TOUCH PANEEL

Basic operation

English V1.6

Content

1 General

This manual attempts to explain the basic operation of the process management system "BatchXpert" and its compact system "BatchXpert Compact". The difference between the two systems is basically that the "BatchXpert Compact" system does not include all process management features and does not incorporate advanced historical records. These chapters can be omitted for "BatchXpert Compact" systems.

BatchXpert process management system that incorporates standardized modules that are used throughout its processes. These modules incorporate specialized features that are available to the user. The modules and their functions will be described later in the document.

The "BatchXpert" system also includes a system configuration and processes management features with their respective historical data. The configuration editor and historical data viewer are described in the respective manuals. This manual focuses on the overall management of the HMI, the images of process and control modules

For more information on the work system "BatchXpert®" see page www.Mlogics-Automation.com

2 Alarms

This screen shows the current system alarms that are active and historical alarms that were active in the system. Also it confirms alarms must be reset specifically by the operator. In addition it allows to confirm the alarms that must be reset by the operato.

1. **Current alarms**

This screen shows the currently active alarms in the system. These are the alarms that require the attention of the operators and are relevant to processes that are currently running, or that cannot be run due to these existing these alarms.
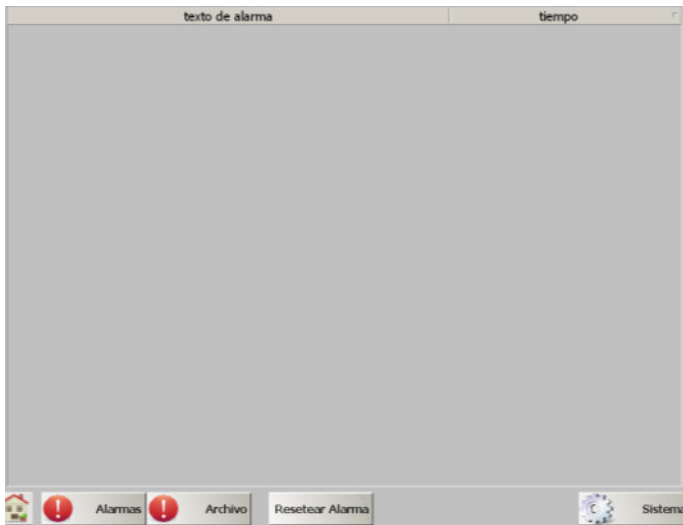
Every active alarm in the system shows the time when it was activated and the alarm message.

2. **Reset alarm**

This button allows you to confirm and reset each alarm activated in the system. If the alarm is reset, it isremoved from the list of current alarm. Only alarms that are not currently active can be reset. The still active alarms remain on the list of alarms even after reset these alarms.

3. **Alarms historical (Archive)**

This screen displays the historical record of the alarms generated by the system, noting the time and date of the moment in which the alarm is generated. This record allows to trace failures that occurred previously, and thus gives a more complete picture of a problem that was happending in the machine/Proces.

2 Trends

This screen allows you to observe archives of trends of analog values of the system (measurements), which are remembered by the HMI screen. These trends are saved in the internal memory of the keypad for a maximum of 7 days. After 7 days the data will be rewritten in new trends.

At the bottom of the screen is allowed to select one of several views of trends available in the system. The buttons open view more detailed graphics of trends.
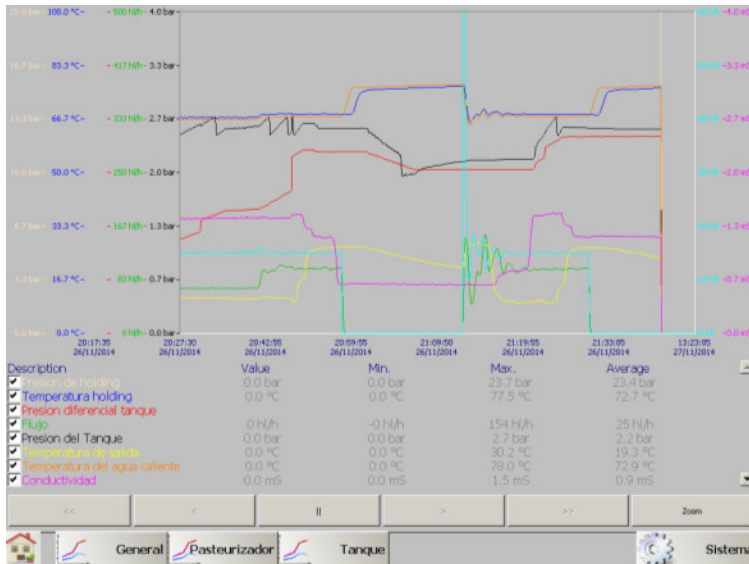
With a click on the "Pause" button, update the current view can pause (the data still remember it!), and enable the buttons "<" and ">" to view data trends more back in time. With the button "Zoom" can enlarge or decrease the time of visible trends, for more details.

3 System

"The HMI system configuration and control modules are designed with"**BatchXpert®**", it belongs to the family of work for process control systems"**BatchXpert ®**", developed by the company **Mlogics**.

In this program are They considered various criteria, from the time of short cycle up to the preparation of the programme with several prepared and standardized processes.

For more information about the system of work"**BatchXpert ®"** refer to page www.Mlogics-Automation.com

Since the Parameters screen the system settings screen can be accessed through the "System" button. The system with the corresponding authorisation level settings can be in this screen. You can make adjustments to control modules, change the settings of the HMI and also access several diagnostic screens.
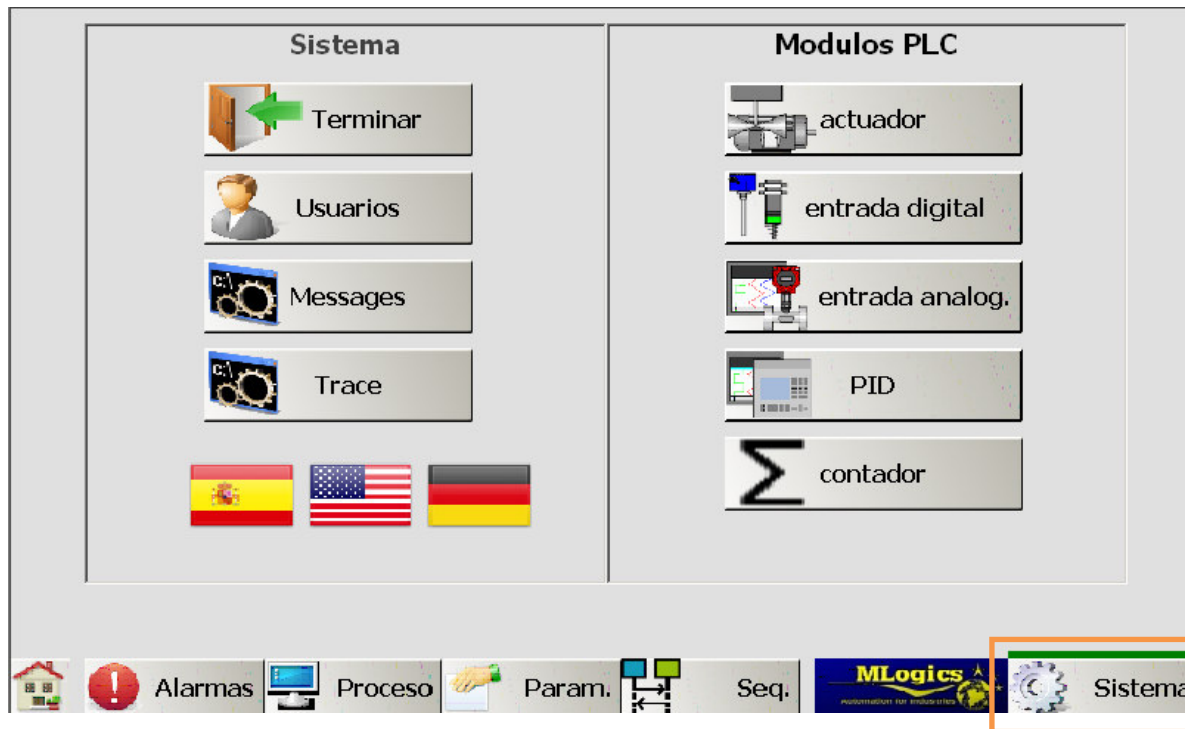
3.1 Finish

This button allows you to end the program display on the screen. There you can change the basic settings of the HMI as: IP address, brightness and contrast, files,...

3.2 Users

This button opens the configuration console users the operating system of the HMIfrom this button you can give Admin rights, change the password and the user, in addition to be able to make backups of data on the system.

3.3 Messages / Trace

Messages represent information internal HMI system. A message serves as guidelines for the maintenance of the system of display. These messages are only of interest to maintenance personnel. For more information about images, consult the manuals of the screen.

3.4 Language selection

These buttons allow you to change the language of the HMI interface

4 General operation in the process images

4.1 Symbols on the images of the process

All modules are represented by symbols on the images of the process. These symbols indicate the current status of the module with different colors. Although some modules have certain States that are represented with other colors in the images, all the images follow a basic outline. Usually States are represented by the color of the picture of the symbol and the symbol inside the box.

The colors of the standard modules are:

- **Alarm active (red)**

  An active alarm is represented with red tango at the command prompt, as well as in the picture

- **Alarm not active (orange)**

  This State is represented by red color in the box. Symbol color can show another State.

- **Simulation and ignore (yellow)**

  Simulation mode and ignore mode is represented in the colors yellow picture and symbol.

- **Location of warning (Pink)**

  Situations that require the attention of the operator, but are not directly fault, is represented with pink color in the table of symbols. These situations can be warnings, notices of States...
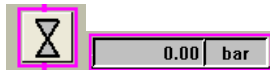
- **Automatic or manual (grey bright/grey dark)**

  If a module is in manual status or automatic is represented with different background color of the models

4.2 Enter nominal values

Each numeric value that can be adjusted by the operator, is entered through numeric entry boxes
`0.00`. Usually the nominal values (the values that can be adjusted) is represented with a color
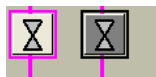of white or very brianto. the values actualos (which cannot be adjusted, which represent some
value of the system) to change is represented with color more dark background, so is destinge
more easily the nominal values of the current values.

Ratings click opens a dialogue of values that allows income enter the setpoint inside of the
permitted limits.

5 Modules

The parameters of the modules of control are visible through the window. Each sale of parameters of the modules allows you to select the module to adjust the data through a dynamic bar selection at the top of the screen.

Act No:	0	+	-	---	▼
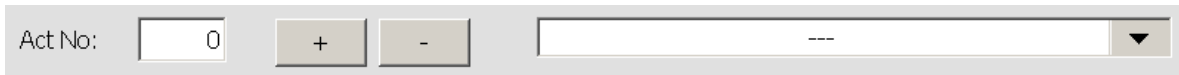
From this bar you can select the modules, the left side shows the number of module current, which can be changed using the buttons + and -, on the right is a bar which allows you to select the actuator by name or function.

The button is located at the bottom right Salida which allows to exit the modules configuration and return to the system menu.

5.1 Actuators

Actuators represent tall the elements that can be control on ground from the system. It is usuallytor includes valves, motors, pumps, lamps, etc.

The actuators have several different representations in the process images, ggenerally represent valves, motors, pumps or similar.

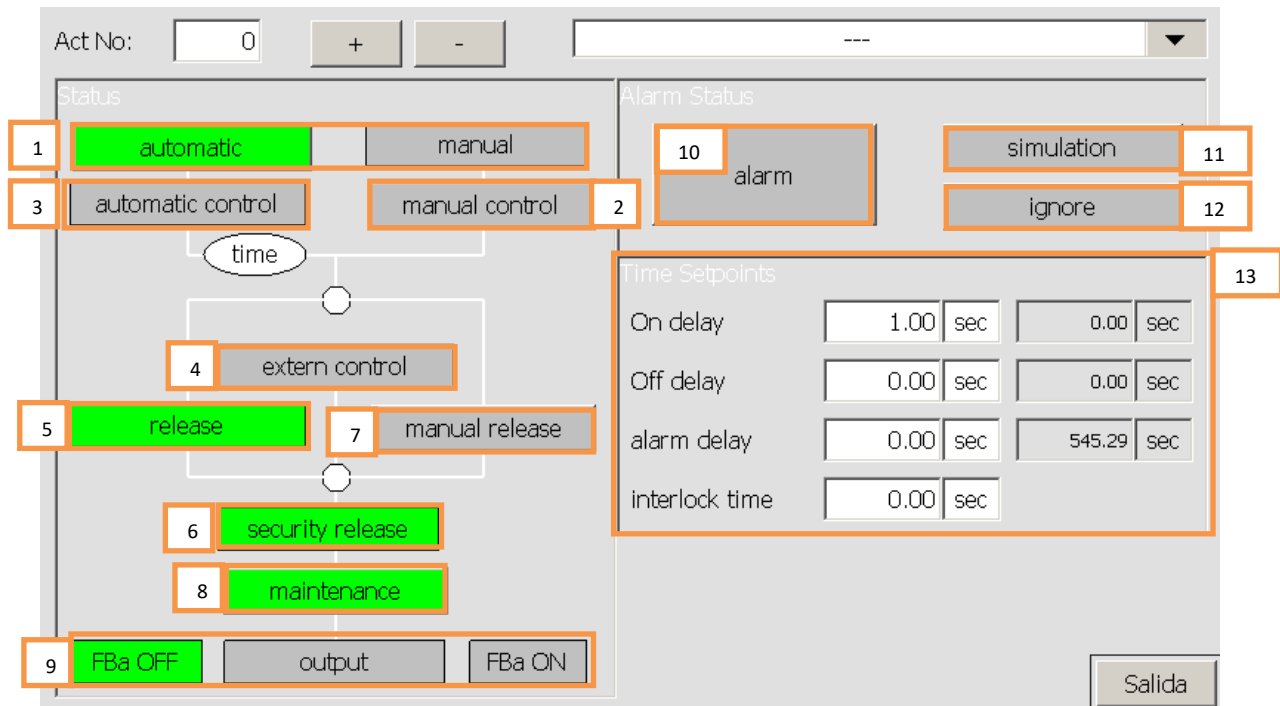Here some examples:

In this window you could examine andcurrent state l of an actuator, also from This window can change the the actuator configuration. This single window e ACIt is transferable with a level of high user, and not available to operators. It can ben adjust times of arrears, times of alarms and is I could configure the periphery of the actuator

States of actuator:

1. **Auto/Manual (green/blue)**
    This display mode actuator control. In "Auto" mode the actuator acts according to the control of the "Automatic Control" signal. In "Manual" mode the operator can activate "manual Control" to control the actuator manually as well.
2. **Automatic control (green/gray)**
    This symbol indicates the State of internal control of the PLC. If the process requires that the actuator is active, this signal isRA encendida. this signal only has effect if the actuator is in "Auto" mode.
3. **Manual control (blue/grey)**

The status of the signal to control the actuator in "Manual" mode. If the actuator is enceside will act, if It is in "Manual" mode. In "Auto" mode this signal has no effect.

4. **External control (green/gray)**
This represents the control coming from a third source "external". Generally this signal comes from a form of local field as buttons or similar control. This signal operates independent of the status of the "Automatic" signal, and also ignores the "interlocking of production".

5. **Interlocking production (green/red)**
This displays the status of the production of this actuator interlock. Usually this interlocking includes locks to avoid damage to the product produced, or startup scripts, when the process has to follow a sequence of light to avoid problems in the process. This lock can be deactivated with the option "Manual release".

6. **(Green/red) safety interlock**
This single interlocking includes blocks that have to do with the security people and the safety of the equipment. Usually includes blocks such as bumpers, absolutes, limits stops emergencies, etc. ESte lock can not be ignored with no option. This locking is always active.

7. **Manual release (blue/grey)**
This option allows the program to ignore the "interlocking production", eThis is a function for maintenance. Of This way you cann try actuators without that whole process is in March. Of Anyway not this feature must be turned on permanently, andto that as well, production interlocks that should ensure the product are not active, of This way the process is not secure! , Yes This mode is activated, the actuator gets blue in the pictures of the process.

8. **Maintenance (red/grey)**
This mode allows you to lock a drive so that it can not be activated with any form of control. This mode is intended to block a computer when it is in maintenance. When this mode is activated, the actuator gets black in images process.
THIS ACTION DOES NOT BATTERTO NI RELEASES AL L OPERATOROS LOCKS ELECTRIC OR MECPIECES NEEDED FOR EQUIPMENT!

9. **Status of the periphery (blue/green)**
This displays the current status of the actuator. There you can see if the actedr you have your ignition, shutdown confirmation confirmation and if tries to activate the actuator to its "output".

10. **Alarm (red/grey)**
This indicates if the actuator has the status of alarm or if the alarm is not confirmed. Each actuator always monitors the status of your confirmations and throws an alarm if the confirmations are notn According to the spectator.
If the alarm still persists in the actuator, the circle to the left of the indicator isá Red; This means that the actuator is still in a State of failure, and the problem still persists. Thus the alarm of the actuator could not be confirmed.

If this grey cirules, means that there was an alarm, which is already resolved but not confirma. Alarm with a click I confirm to the alarm indicator.

11. **Simulation**

This function allows you to completely simulate the periphery of the actuator. That means that the actuator ignores completely the status of its "feedback" and always assumes that the "Feedbacks" are in good condition. This mode is used if a feedback is lost, but the process must continue to operate. Thus the process cane operate without regard to the State of this actuator. The actuator output is not affected by the simulation. If activated actuator turns yellow in the image of the process.

12. **Ignore alarm**

If this function is enabled, the module will not trigger any alarm. The module still worksNdo with all its functions activateas, but not activate alarms. If activated mode ignore, the module gets yellow in the image of the process.

13. **Actuator timers**

The actuator has three internal timers that can be adjusted by the user.

The "off delay" is the time that the actuator is still activated, although the program already does not give it trigger signal.

"On delay" is long the actuator waits to be activated when it receives the control signal.

The "Alarm delay" is long the actuator waits until their Feedbacks are the expected state, before activating an alarm.

5.2 Digital Inputs

A digital input represents all entries that may have only two States. In this category fall such as level sensors, proximity sensors, buttons, sensors etc.

In the process images the digital input is represented by the following symbol:
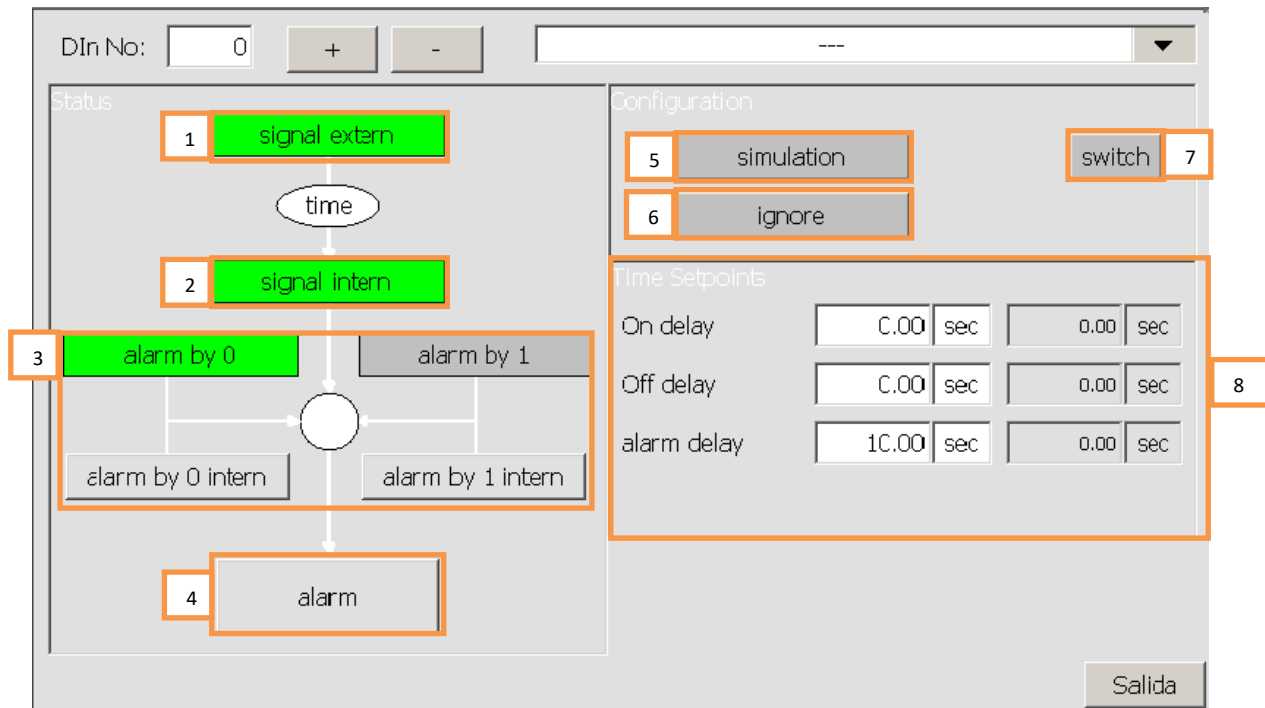
This window represents the State and basic settings of the digital inputalso en this window can change the configuration of the digital input. ESTa Come hereTana just and accessible with a user-level high, not being available to operators. Adjustable time delays, times and types of alarms.

1. **Signal of periphery/Externa(Blue/green)**
   This symbol indicates direct, regardless of delays or simulations, the State of la the periphery of the digital input signal. This value only is occupied for the purposes of maintenance. If the operator wishes to know the status of the digital input, you should consult the "Signal" indicator

2. **Signal internal (Blue/green)**
   This represents the status of the signal with which works the internal program. Usually This signal depends on directamente of la signal from the periphery, but there also apply to arrears you canin set in the inputa, and is also considered the simulation mode.

3. **Alarm to 0 or 1 (blue/green)**

   This is a setting that I could do in the digital input. This single setting is available to system administrators. Operator could see that the setting is enabled, but could disable, or enable this setting.

   You're two settings indicate when the input enters the State of alarm. Depending on the sete the entrance has alarm if la "Signal" is turned off or encendida, or both; Of course applies the alarm delay before activating the alarm module.

4. **Alarm (red/grey)**

   ESTa indicates if the entry has the status of alarm or if the alarm is not confirmed. Each digital input alarm depending on the setting "0 alarm" and "Alarm 1".

   If the alarm still persists in the entry, the circle to the left of the indicator is red. This means that the entry is still in State of failure, and the problem still persists. Thus the input alarm could not be confirma.

   If this grey cirules, means that there was an alarm, which is already resuelta but not confirma. Alarm with a click I confirm to the alarm indicator.

5. **Simulation (yellow/grey)**

   This function allows you to completely simulate the periphery of the module. That means that the "Signal" that uses the program to react to the State of the digital input already does not depend on of la "Periphery signal", but could be adjusted by the operator according to the requirement of the process. EStor permits, the following processa worksNdo even if a sensor is failing.

6. **Ignore alarm (yellow/grey)**

   If this function is enabled, the module will not trigger any alarm. The module still worksNdo with all its features enableds, but not activate alarms. If mode ignore, the module gets yellow in the image of the process.

7. **Switch (blue/green)**

   This is a setting that I could do in the digital input. This single setting is available to system administrators. Operator could see that the setting is enabled, but could disable, or enable this setting.

   The setting makes digital input a "switch" retained, estor means What If the entRada of the periphery is turned onthe entrance is set the 'signal' to the status on (green). The digital input is going to maintain this State, although the signal from the periphery already faded, until it detects the second beat of the signal from the periphery. This reteni signaldto (remains on even if the signal from the periphery est)e off)

   This function could have for example to keypads that handle pumps with a single button. When the operator pushes the button, turns on a pump until the operator pushes the button again.

8. **Timers**

   The module has three internal timers that can be adjusted by the user.

   The "off delay" is While the sensor is activated, while the periphery is no longer encendida"

"On delay" is while the module waits for actIvar "Signal" when internal la "Periphery signal" is encendida.

The "Alarm delay" is while the module waiting to activate the alarm when the module in compliance with its condition of alarm "Alarm 1" or "Alarm 0".

5.3 Analog inputs

An analog input represents all measurements that are connecteds system. An analog input represents this measurement and displays the value of this measurement. Also you could set various limits of warning and alarms that activate certain functions and alarms.

In the images of the process the analog input is represented by the following symbol:

| 0.00 | °C |
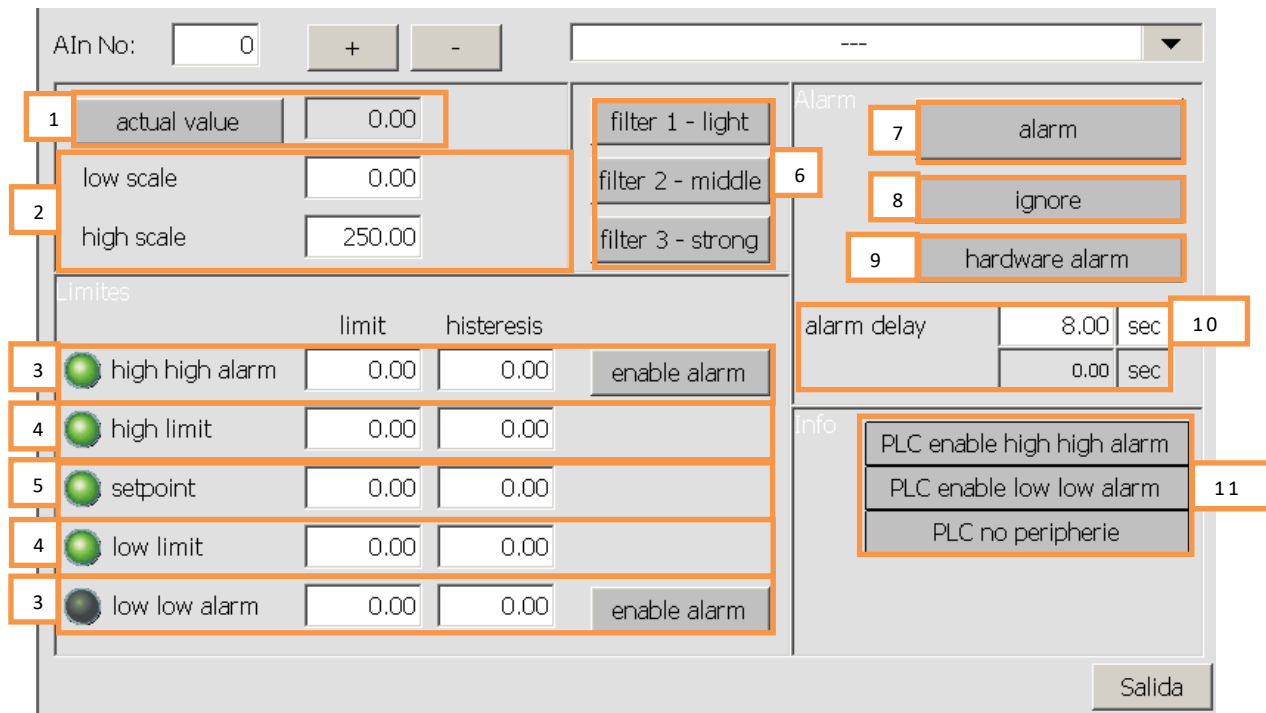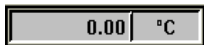
In this window you could change the configuration of the analog input. ESTa single window is accessible with a level of usero high, and is not available to operators. Adjustable time delays, times and limits the value of process.

> **The hysteresis** values generates a "dead band" to avoid the corresponding signal this to fluctuate too much. The hysteresis function with all limit values and always up and down the set value. If the value of process becomes less than the value set on the limit less the hysteresis, the corresponding limit signal is disabled. Lights limit signal again, if the value of the process to be more than the limit value plus the hysteresis.
> **For example**: If the limit value is set to 90 with a hysteresis of 30.
> Signal of limit shuts down when the value of this process under 90 - 30 = 60.
> If the process value goes up again, limit signal turn back on when the value reaches 90 + 30 = 120.

The current state of the signs limit You can see on the left side of each bound in circles. If this circle this Green the module was found to be the value of process on the set limit value, also considering hysteresis. Yes this Gray, the process is under the limit, also considering hysteresis.

1. **Value of process (grey/white/yellow)**
   In this picture the module shows your current process value and its unit of iNGeniERIA. This value represents the value instant of esta meediting as incorporating all escalations, and filters.
2. **Scaling**
   You're values adjust the scaling of esta analog input. Since almost all thes measurements analogicas are connectedas with any interface standardized as 0-20mA, 4-20mA, 0-10V,... To be able to evaluate Thiss values, the system should know the value of the minimum value of the interface and the maximum value of the interface. Thiss values depend completely from the measuring equipment that is connected to the analog input of the PLC Board. The scaling value of la interface of the connected equipment, and the scaling of the interface of the module must always be equal.
   For example:
   If connect a temperature sensor that sends a signal 4-20mA, where 4mA corresponds to 20 ° C and 20mA corresponds to 120 ° C, the scaling must be set in the module at 20 ° C-120 ° C.
3. **High/low alarm**
   If the value of the process exceeds or low these limits, by more than the hysteresis active, the signal of "High value" or "value under" in the program. The State of estas signal is flago by circles on the left side of the setting.
   If an alarm is activated, Thiss signals initiated the alarm delay. If this delay, the module active its general alarm, indicated by the red color.
4. **Limit Hi/Lo**
   These two values are available to be useds by the user. The operation of Thiss values depends only on the implementation in the project. By default, you are two values have no effect.
5. **Nominal value**
   This value is available to be used by the user. The operation of this value depends only on the implementation in the project. By default, this value has no effect.
6. **Filters**
   If you try to measure values with much fluctuation, as currents or streams with a peristaltic pump, the value of the measurement is going to be very unstable and may affect regulators in a negative way. If you turnn Thiss filters, the value of process is "smoothing" with an algorithm built into the system. To obtain one "softening" of the system, you can enable multiple filters at the same time.

7. **Alarm**

This indicates whether the module currently has the State of alarm or if the alarm is not confirmed. Each module turns your alarm according to their alarm limits setting upper and lower.

8. **Ignore alarm (yellow/grey)**

If this function is enabled, the module will not trigger any alarm. The module still worksNdo with all its features enabled, but without activating alarms. If mode ignore, the module gets yellow in the image of the process.

9. **Alarm Hardware**

If this setting is enabled, the system monitors the status of the signal from the periphery. If the module detects a fault in the interface, such as a cut wire or a dead sensor, the module active state of alarm and indicates the failure of periphery in the box "status "periphery.

10. **Alarm delay**

If you have activated la signal of "High value" or "value under" and the poIftion of the corresponding alarm is activateaThis delay comienza to count. If the Timer ends, the module goes into alarm mode.

11. **State of periphery**

This indicates the status of the periphery which is connected to the PLC interface. If the adjust "Hardware alarm" is activated in the module, and the module detects a fault in the interface, this box indicates that failure is Active.

5.4 Analog output (PID controller)

An analog output represents all computers that could be controlled with an analog output signal. This module also implements the full operation of a PID controller, with all its settings and limits. If the function of a regulator is not required, you can disable the function of the regulator and operate analog output directly as the value to external equipment. This module deals for all type of regulations, as vPN regulatory, regulation of flow... Also it occupied it in directly, without all control, as nominal values to variable frequency drives, or other equipment.

PID No:	0	+	-	--- ▼

1 actual value	18.45	filter 1 - light	**8** alarm	ignore **9**
2 setpoint	60.00	filter 2 - middle		
3 output	0.00	filter 3 - strong		

Alarm
delay check 900.00 sec 0.00
limit min / max 80.00 0.00
delay limites 10.00 sec 0.00 **10**
histeresis 2.00
delay limites 60.00 sec 0.00

Parameter
CA proportional 8.0000
integral 3.0000
differencial 0.5000 **4**
deadband 0.00
fuzzy 0.0000

Start Parameter **6**
0.00 %
0.00 sec

Fix output value
50.00 %

Output Min/Max 0.00 % 100.00 **7**
Output Ramp 0.00 % / sec **4**

Salida

This window can change the configuration of the regulator. ESTa single window is accessible with a user-level high, and is not accessible to operators. It can ben adjust values of the algorithm of regulation, the alarm values, and other functions.

1. **Value current of the process**
   This represents the current value of the process controller is set for its regulation algorithm. This value usually comes from an analog input. This value can be simulated when the "Simulation" mode is activated.

2. **Nominal value/ Set point**
   This represents the nominal value of the regulator. The regulation algorithm will attempt to adjust its output in such a way that the value of the process goesEU the closest, as soon as is possible to the nominal value. Usually this value comes of processes and their sequences. If the 'Nominal value in manual' mode is activated, the value could be adjusted without any interference from the process. In this mode the nominal value can be

adjusted shaped directa to the regulator. This is the corresponding operation manual control of an actuator.

3. **Value of output**

This represents the current value of the regulator output. Depending on the regulated equipment that corresponds to an angle of aperture, speed...

If "Manual output" mode is enabled, this value could be adjusted directly, without the throughMO of regulatory intervention in This value.

4. **Parameters of the PID algorithm**

This table fit all the necessary parameters for the PID algorithm.

- The values **Proportional, Integral and differential** they indicate the basic parameters of the algorithm of regulation. You're values directly affect the behavior of the controller and must only be adjusted by experts on regulations. For more information please review the articles"http://en.Wikipedia.org/wiki/PID_controller"on PID control.

- **Fuzzy Logic**

   When ES need the programmer can supply up to two values of "Fuzzy Logic" to the regulation algorithm. A factor, which indicates how much this value affects the output of the regulator can be adjusted in parameters.

- "**Band death**". This sets a range of regulation where the controller does not modify its output value.

- **"Output ramp".** This value limits the modification of the output to a value in % / sec. If the regulator changed its output value faster than this value, the algorithm limits this and only modifies the output with the adjusted maximum ramp. This value is You can use valves or pumps, to avoid damage by an abrupt adjustment. With the value 0.0, the ramp is disabled and allows instant changes to the output.

5. **Filters**

The"Filters"they work in the same way as the filter of the analog inputs and allow to"soften"the value of process before joining it to the PID."

6. **Home and output**

In this picture the behavior of home of the regulator can be adjusted. There are mainly two forms of home of the regulator:

- **Start with fixed value for time**

   With this option the controller starts with a fixed value for some time. Home value can be set in the "start value" and while maintaining this value without adjusting the regulation can be set with the value "Start time"

- **Immediate start with value proportional (Kp)**

   If the value of the start time is set to a value of 0 or negative, the regulator starts with an initial value corresponding to the proportional factor.

7. **Scaling**

After the PID algorithm can scale the output to the required value. This function also output can be limited to a certain maximum or minimum. The value "Entry" corresponds to the internal value of the regulator output that corresponds to a value between 0 - 100% and the value of "Output" corresponds to the value of output for the user.

8. **Alarm**

   This indicates if the module currently has the State of alarm or if the alarm is not confirmed. Each module turns your alarm according to their alarm limits setting upper and lower.

9. **Ignore alarm**

   This button is used to be able to ignore an alarm and so continue the process.

10. **Alarms and limits**

    You could set alarms for the regulator limits. "Late check-up" value indicates a time by which the supervision of boundaries is delayed. This time starts when the controller is started. So time can be adjusted inside of which regulator should have regulated their value from process.

    In the first category you can adjust the **limits** absolute, which cannot exceed the value of process. When the process value exceeds values you are after that "Late check-up" was fulfilled, the controller generates a fault.

    One can be adjusted **hysteresis**which indicates the maximum permissible deviation of the processes at their nominal value. This value is newly activated when "Late check-up" time was fulfilled.

5.5 Counters

A counter is a module that has the d pulsee a digital input. Usually this module deals for (for example), count the number of flow through undergroundAndo a pulse of quantity.

Timer settings could be changed in this window. ESTa single window is accessible with a user-level high, and is not accessible to operators. You can adjust values limits, and the values that has every impulse.

1. **Simulation (yellow/grey)**
   This function allows you to completely simulate the periphery of the module. That means that the "value of process" that uses the program, no longer dependent on the "value of periphery", but I could be adjusted by the operator according to the requirement of the process. Eso it allows the process to follow worksNdo Although a sensor This failing.
   If this mode is enabled, the value of process becomes yellow, indicating the simulation mode.

2. **Reset**
   This button resets, the current value of the counter, to cePol This single button is released If the counter has not enabled the option "Reset lock"

3. **Value of impuLSO and pulse counter**
   Estes two values indicate the value that each pulse to the value of processes, and the counter shows the number of pulses that are posted on the counter from the last reset operation

4. **High/low alarm**

If the process value exceeds or lower this limit, even if the hysteresis is activated the "High value" or "value under" in the program. The State of Thiss signals is indicated by circles on the left sideo the adjustment.

If an alarm is activatea, estas signals initiated the alarm delay. If this delay, the module active its general alarm, indicated by the red color.

5. **Limit Hi/Lo**

   These two values are available to be useds by the user. The operation of you are values depends only on the implementation in the project. By default, Thiss two values have no effect.

6. **Nominal value**

   This value is available to be used by the user. The operation of this value depends only on the implementation in the project. By default, this value has no effect.

7. **Alarm**

   This indicates if the module currently has the State of alarm or if the alarm is not confirmed. Each module turns your alarm according to their alarm limits setting upper and lower.

   Alarm with a click I confirm to the alarm indicator.

8. **Ignore alarm (yellow/grey)**

   If this function is enabled, the module will not activate nolarma. The module continues to work with all its features enableds, but not activate alarms. If mode ignore, the module gets yellow in the image of the process.

9. **Alarm delay**

   If activated the signal of "High value" or "value under" and the potion of the corresponding alarm is activated, this delay begins to count. If the Timer ends, the module goes into alarm mode.

10. **Alarm Hardware (red/grey)**

    This alarm indicates if la "Push" timer signal do not get within its pulse alarm delay. If no momentum inside has not reached this period of time, the alarm is activated.

11. **Alarms minimum and maximum (green/gray)**

    You're instructions indicate if minimum and maximum alarms are activateas for this module.

12. **Alarm external (Red / grey)**

    This signal indicates an alarm that comes from out of the module (external). Usually this is occupied to represent alarms of equipment external that emit pulses that the counter is counting.

13. **Block reset (green / gray)**

    If this option is starta, the counter not can be reset in shape manual. This signal not could be activatea by the operator, that is a signal that is occupied during the process. This function prevents that be resetee the timer manually by accident.

6 Hardware (PLC)

The BatchXpert Control System is generally running on Simatic S7 compatible PLCs such as the "Vipa Speed 7" series, the Siemens S7-300 series or the Siemens S7-400 series. All of these PLCs are generally similar, but have some differences. For more details please view the Manuals of the respective CPU installed in the Project. However there are some general considerations common to all S7 compatible CPUs.

6.3 Operating Mode Switch

The **default operation mode for BatchXpert is "Run" or Run-P"** where available. Stop may only be active for specific Maintenance task where a Technician is required.

- With the operating mode switch you may switch the CPU between STOP and RUN.
- During the transition from STOP to RUN the operating mode START-UP is driven by the CPU.
- Placing the switch to MRES (Memory Reset), you request an overall reset with following load from MMC, if a project there exists.

6.4 Memory Reset (Factory Reset)

A memory Reset of the PLC will delete all data stored in the memory of the PLC! This includes ALL data including the process Logic and data. **After a Memory Reset a subsequent Download of the PLC program is ALWAYS required**! For guidance on how to restore a PLC Backup please read the manual "Manual Restore PLC".

It is NOT recommended to perform Memory Resets without prior clarification of a trained technician. Please keep in mind the following:

- *All logic will be deleted until downloaded again into the Controller, which must be performed by a trained technician! This means that there will be NO logic whatsoever running in the controller. No Valve or Motor functionality, not even Manual; No HMI will be able to connect.*

- *Parameters and Settings of all the control Modules (such as: Regulators, Valves, etc.) will be reset to the values that where set at the time that the backup was taken.*

- *While restoring a backup, all PLC data and processes will be reset to the time where the backup was taken. ¡This means that all the sequences and ALL processes lose their status and will be reset, making it impossible to continue with a process that was currently underway!*

- *After restoring the backup the statutes off all processes must established, the appropriate recipes must be initiated and the units must advance their steps into the corresponding steps.*

6.5 Battery backup for clock and RAM on "VIPA Speed 7"

A rechargeable battery is installed on every CPU 31xS to safeguard the contents of the RAM when power is removed. This battery is also used to buffer the internal clock. The rechargeable battery is maintained by a charging circuit that receives its power from the internal power supply and that maintain the clock and RAM for a max. period of 30 days.

CAUTION!

Please connect the CPU at least for 24 hours to the power supply, so that the internal accumulator/battery is loaded accordingly. After a power reset and with an empty battery the CPU starts with a BAT error and executes an overall reset. The loading procedure is not influenced by the BAT error. The BAT error can be deleted again, if once during power cycle the time between switching on and off the power supply is at least 30sec. and the battery is fully loaded. Otherwise with a short power cycle the BAT error still exists and an overall reset is executed.
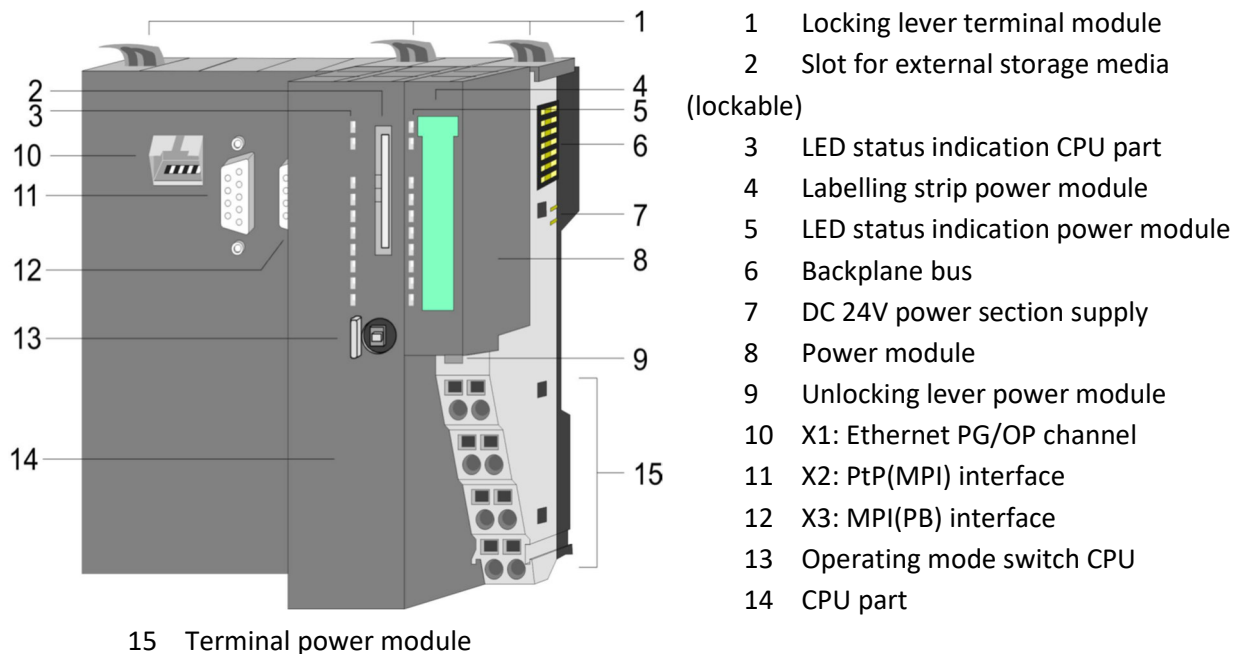
6.6 *Hardware of an "VIPA Speed 7"*
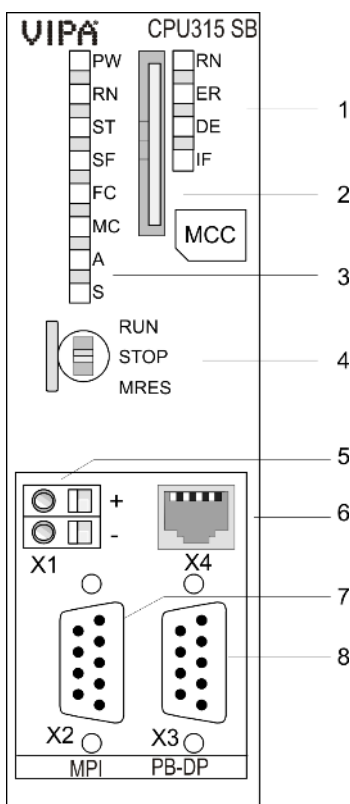
The following shows the Hardware and LEDs of a Vipa Speed 7 CPU

1 LEDs of the integrated PROFIBUS DP master
2 Storage media slot (lockable)
3 LEDs of the CPU part
4 Operating mode switch CPU
5 Slot for DC 24V power supply
6 Twisted pair interface for Ethernet PG/OP channel
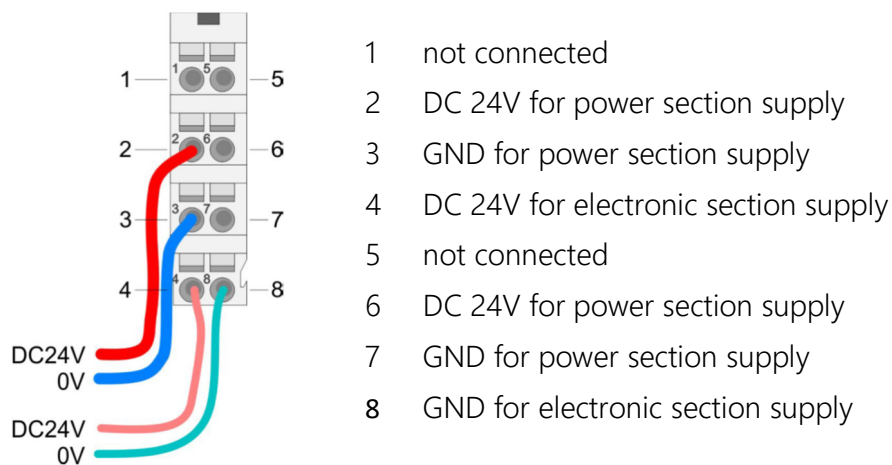7 MPI interface
8 PROFIBUS DP/PtP interface

Components 5 - 8 are under the front flap!

6.7 Hardware de un "VIPA Speed 7 SLIO"

Lo siguiente se muestra el hardware y LEDs de un CPU Vipa Speed 7 SLIO

1	Locking lever terminal module
2	Slot for external storage media (lockable)
3	LED status indication CPU part
4	Labelling strip power module
5	LED status indication power module
6	Backplane bus
7	DC 24V power section supply
8	Power module
9	Unlocking lever power module
10	X1: Ethernet PG/OP channel
11	X2: PtP(MPI) interface
12	X3: MPI(PB) interface
13	Operating mode switch CPU
14	CPU part
15	Terminal power module

Modulo de Poder

1	not connected
2	DC 24V for power section supply
3	GND for power section supply
4	DC 24V for electronic section supply
5	not connected
6	DC 24V for power section supply
7	GND for power section supply
8	GND for electronic section supply

6.8 General LED of an "Vipa Speed 7"

The following Table shows the LED stats of a Vipa Speed 7 CPU. The default Status is marked in Green.

The "SF (SFAIL)" may be active while a Profibus Slave is missing. Please check the Profibus LED status and the connected Profibus Stations such as Remote IO Stations or Frequency Converters.

RN (RUN)	ST (STOP)	SF (SFAIL)	FC (FRCE)	MC (MMC)	Meaning
green	yellow	red	yellow	yellow	
Boot-up after PowerON					
●	BB*	●	●	●	* Blinking with 10Hz: Firmware is loaded.
●	●	●	●	●	Initialization: Phase 1
●	●	●	●	○	Initialization: Phase 2
●	●	●	○	○	Initialization: Phase 3
○	●	●	○	○	Initialization: Phase 4
Operation					
○	●	X	X	X	CPU is in STOP state.
BB	○	X	X	X	CPU is in start-up state, the RUN LED blinks during operating OB100 at least for 3s.
●	○	○	X	X	CPU is in state RUN without error.
X	X	●	X	X	There is a system fault. More information may be found in the diagnostics buffer of the CPU.
X	X	X	●	X	Variables are forced.
X	X	X	X	●	Access to the memory card.
X	BB*	○	○	○	* Blinking with 10Hz: Configuration is loaded.

on: ● | off: ○ | blinking (2Hz): BB | not relevant: X

6.9 Ethernet LED of an "Vipa Speed 7"

The green L/A-LED (Link/Activity) indicates the physical connection of the Ethernet PG/OP channel to Ethernet. Irregular flashing of the L/A-LED indicates communication of the Ethernet PG/OP channel via Ethernet.

If the green S-LED (Speed) is on, the Ethernet PG/OP has a communication speed of 100MBit/s otherwise 10MBit/s.

6.10 Profibus LED of an "Vipa Speed 7"
The "SF (SFAIL)" may be active while a Profibus Slave is missing. Please check the Profibus LED status and the connected Profibus Stations such as Remote IO Stations or Frequency Converters.

RN (RUN)	ER (ERR)	DE	IF	Meaning
green	red	green	red	
○	○	○	○	Master has no project, this means the interface is deactivated respectively PtP is active.
●	○	○	○	Master has bus parameters and is in RUN without slaves.
●	○	B B	○	Master is in "clear" state (safety state). The inputs of the slaves may be read. The outputs are disabled.
●	○	●	○	Master is in "operate" state, this means data exchange between master and slaves. The outputs may be accessed.
●	●	●	○	CPU is in RUN, at least 1 slave is missing.
●	●	B B	○	CPU is in STOP, at least 1 slave is missing.
○	○	○	●	Initialization error at faulty parametrization.
○	●	○	●	Waiting state for start command from CPU.

on: ● | off: ○ | blinking (2Hz): BB

7 Pantalla Tactil (Movicon)

The HMI screen manufactured by the company VIPA uses the Windows CE operating system and MoviconCE software as HMI solution. The operating system of the screen manages the basic and general operation of this screen (it is recommended not to change any settings) and MoviconCE software which runs the visualization project.

The project Engineering for the HMI Solution is done using the Movicon V11.4 (Current to 01.2016) software. All Movicon software is developed by the company Progea.

In order to Download HMI Projects to the Touch Paneel, the Movicon V11.4 Software is required to be installed on a computer. The software can be downloaded from the website of Progea "www.progea.com".

7.1 When to Restore (Download) an Project into the Touch Paneel

It is important to clarify at what circumstances one needs to restore an project to the HMI screen, in order to avoid confusion if the display is operating normally or has problem. Restoring or Downloading an HMI Project will NOT solve problems related to the Controller (PLC), or the general workings of the Automated process. Only HMI Related problemas might be solved during Downloads.

To restore an HMI screen on must always load the latests project backup available, which is usually handed over when finalizing the project-

When to download an Project to the Touch Screen

1. When the HMI screen has not yet been commisioned, this occurs when the previous screen HMI suffered irreparable damage (screen damage, submersion in liquid, etc.) which caused a replacement of the screen.
2. When the customer requests a change in the images on the screen

When NOT to download the Project into the Touch Screen

1. To solve an communication problema between the HMI and the PLC
2. To solve problems related to recipe loading, process handling or field instruments like valves motores etc.

7.2   Cargar proyecto al HMI

Este item describe el procedimiento que se debe realizar para cargar un proyecto al HMI.

Es importante considerar direcciones IP del computador y el HMI.

Comenzamos en la carpeta del respaldo abrienlo en archivo 🔘 ".movprj" el cual ejecuta el software Movicon iniciando con el proyecto.
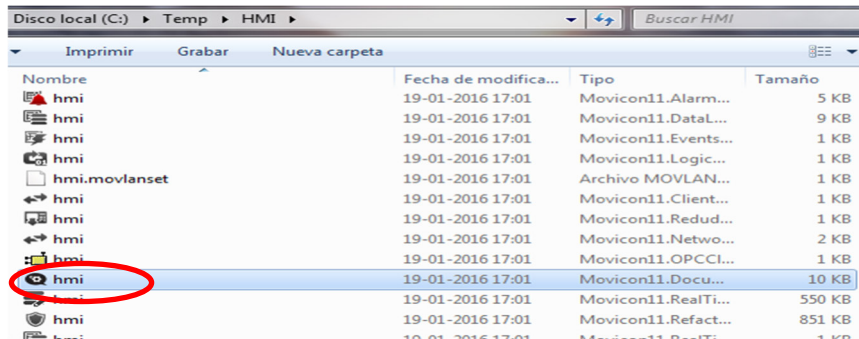
Aparecera un mensaje donde se debe ingresar la clave del producto, esto se puede ignorar haciendo cilck en cancelar.

Una vez abierto el Movicon con el proyecto se puede proceder a iniciar la carga al HMI del Proyecto siguiendo los siguientes pasos:

1. Para transferir el proyecto debemos hacer click en "Upload del proyecto al dispositivo/FTP" 🔲 , en donde se abrirá una ventana donde ingresamos dirección IP, interface de comunicación, y la ruta de donde guardaremos en proyecto.

2. En este caso la interface es a través de Ethernet por lo que debemos seleccionar "TCP"

3. Ingresar la dirección IP de la Pantalla HMI en "Server".

4. El directorio en donde guardaremos en proyecto en la pantalla HMI en "Patch del dispositivo" es "\Flashdisk\Movproj\Visu".

5. Una vez ajustado estos datos hacemos click en "Trasferir Proyecto (Upload)"

6. Aparecerá un mensaje de "Velocidad de transferencia" en el cual se debe seleccionar "velocidad baja"
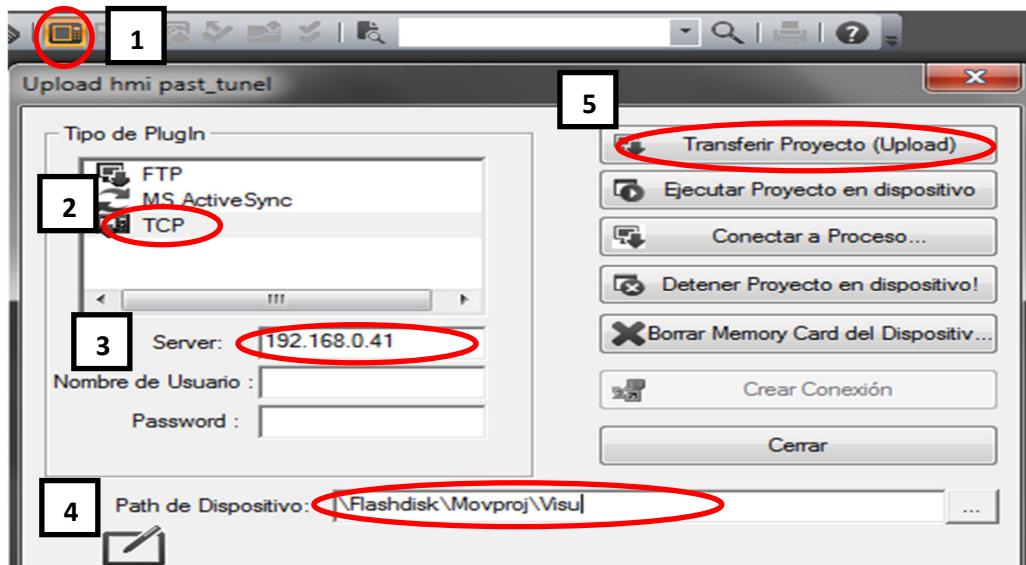
7.3   Configuracion HMI nueva

si la pantalla HMI es reemplazada por una nueva se deben realizar las siguientes modificaciones en el equipo.

1. Configuracion de dirección IP

por lo general las direcciones IP corresponden a 192.168.0.41 para el primer puerto y 192.168.0.42 para el segundo puerto. (verificar las direcciones IP en el archivo "Project Information"). Para ajustar la direccion IP debemos activar el teclado tactil, luego ir a inicio/settings/network en donde se encuentran los dos adaptadores de red, con un doble click sobre el adaptador abrira las propiedades y una vez configurada la direccion clic en "ok" para finalizar.
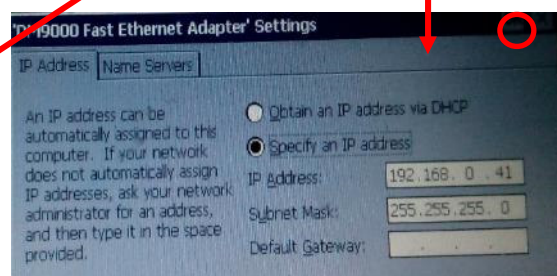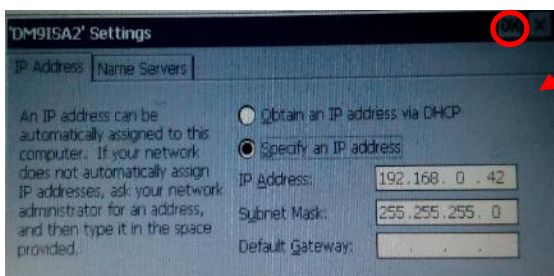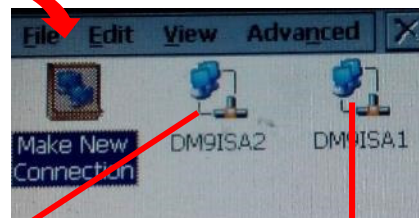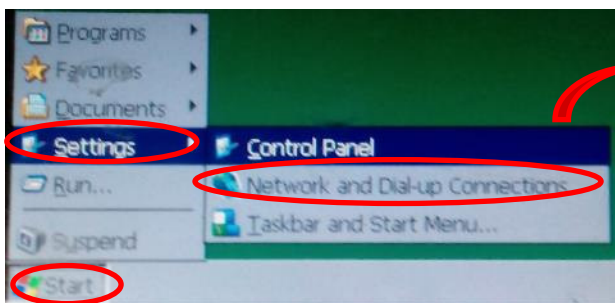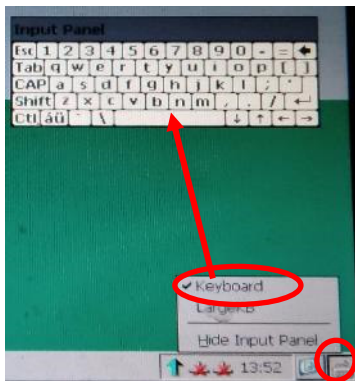
2. Ajustes para el inicio automatico del proyecto.

Siempre al encender el HMI automaticamente ejecuta la aplicacion MoviconCE para la ejecucion del proyecto, pero se debe seleccionar el proyecto el cual queremos visualizar.

Al encender la pantalla HMI se iniciara abrirá una pantalla con fondo verde en donde aparece un boton con una cuenta regresiva, a este boton se debe hacer un clic antes que finalice la cuenta regresiva para entrar en las configuraciones.
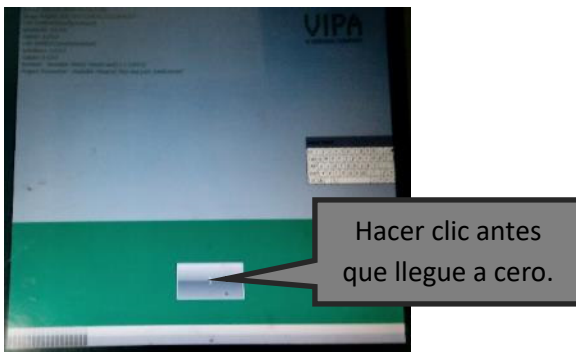
Luego abrira una pantalla en donde seleccionamos el Autostart/"Project Patch/Parameter" y
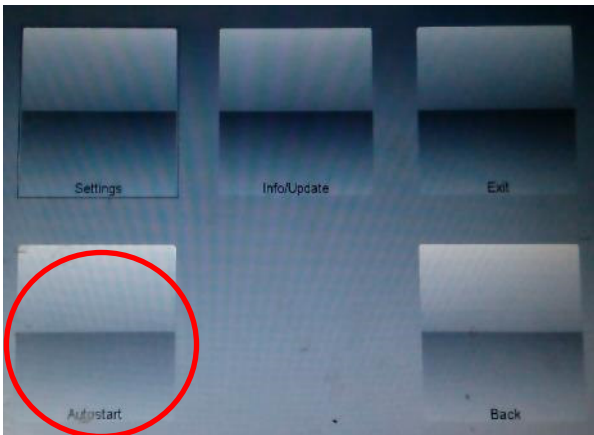
seleccionamos el proyecto que debe estar en "\Flashdisk\Movproj\Visu\...".
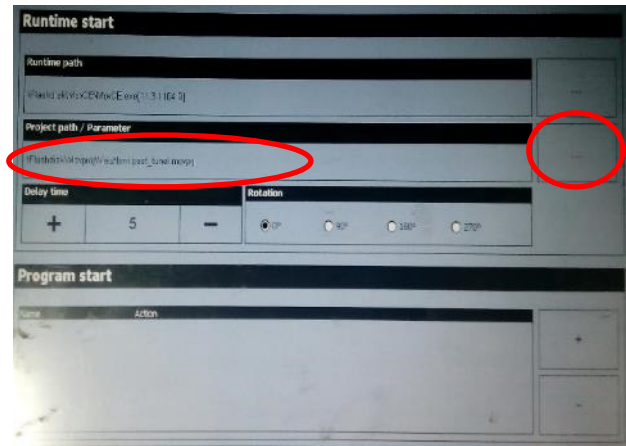
Una vez finalizado los cambios solamente hacer click en "back" hasta llegar a la pantallla donde comienza la cuenta regresiva, pero en esta ocacoin aparecera un boton "start" al cual debemos hacer click y con eso ejecutara el proyecto.

7.4 Ejecutar en computador (en caso de falla de la pantalla)

Cuando una pantalla HMI advierte o tiene algun problema, sufrio algun daño y no hay en stock una pantalla similar, el proyecto del HMI puede ser ejecutado en un computador temporalemente hasta que la pantalla HMI vuelva a estar operativa, esto se puede hacer para seguir con la produccion normal del proceso.

Al ejecutar el proyecto en el computador los datos de recetas, setponit, reguladores PID, etc. estan guardados en el PLC por lo que no es nesesario intervenir en parametros ni recetas, solo se pierden las tendencias y alarmas que fueron registradas antes de la ejecucion en el computador lo cual no afecta en nada en terminos de producción.

Comenzamos en la carpeta del respaldo abrienlo en archivo 👁 ".movprj" el cual ejecuta el software Movicon iniciando con el proyecto.
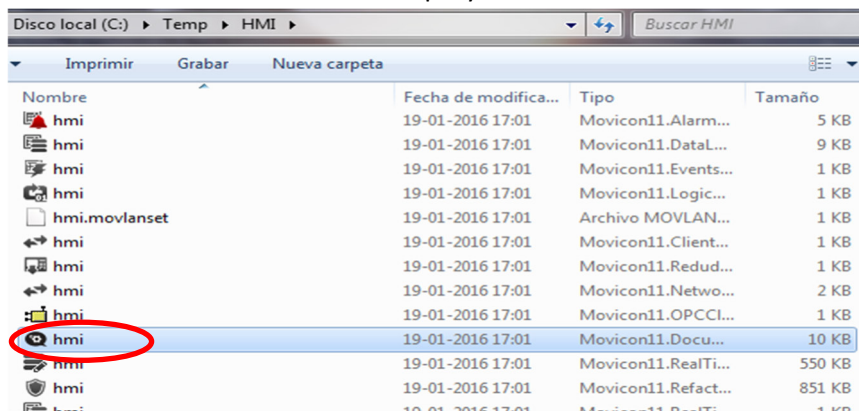
Aparecera un mensaje donde se debe ingresar la clave del producto, esto se puede ignorar haciendo cilck en cancelar.

Una vez abierto el Movicon con el proyecto se puede iniciar la simulación del HMI del Proyecto haciendo click en "iniciar proyecto" ▶.
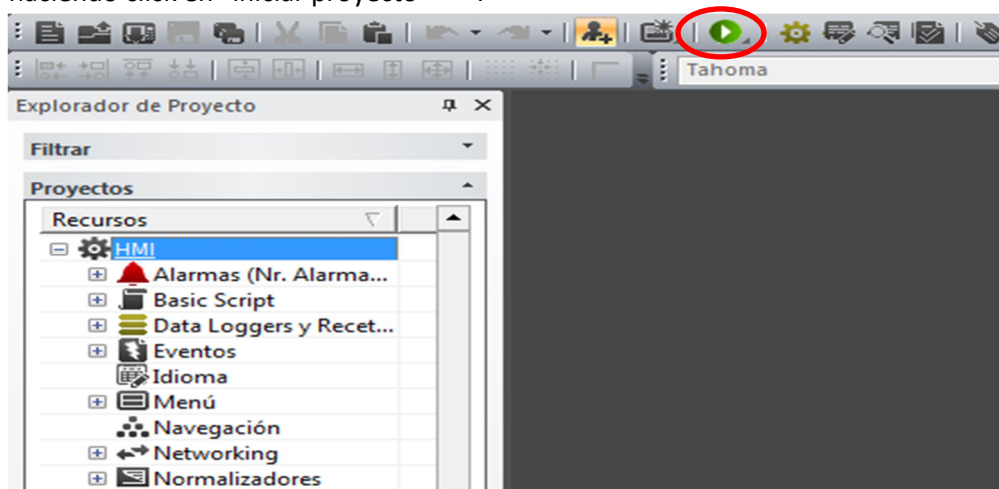
La simulacion tiene una duración maxima de 2 horas continuas, po rlo que debemos hacer click en simulacion cada 2 horas, esto se produce por que el programa no tiene licencia y solo es un demo, sin embargo no afecta al noramal funcionamiento de la simulacion.

8 Legal

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