The library SysLibFileAsync.lib

This library supports asynchronous file access from the IEC-application If the target system supports the library, the following function blocks can be instantiated:

- SysFileOpenAsync Open a file
- SysFileCloseAsync Close a file
- SysFileWriteAsync Write data to a file
- SysFileReadAsync Read data from a file
- SysFileDeleteAsync Delete a file
- SysFileGetPosAsync Get the position of the file pointer
- SysFileSetPosAsync Set the position of the file pointer
- SysFileEOFAsync Check, if the file pointer reached the file's end
- SysFileGetSizeAsync Get the size in bytes of the file
- SysFileGetTimeAsync Time and date of file access, -modification, -creation
- SysFileCopyAsync Copy a file to a new file
- SysFileRenameAsync Rename the file
- SysFileCloseAllOpenAsync Close all currently opened files

Common

The function blocks in this library contain some common members:

- Input parameter bEnable : BOOL
- Output parameter bDone : BOOL
- Output parameter bBusy : BOOL
- Output parameter bError : BOOL
- Output parameter wErrorId : WORD

All these function blocks start an action on a rising edge at the input parameter bEnable. After an action has been started, all these function blocks have to be called until the output parameter bDone is set. Now the outputs are valid.

All these common parameters are not explicitly explained from now on in this document.

The row I/O shows I for inputs, O for outputs.

SysFileOpenAsync

This function block is used for opening an existing file or creating a new one.

The output is hFile, a handle to the file. A file handle is an identifier for a file and is used as an input for other function blocks.

Input-Variable	Data type	Description
stFileName	STRING	Filename
stMode	STRING	Mode to open the file: w write (file is created or overwritten) r read (file is only opened for reading if it exists) rw read and write (file gets overwritten; if the file does not exist, an error will be returned) a append (file is opened for writing if it exists, created if it exists not, data is appended at the end always.)

SysFileCloseAsync

This function block is used to close a file. From now on the file handle is invalid and the file is free for other processes.

Input-Variable	Data type	Description
hFile	DWORD	File's handle from SysFileOpenAsync

SysFileWriteAsync

This function block is used for writing to a file. The file has to be opened with the FB SysFileOpenAsync.

Variable	I/O	Data type	Description
hFile	I	DWORD	File identifier(see SysFileOpenAsync)
pBuffer	I	DWORD	Address of the data to write(to be retrieved using **ADR-operator**)
dwSize	I	DWORD	Number of bytes to write
dwWrite	O	DWORD	Number of actually written bytes.

The data is written to the file in binary mode, means without any conversion.

After manipulating the file, it has to be closed with SysFileCloseAsync. The error codes of this FB must be examined, as some errors are reported only at close, depending on the system.

SysFileReadAsync

This function block is used to read from an open file.

Variable	I/O	Data type	Description
hFile	I	DWORD	File identifier(see SysFileOpenAsync)
pBuffer	I	DWORD	Address of the buffer to read to.
dwSize	I	DWORD	Number of bytes to read from the file to buffer
dwRead	O	DWORD	Number of actually read bytes.

Parameter pBuffer must be evaluated via the ADR() operator. The files to be written are read binarily, i.e. without any conversion and copied to pBuffer.

SysFileDeleteAsync

This function block is used to delete a file.

Input-Variable	Data type	Description
stFileName	STRING	Filename of the file to be deleted.

Caution: This FB will delete any file immediately.

SysFileGetPosAsync

This function block retrieves the current read-/write position of the file.

Input-Variable	Data type	Description
hFile	DWORD	File handle from SysFileOpenAsync

SysFileSetPosAsync

This function block retrieves the current read-/write position of the file.

Input-Variable	Data type	Description
hFile	DWORD	File handle from SysFileOpenAsync
dwPos	DWORD	Offset within the file for read-/write access.

SysFileEOFAsync

This function block is used to determine, whether the read-/write pointer has reached the end of the file.

Variable	I/O	Data type	Description
hFile	I	DWORD	File handle from SysFileOpenAsync
bEOF	O	DWORD	Tells if file handle is reached

SysFileGetSizeAsync

This functionblock is used to retrieve the size in bytes of a file.

Variable	I/O	Data type	Description
stFileName	I	STRING	Filename
dwSize	O	DWORD	Size of the file in bytes

SysFileGetTimeAsync

This function block retrieves the modification times of a file.

Variable	I/O	Data type	Description
stFileName	I	STRING	Filename
ftFileTime	O	POINTER TO FILETIME	Points to a FILETIMEAsync-structure

Structure **FILETIMEASYNC**(is included with the library):

```
TYPE FILETIMEASYNC
STRUCT
   dtCreation:DT;
   dtLastAccess:DT;
   dtLastModification:DT;
END_STRUCT
END_TYPE
```

SysFileCopyAsync

This function block is used to copy a file to another name/location.

Variable	I/O	Data type	Description
stFileDest	I	STRING	Destination name
stFileSource	I	STRING	Source name
dwCopied	O	DWORD	Number of copied bytes.

SysFileRenameAsync

This function block is used to rename a file.

Input-Variable	Data type	Description
stFileOldName	STRING	Old filename
stFileNewName	STRING	New filename

SysFileCloseAllOpenAsync

With this FB one can close all currently open files, without knowing any handles or names. The system always knows these handles. The FB has no input parameters except for bEnable.