EDW LPEX V2.0

Expected IntervalEDW LPEX V2.0 communication protocol

Description

EDW LPEX V2.0 protocol is a simple text file protocol. Its implementation is based on the sequential processing of file rows. Two types of files are supported:

- LPEX file
- MPX file

The LPEX file consists of a header and part with data. The header contains a description of data, that are separated by a defined separator. This separator is used to separate also data in each row of a document.

An example of LPEX file body:

LPEX V2.0
Datum;Zeit;Kundennummer;Kundenname;eindeutigeKDNr;GEId;GEKANr;KALINr;Linie;eindeutigeLINr;ZPB;Kennzahl;Einheit;Wandlerfaktor;MPDauer;Werte
15.04.14;00:07:00;;;;;;;;;;SK40000041499000000000BESENOVA_T1;AP-M;kWh;1;01;0;00000
15.04.14;00:07:00;;;;;;;;;;SK40000041499000000000BESENOVA_T1;AP+M;kWh;1;01;0;00000
15.04.14;00:07:00;;;;;;;;;;SK40000041499000000000BESENOVA_T2;AP-M;kWh;1;01;27;00000

One row of table corresponds to one row in a text file. A symbol ";" is used as a separator, which may be redefined in the station parameters - the "Column Delimiter" parameter.

For better readability, the data is displayed in the table below. The header columns are described in Protocol parameters in the Communication station configuration section.

LPEX V2.0										ZPB	Kennzahl	Einheit	Wandlerfaktor	MPDauer	Werte	
Datum	Zeit															
15.4.2014	0:07:00									xxx	AP-M	kWh	1	1	0	0
15.4.2014	0:07:00									yyy	AP+M	kWh	1	1	0	0
15.4.2014	0:07:00									zzz	AP-M	kWh	1	1	27	0

The MPX file is an even more primitive text file protocol that has only a data portion. The body of the MPX file may look as follows:

SK10000022099000000000ETRENCIN_G1;AP-M;1;01;00;0;1805151136;92.4;kWh
SK10000022099000000000ETRENCIN_G2;AP-M;1;01;00;0;1805151136;94.8;kWh
SK10000022099000000000ETRENCIN_T1;AP-M;1;01;00;0;1805151136;91;kWh

For better visibility, the data is displayed in the table below. The header columns are described in Protocol parameters in the section Communication station configuration.

ZPB	Kennzahl	Wandlerfaktor	MPDauer	(Flags)		Datum+Zeit	Werte	Einheit
SK10000022099000000000ETRENCIN_G1	AP-M	1	01	00	0	1805151136	92.4	kWh
SK10000022099000000000ETRENCIN_G2	AP-M	1	01	00	0	1805151136	94.8	kWh

SK10000022099000000000000ETRENCIN_T1	AP-M	1	01	00	0	1805151136	91	kWh

When MPX files are analyzed, the column order is fixed, and the protocol parameters that specify the column names in the LPEX header, as well as the maximum number of columns (Date Column Name, Time Column Name .. Interval Name, and Max. Columns Number), are ignored. Date Conversion Mask and Time Conversion Mask

parameters, specifying the date and time format, are also ignored, and *yymmddhhmi* format is assumed.

Communication line configuration

- Communication line category: FILE I/O.
- The parameter "Input File" is used only if the parameters Primary FTP Server and/or Secondary FTP Server are specified and by parameter ZIP File Mask specifies, that input files are in ZIP format (*.zip) - the input files are downloaded from the specified FTP servers and the ZIP files are searched for in the directory specified by the "Input File" parameter.
- The parameter "Archive" specifies a folder for storing processed files.

Communication station configuration

Communication station - configuration dialog box, **Protocol parameters**.
They influence some of the optional protocol parameters. A user may define the following station protocol parameters:

Parameter	Default value	Meaning
File Type	LPEX	Type of processed files - LPEX (*.lpx) or MPX (*.mpx).
Date Column Name	Datum	Column name containing the date.
Time Column Name	Zeit	Column name that contains time data.
Address Column Name	ZPB	Column name that contains a value address.
Tech. Units Column Name	EinHeit	Column name that contains a unit of a measured value.
Value Column Name	Werte	Column name that contains the measured values.
Value Type Column Name	Kennzahl	Column name that contains a value type (AP+ ,AP- ,AQ+ ,AQ-).
Interval Name	MPDauer	Column name that contains a granularity of measurements [min].
Max. Columns Number	30	Defines maximum column count, that are scanned when data acquisition.
Column Delimiter	;	Value separator in the header and body.
Date Conversion Mask	dd.mm.rr	A mask for the conversion of date in the text format to an internal date. In the case of MPX files, the mask is ignored.
Time Conversion Mask	hh:mi:ss	A mask for the conversion of time in the text format to an internal time. In the case of MPX files, the mask is ignored. Note: time in LPEX as well as MPX file is presumed to be in the winter time.
Command Path		Directory for storing the batch files (e.g. unpacked ZIP archive).
Command Path VMS		Only for OpenVMS. Directory (e.g. DKA0:[IFAZD]) containing the batch files TESTZIP.COM and UNZIP.COM.
Download Command File	ftp_download.com	Batch file for downloading data from the FTP server.
Delete Temporary Files	deltmp.com	Batch file for deleting of temporary files (FTP_DELETECMD, MAKE_TESTZIP.COM, MAKE_UNZIP.COM).
ZIP File Mask	GOEONL{rrrr}-{mm}-{dd}-{hh}-{mi}-{ss}.zip*	Time and date mask for the name of the ZIP file. If the parameter is empty, it is assumed that LPEX or MPX files are located in the directory specified by parameter Directory for Unzipped files.

LPX File Mask	GOEONL_{rr}{mm}{dd}{hh}{mi}.lpx*	Time and date mask for name of unzipped LPEX files. If MPX files are processed, their name must match mask *{yy}{mm}{dd}{hh}{mi}.mpx or at least *{yy}{mm}{dd}{hh}{mi} e.g. ETREN_03_1805151136.mpx
Directory for Unzipped files	DKA200:[000000.IFAZD.UNZIPPED]	Directory, from which the unzipped LPEX or MPX files will be read.
Remote Data Directory	2Rove	Directory on the FTP server that contains ZIP files.
Primary FTP Server	10.11.1.131	Name/IP address of the primary FTP server.
Secondary FTP Server	10.11.1.131	Name/IP address of the secondary FTP server.
FTP User	azdinterface	FTP user name on both the primary and secondary FTP server.
FTP Password	***	FTP user password on both the primary and secondary FTP server.
FTP Connection Timeout	30	If the downloading or deleting of files on the FTP server took longer than this setting, this information is written into the log file of the KOM process.
Active Energy Tech. Units	MWH	Technical units of active energy.
Reactive Energy Tech. Units	MVARH	Technical units of reactive energy.
Expected Interval	1 min	The expected time interval of all values. If the value in the processed file in the "Interval Name" column is higher than "Expected Interval", the value of energy will be evenly split into several intervals of "Expected Interval" size. The value 0 disables this feature.
Analyze Archived Files on Startup	YES	KOM process, when starting, inspects old data sources in order to recalculate the value of electrical work.
Send Old Values	NO	Analyzes also the files that are older than "Maximum File Age".
Maximum File Age	3 hod	If the interval is exceeded, the values are either ignored or processed as Old Values, depending on the parameter "Send Old Values".
Debug unknown and lost tags	NO	Enables displaying warnings about addresses of measurement points with missing I/O tag.
Old Values As New Values	NO	All values from communication (even old ones) go to the system as new values.

I/O tag configuration

Permitted I/O tags: **Ai**

I/O tag address
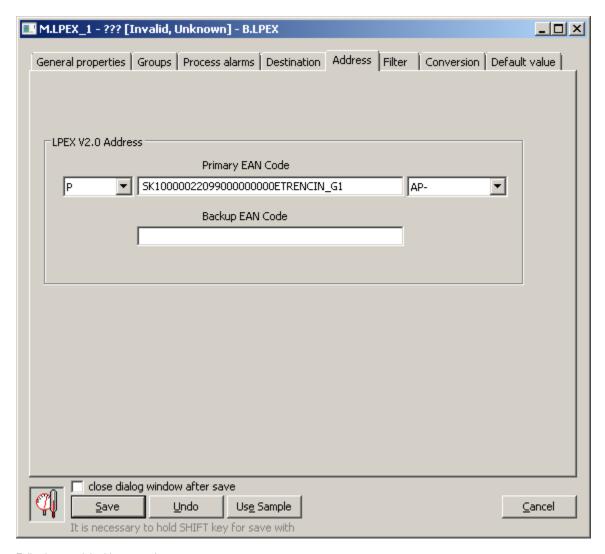
I/O tag address consists of three parts.

The first one defines the type of value:

- P - Power (calculated from Energy read from the input file)
- W - Work (calculated by integrating Power within the current hour)
- E - Energy (directly from the input file with possible recalculations due to size of Interval - see the Expected Interval parameter)

The second one - "Primary EAN Code" and "BackupEAN Code" - is used as a unique identifier of value, which is placed in the "Address Column Name" of the source file.

The third part represents the value type (AP+, AP-, AQ+, AQ-), which is in the "Value Type Column Name".

Note: configuration of two I/O tags which are of types Power and Energy and the next two parts of their address is identical, is not currently supported. Only one of these I/O tags will work. Combinations Power + Work or Work + Energy are supported.

Following special addresses exist:

- I/O tag with **TRIGGER** address will be set to a value equal to the number of processed LPEX or MPX files immediately after the processing is done.
- I/O tag with **INVALIDS** address will be set to a value equal to the number of I/O tags the data for which were not found in a file that was just processed.

Error indication

The flags **FA** and **FB** are used to indicate the situations when data processing was not done as expected. **FB** flag is set only for power values on the condition that the files come from another server, i.e. they are transmitted through FTP. It relates to the following situations:
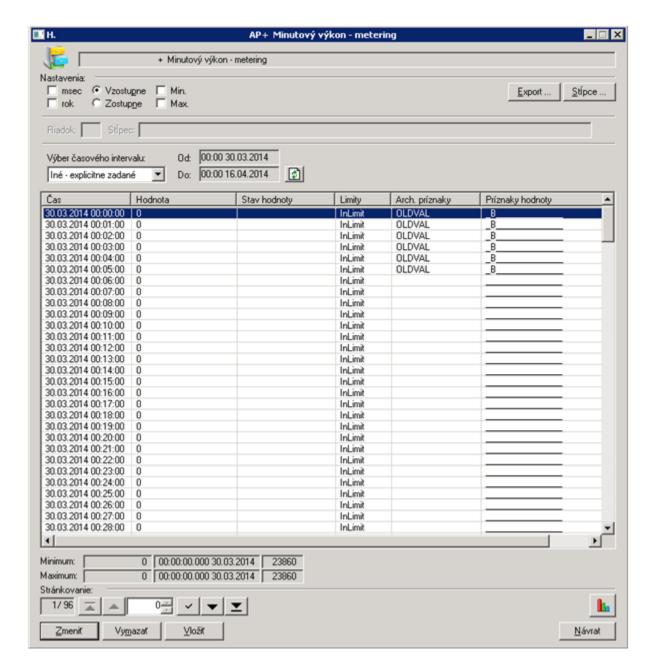
- time in the file is older than "Maximum File Age" and the "Send Old Values" parameter is enabled at the same time,
- data are processed outside of the current hour, for example, if the record with a timestamp 13:45 comes at 14:03,
- older data, as already processed, come for the I/O tag.

In the following cases, the values are archived without a flag. The most recent valid value will have an **FB** flag set:

- The data with the same timestamp as the current timestamp of the I/O tag were received, but with a different value. An **FB** flag is set for this particular value.
- The name of each processed file contains also the information about time. If this time is different from the timestamp of a value stored in the file, this data has also an **FB** flag, both for historical and current value.

The performance values will be preprocessed before sending them to the D2000 Server. If the values are received in N-minutes intervals, the value from the file will be divided by a number (N* 60), which ensures that the average power will be obtained from the integral value of work. The timestamp of this artificial power value will be moved to the beginning of the interval.

If the protocol is configured so that data are downloaded from FTP servers, it is possible to configure the primary and secondary FTP server. If the data downloading from the primary server failed, the secondary one is used. Data processed in such a way have **FA** flag. These abovementioned value flags are displayed in the archival dialog box of the I/O tag, in the "Value flag" column.

Literature

Changes and modifications

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Document revisions

- Ver. 1.0 - April 23, 2014 - New document.
- Ver. 1.1 - May 17, 2018 - Support for MPX files.

ⓘ **Related pages:**

Communication protocols