

VM Coastal

(1000|500|250 kHz)



The Signature VM package delivers vessel-mounted ADCP capabilities based on present-day technology. The VM Coastal safeguards data quality, opens up new and unprecedented opportunities to the scientific community, and offers operational convenience and reduced complexity.

The VM Coastal package includes the Signature1000, 500 or 250, allowing for great versatility in both the vessel-mounted and bottom-mounted configurations. By using a state-of-the-art and user-friendly vessel-mounted package, measurement errors and initial installation time can be greatly reduced.

Specifications

Product	VM Coastal (1000 500 250 kHz)
Country of origin	Norway
Manufacturer	Nortek

Water velocity measurements for Signature VM 250 KHZ

Profiling range	200 m
Cell size	1–8 m
Max no. cells	256
Min. blanking	0.5 m
Minimum accuracy	1% of the measured value \pm 0.5 cm/s
Velocity resolution	0.1 cm/s
Maximum sampling rate	2 Hz
No. of beams	4 slanted at 20 degrees

Bottom velocity measurements for Signature VM 250 KHZ

Minimum altitude	5 m
Maximum altitude	205 m
Velocity resolution	0.01 mm/s
Maximum sampling rate	1 Hz

Echo intensity Signature VM 250 kHz

Sampling	Same as velocity for slanted beams
Resolution	0.5 dB
Dynamic range	70 dB slanted beams
No. of beams	4 slanted at 20 degrees
Beam width	2.3°

Echosounder option for Signature VM 250 kHz

No. of beams	1 vertical
Maximum sampling rate	1 Hz
Max. range	70 m
Resolution	6 mm - 0.5 m
Number of bins	11,000
Transmit pulse length	32 μ s - 1 ms
Transmit pulse	Monochromatic or pulse compressed (25% BW)
Resolution / dynamic range	0.01 dB / 70 dB

Water velocity measurements for Signature VM 500 KHZ

Profiling range	70 m
Cell size	0.5–4 m
Max no. cells	256
Min. blanking	0.5 m
Minimum accuracy	0.3% of the measured value \pm 0.3 cm/s
Velocity resolution	0.1 cm/s
Maximum sampling rate	6 Hz
No. of beams	4 slanted at 25 degrees

Bottom velocity measurements for Signature VM 500 KHZ

Single ping std @ 3 m/s	0.5 cm/s
Long-term accuracy	\pm 0.1% / \pm 0.1 cm/s
Minimum altitude	0.3 m
Maximum altitude	70 m
Velocity resolution	0.01 mm/s
Maximum sampling rate	2 Hz

Depth measurements for Signature VM 500 kHz

No. of beams	1 vertical
Maximum sampling rate	2 Hz
Max. range	70 m
Vertical resolution / accuracy	0.001 m / 1% of the measured value*

Echosounder option for Signature VM 500 kHz

No. of beams	1 vertical
Maximum sampling rate	1 Hz
Max. range	70 m
Resolution	6 mm - 0.5 m
Number of bins	11,000
Transmit pulse length	32 μ s - 1 ms
Transmit pulse	Monochromatic or pulse compressed (25% BW)
Resolution / dynamic range	0.01 dB / 70 dB

Water velocity measurements for Signature VM 1000 KHZ

Profiling range	30 m
Cell size	0.2–2 m
Max no. cells	256
Min. blanking	3000 meter
Minimum accuracy	0.3% of the measured value \pm 0.3 cm/s
Velocity resolution	0.1 cm/s
Maximum sampling rate	14 Hz
No. of beams	4 slanted at 25 degrees

Bottom velocity measurements for Signature VM 1000 KHZ

Single ping std @ 3 m/s	0.5 cm/s
Long-term accuracy	\pm 0.1% / \pm 0.1 cm/s
Minimum altitude	0.2 m
Maximum altitude	30 m
Velocity resolution	0.01 mm/s
Maximum sampling rate	4 Hz

Depth measurements for Signature VM 1000 kHz

Beam width	2.9°
Maximum sampling rate	2 Hz
Max. range	30 m
Vertical resolution / accuracy	0.001 m / 1% of the measured value*

Echosounder option for Signature VM 1000 kHz

No. of beams	1 vertical
Maximum sampling rate	2 Hz
Max. range	30 m
Resolution	3 mm - 0.25 m
Number of bins	10,000
Transmit pulse length	16 μ s - 0.5 ms
Transmit pulse	Monochromatic or pulse compressed (25% BW)
Resolution / dynamic range	0.01 dB / 70 dB

Echo intensity Signature VM 1000 and 500 kHz

Sampling	Same as velocity for slanted beams
Resolution	0.5 dB
Dynamic range	70 dB slanted beams
No. of beams	4 slanted at 25 degrees
Beam width	2.9°

Other, Signature VM ADCP

Temperature sensor range /accuracy	-4 °C to 40 °C / 0.1 °C
Pressure	Piezoresistive
Standard range	0-300 m (inquire for options)
Accuracy/precision	0.1% FS / better than 0.002% of full scale
Compass and tilt	Solid-state magnetometer
Data recording	16 GB (inquire for options)
Data cable	10 m Ethernet cable (inquire for options)
IO	Ethernet
DC Input	15–48 V DC

Environmental, Signature VM ADCP

Operating temperature	4 °C to 40 °C
Storage temperature	-20 °C to 60 °C
Vibration	IEC 60068-1/IEC60068-2-64
EMC approval	IEC 61000
Depth rating	300 m – Bottom track is limited to surface vessels
Connectors	Straight fitted MCBH6F (Ethernet)
Housing	Small instrument housing
Material	POM with titanium fasteners and additional, reinforced transducer cups for VM 250

Processing unit

Processor/memory	Intel i5/8 GB
Hard disk	SSD, 500 GB
Operating system	Windows® 10
Housing	Half 19" 2 HE case
Dimensions	265x110x340 mm
Input	24 V DC, 20 W typical. (230 120 V AC adaptor supplied)
Total weight	5.75 kg
Connections	Power, Signature ADCP, AN_GNSS, 2x HDMI, 2xLAN, 3x USB

Nortek Signature VM acquisition software

Acquisition	Signature VM - binary, GNSS compass - binary
Timing	< 0.6 s, IEEE1588/PTP for absolute timestamping (GNSS compass/Signature VM)
Configuration	Signature VM (partly)Advanced Navigation GNSS compass
Status	Solid-state magnetometer
Output	16 GB (inquire for options)
Data cable	10 m Ethernet cable (inquire for options)
IO	Ethernet
DC Input	15–48 V DC
Display	Vessel track in map, Bottom-track velocity, Bottom-track depth, Velocity magnitude and direction, Echo amplitude, Echo correlation, Vertical depth*, Vertical echogram; corrected relative volume backscatter (1000/500)*

GNSS compass

Brand and model	Advanced navigation GNSS compass v2
Position accuracy (with RTK)	Horizontal: 0.01 m, Vertical: 0.015 m
Heading accuracy	0.2°
Supported navigation systems	GPS L1_L2, GLONASS G1_G2, GALILEO E1_E5b, BeiDou B1_B2
Heave accuracy	0.05 m
Communication	Ethernet 10/100
Timing	PTP, NTP timeserver functionality
Protocol	NMEA 0183, AN Packet Protocol, TSS1 Simrad, RTCM

AHRS option

Accelerometer dynamic range	Advanced navigation GNSS compass v2
Gyro dynamic range	Horizontal: 0.01 m, Vertical: 0.015 m
Magnetometer dynamic range	0.2°
Pitch and roll range / resolution	GPS L1_L2, GLONASS G1_G2, GALILEO E1_E5b, BeiDou B1_B2
Pitch and roll accuracy	0.05 m
Heading range / resolution	Ethernet 10/100
Heading accuracy	PTP, NTP timeserver functionality
Sampling rate	NMEA 0183, AN Packet Protocol, TSS1 Simrad, RTCM