

Long Range Pinger Detector

PD1102

**This presentation describes
the function and the technical data of the
PD1102 pinger detector amplifier**

www.etec.dk



Functional Operation

The unit is constructed around an extremely sensitive charge amplifier followed by an sharp high pass filter and a gain controlled amplifier.

These steps are especially designed to filter off noise and to pick up the extremely weak hydrophone signals coming from pingers at a distance up to 400 meters.

It has a build in 7 band frequency detector with light diode indicators for visually inspection of the nature of the received signal and it has an audio mixer/detector for the conversion of high frequency signals into audible signals for listening and documentation purpose.

The unit offers BNC output for measuring instruments and a 3.5mm mini jack connector with volume control for the connection of a set of headphones or the supplied pocket loudspeaker

Included within the package

Detector Amplifier type etec PD1102

Hydrophone type RESON TC4033

Headphone type Monacor MD5000-DR

Pocket Speaker type Saitek A-100

Battery charger type Monacor PSS-800

Shoulderbag type PacSafe MetroSafe 200

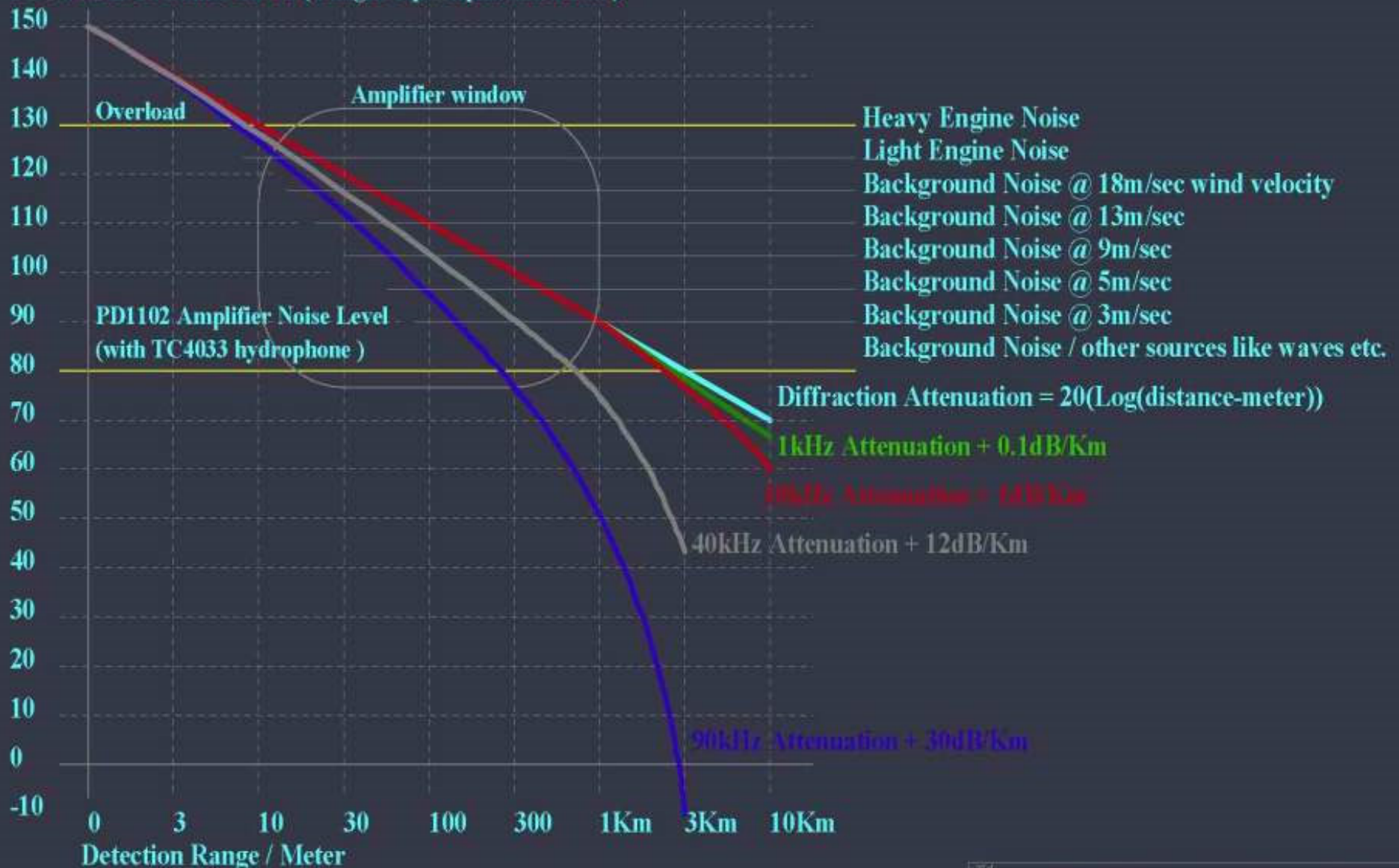
Watertight Suitcase PeliCase1500BK

Technical Data

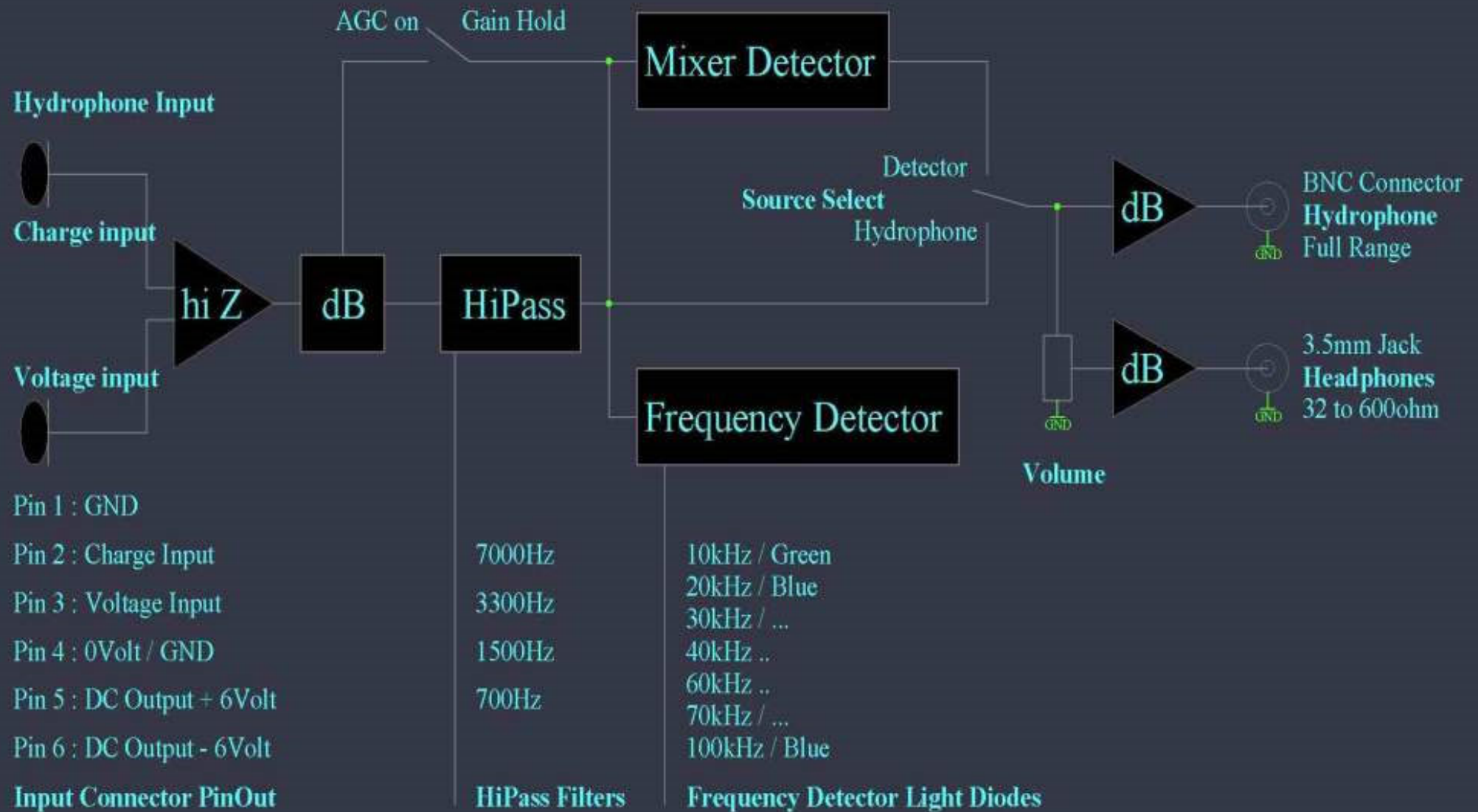
Frequency range PD1102 :	700Hz to 160kHz
Frequency Converter :	10kHz mixer type
Automatic Gain Control :	Variable range : 0 to +40 dB (AGC)
Additional Gain Input :	Charge amplifier input : +30dB
Additional Gain Output :	Headphone output +20 dB gain
High Pass Filters :	700Hz / 1500Hz / 3300Hz / 7000Hz
Gain hold function :	AGC on / off ~ (gain hold)
Switchable monitoring between :	Hydrophone Full Range and Frequency Converter
Charge Input Amplifier :	220pF ~ 30 dB gain with TC4033
Piezoelectric Transducers Range :	100pF to 22nF
Noise Level :	1microVolt rms @ 1kHz / rel. to input
BNC output signal :	700Hz to 160kHz / +12dBm max.
Headphone 3.5mm Jack output :	20Hz to 20kHz / 150mWatt max.
Detection Range :	Please see next slide

Sound Attenuation in SeaWater = $20(\text{Log}(\text{distance})) + \text{absorption/Km}$

dB / Sound Pressure Level (Pinger eq.: AquaMark 100)



Title			PD1102 Detection Range.SCH
Size	Number	Revision	
A4	PD1102E	1	
Date	3-May-2009	Sheet of	
File	N:\etc\PD1102 Detection Range.SCH	Drawn By	



Title			
PD1102 Functional Block Schematic			
Size	Number	Revision	
A4	PD1102E	1	
Date	3-May-2009	Sheet	of
File	Notes: PD1102 Functional Block Schematic.dwg		

Hydrophone Input

Pin 1 : GND / 0Volt
 Pin 2 : Charge input / 220pF
 Pin 3 : Voltage Input / 1Gohm
 Pin 4 : GND / 0Volt
 Pin 5 : DC output +6Volt / 100R
 Pin 6 : DC output -6Volt / 100R

High Pass Filters

Used for filtering off low frequency noise like seawaves and engine noise.
 With heavy filtering the gain will increase and visa versa.

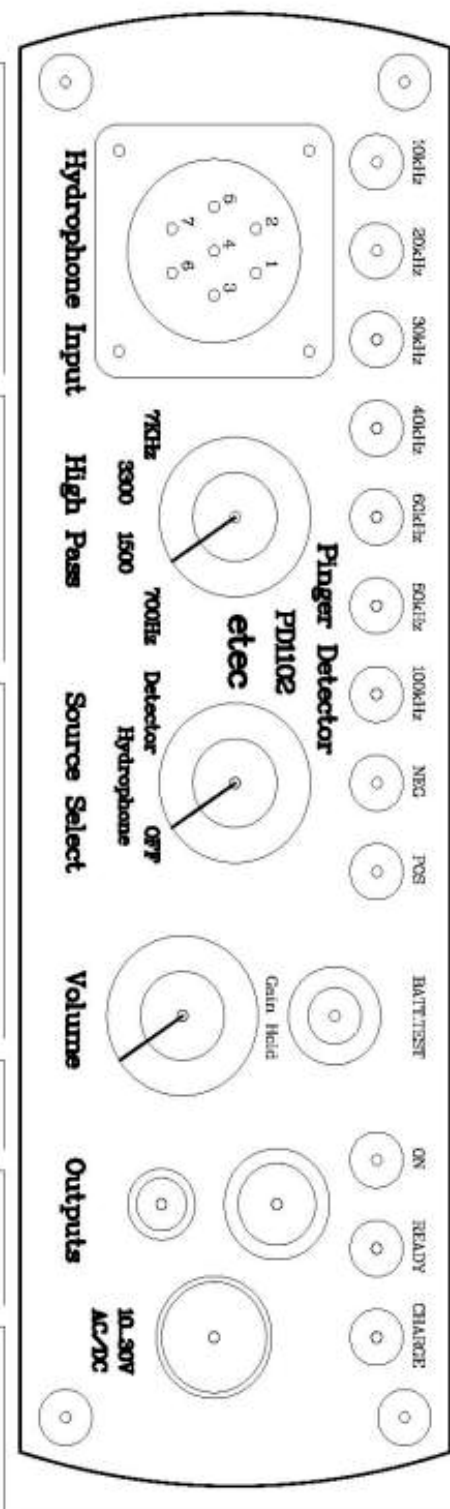
Source Select

The detector position converts all frequencies from 16kHz to 160kHz down into the audible range.
 The Hydrophone position monitors full range from High Pass setting uptill 160kHz

Volume. Sets the level on the 3.5mm Mini Jack connector.

BNC connector output for measuring the full range hydrophone signal. Fixed Level

Charge Input connector
 Center Pin is 2.1mm



Frequency detector indicators :

Green for 10kHz.

Blue for 20...160kHz

Indicators will work uptill 50 meters from pingers depending on wether conditions.
 Indicators will not stand alone.

For longer distances

You must depend on your ears.

Headphones or Pocket Speaker.

At high background noise level the internal Automatic Gain Control (AGC) will turn down the amplification in order to prevent overload.

More Gain may be obtained by applying High Pass Filter

Battery Test Indicator / Negative cells

Battery Test Indicator / Positive cells

A total of 8 pcs. AA Ni/Mh cells.
 All cells to be placed with positive pole out.

Battery Test and Gain Hold Switch

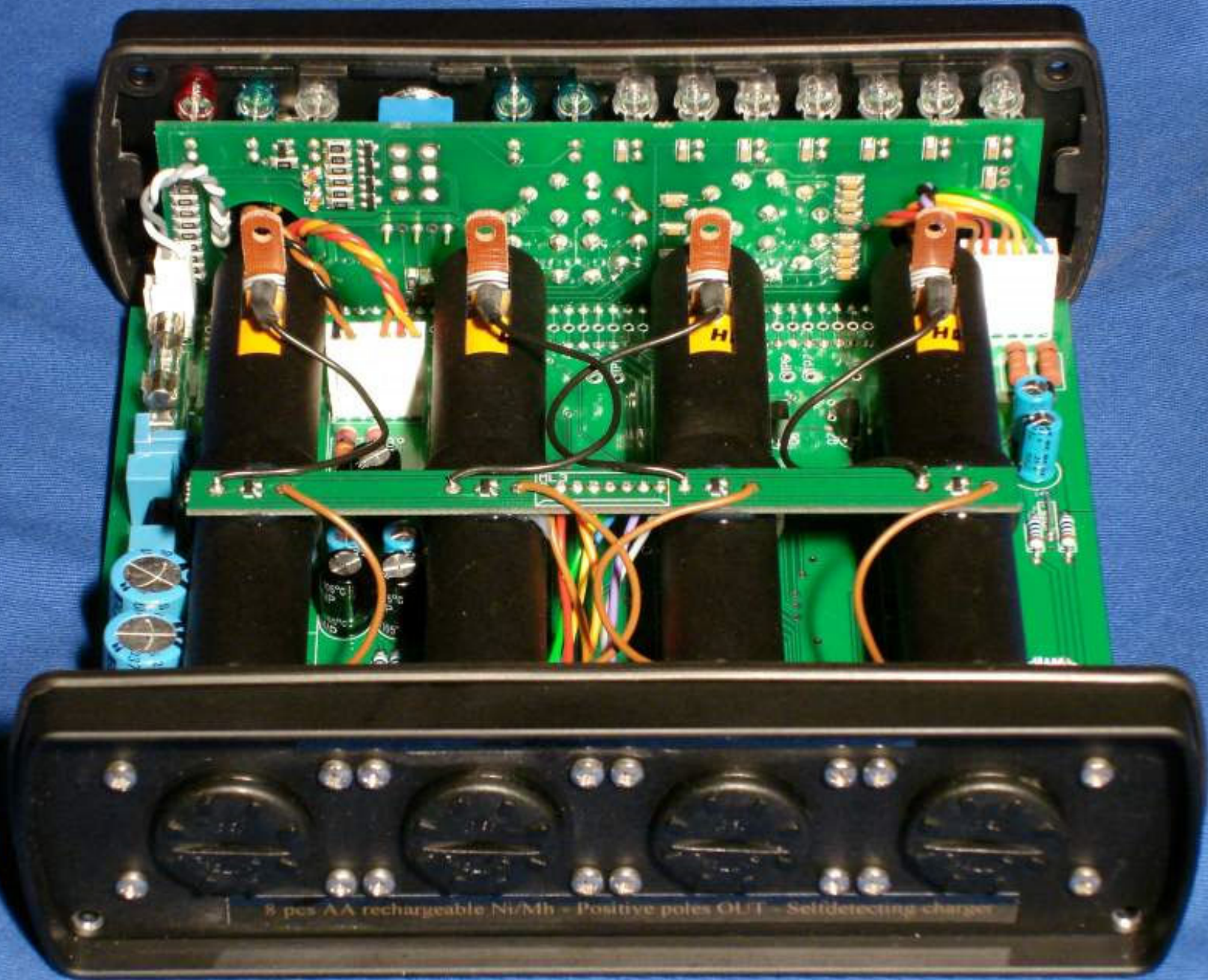
Gain Hold text (not printet on front panel)

Meaning : Gain Hold Down / Max Gain is obtained by releasing the switch to center position.

On indicator. By turning the Source Select Switch. Ready Lamp. When the internal charger is finish.

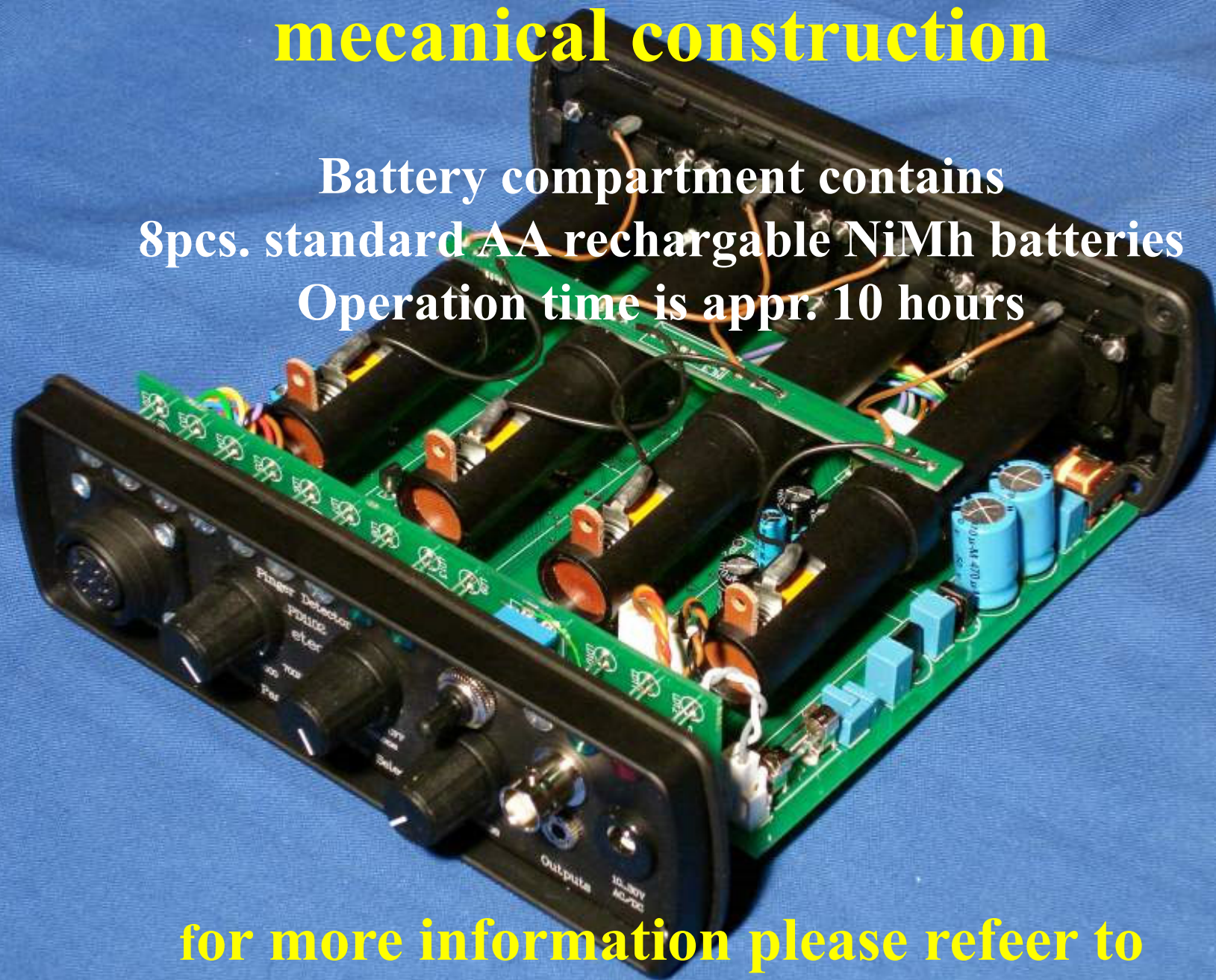
The Charger is selfdetecting and it stops and maintains the batteries when fully charged.

Charge Lamp. When a charge voltage is attached. Charge voltage may be anything from 10Volt to 30Volt AC or DC



mecanical construction

**Battery compartment contains
8pcs. standard AA rechargeable NiMh batteries
Operation time is appr. 10 hours**



for more information please refer to

www.etec.dk