

Contents of the shipping box



Vangskroken 2
N-1351 RUD
Norway
Teli: +47 6717 4500
Fax: +47 6713 6770
Inquiry@nortek-as.com
www.nortek.no

Nortek order no:

42965-1-110

Type of system:

SIGNATURE 100

Instrument type:

- | | | | | |
|--------------------------------------------|-----------------------------------------|--------------------------------------------|--------------------------------------------------|----------------------------------------|
| <input type="checkbox"/> Aquadopp | <input type="checkbox"/> Aquadopp 6000m | <input type="checkbox"/> Vector | <input type="checkbox"/> Signature55 | <input type="checkbox"/> Signature500 |
| <input type="checkbox"/> Aquadopp profiler | <input type="checkbox"/> AWAC | <input type="checkbox"/> Vectrino | <input checked="" type="checkbox"/> Signature100 | <input type="checkbox"/> Signature1000 |
| <input type="checkbox"/> Aquadopp 3000m | <input type="checkbox"/> VM AWAC | <input type="checkbox"/> Vectrino profiler | <input type="checkbox"/> Signature250 | <input type="checkbox"/> NortekDVL |

Software version:

SIGNATURE
DEPLOYMENT

Firmware version:

1.4.5277.2277_4/169

Other:

Cable:

- ☒ 10m length
- ☐ Other:

Connector:

- ☐ 8-pin Inline
- ☐ 12-pin UW
- ☒ 6-pin Inline
- ☐ 7-pin Souriau
- ☐ Other:

Communication:

- ☐ RS232
- ☒ Ethernet
- ☐ RS422
- ☐ Other:

Options:

- ☐ Analog input
- ☐ Synch
- ☐ Analog output
- ☐ Other:

Battery cannister:

- ☐ Paradopp battery cannister
- ☐ Single battery aluminium cannister
- ☐ Double battery aluminium cannister

Battery cables:

- ☐ 2pin Inline-2pin
- ☐ 8pin Inline-2pin
- ☐ 8pin rectangular-2pin

Accessories:

- ☒ Toolkit
- ☒ Quick guide
- ☒ Final test checklist
- ☐ Seeding material
- ☐ USB to serial converter RS232
- ☐ Altronix AL310 USB driver
- ☐ Recorder kit/ProLog
- ☐ Battery harness for 2 batteries

Batteries:

- | | | |
|-----------------------------------------|---------------------|--------------------------|
| <input type="checkbox"/> Alkaline 50Wh | 13.5V | <input type="checkbox"/> |
| <input type="checkbox"/> Alkaline 100Wh | 13.5V | <input type="checkbox"/> |
| <input type="checkbox"/> Alkaline 540Wh | 13.5V | <input type="checkbox"/> |
| <input type="checkbox"/> Alkaline 540Wh | 18V | <input type="checkbox"/> |
| <input type="checkbox"/> Alkaline 90Wh | 15V (Signature1000) | <input type="checkbox"/> |
| <input type="checkbox"/> Alkaline 180Wh | 18V (Signature500) | <input type="checkbox"/> |

Extra set:

AC/DC Power supply

- ☐ 15V standard
- ☐ 48V Signature55 Online
- ☐ 24V Vectrino
- Plug
- ☒ 24V DC/DC & Signature
- ☐ EU
- ☐ UK
- ☒ US

Other:

Date:

13.09.2019.

Responsible:

Ronny Johansen

Final test checklist AD2CP



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Order number: 42965-1-110	Name: Signature 100
	Instrument serial number: 109601
Frequency: 100KHz	Main board: AD2CP-1720
Firmware versions: 1.4.5217.2211-4/169	

Label checked <input checked="" type="checkbox"/> OK	Comments:
Dock test <input checked="" type="checkbox"/> OK	
Baudrate 115200 <input checked="" type="checkbox"/> OK	

Tilt check <input checked="" type="checkbox"/> Pitch up <input checked="" type="checkbox"/> Roll up <input checked="" type="checkbox"/> Status bit <input checked="" type="checkbox"/> Pitch down <input checked="" type="checkbox"/> Roll down pitch & roll within +/- 0.2 °	Clock <input type="checkbox"/> Set clock	Pressure Psensortemp <input checked="" type="checkbox"/> OK tolerance: +/- 0.1 % of 500 m	Temperature <input checked="" type="checkbox"/> OK tolerance: +/- 0.1 °
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Beam check <table border="1"> <thead> <tr> <th>Correct order</th> <th>Beam Imp</th> <th>Noise floor</th> <th>Amplitude in tank</th> <th>Range</th> </tr> </thead> <tbody> <tr> <td>Beam 1 <input checked="" type="checkbox"/> OK</td> <td>76 Ω</td> <td>25 dB</td> <td>>80 dB</td> <td><input checked="" type="checkbox"/> OK</td> </tr> <tr> <td>Beam 2 <input checked="" type="checkbox"/> OK</td> <td>77 Ω</td> <td>25 dB</td> <td>>80 dB</td> <td><input checked="" type="checkbox"/> OK</td> </tr> <tr> <td>Beam 3 <input checked="" type="checkbox"/> OK</td> <td>79 Ω</td> <td>25 dB</td> <td>>80 dB</td> <td><input checked="" type="checkbox"/> OK</td> </tr> <tr> <td>Beam 4 <input checked="" type="checkbox"/> OK</td> <td>77 Ω</td> <td>25 dB</td> <td>>80 dB</td> <td><input checked="" type="checkbox"/> OK</td> </tr> <tr> <td>Beam 5 <input checked="" type="checkbox"/> OK</td> <td>583 Ω</td> <td>25 dB</td> <td>>80 dB</td> <td><input checked="" type="checkbox"/> OK</td> </tr> </tbody> </table>	Correct order	Beam Imp	Noise floor	Amplitude in tank	Range	Beam 1 <input checked="" type="checkbox"/> OK	76 Ω	25 dB	>80 dB	<input checked="" type="checkbox"/> OK	Beam 2 <input checked="" type="checkbox"/> OK	77 Ω	25 dB	>80 dB	<input checked="" type="checkbox"/> OK	Beam 3 <input checked="" type="checkbox"/> OK	79 Ω	25 dB	>80 dB	<input checked="" type="checkbox"/> OK	Beam 4 <input checked="" type="checkbox"/> OK	77 Ω	25 dB	>80 dB	<input checked="" type="checkbox"/> OK	Beam 5 <input checked="" type="checkbox"/> OK	583 Ω	25 dB	>80 dB	<input checked="" type="checkbox"/> OK	Velocity direction <i>To heavy to verify.</i> XYZ coordinate system X <input checked="" type="checkbox"/> OK <i>Matrix correct.</i> Y <input checked="" type="checkbox"/> OK Z <input checked="" type="checkbox"/> OK Z ₂ <input checked="" type="checkbox"/> OK ENU coordinate system E <input checked="" type="checkbox"/> OK N <input checked="" type="checkbox"/> OK U <input checked="" type="checkbox"/> OK U ₂ <input checked="" type="checkbox"/> OK
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Beam 5 <input checked="" type="checkbox"/> OK	583 Ω	25 dB	>80 dB	<input checked="" type="checkbox"/> OK																											

Head file <input checked="" type="checkbox"/> Headfile checked <input checked="" type="checkbox"/> Saved as read only	Serial communication <input checked="" type="checkbox"/> RS422 <input checked="" type="checkbox"/> RS232	Recorder erased <input checked="" type="checkbox"/> OK Rec size: 128GB
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Ethernet MAC address: 8C:68:78:00:06:B8 Static IP address: Set host name: 101601	DHCP enabled <input checked="" type="checkbox"/> FTP OK <input checked="" type="checkbox"/>
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Licenses Averaging mode <input checked="" type="checkbox"/> Burst Five beams <input type="checkbox"/> Bottom track <input type="checkbox"/> High Resolution <input type="checkbox"/>	Wave mode <input type="checkbox"/> Echo Sounder <input checked="" type="checkbox"/> Ice Measurement <input type="checkbox"/> Altimeter <input type="checkbox"/>	Vertical velocity <input type="checkbox"/> Dual frequency low <input type="checkbox"/> Dual frequency high <input type="checkbox"/> 16GB recorder <input type="checkbox"/>	64GB recorder <input type="checkbox"/> 128GB recorder <input checked="" type="checkbox"/> 256GB recorder <input type="checkbox"/>	Calibration license erased <input checked="" type="checkbox"/> Production license erased <input checked="" type="checkbox"/> Default configuration set <input checked="" type="checkbox"/>
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Cable/Harness Communication <input checked="" type="checkbox"/> Cable Battery <input checked="" type="checkbox"/>	Electrical isolation test 50V OK <input checked="" type="checkbox"/>	External sensors Communication <input checked="" type="checkbox"/> Harness Battery <input checked="" type="checkbox"/>
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Power down <input checked="" type="checkbox"/> OK	Date Day 13 Month 09 Year 19 Signature <i>[Signature]</i>
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Certificate of Calibrations and Tests

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Instrument Information

Customer Reference No.	42965-1-110
Instrument Type	Signature100
Instrument Frequency	100 kHz
Instrument S/N	101601
Head S/N	D-1601
Interface Board S/N	1720
Interface Board Mfr. S/N	4M00618740008
Digital Board Mfr. S/N	4M00619160022
Echo Sounder Board Mfr. S/N	4M00614620018
Analog Board Mfr. S/N	4M00614370019
Sensor Board Mfr. S/N	4M00555370071
Interface Board Rev.	H-1(High-Power)
Digital Board Rev.	I-3
Echo Sounder Board Rev.	B-1(High-Power Echo)
Analog Board Rev.	B-0(High-Power 100 kHz)
Sensor Board Rev.	I-0

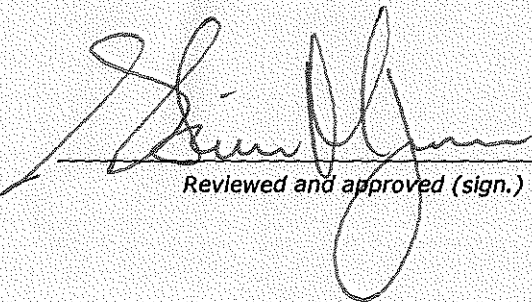
Calibrations and tests performed

Pressure	Passed
Tilt and Compass	Passed

All the tested values are within Nortek AS specifications

September 13, 2019

Date



Reviewed and approved (sign.)



Pressure Report

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Details

Instrument Type	Signature100
Instrument S/N	101601
Pressure Range	500 dBar
Date	September 9, 2019
Operator	Faramarz Torkzad
Location	Nortek Factory Norway
Result	Passed

Description

Verification is performed in an automated pressure chamber. Fixed-point measurements are collected to verify the sensor.

Criteria of acceptance is $\pm 0.1\%$ of full scale.

Reference: Paroscientific, Inc. - Digiquartz 9000-1K-242. Accuracy 0.01% of 689dBar.

Verification Results

Reference (dBar)	Pressure Diff. (dBar)	Pressure Diff. (% of FS)
2.40	0.40	0.08
50.92	0.32	0.06
101.13	0.24	0.05
150.74	0.17	0.03
200.81	0.08	0.02
250.10	-0.01	0.00
300.81	-0.08	-0.02
350.91	-0.17	-0.03
400.69	-0.24	-0.05
448.94	-0.32	-0.06
500.86	-0.40	-0.08



Tilt and Compass Report

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Details

Instrument Type	Signature100
Instrument S/N	101601
Date	September 6, 2019
Operator	Espen Grønlie
Location	Nortek Factory Norway
Result	Passed

Description

Calibration and verification is performed in a two axis automated jig. Continuous and fixed-point measurements are collected to calibrate and verify the sensor.

Criteria of acceptance for tilt sensor is $\pm 0.2^\circ$.

Criteria of acceptance for compass sensor is $\pm 2^\circ$.

Reference: Digital Protractor Series 950 Pro 3600. Accuracy $\pm 0.05^\circ$.

Tilt Verification Results

Reference (°)	Diff. Up		Diff. Down	
	Pitch (°)	Roll (°)	Pitch (°)	Roll (°)
-30.00	0.08	-0.05	0.07	0.00
-15.00	0.13	0.01	0.13	0.08
0.00	-0.08	0.01	0.01	0.07
15.00	0.00	-0.07	-0.01	-0.02
30.00	0.12	0.00	0.12	0.05

Compass Verification Results

Reference (°)	Heading Diff. Up (°)	Heading Diff. Down (°)
0.00	-0.53	-0.03
45.00	-0.22	-0.09
90.00	-0.01	-0.52
135.00	-0.45	-0.75
180.00	-0.50	-0.82
225.00	-0.81	-0.42
270.00	-1.30	-0.14
315.00	-0.94	-0.30