# The Library SysLibIECTasks.lib

If the target system supports the functionality, this library can be used to call information on the configuration of IEC tasks. The execution is synchronous. (To create, delete, prioritize, stop and restart a task you can use the library SysLibTasks.lib.)

The functions for getting information:

- SysIECTaskGetConfig
- SysIECTaskGetInfo

Auxiliary function:

- SysIECGetFctPointer
- SysIECTaskResetEvent

Modifications for Version SysLibIECTask23.lib are marked blue.

### SysIECTaskGetConfig

This function of type BOOL serves to retrieve the configuration parameters of an IEC task.

The task is addressed by its name resp. its index, which it has got assigned in the CoDeSys task configuration.The structure SysIECTaskConfEntry contains all parameters which are used in the task configuration.

As soon as the task has been found, TRUE will be returned, otherwise FALSE.

| Input Variable | Data Type | Description |
|---|---|---|
| udiTaskId | UDINT | Task Id (Index in the CoDeSys task configuration); (optional, you also can use *stTaskName*) |
| pTaskInfo | POINTER TO SYSIECTASKCONFENTRY | Information on the task configuration (structure, see below) |

Components of structure **SysIECTaskConfEntry**:

| | | |
|---|---|---|
| byTaskNr | USINT | Task Number |
| byPriority | USINT | Priority, see dialog 'Taskattributes' in CoDeSys |
| lInterval | DINT | Interval of cyclic tasks, see dialog 'Taskattributes in CoDeSys; (in this case *ldrEvent* has an invalid entry) |
| ldrEvent | LDATAREF_TYPE | Event for an event controlled task, see dialog 'Taskattributes' in CoDeSys; Structure *LdataRef_Type* see below; in this case lInterval =0; |
| wIndex | UINT | Index of the POU which is called by the task (matches with the index retrieved by INDEXOF()) |
| uiNameLen | UDINT | Length of the task name |
| szName | STRING(80) | Name of the task, see dialog 'Taskattributes' in CoDeSys |

Components of structure **LdataRef_Type**:

| | | |
|---|---|---|
| POURef | UINT | POU-ID of the event variable |
| Offset | UDINT | Offset for the event variable |
| Size | UDINT | Size of the event variable |

**Modifications for SysLibIECTask23.lib:**

The component Offset of structure LdataRef_Type contains a pointer to the function CheckEvent, whereas POURef and Size sind 0.

### SysIECTaskGetInfo

This function of type BOOL returns the current time values of an IEC task. The task is identified by the task name or by the index, it has got in the task configuration.

As soon as the task has been found, TRUE will be returned, otherwise FALSE.

| Input Variable | Data type | Description |
|---|---|---|
| stTaskName | STRING | Name of the task (optionally you can use the input variable UdiTaskId, see below) |
| pTaskInfo | POINTER TO SYSIECTASKINFO | Pointer to current data of the IEC task (structure, see below) |

Components of structure **SysIECTaskInfo**:

| | | |
|---|---|---|
| dwCount | DWORD | Number of cycles since start of task |
| dwCycleTime | DWORD | Current cycle time |
| dwCycleTimeMin | DWORD | Minimum cycle time |
| dwCycleTimeMax | DWORD | Maximum cycle time |
| dwCycleTimeAvg | DWORD | Average cycle time |
| wStatus | WORD | Current status of the PLC: 0 = RUN, 1 = STOP |
| wMode | WORD | Current task mode: 1 = running; 2 = stopped (maybe by a runtime error) |

### SysIECGetFctPointer

This auxiliary function of type DWORD returns a function pointer, which is required as input parameter for the function SysTaskCreate which is used to create a new task (see library *SysLibTasks.lib*).

The function requires as an input parameter the internal index of the POU, which should be called by the task. This index can be acquired with the aid of the INDEXOF operator.

| Input Variable | Data type | Description |
|---|---|---|
| wIndexOf | WORD | internal index of the POU, which is to be called by the task |

**Modifications for SysLibIECTask23.lib:**

The function SysIECGetFctPointer returns 0 always.

### SysIECTaskResetEvent

This auxiliary function of type BOOL resets the event variable of an event triggered IEC task.

The function has no input parameter. It is working on the current task. It returns TRUE in case of success, otherwise FALSE (e.g. if the task is not an event triggered task).

The function sets the BOOLean IEC-variable, which is used as an event, to FALSE, and the internal flag of the CoDeSys runtime system task management to 0.

So it is achieved that a rising edge of the event variable will be regarded at the next cycle of the scheduler.

**Modifications for SysLibIECTask23.lib:**

The function SysIECTaskResetEvent returns FALSE always.