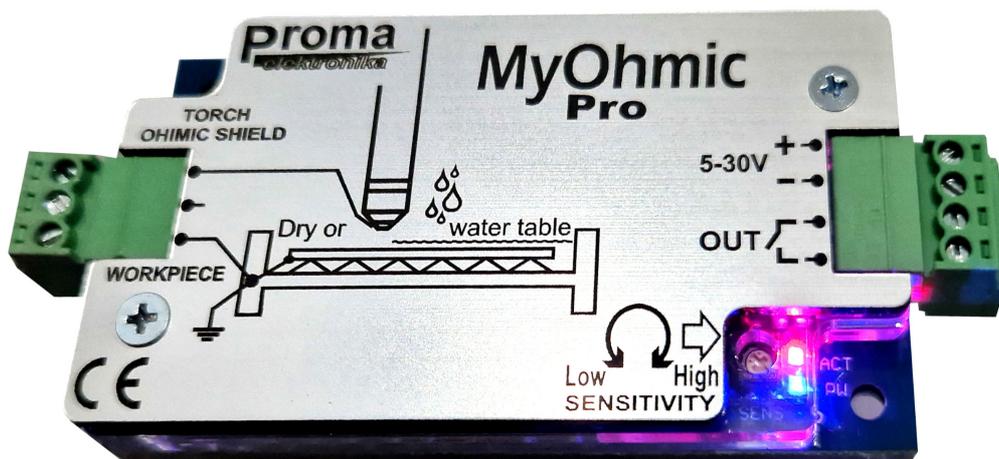


MyOhmic PRO

Touch Material Detection Sensor - Professional Version

User manual v1.0



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

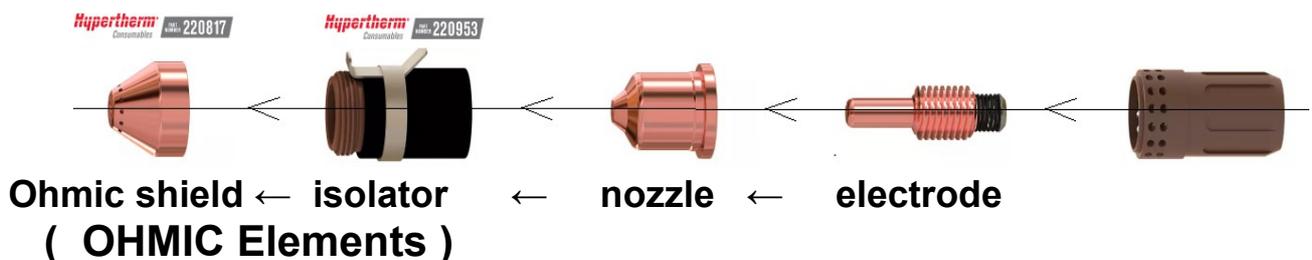
- Before the initial operation of the device, familiarize yourself with this user manual.
- Before the initial operation of the device, ensure that all cables have been connected correctly.
- Ensure proper operating conditions in accordance with the device specifications.
- Before making any modifications 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 red LED indicator, and the output relay 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**.



2.2 Technical Specification

Parameters:

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

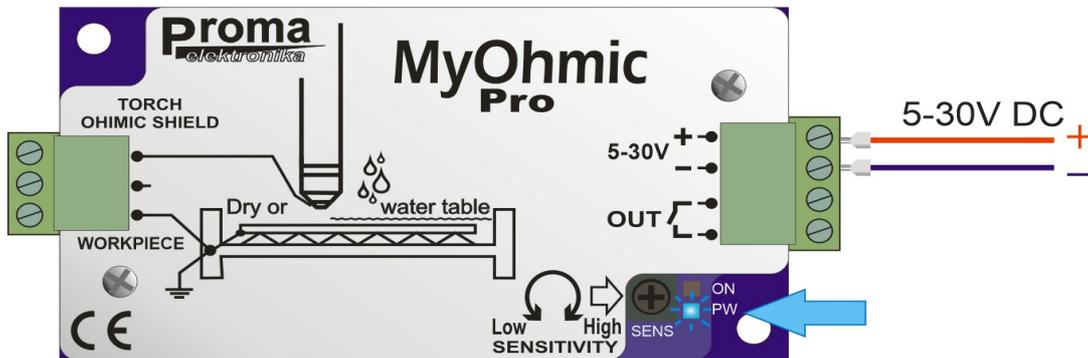
3. Mnstallation and Setup

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.

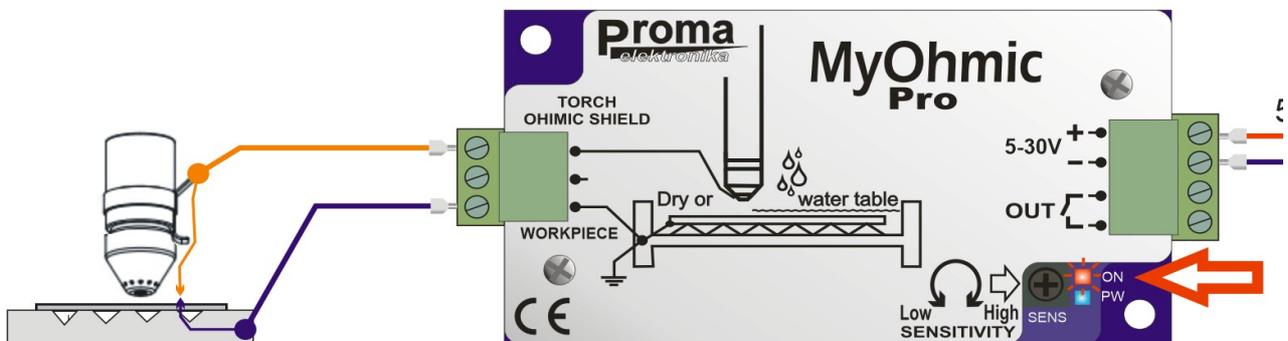
The device consumes a very low current (not exceeding 50mA), so the current capacity/power of the power supply is not critical. The device can be powered from an existing control system power supply without affecting its operation

Correct power connection is indicated by the blinking of the blue LED labeled as **PW** (POWER).



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 red LED (**ON**). 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.

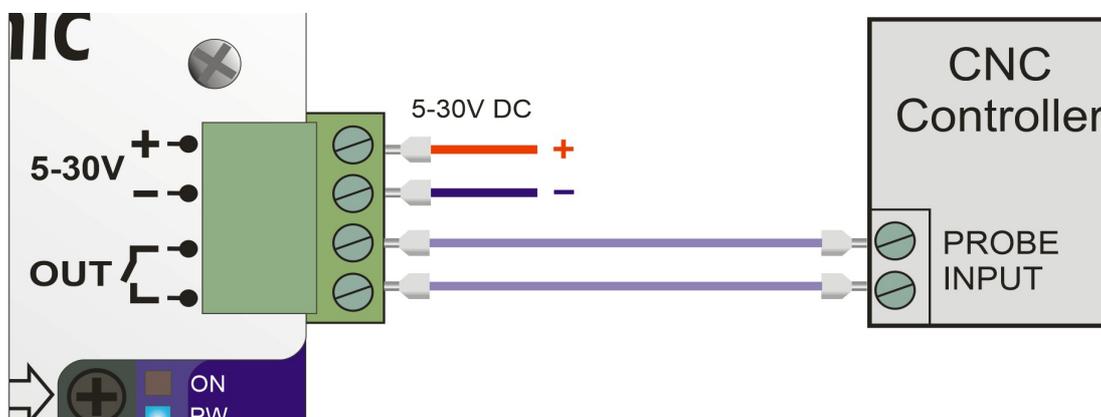
Use an OHMIC measurement cable rated for a minimum of **400V** to avoid potential insulation breakdown.

3.3 Connection of the Output Signal

The relay output allows for a wide range of applications in any control system. The relay contacts are 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 RED LED.

Connecting the relay contacts should be done according to the CNC controller specification, and it varies for different controller types. The connection is similar to connecting mechanical limit switch contacts.

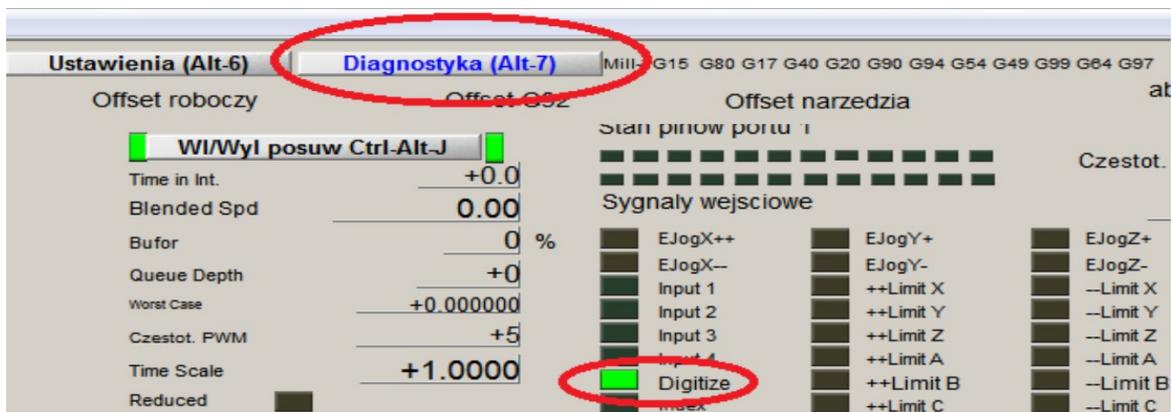
Example connection (check the controller/board CNC manual for specific relay contact connection):



The CNC controller input should be configured as a material detection input. For example, in the Mach 3 program, you can configure the input as **PROBE**.

Signal	Enabled	Port #	Pin Number	Active Low	Emulated	HotKey
Input #1	<input checked="" type="checkbox"/>	1	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0
Input #2	<input checked="" type="checkbox"/>	1	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0
Input #3	<input checked="" type="checkbox"/>	1	0	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0
Probe	<input checked="" type="checkbox"/>	1	15	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	0

If the signal correctly reaches the program (**Digitize** signal) when the torch touches the material (if necessary, you may need to reverse the "**Active Low**" setting), you can proceed to check the operation using, for example, the **G31** code..



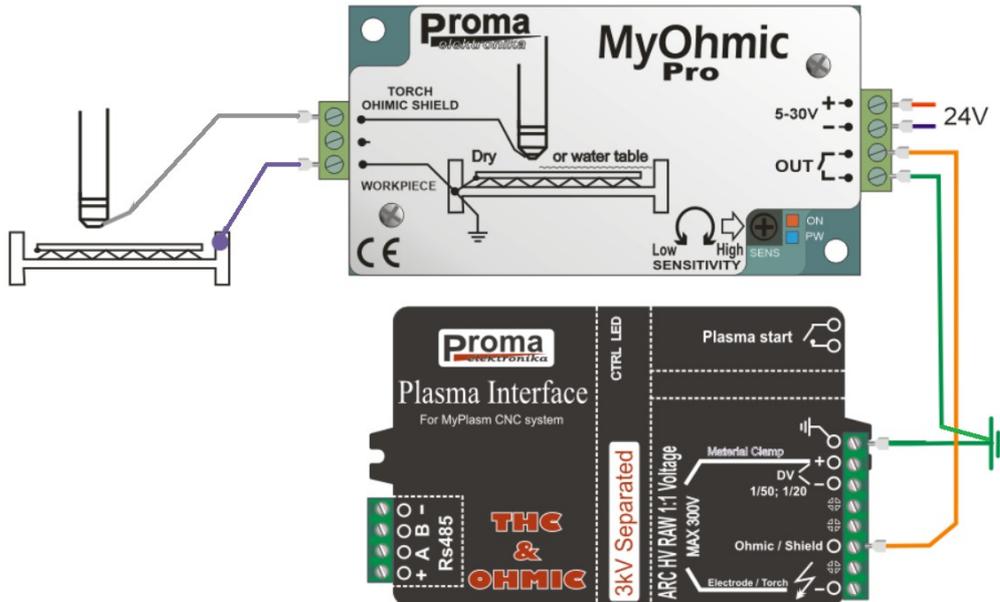
Example Z-axis detection code:

G31 Z-10 F800 (lowering the Z-axis at a speed of 800mm/min until the sensor is triggered, limited to Z position = -10).

Then use the **G92** code to zero the Z coordinate and set the axis to the Z position where the arc is engaged.

- G31 Z-10 F800** (PROBE)
- G92 Z0** (Z=0; or with correction, e.g., G92 Z-0.5)
- G00 Z3.5** (Z-axis 3.5mm above the material)

For integrated OHMIC systems to enhance resistance to plasma torch splashing, it is possible to cascade connect systems as shown in the example below (for illustration, connection with the **MyPlasm CNC System**).



4.0 Quality Assurance Statement:

At Proma-Elektronika, 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 proma-elektronika.com. We value your satisfaction and are here to assist you.

Thank you for entrusting Proma-Elektronika with your needs. We look forward to continuing to serve you with excellence.

Sincerely,
Proma-Elektronika Team