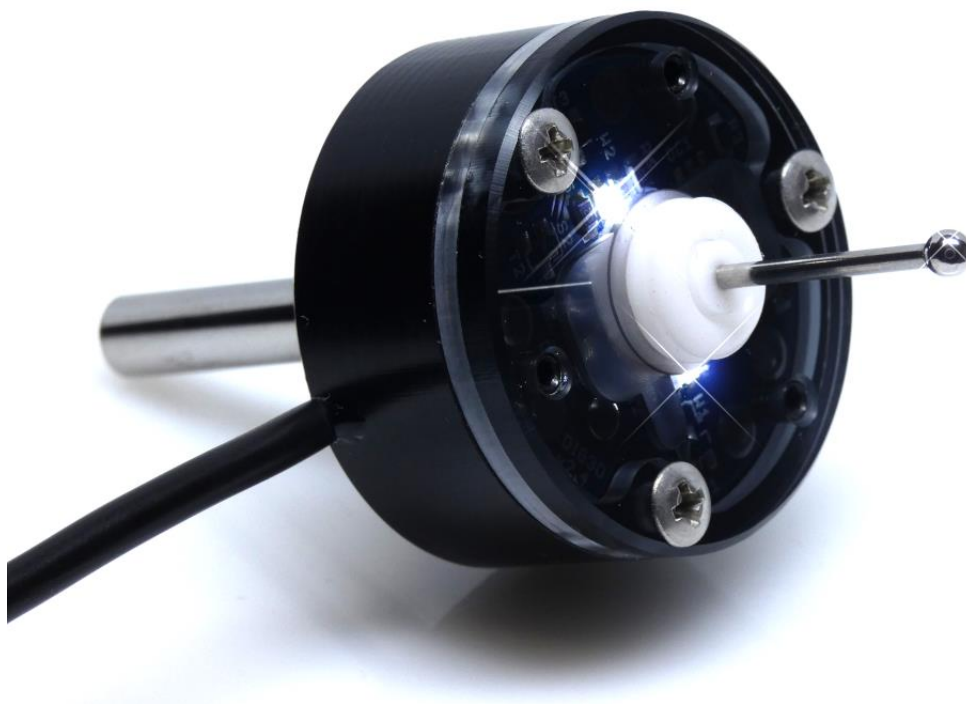


DIG3D.LP.C – low profile CNC touch probe digitizer with fixed cable



Buy this item at:



<https://www.topcom.cz/store/>

--- or ---



<https://www.ebay.com/str/cncprobes>



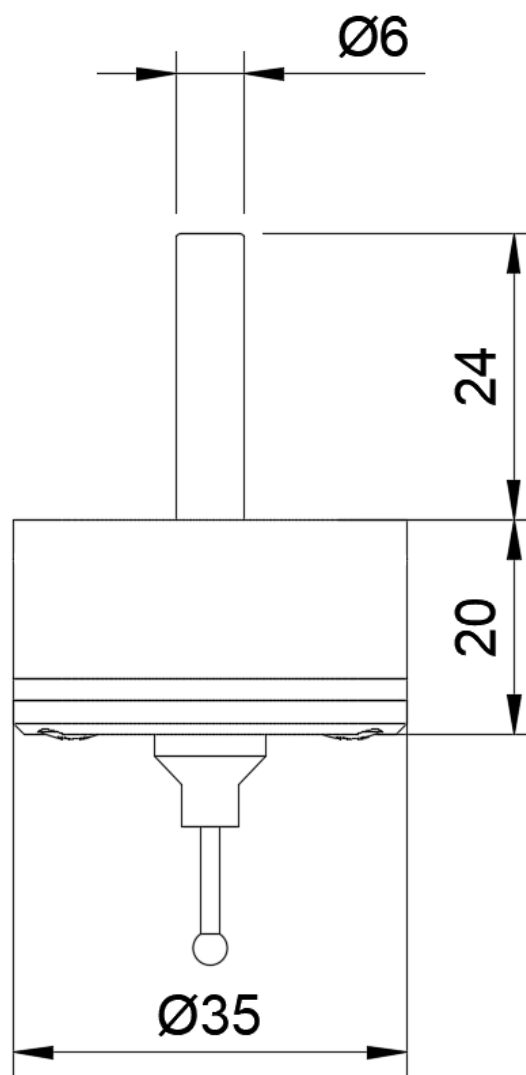
Important: this device needs connection and installation. Seller does not take any responsibility for any damage or injury caused by using of this device. Read carefully documentation for your CNC machine and motion board.

Description:

DIG3D.LP.C is low profile CNC touch probe (digitizer), mostly used for a surface digitizing, or as an edge finder and geometry measurement by CNC machines.

The sensor has sensitive switch, triggered by touching of the tip.

Dimensions:



Main parameters:

POWER	
Power supply voltage	5-24V DC
Power consumption	<35mA
OUTPUT	
Switch type	Normally OPEN --- or --- Normally CLOSE
Output type	NPN --- or --- PNP
OTHER PARAMETERS	
Repeatability	<0.03mm
Trig force [Z]	~1.5N
Trig force [X, Y]	~0.3N
Cable length	1.5m
Shaft diameter	6mm

Electrical connection:

DIG3D can be ordered in different output versions.

Switch type:

NO (Normally OPEN): Output is active, if sensor is triggered.

NC (normally CLOSE): Output is active, if sensor is NOT triggered.



It is strongly recommended use Normally CLOSE switch type when a magnetic connector used. If a sensor is not connected, input of motion control is inactive and measurement is stopped. In case of NO, measurement runs and machine damage or injury could occur!

Output type:

NPN: Output is switched to the ground (GND), if output is active.

PNP: Output is switched to the power supply, if output is active.

In both cases, output is disconnected, when output is inactive.



TIP: How to easily recognize, if you need NPN or PNP output?

If you have to switch the input at your motion board to ground (GND) to activate the input, you need NPN output.

If you have to switch the input at your motion board to positive power supply, to activate the input, you need PNP output.

Please check carefully your motion control board to select correct power supply and output type. If you are not sure, do not hesitate to contact me and ask for an advice.

Cable:



Brown

Blue

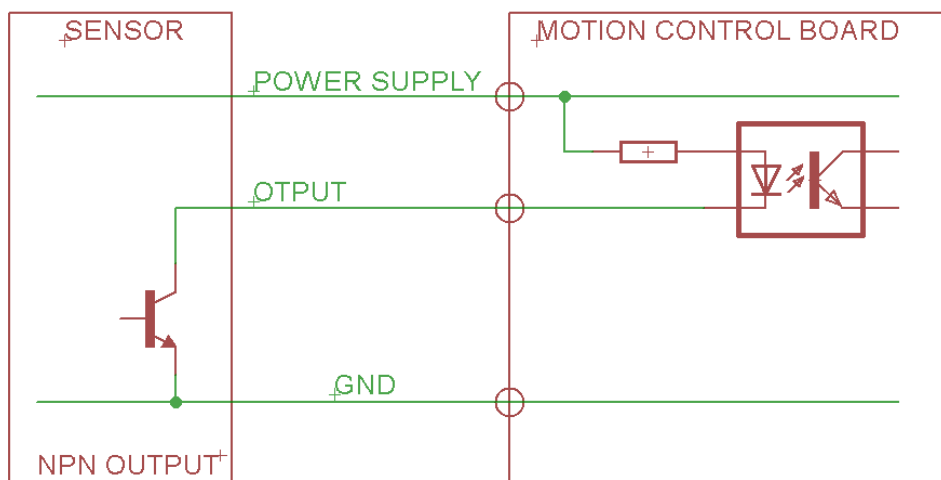
Black

Positive power supply (5-24V)

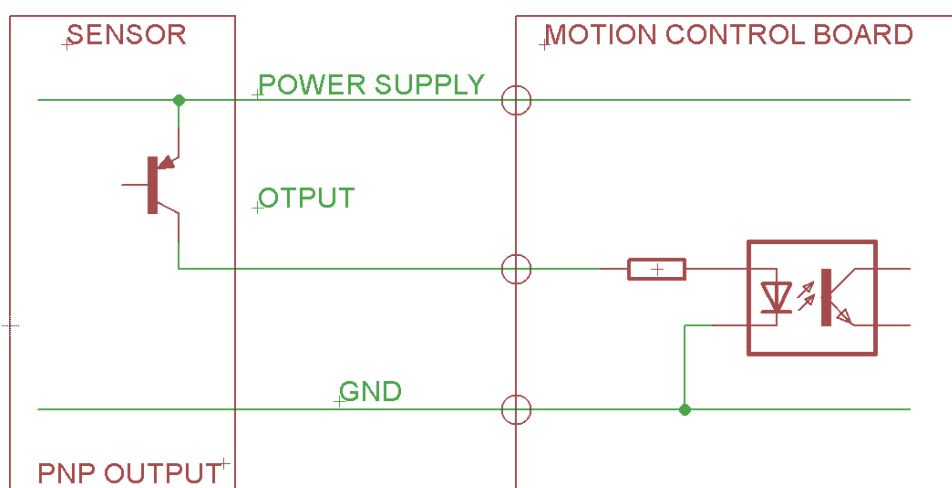
GND

output, 50mA max.

Connecting a sensor with NPN output:

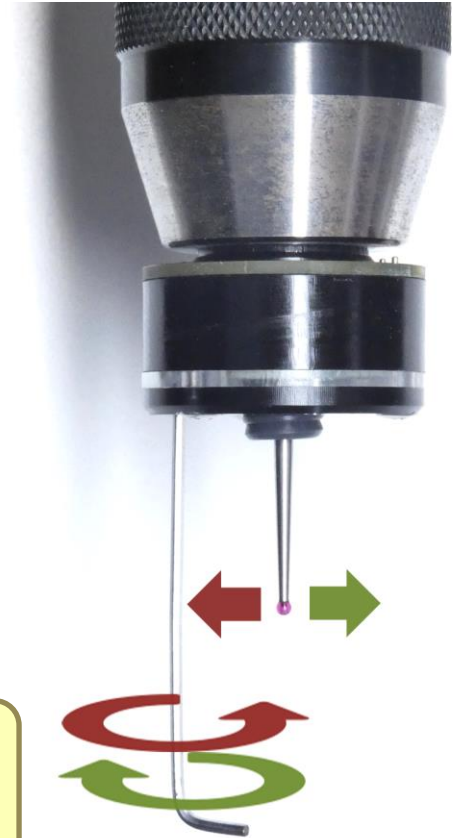


Connecting a sensor with PNP output:



TIP adjustment:

1. Fix a sensor in a spindle.
 2. Use inner hexagonal tool and turn the adjustment screws.
- If an adjustment screw is screwing in, tip is going closer, and vice versa.
 - Adjust the tip to the axial position by the adjustment screws.



PCB has to sit on the screws.

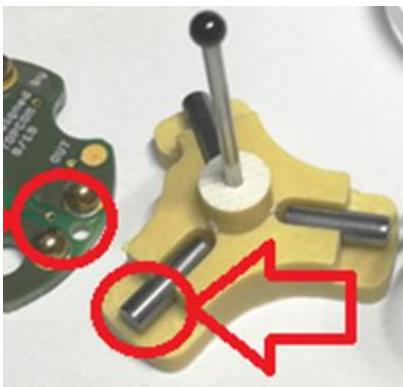


If the screws are too much screwed inside, PCB is pressed against electrical spring contact pins and sensor does not work well.

If the screws are too much screwed out, PCB loses connection and sensor does not work well.

Adjust PCB to the correct position!

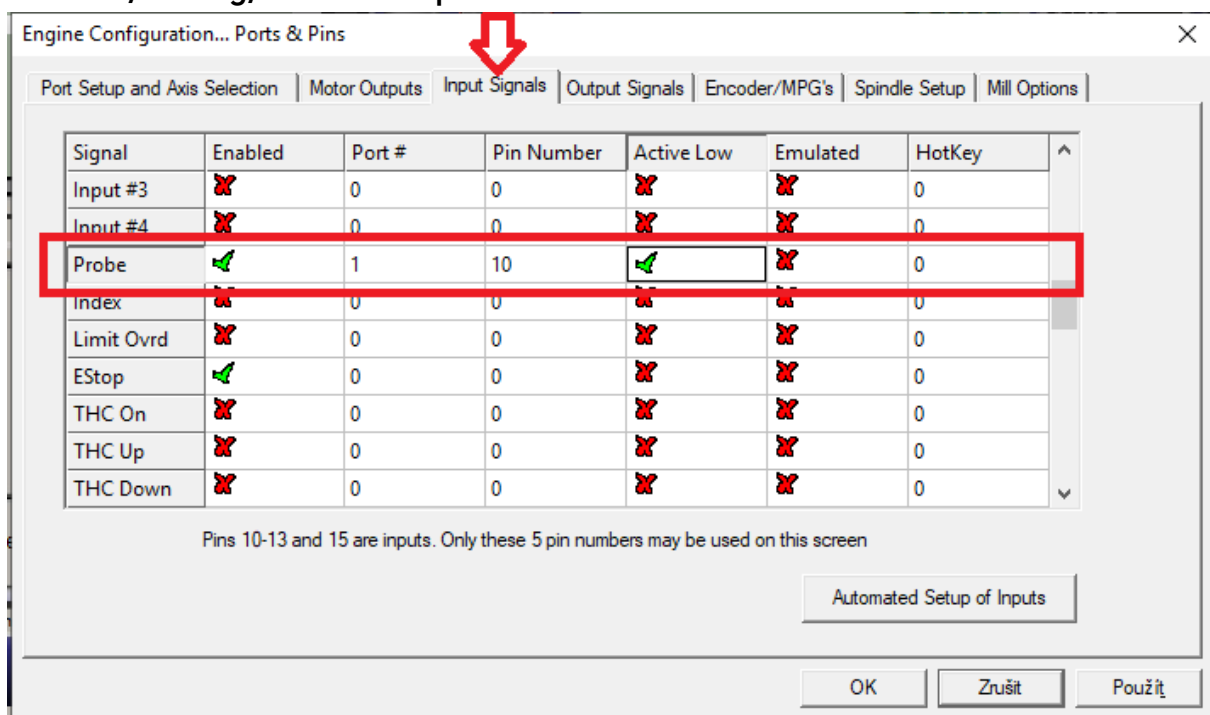
Maintenance:



Metal pins make an electrical connection between two metal balls. Contact surfaces have to be clean, without any dust or oxidation. If sensor is in the active state, even if a tip is not touched, clean marked metal surfaces (3 metal pins, 6 metal balls) and lubricate them with silicon oil.

MACH3 integration:

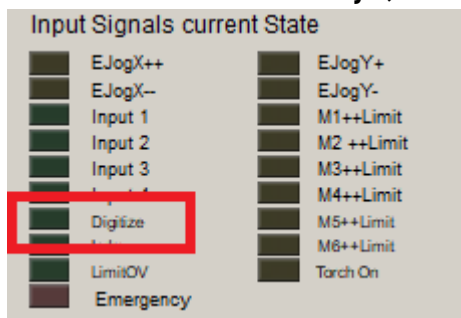
- The sensor has to be connected to a digital input of your motion board. Check a user guide for your motion board to select correct input and wiring.
- If you use Z-axis tool height measurement device or other measurement device using G31, sensor has to share this input, because both share the same measurement Gcode. Check a documentation for your probe and check, if can be connected in parallel.
- As soon as sensor is connected to a motion board, set the input signal in MACH3/Config/Ports and pins menu:



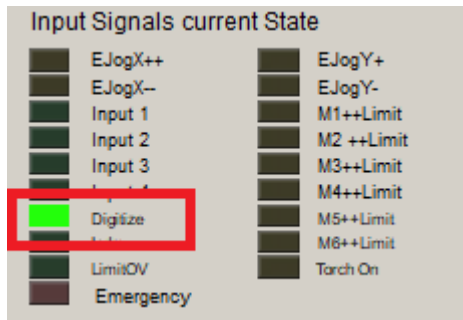
Setup your “port number”, “pin number” and “active low” option according your motion board and wiring.

- Check the sensor function by MACH3/diagnostic page:

When sensor is ready (not triggered) “Digitize” input has to be inactive:



When sensor is triggered, "Digitize" input has to be active:



This input is used by g-code G31. Please use documentation of your MACH3 version for further details. In general, G31 starts function, which moves a spindle in set direction, until "Digitize" input is activated. Current position at the touch point can be read.

Example of measurement cycle macro:

```
Code "G91 G31 X+10 F200"  
sleep (100)  
While (IsMoving())  
  sleep (100)  
Wend  
SetOEMDro(800, -1.5)
```

G91 = incremental (relative) positioning

G31 X+10 F200 = probing function, move in X axe +10mm max with feed rate 200unit/s. This function ends as soon as Digitize input is activated or after set distance (X+10mm in this example)

sleep (100), While (IsMoving()), sleep (100) , Wend = waiting cycle, finishes as soon as machine is stopped, means G31 ends.

SetOEMDro(800, -1.5) = set X DRO to value -1.5 (half of tip dia). Value can be different.