


## ภาคผนวกที่ 6

### คู่มือการตรวจสอบระบบบำบัด มลพิษทางอากาศ และอุทกครอง



# SUPERVISION MANUAL

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Rev.	Date	Prepared	Checked	Description
		<i>Customer:</i>  <b>M METAL</b>		<i>Location:</i>  <b>THAILAND</b>
<i>Project :</i>				
<b>NEW DEDUSTING SYSTEM</b>				

Tecoaer Job :	Total Page:	File Name:	Doc. Number:
	23		

## INDEX

1. WINCC ENVIRONMENT.....	3
2. MAIN PAGE .....	5
3. MOTOR DAMPER AND SIGNAL STATUS COLORS.....	7
4. COOLED DUCT.....	8
5. FILTER PAGE .....	9
<i>1 Compartment status.....</i>	9
6. MAIN FAN PAGE .....	11
<i>Motor command popup 1.....</i>	11
7. DUST TRNSPORT .....	13
<i>1 Local Box State.....</i>	13
<i>2 Silo Dust level switch.....</i>	13
8. MAIN FAN SET UP .....	14
MAIN FAN MOTOR SET UP .....	15
9. FILTERS SET UP.....	16
10. COOLED DUCT SETUP .....	17
11. DUST TRANSPORT SETUP .....	18
12. TRENDS .....	19
13. ALARMS .....	21
<i>13.1. Alarms management.....</i>	21
14. NETWORK STATUS LAY OUT .....	23

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## 1. WINCC ENVIRONMENT

The working environment for the supervision system is Siemens's "SIMATIC WinCC Explorer" v7.0.

On PC start-up, the supervision program automatically starts; if not so, it can be manually opened by the following procedure:

First, the program must be started by the path Start - Simatic-WinCC 7.0 icon

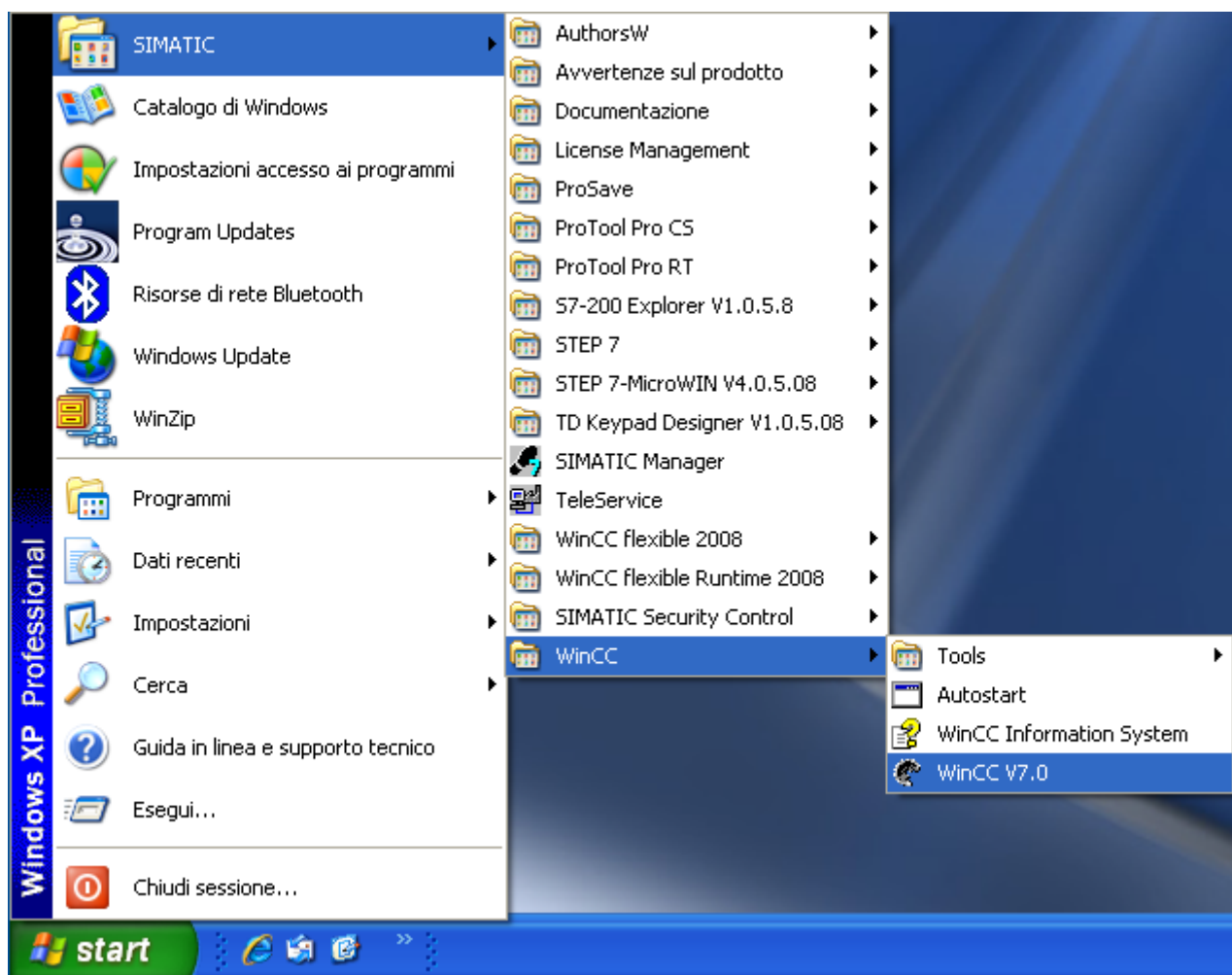


Figure 1 - Opening WinCC Explorer environment

Once WinCC Explorer screen is opened, the program can be started by clicking on "play" style icon, in the main menu(as shown in Picture 2). If the runtime program should be stopped, please click on the "stop" icon in the main menu; in case of the WinCC Explorer isn't opened, the runtime must be temporarily reduced to icon, by simultaneously hitting CTRL+ESC, then WinCC Explorer can be opened, as explained before.

In case of PC/Workstation shut down or new start, it is highly recommended to perform a runtime stop and close the WinCC environment by the following procedure: click "stop" and on the red "X" on WinCC Explorer, then select "Close Project And Exit WinCC Explorer".

Tecoer would like to make it clear that the runtime stop doesn't interrupt normal working condition of the plant.

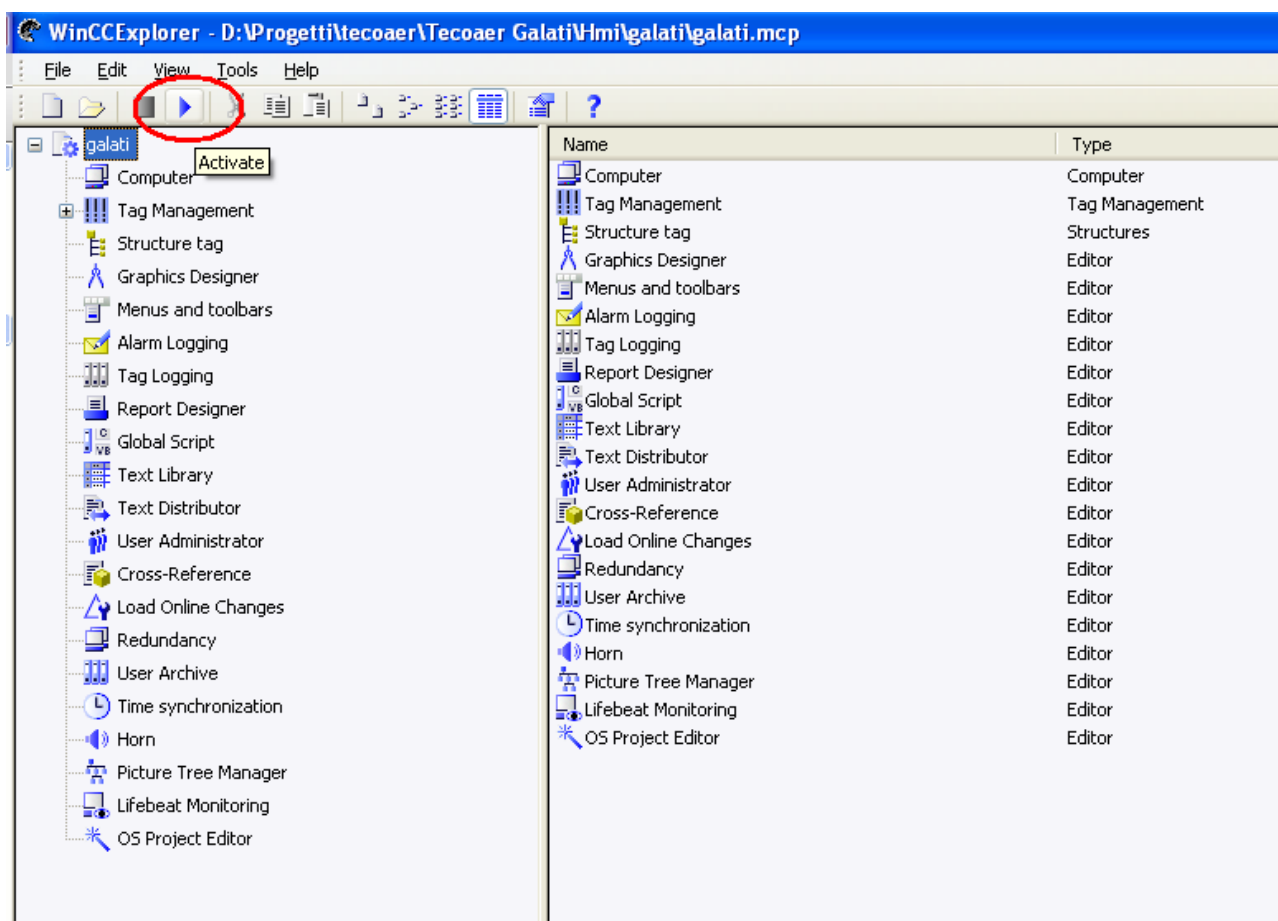


Figure 2 - WinCC Explorer, activating runtime

Once that the project loading procedure is ended, the main page appears, as shown below:

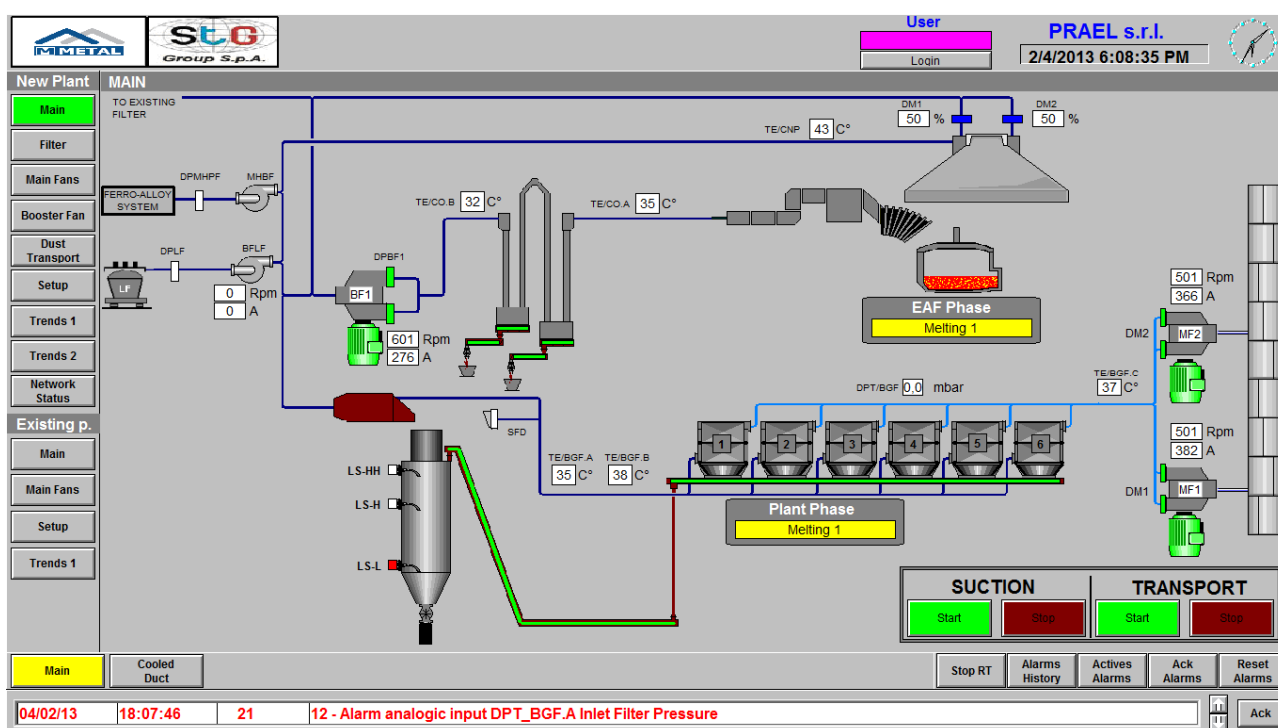
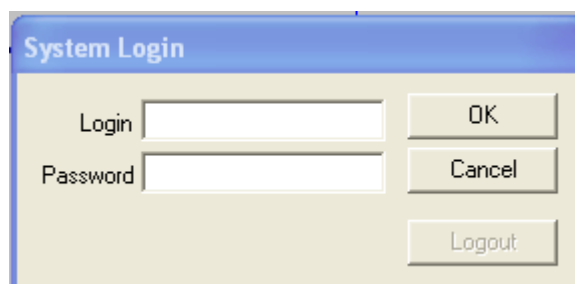


Figure 3 - main page

## 2. MAIN PAGE

About password management, there is just one level of permission, in order to allow people in charge to make modifications on parameters, measure ranges and so on; in order to perform log-in, please proceed as follows:

- by clicking on "Login" button appears this picture

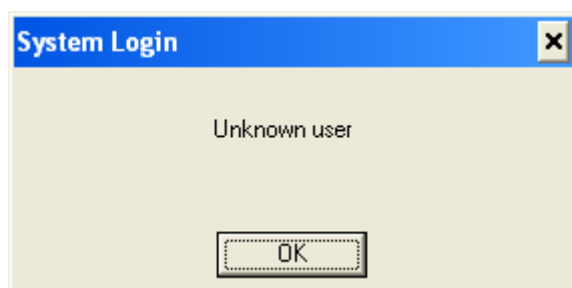


The image shows a 'System Login' dialog box. It has a blue title bar with the text 'System Login'. Inside the dialog, there are two input fields: 'Login' and 'Password'. To the right of the 'Login' field is an 'OK' button. To the right of the 'Password' field is a 'Cancel' button. Below the 'Cancel' button is a 'Logout' button.

*Figure 4 - Login*

insert user name/ password and press OK

if the user name and password are correct the user name will be show in the up side of the screen. Otherwise the follow picture will be show



The image shows a 'System Login' dialog box with a blue title bar and a close button (X) in the top right corner. The main area of the dialog is light beige and contains the text 'Unknown user'. At the bottom center, there is an 'OK' button.

*Figure 5 - Unknown user*

when any person tries to make an operation for which there aren't relative privileges. the follow picture will be show



The image shows a 'Permission Check' dialog box with a blue title bar and a close button (X) in the top right corner. The main area of the dialog is light beige and contains the text 'Insufficient permission'. At the bottom center, there is an 'OK' button.

*Figure 6 - Insufficient permission*

Start and Stop SUCTION and TRANSPORT

by clicking on "Start" and "Stop" button it starts or it arrests the automatic sequence

Exit by clicking on "STOP RT" the runtime program should be stopped

Actual Plant phase

Actual Converter and Tapping station phase

Print the actual Page by clicking on "Print Page"

To access the other supervision pages of the plant there's a custom made menu on the bottom and left of the screen which allows the operator to reach the mimics and the plant macro-areas directly, by clicking the mouse left button.

New Plant	
Main	Main Page /Cooled Duct
Filter	Filter /Main Fan
Main Fans	Main Fan
Booster Fan	Booster Fan
Dust Transport	Dust Transport
Setup	Parameter Setup
Trends 1	Trends screens featuring measures trends
Trends 2	Trends screens featuring measures trends
Network Status	Network Status
Existing p.	
Main	Main Page Existing Plant
Main Fans	Main Fan Existing Plant
Setup	Parameter Setup Existing Plant
Trends 1	Trends screens featuring measures trends Existing Plant

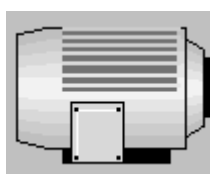
Figure 7 - Overviews menu

Every button of the menu overview has one submenu of his in the low part of the screen



Figure 8 - Sub menu

### 3. MOTOR DAMPER AND SIGNAL STATUS COLORS



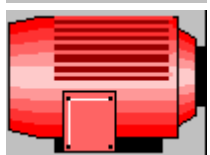
Motor stop



Motor starting

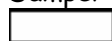


Motor running



Motor in alarm

Damper



Damper close



Blue = intermediary position

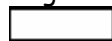


Green=damper open



Red = damper in alarm

Signal



White = off



Green = on



Red = in alarm



## 4. COOLED DUCT

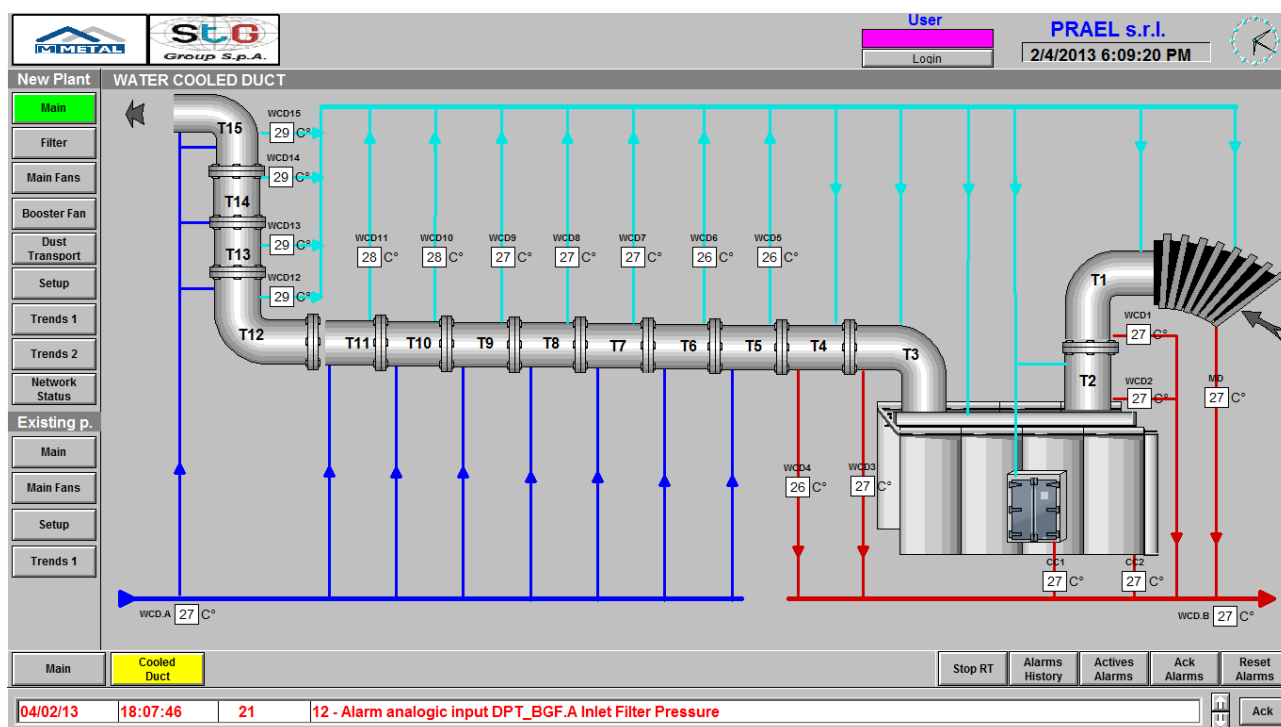


Figure 9 - Cooled duct

## 5. FILTER PAGE

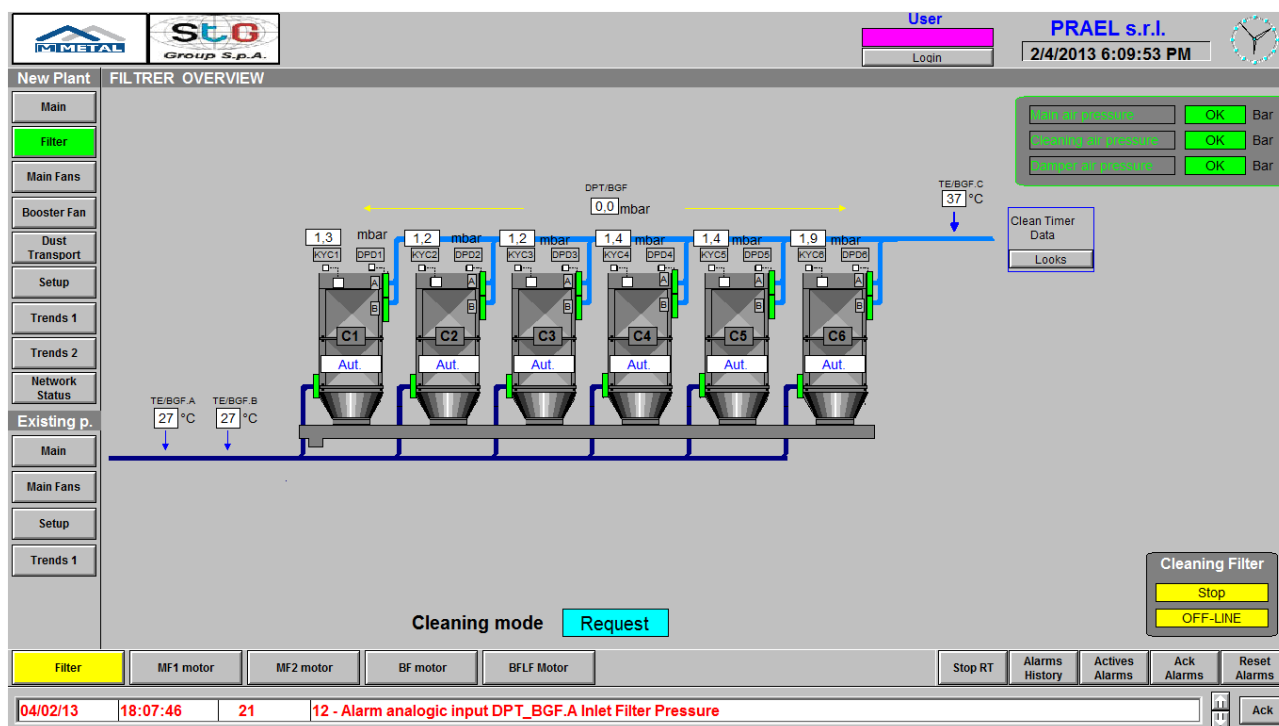


Figure 10 - Filter page

### 1 Compartment status

**Automatic** - The compartment is available for the cleaning cycle

**Maintenance** - The compartment isn't available for the cleaning cycle and the outlet damper automatically Close.

Clicking on status window for open the command popup

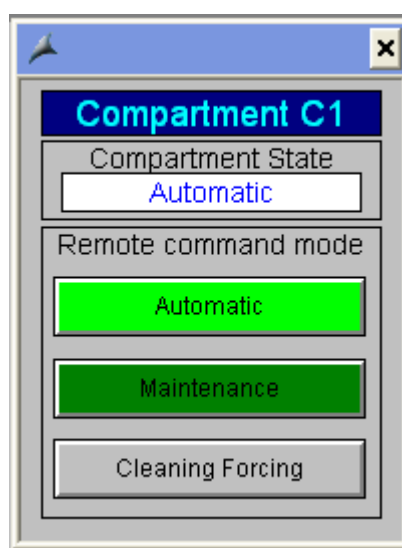


Figure 11 - Compartment popup

**Cleaning Forcing** - it performs the cleaning of the compartment

**Automatic** - the damper move according the PLC logic

## 6. MAIN FAN PAGE

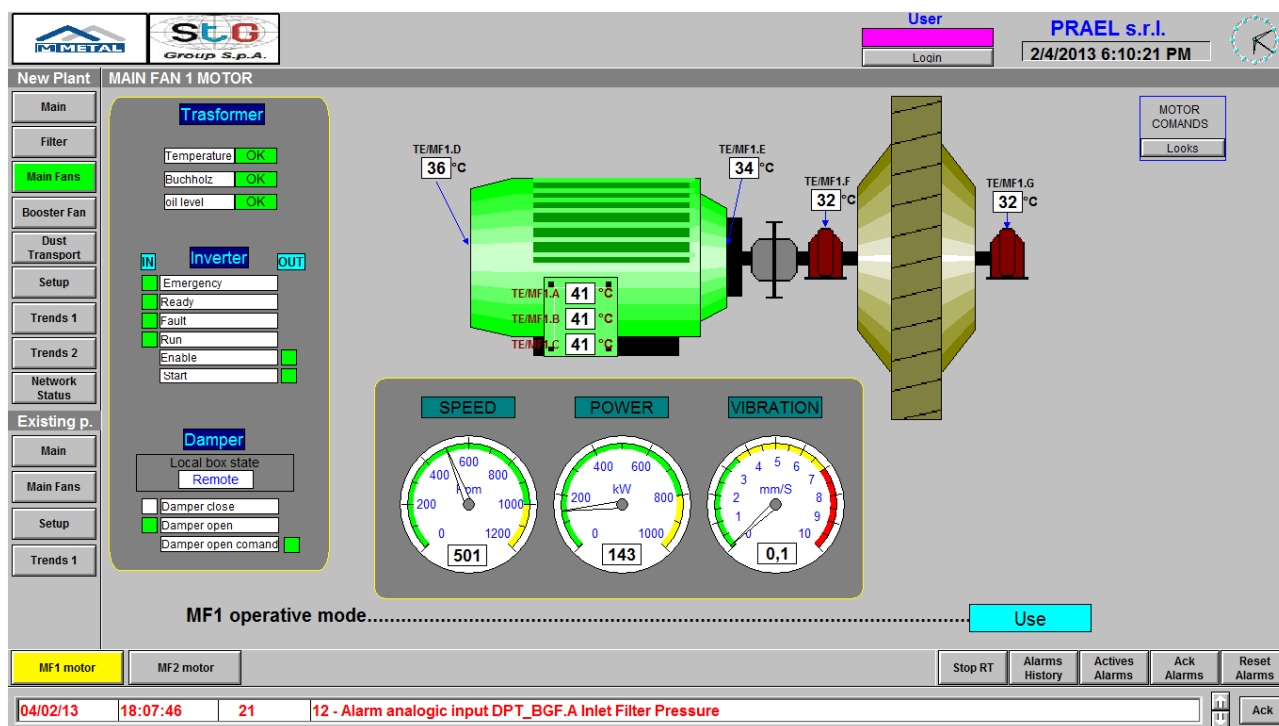


Figure 12 - Main fan page

### Motor command popup 1

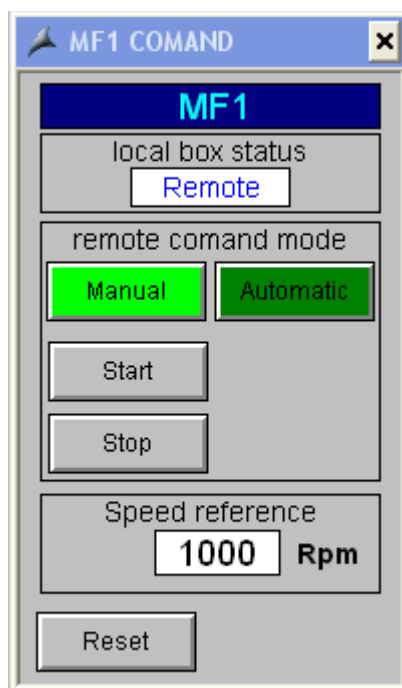


Figure 13 - Motor command popup

## **Local Box State**

**Local** - The Motor Fan can be Start and Stop only with local control box command and the speed increase and decrease with local selector.

**0** - The Motor Fan cannot be Start

**Remote** - The Motor Fan can be Start/Stop by clicking "Start" and "Stop" button and the speed can be set in "SPEED REFERENCE SPEED". If the remote command mode is in manual position

## **Remote Command Mode**

**Manual** - The Motor fan reference speed is set manually.

In Maintenance Mode, is not possible start the motor, and the latter, is excluded from the automatic start sequences.

## 7. DUST TRANSPORT

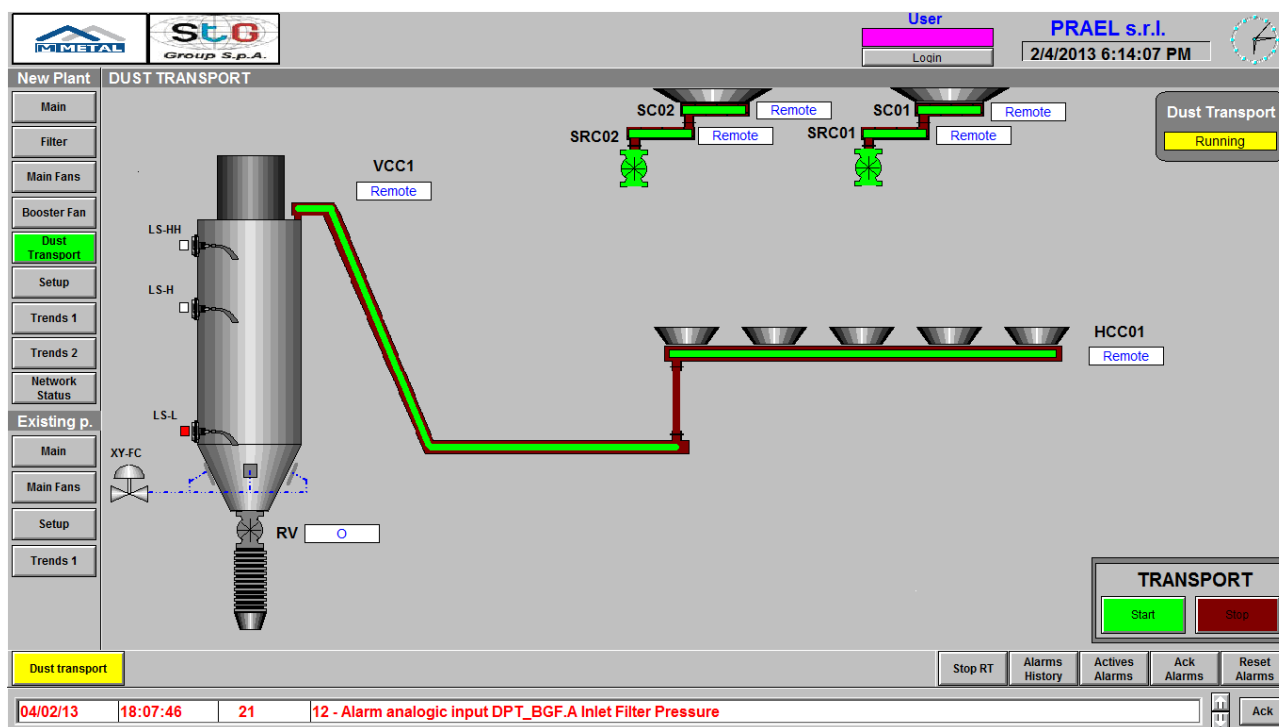


Figure 14 - Dust transport

### 1 Local Box State

**Local** - The chain conveyor is running by local control box

**0** - The chain conveyor cannot run

**Remote** - The chain conveyor run by PLC logic



### 2 Silo Dust level switch

- ☐ White - no dust presence
- ☒ Red - dust presence

When the LS-HH level switch is Red the silo is full and the dust transport automatic cycle is stopped.

By clicking on "Start" and "Stop" button it starts or it arrests the automatic sequence.

## 8. MAIN FAN SET UP

User: PRAEL s.r.l.

2/4/2013 6:14:32 PM

New Plant

Main

Filter

Main Fans

Booster Fan

Dust Transport

Setup

Trends 1

Trends 2

Network Status

Existing p.

Main

Main Fans

Setup

Trends 1

### MAIN FAN SETUP

	MF1 Rpm	MF2 Rpm	BF Rpm		BFLF Rpm
STAND-BY	400	400	400	<span style="background-color: yellow; border: 1px solid black;">STAND-BY</span>	400
CHARGING	800	800	500	ALLOYING	700
END of CHARGING	700	700	600	MELTING	1000
<span style="background-color: yellow; border: 1px solid black;">MELTING 1</span>	500	500	600		
MELTING 2	600	600	700		
REFINING	500	500	750		
TAPPING	400	400	400		
HIGH TEMPERATURE	700	700	400		
ACTUAL	501	501	601		

Set Extra Charging time..... 10 Min

Set end of Charging time..... 20 Sec

Set end of Melting/refining time..... 20 Sec

Additional working time during DED stop sequence..... 5 Min.

Main Fan setup

Motor Setup

Cooled Duct Setup

Filter Setup

Filter Temperature

Dust Transport Setup

Stop RT

Alarms History

Active Alarms

Ack Alarms

Reset Alarms

04/02/13
18:07:46
21
12 - Alarm analogic input DPT\_BGF.A Inlet Filter Pressure

Ack



Figure 15 - Main fan set up

In the supervision management there are many values which can be set by the operator (password protected).

These setup have influence on the logic of the plant management; in order to best understanding those influences, automatic logic, general functions of the plant, please refer to Technical Specification.

The actual phase and the relative selected value is underlined by the frame of red color.

## MAIN FAN MOTOR SET UP

User **PRAEL s.r.l.**

2/4/2013 6:15:11 PM

New Plant

SETUP MOTOR

Main

Filter

Main Fans

Booster Fan

Dust Transport

**Setup**

Trends 1

Trends 2

Network Status

Existing p.

Main

Main Fans

Setup

Trends 1

Set-point Alarm Main Fan vibration .....	3,5	mm/S
Set-point Fault Main Fan vibration.....	7,0	mm/S
Set-point Alarm Main Fan bearing temperature.....	80	°C
Set-point Fault Main Fan bearing temperature.....	100	°C
Set-point Alarm Main Fan Motor bearing temperature.....	80	°C
Set-point Fault Main Fan Motor bearing temperature.....	100	°C
Set-point Alarm Main Fan Motor Windings temperature.....	100	°C
Set-point Fault Main Fan Motor Windings temperature.....	120	°C

Main Fan setup

Motor Setup

Cooled Duct Setup

Filter Setup

Filter Temperature

Dust Transport Setup

Stop RT

Alarms History

Actives Alarms

Ack Alarms

Reset Alarms

04/02/13
18:07:46
21
12 - Alarm analogic input DPT\_BGF.A Inlet Filter Pressure






Figure 16 - Motor parameter screen

In this page are present all Motor parameters values is also possible choose the motor operative mode.



## 9. FILTERS SET UP

User: PRAEL s.r.l.

Login: 2/4/2013 6:24:46 PM

New Plant

SETUP FILTER

Main

Filter

Main Fans

Booster Fan

Dust Transport

Setup

Trends 1

Trends 2

Network Status

Existing p.

Main

Main Fans

Setup

Trends 1

Waiting Time after closing one compartment .....	10	S
Time of during cleaning valve (ON).....	50	mS
Delay time for cleaning valve (OFF).....	4	S
Timeout of cleaning of one compartment.....	50	S
Timeout outlet Damper .....	Open.. <span style="background-color: #00ffff; color: black;">1</span> .....	Close.. 60 S
PDT Set- point of starter sequence filter cleaning.....	8	mBar
PDT Set-point of stopped sequence filter cleaning.....	6	mBar
PDT Set-point of alarm high delta_P filter.....	20	mBar
Set- point of starter Compartment cleaning.....	7	mBar
Set-point of stopped Compartment cleaning.....	5	mBar
Number of cycles at the stopped system.....	2	N.
Delay time between two cicles .....	Manual Mode.. <span style="background-color: #00ffff; color: black;">5</span> .....	Automatic Mode... 120 Min
Number of compartment out of service for reduce capacity .....	2	
Set MF1/MF2 on reduce capacity .....	400	Rpm



Main Fan setup
Motor Setup
Cooled Duct Setup
Filter Setup
Filter Temperature
Dust Transport Setup

Stop RT
Alarms History
Actives Alarms
Ack Alarms
Reset Alarms

04/02/13
18:07:46
21
12 - Alarm analogic input DPT\_BGF.A Inlet Filter Pressure
Ack

Figure 17 - Filters parameters screen

In this page are present all filters parameters values .

User: PRAEL s.r.l.

Login: 2/4/2013 6:25:14 PM

New Plant

SETUP FILTER TEMPERATURE

Main

Filter

Main Fans

Booster Fan

Dust Transport

Setup

Trends 1

Trends 2

Network Status

Existing p.

Main

Main Fans

Setup

Trends 1

Set filter temperature for Main Fans at the required set.(High Temp.).....	100	°C
Set filter temperature for BF at the required set.(High Temp.).....	110	°C
Opening of the of the dilution damper SFD.....	115	°C
Set filter tempaure for open Movable Duct MD.....	120	°C
Dedusting System shift to Stand-by phase.....	125	°C
Set filter temperature for Main Fans at the normal condition.....	90	°C
Set filter temperature for BF at the normal condition.....	100	°C
Closing of the of the dilution damper SFD.....	110	°C
Set filter tempaure for close Movable Duct MD.....	115	°C
Set point CNP temperature for opening SFD .....	110	°C
Set point CNP temperature for closing SFD .....	100	°C



Main Fan setup
Motor Setup
Cooled Duct Setup
Filter Setup
Filter Temperature
Dust Transport Setup

Stop RT
Alarms History
Actives Alarms
Ack Alarms
Reset Alarms

04/02/13
18:07:46
21
12 - Alarm analogic input DPT\_BGF.A Inlet Filter Pressure
Ack

Figure 18 - Filters parameters screen

## 10. COOLED DUCT SETUP

User: PRAEL s.r.l.

Login: 2/4/2013 6:15:39 PM

New Plant

SETUP COOLED DUCT

Main

Filter

Main Fans

Booster Fan

Dust Transport

Setup

Trends 1

Trends 2

Network Status

Existing p.

Main

Main Fans

Setup

Trends 1

Set water temperature for alarm..... 90 °C

Set Water temperature for Plant Stand by..... 95 °C

Main Fan setup

Motor Setup

Cooled Duct Setup

Filter Setup

Filter Temperature

Dust Transport Setup

Stop RT

Alarms History

Actives Alarms

Ack Alarms

Reset Alarms

04/02/13

18:07:46

21

12 - Alarm analogic input DPT\_BGF.A Inlet Filter Pressure

Ack

Figure 19 - Cooled duct parameters screen

In this page are present all cooled duct parameters values.

## 11. DUST TRANSPORT SETUP




 		<b>User</b> <input type="text"/>	<b>PRAEL s.r.l.</b> 2/4/2013 6:25:35 PM												
<b>New Plant</b> <b>SETUP DUST TRANSPORT and SILO</b>															
Main Filter Main Fans Booster Fan Dust Transport <b>Setup</b> Trends 1 Trends 2 Network Status	Delay stop HCC1 for high lever silo..... <input type="text" value="5"/> min Delay stop SC01,SCC02,HCC1 for stop cycle..... <input type="text" value="30"/> min Delay stop SCR01,SCR02 ..... <input type="text" value="10"/> min Delay stop VCC1..... <input type="text" value="10"/> min														
<b>Existing p.</b>															
Main Main Fans Setup Trends 1	Work time silo cone fluidification valve..... <input type="text" value="3"/> S Pause time silo cone fluidification valve..... <input type="text" value="10"/> S														
<table border="1"> <tr> <td>Main Fan setup</td> <td>Motor Setup</td> <td>Cooled Duct Setup</td> <td>Filter Setup</td> <td>Filter Temperature</td> <td><b>Dust Transport Setup</b></td> <td>Stop RT</td> <td>Alarms History</td> <td>Active Alarms</td> <td>Ack Alarms</td> <td>Reset Alarms</td> </tr> </table>					Main Fan setup	Motor Setup	Cooled Duct Setup	Filter Setup	Filter Temperature	<b>Dust Transport Setup</b>	Stop RT	Alarms History	Active Alarms	Ack Alarms	Reset Alarms
Main Fan setup	Motor Setup	Cooled Duct Setup	Filter Setup	Filter Temperature	<b>Dust Transport Setup</b>	Stop RT	Alarms History	Active Alarms	Ack Alarms	Reset Alarms					
<table border="1"> <tr> <td>04/02/13</td> <td>18:07:46</td> <td>21</td> <td colspan="3">12 - Alarm analogic input DPT_BGF.A Inlet Filter Pressure</td> <td> <input type="button" value="Ack"/> </td> </tr> </table>					04/02/13	18:07:46	21	12 - Alarm analogic input DPT_BGF.A Inlet Filter Pressure			<input type="button" value="Ack"/>				
04/02/13	18:07:46	21	12 - Alarm analogic input DPT_BGF.A Inlet Filter Pressure			<input type="button" value="Ack"/>									

Figure 20 - Dust Transport parameters screen

## 12. TRENDS

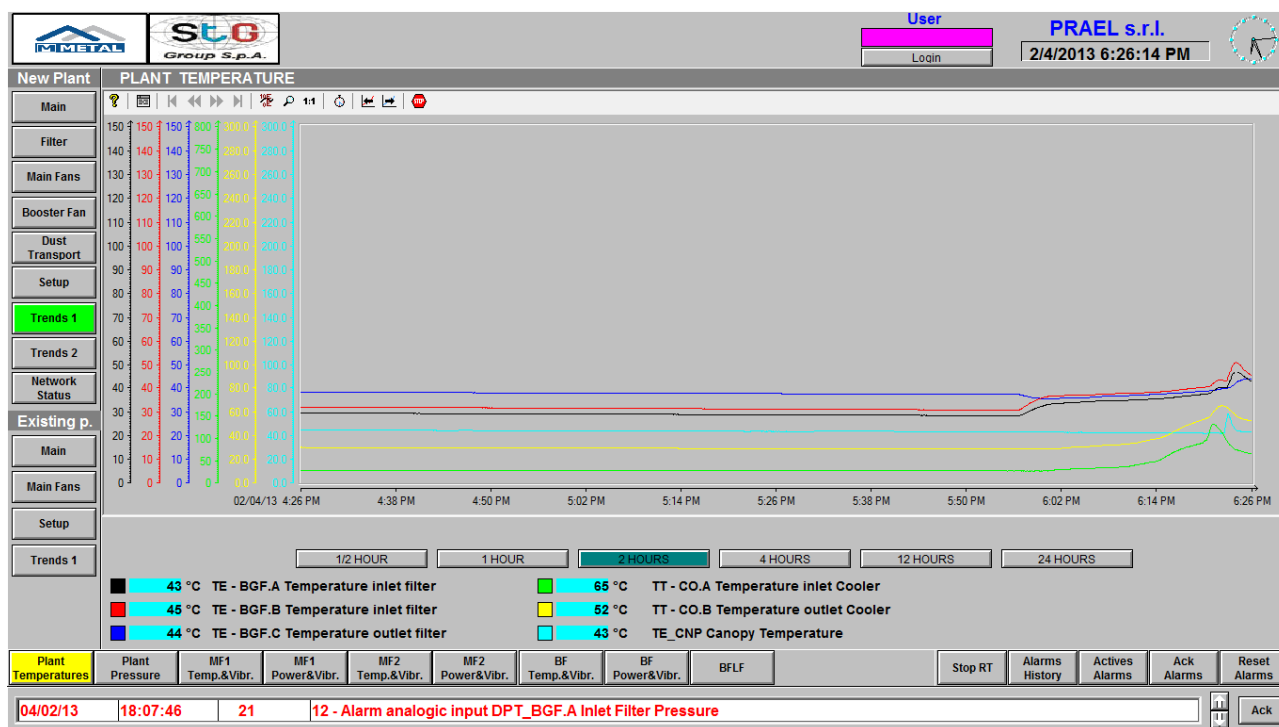


Figure 21 - Trends screen



Figure 22 - Select time axis

With this buttons is possible select the time base 1/2 - 1 - 2 - 4 - 12 or 24 hours

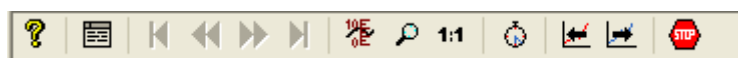















Figure 23 - Trends control menu

## Toolbar for Online Trend Control

Icon	Description
	"Online-Help-System" Calls up the online help
	"Open the Configuration Dialog" Select dialog to assign display parameters.
	"First Data Record" Click this button to display the tag trend over time in the trend window, starting with the first archived value and extending over a defined time range.
	"Previous Data Record" Click this button to display the tag trend of the previous time interval in the trend window, based on the currently displayed time interval.
	"Next Data Record" Click this button to display the tag trend of the next time interval in the trend window, based on the currently displayed time interval.
	"Last Data Record" Click this button to display the tag trend over time in the trend window, ending with the first archived value and extending over a defined time range.
	"Display Value at this Position" Click this button to query the coordinate points of a curve.
	"Zoom Area" Click this button to zoom in on any section of the trend window.
	"Activate Original View" Click this button to return to the configured normal view (after zooming).
	"Previous Trend in Foreground" Click this button to display the previous trend in the foreground of the trend window.
	"Next Trend in Foreground" Click this button to display the next curve in the foreground of the trend window.
	"Start/Stop the Update" The updated display is stopped. The values are buffered and updated when the button is clicked again.
	"Start/Stop the Update" Resume display.

## 13. ALARMS

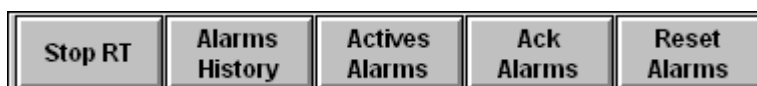


Figure 24 - alarms managements buttons

click "ACTIVE ALARM" button to enter in the active alarm page

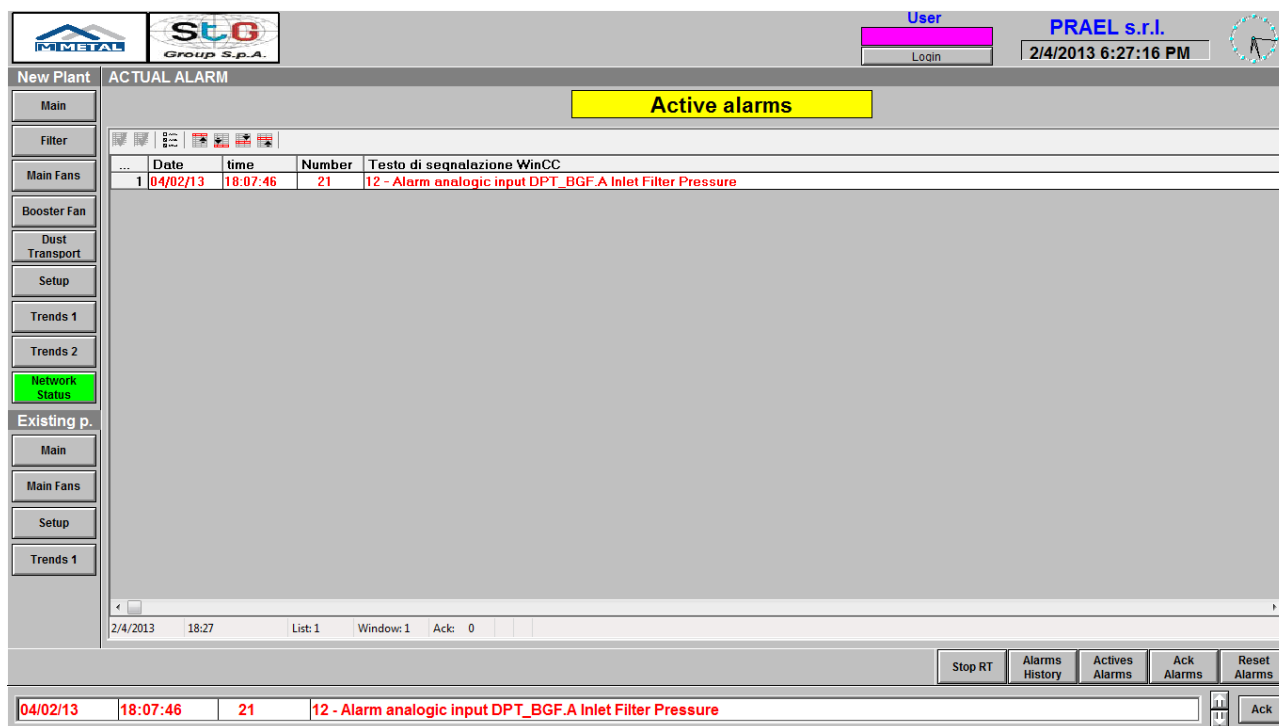


Figure 25 - Active alarm screen

### 13.1. Alarms management

When a new alarm arrives he is represented with red background and white text

**1 - Alarm Q22 - Automatic Breaker feeding linee 220v inlet UPS**



- Acknowledge the alarm by clicking on "ACK ALARM" button
- And after reset the alarm by clicking on "RESET ALARM" button
- If the condition of alarm is still active is represented with white background and red text

**0 - Alarm Q22 - Main panel general start**

- If the condition of alarm is not more active the alarm it disappears

The last condition of alarm arrived is visible in any pages in it departs her low of the

click "ALLARM HISTORY" button to enter in the History alarm page

User: PRAEL s.r.l.

2/4/2013 6:27:53 PM

New Plant

Main

Filter

Main Fans

Booster Fan

Dust Transport

Setup

Trends 1

Trends 2

Network Status

Existing p.

Main

Main Fans

Setup

Trends 1

Recent alarms file

Date	time	Number	Testo di segnalazione WinCC
976	04/02/13 10:22:37	769	24 - DEX - Main fan 1 - Alarm aux. power supply
977	04/02/13 10:22:37	770	25 - DEX - Main fan 1 - Alarm dc converter
978	04/02/13 10:22:37	771	26 - DEX - Main fan 1 - dc converter not ready
979	04/02/13 10:22:37	777	16 - DEX - Main fan 2 - Alarm aux. power supply
980	04/02/13 10:22:37	779	18 - DEX - Main fan 2 - dc converter not ready
981	04/02/13 10:22:37	789	12 - DEX - Spark arrester conveyor - Alarm no aux. power supply
982	04/02/13 10:22:37	794	1 - DEX - Conveyor nr.2 - Alarm no aux. power supply
983	04/02/13 10:22:37	798	5 - DEX - Conveyor nr.1 - Alarm no aux. power supply
984	04/02/13 10:22:37	802	25 - DEX - Elevator conveyor - Alarm no aux. power supply
985	04/02/13 10:22:37	807	30 - DEX - Collecting conveyor - Alarm no aux. power supply
986	04/02/13 10:22:37	820	3 - DEX - Ferro alloy booster - Alarm no aux. power supply
987	04/02/13 10:22:37	834	25 - DEX - Main fan 1 damper - Alarm no aux. power supply
988	04/02/13 15:34:04	21	12 - Alarm analogic input DPT_BGF.A Inlet Filter Pressure
989	04/02/13 15:34:04	842	17 - DEX - Conveyor nr.2 - Movement detector alarm
990	04/02/13 15:35:04	21	12 - Alarm analogic input DPT_BGF.A Inlet Filter Pressure
991	04/02/13 15:35:04	842	17 - DEX - Conveyor nr.2 - Movement detector alarm
992	04/02/13 16:05:23	842	17 - DEX - Conveyor nr.2 - Movement detector alarm
993	04/02/13 16:31:34	182	13 - Alarm PST-AT Low Pressure air Compressed Tank
994	04/02/13 16:34:12	182	13 - Alarm PST-AT Low Pressure air Compressed Tank
995	04/02/13 16:53:07	179	10 - Alarm PST-DPD Low Pressure Outlet Damper
996	04/02/13 16:53:59	179	10 - Alarm PST-DPD Low Pressure Outlet Damper
997	04/02/13 17:24:06	179	10 - Alarm PST-DPD Low Pressure Outlet Damper
998	04/02/13 17:24:06	182	13 - Alarm PST-AT Low Pressure air Compressed Tank
999	04/02/13 18:07:46	21	12 - Alarm analogic input DPT_BGF.A Inlet Filter Pressure
1000	04/02/13 18:08:26	21	12 - Alarm analogic input DPT_BGF.A Inlet Filter Pressure

2/4/2013 18:27
List: 1
Windows: 1000
Ack: 0

Stop RT

Alarms History

Actives Alarms

Ack Alarms

Reset Alarms

04/02/13 18:07:46 21 12 - Alarm analogic input DPT\_BGF.A Inlet Filter Pressure

Ack

Figure 26 - History alarm screen

## 14. NETWORK STATUS LAY OUT

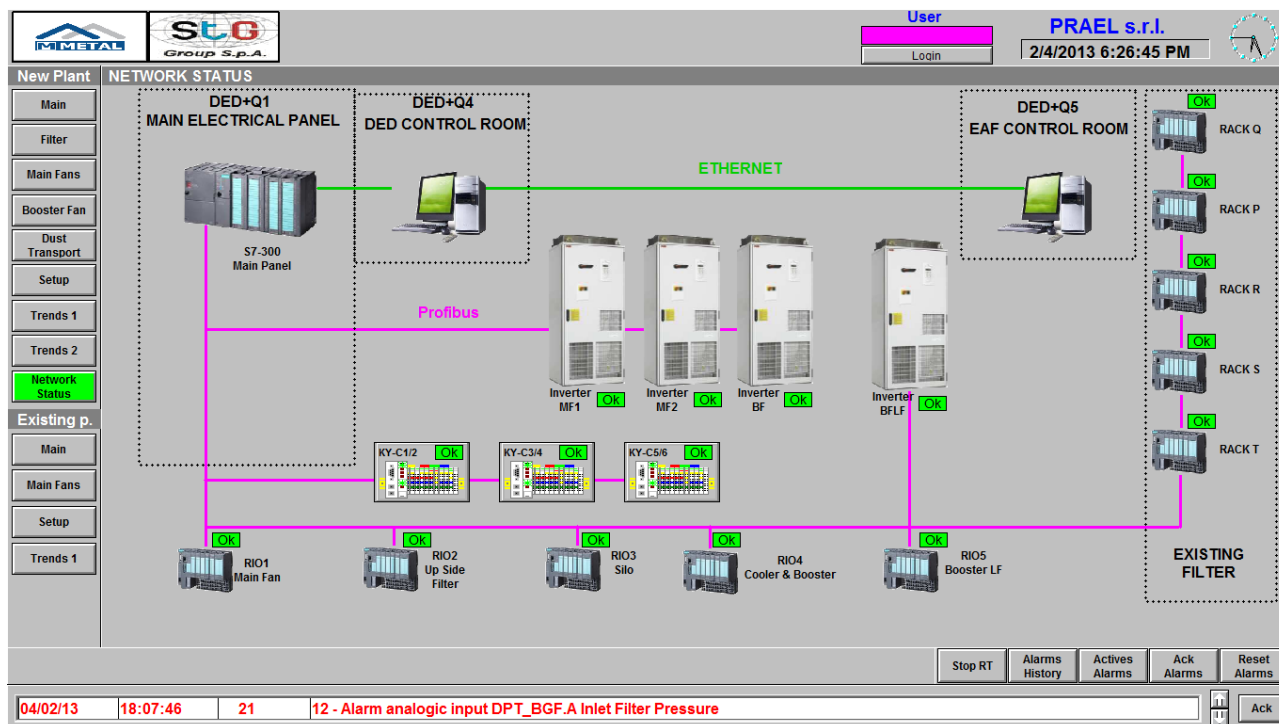


Figure 27 - Network lay out status