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DSC3

DIGITAL OHMIC SENSOR



How the DSC3 works

The DSC3 detects electrical contact between an ohmic-compatible torch consumable and the workpiece. The CNC can use that signal to locate the plate surface before piercing.

When measured resistance falls below the saved threshold, the DSC3 activates its output. The sensor suppresses its output during an active plasma arc.

Technical specifications

Supply voltage	24 V DC (12–48 V DC)
Current consumption	120 mA (≈3 W at 24 V DC)
Sensing impedance	0–1.5 MΩ
Digital resolution	100 levels
Setting memory	Saved automatically
Output interface	Open collector, PNP or NPN
Active arc	Probe output inhibited

Adjusting sensitivity

Use the ADJ potentiometer to set sensitivity. The DSC3 saves the final setting in its memory.

Front panel



ON
Power indication.

OUT
Output indication.

PROBE
Probe indication.

Ω LEVEL
Digital sensitivity level.

ADJ
Sensitivity pot (top left).

Reading the display

The display shows the digital sensitivity level. The final setting is saved in the DSC3’s memory.

Sensitivity and testing

1 Verify the CNC input at rest

Disable ignition. With the torch clear of the plate, check in CNC diagnostics that the probe input is inactive.

2 Set the sensitivity

Adjust sensitivity with the ADJ potentiometer. The device saves the final setting. Check contact on the material you cut.

3 Check contact and release

Use the machine’s approved test procedure. Check that the input changes at contact and returns to idle on release. Test several points on the plate.

4 Dry-run the touch-off

Confirm that the Z axis stops at the probe event and retracts as programmed.

Wet cutting tables

Water on the torch or workpiece can trigger the probe early. Repeat the dry run after changes in water level or splash.

Troubleshooting

Probe triggers before contact

Inspect for pooled water, splash or conductive debris. Check the CNC input polarity and confirm the input is idle with the torch clear.

Probe misses the plate

Clean the torch contact and the workpiece. Check the approved ohmic consumable, the sensing path and the chosen sensitivity.

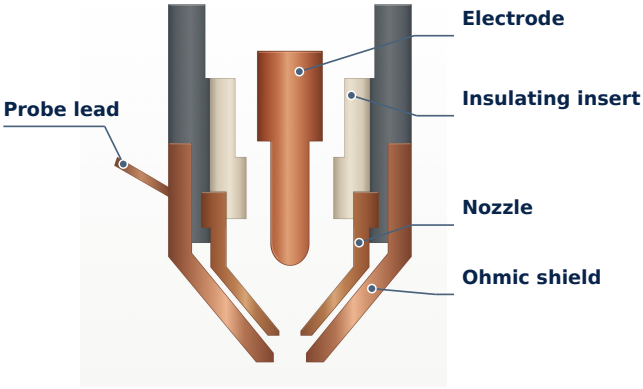
Sensor responds, CNC sees no event

Check the CNC probe input, the output type, and the OUT and COM connections.

Output goes idle during cutting

The DSC3 inhibits its output while the plasma arc is active. Evaluate the probe signal during a touch-off with ignition disabled.

Plasma torch cutaway



RING (−Sensor) connects to the probe lead. TABLE (+Clamp) connects to the metal workpiece.

Consumables from tip to torch body



Shield | Ohmic cap | Nozzle | Electrode

An ohmic cap or a separate ring may be used, depending on the torch. If the torch has no factory contact, a separate electrically insulated sensing contact can touch the workpiece during probing.

Wiring the DSC3



Top terminals. RING (−Sensor) connects to the ohmic ring. TABLE (+Clamp) connects to the workpiece.

Bottom terminals. +24V and GND power the device. OUT is the probe output and COM is its common terminal.

Match the PNP or NPN output to the CNC probe input.



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