



Professional Set piezobrush PZ3

Piezoelectric based cold plasma generator

Series/Type:	F series packaged component
Ordering code:	B54324D5120A140
Date:	2020-06-04
Version:	1

The piezobrush® PZ3 by Relyon-Plasma, a TDK group company is a handheld device for generating technical plasma.

Features

- Used to pre-treat a wide range of material surfaces before processes such as gluing or printing.
- Also possible to use the cleaning effect of the plasma.

Applications

- Cleaning of metal, glass and plastics
- Surface activation and surface functionalisation for optimized wettability
- Plasma-assisted laminating process
- Plasma-assisted adhesive bonded joints
- Plugging and sealing
- Plasma induced reduction of metal surfaces
- Chemical-free bleaching of textiles
- Handling of food products for quality and shelf life
- Multi-component injection moulding

Construction

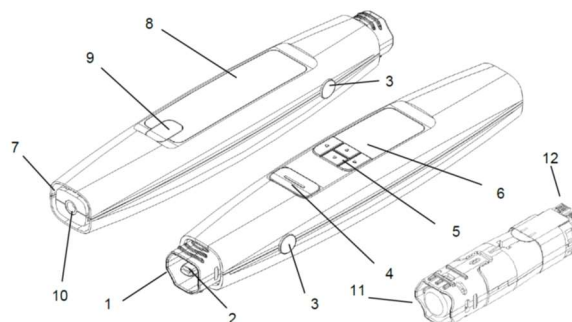
- RoHS compatible
- Change module contains SVHC substance 12626-81-2

Delivery units

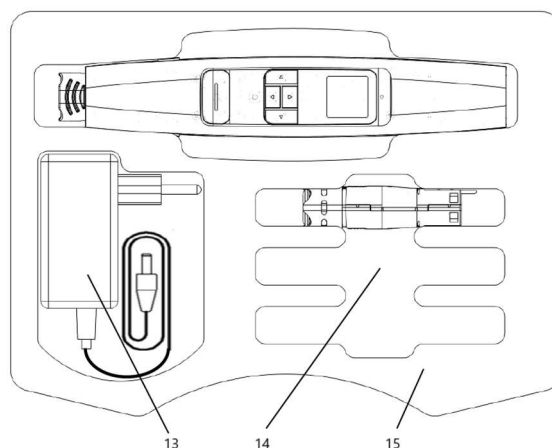
- Handheld device (plasma generator)
- Standard module for various applications on non-electrically conductive substrates (wear part)
- Nearfield module for the treatment of electrically conductive substrates (wear part)
- Plug-in power supply (cable length 1.5 m; with adaptors **EU**: CEE 7/16, **US**: NEMA 1-15P, **UK**: BS 1363, **AUS**: AS 3112)
- Case with foam inlay
- Operating instructions

Additional information on applications, as well as further modules for this device can be found on the website www.relyon-plasma.com / www.relyon-plasma.cn.

Drawings



No.	Component description
1	Module „Standard“ (inserted)
2	Piezo element in module (embedded in module)
3	Module release button (on both sides)
4	Start/Stop button
5	Menu buttons
6	Display
7	Air inlet
8	Type plate
9	Service port cover (only for service by relyon plasma)
10	DC socket for plug-in power supply
11	Modul „Nearfield“ (not inserted)
12	Contact board on module



No.	Component description
13	Plug-in power supply
14	Compartments for optional modules
15	Foam insert

Specification

Parameter	Symbol	Value	Unit
Electrical data			
Supply voltage DC device	V_d	24	V
Supply voltage AC power supply	V_p	110 ... 230	V
Max. power consumption	$P_{max.}$	18	W
Dimensions handheld device including standard module			
Weight (without plug-in power supply)	m	110	g
Length	l_d	215	mm
Diameter max.	$\varnothing_{max.}$	38	mm
Diameter min.	$\varnothing_{min.}$	27	mm
Cable length	l_c	1500	mm
Dimensions case including content			
Length	l_{case}	275	mm
Width	b_{case}	230	mm
Height	h_{case}	85	mm
Weight	m_{case}	1100	g
Typical application parameters (exemplary for standard module)			
Plasma temperature	T_{Plasma}	< 50	°C
Treatment distance	d_{Treat}	2 ... 10	mm
Width of treatment ¹⁾	b_{Treat}	5 ... 29	mm
Treatment speed	v_{Treat}	0 ... 20	mm/s
Operating conditions			
Air humidity rel. ²⁾	rH	< 80	%
Temperature	T_{op}	10 ... 40	°C
Storage conditions			
Air humidity rel. ²⁾	rH	< 80	%
Temperature	T_{st}	0 ... 60	°C

¹⁾ Depending on process parameters

²⁾ Non-condensing

Cautions and warnings

General

- Do not use piezobrush PZ3 for purposes not identified in our specifications, application notes and data books.
- Ensure the suitability of the piezobrush PZ3 in particular by testing it for reliability during design-in. Always evaluate the piezobrush PZ3 under worst-case conditions.
- Pay special attention to the reliability of the piezobrush® PZ3 intended for use in safety-critical applications (e.g. medical equipment, automotive, spacecraft, nuclear power plant).

Design notes

- Do not use the piezobrush PZ3 in safety-relevant applications.
- Specified values only apply to piezobrush PZ3 that have not been subject to prior electrical, mechanical or thermal damage.

Storage

- Store the piezobrush PZ3 in a dry place. This will prevent corrosion of the electrical contacts.
- Store the piezobrush PZ3 in their original packaging.
- Storage conditions in original packaging: temperature 0 up to +60 °C, relative humidity <80%.
- Do not store the piezobrush PZ3 where they are exposed to heat or direct sunlight. Otherwise the packaging material may be deformed.
- Avoid contamination of the piezobrush PZ3 during storage, handling and processing.
- Avoid storing the piezobrush PZ3 in harmful environments where they are exposed to corrosive gases (for example SO_x, Cl).

Handling

- Do not drop the piezobrush PZ3.
- Do not touch the piezo element and the contact board.
- Do not touch the piezo element at the front of the piezobrush PZ3 with sharp-edged objects.
- Do not reach into the interior of the piezobrush PZ3 if no module is inserted and do not insert any objects into the opening other than the provided modules.
- Hold the piezobrush PZ3 only in the area of the Start/Stop button, not in the area in front of it.
- Avoid contamination of the piezobrush PZ3 during handling.
- Do not touch piezo elements during operation (danger of high voltage, damping the acoustic wave inside the ceramic body, damaging the ceramic body).
- Do not reach into the work area during plasma generation.
- Read the operating instructions carefully before assembling, installing and starting up the device.
- Always follow the safety instructions in the operating instructions, because non-compliance may result in serious or fatal injury.
- Train your staff.

Operation

- Use piezobrush PZ3 only within the specified operating temperature range.
- Use piezobrush PZ3 only within specified voltage and power ranges.
- The piezobrush PZ3 has to be operated in a dry atmosphere which must not contain any additional chemical vapour or substances.
- Environmental conditions must not harm a piezobrush PZ3. Only use them in normal atmospheric conditions.
- Prevent a piezobrush PZ3 from contacting liquids and solvents. Make sure that no water enters a piezobrush PZ3.
- Avoid dewing and condensation.
- Under all circumstances avoid exposure to:
 - direct sunlight
 - rain or condensation
 - steam, saline spray
 - corrosive gases
 - atmosphere with reduced oxygen content
 - explosive zones
 - areas with severe build-up of dust
 - altitudes more than 2000 m above sea level
 - strong vibrations
- Avoid electrically conducting materials closer than 60 mm to the front third of the piezobrush PZ3 (Exception: Substrates in front of the module when using modules designed for this purpose. Electrically conductive substrates must be grounded or protected against touching).
- Do not use the piezobrush PZ3 without air supply. This would interrupt the supply of cooling medium required during operation.
- Never cover the air inlet and/or the nozzle outlet during operation.
- Under certain circumstances, the electric fields generated by the piezobrush PZ3 can damage sensitive electronic components. Make sure that the components of your application are not affected by the plasma process.
- Only use the piezobrush PZ3 in industrial environment.
- High voltage hazard! The piezo element can reach voltages of up to 10 kV!
- The exchange modules can become hot during operation. Do not touch them until they have cooled down.
- The work piece to be treated can become heated up by the plasma process depending on the process parameters. If necessary, allow the work piece to cool down before handling it.
- Take special care of the toxicity of ozone! Use a ventilation system to remove the ozone. Depending on air-flow the ozone concentration can reach very high values!
- Use air or inert gases only! Do not use flammable working gases!
- TDK is not responsible for any harm during operating and testing of piezobrush PZ3!
- Read the operating instructions carefully before assembling, installing and starting up the device.
- Always follow the safety instructions in the operating instructions, because non-compliance may result in serious or fatal injury.
- Train your staff.

This listing does not claim to be complete, but merely reflects the experience of TDK.

Spare parts

- B54321P5100A020 Standard module (wear part; corresponding Relyon Plasma material number 1000650100)
- B54321P5100A120^{*)} Nearfield module (wear part; corresponding Relyon Plasma material number 1000650200)

^{*)} can be ordered starting 10/2020

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Important notes

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Release 2018-10