The Library SysLibTasks.lib

If the target system supports the functionality, then the library functions can be used to manage tasks. That means to generate, to delete, to modify priority level and to stop and restart tasks. The execution is synchronous.

Note:	These functions are **not reentrant**. This should be no problem in normal cases, but if in the application program a situation might occur, where several IEC-tasks create and manage additional tasks, the calls to these functions have to be synchronized. You can use the library SysLibSema in this case.

(If you need functions to get information on the configuration of IEC-Tasks, use the library SysLibIECTasks.lib.)

Functions for managing tasks:

- SysTaskCreate

- SysTaskDestroy

- SysTaskGetInfo

- SysTaskGetPriority

- SysTaskSetPriority

- SysTaskSuspend

- SysTaskResume

Functions to be used within a task:

- SysTaskSleep

- SysTaskEnd

- SysTaskGetCurrent

SysTaskCreate

This function of type UDINT creates a new task. It will return an unique Id number for the task, which is required as an input parameter for the other functions of SysLibTask.lib.

Input Variable	Data type	Description
stName	STRING	Name of the task
byPriority	BYTE	Priority of the task; possible values : 0-255, Reserved: 0..31 for System IEC-Tasks: 32..63 Communication -Tasks: 64 and higher
udiInterval	UDINT	Task Interval in milliseconds
pfFunction	DWORD	Function pointer, which must be acquired with the aid of the function SysIECGetFctPointer()
pArgument	DWORD	Pointer to parameters for the new task

SysTaskDestroy

This function of type BOOL can be used to delete a task. It will return TRUE, if the operation has succeeded, otherwise FALSE.

Input Variable	Data type	Description
udiTaskId	UDINT	Id of the task, which should be deleted; Id is returned by SysTaskCreate

SysTaskGetInfo

This function of type BOOL returns information on a task, which is identified by the task Id.

Input Variable	Data type	Description
udiTaskId	UDINT	Id of the task, on which you want to get information; this Id was returned by SysTaskCreate at creating the task
pSysTaskInfo	POINTER TO SYSTASKINFO	Pointer on the structure SysTaskInfo, see below, which contains information on the task

Components of the structure **SysTaskInfo**:

dwHandle	DWORD	Operating system handle of the task
dwId	DWORD	Index of the task
dwSem	DWORD	Reserved, only use in the runtime system
wIECTaskNr	WORD	IEC task index in case it is an IEC task
stName	STRING	Name of the task

SysTaskGetPriority

This function of type BYTE returns the priority of the task identified by the task Id.

The priority can be a value between 0 (=highest priority) and 255 (=lowest priority).

Input Variable	Data type	Description
udiTaskId	UDINT	Id of the task, of which you want to know the priority level; this Id was returned by SysTaskCreate during creation of the task

SysTaskSetPriority

This function of type BOOL can be used to define the priority level for a task which is identified by the task Id. TRUE will be returned in case of a successful operation, otherwise FALSE.

The priority level can be a value between 0 (=highest priority) and 255 (=lowest priority)..

Input Variable	Data type	Description
UdiTaskId	UDINT	Id of the task, for which the priority level should be set; this Id was returned by SysTaskCreate during creation of the task
byPriority	BYTE	Priority ; possible values : 0 – 255 - Reserved for system: 0..31 - IEC-Tasks: 32..63 - Communication -Tasks: 64 and higher

SysTaskSuspend

This function of Typ BOOL can be used to stop a task during operation. The task will be identified by the task Id. (By calling the function SysTaskResume the processing can be continued later.)

TRUE will be returned in case of a successful stop of the task, otherwise FALSE.

Input Variable	Data type	Description
udiTaskId	UDINT	Id of the task, which should be stopped; this Id was returned by SysTaskCreate during creation of the task

SysTaskResume

This function of type BOOL can be used to continue the processing of a task, which was stopped before by the function SysTaskSuspend.

TRUE will be returned in case of a successful resume of the task, otherwise FALSE. .

Input Variable	Data type	Description
udiTaskId	UDINT	Id of the task, which should continue processing; this Id was returned by SysTaskCreate during creation of the task

SysTaskSleep

This function of type BOOL can be used to interrupt the processing <u>in</u> a running task and to make it continue after a defined period of time.

TRUE will be returned, if the sleep function has been executed successfully, otherwise FALSE.

Input Variable	Data type	Description
udiMilliseconds	UDINT	Time in milliseconds after which the stopped (sleeping) task should continue to be processed

SysTaskEnd

This function of type BOOL should be called by a task as soon its processing has been terminated. Typically this should be done immediately before the task is left.

Input Variable	Data type	Description
udiExitCode	UDINT	Should be 0
udiTaskId	UDINT	Id of the task, which should be terminated; has been returned by SysTaskCreate during creation of the task

SysTaskGetCurrent

This function of type UDINT can be called by the currently processing task in order to get returned the own task Id.

Input Variable	Data type	Description
bDummy	BOOL	TRUE starts the function