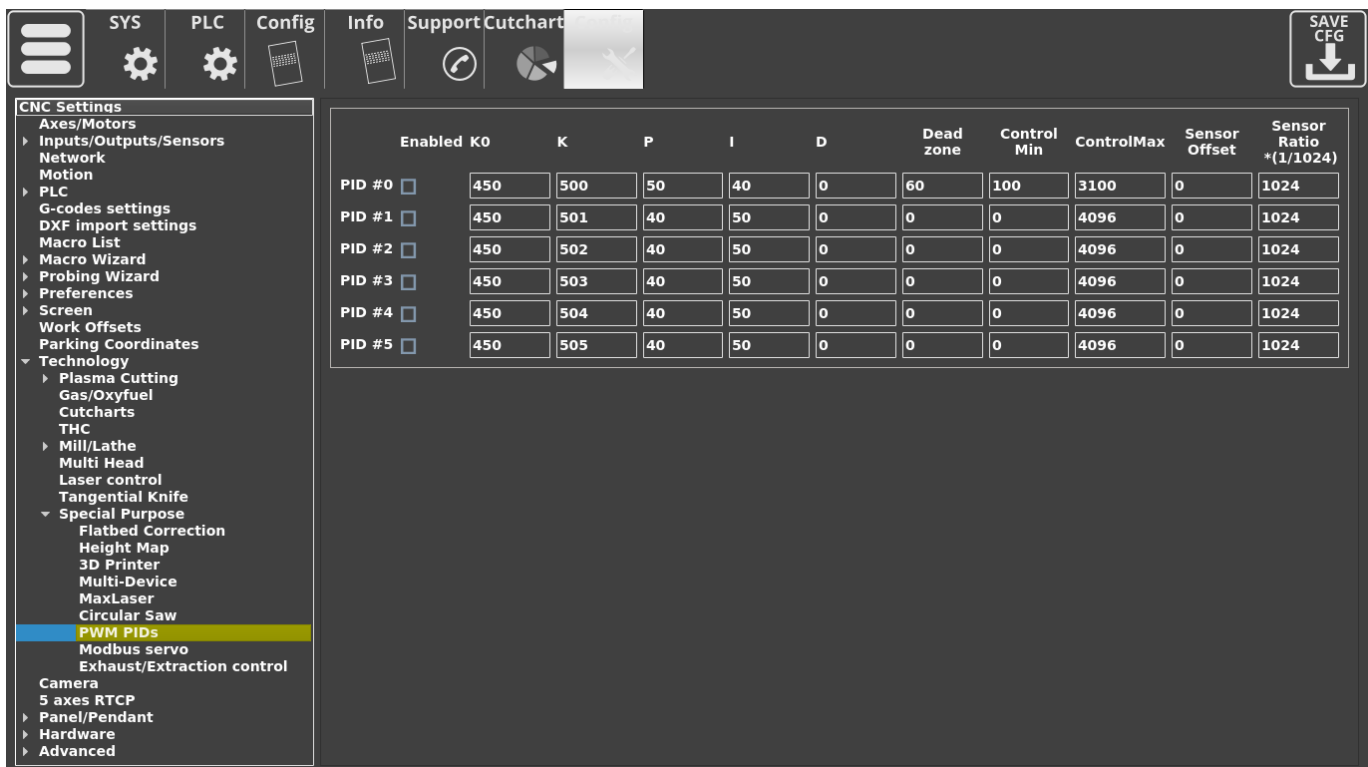


myCNC Setup: Automatic Gas Console

The Automatic Gas Console (AGC for short) will allow to manipulate the gas cutting process through proportional valve control. AGC will monitor and smoothly correct the gas pressures to match a certain value.

In order to set up the AGC control through PIDs, head into Settings > Config > Technology > Special Purpose > PWM PIDs.



In this configuration window, six PID controls (#0-5) can be seen. These are mapped directly to PWM #1-6 which can be typically seen in the Diagnostics panel:

PID #0	PWM 1
PID #1	PWM 2
PID #2	PWM 3
PID #3	PWM 4
PID #4	PWM 5
PID #5	PWM 6

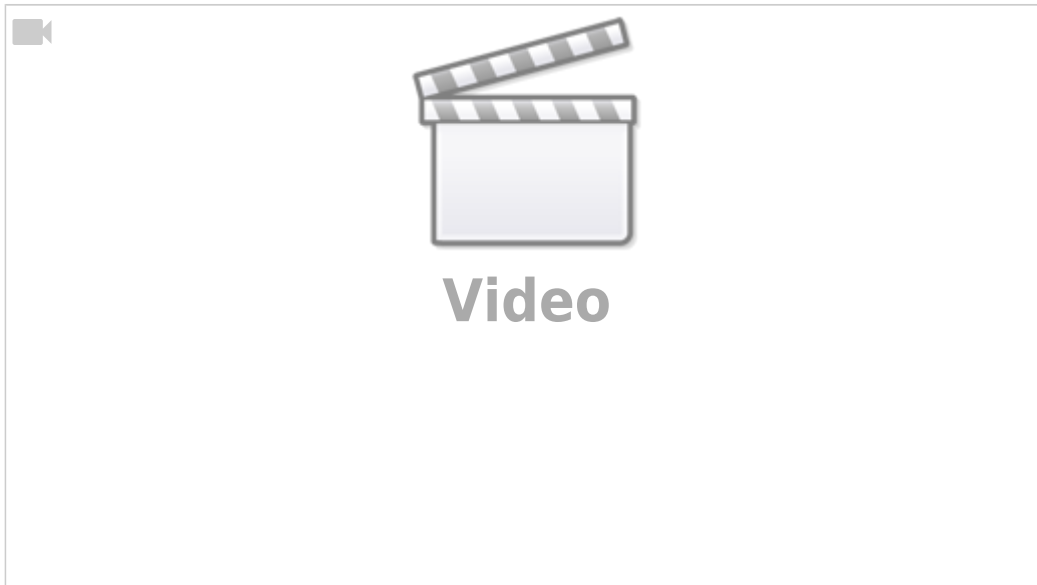
Note that these connections between PIDs and PWM ports are hard-coded into the software (PID#0 is ALWAYS PWM 1, for example, when PID#0 is activated in the config window).

The following settings are available for the PID controls:

- K0 (offset value for the ratio that will bring the curve up/down)
- K (ratio value to multiply the result by)
- P (proportional gain)
- I (integral gain)
- D (derivative gain)

- Dead zone, which specifies a range in which inputs are outputted as a zero value
- Control Min/Max to specify the bounds for the control values
- Sensor Offset - allows to account for sensors which do not start their measurements at 0 (for example, a 1-5V sensor).
- Sensor ratio (1/1024) - scaling coefficient to convert the result from some raw input value into the typical expected value range

After the necessary PID has been turned on and the config has been saved, the PWM outputs will be switched from being controlled through PLC processed to being controlled entirely by the internal PIDs within the myCNC controller. In order to check whether the PWM control has been switched to the internal controller PIDs, you can head to the Diagnostics panel:



The necessary value for the pressure will be stored in the controller by using a global variable. By changing this global variable, the controller will smoothly adjust the gas pressure until it matches the required value.

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