

6 DSPL & G CODE

The Mx4 GCode Developer allows the user the ability of combining standard G and M codes along with DSPL command lines and subroutines, yielding a very flexible and powerful application programming environment.

INSERTING DSPL CODE

DSPL code may be inserted directly into a G code file using the `begin_dspl` and `end_dspl` identifiers. The entire DSPL command set is available to the G code programmer. Pre-defined macros, subroutines, IO routines and interrupt scanning are just a few examples of DSPL programming within G code.

A simple syntax example,

```
G01 X4.5
begin_dspl
POS_PRESET (0x2, 1000)
CTRL (0x2, 0,1200,500,3000)
end_dspl
G00 Y3.0
```

The `POS_PRESET` and `CTRL` DSPL lines will be inserted between the DSPL generated from the G01 and G00 G code lines.

When the G code blocks encounter a `begin_dspl` / `end_dspl` block, the program flow in that section is determined by the DSPL code in the block. When the `end_dspl` block is executed, the G code program continues as normal.

M06 TOOL CHANGE DSPL FILE

The M code M06 tool change allows for a generic user-definable tool change program to be called as a subroutine from the main G code file. The M06 M code utilizes the *tool_chg.hll* DSPL file which contains the framework for including selectable DSPL subroutine calls. The *tool_chg.hll* file must be located in the same directory (folder) as the installation of the Mx4 Gcode (ie: *Mx4GCode*).

An example *tool_chg.hll* DSPL file,

```
;This file should contain the necessary DSPL code to change the
;tool. This DSPL routine is called when the M code M06 has been
;issued. This routine will be called from the cross-compiled G
;code file and contains a single argument. The argument is passed
;to this subroutine as a DSPL global variable. The variable name
;containing the selected tool change routine is Tool_Change_Value.

;This file should be constructed within the following framework,
;
;TOOL_CHANGE:
;
;    Necessary DSPL code...
;
;    RET()
;    END
;
;For example,

TOOL_CHANGE:

    if(Tool_Change_Value == 1)

        axmove(0xf,0.1,1000,10,0.1,1000,10,0.1,1000,10,0.1,1000,10)
        wait_until(motcp_reg & 0x000f)
        pos_preset(0xf,0,0,0,0)
    endif

    if(Tool_Change_Value == 2)

        axmove(0xf,0.1,2000,10,0.1,2000,10,0.1,2000,10,0.1,2000,10)
        wait_until(motcp_reg & 0x000f)
        pos_preset(0xf,0,0,0,0)
    endif

RET()
END
```

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The above *tool_chg.hll* DSPL file contains code for tool change 1 and tool change 2 routines. The Tool_Change_Value variable is 'passed' into the DSPL code via the M06 M code T notation. For example,

```
T2M06
```

would initiate the tool change DSPL code TOOL_CHANGE with Tool_Change_Value equal to 2.

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