# CALCSTATFUNC

## CALCSTATFUNC action

**Function**

Evaluation of a statistical archive function on demand.

**Declaration**

```
 CALCSTATFUNC archIdent, timeFromIdent_TmA, timeToIdent_TmA,
statFuncIdent_Int, validPercIdent_Int, paramIdent, retValueIdent,
statusIdent_Int [,archivInstance_Int]
```

**Parameters**

| | | |
|---|---|---|
| archIdent | in | Reference to one value of historical value or reference to an object, values of which have been archived.<br><br>**Warning:** If the parameter is the reference to an object archived several times, there is not specified which one of the historical objects is to be used. |
| timeFromItemIdent_TmA | in | Identifier of *AbsTime* type - interval beginning. |
| timeToItemIdent_TmA | in | Identifier of *AbsTime* type - interval end. |
| statFunctIdent | in | Identifier of *Int* type - statistical function type. |
| validPercIdent | in | Identifier of *Int* type - validation criteria. |
| paramIdent | in | Identifier of *Int* or *Real* types - parameter for some types of functions. |
| retValueIdent | out | Identifier for calculation result. |
| statusIdent | out | Calculation (action) success. |
| archivInstance_Int | in | Optional identifier of *Int* type - identification of archive instance. If the parameter is not defined, the value 0 will replace it. |

**Description**

The action executes the calculation of the statistical function given by the *statFuncIdent_Int* parameter on the values represented by the *archIdent* historical value within the time interval specified by the *timeFromIdent_TmA* and *timeToIdent_TmA* parameters. After successful execution of the action, the *retValueIdent* parameter contains a result value of the calculation. The *statusIdent_Int* return code gets one of the following values:

- _ERR_TRANS_ABORT
- _ERR_TRANS_ERROR
- _ERR_TRANS_IGNORED
- _ERR_NO_ERROR

The set of implemented functions is equal with the functions, which may be configured for statistical archive (except the *FILTER* and *TIMESLICE* functions). For the individual functions, there are predefined local constants in ESL.

The *validPerctIdent_Int* parameter represents the Validation criteria used during the evaluation of the statistical function. It accepts values within 0 .. 100 (the error ERR_RANGE_ERROR occurs if the condition is not met).

For some statistical function, entering the *paramIdent* parameter according to the table is required:

| Statistical function | Parameter description |
|---|---|

| | |
|---|---|
| _STAT_F_INTEGRAL | Integral time units. For individual types, there are also established predefined local variables according to the table:<br><br>**Constant** / **Description**<br>_INTEGRAL_HOURUNIT — Hour integral<br>_INTEGRAL_MINUNIT — Minute integral<br>_INTEGRAL_SECUNIT — Second integral |
| _STAT_F_GE_TIME<br>_STAT_F_GT_TIME<br>_STAT_F_LE_TIME<br>_STAT_F_LT_TIME<br>_STAT_F_ADDITION_PARAM<br>_STAT_F_INCREMENT_PARAM<br>_STAT_F_DELTA_PARAM | Compare value |

For the other statistical archive functions, the *paramIdent* parameter is not being evaluated.

Value of the *archivInstance_Int* parameter defines the instance of the archive which executes the request. If the parameter is not defined (or the value is 0), the active archive instance will execute the request.

The timestamp of the result is identical to the specified end of time interval *timeToItemIdent_TmA*.

Note: When calculating **CALCSTATFUNC** action, a time limit that is active in the computations of statistical archives and does not allow for calculation for future times, is no applied. With **CALCSTATFUNC** , it is, therefore, possible, for example, to calculate statistics over a script-filled archive that has data in the future.

**Example**

```
 TIME _bt
 TIME _et
 REAL _retValue
 INT _retCode


 _bt := %StrToTime("8:01:00 16-10-2003")
 _et := %StrToTime("8:02:00 16-10-2003")

 CALCSTATFUNC H.ArchObj, _bt, _et,  _STAT_F_SUM, 100, 0, _retValue,
_retCode

 IF _retCode = _ERR_NO_ERROR THEN
 ; calculation done
 ELSE
   ; an error occurred
 ENDIF
```

**Note 1**

Using the **CALCSTATFUNC** action does not allow evaluaton of the *FILTER* and *ECOAVG* statistical functions.

**Note 2**

If it is necessary to calculate statistics over a periodic archive (e.g. *H.Period*), it should be noted that the periodic archive has values only in multiples of the period. For example, if it were necessary to calculate the integral from the periodic archive and the beginning of the interval would not be multiples of the period, 0 would be integrated from the beginning of the interval to the first multiple of the period.

This feature can be circumvented by creating a change-based computed archive object (e.g. *H. PeriodOnRead*) that is computed on-read and that copies *H.Period*. Integral computed from *H. PeriodOnRead* archive will behave as expected.

**Related pages:**

Script actions