



***MEC - Driver of MEC07 and MEC08 Heat
Meter Protocol
User's Manual***

Doc. No. ENP4032
Version: 29-08-2005

ASKOM[®] and **asix**[®] are registered trademarks of ASKOM Spółka z o.o., Gliwice. Other brand names, trademarks, and registered trademarks are the property of their respective holders.

All rights reserved including the right of reproduction in whole or in part in any form. No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system, without prior written permission from the ASKOM.

ASKOM sp. z o. o. shall not be liable for any damages arising out of the use of information included in the publication content.

Copyright © 2005, ASKOM Sp. z o. o., Gliwice



ASKOM Sp. z o. o., ul. Józefa Sowińskiego 13, 44-121 Gliwice,
tel. +48 (0) 32 3018100, fax +48 (0) 32 3018101,
<http://www.askom.com.pl>, e-mail: office@askom.com.pl

1. MEC - Driver of MEC07 and MEC08 Heat Meter Protocol

1.1. Driver Use

The driver is designed for data exchange between the **asix** system and MEC07 and MEC08 heat meters manufactured by the Instytut Techniki Ciepłej (Institute of Thermal Technology) in Łódź. Data exchange is executed by means of a serial interface in the RS-232 standard. For switching serial line between counters a multiplexer, controlled by RTS (switching to the first channel) and DTR (switching to the next channel) lines, is used.

1.2. Declaration of Transmission Channel

The full syntax of declaration of transmission channel operating according to the MEC protocol is given below:

channel_name=MEC, *port* [*,max_no*]

where:

<i>MEC</i>	- driver name,
<i>port</i>	- name of the serial port connected to the multiplexer of MEC heat meters, e.g. COM1,
<i>max_no</i>	- optional number of multiplexer channels to which the MEC heat meters are connected (by default 5).

EXAMPLE

An exemplary declaration of transmission channel CHANNEL used for communication with MEC heat meters connected to the multiplexer channels numbered from 1 to 8. Data exchange is executed through the serial port COM2.

CHANNEL = MEC, COM2, 8

1.3. Types of Process Variables

In the driver one type of process variables is defined:

V - value of transferred measurement.

All process variables are of FLOAT type and may be only read. A time stamp is given by a heat counter and sent with values of process variables within a common telegram. The time stamp is given with the accuracy of one minute.

The syntax of symbolic address used for variables belonging to the MEC driver channel is as follows:

V<*nrFabr*>.<*nrOdb*>.<*index*>

where:

<i>nrFabr</i>	- factory number of the MEC heat meter;
<i>nrOdb</i>	- number of the receiver from which the measurement is transferred; allowed value is 1 or 2;
<i>index</i>	- variable number in a table of variables transferred from the meter.

The list of indexes and variables corresponding with them are given in tables 1 and 2.

Raw values of variables read from heat counters should be converted following the conversion function NOTHING_FP or FACTOR_FP. The column *Factor* in both tables contains factors **A** of the conversion function FACTOR_FP for measurements with known conversion method of raw value (factors **B** are equal to 0). For the other measurements the calculation method of real value of the measurement should be agreed with the user of heat meters.

Table 1. Variables Transferred from MEC07.

Variable Name	Index	Factor
Factory number	1	1
Number of receiver	2	1
Status	3	1
Time of exceeding Max	4	
Time of exceeding Min	5	
Time of range exceeding	6	
Total time	7	0.1
Time of damage	8	
Total masse	9	10
Number of exceeding	10	
	11	
Number of feed decays	12	
Actual power	13	0.001
Current of break. PDP0	14	
Flux of masse	15	0.01
Ordered power	16	0.001
Delta of energy	17	
Qmax (exceeding)	18	
Qmin (exceeding)	19	
Qsum (total energy)	20	
Duration time of exceeding	21	
Max power of exceeding	22	
Energy of exceeding	23	
Volume of exceeding.	24	
V/Vz of exceeding.	25	
Air temperature (Tpow)	26	0.01
Delta T (Trozn)	27	0.01
Average air temp. (Tsrpow)	28	0.01
Delta T average (Tsroz)	29	0.01
Temp.of feed. (Tzas)	30	0.01

Table 2. Variables Transferred from MEC08.

Variable Name	Index	Factor
Factory number	1	1
Receiver number	2	1
Status	3	1
Pressure	4	0.001
Time of exceeding.	5	
Time in exceeding min.	6	
Time in feed.	7	
Time of range exceeding	8	
Time of range exceed. of condens.	9	
Total time	10	0.1
Time of damage	11	
Close time	12	
Close time of feed	13	
Enthalpy	14	1
Enthalpy of condens.	15	0.1
Total masse of condens..	16	0.1
Total masse	17	0.1
Number of exceedings	18	
Number of feed decays	19	
Steam power	20	0.01
Current of break. PDP0	21	
Current of break. PDP1	22	
Power of condens.	23	0.01
Ordered power	24	0.01
Energy in exceeding	25	
Energy in exceeding min.	26	
Energy in feed..	27	
Energy of condens.	28	0.1
Total energy	29	0.1
Duration time of exceeding.	30	
Max power of exceeding.	31	
Energy of exceeding.	32	
Flux of condens. masse	33	0.01
Flux of masse	34	0.01
Overheat (delta T)	35	0.1

EXAMPLE

Examples of declarations of variables.

A0, time 7502, V7502.1.00, CHANNEL, 17, 1, DATETIME_MEC
A1, pressure 7502, V7502.1.04, CHANNEL, 1, 1, FACTOR_FP, 0.001, 0
A2, temp. of feed 7502, V7502.1.37, CHANNEL, 1, 1, FACTOR_FP, 0.1, 0
A3, total time 8502, V8502.1.07, CHANNEL, 1, 1, FACTOR_FP, 0.1, 0
A4, factory no 7502, V7502.1.01, CHANNEL, 1, 1, NOTHING_FP

1.4. Driver Configuration

Configuring the driver is executed by using the separate section named [MEC]. By means of this section it is possible to declare the following positions.



LOG_FILE = file_name

Meaning - allows to define a file, to which all diagnostic driver messages and information about contents of telegrams received by the driver are written. If the item does not define the full path, the log file will be created in the current directory. The log file should be used only in the stage of the **asix** start-up.

Default value - log file is not created.

Defining - manual.



LOG_FILE_SIZE = number

Meaning - allows to specify the log file size in MB.

Default value - 1MB.

Defining - manual.



LOG_OF_TELEGRAMS=[YES/NO]

Meaning - item allows to write to the log file (declared by use of the item LOG_FILE) the contents of telegrams received by the driver. Writing of the contents of telegrams to the log file should be used only in the stage of the **asix** system start-up.

Default value - NO.

Defining - manual.



DATA_VALID_TIME = number

Meaning - for each MEC counter the time of the last reading is checked. If it exceeds the declared value, then the data from the actually read MEC counter receive an error status.

Default value - 1min.

Defining - manual.



STROBE_TIME = number

Meaning - allows to determine the duration time (in milliseconds) of the RTS and DTR strobe while controlling the switching of multiplexer channels.

Default value - 60 ms.

Defining - manual.



NUMBER_OF_REPETITIONS = number

Meaning	- allows to determine the number of repetitions for all channels of multiplexer.
Default value	- 1 repetition.
Defining	- manual.

2. List of Tables

<i>Table 1. Variables Transferred from MEC07.</i>	4
<i>Table 2. Variables Transferred from MEC08.</i>	5

1. MEC - DRIVER OF MEC07 AND MEC08 HEAT METER PROTOCOL	3
1.1. DRIVER USE	3
1.2. DECLARATION OF TRANSMISSION CHANNEL	3
1.3. TYPES OF PROCESS VARIABLES	3
1.4. DRIVER CONFIGURATION	6
2. LIST OF TABLES	9