

## 7.2.6 MtnSetLimitConfig

### Description

The MtnSetLimitConfig function configures the limit signal settings.

### Syntax

C

```
INT MtnSetLimitConfig(  
    HANDLE hDeviceHandle,  
    WORD   wAxis,  
    WORD   wMode,  
    WORD   wConfig  
);
```

### Visual Basic

```
Declare Function MtnSetLimitConfig Lib  
"FbiMtn.DLL" (  
    ByVal hDeviceHandle As Long,  
    ByVal wAxis          As Integer,  
    ByVal wMode          As Integer,  
    ByVal wConfig        As Integer  
    ) As Long
```

### Delphi

```
function MtnSetLimitConfig(  
    hDeviceHandle: THandle;  
    wAxis:        WORD;  
    wMode:        WORD;  
    wConfig:      WORD  
    ) : Integer; stdcall; external 'FbiMtn.DLL';
```

### Parameters

*hDeviceHandle* Specifies the device handle obtained by the MtnOpen function.

*wAxis*

Specifies the axis to configure the control signal settings.

bit15 through bit4	bit3	bit2	bit1	bit0
Reserved	Axis U	Axis Z	Axis Y	Axis X

Axis X: axis 1

Axis Y: axis 2

Axis Z: axis 3

Axis U: axis 4

To specify the axis, specify 1 to the corresponding bit. Two or more axes can be specified.

Example: 0Fh should be specified to specify four axes of axis X through axis U.

*wMode*

Specifies an item to configure the settings.

Code	Value	Description
MTR_LOGIC	1h	Input logic levels
MTR_SD_FUNC	2h	SD (Slow-Down) capability
MTR_SD_ACTIVE	3h	SD signal motion input
MTR_ORG_FUNC	4h	ORG capability
MTR_ORG_EZ_COUNT	6h	The number of stop count of the ORG and phase Z signal input
MTR_ALM_FUNC	7h	ALM signal capability
MTR_SIGNAL_FILTER	8h	External input filter
MTR_EL_FUNC	9h	EL signal capability
MTR_EZ_ACTIVE	10h	Input logic level of the phase Z signal
MTR_LTC_FUNC	11h	Input logic of LTC signal
MTR_CLR_FUNC	12h	Input logic of CLR signal
MTR_PCS_FUNC	13h	PCS capability
MTR_PCS_ACTIVE	14h	PCS capability motion input

*wConfig*

Specifies a setting value. The specified data depends on the configuration item of wMode.

<wMode = MTR\_LOGIC>

Specifies the input logic setting.

bit15 through bit10			bit9	bit8	bit7
Reserved			PCS	INP	Reserved
bit6	bit5	bit4, bit3	bit2	bit1	bit0
ALM	ORG	Reserved	+/-EL	Reserved	SD

The default setting value is 0h. (all active low)

Bit	Description
bit15 through bit10, bit7, bit4, bit3, bit1	Reserved
bit9, bit8, bit6, bit5, bit2, bit0	0 Active low
	1 Active high

<wMode = MTR\_SD\_FUNC>

Specifies the SD signal capability setting. The default setting value is 0h. (MTR\_CHANGE\_SD\_SPEED)

Code	Value	Description
MTR_CHANGE_SD_SPEED	0h	<p>If the SD signal is asserted, the velocity decreases to the startup velocity. The controller continues to output pulses at the startup velocity.</p> <p>When the constant velocity mode is specified to the starting mode by using the MtnStartMotion function, the velocity does not decelerate.</p>
MTR_DEC_STOP_SIGNAL	1h	<p>If the SD signal is asserted, the velocity decreases to the startup velocity, and then the controller stops executing pulse output .</p> <p>When the starting mode is specified to be the constant velocity by using the MtnStartMotion function, it stops immediately.</p>
MTR_SD_OFF	2h	Disables the SD signal control.

<wMode = MTR\_SD\_ACTIVE>

Specifies the SD signal motion input setting. The default setting value is 0h. (MTR\_SIGNAL\_LEVEL)

Code	Value	Description
MTR_SIGNAL_LEVEL	0h	The SD signal operates as a level sensitive signal.
MTR_SIGNAL_LATCH	2h	The SD signal operates as a latched signal.

Notes:

- Level-motion input  
When the external input of SD signal is on, the status of the SD signal level inside the board changes and the signal maintains the level status while the signal input is on.
- Latch-motion input  
As same as the level-motion input, when external input of the SD signal is on, the status of the SD signal level inside the board changes. And the level status is not released when the external input of the SD signal is deasserted, and keep the status as it is.  
How to release of the latch is as follows.  
>> The motor starts to the CCW.  
>> Changing the configuration to the level-motion input by using this function.

<wMode = MTR\_ORG\_FUNC>

Specifies the ORG signal capability setting. Configures the stop condition of homing. The default setting value is 0h. (MTR\_ORG\_STOP)

Code	Value	Description
MTR_ORG_STOP	0h	Stops the homing immediately when the ORG signal is asserted.
MTR_ORG_DEC_EZ_STOP	1h	Starts decelerating the homing when the ORG signal is asserted. Then motion stops immediately when the specified number of phase Z signal is counted up.
MTR_ORG_EZ_STOP	2h	Stops the homing when the specified number of the EZ pulses are counted after the ORG signal is asserted.
MTR_ORG_REVERSAL	3h	Operates the three following motions. 1. Homing is stopped at the ORG signal assertion. 2. The motion is running to the opposite direction with startup velocity until the ORG signal is deasserted. 3. The motion starts to the original position with startup velocity. 4. The motion stops at the ORG signal assertion.
MTR_ORG_REV_EZ_STOP	4h	Stops the homing or with deceleration at the ORG signal assertion. After that, the motion is reversed. Then, the specified number of phase Z signal by MTR_ORG_EZ_count is counted up and the motion stops.
MTR_ORG_STOP_ZERO	5h	Stops the homing immediately or with deceleration when the ORG signal is asserted. After that, the motion is continued until the encoder counter value becomes 0.
MTR_ORG_EZ_STOP_ZERO	6h	Stops the homing when the number of phase Z pulses specified by MTR_ORG_EZ_COUNT are counted up after the ORG signal

		is asserted. After that, the motion is continued until the encoder counter value becomes 0.
MTR_ORG_REV_EZ_ZERO	7h	Stops the homing immediately or with deceleration when the ORG signal is asserted. After that, the motion is reversed until the number of phase Z pulses specified by MTR_ORG_EZ_COUNT are counted up. After that, the motion is continued until the encoder counter value becomes 0.

<wMode = MTR\_ORG\_FUNC>

Specifies the number of the ORG and phase Z signal input count before stopping motion. The setting range is from 1 through 16. The default setting value is 1.

<wMode = MTR\_ALM\_FUNC>

Specifies the ALM signal capability setting. The default setting value is 0h. (MTR\_ALM\_STOP)

Code	Value	Description
MTR_ALM_STOP	0h	Stops all motion immediately when the ALM signal is asserted.
MTR_ALM_DEC_STOP	1h	Stop the motion with deceleration when the ALM signal is asserted.

<wMode = MTR\_SIGNAL\_FILTER>

Specifies the external input filter setting. The default setting value is 0h. (MTR\_OFF)

Code	Value	Description
MTR_OFF	0h	Disables the external signal input filter.
MTR_ON	1h	Enables the external signal input filter.

Notes:

- When the filter is enabled, the filter is inserted to the +/-EL, SD, ORG, ALM, and INP signals input .
- To prevent a malfunction by the noise, the pulse width of 4  $\mu$ s or smaller is disregarded when inserting the filter.

<wMode = MTR\_EL\_FUNC>

Specifies the LTC signal input logic setting. The default setting value is 0h. (MTR\_EL\_STOP)

Code	Value	Description
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MTR_EL_STOP	0h	Stops all motion immediately when the EL signal is asserted.
MTR_EL_DEC_STOP	1h	Stops the motion with deceleration when the EL signal is asserted.

<wMode = MTR\_EZ\_ACTIVE>

Specifies the phase Z signal input logic setting. The default setting value is 0h. (MTR\_DOWN\_EDGE)

Code	Value	Description
MTR_DOWN_EDGE	0h	Falling edge
MTR_UP_EDGE	1h	Rising edge

<wMode = MTR\_LTC\_FUNC>

Specifies the LTC signal input logic setting. The default setting is 0h. (MTR\_DOWN\_EDGE)

Code	Value	Description
MTR_DOWN_EDGE	0h	Latches counter value at the falling edge of the LTC signal.
MTR_UP_EDGE	1h	Latches counter value at the rising edge of the LTC signal.

<wMode = MTR\_CLR\_FUNC>

Specifies the CLR signal input logic setting. The default setting value is 0h. (MTR\_DOWN\_EDGE)

Code	Value	Description
MTR_DOWN_EDGE	0h	Clears a counter at the falling edge of the CLR signal.
MTR_UP_EDGE	1h	Clears a counter at the rising edge of the CLR signal.
MTR_LOW_LEVEL	2h	Clears a counter when the CLR signal becomes low level.
MTR_HIGH_LEVEL	3h	Clears a counter when the CLR signal becomes high level.

<wMode = MTR\_PCS\_FUNC>

Specifies the PCS signal capability. The default setting value is 0h. (MTR\_OFF)

Code	Value	Description
MTR_OFF	0h	Disables the PCS capability during PTP motion.
MTR_ON	1h	Performs jogging until the PCS signal is asserted. Then, PTP motion of the number of specified pulses starts.

MTR_EXT_START	2h	Starts synchronous activation of only own axis at the PCS signal assertion.
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<wMode = MTR\_PCS\_ACTIVE>

Specifies the PCS signal capability motion input. This parameter disposes as well as the PCS signal input. In this case, wConfig is not used.

## Return Value

The MtnSetLimitConfig function returns 0 if the process is successfully completed. Otherwise, this function returns other codes. Please refer to the [error codes](#).

## Comments

- It is possible to configure the setting of the number of specified axes synchronously. In this case, the same data for each axes should be configure.
- You cannot configure the different data for two or more axes synchronously.
- If you configure the SD and PCS signals capability during motor operation, the configuration enables when the motor is completed.

## Examples

### C

```
HANDLE hDeviceHandle;
int     nRet;

hDeviceHandle = MtnOpen("FBIMTN1",
MTR_FLAG_NORMAL );

.
.
.

nRet = MtnSetLimitConfig( hDeviceHandle, 0x02,
MTR_LOGIC, 0x04 );
```

### Visual Basic

```
Dim lpszName As String
Dim hDeviceHandle As Long
Dim nRet As Long
```

```
lpszName = "FBIMTN1" & Chr( 0 )
hDeviceHandle = MtnOpen( lpszName,
MTR_FLAG_NORMAL )
.
.
.

nRet = MtnSetLimitConfig( hDeviceHandle, &H2,
MTR_LOGIC, &H04 )
```

## Delphi

```
var
    lpszName: String;
    hDeviceHandle: THandle;
    nRet: Integer;

    lpszName := 'FBIMTN1';
    hDeviceHandle := MtnOpen( lpszName,
MTR_FLAG_NORMAL );
.
.
.

    nRet := MtnSetLimitConfig( hDeviceHandle, $02,
MTR_LOGIC, $04 );
```

Configure the active high and active low for various signals of axis Y on the board specified by hDeviceHandle. The settings is shown below.

<b>Active High</b>	+/-EL signal
<b>Active Low</b>	PCS, INP, ALM, ORG, and SD signals

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