PiezoBrush PZ3-c

PiezoBrush core components for integration

Series/Type: **CeraPlas F-Type**
Ordering code: **Z63000Z2910Z1Z87 (Prototype)**

Date: 2023-11-27
Version: 1

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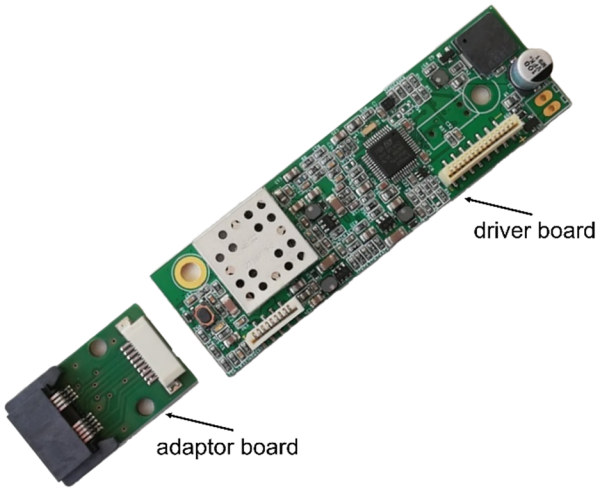
Integration components for usage with PiezoBrush PZ3 change modules

Applications

- Surface activation and surface functionalization for optimized wettability
- Fine-cleaning of surfaces
- Plasma-assisted laminating process
- Plasma-assisted adhesive bonded joints
- Plugging and sealing
- Plasma induced reduction of metal surfaces
- Chemical-free bleaching of textiles



Features

- Driver board for driving and controlling the change module; adaptor board for connection between change module (sold separately) and driver board
  - No high voltage wiring
  - No high voltage plugs
- Low power
- High efficiency
- No magnetic fields

Scope of delivery

- Driver board “DrivePZ3”
- Adaptor board
- NOT included:
  - Change module
  - Flat flexible cable (FFC) for connection between boards (9-pin)

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Specifications

Electrical data

Supply voltage	24 V DC ±0.5 V
IO Pin voltage	3.3 V DC ±0.1 V
Power consumption	max. 15 W
Model	integration components; only for use with PiezoBrush PZ3 change modules (sold separately)

Typical application parameters (exemplary for use with module “Standard“)

Plasma temperature	< 50 °C (at 5 mm distance)
Minimum recommended gas flow	8 slm (fan not included) through module
Minimum heat dissipation	8 W (at module/CeraPlas) 5 W (at driver board)

Operating conditions

Air humidity	< 80% rel. (non-condensing)
Temperature	10 … 40 °C; 50 … 104 °F

Storage conditions

Air humidity	< 80% rel. (non-condensing)
Temperature	0 … 60 °C; 32 … 140 °F

Please note:

- The change module is a wear part whose service life depends on the operating conditions.
- EMC compliance and product safety must be evaluated in the final integration.

Installation

- Remove the device from the packaging.
- Connect a flat flex cable with the DrivePZ3 and the adaptor board (see cable specification on following page).
- Connect a change module with the adaptor board.
- Connect a 24 V DC power supply to the DrivePZ3 (for polarity see drawing on page 5).

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- For turning the device on and off later, provide an analog voltage signal to pin 2 of the 15-pin FFC connector. The output power of the module is proportional to the supplied voltage. A voltage of 0 V results in an output power of 0%, a voltage of 2.33 V results in an output power of 100%. The pin can tolerate up to 3.3 V.
- Mount all components on nonconductive mountings and mount the fan to ensure it cools the drive PZ3 and its gas flow streams also through the change module.
- The integration components only produce plasma in combination with the change module (sold separately). The installation and safety requirements in the data sheet of the change module must also be considered.
- Take special care of the toxicity of ozone! Use a suitable extraction or ventilation system to remove the ozone. Depending on air flow around the output of the change module the ozone concentration can reach very high values!

Attention – damage to device!

Do not solder the switch or bridge to the pads “alternative connection CERA PLAS”.

Do not supply the pads “alternative connection switch” with 24 V.

Specification for flat flex cable

Properties	Value	Unit
Pins	9	-
Pitch	1	mm
Pitch total	8	mm
Width	10	mm
Length	typ. 100, max. 500	mm
Conductor width	0.7	mm
Conductor length	5	mm
Thickness total	0.3	mm
Rated current	1	A
Working voltage	60	V

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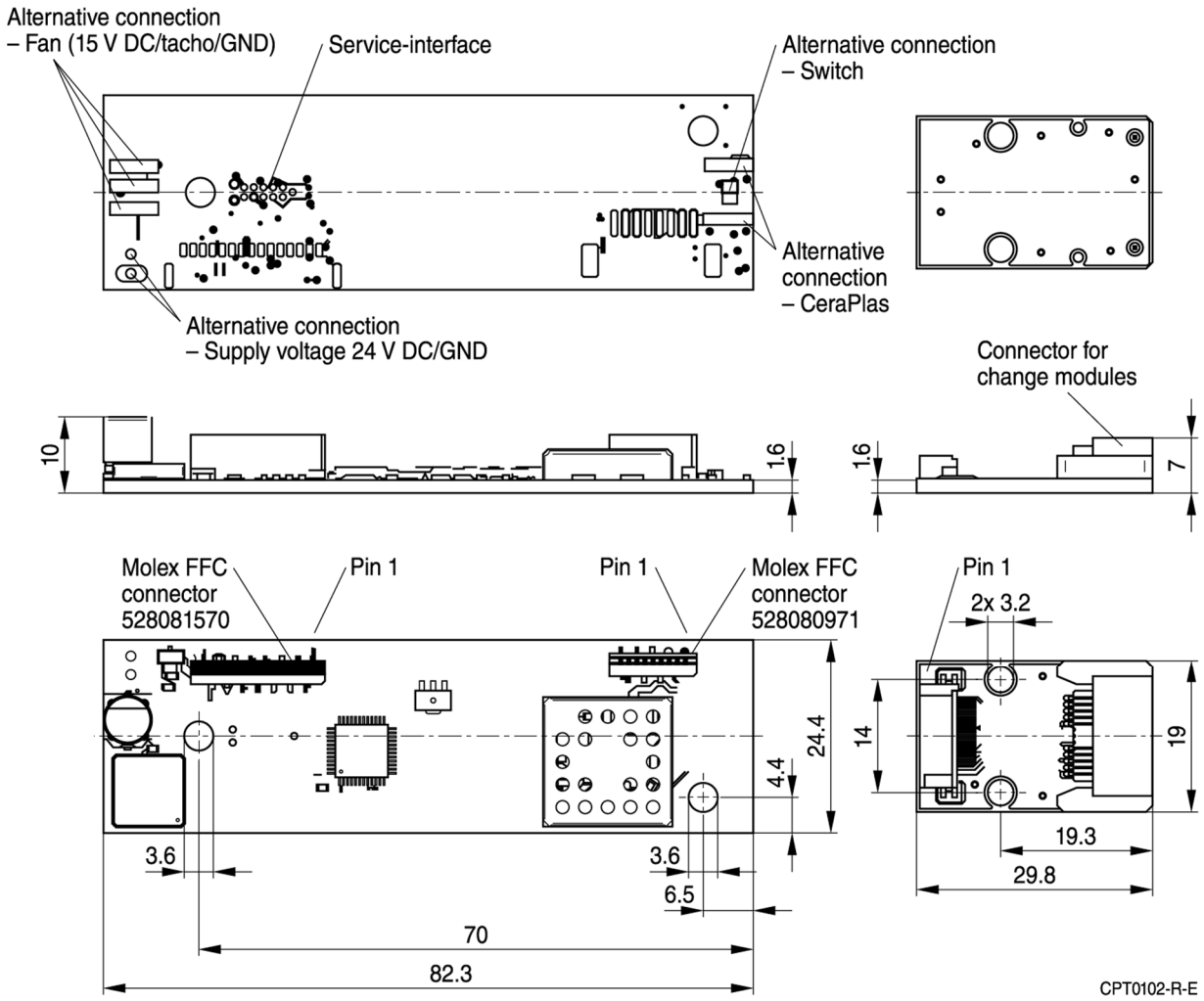
Dimensional drawings



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Cautions and warnings

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General

- Do not use the change module for purposes not identified in our specifications, application notes and data books.
- Ensure the suitability of the components, in particular by testing it for reliability during design-in.
- Always evaluate the components under worst-case conditions.

Design notes

- Do not use the components in safety-relevant applications.
- Ensure that the surface temperature does not exceed the maximum operating temperature.

Storage

- Store the components in a dry place. This will prevent corrosion of the electrical contacts.
- Only store the components in their original packaging. Do not open the package before storage.
- Do not store the components where they are exposed to heat or direct sunlight. Otherwise, the packaging material may be deformed.
- Avoid contamination of the components during storage, handling, and processing.
- Avoid storing the components in harmful environments where they are exposed to e. g. corrosive gases (SOx, Cl).

Handling

- Do not drop the components.
- Avoid contamination of the components during handling.
- Do not reach into the work area during plasma generation.
- Read the data sheet and safety requirements of the change modules used carefully before assembling, installing, and starting up the device.

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Operation

- Use the components only within the specified operating temperature range.
- Use the components only within specified voltage and power ranges.
- Use the components only with PiezoBrush PZ3 change modules.
- The components have to be operated in a dry atmosphere, which must not contain any additional chemical vapor or substances.
- Environmental conditions must not harm the components. Only use them in normal atmospheric conditions.
- Prevent the components from contacting liquids and solvents. Make sure that no water enters the components.
- Avoid dewing and condensation.
- The components are mainly designed for encased applications. 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
- The components can become hot during operation. Do not touch them until they have cooled down.
- Take special care of the toxicity of ozone! Use a ventilation system to remove the ozone.
- Depending on air flow around the output of the transformer the ozone concentration can reach very high values!
- TDK is not responsible for any harm during operating and testing of the components!
- Read the installation and safety information of the change modules before assembling, installing, and starting up the device.
- Always follow the safety 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.

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Important notes

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