microsyst

COMPETENCE IN
MEASUREMENT

MICROPROCESSOR-BASED
DATA LOGGER

MS DataLogger Network 3.02

version 3.02

TECHNICAL DESCRIPTION AND INSTRUCTIONS FOR USAGE

PLOVDIV 2010

CONTENTS

I. DESCRIPTION OF THE PROGRAM

MS DataLogger Network 3.02 is a modern informational system for data collecting, processing and logging of different parameters, supervised in real time clock and determining the status of complicated technological processes.

The system is organized as a network structure of the type joint rail, with main device, realized by a personal computer and subordinate devices of the type MS12A, with buffer memories for intermediate data logging. The availability of memory in the archiving devices gives a possibility for the functioning of the system without uninterrupted operation of the personal computer, which is used for data collecting from the subordinate devices and their saving organized by devices and days. The network structure and the large number of (software up to 247) devices, connected on the rail, located in total distance of up to 1 km, give a possibility for change of the system at any moment according to the increasing user needs.

MS DataLogger Network 3.02 gives a possibility for table and graphic data supervision, creation of files by selected part of the data, creation of files with calculation of effect of pasteurization of tinned food and data conversion in text format for additional processing by another program.

II.INSTALLATION OF THE PROGRAM

The installation of the program can be done from the installation disk, which you will receive in a set with the devices in the following way:Put the disk in the respective device of your computer.

- Select the respective device from Windows Explorer and start the file "setup.exe".
- Follow the instructions of the installation program.
- After the full finishing of the installation, copy the file „Msdlnet.ini" from the installation disk in the operation directory of the program (the operation directory is C:\Program Files\MicroSyst DL Network 3.02, if you haven't selected another directory in the process of installation).

III. CONNECTION OF THE NETWORK AND PREPARATION FOR OPERATION

- Put the devices in the preliminarily selected places and the device with a terminator of the rail must be put in the outermost place from the computer (at the end of the line).
- The devices, together with Rs232/Rs485 converter, must be connected in a joint rail according to the technical scheme of the network.
- The power supplying lines must be connected according to the technical scheme of the network.
- If the program is not adjusted by the producer according to your configuration, it is necessary to do the adjustments, described in „CONFIGURATION OF SYSTEM PARAMETERS".

IV.START OF THE PROGRAM

The program, supporting MS DL Network 3.02, is in a program group and has the name MicroSyst DL Network 3.02. The staring of the program can be done by pressing of the left button of the mouse on the icon of the program. After disappearing of the main window, you are ready to work with the system.

If you are starting the program for the first time, you must create a directory “DEVICES” in the directory of the program, in which the data, downloaded from the devices, will be saved. For each device you must create a separate directory with name “DEVxxxxx”, where xxxxx is the number of the device in its order of description in the configuration file. At the addition of a new device in the configuration file, the program automatically creates a subdirectory.

V. OPERATION WITH THE PROGRAM

After loading of the configuration, the basic window appears. In the upper part of the window there is the main menu, consisting of the program menus and line with buttons for fast access.

5.1. Description of the program main menu:

a) Menu “**FILE**” – access to archived data.

- “**OPEN ARCHIVE**” – window for selection of data file appears. You can select files from all devices, available in the archived directory of the computer.
- “**OPEN OUTER**” – window for selection of data file appears, which has been copied or moved in another place (for example disk).
- “**CONVERT IN TEXT**” – conversion of data file in text file. Two windows appear consecutively, for selection of data file and name of the new text file. Conversion in text file can be used at next analysis of the data by another program.
- “**EXIT**” – exit from the program.

b) Menu “**COMMUNICATION**” – access to the devices.

- “**OPEN COM ПОРТ**” - open/close the computer port for communication with the devices. At the opening of the port, before the name a marker appears, which disappears at second selection (the port closes). At open communication port, the access to the rest commands is allowed.
- “**DOWNLOAD ARCHIVES**” – data downloading from the devices. A window appears, in which you can select the device, from which you will download data (see “Window downloading of archives”).
- “**MOMENT INDICATIONS**” – direct supervision of the values of the separate channels of the devices of the type MS 12A. A window appears, in which you can select the device, which will be supervised (see “Window moment indications”).
- “**ADJUSTMENTS OF DEVICE**” – configuration of the devices. A window appears, in which you can set-point the operating mode of the devices in the network (see “Window of adjustments of device”).

c) Menu “**WINDOWS**”

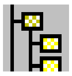
- “**CHAINED WINDOWS**” – it orders the active windows in an order, which facilitates the user operation for fast access.
- “**ORDER THE WINDOWS**” – orders the active windows so that all open and not minimized windows can be seen without covering each other.

- "**ORDER THE ICONS**" – order the minimized icons in the lower end of the main window.

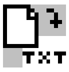
d) Menu "**HELP**"

- "**ABOUT DL Network 3.02**" – window appears with information about the program.
- "**REGISTRATION**" – registration of the program. It must be done only once at installation of the program in the computer. A window appears, in which it is necessary to enter your name, your company name and the registration code. (see "Registration of the program").

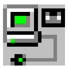
5.2. **Buttons for fast access:**

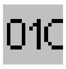
 Open the window for selection of data file.

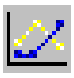
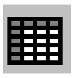
 Open outer archive.

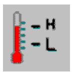
 Conversion to text – conversion of data file to text file.

 Open/close the COM port. Single clicking on the button for activation (at opening of the COM port the other two additional buttons of the line appear) or deactivation.

 Downloading of archives – opening of the window for data downloading. It is not available at closed port for communication.

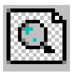
 Moment indications – opening of the window for direct supervision of devices of the type MS 12A. It is not available at closed communication port.

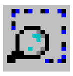
  Change of table and graphic data appearance

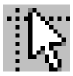
 Indication / disappearing of the alarm levels

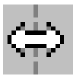
 Print the table data or the graphic

 Save the table data in a text file

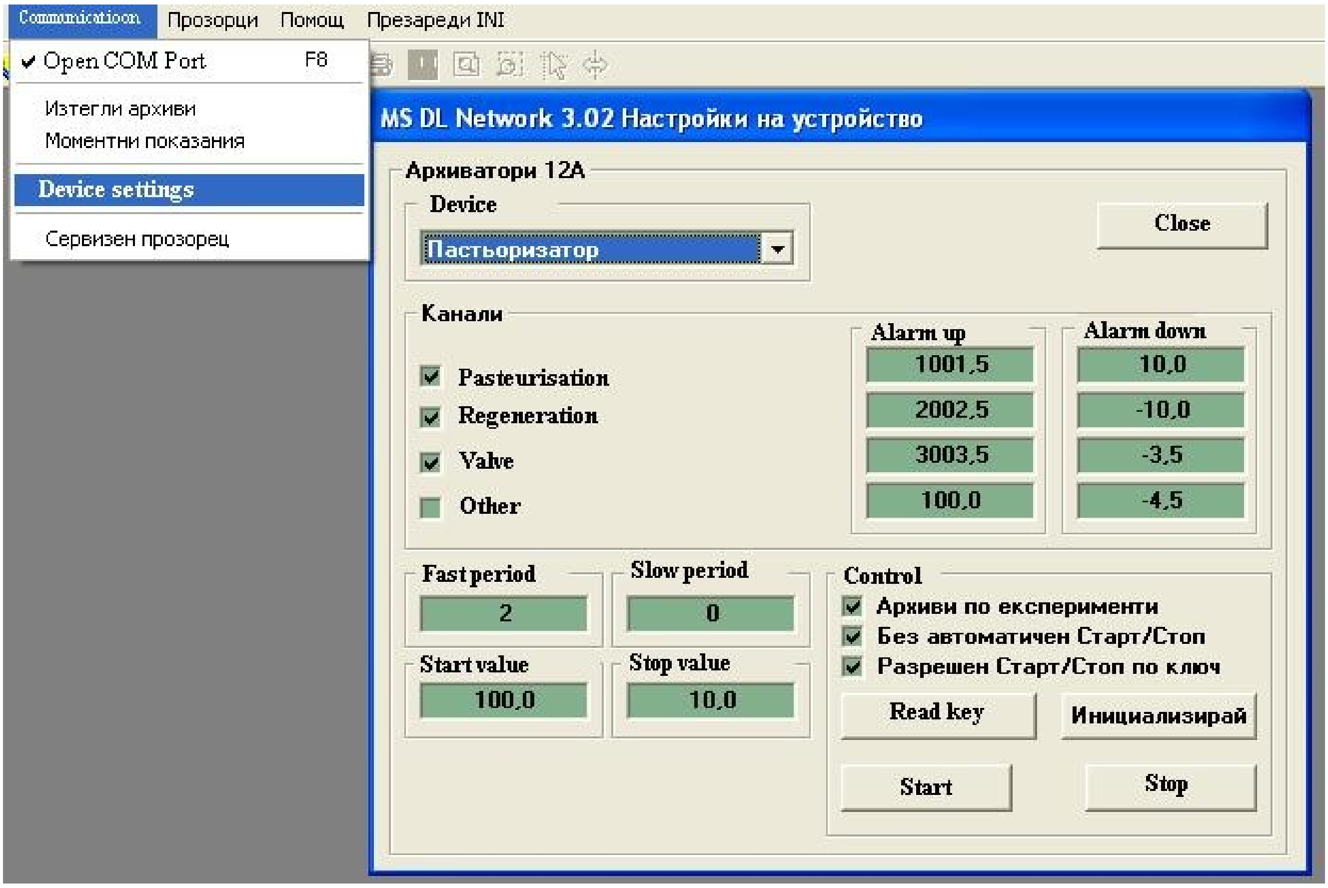
 Removing of the zoom in of the graphic, if it has not been used such before.

 Switching on / switching off of the mode of zooming in of a part of the graphic. In switched on mode, you can zoom in a part of the graphic by pressing of the left button of the mouse on a desired value from the graphic, holding of the button and "pulling" of the mouse. At reaching of final desired value, you must release the button. The so selected part is zoomed in.

 Appearing / removing of the cursor from the graphic. The cursor gives a possibility for appearing of the coordinates of the point of the graphic, on which it is positioned, in the lower left corner of the window. It moves by points of selected curve by the buttons left/right, and the selection of the curve can be done by the buttons up/down.

 Switching on / switching off of the mode for selection of a part of the graphic. In switched on mode, the selection is realized by the pressing of the left button of the mouse on a desired value of the graphic, holding of the button and "pulling" of the mouse. At reaching of final desired value, you can release the button. The so selected part can be used for creation of a file by user selection or for calculation of F-effect.

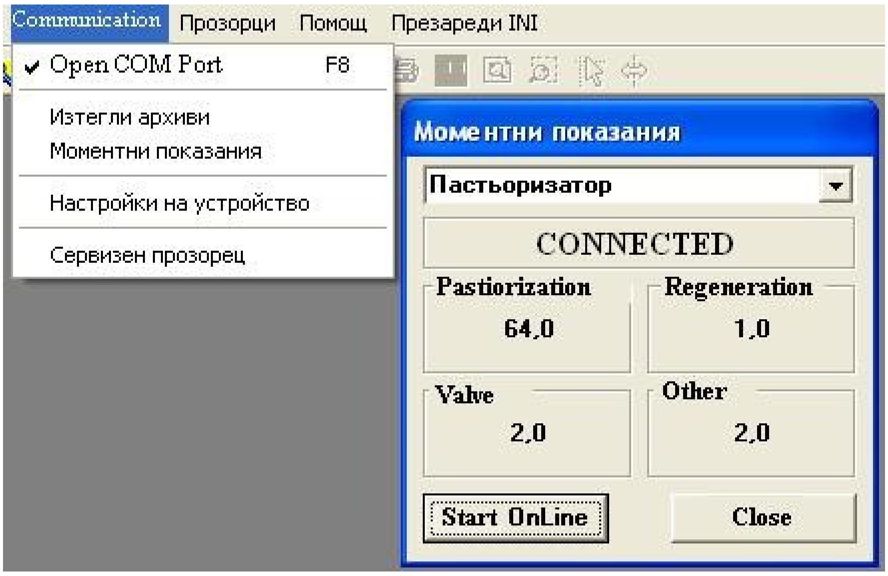
5.3. Window "Adjustments of the device"



- List **"DEVICE"** – you can select the device, which will be adjusted.
- Part **"HIGH PERIOD"** – the value for high period must be entered (0...32000 sec.).
- Part **"LOW PERIOD"** – the value for low period must be entered (0...32000 sec.).
- Part **"START VALUE"** – you can select the value of the parameter, measured by the first channel, at reaching of which, the archiving starts. It can be used at permitted option for Automatic Start/Stop.

- Part **“STOP VALUE”** – you can select the value of the parameter, measured by the first channel, at decreasing under which, the archiving stops. If this value is bigger than START VALUE, it switches to logic ‘cooling’ – the archive starts at measured parameter smaller than STOP and stops at > than START. It can be used at able option for Automatic Start/Stop.
- Part **“CHANNELS”** – you can select the channels for archiving and their alarm values
- Part **“CONTROL”** – additional adjustments of the device
- **“ARCHIVES BY EXPERIMENTS”** – if this option is selected, the data, downloaded from the device, are being saved in separate files for each reading. And vice versa, the data from one day are saved in one file for the day and if the days are more than one – in separate files by days.
- **“WITHOUT AUTOMATIC START/STOP”** – this option able/disable starting of archive by Channel 1. If it is selected, the archive starts from Start to Stop. In the opposite case, after Starting, the device starts archiving at passing of the value of Channel 1 over the set-pointed Start value and continues till passing under the value for Stop, and this cycle is realized till Stopping. If during the archiving the outer switch is switched (if such is connected to the device) to period ≠0, new file will start with the period, indicated by the switch.
- **“ABLE OUTER SWITCH”** – if this option is selected, the outer switch becomes independent initiator of archiving. One of the periods must be set-pointed =0. Each switching of the outer switch to period ≠0 starts a new file, and to period=0 – stops the archiving, if it is not started by Channel 1, too.
- Button **“READ THE SWITCH”** – reading of the current position of the outer switch. If it is not provided with wires, ‘high period’ is being read.
- Button **“INITIALIZE”** – saving of the configuration in the device and in the disk of the computer. After saving, the device is stopped.
- Button **“START”** – starting of the device.
- Button **“STOP”** – stopping of the device.

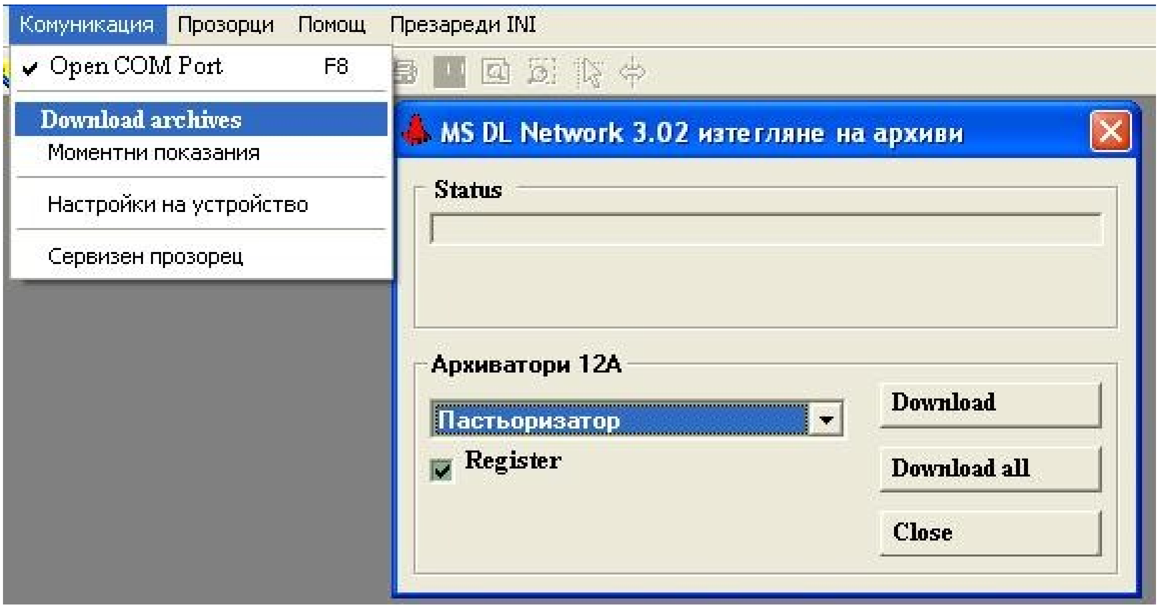
5.4. Window “moment indications”



You can select the device, which you will supervise from the list in the upper part of the window. By the button **“START ONLINE”** you can realize the connection with the device, and the current values of the channels appear on the 4 panels. The button **“START ONLINE”** is renamed to **“STOP ONLINE”** and by its pressing you can stop the supervision of the device. The change of the supervised device can be done at stopped connection with previous device.

On the panel, under the list for selection of device, the status of the connection with the device appears - **“NO CONNECTION”** when the connection is not realized and **“CONNECTED”** when the connection is realized.

5.5. Window “downloading of archives”



List **“DATA LOGGERS 12A”** – select the concrete device, in which the data will be saved.

“DOWNLOAD” – starts data downloading from the selected device. At selected option **“RESTART”**, after the data downloading, the device starts again. **“DOWNLOAD ALL”** – starts data downloading from all devices.

5.6. Opening of archiving

In the window, in a wood-looking structure, all data, archived in the disk of the computer, appear, separated by devices. The separate devices are marked by the symbol . If there are archived data for a certain device, the symbol appears on its left. By the clicking of the mouse on this symbol, it changes to and the archived data for this device appear (marked by the symbol). The selection of file can be done by double clicking of the mouse on the name of the file. The disappearing of the data for the device can be done by clicking on .

If the option “RANGE” is selected, before the opening of the selected file, a window appears, in which the time interval and the channels of the device for appearing of the data appear.

5.7. Window “Appearance of data”

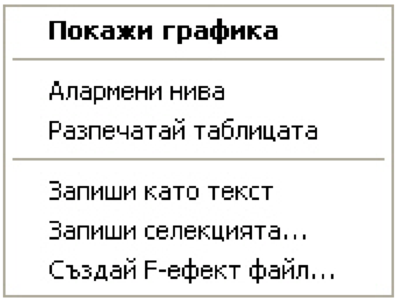

DL Network 3.02\Пастьоризатор\2005/04/15 11:42

	Пастьоризация	Регенерация	Вентил
15.04.05 11:43:57	63,0	33,1	0,0
15.04.05 11:44:07	71,9	33,9	1,0
15.04.05 11:44:17	73,6	33,9	1,0
15.04.05 11:44:27	73,2	33,5	1,0
15.04.05 11:44:37	73,2	26,3	1,0
15.04.05 11:44:47	73,2	19,5	1,0
15.04.05 11:44:57	73,6	18,2	1,0
15.04.05 11:45:07	73,2	18,2	1,0
15.04.05 11:45:17	73,2	18,2	1,0
15.04.05 11:45:27	73,2	18,2	1,0
15.04.05 11:45:37	67,7	18,2	0,0
15.04.05 11:45:47	68,1	18,2	0,0
15.04.05 11:45:57	68,1	20,8	0,0
15.04.05 11:46:07	72,3	20,8	1,0
15.04.05 11:46:17	73,2	20,8	1,0
15.04.05 11:46:27	73,2	20,8	1,0

Table

This is the appearance of the data by default. The time of the reading appears in the left column according to the regional settings of the system, and the data from the channels appear in the right column.

The data in a table are associated with the following context menu (appears at clicking of the right button on the table):

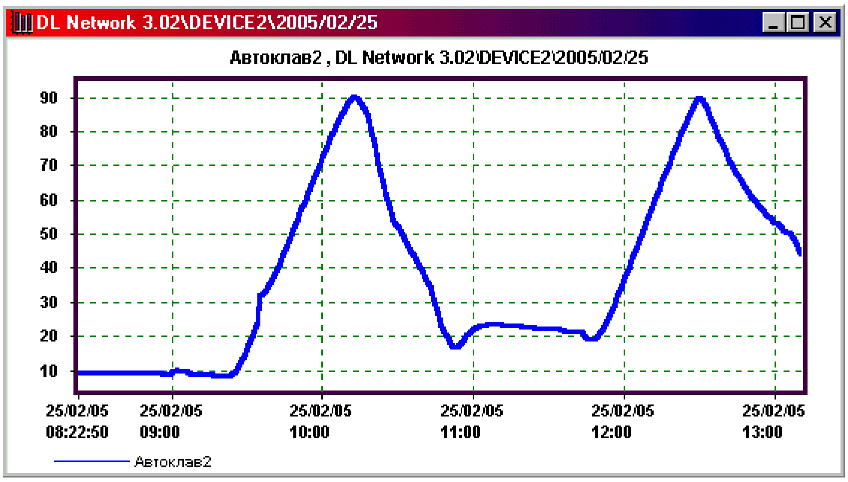


- **“Show graphic”** – shows the selected data in a graphic, and if there are not any selected data, it shows all. You can select data from the table in two ways. Selection of all data from one channel – by single clicking of the left button of the mouse on the name of the channel (the part at the top over the data). Selection of a part of the data from one channel – by clicking of the left button of the mouse on the first desired value, holding of the button and “pulling” of the mouse down. At reaching of the final desired value the button must be released. The selected data differ from the others by their appearing in bright letters on dark background. .

- **“Alarm levels”** – indication/disappearing of the alarm levels. This command is not available for archives, downloaded by previous version of the program.
- **“Print table”** – printing of the table data
- **“Saving as text”** – saving of the table data in a text file
- **“Save the selection...”** – saving of the selected data as a new file at keeping of

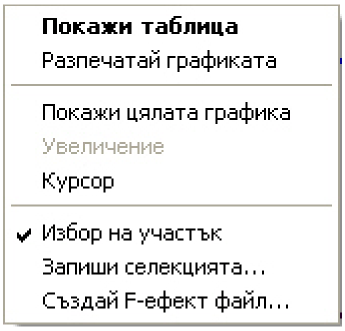
the data format. For access to this command from the menu it is necessary data to be selected before that.

- **"Create F-effect file..."** – Calculation of the effect of sterilization of the tinned food and saving of the results in a new file. For access to this command from the menu it is necessary data only for one channel to be selected before that.



Graphic

In a graphic you can see all data or only the selected from the table ones. The program gives possibilities for zooming in of a selected part of the graphic and direct reading of the values from the graphic by a cursor.



The data in a graphic are associated with the following context menu (appears by clicking of the right button on the graphic):

- **"Show table"** – show data in a table.
- **"Print graphic" –** printing of the graphic
- **"Show the whole graphic"** – removing of the zooming in of the graphic, if such has been used before.
- **"Zooming in" –** switching on/switching off of the mode of zooming in of a part of the graphic. In switched on mode you can zoom a part of the graphic in by pressing of the left button of the mouse on a desired value from the graphic, holding of the

button and "pulling" of the mouse. At reaching of the final desired value release the button. The so selected part is zoomed in.

- **"Cursor"** – appearing/disappearing of the cursor from the graphic. The cursor gives a possibility for indication of the coordinates of the point from the graphic, on which it is positioned, in the left lower corner. It moves by points from selected curve by the buttons left/right, and the selection of the curve can be made by the buttons up/down.
- **"Selection of a part"** – switching on/switching off of the mode for selection of a part from the graphic. In switched on mode you can make a selection by pressing of the left button of the mouse on a desired value from the graphic, holding of the button and "pulling" of the mouse, to the left or to the right till reaching of final desired value and the button must be released.

- **“Save the selection...”** – saving of the selected data as new file. For access to this command it is necessary to select a part of the graphic before. The name of the file is created automatically from the time of the first saving of the selected data, the name of the device, the name of the channel and the number of the selected channels. The extension of the files is „dnu“. The visualization of the so created files is possible at its opening as an outer archive or by double clicking on it in the Windows Explorer.
- **“Create F-effect file...”** – Calculation of the effect of sterilization of the tins and saving of the results in a new file. For access to this command of the menu it is necessary to select a part of the graphic only for one channel before that.

5.8. Menu “DATA”

The presenting of the data in every archive is associated in the main menu of the program with the menu **“DATA”**, containing the following commands:

- **“SHOW TABLE”** and **“SHOW GRAPHIC” –** change of table and graphic appearance of the data. Analogically to the commands from the context menus.
- **“GRAPHIC APPEARANCE” –** in this part there are the following commands:
  - **“SHOW THE WHOLE GRAPHIC”** – Remove the zooming in of the graphic.
  - **“ZOOMING IN” –** switching on/switching off of the mode of zooming in of a part of the graphic.
  - **“CURSOR” –** at selection of this option cursor appears on the graphic, and the coordinates of the point of the graphic, on which the cursor is positioned, appear in the lower left corner of the window. It moves by points of selected curve by the buttons left/right, and the selection of the curve can be done by the buttons up/down.
  - **“SELECTION OF A PART”** – switching on/switching off of the mode for selection of a part of the graphic. In switched on mode you can make selection by pressing of the left button of the mouse on a desired value from the graphic, holding of the button and “pulling” of the mouse, left and right, till reaching of final desired value, and releasing of the button.
  - **“COPY IN THE CLIPBOARD” -** copies the graphic in the clipboard**.**
- **“ALARM LEVELS”** – indication/disappearing of the alarm levels
- **“SAVE AS A TEXT” –** saving of the table in a text file. It is used at analysis of the data by another program. Analogically to conversion in text.
- **“PRINT TABLE”** – printing of the table.
- **“PRINT GRAPHIC”** – printing of the graphic.
- **“INFO”** – information about the data file appears.

5.9.Creation of F-effect file

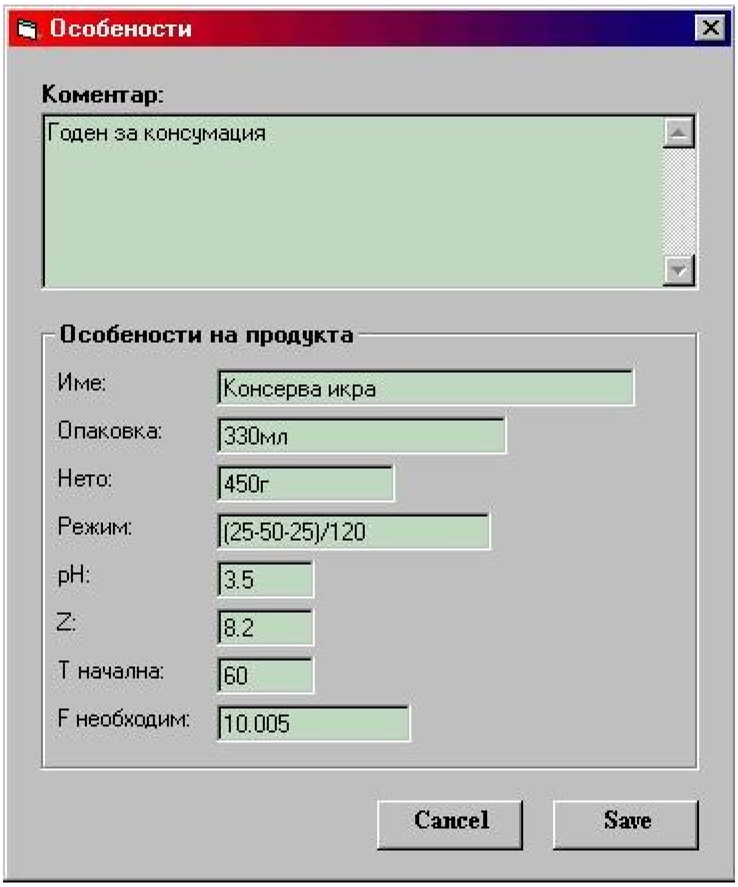
Calculation of F-effect of sterilization is possible only, if the software has been bought with this option!

After data selection, for which the F-effect must be calculated and selection of a command for creation of F-effect file, it is necessary to enter some data. It must be done in some windows.

Window “**Special features**” - You must enter describing characteristics of the product and the process of sterilization (comment name, package, weight, mode, F necessary) and parameters, participating in the calculation of the F-effect (pH, Z, T initial – temperature, over which the F-effect is calculated).

After confirmation of saving, window for selection of folder, in which the new-created file will be saved. The file name is created automatically by the name of the first saving of the selected data, the name of the device and the name of the channel. The extension of the files is „dnf“.

The visualization of F-effect file is possible at its opening as an outer archive or by double clicking on it in Windows Explorer.



2005.02.25_09.14.13_Device 1_Автоклав2.dnf

Подукт: Плодов сок с плодова тъкан
Опаковка: 330мл Нето: 450г
Режим: (25-50-25)/80
pH: 3.50 Z: 8.2 T начална: 60.0
F необходим: 105.0 F реален: 127.703

Годен за консумация

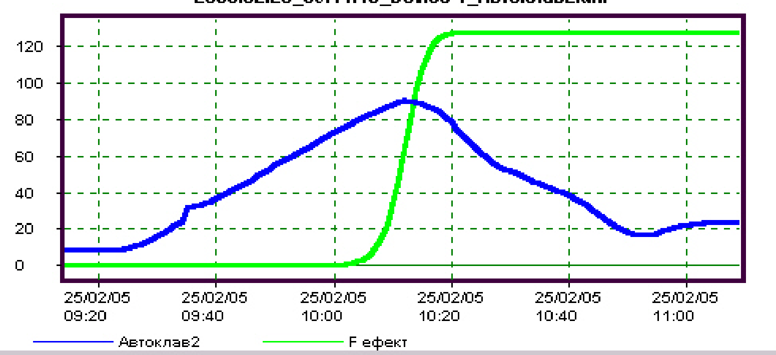
	Автоклав2	F ефект
25.02.05 10:18:58	81.7	126.637
25.02.05 10:19:58	78.5	127.294
25.02.05 10:20:58	75.1	127.546
25.02.05 10:21:58	71.6	127.641
25.02.05 10:22:58	68.4	127.679
25.02.05 10:23:58	65.3	127.695
25.02.05 10:24:58	62.5	127.703
25.02.05 10:25:58	59.9	127.703
25.02.05 10:26:58	57.3	127.703
25.02.05 10:27:58	54.7	127.703
25.02.05 10:28:58	53.3	127.703
25.02.05 10:29:58	52.2	127.703
25.02.05 10:30:58	50.9	127.703
25.02.05 10:31:58	49.5	127.703

2005.02.25_09.14.13_Device 1_Автоклав2.dnf

Подукт: Плодов сок с плодова тъкан
Опаковка: 330мл Нето: 450г
Режим: (25-50-25)/80
pH: 3.50 Z: 8.2 T начална: 60.0
F необходим: 105.0 F реален: 127.703

Годен за консумация

2005.02.25_09.14.13_Device 1_Автоклав2.dnf



VI.DESCRIPTION OF DEVICES OF THE TYPE MS 12A

6.1.Basic characteristics

- Up to 4 analog inputs, free selectable for archiving.
- Archiving memory up to 128K x 16 of the type EEPROM with 1 000 000 cycles of Deletion/Saving. The data are saved till depletion of the memory.
- Inner non-volatile real time clock, synchronized with the personal computer clock.
- Two periods of archiving, called High and Low period,with duration from 0 to 32 000 sec.
- Different modes of starting of the archive (6.2)
- Outer switch for starting of process of archiving and change of the periods.
- Connection with personal computer by MODBUS RTU RS485
- Possibility for monitoring of the measurements in real time.

6.2. Operating modes.

The activation of the device can be done by the button [Старт] in the window ‘settings of the device’, and the deactivation - by [Стоп]. At downloading of archive in the computer the computer the device must be stopped and depending on the option ☑ Рестартиране from the window ‘downloading of archives’ it can be started again, which is equivalent to button [Старт], the memory must be cleared and later it can be used again from the beginning. After [Старт] the device works by the following possible variants:

START/STOP THE COMPUTER

☑ Без автоматичен Старт/Стоп
☐ Разрешен Старт/Стоп по ключ

In this mode the archiving starts by clicking on [Старт] in the window ‘settings of the device’ and continues to [Стоп]. The period of archiving corresponds to the status of the outer switch. If some of the periods (Бърз период: 2; Бавен период: 0) is =0, you must use the other one. At switching to period ≠0 during archiving, a new file is created with the new selected period. The absence of outer switch corresponds to ‘high period’.

START/STOP BY OUTER SWITCH

☑ Без автоматичен Старт/Стоп
☑ Разрешен Старт/Стоп по ключ

By switching to period > 0 you start a new file, and to period = 0 – the saving is stopped. The one of the periods (‘fast’ or ‘slow’) must be =0. By the parameter *switchedgeenable* it is indicated if it must wait switching to start the saving after [Старт] (*switchedgeenable* =1) or it must start the archiving immediately, if the switch is to period > 0 (*switchedgeenable*=0).

AUTOMATIC START/STOP BY CHANNEL 1

☐ Без автоматичен Старт/Стоп
☐ Разрешен Старт/Стоп по ключ

In this mode the device supervises the value, measured by the first channel and compares it with the entered Старт стойност 100 Стоп стойност 90. The archive starts when it exceeds *Start value* and stops when it falls under *Stop value*. If processes of cooling are being archived, you must set-point *Start<Stop*. Then the archive starts at measured parameter under *Start value* and stops over *Stop value*. The period of archiving corresponds to the position of the outer switch. If some of the periods Бърз период 2 Бавен период 0 is 0, you must use the other one. At switching to period ≠0 during archiving a new file is created with the new selected period. The absence of outer switch corresponds to 'high period'.

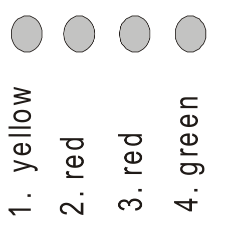
START/STOP BY CHANNEL 1 AND BY OUTER SWITCH

☐ Без автоматичен Старт/Стоп
☑ Разрешен Старт/Стоп по ключ

This mode is analogical to the previous one, and the starting by switch is allowed, too. One of the two periods ('high' or 'low') must be 0. So there are two independent events, which can start archive file – the outer switch and the parameter, measured at the first channel. The archive finishes when it is stopped by the both of them. The exceeding of Старт стойност 100 starts archive with the period ≠ 0. If during this archiving you switch to period = 0 by the outer switch, it will not stop the archiving till channel 1 falls under Стоп стойност 90.

The switching of the outer switch to period ≠ 0 starts new archiving. It will stop at switching to period =0, if in the meantime the condition for start by channel 1 is not fulfilled. Otherwise it will continue till falling of channel 1 under Стоп стойност 90.

6.3. Indication of the status. The devices has four LEDs and a buzzer.

	YELLOW LED N1 – it emits light at network power supply and does not emit light at power supply by the accumulator. RED LED N3 – it emits light during data transmission GREEN LED N4 – it emits light at data accepting

STATUS of the data logger	***RED LED N 2*** <<== 1s ===>>	2	3	4	5
ALARM on some of the channels	☼☼☼☼☼☼☼☼☼☼ ♪ buzzer	☼☼☼☼☼☼☼☼☼☼ ♪	☼☼☼☼☼☼☼☼☼☼ ♪	☼☼☼☼☼☼☼☼☼☼ ♪	☼☼☼☼☼☼☼☼☼☼ ♪
OVERFILLING	☼--☼--☼--☼--	☼--☼--☼--☼--	☼--☼--☼--☼--	☼--☼--☼--☼--	☼--☼--☼--☼---
STOPPED ARCHIVE IN LAST 8K	☼--☼--☼--☼ - - -	- - - - - - - - - - - - -	- - - - - - - - - - - - -	- - - - - - - - - - - - -	☼--☼--☼--☼ - - -
ARCHIVES IN LAST 8K words	☼ - - - - - - - - - - -	☼ - - - - - - - - - - -	☼ - - - - - - - - - - -	☼ - - - - - - - - - - -	☼ - - - - - - - - - - -
ARCHIVES	☼ - - - - - - - - - - -	- - - - - - - - - - - - -	- - - - - - - - - - - - -	- - - - - - - - - - - - -	☼ - - - - - - - - - - -
DOES NOT ARCHIVE	- - - - - - - - - - - - -	- - - - - - - - - - - -	- - - - - - - - - - - -	- - - - - - - - - - - -	- - - - - - - - - - - -

VII. CONFIGURATION OF SYSTEM PARAMETERS

The system parameters of the program and the network are in the config. file **MSDLNET.INI,** located in the same directory, where the program is installed. The config. file is divided in:

7.1. Section **[GENERAL]**

The version of the configuration file is saved. **Do not change it!**

7.2. Section **[SYSTEM]**

NAME	DESCRIPTION	VALUES
devices	Total number of devices in the network	According to the number of devices
commport	Number of the communication port of the computer	According to the configuration of the computer
bitperseconds	Indicates speed of communication of PC. The same thing of the devices can be changed in the service window. The two of them must correspond to each other. At the moment of the creation of the current version, the RS232/485 converter supports only 9600bps.	9600; 19200; 38400; 57600 bps
onlineperiod	Period of refreshing of OnLine in seconds.	Minimum 1.5 sec.
bulgarian	Permission for messages in Bulgarian.	0 – messages in English. 1 – messages in Bulgarian.
rsretrydelay	TimeOut at communication. After 10 such periods a message about error appears, if there is no connection with any device.	500 – 32000 ms

7.3. Section **[DEVICE]**

Number of device = name of device are described subsequently:

dev**XXXXX**=NAME_OF_DEVICE

where **XXXXX** is number of device (00001, 00002, etc.), and NAME_OF_DEVICE is a random name of up to 20 symbols. There may be maximum 247 devices in one network.

7.4. Sections **[DEVxxxxx]**

They are described for each device in the network, and **xxxxx** in the section title determines the number of the device according to the set-pointed ones in section **[DEVICE]**.

NAME	DESCRIPTION	VALUES
type	Type of the device	12A
netaddress	Network address of the device	1-247 set-pointed by the producer
hiperiod	High period of archiving	It can be set in the program
loperiod	Low period of archiving	It can be set by the program
chenable	Able channels	It can be set by the program
switch	Able or disable switch	It can be set by the program
hardwarech	Hardware switched on channels	1 ÷ 4 , according to the producer
poly11	Polynom coefficients for linearization of Channel 1	Coefficient in front of X^5
poly12		Coefficient in front of X^4
poly13		Coefficient in front of X^3

NAME	DESCRIPTION	VALUES
poly14		Coefficient in front of X^2
poly15		Coefficient in front of X^1
poly16		Coefficient in front of X^0
poly21	Polynom coefficients for linearization of Channel 2	Coefficient in front of X^5
poly22		Coefficient in front of X^4
poly23		Coefficient in front of X^3
poly24		Coefficient in front of X^2
poly25		Coefficient in front of X^1
poly26		Coefficient in front of X^0
poly31	Polynom coefficients for linearization of Channel 3	Coefficient in front of X^5
poly32		Coefficient in front of X^4
poly33		Coefficient in front of X^3
poly34		Coefficient in front of X^2
poly35		Coefficient in front of X^1
poly36		Coefficient in front of X^0
poly51	Polynom coefficients for linearization of Channel 4	Coefficient in front of X^5
poly52		Coefficient in front of X^4
poly53		Coefficient in front of X^3
poly54		Coefficient in front of X^2
poly55		Coefficient in front of X^1
poly56		Coefficient in front of X^0
chname1	Name of Channel 1	Random name of up to 10 symbols.
chname2	Name of Channel 2	Random name of up to 10 symbols.
chname3	Name of Channel 3	Random name of up to 10 symbols.
chname5	Name of Channel 4	Random name of up to 10 symbols.
minch1	Minimum displayed value for Channel 1	According to the parameter
maxch1	Maximum displayed value for Channel 1	According to the parameter
minch2	Minimum displayed value for Channel 2	According to the parameter
maxch2	Maximum displayed value for Channel 2	According to the parameter
minch3	Minimum displayed value for Channel 3	According to the parameter
maxch3	Maximum displayed value for Channel 3	According to the parameter
minch4	Minimum displayed value for Channel 4	According to the parameter, equal to minch5
maxch4	Maximum displayed value for Channel 4	According to the parameter, equal to maxch5
minch5	Minimum displayed value for Channel 5	According to the parameter, equal to minch4
maxch5	Maximum displayed value for Channel 5	According to the parameter, equal to maxch4
expcoeff1	Exponential coefficient of the filter of Channel 1	0.20 ÷ 1.00
expcoeff2	Exponential coefficient of the filter of Channel 2	0.20 ÷ 1.00
expcoeff3	Exponential coefficient of the filter of Channel 3	0.20 ÷ 1.00
expcoeff4	Exponential coefficient of the filter of Channel 4	0.20 ÷ 1.00, equal to expcoeff5
expcoeff5	Exponential coefficient of the filter of Channel 4	0.20 ÷ 1, equal to expcoeff4
dpoint1	Rounding of the parameter of Channel 1	Formats 0, 0.0, 0.00
dpoint2	Rounding of the parameter of Channel 2	Formats 0, 0.0, 0.00
dpoint3	Rounding of the parameter of Channel 3	Formats 0, 0.0, 0.00
dpoint4	Rounding of the parameter of Channel 4	Formats 0, 0.0, 0.00, equal to dpoint5
dpoint5	Rounding of the parameter of Channel 5	Formats 0, 0.0, 0.00, equal to dpoint4
adcstartvalue	Start value of Channel 1 for the AC/C function	It can be set by the program
adcstopvalue	Stop value of Channel 1 for the AC/C function	It can be set by the program
experimentssave	Saving of data by experiments or by days	It can be set by the program
disableautostart	Able or disable the AC/C function.	It can be set by the program
measurenoarchive	Measuring between the archives	

NAME	DESCRIPTION	VALUES
measurewhendisable	Measuring at deactivated device	
switchedgeenable	Waiting of switching at start.	0 – starts by status of the switch 1 – starts by switching to active switch status
premeasure	Activation of the analog part X sec. before th measuring. You must not set-point it longer than the period of archiving.	0 – the analog part does not stop 1-254 – measures at the respective sec. after activation of the analog part
minalarmch1	Low alarm value of Channel 1	It can be set by the program
maxalarmch1	High alarm value of Channel 1	It can be set by the program
minalarmch2	Low alarm value of Channel 2	It can be set by the program.
maxalarmch2	High alarm value of Channel 2	It can be set by the program.
minalarmch3	Low alarm value of Channel 3	It can be set by the program.
maxalarmch3	High alarm value of Channel 3	It can be set by the program
minalarmch5	Low alarm value of Channel 4	It can be set by the program.
maxalarmch5	High alarm value of Channel 4	It can be set by the program

Devices with software version 2: The above polynomial coefficients change the numbers adopted by the PC in resp. variables (eg T ºC). This is done by the PC. Apart from ver.2 devices in and beyond there are other coefficients, that rates the measurements. They aim through interchangeability of devices without imposing changes in the .ini file. The coefficients in the devices are set by the manufacturer. Analog inputs of archivers have range 4-20 mA (if on the sticker is not indicated otherwise). The factory devices have pre-set range of 0-100% (4-20) meet the outcome 100-4000. Sample settings of the coefficients in the .ini file for channel 2 (for devices - Software Ver. 2):

Scope (a source of analog signal*)*	***Poly21***	***Poly22***	***Poly23***	***Poly24***	***Poly25***	***Poly26***
0 ÷ 100	0	0	0	0	0,025641	-2,5641
-50 ÷ 50	0	0	0	0	0,025641	-52,5641
X ÷ Y	0	0	0	0	(Y – X) / 3900	(40*X – Y)/39

VIII.REGISTRATION OF THE PROGRAM

After the installation of the program in the computer, up to its registration in the company producer, you won’t be able to realize connection with the devices in the network and you’ll have access only to the menu for operation with files.

For you to work completely with the program, it must be registered in the company producer. It can be done by the following way:

- From the menu “HELP” select “REGISTRATION”
- A dialog window appears, in which will be the identification number of your computer and fields for entering your name and the name of your company appear.

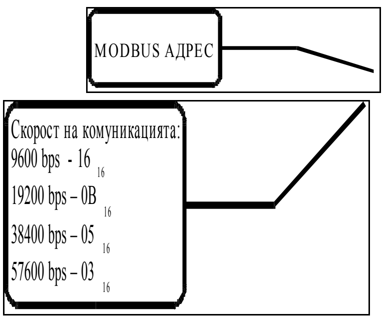
- Phone the company producer and tell the identification number of your system.
- You will receive a code, which you’ll have to enter in the field for registration number, enter your name and your company name and press the button “REGISTRATION”.

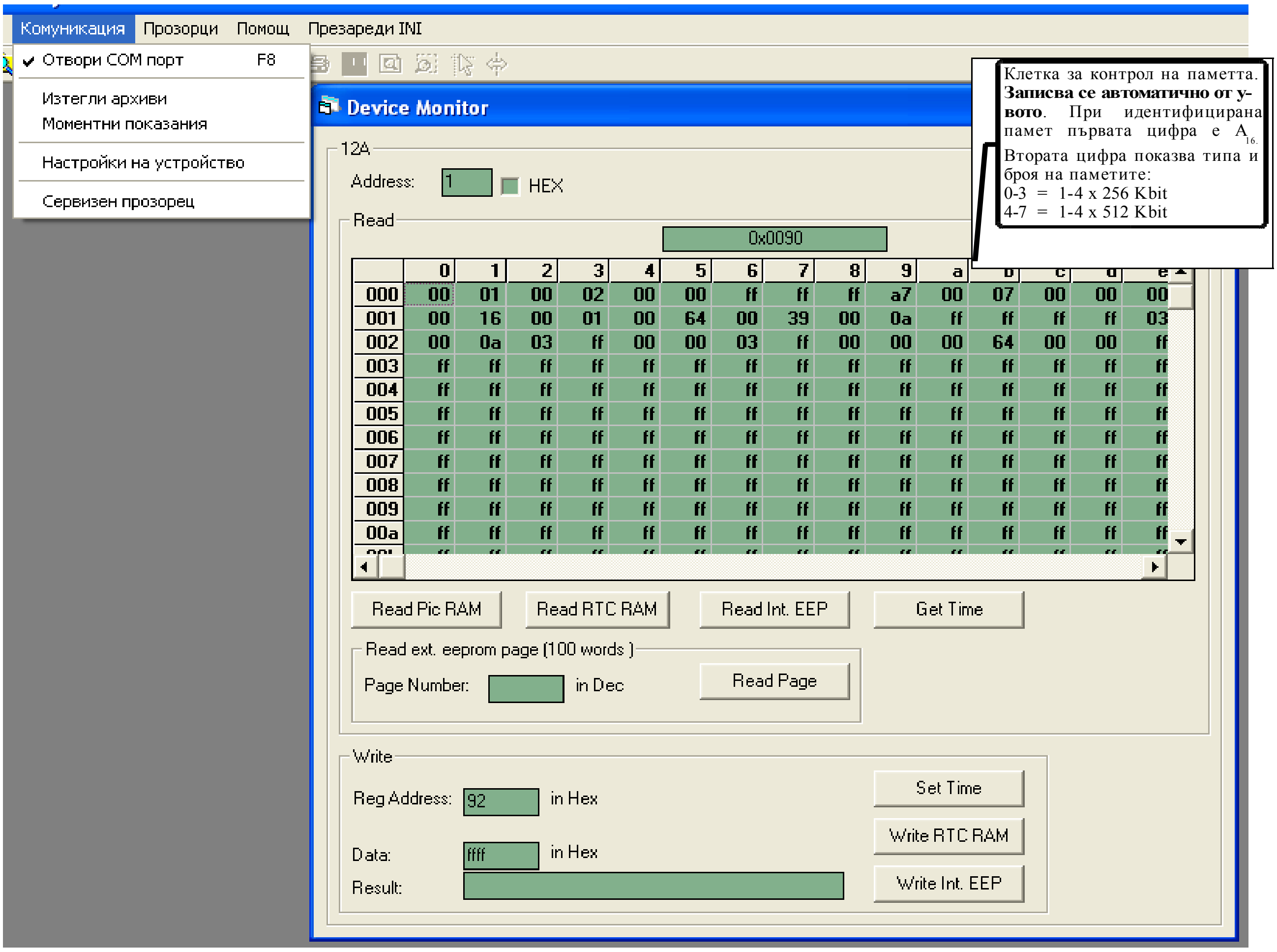
You can register the program in computers for as many as you have received the right when you bought the system. Additional installation is possible with permission of the producer.

FOR MORE INFORMATION ABOUT THE OPERATION WITH MS DL NETWORK 3.02 YOU CAN ASK YOUR SUPPLIER.

SERVICE WINDOW

It gives a possibility for manual saving/reading in the memory of the data loggers. **It is designated for usage only by a service specialist! The incompetent intervention can be a reason for disability of the product! The necessary adjustments are made by the producer!**

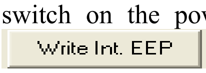




The speed of communication can be determined by broadcast saving in int.EEPROM at address HEX 10 of the respective constant

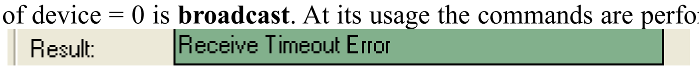
BodRate 9600 - HEX 0016 ; BD 19200 - HEX 000B ; BD 38400 - HEX 0005; BD 57600 – HEX 0003

Every other value causes automatic saving at HEX 16 -BD9600

Three seconds after the initialization at power supply the devices work at 9600 bps. So at degradation of the line, for leaving of the network in this mode you have to make saving of BD9600 for example at intervals of 1 s. In mode broadcast switch on the power supply and leave for more than 8 sec. For example at *rsretrydelay*=1000, after pressing of 

there will be 10 tries for saving at intervals of 1 sec. The speed of the computer must be defined in advance in **bitperseconds=** 9600.

MODBUS address of the device is saved in int.EEPROM at address HEX 0. If there is a value 0 or >247, 247 is saved automatically.

Address of device = 0 is **broadcast**. At its usage the commands are performed by all in the line without answering, i.e. the message 

is normal, and independently on that the saving may be successful.

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