

◦ AirRay® Cortical Electrode

PRODUCT CATALOGUE

Electrode for Clinical Diagnostics and Research



CorTec
Thinking ahead

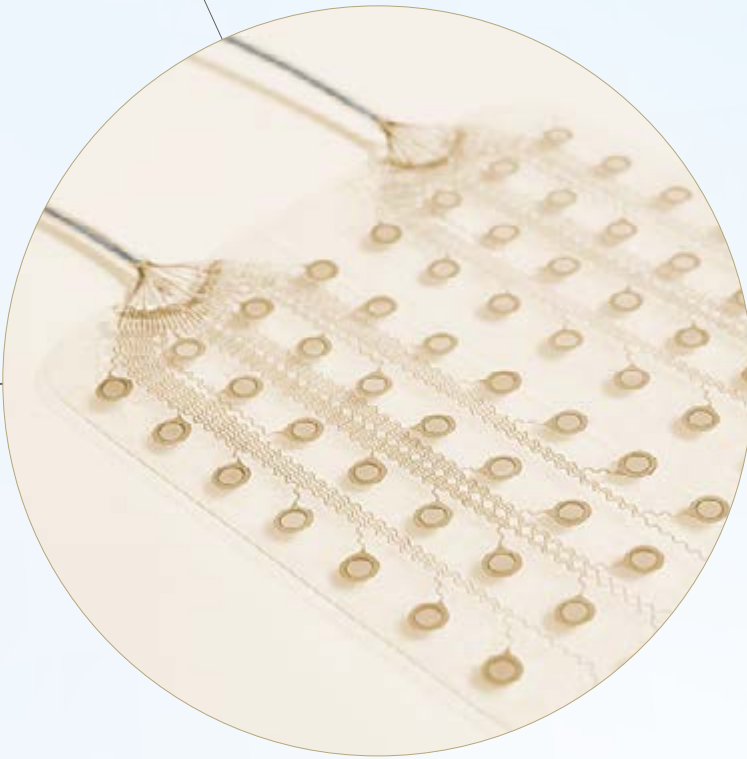




Table of Contents

°AirRay



Welcome!



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°AirRay Cortical Electrode– High Quality Electrode

°AirRay Cortical Electrode is our foil electrode for invasive neuromonitoring. It supports brain mapping as well as the monitoring of electrical brain signals, e.g. for the localization of epileptogenic foci for a short implantation period of < 30 days.

Thanks to CorTec's unique laser manufacturing process °AirRay electrodes are very soft, thin, and therefore flexible. The electrodes adapt well to the brain's curvature. °AirRay Cortical Electrode also provides increased patient safety due to the interlocking structure of its materials that prevents separation of electrode contacts.

CorTec – Thinking ahead

As a young medical engineering company, CorTec focuses on innovations in the fields of neurotherapy and diagnostics.

Thinking ahead, we are developing the neurotechnology of tomorrow already today. On the following pages we would like to introduce you to CorTec's portfolio of °AirRay Cortical Electrode strip and grid electrodes.

Please contact us, if you are interested in an electrode configuration that is not in our catalogue.

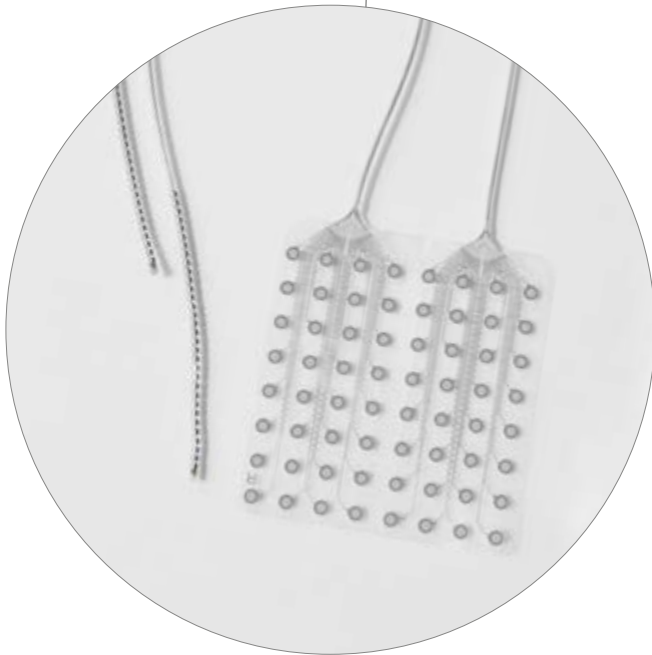
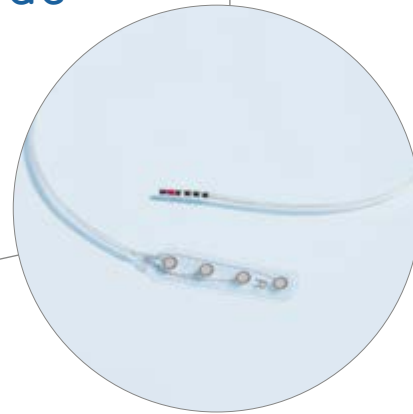
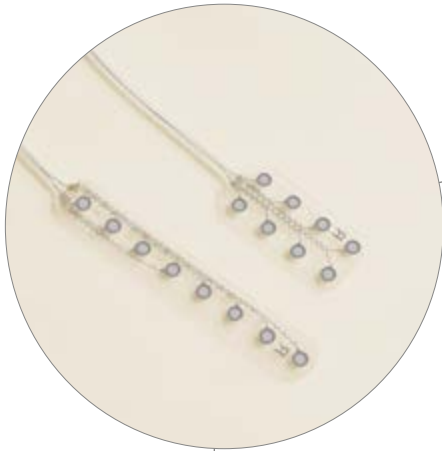
We are happy to assist you!





° AirRay Cortical Electrode

Strip & Grid Electrodes



° AIRRAY CORTICAL ELECTRODE - CONFIGURATION OPTIONS

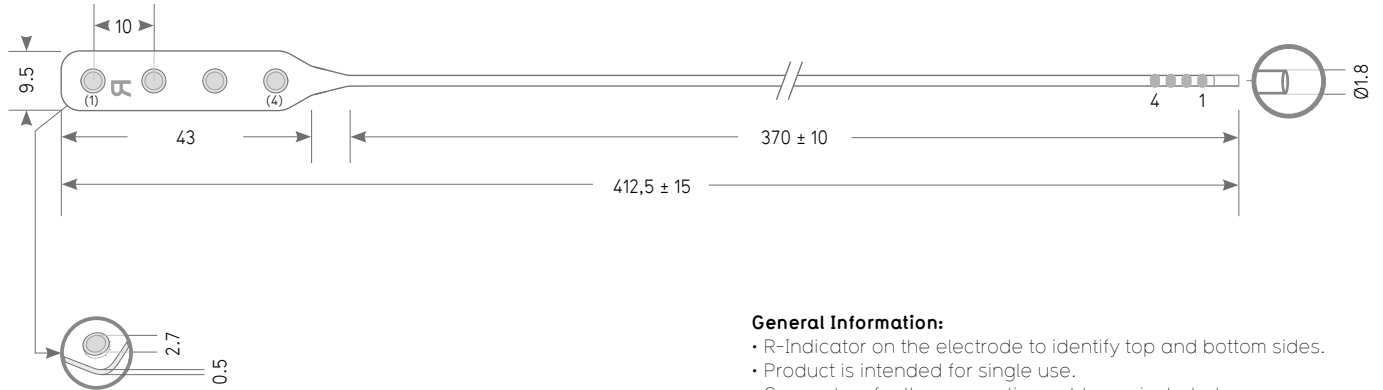
	1	2	3	4	5	6	7	8
4	x	x	x	x	x	x	x	x
5	x	x	x	x	x	x	x	x
6	x	x	x	x	x	x	x	x
7	x	x	x	x	x	x	x	x
8	x	x	x	x	x	x	x	x





1 x 4 Strip Electrode

The 4-Contact Strip in its classic design. Please contact us for other electrode configurations or designs.



View:
Contact openings
facing upwards

General Information:

- R-Indicator on the electrode to identify top and bottom sides.
- Product is intended for single use.
- Connectors for the connection cable are included.
- Product is supplied sterile.
- Contact diameter is 4 mm in total (contact opening 2.7 mm).
- Learn more about our material properties on [www.corTec.com](#)

Product Configuration	Color Code	Catalogue No.	Accessory Connection Cable	Catalogue No.
Platinum-Iridium	black-green	2011.1023.01	8 Channels For more information on the connection system please see www.corTec.com	4031.1051.01
	black-orange	2011.1023.02		
	black-blue	2011.1023.03		
	black-red	2011.1023.04		
	black-yellow	2011.1023.05		

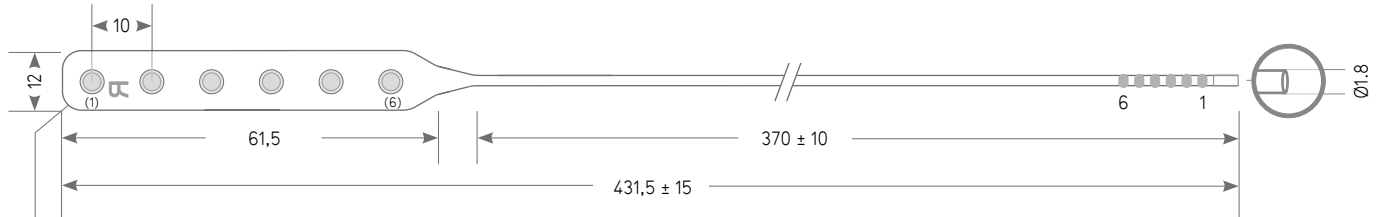
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1 x 6 Strip Electrode

The 6-Contact Strip in its classic design. Please contact us for other electrode configurations or designs.



View:
Contact openings
facing upwards

General Information:

- R-Indicator on the electrode to identify top and bottom sides.
- Product is intended for single use.
- Connectors for the connection cable are included.
- Product is supplied sterile.
- Contact diameter is 4 mm in total (contact opening 2.7 mm).
- Learn more about our material properties on [www.corTec.com](#)

Product Configuration	Color Code	Catalogue No.	Accessory Connection Cable	Catalogue No.
Platinum-Iridium	black-blue	2011.1022.01	8 Channels For more information on the connection system please see www.corTec.com	4031.1051.01
	black-green	2011.1022.02		
	black-orange	2011.1022.03		
	black-red	2011.1022.04		
	black-yellow	2011.1022.05		

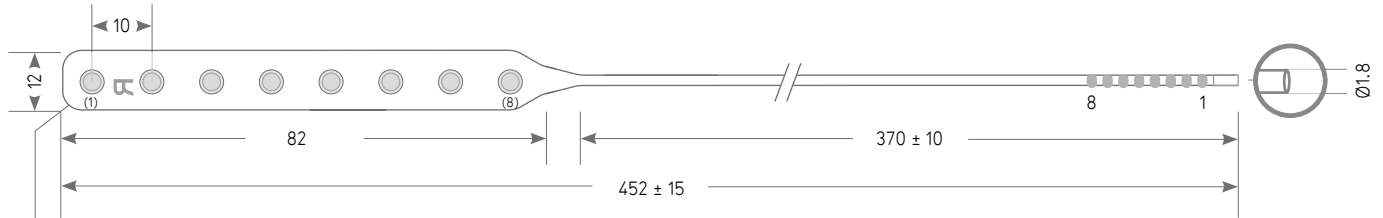
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1 x 8 Strip Electrode

The 8-Contact Strip in its classic design. Please contact us for other electrode configurations or designs.



View:
Contact openings
facing upwards

General Information:

- R-Indicator on the electrode to identify top and bottom sides.
- Product is intended for single use.
- Connectors for the connection cable are included.
- Product is supplied sterile.
- Contact diameter is 4 mm in total (contact opening 2.7 mm).
- Learn more about our material properties on [www.corTec.com](#)

Product Configuration	Color Code	Catalogue No.	Accessory Connection Cable	Catalogue No.
Platinum-Iridium	black-red	2011.1021.01	8 Channels For more information on the connection system please see www.corTec.com	4031.1051.01
	black-blue	2011.1021.02		
	black-green	2011.1021.03		
	black-orange	2011.1021.04		
	black-yellow	2011.1021.05		

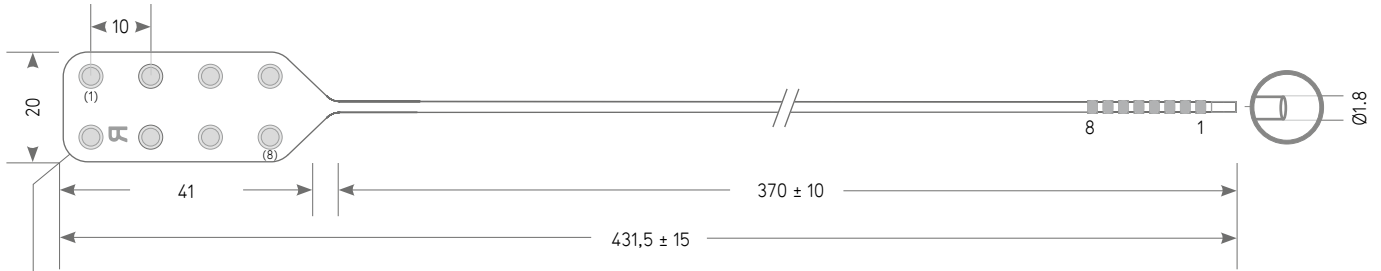
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2 x 4 Grid Electrode

Soft and thin structures for increased flexibility and adaptability: 8 contacts. Please contact us for other electrode configurations or designs.



View:
Contact openings
facing upwards

General Information:

- R-Indicator on the electrode to identify top and bottom sides.
- Product is intended for single use.
- Connectors for the connection cable are included.
- Product is supplied sterile.
- Contact diameter is 4 mm in total (contact opening 2.7 mm).
- Learn more about our material properties on [www.corTec.com](#)

Product Configuration	Color Code	Catalogue No.	Accessory Connection Cable	Catalogue No.
Platinum-Iridium	blue-yellow	2011.1020.01	8 Channels For more information on the connection system please see www.corTec.com	4031.1051.01
	blue-green	2011.1020.02		
	blue-orange	2011.1020.03		
	blue-black	2011.1020.04		
	blue-red	2011.1020.05		

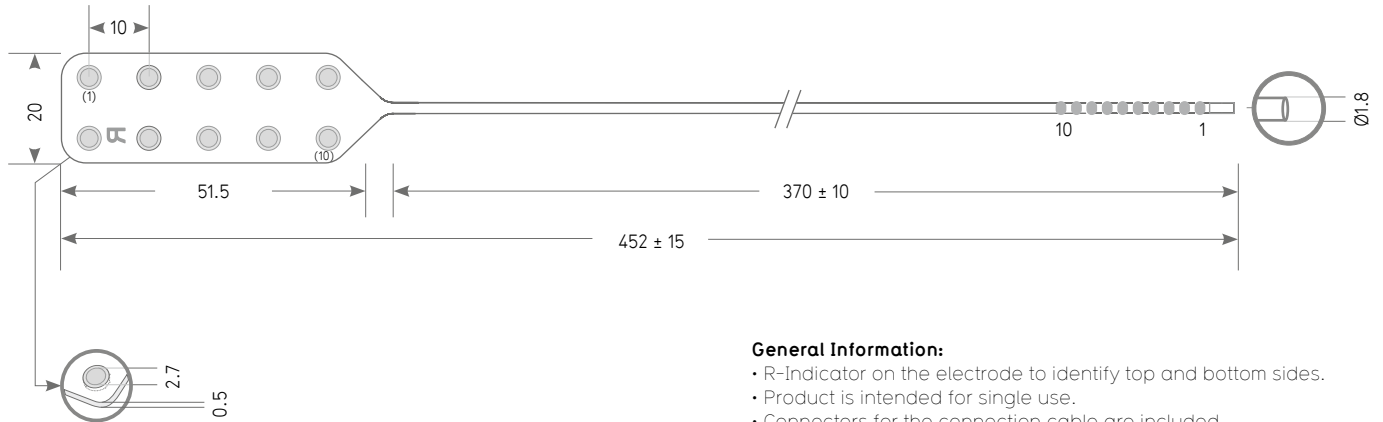
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2 x 5 Grid Electrode

Soft and thin structures for increased flexibility and adaptability: 10 contacts. Please contact us for other electrode configurations or designs.



View:
Contact openings
facing upwards

General Information:

- R-Indicator on the electrode to identify top and bottom sides.
- Product is intended for single use.
- Connectors for the connection cable are included.
- Product is supplied sterile.
- Contact diameter is 4 mm in total (contact opening 2.7 mm).
- Learn more about our material properties on [www.corTec.com](#)

Product Configuration	Color Code	Catalogue No.	Accessory Connection Cable	Catalogue No.
Platinum-Iridium	red-blue	2011.1033.01	16 Channels For more information on the connection system please see www.corTec.com	4031.1052.01
	red-yellow	2011.1033.02		
	red-green	2011.1033.03		
	red-orange	2011.1033.04		
	red-black	2011.1033.05		

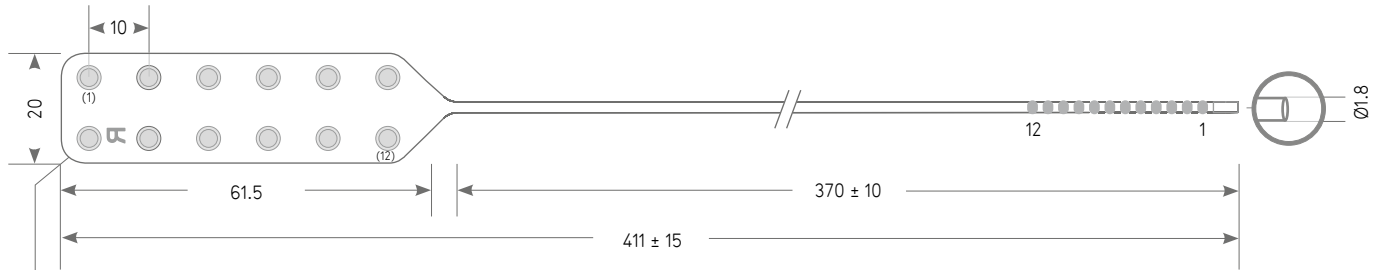
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2 x 6 Grid Electrode

Soft and thin structures for increased flexibility and adaptability: 12 contacts. Please contact us for other electrode configurations or designs.



View:
Contact openings
facing upwards

General Information:

- R-Indicator on the electrode to identify top and bottom sides.
- Product is intended for single use.
- Connectors for the connection cable are included.
- Product is supplied sterile.
- Contact diameter is 4 mm in total (contact opening 2.7 mm).
- Learn more about our material properties on [www.corTec.com](#)

Product Configuration	Color Code	Catalogue No.	Accessory Connection Cable	Catalogue No.
Platinum-Iridium	green-yellow	2011.1035.01	16 Channels For more information on the connection system please see www.corTec.com	4031.1052.01
	green-blue	2011.1035.02		
	green-orange	2011.1035.03		
	green-black	2011.1035.04		
	green-red	2011.1035.05		

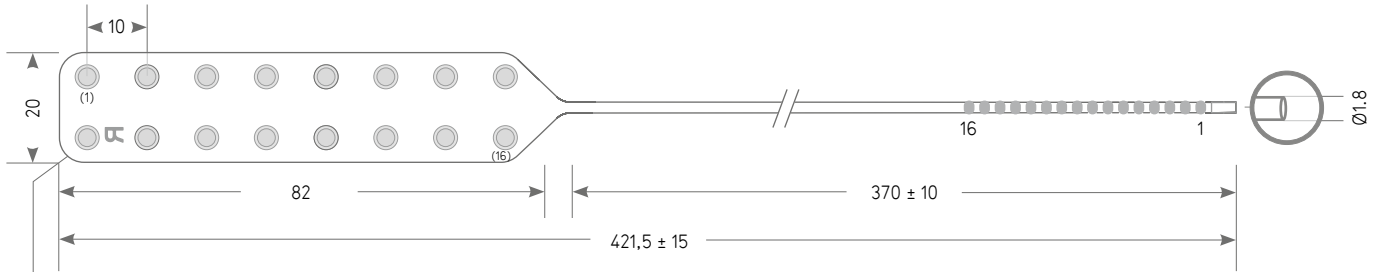
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2 x 8 Grid Electrode

Soft and thin structures for increased flexibility and adaptability: 16 contacts. Please contact us for other electrode configurations or designs.



View:
Contact openings
facing upwards

General Information:

- R-Indicator on the electrode to identify top and bottom sides.
- Product is intended for single use.
- Connectors for the connection cable are included.
- Product is supplied sterile.
- Contact diameter is 4 mm in total (contact opening 2.7 mm).
- Learn more about our material properties on

Product Configuration	Color Code	Catalogue No.	Accessory Connection Cable	Catalogue No.
Platinum-Iridium	orange-blue	2011.1019.01	16 Channels For more information on the connection system please see	4031.1052.01
	orange-yellow	2011.1019.02		
	orange-black	2011.1019.03		
	orange-red	2011.1019.04		
	orange-green	2011.1019.05		

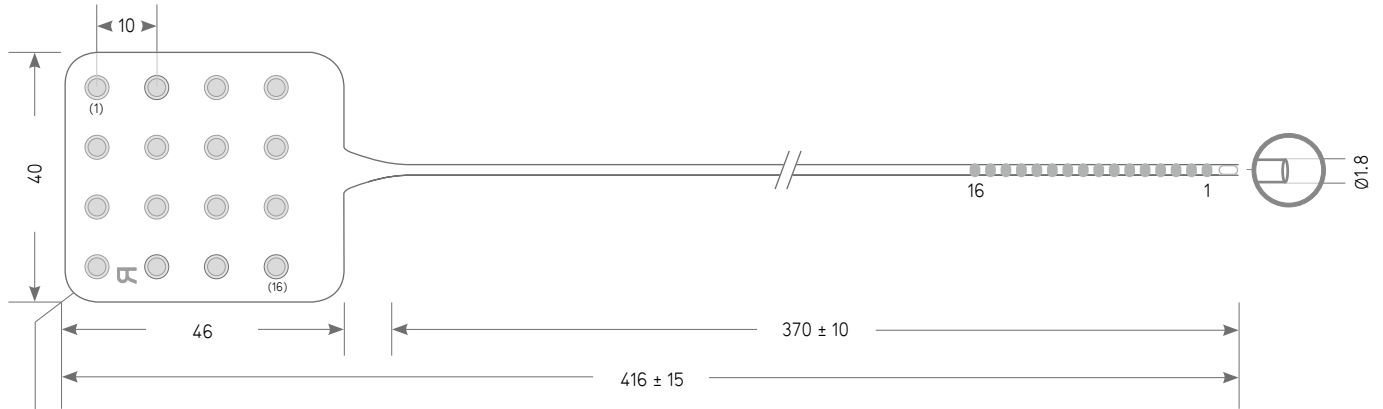
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4 x 4 Grid Electrode

Soft and thin structures for increased flexibility and adaptability: 16 contacts. Please contact us for other electrode configurations or designs.



View:
Contact openings
facing upwards

General Information:

- R-Indicator on the electrode to identify top and bottom sides.
- Product is intended for single use.
- Connectors for the connection cable are included.
- Product is supplied sterile.
- Contact diameter is 4 mm in total (contact opening 2.7 mm).
- Learn more about our material properties on [www.corTec.com](#)

Product Configuration	Color Code	Catalogue No.	Accessory Connection Cable	Catalogue No.
Platinum-Iridium	orange-green	2011.1018.01	16 Channels For more information on the connection system please see www.corTec.com	4031.1052.01
	orange-black	2011.1018.02		
	orange-blue	2011.1018.03		
	orange-yellow	2011.1018.04		
	orange-red	2011.1018.05		

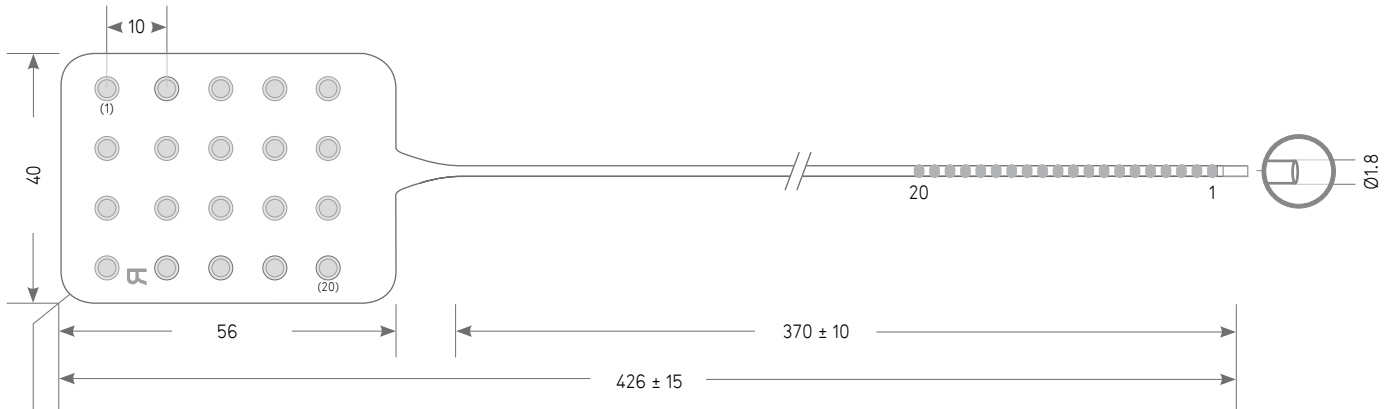
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4 x 5 Grid Electrode

Soft and thin structures for increased flexibility and adaptability: 20 contacts. Please contact us for other electrode configurations or designs.



View:
Contact openings
facing upwards

General Information:

- R-Indicator on the electrode to identify top and bottom sides.
- Product is intended for single use.
- Connectors for the connection cable are included.
- Product is supplied sterile.
- Contact diameter is 4 mm in total (contact opening 2.7 mm).
- Learn more about our material properties on [www.corTec.com](#)

Product Configuration	Color Code	Catalogue No.	Accessory Connection Cable	Catalogue No.
Platinum-Iridium	yellow-black	2011.1037.01	24 Channels For more information on the connection system please see www.corTec.com	4031.1053.01
	yellow-orange	2011.1037.02		
	yellow-green	2011.1037.03		
	yellow-blue	2011.1037.04		
	yellow-red	2011.1037.05		

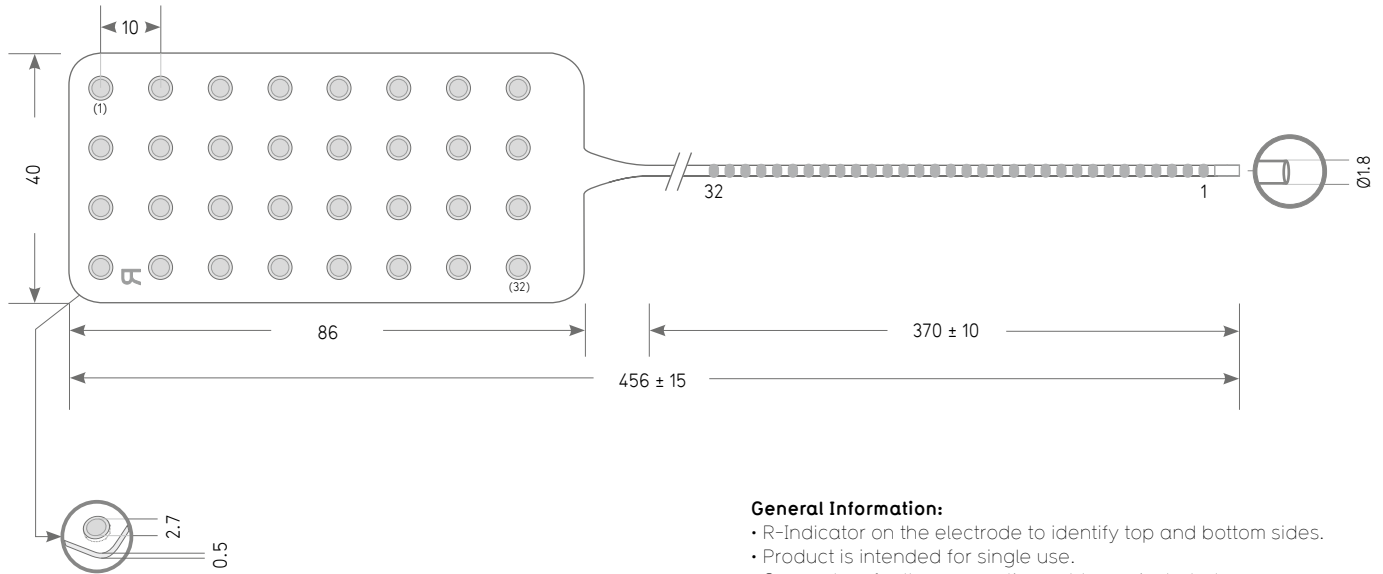
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4 x 8 Grid Electrode

Soft and thin structures for increased flexibility and adaptability: 32 contacts. Please contact us for other electrode configurations or designs.



View:
Contact openings facing upwards

General Information:

- R-Indicator on the electrode to identify top and bottom sides.
- Product is intended for single use.
- Connectors for the connection cable are included.
- Product is supplied sterile.
- Contact diameter is 4 mm in total (contact opening 2.7 mm).
- Learn more about our material properties on [www.corTec.com](#)

Product Configuration	Color Code	Catalogue No.	Accessory Connection Cable	Catalogue No.
Platinum-Iridium	red-yellow	2011.1017.01	32 Channels For more information on the connection system please see www.corTec.com	4031.1054.01
	red-black	2011.1017.02		
	red-orange	2011.1017.03		
	red-green	2011.1017.04		
	red-blue	2011.1017.05		

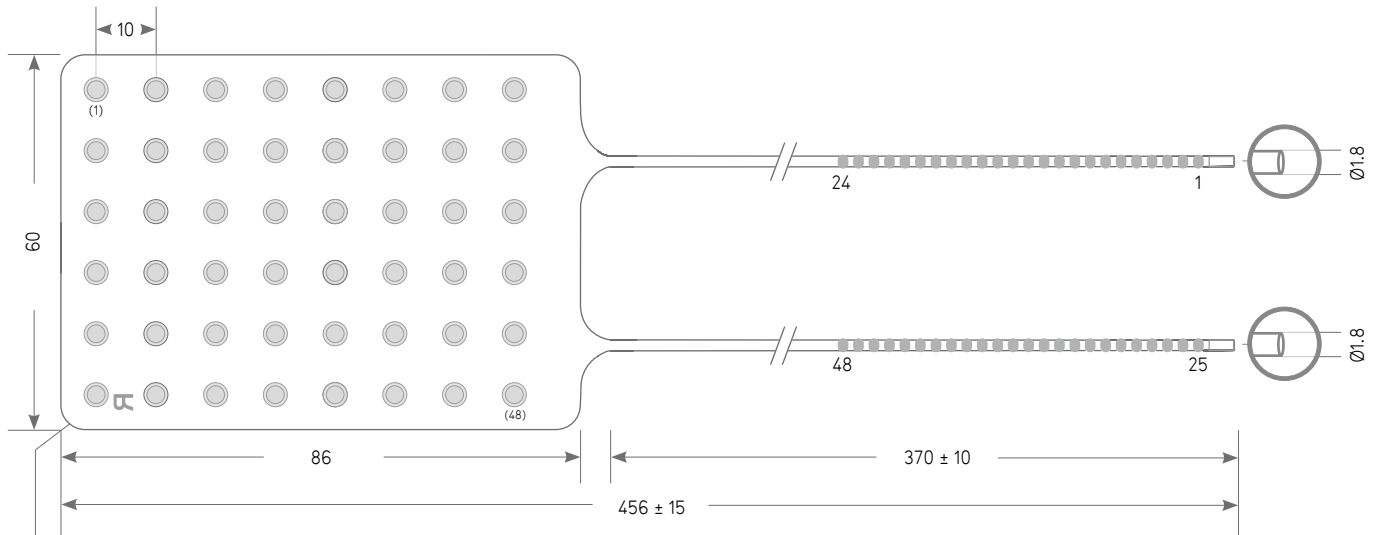
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6 x 8 Grid Electrode

Soft and thin structures for increased flexibility and adaptability: 48 contacts. Please contact us for other electrode configurations or designs.



View:

Contact openings facing upwards

General Information:

- R-Indicator on the electrode to identify top and bottom sides.
- Product is intended for single use.
- Connectors for the connection cable are included.
- Product is supplied sterile.
- Contact diameter is 4 mm in total (contact opening 2.7 mm).
- Learn more about our material properties on

Product Configuration	Color Code	Catalogue No.	Accessory Connection Cable	Catalogue No.
Platinum-Iridium	orange/blue-yellow	2011.1039.01	24 Channels (2x) For more information on the connection system please see	4031.1053.01
	green/red-black	2011.1039.02		
	orange/black-green	2011.1039.03		
	green/orange-yellow	2011.1039.04		

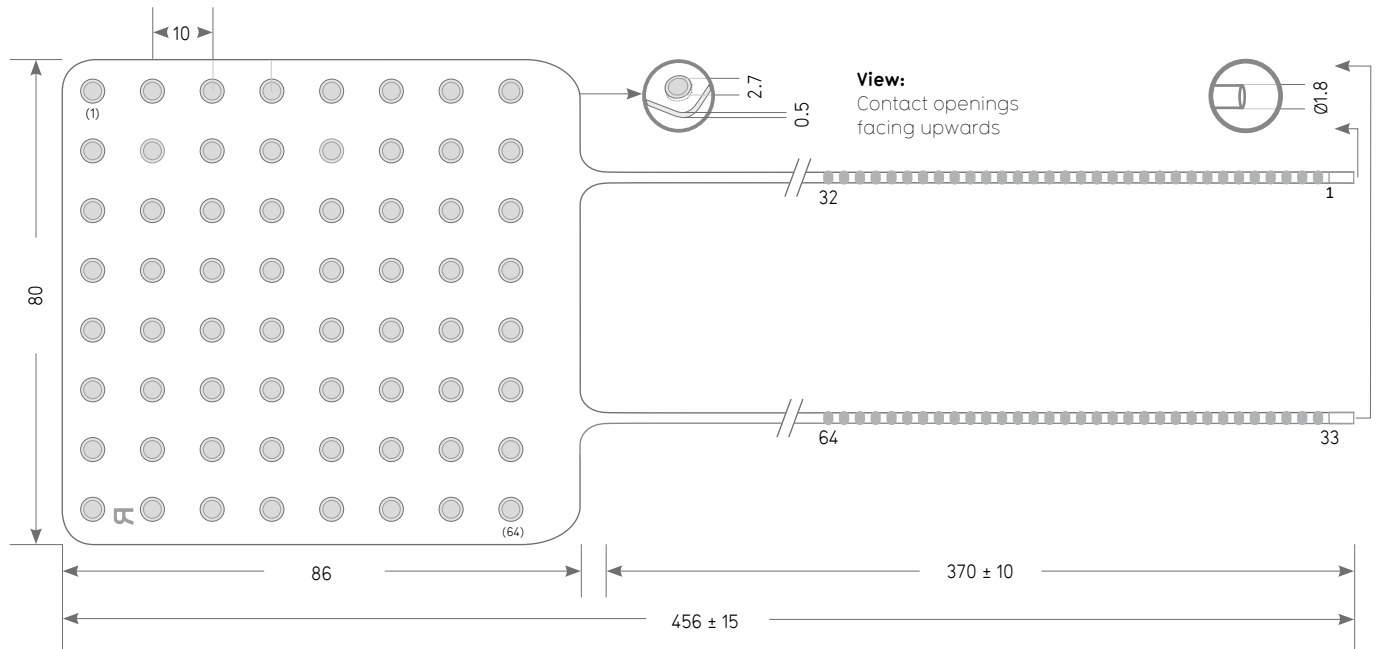
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8 x 8 Grid Electrode

Soft and thin structures for increased flexibility and adaptability: 64 contacts. Please contact us for other electrode configurations or designs.



General Information:

- R-Indicator on the electrode to identify top and bottom sides.
- Product is intended for single use.
- Connectors for the connection cable are included.
- Product is supplied sterile.
- Contact diameter is 4 mm in total (contact opening 2.7 mm).
- Learn more about our material properties on [www.corTec.com](#)

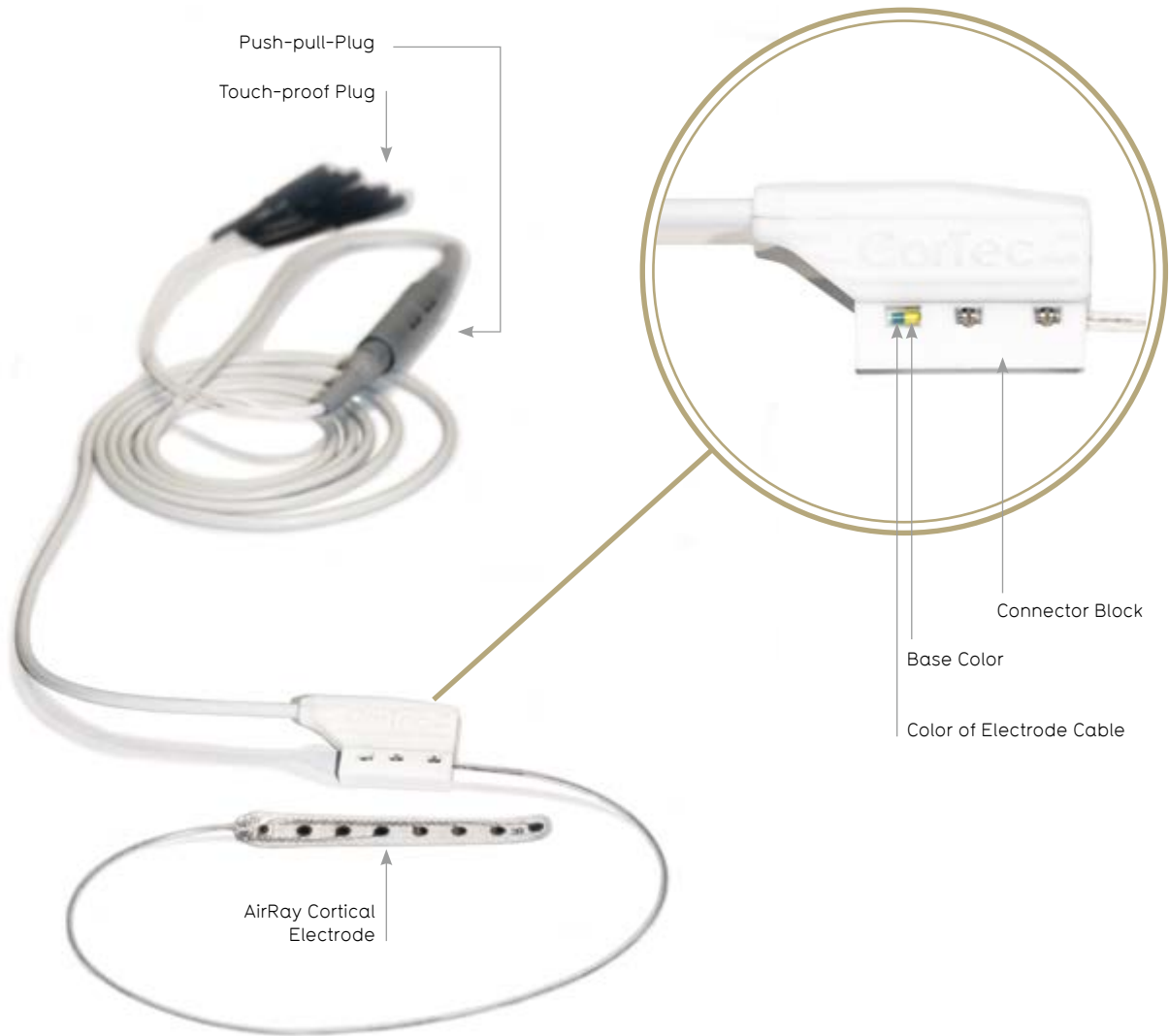
Product Configuration	Color Code	Catalogue No.	Accessory Connection Cable	Catalogue No.
Platinum-Iridium	yellow/red-blue	2011.1016.01	32 Channels (2x) For more information on the connection system please see www.corTec.com	4031.1054.01
	blue/green-orange	2011.1016.02		
	yellow/black-orange	2011.1016.03		
	blue/red-yellow	2011.1016.04		

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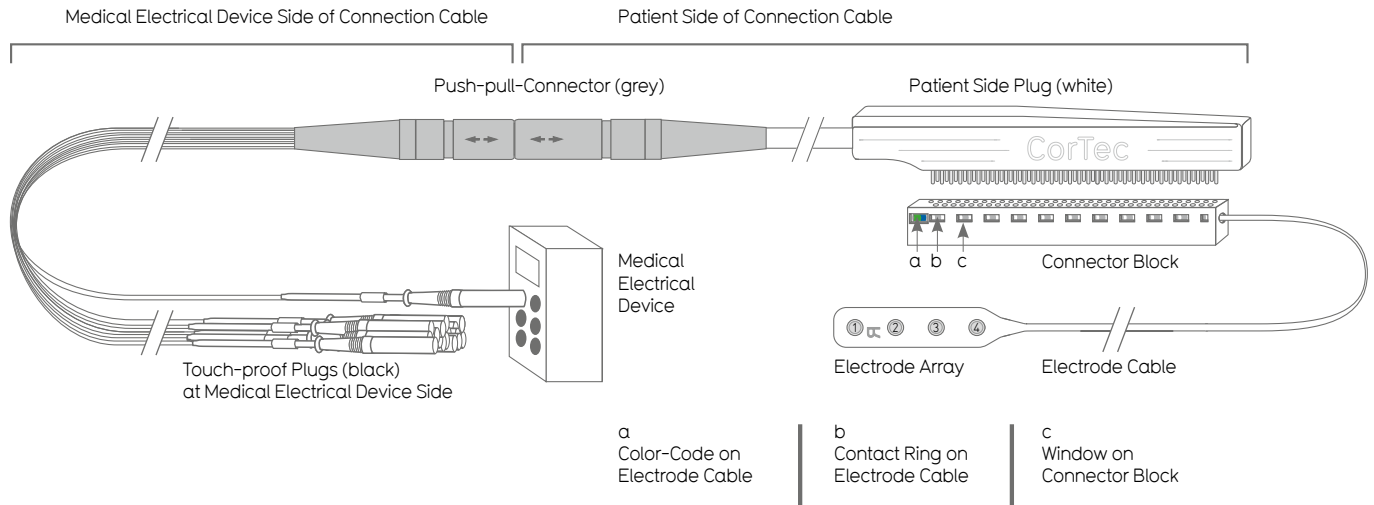
Accessory & Services





Connection System

Our connection system allows you to connect **AirRay** to neuromonitoring systems for recording and stimulation. Connection sizes with 3, 16, 24 and 32 contacts are available.



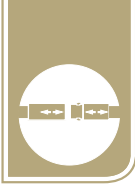
For connecting the electrode to an amplifier or stimulator the electrode cable must be inserted with the ring contacts sideways into the Connector Block. The ring contacts are positioned correctly when located in the middle of the small windows of the Connector Block. The color code must be completely visible through the large window at the closed end of the Connector Block.

The pins of the white plug of the Patient side of the Connection Cable can then be inserted into the pinholes of the Connector Block.

The Connector Block has a single pinhole which indicates the correct direction for connecting it to the single pin of the white plug of the Patient side of the Connection Cable. The white plug of the Patient side of the Connection Cable and the Connector Block must be pressed together firmly so that the Connector Block locks into the pins.

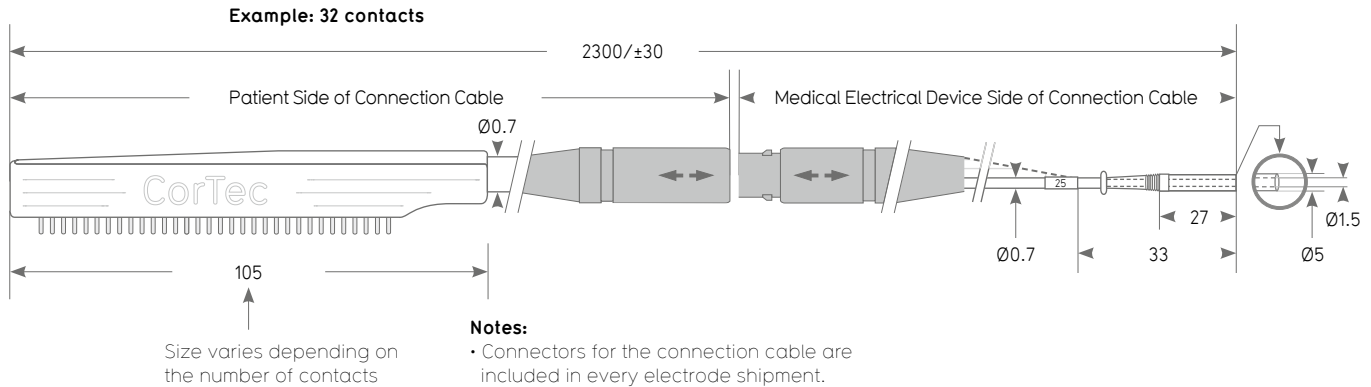
The black Touch-proof Plugs of the Medical Electrical Device side of the Connection Cable are connected to the amplifier or stimulator. They can remain connected to the amplifier or stimulator and do not need to be reconnected or reassigned for every session.





Connection Cable

Connection to the neuromonitoring system. For the connection of the electrode you require one connection cable for each electrode cable. The required sizes and numbers are stated for each electrode as part of the order information.

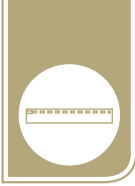


The Connection Cable can be ordered either as a complete set consisting of Patient Side Cable and Medical Electrical Device Side Cable. Alternatively both components of the Connection Cable can be ordered separately.

Product Configuration	Catalogue No.	Product Configuration	Catalogue No.
Complete Set			
8 Channels	4031.1051.01	24 Channels	4031.1053.01
16 Channels	4031.1052.01	32 Channels	4031.1054.01
Sterilizable Patient Side of Connection Cable			
8 Channels	4031.1055.01	24 Channels	4031.1057.01
16 Channels	4031.1056.01	32 Channels	4031.1058.01
Non-Sterilizable Medical Electrical Device Side of Connection Cable			
8 Channels	4031.1059.01	24 Channels	4031.1061.01
16 Channels	4031.1060.01	32 Channels	4031.1062.01

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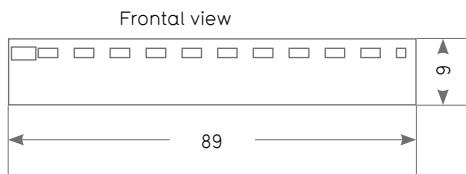
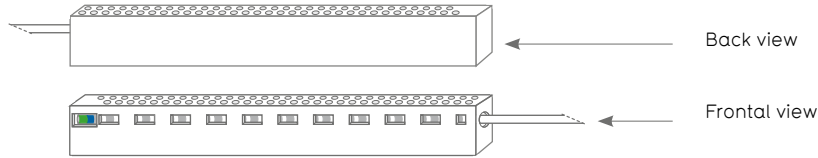




Connector Block

Connection to the Connection Cable. Every electrode is shipped with all required Connector Blocks included. If you require additional Connector Blocks you can order them separately as well.

Example: 32 Contacts

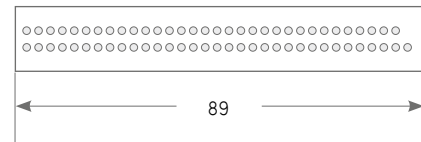


Size varies depending on the number of contacts

Lateral view



Top view



Size varies depending on the number of contacts

Product Configuration	Catalogue No.	Product Configuration	Catalogue No.
8 Channels	4011.1021.01	24 Channels	4011.1023.01
16 Channels	4011.1022.01	32 Channels	4011.1024.01

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Materials

All of our electrodes are made using biocompatible materials such as silicone and Platinum-Iridium. The contact material is suitable for both recording and stimulation.

Platinum-Iridium is one of the standard materials commonly used for implants. The addition of Iridium provides the Platinum with additional stability. Platinum-Iridium is especially well suitable for stimulation.

Per default the contact openings of our **°AirRay Cortical Electrode** have a diameter of 2.7 mm. The following tables provide information on the typical impedances and maximum stimulation parameters of our products:

Impedances (measured in physiological saline)

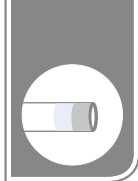
Contact Ø 2.7 mm	1 kHz	1 kHz
Platinum-Iridium	60 - 90 kΩ	0.2 - 0.5 kΩ

Stimulation Parameters (maximum stimulation):

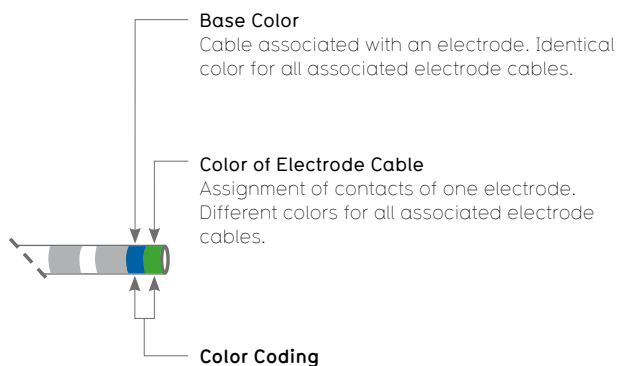
Pulse width (ms)	0.25	0.5	0.75	1.0	1.25	1.5	1.75	2.0
Amplitude (mA)	24.9	12.5	8.31	6.23	4.99	4.15	3.56	3.12







Values refer to symmetrical two-phase square pulses (with charge balancing) at a repetition rate of 100 Hz over a one minute period, for contacts with a diameter of 2.7 mm in Platinum-Iridium at 6.23µC/phase/pulse.





Color-Coding Key



Color scale	Color Code
	YEL yellow
	RED red
	BLU blue
	GRN green
	ORG orange
	BLK black

All our electrodes are supplied with color-coded electrode cables. At the end of the electrode cable there are two color markers that indicate:

- the association of the cable to a specific electrode, as well as
- the assignment of contacts of the same electrode. Color codes are explained in a code chart included in the accompanying documents of a product.

The color code of each electrode first identifies the basic color of the product, then the color of the single electrode cable(s) following this example:

Catalogue No. 2011.1016.01: AirRay Cortical Electrode 8x8 Grid Electrode | **YEL/RED-BLU**

- Base color to identify the electrode as a whole is **yellow**.
- Color to identify the single electrode cables are **red** for the first numbers of channels, in the example from channel 1 to 32, and **blue** for the remaining channels, here from number 33 to 64.





Ordering

All products can be ordered by referring to their catalogue number. Please make sure to indicate the color coding of your choice for electrode cables in your order.

Every electrode requires accessories.
Connector Blocks are included with every electrode.
Connection Cables have to be ordered separately.

Please refer to

To submit your order please use the following contact information:

CorTec GmbH

Neuer Messplatz 3
79108 Freiburg | Germany
Fon: +49 761 70 888 222
Fax: +49 761 70 888 399

Please contact us directly, if you are interested in specific electrode designs not in our catalogue.

We are happy to assist you!

Please also use these contact details to request information on our current prices.





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Fax: +49 761 70 888 399

