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How to set up a 4/5 axis machine configuration *Edited*

Options

7926 Views, 26 Replies
08-09-2016 09:18 AM

Most of the generic posts have 5 axis capabilities already implemented but disabled by default since it is required to set the right machine configuration for the ABC axis for the specific machine you want to use.

The machine configuration can be found into the onOpen() function:


```
171  function onOpen() {
172
173    if (false) {  // note: setup your machine here        Change this to true
174      var aAxis = createAxis({coordinate:0, table:false, axis:[1, 0, 0], range:[-360,360], preference:1});
175    // var bAxis = createAxis({coordinate:1, table:false, axis:[0, 1, 0], range:[-360,360], preference:1});
176      var cAxis = createAxis({coordinate:2, table:false, axis:[0, 0, 1], range:[-360,360], preference:1});
177      machineConfiguration = new MachineConfiguration(aAxis, cAxis);
178
179      setMachineConfiguration(machineConfiguration);
180      optimizeMachineAngles2(0);  // TCP mode
181
```

Step 1:

The very first step is to change (for this example, line 173):
- if (false) to this: if (true)

to activate the machine configuration code below.

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Step 2:

Now you can go ahead and start to customize the ABC axis to your needs with the options as described below:

1. actuator: Specifies that the actuator type (ie. either "linear" or "rotational").
   The default is "rotational".
2. table: Specifies that the axis is located in the table or the head. The default is true for table.
3. axis: Specifies the axis vector as a 3-element array (e.g. "[0, 0, 1]").
   [**Axis rotates around X**, **Axis rotates around Y**, **Axis rotates around Z**]
   Example: A-axis rotating around the X-axis would be this: [**1**, 0, 0]
4. offset: Specifies the axis offset as a 3-element array (e.g. "[0, 0, 25]").
   The default is [0, 0, 0].
5. coordinate: Specifies the coordinate used in the ABC vectors (ie. "X", "Y", or "Z"). The given number will define the letter for the axis:
   0 = "A"
   1 = "B"
   2 = "C"
   Note: This is the only way to influence the axis letter for the output.
6. cyclic: Specifies that the axis is cyclic. Only supported for rotational axes.
   Only used when a range is specified. The default is false.
7. range: Specifies the angular range for the axis in degrees as a 2-element array (e.g. "[-120, 120]"). You can also specify a single number to create an axis for an aggregate.
   The default is unbound.
8. preference: Specifies the preferred angles (-1:negative angles, 0:don't care, and 1:positive angles). The default is don't care.
9. resolution: Specifies the resolution. In degrees for rotational actuator. The default is 0.

Please note:
If you only need a 4 axis setup, you can either delete the other axis beginning with "**var bAxis**" and "**var cAxis**" or you can just disable them by typing two slashes "**//**" in front of the line which you want to disable.

Don´t forget to remove the disabled axis variable out of the code as explained in Step 3.

Step 3:

machineConfiguration = new MachineConfiguration(**aAxis**, **cAxis**);

- This line creates a new machine configuration as defined above by using the given variables for each axis (in that case: aAxis, cAxis).
- You can only use the variables inside the brackets which are defined above.

Examples:

4 axis setup, A rotates around X, direction is positive:
var aAxis = createAxis({coordinate:0, table:true, **axis:[1, 0, 0]**, range:[-360,360], preference:1});
machineConfiguration = new MachineConfiguration(**aAxis**);

4 axis setup, A rotates around X, direction is negative:
var aAxis = createAxis({coordinate:0, table:true, **axis:[-1, 0, 0]**, range:[-360,360], preference:1});
machineConfiguration = new MachineConfiguration(**aAxis**);

5 axis, B rotates around Y, C rotates around Z, directions both positive:
var bAxis = createAxis({coordinate:0, table:true, axis:[0, 1, 0], range:[-360,360], preference:1});
var cAxis = createAxis({coordinate:0, table:true, axis:[0, 0, 1], range:[-360,360], preference:1});
machineConfiguration = new MachineConfiguration(**bAxis, cAxis**);

Step 4:

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setMachineConfiguration(**machineConfiguration**);

- This line enables the machine configuration, no need to change something here.

Step 5:

optimizeMachineAngles2**(0)**; // TCP enabled (eg. M128, TRAORI, G43.4, G243)
optimizeMachineAngles2**(1)**; // TCP disabled (eg. M128, TRAORI, G43.4, G243)

- With this option you can decide if your machine has TCP capabilities for 5 axis simultaneous machining or not.

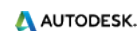If you have any problems, you can ask for help here:

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The recommended editor to use for post processor customization is Notepad++.
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http://forums.autodesk.com/t5/post-processors/editor-for-post-processor-customizations/td-p/6106905

A AUTODESK.
AchimN
Sr. Software Engineer

Kudo | **16 Kudos**   REPLY

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zeljnik2014

47 Posts

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⚑ Report

Re: How to set up a 4/5 axis machine configuration   Options
09-09-2016 05:55 AM *in reply to:* AchimN