



***DataPAF - Driver of DataPAF Energy
Counter Protocol
User's Manual***

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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. DataPAF - Driver of DataPAF Energy Counter Protocol

1.1. Driver Use

The DataPAF protocol is designed for communication with DataPAF energy counters provided with the EPROM 2.1 13.Aug.96 or later one. For the communication a COM interface is used.

1.2. Declaration of Transmission Channel

The full syntax of declaration of transmission channel working according to the DataPAF protocol is given below:

logical_name=DataPAF,COM*n*

where:

COMn - number of the serial port to which the DataPAF energy counter is connected.

Each defined channel may have its own section, the name of which is a logical name of the channel. It contains parameters for the given channel. Some channels may have a common serial port.

Also the given port COM*n* may have its own section named [DataPAF:*n*]. It defines parameters of the serial port.

1.3. Driver Configuration

The default values of serial interfaces are retrieved from the section [DataPAF], if section exists. This section is used to configure all the channels for the DataPAF protocol, which are declared in this system.



NUMBER =number

serial_Number=number

Meaning - determines an identification number of the DataPAF counter. Input of incorrect number makes the communication impossible.

Default value - 1234.

Parameter:

number - counter number.



baud =number

bps=number

Meaning - determines transmission speed.

Default value - 4800.

Parameter:

number - transmission speed in Bd.

***diagnostics =number***

Meaning - declaring this position with value 14 will cause outputting the diagnostic information connected with time synchronization to the log file.

Default value - 0.

Parameter:
number - 14.

***parity =parity_parameter***

Meaning - determines parity;

Default value - N.

Parameter:
parity_parameter - allowed value:
 n - no parity bit,
 o - odd parity check,
 e - even parity check,
 m - mark,
 s - space.

***stop_bits =number***

Meaning - determines a number of stop bits.

Default value - 1.

Parameter:
number - allowed values are 1 and 2.

***word =number******word_length=number***

Meaning - determines word length.

Default value - 8.

Parameter:
number - allowed values are from the range of 5 to 8.

***time_out =number******timeout =number***

Meaning - waiting time for the DataPAF answer.

Default value - 1000.

Parameter:
number - in milliseconds.

***repetitions =number***

Meaning - number of repetitions of communication operations ended with an error.

Default value - 3.

Parameter:
number - number of repetitions.



max_Time_Difference = number

Meaning - determines the maximal difference between the **asix** system time and the DataPAF counter time, after which warnings will be generated in 'Control Panel'. The station time can be read with an interval defined by the parameter *time_Check*.

Default value - 60.

Parameter:
number - number in seconds.



time_Check = number

Meaning - interval, with which the current time of the counter is read.

Default value - 180.

Parameter:
number - number in seconds.



system_sync = number

Meaning - maximal difference between the **asix** system time and the DataPAF counter time, after which a system time synchronization with the counter time will occur. If the parameter value is 0, then the system time is not synchronized with the counter time.

Default value - 0.

Parameter:
number - number in seconds.



period_Check = number

Meaning - interval, with which the change of current calculation period of the counter is checked.

Default value - 180.

Parameter:
number - number in seconds.



max_history = number

Meaning - determines a time period from the current moment backwards, for which historical data, saved in station memory, will be read.

Default value - 35.

Parameter:
number - number in days.

***history_Buffer_Removal=number***

- Meaning - the parameter determines a time period, after which buffers containing historical data, read for needs of an archiving module, are removed.
- Default value - 120.
- Parameter:
 number - the time is given in minutes.

***CRC16=YES/NO***

- Meaning - determines if the CRC16 validity check has to be used in the communication with the counter. If NO is given, then the sum of sequent bytes will be calculated.
- Default value - YES.

***log=file_name***

- Meaning - the parameter determines the name of file, to which additional diagnostic information will be written.
- Default value - lack.

***alarm_Code =number***

- Meaning - the parameter determines the number of an alarm, generated by the driver in case of loss and re-establishing of connection with the station. The value of -1 (default) causes that alarms are not generated. In a situation of a connection loss, a number specifying the cause of connection loss is transferred together with the alarm code:
 0 – complete lack of any answer from the station;
 1 – timeout;
 2 – line errors (frame, parity, overrun errors);
 3 – checksum errors;
 4,... - other errors.
This number determines the end status of the last attempt of connection establishing.
- Default value - lack.

***energy_error =number***

- Meaning - determines situations, when the status of the XEN variable value assumes an error value and it is the sum of the following values:
 1 error when a short decay of voltage;
 2 error when a long decay of voltage;
 4 error when a pause in input line of the impulse counter.
- Default value - 0.

***mult =number***

Meaning

- defines a value of all input multipliers. Input multipliers are used for calculating the energy on the basis of the impulse number. If this parameter is given, then the driver will not read values of multipliers from the energy counter. If beside the parameter *mult*, parameters determining values of multipliers for individual channels (*multn*) are also used, then the parameter *mult* must be placed before all parameters *multn*.

Default value

- lack.

Parameter:

number

- the multiplier is a floating-point number.

***multn =number***

Meaning

- defines an input multiplier value for a channel with the number *n* (1-31).

Input multipliers are used for calculating the energy on the basis of the impulse number. If this parameter is given, then the driver will not read values of multipliers from the energy counter. If the parameter *mult* is also given, then it must be placed before all parameters *multn*.

Default value

- lack.

Parameter:

number

- the multiplier is a floating-point number.

EXAMPLE

[datapaf]

....

;definition of multiplier for all channels:

mult = 2.7

;definition of multiplier for channel 6:

mult6 = 3.3

1.4. Driver Parameterization Examples

EXAMPLE

[ASMEN]

....

KOMIN 2= DataPAF ,COM2

....

[DataPAF:2]

baud=19200

Numer=4800

In the above example the station named **KOMIN 2**, connected to the port COM2, is defined. The transmission speed of 19200 bps will be used.

In case of time synchronization of the **asix** station with the time of a chosen counter – the definition of this time should be placed in the ini section for the given counter. For this purpose the parameter *system_sync*, to which the value of allowed difference of times in seconds, is assigned.

EXAMPLE

```
[ASMEN]
...
CHAN1=DataPAF,COM2
KANAL2=DataPAF,COM4
...
[CHAN1]
system_sync=5
log=DATAPAF.log
diagnostics=14
```

In the example above the system time will be synchronized with the time of an energy counter connected to the port COM2. By placing the records *diagnostics=14* and *log=DATAPAF.log* in the counter section, it is possible to receive the record of time synchronization diagnostics in the file *DATAPAF.log*. The time is synchronized with an accuracy of 1 second.

1.5. Definition of Variables

EXAMPLE

An example of the ASMEN variable definition:

```
3010E15m1, DATAPAF Średnia 15min energii kan. 1, XEN1, CHAN1, 1, 60,
NOTHING_FP
3010EBDSH, DATAPAF suma energii biernej kanałów w pop.okres, PEN11.8, CHAN1,
1, 3600, NOTHING_FP
```

Table 1. The List of All the Variable Types Supported by the DataPAF Driver.

Name	Type
ENc.s	FLOAT
PENc.s	FLOAT
MMc.s	FLOAT
PMMc.s	FLOAT
MMIc	FLOAT
IMIc	WORD
IMPc	WORD
BRKc	BYTE
POFc	BYTE
XENc	FLOAT
IMTc	WORD
Lc	FLOAT
PLc	FLOAT
TIM	TEXT
DAT	TEXT
DTIM	TEXT
ALRc	BYTE
GALR	DWORD
INMULc	FLOAT
INMULCNTc	WORD
INMULKUKIc	FLOAT
INMULCONSTc	DWORD
INMULDIGc	WORD
MCHAN	WORD
PNT	WORD
REG	WORD
COL	WORD
CHAN	WORD
SUM	WORD
INTEG	WORD
PPS	DWORD
PPE	DWORD
CPS	DWORD
CPE	DWORD
c – signifies the number of channel 1..30 s – time zone 0..8	

1.6. Historical Data

Historical data are available for the following variable types: POF, IMP, BRK and XEN.

2. List of Tables

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