

Parameter assignment FB Stepper motor

| <u>Parameter</u> | <u>Declaration</u> | <u>Data type</u> | <u>Addresses (Inst.-DB)</u> | <u>Prior assignment</u> | <u>Description</u> |
|---------------------|--------------------|------------------|------------------------------|-------------------------|---|
| iBetrArt | INPUT | INT | 0 | 0 | Desired operating mode in which the following values apply: 0 = No operating mode 1 = Manual mode Inching 2 = Manual mode Continuous 3 = Auto on Position (absolute) 4 = Auto on Path (incremental) 5 = Approach reference mark x 6 = Approach zero mark absolute, e.g. on initiator 7 = Approach zero mark from reference mark x |
| bAktionAusf | IN_OUT | BOOL | 32.0 | FALSE | Execute enable action This parameter is in the Read/Write mode, i.e. it must be activated edge-triggered and is reset coordinated through the function module. This parameter applies to the following operating modes: Auto on Position, Auto on Path, Approach reference mark x, Approach zero mark |
| bRmDreiDraht | INPUT | BOOL | 2.0 | FALSE | Selection of the stepper motor execution with checkback signals on the 3-wire basis. If a stepper motor is installed with checkback signals on the 2-wire basis or without, this parameter must be set to FALSE. |
| bOhnePosIt | INPUT | BOOL | 2.1 | FALSE | Activation when a stepper motor is installed without end position monitoring. If this parameter = TRUE, no end position initiators are monitored and the valve activations etc. are reset purely via time. |
| bRmPos1 | INPUT | BOOL | 2.2 | FALSE | Checkback signal Motor on Position Initiator 1 |
| bRmPos2 | INPUT | BOOL | 2.3 | FALSE | Checkback signal Motor on Position Initiator 2 |
| bRmPos3 | INPUT | BOOL | 2.4 | FALSE | Checkback signal Motor on Position Initiator 3 |
| bRmNullMrk | INPUT | BOOL | 2.5 | FALSE | Checkback signal Position Zero Mark Reached |

**Parameter assignment FB Stepper motor**

| Parameter | Declaration | Data type | Addresses (Inst.-DB) | Prior assignment | Description |
|------------------------|--------------------|------------------|------------------------------|-------------------------|--|
| | | | | | This parameter is optional, i.e. the zero mark can be reset by activating this parameter. Normally this is an initiator. In order that this function is active the enable counter must also be activated at 0 setting. |
| bFgSetCntNull | INPUT | BOOL | 2.6 | FALSE | Set enable counter to 0. |
| | INPUT | BOOL | 2.7 | FALSE | Motor rotation direction preselection forwards. This parameter is required only in combination with the following operating modes: Manual mode Inching or Manual mode Continuous or Approach zero mark |
| bVwRueckw | INPUT | BOOL | 3.0 | FALSE | Motor rotation direction preselection backwards. This parameter is required only in combination with the following operating modes: Manual mode Inching or Manual mode Continuous or Approach zero mark |
| iAnzRefMrk | INPUT | INT | 4 | 1 | Number of available reference marks. The value 1 or 2 must be preassigned. With values < 1 resp. > 2, the module is not executed. |
| bRefMrk1 | INPUT | BOOL | 6.0 | FALSE | Checkback signal e.g. initiator; motor is on Position Reference Mark 1 |
| bRefMrk2 | INPUT | BOOL | 6.1 | FALSE | Checkback signal e.g. initiator; motor is on Position Reference Mark 2 |
| bQuittFehler | INPUT | BOOL | 6.2 | FALSE | Acknowledgement of the end position error |
| iSwAnfRefMrk | INPUT | INT | 8 | 0 | Setpoint of the reference mark to be approached (1 or 2). The value 1 or 2 must be preassigned. With values < 1 resp. > 2, the module is not executed. This parameter is required only in combination with the following operating modes: Approach reference mark. Ref. mark 1 = backwards; Ref. mark 2 = forwards |
| dOffsNullAbRef1 | INPUT | DINT | 10 | 0 | Setpoint Offset to Position Zero Mark from Reference Mark 1 in increments. |
| dOffsNullAbRef2 | INPUT | DINT | 14 | 0 | Setpoint Offset to Position Zero Mark from Reference Mark 2 in increments. |

**Parameter assignment FB Stepper motor**

| Parameter | Declaration | Data type | Addresses (Inst.-DB) | Prior assignment | Description |
|------------------------|--------------------|------------------|------------------------------|-------------------------|---|
| tVzVentWait | INPUT | SSTIME | 18 | S5T#30MS | Delay time between the valve activations. If a value < 40ms is preset or if the parameter bohnePosIt = True, the module is not processed. |
| tTimNumVentWait | INPUT | TIMER | 20 | | Number of the timer for the delay time between the valve activations. |
| tTimNumVentAkt | INPUT | TIMER | 22 | | Number of the timer for the activation time for the valve activations if no end positions |
| tTimNumFehler | INPUT | TIMER | 24 | | Number of the timer for the error monitoring |
| dSollAufPos | INPUT | DINT | 26 | 0 | Setpoint of the position to be approached, resp. the path in increments. The following rules apply: With setpoint > actual position, rotation direction forwards is automatically active With setpoint < actual position, rotation direction backwards is automatically active |
| bSbVentil1 | OUTPUT | BOOL | 30.0 | FALSE | Switching instruction for activating motor valve 1 |
| bSbVentil2 | OUTPUT | BOOL | 30.1 | FALSE | Switching instruction for activating motor valve 2 |
| bSbVentil3 | OUTPUT | BOOL | 30.2 | FALSE | Switching instruction for activating motor valve 3 |
| bSollUes | OUTPUT | BOOL | 30.3 | FALSE | Information Actual value increments > setpoint position to be approached |
| bSollUnt | OUTPUT | BOOL | 30.4 | FALSE | Information Actual value increments < setpoint position to be approached |
| bFehlerPos | OUTPUT | BOOL | 30.5 | FALSE | End position error, i.e. none or false end position detected (internal initiators) |
| iLastPosEndl | IN_OUT | INT | 34 | 0 | Number of the last successfully activated end position (0, 1, 2, 3) |
| dIstPos | IN_OUT | DINT | 36 | 0 | Present actual value of the increments, resp. present actual position |

Parameter assignment FB for initialising stepper motor

| <u>Parameter</u> | <u>Declaration</u> | <u>Data type</u> | <u>Addresses (Inst.-DB)</u> | <u>Prior assignment</u> | <u>Description</u> |
|---------------------|--------------------|------------------|------------------------------|-------------------------|--|
| bFgInit | INPUT | BOOL | 0.0 | FALSE | Enable execute initialising the valves |
| tTimNumAusf | INPUT | TIMER | 2 | | Number of the timer for the monitoring of the maximum execution time |
| bRmDreiDraht | INPUT | BOOL | 4.0 | FALSE | Selection of the stepper motor execution with checkback signals on the 3-wire basis. If a stepper motor is installed with checkback signals on the 2-wire basis or without, this parameter must be set to FALSE. |
| bOhnePosIt | INPUT | BOOL | 4.1 | FALSE | Activation when a stepper motor is installed without end position monitoring. If this parameter = TRUE, no end position initiators are monitored and the valve activations etc. |
| bRmPos1 | INPUT | BOOL | 4.2 | FALSE | Checkback signal Motor on Position Initiator 1 |
| bRmPos2 | INPUT | BOOL | 4.3 | FALSE | Checkback signal Motor on Position Initiator 2 |
| bRmPos3 | INPUT | BOOL | 4.4 | FALSE | Checkback signal Motor on Position Initiator 3 |
| bSbVentil1 | OUTPUT | BOOL | 6.0 | FALSE | Switching instruction for activating motor valve 1 |
| bSbVentil2 | OUTPUT | BOOL | 6.1 | FALSE | Switching instruction for activating motor valve 2 |
| bSbVentil3 | OUTPUT | BOOL | 6.2 | FALSE | Switching instruction for activating motor valve 3 |
| bInitDone | OUT | BOOL | 6.3 | FALSE | Information on successful initialising. (Must be reset by the user) |
| iLastPosEndl | IN_OUT | INT | 8 | 0 | Number of the new successfully initialised activated end position (0, 1, 2, 3) |

Parameter assignment FB Stepper motor

Example setting and accepting zero mark

You wish to set the zero mark and your circumstances are as follows:

- You are in Inching mode and have reached the desired position

OR

- You are in the Approach zero mark mode and are using an initiator for zero mark recognition. (The rotation direction is to be determined and preset externally > in the example, forwards)

- Note that only one operating mode, resp. rotation direction preselection may be activated at a time.

| <u>Parameter</u> | <u>Declaration</u> | <u>Data type</u> | <u>Control instruction, resp. control value</u> | <u>Description</u> |
|----------------------|--------------------|------------------|--|--|
| iBetrArt | INPUT | INT | 1 6 | Desired operating mode in which the following values apply: 0 = No operating mode 1 = Manual mode Inching 2 = Manual mode Continuous 3 = Auto on Position (absolute) 5 = Approach reference mark x 5 = Approach reference mark x 6 = Approach zero mark absolute, e.g. on initiator 7 = Approach zero mark from reference mark x |
| | | | or | |
| bRmNullMrk | INPUT | BOOL | TRUE | Checkback signal Position zero mark reached This parameter is optional, i.e. the zero mark can be reset by activating this parameter. Normally this is an initiator. If there is no initiator present this bit can be set manually. In order that this function is active the enable counter must additionally be activated at 0 setting. |
| bFgSetCntNull | INPUT | BOOL | TRUE | Set enable counter to 0. |
| bVwVorw | INPUT | BOOL | TRUE | Motor rotation direction preselection forwards. This parameter is required only in combination with the following operating modes: Manual mode Inching or Manual mode Continuous or Approach zero mark |

Parameter assignment FB Stepper motor

Example setting and accepting zero mark

You wish to set the zero mark and your circumstances are as follows:

- You are in Inching mode and have reached the desired position

OR

- You are in the Approach zero mark mode and are using an initiator for zero mark recognition. (The rotation direction is to be determined and preset externally > in the example, forwards)

- Note that only one operating mode, resp. rotation direction preselection may be activated at a time.

| <u>Parameter</u> | <u>Declaration</u> | <u>Data type</u> | <u>Control instruction, resp. Description</u> <u>control value</u> |
|------------------|--------------------|------------------|--|
| bVwRueckw | INPUT | BOOL | FALSE Motor rotation direction preselection backwards. This parameter is required in combination with the following operating modes: Manual mode Inching or Manual mode Continuous or Approach zero mark |

Note that this function is executed once only, i.e. edge-triggered

Parameter assignment FB Stepper motor

Example inching mode forwards

You wish to activate the stepper motor forwards by 1 step

- Note that only one operating mode, resp. rotation direction preselection may be activated at a time.

| <u>Parameter</u> | <u>Declaration</u> | <u>Data type</u> | <u>Control instruction, resp. Description</u> <u>Control value</u> |
|------------------|--------------------|------------------|--|
| iBetrArt | INPUT | INT | <p>Desired operating mode in which the following values apply:</p> <p>0 = No operating mode 1 = Manual mode Inching 2 = Manual mode Continuous 3 = Auto on Position (absolute) 4 = Auto on Path (incremental) 5 = Approach reference mark x 6 = Approach zero mark absolute, e.g. on initiator 7 = Approach zero mark from reference mark x</p> <p>1</p> |
| bVwVorw | INPUT | BOOL | <p>TRUE</p> <p>Motor rotation direction preselection forwards. This parameter is required only in combination with the following operating modes: Manual mode Inching or Manual mode Continuous or Approach zero mark</p> |
| bVwRueckw | INPUT | BOOL | <p>FALSE</p> <p>Motor rotation direction preselection backwards. This parameter is required only in combination with the following operating modes: Manual mode Inching or Manual mode Continuous or Approach zero mark</p> |

Note that this function is executed once only, i.e. edge-triggered.

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Example manual mode continuous backwards

You wish to activate the stepper motor backwards in continuous mode

- Note that only one operating mode, resp. rotation direction preselection may be activated at a time.

| <u>Parameter</u> | <u>Declaration</u> | <u>Data type</u> | <u>Control instruction, resp. Control value</u> | <u>Description</u> |
|------------------|--------------------|------------------|---|---|
| iBetrArt | INPUT | INT | 2 | Desired operating mode in which the following values apply: 0 = No operating mode 1 = Manual mode Inching 2 = Manual mode Continuous 3 = Auto on Position (absolute) 4 = Auto on Path (incremental) 5 = Approach reference mark x 6 = Approach zero mark absolute, e.g. on initiator 7 = Approach zero mark from reference mark x |
| bVwVorw | INPUT | BOOL | FALSE | Motor rotation direction preselection forwards. This parameter is required only in combination with the following operating modes: Manual mode Inching or Manual mode Continuous or Approach zero mark |
| bVwRueckw | INPUT | BOOL | TRUE | Motor rotation direction preselection backwards. This parameter is required only in combination with the following operating modes: Manual mode Inching or Manual mode Continuous or Approach zero mark |

Note that this function is executed CONTINUOUSLY.

Parameter assignment FB Stepper motor

Example approach reference mark 1

You wish to activate the stepper motor until the position of the reference mark 1 (e.g. initiator) is reached.

- The rotation direction is determined by the statement of the reference mark to be approached: the following apply: Ref. mark 1 = backwards / Ref. mark 2 = forwards

- Note that only one operating mode may be activated at a time.

| <u>Parameter</u> | <u>Declaration</u> | <u>Data type</u> | <u>Control instruction, resp. Control value</u> | <u>Description</u> |
|---------------------|--------------------|------------------|---|---|
| iBetrArt | INPUT | INT | 5 | Desired operating mode in which the following values apply: 0 = No operating mode 1 = Manual mode Inching 2 = Manual mode Continuous 3 = Auto on Position (absolute) 4 = Auto on Path (incremental) 5 = Approach reference mark x 6 = Approach zero mark absolute, e.g. on initiator 7 = Approach zero mark from reference mark x |
| bAktionAusf | IN_OUT | BOOL | TRUE | Enable Execute action reset coordinated through the function module. |
| iAnzRefMrk | INPUT | INT | 2 | Number of available reference marks. The value 1 or 2 must be preassigned. With values < 1 resp. > 2, the module is not executed. |
| iSwAnfRefMrk | INPUT | INT | 1 | Setpoint of the reference mark to be approached (1 or 2). The value 1 or 2 must be preassigned. With values < 1 resp. > 2, the module is not executed. This parameter is required only in combination with the following operating modes: Approach reference mark. |

Parameter assignment FB Stepper motor

Example approach reference mark 1

You wish to activate the stepper motor until the position of the reference mark 1 (e.g. initiator) is reached.

- The rotation direction is determined by the statement of the reference mark to be approached: the following apply: Ref. mark 1 = backwards / Ref. mark 2 = forwards

- Note that only one operating mode may be activated at a time.

| <u>Parameter</u> | <u>Declaration</u> | <u>Data type</u> | <u>Control instruction, resp. Description</u> <u>Control value</u> |
|------------------|--------------------|------------------|---|
|------------------|--------------------|------------------|---|

Note that this function is executed until the position reference mark 1 is reached (Parameter bRefMrk1).