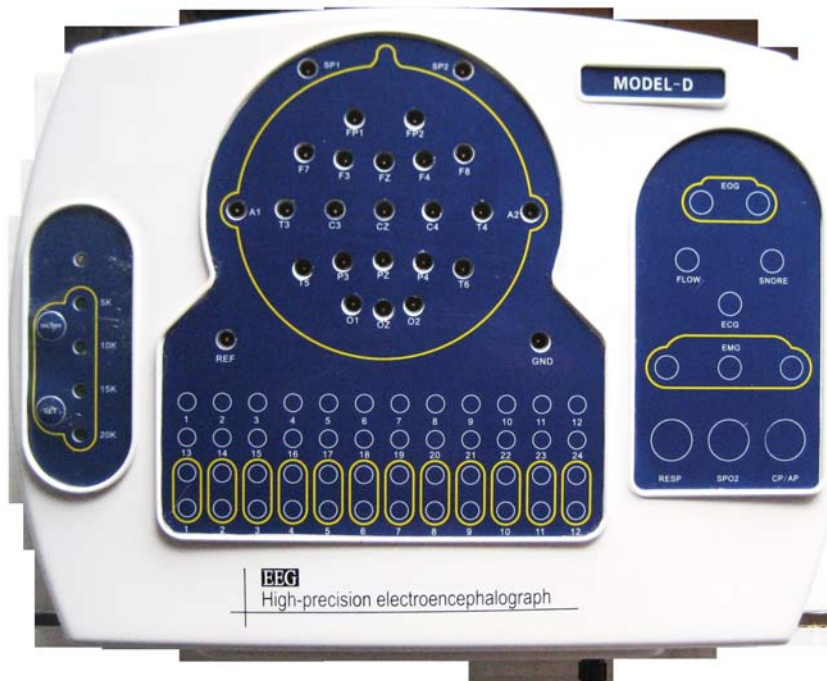# Type-D EEG System for Regular EEG Clinic

Type-D EEG amplifier

Specifications

1. For Type-D Amplifier

✧ **Input channels:** 12/24/36/48 Monopolar EEG + 12channels Bipolar EEG+12

channels PSG.

✧ **Power supply:** Internal rechargeable lithium battery(16.8v), or

External charger input: AC100~240V, output DC 19V

✧ **Connection to PC:** USB (HDMI interface) cable

✧ **Operation Modes:** Real-time

✧ **A/D conversion:** 24 bit

✧ **Sampling Rate:** 128/256/512/1024/2048/4096/8192Hz

✧ **Input impedance:** ≥10MOhm

✧ **CMRR:** ≥100dB

✧ **Noise:** ≤0.5uVRMS

✧ **Low-pass filter:** 0-120Hz

✧ **Amplitude-frequency characteristic:** 1-60Hz

✧ **High-pass filter:** 0.01-0.3s

✧ **Interface:** USB2.0, interface transfer rate: 480Mb/s

✧ **Dimension & Weight:** 300*230*60(mm); 1.65Kg (amplifier only)

2. For Stimulator (ERP Part)

2.1 A/V stimulator

2.1.1   Normal type sound stimulation parameter

✧ Stimulation type: Short tone, Pure tone, White noise;

✧ Stimulation mode of short tone: Left-ear, Right-ear, Binaural, Alternate;

✧ Phase of short tone stimulation: rare wave, dense wave, alternative wave;

✧ The maximum short tone intensity: ≥130dB

✧ The maximum pure tone intensity: ≥120dB

✧ The maximum white noise intensity: ≥100dB

✧ Stimulation Frequency: 0.1~100Hz, error ≤±10%

✧ Pure tone sound frequency: 250~7KHz, error ≤±10%

✧ Pure tone stimulation modes: Left-ear, Right-ear, Binaural, Alternate

✧ Target signal probability: 5%~100%, error ≤±10%

2.1.2 Video output signal

✧ Checkerboard images, Bar grid images, vertical grid images

✧ Grids number: 4*4~64*32

✧ Output control: Full-screen, Half-screen (top, bottom, left, right), 1/4 screen

(I, II, III, IV quadrant display)

2.2 Current stimulator

✧ Maximum current pulse output intensity: 100mA

✧ Pulse output frequency: 0.1Hz ~ 100Hz

✧ Stimulator modes: Single-stimulator mode, Dual-current stimulator mode

Key Features & Advantages

1. Professional EEG amplifier suitable for all standard applications of routine EEG and long term EEG monitoring in the research and clinical areas.

2. Configurable in a number of setups according to user's needs:

   • 24 channels monopolar EEG;

   • 12 channels monopolar EEG + 12 channels bipolar EEG;

   • 24 channels monopolar EEG + 12 channels polysomnography (PSG)

parameters + ERP examination.

3. 24 bits A/D conversion rate, with high sampling rate of up to 8 kHz.

4. High quality real-time EEG signal acquisition is transmitted via fiber optical isolation, which shields away interference from power line and other signals, transmitting stable and reliable measurement data at high-speed while greatly ensuring patient's safety.

5. Amplifier can be operated either by DC power without affecting signal quality.

6. Head-box design to access single shielded cup/clip electrodes with touch proof connectors (1.5mm).

7. Built-in impedance testing function and automatic calibration (for both sine wave and square wave signals).

8. Optional video system for recording, editing and displaying video images synchronously with EEG signals.

Software Functions

1. Acquisition & Settings

◆ Colors of waveforms are in accord to colors of events, and users can mark on the waveforms with character directly; it's available to open respiration leading sound to instruct patient's respiration frequency in a deep respiration event;

◆ EEG channels can be arbitrarily set up for users to customize the layout of channels during collection process and playback analysis. This includes the choice of processing EEG waveforms with filters, baseline and other arbitrary parameters;

◆ Configuration chart display and data source of physical channel configuration are displayed together at the same interface, making channel editing simpler and more intuitive;

◆ Events markers enable user to mark timings of seizures or any abnormal wave occurrences during recording, whereby events marked are listed and can be traced with the event localization feature during playback;

◆ Sound, light and electricity evoking is available during ERP data acquisition, and different evoke methods can be applied to different patients to extract evoking waveform;

◆ Superposition of ERP waveforms eliminates clutter and reserve EP data clearly;

◆ Superposition of different event EP waveforms according to event's classification setting;

◆ Same-screen, and real-time display brain tendency chart is in synchronism with EEG waveforms acquisition. Brain tendency chart include various energy curve maps: energy curve, peak value frequency, relative energy, absolute energy, energy peak frequency, medium frequency index, side frequency index and coma index.

2. Replay & Analysis

◆ EEG mapping;

◆ EEG tendency analysis;

◆ EEG spectral analysis;

◆ Brain waves fast playback and fast positioning function;

◆ Automatic spike recognition with adjustable arbitrary spike-wave parameters;

◆ ERP data averaging function;

◆ User can list the events marked during replay and locate each of the event markers in the waveform. User can add, change or remove event markers based on manual observation made during recording;

◆ User can also review the EEG waveforms with a different combination of parameters and filters;

◆ Various data measurement tools to measure EEG waveform, latent period and amplitude of EP;

◆ Can display and compare up to 5 kinds of superposed data of ERP on screen;

◆ Automatically generates EEG case reports with customizable print templates.

Accessories: Shielded Single disc electrode cable; Shielded Single bracket electrode cable
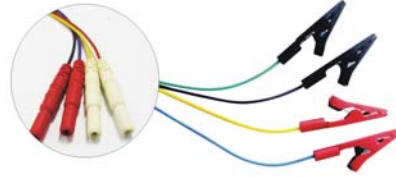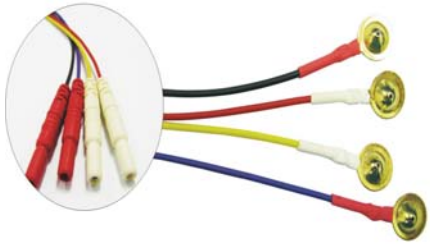
Optional accessories: Split-type EEG cap (23holes/51holes); Electrode cables for split-type EEG cap

Optional Parts

1. Video System

● Supported BUS Interface of video card: PCI

● Power supply: AC240V 50/60Hz 2A

● PAN/TILT Turn speed: 0.5°～30°/s

● Night-vision survey with IR-illumination: Supported

● Maximum picture resolution: 640×480

● Operation System: Windows XP, Win 7

- Video camera with remote control: By software.

2. Photic stimulator

✧ Stimulation frequency: 0.1~30Hz, error ≤±10%

✧ Flash time: 1~50 minutes

General Specifications

1. Dimension and Weight

Type-D EEG with standard accessories: 1 carton 510*450*230mm; Charge weight:

11kg

Photic Stimulator with tripod (Optional): One carton 630*260*190mm; 10kg

Pentagonal stand with Photic stimulator (optional): 1 carton 210*1000*620mm;

Charge weight: 25kg

Video system (optional): 1 carton 450*300*300mm; Charge weight: 7kg

2. Environment

Temperature: ±10℃ ~+50℃

Relative humidity: 30%~80%

Power supply: AC100—240V (Host computer system)

Amplifier: DC19V±

3. Quality System

ISO13485: 2003; CE (93/42/EEG)