Electrophysiology • Optogenetics • Animal Behavior • Calcium Imaging

Linear Array

Technical Specifications

Application	In vivo; acute
Channel counts	8, 16, 24, 32, or 64
Total probe length	30 to 150mm
Probe OD	8 or 16 channel: 185 µm, 24 channel: 210µm, 32 channel: 260µm, 64 channel: 320µm; adding fluid channels or optic fibers may increase the diameter
Electrode construction	15µm Pt/Ir electrode site diamter, circular shape, HML insulated (polyimide), and secured in medical-grade epoxy
Electrode configurations	Single-row
Inter-electrode spacing	50µm, 75µm, 100µm, 150µm, 200µm along length of probe
Distance from tip to the closest electrode site	Dependent on probe diameter (See Table).
Fluid capillary ID, OD	40µm, 60µm
Optic fiber OD	50µm
Lifespan	Robust and reusable with a minimum of thirty penetrations, likely many more

Features

- 8, 16, 24, 32, or 64 channels
- Single configurations available with all tip options, stereotrode or tetrode configurations available with U/S Probe tip
- Optional fluid capillaries and/or optic fibers for precise drug delivery or optogenetic stimulation intermixed within the recording sites
- Highly robust and reusable stainless steel construction
- Precise linear electrode arrangement enables current source density analysis of the field potential signal

V - Probe

U - Probe

S - Probe

Linear Array Continued

Single Electrode Configurations:

Channels	Fluid Capillaries/ Optic Fibers	Minimum Probe Diameter	Distance from tip to 1st electrode			Reinforcement Tube Diameter
			U - Probe	S - Probe	V - Probe	
8	0,1	185	320	500	300	460 or 640
8	2	210	360	540	300	460 or 640
8	3	260	450	640	300	640
8	4	300	520	710	300	640
16	0	185	320	500	300	460 or 640
16	1	210	360	540	300	460 or 640
16	2	236	410	580	300	640
16	3	300	520	710	300	640
16	4	320	560	750	300	640
24	0	210	360	540	300	460 or 640
24	1	236	410	580	300	640
24	2	300	520	710	300	640
24	3	320	560	750	300	640
24	4	360	620	820	300	640
32	0	260	450	640	300	640
32	1	260	450	640	300	640
32	2	300	520	710	300	640
32	3	320	560	750	300	640
32	4	360	620	820	300	640
64	0	320	560	750	300	640
64	1	360	620	820	300	640

Stereotrode/Tetrode Electrode Configurations:

Channels	Fluid Capillaries/ Optic Fibers	Minimum Probe Diameter	Distance from tip to 1st electrode		Reinforcement Tube Diameter
			U - Probe	S - Probe	
88	0, 1	185	320	500	460 or 640
16	20	210	360	540	460 or 640
16	1 , 2	185	320	500	460 or 640
24		236	410	600	640
24	0	210	360	540	460 or 640
32	1 , 2	260	450	640	640
32	0	260	450	640	640
64	1 , 2	300	520	710	640
64		320	560	750	640
	01	360	620	820	640

*64 channel not available in tetrode configuration

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N-Form® Array

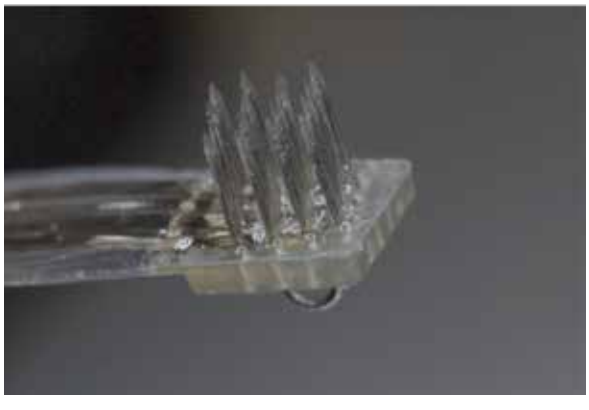
The customizable N-Form® design allows for targeting large volumes of neurons across layers and columns of cortex. The high-density design and floating interface allows for long-term, chronic recordings.

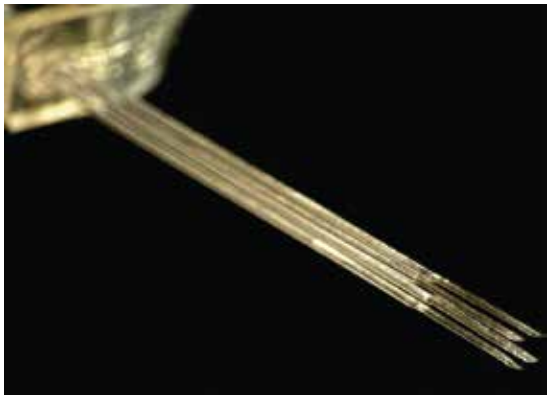
Technical Specifications

Electrode diameter	25µm, circular cross-section
Electrode material	platinum/iridium
Shank thickness	125µm
Distance between shank	GEN2: 500 µm
Max # of channels per shank	8
Sterilization method	EtO
Implantable	Yes, insertion holder available

Customizable Options

Electrode coating	Iridium oxide
Cable length	1.5cm - 13.0cm
Shank length	500µm - 15mm
Site location	125µm increments*
Number of shanks	1 - 16
Channel count	4 - 128
Connector	Omnetics, Samtec





*Speak with a Plexon Sales Engineer for more details on site location

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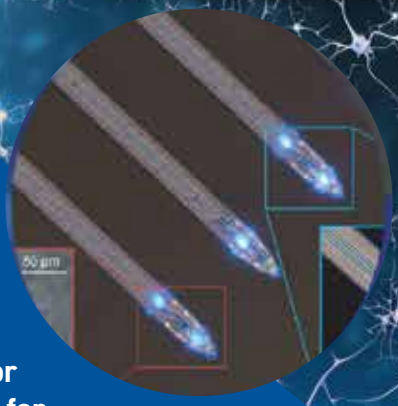
NeuroLight Optoelectrode



Plexon Inc and NeuroLight Technologies LLC have partnered to offer the NeuroLight Optoelectrode, a customizable electrode capable of optogenetic-control of local neural circuits in awake, behaving studies; square-wave excitation for precise timing control, sine-wave excitation for graded modulation, and chronic optogenetics where a microdrive is used for fine-tune positioning.

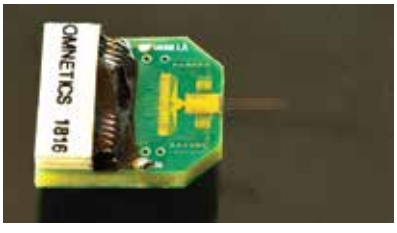
Technical Specifications

- 12 µLEDs, 10 x 15 µm each, 3 per shank
- Emission Peak λ = 460 nm and FWHM = 40 nm
- Typical irradiance of 33mW/mm2 (@ max operating current of 100 µA)
- 32 recording channels, 8 per shank
    - Electrode impedance of 1000 – 1500 kΩ at 1 kHz
    - Noise floor ≤ 5 µVrms
- < 50µVpk-pk stimulation artifact
- 5 mm shank length
- 2g total weight
- 40 µm spacing between recording sites on the same shank
- 60 µm spacing between LEDs on the same shank
- 250 µm spacing between shanks

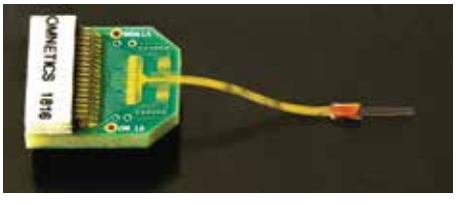
Description

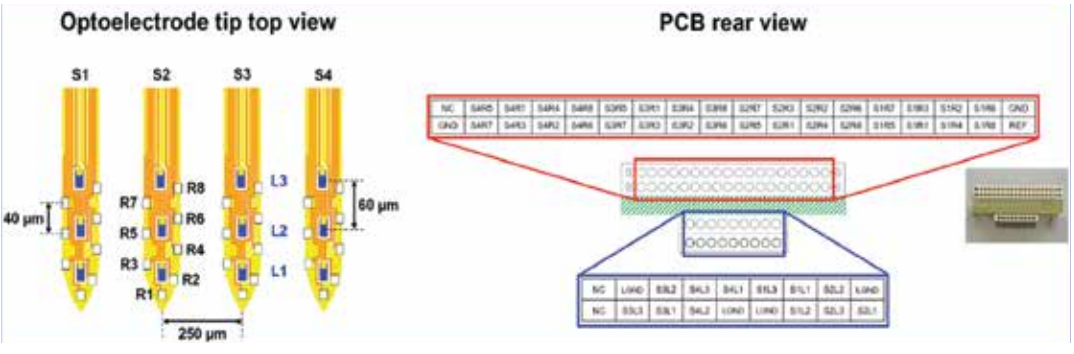
These optoelectrodes have recording sites and precisely defined µLEDs (10 x 15 µm), allowing for simultaneous recording and local optogenetic stimulation. For chronic experiments, the electrode features an extremely durable, yet flexible cable allowing for light-weight stereotactic head fixtures.

Acute



Chronic





Specialty Probes, Electrodes, and Arrays

PLEXON

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Thumbtack Probe

Technical Specifications

Application	In vivo; chronic or acute
Electrode channels	24
Probe length	3mm
Shaft diameter	210 or 500µm
Electrode sites	15 or 40µm diameter, platinum/iridium
Tip profile	Rounded, dome-shaped, or sharp
Inter-electrode spacing	50 to 500 µm
Distance from tip to the closest electrode site	450µm
Silicone tube length between connector and prove	10cm
Silicone disk dimensions	8mm diameter disk, 0.15mm thick
Connector interface	Con/32m-V
Lifespan	Single use

Features

- 24 channels
- Designed for chronic as well as acute applications
- Effective for both field potential and single unit recordings
- Rounded profile tip to minimize the chance of blood vessel perforation
- Often used in medium to large animals such as primates

About Plexon Inc

Plexon is a pioneer and leading innovator of custom, high-performance data acquisition, behavior and analysis solutions specifically designed for scientific research. We collaborate with and supply thousands of customers including the most prestigious neuroscience laboratories around the globe driving new frontiers in areas including basic science, brain-machine interfaces (BMI), neurodegenerative diseases, addictive behaviors and neuroprosthetics. Plexon offers integrated solutions for in vivo neurophysiology, optogenetics, and behavioral research – backed by its industry-leading commitment to quality and customer support. For more information, please visit www.plexon.com.

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