

DESCRIPTION OF THE SUBJECT OF THE ORDER

Tender Specification for a Multi-Channel Electrophysiological Recording System with Behavioral Tracking

The system must be suitable for single-unit neuronal recordings in freely moving rats, ensuring high-quality signal acquisition, real-time behavioral tracking, and synchronized electrophysiology for studies on spatial memory and movement representation.

1. General Requirements

- A complete, commercially available system used in scientific research published in top tier Q1 journals.
- Must include all essential components: recording hardware and software, headstages, amplifiers, data acquisition unit, tracking module, and necessary accessories.

2. Electrophysiology & Recording Features

- Minimum 64 recording channels with:
 - 24-bit ADC resolution
 - Sampling rate of at least 45 kHz per channel
 - Bandwidth covering low theta to high gamma frequencies
 - Real-time adjustable gain control
- Supports simultaneous spike & LFP recording with low-noise differential recording.

3. Headstages

- Headstage - must have a lightweight, wired design with at least 32 channels and Mill-max connectors (connector must be compatible with the customer's 2x 853-43-018-10-001000 carriers) - 2 pieces.
- One 32-channel headstage without LEDs and one with infrared LEDs. Each headstage is made of two boards for 16 channels connected to 16-channel bundles.

4. Integrated Behavioral Tracking

- Infrared-based video tracking with:
 - High-resolution automatic position & head orientation detection
 - Full synchronization with neuronal data
 - Exportable data for analysis (MATLAB, Python, etc.)
- Includes infrared camera, special lenses, port for the signal in system unit, program to track the IR LEDs integrate and align in time with neural data and software to analyze it.



5. Software & Data Handling

- Real-time signal visualization, automated spike sorting, and customizable filtering.
- Event-triggered recording and export of raw/processed data in standard formats.

6. Power & Connectivity

- Standard power supply & USB/high-speed interface for data transfer.
- Shielded cables & connectors to minimize noise.

7. Delivery & Support

- Full documentation, installation support, and manufacturer-provided technical assistance.

8. CPV code: 33120000-7 Recording systems and research devices.
9. Minimum warranty required: 12 months.