VM Operations

333 kHz

Assists operators on vessels to make informed decisions during subsea operations in areas affected by underwater currents



In recent years, offshore operations have moved farther offshore, often into challenging operational environments. Variable local current and tide patterns make for increased risk, uncertainty, and operational costs. Subsea operations can be limited by these challenges without real-time knowledge of currents.

Using our renowned Signature ADCP technology, the VM Operations is designed to give offshore operators clear and detailed information on current speed and direction from the vessel to the seafloor. This situational awareness improves efficiency during vessel time. Data can be stored and analyzed during future project planning.

Looking for a simpler solution focused solely on aiding INS surface navigation? The DVL333 Surface provides bottom-track velocity measurements without current profiling and the VM Acquisition processing and display system.

Highlights

- Concave transducer design allowing for flush mounting, independent of salinity changes
- A 333 kHz frequency for an optimal balance in required range, resolution and accuracy for a wide range of operations at the coastal continental shelf
- Outstanding bottom-track performance, even under challenging conditions
- Robust sea valve allows mounting without increased draft,
- In-water serviceable, diverless, concept via the DNV type-approved sea valve
- Optional hull or pole mount bracket, instead of sea valve solution
- Unique, easy-to-use graphical ADCP interface for the operator, superintendent or client

Applications

- ROV and diver inspections
- Subsea installations (as cable laying or rock dumping)
- Towed (seismic) surveys
- Aid to navigation
- Fuel efficiency monitoring

Technical specifications

Water velocity measurements	
Profiling range*	100 m

Water velocity measurements

Cell size	1-6 m
Max no. cells	128
Min. blanking	0.5 m
Minimum accuracy	0.3% of the measured value
Velocity resolution	0.1 cm/s
Maximum sampling rate	2 Hz
No. of beams	4 slanted beams at 25 degrees

* Maximum range depends on acoustic scattering conditions and transmit power

Bottom velocity measurements

Single ping std @ 1.5 m/s	0.8 cm/s at 1/2 max altitude
Long-term accuracy (1)	± 0.3 % / ± 0.1 cm/s
Minimum altitude	0.25 m
Maximum altitude (2)	300 m
Velocity resolution	0.01 mm/s
Maximum sampling rate	1 Hz

(1) Following standard callibration procedures

(2) Bottom-track distance dependent upon bottom type

Other, Vessel Mounted ADCP

Temperature sensor range /accuracy	-4 °C to 40 °C / 0.1 °C
Pressure	Piezoresistive
Compass	Solid State magnetometer
Tilt	Solid State accelerometer
AHRS	Attitude sensor (option)
IO	Ethernet (DF21 over serial as option)
DC Input	24 V DC
Operating temperature	0 °C to 40 °C
Storage temperature	-20 °C to 60 °C
Depth rating	Bottom track is limited to surface vessels

Mechanical

Instrument materials	POM with Titanium fastener
Instrument weight	7 kg
Installation	Sea valve, hull mount and pole mounted solution available
Sea valve (option)	DNV type approval; TAS00002CU
Sea valve material	Ductile Iron (body), Bronze (seat)
Sea valve weight	85 kg
Bell housing material	Steel DIN17121
Bell housing weight	29 kg

Processing unit

Processor/memory	Intel i5/8 GB
Hard disk	SSD, 256 GB
Operating system	Windows® 11 IoT Ent LTSC
Housing	19" rack-mountable 2 HE

Processing unit

Dimensions	482x87x400 mm
Input	110-240 V AC, 100 W Max
Total weight	7 kg
Connections*	Power, Signature ADCP, 2x DisplayPort, 1x LAN, 2x USB, 4x RS232|RS422|RS485 configurable port*

* Processing unit requires heading and GNSS input over Serial or Ethernet

Nortek VM Acquisition software - Operations

Acquisition input	Signature VM - binary, Advanced Navigation GNSS - binary, KM - binary, common NMEA
Timing	IEEE1588/PTP or NTP for absolute time stamping of Gyro/GNSS/Signature ADCP data or < 0.6 s under $ZDA NMEA
Configuration	ADCP data or < 0.6 s under $ZDA NMEA
Display	Vessel track in map, Bottom-track magnitude, direction and depth: (SOG), (COG), Speed Through Water (STW), Mean water column magnitude and direction, 4x depth selectable layer (magnitude and direction), 3D velocity profile (magnitude and direction), 2D vessel cross track current, 24h mean current and direction history (tides), Notes, Echo correlation, Echo amplitude, Frequency spectrum analyser
Status	Signature VM BT and VB + NMEA GGA, HDT, VTG
Online output	NMEA data formats or binary AD2CP with embedded NMEA. DF21 BT proprietary (optional)
Post processing	Nortek VM Review software (optional)
Multi vessel display	Nortek VM Acquisition streaming data and display (optional)

*Please note that the package includes the VM Operations license of the Nortek VM Acquisition software. The post-processing Nortek VM Review software is optional.