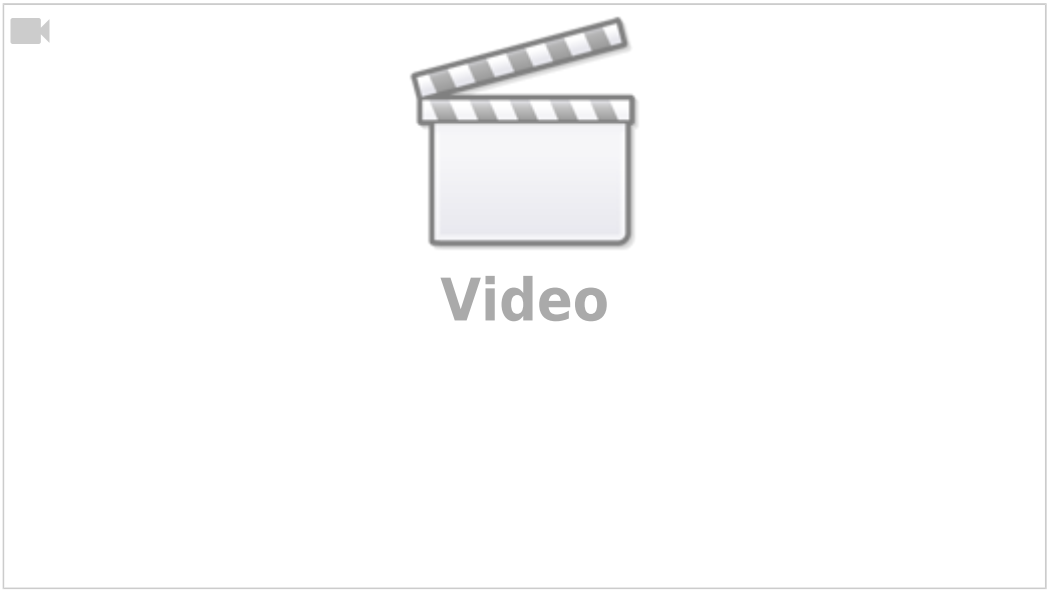
Eparam

Video manual on eparam usage is available below:



If an M-code (macro) is running from a G-code program, 16-bit integer parameters P and L are sent to the PLC procedure in the **eparam** variable.
P-parameter is in a low word of the eparam value and L-parameter is in high word of eparam value. To decode P and L parameters from **eparam** 2 simple lines of code can be used in the necessary PLC procedure:

```
P=eparam&0xFFFF;//P-parameter
L=eparam>>16; //L-parameter
```

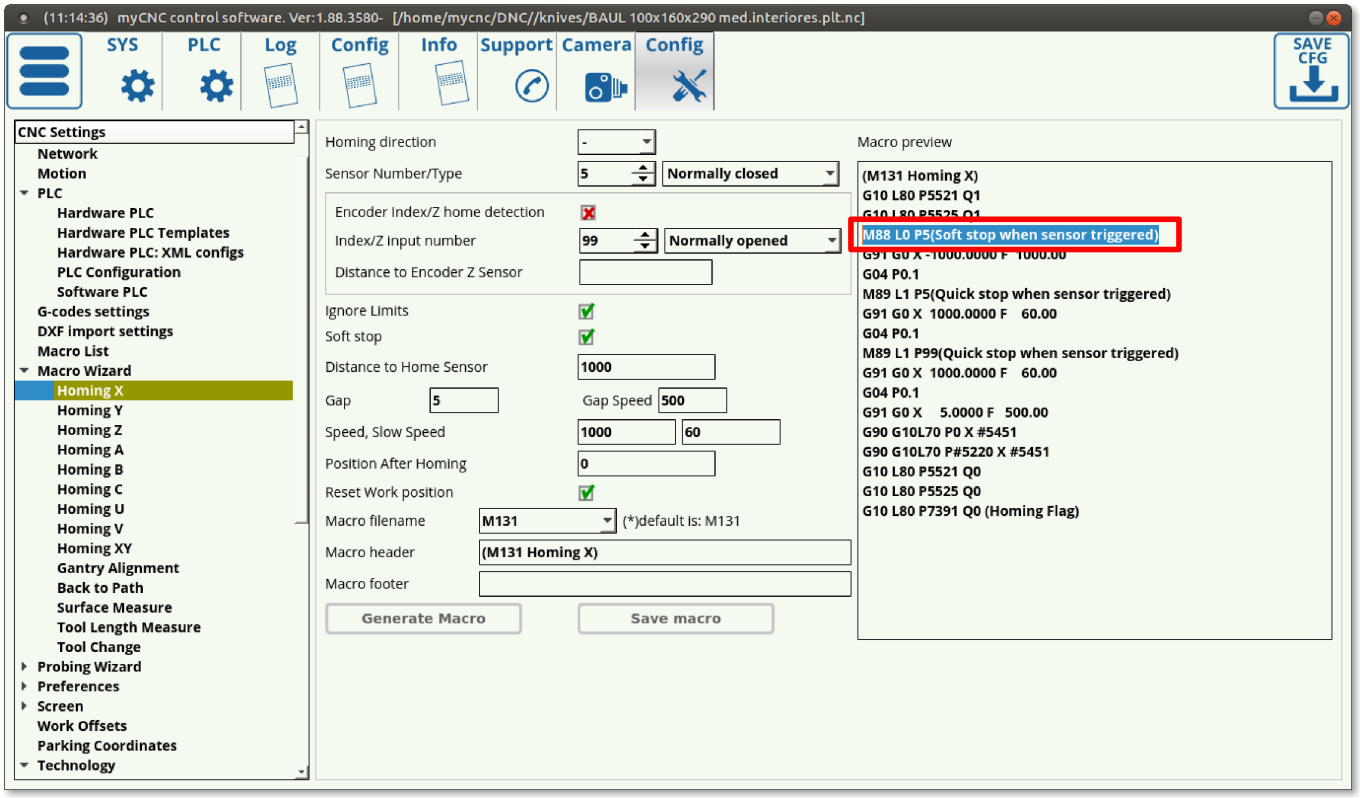
Eparam is often used in situations where it is necessary to send some value from the G-code or macro to a hardware PLC command which will use and incorporate this value. A good example of such a macro is the G-code for the X-axis homing procedure, since it relies on calling on a couple of Hardware PLC commands in order to perform the homing procedure:

Homing X

```
(M131 Homing X)
G10 L80 P5521 Q1
G10 L80 P5525 Q1
M88 L0 P5(Soft stop when sensor triggered)
G91 G0 X -1000.0000 F  1000.00
G04 P0.1
M89 L1 P5(Quick stop when sensor triggered)
G91 G0 X  1000.0000 F    60.00
G04 P0.1
M89 L1 P99(Quick stop when sensor triggered)
G91 G0 X  1000.0000 F    60.00
G04 P0.1
G91 G0 X     5.0000 F   500.00
G90 G10L70 P0 X #5451
```

```
G90 G10L70 P#5220 X #5451
G10 L80 P5521 Q0
G10 L80 P5525 Q0
G10 L80 P7391 Q0 (Homing Flag)
```

Line 4 is using the L and P parameters to send an eparam value to the M88 macro.



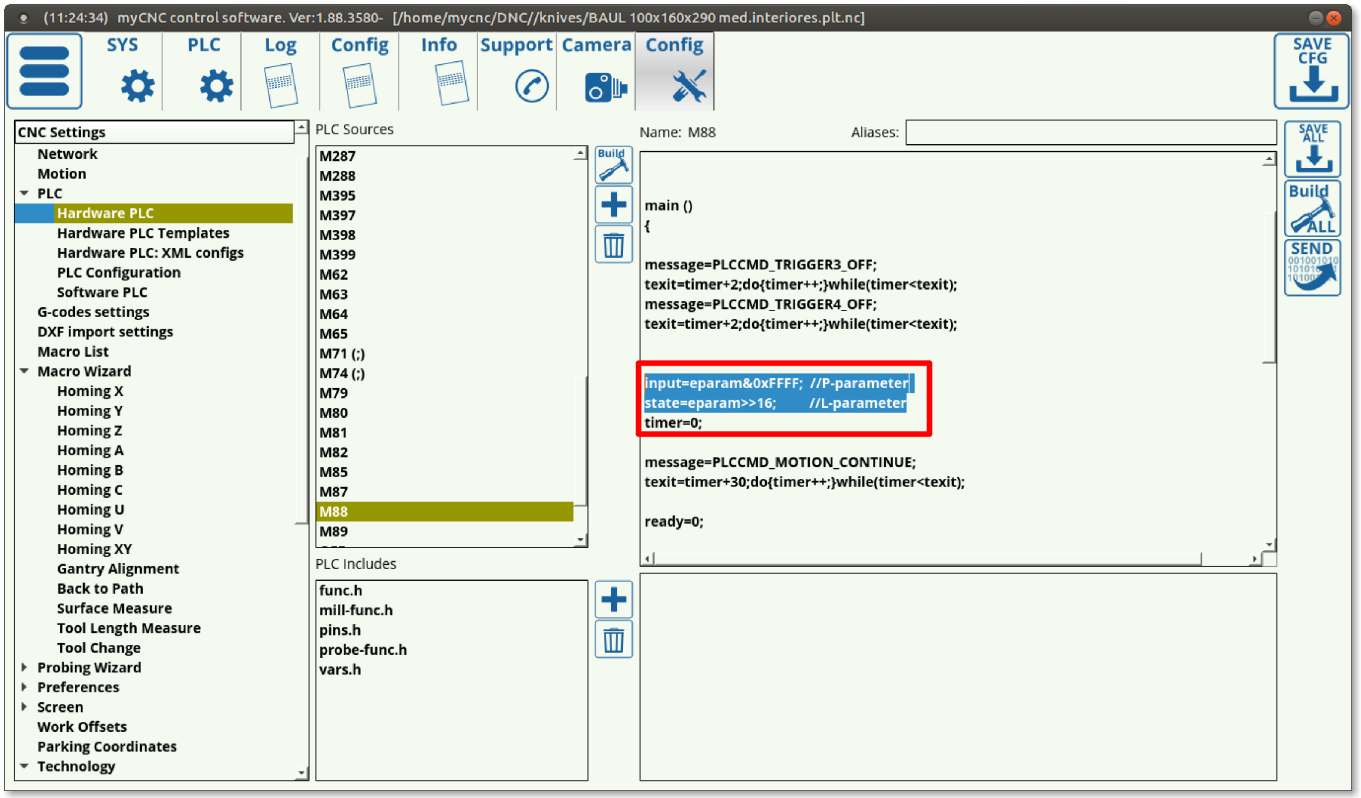
Below is the code for the M88 macro itself:

M88.plc

```
#include common.const.h
//Watch on given sensor number, Soft Stop if sensor triggered
//used for homing, surface measure, tool length measure etc

#define input  var00
#define state   var01


main ()
{

message=PLCCMD_TRIGGER3_OFF;
texit=timer+2;do{timer++;}while(timer<texit);
message=PLCCMD_TRIGGER4_OFF;
texit=timer+2;do{timer++;}while(timer<texit);

input=eparam&0xFFFF;   //P-parameter
state=eparam>>16; //L-parameter
```

```
timer=0;

message=PLCCMD_MOTION_CONTINUE;
texit=timer+30;do{timer++;}while(timer<texit);

ready=0;

do
{
 timer++;
 a=portget(input);
 if (state==0)
 {
    if (a==0) {ready=1;};
 };
 if (state!=0)
 {
    if (a!=0) {ready=1;};
 };
}while(ready==0);

//message=PLCCMD_MOTION_SKIP;
message=PLCCMD_MOTION_SOFT_SKIP;
texit=timer+2;do{timer++;}while(timer<texit);

exit(99);
};
```

In this M88 code, you can see the eparam variable being “imported” into the macro that has been summoned by the G-code command. In this particular case, this allows to set the state and the necessary input number to monitor in order to initiate a soft stop when a particular sensor is triggered.



M03

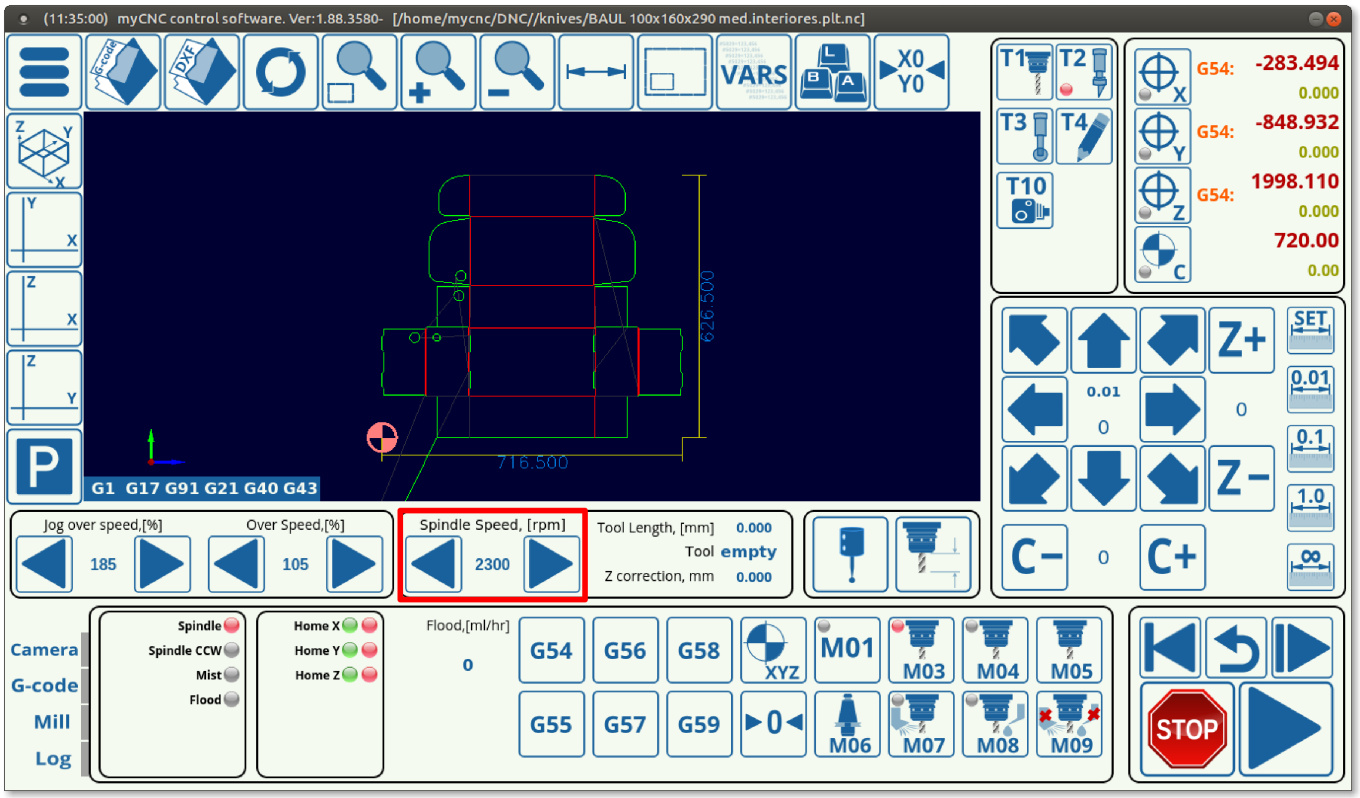
A unique case of using the eparam value can be seen in the M03/SPN macros (spindle control). The M03 macro code is presented below:

M03

```
//Turn on Spindle clockwise
#include pins.h
#include vars.h
main()
{
  timer=0;
  proc=plc_proc_spindle;

  val=eparam;
  if (val>0xfff) {val=0xfff;};
  if (val<0) {val=0;};

  dac01=val;

  portclr(OUTPUT_CCW_SPINDLE);
  portset(OUTPUT_SPINDLE);

  gvarset(7370,1);//Spindle State
  timer=30;do{timer--;}while (timer>0); //
  gvarset(7371,eparam);//Spindle Speed Mirror register
  timer=30;do{timer--;}while (timer>0); //
```

```
  //gvarset(7372,0);//Mist State
  //timer=30;do{timer--;}while (timer>0); //
  //gvarset(7373,0);//Flood State
  //timer=30;do{timer--;}while (timer>0); //

  //delay after spindle started
  timer=spindle_on_delay;
  do{timer--;}while (timer>0); //delay for Spindle reach given speed

  exit(99);    //normal exit
};
```

The eparam value here is taken from the spindle speed indicator on the main screen of the myCNC X1366 series profiles:



This value is taken from the field above and converted to a necessary output value using the settings provided in the Settings > Config > Technology > Mill/Lathe > Spindle configuration dialog: