

IEC 62056-21:2002 File I/O

IEC62056-21:2002 File I/O communication protocol

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Supported device types and versions

This protocol analyzes the files containing measurement data according to the IEC 62056 international standard.

Communication line configuration

- Communication line category [File I/O](#) (communication via files).

File I/O communication line configuration parameters:

- Input file** - complete path to the file or directory with data.

In the case of analyzing a particular file, its size is tested with a 1-second period. If the file does not increase in size during two consecutive periods, it is processed.

If a directory is entered (in the case of a Win32 platform with a backslash (\) at the end), all files that match the mask are processed (see [Station protocol parameters](#)).

- Archive directory** -path to the directory, where the processed files are archived. If the directory is not specified, the processed files will be deleted.

Communication line protocol parameters

Dialog window [communication line configuration](#) - **Protocol parameters** tab, select the "IEC62056-21:2002 File I/O" protocol.

Table 1

Parameter	Description	Unit	Default value
Profile	Analyzed profile.	-	P.01
Gorlitz PRM62 Module	Files from device Gorlitz PRM62 are analyzed.	YES /NO	NO
Archive Subdirectory Time Mask	Mask for creating subdirectories in the main archive directory according to the time of file processing or timestamp of the file (if the Input file parameter specifies a directory).	-	rrrrmdd
Formatted Codes (Annex C)	Numerical addresses of I/O tags are used according to the specification of the IEC62056-21 standard, Annex C. If numerical addresses are used, the station address is acquired from the value of the object with address <i>D000</i> , the timestamp is acquired from the value of the object with address <i>C001</i> .	YES /NO	NO
External Command File 1, 2	The complete path to a periodically called external command file (.cmd). It is used only if a non-empty value has been configured. It is possible to configure two independently executed command files with different periods.	-	-
External Command File Period 1,2	Call period of the external command file 1 or 2.	mi:ss	1:00
Call External Command File 1,2 Synchronously	Call external command files 1 or 2 synchronously.	YES /NO	YES
Ext. Command File After Activation	The complete path to the external command file which is launched on change of redundancy status to HS. It is called only once and always synchronously. It is used only if a non-empty value has been configured.	-	-
Debug Files Flow	Show debug information about processed files.	YES /NO	YES
Debug Files Content	Show debug information with the content of processed files.	YES /NO	YES

Debug Values	Show debug information with measured values of the measure points.	YES /NO	YES
Files Checking Period	Period of input directory content check (if the Input file parameter specifies a directory).	mi:ss	1:00
Unknown Files Backup Directory	File, where unknown files are saved (if the Input file is a directory). If it is not written, the files will be canceled. The unknown files are the files not-matching the configured mask (see Station protocol parameters) or the station with the required device number was not found.	-	-
Future Data Filter	Time data filter. If the timestamp of acquired values is newer than the current time by more than the configured number of hours, they are ignored. Enter 0 (zero) to ignore the time filter.	hours	24
History Data Filter	Time data filter. If the timestamp of acquired values is older than the current time by more than the configured number of hours, they are ignored. Enter 0 (zero) to ignore the time filter.	days	31
Abnormal Timestamp Data Dir	Directory where the files with ignored data by time filter will be saved (Future Data Filter and History Data Filter).	-	-
After Processing Timeout	A delay, which is inserted after the file was analyzed.	ss.mss	0.100
Additional Error Logfile	Error file to write information about errors during processing (unknown file in directory, too old or too new values). An empty value means that this error file will not be created.	-	-

Communication station configuration

- Communication protocol **"IEC62056-21:2002 File I/O"**.
- **Station address** - the station address is ignored if the [Input file](#) is the particular file. If the directory is entered, the device number (electrometer) must be entered to assign the processed file to a particular station. If the station with this number does not exist, the file is considered to be unknown (see communication line protocol parameter [Unknown files backup directory](#)).

Station protocol parameters

Dialog window [station configuration](#) - tab **Protocol parameters**.

They influence some optional protocol parameters. The following station protocol parameters can be entered:

Table 2

Parameter	Description	Unit	Default value
Maximum File Timeout	If the Input file is a particular file, after this timeout passes without a file being processed, then the Station goes to a communication error.	min	45
Filename Mask	Mask for the name testing of the processed files. The following digit placeholder can be used: {N} - electrometer number, mind the number of figures, e.g.{NNNNNNNN}, {yy} or {yyyy} - year, {mm} - month, {dd} - day, {hh} - hour, {mi} - minute, {ss} - second. Example of mask: "Meter_{NNNNNNNN}{yy}{mm}{dd}{hh}{mi}.abl". If a timestamp can be obtained from the file name, it is used for saving the file to the archive directory (see Communication line protocol parameter Archive subdirectory time mask). If the electrometer number can be obtained, it is used for searching for the proper station. In the mask is not used, leave the parameter empty. The station address is then acquired from the value of object 0.0.0, C.1.0, or ZNR1 (previously, ZNR1 was previously used only in the case of Gorlitz PRM62 Module , currently it is used also for other types of energy meters).	-	-
External Command File	The complete path to a periodically called external command file (.cmd). The command file is called before accessing the input file. It is used only if a non-empty value has been configured.	-	-
External Command File Period	Period of calling the external command file.	mi:ss	1:00
Call Ext. Command File Synchronously	Call the external command file synchronously.	YES /NO	YES
Old Values As New Values	All values from communication (even old ones) go to the system as new values.	YES /NO	NO
PRM62 Status To Flags	The parameter is only used when analyzing files from the Gorlitz PRM62 (see the Gorlitz PRM62 Module line parameter). When enabled, attributes <i>Invalid</i> (invalid value), <i>ShortPeriod</i> (data for the whole measurement period are not available to the electrometer), and <i>TimeSet</i> (time has been set during the measurement period) are mapped into flags FA, FB, FC.	YES /NO	NO

I/O tag configuration

Supported value types of I/O tags: **Ai, Ci, TxtI**.

I/O address

The address of the I/O tag corresponds to standard IEC 62056-61:2002 Object Identification System (OBIS), "Annex A - Code presentation".
The I/O tag with an address starting with **%IGNORE** will be ignored.

The shortened address format is supported: **C.D[E][*F]**

where is

- **C** - Value group C (number within the range of 0..99 or symbols 'C', 'F', 'L' or 'P').
- **D** - Value group D (number within the range of 0..99 or symbols 'C', 'F', 'L' or 'P').
- **E** - Value group E (number within the range of 0..255).
- **F** - Value group F (number within the range of 0..255).

A special I/O tag with the address "**\$SW**" acquires the value of the profile status word.

Note: if the D2000 KOM process is required to send all values from the file (even recurring ones), it is necessary to set the [New time => new value](#) parameter in the Filter tab.

File example

```
[HEADER]
PROT = 0
ZNR1 = 00359487
TIME = 10:02:05
DATE = 22.10.04

[PDATA]
/EMH4\@01QJKB0660L0C1
0.0.0(00359487)
0.0.1(00359487)
0.9.1(100208)
0.9.2(041022)
F.F(00000000)
P.01(041022094500)(00000000)(15)(4)(1.5)(MW)(2.5)(MW)(3.5)(Mvar)(4.5)(Mvar)
(00.000)(00.000)(00.000)(00.000)
(00.000)(00.000)(00.000)(00.000)
!
```

where is:

P.01 - profile
(041022094500) - the timestamp of the first row with values
(00000000) - the profile status word
(15) - period of measurement in minutes
(4) - number of channels
(1.5) - first channel, 1 = Value Group C = Reactive power+, 5 = Value Group D = Last average 1
(MW) - unit of the first channel
etc.

The next rows contain the values of measurement.

Literature

- International Standard IEC 62056-21, Direct Data Local Exchange, First edition 2002-05.
- International Standard IEC 62056-61, Object Identification System (OBIS), Second edition 2006-11.
- Energie-Info, OBIS-Kennzahlen-System, Stand: 03. November 2006, www.vdew.net.

Changes and modifications

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Document revisions

- Ver. 1.0 - October 27th, 2008 - document creation



Related pages:

[Communication protocols](#)

flags