



*Aggregate Driver
User's Manual*

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1. Aggregate Driver

1.1. Driver Use

The Aggregate driver allows definition of variables the values of which are generated as a result of calculations performed on other variables of the **asix** system (source variables). Archive values of source variables are used for an aggregate calculation. Usage of archive values allows to prevent any discontinuities in case of the **asix** system restart.

1.2. Declaration of Transmission Channel

The full syntax of declaration of transmission channel operating with the Aggregate driver is as follows:

Channel_Name = AGGREGATE

where:

Channel_Name - channel name in the [ASMEN] section.

1.3. Addressing the Process Variables

The address part of variable declaration for the Aggregate driver takes the following form:

aggregate_name aggregate_parameters

where:

aggregate_name - name of the aggregate;

aggregate_parameters - aggregate parameters, delimited with white space.

The driver may realize aggregates described in **Table 1**.

Table 1. Types of Aggregates Executed by the Driver Aggregate.

Aggregate Name	Way of Calculations
Average (Average)	As a result, the weighted average of the source variable in the calculation period is obtained.
Max (max)	As a result, the maximum value of the source variable in the calculation period is obtained
Min (min)	As a result, the minimum value of the source variable in the calculation period is obtained.

Parameters of above aggregates take the following form:

*Variable_name:Archive_Type Period Threshold [A] [L[*lower_limit*]:[*upper_limit*]]*

where:

Variable_name - name of the source variable which is connected with the aggregate;

Archive_type - one letter code determining the type of the archive in which source variable values are saved;

<i>Period</i>	- calculation period of the aggregate;
<i>Threshold</i>	- minimum number of correct measures, in percentages, needed for aggregate calculations;
<i>A</i>	- parameter determines whether calculation performing time should be adjusted to the calculation period;
<i>Lower_limit</i>	- lower limit value; if the source variable value is lower than the value of <i>lower_limit</i> , then the <i>lower_limit</i> value is used instead; the parameter may be used up to version 1.01.000 of the driver;
<i>Upper_limit</i>	- upper limit value; if the source variable value is higher than the value of <i>upper_limit</i> , then the <i>upper_limit</i> value is used instead; the parameter may be used up to version 1.01.000 of the driver;

Period determines the calculation period. The calculation period is given in the same manner as the time interval specification for ASPAD, ie. in the form of numbers and units:

`<number><unit> [<number><unit> [...]]`

where:

<code><number></code>	- number of given subsequently time units;
<code><unit></code>	- determines the time unit which may be:
s	- second,
m	- minute,
g lub h	- hour,
d	- day (24 hours) .

In case when unit is missing, the minute is taken as a default unit of the calculation period.

The result of aggregate calculations is said to be good if the interest rate of correctly read samples (given in percentages) is equal to *Threshold*. Default value of *Period* is 5 minutes, and of *Threshold* - 80 percentages. For the *threshold* correct measurement calculation the source variable valid time is taken into account, according to the parameterization of archiving this variable (sampling period). It means, *threshold* is calculated as a ratio of the sum of all correctness times of measurements and calculation period length. In case of an average, the calculation result is a weighted average in relation to the measurement correctness time. Values of variables, for which time stamp is greater or equal to beginning of the calculation period and lower than the end of it, are taken into consideration for calculations of aggregates. The aggregate calculation occurs after the end of the calculation period.

The last, optional parameter *A* determines the time instance at which an aggregate will be calculated. If the parameter is omitted, the aggregate will be calculated after each reading of the source variable (in stepwise manner). If *A* is the last parameter, then the aggregate calculation time is adjusted to a multiplicity of the aggregate calculation period. The aggregate calculation result type is adjusted to the type of conversion function given in the variable declaration.

EXAMPLE

An exemplary variable declaration:

```
Temp_sr, Temp-średnia, SREDNIA Temperatura:B 10 70 A, Srednie, 1, 1, NOTHING_FP
```

The variable `Temperatura_sr` declared above is an average value of the variable `Temperatura`. The period, over which the variable was averaged, is 10 minutes and

in order to obtain a correct value of the average, at least 70 percent of correct measurements are needed. Archive values, placed in the B archive, of the variable *Temperatura* are used for the average creation. The aggregate calculation instant will be adjusted to the calculation period multiplicity, i.e. calculations will be performed at 00:00:00, 00:10:00, 00:20:00 and so on.

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