Kamstrup 10EVLP

Manual for Installation and Use

Kamstrup

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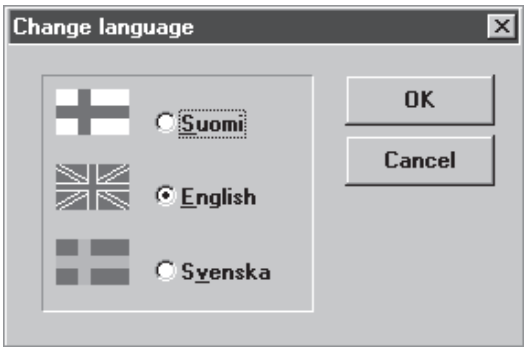
Language settings

Purpose:
To choose the language to be used by the Kamstrup 10EVLP application.

To change the language:

- Use the *Language* command of the “Settings menu”.
- Select the language of your choice
- Click the “OK” button.

Your last choice will be the default language next time you run the application.



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Communications settings

Purpose:
Specifies communications parameters and modem initialisation commands.

Note:
If the IEC 870-5 protocoll (M-Bus) is in use, the modem must support 11 bit character length.

To specify communications parameters:
1. From the *Settings menu*, choose *Communications*.
2. Specify the connection type.
3. Select the transmission rate.
4. Select a connector COM1...COM4.
5. Click the *OK* button.

Note:
Communications parameters can also be modified by using a text editor in the 10EVLp.ini file.

To modify the modem's command:
1. From the Settings menu, choose Communications.
2. Select the “Modem” option for connection type.
3. Type the initialisation string and call timeout to the appropriate edit boxes.
4. Click the *OK* button.

Note:
The modem command can be also modified by using a text editor in the 10evlp.ini file.

Transmission rate

Transmission rate
- 300...9600 bps: the PC communicates with the meter at the chosen rate.
- Auto: forces the PC to communicate at the meter's rate.
- 2400 bps fixed: used only when the meter uses the same setting.

Call timeout

Call timeout
- Specifies the time your modem waits for the remote modem to reply
- Default Call timeout: 60 seconds.

Initialisation string

Modem initialisation string
The purpose of the initialization string is to give you a chance to set the modem's general commands instead of using the factory preset values or the Kamstrup 10EVLP default values. For example, one might dislike the dialing sound and add ATM0. However, the Kamstrup 10EVLP requires some certain parameters' settings to be of the Hayes SmartModem type and automatically writes ATE0Q0V0 to the modem). Any wrong setting of these commands will cause a failure to the communications performance.

Default initialisation string: *ATM1X1L3*

Warning!
1. You should not set the command echo on (*ATE1*).
2. You should not set the result codes off (*ATQ1*).
3. You should not set the result codes to verbal mode (*ATV1*)..

Modem connection

Purpose:
Establishing a connection to the remote modem through public telephone network and the controlled termination of the connection.

To make a connection with the remote modem:

1. Select "Modem" as the connection type in the *Communications settings* dialog box to activate the *Connection menu* item. Check the initialisation string, too.
2. From the *Modem menu*, choose *Connection*.
3. Type the remote telephone number in the "Dial to" edit field or select one from the *Telephone catalogue combo box.*
4. Click the *Dial button* and wait for the Kamstrup 10EVLP to dial.

Note:
Kamstrup 10EVLP will automatically close the dialog box when the connection is established. The Hang up menu item will be activated in the Modem menu.

You can save new entries to the Kamstrup 10EVLP's telephone catalogue by clicking the *New phone button* and typing the name and the number in the appropriate fields. Click the *Save butto*n to save the new number.

When you no longer need to communicate with the meter, terminate the connection by selecting the Disconnection command and wait for a few seconds. After disconnecting the Kamstrup 10EVLP will re-activate the *Reading data* from a metercommand.

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Reading data from a meter

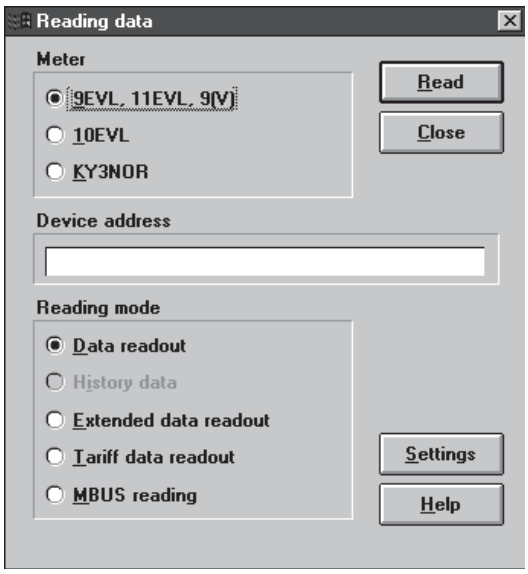
Purpose:
Fetching measuring data from the Kamstrup 10EVL meter to the PC.

This operation has been designed to read four kinds of meters - Kamstrup 9EVL, Kamstrup 10EVL, Kamstrup 11EVL, and 9(V). Therefore, the ordinals of data items in each list vary depending on the meter types and on optional cards attached to the meter, too.

To read data from a meter:

1. From the *Operations menu*, choose *Read Data*.
2. Select the reading mode
   - Data readout
   - History data
   - Extended data readout
   - Tariff data readout
   - M-Bus reading
3. Type a device address if required.
4. Click the *Read button*.

You can copy text to the Windows clipboard or save the data into a file.



Data readout mode

Data readout mode
Provides measurement data in CEN codes containing following information:

9EVL, 10EVL and 11EVL		**9(V)**	
F(0)	Fault code, Er	F (0)	Fault code, Er
0.0	ID code	0.0	ID code
6.8	Energy, E	6.26	Volume, V
6.26	Volume, V	6.27	Instantaneous flow, q
6.30	Temperature difference, t1-t1	6.33	Peak flow, q_{max}
6.29	Flow temperature, t1	6.31	Operating hours
6.28	Return temperature, t2		
6.4	Instantaneous power, P		
6.27	Instantaneous flow, q		
6.6	Peak power, P_{max}		
6.33	Peak flow, q_{max}		
6.31	Operating hours		
8.26	Water volume from water meter (10EVL)		
1.8	Electrical energy (10EVL)		

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History data

History data readout

15 months' history data (Kamstrup 10EVL only).

F(0) - Fault code
0.0 - ID code
6.8*1 - Energy, -1 month
6.8*2 - Energy, -2 months
6.8*3 - Energy, -3 months
6.8*4 - Energy, -4 months
6.8*5 - Energy, -5 months
6.8*6 - Energy, -6 months
6.8*7 - Energy, -7 months
6.8*8 - Energy, -8 months
6.8*9 - Energy, -9 months
6.8*10 - Energy, -10 months
6.8*11 - Energy, -11 months
6.8*12 - Energy, -12 months
6.8*13 - Energy, -13 months
6.8*14 - Energy, -14 months
6.8*15 - Energy, -15 months
6.26*1 - Volume, -1 month
6.26*2 - Volume, -2 months
6.26*3 - Volume, -3 months
6.26*4 - Volume, -4 months
6.26*5 - Volume, -5 months
6.26*6 - Volume, -6 months
6.26*7 - Volume, -7 months
6.26*8 - Volume, -8 months
6.26*9 - Volume, -9 months
6.26*10 - Volume, -10 months
6.26*11 - Volume, -11 months
6.26*12 - Volume, -12 months
6.26*13 - Volume, -13 months
6.26*14 - Volume, -14 months
6.26*15 - Volume, -15 months

6.34 - Date and time

Extended data readout

Extended data readout (not Kamstrup 10EVL)

F(0)	Error code, Er
ID	Identification, ID
00	Energy, E
01	Volume, V
02	Temperature difference, t1-t2
03	Flow temperature, t1
04	Return temperature, t2
05	Extra temperature, t3 (+l)
06	Extra temperature, t4 (+l)
07	Instantaneous power, P
08	Instantaneous flow, q
09	Peak power, Pmax
10	Measurement period flow
11	Average return temperature during meas. period
12	Biggest peak power P(1) during 24 hrs (+t)
13	Measurement period flow (+t)
14	Average return temp. during meas. period (+t)
15	Instantaneous extra temperature t3 (+t+l)
16	Registering moment (+t)
17	2nd biggest peak power P(2) during 24 hrs (+t)
18	Measurement period flow (+t)
19	Average return temp. during meas. period (+t)
20	Instantaneous extra temperature t3 (+t+l)
21	Registering moment (+t)
22	3. biggest peak power P(3) during 24 hrs (+t)
23	Measurement period flow (+t)
24	Average return temperature during meas. period (+t)
25	Instantaneous extra temperature t3 (+t+l)
26	Registering moment (+t)
27	Peak flow, qmax
28	Measurement period power
29	Average return temperature during meas. period
30	Biggest peak flow q(1) during 24 hrs (+t)
31	Measurement period power (+t)
32	Average return temperature during meas. period (+t)
33	Instantaneous extra temperature t3 (+t+l)
34	Registering moment (+t)
35	2nd biggest peak flow q(2) during 24 hrs (+t)
36	Measurement period power (+t)
37	Average return temperature during meas. period (+t)
38	Instantaneous extra temperature t3 (+t+l)
39	Registering moment (+t)
40	3rd biggest peak flow q(3) during 24 hrs (+t)
41	Measurement period power (+t)
42	Average return temperature during meas. period (+t)
43	Instantaneous extra temperature t3 (+t+l)
44	Registering moment (+t)
45	Operating time
A0	Reading time (+t)

Note:
+t means that the information is read only if a tariff card is attached to the meter.
+l means that the information is read only if an extra temperature card is attached to the meter.

Tariff data readout

Tariff data readout (not Kamstrup 10EVL)
Provides 300 lines - 600 from the 9(V) - of tariff data. Each line contains the following information:

9EVL and 11EVL	9(V)
- Date	- Date
- Time	- Time
- Energy	- Volume
- Volume	- qmax
- t1	
- t2	
- Pmax	
- qmax	

M-Bus reading

Measurement data reading using an M-Bus card
Measurement data list containing following information:

9EVL, 10EVL and 11EVL	9(V)
- Identification number	- Identification number
- Manufacturer ID	- Manufacturer ID
- Generation	- Generation
- Toggle counter	- Toggle counter
- Energy	- Energy type
- Volume	- Volume
- Temperature difference	- Instantaneous flow
- Flow temperature	- Peak flow
- Return temperatur	- Operating hours
- Instantaneous power	
- Instantaneous flow	
- Peak power	
- Peak power time stamp (10EVL)	
- Peak flow	
- Peak flow time stamp (10EVL)	
- Operating hours	
- Water meter volume (10EVL)	
- Electric energy (10EVL)	

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Parameter reading

Purpose:
Reading of the Kamstrup 10EVL meter's configuration parameters and registers.

This operation is meant for collecting the essential data of the Kamstrup 10EVL meter into one document. The data are presented in a formatted text file, which can be printed out directly from the Kamstrup 10EVLP application. This printout can be, for instance, attached to the meter in conjunction with the delivery to the customer.

Parameters

Parameters and register values to be printed
Parameters:
ID code

- Device address
- Transmission rate
- Time of reading
- Measuring period
- Pulse constant (input 1)
- Pulse constant (input 2)
- Flow sensor installation
- Flow measuring angle coefficient
- Flow measuring offset
- Temperature difference measuring offset
- Displayed decimals

Registers:

- Energy
- Volume
- Temperature difference
- Temperature (flow)
- Temperature (return)
- Momentary demand
- Momentary flow
- Peak demand
- Peak flow
- Operating hours
- Water meter volume
- Electric energy

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Purpose:
Reading and writing the configuration parameters of the Kamstrup 10EVL meter.

To create or edit a configuration:
1. From the *Operations menu*, choose *Programming*.
2. You can either load a program from disk, read it from the meter or start from scratch.
3. Edit the configuration to suit the situation.
4. If you want to save the configuration parameters to disk, type a new name in the edit field of the Program list combo box and click the S*ave button*.

To load a program from disk:
1. From the *Operations menu*, choose *Programming*.
2. Select a program's name in the “Program list” combo box.
3. Click the *Load button*. The program's name, the date, and the time when the program was saved will be shown next to the caption of the window**.**

Note:
You can at any time load the factory default parameters by clicking the Defaults button.

To read a configuration from the Kamstrup 10EVL meter:
1. From the *Operations menu*, choose *Programming*.
2. Type the password and the device address if required.
3. Click the *Read button*.

To write the configuration into a Kamstrup 10EVL meter:
1. From the *Operations menu*, choose *Programming*.
2. Type the password and the device address if required.
3. Create a new configuration or load a program from the “Program list” combo box.
4. If required, activate meter time setting and/or register reset.
5. Click the *Write button*.

Registers reset

Registers reset
In conjunction with the programming, the resetting of

- Peak registers (peak demand, peak flow)
- 15 months' history data

can be performed. Select the appropriate check boxes.

Meter time setting

Meter time setting
The date and the analog clock in the PC's date and time block show the current date and time. To set the meter's date and time select the “Set time” check box.

The 'From PC' field in the meter's date and time block shows the reference time of your PC compared to the meter's time, both having been acquired at the moment of reading the data from the meter.

Configuration parameters

Configuration parameters of the Kamstrup 10EVL meter
- ID code
- New password
- Device address
- Transmission rate
- Measuring period
- Pulse constant (input 1)
- Pulse constant (input 2)
- Flow sensor installation
- Test mode
- Date
- Time
- Peak registers reset
- History data reset

Default setting

Default settings (Kamstrup 10EVL)

ID code	0000000000
New password	0000
Device address	000
transmission rate	300 bps
Measuring period	60 min
Pulse constant (input 1)	10 l/p
Pulse constant (input 2)	0.01 kWh/p
Flow sensor installation	return
Test mode	0 (normal mode)
Date	PC's date
Time	PC's time
Peak registers reset	ON
History data reset	ON

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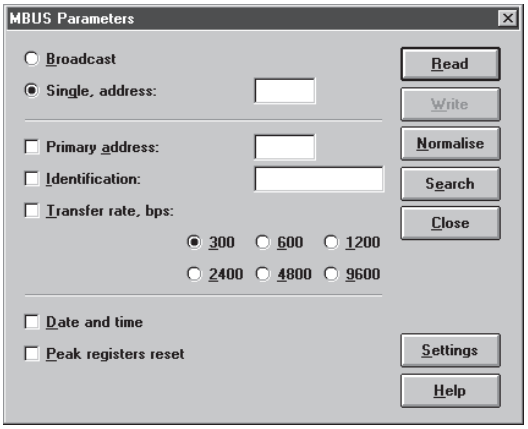
M-Bus parameters

Purpose:
Reading and setting the M-Bus parameters of the meter/optional card.

This operation has been designed to read and set the parameters of the optional M-Bus card of the Kamstrup 10EVL meter.



To read the parameters from a meter

To read the parameters from a meter:
1. From the *Operations menu*, choose *M-Bus Parameters*.
2. Type a device address.
3. Click the *Read button*.

The fields Primary address and Identification will be filled, and the appropriate Transfer rate radio button will be selected, according to the read data.

To write parameters to a meter

To write parameters to a meter
1. From the *Operations menu*, choose *M-Bus Parameters*.
2. Type a device address or select the *Broadcast radio button*.
3. Select one or more of the following options:
   - Primary address
   - Identification
   - Transfer rate
   - Date and time
   - Peak registers reset
4. Click the *Write button*.

To normalise the communications link

To normalise the communications link:
1. From the *Operations menu*, choose *M-Bus Parameters*.
2. Type a device address or select the Broadcast radio button.
3. Click the *Normalise button*.

The M-Bus communications link of the appropriate meter(s) will be reset.

To search devices connected to the bus

To search devices connected to the bus:
1. From the *Operations menu*, choose *M-Bus Parameters*.
2. Click the *Search button*.

A primary address poll will be executed at the current transfer rate. The address, identification, and status of each device found will be listed in a document window, from where you can copy text to the Windows clipboard or save the data into a file.

Note:
The poll will be executed at the current transfer rate only. If a comprehensive search is needed, the user must perform a search at every desired transfer rate (see “Communications settings”).

M-Bus primary address

M-Bus primary address
A number in the range 0 through 250. Not applicable when Broadcast is selected.

M-Bus identification

M-Bus identification
A number in the range 00000000 through 99999999. Not applicable when Broadcast is selected.

M-Bus transfer rate

M-Bus transfer rate
The transfer rate in bits per second (bps), either 300, 600, 1200, 2400, 4800, or 9600 bps. For Kamstrup 10EVL, only 300 and 2400 bps are valid rates.

Date and time

Date and time
The date and time will be retrieved from the PC's internal clock and sent to the meter.

Peak registers reset

Peak registers reset
The peak power and peak flow registers of the meter will be reset.

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Meter testing

Purpose:
Testing of flow metering and energy calculation, with the help of the test modes of the Kamstrup 10EVL meter.

Meter testing:
1. Choose *Test* from the *Operations menu*.
2. Select the test mode, either flow measuring test or energy calculation test.
3. Type the password and the device address if required.
4. Click the *Test mode button* to set the meter to the test mode.
5. Click the *Start button* to start the test process.
6. Click the *Stop button* to finish testing.
7. Click the *Normal mode button* to restore normal operating mode.

Note:
When terminating the connection by clicking the Disconnect button, Kamstrup 10EVLP will ask you whether to leave the meter in the test mode or to set it back to the normal state. By clicking the No-button in the message box you can restore normal mode, if desired.

Flow measuring test

Flow measuring test
The meter's test registers will be reset when the meter is set to either of its two test modes. The reading sequence of test registers will start when the testing is started, so it is recommended to set the meter to test mode when there is zero flow.

After each reading the values of test registers (energy, volume and momentary flow) will pe presented in their respective fields. When the reference tank is empty, the test shall be stopped and the volume of the tank written in the appropriate field. Thereafter, the calculation of the error percent can be carried out with the *Error % button*. The acquired value can be used when calibrating the meter.

Energy calculation test

Energy calculation test
The meter's test registers will be reset when the meter is set to either of its two test modes. In this mode the meter is feeded test pulses of one liter by the water meter pulse input.

After each reading the values of test registers (energy, volume and average flow) will be presented in their respective fields.

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Calibration

Purpose:
Reading and writing of calibration parameters.

To read the calibrating parameters from a Kamstrup 10EVL meter:
1. Choose the Calibration command from the Operations menu.
2. Type the password and the device address if required.
3. Click the Read button.

To write the calibrating parameters to a Kamstrup 10EVL meter:
1. Choose the *Calibration* command from the *Operations menu.*
2. Type the password and the device address if required.
3. Type the parameters and other settings into appropriate fields.

   a) A safe way to calibrate a Kamstrup 10EVL meter is to first read the parameters from the meter and then modify them as required

   b) The error percentage acquired from testing the meter may be placed in either the "qn error" or the "qmin error" field
4. Click the *Write button*.

Note:
To calibrate a Kamstrup 10EVL meter you need access level 3.

Resetting of cumulative registers:
1. Choose the *Calibration command* from the *Operations menu.*
2. Type the password and the device address if required.
3. Click the *Reset button*.

Note:
The meter's other parameters remain unaffected when resetting the registers.

Calibration parameters

Calibration parameters:

Flow measuring angle coefficient	1000...9000
Flow measuring offset	0.0...0.9 l/h
Temperature difference measuring offset	0...90 mK
Displayed decimals	3/MWh;2/m^3 or 1/MWh;0/m^3
Cumulative registers reset	ON/OFF (write only)

Cumulative registers

Cumulative registers
- Energy
- Volume
- Pulse input 1
- Pulse input 2
- Operating time

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