

## Contents of the shipping box



Nortek order no:

40112-1-1-80

Type of system:

SIGNATURE 100

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

### Instrument type:

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

Software version:

SIGNATURE  
DEPLOYMENT

Firmware version:

74.4616.2206\_7/164

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

- Warranty card

- Final test checklist

- Seeding material

- USB to serial converter RS232

- Altronix AL310 USB driver

- Recorder kit/ProLog

- Battery harness for 2 batteries

### Batteries:

- Alkaline 50Wh 13.5V

- Alkaline 100Wh 13.5V

- Alkaline 540Wh 13.5V

- Alkaline 540Wh 18V

- Alkaline 90Wh 15V (Signature1000)

- Alkaline 180Wh 18V (Signature500)

### Extra set:

- 

- 

- 

- 

- 

- 

### AC/DC Power supply

- 15V standard

- 48V Signature55 Online

- 24V Vectrino

- 24V DC/DC & Signature

- EU

- UK

- US

Other: MIDAS SOFTWARE

Date:

23.03.2018.

Responsible:

Jonny Johnsen



# Final test checklist AD2CP

Order number:  
40112-1-1-80  
(RMA 5174)

Name: *Signature 100*  
Instrument serial number: *100767*  
Frequency: *100KHz* Main board: *AD2CP\_726*  
Firmware versions: *1.4.4616.2206.7/164*



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

Tilt check	Clock	Pressure	Temperature
<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 °	<input checked="" type="checkbox"/> Set clock	 Psensortemp <input checked="" type="checkbox"/> OK tolerance: +/- 0.1 % of <i>1500</i> m	<input checked="" type="checkbox"/> OK tolerance: +/- 0.1 °
	<input checked="" type="checkbox"/> Up <input checked="" type="checkbox"/> Down		

Beam check	Velocity direction																														
<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><i>77</i> Ω</td> <td><i>27</i> dB</td> <td><i>&gt; 80</i> dB</td> <td><input checked="" type="checkbox"/> OK</td> </tr> <tr> <td>Beam 2 <input checked="" type="checkbox"/> OK</td> <td><i>76</i> Ω</td> <td><i>27</i> dB</td> <td><i>&gt; 80</i> dB</td> <td><input checked="" type="checkbox"/> OK</td> </tr> <tr> <td>Beam 3 <input checked="" type="checkbox"/> OK</td> <td><i>77</i> Ω</td> <td><i>27</i> dB</td> <td><i>&gt; 80</i> dB</td> <td><input checked="" type="checkbox"/> OK</td> </tr> <tr> <td>Beam 4 <input checked="" type="checkbox"/> OK</td> <td><i>77</i> Ω</td> <td><i>27</i> dB</td> <td><i>&gt; 80</i> dB</td> <td><input checked="" type="checkbox"/> OK</td> </tr> <tr> <td>Beam 5 <input checked="" type="checkbox"/> OK</td> <td><i>593</i> Ω</td> <td><i>27</i> dB</td> <td><i>&gt; 80</i> 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	<i>77</i> Ω	<i>27</i> dB	<i>&gt; 80</i> dB	<input checked="" type="checkbox"/> OK	Beam 2 <input checked="" type="checkbox"/> OK	<i>76</i> Ω	<i>27</i> dB	<i>&gt; 80</i> dB	<input checked="" type="checkbox"/> OK	Beam 3 <input checked="" type="checkbox"/> OK	<i>77</i> Ω	<i>27</i> dB	<i>&gt; 80</i> dB	<input checked="" type="checkbox"/> OK	Beam 4 <input checked="" type="checkbox"/> OK	<i>77</i> Ω	<i>27</i> dB	<i>&gt; 80</i> dB	<input checked="" type="checkbox"/> OK	Beam 5 <input checked="" type="checkbox"/> OK	<i>593</i> Ω	<i>27</i> dB	<i>&gt; 80</i> dB	<input checked="" type="checkbox"/> OK	To heavy to Verify. Matrix correct.
Correct order	Beam Imp	Noise floor	Amplitude in tank	Range																											
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	XYZ coordinate system      ENU coordinate system X <input type="checkbox"/> OK      E <input type="checkbox"/> OK Y <input type="checkbox"/> OK      N <input type="checkbox"/> OK Z <input type="checkbox"/> OK      U <input type="checkbox"/> OK Z <sub>2</sub> <input type="checkbox"/> OK      U <sub>2</sub> <input type="checkbox"/> OK																														

Head file	Serial communication	Recorder erased
<input checked="" type="checkbox"/> Headfile checked <input checked="" type="checkbox"/> Saved as read only	RS422 RS232	<input checked="" type="checkbox"/> OK Rec size: <i>128GB</i>

Ethernet	DHCP enabled <input checked="" type="checkbox"/>
MAC address: <i>8C:68:78:00:02:D6</i>	FTP OK <input checked="" type="checkbox"/>
Static IP address:	
Set host name: <i>100767</i>	

Licenses				
Averaging mode <input checked="" type="checkbox"/>	Wave mode <input type="checkbox"/>	Dual frequency high <input type="checkbox"/>	256GB recorder <input type="checkbox"/>	Calibration license erased <input checked="" type="checkbox"/>
Burst Five beams <input type="checkbox"/>	Echo Sounder <input checked="" type="checkbox"/>	16GB recorder <input type="checkbox"/>		Production license erased <input checked="" type="checkbox"/>
Bottom track <input type="checkbox"/>	Ice Measurement <input type="checkbox"/>	64GB recorder <input type="checkbox"/>		Default configuration set <input checked="" type="checkbox"/>
High Resolution <input type="checkbox"/>	Dual frequency low <input type="checkbox"/>	128GB recorder <input checked="" type="checkbox"/>		

Cable/Harness	External sensors
Communication <input checked="" type="checkbox"/> Battery <input checked="" type="checkbox"/>	
Communication <input checked="" type="checkbox"/> Battery <input checked="" type="checkbox"/>	

Power down	Date
<input checked="" type="checkbox"/> OK	Day <i>23</i> Month <i>03</i> Year <i>18</i>

*J. J. J. J. J.*  
Signature





# Certificate of Calibrations and Tests

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## Instrument Information

<b>Customer Reference No.</b>	40112-1-1-80
<b>Instrument Type</b>	Signature100
<b>Instrument Frequency</b>	100 kHz
<b>Instrument S/N</b>	100767
<b>Head S/N</b>	D-0767
<b>Interface Board S/N</b>	726
<b>Interface Board Mfr. S/N</b>	4MO0283710019
<b>Digital Board Mfr. S/N</b>	4MO0356150024
<b>Analog Board Mfr. S/N</b>	4MO036890013
<b>Analog Board #2 Mfr. S/N</b>	4MO0317350004
<b>Sensor Board Mfr. S/N</b>	4MO0319780047
<b>Interface Board Rev.</b>	G-1(High-Power)
<b>Digital Board Rev.</b>	I-3
<b>Analog Board Rev.</b>	A-1(High-Power Echo)
<b>Analog Board #2 Rev.</b>	
<b>Sensor Board Rev.</b>	I-0

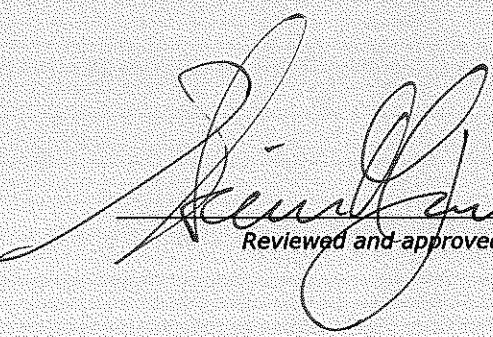
## Calibrations and tests performed

<b>Tilt and Compass</b>	Passed
<b>Pressure</b>	Passed

All the tested values are within Nortek AS specifications

March 22, 2018

Date

  
Reviewed and approved (sign.)





# Tilt and Compass Report

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## Details

Instrument Type	Signature100
Instrument S/N	100767
Date	March 20, 2018
Operator	Asle Martinsen
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 ( $^\circ$ )	Diff. Up		Diff. Down	
	Pitch ( $^\circ$ )	Roll ( $^\circ$ )	Pitch ( $^\circ$ )	Roll ( $^\circ$ )
-30.00	-0.12	-0.04	-0.12	-0.07
-15.00	-0.06	0.05	0.04	0.10
0.00	0.11	0.02	0.12	-0.01
15.00	-0.13	-0.06	-0.13	-0.01
30.00	-0.08	0.00	-0.01	0.05

## Compass Verification Results

Reference ( $^\circ$ )	Heading Diff. Up ( $^\circ$ )	Heading Diff. Down ( $^\circ$ )
0.00	1.02	0.34
45.00	0.90	0.19
90.00	0.75	-0.32
135.00	0.41	-0.10
180.00	0.38	0.12
225.00	0.15	0.41
270.00	0.48	0.91
315.00	0.99	0.84





# Pressure Report

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## Details

Instrument Type	Signature100
Instrument S/N	100767
Pressure Range	1500 dBar
Date	March 14, 2018
Operator	Asle Martinsen
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: Telemark Technologies - Vessel Pressure Sensor Inlet.

## Verification Results

Reference (dBar)	Pressure Diff. (dBar)	Pressure Diff. (% of FS)
34.51	-0.09	-0.01
309.29	0.26	0.02
608.46	0.21	0.01
910.96	-0.06	0.00
1210.29	-0.13	-0.01
1515.14	-0.19	-0.01

