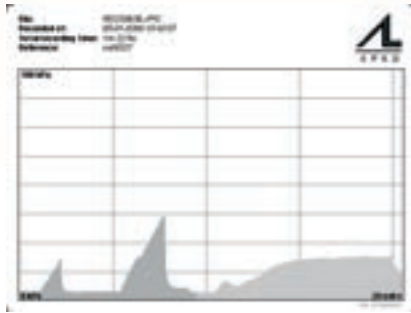


Registration and documentation of the epidural puncture



New approach to the epidural space

Herman Wijffels Innovation Award

The Herman Wijffels Award was instituted as a means for promoting innovative and sustainable enterprise in the Netherlands. In competition with over 250 participants, APAD was evaluated the best innovative product of 2007 and won this most prestigious award.

Technical Data and Specifications

Size and Weight

| | |
|----------|--------|
| · Height | 220 mm |
| · Width | 230 mm |
| · Depth | 90 mm |
| · Weight | 2 kg |

Display

- Colour TFT with LED Backlight
- 320x240 Pixel Resolution
- Touch Screen
- Vertical Scale 0-100 kPa
- Vertical Resolution $\leq 0,6$ kPa

Audio

- | | |
|--------------|---------------|
| · Frequency | 140 Hz-1 kHz |
| · Resolution | $\leq 0,4$ Hz |

Conformity Mark

APAD is in compliance with the regulations as set out in the Medical Devices Directive (MDD 93/42/EEC). Classification: for Europe: Class IIb: Manufacturer Apad B.V.



APAD is an invention of T.J.M. Lechner, MD, Anesthesiologist and has been patented by APAD Octrooi B.V.

Pressure Measurement

- | | |
|-------------|-----------|
| · Input | 0-133 kPa |
| · Tolerance | 5 % |

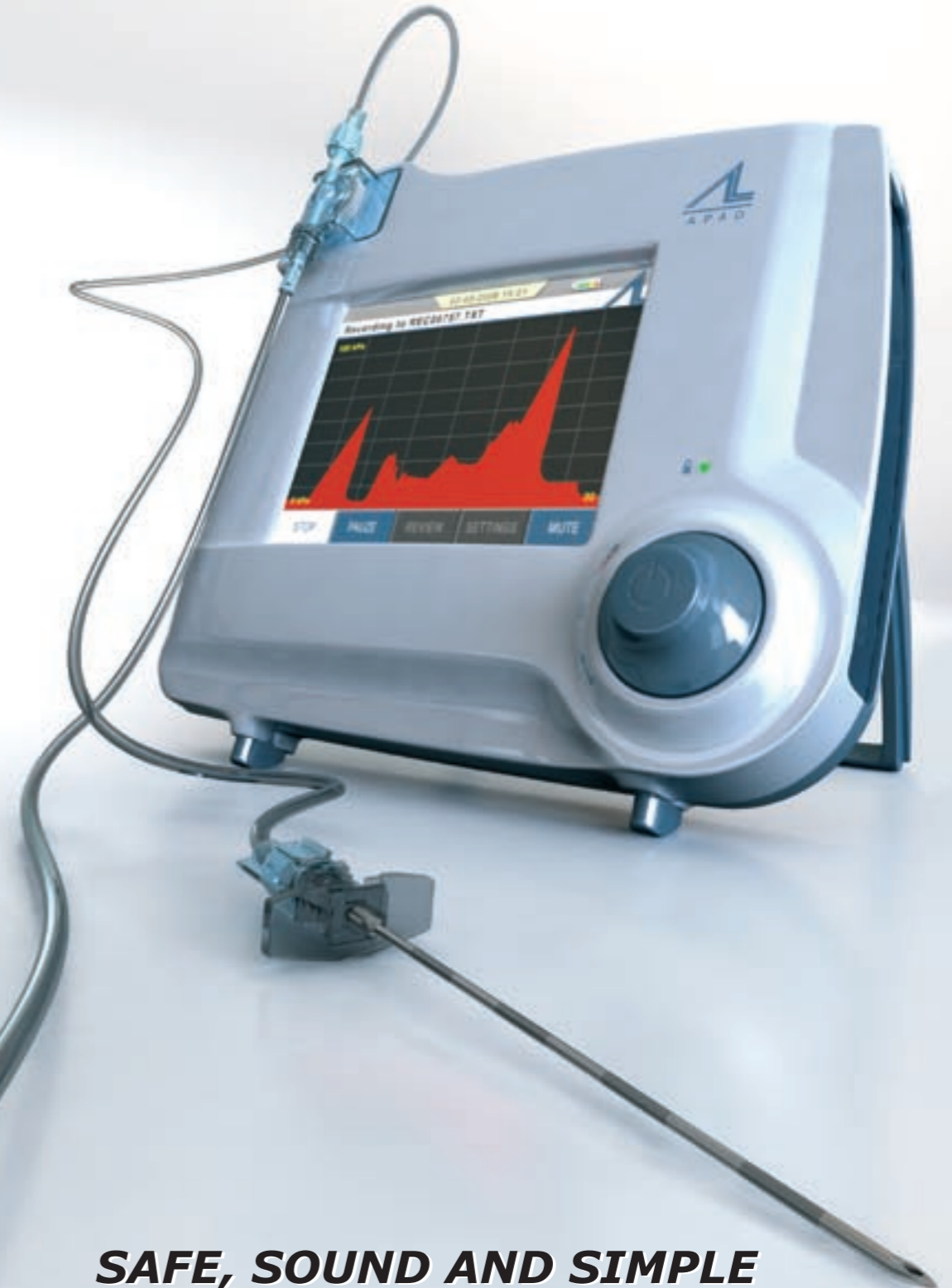
Data Transfer and Storage

- Serial Port Optical Galvanic Isolation
- Secure Digital Card (SD) max. 1Gb

Net Adapter

- | | |
|-----------------------|----------------------|
| · Voltage In | 100-240 Vac/50-60 Hz |
| · Voltage/Current Out | 15 V/1.6 A |

- | | |
|-------------------|---------------------|
| · Battery Pack | NiMH 7,2 V/1500 mAh |
| · Battery Charger | Internal, 2 stage |



SAFE, SOUND AND SIMPLE



the key to medical innovation

EQUIP MEDIKEY BV
Edisonstraat 16 j ; 2809 PB Gouda ; The Netherlands
T +31 182 - 573 293 ; F +31 182 531 364
www.equip.nl / www.apad.eu



Start of the procedure



Two hands needle control



APAD confirms finding of the epidural space



Control of the catheter placement



Registration of the puncture



A perfect procedure

Revolutionary acoustic system to locate the epidural space featuring the following unique advantages:

- Registration and documentation of the epidural puncture
- Guaranteed finding of the epidural space
- Penetration of the epidural space is indicated by a clear variation of the acoustic signal
- Acoustic monitoring is superior to the sense of touch
- Two handed technique for absolute needle control
- An outstanding educational tool
- Monitoring of the different layers guarantees a safe procedure

APAD (Acoustic Puncture Assist Device)

APAD is a revolutionary device to localise the epidural space by means of an acoustic signal. This device is measuring the pressure in an extension tube between the epidural needle and the syringe placed in a pump. The generated pressure is translated into a corresponding acoustic and visible signal.

The device enables the anesthesiologist to handle the epidural needle with both hands and to detect the epidural space by means of the acoustic signal. The method has been proven to be reliable, safe, and simple in several studies (publications 1, 2, 3, 4).

The benefits of this new epidural puncture technique include: registration and documentation of the epidural puncture, better needle control, certitude that the epidural space has been reached, the free space can be checked and APAD is an outstanding educational tool.

List of Publications

Several studies have proven the APAD-procedure to be reliable, safe, and simple. The clinical results have been published in various leading journals. Please inquire for the following articles, for further reference:

1. Lechner, T.J.M. van Wijk M.G.F., Maas A.J.J. Clinical results with a new acoustic device to identify the epidural space. *Anaesthesia*, 2002;**57**:768-772
2. Lechner T.M.J., van Wijk M.G.F, Maas A.J.J. *et al.* Clinical Results with the Acoustic Puncture Assist Device, a New Device to Identify the Epidural Space. *Anesthesia & Analgesia*, 2003;**96**:1183-1187
3. Lechner T.M.J., van Wijk M.G.F, Maas A.J.J. *et al.* Thoracic epidural puncture guided by an acoustic signal: clinical results. *European Journal of Anesthesiology* 2004;**21**:694-699
4. Lechner T.M.J., van Wijk M.G.F, Maas A.J.J. De akoestisch-geleide epidurale punctie. *Nederlands Tijdschrift voor Anesthesiologie* 2004;**17**:1003-1007