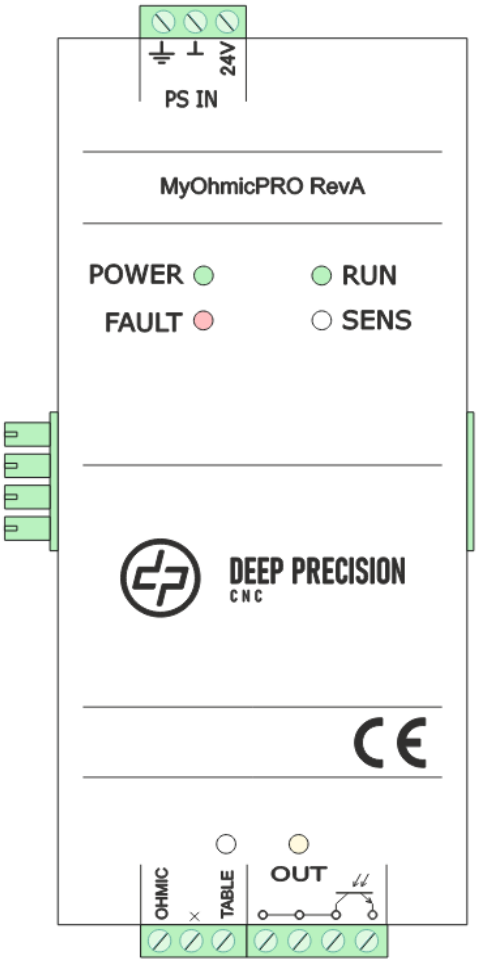
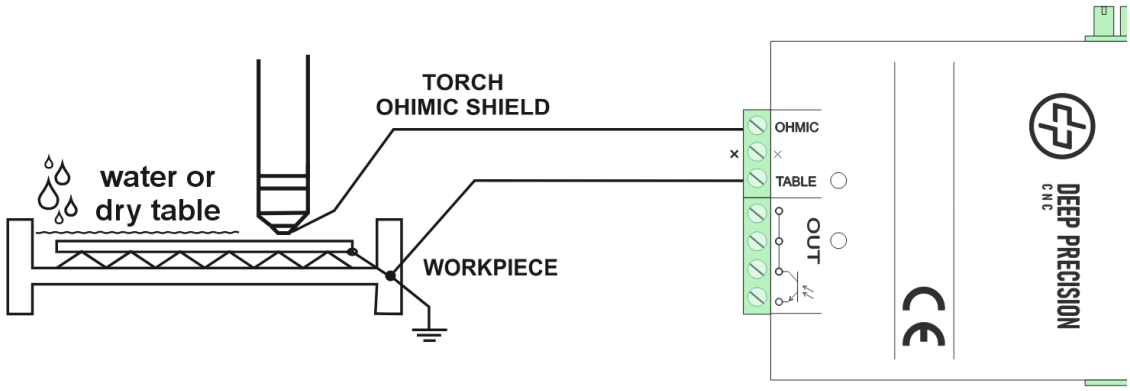
DEEP PRECISION
CNC

MyOhmic PRO RevA

Touch Material Detection Sensor

User manual v1.1





Thank you for choosing our product.

This manual will assist you in the proper operation and correct use of the described device.

The information provided in this manual has been prepared with the utmost care by our specialists and serves as a product description without assuming any liability under commercial law.

These pieces of information do not exempt the user from the obligation to subject the product to their own assessment and verify its properties.

Please read the instructions carefully and adhere to the recommendations contained therein.

CAUTION! Failure to comply with the instructions may result in damage to the device or make it impossible to operate the equipment.

1. Safety Principles

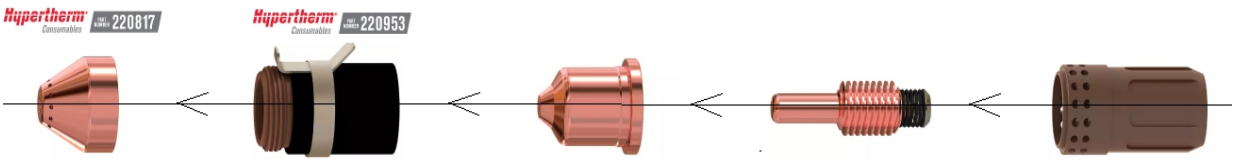
• Before the initial operation of the device, familiarize yourself with this user manual.
• Before the initial operation of the device, ensure that all cables have been connected correctly.
• Ensure proper operating conditions in accordance with the device specifications.
• Before making any modifications to cable connections, disconnect the power supply voltage..

2. Module Characteristics

2.1 Purpose and Description of the Module

The device is designed for detecting the material's position in CNC plasma cutting control systems to determine the initial position of the torch above the material. The operation of the device is based on checking the closure of an electrical circuit by touching the nozzle shield (insulated OHMIC element) to the material. This is signaled by a yellow LED indicator, and the output is triggered, which is used to transmit a signal to the CNC controller/program.

The plasma torch must be equipped with a galvanically isolated element specifically designed for this purpose (the nozzle of the torch cannot serve as this element). This manual describes devices from the **PowerMax** series by **Hypertherm**.



Ohmic shield ← isolator ← nozzle ← electrode
(OHMIC Elements)

2.2 Technical Specification

Parameters:

Supply Voltage	: 5-30V DC
Current Consumption	: 2-50mA
Max Measurement Voltage	: 15V DC
Output Type	: Optoisolated NPN NO
Output Load Capacity	: 30V DC / 200mA max
Sensitivity Adjustment	: Yes
HV Protection	: 12kV AC (Isolation Test)
LV Protection	: 400V DC (60s test)
Response Time	: < 2ms
IP Protection Rating	: IP20
Dimensions (ex.connectors)	: 85 x 45 x 15 [mm]
Operating Temperature	: -10ºC – +50 ºC
Storage Temperature	: -40ºC – +50 ºC

3. Mnstallation and Setup

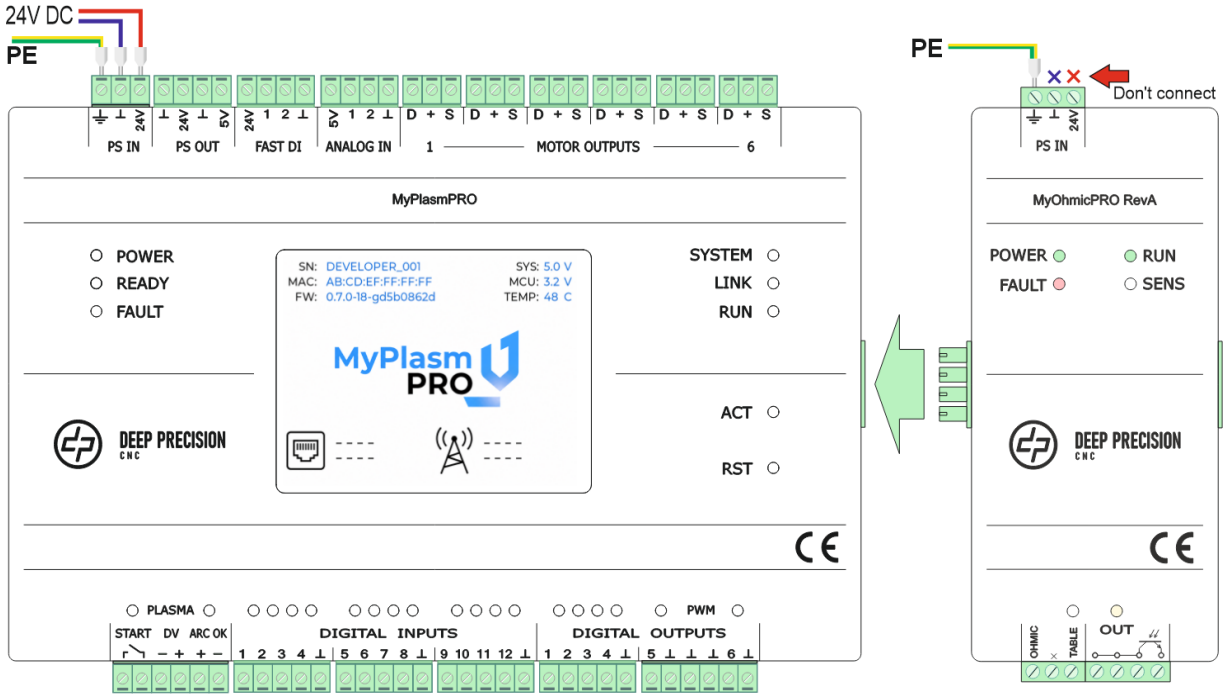
Installation and connection should be carried out by a person with appropriate electrical qualifications. The device should be installed in a dust-free and moisture-free environment..

3.1 Power Supply : The device should be powered using a direct current (DC) power supply with a voltage in the range of 5-30V DC. Voltage stabilization is not required. The device has reverse polarity protection.

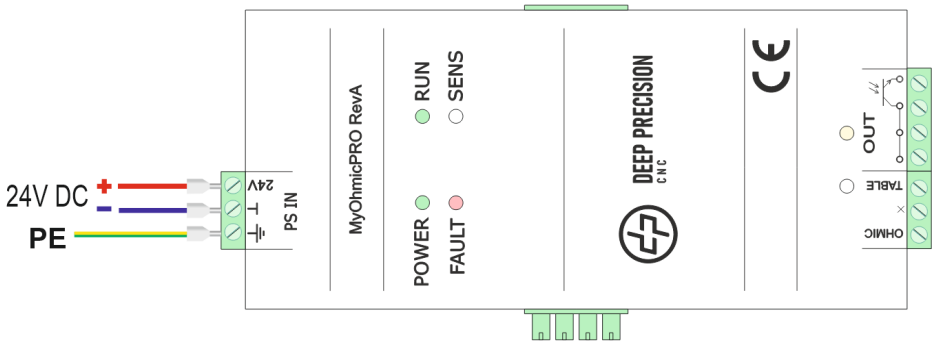
The device consumes a very low current (not exceeding 50mA/24V), so the current capacity/power of the power supply is not critical. The device can be powered from an existing control system power supply without affecting its operation. In addition to the option for an external connection, the device features a compatible connector for direct integration with the **MyPlasm PRO** system, from which it can also draw power.

!!! EARTH (PE) Have to be conected in Both type of connections **!!!**

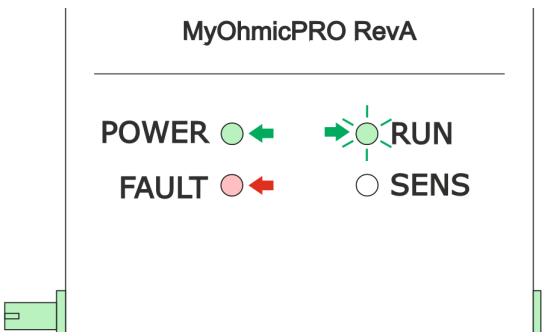
3.2 Power Supply form MyPlasm PRO controller.



3.2 External Power Supply.

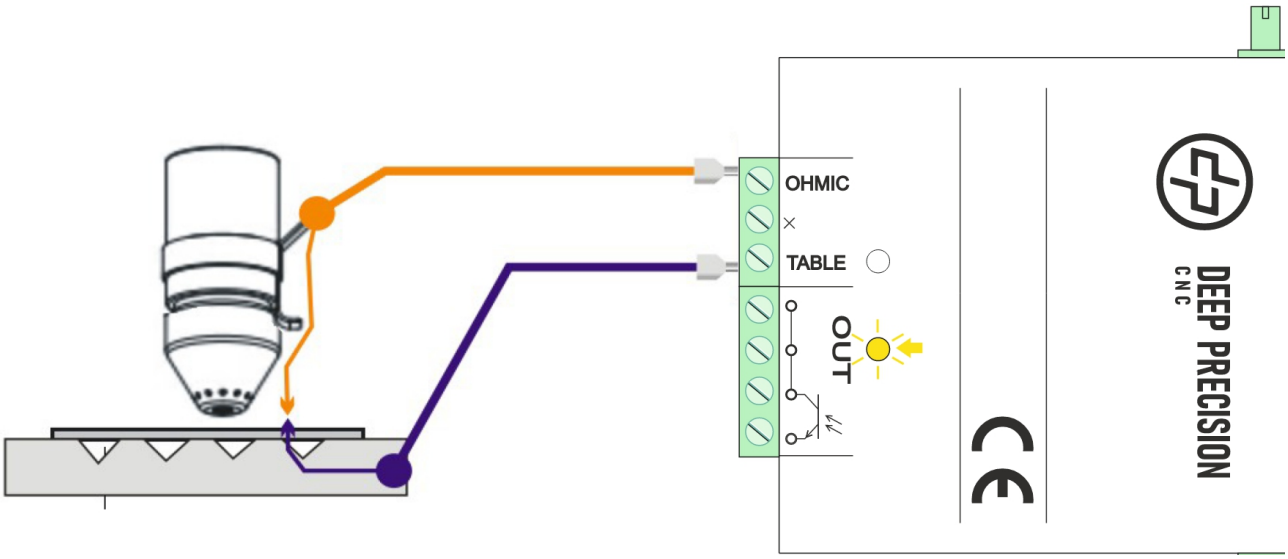


Correct power connection is indicated by Lighting green LED labeled as **POWER**, Ready to work by blinking green „**RUN**" LED.



Lighting red LED „**FAULT**" idicating Power Supply problem.

3.2 Measurement Circuit Connection



The system detects the closure of the contacts described as **TORCH OHMIC SHIELD** (isolated shield of the torch nozzle) and **WORKPIECE** (Material / grounded machine structure).

Touching the torch to the material should be signaled by a yellow LED (**OUT**). Ensure good contact of the **WORKPIECE** clamp with the cut material. In most cases, this can be any part of the machine structure, but keep in mind that painted structural elements/tubs may prevent good contact.

CAUTION! Reversing the connection of the measurement wires may damage the device...

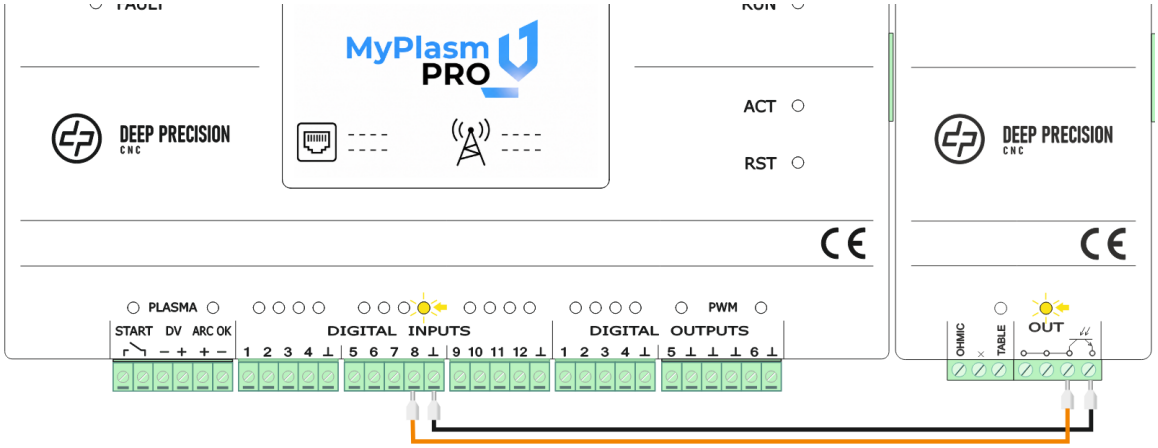
CAUTION!!! The device is protected against the occurrence of high voltage inside the plasma torch in the event of torch failure, incorrect assembly of consumables, moisture, or the ingress of contaminants, etc.

Use an OHMIC measurement cable rated for a minimum of **400V** to avoid potential insulation breakdown.

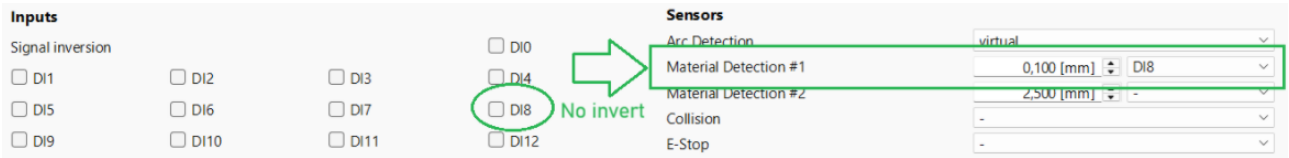
3.3 Connection of the Output Signal

The NPN transistor output (floating and optoisolated) is configured as Normally Open (NO), meaning the contacts are open when there is no contact between the torch and the material and closed when the torch touches the material, indicated by a yellow LED (OUT).
Connecting the output should be done according to the CNC controller specification, and it varies for different controller types. The connection is similar to limit sensors.

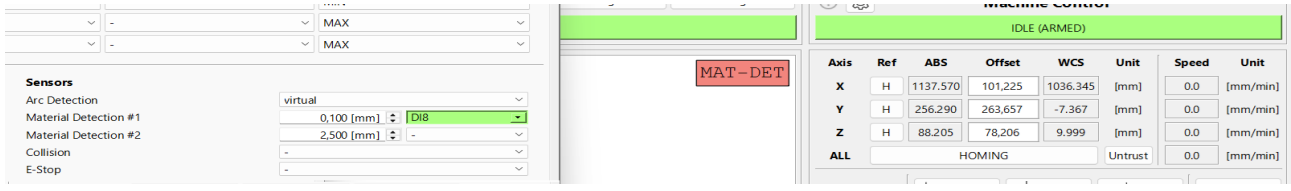
Example of connection with **MyPlasm PRO** controller:



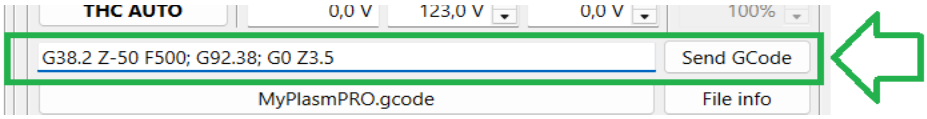
Configuration of Digital Input 8 as Material Detection function:



When correctly connected and configured, the program indicates contact between the torch and the material:

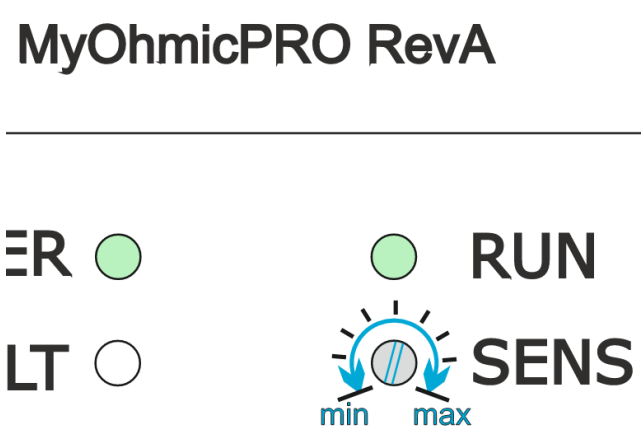


Simply-test code (Specyfic for **MyPlasm PRO**):



G38.2 Z-50 F500 (PROBE - lowering the Z-axis at a speed of 500mm/min until the sensor is triggered, limited to -50 position).
G92.38 (zero the Z coordinate with compensation)
G00 Z3.5 (Z-axis 3.5mm above the material)

3.4 Sensitivity adjustment



Device is factory-calibrated and ready to use.

If needed, adjust sensitivity via the **SENSE** opening using very gently the included 2 mm flat-head screwdriver.

Max Range:
±100° = ±50% sensitivity.

4.0 Quality Assurance Statement:

At DeepPrecision, we take pride in delivering high-quality solutions that meet your expectations.

If you have any questions, concerns, or feedback regarding the quality of our products, please do not hesitate to reach out to our technical support team at **dpcnc.pro**
We value your satisfaction and are here to assist you.
Thank you for entrusting Deep Precision CNC with your needs. We look forward to continuing to serve you with excellence.
Sincerely,
Deep Precision CNC Team