

**KEE HING CHEUNG KEE CO., LTD.  
DLFTZ CHANG HING KEE  
INT'L INDUSTRY & TRADE CO., LTD.**



**Transcranial doppler system**



## **KHCK in the field of Medical Industry**

----- **Medical Analyzing & Monitoring system**

# **Transcranial doppler system**

*The first technology in the world*

## **KHCK-A-01**

### ■ Configuration:

KHCK-A-01 system main unit

Professional TCD software

Single Channel, 4 depths (KHCK-A-01S)

Dual Channels, 4 depths (KHCK-A-01D)

2MHz PW probe

4MHz CW probe

Headband

Trackball and extension cable

Standard keyboard

Remote control

Ultrasound transmission gel

Power extension

Multi-media speaker

User's manual

(Equipments for option are not listed here; please contact us to learn more)



**KHCK-A-01**

### [ Functions & Features ]

- ◆ -Multi-channel Synchronous Detection
  - ◆ Two probes (dual channel) working at the same time detect multi-vessel with the depth of various gates for comparison of the left and right sides and monitoring, especially for critical patients and research.
- ◆ -Automatic Thrombus Detection and Record
  - ◆ With professional thrombus-distinguishing technology, automatically detect and record embolus, synchronous playback of embolus spectrum and audio.
- ◆ -Audio & Spectrum Storage and Playback
  - ◆ Record complete clinical information including audio & spectrum for follow-up and consultation. And all the original dynamic data about multi-depth & multi-vessel can be played back synchronously without time limitation. Under playback status, gain, envelop and some other parameters can be adjusted to obtain the best off-line spectrum and data.
- ◆ -Multi-depth Synchronous Detection
  - ◆ One 2MHz probe may synchronously detect blood flow signals of two or four depths and realize the following functions:
    - a. To find blood vessel quickly, improve detection efficiency.
    - b. To compare spectrum of lesion and normal region to help diagnosis of vascular spasm and stenosis.
- ◆ -Auto Report Output and Preview
  - ◆ Some report templates and usual diagnosis opinions are included to improve convenience for doctor to

edit diagnosis report, and the report can easily be outputted and used in different computers.

- ◆ ·Dynamic Monitoring System
- ◆ Under dynamic monitoring mode, multi-channel & multi-depth work mode could be chosen, and trend diagram of dynamic monitoring is helpful for doctor to evaluate cerebral hemodynamics of the patient.
- ◆ ·Monitoring Headband  
Considerately designed with hard material by TCD expert. It can help monitoring probes to be fixed well. It is very easy to install and operate, and effect of fixing and comfort is much better than normal one with soft material.
- ◆ ·Quality Guarantee  
All the parts are produced with advanced process, and any details are considered. Even in tough conditions with some other equipment, it can give you fine images and data.

## **KHCK-A-02**

This transcranial doppler system has one channel two depth mode. It also supports extracranial mode and dynamic continuous monitoring mode and also provides patient database management.

### **[ Features ]**

- ◆ ·Real-time one side two depth detection: Offering a
- ◆ routine diagnosis and cerebral circulation monitoring, multi windows spectrums display of both sides of circles
- ◆ simultaneously and multi-parameter trend chart.
- ◆ ·Automatic Emboli Detection: Automatically detects and counts emboli within the blood flow with professional HITS software.
- ◆ ·Software based on the Microsoft Windows operating system, friendly-user interface. High stability of software and hardware platform
- ◆ ·Real-time spectrum playback
- ◆ ·Patient monitoring trend Doppler data char
- ◆ ·Pre-setting the system & Vessel parameter: making it easy to use and perfect for clinical and research applications
- ◆ Dynamic Noise Restrain (DNR) : intelligent setting for examination parameters, guarantee the best acquiring signal
- ◆ ·Full range of probes: high sensitive 1MHz/2MHz/4MHz/8MHz probes meet all kinds of applications



**KHCK-A-02**

■ **Configuration:**

- Intracranial
- Extracranial
- Automatic HITS Detection
- One Channel Two Depth
- Control panel & pedal (Optional)
- Trolley (Optional)

**KHCK-A-03**

KHCK-A-03's entry level transcranial doppler system, is easy-to apply, direct, continuous and non-invasive system for bedside assessment of cerebrovascular circulation hemodynamics. It enables a comprehensive evaluation of intracranial and extracranial circulation. The system comes with a complete range of Doppler probes, and it is a high performance cost ratio TCD system.



**KHCK-A-03**

[ **Features** ]

- ◆ ·Real-time intracranial and extracranial detection
- ◆ ·Software based on the Microsoft Windows operating system
- ◆ ·Patient monitoring trend Doppler data char
- ◆ ·Pre-setting the system &Vessel parameter: making it easy to use and perfect for clinical and research applications
- ◆ ·Dynamic Noise Restrain (DNR): intelligent setting for examination parameters, guarantee the best acquiring signal
- ◆ ·Full range of probes: high sensitive 1MHz/2MHz/4MHz/8MHz probes meet all kinds of applications

■ **Configuration:**

- Intracranial
- Extracranial
- Control panel & pedal (Optional)
- Trolley (Optional)



**KHCK-B-01**

## **KHCK-B-01**

KHCK-B -01 flagship transcranial doppler system, by using it, you can carry out a bilateral examination with two different depth gates on two sides, and you can examine one side with four different depth gates. In this way you can perform emboli detection automatically with high accuracy. Time differences between the appearances of emboli in the two gates is calculated, this enables differentiation between real emboli and artifact. In addition, CBS-IIx4P supports extracranial mode and dynamic continuous monitoring mode and also provides patient database management. These will bring you great convenience and efficiency.

### **[ Features ]**

- ◆ Real-time 4-channel detection: Offering a routine diagnosis and cerebral circulation monitoring, multi windows spectrums display of both sides of circles simultaneously and multi-parameter trend chart.
- ◆ Automatic Emboli Detection: Automatically detects and counts emboli within the blood flow with professional HITS software.
- ◆ Software based on the Microsoft Windows operating system, friendly-user interface. High stability of software and hardware platform
- ◆ Real-time spectrum playback
- ◆ Patient monitoring trend Doppler data char
- ◆ Pre-setting the system &Vessel parameter: making it easy to use and perfect for clinical and research applications
- ◆ Dynamic Noise Restrain (DNR) : intelligent setting for examination parameters, guarantee the best acquiring signal

Full range of probes: high sensitive 1MHz/2MHz/4MHz/8MHz probes meet all kinds of applications

### **■ Configuration:**

Intracranial  
Extracranial  
Automatic HITS Detection  
One Channel Two Depth  
One Channel Four Depth  
Real-time Dual Channel  
Real-time Four Channel



**KHCK-B-02**

Control panel & pedal  
Trolley (Optional)

## **KHCK-B-02**

This transcranial doppler system has one channel two depth mode and real-time dual channel mode. In addition, KHCK-B-02 supports extracranial mode and dynamic continuous monitoring mode and also provides patient database management.

### [ Features ]

- ◆ ·Real-time 2-channel detection: Offering a routine diagnosis and cerebral circulation monitoring,
- ◆ multi windows spectrums display of both sides of circles simultaneously and multi-parameter trend chart.
- ◆ ·Automatic Emboli Detection: Automatically detects and counts emboli within the blood flow with professional HITS software.
- ◆ ·Software based on the Microsoft Windows operating system, friendly-user interface. High stability of software and hardware platform
- ◆ ·Real-time spectrum playback
- ◆ ·Patient monitoring trend Doppler data char
- ◆ ·Pre-setting the system &Vessel parameter: making it easy to use and perfect for clinical and research applications
- ◆ ·Dynamic Noise Restrain (DNR) : intelligent setting for examination parameters, guarantee the best acquiring signal
- ◆ ·Full range of probes: high sensitive 1MHz/2MHz/4MHz/8MHz probes meet all kinds of applications

### ■ Configuration:

Intracranial

Extracranial

Automatic HITS Detection

One Channel Two Depth

Real-time Dual Channel

Control panel & pedal (Optional)

Trolley (Optional)



**KHCK-B-03**

## **KHCK-B-03**

### ■ **Configuration:**

KHCK-B-03 system main unit

Professional TCD software

2MHz PW probe

4MHz CW probe

Single Channel, 4 depths (KHCK-B-03-1)

Dual Channels, 4 depths (KHCK-B-03-2 )

Headband

Trackball and extension cable

Standard keyboard

Remote control

Ultrasound transmission gel

Power extension

Multi-media speaker

User's manual

(Equipments for option are not listed here; please contact us to learn more)

### [ **Functions & Features** ]

- ◆ ·Digital Integrative Machine
- ◆ With digital and integrative technology, furthest improve the SNR, sensitivity, reliability and stability. It can work well even in tough environment such as strong interference, super low temperature, operation room and so on.
- ◆ ·Professional Thrombus Detection and Record
- ◆ With professional thrombus-distinguishing technology, automatically detect and record embolus, synchronous playback of embolus spectrum and audio.
- ◆ ·Audio & Spectrum Storage and Playback
- ◆ Record complete clinical information including audio & spectrum for follow-up and consultation. And all the original dynamic data about multi-depth & multi-vessel can be played back synchronously without time limitation. Under playback status, gain, envelop and some other parameters can be adjusted to obtain the best off-line spectrum and data.
- ◆ ·Multi-depth M-mode
- ◆ One 2MHz probe may synchronously detect blood flow signals of two or four depths and realize the following functions:
  - ◆ a. To find blood vessel quickly, improve detection efficiency.



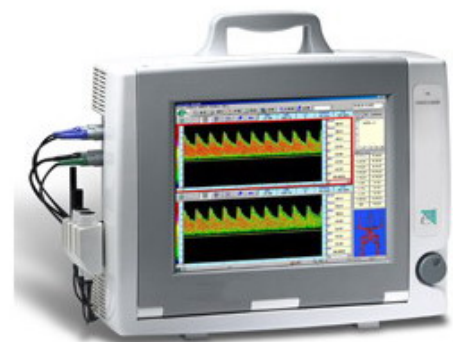
- ◆ b. To compare spectrum of lesion and normal region to help diagnosis of vascular spasm and stenosis.
- ◆ c. To observe the moving trace of embolus and distinguish them.
- ◆
- ◆ ·Auto Report Output and Preview
- ◆ Some report templates and usual diagnosis opinions are included to improve convenience for doctor to edit diagnosis report, and the report can easily be outputted and used in different computers.
- ◆
- ◆ ·Continuous Monitoring System
- ◆ Under dynamic monitoring mode, multi-channel & multi-depth work mode could be chosen, and tend diagram of dynamic monitoring is helpful for doctor to evaluate cerebral hemodynamics of the patient.
- ◆
- ◆ ·Quality Guarantee
- ◆ All the parts are produced with advanced process, and any details are considered. Even in tough conditions with some other equipment, it can give you fine images and data.

## **KHCK-C-01**

KHCK-C-01 is a highly integrative portable TCD system with a 12 inch 0°-90° folding up color TFT display, could be placed vertically or horizontally according to the preference of the doctors. By using it, you can carry out examinations in one channel one depth mode, one channel two depth mode, and bilateral mode. Built-in rechargeable Lithium-ion battery provides great mobile ability and could meet the new environment standards. Multiple examination modes and compact design with complete interface ports make it suitable for both hospital and clinic applications. Enhanced signal processing algorithm gives out the reliable examining results, comprehensive patient database provides efficient patient history management.

### **[ Features ]**

- ◆ ·Integrative compact design, having all interfaces of normal PC
- ◆ ·High resolution color TFT display, 0°-90°folding adjustable
- ◆ ·Simultaneous LCD and VGA output, easy for demonstration and education
- ◆ ·Smart writing pad, easy inputting, easy carrying
- ◆ ·Built-in rechargeable lithium-ion battery, longtime working capability
- ◆ ·Support Windows 98, Windows 2000 and Windows XP operation system
- ◆ ·Small keyboard and foot switch as optional



**KHCK-C-01**

- ◆ -Built-in speakers, reserved audio sockets for external speakers

**Parameter:**

Genera:	portable, completely integrated TCD with a 12" TFT display		
Weight:	6KG		
Dimension:	400mm×350mm×110mm		
Probe:	2.0MHz PW	4.0MHz CW	8.0MHz CW
Transmitted Power	5~700%		
Variable gain	0~32db		
Spectrum	256FFT		
PW depth	25~120mm		
Scale	256 level		
Parameters calculation	Vp/ Vd, Mean, PI, RI, S/ D, SBI, STI, HR, HTTS		
Working mode	Intracranial, Extracranial, Monitoring, Multigatc, Bilatcral		

## **KHCK-C-02**

### ■ Configuration

KHCK-C-02 system main unit

Professional TCD software

2MHz PW probe

4MHz CW probe

Headband

Trackball and extension cable

Standard keyboard

Remote control

Ultrasound transmission gel

Power extension

User's manual

(Equipments for option are not listed here; please contact us to learn more)



**KHCK-C-02**

### [ Functions & Features ]

- ◆ -Multi-channel, Multi-depth Synchronous Detection
- ◆ Two probes (dual channel) working at the same time detect multi-vessel with the depth of various gates for comparison of the left and right sides and monitoring, especially for critical patients and

- ◆ research.
- ◆ ·Integrative Design and Assembly
- ◆ With weight only 6.5Kg and dimension 32cm\*18cm\*28cm, it is very convenient to make diagnosis outside and use in different departments
- ◆ ·Digital Cine-Loop Playback  
It can record complete clinical information including audio & spectrum for follow-up and consultation.
- ◆ And all the original dynamic data about multi-depth & multi-vessel can be played back synchronously
- ◆ without time limitation. Under playback status, gain, envelop and some other parameters can be
- ◆
- ◆ adjusted to obtain the best off-line spectrum and data.
- ◆ ·Automatic Thrombus Detection and Record  
With professional thrombus-distinguishing technology, automatically detect and record embolus,
- ◆ synchronous playback of embolus spectrum and audio.
- ◆ ·Fine Image  
With scan speed 3.5 second /frame & max. FFT 12 dots, the obtained Spectrum is wide and clear,
- ◆ easy for observing tiny lesions, so diagnosis and working efficiency can be improved.
- ◆ ·Continuous Monitoring System  
Under dynamic monitoring mode, multi-channel & multi-depth work mode could be chosen, and tend
- ◆ diagram of dynamic monitoring is helpful for doctor to evaluate cerebral hemodynamics of the patient.
- ◆ ·High Sensitivity  
With a large power scope of 0~526mW, satisfactory spectrum can be easily obtained even at power
- ◆ 3mW or for old patient.
- ◆ ·Powerful Ability of Post Process  
It can easily do some report output work, store or transfer data with network, CD-R/W, FD, etc.

## **KHCK-D-01**

### ■ Configuration:

KHCK-D-01 system main unit  
Professional TCD software  
Single channel, single depth (KHCK-D-01A)  
Single Channel, 4 depths (KHCK-D-01B)  
Dual channels, 4 depths (KHCK-D-01C)  
2MHz PW probe  
4MHz CW probe  
Headband  
Remote control  
Ultrasound transmission gel  
User's manual



**KHCK-D-01**

*(Equipments for option are not listed here; please contact us to learn more)*

## [ Functions & Features ]

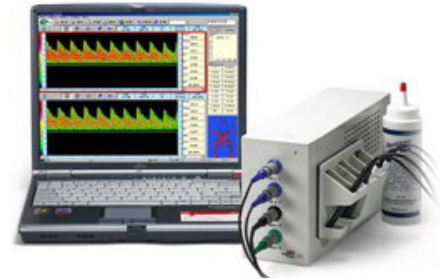
- ◆ ·Multi-depth M-wave  
It can quickly obtain blood flow signals of different sampling depths and realize the following functions:
  - a. To find blood vessel quickly, improve detection efficiency.
  - ◆ b. To compare spectrum of lesion and normal region to help diagnosis of vascular spasm and stenosis.
  - c. To observe the moving trace of embolus and distinguish them.
- ◆ ·Free Match, Flexible Application
- ◆ Compact EMS-9U main unit, connected to the tabletop or laptop computer through USB interface,
- ◆ can be used as a tabletop or portable TCD. For spot check, it can be packed in a lap top computer bag, so it is very easy to carry.
- ◆ ·Audio & Spectrum Storage and Playback
- ◆ It can record complete clinical information including audio & spectrum for follow-up and consultation. Full digital design enables the synchronous playback without time limitation, demonstration of the
- ◆ audio and spectrum on a computer, which is convenient for scientific research and communication.
- ◆ ·Professional Thrombus Detection and Record
- ◆ With professional thrombus-distinguishing technology, automatically detect and record embolus,
- ◆ synchronous playback of embolus spectrum and audio.
- ◆ ·Auto Report Output and Preview
- ◆ Some report templates and usual diagnosis opinions are included to improve convenience for doctor to edit diagnosis report, and the report can easily be outputted and used in different computers. The
- ◆ reports could be converted into slide document and make you enjoy its flexibility and freedom.
- ◆ ·Probe with Frequency Conversion Function
- ◆ It's easy to get suitable and best sampling frequency for different patients. We can take lower
- ◆ sampling frequency to improve penetrability for old patients while take higher sampling frequency to
- ◆ improve the quality of Doppler image for children. It helps us to obtain the best connection point of
- ◆ penetrability and image quality. Furthermore, it is helpful for distinguishing air-embolus from solid-embolus.
- ◆ ·Continuous Monitoring System
- ◆ Under dynamic monitoring mode, multi-channel & multi-depth work mode could be chosen, and tend

- ◆ diagram of dynamic monitoring is helpful for doctor to evaluate cerebral hemodynamics of the patient.

## **KHCK-D-02**

### [ Features ]

- ◆ ·Compact and light weight: easy to carry, convenient for the doctor to visit patient at home.
- ◆ ·Flexible: can be connected with PC or laptop through USB port. Can also be inserted into computer tower case (take 2 CDROM size), and be used as a workstation.
- ◆ · Advanced USB interface, easy maintenance: supporting advanced
- ◆ USB2.0 protocol, compatible with lower protocol versions such as USB1.1; Supporting windows 98,
- ◆ windows 2000 and windows XP.
- ◆ ·Built-in speaker and reserved audio output interface: audio signal can be output to multi-media audio system and stored
- ◆ ·Special designed magnetic probe rack. Can be put on either side of the machine, adaptable to the doctor's habit.



**KHCK-D-02**

### **Parameter:**

Genera:	portable, connected to a laptop or PC via USB port
Weight:	3.1KG
Dimension:	318.5mm×89.1mm×161mm
Probe:	2.0MHz PW    4.0MHz CW    8.0MHz CW
Transmitted Power	5~700%
Variable gain	0~32db
Spectrum	256FFT
PW depth	25~120mm
Scale	256 level
Parameters calculation	Vp/ Vd, Mean, PI, RI, S/ D, SBI, STI, HR, HTTS
Working mode	Intracranial, Extracranial, Monitoring, Multigatc, Bilatcral