Huntleigh HEALTHCARE

SSI SCUBA SCHOOLS INT. Albrecht Salm Instructor No. 12653

PADI Albrecht Salm Master Scuba Diver Trainer PADI MSDT # 33913

2007

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Huntleigh HEALTHCARE

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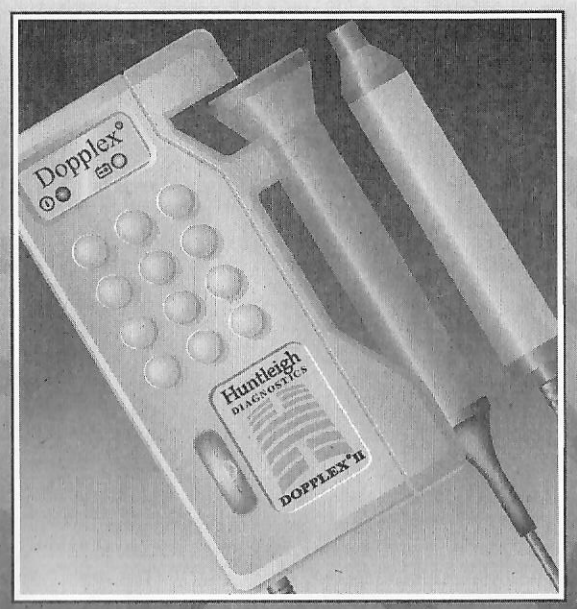
D900/D920



DOPPLEX® HIGH SENSITIVITY POCKET DOPPLERS

MULTI-LINGUAL USER MANUAL

DIAGNOSTIC Products Division

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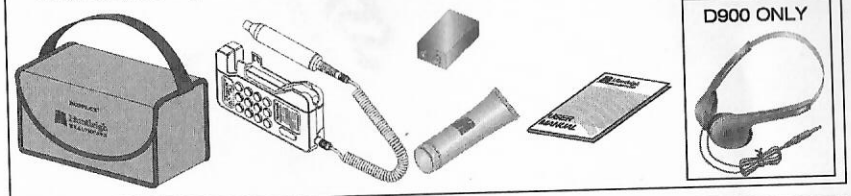

BATTERY

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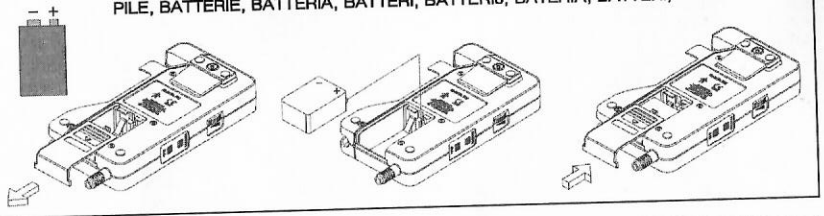

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6 Small Saphenous Vein VP8HS, EZ8

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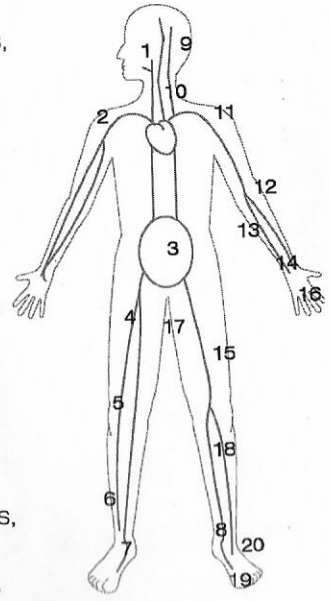

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19 Metatarsal Artery VP8HS, VP10HS, EZ8

20 Dorsalis Pedis Artery VP8HS, VP10HS, EZ8

WARNING/CAUTIONS & SAFETY

Do not use Dopplers in the presence of flammable gases such as anaesthetic agents.

Do not use in the sterile field unless additional barrier precautions are taken.

Do Not :
- Immerse in any liquid, (except D920 probe)
- use solvent cleaner,
- use high temperature sterilising processes (such as autoclaving),
- use E-beam or gamma radiation sterilisation.

This product contains sensitive electronics, therefore, strong radio frequency fields could possibly interfere with it. This will be indicated by unusual sounds from the loudspeaker. We recommend that the source of interference is identified and eliminated.

Do not use on the eye.

If outputs 1 and 2 are used simultaneously, the system should comply with EN60601-1-1. Any equipment connected to outputs 1 or 2 should comply with EN60601-1, EN60950, EN60065, EN60335 or EN61010.

Do not dispose of batteries in fire as this can cause them to explode.

Do not attempt to recharge normal dry-cell batteries. They may leak, cause a fire or even explode.
Dopplex Dopplers are screening tools to aid the healthcare professional and should not be used in place of normal vascular or fetal monitoring. If there is doubt as to vascularity or fetal well-being after using the unit, further investigations should be undertaken immediately using alternative techniques. We recommend that exposure to ultrasound should be kept As Low As Reasonably Achievable - (ALARA guidelines). This is considered to be good practice and should be observed at all times.

Audio Dopplex (D920)

The main unit is not waterproof and must not be immersed. For underwater use where contamination or cross-infection may occur, aditional barrier precautions must be taken.

Means Attention consult this manual. Refer to safety section.

GENERAL OPERATION & MAINTENANCE

ENGLISH

Refer to diagram on inside front cover for Doppler Measuring sites and Recommended Probes.

Indicators

Green LED - indicates power ON.
Yellow LED - flashes when battery is low.

During Use

An automatic noise reduction feature operates on low level signals to improve sound quality.

To replace battery see diagram.

After Use

1. Press and release the On/Off button. If you forget to switch the unit off, it will automatically shut-off after 5 minutes.
2. Refer to the cleaning section before storing or using the unit on another patient.
3. Store unit together with probe and accessories in the soft carry case provided.

The control unit and the body of the probe are robust and require no special handling. However, the probe tip is delicate and must be handled with care.

Cleaning

Remove excess gel before parking the probe. Clean with a damp cloth impregnated with mild detergent. Do not allow fluid to seep into either unit.

For disinfection use a soft cloth with Sodium Hypochlorite 1000ppm or alcohol.

Alcohol saturated swabs can be used on the probe tip.

Please be sure to check your local control of infection policies, or any equipment cleaning procedures.

Phenolic, detergent based disinfectants containing cationic surfactants, ammonia based compounds, or antiseptic solutions such as Steriscol or Hibiscrub should never be used on any part of the system.

Coupling Gel

Use water based ultrasound gel ONLY.

OPERATING INSTRUCTIONS VASCULAR

Clinical Use

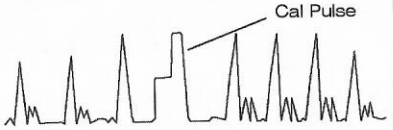
Apply a liberal amount of gel on the site to be examined. Place the probe at 45° to the skin surface over the vessel to be examined. Adjust the position of the probe to obtain the loudest audio signal. High pitched pulsatile sounds are emitted from arteries while veins emit a non-pulsatile sound similar to a rushing wind.
For best results, keep the probe as still as possible once the optimum position has been found. Adjust the audio volume as required.

Waveform Recording (Mini only)

The Mini Dopplex can be connected to a chart recorder by using a suitable lead that plugs into the Waveform socket. (For more information on the chart recorder, refer to the manufacturer's handbook).

Cal Function

The baseline and sensitivity of the chart recorder can be set up using the Cal function. This generates a zero velocity baseline and a sequence of pulses as shown below:



Two levels of calibration pulses are provided. While Cal is active, calibration tones synchronised to the calibration pulses are superimposed on the audio signal.

If the button is pressed and held, then the calibration sequence is repeated.
When the calibration sequence is complete, normal operation is resumed.

Probes

Five probes are available for vascular examinations:

VP4HS	4MHz ±1% for deep lying vessels
VP5HS	5MHz ±1% for deep lying vessels and oedematous limbs
VP8HS	8MHz ±1% for peripheral vessels
VP10HS	10MHz ±1% for specialist superficial applications.
EZ8	8MHZ ±1% "Widebeam" for peripheral vessels.

OPERATING INSTRUCTIONS OBSTETRICS

Clinical Use

Apply a liberal amount of gel to the abdomen. Place the faceplate of the probe flat against the abdomen above the symphysis pubis. Adjust the probe to obtain an optimum audio signal ideally by angling the probe around. Avoid sliding it over the skin.

In early pregnancy a full bladder may improve sound detection. In later pregnancy the best signals are generally located higher on the abdomen. The fetal heart sounds like a galloping horse at approximately twice the maternal rate. A wind-like sound is heard from the placenta.

The Dopplex units can detect fetal heart sounds from as early as 9 to 10 weeks gestation.

Note that early detection (9-12 weeks) is highly depedent on operator skill and other factors and may not always be possible.

Mini Dopplex only

Obstetric mode is automatically selected when an obstetric probe (***OP2HS*** or ***OP3HS***) is connected to the control unit.

In this mode the waveform output and Cal function are disabled.

Audio Dopplex (D920)

The Audio Dopplex has a 2MHz waterproof probe for underwater use.

Probes

OP2HS	2MHz ±1%
OP3HS	3MHz ±1%

WARRANTY & SERVICE

Huntleigh Healthcare's standard terms and conditions apply to all sales. A copy is available on request.

These contain full details of warranty terms and do not limit the statutory rights of the consumer.

Service Returns

If for any reason your Dopplex Unit is being returned, please:

1. Clean the product, as described in the cleaning section.
2. Pack it in suitable packing.
3. Attach the decontamination certificate (or other written statement declaring that the product has been cleaned) to the outside of the package.
4. Mark the package "Service Department - Mini/Audio Dopplex".

UK

For further details refer to the NHS document HSG(93) 26.

For service, maintenance and any questions regarding this, or any other Huntleigh Healthcare Dopplex product, please contact:

Huntleigh Healthcare Ltd
Diagnostic Products Division
35 Portmanmoor Road
Cardiff
CF24 5HN UK
Tel : +44 (0)29 20485885
Fax: +44 (0)29 20492520

Or your local distributor.

Manufactured in the UK by Huntleigh Healthcare Ltd. As part of the ongoing development programme the company reserves the right to modify specifications and materials of the Mini Dopplex or Audio Dopplex without notice.

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ENGLISH

ENGLISH

TECHNICAL SPECIFICATION

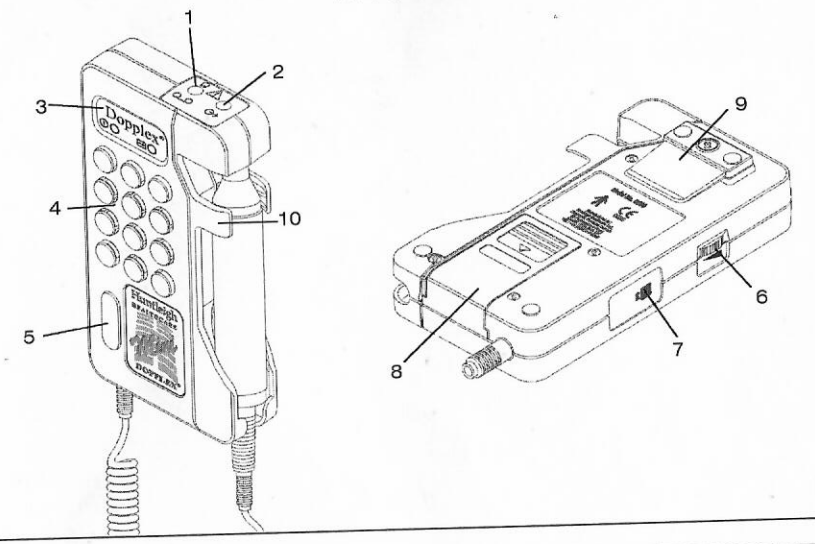
Product Name:	Mini/Audio Dopplex®
Model No.:	D900/D920
Physical Characteristics:	**Weight** : 295 gms **Height** : 140mm **Width** : 74mm **Depth** : 27mm
Max. Audio Output:	500mW rms typical
Max Headphones Output:	25 mW rms (32Ω headphones) (max. applied voltage +9Vdc)
Auto Shut-Off:	After 5 minutes continuous operation
Waveform Outputs: (Mini Dopplex only)	Zero crosser, 0.5V/kHz, 3.5V full scale Cal levels:1kHz + 2kHz, (max. applied voltage +9Vdc) 3.5mm mono socket
Battery Type Recommended:	9 volt alkaline manganese (e.g. MN1604)
Battery Life:	Typically, 500 x 1 minute examinations
Audio Dopplex Probe:	Waterproof to IPX7
Complies With:	BS5724: Part 1 : 1989, IEC 601-1: 1988, EN60601-1

IEC601-1 Classification:	Type of shock protection	Internally powered equipment
	Degree of shock protection	Type B equipment
	Protection against water ingress	Ordinary equipment
	Degree of safety in presence of flammable gases	Equipment not suitable for use in presence of flammable gases
	Mode of operation	Continuous
Operating Temperature:	+10°C to +30°C	
Storage Temperature:	-10°C to +40°C	

CE
0088

Medical Directive 93/42/EEC

D900/D920



	D900	D920	ENGLISH	FRANÇAIS	DEUTSCH	ITALIANO	SVENSKA	NEDER-LANDS	ESPAÑOL	DANSK	SUOMI
1	●	●	Head-phone Socket	Prise casque	Buchse Kopfhörer	Presa cuffia	Uttag för hörlurar	Hoofdstel-contact	Entrada de auriculares	Hoved-telefon holder	Kuulo-kevastake
2	●		Waveform Socket	Prise générateur d'ondes	Buchse Meßkurven	Presa segnale	Vågform-suttag	Golvform-contact	Salida para gráfica	wawe form holder	Aaltomuot-ovastake
3	●	●	LED Panel	Panneau de LED	LED-Feld	Pannello del LED	LED - indikatkor	LED-Paneel	Panel LED	LED Panel	Valodio-dinäyttö (LED)
4	●	●	Loud-speaker	Haut-parler	Laut-sprecher	Alto-parlante	Högtalare	Luid-sprecker	Altavoz	højtaler	Kaiutin
5	●	●	On/Off Button	Bouton Marche/ Arrêt	Ein/ Ausschalter	Interruttore on/off	På/Av knapp	Aan/uit-schakelaar	Botón de Encendido/ Apagado	tænd og sluk knap	On/Off-painike
6	●	●	Volume Control	Contrôle du volume	Volume Control	Regolatore di volume	Volym-kontroll	Volume-knop	Control du Volumen	Volume kontrol	Äänenvoi-makk-uussäädin
7	●		Cal Button	Bouton calibrage	CAL-Schalter	Pulsante Cal	Kalibrer-ingsknapp	Cal-knop	Botón de Calibrado	Kalibre-rings knap	Kal-painike
8	●	●	Battery Compart-ment	Logement pile	Batteriefach	Vano batteria	Batterifack	Batterij-holte	Compart-imento para pila	Batteri rum	Paris-tolokero
9	●	●	Pocket Clip Attachment	Clip	Zub. Taschenclip	Fermaglio da taschino	Fästanord-ning för ficka	Zakclip	Clip para bolsillo	Lomme clips	Taskupi-dikeliitin
10	●	●	Probe Holder	Rangement sonde	Sonden-halterung	Reggi-sonda	Probe-parkering	Positie van sonde	Compart-imento para sonda	sensor holder	Koettimen pidin