

# MDT-4000 Turntable Command Line Utility

Users Guide

Revision: 2

Date: 1-Jun-2024

# Introduction

This document describes how to use the mdt4000util.exe command line interface program to control the MDT-4000 turntable. The mdt4000util.exe program is a windows console type program that can be used directly from the command prompt, or it can be called from scripts or programs to control the turntable without needing to know all of the details of the low-level control details.

The turntable must be connected to the host computer with the USB interface, it does not support either the LAN or RS-232 control ports.

You can get a list of supported commands by running the following command from a cmd window:

```
> mdt4000util.exe --help
```

Below is the output from the help command:

```
Portland Tool & Die, Inc. MDT-4000 Control Utility
Version 2.0
Usage: mdt4000util <option> <value>

Options:
/?      --help          Prints this information
/#      --instrument    Specific instrument # or serial number
/i      --identify      Identifies connected instruments
/r      --restore       Restore factory default settings
/sd     --save-defaults Save current settings as power on defaults
/sc     --screen-capture [filename] to save screen bitmap into
/m      --moving        Returns true if system is moving, false otherwise
/sm     --stop-motion   Stops the current motion.
/cp     --current-position Returns the current platter position in degrees.
/sz     --set-zero      Set the current position as the origin.
/tp     --torque-percent Get/Set the max torque level as a percentage. [10 - 100] %.
/ss     --step-size     Get/Set the step size. [0.1 - 360.0] degrees.
/st     --step          Starts a new <CW, CCW> step.
/gp     --goto-positive  Goto the target position [0.0 - 360.0] in CCW direction.
/gn     --goto-negative  Goto the target position [0.0 - 360.0] in CW direction.
/gs     --goto-shortest  Goto the target position [0.0 - 360.0] using the shortest path.
/gh     --goto-home     Unwind to the zero reference position.
```

For each command, you can use either the short or long form of the command. For example, the following two lines will both run the same command that returns the current platter position.

```
> mdt4000util.exe -current-position
> mdt4000util.exe /cp
```

Each time the program is run, it will connect to the turntable, send a command, read any output from the turntable, then exit back to the windows command prompt.

## Command descriptions

### Command: /i --identify

This command will list the details of the connected turntable.

### Command: /r --restore

This command will set all of the turntable parameters to their factory default values. This command does not store the factory default values into non-volatile memory. If the turntable is rebooted, the control parameters will be set to the previously stored values.

If you want to make the system reboot with factory default values, first run the `--restore` command and then run the `--save-defaults` command.

### Command: /sd --save-defaults

This command stores current values for all control parameters into non-volatile memory. These values will be used to set the control parameters each time the system powered on.

### Command: /sc --screen-capture

Parameter: <filename>

This command will write the current display data into the specified filename.

### Command: /m --moving

This command reports the current motion status.

Return string: “--moving - <true/false>”

### Command: /sm --stop-moving

This command will cause the turntable to stop any current rotation. The command does not wait until the turntable has stopped, it sends the stop command and then returns. You can use the “--moving” query to poll the turntable to determine when the system has come to a complete stop.

### Command: /cp --current-position

This command returns the current platter position.

Return string: “--current-position = <xxx.x>”

### Command: /sz --set-zero

This command sets the system zero reference position to the current position. After this command is sent, the current position will become 0.0.

### Command: /tp --torque-percent

Sets the max torque as a percentage of maximum torque.

## Command: /ss --step-size

Sets the step size that will be used when the “—step” command is issued.

## Command: /st --step

Parameter: [CW or CCW]

This command starts a new step in the specified direction. This command does not block until the step has completed.

## Command: /gp --goto-positive

Parameter: [0.0 – 360.0] degrees

This command will move the platter to the specified position in a CCW direction. This command does not block until the move has completed. If the platter is already at the specified position, no rotation will start.

## Command: /gn --goto-negative

Parameter: [0.0 – 360.0] degrees

This command will move the platter to the specified position in a CW direction. This command does not block until the move has completed. If the platter is already at the specified position, no rotation will start.

## Command: /gs --goto-shortest

Parameter: [0.0 – 360.0] degrees

This command will move the platter to the specified position using the shortest path between the current position and the specified target position. This command does not block until the move has completed. If the platter is already at the specified position, no rotation will start.

## Command: /gh --goto-home

Parameter: none

This command will cause the platter to return to the current system zero reference position by “unwinding” from the current position. If the platter has made multiple rotations, the system will move in the opposite direction until the number of rotations is zero and the platter has reached the zero position.

## Revision history:

Rev	Date	Changes
1	14-Jul-2022	Initial document.
2	1-Jun-2024	<ul style="list-style-type: none"><li>• Add descriptions for the new <code>-goto-positive</code>, <code>--goto-negative</code>, <code>--goto-shortest</code>, and <code>-goto-home</code> commands. These new commands were added in fw v1.3.</li><li>• Remove the <code>-list</code> command.</li></ul>