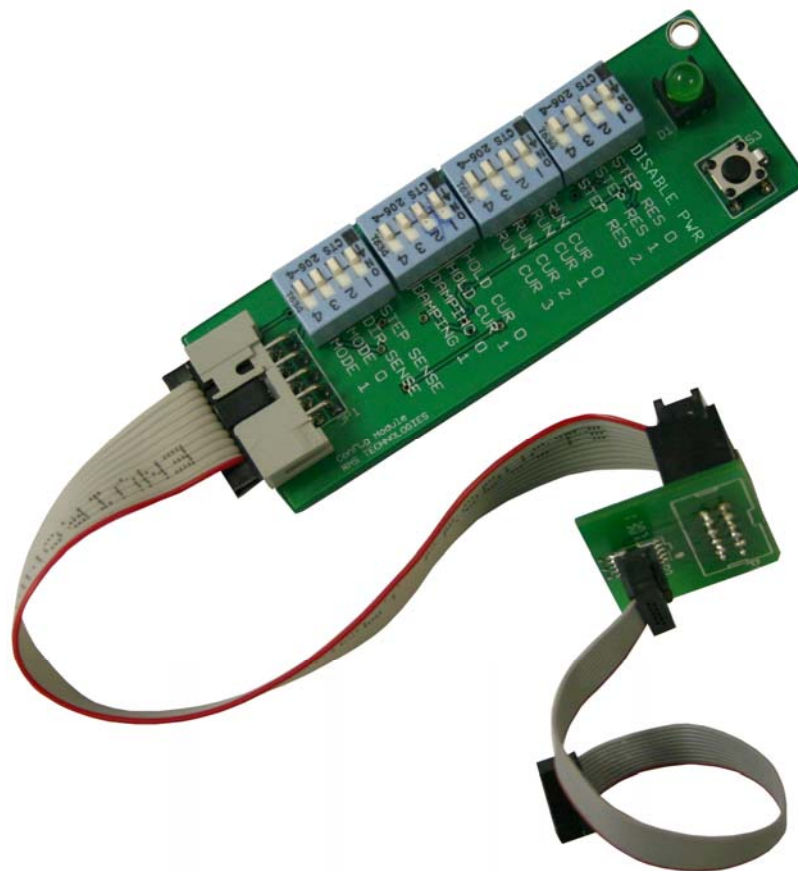




Configuration Module User Manual



Version 1.00

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Thank you for purchasing the configuration module. This product is warranted to be free of manufacturing defects for one (1) year from the date of purchase.

DISCLAIMER

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Configuration Module User Manual

Used with Products: IMD23/IMDE23

Version: 1.00

Date: 8/31/2007

Version History		
Version	Date	Description of Changes
1.00	8/31/2007	First User Manual

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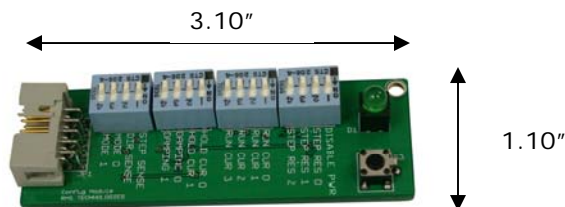
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1 Features

- Dipswitches are used for simplicity in changing the following settings:
 - Step resolution from 2x to 256x microstepping
 - Run Current
 - Hold Current choices of 0%, 25%, 50%, and 100% of the run current
 - Disable Power choice for holding in place or no power when disabling the unit
 - Step Sensing choice of reading from the rising or falling edge of each step pulse input
 - Direction Sensing choice of reading from the rising or falling edge of the pulse for changing direction of rotation
 - Damping modes to receive smoother motion
- Simple connection with provided ribbon cable
- Easy to use button for saving settings to unit
- Easily enables the testing of different run and hold currents, and damping modes
- Choices of damping modes allows for the smoothest operation
- Allows for compatibility of PLC's, micrologix, and other modules that output step pulses by allowing for a choice of reading the pulses on the rising or falling edge of the step.

2 Dimensions

The configuration board is 1.10" wide and 3.10" long. The overall height of the device is 0.45".

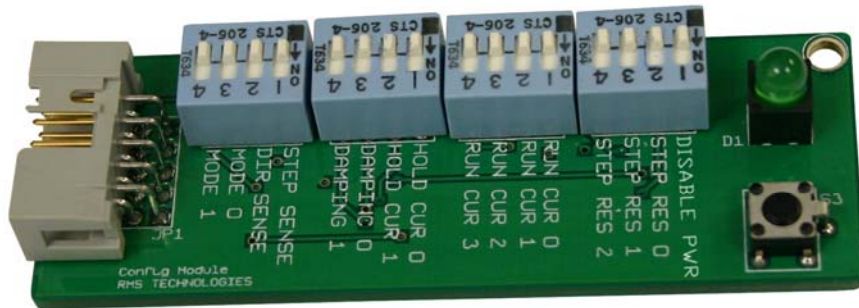


3 How To Use

The configuration module currently is used with the IMD23 or IMDE23 unit. Soon, other units can be used with this as well.

1. Power Off the power supply and Opto Supply and disconnect or power off any step, direction, and disable/enable signals. If using the internal opto supply, disconnect it.
2. Set all the DIP switches on the **Config Module** to the required positions
3. Connect the **Config Module** to the unit being set, by using the provided cable.
4. Power On the MAIN Power Supply but not the Opto Supply
5. Press and HOLD the black button on the **Config Module** (S3). When Black button is pressed and held the GREEN LED on the **Config Module** should light. This indicates that the settings have been stored.
6. Power Off everything.
7. Disconnect the **Config Module** from the device being set.
8. Reconnect all signals or power on all signals
9. Power On the Power Supply and Opto Supply. (The new settings are now in effect)

4 Functions of Dipswitches



Switch	Abbreviation	Description of Function
SW1-1	Disable PWR	Disable Power On: Motor powers off when disabling unit and step is inhibited Off: Motor receives current from the last step pulse input prior to disabling the unit and step is inhibited.
SW1-2	Step Res 0	Step Resolution: A combination of these three dipswitches sets the step resolution from half step to 256x microstepping.
SW1-3	Step Res 1	
SW1-4	Step Res 2	
SW2-1	Run Cur 0	Run Current: A combination of these four dipswitches sets the run current from 0.2 Amps to 3.0 Amps Peak current.
SW2-2	Run Cur 1	
SW2-3	Run Cur 2	
SW2-4	Run Cur 3	
SW3-1	Hold Cur 0	Holding Current: A combination of these two dipswitches sets a percentage of the run current as holding current: 0%, 25%, 50%, 100%
SW3-2	Hold Cur 1	
SW3-3	Damping 0	Damping Modes: A combination of these two dipswitches sets four different damping modes for smoother operation.
SW3-4	Damping 1	
SW4-1	Step Sense	Step Sense: Step pulses entered into the driver can be read on the rising or falling edge of the pulse. On: reads on the positive or rising edge. Off: reads on the negative or falling edge.
SW4-2	Dir Sense	Direction Sense: Changes direction upon seeing a rising edge (dipswitch ON) or seeing a falling edge (dipswitch OFF)
SW4-3	Mode 0	Not activated
SW4-4	Mode 1	Not activated

*Note: Dipswitches are switched "ON" when switches are towards the RIGHT when looking at the configuration module and reading the silk screen descriptions upright. There is also a marking labeled as "ON".

Disable Power

When a driver is disabled by pulling the enable/disable pin low, the motor will stop movement and remember the location of the current waveform, such that, when enabling the unit, the step sequence is not lost and the waveform continues on.

The disable power function has two options:

ON: The motor receives no current, and is therefore considered completely disabled

OFF: The motor receives the current supplied to it at the time it is disabled, and will hold in place.

Step Resolution

Three switches are used together in order to change the motor's step resolution:

STEP RES 0	STEP RES 1	STEP RES 2	Resulted Resolution
OFF	OFF	OFF	2X
ON	OFF	OFF	4X
OFF	ON	OFF	8X
ON	ON	OFF	16X
OFF	OFF	ON	32X
ON	OFF	ON	64X
OFF	ON	OF	128X
ON	ON	ON	256X

Run Current

Four switches are used together in order to change the motor's rated current in Amps Peak.

RUN CUR 0	RUN CUR 1	RUN CUR 2	RUN CUR 3	IMD23/IMDE23 (Amps Peak)
ON	ON	ON	ON	3.0 Amps
OFF	ON	ON	ON	2.8 Amps
ON	OFF	ON	ON	2.6 Amps
OFF	OFF	ON	ON	2.4 Amps
ON	ON	OFF	ON	2.3 Amps
OFF	ON	OFF	ON	2.1 Amps
ON	OFF	OFF	ON	1.9 Amps
OFF	OFF	OFF	ON	1.7 Amps
ON	ON	ON	OFF	1.5 Amps
OFF	ON	ON	OFF	1.3 Amps
ON	OFF	ON	OFF	1.1 Amps
OFF	OFF	ON	OFF	1.0 Amps
ON	ON	OFF	OFF	0.8 Amps
OFF	ON	OFF	OFF	0.5 Amps
ON	OFF	OFF	OFF	0.4 Amps
OFF	OFF	OFF	OFF	0.2 Amps

Hold Current

The motor changes from run current to hold current 2.25 seconds after the motor stops stepping. Four percentage selections are available for hold current. It is a percentage of the selected run current.

HOLD CUR 0	HOLD CUR 1	Holding %
OFF	OFF	0%
ON	OFF	25%
OFF	ON	50%
ON	ON	100%

Damping

A total of four damping modes are provided in order to aid in resonance and vibration within the motor. This is also known as mixed decay. The current waveform is dampened to create a smoother motion profile. The most effective damping mode is motor dependent. Generally speaking, less damping is good for low speeds, and more damping is good for higher speeds.

DAMPING 0	DAMPING 1	Decay type
OFF	OFF	Fast decay
ON	OFF	17% mixed decay
OFF	ON	37% mixed decay
ON	ON	Slow decay

Step Sense

This feature allows for more compatibility with controllers and PLC's. The driver technology from RMS Technologies (in conjunction with Lin Engineering) receives step pulses from a pulse train, normally a TTL signal, sensing each pulse, one by one.

The "step sense" feature can choose where to sense each pulse: on the rising edge of the step or the falling edge (also known as the positive or negative edge).

The switch has two options:

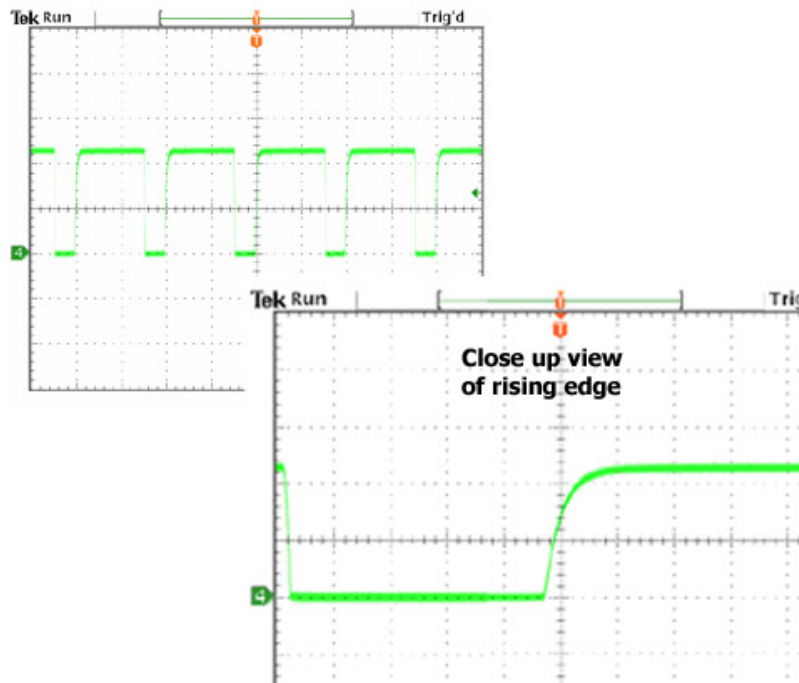
ON: Reads the step signal on the rising edge or positive edge

OFF: Reads the step signal on the falling edge or negative edge

Below depicts a step pulse train waveform where the rising edge is more of a curve. If the configuration module is set to read this type of signal on the rising edge, inaccurate steps and unsmooth motion may occur.

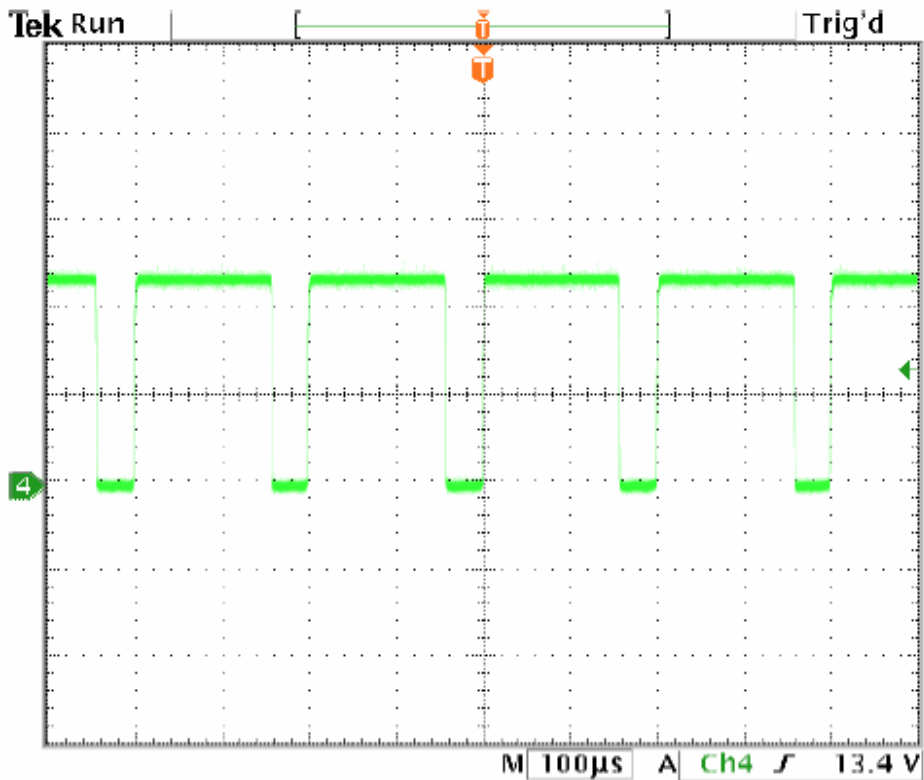
It is best to switch the step sensing to the negative edge, or falling edge.

Notice in this example, the falling edge is a clear signal and a definite difference between high to low.



Example of a bad rising edge waveform

Below is an example of a good step pulse waveform where sensing the step on either edge would be fine:



Example of a good waveform

Direction Sense

This is similar to the "step sense" feature where the direction of rotation can change upon seeing the rising edge of a signal or the falling edge of a signal.

The switch has two options:

ON: Changes direction on a rising edge signal (looks for a low to high transition)

OFF: Changes direction on a falling edge signal (looks for a high to low transition)