



BioChip-D (Order No. 08503)

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General

Please check delivery for transport damage when unpacking.

Description

Multiparametric BioChip for measurement (Impedance, pO₂, pH and temperature) of cellular vitality and changes in impedance on glass substrate for optical access via microscope.

Caution

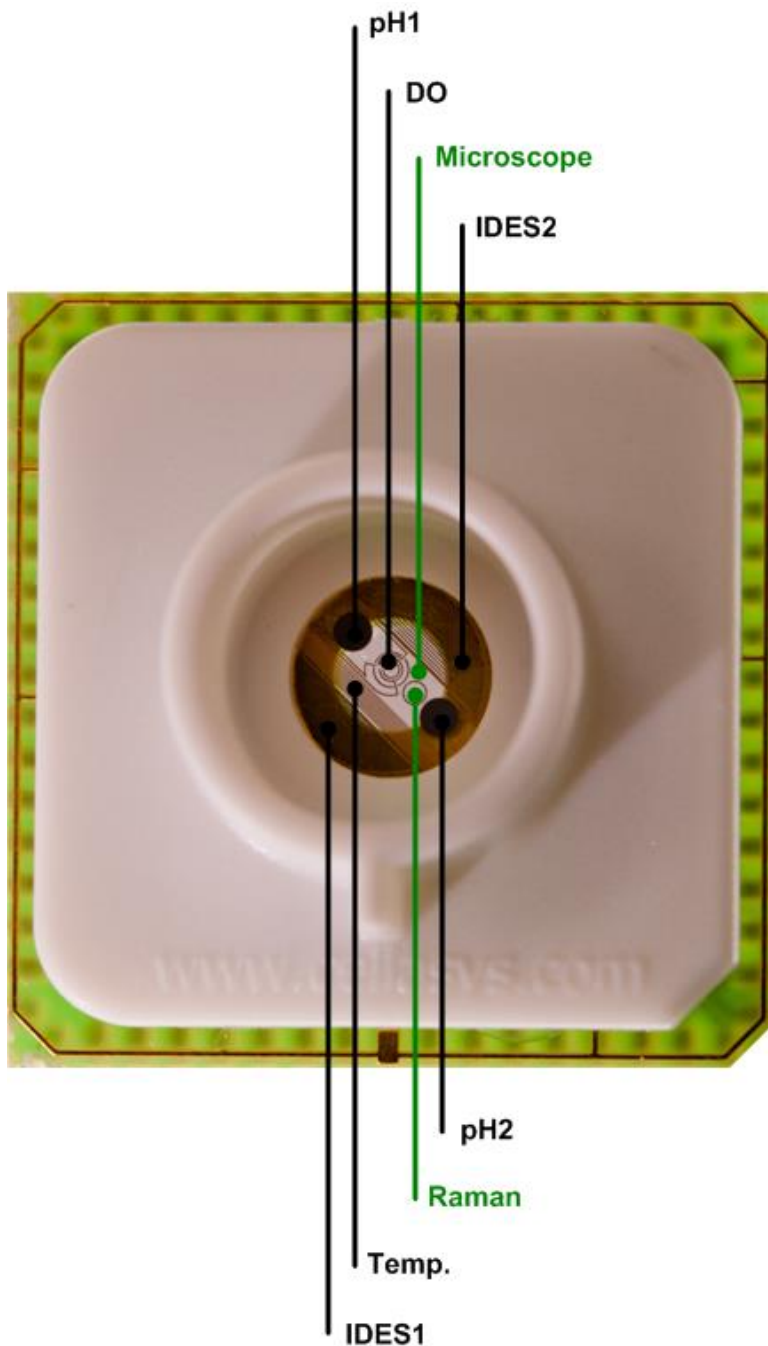
Handle with care.

- Glass tends to break due to mechanical stress.



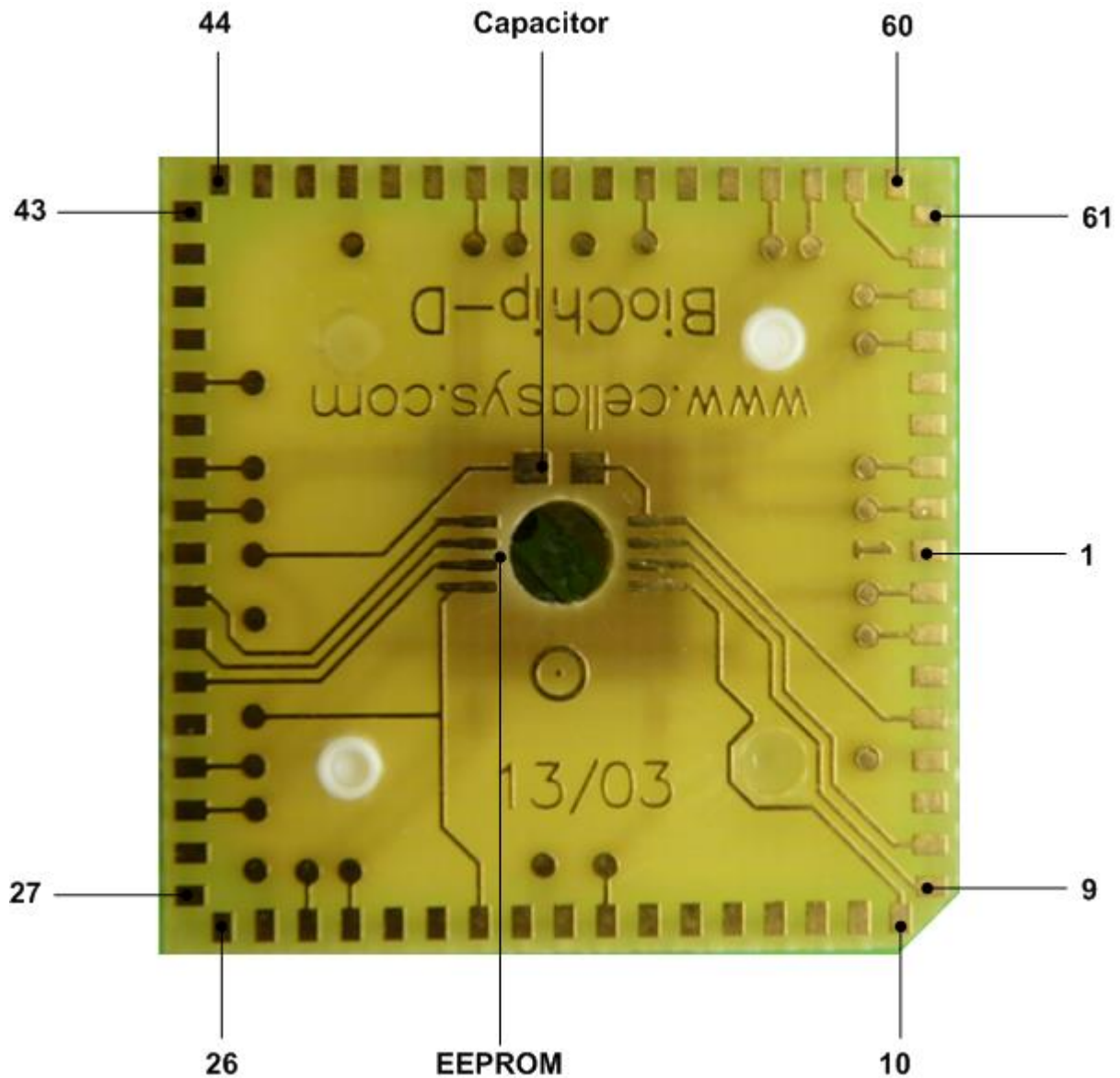
In general **BioChip-D** may only be used in combination with cellasys IMOLA-IVD by **qualified personnel** of a research or healthcare institution.
Read the **IMOLA-IVD manual** thoroughly and carefully follow the instructions and guidelines provided.

View from top side



IDES: Interdigitated electrode structure
DO: Dissolved oxygen
Temp: Temperature

View from bottom side



EEPROM*: M24C01 (TSSOP) – 401RP KTK726
24AA08 (MSOP) – 4A08I 5123M1

Capacitor*: 100nF (0603)

*Note: The BioChip is not equipped with an EEPROM and not equipped with a capacitor. This functionality is optional.

Pin configuration

| Pin No. | Name | Description |
|---------|---------|--|
| 1 | - | Not connected |
| 2 | TEMPAU | Temperature sensor, voltage connector A |
| 3 | TEMPAI | Temperature sensor, current connector A |
| 4 | - | Not connected |
| 5 | MEMGND | EEPROM GND |
| 6 | - | Not connected |
| 7 | - | Not connected |
| 8 | MEME2 | EEPROM chip enable 2 |
| 9 | MEME1 | EEPROM chip enable 1 |
| 10 | MEME0 | EEPROM chip enable 0 |
| 11 | - | Not connected |
| 12 | - | Not connected |
| 13 | - | Not connected |
| 14 | - | Not connected |
| 15 | - | Not connected |
| 16 | - | Not connected |
| 17 | PH2 | pH sensor 2 |
| 18 | - | Not connected |
| 19 | - | Not connected |
| 20 | MEMVCC | EEPROM VCC (2.5V – 5.5V) |
| 21 | - | Not connected |
| 22 | - | Not connected |
| 23 | IDES2AU | Impedance sensor 1, voltage connector A |
| 24 | IDES2AI | Impedance sensor 1, current connector A |
| 25 | - | Not connected |
| 26 | - | Not connected |
| 27 | - | Not connected |
| 28 | - | Not connected |
| 29 | IDES2BI | Impedance sensor 1, current connector B |
| 30 | IDES2BU | Impedance sensor 1, voltage connector B |
| 31 | - | Not connected |
| 32 | MEMWC | EEPROM write control |
| 33 | MEMSCL | EEPROM serial clock |
| 34 | MEMSDA | EEPROM serial data |
| 35 | - | Not connected |
| 36 | O2REF | Dissolved oxygen sensor, reference electrode |
| 37 | PH1 | pH sensor 1 |
| 38 | - | Not connected |
| 39 | - | Not connected |
| 40 | - | Not connected |

Data sheet

| Pin No. | Name | Description |
|---------|---------|--|
| 41 | - | Not connected |
| 42 | - | Not connected |
| 43 | - | Not connected |
| 44 | - | Not connected |
| 45 | - | Not connected |
| 46 | - | Not connected |
| 47 | - | Not connected |
| 48 | - | Not connected |
| 49 | - | Not connected |
| 50 | O2WK | Dissolved oxygen sensor, work electrode |
| 51 | O2AUX | Dissolved oxygen sensor, auxiliary electrode |
| 52 | - | Not connected |
| 53 | - | Not connected |
| 54 | - | Not connected |
| 55 | - | Not connected |
| 56 | - | Not connected |
| 57 | IDES1AU | Impedance sensor 2, voltage connector A |
| 58 | IDES1AI | Impedance sensor 2, current connector A |
| 59 | SC | Shortened to 62 |
| 60 | - | Not connected |
| 61 | - | Not connected |
| 62 | SC | Shortened to 59 |
| 63 | IDES1BI | Impedance sensor 2, current connector B |
| 64 | IDES1BU | Impedance sensor 2, voltage connector B |
| 65 | - | Not connected |
| 66 | - | Not connected |
| 67 | TEMPBI | Temperature sensor, current connector B |
| 68 | TEMPBU | Temperature sensor, voltage connector B |

Technical data

| | |
|------------------------|------------------------------------|
| Dimensions: | 24.0 x 24.0 x 10.0 mm ³ |
| Weight: | 4.5 g |
| Well diameter: | 10 mm |
| Cell culture area: | Ø 6 mm |
| Operating temperature: | 0 °C to +80°C |

pH (PH)

| | |
|-----------------------------------|---------------------|
| Dimensions (MeOx-Spot): | ~ 3 mm ² |
| Linear range: | pH 5.0 to pH 11.0 |
| Sensitivity: | ~ - 40 mV/pH |
| Response time (t ₉₀): | < 5 s |

Dissolved oxygen (O2)

| | |
|-----------------------------------|---------------------|
| Dimensions: | ~ 3 mm ² |
| Linear range: | 0 to 120 %DO |
| Sensitivity: | 1 nA/pDO +/- 10 % |
| Response time (t ₉₀): | < 0.1 s |

Impedance (IDES)

| | |
|-----------------------------------|--|
| Dimensions: | ~ 10 mm ² |
| Linear range: | 10 Ω to 5 kΩ |
| Geometry: | IDES1: 50 μm width, 25 μm distance IDES2: 50 μm width, 50 μm distance |
| Response time (t ₉₀): | < 1 s |

Temperature (TEMP)

| | |
|-----------------------------------|--|
| Dimensions: | ~ 4 mm ² |
| Linear range: | 0 °C to +80 °C |
| Sensitivity: | 17.5 Ω/°C +/- 10 % (1.75 mV/°C +/- 10 % @ 100μA) |
| Response time (t ₉₀): | < 1 s |

Intended use

The BioChip-D is designed to be used in combination with IMOLA-IVD, for multiparametric measurement (impedance, pO₂, pH and temperature) of cellular vitality and impedance.

The BioChip-D is a single-use device; it must not be used for multiple applications.

Intended misuse

The BioChip-D must not be used for purposes listed in Regulation (EU) 2017/746, Annex VIII 2.1, 2.2, 2.3 and 2.4.

Liability / Copyright

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