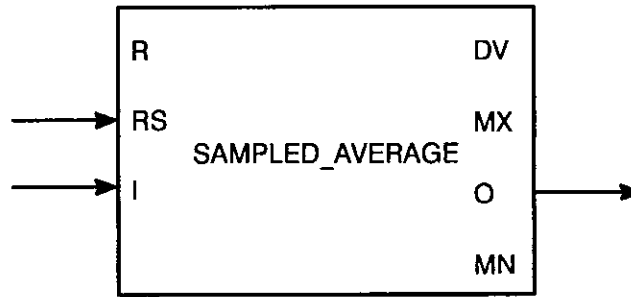


27.0 SAMPLED AVERAGE

This function can be used in AutoMax Control Block tasks and UDC Control Block tasks.



Function

$$\text{OUTPUT} = \frac{(\text{INPUT}(1) + \dots + \text{INPUT}(\text{RS}))}{(\text{REQUIRED_SAMPLES})}$$

The OUTPUT is updated once every RS scans with the average of the samples read for INPUT during the last RS scans.

Program Statement

```
CALL SAMPLED_AVERAGE(REQUIRED_SAMPLES=req_sam,    &
  INPUT=input%,                                   &
  RESET=reset@,                                   &
  DATA_VALID=data_valid@,                       &
  MAX_VALUE=max_value%, MIN_VALUE=min_value%,    &
  OUTPUT=output%)
```

Inputs

RS (REQUIRED_SAMPLES) =

Required number of samples to average, type INTEGER. This parameter must be entered explicitly as a numeric literal or symbol. The value entered for REQUIRED_SAMPLES can range from 1 to 32767. Values that are ≤ 0 will be forced to 1.

R (RESET) =

Reset input, type BOOLEAN. This is an optional parameter. The default is FALSE. When this input is TRUE, the following occur: the internal storage areas are initialized, OUTPUT is set to zero, VALID_DATA is set FALSE, MAX_VALUE is set to -32768, and MIN_VALUE is set to 32767.

I (INPUT) =

Signal input, type INTEGER. This parameter must be specified as a numeric symbol only (literal value not accepted).

Outputs

DV (DATA_VALID) =

Data valid output, type BOOLEAN. This is an optional parameter. The DATA_VALID output is set TRUE only during the scan when the outputs are being updated (the RS scan). The DATA_VALID output is always set FALSE when RESET is TRUE.

MX (MAX_VALUE) =

Maximum value output, type INTEGER. This is an optional parameter. The parameter MAX_VALUE is updated once every RS scan with the maximum value of the samples read for INPUT during the last RS scan. When RESET is TRUE, MAX_VALUE is set to -32768.

MN (MIN_VALUE) =

Minimum value output, type INTEGER. This is an optional parameter. The parameter MIN_VALUE is updated once every RS scan with the minimum value of the samples read for INPUT during the last RS scan. When RESET is TRUE, MIN_VALUE is set to 32767.

O (OUTPUT) =

Data output, type INTEGER. This parameter must be specified. OUTPUT is updated once every RS scans with the average of the samples read for INPUT during the last RS scan. When RESET is TRUE, OUTPUT is set to a value of zero.