The MPC4 System Service Manual

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v.0.01 6.08.2009

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BASIC INFORMATION ON THE MPC SYSTEM

System Description

The System is designed for cooperation with specialized controllers manufactured by MIKSTER, which record and control manufacturing processes, among others in smoking-brewing chambers, heat boilers, drying chambers, vacuum mass devices. The MPC System delivers documentation in compliance with the HACCP requirements.
Current version supports the following controllers:

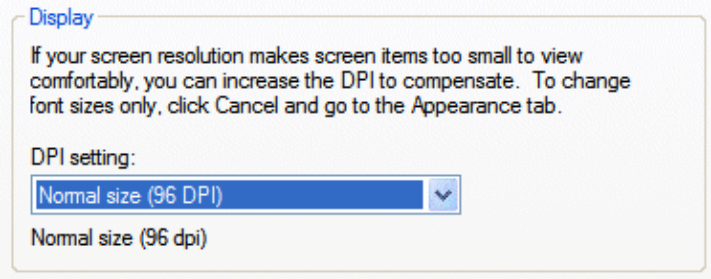
– **INDU WRC 2000**	– **DAT 120**
– **MCC 100**	– **MCC 026**
– **MCC 2100**	– **MCC 050**
– **MCC 106**	– **MCC 051**

Functional Properties

- equipment status monitoring, allowing to check the following:
  - which processes are activated in controllers,
  - values of preset and read out parameters,
  - which devices are switched on by the controller,
- collected data readout from controllers,
- review of collected data coming from controllers either in form of tables or graphs,
- collected data printouts (tables and graphs)

System Requirements

Minimum hardware requirements: computer with Pentium processor, 64MB RAM (recommended 128 MB RAM), 1 free RS232 port, required disk space for installation - approximately 30MB. Recommended minimum 100MB of free disk space for operation.
The TCPIP data transfer protocol is also required.
In case if the computer is connected to the network (network interface card), this protocol has already been installed, otherwise it needs to be installed.
For WindowsNT/2000/XP systems it is sufficient to install the *Microsoft diagnostic loopback* card, while for Windows 9x systems it is required to define the connection in Dial-Up networking, and assign to the computer any IP number.
In order to ensure correct screen font display in the MPC application, the screen settings should be as follows:



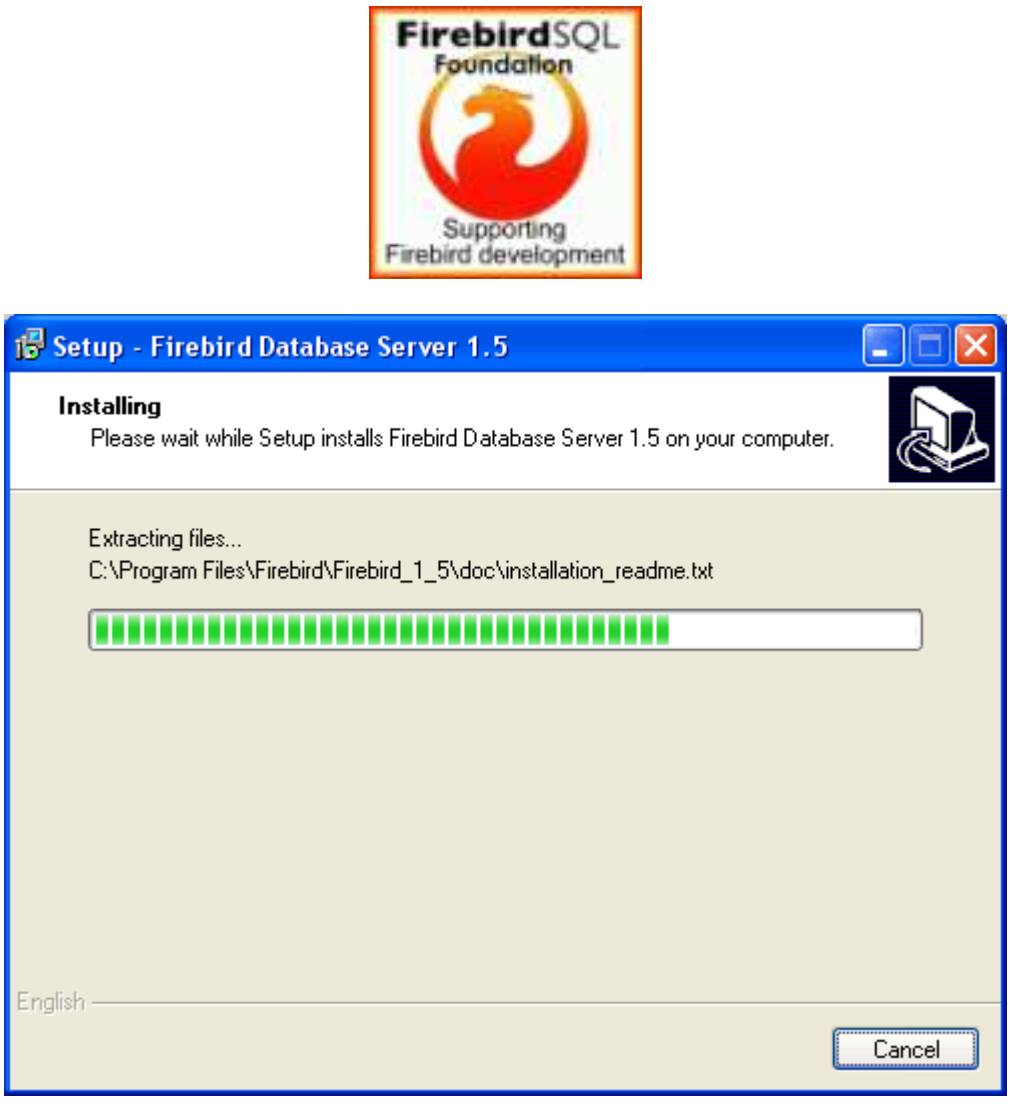
DPI settings: normal size (96 DPI)

Program Installation

ATTENTION! In order to install the program on computers with the Windows NT, Windows 2000 or Windows XP, you must log in as user with administrator rights.
The MPC is designed to work in Windows environment. You will receive it on a CD-ROM. As soon as you insert the CD in your CD-ROM drive, the program will start automatically. Otherwise, run the instalator.exe program provided on the CD-ROM in the main directory, and then select the language version.

As soon as the software has been installed, the installation program will activate the Firebird database automatic setup.

Database Setup

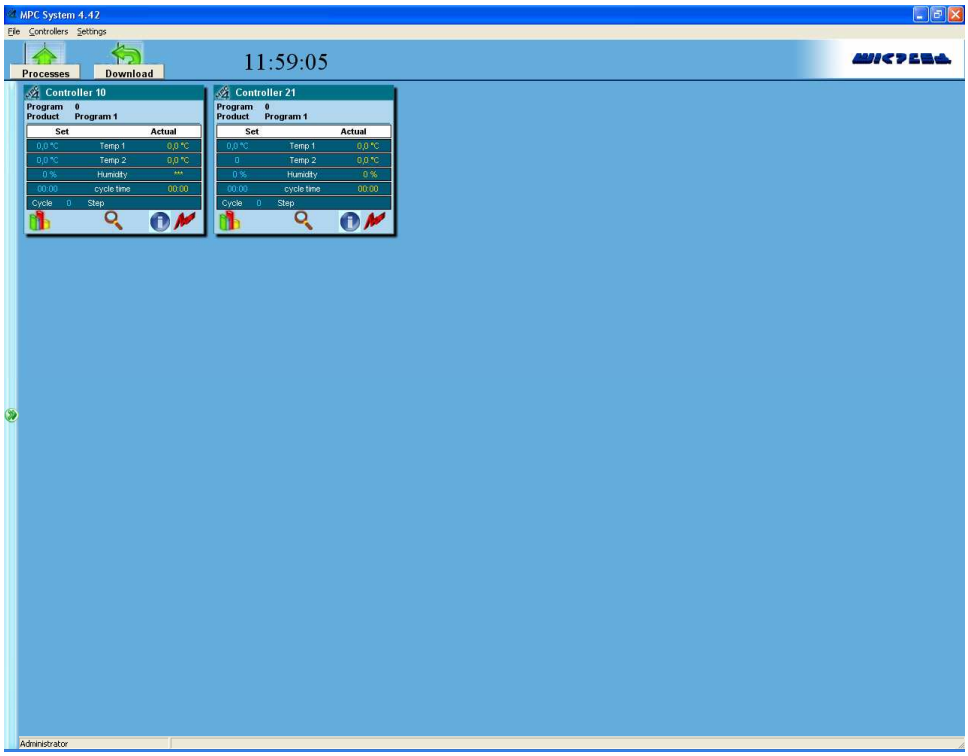


If the message shown below is displayed:

it means that the Firebird server has been previously installed. In that case, press OK and when the screen appears, select “Cancel”, and then in the dialog box - "Exit setup”.

When the installation process is complete, the program will be automatically activated. Moreover, the activating icon will be installed in the desktop (name: MPC) and in the menu programs (**Start->Programs->Mikster->MPC**).

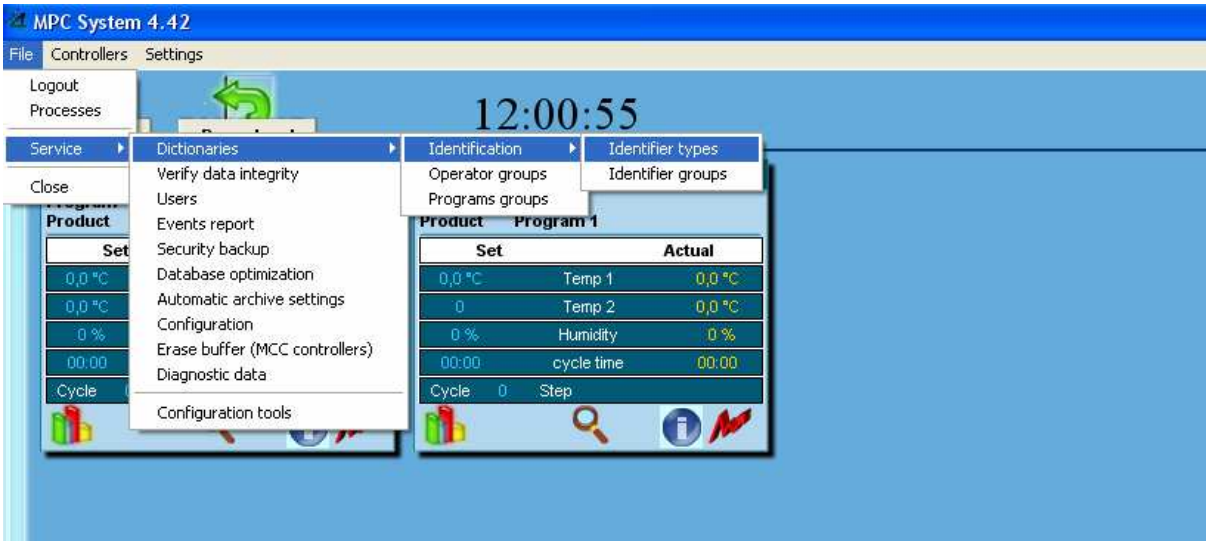
Main Screen



The MPC Program Main Menu

The following items are available in the MPC application main menu:

- Login/Logout
- **Service**
- Close the program



Menu group Service consists of:

- **Dictionaries**
- Verify data integrity
- Users' list
- Events report
- Security backup
- Database optimization
- Automatic archive settings

Subgroup Dictionaries consists of:

- **Identification of processes**
- Operator groups
- Programs groups

Identification of processes consists of:

- Identifier types
- Identifier groups

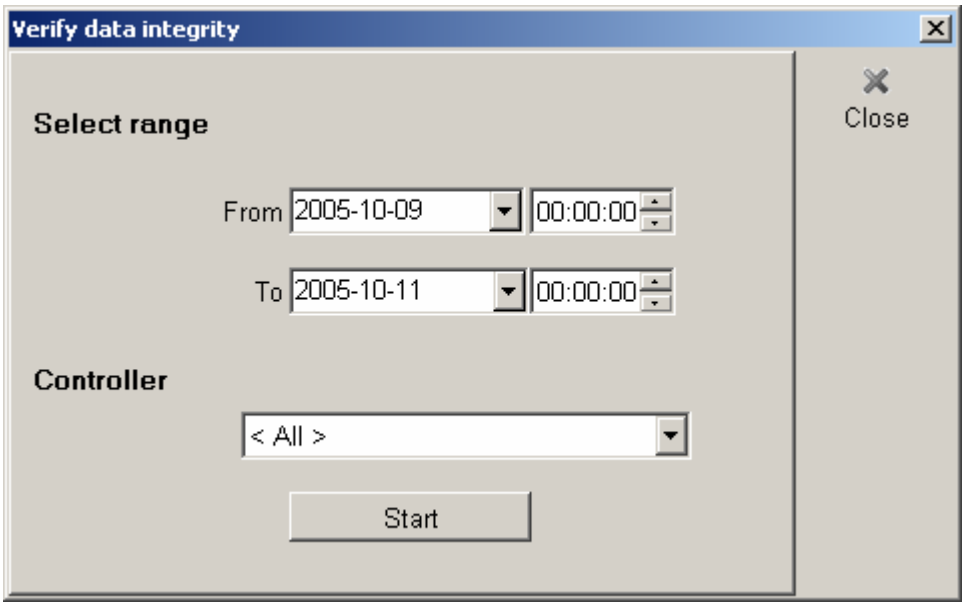
Verify data integrity

Recordings are downloaded from controllers as temporary files (LOG type).
These files provide basis to restore processes taking place in the program, this is possible through the “Collected data verification” function – available for program administrator.
Select item *File / Service* in upper menu, and then *Collected data verification*. Window *“The MPC collected data verification”* will appear.
When you set time range and select the controller, press push-button *Execute* – box with request to confirm execution will appear – as soon as you select *Yes*, the collected data verification process will begin.

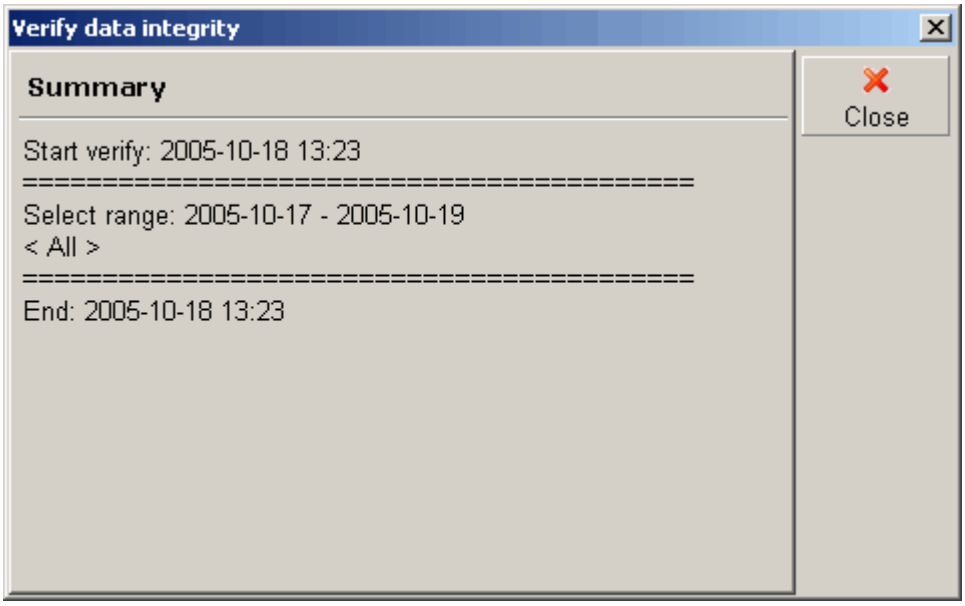
Comments

If a whole process is missing in the program – it will be added. If process end is missing – it will be found and completed. Missing process samples shall not be added if they are newer than those already entered ones, that is if there is a process with missing initial measurements then it is necessary to remove the whole process – and then use the collected data verification.

Select verification range from…. to…., check the controller, which you wish to put through the verification process, and then press push-button **Execute**.


Verify data integrity
Select range
From 2005-10-09 00:00:00
To 2005-10-11 00:00:00
Controller
< All >
Start
Close

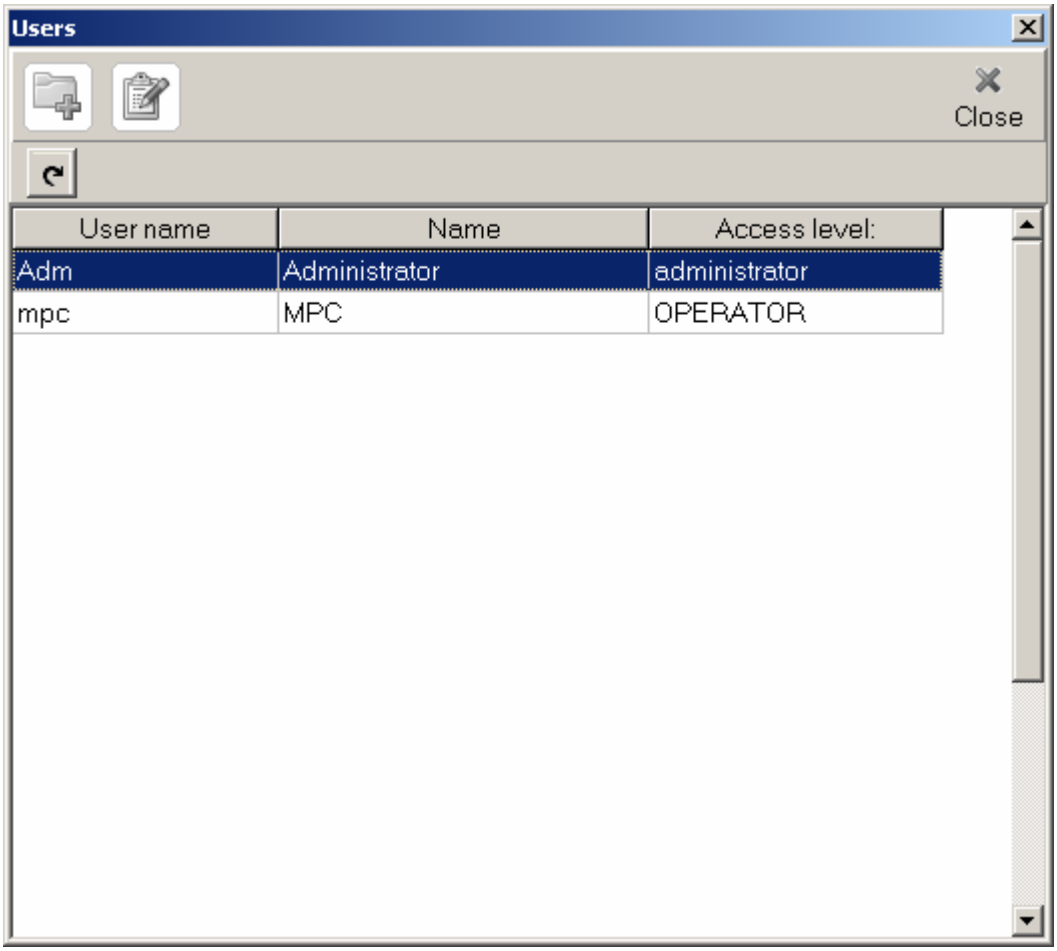
Information
Verification of recording ended
OK


Verify data integrity
Summary
Start verify: 2005-10-18 13:23
==========
Select range: 2005-10-17 - 2005-10-19
< All >
==========
End: 2005-10-18 13:23
Close

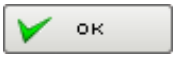
Users' List

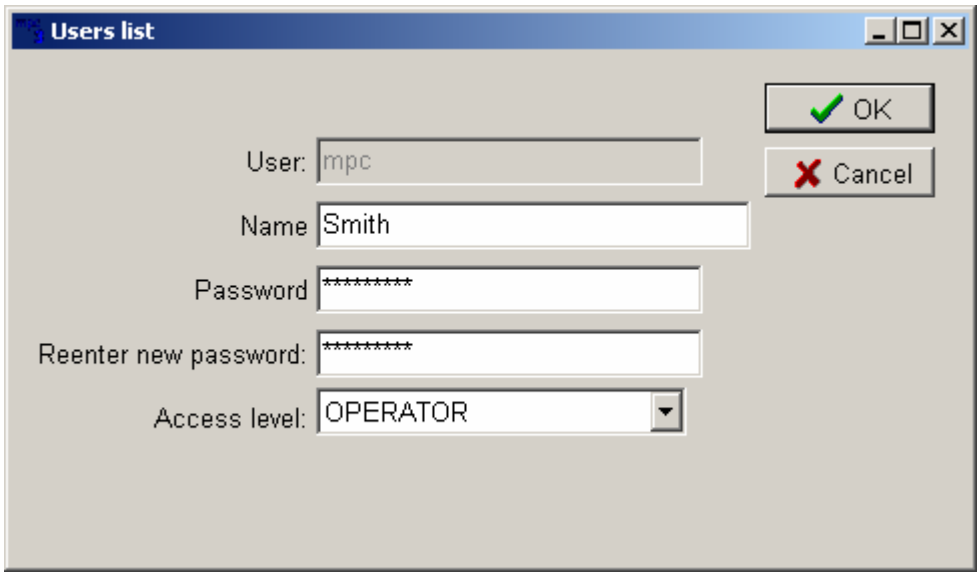
This function allows to add and edit users in the MPC system.

Click icon to add new user.



Enter name for that user and fill in other fields, confirm correct entry with the

 key.



List of Events

Select this icon in order to preview the list of events in the program.

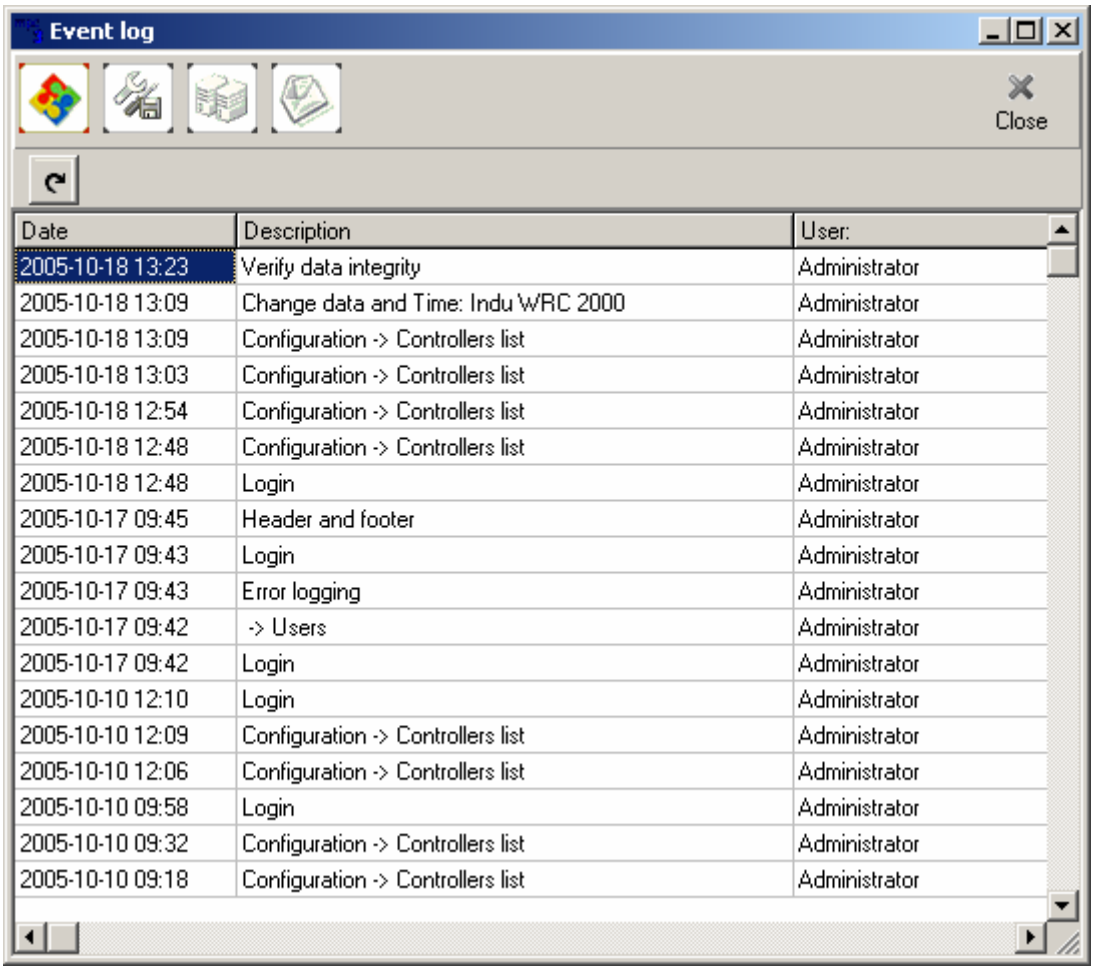
Icon definitions:

- all events

- program settings

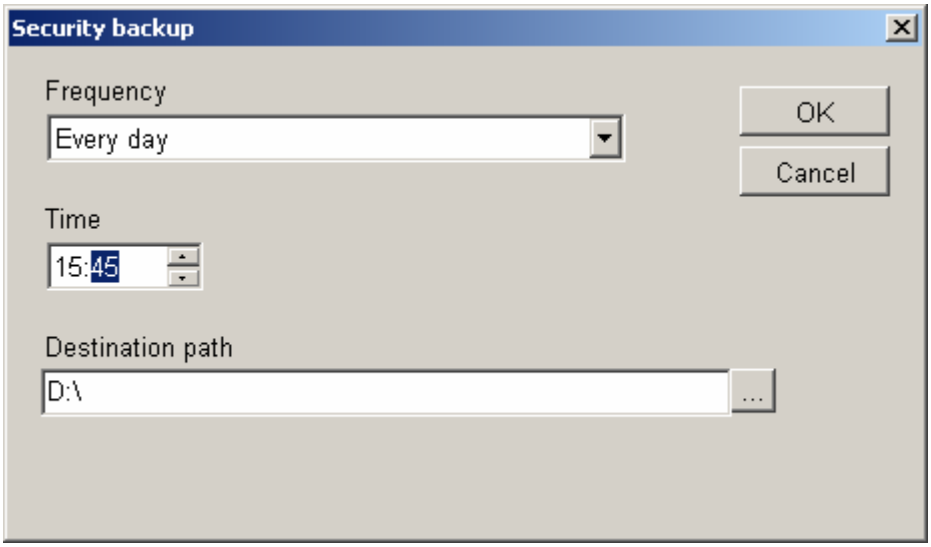
- equipment settings

- e-mail notification messages


Event log
Close
Date
Description
User:
2005-10-18 13:23 Verify data integrity Administrator
2005-10-18 13:09 Change data and Time: Indu WRC 2000 Administrator
2005-10-18 13:09 Configuration -> Controllers list Administrator
2005-10-18 13:03 Configuration -> Controllers list Administrator
2005-10-18 12:54 Configuration -> Controllers list Administrator
2005-10-18 12:48 Configuration -> Controllers list Administrator
2005-10-18 12:48 Login Administrator
2005-10-17 09:45 Header and footer Administrator
2005-10-17 09:43 Login Administrator
2005-10-17 09:43 Error logging Administrator
2005-10-17 09:42 -> Users Administrator
2005-10-17 09:42 Login Administrator
2005-10-10 12:10 Login Administrator
2005-10-10 12:09 Configuration -> Controllers list Administrator
2005-10-10 12:06 Configuration -> Controllers list Administrator
2005-10-10 09:58 Login Administrator
2005-10-10 09:32 Configuration -> Controllers list Administrator
2005-10-10 09:18 Configuration -> Controllers list Administrator

Security Backup Settings

The MPC program is equipped with a built-in tool to make security backups. Set frequency for copy-making (everyday, every week, every month), enter hour, and determine the directory, in which security backups will be saved. Then confirm settings with push-button OK.

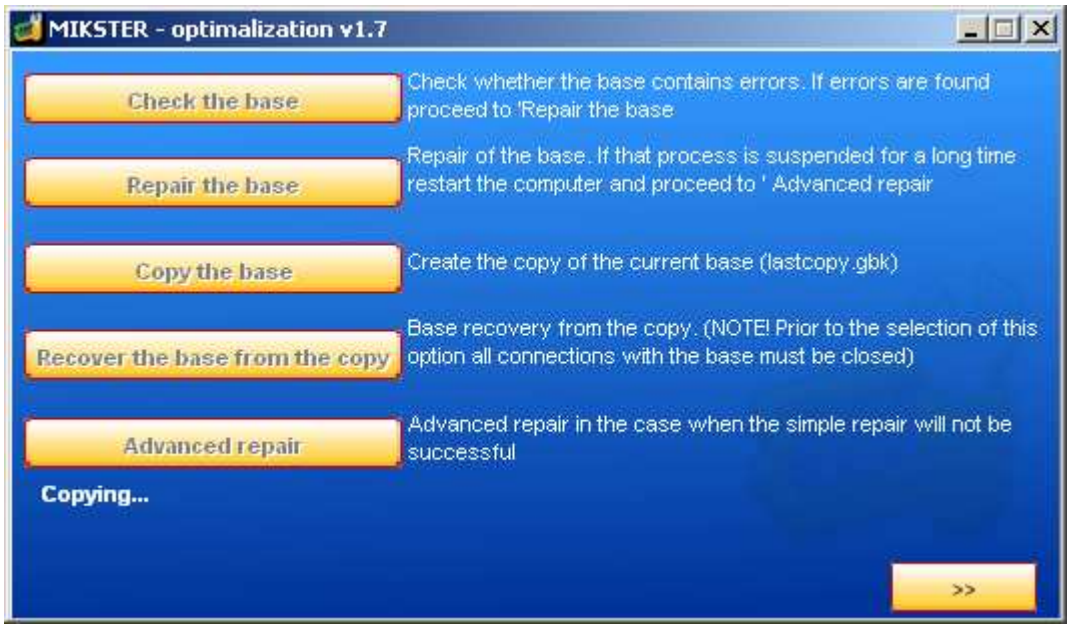


Database Optimization

The MPC program possesses built-in mechanisms for database optimization. The optimization process is executed on the server. The MPC suggests optimization process execution once a day. Should the MPC be activated at night (between 3:00 and 7:00 a.m.), the optimization will be executed automatically (the MPC closes, activates the optimization program, and restarts as soon as the optimization is complete.

It is also possible to execute the database optimization process manually, by selecting application “Database Repair” from menu:

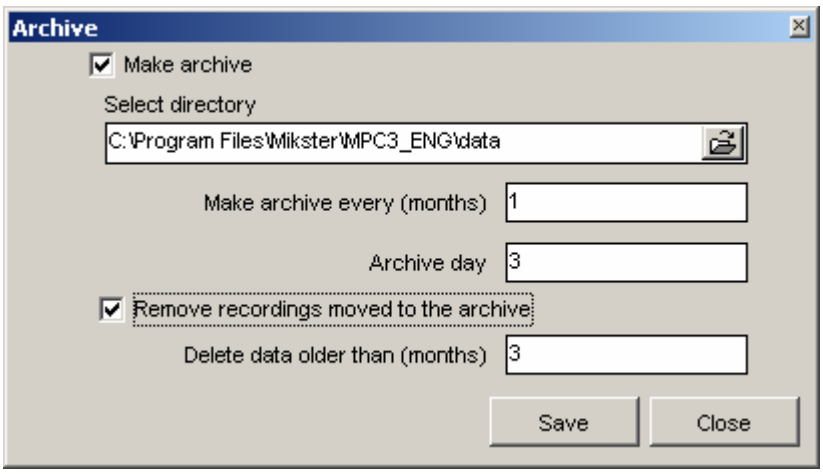
While the database optimization process is in progress, it is possible to use the MPC application on a regular basis at any workstation, which is not a server.

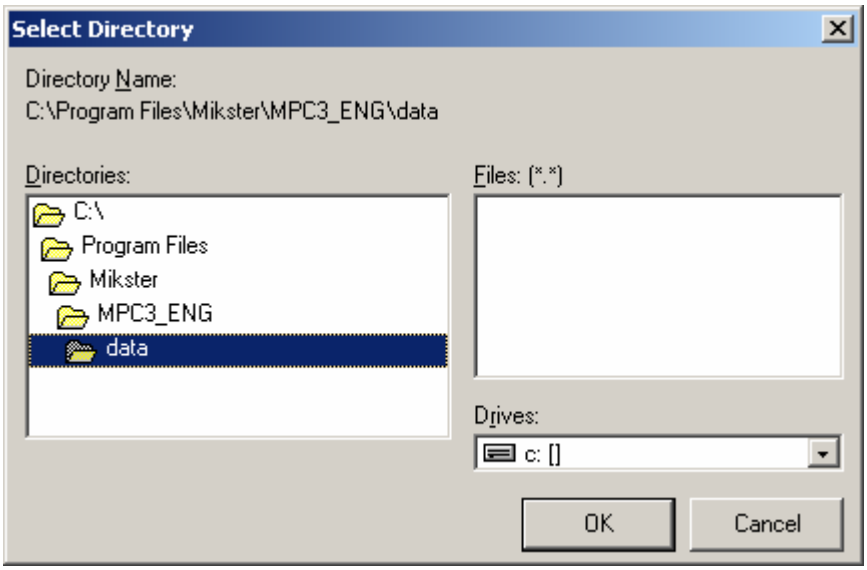


Automatic Archive Settings

The automatic archiving function is available in **Service / Automatic Archive Settings** menu. It is possible to enter setting allowing the program to make automatic data archiving, in order to do that check option **Create automatic archive**, enter the path to the directory, in which copies are to be saved, set the frequency in months for making the archive, e.g. every month, enter the day of month, in which the archiving will be carried out, e.g. on 3rd day of the month.

We recommend to check function **Delete data from original database after creating an archive** - this has advantageous effect on database functioning.





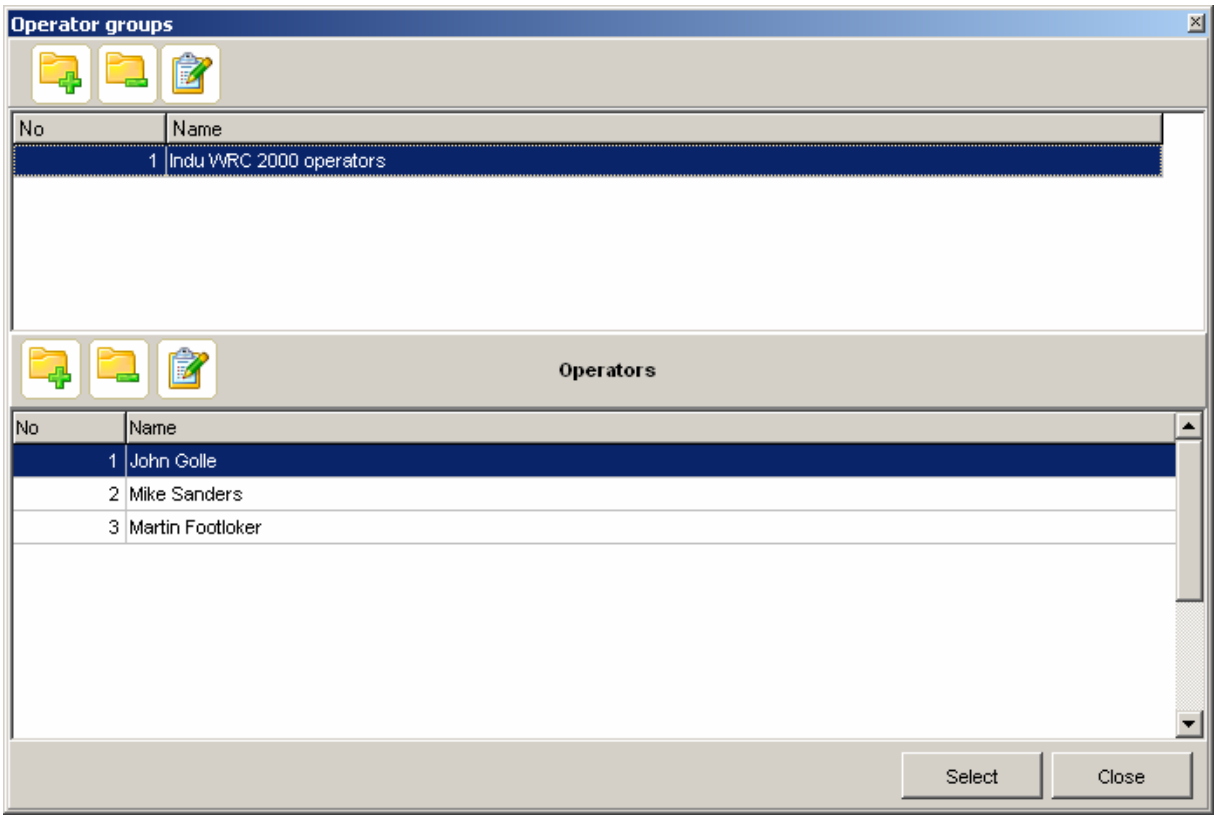
In case if the option **Delete data from original database after creating an archive** is checked, the program will automatically create a directory containing data, according to the pattern: currentyear_currentmonth
e.g. if current year is 2005 and current month is May, then the program will create directory **2005_5** in specified directory: C:\Program Files\Mikster\MPC4\TEMPARCH, and transfer there all data older than 3 months, in order to relieve the database.
Access to these data is always possible; in order to check older data enter the directory containing archived data and run the mpc.exe application, stored in the archive directory.

Dictionaries

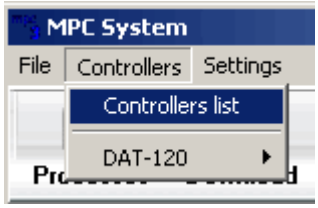
Vocabulary data, which include the ***operator groups*** and ***program groups***.

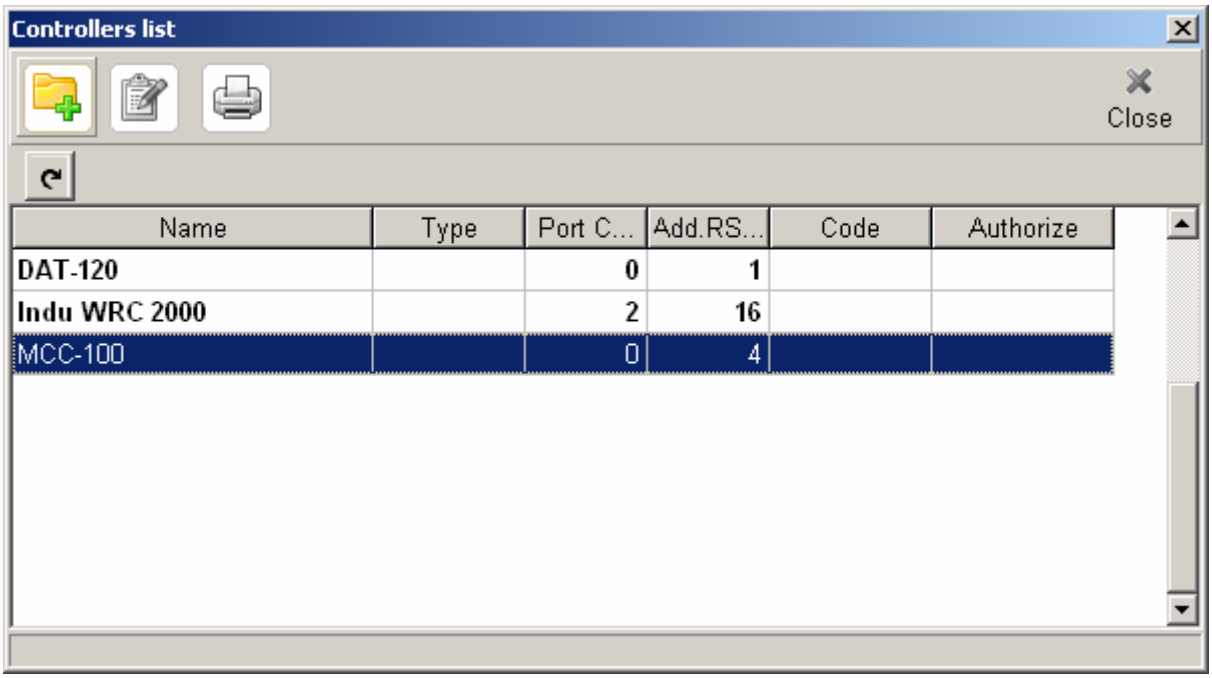
Operator Groups

Controller operators may be assigned to specific devices.



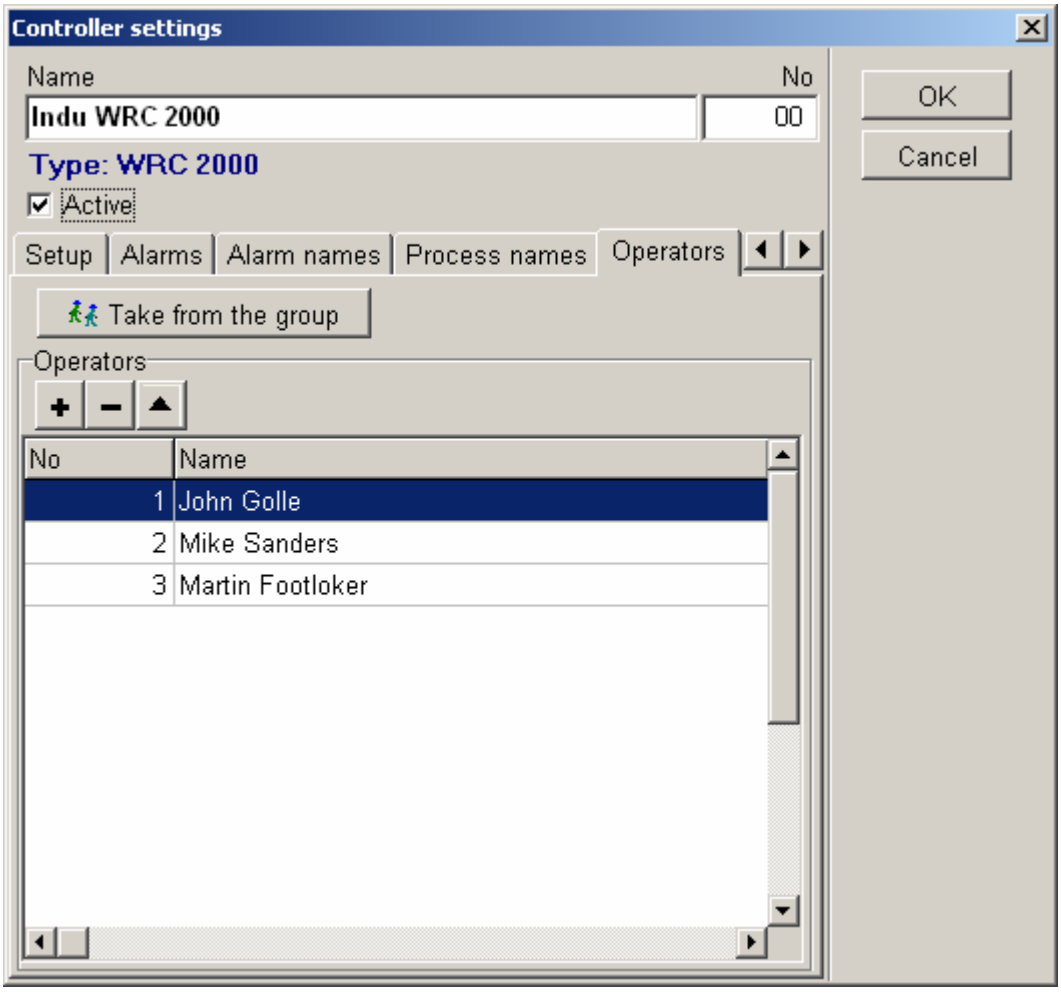
In order to assign operators to devices, select icon from the Operators group.
As soon as operators are entered, it is possible to download entries in the menu **Controllers settings / Controllers list**.





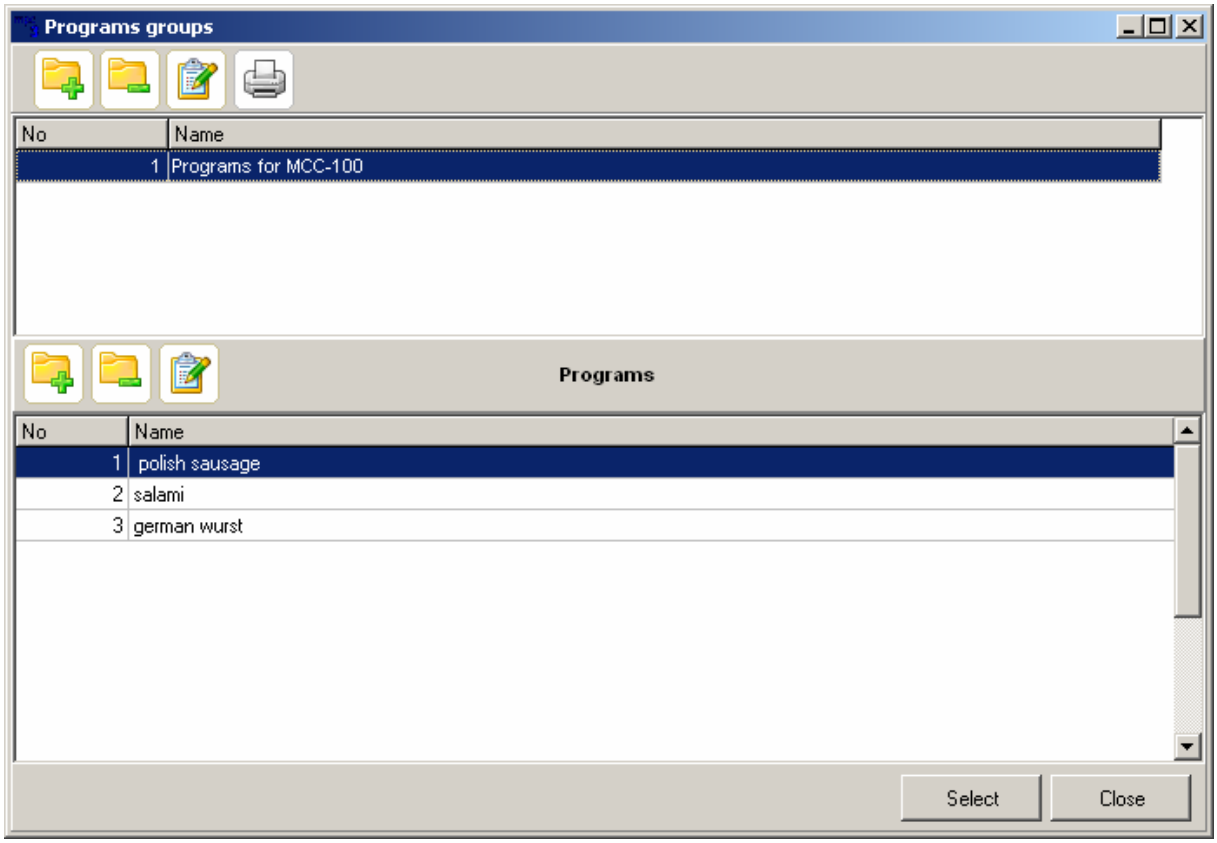
Click twice the device INDU WRC 2000 in order to shift to edition of entries. Going to the overlap **Operators**, it is possible to download previously entered operators. Click icon

to download operators from the group.



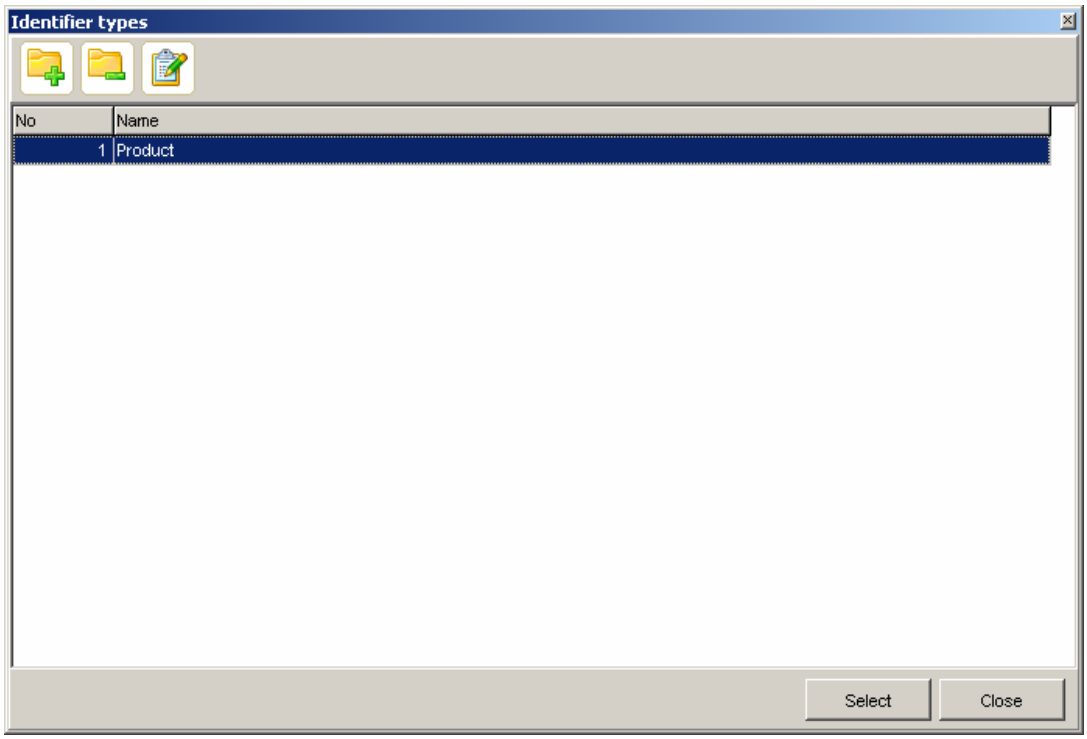
Program Groups

Program groups allow to define names for programs (manufacturing processes) set in the controller.



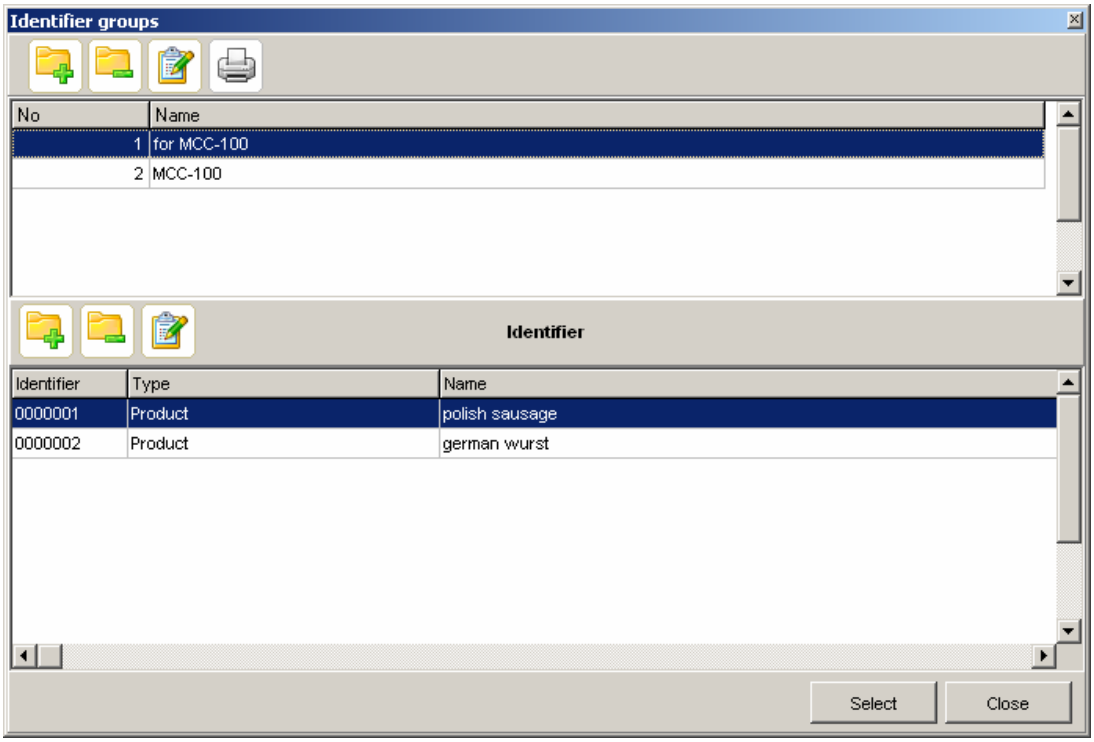
Identifier Types

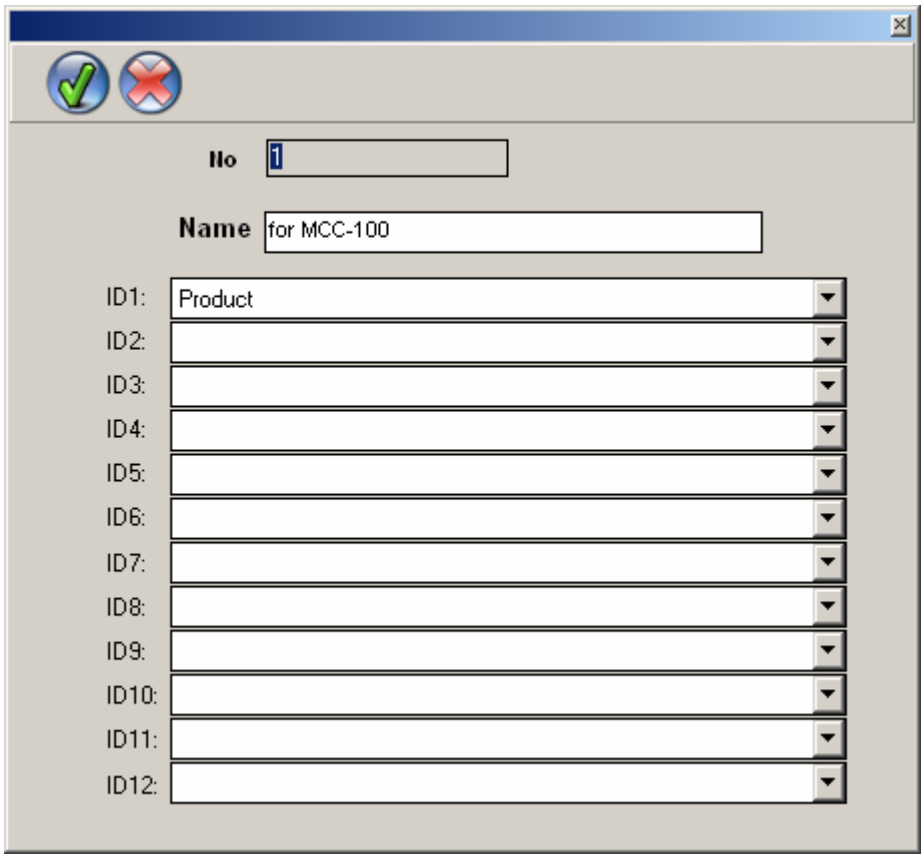
An identifier determines feature described by value entered by an operator in a controller.

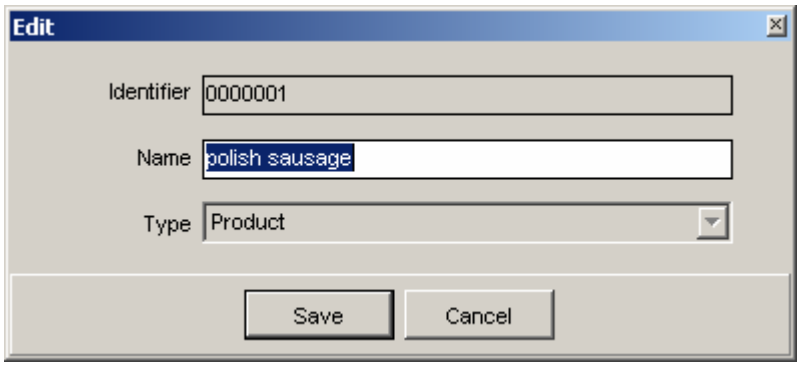


Identifier Groups

This function allows to attribute name and type for a specific identifier.



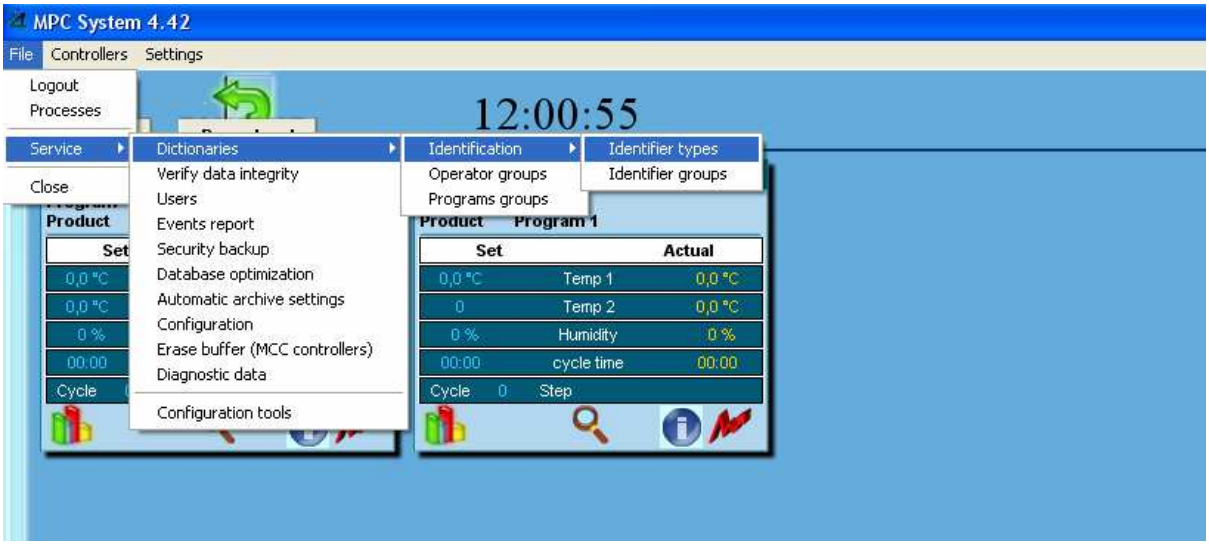

No
1
Name
for MCC-100
ID1:
Product
ID2:
ID3:
ID4:
ID5:
ID6:
ID7:
ID8:
ID9:
ID10:
ID11:
ID12:


Edit
Identifier
0000001
Name
polish sausage
Type
Product
Save
Cancel

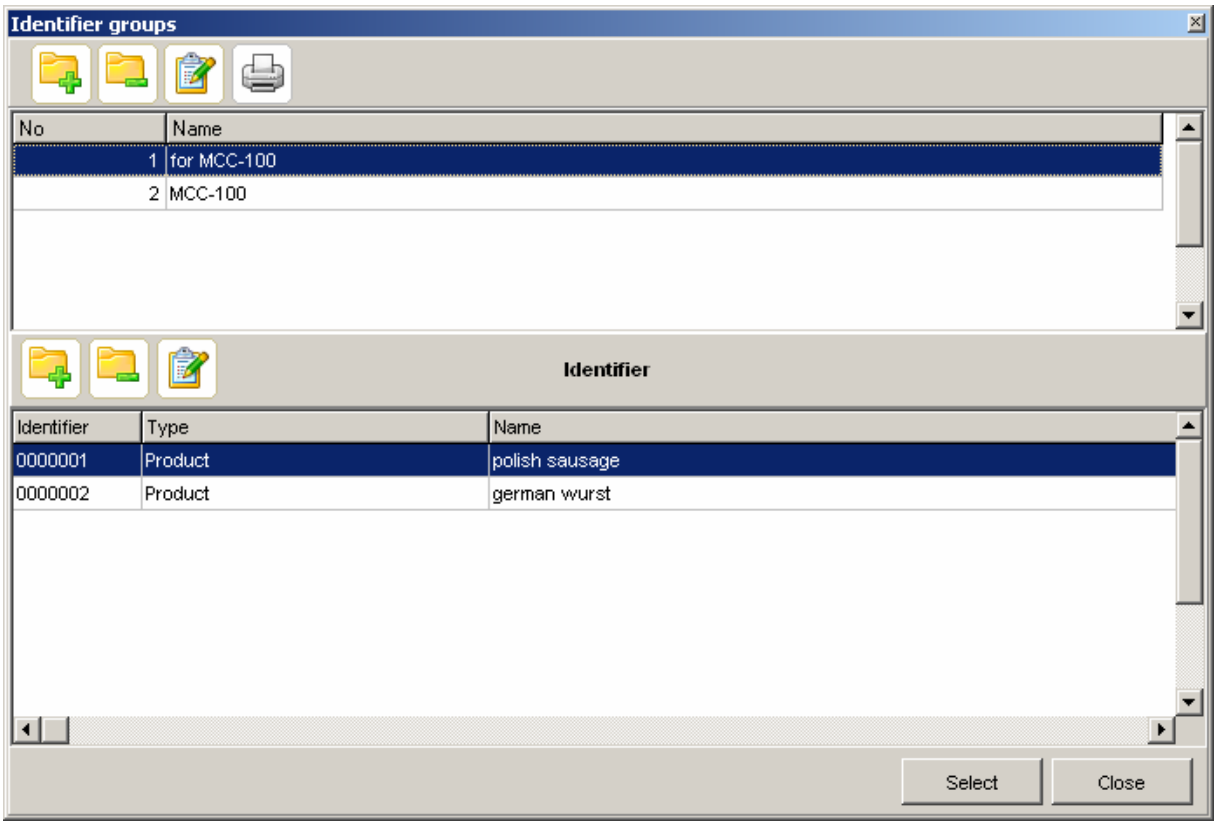
Identification Setting

Example: The controller possesses an 8-character identifier. The first identifier digit indicates cart quantity, next 4 - product code, and another 3 characters - no meaning.

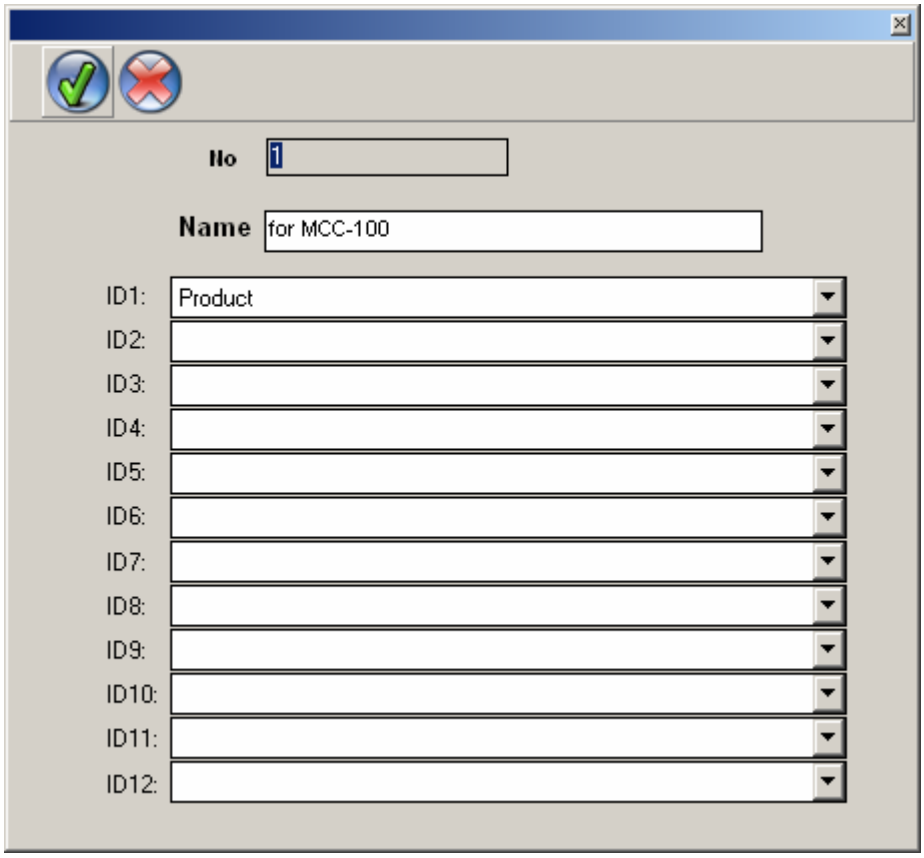
Group shall be defined in the first place. In order to do that, log in as administrator and go to:
Menu File / Service / Dictionaries / Process Identification / Identifier Groups



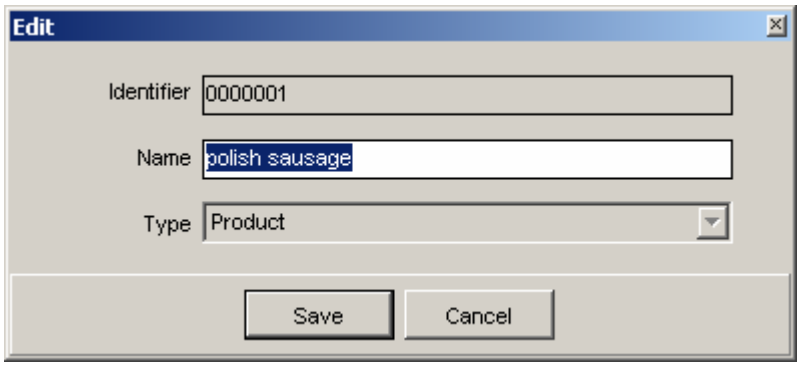
Add a new group by pressing icon .



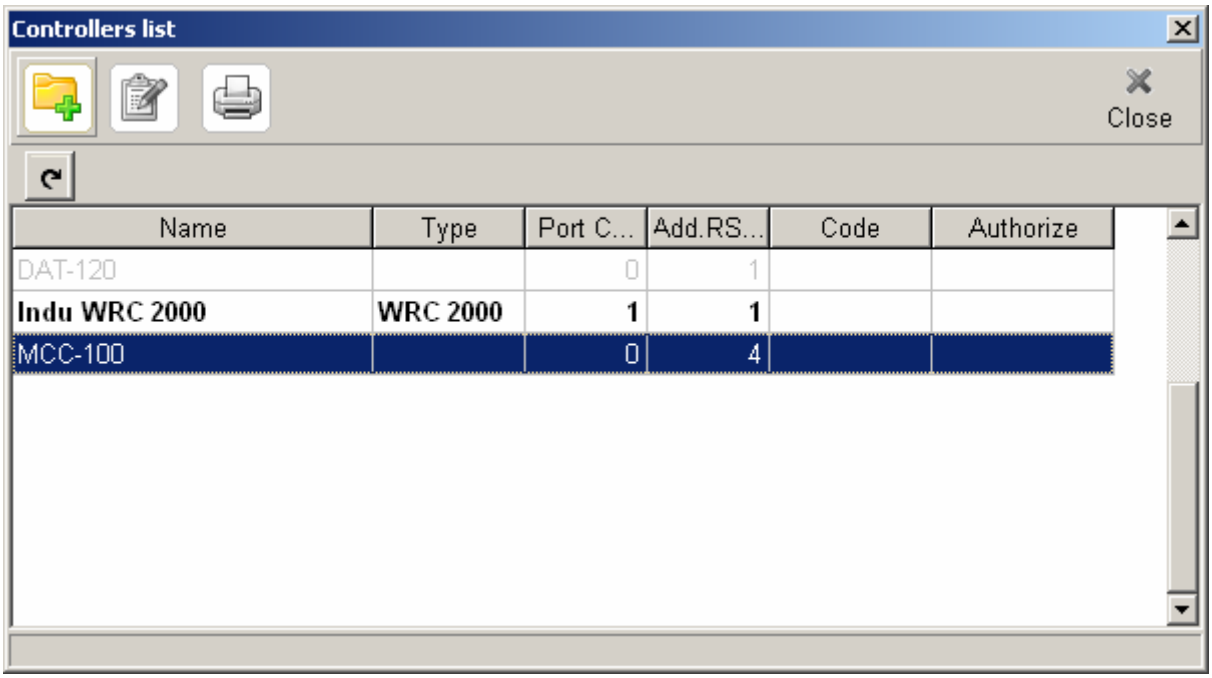
Then enter the name, e.g. MCC-100 identification, and attribute **ID1** name, e.g. cart quantity.



Then click icon and add 4-character identifier for a product.

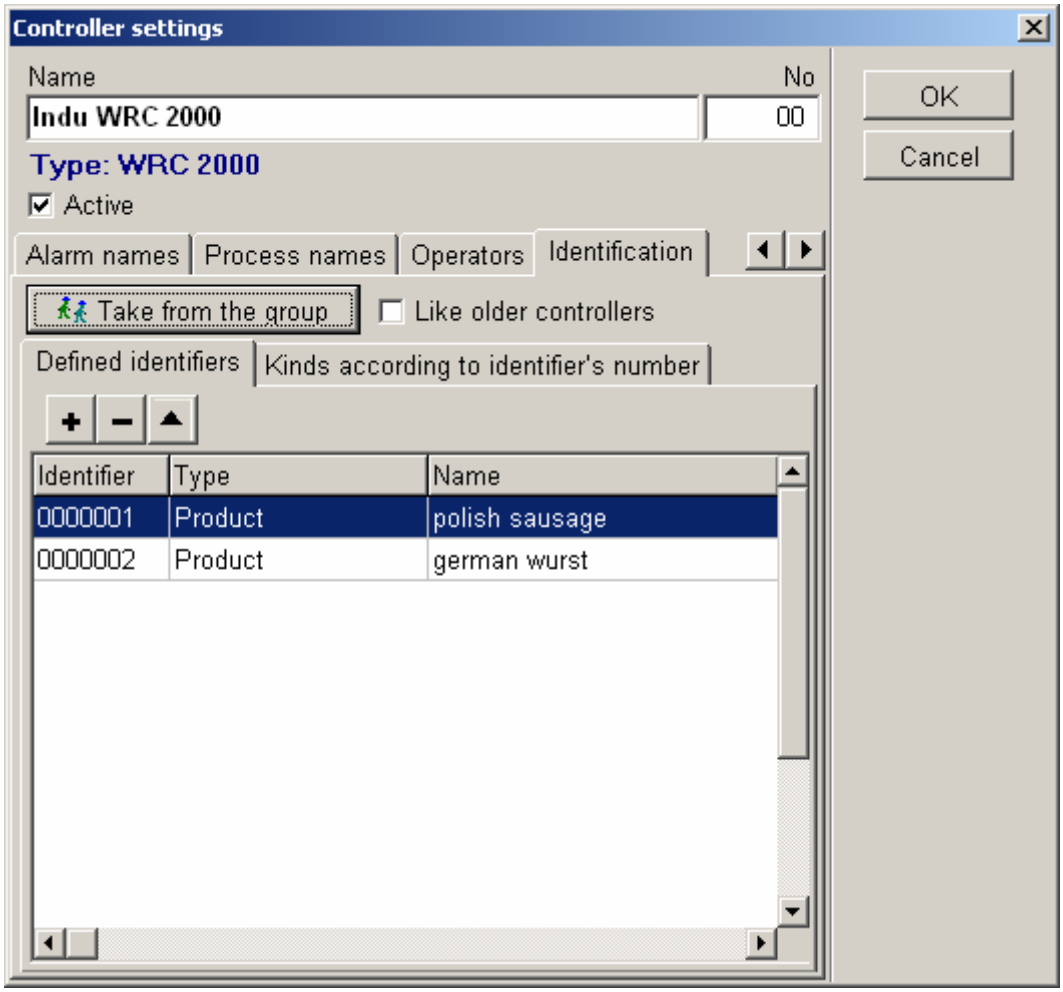


Then enter controllers settings by selecting this function from menu Controllers settings / Controllers list.

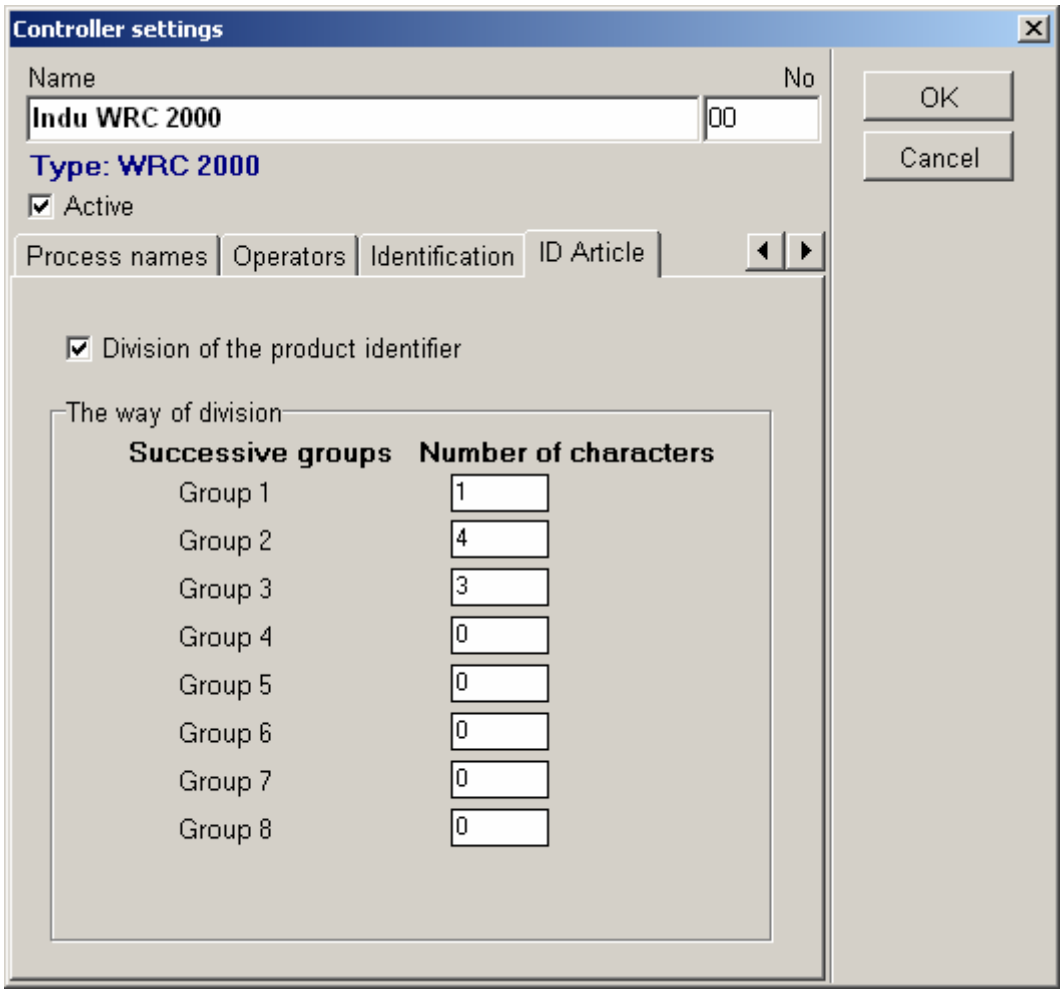


Click twice selected device, e.g. mcc-100, and then go to overlap **Identifiers** and download settings from group

[Select from Group].



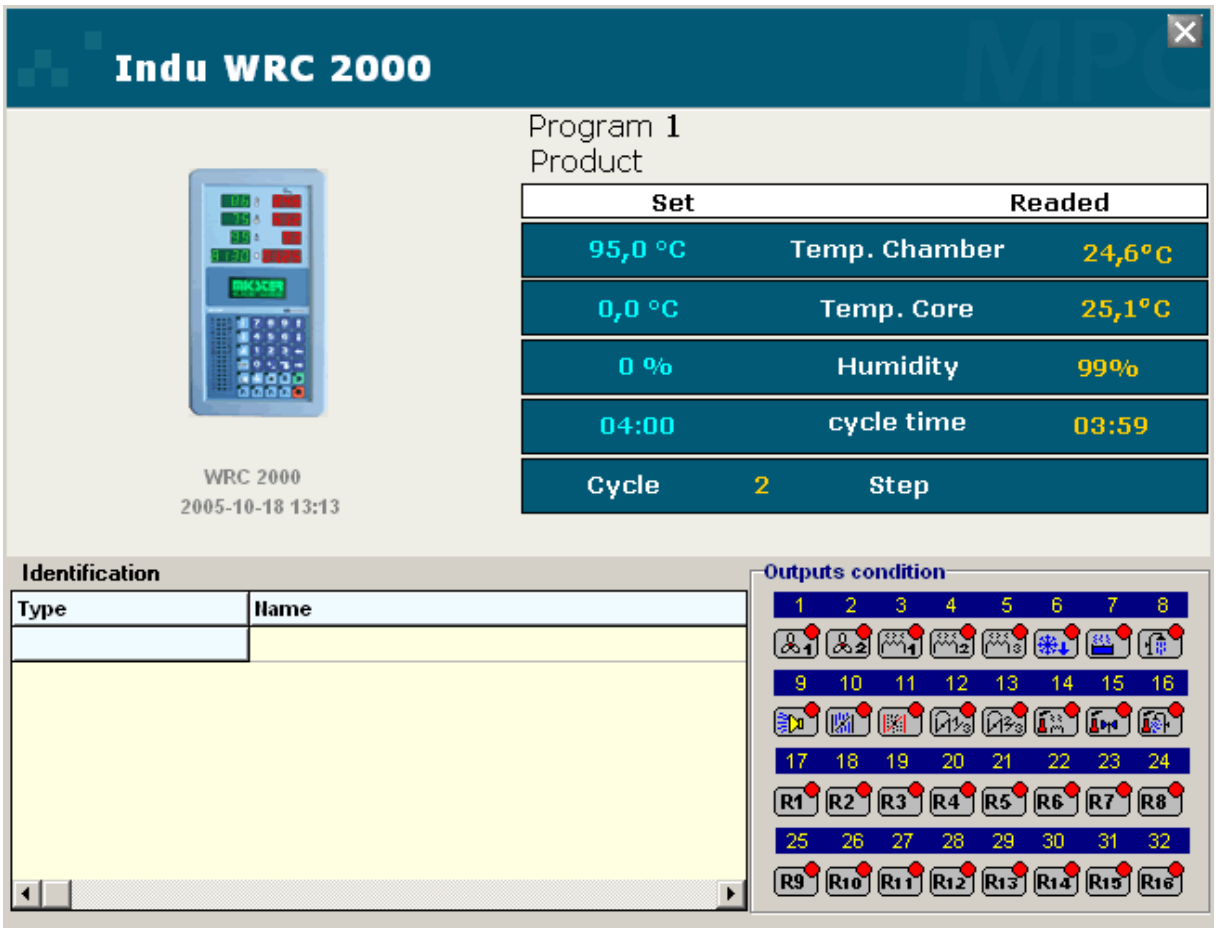
When going to overlap “Product Identifier”, specify identifier division.
Mark selection field Product identifier division
For group 1 – one character
For group 2 – four characters
For group 3 – three characters
etc. ….



The result of this operation is recognition of an identifier entered in a controller.

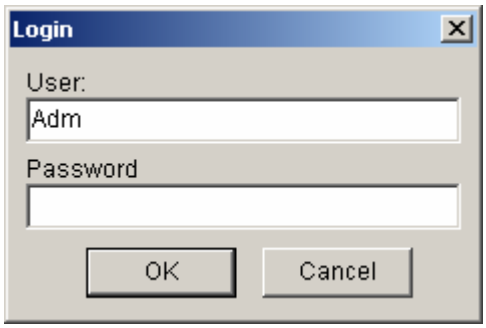
2 0001 000

as 2 carts with the “*Krakowska*” sausage


Indu WRC 2000
Program 1
Product
Set
Readed
95,0 °C
Temp. Chamber
24,6°C
0,0 °C
Temp. Core
25,1°C
0 %
Humidity
99%
04:00
cycle time
03:59
Cycle
2
Step
WRC 2000
2005-10-18 13:13
Identification
Type
Name
Outputs condition
1 2 3 4 5 6 7 8
9 10 11 12 13 14 15 16
17 18 19 20 21 22 23 24
R1 R2 R3 R4 R5 R6 R7 R8
25 26 27 28 29 30 31 32
R9 R10 R11 R12 R13 R14 R15 R16

First Activation of the Program

After activation the program inquires about USER. By default, after installation there are two users: administrator - marked with code **Adm**, and operator with code **mpc** (in previous versions - **Oper**), both users have access without password.
When the program is activated for the first time, enter user's code: **Adm**, do not enter password and press OK button. If wrong data is entered, message: "Wrong operator's code or password" will appear - then press OK button, and try again to enter user's code and password, watch if entered letters have right size.



Typical operations at first activation:
1. Entering **controllers list** (equipment list) supported by the program
2. Entering **users' list**, and attributing passwords to them
3. Entering **program parameters**
4. Setting of proper parameters for graphs, and printout parameters
5. Entering names of products and matching them identifiers (Id), or entering names and numbers of programs

Adding and Modifying Controllers Supported by the Program

Access to the controllers list is possible after logging in the program with administrator rights. Select item *Controllers settings* in upper menu, and then select *Controllers list*. Window *"Controllers list"* will appear. This window contains all entered controllers. This is where we may add a new controller or change settings for already entered controller.

Click with mouse in order to add new controller. Window ***CONTROLLER SETTINGS*** will appear, fill in all fields and press push-button **OK**.

Controller Settings

After opening window “Controller settings” from menu “Controllers list”, we go to controller settings; below you will find definitions of fields in CONTROLLER SETTINGS window:

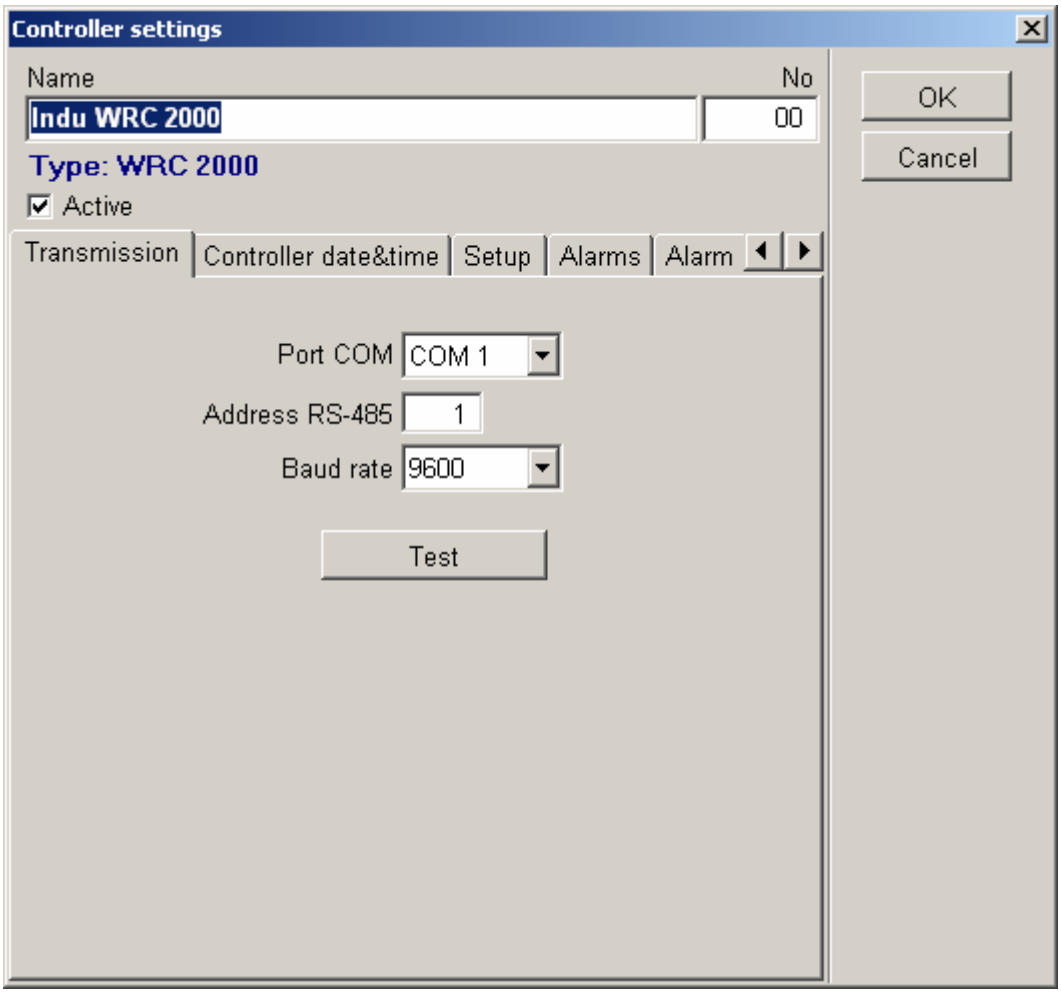
Active device - Controller activity selection field

Device name - usually here we enter the name of a device supported by the controller e.g. CHAMBER 01

Attention !
If you enter “CHAMBER 1”, then “CHAMBER 1” and “CHAMBER 10” will be displayed next to each other - both begin from the same digit - only if entered devices have numbers with preceding zeros, e.g. “01”, they will be displayed in right order.

Device number - determined device number

Overlap “Transmission”



Communication port - select the port, to which converter RS485 has been connected.

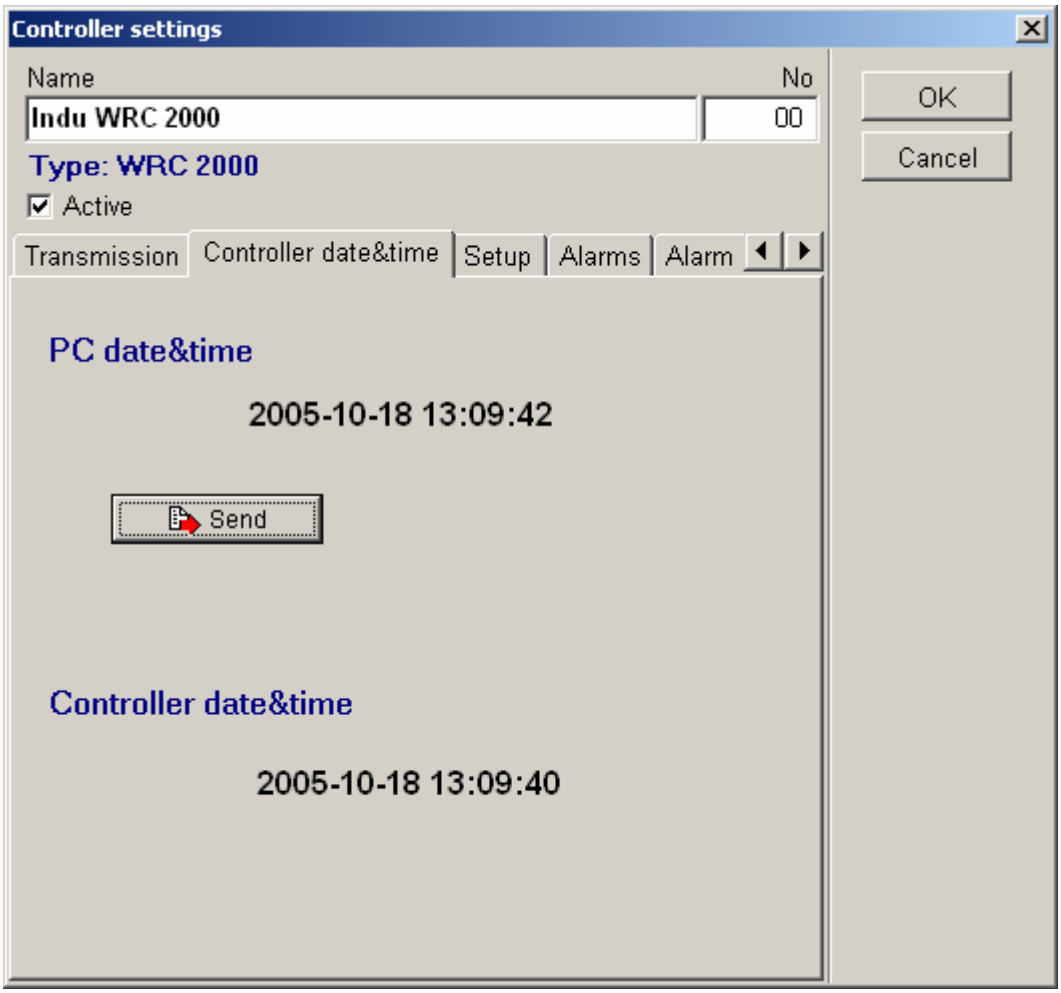
RS 485 address - each device on the RS485 line possesses its unique address, enter appropriate address for a particular controller.

Transmission rate - typical 9600 b/s value, selected value has to be consistent with the value set in a certain controller. It is recommended that all devices work at the same rate.

Controller code - it is not being entered by user directly from keyboard; as soon as you press push-button AUTHORIZE it will be received from controller; it shall be saved after entering correct authorization code.

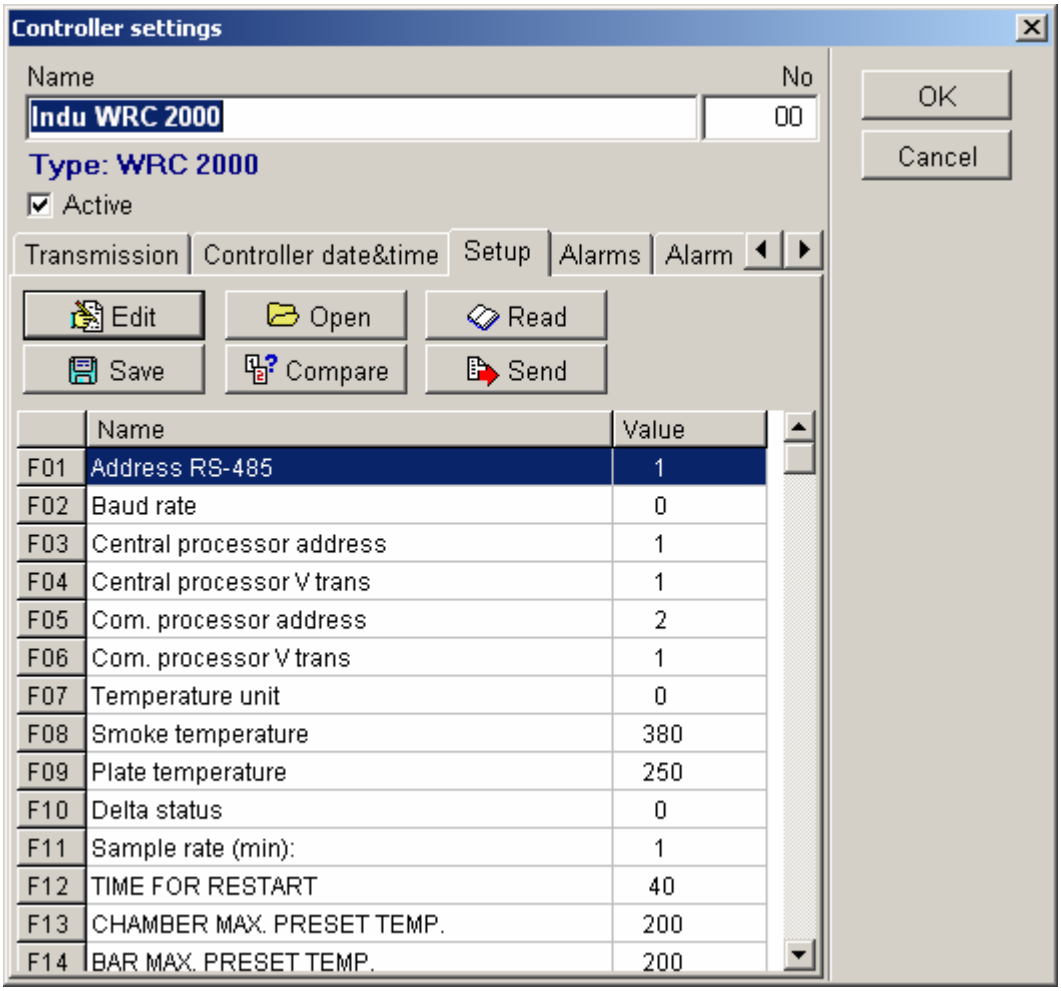
Authorization - after having received controller code (see before), controller manufacturer provides so-called authorization code.

Overlap "Date and Time"



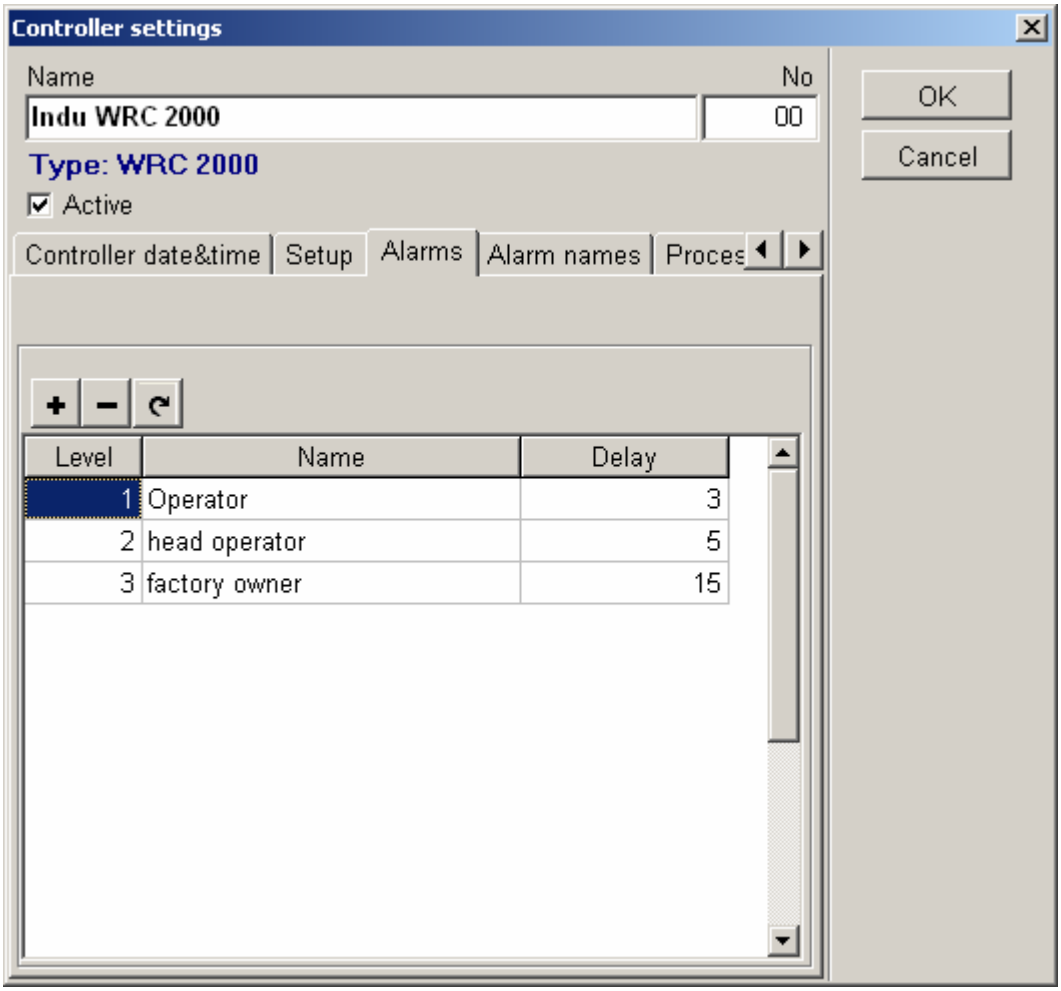
Send date and time to the controller, when it differs from computer date and time.

Overlap “Setup”



This overlap allows to check controller setup, enter modifications, compare the setup, and send new settings to the controller.

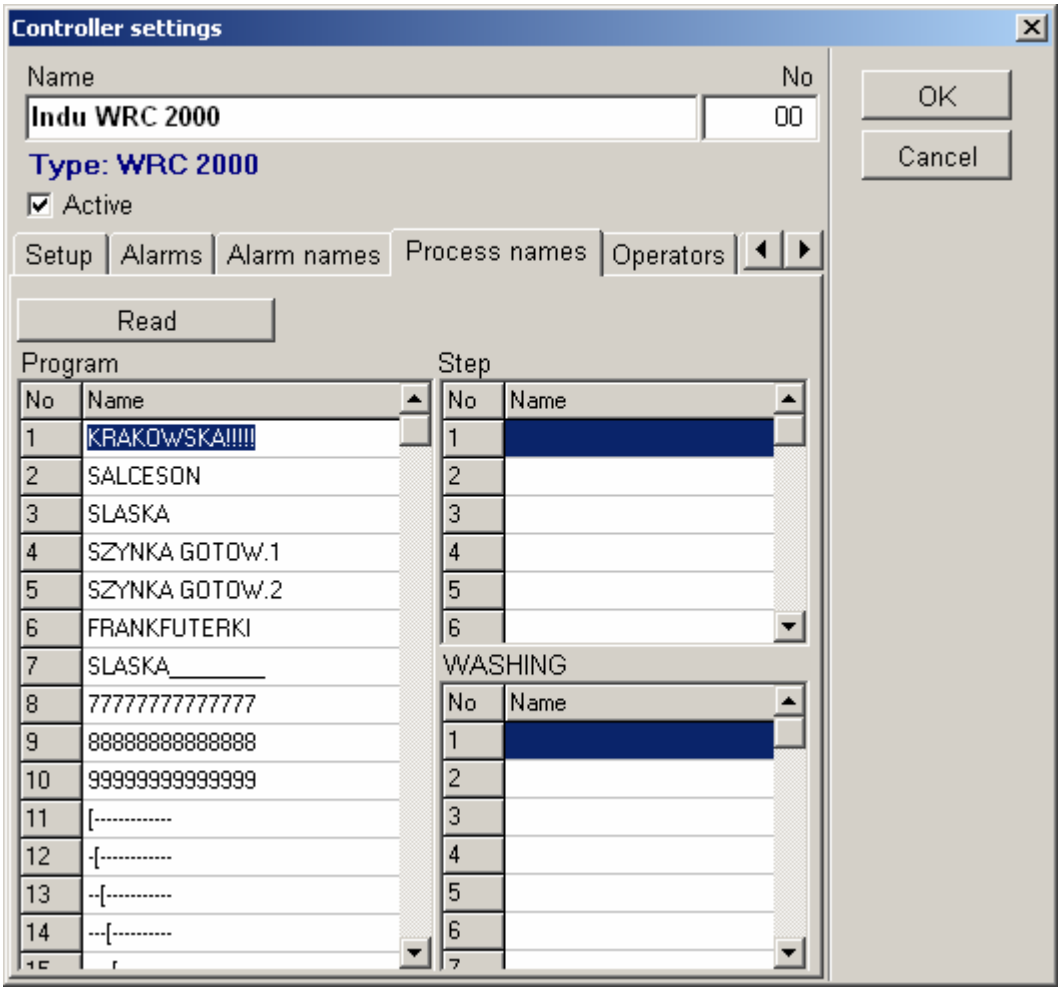
Overlap “Alarms”



This overlap allows to set alarm occurring with preset delay.
In this case operator will be informed about alarm occurrence after 3 minutes, operator’s superior will be informed after 5 minutes, and the last person to be informed is the company manager.

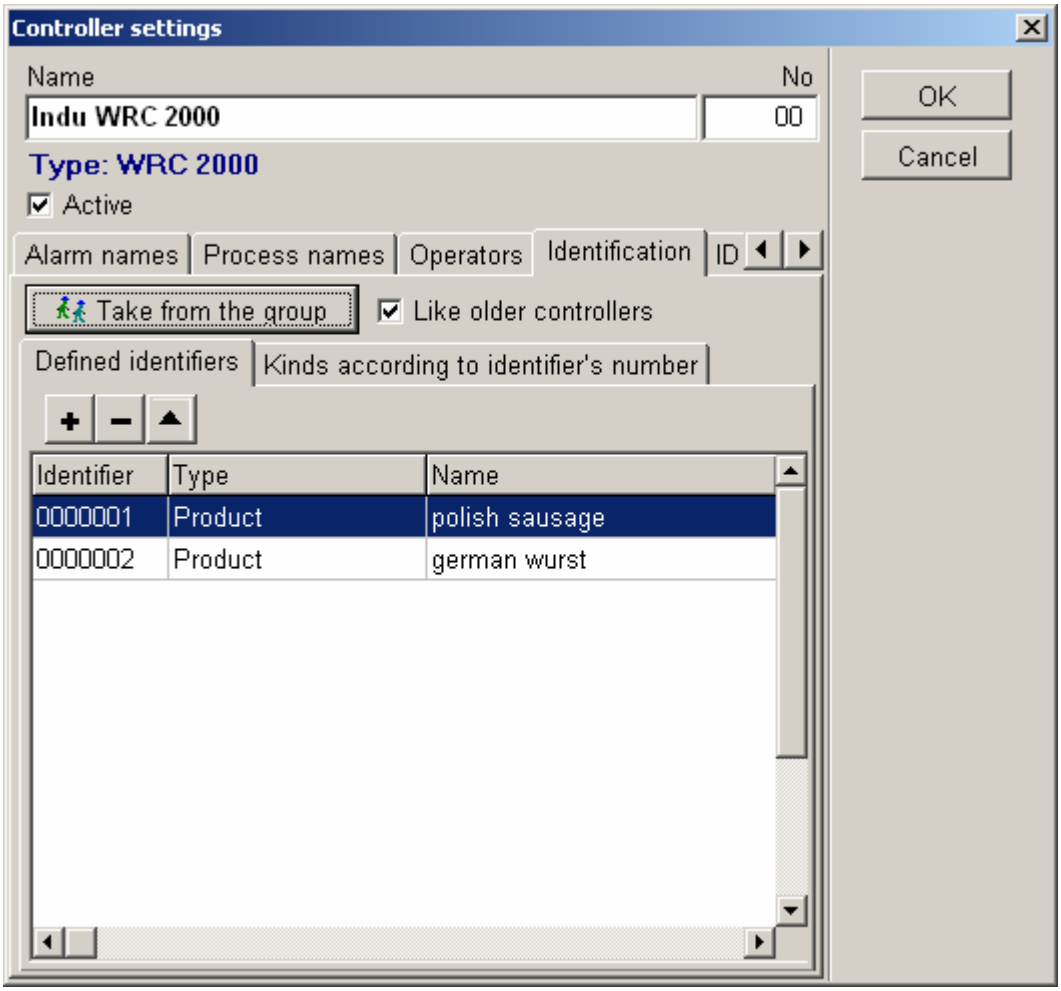
Alarm delay may be declared freely.

Overlap “Names of programs”



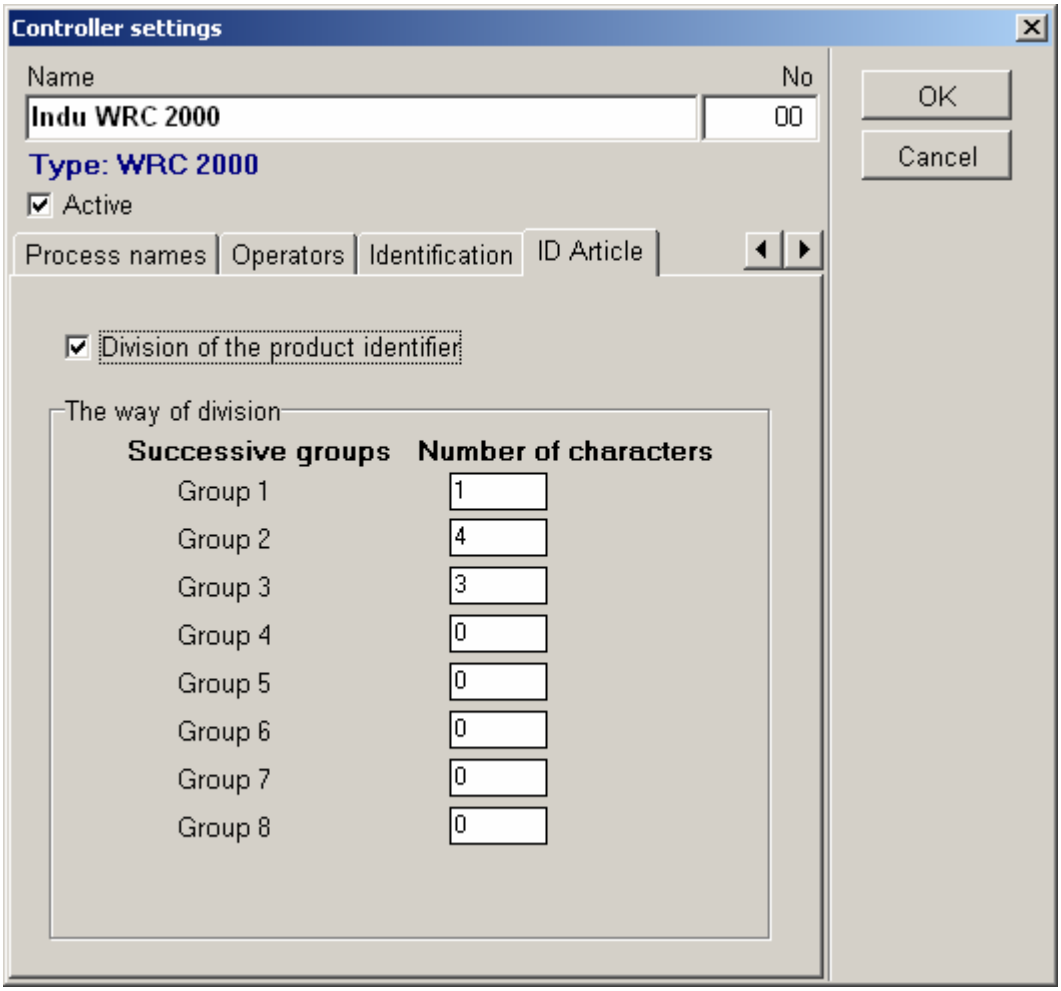
In this overlap it is possible to attribute own names to program numbers. Moreover, user can take them from program group defined earlier.

Overlap “Identifiers”



Identifiers allow for more accurate manufacturing process description, we may thus determine not only product name, but its properties as well.

Overlap “Product Identifier”



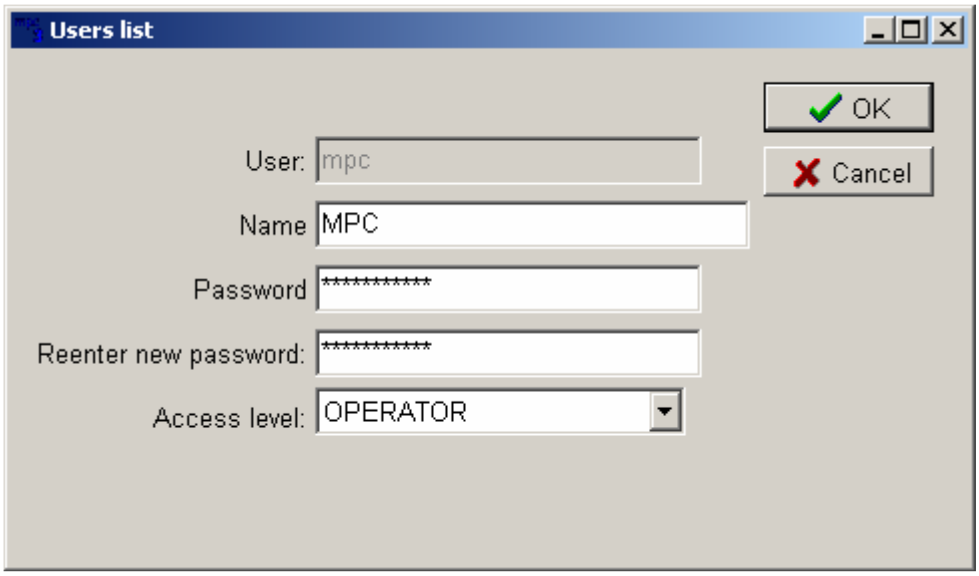
Overlap “Product Identifier” allows to define identifier division; in this case group one has one character, group two has two characters, whereas the last third defined group has five characters. Identifier will be as follows:

2 03 01030

Authorized Program Users' List

Access to users' list is possible after logging in the program with administrator rights.
Select item *File* in upper menu, then select *Users' List*. Window *"Users' List"* will appear.
It contains users, who have access to the program. Here, we can add new user or change settings for already existing user.

Press with mouse to add a new user.
When all fields are filled in, press **OK** or **ENTER** key on keyboard to save data.



Definitions f fields in USERS' LIST window:

User
Enter user's code, which will be used by the user while activating the program.

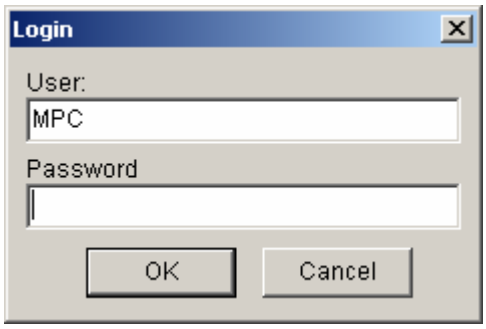
Surname, name
User's surname and name.

Access rights
Three authorization levels are available to choose: only review, operator, administrator. First two allow for access to basic program functions. The *administrator* level allows to modify controllers, and change program parameters.

Attention:
The program has the following authorization levels for users:

OPERATOR	- basic functions available
ADMINISTRATOR	- service functions for administrator

Window "User Login" appears immediately after program activation. Enter "User's code" assigned by the administrator in the window *user* line, and then your password.



Default users' codes, after program installation:

User	Password	Authorization level
mpc	(no password)	operator
Adm	(no password)	administrator

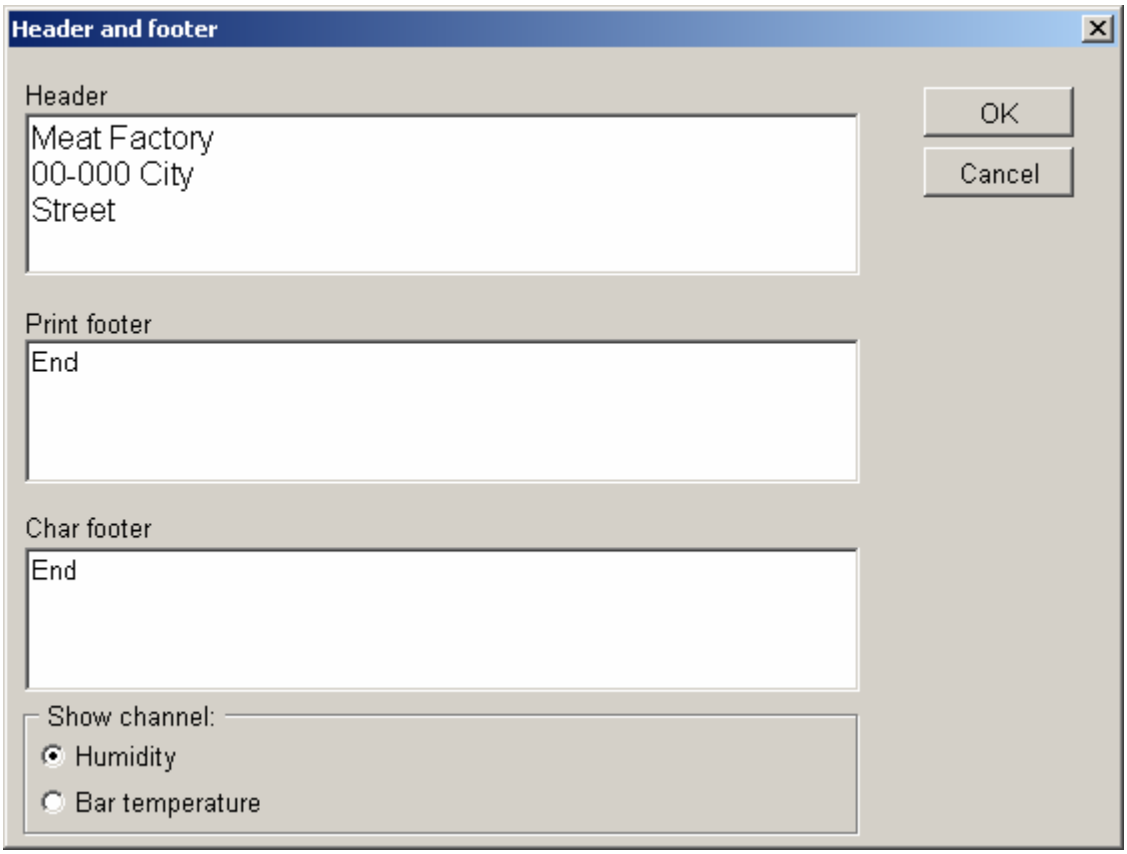
Attention:
Previous MPC versions did not have User: **mpc**. **Oper** was available instead of it.

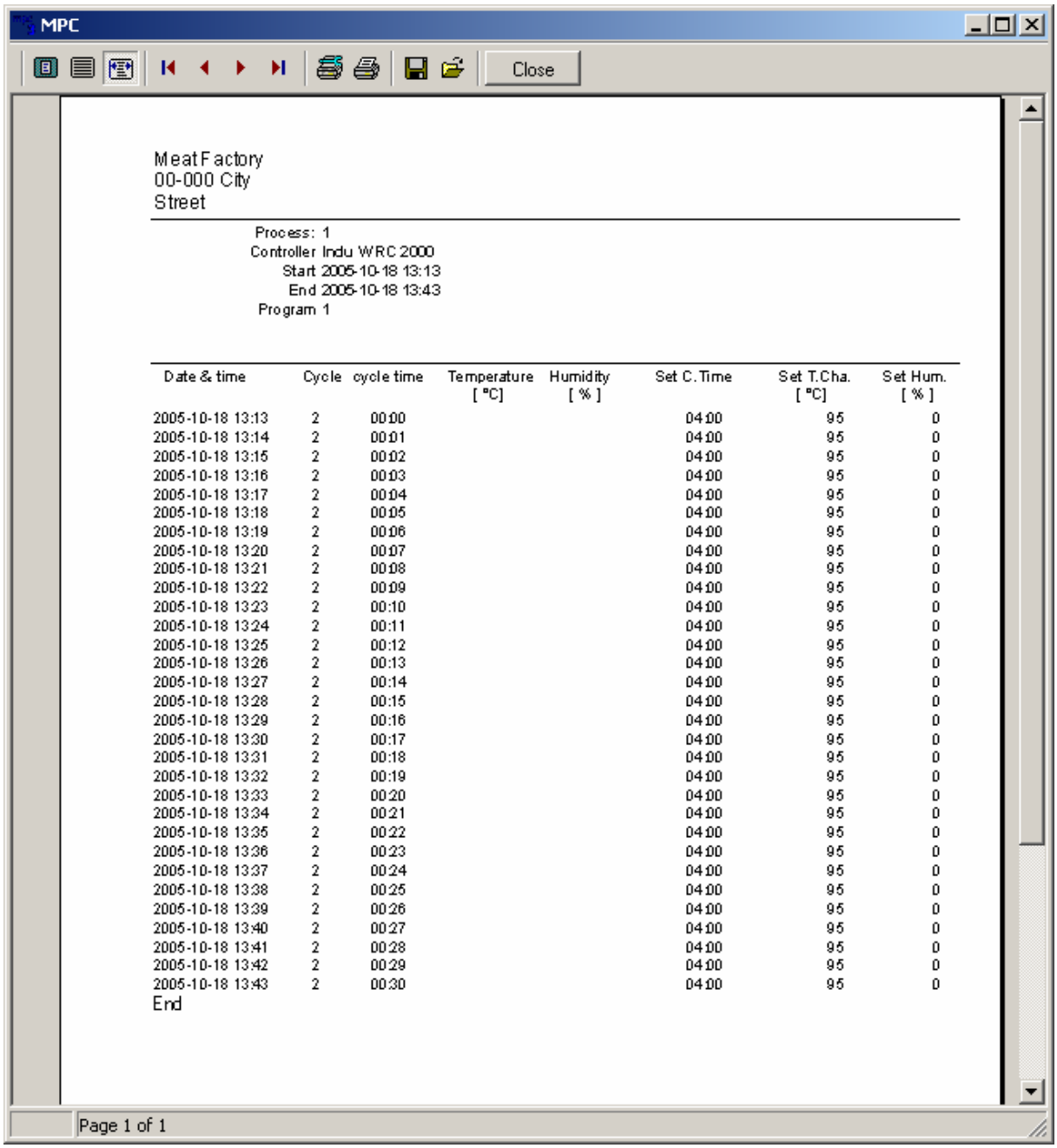
SYSTEM ADJUSTMENT TO USERS' NEEDS

Header and footer

Description

Each printed process consists of header, and then of recorded samples and footer. User may adjust printout header and footer appearance. First header line may contain information including e.g.: company name, address, department.





Date & time	Cycle	cycle time	Temperature [°C]	Humidity [%]	Set C. Time	Set T.Cha. [°C]	Set Hum. [%]
2005-10-18 13:13	2	00:00			04:00	95	0
2005-10-18 13:14	2	00:01			04:00	95	0
2005-10-18 13:15	2	00:02			04:00	95	0
2005-10-18 13:16	2	00:03			04:00	95	0
2005-10-18 13:17	2	00:04			04:00	95	0
2005-10-18 13:18	2	00:05			04:00	95	0
2005-10-18 13:19	2	00:06			04:00	95	0
2005-10-18 13:20	2	00:07			04:00	95	0
2005-10-18 13:21	2	00:08			04:00	95	0
2005-10-18 13:22	2	00:09			04:00	95	0
2005-10-18 13:23	2	00:10			04:00	95	0
2005-10-18 13:24	2	00:11			04:00	95	0
2005-10-18 13:25	2	00:12			04:00	95	0
2005-10-18 13:26	2	00:13			04:00	95	0
2005-10-18 13:27	2	00:14			04:00	95	0
2005-10-18 13:28	2	00:15			04:00	95	0
2005-10-18 13:29	2	00:16			04:00	95	0
2005-10-18 13:30	2	00:17			04:00	95	0
2005-10-18 13:31	2	00:18			04:00	95	0
2005-10-18 13:32	2	00:19			04:00	95	0
2005-10-18 13:33	2	00:20			04:00	95	0
2005-10-18 13:34	2	00:21			04:00	95	0
2005-10-18 13:35	2	00:22			04:00	95	0
2005-10-18 13:36	2	00:23			04:00	95	0
2005-10-18 13:37	2	00:24			04:00	95	0
2005-10-18 13:38	2	00:25			04:00	95	0
2005-10-18 13:39	2	00:26			04:00	95	0
2005-10-18 13:40	2	00:27			04:00	95	0
2005-10-18 13:41	2	00:28			04:00	95	0
2005-10-18 13:42	2	00:29			04:00	95	0
2005-10-18 13:43	2	00:30			04:00	95	0

End

ADMINISTERING THE MPC SYSTEM

Administrative operations shall be carried out with care. Improper modifications introduced by user with administrator rights may result in data loss and faulty system operation. Usual, everyday work with the system should be carried out after logging in with operator rights.

Process Removal from the Program

Administrator is able to remove a process from the program.
Open window *"Processes List"*, and then press on keyboard function key F10 - push-button *"Remove Process"* will appear. After pressing it, box with request to confirm indicated process removal will appear. The process will be removed after confirmation.
Push-button *"**Remove process**"* will be hidden after pressing key **F10** again.

OPERATOR'S WORK IN THE MPC PROGRAM

Program Activation

In order to activate the program press push-button "Start" on taskbar - then "Programs" - group "Mikster" - abbreviation "mpc". Window "User's Login" will appear - enter your own user's code and password, and press push-button OK.
Attention: if there are no modifications introduced by administrator, default operator's code is **mpc** (in older program versions - **Oper)**, do not fill in field *password*.

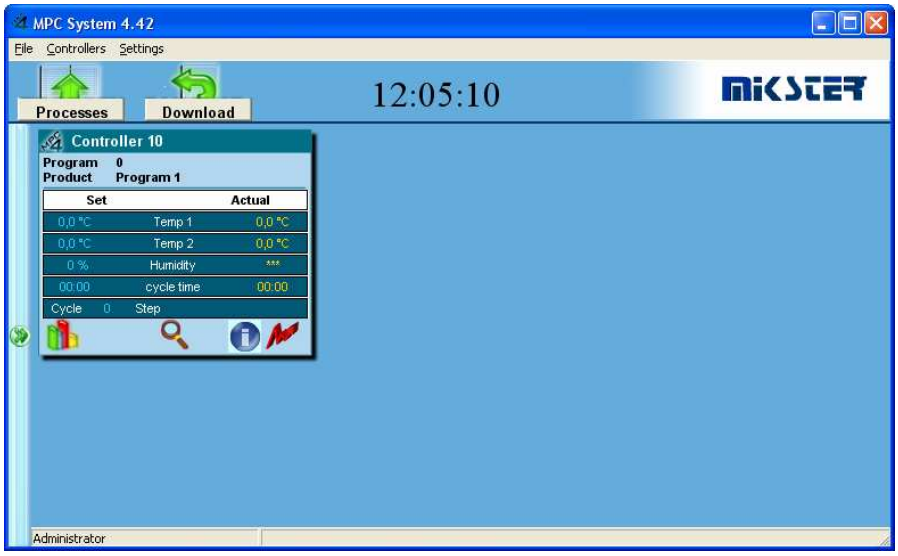
Program main window will appear, which contains the following push-buttons:

- **PROCESSES -** Opens list of processes read out from controllers
- **DOWNLOAD -** Allows for "manual" collected data readout from selected controllers

Device (Chamber) Operation Monitoring

Program main window is showing active controllers, later referred to as “Device Status Monitor”. The window contains preview of devices (controllers).
The following basic information will be displayed:

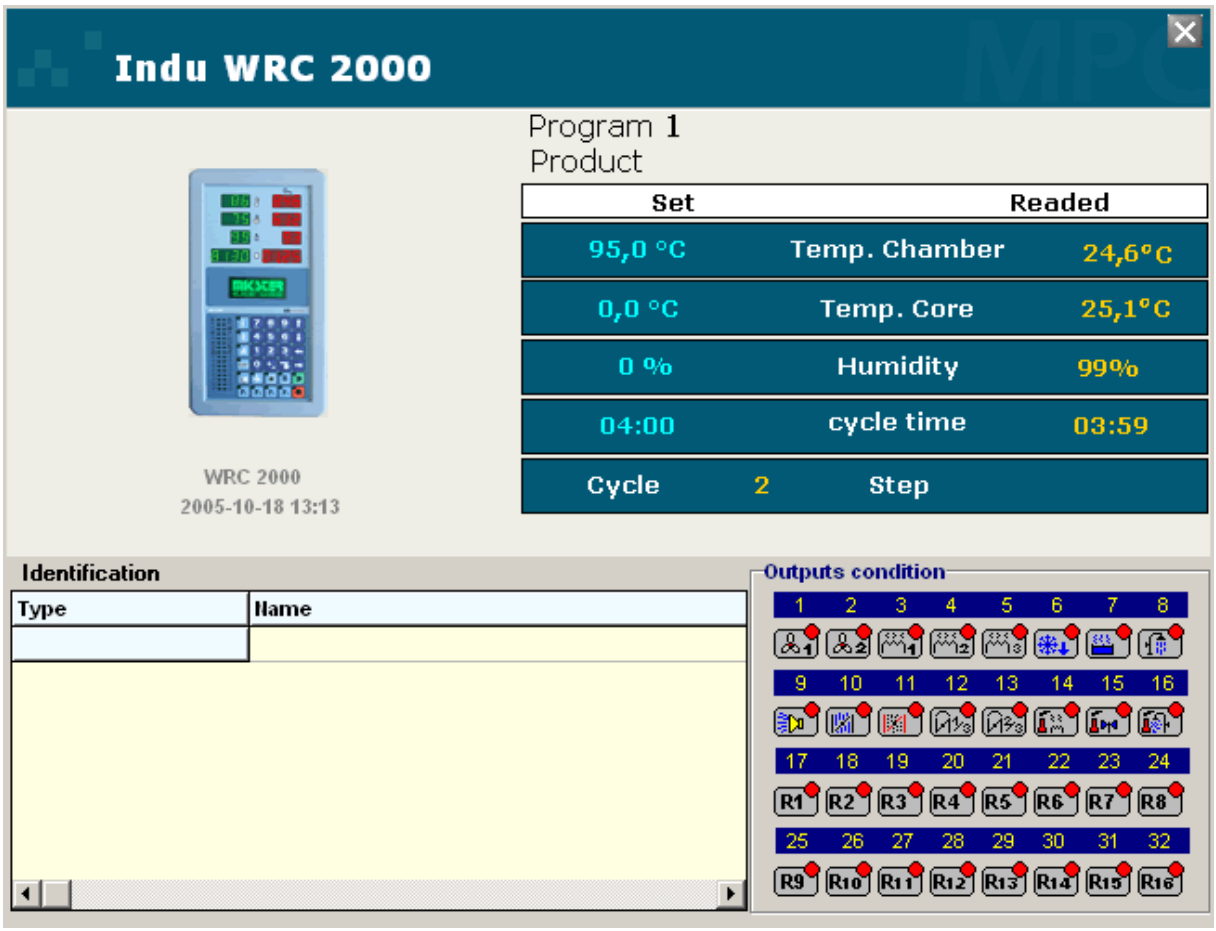
- device name,
- active program (or STOP message)
- cycle number
- information on current product



Point out selected controller with mouse indicator and click on it with left mouse key in order to obtain detailed information on the device status.
Window containing detailed information will appear. Available information depends on controller type. Windows for MCC-100 and e.g. INDU WRC 2000 controllers will look different.

Displayed information:

- device name,
- controller date and clock time
- controller program version
- active program (or STOP message)
- cycle number (cycle name)
- information on current product
- preset process parameters
- currently measured parameters
- status of device activation by the controller



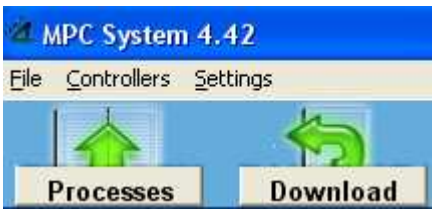
The illustration above applies to the INDU WRC-2000 controller

Receiving Collected Data from Controllers

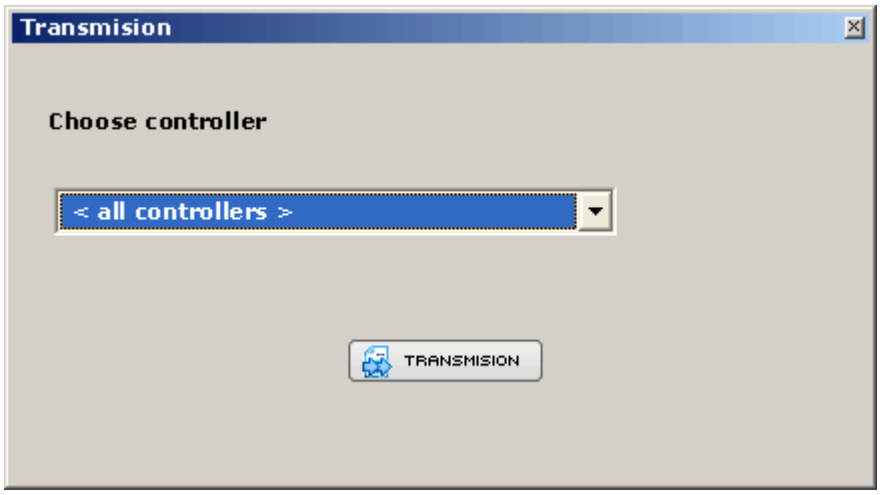
There are two ways for receiving collected data (recordings) from controllers. The first one is automatic collected data receiving, carried out 1 minute after initiating the MPC program, and the second one – manual collected data reception.

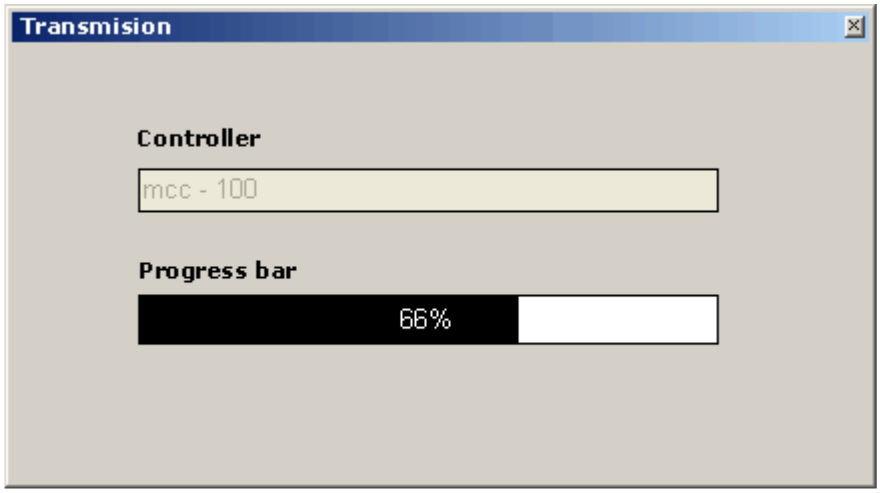
Manual collected data reception

For all controllers, it is always possible to receive collected data by pressing push-button **TRANSMISSION**



in program main window. Window *"**Collected data readout**"* will appear.

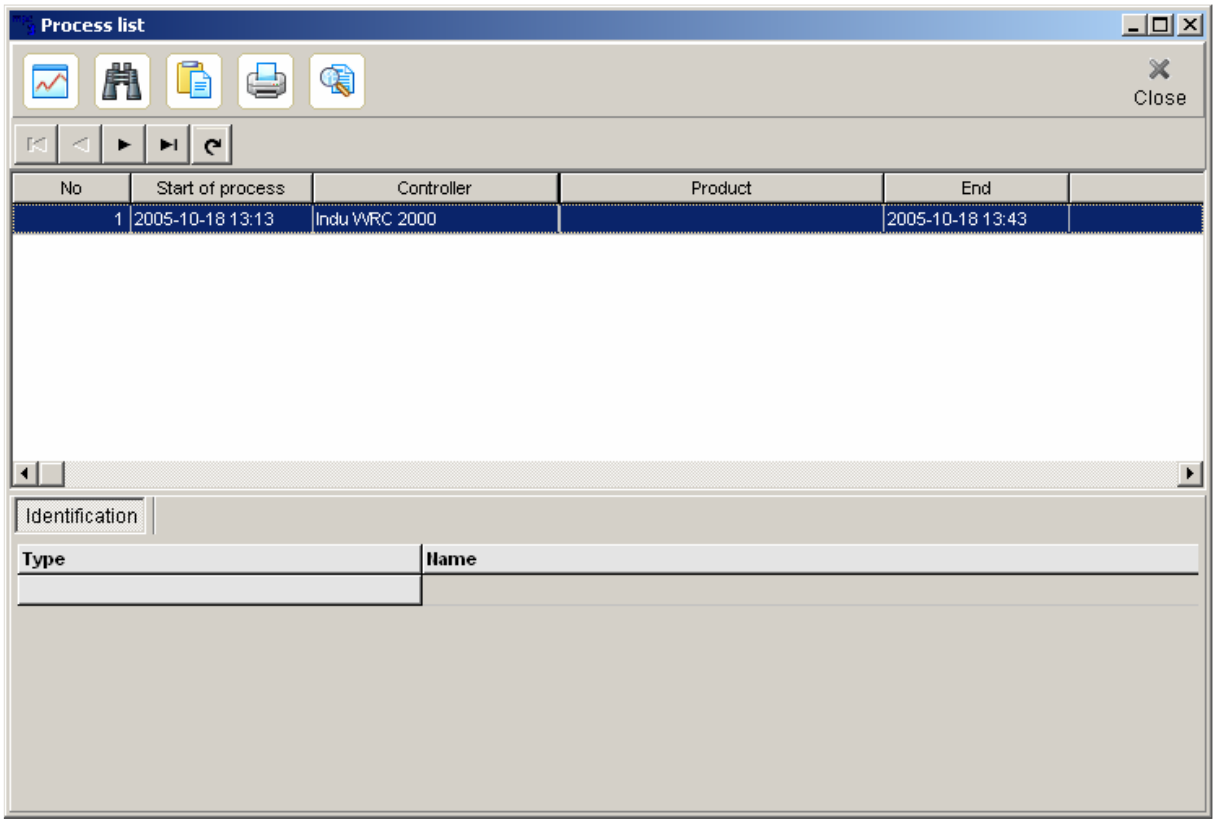




Select any (or all) controller, from which collected data are to be received, and press push-button **TRANSMISSION**.
Received collected data (recordings) is saved in database. As soon as the operation is completed, window “Collected data readout” will close.

Manufacturing Processes Preview

You can activate the processes preview function from program FILE **->** PROCESSES. Window *"Processes List"* will appear, containing the list of processes, which have been registered in the program.

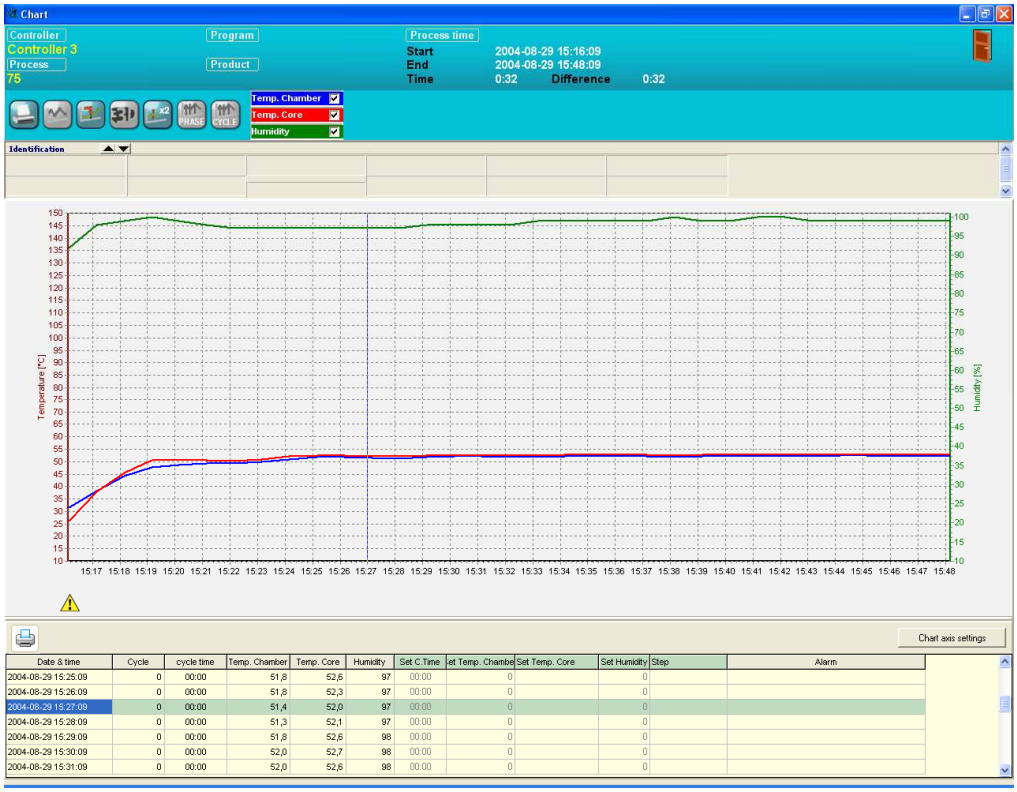


The field **Controller** contains list of controllers available to choose. Preset default value *"All"* makes processes from all controllers visible. If you choose for example "CHAMBER 01" - only processes from "CHAMBER 01" will be displayed.

Push-button definitions:

GRAPH

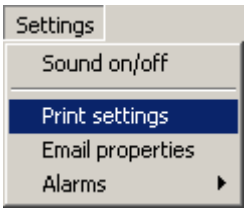
Opens window *"**Process Graph**"*, in which selected process graph will be drawn. User may alter graph appearance, and may instruct the program to show on the graph measurement points, indicator; our innovation is graph shown in three-dimensional form.



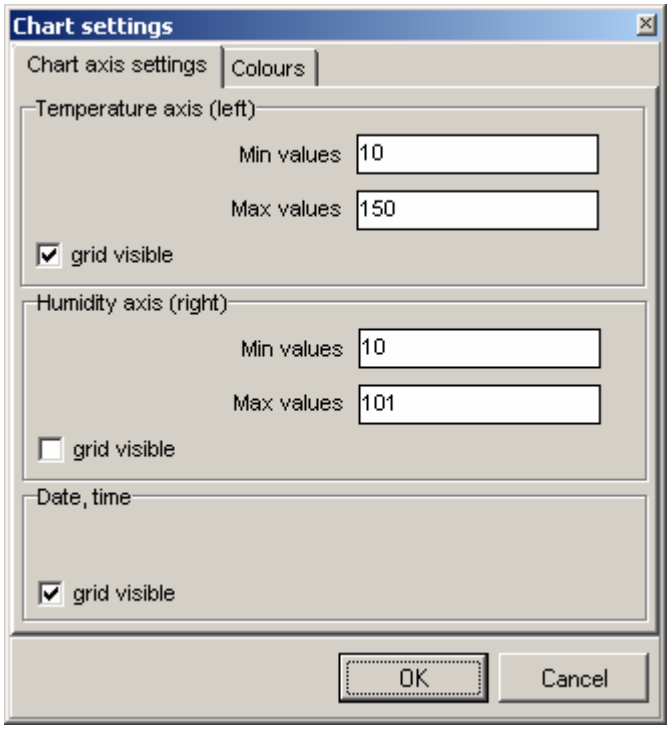
It is possible to switch on and off particular channel on graph

e.g. in this case user has switched off displaying of the following items on the graph:
Core Temperature
Smoke Temperature
Plate Temperature
K7
K8
K9
K10

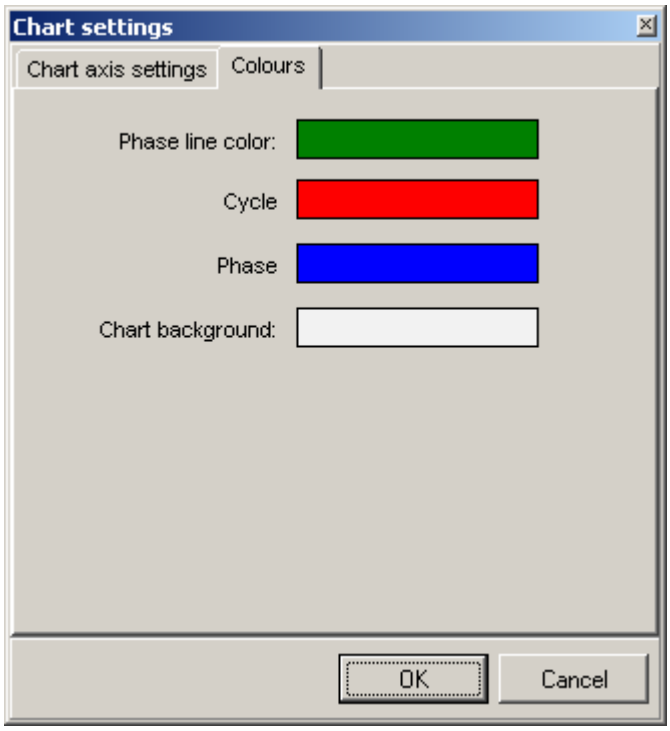
If necessary, modify printout settings



axis ranges for temperature and humidity and time

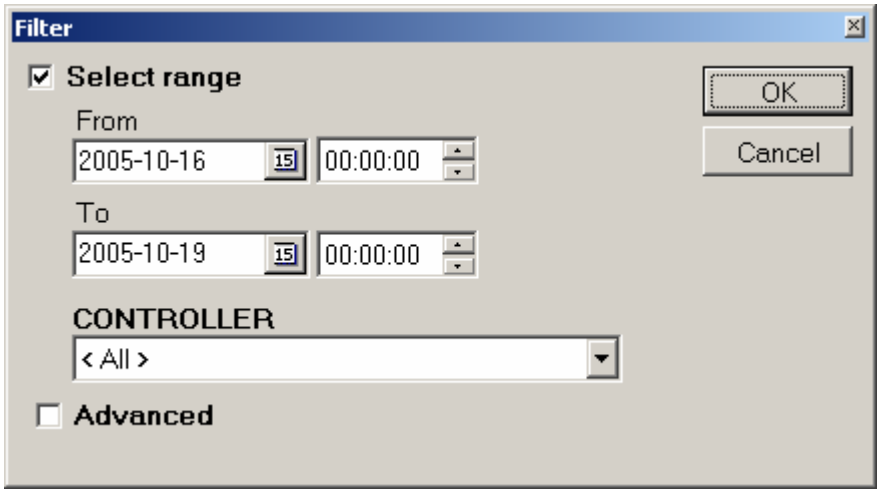


Set colors for phase lines, cycle lines, phase names, and graph background.



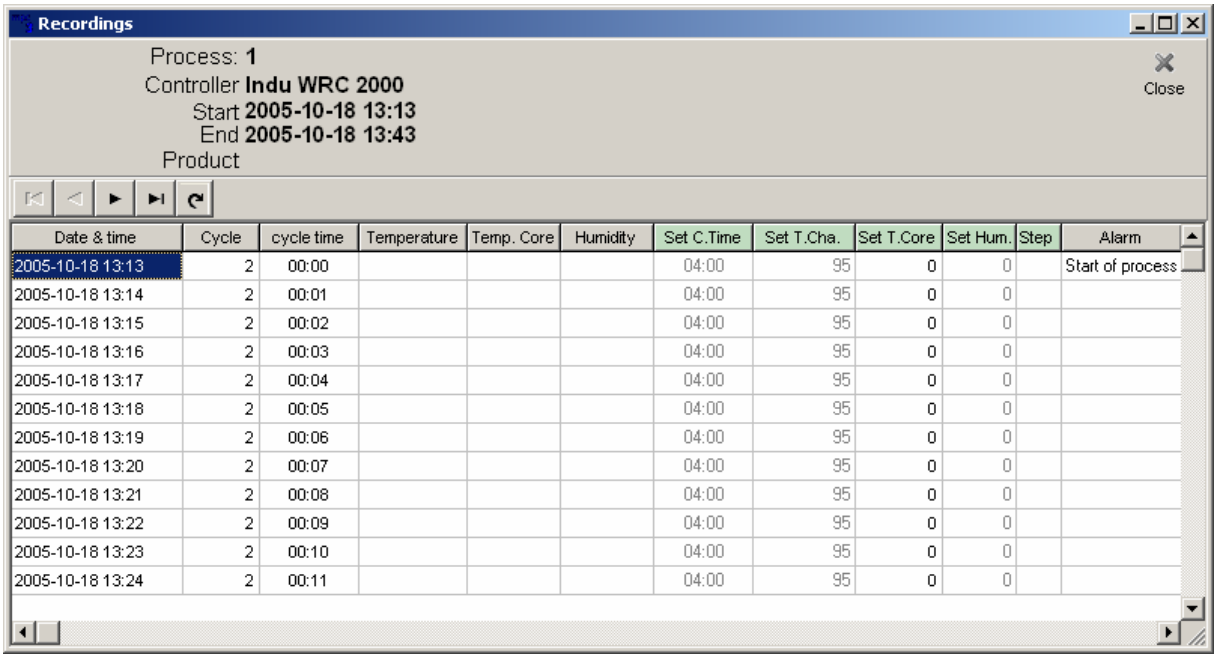
FILTER

Using filter, it is possible to narrow the list of displayed processes. In order to do that, press push-button **FILTER**. Window "**Filter processes list**" will appear, which allows us to specify time range, the program and product id. As soon as push-button "Filter" is pressed, processes meeting entered criteria will be displayed.



SHOW RECORDED SAMPLES

As soon as this function is pressed, a window will open allowing to view recorded samples.



Recordings

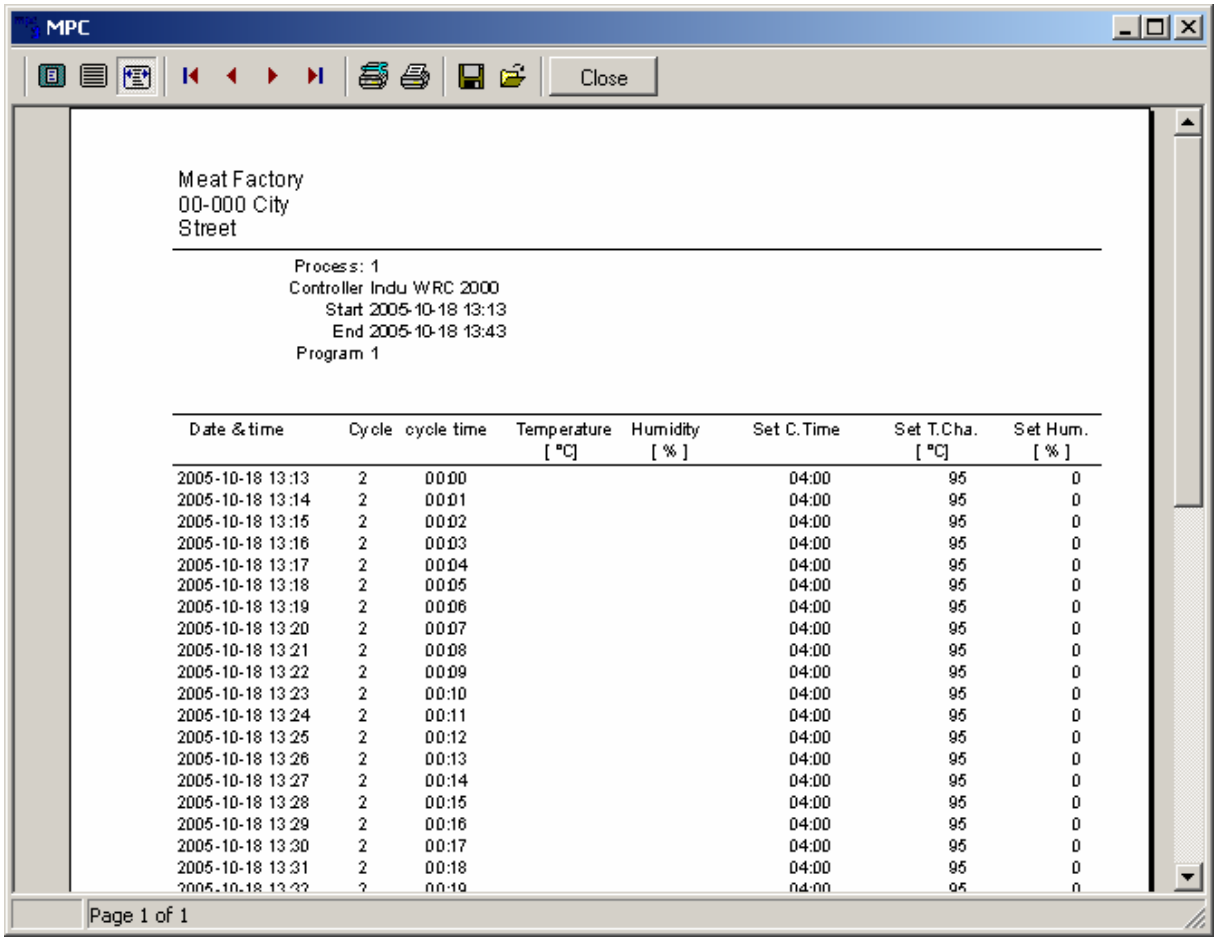
Process: **1**
Controller **Indu WRC 2000**
Start **2005-10-18 13:13**
End **2005-10-18 13:43**
Product

Close

Date & time	Cycle	cycle time	Temperature	Temp. Core	Humidity	Set C.Time	Set T.Cha.	Set T.Core	Set Hum.	Step	Alarm
2005-10-18 13:13	2	00:00				04:00	95	0	0		Start of process
2005-10-18 13:14	2	00:01				04:00	95	0	0		
2005-10-18 13:15	2	00:02				04:00	95	0	0		
2005-10-18 13:16	2	00:03				04:00	95	0	0		
2005-10-18 13:17	2	00:04				04:00	95	0	0		
2005-10-18 13:18	2	00:05				04:00	95	0	0		
2005-10-18 13:19	2	00:06				04:00	95	0	0		
2005-10-18 13:20	2	00:07				04:00	95	0	0		
2005-10-18 13:21	2	00:08				04:00	95	0	0		
2005-10-18 13:22	2	00:09				04:00	95	0	0		
2005-10-18 13:23	2	00:10				04:00	95	0	0		
2005-10-18 13:24	2	00:11				04:00	95	0	0		

PRINT

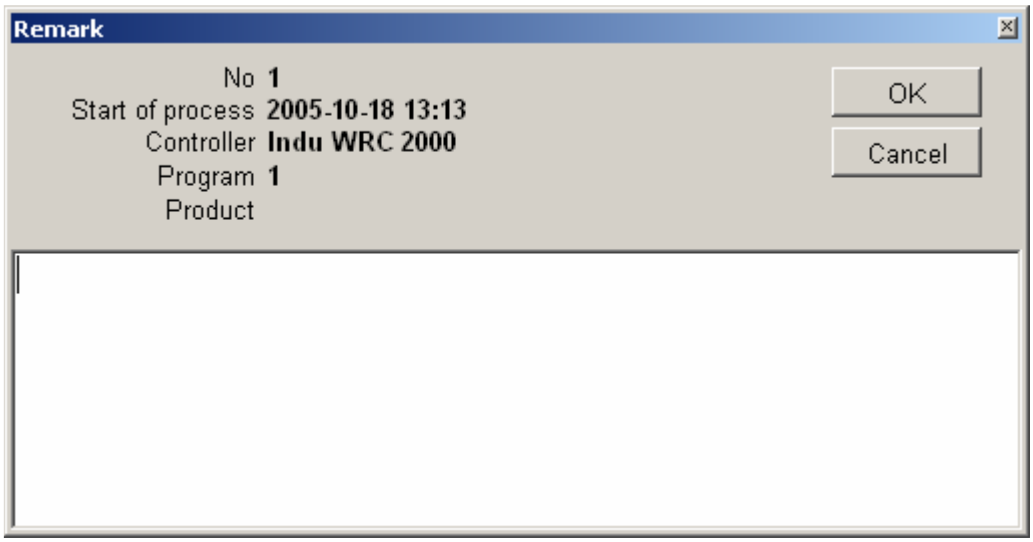
Allows to print out selected fragment or the entire process as a table.



Date & time	Cycle	cycle time	Temperature [°C]	Humidity [%]	Set C.Time	Set T.Cha. [°C]	Set Hum. [%]
2005-10-18 13:13	2	00:00			04:00	95	0
2005-10-18 13:14	2	00:01			04:00	95	0
2005-10-18 13:15	2	00:02			04:00	95	0
2005-10-18 13:16	2	00:03			04:00	95	0
2005-10-18 13:17	2	00:04			04:00	95	0
2005-10-18 13:18	2	00:05			04:00	95	0
2005-10-18 13:19	2	00:06			04:00	95	0
2005-10-18 13:20	2	00:07			04:00	95	0
2005-10-18 13:21	2	00:08			04:00	95	0
2005-10-18 13:22	2	00:09			04:00	95	0
2005-10-18 13:23	2	00:10			04:00	95	0
2005-10-18 13:24	2	00:11			04:00	95	0
2005-10-18 13:25	2	00:12			04:00	95	0
2005-10-18 13:26	2	00:13			04:00	95	0
2005-10-18 13:27	2	00:14			04:00	95	0
2005-10-18 13:28	2	00:15			04:00	95	0
2005-10-18 13:29	2	00:16			04:00	95	0
2005-10-18 13:30	2	00:17			04:00	95	0
2005-10-18 13:31	2	00:18			04:00	95	0
2005-10-18 13:32	2	00:19			04:00	95	0

COMMENT

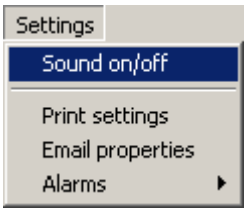
As soon as this is pressed, a window will open allowing to enter your comments regarding the process.



PROGRAM SETTINGS

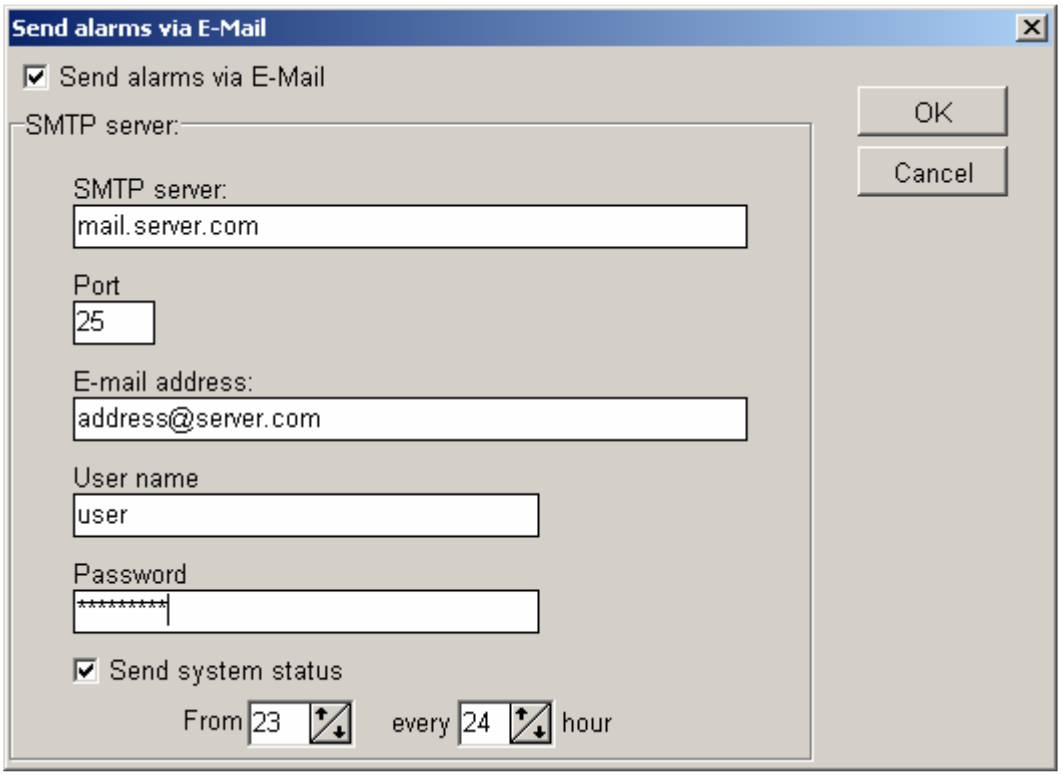
Activate Audio Alarm

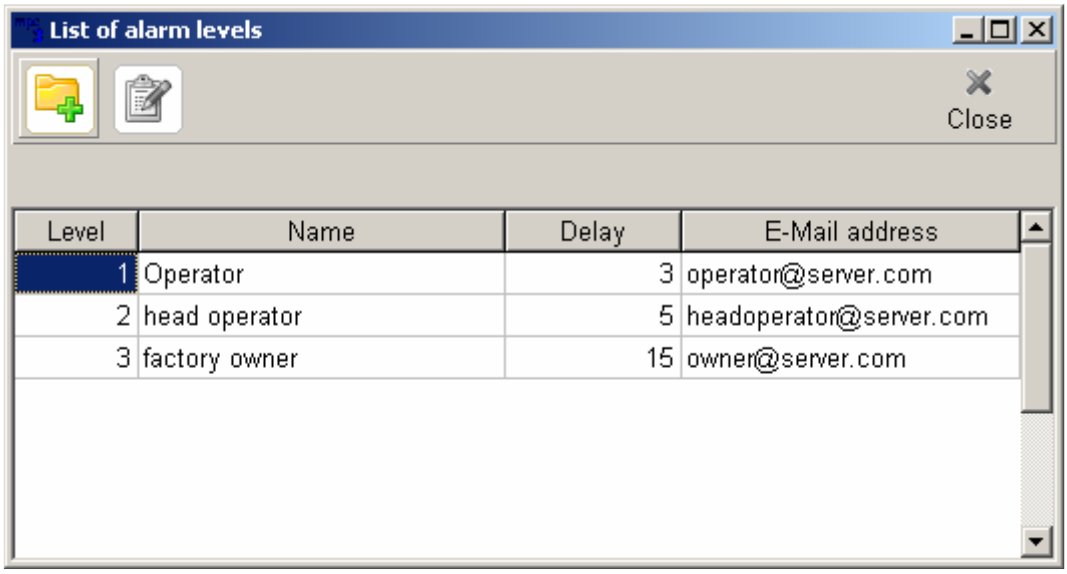
This option activates / deactivates sound alarm.



E-mail Settings

- Set notification by e-mail
- Enter SMTP server name
- Port (usually 25)
- Sender e-mail address
- User's name
- Password
- Check option **Send notification message on system status**



Alarm Notification Levels

This option allows to notify about alarms according to time delay.