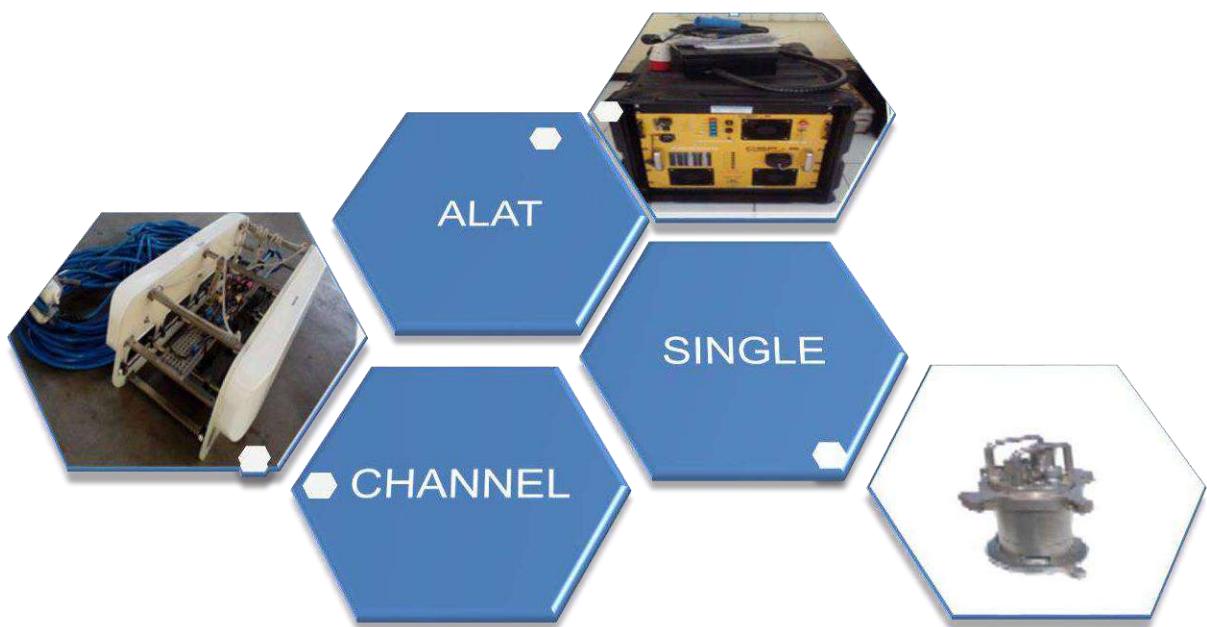


Peralatan SINGLE CHANNEL



BADAN GEOLOGI

BBSPGL

BALAI BESAR SURVEI DAN PEMETAAN GEOLOGI KELAUTAN

© 2018

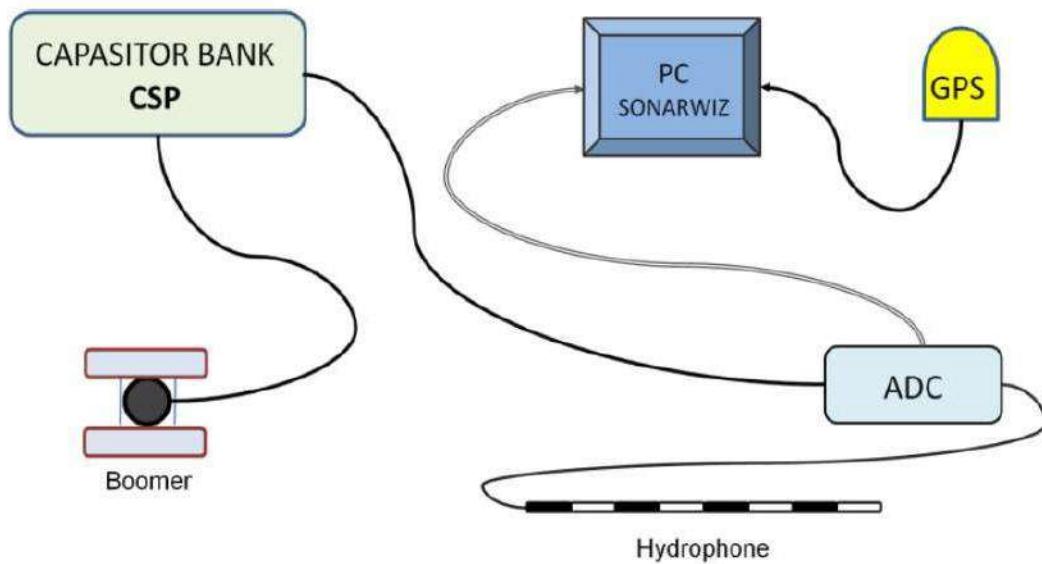
Single Channel

SISTEM INPUT → SISTEM SINGLE CHANNEL → SISTEM OUTPUT



Energy Source

Salah satu Sumber Energi yang digunakan untuk melaksanakan rangkaian proses sismik single channel. P3GL (Pusat Penelitian dan Pengembangan Geologi Kelautan) mempunyai beberapa type dan spesifikasi alat Energy Source, dari sumber yang dibutuhkan sampai hasil sumber yang dibutuhkan sehingga dapat memetakan golongan kelompok survey yang di butuhkan.



Energy Source Type CSP –S



Umum :

Nama Alat : Energy Source CSP-S/4000 joule

Merk Alat : Aplied Acoustik

Serial : SN2140631A

No. Inventarisasi :

3.11.02.02.020.016 (2014)

Kelengkapan :

1. Energy Source CSP -S / 4000 joule
2. Box Baterai
3. Kabel 3 Phase

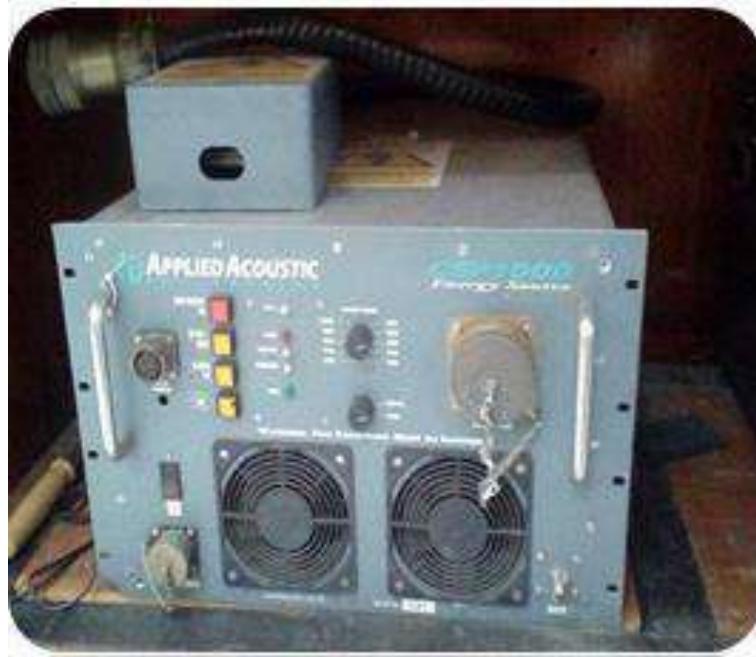
Fungsi :

Sebagai Sumber Energi Untuk Digunakan Rangkaian Kegiatan Sismik Single Channel

Spesifikasi :

- 110 VAC 50 Hz 56 A peak Current 40 Average Current
- 240 V : Operasional
- 180 VAC : 2500 Joule/s
- 200 VAC : 2800 Joule/s
- 210 VAC : >3000 Joule/s
- Input 207- 260 V : 1 pase 45-65 Hz 6KVA
- Output : 2500 - 4000 VDC
- Out Power : 300 – 12000 Joule
- Trigger : (+ 5 to 24 V rising edge)

Energi Source Type 234

**Merek Alat :**

Power Suply 232A EG&G

Kelengkapan :

1. Energi Source CSP 1000
2. Cable Power 220 VAC

Fungsi :

Sebagai Sumber Energi Untuk Digunakan
Rangkain Kegiatan Sismik Single Channel

Spesifikasi :

Input Voltage : 110 - 120 or 220-240 VAC

Frekwensi : 50-60 Hz 1 Pase

Output : 3.8 KVDC max

Operasional : 100 Joule - 1000 Joule

No Inventaris :

Energi Source CSP 1000



Merek Alat :

Power Suply 232A

Spesifikasi :

Input Voltage : 110 - 120 or 220-240 VAC

Frekwensi : 50-60 Hz 1 Pase

Kelengkapan :

1. Power Suply 232A

Output : 3.8 KVDC max

2. Cable Power 220 VAC

Charger Rate : 0.5 secand/ 1000 watt second

Dimensi : 15- 3/4" high x 21-3/4" widex15-1/4"

Fungsi :

Sebagai Sumber Energi Untuk Digunakan Rangkain Kegiatan Sismik Single Channel

Weight : 165 lbs (50,292 kg)

Operasional : 100 Joule - 1000 Joule

No Inventaris :

3.11.02.02.038.022

Capacitor Bank 231

**Merek Alat :**

Capacitor Bank 231

Kelengkapan :

1. Trigger Capacitor Bank 231
2. Cable Power 110 VAC
3. Cable High Voltage 3600 - 3800 VDC

Fungsi :

Sebagai Sumber Energi Untuk Digunakan
Rangkain Kegiatan Sismik Single Channel

Spesifikasi :

Capacitive energi storage

1000 w-s 60 mF pada 3,53 KV

Energi switching

8400 w.s max

Input power

AC 115 at 2 Amper5

DC 3,8 KV max 0,5 A average dari 232A

Trigger input : 12 v pulsa trigger

Dimensi : 15- 3/4" high x 21-3/4"
widex15-1/4"

Weight : 165 lbs (50,292 kg)

No Inventaris :

2.13.02.02.038.001

2.13.02.02.036.002

2.13.02.02.036.003

Capacitor Bank 233A

**Merek Alat :**

Capacitor Bank 233A

Spesifikasi :

Capacitive Energy Storage

3500 w-d(500 mfd 3.75kv)

Kelengkapan :

1. Capacitor Bank 233A
2. Cable high Power 220 VAC

Input power : 3.8 KV at 0.4 amp dari 2311 CB

Dimensi 1

3" high x 20" wide x 25-3/4" deep

Weight : 290 lbs (88.4 kg)

Fungsi :

Sebagai Sumber Energi Untuk Digunakan
Rangkain Kegiatan Sismik Single Channel

No Inventaris :

2.13.02.02.016.001

2.13.02.02.016002

Power Suply 232



Merek Alat :

Power Suply 232A

Spesifikasi :

Kelengkapan :

1. Power Suply 232A
2. Cable Power 220 VAC

Input Voltage : 110 - 120 or 220-240 VAC

Frekwensi : 50-60 Hz (1 Phase)

Output : 3.8 KVDC max

Charger Rate : 0.5 secand / 1000 watt
secand

Fungsi :

Sebagai Sumber Energi Untuk Digunakan
Rangkain Kegiatan Sismik Single Channel.

Dimensi : 15- 3/4" high x 21-3/4"
widex15-1/4"

Weight : 165 lbs (50,292 kg)

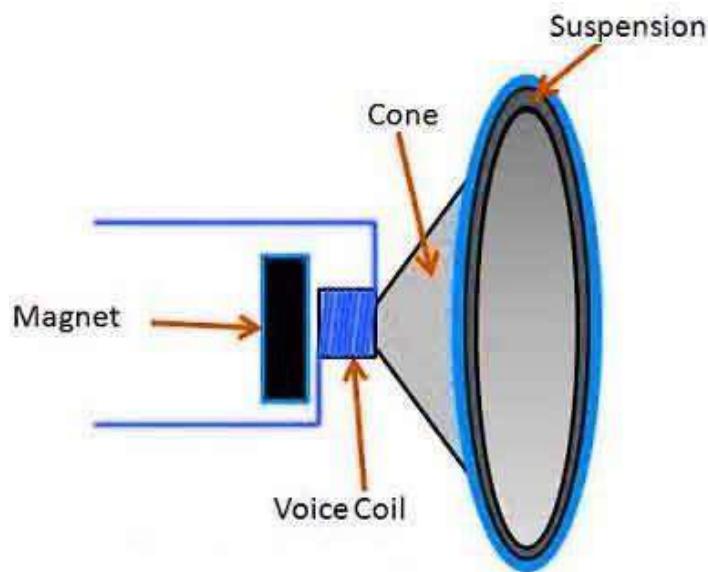
No Inventaris :

3.11.02.02.038.022

3.11.02.02.038.023

Sparker & BOMMER

Merupakan Sumber Suara yang mempunyai kerja Pada dasarnya speaker terdiri dari atas beberapa komponen utama yaitu cone, suspension, magnet permanen, voice coil dan juga kerangka speaker. Untuk dapat mengubah gelombang listrik menjadi gelombang suara yang dapat kita dengar, speaker memiliki komponen elektromagnetik yang terdiri dari kumparan yang disebut dengan voice coil. Komponen ini digunakan untuk menghasilkan medan magnet dan berinteraksi dengan magnet permanen yang mampu menggerakan cone speaker maju dan mundur. Gelombang listrik yang melalui voice coil akan mengakibatkan arah medan magnet berubah secara cepat sehingga terjadi tarik menarik dan tolak-menolak dengan magnet permanen. Sehingga terjadilah getaran maju dan mundur pada Cone Speaker yang dapat menghasilkan suara. Suspension yang ada pada speaker berfungsi untuk menarik cone speaker ke posisi semulanya setelah bergerak maju dan mundur. Selain itu, suspension juga berfungsi sebagai pemegang cone dan voice coil.



Sparker



Merek Alat :

EG&G

Spesifikasi :

Capasitas : 1000 joule

Maximum : 3600 joule at TCB 231
paralel 233 CB

Kelengkapan :

1. Sparker Tree Elektroda
2. Cable Towing

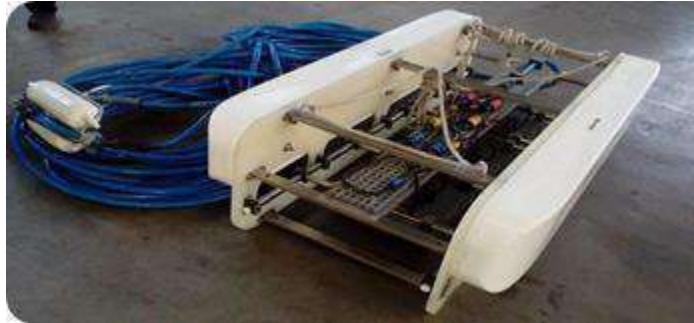
No Inventaris :

Tahun pengadaan: 1989

Fungsi :

Sebagai Alat Distribusi Suara Pada Sistem
Survei Sibgle Channel Sismik

Boomer

**Merek Alat :**

Apiled Acoustik

Fungsi :

Sebagai Alat Distribusi Suara Pada Sistem
Survei Sibgle Channel Sismik

Kelengkapan :

1. Boomer Apiled Acoustik
2. Cable Towing

Spesifikasi :

Capasitas 1000 Joule

No Inventaris :

Tahun pengadaan: 1989 & 2014

Streamer SIG 16.16.23



Merek Alat :

Streamer SIG 16.16.23

Spesifikasi :

Sensitivity : 183 db re 1V/Mpa +/- 1 db

Frekwensi respone : plat +/- 1 db

Kelengkapan :

1. Streamer

Max Operasional : 80 m

2. Box Baterai

Free Amp Gain : 32 db

3. Cable Charge

Max Output : 12 V p-p

4. Cadangan Free Amp.

Consumision : < 2mA

Fungsi :

Sebagai Alat Penerima Suara / Bunyi

Length : 23 m

Hydro Spasing : 1 m

No Inventaris :

3.1102.02.038.023 (2014)

Diameter : 25 mm in x 30,5 m ext

Density : 1,04

Oil : 900

Channel Operasion No.1

Hydropone Channal 16

Capacitance of Channel:

1-284mF 1 KHz 240 mF 120 Hz

Streamer APLIED Acoustic



Merek Alat :

Streamer APLIED Acoustic AH 150/20

Spesifikasi :

Sensitivity : 190 db re 1V/Mpa +/- 1 db
Frekwensi respone : plat +/- 5 db
Max Operasional : 80 m
Free Amp Gain : 32 db
Max Output : 12 V p-p
Consumision : < 2mA

Kelengkapan :

1. Streamer
2. Box Baterai

Fungsi :

Sebagai Alat Penerima Suara / Bunyi

Dimensi : leng= 159 mm d= 20 mm
Active Section
Length : 50 m

No Inventaris :

3.11.02.02.038.023

Hydro Spasing : 1 m

3.11.02.02.038.024

Diameter : 25 mm in x 30,5 m ext

Density : 1,04

Oil 900

Channel Operasion No.1

Hydropone Channal 16

Capacitance of Channel :

1-284mF 1 KHz 240 mF 120 H

Grafik Recorder



Merek Alat :

Grafik Recorder EPC 1086 NT

Print head : 2048 @203 DPI

Max line speed : @2Shades 11 ms @64 shades

Chart speeds fixed :

80,100,120,150,200,240,300,LPI

Kelengkapan :

1. Grafic Recorder EPC 1086 NT

Chart speed Variable : 2-10 KNOT, Requires GPS

2. Power Kable

Scand rate : 0.005 to 10 sec, 1ms resolution

Fungsi :

Merekam data Analog

Key rate : 0.010 to 10 sec, 1ms resolution

Delay : 0.000 to 8 sec, 1ms resolution

Data input : 8 bite

Dual Signal : -10v to 10v signal BNC input

2kOhm input Impedansi

External Trigger :

TTL Ex Trig BNC input with slope sense.

Spesifikasi :

Host Processor : Pentium 233 MHz

Internal Keyout:

CPU Bus : 32 Bit PCISA

TTL Key Out BNC with polarity selektion. 156 us
pulsa width.

Displays : Twin 2x40 LCD LED

No Inventaris :

Power Suply : 65 Watt Print Head 200 W

2.13.02.020.009

90 s/d 2654 VAC

Power Consumision : 70 watt (130 watt + printing)

2.13.02.020.010

Gray level : 2, 16, 64 , 256 level

Grafik Recorder



Merek Alat :

Grafic Recorder EPC 1086

Chart speeds fixed:

80,100,120,150,200,240,300,LPI

Kelengkapan :

1. Grafic Recorder EPC 1086

Chart speed Variable : 2-10 KNOT, Requires GPS

2. Power Kable

Scand rate : 0.005 to 10 sec, 1ms resolution

Merekam data Analog

Key rate : 0.010 to 10 sec, 1ms resolution

Delay : 0.000 to 8 sec , 1ms resolution

Fungsi :

Data input : 8 bite

Dual Signal : -10v to 10v signal BNC input

2kOhm input Impedansi

Spesifikasi :

Host Processor : Pentium 233 MHz

External Trigger :

CPU Bus : 32 Bit PCISA

TTL Ex Trig BNC input with slope sense.

Displays : Twin 2x40 LCD LED

Internal Key out :

Power Suply : 65 Watt Print Head 200 W

TTL Key Out BNC with polarity selektion. 156 us
pulsa width.

90 s/d 2654 VAC

No Inventaris :

Power Consumision : 70 watt (130 watt + printing)

2.13.02.02.020.006 2.13.02.02.020.003

Gray level : 2, 16, 64 , 256 level

2.13.02.02.020.004 2.13.02.02.020.007

Print head : 2048 @203 DPI

2.13.02.02.020.008

Max line speed : @2Shades 11 ms @64 shades

Sonar Wez



Merek Alat :

CHOPOLE SONAR WEZ

Kelengkapan :

1. Perekam Digital Sonar Wez
2. Dongle
3. CD Software
4. Kable Interface

Fungsi :

Merekam Data Sismik Digital

Spesifikasi :

No Inventaris :

Band Fass Filter



Merek Alat :

CHOPOLE SONAR WEZ

Kelengkapan :

1. Perekam Digital Sonar Wez
2. Dongle
3. CD Software
4. Kable Interface

Fungsi :

Merekam Data Sismik Digital

Spesifikasi :

No Inventaris :

PERALATAN GEOFISIKA

[SEISMIC MULTICHANNEL]



POSITIONING CONTROL SYSTEM

ION Digibird 5011

SPESIFIKASI :



Physical Characteristics:

Length 1.2 m (48.2 in)

Weight in air 8.32 kg (18.3 lbs)

Weight in water with batteries 2.78 kg

Communications :

Type : Serial, FSK

Frekuensi : 26 KHz or 28KHz

Data Rate : 2.400 bit/second

Depth Measurement :

Operating Range : 0 - 122 meter

Resolusi : 0.15m

Heading Measurement :

Accuracy : +/- 0.5°

Diving Plane :

Lift : 15.9 kg (35 lbs) @ 5 knots and 15° wing angle

Airfoil : NACA 651-012 airfoil section

Wing Span : 48.3 cm (19 in)

Battery :

Cells : SLB 150 battery pack (standard) or 4, D-cell lithium batteries (optional)



Mengatur/mengontrol
kedalaman streamer serta
memberikan data heading
kompas.



KELENGKAPAN

1. Data Management Unit (DMU)
2. Line Interface Unit (LIU)
3. CPU
4. Monitor
5. Kabel Interface
6. Kabel BNC
7. Kabel Data
8. Coil Test
9. Streamer Clamp
10. Software ION Digicourse System 3

No. Inventaris :

3.11.02.02.032.061/2015

POSITIONING CONTROL SYSTEM

ION Digibird 5010




**Mengatur/mengontrol
kedalaman streamer.**

No. Inventaris :

- 20.11.02.579191.2008
- 20.11.0200.579191.2010

SPESIFIKASI :

Physical Characteristics:

Length 1.2 m (48.2 in)
Weight in air 8.32 kg (18.3 lbs)
Weight in water with batteries 2.78 kg (6.1 lbs)

Communications :

Type : Serial, FSK
Frekuensi : 26 KHz
Data Rate : 2.400 bit/second

Depth Measurement :

Operating Range : 0 - 122 meter
Resolusi : 0.15m

Diving Plane :

Lift : 15.9 kg (35 lbs) @ 5 knots and 15° wing angle
Airfoil : NACA 651-012 airfoil section
Wing Span : 48.3 cm (19 in)

Battery :

Cells : SLB 150 battery pack (standard) or 4, D-cell lithium batteries (optional)

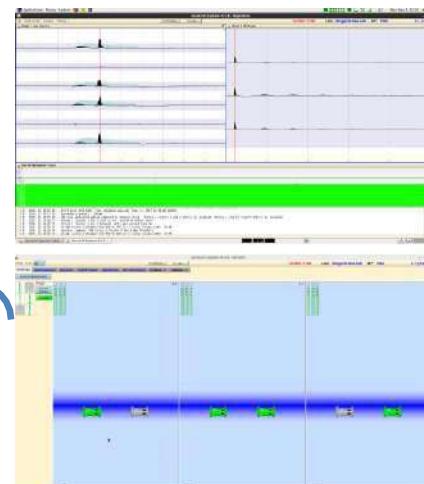
KELENGKAPAN

1. Data Management Unit (DMU)
2. Line Interface Unit (LIU)
3. CPU
4. Monitor
5. Kabel Interface
6. Kabel BNC
7. Kabel Data
8. Coil Test
9. Streamer Clamp
10. Software ION Digicourse System 3

GUN FIRING SYSTEM

SEAMAP GUNLINK SYSTEM

Fungsi
“Monitoring ketepatan dan sinkronisasi sinyal peledakan setiap air gun”



KELENGKAPAN

1. Time Control Unit
2. Gun Control Unit
3. Air Control Valve Interface
4. GunLink PC
5. Software GunLink System

SPESIFIKASI

General System Features :

Total number of gun : 256 (128 GI guns)

Monitored variables : Gun fire time, Near field phone signals, Depth sensor and air line pressure, Solenoid coil current

Controlled variable : Gun Fire Time, Gun Firing Pulse Length and Voltage

Supported Guns : Bolt 1500 and 1900 series guns, Seemap Sleeve guns, Sercel G and GI Guns

System Performance :

Date Time Stamping : All date stamped to GPS time

Input Power : 110-240 Vac, 50/60 Hz

Text status in Tab Format for Each Guns :

Physical addressing, volume, timing error value, gun fire delay values, aim point offset values, depth value, array assignment, operational status and fault indication



BACK DECK EQUIPMENT [SEISMIC SOURCE]

Fungsi : Sebagai Sumber Suara Seismik

Merek Alat	: Sodera / G GUN II	
Spesifikasi	: Volume 150 Cuin ; Length : 597 mm Width : 292 mm ; Weight : 55 kg	
No. Inv. / No. Seri	3.11.02.02.024.007 / 938	3.11.02.02.024.012 / 92342
	3.11.02.02.024.008 / 933	3.11.02.02.024.013 / 92344
	3.11.02.02.024.009 / 934	3.11.02.02.024.014 / 17054
	3.11.02.02.024.010 / 9314	3.11.02.02.024.015 / 17059



Merek Alat	: Sodera / G GUN II	
Spesifikasi	: Volume 250 Cuin ; Length : 597 mm Width : 292 mm ; Weight : 65 kg	
No. Inv. / No. Seri	3.11.02.02.024.007 / 247	
	3.11.02.02.024.008 / 249	
	3.11.02.02.024.009 / 236	
	3.11.02.02.024.010 / 216	



Merek Alat : Sodera / G GUN II

Spesifikasi : Volume 380 Cuin ; Length : 640 mm
Width : 292 mm ; Weight : 85 kg

No. Inv. / No. Seri : 3.11.02.02.024.016 / 6206

3.11.02.02.024.016 / 45722

3.11.02.02.024.016 / 62010

3.11.02.02.024.016 / 4559



Merek Alat : Bolt / 600 BT

Spesifikasi : Volume 150 Cuin ; Length : 597 mm
Width : 292 mm ; Weight : 55 kg

No. Inv. / No. Seri : / 1697

/ 1695

/ 1696

/ 1694

GUN UMBILICAL FLOATING AND HANGING SYSTEM

Fungsi : Towing Sumber Suara Air Gun Array



Merek Alat :

Seemap

Spesifikasi :

Panjang total : 11.5 meter

Diameter bouyancy : 18 inchi

Diameter selang pelindung kabel: 6 inchi

Jarak Cluster ke Cluster : 2 meter

Jarak Bouyancy ke Gun : 7 mete

Jarak Gun ke Gun : 0.8 meter

Kapasitas Array : 4 Cluster (8 Gun)r

Kelengkapan :

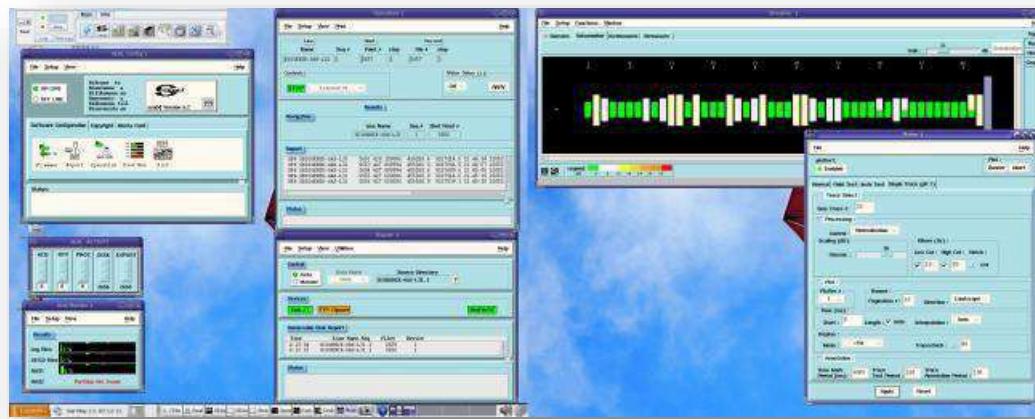
1. Sousis Bouyancy
2. Gun Plate
3. Umbilical
4. ACVM
5. Hydrophone
6. Depth Sensor
7. Antenna RGPS
8. Electrical Protection House
9. Kabel Interface :
 - Octopus Cable
 - Solenoid Cable
 - Time Break Cable
 - Cluster to Cluster Cable

No. Inventaris :

- 3.11.02.02.024.018

RECORDING SYSTEM

8. Plotter
9. PC
10. Software Userseal



Merek :

Sercel Seal 428

No.Inventaris :

2.13.02.02.020.012

Fungsi :

Merekam sinyal akustik yang diterima oleh hidrofon kemudian mengubahnya dalam bentuk sinyal digital untuk keperluan prosesing seismik 2D.

Kelengkapan :

1. Control Module Xtra Large (CMXL)
2. Auxiliary Channel unit (AXCU)
3. Human Computer Interface (HCI)
4. Processing Remote Module (PRM)
5. Deck Cable Crossing Unit (DCXU)
6. Network Attached Storage (NAS)
7. Streamer



Spesifikasi :

Recording (Basic Configuration)

Maximum record length :

Unlimited in continuos acq mode (depending on server hardware)

Ethernet media :
NFS protocol

LCI :
Synchronized with GNSS time server

Receiving navigation message (if using serial communication)

DCXU :
Output Vdc : 100 Vdc to 600 Vdc (limited to 365 Vdc by the seal 428 software)

Liquid Streamer



Merek : Sercel/ALS

Spesifikasi : 12 channel per section
8 hydrophone / channel

No. Inventaris : 3.11.02.02.038.017
3.11.02.02.038.018
3.11.02.02.038.019
3.11.02.02.038.020

Solid Streamer



Merek : Sercel/SSAS

Spesifikasi : 12 channel per section
8 hydrophone per channel
Length 150 m per section
Jarak antar channel 12.5m

No. Inventaris : 3.11.02.02.038.017
3.11.02.02.038.018
3.11.02.02.038.019
3.11.02.02.038.020

STREAMER

Fungsi :

Penerima Sinyal Seismik
Penerima Sinyal
Multichannel
Seismik Multichannel

Tipe Streamer :

1. Liquid Streamer
2. Solid Streamer

Kelengkapan Streamer

- 1: Liquid Streamer
- 2: Solid Streamer
 1. Winches Streamer
 2. ALS
 3. TES
 4. HESE
 5. Deck Cable
 6. Lead In
 7. RUM

Kelengkapan Solid Streamer :

1. Winches Streamer
2. SSAS
3. TES
4. HESE
5. Deck Cable
6. Lead In
7. RUM
8. Colar
9. Weight Colar

Winch Umbilical



Merek : Seemap

Spesifikasi : Panjang umbilical : 120m
diameter drum: 1,4m

No. Inventaris : 3.11.02.02.020.015

Winch Streamer



Merek : Marine hydraulics Eng

Fungsi:

Power penggulung
umbilical air gun array

Kelengkapan:

1. power pack hidrolik
2. slip ring
3. air pass swivle
4. terminal cable
5. remote control
(steak)

Fungsi:

Menggulung streamer,
deploy dan recovery.

Kelengkapan

1. Power pack
2. Sleepring

RGPS

Merek :

SEAMAP/ Buoylink 4DX

No.Inventaris :

(2015)

Fungsi :

Menentukan Range/Bearing data posisi

Kelengkapan :

1. Master Radio Module
2. Source Radio Module
3. Tail Buoy Module
4. MPU (Module Power Unit)
5. MIU (Module Interface Unit)
6. Buoylink 4DX PC
7. TPU (Test Portable Unit)
8. Software rtk4DX RGPS Beta Version 2.05

MASTER MODULE

Power Supply : 9-36 Vdc

I/O Data Radio FREQ : RS422, 230400bps

Broadcast information : RTCA Peudo Ranges, to remotes

Radio Range : 12km

RF Data Rate : 230400bps

GNSS Receiver : 24Ch (up to 120) GPS L1/L2/L2C, Glonass L1/L2, Galileo E1/E5,SBAS

GNSS/ISM Combination Antenna : GPS L1/L2, GLO L1/L2, L5, Galileo, LNA gain 33-35 dB, ISM 5dBi

Radio Transmission Method : TDMA, FHSS



SOURCE MODULE

Power : 18-75 Vdc

Radio Range : 2km

Data Format : Range/Bearing/Pitch/QC

Wire Data : RS485

Radio antenna : Internal 0 dBi (integrated with GNSS antenna)

GNSS Receiver : 24 Ch (up to 120) GPS L1/L2/L2C, Glonass L1/L2, L5, Galileo E1/E5, SBAS

GNSS Antenna : GPS L1/L2, GLO L1/L2, L5, Galileo, LNA gain 33-35dB

DATA ACQUITION PC

OS : Windows Embedded, WS7

Processor : Core i7 2600

Memory : 4GB DDR3 1333

TAILBUOY MODULE

Power : 9-36 Vdc

Wire data : RS 485

Radio Range : 12 km

Data Format : Range/Bearing/Pitch/QC

Weight : 4.5 kg

GNSS Receiver : 24 Ch (up to 120) GPS L1/L2/L2C, Glonass L1/L2, L5, Galileo E1/E5

Connector : 8 pin to allow access to seemap Tailbuoy

Radio Frequency 900MHz ISM Spread Spectrum



PORABLE TEST UNIT

Weight : 2kg

Screen : 4x40 monochrome LCD

Power : Internal Li-on battery 7.2V, 6.2 Ah

Connectors : 1x input, 12-24 vdc to charge internal battery, 1x output to provide power to modules under test (24Vdc), 1x USB for data upload.



MODULE POWER SUPPLY UNIT (MPU)

Output : 55 VDC to Gun Strings, 24 V dc to Test Port, controllable from software



MODULE INTERFACE UNIT (MIU)

Weight: approx 2 kg

Power Output:

2x24Vdc for Master Modules,

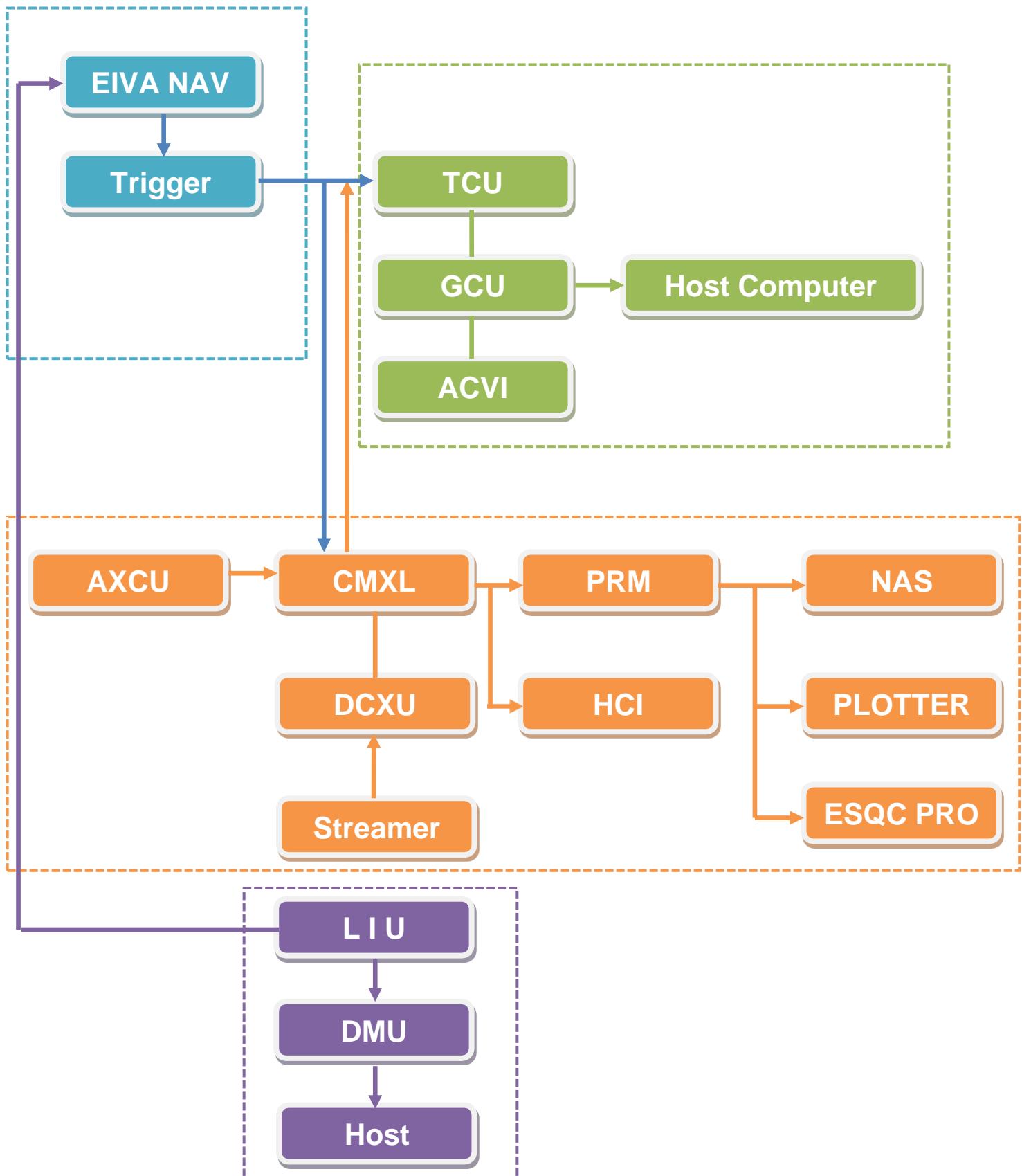
1x 24Vdc Test Port at rear panel

Supply:

115-240 Vac, 50/60 Hz, 250 W



DATA FLOW SEISMIC MULTICHANNEL SYSTEM





Gravimeter

Merek Alat :

Micro-g LaCoste/MGS-6

Kelengkapan :

1. Frame
2. Gimbal
3. Sensor
4. Laptop
5. Electronic Assembly (The Timing Unit, the Power Electronics Box and the GPS Receiver)
6. UPS Assembly
7. Auxiliary Heater Box
8. Spart parts (Power Electronics Box, Timing Unit, Air Dampers, Suspension Cords, Air-Filled Vibration Mounts)
9. Tools
10. Software PiperPro



Fungsi :

Mengukur gaya berat keadaan bawah permukaan bumi berdasarkan perbedaan rapat massa

No Inventaris :

3.11.02.02.003.004

Spesifikasi:

Sensor :

Range : $\pm 500,000$ milliGals (worldwide)

Drift : 3 milliGals per month or less

Temperature Setpoint : 45 to 65° C

Stabilized Platform :

Platform Pitch : $\pm 25^\circ$

Platform Roll : $\pm 35^\circ$

Platform Period : 4 to 4.5 minutes

Platform Damping : 0.707 of critical



Control System :

Recording Rate : 1 Hz

Additional I/O : Electronics, Sensor Temperature, Sensor Pressure

System Performance :

Dynamic Range : 25,000,000

Static Repeatability : 0.02 milliGal in 2 minutes

Dynamic Repeatability : 0.75 milliGals in 2 minute

Dimensions :

61.4 x 55.5 x 72.0 cm (including UPS and built in electronics rack)

Weight :

68kg (Sensor, Gimbal, and Frame), 101kg (all components)



MAGNETOMETER

Merek Alat :

SeaSpy2



Kelengkapan :

1. Fish
2. Main tow connector
3. Tow cable / tow cable spool
4. Leader cable connection
5. Deck leader cable
6. Isolation transceiver
7. AC adapter
8. AC power supply
9. RS 232 cable
10. BOB software
11. Manual
12. Case

Fungsi :

Menyelidiki kondisi bumi dengan memanfaatkan sifat kemagnetan batuan yang diidentifikasi oleh kerentanan magnet batuan, sebagai dasar survei Geofisika dalam pencarian jebakan mineral dan struktur bawah permukaan bumi secara signifikan.

No. Inventaris :

3.11.02.01.010.010.2016



Spesifikasi :

P E R F O R M A N C E

Operating Zones	NO RESTRICTIONS SeaSPY2 will perform exactly according to spec throughout the entire range
Absolute Accuracy	0.1 nT
Sensor Sensitivity	0.01 nT
Counter Sensitivity	0.001 nT
Resolution	0.001 nT
Dead Zone	NONE
Heading Error	NONE
Temperature Drift	NONE
Power Consumption	1 W standby, 3 W maximum
Range	18,000 nT to 120,000 nT
Gradient Tolerance	Over 10,000 nT/m
Sampling Range	4 Hz – 0.1 Hz
Communications	RS-232, 9600 bps
Power Supply	9-30 VDC or 100-240 VAC



MAGNETOMETER

Length 119 cm (47 in)

Diameter 7.6 cm (3 in)

Weight in Air 12 kg (27 lbs)

Weight in Water 4 kg (9 lbs)

TOW CABLE

Conductors Twisted pair

Breaking Strength 2,500 kg (5,500 lbs)

Outer Diameter 1 cm (0.4 in)

Weight in Air 125 g/m (8.4 lb/100 ft)

Weight in Water 44 g/m (3 lb/100 ft)

Cable Termination Field Replaceable

FLOATATION CABLE

Conductors Twisted pair

Breaking Strength 2,500 kg (5,500 lbs)

Outer Diameter 1.9 cm (0.74 in)

Weight in Air 125 g/m (8.4 lb/100 ft)

Weight in Water -20 g/m (0.03 lbs/ft)

Cable Termination Field Replaceable



P E R A L A T A N HYDRO-OSEANOOGRAFI



Echosounder Single Beam

Merek Alat :

Navisound/Reson210

Fungsi :

Pengukuran kedalaman air

Kelengkapan :

1. Module
2. Tranducer
3. Kabel Power
4. Buku Manual
5. Kabel Data RS 232

No. Inventaris :

- 2.13.02.02.021.014 (2014)
- 2.13.02.02.021.015 (2014)
- 2.13.02.02.021.017 (2014)
- 2.13.02.02.021.018 (2014)
- 2.13.02.02.021.013 (2014)
- 2.13.02.02.021.016 (2014)



Spesifikasi :

Frekuensi: 200 kHz

Daya Transmisi (max.): 300w

Kisaran kedalaman: 0,5 – 100/400m
(tergantung frekuensi)

Resolusi: 1 cm

Sound Velocity: 1350 – 1600 m/sec in
1m/sec step

Grafis resolusi: 700 pixel in grey level

Kecepatan transfer grafis: 20 lines/sec

Echosounder Single Beam

Merek Alat :

Syqwest/Bathy 2010PC

Fungsi :

Pengukuran kedalaman air

Kelengkapan :

1. Tranducer dan kabel
2. Kabel Power
3. Kabel USB Serial RS232
4. Kabel LAN
5. Buku Manual

No. Inventaris :

- 3.13.02.02.999.001 (2010)
- 3.13.02.02.999.002 (2010)
- 3.13.02.02.999.007 (2010)

Spesifikasi :

Kisaran kedalaman: 10, 20, 40, 80, 150, 300, 500, 750, 1000, 2000, 5000 dan 12000 meters

Resolusi kedalaman: 0,1 meter

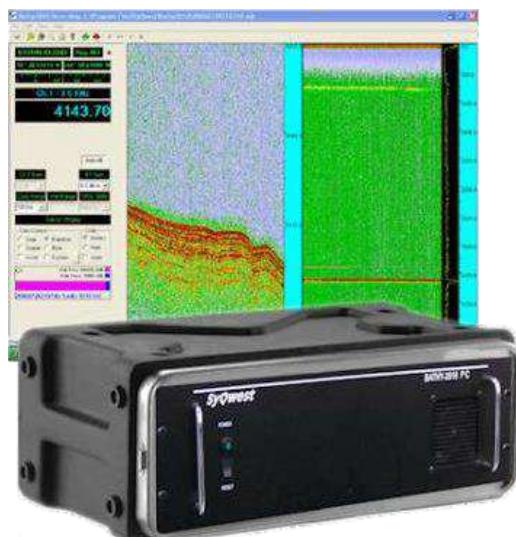
Akurasi kedalaman: ± 10 cm sampai 100 m, $\pm .3\%$ sampai 6,000 m

Kecepatan Suara: 1500meter/detik

Frekuensi keluaran: 3,5 or 12 KHz

Daya input: 110/220 volt AC, nominal power 500 watt

Dimensi: 635mm (s5") kedalaman (19") lebar, dan 400mm (15,75"m) tinggi



Echosounder Single Beam

Merek Alat :

Teledyne Odom

Fungsi :

Pengukuran kedalaman air

Kelengkapan :

1. Tranducer
2. Kabel Power
3. Kabel Data

No. Inventaris :

- 3.11.02.02.021.033 (2015)

Spesifikasi :

Frequency Agile Operator selectable through menu – 24, 28, 33, 40, 100, 120, 200, 210 and 340 kHz

Output Power : 600 watts

Resolution : 0.1 ft / 0.01m

Maximum Depth Range : 600m or 1800 f

Environmental Operating : 0° - 45° C Storage -20° - 45° C

Dimensions : 368 mm (14.5 in) H x 419 mm (16.5 in) W x 203 mm (8 in) D Weight : 22.5 lbs (10.2 kg)



Echosounder Single Beam

Merek Alat :

Ceducer

Fungsi :

Pengukuran kedalaman air

Kelengkapan :

1. Tranducer dan kabel
2. Kabel Power
3. Kabel USB Serial RS232

No. Inventaris :

- 3.11.02.02.021.024 (2009)
- 3.11.02.02.021.025 (2009)

Spesifikasi :

Unit: feet or meter

Depth Range : 30,60,120,240,480,800,1500

Shift range : 0-150 meter

Zoom Range : 5,10,20,40,80,160 Meter

Zoom Modes : Bottom Zoom, Bottom lock Zoom, Marker Zoom, Normal data, Zoom Data, Navigation ,Dept

Display : Comand/status,color control

Depth Resulusi : 0.1 meter

Depth Accuraci : 0-40m 2,5 cm
Input Power : 10- 30 Volt DC,110-220 VAC



Echosounder Single Beam

Merek Alat :

Odom/Hydrotrac

Fungsi :

Pengukuran kedalaman air

Kelengkapan :

1. Tranducer dan kabel
2. Kabel Power
3. Konektor kabel transducer
4. Module

No. Inventaris :

• 3.11.02.02.021.009 (1999)

Spesifikasi :

Frequency: 200 kHz (standard), 40, 33 kHz & 210 kHz

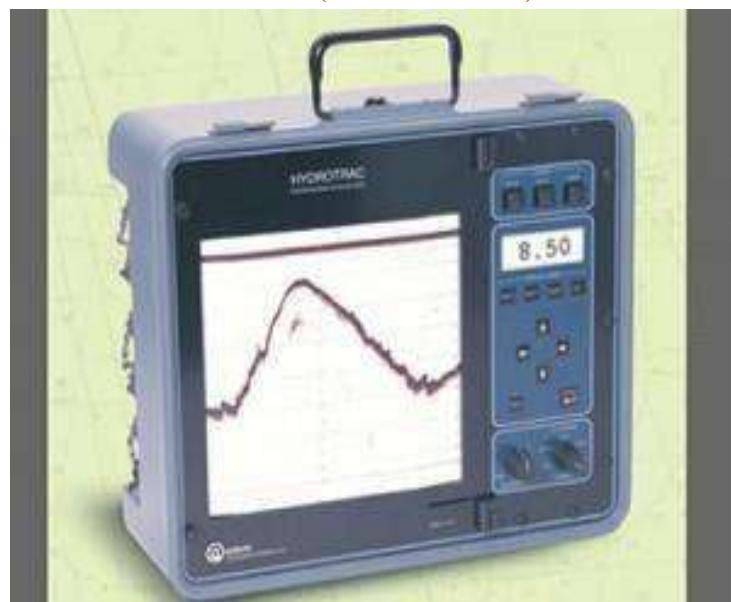
Resolution: 0.01 meter, 0.1 feet

Accuracy: 200 kHz - 0.01 meter \pm 0.1% depth; 33 kHz - 0.10 meter \pm 0.1% depth (corrected for sound velocity)

Output Power: 600 Watts High Power, <20 Watts Low Power

Power Requirement: 11-28 VDC (standard), 110/220 VAC (optional)

Ports: 2 (RS232 or RS422)



Echosounder Dual Frekuensi

Merek Alat :

Navisound/Reson 420 D

Fungsi :

Pengukuran kedalaman air

Kelengkapan :

1. Module
2. Tranducer
3. Kabel Power
4. Konektor Data RS 232
5. Buku Manual

No. Inventaris :

- 2.13.02.02.021.020 (2004)
- 2.13.02.02.021.021 (2004)

Spesifikasi :

Frequency: 28 – 35 kHz atau 190 – 225 kHz

Impedance: 1000 ohm

Maksimum power: 300 w
Power control: manual or automatic
Pulsa leng.: Manual, 5 steps
Unit: meter & feet
Resolution: 1 cm
Accuracy: 1 cm at 210 kHz, 7cm at 33 kHz
Supply Voltage: 10 – 28 Volt DC, 115 – 230 VAC



Echosounder Dual Frekuensi

Merek Alat :

Syqwest/Bathy 1500-C

Fungsi :

Pengukuran kedalaman air

Kelengkapan :

1. Tranducer & Kabel
2. Kabel Power
3. Konektor Data RS 232

No. Inventaris :

- 2.13.02.02.021.027 (2010)
- 2.13.02.02.021.028 (2010)
- 2.13.02.02.021.029 (2010)

Spesifikasi :

Unit: feet or meter

Depth range: 30, 60, 120, 240, 480, 800, 1500

Shift range: 0 – 150 meter

Zoom range: 5, 10, 20, 40, 80, 160 meter

Zoom modes: Bottom zoom, bottom lock zoom, marker zoom, normal data, zoom data, navigation, dept.

Display: Comand/status, color control

Depth Resolution: 0,1 meter

Depth Accuracy: 0 – 40 m (2,5 cm)

Input power: 10 – 30 Volt DC, 110 – 220 VAC



Echosounder Dual Frekuensi

Merek Alat :

Echotrac MK III

Fungsi :

Pengukuran kedalaman air

Kelengkapan :

1. Tranducer & Kabel
2. Kabel Power
3. Konektor Data RS 232

No. Inventaris :

• 3.11.02.02.021.032 (2014)

Spesifikasi :

Frequency high band: 100 kHz – 1 MHz
Frequency low band: 3.5 kHz – 50 kHz
Resolution: 0,01m / 0,10 ft
Depth range: 0,2 – 200m/ 1.0 – 600 ft @200kHz | 0,5 – 1500 m / 1,5 – 4500 ft @33kHz | 1,0 – 4000 m / 3,0 – 13123 ft @12kHz
Sound velocity: 1370 – 1700 m/s resolution 1 m/s
Dimensions: 450mm (17.7 in) H x 450mm (17.7 in) W x 300mm (12.8 in) D
Transducer draft setting: 0 – 15m (0 – 50 ft)
Weight: 16kg (35lbs.)



SUB BOTTOM PROFILERS

Merek Alat :

Strata Box/
Ocean Data Equipment Corporation (ODEC)

Fungsi :

Mengukur lapisan dasar laut dangkal

Kelengkapan :

1. Module
2. Kabel Power
3. Kabel Data

No. Inventaris :

- 3.11.02.02.041.001 (1995)
- 3.11.02.02.041.002 (2004)
- 3.11.02.02.041.003 (2004)

4. Transducer dan kabel
5. Interface
6. Manual book

Spesifikasi :

Kisaran kedalaman: 0 – 5, 0 – 10, 0 – 20, 0 – 40, 0 – 80, 0 – 150 meter

Resolusi kedalaman: 0,1 meter

Akurasi kedalaman: 0,5%

Kecepatan suara: 1500 meters/second

Frekuensi keluaran: 10 kHz

Daya input: 10 – 30 Volts DC

Dimensi: 25.4 cm (10") panjang X 22.86cm (9.0") lebar X 6.25cm (2.5") tinggi



OXYGEN METER

Merek Alat :

LUTRON DO-5510

Fungsi :

Alat Ukur Oksigen terlarut (DO), Oksigen di Udara (O₂) dan suhu pengukuran

Kelengkapan :

Pusat Penelitian dan Pengembangan Geologi Kelautan Bidang Penyelenggaraan dan Sarana Litbang

No. Inventaris :

- 3.08.01.46.003.001 (2011)
- 3.08.01.46.003.002 (2011)
- 3.08.01.46.003.003 (2011)
- 3.08.01.46.003.004 (2011)

1. Sensor Oksigen (OXPB-11)
2. Tas
3. Main Unit
4. Manual Book



Suhu Operasi : 0 - 50 derajat
Kelembaban Operasi : Maximal 80% RH

Waktu Contoh : Approx. 0,4 detik
Power Supply : DC 9V baterai 006P
Listrik sekarang : Approx. DC 6.6 mA

Berat : 335 g / 0,74 LB
Ukuran : Instrumen utama : 180x72x32 mm
Oksigen : 190 mm x 28 mm.
Matikan : Mematikan daya secara otomatis menghemat daya tahan baterai, atau petunjuk off dengan menekan tombol.

Spesifikasi :

Sirkuit : Kustom satu-chip mikroprosesor
LSI sirkuit

Layar : Layar meteran fungsi ganda, 13 mm (0,5") layar super LCD besar dengan penyesuaian kontras untuk sudut pandang terbaik

Struktur sensor : probe jenis oksigen polarografi dengan sensor suhu dimasukan

Data Output : interface serial RS 232 PC



Merek Alat :

LUTRON pH 208

Fungsi :

Alat pengukuran sifat fisik keasaman dan kebasaan air

Kelengkapan :

Pusat Penelitian dan Pengembangan Geologi Kelautan Bidang Penyelenggaraan dan Sarana Litbang

No. Inventaris :

- 3.08.01.11.085.003 (2011)
- 3.08.01.11.085.004 (2011)
- 3.08.01.11.085.005 (2011)
- 3.08.01.11.085.006 (2011)

1. Tas
2. Sensor pH meter dan Main Unit
3. Manual Book

Spesifikasi :

Circuit : Custom one-chip of microprocessor
LSI circuit

Display : 51 mm x 32 mm, dual function
LCD display, 15 mm (0.6") digit size

Measurement ; PH : 0 to 14 PH mV : -1999
mV to 1999 mV

Input Impedance : 10^{12} ohm

Operating Temperature : 0 °C to 50 °C (32 °F
to 122 °F).

PH Electrode : Optional, Any PH electrode
with BNC connector.

Overload indication : "-----" symbol on the
display.

Data Output RS 232 computer serial
interface.

pH calibration : PH7, PH4, and PH10, 3
points Calibration ensure the best linearity
and accuracy.

Power off : Auto shut off saves battery life,
or manual off by push button.

Temperature Compensation for pH
measurement ; Manual : 0 to 100 , be
adjusted by push button on front panel.

Automatic (ATC) : With the optional
TEMP. probe (TP-07) 0 to 65°C .

Weight : 250 g/0.55 LB (battery included).

Size: 195 x 68 x 30 mm (7.6 x 2.6 x 1.2
inch).



pH METER

Merek Alat :

YSI 63

Fungsi :

Alat pengukuran sifat fisik keasaman dan
kebasaan air

Kelengkapan :

1. Module
2. Transducer kabel
3. Gelas ukur
4. Manual book

No. Inventaris :

- 3.08.01.03.007.003 (2004)
- 3.08.01.03.007.003 (2004)
- 3.08.01.03.007.003 (2004)
- 3.08.01.03.007.003 (2004)
- 3.08.01.03.007.003 (2004)
- 3.08.01.03.007.003 (2004)

Spesifikasi :

Conductivity: Range : 0 to 499.9 S/cm, 0 to 4999 S/cm; 0 to 49.99 mS/cm, 0 to 200.0 mS/cm | Resolution : 0.1 S/cm, 1 S/cm, 0.01 mS/cm, 0.1 mS/cm | Accuracy : $\pm 0.5\%$ FS of reading, $+0.001$ mS/cm

Temperature: Range : -5 to +75°C | Range : -5 to +75°C | Resolution : 0.1°C | Accuracy : $\pm 0.15^\circ\text{C}$
 $\pm 1\text{lsd}$

pH: Range : 0 to 14 units | Resolution 0.01 unit | Accuracy : ± 0.1 unit within 10°C of calibration,
 $+0.2$ unit

Salinity: Range : 0 to 80 ppt | Resolution : 0.1 ppt | Accuracy : $\pm 2\%$ or ± 0.1 ppt



SALT METER

Merek Alat :

LUTRON PSA-311

Fungsi :

Alat Ukur kadar garam (salinity) pada sampel cairan

Kelengkapan :

1. Main Unit: Salt Meter
2. Manual Book

No. Inventaris :

- 3.08.01.45.010.003 (2011)
- 3.08.01.45.010.004 (2011)
- 3.08.01.45.010.005 (2011)
- ()

Spesifikasi :

Display : LCD, size : 20 mm x 28 mm.

Measurement Range : 0 to 12 % salt (% weight).

Resolution : 0.01 % salt.

Temperature Compensation : Automatic, 0 to 50°C (32 to 122°F).

Operating Temp. : 0 to 50 (32 to 140)

Power Supply : DC 1.5V battery (UM-4/AAA) x 4 PCs.

Dimension : 190 x 40 x 40 mm (7.5 x 1.6 x 1.6 inch).

Weight : 171 g/0.38 LB.

Memory Recall : Maximum & Minimum value.



TURBIDY METER

Merek Alat :

Lutron TU 2016

Fungsi :

Mengukur tingkat kekeruhan air

Kelengkapan :

1. Tas
2. Module
3. Testing Bottle
4. Manual

No. Inventaris :

- 3.08.01.13.011.002
3.08.01.13.011.003
3.08.01.13.011.004
3.08.01.13.011.005

**Spesifikasi :**

Circuit Custom one-chip of microprocessor LSI circuit.

Display LCD size : 41 mm x 34 mm

Range 0.00 to 50.00 NTU, 50 to 1,000 NTU * NTU : Nephelometric Turbidity Unit * Auto range

Resolution 0.01 NTU/ 1 NTU

Accuracy \pm 5 % F.S. or \pm 0.5 NTU, which ever is greater.

Light source LED, 850 nm.

Detector Photo diode

Standard Meet ISO 7027

Response time Less than 10 seconds.

Sample volume needed 10 mL.

Data Hold Freeze the display reading.

Memory Recall Maximum & Minimum value.

Display Sampling Time Approx. 1 second.

Power off Auto shut off saves battery life or manual off by push button.

Calibration points 0 NTU, 100 NTU.

Operating Temperature 0 to 50 .

Power Supply DC 1.5 V battery (UM4, AA, ,
Cs, or equivalent.

Weight 320 g/0.70 LB. @ Battery is included

Dimension 155 x 76 x 62 mm (6.1 x 3.0 x 2.4 inch)

CONDUCTIVITY METER

**Merek Alat :**

Lutron YK-22CT

Fungsi :

Mengukur kondiktivitas

Kelengkapan :

1. Module
2. Sensor
3. Manual

No. Inventaris :

- 3.08.01.01.001.002
- 3.08.01.01.001.003
- 3.08.01.01.001.004
- 3.08.01.01.001.005

Spesifikasi :

Display 51 mm x 32 mm, dual function LCD display 15 mm (0.6") digit size. dual function LCD display,
Conductivity, 2 ranges : 2 mS, 20 mS.
TDS, 2 ranges : 2,000 PPM, 20,000 PPM.
Temperature range : 0°C to 60°C , 32°F to 140°F .
Weight 210 g/0.46 LB (meter only)
290 g/0.64 LB (meter and probe).
Conductivity/TDS meter uses carbon rod electrode with long life Microprocessor circuit, intelligent function.
Records maximum and minimum readings with recall.
Data hold.
Auto shut off saves battery life.
RS 232 PC serial interface.

SIDE SCAN SONAR

Merek Alat :

Starfish 990F

Fungsi :

Profil Dasar Laut

Kelengkapan :

1. 990F Side Scan Sonar
2. Kabel towfish 20 meter
3. Kotak Pengontrol (Top Box)
4. AC Adapter
5. GPS
6. Starfish Scanline Software
7. User Manuals

No. Inventaris :

3.11.02.01.003.009

**Spesifikasi :**

Frekuensi : 1MHz

Kisaran Kedalaman : 50m (164ft)

Lebar beam horizontal : 0.3 derajat

Warna : Merah

Lebar beam vertikal : 60 derajat

panjang kabel : 20 meter

Sudut Transducer : Miring kebawah 30°
dari horizontal

Tegangan : 90-264 VAC

Panjang : 378 mm

Panjang Top Box : 166mm (6.54")

Lebar : 110mm

Lebar Top Box : 106mm (4.17")

Tinggi : 97mm

Tinggi Top Box : 34mm (1.34")

Berat dalam air : 2kg

CURRENT METER



Merek Alat :

Valeport 108

Fungsi :

Pengukuran kecepatan, arah Arus statis, Conductivity, sound of speed, kedalaman, temperature.

Kelengkapan :

1. Tranducer
2. Desk Box
- CDU
3. Kabel
data
4. Kabel Power
5. Tool Kit
6. Kabel Tranducer

No. Inventaris :

- 3.08.01.45.012.001
3.08.01.45.012.002
3.08.01.45.012.003

Spesifikasi

Sensor speed : Impeller(0.27m pitch x 125mm

Speed range : 0.03 - 5.0 m/s

Sensor direction : Flux gate compass

Software : Datalog

Sensor temperature : PRT range -5 to 35°C

Sensor conductivity : Inductive coils

Sensor pressure : strain gauge, range

CURRENT METER PORTABLE

Merek Alat :

Infinity EM AEM-USB 1000 M

Fungsi :

Pengukuran kecepatan, arah Arus Statis, temperature

Kelengkapan :

1. Tranducer
2. Kabel Data
3. Memory card Mini SD Card 1GB
4. Operators Manual
- 5.CD Software
6. Software Manual
7. Baterry Pack



Spesifikasi

Velocity: Sensor type 2-axis electro magnetic sensor

Range: 0 - +500cm/sec, -5 - 45°C

Accuracy: + 1cm/sec or + 2%

Resolution: 0.02cm/sec

Range: 0 - 360°

Direction: Sensor type Hall element compass

Accuracy: + 2°

Resolution: 0.01°

Temperature: Sensor type Thermistor

Range: -5 - 45°C

Accuracy: + 0.02°C

Resolution: 0.001°C

Materials: Titanium

Burst time: 1-1,440 min

Depth rating: Equivalent to 1.000m

Measurementt mode: Continous & burst mode

Measurement interval: 0.1-600 sec

Sampling number: 1-18000 data

Memory media: Mini SD card 1GB (17,000,000 data approx)

Power: Lithium battery pack type CR-V3 3.3Ah (up to 2pc)

Tension strength : 2KN (equivalent to 200kg)

Memory capasity : 1GB as standart (17.000 data approx)

SEABED IMAGING SYSTEM

Merek Alat :

Davis Weather Station
Vintage Vue

Fungsi :

Pengukuran
kecepatan angin, arah
angin, temperature,
kelembaban, curah
hujan



Kelengkapan :

- | | |
|--------------------|--------------------|
| 1. Tranducer | 3.08.04.04.024.004 |
| 2. Display monitor | 3.08.04.04.024.005 |
| 3. Data Logger | 3.08.04.04.024.006 |
| 4. Kabel Download | |

No. Inventaris :

Spesifikasi

Wind speed sensor : Wind cup with magnetic switch

Wind direction sensor : Wind vane with magnetic encoder

Rain collector type : Tipping spoon, 0.01"per tip (0.2 mm with metric rain cartridge)

Temperature sensor type : PN junction silicon diode

Relative Humudity sensor type: Film capacitor element

Battery : CR-123 3-Volt Lithium cell

Battery life : 8 months without sunlight, greater than 2 years depending on solar charging

Solar power panel : 0.5 watts

Wireless transmission from station to console up to 300m

TIDE GAUGE

**Merek Alat :**

Valeport 740

Fungsi :

Mengukur Pasang
Surut Air Laut

Kelengkapan :

1. Sensor dan kabel
2. Konektor Data
3. Kabel Download Data
4. Besi Bracket Sensor

No. Inventaris :

2.13.01.02.006.003
2.13.01.02.006.005

Spesifikasi :

Type : Vented strain gauge, with stainless steel mounting bracket.

Range : Standard 10dBar (approx 10m), with 20m cable

Accuracy : + 0.1% Full scale

Dimensions : 18mm diameter x 80mm.

Sampling : Raw data sampled at 8Hz, mean and standard deviation of burst samples is logged. 5 pre-programmed burst modes + custom sampling mode. Continuous Sampling Mode (1Hz).

CTD

Merek Alat :

AML-USB

Fungsi :

Pengukuran konduktivitas,
temperature dan Kedalaman Air

Kelengkapan :

1. Tranducer
2. Kabel Data 2 set
3. Adaptor : 2bh
4. Operators Manual(Plasdisk)
5. Kunci L : 2 bh
6. Usb Serial Merk Aten
7. toolkit : SensorSenvelocity & Conektor Download
8. Kabel power 4set

No. Inventaris :



Spesifikasi :

Depth rating : 1000 m

Tension strength : 200 kg

Memory media: Mini SD card 1GB

Measurement interval : 5 sec

Measurement mode: Continous & burst mode

Power : Battery CR-V3 lithium/3,3 Ah (2 max)

Range : 0 - +500cm/sec

Temperature : Range: -3 - 45°C

Burst time : 1 - 10 min

Velocity : Sensor type 4

Temperature velocity : -2 - 32°C

Merek Alat :

SBE 19 Plus 7000 M

Fungsi :

Pengukuran konduktivitas, temperature dan Kedalaman Air

Kelengkapan :

1. Tranducer
2. Kabel Data
3. Baterry Pack
4. Operators Manual
5. CD Software
6. Conektor Dwnload

Spesifikasi :**Measurement Range**

Conductivity (S/m) : 0 to 9
Temperature (°C) : -5 to +35
Pressure - Strain Gauge : 0 to
20/100/350/600/ 1000/2000/3500/ 7000
meters/10000
Pressure - Quartz : 0 to
20/60/130/200/270/680/
1400/2000/4200/7000/10,500 meters

Initial Accuracy

Conductivity (S/m) : 0.0005
Temperature (°C) : 0.005
Pressure - Strain Gauge : 0.1% of full scale
range
Pressure - Quartz : 0.02% of full scale range

Typical Stability

Conductivity (S/m) : 0.0003/month
Temperature (°C) : 0.0002/month
Pressure - Strain Gauge : 0.1% of full scale range
Pressure - Quartz : 0.02% of full scale range/year

Resolution

Conductivity (S/m) : 0.00005 (most oceanic waters; resolves 0.4 ppm in salinity) 0.00007
S/m (high salinity waters; resolves 0.4 ppm in salinity) 0.00007 S/m (high salinity waters;
resolves 0.4 ppm in salinity)
Temperature (°C) : 0.0001
Pressure - Strain Gauge : 0.002% of full scale range
Pressure - Quartz : 0.0025% of full scale range
Memory : 64 Mbyte non-volatile FLASH memory
Real-Time Clock 32,768 Hz TCXO accurate to ±1 minute/year
Internal Batteries 9 alkaline D-cells (Duracell MN1300, LR20) provide 60 hours profiling;
optional 9-cell NiMH battery pack provides 40 hours profiling per charge

No. Inventaris :

3.03.03.09.999.001



KAMERA BAWAH LAUT

Merek Alat :

ROV Falcon1255 sea eye

Fungsi :

Sebagai kamera bawah air

Kelengkapan :

1. Kabel umbilical 300 meter
2. Monitor tipe MON-15-dual
3. Surface Power supply
4. Hand control unit
5. Vehicle
6. Winch
7. surface control unit

No. Inventaris :

3.11.02.02021.020

Spesifikasi :

- Length : 1000 mm
- Width : 760 mm
- Height : 580 mm
- Weight : 68 kg (un-ballasted), 71.66 kg (ballasted)
- Depth rating : 300 m
- Forward thrust : 42 kg
- Lateral thrust : 17 kg
- Vertical thrust : 14 kg
- Lighting : 2 x 75 W quartz
- Camera : CAM02P Camera
- Manipulator : GRIPSTICK01
- Depth sensor : EAF 500. Accuracy \pm 0.5 FSD
- Compass : Flux Gate. Accuracy \pm 1°
- Autopilot : Heading and depth hold



MULTY BEAM

**Merek Alat :**

EM3000

Kelengkapan :

1. CPU
2. Monitor
3. Hub
4. Kabel Lan
5. Dudukan Tranducer
6. Treanducer & Kabel
7. MRU
8. GPS Heading
9. Sonvelocity Meter

Fungsi :

Mengukur Kedalaman Air

No. Inventaris :

3.11.02.02.021.022

Spesifikasi :**Physical Properties Sonar Head**

Diameter 332mm Height 119mm
Weight 25kg in air, 15kg in water
Power requirements 80W
Diameter kabel 17 mm

Used Sonar Methods

Type of system Combination Multibeam
Bottom Detection Method Amplitude detect, phase detect

System Parameters

Frequency Range 300 kHz
Depth Range 1-150 m
Depth Resolution 1cm
Max. Daerah terjal 300 m
Max. Swath (function of depth) 200 m

Sudut Pancaran 1300

LAPTOP



Merek Alat :

Panasonic / CF 53

Fungsi :

Sebagai interface untuk penggunaan software peralatan

No. Inventaris :

- 3.10.01.02.003.164
- 3.10.01.02.003.165
- 3.10.01.02.003.166
- 3.10.01.02.003.167

Kelengkapan :

- 1. Tas
- 2. Laptop
- 3. Charge
- 4. Adaptor

Spesifikasi :

- Core i5 3340M (2.7GHz) SV
- 14" HD
- 4GB RAM
- 500GB HDD
- DVD Multi
- WLAN abgn
- Serial Port
- 2xUSB3.0
- 2xUSB2.0
- HDMI
- VGA
- Win7 pro
- BT



ADCP MOBILE



Spesifikasi :

- Water Profiling : 300kHz range 110m
 - Beam angle : 20°
 - Configuration : 4 -Beam,
- Velocity Range : + 5m/s default, + 20m/s max
 - Number of depth cell : 1 - 128
 - Ping rate : 2 Hz
- Vertical Resolution : Depth cell size, user configurable
 - Operating Temperature : -5° to 45°C
 - Storage temperature : -30° to 60°C

- Input Power : 20 - 50 VDC
- Software : TRDI'WindowsTM-based software included;
- VMDAS Vessel Mount Data Acquisition System; WinADCP-Data display and export
- Weight in air : 10,7 kg ; Weight in water : 8,1kg

Merek Alat :

RD Instrument Workhorse marine 300kHz

Fungsi :

Pengukuran kecepatan, arah Arus
Mobile vessel mounted

Kelengkapan :

1. Tranducer
2. Kabel Tranducer
3. Kabel Data
4. Kabel Power TPU
5. TPU Desk Box
6. Tool Kit

No. Inventaris :

3.11.01.02.003.017

ADCP STATIS

Merek Alat :

Sontek Argonout

Fungsi :

Pengukuran kecepatan, arah Arus Statis

Kelengkapan :

1. Tranducer
2. Baterai Pack
3. kabel Power AC
4. Kabel Data
5. kabel Power DC
6. Tool kit
7. Software CD
8. Dudukan baterai dan tranducer

No. Inventaris :

3.08.01.13.011.002



Spesifikasi :

- Frequency : 750 kHz
- Maximum range : 40.0m (131 ft)
- Resolution : 0.8m (2.5 ft)
- Water Velocity — Range ± 6 m/s
- Water Velocity — Resolution 0.1 cm/s
- Water Velocity — Accuracy $\pm 1\%$ of measured velocity, ± 0.5 cm/s
- Compass/Tilt Sensor — Calibration Procedure Built-in, Compensate for ambient magnetic fields
- Compass/Tilt Sensor — Resolution 0.1°
- Compass/Tilt Sensor — Heading Accuracy ± 2.00 °
- Compass/Tilt Sensor — Pitch, Roll Accuracy ± 1 °
- Input Power 7-15 V DC
- Typical Power Consumption 0.2 to 0.5 W Continuous 0.01 W Stand-by
- Battery capacity (alkaline) 500 W·h



Merek Alat : Nortek AWAC 400kHz

Fungsi : Pengukuran kecepatan, arah Arus laut dan Gelombang secara statis

Kelengkapan :

- | | |
|-------------------|-----------------|
| 1. Tranducer | 5. Tool Kit |
| 2. Kabel Download | 6. Pemberat |
| 3. Adaptor Power | 7. Dudukan alat |
| 4. Kabel data | 8. Battery pack |

No. Inventaris :

3.03.03.17.044.001

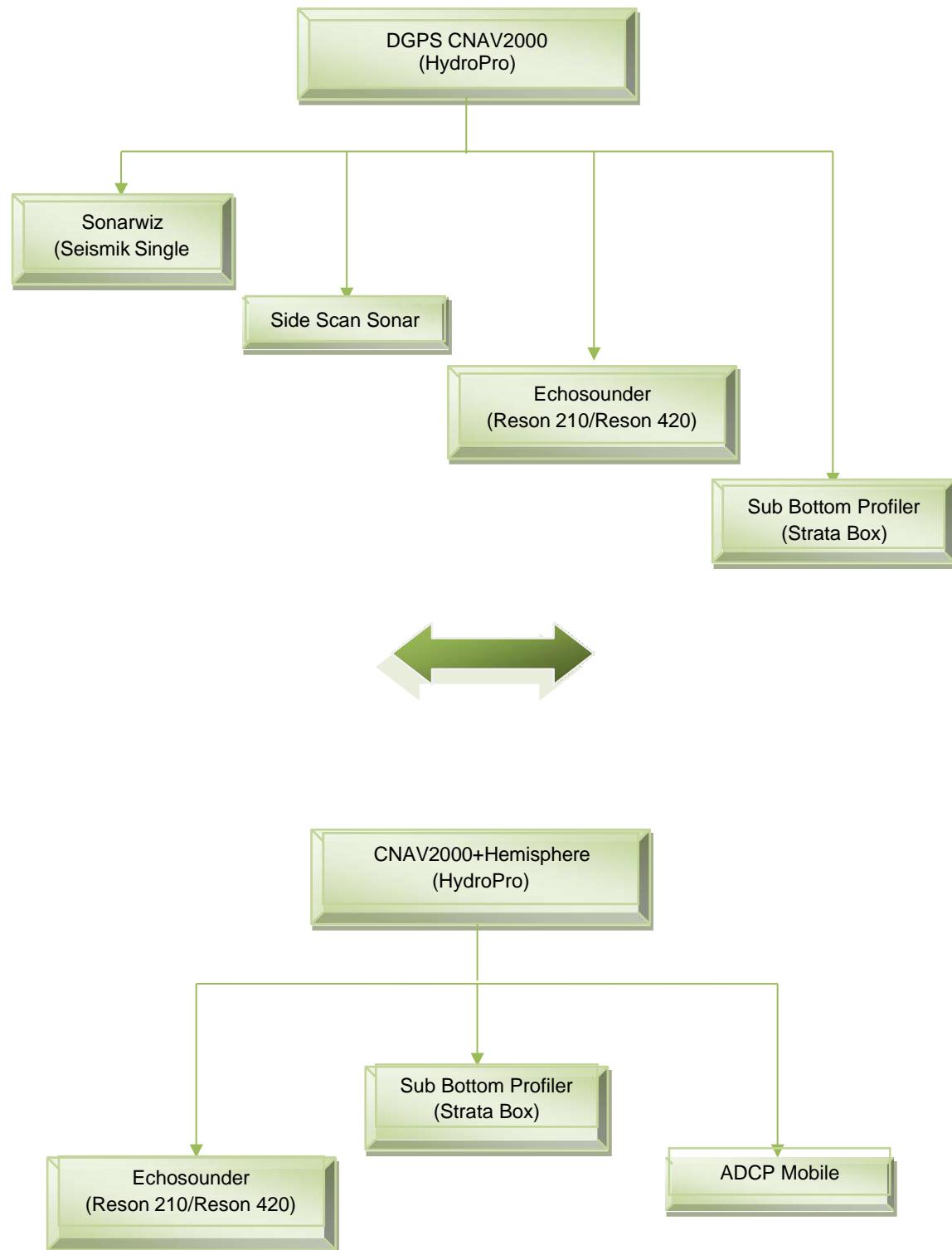
Spesifikasi:

- Frequency : 400kHz
- Maximum Range: 100m
- Battery pack : Lithium 13V, Capacity 1800 WH, weight: 4kg (2pack)
 - Beam : 4 beams, 1 vertical, three slanted at 25°
 - Vertical beam opening angle : 1.7°
 - Operational mode : stand alone or online monitoring
 - Depth cell size : 1.0 - 8.0 m
 - Number of cells : Typical 20-40, max 128
 - Maximum output rate : 1Hz
- Velocity range : \pm 10m/s horizontal, \pm 5m/s along beam
 - Output format : NMEA, Binary
- Sensor temperature : Thermistor embedded in housing
 - Sensor Compass : Magnetoresistive
 - Sensor Up or Down : Automatic detect
 - Wave range : -15 to +15m
 - Software : AWAC ST

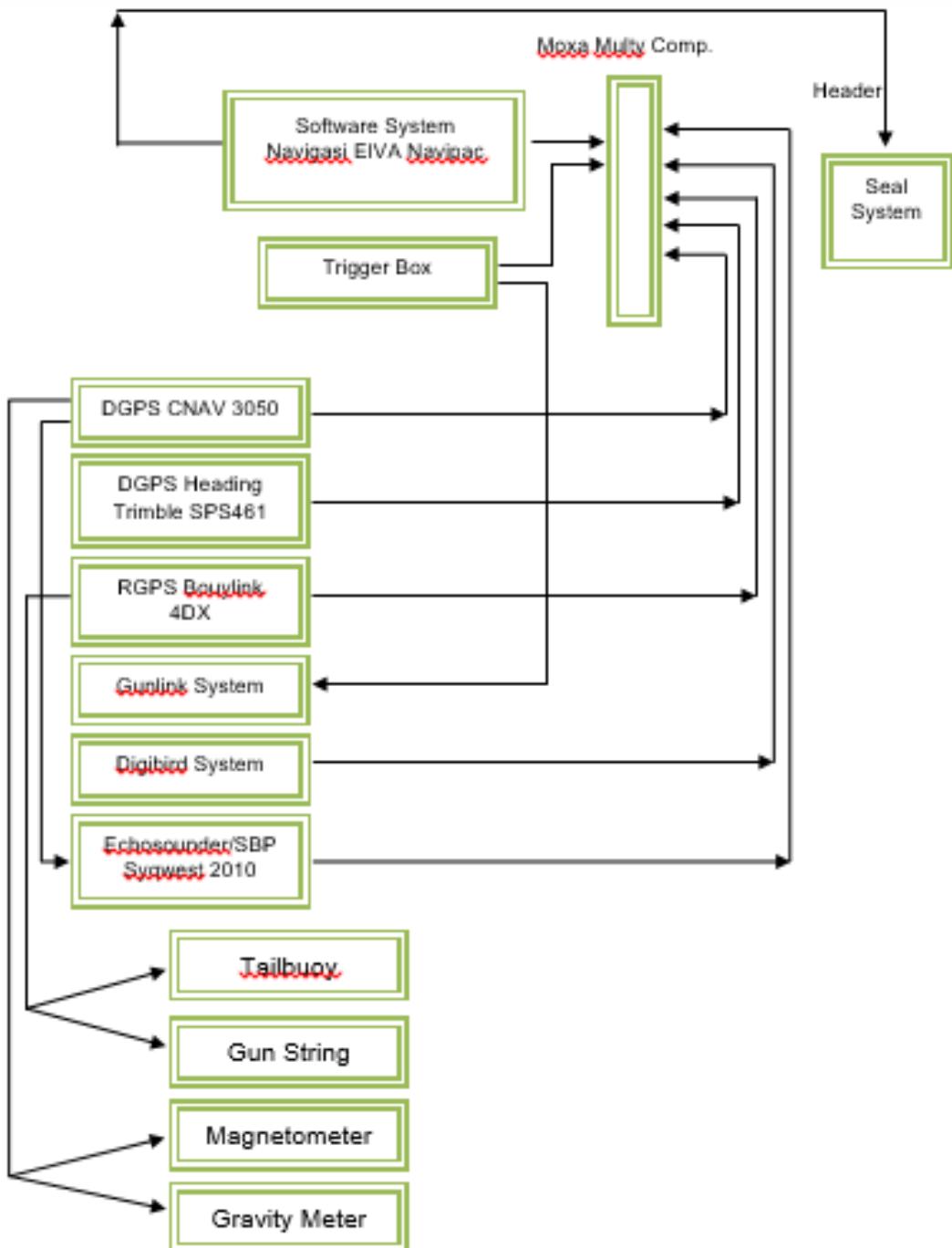
PERALATAN NAVIGASI



FLOW CHART SISTEM NAVIGASI UNTUK PERAIRAN PANTAI



FLOW CHART SISTEM NAVIGASI UNTUK GEOMARIN III



Sistem Navigasi Satelit

Merek Alat :

TRIMBLE / DSM212

Base

Kelengkapan :

1. Receiver GPS
2. Antena GPS
3. Kabel data (REV A)
4. Kabel data dan Power (REV B)
5. Kabel Antena

Fungsi :

Penentu Posisi

No Inventaris :

3.11.02.02.032.010



Spesifikasi :

General :

12-channel, parallel tracking L1 1571.42 MHz

C/A code and carrier phase filtered measurements and multi-bit digitizer

Update rate :

Selectable 1, 2, 5, or 10 Hz output rate)

Diff speed accuracy :

0.16 kph (0.1 mph)

Diff position accuracy :

Less than 1 m horizontal RMS At least 5 s

Time to first fix :

< 30 seconds, typical

Size :

15.5 cm D x 14.0 cm H (6.1 in D x 5.5 in H)

Weight :

0.55 Kg (1.2 lb)

Power :

7 Watts (max), 10–32 VDC

Casing :

Dust-proof, waterproof, shock resistant

Merek Alat :

TRIMBLE / DSM132

Base

Kelengkapan :

1. Receiver GPS
2. Antena GPS
3. Kabel data (REV A)
4. Kabel data dan Power (REV B)
5. Kabel Antena

Fungsi :

Penentu Posisi



No Inventaris :

3.11.02.02.032.046

3.11.02.02.032.047

3.11.02.02.032.048

3.11.02.02.032.049

3.11.02.02.032.050

Spesifikasi :

General :

12-channel, parallel tracking

L1 1571.42 MHz

C/A code and carrier phase filtered measurements and multi-bit digitizer

Update rate :

Selectable 1, 2, 5, or 10 Hz output rate

Diff speed accuracy :

0.16 kph (0.1 mph)

Diff position accuracy :

Less than 1 m horizontal RMS

At least 5 sat

Time to first fix :

< 30 seconds, typical

Size :

15.5 cm D x 14.0 cm H

(6.1 in D x 5.5 in H)

Weight :

0.55 Kg (1.2 lb)

Power :

7 Watts (max), 10–32 VDC

Casing :

Dust-proof, waterproof, shock resistant

Merek Alat :
TRIMBLE / SPS855

Kelengkapan :
1. Receiver GNSS
2. 1x Antena GNSS
3. Kabel data dan Power
4. 1x 30m Kabel Antena

Fungsi :
Penentu Posisi

No. Inventaris :
3.05.01.05.038.006
3.05.01.05.038.007

Spesifikasi :
General :
Keyboard & display Vacuum
fluorescent display 16
characters
Dimmable. On/Off key for one-button startup

Diff position accuracy :
Horizontal accuracy 0.25 m + 1 ppm RMS (0.8 ft + 1 ppm RMS)
Vertical accuracy 0.50 m + 1 ppm RMS (1.6 ft + 1 ppm RMS)

RTK position accuracy :
Horizontal accuracy 8 mm + 1 ppm RMS (0.026 ft + 1 ppm RMS)
Vertical accuracy 15 mm + 1 ppm RMS (0.05 ft + 1 ppm RMS)

Time to first fix :
Receiver position update rate 1 Hz, 2 Hz, 5 Hz, 10 Hz, and 20 Hz positioning
correction data input/output CMR™, CMR+™, CMRx™, RTCM v 2.x & 3.x

Size :
24 cm x 12 cm x 5 cm (9.4 in x 4.7 in x 1.9 in)

Weight :
1.65 kg (3.64 lb) receiver with internal battery and radio

Power :
Integrated internal battery 7.2 V, 7800 mA-hr, Lithium-ion
11.5 V external battery
Power consumption 6.0 W in rover mode with internal receive radio



Merek Alat :
TRIMBLE / SPS461

Kelengkapan :

1. Receiver GNSS
2. 2 x Antena GNSS
3. Kabel data dan Power
4. 2x 40m Kabel Antena



Fungsi :
Penentu Posisi dan Penentu Arah

No. Inventaris :

Spesifikasi :

General :

Keyboard & display Vacuum fluorescent display 16 characters Dimmable.

On/Off key for one-button startup

High-precision multiple correlator for L1/L2 pseudo-range

72-channel L1 C/A code, L1/L2 Full Cycle Carrier

1PPS (1 pulse-per-second)

Diff accuracy :

Horizontal accuracy $\pm(0.25\text{m} + 1 \text{ ppm})$ RMS $\pm(0.8 \text{ ft} + 1 \text{ ppm})$

Vertical accuracy, $\pm(0.50\text{m} + 1 \text{ ppm})$ RMS $\pm(1.6 \text{ ft} + 1 \text{ ppm})$

Heading accuracy :

2 m antenna separation 0.09° RMS

10 m antenna separation 0.05° RMS

SBAS (WAAS/ EGNOS /MSAS) Positioning :

Horizontal accuracy Typically $<1\text{m}$

Vertical accuracy Typically $<5\text{m}$

Size :

24 cm (9.4 in) \times 12 cm (4.7 in) \times 5 cm (1.9 in)

Weight :

1.22 kg (2.70 lb) receiver only

Power :

11 V DC to 28 V DC external power input 6.0 W

Merek Alat :

Cnav 2000

Kelengkapan :

1. Receiver GPS
2. Display Control Unit
3. Y-Kabel data dan Power
4. Power Supply
5. Kabel Antena 100Ft
6. Tiang Penyangga Antena
7. Buku Manual



Fungsi :

Penentu Posisi

No. Inventaris :

3.11.02.02.032.040
3.11.02.02.032.041
3.11.02.02.032.044
3.11.02.02.032.045

Spesifikasi :

General :

L-band receiver frequency Automatically 1525 to 1560 MHz
Patented multipath mitigation significantly reduces noise
Patented multipath mitigation significantly reduces noise
Geodetic quality dual frequency GPS virtually eliminates
ionospheric effects

APS Global accuracy :
Horizontal Position <30cm
Vertical Position <70Cm
Velocity <0.02m/s

Time to first fix :
< 90 seconds, typical

Size :
9.2H inx 7.2D in (24.8H x 18.7D cm)

Weight :
5.5Lbs (2.4Kg)

Power :
11-40VDC

Casing :
Rugged, waterproof housing

Merek Alat :

Cnav / 3050

Kelengkapan :

1. Receiver GPS
2. Antena GPS
3. Y-Kabel data dan Power
4. Power Supply
5. Kabel Antena 60m
6. Tiang Penyangga Antena
7. C-navigatorIII CDU



Fungsi :

Penentu Posisi

No. Inventaris :

Spesifikasi :

General :

L1, L2, L5, G1 & G2 full wavelength carrier phase tracking
C/A, P1, P2, L2C, L5, G1 and G2 code tracking
High sensitivity / Low singal level tracking
High accuracy range and bearing data
2GB Internal data storage

accuracy RMS :

Horizontal Position 1cm + 0.5ppm
Vertical Position 2cm + 1ppm

accuracy RTK :

Horizontal Position 3cm + 1ppm
Vertical Position 6cm + 2ppm

Time to first fix :

Cold / Warm / Hot ; <60s / <50s / <20s

Size :

6.47: x 4.60: x 2.37" (164 x 117 x 60mm)

Weight :

1.1 lbs (0.5 kg)

Power :

Input: AC/DC Adapter 110/220 VAC



Merk Alat :

NAVCOM/SF-3050

Kelengkapan :

1. Receiver GPS
2. Antena GPS
3. Tiang Penyangga Antena

Fungsi :

Penentu Posisi

No. Inventaris :

Spesifikasi :

PERFORMANCE

- Accuracy (RMS)
RTK : <40kStarFire
Code DGPS : <200kms
Velocity :
RTK Extend (<15min)
- User programmable output rates :
Position Velocity Time : 1Hz, 5Hz, 10Hz, 25Hz, 50Hz, 100Hz
Raw data : 1Hz, 5Hz, 10Hz, 25Hz, 50Hz, 100Hz
- Data Latency :
Position Velocity Time : < 10ms at all rates
Raw measurement data : < 10ms at all rates
- Time to first fix :
Cold / Warm / Hot : < 60s / < 50s / < 20s (typical values measured per ION STD 101)
- Dynamic (Speed & altitude are restricted by export laws) :
Acceleration : up tp 6g
Speed : < 515 m/s (1000knots)
Altitude : < 18.3 km (60.000ft)

PHYSICAL/ENVIRONMENTAL

- Size (LxWxH) : **164mm x 117mm x 60mm (6.47in x 4.60in x 2.37in)**
- Weight : **0.5kg (1.1lbs)**
- Power :
Input : AC/DC Adapter 110/220VAC, 12VDC Nominal 0.5A (9.0V to 32VDC)
- Temperature (ambient)
Operating : -40° to +70° C (-40° to +158° F)
Storage : -40° to +85° C (-40° to +185° F)
- Humidity : **95% non-condensing**
- Tested in accordance with MIL-STD-810F for low pressure, solar radiation, humidity, salt fog, shock and vibration
- **Rated IP67 (dust tight/waterproof) in accordance with FCC/CE regulations for electromagnetic interference**

GPS HANDHELD

Merek Alat :
Trimble/JunoSD

Kelengkapan :

1. Receiver GPS
2. Antena dan Kabel
3. Power Suply
4. Kabel Data

Fungsi :
Penentu Posisi

No. Inventaris :
3.06.01.05.038.001
3.06.01.05.038.002
3.06.01.05.038.003
3.06.01.05.038.004
3.06.01.05.038.005



Spesifikasi :

General :

12 Channel (L1 code only)
Integrated real-time; SBAS

Integrated data and voice capable HSDPA 3.5G cellular
Integrated digital camera (color, 3 megapixel resolution)
QVGA display (240 x 320), sunlight-readable color touch screen
Windows Mobile 6.1

Update rate : 1 Hz

Accuracy :

2 to 5 meter accuracy after real-time differential correction
1 to 3 meter7 accuracy after postprocessing
NMEA and SiRF protocol support

Time to first fix : < 30 seconds, typical

Size :

12.9 cm x 7.4 cm x 3.0 cm (5.1 in x 2.9 in x 1.2 in)

Weight : 0.24 kg (0.54 lb) with battery

Power :

Internal 2600 mAh lithium-ion, rechargeable in unit

Casing :

IP4X. Protected against small objects >1 mm



Merek Alat :
Thales Mobilemapper

Kelengkapan :

Fungsi :
Penentu Posisi

No. Inventaris :

Spesifikasi :

Physical Characteristics

Weight :

- **0.48 kg (1.05 lb) with battery**

Size :

- **9 cm x 19.5 cm x 4.6 cm (3.5 in x 7.7 in x 1.8 in)**

Processor :

- **ARM920T based**

Memory :

- **64 MB SDRAM, 128 MB Nand Flash, 32 MB SD card (expandable)**

User Interface :

- Full color advanced TFT liquid crystal display (LCD) with backlight
- 320x240 resolution with 262,144 colors
- Resistive touch panel
- Keyboard with backlight : 18 buttons

Audio :

- Integrated microphone and speaker

Power Characteristics

- Battery type : 3.7 V lithium-ion, 3900 mAh
- Battery life : 8 hour run-time with GPS
- External power port for extended operation time

Environmental Characteristics

- Operating Temp : -10°C to 60°C (14°F to 140°F)
- Storage Temp : -20°C to 70°C (-4°F to 158°F)
- Weather : IEC-529 IPX7 Standard (with stands water immersion for > 30 min. at depth of 1 m)
- Shock : 1.5 m (4.9 ft) drop to concrete

Communication Characteristics

- USB host and slave support
- Serial RS232 support
- Bluetooth wireless technology
 - Bluetooth specification : 1.2 compliant
 - Supports point-to-point and point-to-multipoint
 - Profiles : standard serial port, file transfer (OBEX), dial up networking (client support only)

GPS Characteristics

- 14 parallel channels
- Integrated real-time DGPS : WAAS or EGNOS
- Update rate : 1 Hz
- Protocol : NMEA 0183 v 3.0 and MobileMapper Measurements (Thales format)
- DGPS position accuracy : Sub-meter (1) RMS

Merek Alat :

Garmin GPSmap 400

Kelengkapan :

1. GPSmap 400
2. Antena GPS
3. Tilt / swivel mount
4. Penutup depan pelindung
5. Kabel daya
6. Kabel Data
7. Manual



Fungsi :

Penentu Posisi

No. Inventaris :

20.11.0200.5791912010

Spesifikasi :

Physical :

Size	: 5”H x 57”W x 3”D (12.7 cm x 14.5 cm x 7.62 cm)
Weight	: 1.30 lbs (560.0 g)
Display	: 4.0” diagonal (10.16 cm), QVGA display with adjustable brightness, 320 x 240 pixels
Case	: Fully gasketed, high-impact plastic alloy, waterproof to IEC 529 IPX7 standards
Temp. Range	: 5°F to 131°F (-15°C to 55°C)
Compass Safe Distance	: 95 cm

Performance :

Receiver : Differential-ready 12-parallel channel WAAS-capable receiver

Acquisition Times :

Warm : Approx. 15 seconds

Cold : Approx. 45 seconds

AutoLocate : Approx. 2 minutes

Update Rate : 1/second, continuous

GPS Accuracy :

Position : <49 feet (15 meters), 95% typical*

Velocity : 0.05 meters/sec steady state

WAAS Accuracy :

Position : <10 feet (3 meters), 95% typical*

Velocity : 0.05 meters/sec steady rate

Dynamics : 6gs

***Subject to accuracy degradation to 100 m 2DRMS under the U.S.DOD-imposed Selective Availability Program.**

Power :

Power Source : 10-35 VDC

Usage : 15 Watts max at 13.8 VDC

Fuse : AGC/3AG – 3.0 Amp

Sonar :

Power : Dual Frequency, 500 Watts (RMS), 4,000 Watts (peak to peak);

Dual Beam, 400 Watts (RMS), 3,200 Watts (peak to peak)

Frequency : 50/200 kHz (dual frequency), 80/200 kHz (dual beam)

Depth : 1,500 ft (dual frequency), 900 ft (dual beam)*

***Depth capacity is dependent on water salinity, bottom type, and other water conditions.**

GPS HEADING

Merek Alat :

Hemisphere / V113

Kelengkapan :

1. Receiver GPS
2. Kabel Antena, Data, Power

Fungsi :

Penentu Posisi dan
Penentu Arah

No. Inventaris :

3.06.01.05.038.012



Spesifikasi :

Receiver type :

Heave

accuracy :

GNSS L1 RTK

< 30 cm rms3, Normal operation:
GNSS

Channels :

540

Pitch accuracy :
< 1° rms, Normal operation:

GPS sensitivity :

-142 dBm

Roll accuracy :
< 1° rms using accelerometer

Update Rate :

20 Hz (position and heading)

Time to first fix :
< 90 seconds, typical

Position accuracy :

RMS (67%): Horizontal Vertical

Size :
66.3 L x 20.9 W x 14.6 H (cm)

Single Point, no SA: 1.2 m 2.5 m

L-band DGPS: 0.3 m 0.6 m

Velocity <0.02m/s

Weight :
2.4 kg (5.4 lb)

Heading accuracy :

< 0.30° rms Normal operation: GNSS

Power :
6 to 36 VDC-4.6 W

RGPS

Merek Alat :

SEAMAP/Buoylink4DX

Kelengkapan :

1. Master Radio Module
2. Source Radio Module
3. Tailbuoy Module
4. MPU (Module Power Unit)
5. MIU (Module Interface Unit)
6. Buoylink 4DX PC
7. TPU (Test Portable Unit)
8. Software rtk4DX RGPS Beta version 2.05



Fungsi :

Menentukan Range/Bearing data posisi

No. Inventaris :

Spesifikasi :

Master Module

Power Supply : 9-36 Vdc

I/O Data Radio FREQ : RS422, 230400bps

Broadcast information : RTCA Peudo Ranges, to remotes

Radio Range : 12km

RF Data Rate : 230400bps

GNSS Receiver : 24Ch (up to 120) GPS L1/L2/L2C, Glonass L1/L2, Galileo E1/E5, SBAS

GNSS/ISM Combination Antenna : GPS L1/L2, GLO L1/L2, L5, Galileo, LNA gain 33-35 dB, ISM 5dBi

Radio Transmission Method : TDMA, FHSS

Source Module

Power : 18-75 Vdc

Radio Range : 2km

Data Format : Range/Bearing/Pitch/QC

Wire Data : RS485

Radio antenna : Internal 0 dBi (integrated with GNSS antenna)

GNSS Receiver : 24 Ch (up to 120) GPS L1/L2/L2C, Glonass L1/L2, L5, Galileo E1/E5, SBAS

GNSS Antenna : GPS L1/L2, GLO L1/L2, L5, Galileo, LNA gain 33-35dB

Tailbuoy Module

Power : 9-36 Vdc

Wire data : RS 485

Radio Range : 12 km

Data Format : Range/Bearing/Pitch/QC

Weight : 4.5 kg

GNSS Receiver : 24 Ch (up to 120) GPS L1/L2/L2C, Glonass L1/L2, L5, Galileo E1/E5

Connector : 8 pin to allow access to seemap Tailbuoy Charger Interface

Radio Frequency 900MHz ISM Spread Spectrum

Data Acquisition PC

OS : Windows Embedded, WS7

Processor : Core i7 2600

Memory : 4GB DDR3 1333

Module Power Supply Unit (MPU)

Output : 55 VDC to Gun Strings, 24 V dc to Test Port, controllable from software

Portable Test Unit

Weight : 2kg

Screen : 4x40 monochrome LCD

Power : Internal Li-on battery 7.2V, 6.2 Ah

Connectors : 1x input, 12-24 vdc to charge internal battery, 1x output to provide power to modules under test (24Vdc), 1x USB for data upload.

Module Interface Unit (MIU)

Weight : approx 2kg

Power Output : 2x24Vdc for Master Modules , 1x 24Vdc Test Port at rear panel

Supply : 115-240 Vac, 50/60 Hz, 250 W

Radio Link

Merek Alat :

Pacific Crest / ADL Vantage Pro

Kelengkapan :

1. Unit Radio
2. Antena Radio
3. Kabel data dan Power
4. Kabel Antena

Fungsi :

Pemancar/penerima Radio koreksi DGPS

No. Inventaris :

3.06.02.08.020.001



Spesifikasi :

General :

Serial Port Interface

1 RS-232 port, 115.2 kbps maximum

2-row, 16-character LCD display with five navigation buttons

Radio :

Frequency Band

430-473 MHz (ADL Vantage Pro)

Transmitter Receiver :

Carrier High power 2-Watts or 35-Watts –110 dBm BER 105

Transmission Rate :

19,200 or 9,600 bits per second (Four-level FSK)

9,600 or 4,800 bits per second (GMSK)

Size :

11.9 cm L x 8.6 cm W x 21.3 cm H

Weight :

1950 g (4.35 lbs)

Power :

Input Power 9.0 V DC – 30.0 V DC, 15 amp maximum

Merek Alat :

Pacific Crest / ADL Vantage

Kelengkapan :

1. Unit Radio
2. Antena Radio
3. Kabel data dan Power
4. Kabel Antena

Fungsi :

Pemancar/penerima Radio koreksi DGPS



No. Inventaris :

3.06.02.08.020.002

Spesifikasi :

General :

Serial Port Interface

1 RS-232 port, 115.2 kbps maximum

2-row, 16-character LCD display with five navigation buttons

Radio :

Frequency Band

430-473 MHz (ADL Vantage Pro)

Transmitter Receiver :

Carrier High power 2-Watts or 35-Watts –110 dBm BER 105

Transmission Rate :

19,200 or 9,600 bits per second (Four-level FSK)

9,600 or 4,800 bits per second (GMSK)

Size :

8.89 cm L x 4.6 cm W x 16.0 cm H

Weight :

705 g (1.55 lb)

Power :

9.0 V DC – 30.0 V DC, 2 amp maximum

USBL POSITIONING SYSTEM

Merek Alat :

LinkQwest/5000



Fungsi :

Penentu Posisi bawah air

No. Inventaris :

3.11.02.02.032.057

Spesifikasi :

Positioning Accuracy :

1500HA : 0.25 degree (better

than 0.5% of slant range)

1500MA : 1degree (better than 2% of slant range)

1500LC : 3 degree (better than 5% of slant range)

Slant Range Accuracy :

0.20 meter

Targets Tracked :

16

Operating Frequency :

31.0 to 43.2 kHz

Operating Beamwidth :

120 – 150 degrees

Transmit Mode Power Consumption :

10 Watts

Receive Mode Power Consumption :

1.6 Watts

Working Range With Ship Noise :

up to 1000 m

Maximum Transponder Depth :

up to 1500 m

Dimension :

12.6 cm (diameter) x 24 cm

Operating Temperature :

-5 to 45°C

Storage Temperature :

-25 to 75°C

Weight Out Of Water :

3.5 kg

Weight In Water :

1.2 kg

RS-232 Configuration :

9600 baud, 1 start bit, 1 stop bit, no parity bit, and no flow control

Optional High Speed Acoustic Modem Data Rate :

up to 19,200 baud

Acoustic Modem Operating Frequency : 26.0 to 45.0 kHz

ALAT UKUR OPTIK

Merek Alat :

Spectra/AL32A

Kelengkapan :

1. Unit Water Pass
2. Statif (Kaki tiga)
3. Rambu Ukur

Fungsi :

Pengukuran sifat datar

No. Inventaris :

3.06.01.05.016.001



Spesifikasi :

Magnification : 32x

Color : Yellow

Objective Diameter : 36 mm

Field Of View Angle : 1°20"

Shortest Focusing Distance : 0.6 m

Stadia Constant : 100

Additive Constant : 0

Compensator Dampening : Air

Compensator Range : ±15'

Compensator Setting Accuracy : <0.3"

Double Run Levelling per 1 km : 1 mm

Circular Vial Accuracy : 8/2 mm

Horizontal Circle : 1°

Weight : 3.5 lb (1.6 kg)

Base Plate : 5/8 x 11

Merek Alat :
Topcon/AT-F3

Kelengkapan :

1. Unit Water Pass
2. Statif (Kaki tiga)
3. Rambu Ukur

Fungsi :
Pengukuran sifat datar



No. Inventaris :
3.11.01.02.006.002

Spesifikasi :

Telescope

Length : 215 mm

Magnification : 30x

Objective lens : 40 mm

Relative brightness : 1.8

Field of view : 1"30'

Resolving power : 3.0"

Minimum focus : 0.5 m

Stadia constant : 0

Stadia ratio : 100

Circular level

Sensitivity : 10'/2mm

Automatic levelling

Setting accuracy : $\pm 0.3''$

Compensating range : $\pm 15'$

Accuracy in 1 Km double run levelling : ± 1.5 mm

Horizontal Circle

Diameter : 109.4 mm

Minimum Division : 1°(1g)

Weight

Instrument : 1.9kgs

Plastic carrying case : 1.2kgs

Merek Alat :
Wild/NA2

Kelengkapan :
1. Unit water Pass
2. Statif (kaki tiga)
3. Rambu ukur

Fungsi :
Pengukuran sifat datar

No. Inventaris :
3.11.01.02.006.001



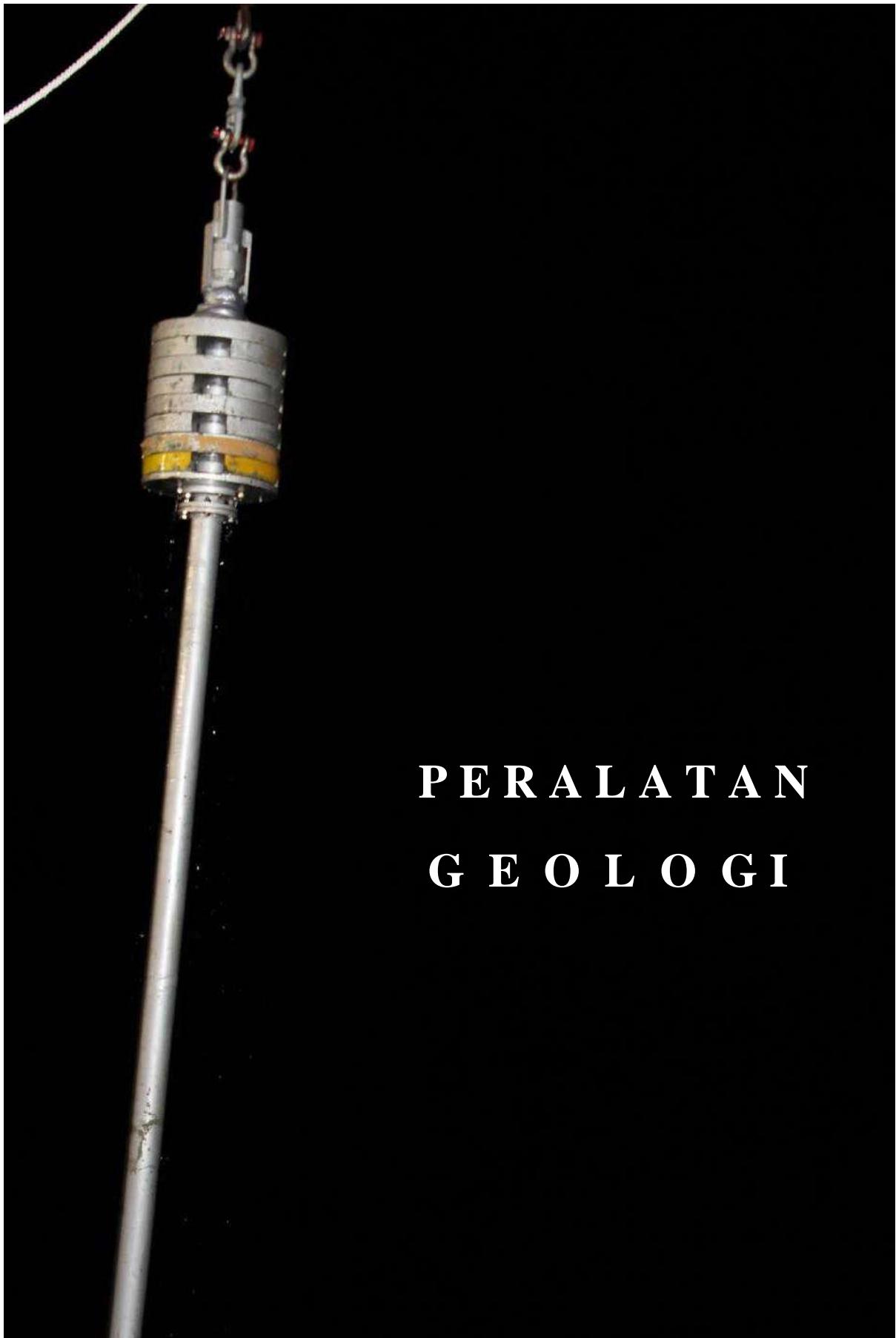
Spesifikasi :

Accuracy :
0.7 mm (dependent on staff, technique)
0.3 mm (with parallel-plate micrometer)

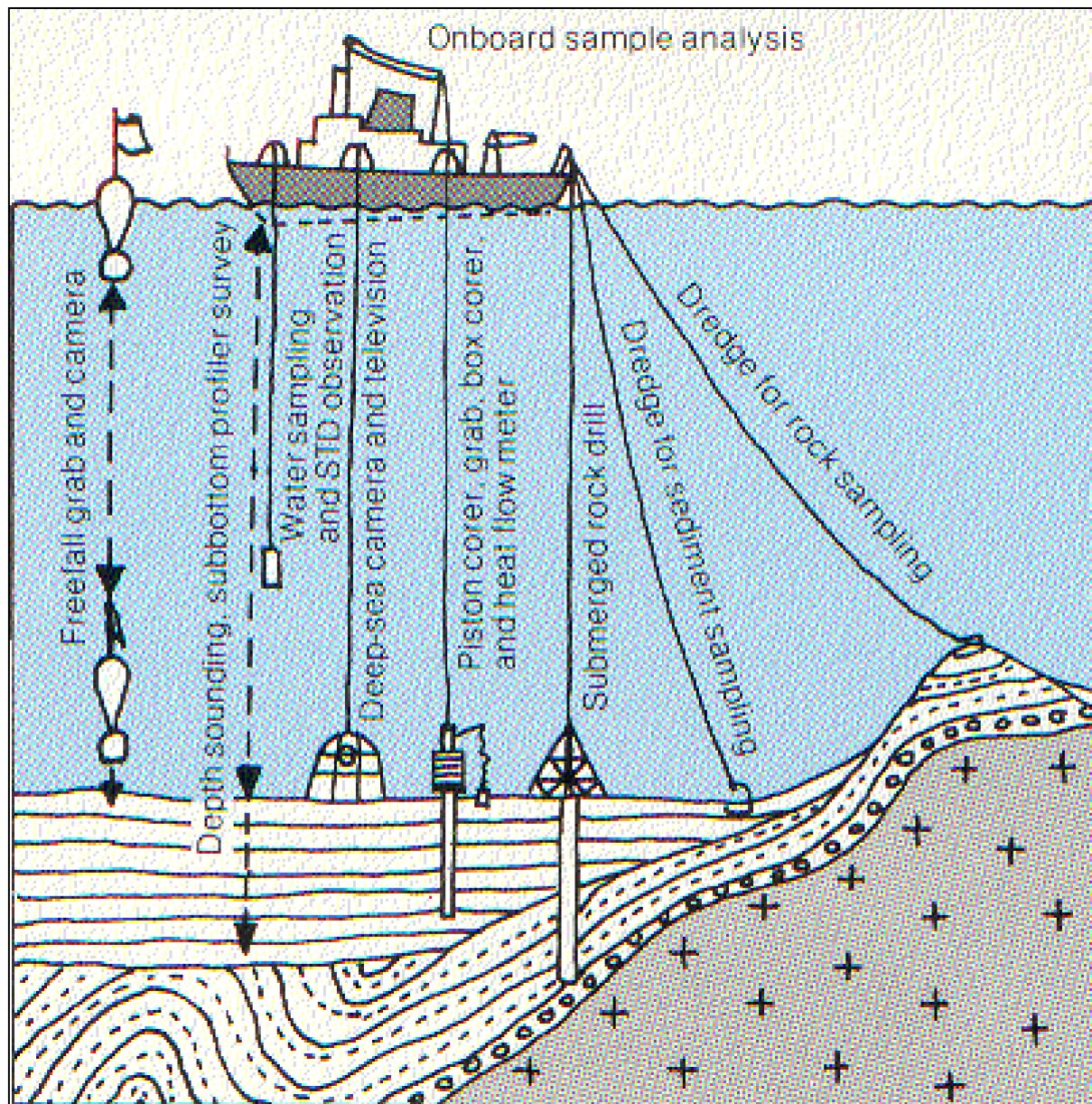
Magnification :
Standart : 32x
FOK73 eyepiece (optional) : 40x

Shortest focusing distance : 1.6 m

Compensator setting accuracy : 0.3“



**P E R A L A T A N
G E O L O G I**



GRAVITY CORE

UMUM

- Merk Alat : BENTHOS 2171
- No. Inventaris : 2.13.02.03.002.001

KELENGKAPAN

- Sayap penginti sistem drat Kabel Koneksi
- Pemberat Timah
- Core valve
- Core barrel
- Coupling

FUNGSI

- Untuk mengambil contoh inti sedimen dasar laut metode jatuh bebas.

SPESIFIKASI

- Diameter core barrel 3 inchi
- panjang core barrel 120 cm
- Pemberat a 20 kg
- panjang core liner 150 cm
- diameter paralon core liner 2.5 inchi



Foto Gravity Core di Ruang Alat



Foto Gravity Core di KR Geomarin III

UMUM

- Merk Alat : DN
- No. Inventaris :
- 2.13.02.03.002.006
- 2.13.02.03.002.007
- 2.13.02.03.002.008
- 2.13.02.03.002.009

KELENGKAPAN

- Sayap penginti sistem drat
- Tusin Klep dan core valve
- Core barrel sistem drat
- Pemberat besi cor @ 20 kg

FUNGSI

- Untuk mengambil contoh inti sedimen dasar laut metode jatuh bebas

SPESIFIKASI

- Diameter Core barrel 3.0 inchi
- Panjang core barrel 120 Cm
- Panjang paralon core liner 155 Cm
- Diameter paralon 2.5 inchi
- Pemberat yang bisa di pasang maksimal 4 buah x 20 kg



UMUM

- Merk Alat : DN
- No. Inventaris :
 - 2.13.02.03.002.002
 - 2.13.02.03.002.003
 - 2.13.02.03.002.004
 - 2.13.02.03.002.005

KELENGKAPAN

- Kepala penginti sistem plendes (mur baut)
- Tusin Klep
- Core Barrel sistem plendes
- Pemberat @ 50 kg
- As drat/ulir pemberat

FUNGSI

- Untuk mengambil contoh sedimen inti dasar laut dengan metode jatuh bebas

SPESIFIKASI

- Diameter Core barrel 3.0 inchi
- Panjang core barrel 350 cm x 250 cm x 176 cm x 160 cm
- Panjang paralon core liner sesuai panjang core barrel yg dipasang
- Diameter paralon core liner 2.5 inchi type D dan AW
- Pemberat bisa di pasang maksimal 8 buah x 50 kg

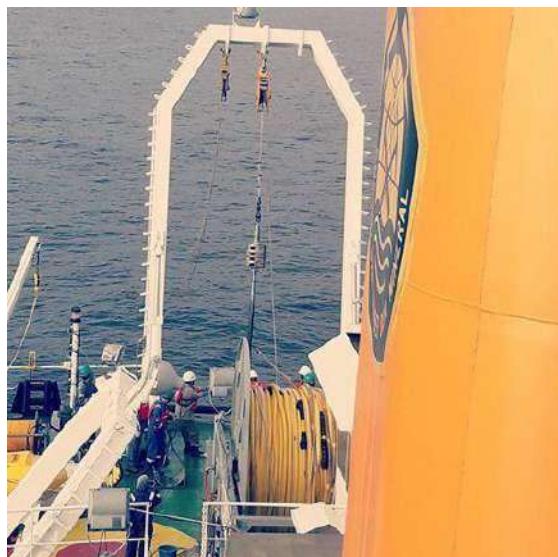
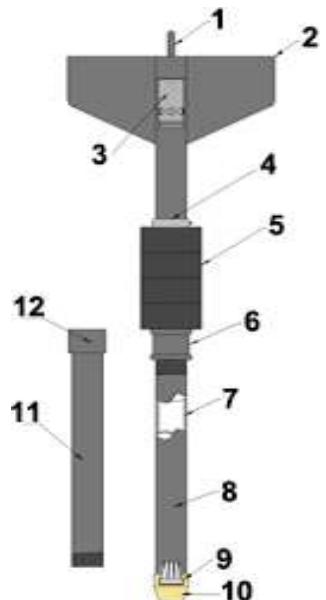


Foto Kegiatan sampling dengan Gravity Core di KR Geomarin III

Bagian-bagian Gravity Core:



1. LIFTING EYE (GANTUNGAN).
2. SAYAP PENGINTI
3. TUSEN KLEP
4. KLEM PEMBERAT
5. BEBAN PEMBERAT
6. COUPLING (PENYAMBUNG)
7. CORE LINER
8. CORE BARELL
9. CORE CATCHER
10. NOSE CONE
11. CORE BARELL
12. COUPLING



PISTON CORE

UMUM

- Merk Alat : PC-017 Belanda
- No. Inventaris : 3.11.02.03.001.010

KELENGKAPAN

- Kepala penginti piston corer
- Penginti pandu
- Core Barrel
- Triger arm
- Tool kit set piston corer

FUNGSI

- Untuk mengambil contoh inti sedimen dasar laut

SPESIFIKASI

- Core Barrel Ø 4,5 inchi, panjang 6 meter
- Core liner 4 inchi panjang 6 meter
- Berat total 700 kg
- Sekel WLL 4.75 Ton



PISTON CORER DI RUANG MUSEUM



PISTON CORER HEAD & PILOT CORER



PISTON CORER SAAT DITURUNKAN

UMUM

- Merk Alat : Benthos 2175-USA
- No. Inventaris : 2.13.02.03.001.001

KELENGKAPAN

- Pemberat 20 kg
- Triger arm
- piston isap dan piston stop
- Coupling

FUNGSI

- Untuk mengambil contoh inti sedimen dasar laut dengan sistem piston

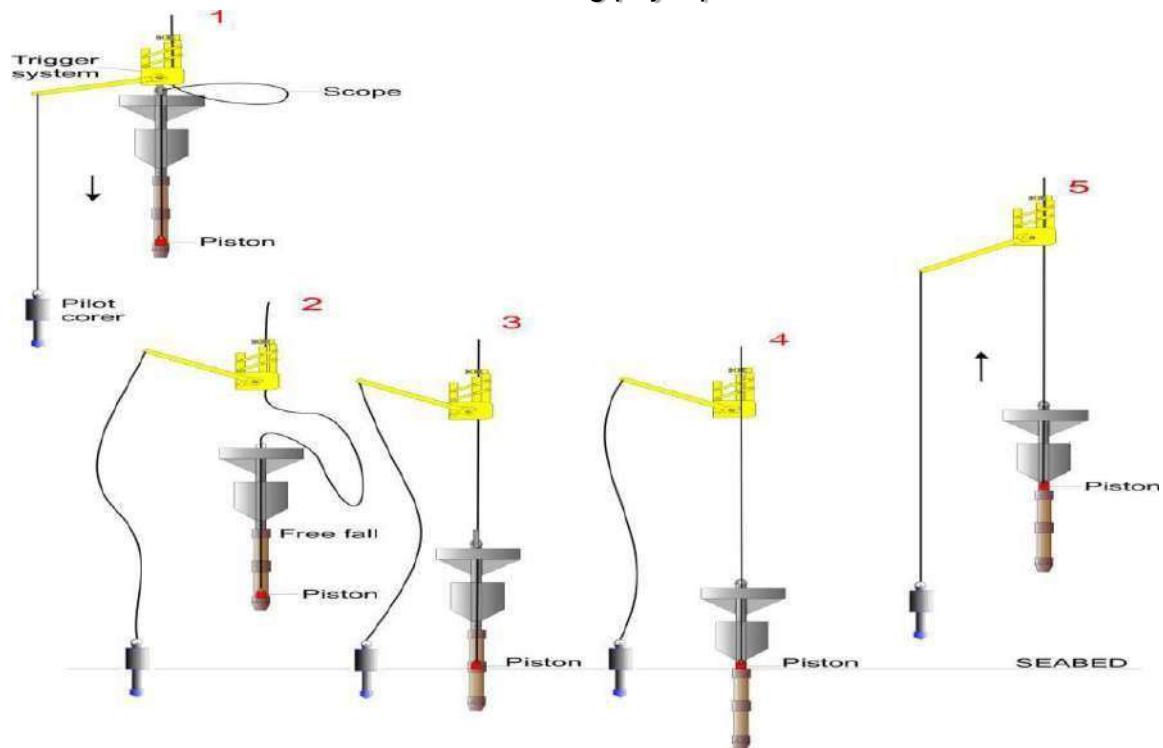
SPESIFIKASI

- Diameter: 3,0 inchi; Panjang: 120cm (core barrel)
- Diameter 2.5 inchi; panjang 155 cm (paralon core line)



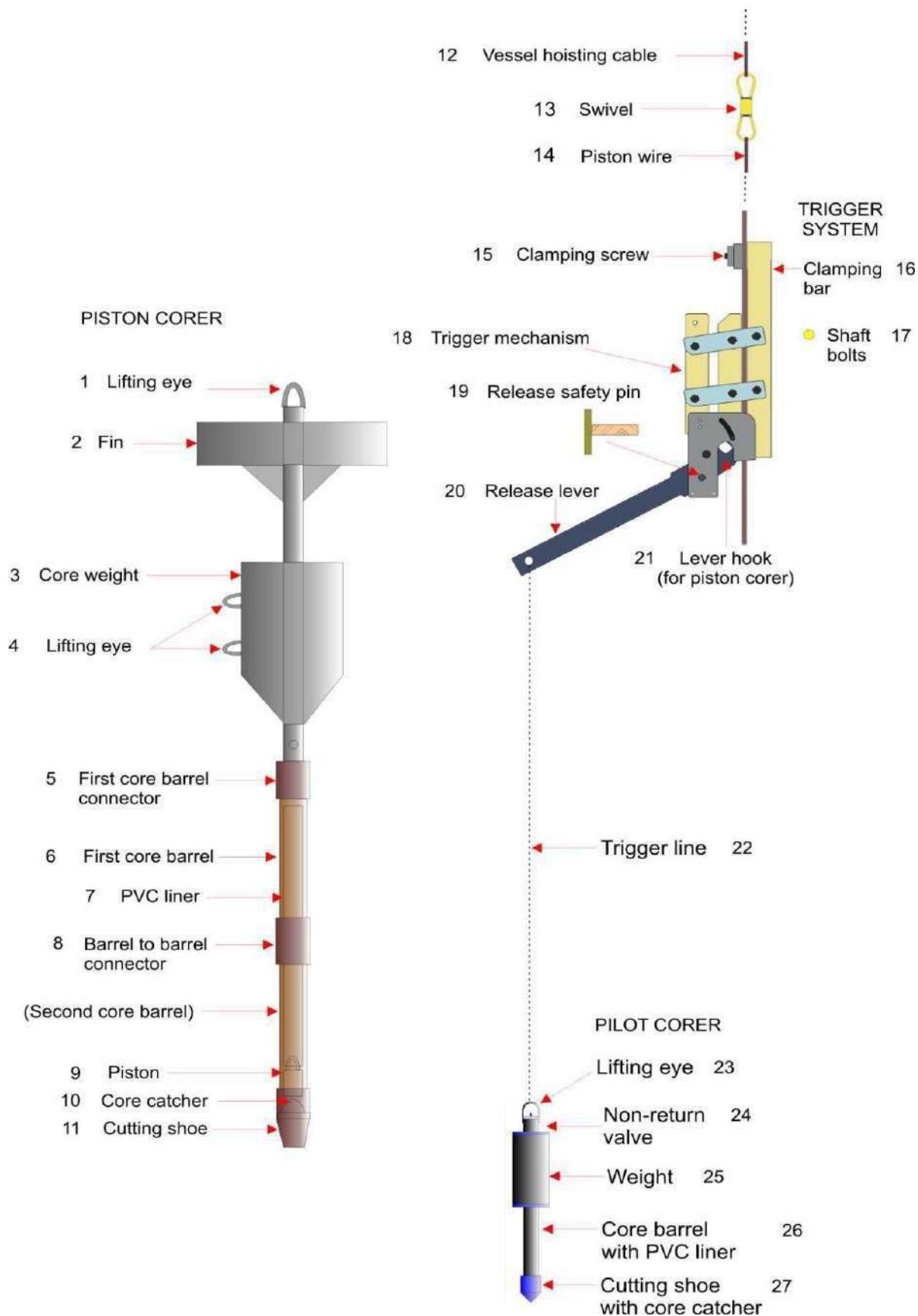


Piston core di ruang penyimpanan alat



Mekanisme Cara Kerja Alat Piston Core





Bagian-bagian dari alat Piston Core



MULTI CORE

UMUM

- Merk Alat : OCTOPUS GmbH/ Germany
- No. Inventaris :
 - 3.08.01.08.999.001
 - 3.08.01.08.999.002

FUNGSI

- Untuk mengambil contoh inti sedimen dasar laut sekaligus 8 sample , bukan untuk pasir lepas dan batuan

KELENGKAPAN

- Tabung acrilic transparan 24 bh
- Karet penutup Tabung sample 32 buah
- Meja tempat menyimpan 8 tabung sample
- Ekstruder teflon 2 buah.

SPESIFIKASI

- Diameter core barrel 3 inchi
- panjang core barrel 120 cm
- Pemberat a 20 kg
- panjang core liner 150 cm
- diameter paralon core liner 2.5 inchi



Gambar Kiri: Alat Multicore di simpan di Bengkel 3, Gambar Tengah: Alat multicore di lapangan dan Gambar Kanan: Tabung akrilik yang berisi sampel

UMUM

- Merk Alat : DN
- No. Inventaris : 3.11.02.03.001.008

FUNGSI

- Untuk mengambil contoh inti sedimen dasar laut yang bukan batuan keras sekaligus 6 sample

KELENGKAPAN

- Tabung acrilic transparan 12 bh
- Meja untuk menyimpan 6 tabung sample

SPESIFIKASI

- 6 tabung contoh inti transparan
- diameter tabung transparan 2.5 inchi
- panjang tabung 60 cm



GRAB SAMPLER



Grab Ukuran Besar

UMUM

- Merk Alat : DN
- No. Inventaris :
- 2.13.02.03.004.001
- 2.13.02.03.004.002

KELENGKAPAN

- Sistem release

FUNGSI

- Untuk mengambil contoh permukaan sedimen dasar laut

SPESIFIKASI

- No.1 panjang 60 cm dan No.2 panjang 50 cm
- Lebar 50 cm dan 40 cm
- Tinggi 30 cm dan 25 cm

UMUM

- Merk Alat : DN
- No. Inventaris :
- 2.13.02.03.004.003
- 2.13.02.03.004.004
- 2.13.02.03.004.005
- 2.13.02.03.004.006
- 2.13.02.03.004.007
- 2.13.02.03.004.008

KELENGKAPAN

- Sistem release

FUNGSI

- Untuk mengambil contoh permukaan sedimen dasar laut

SPESIFIKASI

- panjang 36 cm, 28cm dan 19 cm
- Lebar 22 cm, 20 cm dan 15 cm
- Tinggi 14 cm, 13 cm dan kecil 10 cm



Grab Ukuran Kecil



BOX CORE

UMUM

- Merk Alat : DN
- No. Inventaris :
- 2.13.02.03.004.003
- 2.13.02.03.004.003
- 2.13.02.03.004.003
- 2.13.02.03.004.003

FUNGSI

- Untuk mengambil contoh sedimen dasar laut undisturb bentuk kotak

SPESIFIKASI

- Ukuran penginti kotak 30 x 10 x 17 Cm

KELENGKAPAN

- Sistem release
- Kotak penginti
- Pemberat timah lempeng



Gambar (Atas): Box Core dan
(Bawah): hasil sampling Box Core

Box corer tersusun oleh:

- Box corer frame (kerangka box corer) yang terdiri atas :
 - a. Release (pembuka sistem pengait) yang terbuat dari bahan stainless steel.
 - b. Weight (terbuat dari bahan timah cor).
 - c. Shovel dan shovel arm (cangkul penutup sedimen beserta tangainya) yang terbuat dari bahan plat stainless stell.
 - d. Foot frame (kerangka kaki box corer) terbuat dari pipa stainless steel.
- Sample box (box penampung sample sedimen).

Terbuat dari bahan plat stainless steel dengan ukuran bervariasi. Ukuran yang dimiliki P3GL adalah:
17 cm x 10 cm x 30 cm.



D R E D G E



Alat Dredge di Bengkel 3

UMUM

- Merk Alat : DN
- No. Inventaris : **3.11.02.03.999.001**

FUNGSI

- Untuk mengambil contoh sedimen/batuan keras didasar laut

KELENGKAPAN

- Sling marine
- Shackle

SPESIFIKASI

- Panjang : 104 cm
- Lebar : 128 cm
- Tinggi : 34 cm
- Lebar : 25 cm



Foto kiri: Proses sampling dengan dredge di KR Geomarin III dan

Foto kanan: sampel yang didapat dengan alat dredge



BOR TANGAN

UMUM

- Merk Alat : Eijkelkamp - Belanda
- No. Inventaris :
 - 2.03.01.02.002.001
 - 2.03.01.02.002.002

SPECIFIKASI

- Panjang stang 1 meter
- diameter stang bor 3/4 inchi
- kedalaman pengeboran 0 - 10 meter
- Panjang sample yg didapat 20 cm

FUNGSI

- Untuk mengambil contoh inti sedimen di pantai/ daratan

KELENGKAPAN

- Mata bor Gut, eidelman, river side, spiral
- Sleeve / penyambung
- Stang pemutar 1 m dan 0.5 m
- Sarung terpal untuk kelapangan
- Stang bor 1 m



Gambar Kiri: Bor Tangan merk Eijkelkamp dan Gambar Kanan: Bor Tangan Doormers

UMUM

- Merk Alat : Doormers - Australia
- No. Inventaris :
 - 2.03.01.02.002.001

SPECIFIKASI

- Panjang stang 1 meter
- diameter stang bor 1.25 inchi
- Panjang sample yg didapat 40 cm
- kedalaman pengeboran 0 - 10 meter
- penyambung sistem drat

FUNGSI

- Untuk mengambil contoh inti sedimen di pantai/ daratan

KELENGKAPAN

- Mata bor river side, spiral
- Stang pemutar
- Stang bor



WATER SAMPLER



Water sampler kecil

UMUM

- Merk Alat : DN
- No. Inventaris :
- 2.08.06.01.012.001
- 2.08.06.01.012.001

KELENGKAPAN

- Kran Air
- Tali dan Pemberat

FUNGSI

- Untuk mengambil contoh air laut, sungai atau danau.

SPESIFIKASI

- Botol acrilic transparan
- Dimensi: 30 x 40 x 20 cm
- Panjang tali 40 meter

UMUM

- Merk Alat : OceanTest Equipment
- No. Inventaris :
- 3.08.01.45.010.001
- 3.08.01.45.010.002

KELENGKAPAN

- Pemberat Timah
- Pen pengaman

FUNGSI

- Untuk mengambil contoh air pada 12 tube dengan kontrol kedalaman dan jumlah titik sampling.

SPESIFIKASI

- Tabung terbuat dari braket aluminium yang dilengkapi dengan dua klem stainless steel
- Kapasitas 5 Liter
- Berat kosong 3,6 kg



Water sampler Besar



BOOMERANG CORER

UMUM

- Merk Alat : **Benthos 1890 – USA**
- No. Inventaris : 2.13.02.03.007.001



KELENGKAPAN

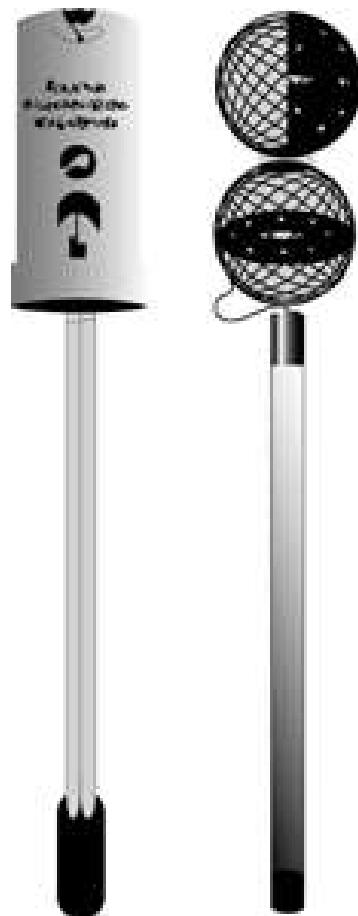
- Pelampung Kaca
- Bagian Pemberat

FUNGSI

- Untuk mengambil contoh sedimen dasar laut perairan dalam

SPESIFIKASI

- Panjang core liner transparan 1 meter
- Berat 85 kg
- bagian pemberat sekali pakai (kerucut hidung, berat pilot, laras inti, bobot, mekanisme pelepasan pelampung)
- bagian pelampung yang dapat ditarik (dua bola kaca yang ditambatkan ke rakitan inti)
- Rakitan inti terdiri dari papan plastik bening berukuran 1,2 m dengan panjang 6,7 cm dengan penahan stainless steel dan katup penutup atas



Keterangan Gambar:

Kanan atas: Boomerang Corer di Ruang Alat, **Kanan Bawah:** bagian dalam dari Boomerang Corer.



PHLEGHER CORER



UMUM

- Merk Alat : DN
- No. Inventaris : 2.13.02.03.010.001

KELENGKAPAN

- Nose cone
- Core catcher

FUNGSI

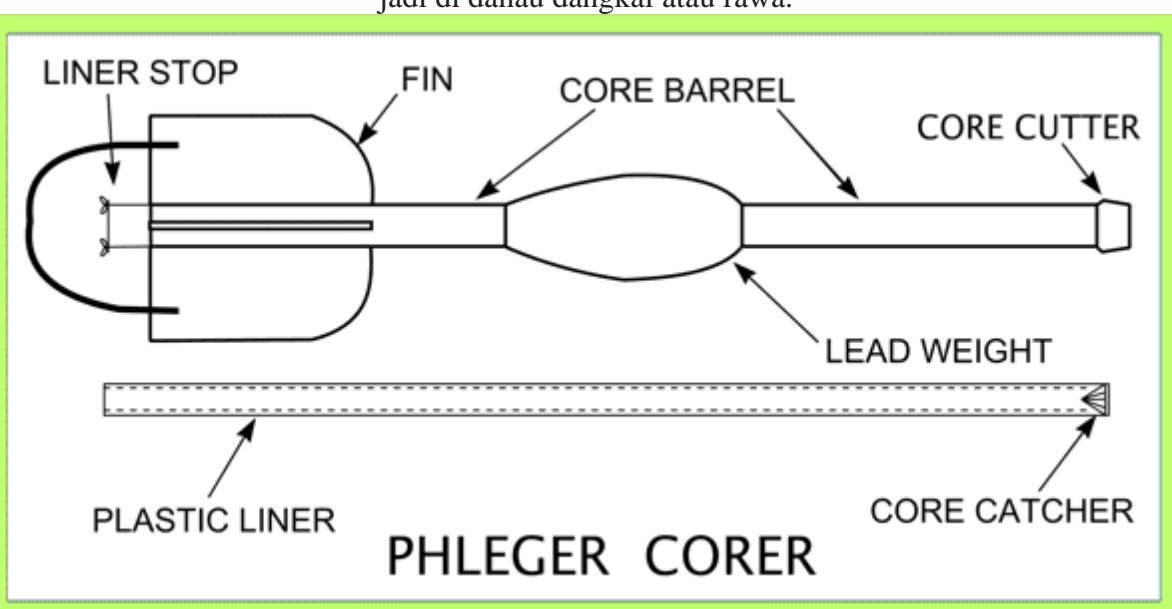
- Untuk mengambil contoh inti sedimen dasar laut sistem jatuh bebas

SPECIFIKASI

- Diameter core 2 cm
- berat alat 8 kg

Alat Phleger Corer di Ruang Alat

Phleger Core memiliki bagian atas corer memiliki sirip untuk stabilisasi dan area untuk menambahkan bobot untuk meningkatkan penetrasi. Rakitan katup di bagian atas tabung buang terdiri dari batang yang meruncing yang bisa meluncur dalam dua arah saat turun sehingga memungkinkan air mengalir dengan demikian mengurangi gelombang busur dan turun saat pendakian membentuk segel pada tempat duduk tabung yang meruncing dan sehingga mencegah pencucian dan bantuan dalam retensi sampel. Sampler ini umumnya disebarluaskan dari kapal ke sampel sedimen yang lembut sampai berpasir dan bahan setengah jadi di danau dangkal atau rawa.



Bagian-bagian alat dari Phleger Corer



MESIN BOR INTI



UMUM

- Merk Alat : RK 210 S - USA
- No. Inventaris :
2.08.01.06.003.001(1992)

KELENGKAPAN

- Mesin pompa hidraulik
- Tangki oli hidraulik
- Unit Hidraulik
- Unit casis
- Mesin pompa air Mitsubishi
- Casing 1m, casing 1.5m dan 2 m
- Core barrel bor 1m, 1.5m dan 2m
- Shelby tube 60 cm
- Stang bor 1.5m, 2m dan 3m
- Kepala pemutar
- Tap casing, corre barrel dan shelby tube
- Slang isap dan slang tekan

FUNGSI

- Untuk pengeboran / mengambil contoh inti

SPESIFIKASI

- Untuk pengeboran/ mengambil contoh inti sampai kedalaman 30 meter

UMUM

- Merk Alat : Koken - SC 3 D
- No. Inventaris :
3.01.03.06.002.002(2010)

KELENGKAPAN

- Mesin pompa hidraulik
- Tangki oli hidraulik
- Unit Hidraulik
- Mesin pompa air merk Sun Chin
- Casing 3m
- Core barrel bor 1m
- Shelby tube 1,5m
- Stang bor 1.5m
- Kepala casing
- Penumbuk SPT 63 kg
- Water swipel dan slang

FUNGSI

- Untuk pengeboran / mengambil contoh inti

SPESIFIKASI

- Untuk pengeboran/ mengambil contoh inti sampai kedalaman 30 meter



MESIN BOR INTI



UMUM

- Merk Alat : YBM 3 JR
- No. Inventaris :
3.01.03.06.002.001(2005)

FUNGSI

- Untuk pengeboran / mengambil contoh inti

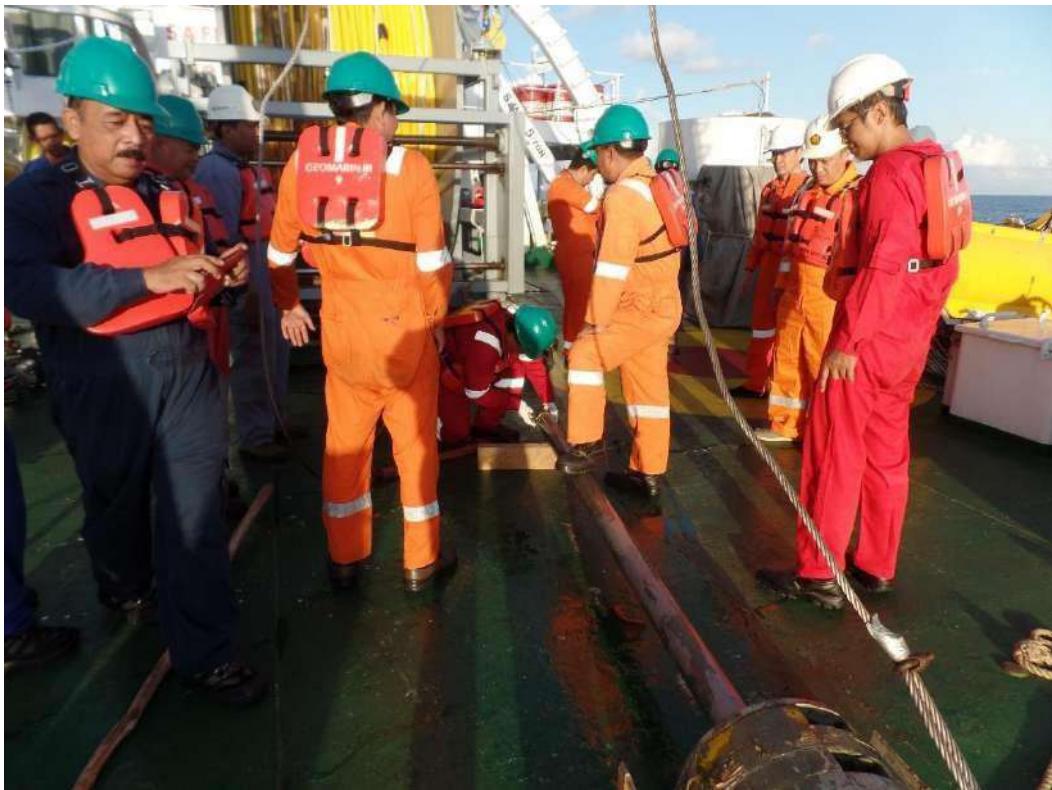
SPESIFIKASI

- Untuk pengeboran/ mengambil contoh inti sampai kedalaman 300 meter

KELENGKAPAN

- Motor Penggerak Yanmar TF 135H
- Mesin pompa YBM GP-10
- Stang bor NW drill @ 1.5m dan 3m
- Water swivel NW
- Stang clamp holder NW
- Double tube core barrel 3 m
- Casing 4 inch @3m dan 1.5m
- Casing shoe 4", casing head 4", casing bit+clamp 4" & tricon
- Tripod 3 meter
- Takel 2 ton
- Snatch block
- Slang deliveri
- Pipa wrenches
- Suction house





PERALATAN PENDUKUNG GEOLOGI



MESIN PEMBELAH PARALON INTI

Merek Alat :

DN

Kelengkapan :

1. Mata pisau silinder pembelah paralon 2 buah
2. Motor listrik 0.5 HP (2 Unit)

Fungsi :

Untuk membelah paralon contoh inti

No. Inventaris :

- 58
- 2.08.01.03.027.006

Spesifikasi :

Panjang : 150 cm

Lebar : 80 cm

Tinggi : 80 cm



Foto Alat Pemotong Core Besar



Foto Alat Pemotong Core Kecil



Foto mata pisau pemotong paralon

Merek Alat :

DN/ Lokal

Merek Alat :

DN

Kelengkapan :

1. Mata pisau silinder pembelah paralon 2 buah
2. Motor listrik 0.5 HP (2 Unit)

Fungsi :

Untuk membelah paralon contoh inti

No. Inventaris :

2.08.01.03.027.007

Spesifikasi :

Panjang : 150 cm

Lebar : 58 cm

Tinggi : 120 cm



Kelengkapan :

3. Mata pisau silinder pembelah paralon 2 buah
4. Motor listrik 0.5 HP (2 Unit)

Fungsi :

Untuk membelah paralon contoh inti

No. Inventaris :

- 3.08.01.05.01.027.008

Spesifikasi :



Foto Alat Pemotong Core

Merek Alat :

DN

Kelengkapan :

3. Mata pisau silinder pembelah paralon 2 buah
4. Motor listrik 0.5 HP (2 Unit)

Fungsi :

Untuk membelah paralon contoh inti

No. Inventaris :

2.08.01.03.027.008

Spesifikasi :



Foto Alat Pemotong Core



Foto kiri: kegiatan sebelum pemotongan, Foto Kanan: hasil pemotongan core



CUTTING CORER

UMUM

- Merk Alat : Rothenberg
- No.Inventaris :
 - 3.08.01.45.033.001
 - 3.08.01.45.033.002
 - 3.08.01.45.033.003
 - 3.08.01.45.033.004

FUNGSI

Untuk memotong pipa pvc

KELENGKAPAN

-



TENSION METER

UMUM

- Merk Alat : Eillon Enggining
- No.Inventaris : 3.03.03.05.999.001

FUNGSI

Untuk mengukur tegangan pada tali atau sling

KELENGKAPAN

- Display tegangan
- Shackel



CABLE COUNTER

UMUM

- Merk Alat : Rothenberg
- No.Inventaris :
 - 3.08.01.45.033.001

FUNGSI

Untuk mengukur panjang sling keluar atau masuk

KELENGKAPAN

1. Display monitor
2. Kabel koneksi
3. Sensor
4. Katrol stainless stell



MEKANIK ELECTRIC WINCH

UMUM

- Merk Alat : Kondo Iron - Japan
- No.Inventaris :
 - 2.03.01.05.003.001
 - 2.03.01.05.003.002

FUNGSI

Untuk mengoperasikan peralatan percontohan

KELENGKAPAN

- Motor listrik 4 PK
- Kontraktor magnetik
- Mesin diesel 7 PK





PERALATAN GEOTEKNIK



MOTORIZED DIRECT SHEAR

UMUM

- Merk Alat : KNT/DN
- No.Inventaris : 2.03.01.01.01.002 (1986)

FUNGSI

Untuk mengukur daya dukung tanah/ arah horizontal

KELENGKAPAN

- Box Sample
- Ring Sample
- Dial Gauge
- Proving Ring
- Beban Pemberat



MESIN TRIAXIAL

UMUM

- Merk Alat : Konas Tunggal
- No.Inventaris : 3.03.01.01.010.001(1990)

FUNGSI

Untuk mengukur daya dukung tanah

KELENGKAPAN

- Air Compressor ½ HP
- Panel

KELENGKAPAN

- Kapasitas 500 kg/cm²



TRIAXIAL TRICON TEST

UMUM
• Merk Alat : DN
• No.Inventaris :
FUNGSI
Untuk mengukur daya dukung tanah secara vertikal
SPESIFIKASI
• Kapasitas 1000 kg/cm ³
• Tekanan Maks Vol. Change 10 kg/cm ²
KELENGKAPAN
Vol.Change CP 0-10 Kg/cm ² ; Vol.Change BP 0-10 Kg/cm ² ; Tangki Air; Kompressor ½ PK; Alat cetak & keluar sampel; Extruder



MINI TRIAXIAL TEST



UMUM
• Merk Alat : Soil Equip
• No.Inventaris :
FUNGSI
Untuk mengukur daya dukung tanah
SPESIFIKASI
Mini Triaxial Test For Marine Clay, Standard Soil Test
KELENGKAPAN
Air Compressor ½ PK; Panel Volume Change; Panel Pressure Digital; Ring Sampel; Extruder Ø 38 mm



ALAT PENGUJI BATAS CAIR

UMUM
• Merk Alat : Lokal
• No.Inventaris :
FUNGSI
Untuk mengukur batas cair sampel sedimen
SPESIFIKASI
KELENGKAPAN
• Grooving Tool • Spatula • Plat Kaca 5 mm



ALAT PENGUJI BATAS CAIR



UMUM
• Merk Alat : Alat Penguji Batas Cair
FUNGSI
Untuk mengukur batas cair sampel sedimen
SPESIFIKASI
KELENGKAPAN
• Grooving Tool • Spatula • Plat Kaca 5 mm



ALAT PENGUJI BATAS CAIR

UMUM
• Merk Alat : Lokal • No.Inventaris :
FUNGSI
Untuk mengukur batas cair sampel sedimen
SPESIFIKASI
KELENGKAPAN
• Grooving Tool • Spatula • Plat Kaca 5 mm



SAMPLE STIRER



UMUM
• Merk Alat : SLW/ DN • No.Inventaris :
FUNGSI
Untuk mengaduk sampel sedimen
SPESIFIKASI
Kapasitas 500 mL
KELENGKAPAN



PREMEABILITY TEST

UMUM

- Merk Alat : Lokal
- No.Inventaris :
 - 3.08.01.11.093.001 (1996)
 - 3.08.01.11.093.002 (1996)

FUNGSI

Untuk mengukur porositas sampel sedimen

SPESIFIKASI

KELENGKAPAN



PIN HOLE

UMUM

- Merk Alat :
- No.Inventaris :

FUNGSI

Untuk menguji kekeruhan sampel sedimen

SPESIFIKASI



KELENGKAPAN

Ring Sample



TORVANE MOTORIZED

UMUM
• Merk Alat Soil Equip • No.Inventaris :
FUNGSI
SPESIFIKASI
KELENGKAPAN
• Vane shares motorized 0,25 HP • Vane ukuran: 12,7 x 12,7 mm • Vane ukuran: 12,7 x 19,0 mm • Vane ukuran: 19,0 x 38,0 mm



ALAT TRIAXIAL



UMUM
• Merk Alat : ELE England • No.Inventaris :
FUNGSI
Untuk pengujian sampel bertekanan
SPESIFIKASI
• Working pressure up to 1700 kPa • All round visibility • Sample sizes 38 to 100 mm diameter • Rapid assembly and dismantling
KELENGKAPAN



OEDOMETER TEST

UMUM	
<ul style="list-style-type: none">• Merk Alat : DN• No.Inventaris :<ul style="list-style-type: none">○ 3.08.01.08.013.001 (1991)○ 3.08.01.08.013.002 (1996)	
FUNGSI	
Alat pengujian konsolidasi sampel	
SPESIFIKASI	
KELENGKAPAN	
Dial Gauge; Beban Pemberat [0,50 kg, 1,00 kg, 2,00 kg]	

C B R

	UMUM
	<ul style="list-style-type: none">• Merk Alat :• No.Inventaris :
	FUNGSI
	Untuk menguji perkerasan-lentur (<i>flexible pavement</i>) pada sampel
SPESIFIKASI	
KELENGKAPAN	
Ring Sample	



POCKER SHEAR METER

UMUM
• Merk Alat : Controls
• No.Inventaris :
FUNGSI
SPESIFIKASI
Dilengkapi dengan kipas geser: 1. Diameter 19 mm 2. Diameter 19 mm 3. Diameter 48 mm
KELENGKAPAN



SPLITTER SAMPLE



UMUM
• Merk Alat : DN
• No.Inventaris : (1992)
FUNGSI
Untuk membagi contoh sedimen menjadi beberapa bagian
SPESIFIKASI
Dimensi: 28 x 20 x 27 cm
KELENGKAPAN
2 buah nampan



PROVING RING

UMUM
• Merk Alat : • No.Inventaris :
FUNGSI
Berfungsi untuk mengetahui kekuatan tanah
SPESIFIKASI
Terdiri dari cincin elastis dengan diameter yang diketahui dengan alat ukur yang terletak di tengah ring.
KELENGKAPAN



COMPACTION TEST

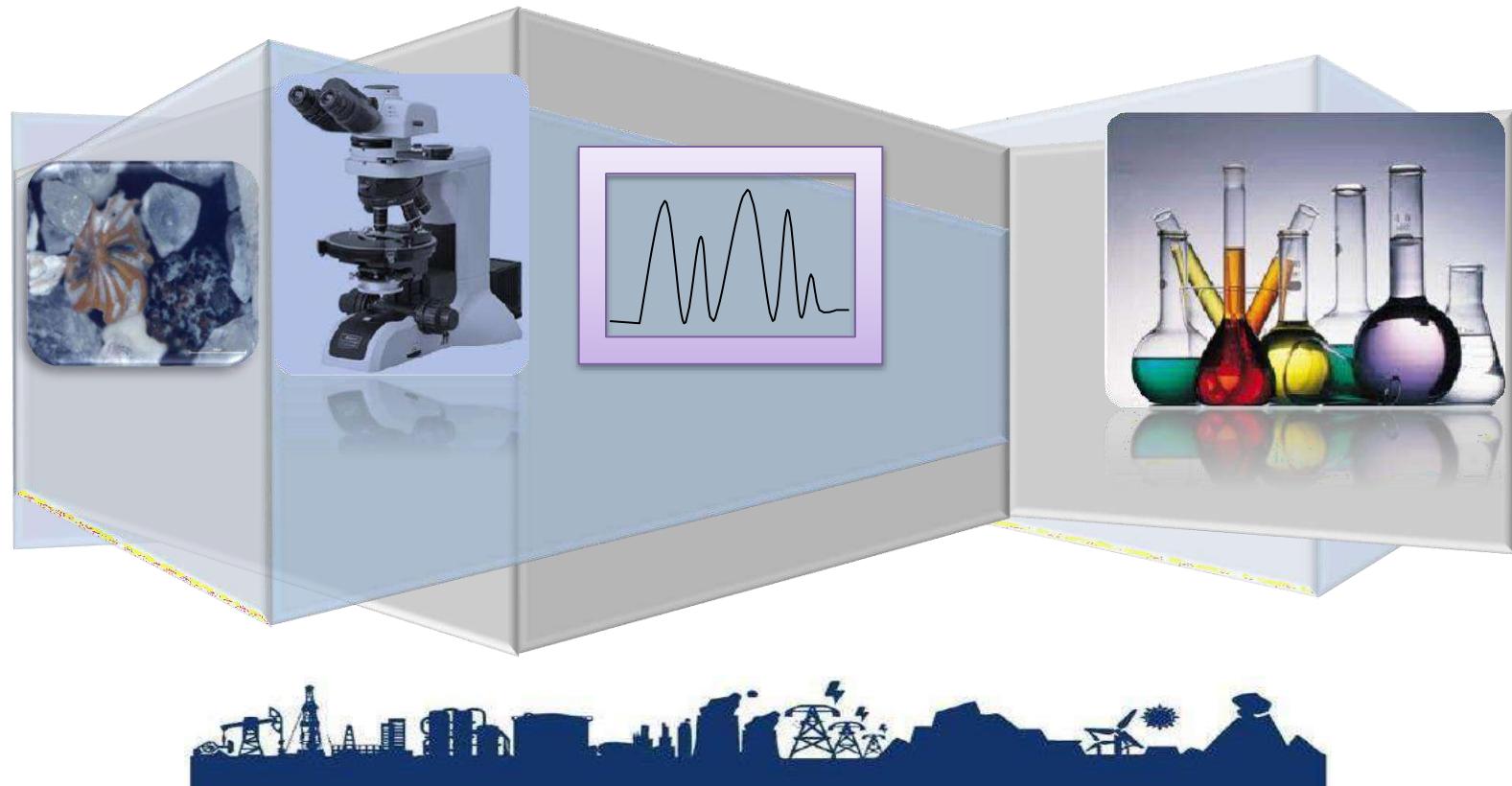


UMUM
• Merk Alat : MBT • No.Inventaris : 3.08.01.08.064.001
FUNGSI
Untuk menghitung kepadatan maksimum tanah timbunan
SPESIFIKASI
KELENGKAPAN
• Penumbuk • Plat silinder



Puslitbang Geologi Kelautan
BUKU PERALATAN LITBANG

PeRALAtAn LABoRATORium

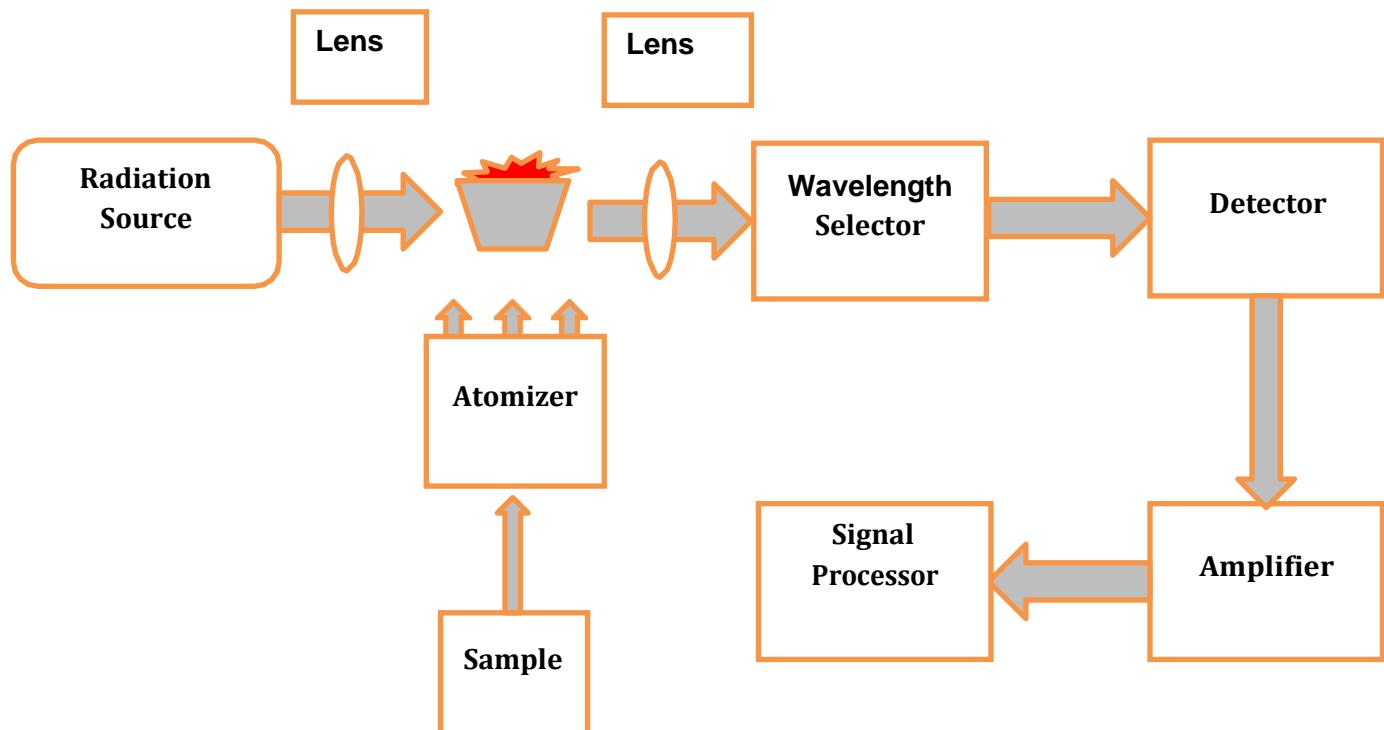




ATOMIC ABSORPTION SPECTROPHOTOMETER (AAS)



Prinsip Kerja Alat :





**PUSAT PENELITIAN DAN PENGEMBANGAN GEOLOGI KELAUTAN
BIDANG PENYELANGGARAAN DAN SARANA LITBANG**

➤ **Kelengkapan**

1. Main Unit AAS
2. High Temperature Burner
3. Oil-less Air Compressor
4. Mist Separator Kit
5. Pressure Regulator N2O
6. Pressure Regulator C2H2
7. Gas N2O+ Cylinder
8. Gas C2H2 + Cylinder
9. Blower
10. Canopy/FumeHood
11. Aluminium Flexible Duct
12. Computer (CPU+Mouse+Keyboard) Dell OptiPlex 3020
13. LED Monitor 18.5" Dell E Series E1912 H
14. Printer HP Laser Jet Pro P1102
15. UPS 10 KVA
16. Standard Solution 500mL for: Cr, Cd, Ni, Cu, Fe, Mn, Pd, Zn, As, Sn.
17. Hollow cathode lamp for: Cr, Cd, Ni, Cu, Fe, Mn, Pd, Zn, As, Sn

Merk Alat:

Shimadzu AA-7000

Fungsi :

Menganalisis Kandungan Logam dalam Sampel.

No. Inventarisasi :

03.08.01.46.004.001

➤ **Spesifikasi :**

Optics Wavelength range	185.0 to 900.0 nm
Monochromator	Aberration-corrected Czerny-Turner mounting
Bandwidth	0.2, 0.7, 1.3, 2.0L nm (4-step automatic switching)
Detector	Photomultiplier tube
Optics	Flame: optical double beam
Background correction	<ul style="list-style-type: none">BGC-SR (high speed self reversal method)BGC-D2 (D2 lamp method)
Lamp mode	EMISSION, NON-BGC, BGC-D2, BGC-SR
Data processing	
Software requirements	Microsoft Windows Vista Business / XP Professional
Recall of parameters	Template functions available
Procedure/result display	MRT (Measurement Results Table) worksheet
Report generation	Summary report available
Power requirements	120 VAC (English Ver.), 220 VAC (Chinese Ver.), or 230 VAC (English Ver.), 230 VA, 50/60 Hz Power is required separately for the personal computer.
Dimensions and weight	AA-7000F: 700 W x 588 D x 714 H mm, 72 kg
Ambient temperature / humidity	10 to 35 °C, 20 to 80% (less than 70% when temperature is higher than 30 °C)

MULTY SENSOR CORE LOGER (MSCL)





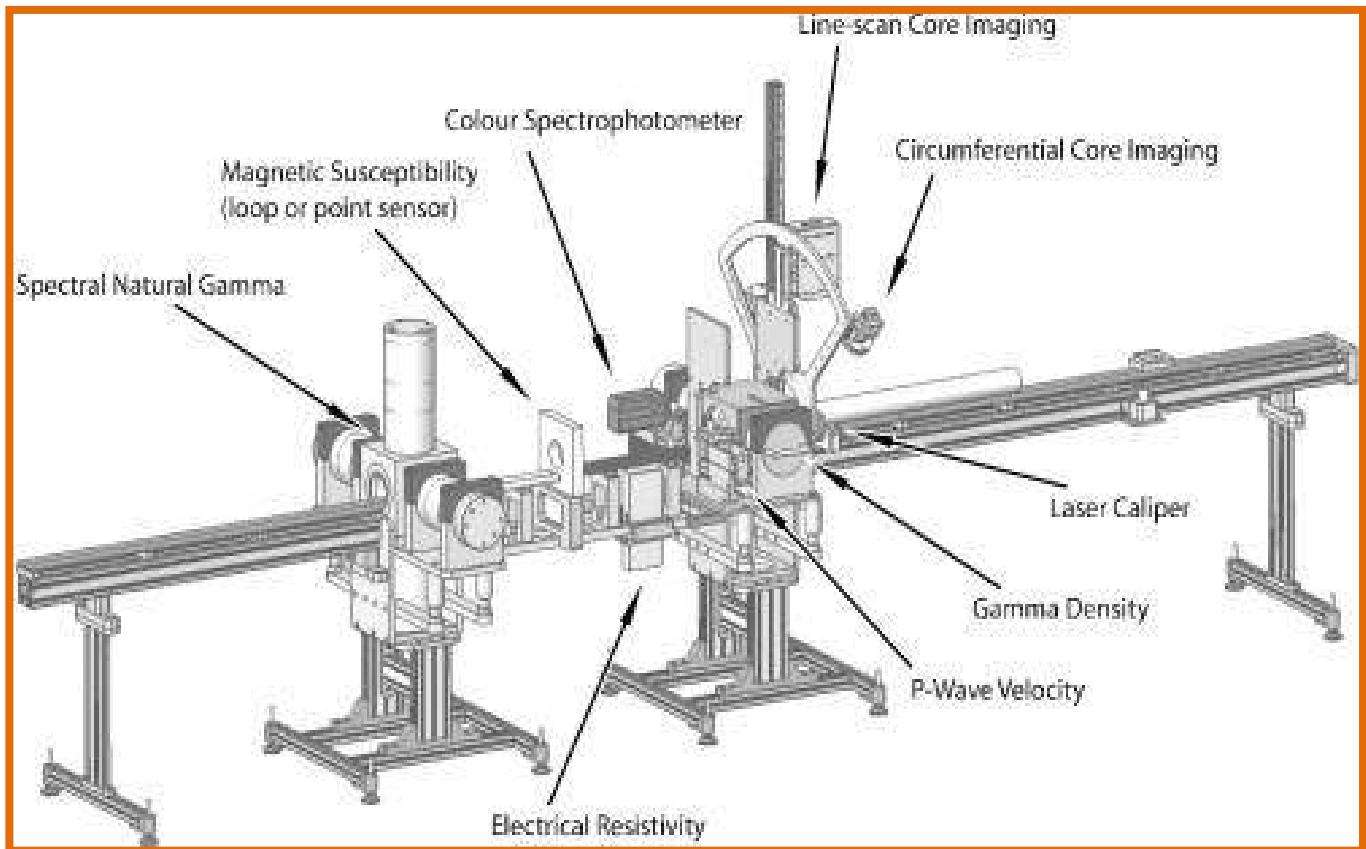
PUSAT PENELITIAN DAN PENGEMBANGAN GEOLOGI KELAUTAN
BIDANG PENYELANGGARAAN DAN SARANA LITBANG

NON-DESTRUCTIVE CONTINUOUS CORE SCANNING





Bagian-bagian MSCL



➤ **Merek Alat**

Geotek, Ltd.

➤ **Kelengkapan**

1. Adaptor
2. Kabel Power
3. Monitor dan CPU
4. Sensor Kamera
5. Sensor XRF
6. Sensor Natural Gamma
7. Sensor Spektrometer
8. Sensor magnetisme suspectibility
9. Sensor gelombang primer (P-wave)





➤ **Fungsi**

ULTRASONIC P-WAVE VELOCITY

- ✓ Improved velocity profiles
- ✓ Generation of synthetic seismograms
- ✓ Link to elastic properties
- ✓ Identification of cemented horizons

MAGNETIC SUSCEPTIBILITY

- ✓ Identification of terrigenous material
- ✓ Core to core correlation
- ✓ Link to magnetic survey data / models
- ✓ Identification of lithological changes

ELECTRICAL RESISTIVITY

- ✓ Proxy for pore-fluid properties
- ✓ Identification of lithological changes
- ✓ Derivation of geotechnical properties
- ✓ Core to core correlation

SPECTRAL NATURAL GAMMA

- ✓ Lithological interpretation
- ✓ K, U, Th derivation
- ✓ Core to core correlation
- ✓ Core to log correlation

X-RAY FLUORESCENCE

- ✓ Chemostratigraphy
- ✓ Mineralogical interpretation
- ✓ Derivation of mechanical properties
- ✓ Core to elemental log correlation

COLOUR SPECTROPHOTMETRY

- ✓ Quantitative colour data
- ✓ Munsell colour code output
- ✓ Link to core mineralogy

NEAR INFRARED SPECTROMETRY

- ✓ Identification of core mineralogy
- ✓ Lithological determination
- ✓ Quantification of core colour

GEOSCAN CAMERA

- ✓ Incredibly detailed core surface images
- ✓ UV images to identify hydrocarbons

➤ **No Inventarisasi**

3.08.01.05.999.003





➤ Spesifikasi

- Dimensi Rel : 460 x 81 x 184 cm
- Dimensi alat : 60 x 54,5 x 60,5 cm
- *p-wave velocity* : 250-500 kHz piezo-electric ceramic transducers, spring-loaded against the sample. Accurate to about 0.2 %, depending on core condition.
- *Gamma density (bulk density)*: ^{137}Cs gamma source in a lead shield with optional 2.5mm or 5mm collimators. Density resolution of better than 1% depending upon count time.
- *Magnetic susceptibility*: Bartington loop sensor 60-150mm diameter, or point sensor (on split cores) giving 5% calibration accuracy over two ranges; 1×10^{-6} & 10×10^{-6} cgs.
- *Non-contact resistivity*: Non-contact resistivity measurements using a unique double paired coil induction method.
- *Geoscan IV linescan imaging*: Geoscan IV full colour digital linescan imaging system. Produce RGB images and profile data from your cores.
- *Colour spectrophotometry*: Konica Minolta colour spectrophotometer measuring reflectance in the near UV through the visible and just into the near IR range (wavelengths 360-740nm).
- *Natural gamma spectrometry*: Total natural gamma count or gamma spectra (K, U, Th) from two or more 2"x2" (or 3"x3") NaI(Tl) crystals (BGO crystals are available on request).
- *X-ray fluorescence spectrometry*: Olympus Delta handheld X-ray fluorescence (XRF) spectrometer which provides elemental analyses.
- *Near-infrared & visible spectrophotometry*: Near-infrared spectroscopy (= core mineralogy)
- using the ASDI LabSpec (the integratable equivalent of the TerraSpec) at wavelengths of 350-2500nm.





MIKROSKOP



➤ **Merek Alat** : AmScope

➤ **Kelengkapan**

1. One Siedentopf Binocular Microscope Head
2. One Microscope Body Frame with Double Layer Mechanical Stage and LED Illumination
3. Four DIN Standard Objectives, 4X, 10X, 40X and 100X
4. One Pair of Widefield 10X Eyepieces
5. One Pair of Widefield 20X Eyepieces
6. One Blue Color Filter
7. One Dust Cover
8. Sample Immersion Oil
9. User's Microscope Manual
10. One 2MP USB2.0 Digital Camera
11. One 6' (1.8m) USB Cable
12. One CD with Software, Driver and User's Instructions

➤ **Fungsi**

Melihat dan mengamati benda-benda yang berukuran sangat kecil (mikroskopis) yang tidak mampu dilihat secara kasat mata

➤ **No Inventarisasi**

3.08.01.12.004.002.2015

3.08.01.12.004.003.2015





**PUSAT PENELITIAN DAN PENGEMBANGAN GEOLOGI KELAUTAN
BIDANG PENYELANGGARAAN DAN SARANA LITBANG**

➤ **Spesifikasi**

Eyepieces	: widefield, WF10X and WF20X
Objectives	: Achromatic DIN 4X, 10X, 40X(S), 100X(S, Oil)
Head	: 30 degree inclined 360 degree swiveling binocular
Interpupillary distance	: 2-1/8" - 3-1/8" (53mm - 77mm)
Adjustable ocular diopter	
Nosepiece	: Mechanical Stage: 3-D double layer
Size	: 4-5/8" x 5" (118mm x 127mm)
Travel Range (X-Y)	: 2-13/16" x 1-3/16" (70mm x 30mm)
Condenser	: NA1.25 Abbe condenser with iris diaphragm
Illumination	: LED light, transmitted, intensity adjustable, GS and CE approved
Focusing	: coaxial coarse & fine knobs on both sides
Power Supply	: 100-240VAC, 50/60Hz, AC/DC adapter (UL approved) Included
Dimension	: 11" x 7" x 13-3/4" (280mm x 178mm x 350mm)
Camera Specs:	
Resolution	: 1600x1200 (approx. 2,000,000 pixels)
Sensor Size	: 1/3.2" (4.73mm(H) x 3.52mm(V)
Pixel Size	: 2.8µm x 2.8µm
G Sensitivity	: 1.0v / lux-sec(550nm)
Frame Rate	: 5fps @1600x1200, 7.5fps @1280x1024 or 1280x960, 20fps @800x600, 30fps @other resolutions
Operating System	: Windows XP/Vista/7/8 (32 & 64 bit), Mac OS X, Linux
	: CPU equals to Intel Core2 2.8GHz or higher, USB2.0 port





MIKROSKOP



➤ **Merek Alat**

Nikon DS-Fi1 SMZ 1500

➤ **Kelengkapan**

- 1. Adaptor**
- 2. Lensa Okuler**
- 3. Software**
- 4. Microscope eyepiece camera**
- 5. Kabel USB**

➤ **Fungsi**

Melihat dan mengamati benda-benda yang berukuran sangat kecil (mikroskopis) yang tidak mampu dilihat secara kasat mata

➤ **No. Inventarisasi**

2.08.01.11.020.018

3.08.06.05.06.002





**PUSAT PENELITIAN DAN PENGEMBANGAN GEOLOGI KELAUTAN
BIDANG PENYELANGGARAAN DAN SARANA LITBANG**

Spesifikasi	
Optical system	Parallel-optics zoom system
Total magnification	3.75X–540X (Depending on eyepiece and objective used.) (When coaxial episcopic illuminator is attached: 5.6X–506X)
Eyepiece tubes	P-BT Standard Binocular, P-BTL Low Eye-level Binocular, P-BERG Tilting Binocular
Eyepiece inclination	20° (Standard Binocular and Low Eye-level Binocular), 0°–30° (Tilting Binocular)
Interpupillary distance adjustment	48–75mm (1.9–3.0 in.)
Eyepieces (with diopter adjustment)	C-W10XA (F.N. 22), C-W15X (F.N. 16), C-W20X (F.N. 12.5), C-W30X (F.N. 7)
Zoom range	0.75X–11.25X
Zoom ratio	15 : 1
Objectives	P-HR Plan Apo 0.5X, 1X, 1.6X; P-Plan Apo 1X
Working distance	Please refer to the table at left
Illumination systems	P-ICI2 Coaxial Episcopic Illuminator (12V-100W halogen) (Intermediate magnification is 1.5X.) G-LS 6V-10W Illuminator (with Articulated Arm) C-DSLS 6V-20W Illuminator (with Articulated Arm) C-FPS Fluorescent Ring Illuminator SM-LW61Ji LED Illuminator C-FIR Plastic Fiber-optic Ring Illuminator (12V-100W halogen) C-FID Plastic Fiber-optic Bifurcated Illuminator (12V-100W halogen)
Stands	C-PS160 Plain Stand C-DSS Diascopic Stand C-BD Diascopic Bright/Darkfield Stand C-DSDF Fiber-optic Diascopic Stand P-THS Teaching Head Stand
Photomicrographic/CCTV system	Nikon Photomicrographic System FX-III Series or CCTV camera can be attached through Beam Splitter and Adapter. Photo-tube beam-split ratio: please refer to the table on page 15.
Power consumption	Diascopic stands: 80W C-FPS115 Fluorescent Ring Illuminator: 24W C-FPS230 Fluorescent Ring Illuminator: 16W Fiber Transformer: 135W



MIKROSKOP



➤ **Merek Alat**

OLYMPUS SZX9

➤ **Kelengkapan**

1. Adaptor
2. Lensa Okuler
3. Software
4. Microscope eyepiece camera
5. Kabel USB

➤ **Fungsi**

Melihat dan mengamati benda-benda yang berukuran sangat kecil (mikroskopis) yang tidak mampu dilihat secara kasat mata

➤ **No. Inventarisasi**

2.08.01.11.020.014

➤ **Spesifikasi**



MIKROSKOP



➤ **Merek Alat**

Nikon Eclipse E200

➤ **Kelengkapan**

1. Adaptor
2. Lensa Okuler
3. Software
4. Microscope eyepiece camera
5. Kabel USB

➤ **Fungsi**

Melihat dan mengamati benda-benda yang berukuran sangat kecil (mikroskopis) yang tidak mampu dilihat secara kasat mata

➤ **No. Inventarisasi**

3.08.01.11.118.001

3.08.01.11.020.017

3.08.01.11.020.018



**PUSAT PENELITIAN DAN PENGEMBANGAN GEOLOGI KELAUTAN
BIDANG PENYELANGGARAAN DAN SARANA LITBANG**

Spesifikasi

Dimensi dan Berat : 227 x 382 x 415 mm, 10 Kg

Optical System : CF infinity corrected optical system
Second objective focal length $f = 200$ mm
Built-in diascopic illumination system (Simplified Kohler's
Illumination System)

Focusing Mechanism :

Fine focus knob graduation : 2 μm /graduation
Fine focus cnob travel : 0,2 mm up or down/revolution
Coarse focus knob travel : about 37,7 mm up or down/revolution
Stage vertical movable range : 1,5 mm upward and 25 mm downward
from the focal plane

Stage : **Stroke : X axis 77 mm; Y axis 53 mm**

Revolving Nosepiece : 4-hole fixed type

Electrical spesifications

- Lamp rating : halogen lamp 6V-20 W(Philips 7388 or Osram HLX 64250) or halogen lamp 6V-30W (Philips 5761)
- Average lamp lifetime : halogen lamp 6V-20W : 100 hrs
Halogen lamp 6V-30W : 100 hrs
- Output Rating : 6V 5A max
- Input Rating :

Model for 100, 110 and 129 V areas

- Input voltage : select from 100 V, 110 V, or 120 V AC by relocating the fuse holder in the AC inlet
- Frequency : 50/60 Hz
- Voltage fluctuation : $\pm 10\%$
- Rated current : 0,8 A max.
- Fuse rating : 250 V, 1 A, time-lag-low-breaking type, 5x20 miniature fuse x2
- Power cord : use only the following power supply cord. Using the wrong power cord could result in danger or fire. The protection class I equipment should be connected to PE (protective earth) terminal.



**PUSAT PENELITIAN DAN PENGEMBANGAN GEOLOGI KELAUTAN
BIDANG PENYELANGGARAAN DAN SARANA LITBANG**

UL listed detachable power cord set 3-conductor grounding type SVT, No 18 AWG, 3 m long maximum, rated at 125 V AC minimum.

Model for 220, 230 and 240 V areas

- Input voltage : select from 220 V, 230 V, or 240 V AC by relocating the fuse holder in the AC inlet
- Frequency : 50/60 Hz; **Voltage fluctuation : ± 10 %**
- Rated current : 0,4 A max.
- Fuse rating : 250 V, 1 A, time-lag-low-breaking type, 5x20 miniature fuse x2
- Power cord : use only the following power supply cord. Using the wrong power cord could result in danger or fire. The protection class I equipment should be connected to PE (protective earth) terminal.
Approved according to EU/EN standard, 3 conductor grounding type H05VV-F, 3 m long maximum, rated at 250 V AC minimum
- Protection Class : Class I

Operating Environment

- Room Temperature : 0° to 40°C
- Relative Humidity : 85 % Max. No condensation should form
- Altitude : 2000 m Max.
- Pollution : Degree 2
- Installation Category (Overvoltge Category 2)
- For indoor use only

Storage and Transport Environmental Conditions

- Temperature : -20° to + 60°C
- Humidity : max. 90% RH (non-condensing)

Conforming Standards

- The model for 100,110 and 120 V areas is a UL-listed product
- The model for 220,230 and 240 V areas satisfies the EU IVD Directive (In vitro diagnostic medical device directive)
(GM approved product : in vitro diagnostic medical device)
- The model for 220, 230 and 240 V areas satisfies the EU LV Directive (Low Voltage Directive)
- The model for 220, 230 and 240 V areas satisfies the EU EMC Directive



**PUSAT PENELITIAN DAN PENGEMBANGAN GEOLOGI KELAUTAN
BIDANG PENYELANGGARAAN DAN SARANA LITBANG**



**PUSAT PENELITIAN DAN PENGEMBANGAN GEOLOGI KELAUTAN
BIDANG PENYELANGGARAAN DAN SARANA LITBANG**

MIKROSKOP



- **Merek Alat**
Nikon Eclipse Ci Pol
- **Kelengkapan**
 1. Adaptor
 2. Lensa Okuler
 3. Software
 4. Microscope eyepiece camera
 5. Kabel USB
- **Fungsi**

Melihat dan mengamati benda-benda yang berukuran sangat kecil (mikroskopis) yang tidak mampu dilihat secara kasat mata
- **No. Inventarisasi**

3.08.01.02.082.001
3.08.01.02.082.002
3.08.01.02.082.003

Spesifikasi

Main Body	Optical system	CFI60 infinity
	Illumination	6V-30W halogen lamp; 6V-30W transformer built-in; ND8, ND4 filters built-in
	Focusing	Coaxial coarse/fine focus knob; Focus stroke: 30mm; Coarse: 9.33mm per rotation; Fine: 0.1mm; Minimum reading: in 1µm increments
	Eyepiece	10x (F.O.V. 22mm)
	Eyepiece tube	P-TT3 Trinocular Tube for polarizing microscopy; P-TB2 Binocular Tube for polarizing microscopy
	Intermediate tube	Built-in focusable Bertrand lens removable from optical path; Conoscopic/Orthoscopic



**PUSAT PENELITIAN DAN PENGEMBANGAN GEOLOGI KELAUTAN
BIDANG PENYELANGGARAAN DAN SARANA LITBANG**

	observations switchable; Analyzer built-in; Accessory plate/compensator slot
Analyzer	360° rotary dial; Minimum reading angle 0.1°
Nosepiece	Centering quintuple nosepiece (detachable); DIN slot
Stage	Ball bearing rotary stage; Rotatable 360° horizontally; can be fixed at a specific position; Graduated 360° (in 1° increments); Rotation clamp equipped; Attachable mechanical stage; 35 x 25 mm travel; vernier 0.1mm
Condenser	Dedicated strain-free swing-out type; P Achromat NA 0.9
Polarizer	No scale markings
Objectives (Polarizing sets)	CFI P Achromat 4x, 10x, 20x, 40x, 100x CFI TU Plan Fluor Epi P 5x, 10x, 20x, 50x, 100x
Episcopic illuminator	LV-UEPI-N Universal Epi-illuminator (The Ci-POL requires an external power supply)
Compensators	P-CL Standard $1/4\lambda$ & tint plate, quartz wedge or Senarmont compensator can be inserted into intermediate tube slot
Power consumption	0.8A/38W
Weight	Approx. 14kg (standard binocular set)



**PUSAT PENELITIAN DAN PENGEMBANGAN GEOLOGI KELAUTAN
BIDANG PENYELANGGARAAN DAN SARANA LITBANG**

MIKROSKOP

➤ **Merek Alat**

Nikon SMZ-U

➤ **Kelengkapan**

1. Adaptor
2. Lensa Okuler
3. Software
4. Microscope eyepiece camera
5. Kabel USB

➤ **Fungsi**

Melihat dan mengamati benda-benda yang berukuran sangat kecil (mikroskopis) yang tidak mampu dilihat secara kasat mata

➤ **No. Inventarisasi**

2.08.01.11.020.011



Spesifikasi

Zoom produced ratio : 10:1

Covering a range : 0.75x to 7.5x

Magnification range : 0.5x to 2x



**PUSAT PENELITIAN DAN PENGEMBANGAN GEOLOGI KELAUTAN
BIDANG PENYELANGGARAAN DAN SARANA LITBANG**

MIKROSKOP



➤ **Merek Alat**

Wild Heerbrugg

➤ **Kelengkapan**

1. Adaptor
2. Lensa Okuler
3. Software
4. Microscope eyepiece camera
5. Kabel USB

➤ **Fungsi**

Melihat dan mengamati benda-benda yang berukuran sangat kecil (mikroskopis) yang tidak mampu dilihat secara kasat mata

➤ **No. Inventarisasi**

2.09.01.11.020.007



MIKROSKOP



- **Merek Alat**
Nikon Eclipse LV100 Pol
- **Kelengkapan**
 1. Adaptor
 2. Lensa Okuler
 3. Software
 4. Microscope eyepiece camera
 5. Kabel USB
- **Fungsi**
Melihat dan mengamati benda-benda yang berukuran sangat kecil (mikroskopis) yang tidak mampu dilihat secara kasat mata
- **No. Inventarisasi**
2.08.01.11.020.017

Spesifikasi

Optical system	CFI60 infinity
Illumination	12V-50W halogen lamp; 12V-50W DC transformer built-in; Diascopic/episcopic illumination changeover switch; Fly-eye lens; NCB11, ND8 filters built-in; 12V-100W type optional
Main Body	Coaxial coarse/fine focus knob; Focus stroke: 30mm; Coarse: 14mm per rotation; Fine: 0.1mm; Minimum reading: in 1µm increments
Focusing	10x (F.O.V. 22mm)
Eyepiece	P-TT3 Trinocular Tube for polarizing microscopy; P-TB2 Binocular Tube for polarizing microscopy
Eyepiece tube	



**PUSAT PENELITIAN DAN PENGEMBANGAN GEOLOGI KELAUTAN
BIDANG PENYELANGGARAAN DAN SARANA LITBANG**

Intermediate tube	Built-in focusable Bertrand lens removable from optical path; Conoscopic/Orthoscopic observations switchable; Analyzer built-in; Accessory plate/compensator slot
Analyzer	360° rotary dial; Minimum reading angle 0.1°
Nosepiece	Centering quintuple nosepiece (detachable); DIN slot
Stage	Top-grade dedicated circular graduated stage Rotatable 360° horizontally; can be fixed at a specific position; Graduated 360° (in 1° increments); Click stops each 45°; Attachable mechanical stage: 35 x 25 mm travel; vernier 0.1mm
Condenser	Dedicated strain-free swing-out type; P Achromat NA 0.9
Polarizer	Fixed to the bottom of the condenser holder; with scale markings
Objectives (Polarizing sets)	CFI P Achromat 4x, 10x, 20x, 40x, 100x CFI TU Plan Fluor Epi P 5x, 10x, 20x, 50x, 100x
Episcopic illuminator	LV-UEPI-N Universal Epi-illuminator (The LV100N POL accommodates a 12V-50W illuminator transformer)
Compensators	P-CL Standard $1/4\lambda$ & tint plate, quartz wedge or Senarmont compensator can be inserted into intermediate tube slot
Power consumption	1.2A/75W
Weight	Approx. 17kg (standard trinocular set)



**PUSAT PENELITIAN DAN PENGEMBANGAN GEOLOGI KELAUTAN
BIDANG PENYELANGGARAAN DAN SARANA LITBANG**

SIEVE SHAKER



- **Merek Alat**
MBT dan Glison
- **Kelengkapan**
 1. **Kabel Power**
 2. **SaringanUkuran -2 phi s/d 4 phi**
- **Fungsi**

Pemisah sampel secara mekanik berdasarkan perbedaan ukuran partikel dalam skala laboratorium.
- **No. Inventarisasi**

2.04.01.001.002
2.04.01.04.001.001
2.04.01.04.001.003
3.08.01.11.005.004
3.08.01.11.005.005
3.08.01.11.005.006
- **Spesifikasi**

Volt: 220 V ~ 50/60 Hz
Watt : 700
RPM : 500



OVEN

➤ **Merek Alat**

Memmert

➤ **Kelengkapan**

1. Adaptor
2. Kabel Power

➤ **Fungsi**

Pemanas atau Pengering Sampel dan Alat Gelas.

➤ **No. Inventarisasi**

3.08.01.11.005.002

3.08.01.11.005.003

3.08.01.11.005.004

3.08.01.11.005.005

➤ **Spesifikasi**

Temperature Range : From +30°C (however, at least 5°C above ambient) up to +220°C

UM 200

Dimensi : p x l x t : 55 cm x 40 cm x 60 cm

Berat : 29 kg

Voltage Electrical load : 115 V/230 V, 60Hz

UM 400

Dimensi : p x l x t : 55 cm x 48 cm x 68 cm

Berat : 35 kg

Voltage Electrical load : 115 V/230 V, 60Hz

UM 500

Dimensi : p x l x t : 71 cm x 55 cm x 76 cm

Berat : 50 kg

Voltage Electrical load : 115 V/230 V, 60Hz





**PUSAT PENELITIAN DAN PENGEMBANGAN GEOLOGI KELAUTAN
BIDANG PENYELANGGARAAN DAN SARANA LITBANG**

OVEN



- **Merek Alat** : Memmert UN 55
- **Kelengkapan** : Adaptor dan Kabel Power
- **Fungsi** : Pemanas atau Pengering Sampel dan Alat Gelas.

➤ No. Inventarisasi

3.08.01.11.05.06.1.1 3.08.01.11.005.007 3.08.01.11.005.008

② Spesifikasi

Set temperature range in °C : min. 5°C above ambient up to +300°C

Temperature : 1 Pt100 sensor DIN class A in 4-wire-circuit

Stainless steel interior

Volume : 53 L

Dimensions W x H x D in mm : w(A) x h(B) x d(C): 400 x 400 x 330 mm

Max. number of internals : 4

Max. loading of chamber : 80 kg

Max. loading per internal : 20 kg

Textured stainless steel casing

Dimensions : w(D) x h(E) x d(F): 585 x 784 x 514 mm

Housing : rear zinc-plated steel

Electrical data

Voltage Electrical load : 230 V, 50/60 Hz approx. 2000 W

Voltage Electrical load : 115 V, 50/60 Hz approx. 1700 W



**PUSAT PENELITIAN DAN PENGEMBANGAN GEOLOGI KELAUTAN
BIDANG PENYELANGGARAAN DAN SARANA LITBANG**

FURNACE



➤ **Merek Alat**

Carbolite CWF 1200

➤ **Kelengkapan**

Kabel Power

➤ **Fungsi**

Pemanas sampel dengan suhu tinggi sehingga merubah sampel menjadi abu

➤ **No. Inventarisasi**

2.08.01.08.019.001

➤ **Spesifikasi**

Carbolite CWF 1200 :
suhumaksimum : 1200 °C
Daya : 3100 Watt
Volt : 220-240 V
Dimensi : 61x43x64 cm

➤ **Merek Alat**

Vulcan A-550

➤ **Kelengkapan**

Kabel Power

➤ **Fungsi**

Pemanas sampel dengan suhu tinggi sehingga merubah sampel menjadi abu

➤ **No. Inventarisasi**

3.08.01.11.0591.002

➤ **Spesifikasi**

Vulcan a-550 :
suhumaksimum : 1100 °C
Daya : 2400 Watt
Volt : 220-240 V
Dimensi : 38,5x39,5x40,5 cm



**PUSAT PENELITIAN DAN PENGEMBANGAN GEOLOGI KELAUTAN
BIDANG PENYELANGGARAAN DAN SARANA LITBANG**

NERACA ANALITIK



- **Merek Alat**
Sartorius Analytic
- **Kelengkapan**
Kabel Power
- **Fungsi**
Menimbang zat yang butuh ketelitian tinggi dan dalam skala kecil/mikro (biasanya hingga 4 desimal/0,0001 g)
- **No. Inventarisasi**
3.08.01.06.076.001
- **Spesifikasi**
Panjang : 28 cm
Lebar : 21 cm

- **Merek Alat**
Mettler Toledo AB 204
- **Kelengkapan**
Kabel Power
- **Fungsi**
Menimbang zat yang butuh ketelitian tinggi dan dalam skala kecil/mikro (biasanya hingga 4 desimal/0,0001 g)
- **No. Inventarisasi**
3.08.01.06.076.005
- **Spesifikasi**
Panjang : 26,5 cm **Kapasitas maksimum : 210 gram**
Lebar : 18,5 cm **Keterbacaan : 0,0001 gram**
Tinggi : 32,8 cm **Keterulangan : 0,0001 gram**
Linieritas : ± 0,0003 gram



**PUSAT PENELITIAN DAN PENGEMBANGAN GEOLOGI KELAUTAN
BIDANG PENYELANGGARAAN DAN SARANA LITBANG**

NERACA ANALITIK



- **Merek Alat**
Mettler Toledo AL 204
- **Kelengkapan**
 1. **Kabel Power**
- **Fungsi**

Menimbang zat yang butuh ketelitian tinggi dan dalam skala kecil/mikro (biasanya hingga 4 desimal/0,0001 g)

- **No. Inventarisasi**
3.08.01.06.076.006
- **Spesifikasi**

Panjang	: 29,5 cm
Lebar	: 20 cm
Tinggi	: 36 cm
Kapasitas maksimum: 210 gram	
Keterbacaan	: 0,0001 gram
Keterulangan	: 0,0001 gram
Linieritas	:± 0,0003 gram



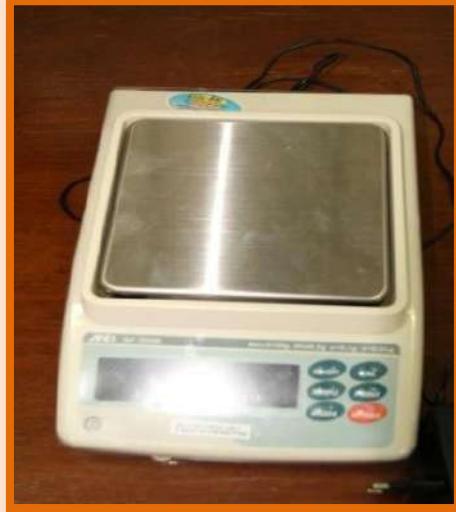
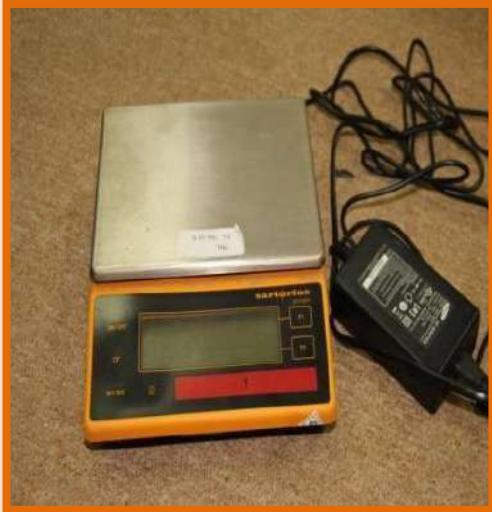
- **Merek Alat**
AND HR-200
- **Kelengkapan**
 1. **Kabel Power**
 2. **Anak timbang**
- **Fungsi**

Menimbang zat yang butuh ketelitian tinggi dan dalam skala kecil/mikro (biasanya hingga 4 desimal/0,0001 g)
- **No. Inventarisasi**
3.08.01.06.076.007
- **Spesifikasi**

Panjang	: 30 cm
Lebar	: 18,5 cm
Tinggi	: 29 cm
Kapasitas maksimum : 210 gram	
Keterbacaan : 0,0001 gram	



NERACA TEKNIS



- | | |
|---|---|
| <ul style="list-style-type: none">➤ Merek Alat
Sartorius Analytic➤ Kelengkapan
Kabel Power➤ Fungsi
Menimbang zat yang butuh ketelitian rendah (biasanya hingga 2 desimal /0,01 g)➤ No. Inventarisasi
3.08.01.06.076.004➤ Spesifikasi
Panjang : 20,5 cm
Kapasitas : 3100 gram
Minimum display : 0,01 gram | <ul style="list-style-type: none">➤ Merek Alat
AND GF-3000➤ Kelengkapan
Kabel Power➤ Fungsi
Menimbang zat yang butuh ketelitian rendah (biasanya hingga 2 desimal /0,01 g)➤ No. Inventarisasi
3.08.01.06.076.008
3.08.01.06.076.009➤ Spesifikasi
Kapasitas : 3100 gram
Minimum display : 0,01 gram
Panjang : 30,5 cm
Lebar : 21 cm
Tinggi : 8,8 cm |
|---|---|



SONICATOR BATH



➤ **Merek Alat**

Bandelin Sonorex RK 514

➤ **Kelengkapan**

Kabel Power

➤ **Fungsi**

Membersihkan bagian alat atau glassware, dan untuk melarutkan sampel

➤ **No. Inventarisasi**

2.08.01.16.12.001

➤ **Spesifikasi**

Panjang : 325

Lebar 300

Tinggi 150

Kapasitas : 13,5 Liter



LEMARI ASAM



- **Merek Alat**
- **Kelengkapan**
 1. Kabel Power
 2. Dua buah blower
 3. Lampu penerangan
- **Fungsi**
 - Tempat reaksi kimia yang menggunakan bahan-bahan yang mudah menguap dan gas yang berbahaya
 - Tempat transfer bahan bahan kimia dan biologi
- **No. Inventaris**

3.05.02.03005.002
- **Spesifikasi**

Dimensi : 270 cm x 80 cm x 200 cm
Blower 2 PK

- **Merek Alat**
- **Kelengkapan**
 1. Kabel Power
 2. Blower
 3. Lampu penerangan
 4. Tempat
 5. Kran air
- **Fungsi**
 - Tempat reaksi kimia yang menggunakan bahan-bahan yang mudah menguap dan gas yang berbahaya
 - Tempat transfer bahan bahan kimia dan biologi
- **No. Inventaris**
- **Spesifikasi**

Dimensi : 900 x 450 x 2000 mm
Material Body : Multiplex 18 mm lapis HPL
Meja Kerja : Chemsurf Laminate
Blower : Chemical Resistant Type 200+ filter



MAGNETIC SUSCEPTIBILITY METER



➤ **Merek Alat**

KM-7

➤ **Kelengkapan**

1. Processing Unit
2. Leather Case
3. Instruction Manual
4. USB Cable
5. Disk with Communication Software for Windows

➤ **Fungsi**

- ✓ Mineral exploration
- ✓ Measuring on Drill Cores
- ✓ Archeology

➤ **No. Inventaris**

3.03.03.99.999.001

3.03.03.99.999.002

➤ **Spesifikasi**

Sensitivity	1 x 10-6 SI units, 1 x 10-5 SI units in scan mode
Measuring range	±999 x 10-3 SI units with automatically switched accuracy
Operating frequency	10 kHz
Display	4 rows, backlight
Memory	999 readings without GPS data
Controls	4 switches: Escape, Enter, Up, Down
Power source	2 x AAA battery
Weight	250 g including battery
Size	165 x 68 x 28 mm
Temp range	-20°C to +60°C
Power Consumption	8 mA without backlight and Bluetooth
Interface	USB 2.0, Bluetooth



SEDIGRAPH III PARTICEL SIZE ANALYZER



	<ul style="list-style-type: none">➤ Merek Alat Micromeritics➤ Kelengkapan<ol style="list-style-type: none">1. Kabel Power2. Komputer & CPU3. Printer4. Software5. Ultrasonic Probe➤ Fungsi Mengukur➤ No. Inventaris 2.08.01.05.999.001	
--	---	--



Karakteristik	Spesifikasi
Analyzer	
Particle Diameter Range	300 to 0.1 μm Equivalent Spherical Diameter
Resolution	The sedimenting sample is scanned by a narrow x-ray beam - less than 0.2% of the total distance scanned - permitting high resolution
Wetted Materials	Stainless steel, Teflon® impregnated anodized aluminum, nickel plated aluminum, nylon, polypropylene, polystyrene, Tygon® tubing, tungsten carbide, Ertalyte®, Viton®, Kalrez®, glass, and epoxy
Sample Size	50 mL of dispersed sample; precise concentration is not required
Suspending Liquids	Any liquid compatible with sample cell materials and not highly absorptive of X-rays (typical liquids are water, glycols, mineral oils, Sedisperse®, and alcohols)
Voltage	85 to 264 VAC
Frequency	47 to 63 Hz
Power	450 VA
Temperature	Ambient +10 to 40 °C, operating; -10 to 55 °C, storing or shipping
Humidity	Up to 90% relative (non-condensing); 20 to 80% for computer and components
Physical	Height: 52 cm (20.5 in.) Width: 50.5 cm (20 in.) Depth: 58 cm (23 in.) Weight: 43 kg (95 lb)
Computer	
Minimum requirements	Windows 2000 or higher operating system with an Ethernet port

GRINDER POLISHER

✓ **Merek Alat**

Buehler Meta Serv 250

✓ **Kelengkapan**

1. Splash rings
2. Bowl covers
3. Power cord
4. Operating instructions

✓ **Fungsi**

Untuk membuat sayatan oles batuan

✓ **No. Inventaris**

3.08.01.05.019.001



Platen Size / Qty	8in [203mm], 10in [254mm], 2 Platen
Controls	Membrane
Preparation Style	Manual, Semi-Automatic
Power Heads Available	Vector LC 250*
Motor	300 Watt
Platen Speed	50-500rpm or 50-1200 rpm*
Base Power	85-264VAC, 50/60Hz, 1 phase
Water Supply Pressure	No greater than 100psi [6.8bar]
Water Supply Flow	0.5gpm [2lpm]
Dimensions (WxDxH)	31.7 x 28.9 x 10.2in [805 x 735 x 260mm] 24.5in [662mm] H with power head
Weight	119 lbs [54kg] 157 lbs [71kg] with power head
Compliance	CE and EC Applicable Directives

* Vector LC 250 Power Head not available for MetaSerz 250 Twin High Speed † 50-1200rpm for MetaServ 250 Twin High Speed Only

Vector LC 250 Power Head		Vector Power Head
Head Speed	60rpm	60rpm
Voltage/Frequency	115/230VAC, 50/60Hz, 1 phase	NA
Sample Force	Single: 0-11 lbs [0-50N]	Single: 0-15 lbs [0-75N] / Central: 4-60 lbs [20-300N]
Sample Sizes	1in, 1.25in, 1.5in, 25mm, 30mm, 40mm	
Sample Capacity	Single: 1 - 4	Single: 1-4 / Central: 3-6
Air Supply	NA	55-85psi [3.8-5.8bar]
Drive Adapter	Single: 60-9005	Single: 60-9005 / Central: 60-2499

GRIDING MILL



- ✓ **Merek Alat**
Buehler Meta Serv 250
- ✓ **Kelengkapan**
 1. Kabel Power
 2. Bowl Tungsten
- ✓ **Fungsi**
Untuk membuat sayatan oles batuan
- ✓ **No. Inventaris**
3.08.01.05.019.001

Number of Crushing Bowls	1
Gross mass of sample	1×100g
Feed Size	≤13mm
Discharge Size	≤0.2~0.071mm
Approx. Hardness of Feeding Sample	HRC50-55
Working Volume of Bowl	120-130ml
Power Supply	3 phases, AC380V±10%, 50/60Hz, 1.5Kw
Noise	≤85dB
Net Weight	170kg
Dimensions(L×W×H)	520mm×580mm×860mm

X-RAY FLOURESCENCE



- ✓ **Merek Alat**
Olympus
- ✓ **Kelengkapan**
 1. **Mini USB Cable**
 2. **Waterproof Carrying Case**
 3. **Two (2) Li-ion Batteries**
 4. **Electronic User Manual and User Interface Guide and Printed Quick Start Guide**
 5. **Docking Station**
 6. **316 Stainless Steel Calibration Check Reference Coin**
 7. **Ten (10) Spare Windows**
 8. **Integrated Wrist Strap**
 9. **DELTA PC Software**
- ✓ **Fungsi**
Menentukan unsur-unsur kimia mulai dari unsur K hingga U baik secara kualitatif dan kuantitatif
- ✓ **No. Inventaris**

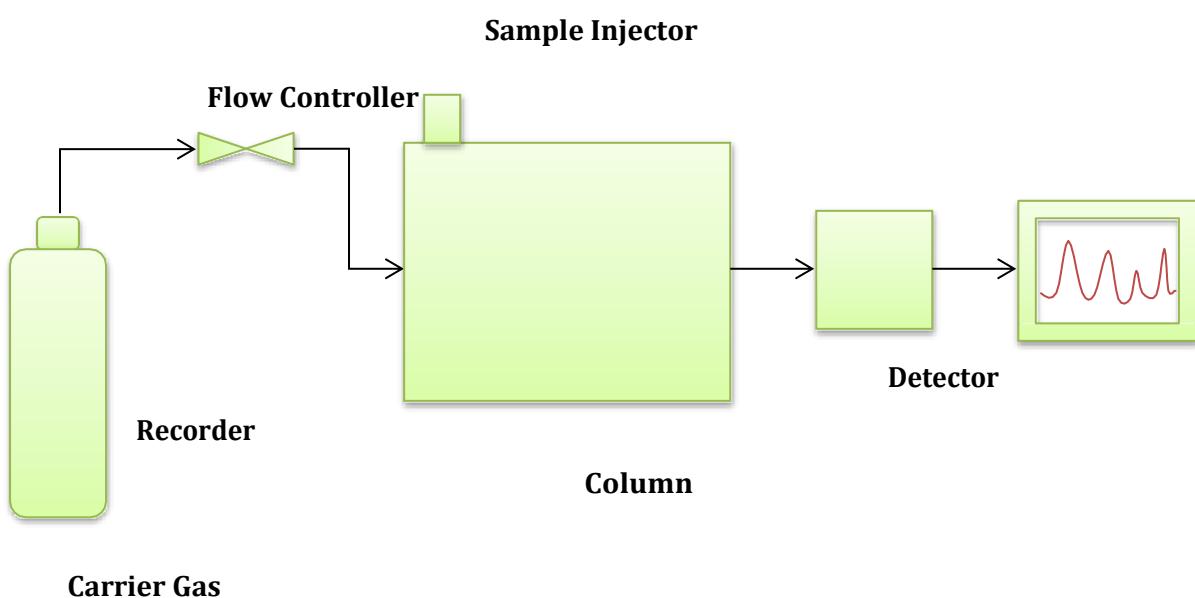
✓ Spesifikasi

Dimensions	260 x 240 x 90 mm (10.25 x 9.5 x 3.5 in.)
Excitation source	4W Ag, Rh, Au, or Ta anode (per application) X-ray tube
Detector	Silicon Drift Detector
Environmental temperature range	-10 °C to 50 °C (14 °F to 122 °F) Alloy and Mining: Mg and up for Rh/Ag and Al and up for Ta/Au; Soil: P and higher
Analytical range	
Processing electronics	530 MHz CPU with integrated FPU with 128 MB RAM; Proprietary Olympus X-act Count Digital Pulse Processor (DPP)
Smart Electronics	Accelerometer; Barometer for atmosphere pressure correction of light elements' measurements
Power	Rechargeable Li-ion battery; Hot-swap maintains analyzer power during battery change
Display	32 bit Color QVGA resolution, Blanview transmissive backlit touchscreen; 57 x 73 mm (2.25 x 2.9 in.)
Data Storage	1 GB microSD (stores ~75,000 readings)
Data Transfer	USB Bluetooth

GAS CHROMATOGRAPHY PORTABLE



Prinsip Kerja Alat :



✓ **Merek Alat**

SRI Instrument

✓ **Kelengkapan**

1. **Mini USB Cable**
2. **Syringe**

✓ **Fungsi**

Menentukan kandungan gas dalam sampel

✓ **No. Inventaris**

3.08.01.46.011.002

✓ **Spesifikasi**

- **Mount up to six detectors and five injectors**
- **Ambient to 400°C temperature programmable column oven**
- **Dimensions: 19" wide x 13.5" high x 14.5" deep**
- **Implement virtually any EPA or ASTM method**