor present in a unit volume of air, usually expressed in kilograms per cubic meter. g/Kg.
Dew point	The temperature to which a given air parcel must be cooled at constant pressure and constant water vapor content in order for saturation to occur . °C td.
Wet temperature	Temperature calculated with dry temperature and relative humidity in the air. °C tw.
Enthalpy	This is the heat change which occurs when 1 mol of a substance reacts completely with oxygen to form products at 298 K and 1 atm. Kj/Kg.

IV 4 – Creation of software alarms

Once the instrument configuration is completed, and once you have validated by clicking on 'Next', the "Creation of software alarm" window will appear.

Use of e-mail alarms needs the configuration of the messaging in the general options.

IV4-1- Create or delete a software alarm

It is possible to create software alarms, the number is not limited and several conditions can be added to each of them.
You can "**add**" or "**delete**" alarms by clicking on related buttons.
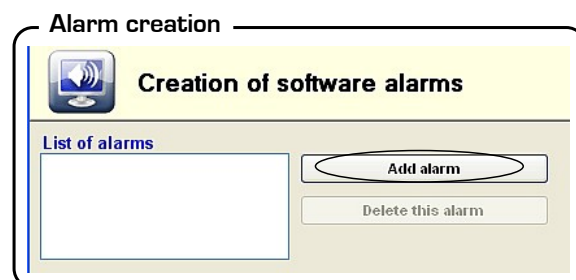
IV4-2- Alarm configuration

• Name the alarm
• Enable or disable alarm acknowledgement by ticking/unticking the box (See p.37)
• Enable or disable email alarm message by ticking/unticking the box
• Add one or more conditions by clicking on "Add condition".

Alarm configuration

Alarm configuration

| Description : | ALARME Surpression | | Acknowledgement of alarm ? | ☐ |
| | | | Email alarm message ? | ☑ 📑 |

Threshold condition :

| ⊕ Add condition | ⊗ Delete this condition | ⟳ Change condition |

Active	Sl...	Instru...	Channel	Unit	Triggering mode	Delay	Limit 1	Limit 2
☑	1	CP304	1 Pression H2	Pa	Rising edge	0	100	---
☑	9	CP302	1 Pression B2	Pa	Rising edge	0	100	---

IV4-2a- Select channel

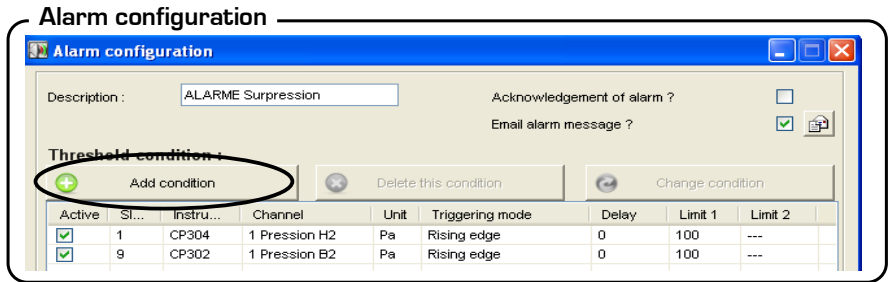To select an instrument click on the arrow on the right side of the "Instrument selection" zone, the list of slave will appear, click on the required instrument.
A « calculated channels » group is added at the end of the instrument list if one calculated channel is created.
To select a channel, select the arrow on the right side of the "Select channel" zone, the activated channel list will appear, click on the required channel.

Select channel

Select channel

| Instrument selection : | CP304 n°1 | ▾ |
| Channel selection : | Channel 1 - | ▾ |
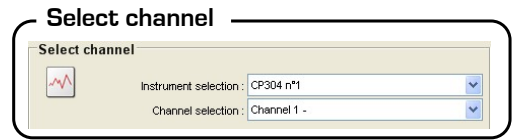
IV4-2b- Alarm configuration

To configure the alarm, you must select :
• Triggering mode (See Note)
• The set point(s) value
• Time delay

Alarm configuration

Alarm configuration

Triggering mode :	Falling edge	▾
Limit 1 :	0	Pa
Delay :	0	sec.
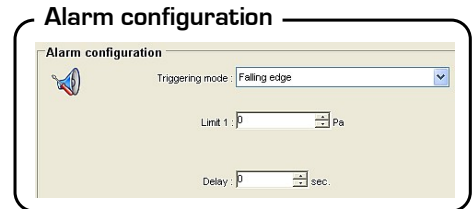
NOTE

The survey mode is available for software alarms and relay modules. In this mode the alarm is activated once the measurement goes over the upper set point or under the lower set point.

Configuration N°4 : 2 setpoints and time-delay (Survey mode)

Alarm condition
<T> Time - delay
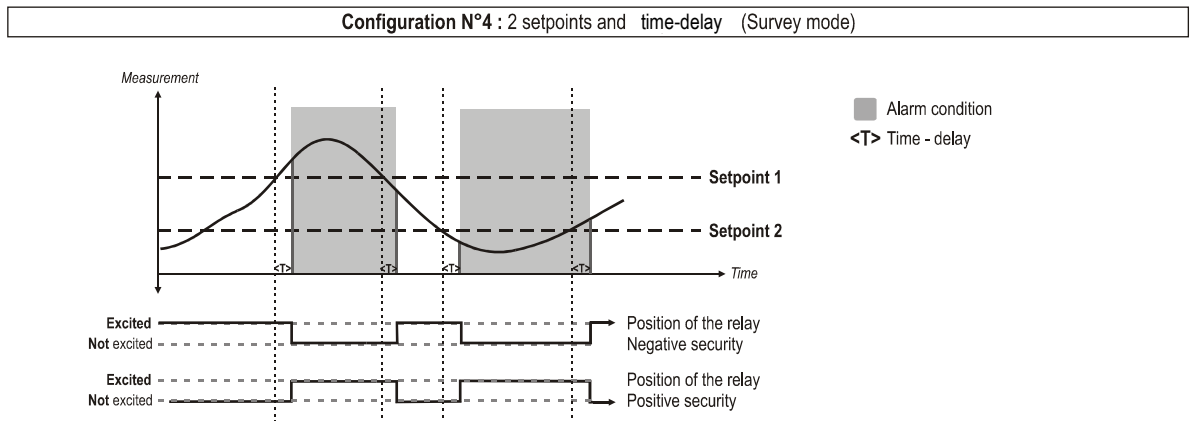
IV3-2c– Activate, deactivate or delete a condition

With the 'Alarm configuration' panel you can :
• Tick / untick the box in order to activate or desactivate a condition.
Once you have selected a condition, you can :
• Delete it by clicking on "**Delete condition**" or
• Modify it by clicking on "**Modify condition**"
• Click on "**Next**" to validate.

Alarm configuration

Alarm configuration

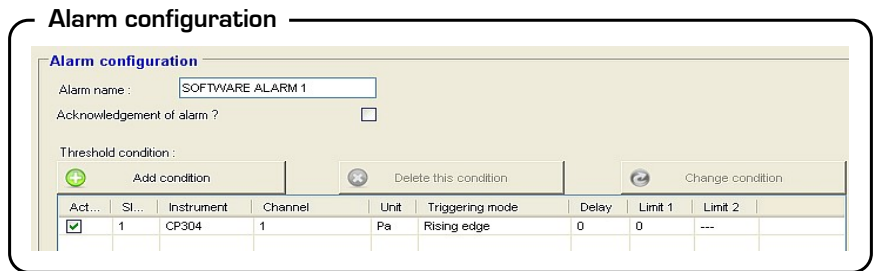| Alarm name : | SOFTWARE ALARM 1 | |
| Acknowledgement of alarm ? | ☐ | |

Threshold condition :

⊕ Add condition   ⊗ Delete this condition   ⟳ Change condition

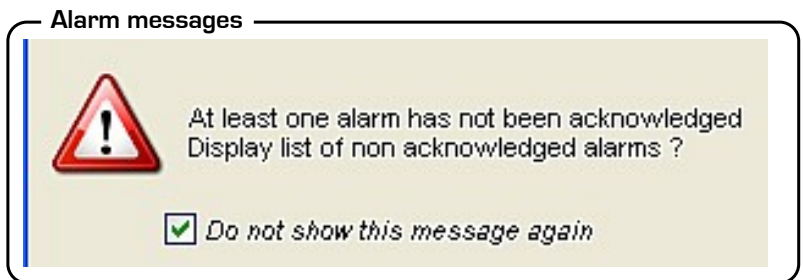| Act...	Sl...	Instrument	Channel	Unit	Triggering mode	Delay	Limit 1	Limit 2	
☑	1	CP304	1	Pa	Rising edge	0	0	---	

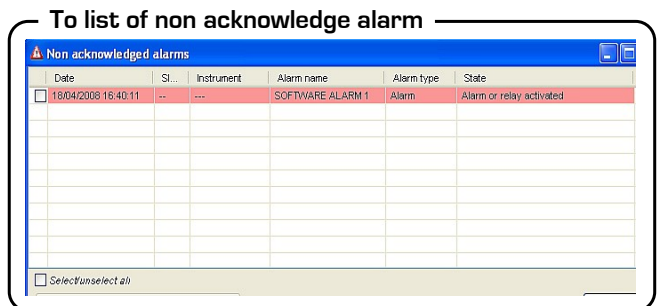## IV3-2d- Acknowledgement of alarms

Alarm acknowledgement allows you to check activated slave alarms or software alarms and allows to add a commentary to each of them. If you want to acknowledge an alarm, tick the box shown beside and then click on "Next".

Alarm acknowledgement

Acknowledgement

○ ON   ◉ OFF

Alarm acknowledgement
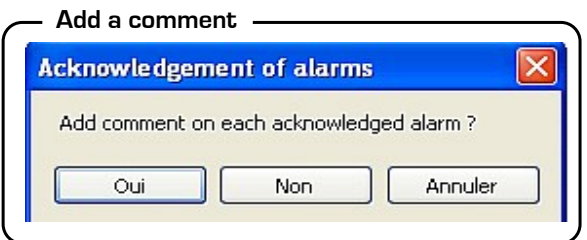
Acknowledgement of alarm ?   ☐
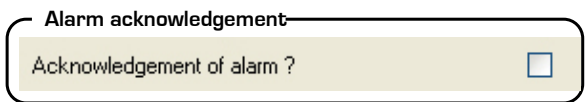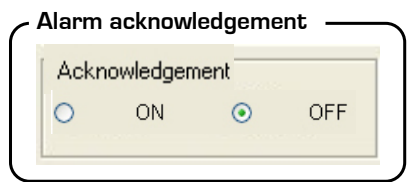
Once an alarm is activated or deactivated, an alarm message window appears to catch the operator attention. It is possible to activate or deactivate the alarm message by clicking on the related box or by selecting 'Alarm message' in the menu visualisation.

Alarm messages

⚠ At least one alarm has not been acknowledged
Display list of non acknowledged alarms ?

☑ Do not show this message again

Once you clicked on 'yes', the list of alarms appears. Tick the alarms you wish to acknowledge The list of alarms to be acknowledged is available for consultation by clicking on the icon "alarm" or by selecting "The list of non acknowledge alarms" in the visualisation menu.
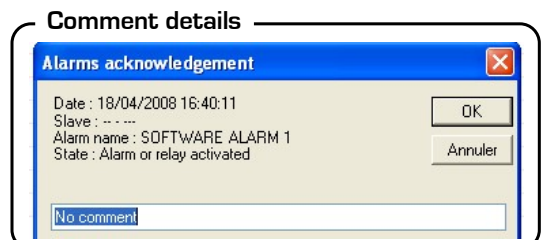
To list of non acknowledge alarm

⚠ Non acknowledged alarms

	Date	Sl...	Instrument	Alarm name	Alarm type	State
☐	18/04/2008 16:40:11	--	---	SOFTWARE ALARM 1	Alarm	Alarm or relay activated

☐ Select/unselect all

You can add a comment to each alarm by clicking on 'Yes'.

Add a comment

Acknowledgement of alarms ✕

Add comment on each acknowledged alarm ?

[Oui]   [Non]   [Annuler]

Details of comments are :
• Date
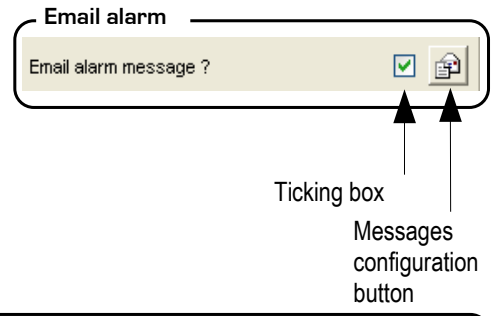• Slave name
• Alarm name
• Alarm state
• Comment
These informations are available for consultation on the event log. You must click on the 'event log' icon or on the visualisation menu and then click on 'event log'.

Comment details

Alarms acknowledgement ✕

Date : 18/04/2008 16:40:11
Slave : -- .--
Alarm name : SOFTWARE ALARM 1
State : Alarm or relay activated

[OK]
[Annuler]

No comment

IV4-2e- Email alarm configuration

• Tick **« Email alarm message? »** box . Configuration button is active.
• Click on messages configuration button to access message configuration.

Email alarm

Email alarm message ? ☑ 📋

Ticking box

Messages
configuration
button

Email configuration

« To... » button

« Cc... » button

« Bcc... » button

Automatically
generated message

Box to complete
message

Check box to attach
the last recording

It is possible to choose addressees of the message among three groups:
• « main » recipient : list and « To » button
• Addressees in carbon copy : list and « Cc... » button
• Addressees in Blind Carbon Copy : list and « Bci ...» button

Automatically generated message indicates name, status and date of status change of the alarm. A text box allows to complete message with customized comments.

« To », « Cc » and « Bcc » button allow to select email among contacts list.

It is possible to send values of the last recording which has activated the alarm. To do so, just check the box **"Attach last record when alarm is activated"**.
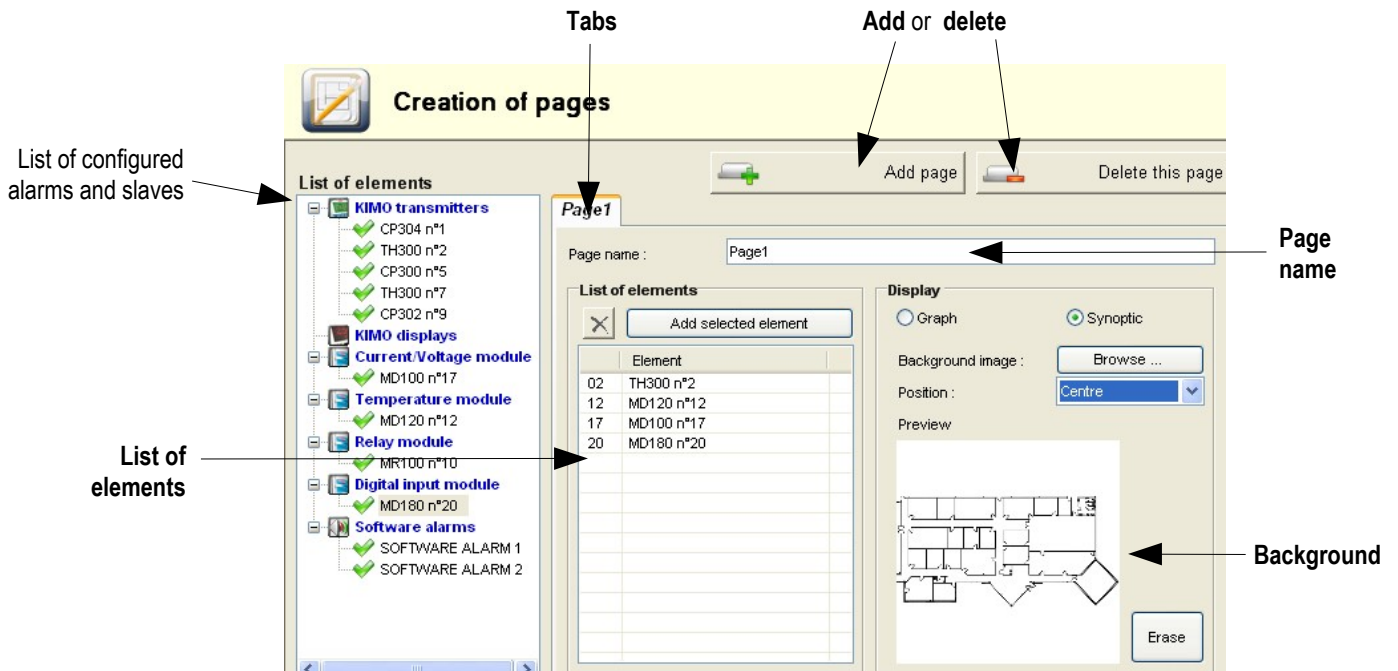
Message recipients

To delete a contact from an addressees list, select it then push **« Suppr »** key on the keyboard or right-click then select **« Delete »** in the list.

It is possible to add or edit contacts and mailing lists from this window.
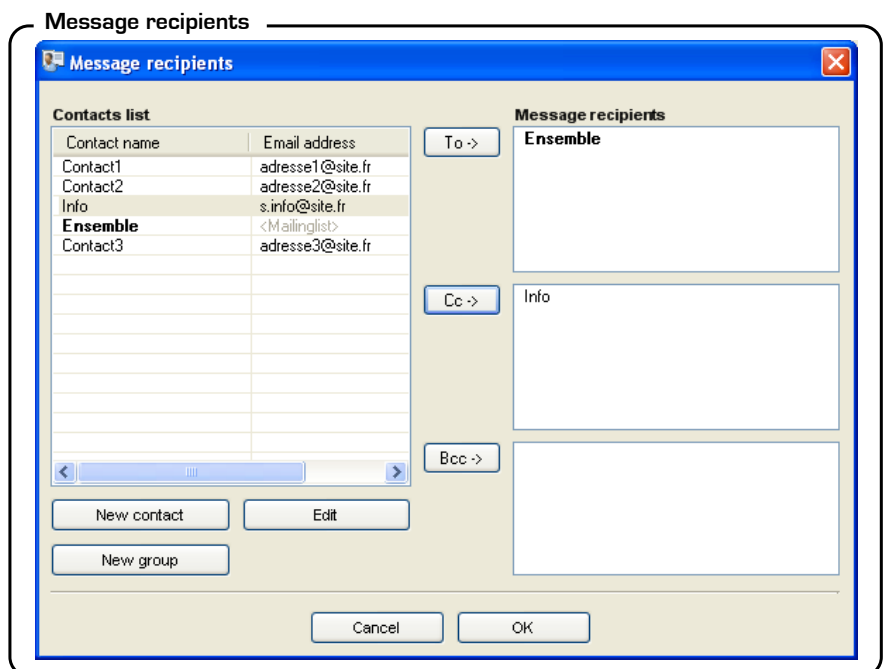
IV 5 – Creation of pages

On the pages, all the raw data recorded by the slaves are available for consultation.

Tabs

Add or **delete**

Creation of pages

List of configured alarms and slaves

List of elements
- KIMO transmitters
  - CP304 n°1
  - TH300 n°2
  - CP300 n°5
  - TH300 n°7
  - CP302 n°9
  - KIMO displays
  - Current/Voltage module
    - MD100 n°17
  - Temperature module
    - MD120 n°12
  - Relay module
    - MR100 n°10
  - Digital input module
    - MD180 n°20
  - Software alarms
    - SOFTWARE ALARM 1
    - SOFTWARE ALARM 2

List of elements

Add page   Delete this page

Page name

Page name : Page1

List of elements

✕	Add selected element

	Element
02	TH300 n°2
12	MD120 n°12
17	MD100 n°17
20	MD180 n°20

Display
○ Graph   ● Synoptic

Background image :   Browse ...
Position :   Centre

Preview

Background

Erase

NOTE   To modify page chronology once the configuration is completed, see chapter **IV7-3- Page management** p45
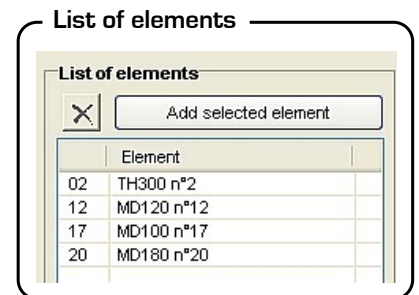
IV5-1- Page name

To name a page, write on the « page name » zone.

Page name

Page1

Page name :   Page1
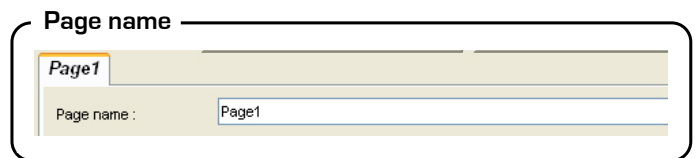
IV5-2- Add instrument

To add elements (slave or alarms), you must double click on the element in the slave and alarm list or click on "Add selected element".
To delete an element, select the element and then click on " ✕ " key.

List of elements

List of elements

✕	Add selected element

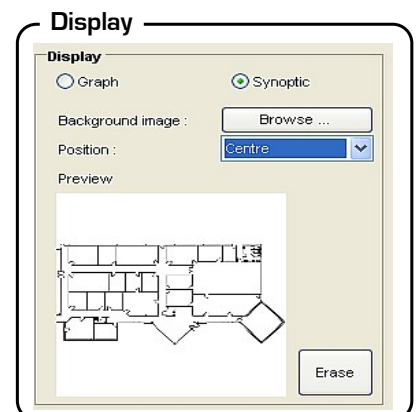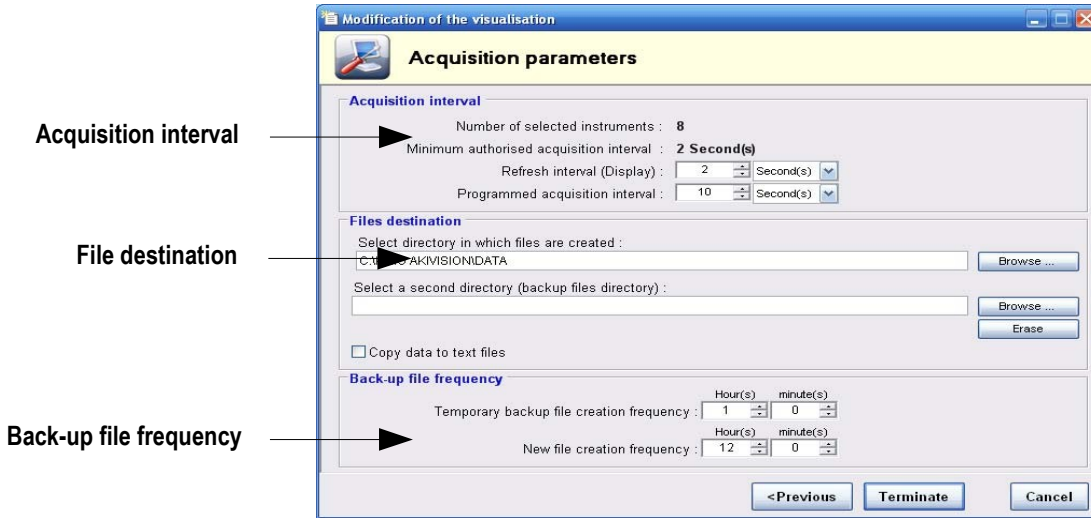|	Element
02	TH300 n°2
12	MD120 n°12
17	MD100 n°17
20	MD180 n°20

IV5-3- Select display

On the visualisation panel you can choose between two views :
• A graphic view (Real time representation of raw data in graph and array format)
• A synoptic view (Real time representation of raw data in a drawing format with adjustable tags)

In synoptic mode, you can add a customized background, click on 'browse' key. Select the background position (normal, stretch, center), if you wish you can remove it by clicking on "delete"'.

Display

Display
○ Graph   ● Synoptic

Background image :   Browse ...
Position :   Centre

Preview

Erase

IV 6 – Acquisition parameters


IV6-1- Acquisition interval

In order to carry out a measuring point, the software must query the slaves.
The time run between two measuring points is called an acquisition interval.
The acquisition interval panel shows :
• The number of selected slaves.
• The minimum acquisition interval. It is related to the communication speed and the number of slaves.
• The acquisition interval. You can select the value by clicking on the arrow. You can change the unit format (minute or second).
• Programmed acquisition interval : it allows to set the time interval where values will be recorded. Set this interval by clicking on the on the arrow to the right of the field. You can change the unit format (minute or second).

Acquisition interval
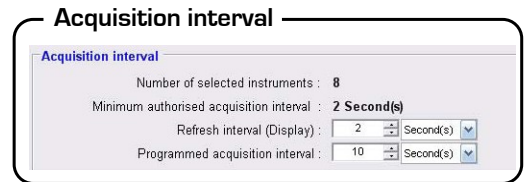
IV6-2- File destination

Measuring points are saved in files and all the files are contained in a backup folder (cf backup frequency). You need to select the destination of the file by clicking on the 'Browse' button of the related zone.

File destination
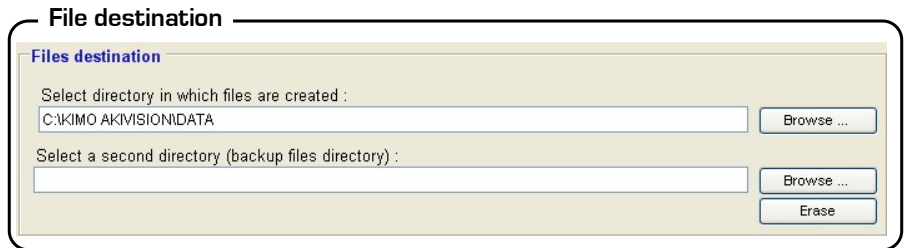
You must do a second backup by clicking on 'Browse' key of the 'select a second directory' zone.

IV6-3- Backup frequency

You must determine the backup file frequency :

• *Temporary back-up file*. The temporary allows to save data which could be lost between two backups. All data contained in temporary files are erased at specified intervals. To specify the time interval click on the arrow. The temporary file format is *temp_acquisitionname.his*. Ex : *temp_KIMOFactory.his*

Backup frequency
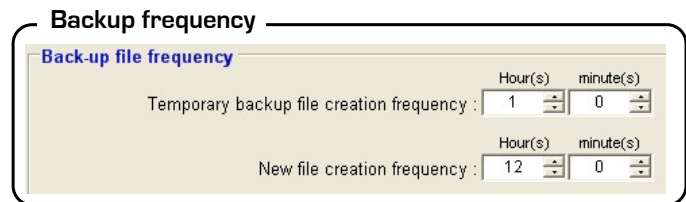
• *New files*. Data contained in these files are not erased. The interval time between two creations must be specified by using the arrows. The file format is A*cquisition name[Year-Mounth-day hour].his.* Ex : *KIMOfactory[2006-11-03 08;10;02].his*

Once the files are named, click on "Finish".

IV6-4- Name the acquivision

The last step is to name the acquisition by writing on the 'file name' zone and then click on "Save".

Nom du fichier : No title.ksv Enregistrer
Type : AKIVISION-A files (*.ksv) Annuler
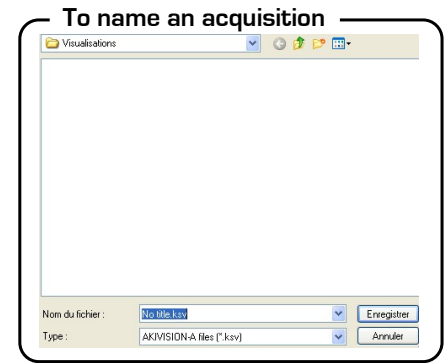
IV 7 – Creation mode

The creation mode enables to customize graphic and synoptic visualisations. To be in creation mode you must click on the icon or click on the configuration menu on **"Creation mode"**.

⚠️ **You must stop acquisition to access creation mode**

IV7-1- Graphic visualisation

NOTE General tab is the only tab you can customize. You must be in creation mode to modify graphic visualisation.

Page tab → **General graph** | **Values array** | **Alarms and relays**

Tool bar →

Navigation bar →

Scales →

Curves zone

Alarm state and digital inputs →

Legend →

5 — ch5.1 [Pa]
6 — ch5.2 [°C]
7 — ch5.3 [mmH20]
8 — ch5.4 [inWg]
9 — ch7.1 [°C]
10 — ch7.2 [%RH]
11 — ch7.3 [°C td]
12 — ch7.4 [g/Kg]

Period (Time axis) →

18/04/2008 16:40:11   18/04/2008 16:46:55

STATISTICS

Graph statistics →

	#5	#6	#7	#8	#9	#10	#11	#12
Min. T	0	1300,0	-129,6	-263,11	25,0	38,1	9,9	7,8
Min. t	0	1300,0	-129,6	-263,11	25,0	38,1	9,9	7,8
Max. T	0	1300,0	-129,6	-263,11	25,1	38,6	10,0	7,9
Max. t	0	1300,0	-129,6	-263,11	25,1	38,6	10,0	7,9
Avg. T	0	1300	-129,6	-263,11	25,041	38,285	9,904	7,814
Avg. t	0	1300	-129,6	-263,11	25,041	38,285	9,904	7,814
Std deviation T	0	0	0	0	0,049	0,129	0,019	0,035
Std deviation t	0	0	0	0	0,049	0,129	0,019	0,035

T : Whole period
t : Displayed period

Graphic contextual menu

The graphical contextual menu can be accessed by clicking on the right key of your wheel mouse from the visualisation window.
The menu features the following items :
• Tools : selection of tools (also available in the tool bar).
• View properties : open the view properties window.
• Legend : Display or hide the dataset legend.
• Channels : open the view properties window of the displayed channels or the properties of the selected channel
• Scales : opens the property windows of the scale.
• Time axis properties : opens the time axis properties window.

Graphic contextual menu

Tools ▸ | Cursor / Zoom in / Zoom out / move pointer
View properties
Legend ▸
Channels
Scales
Time axis properties

View properties

Graph zone — Background colour: / Grid colour:
Legend — ☑ Display legend / Font
Display of alarms and digital inputs — Alarm name colour: / Alarm opacity (%): 40
Alarms and relays — Alarm OFF colour: / Alarm ON colour:
Digital inputs — Input OFF colour: / Input ON colour:

« View properties » window

• Select background color
• Select grid color
• Select alarm color
• Hide/visualisation legend
• Title font

« Channel properties » window

The operator may access to the view properties by : Selecting this sub-menu in the graph menu or by double-clicking on a plotted channel.

- **Curve panel** :
- color, style and width of the curve
- **Limits panel** :
- High and low limit values and percentage of values above and below those limits.
- Limits color if displayed on the graph.
- Hide/visualisation limits on the graph.
  This panel and its function are disabled if no limits are configured.
- **Points panel** :
- Select point type
- Spacing between plotted points
(Ex : spacing = 5, one every five points will be plotted).
- Validate by clicking in "**OK**".

Channel properties
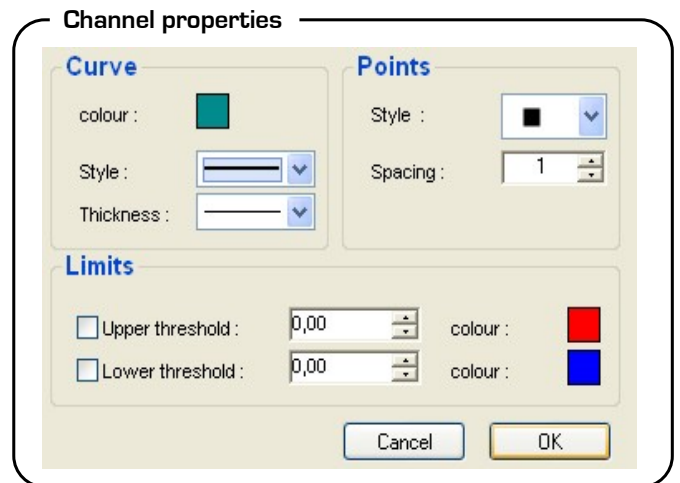
"Scale properties" window

The operator may access the scale properties by : Selecting this sub-menu in the graph menu or by double-clicking on a scale on the graph.
- **Range panel** :
- Input min and max values of scale (the default values correspond to the calculated min and max values for the current graph).
- Reset min and max values – automatic calculation according to chart values.
- **Marking panel** :
- Select between automatic and defined scale.
- The subdivision value indicates the number of markings (no value) between the 2 main markings (with visualisationed values).
Ex : 0.5 steps with 5 subdivisions.
- **Display Panel** :
- Select axis color.
- Enable/disable gridlines visualisation.
- Validate by clicking on "**OK**".

Scale properties
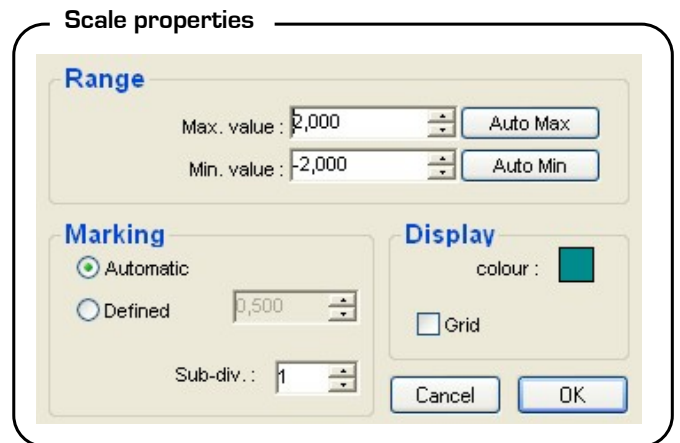
« Time axis properties » window

The operator may access to the view properties by : Selecting this sub-menu in the graph menu or by double-clicking on the time axis on the graph.
- **Period panel** :
- Select between an absolute time representation (date and hour) or a relative representation of the time axis (starts at 0).
- **Interval panel** :
- Select start and end date for the time axis.
- Reset time axis start and stop date. ("First point" and "Last point" buttons).
- **Marking panel** :
Select between an automatically calculated marking or a user defined one.
- **Display panel** :
Select axis color.
Enable/disable gridlines visualisation.
- Validate by clicking on "**OK**".

Time axis properties
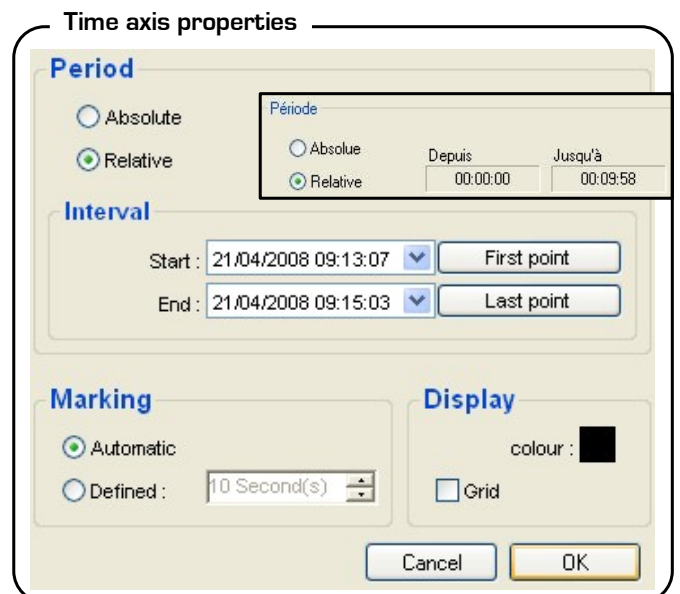
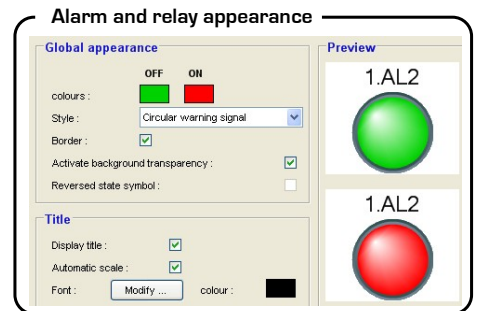## IV7-2- Synoptic visualisation
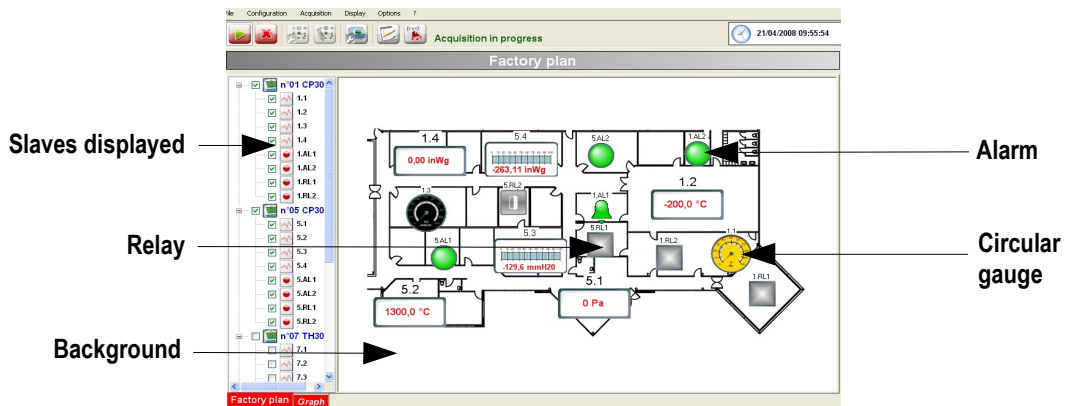
The synoptic visualisation shows slaves and alarms drawn on a background.

● **Display of elements :** On the left of the window, select the visualised or hidden elements by ticking the box ✔ .

● **Move a tag :** Keep clicking on the arrow ⊕ of the draw and move the element.

● **Resize a tag :** Select the drawing to be resized and modify length and width as wanted.

● **Tags alignment :** when you select one or more drawing a new tool bar appears, it allows you to align the drawings with each others. To select more than one element keep clicking on CTRL key and click on the drawings you wish to align.

● **Customize software and relay alarms :** right click on the drawing and click on "Tag properties".

> You can change on the "**Global appearance**" panel
>> - color,
>> - style,
>> - border,
>> - reverse state symbol
>> - activate the background transparency

Tools

Alarm and relay appearance

Available indicators :

| Circular alarm | Rectangular alarm | Bell alarm | Triangle alarm panel | Diamond panel | Contact symbol | Door symbol |

> With the "**Title**" panel you can :
>> - visualisation the title,
>> - Activate automatic size,
>> - Select font and color.

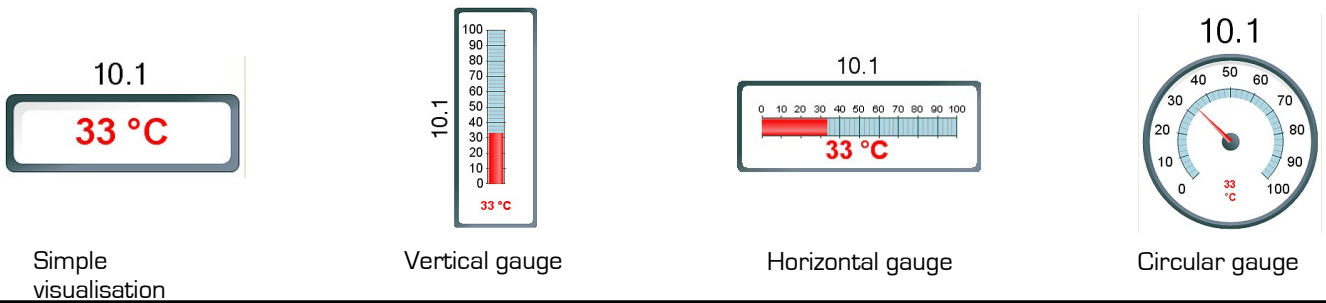> Validate by clicking on "**OK**".

Title
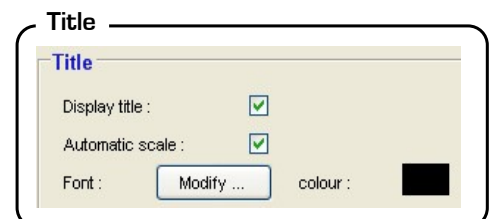
• **Customized channels :** Right click on the drawing and click on "Label properties". You can customize channels appearance and options :

➤ You can therefore select on the "**General appearance**" window.
- color,
- style,
- border,
- activate the background transparency
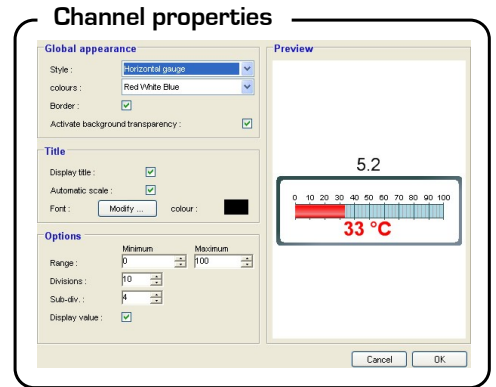
Channel properties

5.2

33 °C

Available gauges :

10.1

33 °C

Simple visualisation

10.1

33 °C

Vertical gauge

10.1

33 °C

Horizontal gauge

10.1

33 °C

Circular gauge

➤ With the "**Title**" panel you can :
- visualisation the title,
- Activate automatic size,
- Select font and color.

Title

Title	
Display title :	☑
Automatic scale :	☑
Font :	Modify ... colour :

➤ With the "**Options**" panel you can :
- select min. and max. of the scale,
- select division,
- select subdivision,
- visualisation/hide values.

➤ **Validate by clicking on "OK".**

Options

Options	Minimum	Maximum
Range :	0	100
Divisions :	10	
Sub-div. :	4	
Display value :	☑	
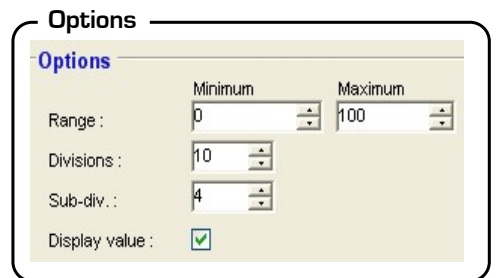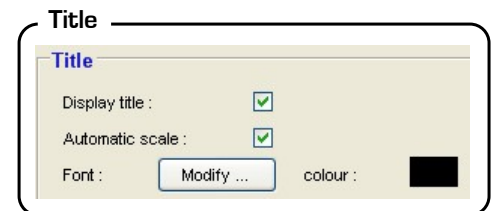
➢ By clicking two times on the slave you can access to **"Slave properties"**.

➢ A new window appears with :
    - real time values
   - curves
    - State of alarms

Sensor

Display

Module
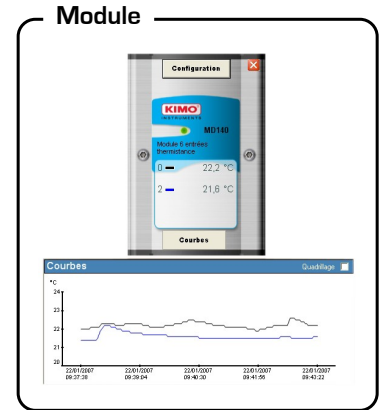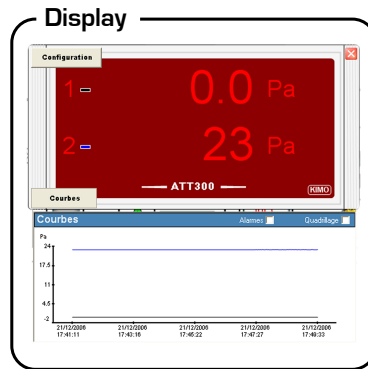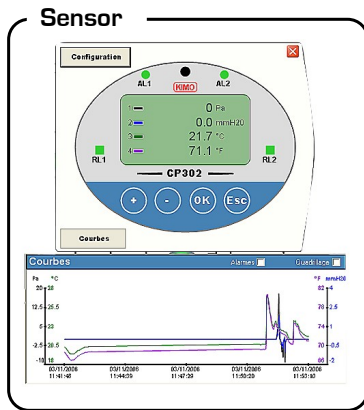
➢ To access to slave configuration, click on the "**Configuration**" key.

IV7-3- Pages management

It is possible to drive through different windows by clicking on tabs. By right clicking on tabs you can :

• Modify the tab order thanks to "Tab order" window.
• Select the page you wish to move, and then click on "step up" or "step down".
 Validate by clicking on "**OK**".

Tab order
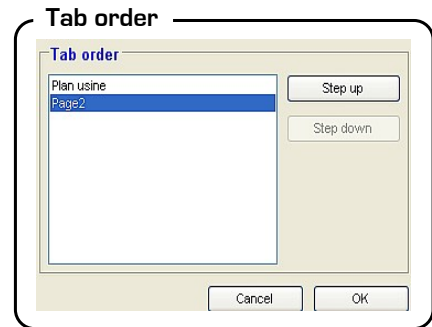
• Modify tab color on the "Tab color" window. It is possible to modify the color of the tab background and the text color. You can also select color for 'non activated alarm' and 'activated alarm'
 Validate by clicking on "**OK**".

Tab color
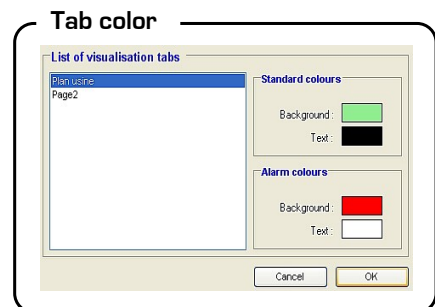
IV 8 – Akivision-A CFR

AKIVISION CFR meets the requirements of CFR21 standard. This standard is for users who want to control and secure their data acquisition system, its main functions being attributed by rights from groups management.

• Tick **"View log"** box to allow the supervision of main actions by the user.
• Tick **"Sign recordings"** box to allow users to sign files.

Groups management
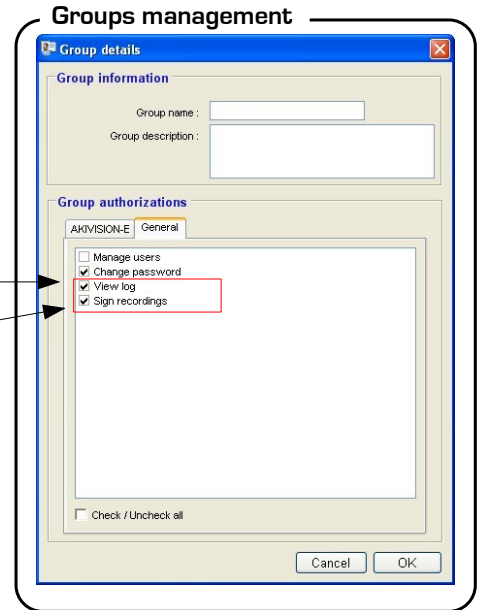
IV8-1- Supervision of the main actions

When **"View log"** box is ticked, user has access to the ..... window :
• Click on the menu **"File"** then **"View log"**.
The following window opens:

It is possible from this window to search for a specific event :
• Enter in the **"Event search"** area one or several search criterion (Event number, date, user...).
• Click on the **"Search"** button at the top right of the window or press **"Enter"** key of the keyboard from one the search areas to activate research.

NOTE
- The query is case sensitive (upper / lower case).
- The * character matches any character.
- Events for **"Authentication failed"** are identified by a red bottom line.

After looking for event, to go to back to full list of events:
• Erase all search criterion.
• Click on **"Search"** button or press **"Enter"** key.

Supervision of main actions allows a control of information contained in the log file and guarantees data integrity.

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