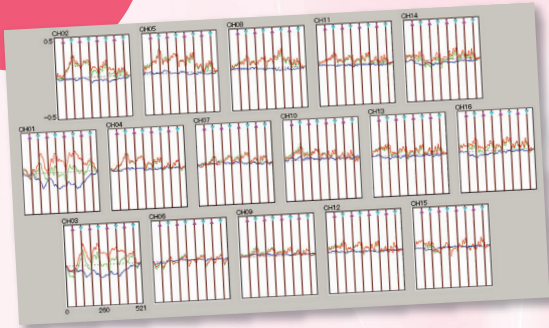


**Whole-head measurement type  
Functional NIRS equipment**

# Spectratech OEG-17APD

**New!**



**T**he purpose of this equipment is to measure the change in blood amount in in-vivo regions at the same time through the multiple channels utilizing the light absorption characteristics in the vicinity of near infrared to red light where the in-vivo hemoglobin (Hb) changes by an oxygen bonding state. The latest spread spectrum modulation system we originally developed is adopted as the light modulation/demodulation technology which forms the basis of this equipment. It has achieved the further high performance, downsizing, and cost reduction compared with the conventional technologies while easy-to-use, and providing a non-invasive measurement.

Note : This equipment is strictly for the research purpose, so do not use it for medical purpose.



Spectratech OEG-17APD Main unit

## Features

- |                                                                                            |                                                                             |
|--------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| 1 Newly developed for whole-head measurement.                                              | 2 Expandable number of channels(17ch, 37ch, and 57ch) to meet each purpose. |
| 3 Dedicated sensor pallets selectable to be easily mounted at an objective measuring part. | 4 Small-sized main unit excellent in portability(as small as notebook PC).  |
| 5 Spread spectrum modulation method (most advanced light modulation) is adopted.           | 6 Connection to a monitor PC via 100M Ethernet LAN.                         |
| 7 Various event input is available.                                                        | 8 Synchronous operation with other measuring device is possible.            |
| 9 Equipped with 3 general-purpose analog signal input channels as standard.                | 10 AC100-240V operation is possible.                                        |
| 11 Shared use is possible among the research sections using the extensible sensor pallets. |                                                                             |

## Spectratech OEG-17APD Sensor cable (Basic configuration)

- 1) 6 light-emitting modules with 2 wave lengths built-in LED (840nm/770nm)
- 2) 6 light-receiving modules with APD (Avalanche photodiode)
- 3) 17 simultaneous measurement channels (Expandable to 37ch and 57ch)
- 4) 3cm in distance between light-emitting part and light-receiving part
- 5) 3m in length of sensor cable
- 6) Cable is used by mounting to a sensor pallet for each measuring part.  
Note: There might be a case where whole head cannot be measured depending on specific subject.

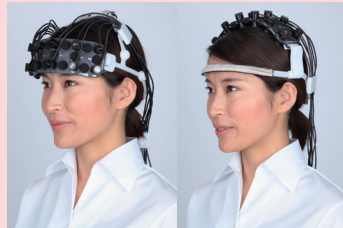
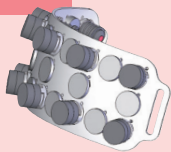
## Spectratech OEG-17APD Main unit (Basic configuration)

- 1) **Measurement method of biological signals**  
Modified Lambert-Beer Law  
Hemoglobin change ( $\Delta \text{Coxy} \cdot L$ ,  $\Delta \text{Cdeoxy} \cdot L$ ,  $\Delta \text{Ctotal} \cdot L$ )  
Unit: mM · mm
- 2) **Multiple-light modulation method**  
Modulation method: Spread spectrum modulation DS (Direct Sequence) method  
Effective biological signal bandwidth:  
Fine Mode: 0.76Hz (Sampling interval: 0.65535sec)  
Fast Mode: 6.10Hz (Sampling interval: 0.08192sec)
- 3) **Event input function**  
Event trigger can be input manually at any time using OEG-16-05 Trigger input Box.
- 4) **External trigger input function**
  - ① Equipped with 2 systems of photo-isolated "External trigger input terminal" to operate together with external device.
  - ② Possible to input from other PC via Network.
- 5) **Input function of general-purpose analog signal**  
Input voltage range: 0 to +5V (at high impedance)  
Number of input channels: 3 Resolution: 12Bit  
Sampling interval: Same as the sampling interval of the biological signals (0.65535sec or 0.08192sec)
- 6) **Measurement time**  
Continuous measurement for about 2 to 6 hours depending on the number of measurement channels.
- 7) **Connection with PC**  
Connected with PC with Windows7, Windows8 or Windows10 running, and the network function(100M Ethernet)  
Installing the attached Spectratech OEG-17APD-07 software makes PC possible to issue various commands, collect measured data, and record and/or display it.  
Note: PC should have Intel I5 CPU and 4GB memory, or above.

The following sensor pallets are available and selectable for the respective purposes.

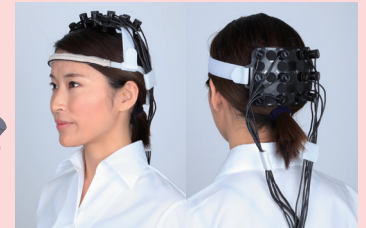
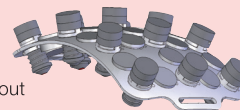
### OEG-17APD-01-02 Type 2x6

**16CH**  
For frontal and parietal region  
2-line 6-row layout



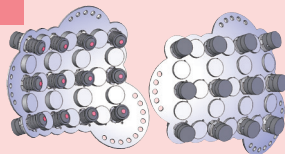
### OEG-17APD-01-03 Type 3x4

**17CH**  
For parietal and occipital region  
3-line 4-row layout



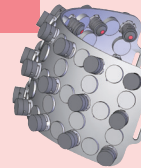
### OEG-17APD-01-01 Type 3x4W

**34CH**  
For temporal region  
2 x (3-line 4-row) layout



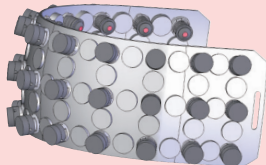
### OEG-17APD-01-04 Type 3x8

**37CH**  
For frontal and parietal region  
3-line 8-row layout



### OEG-17APD-01-05 Type 3x12

**57CH**  
For frontal and temporal region  
3-line 12-row layout



Front side



Back side

### Spectratech OEG-17APD Main unit

●Power consumption: AC100-240V 40W ●External dimensions: 250 (W) x 220 (D) x 50 (H) mm ●Weight: 2.2Kg  
Note: No battery operation is available.

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