

# SMC-00 Range

## 4th Generation Motion Reference Units



The 4th Generation of the SMC-00 range of Motion Reference Units has been designed to meet the requirements from the Dynamic Positioning, offshore, marine and hydrographic industry. The SMC-00 range provides accurate motion measurement data in dynamic environments in a compact and robust design.

### Application

Development over 20 years has produced a Motion Reference Unit for applications from Dynamic Positioning systems, AHC Active Heave Compensated winches, Mega Yacht Helideck Monitoring and other various Roll, Pitch and Heave motion applications. The Motion Reference Unit data is suitable for any marine operation that requires attitude determination, motion compensation or dynamic positioning. The SMC Motion Reference Units provide accurate motion measurements in dynamic environments.

### Function

Motion Reference Units determine the orientation of an object relative to an inertial frame of reference or another body. The SMC MRU uses 3 accelerometers and 3 solid state MEMS gyroscopes which are integrated with a built-in multi-core processor, to output accurate real time pitch, roll and heave data with high dynamic accuracy when accelerations are present in industry standard formats.

### Calibration

All SMC-00 Motion Reference Units are individually calibrated and tested with the use of a rate table with a controlled temperature chamber.

### Communication

The SMC MRU communicates over multiple Ethernet TCP Client/Server, UDP and Modbus connections as well as RS232/RS422 Serial communication. The SMC MRU accepts velocity and heading inputs for aiding during vessel turns and 1PPS for time aiding.

### Standard Supply

The SMC Motion Reference Unit is supplied with a data distribution unit, cables and windows-based user configuration software.

### Key Features

- Roll & Pitch 0.12° RMS, Heave 5 cm or 5 %
- Web Interface
- 3 Measurement Points
- 200 Hz Output Rate
- Serial and Ethernet UDP, TCP, Modbus
- Custom and Industry Standard Protocols
- 2 years Warranty

### Environmental

The SMC-00 MRUs are available as IP66 surface or IP68 submersible versions in a titanium casing. The durable construction ensures a Motion Reference Unit with an extremely high reliability in the most demanding marine environment.

### About SMC

SMC is an ISO9001:2015 quality management certified company, manufacturing motion reference units, weather instruments and system integration software packages, such as Helideck Monitoring and Motion Monitoring systems, for the global marine industry.



# Specification SMC-00 Range, 4th Generation

## Model Features

	SMC-007	SMC-008
Roll / Pitch	Yes	Yes
Accelerations	Yes	Yes
Heave	N/A	Yes

## Performance

Angle Accuracy Dynamic @ ±5° simultaneous roll and pitch	0.12° RMS	0.12° RMS
Angle range Roll/Pitch	± 30°	± 30°
Heave Accuracy	N/A	5cm or 5%
Acceleration accuracy	0.05 m/s <sup>2</sup> RMS	0.05 m/s <sup>2</sup> RMS

## Communication

Ethernet: 100 mBit. UDP, TCP/IP and Modbus, 20 user configurable output ports  
 Com1: RS232 Bi-Directional  
 Com2: RS422 Bi-Directional  
 Com3: RS232 Bi-Directional  
 Com4: RS232 Bi-Directional  
 Com3 and Com4 can be combined into 1x RS422

Velocity and Heading input formats RMC, RMA, VTG, VHW, GGA, ZDA, HDT, HDG, 1PPS  
 SMC Configuration PC software included and Built-In Web Interface  
 User selectable and User configurable Output Protocols  
 User selectable Output Rate 1-200hz

## Physical

Dimensions (W x D x H) 134 x 134 x 60mm excl connector  
 Weight ~1 kg  
 Housing Material Titanium

## Environmental

Temperature -20° to +55° Celsius  
 Storage Temperature -40° to +65° Celsius  
 MTBF (computed) 50 000 hours  
 IP66 as standard; IP68 30 meter depth rated optional  
 Mounting on Horizontal surface

## Electrical

Power requirements 12 - 30 VDC; 4 Watts  
 Standard Complies with the IEC 60945

## Warranty & Support

2-year Limited Hardware & Software Warranty  
 Free Technical & Hardware support

