



























**Initial Positioning:**

1. Oscillate around: defines the initial position that the shaft will oscillate around.

**Oscillation:**

1. Mode: allows you to choose between a sinusoidal or square oscillation profile.
2. Amplitude: defines zero to peak oscillation height. The actual oscillation travel distance will be twice this value
3. Frequency: defines the frequency of oscillation.
4. Interpolation Period:

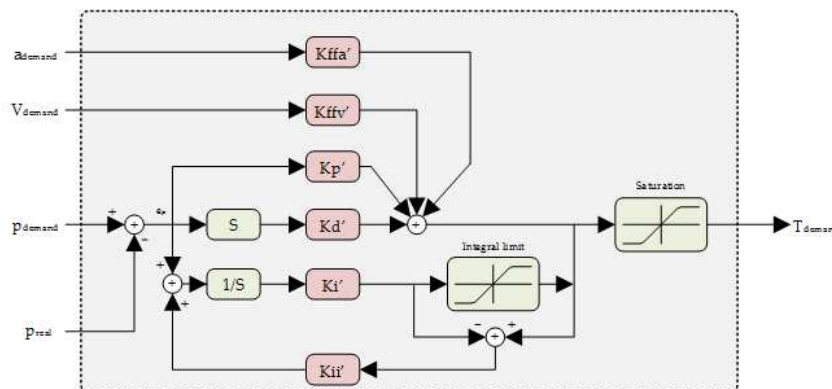
**Additional Position Parameters:**

1. Profile Parameters
  - a. Profile velocity – controls speed that shaft attains wanted position.
  - b. Profile acceleration – controls acceleration of shaft towards wanted position.
  - c. Profile deceleration – controls stop speed of shaft when reaching wanted position.
2. Threshold Parameters
  - a. Position window – sets accepted range of position values relative to target value in which the controller will stop trying to correct the shafts current position.
  - b. Position window time – sets the measuring time for the controller to check if position is Correct

**Additional Oscillation Parameters:**

1. Limit Parameter
  - a. Minimum absolute position – sets lower limit of shaft position
  - b. Maximum absolute position – sets upper limit of shaft position.
2. Threshold Parameters
  - a. Following error window – has a similar concept as the position window. I suggest making this value the same as the position window.
  - b. Following error timeout – sets a measurement time for the shaft position. If the shaft is not in the specified position for this time an error will be produced.

**Advanced Motion Control:**



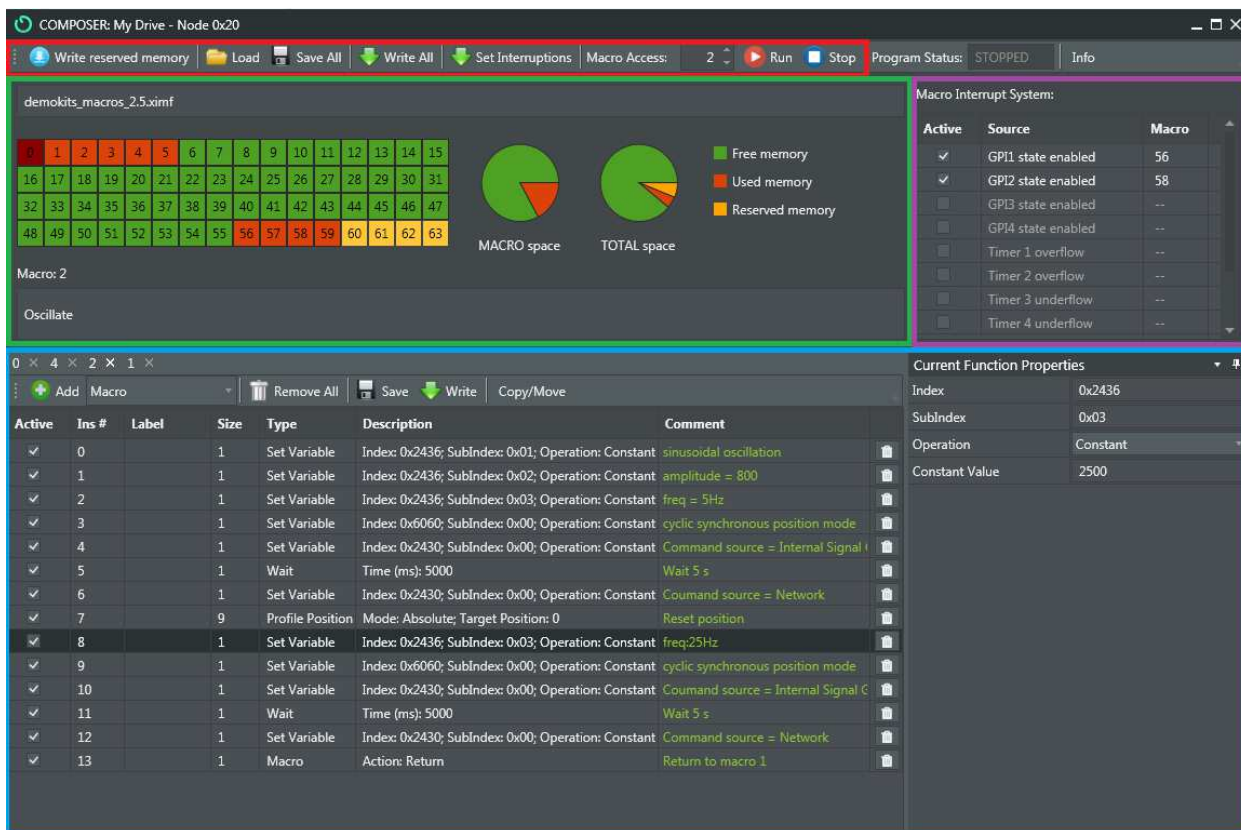
### 1. Position Loop Parameters

- a. Proportional gain – sets proportional constant ( $K_p'$ ) for PID loop.
- b. Integral gain – sets integral constant ( $K_i'$ ) for PID loop
- c. Derivative gain – sets derivative constant ( $K_d'$ ) for PID loop.
- d. Integral AW gain – sets integral anti-windup ( $k_{ii}'$ ) constant
- e. Velocity FF gain – Sets velocity feedforward ( $K_{ffv}'$ ) constant
- f. Acceleration FF gain – sets acceleration feedforward ( $k_{ffa}'$ ) constant.
- g. Integral Limit – puts a limit on the integral gain's contribution.

## Program:



This section will display the controller’s ability to run and create macros. Entering this window is done by clicking ‘Program’ on the top of the main Motionlab window. This action will bring up a new window. The image below shows an example of an oscillate function. See [Ingenia Knowledge Base](#) for examples of how to execute most move functions. Any other inquiries can be sent to [example@sensata.com](mailto:example@sensata.com)



### Program Control:

1. Write reserved memory
2. Load – Brings up explorer to choose a preexisting file.
3. Save All – Saves the current macro set up.
4. Write All – Writes all macros to the controller
5. Set Interruption – Writes interruptions to the controller. Used with [Interrupt Designation](#).
6. Run – Runs the selected macro.
7. Stop – Force stops all programs.

## Macro Access:

- Lets you choose which macro to edit.
- Macro 0 will work on controller startup.

## Macro Programming:

1. Add – Adds the selected item from the dropdown box to the current macro.
2. Dropdown – Selects the program function that you want to add to the macro. Requires the ‘Add’ button to place.
3. Remove All – Deletes all functions from the current macro.
4. Save – Saves the current macro.
5. Write – Writes the selected macro to the controller
6. Copy/Move – Copies or moves the current macro to a macro number of your choosing.
7. Current Function Properties – Allows you to edit the highlighted

## Interrupt Designation:

1. Active – Checking the box will allow the interrupt to be written to the controller. You need to press ‘Set Interruptions’ in the **Program Control** section.
2. Source – Selects the type of interrupt you want to use.
3. Macro – Designates the macro that will be called when the interrupt is triggered.

Sensata Technologies, Inc. (“Sensata”) data sheets are solely intended to assist designers (“Buyers”) who are developing systems that incorporate Sensata products (also referred to herein as “components”). Buyer understands and agrees that Buyer remains responsible for using its independent analysis, evaluation and judgment in designing Buyer’s systems and products. Sensata data sheets have been created using standard laboratory conditions and engineering practices. Sensata has not conducted any testing other than that specifically described in the published documentation for a particular data sheet. Sensata may make corrections, enhancements, improvements and other changes to its data sheets or components without notice.

Buyers are authorized to use Sensata data sheets with the Sensata component(s) identified in each particular data sheet. HOWEVER, NO OTHER LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE TO ANY OTHER SENSATA INTELLECTUAL PROPERTY RIGHT, AND NO LICENSE TO ANY THIRD PARTY TECHNOLOGY OR INTELLECTUAL PROPERTY RIGHT, IS GRANTED HEREIN. SENSATA DATA SHEETS ARE PROVIDED “AS IS”. SENSATA MAKES NO WARRANTIES OR REPRESENTATIONS WITH REGARD TO THE DATA SHEETS OR USE OF THE DATA SHEETS, EXPRESS, IMPLIED OR STATUTORY, INCLUDING ACCURACY OR COMPLETENESS. SENSATA DISCLAIMS ANY WARRANTY OF TITLE AND ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, QUIET ENJOYMENT, QUIET POSSESSION, AND NON-INFRINGEMENT OF ANY THIRD PARTY INTELLECTUAL PROPERTY RIGHTS WITH REGARD TO SENSATA DATA SHEETS OR USE THEREOF.

All products are sold subject to Sensata’s terms and conditions of sale supplied at [www.sensata.com](http://www.sensata.com) SENSATA ASSUMES NO LIABILITY FOR APPLICATIONS ASSISTANCE OR THE DESIGN OF BUYERS’ PRODUCTS. BUYER ACKNOWLEDGES AND AGREES THAT IT IS SOLELY RESPONSIBLE FOR COMPLIANCE WITH ALL LEGAL, REGULATORY AND SAFETY-RELATED REQUIREMENTS CONCERNING ITS PRODUCTS, AND ANY USE OF SENSATA COMPONENTS IN ITS APPLICATIONS, NOTWITHSTANDING ANY APPLICATIONS-RELATED INFORMATION OR SUPPORT THAT MAY BE PROVIDED BY SENSATA. Mailing Address: Sensata Technologies, Inc., 529 Pleasant Street, Attleboro, MA 02703, USA.

## CONTACT US

### Americas

+1 (760) 597 7042  
[sales.beikimco@sensata.com](mailto:sales.beikimco@sensata.com)

### Europe, Middle East & Africa

+1 (760) 597 7042  
[support@sensata.com](mailto:support@sensata.com)

### Asia Pacific

[sales.isasia@list.sensata.com](mailto:sales.isasia@list.sensata.com)  
China +86 (21) 2306 1500  
Japan +81 (45) 277 7117  
Korea +82 (31) 601 2004  
India +91 (80) 67920890  
Rest of Asia +603-5566 6001