

# CALCSTATFUNCARR

## CALCSTATFUNCARR action

### Function

Calculation of statistical archive function for all specified item intervals.

### Declaration

```
CALCSTATFUNCARR archIdent, bt_TmA, et_TmA, step, deepTime,  
statFuncIdent_Int, validPercIdent_Int, paramIdent,  
locVarColValueIdent_Rec, statusIdent_Int
```

```
[ ,archivInstance_Int]
```

### Parameters

archIdent	in	<a href="#">Reference to one value of historical value</a> or <a href="#">reference</a> to an object, values of which have been archived.  <b>Warning:</b> 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.
bt_TmA	in	<a href="#">Identifier</a> of <i>AbsTime</i> type - interval beginning.
et_TmA	in	<a href="#">Identifier</a> of <i>AbsTime</i> type - interval end.
step	in	<a href="#">Identifier</a> of <i>Int</i> type - time step [s].  <i>Note:</i> the parameter must be a positive integer.
deepTime	in	<a href="#">Identifier</a> of <i>Int</i> type - time-depth [s] for calculating the statistics.  <i>Note:</i> The parameter must be a positive integer.
statFuncIdent_Int	in	<a href="#">Identifier</a> of <i>Int</i> type - statistical function type.
validPercIdent_Int	in	<a href="#">Identifier</a> of <i>Int</i> type - validation criteria.
paramIdent	in	<a href="#">Identifier</a> of <i>Int</i> or <i>Real</i> types - parameter for some types of functions.
locVarColValueIdent_Rec	output	<a href="#">Reference</a> to a column of a structured variable of <i>Record</i> type - result values.
statusIdent_Int	output	Calculation (action) success.
archivInstance_Int	in	Optional identifier of <i>Int</i> type - identification of <a href="#">archive instance</a> . If the parameter is not defined, the value 0 will replace it.

### Description

The action executes the calculation of the statistical function specified by the *statFuncIdent\_Int* parameter on the values represented by the *archIdent* historical value for the following time intervals specified by the *bt\_TmA*, *et\_TmA*, *step* and *deepTime* parameters:

- first time interval -  $\langle bt\_TmA - deepTime; bt\_TmA \rangle$
- second time interval -  $\langle bt\_TmA + step - deepTime; bt\_TmA + step \rangle$
- .....
- n-th time interval -  $\langle bt + (N-1)*step - deepTime; bt + (N-1)*step \rangle$

The timestamp of the result for a certain time interval is identical to the end time of the time interval. After the action is executed, calculation results are to be filled into the given column of the local variable specified by the *locVarColValueIdent\_Rec* parameter.

The *statusIdent\_Int* parameter gets one of the following values:

- `_ERR_TRANS_ABORT`
- `_ERR_TRANS_ERROR`
- `_ERR_TRANS_IGNORED`
- `_ERR_NO_ERROR`

The set of implemented functions is identical with the functions, which may be configured for [statistical archive](#) (except the *FILTER* and *ECOAVG* functions). For 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 of the statistical archive functions, the *paramIdent* parameter must be specified according to the table:

Statistical function	Parameter description								
_STAT_F_INTEGRAL	<p><a href="#">Integral time units</a>. For individual types, there are also established predefined local variables according to the table:</p> <table> <tr> <th>Constant</th><th>Description</th></tr> <tr> <td>_INTEGRAL_HOURUNIT</td><td>Hour integral</td></tr> <tr> <td>_INTEGRAL_MINUNIT</td><td>Minute integral</td></tr> <tr> <td>_INTEGRAL_SECUNIT</td><td>Second integral</td></tr> </table>	Constant	Description	_INTEGRAL_HOURUNIT	Hour integral	_INTEGRAL_MINUNIT	Minute integral	_INTEGRAL_SECUNIT	Second integral
Constant	Description								
_INTEGRAL_HOURUNIT	Hour integral								
_INTEGRAL_MINUNIT	Minute integral								
_INTEGRAL_SECUNIT	Second integral								
_STAT_F_GE_TIME _STAT_F_GT_TIME _STAT_F_LE_TIME _STAT_F_LT_TIME _STAT_F_ADDITION _PARAM _STAT_F_INCREME NT_PARAM _STAT_F_DELTA_P ARAM	<a href="#">Compare value</a>								

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

Value of parameter *archivInstance\_Int* 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.

#### Example

Calculation of the weighted floating average of the values within the range of 2 hours.

```

TIME _bt
TIME _et
INT _step
INT _deepTime
REAL _retCode
INT _idx
RECORD NOALIAS (SD.Data) _statData

_bt := %StrToTime("0:00:00 16-11-2006")
_et := %StrToTime("0:00:00 17-11-2006")
_step := 3600 ; value for each hour
_deepTime := 2*_step ; floating average, time depth of 2 hours

CALCSTATFUNCARR H.Col[1], _bt, _et, _step, _deepTime, _STAT_F_WGAVG, 100,
0, _statData^Value, _retCode
IF _retCode = _ERR_NO_ERROR THEN
    ; calculation done, browsing result values
    FOR _idx=1 TO _statData\DIM DO_LOOP
        ; _statData[_idx]^Value - value
    ELSE
        ; an error occurred
    ENDIF

```

#### Note

Using the **CALCSTATFUNC** action does not allow evaluating of the *FILTER* and *ECOAVG* [statistical functions](#).



Related pages:

[Script actions](#)