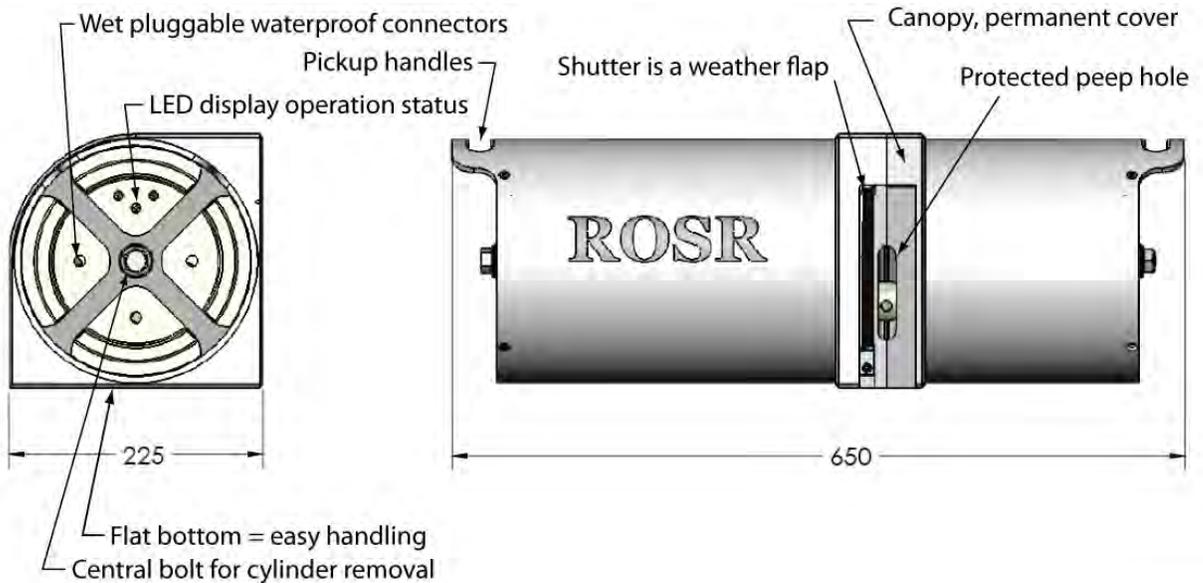


ROSR — RELIABLE UNDERWAY OCEAN SKIN TEMPERATURE



The Remote Ocean Surface Radiometer (ROSR, pronounced *ross'er*) provides NIST-traceable sea-surface skin temperature (SSST) measurements in support of air-sea interaction studies or satellite calibration and validation activities. Its operational goals are to make observations autonomously from a ship at sea for six-months and with a NIST traceable accuracy of ± 0.1 C.



SPECIFICATIONS

DIAMETER X LENGTH	225×650 mm
WEIGHT	23.6 kg (51#)
POWER	12–18 VDC < 50 mA
SAMPLE RATE	3 sec per raw sample
SSST OUTPUT RATE	3 min per calculation
POINT ANGLES	Sky: 45–90° below zenith Sea: 45–90° above nadir
COMMUNICATION	RS232 (9600 bps). NMEA strings with real-time clock and checksum.
POWER START	Automatic start sampling on power connection. EEPROM holds all operational variables.
CONNECTORS	Impulse MCIL underwater connectable connectors. 1.Power/Serial, 2.Rain sensor, 3.Spare/Ethernet.

HOW IT WORKS

A tiny hole in the inner scan drum looks into a 45 deg mirror that reflects incoming infrared radiation into the Heitronics IR radiometer inside a waterproof housing, through a transparent window. The scan drum can be pointed to the sea surface at a variety of angles, at the sky, and back into two high precision black-body cavities. This cycle allows correction for sky contamination and the system is self calibrating. A small amount of contamination can be tolerated by this open air design.

ROSR incorporates a pitch-roll sensor and a measurement cycle is completed once per minute. A sensitive optical rain detector triggers closure of a flap shutter in the presence of precipitation.

KEY PERSONNEL

Scientific consultant: Prof. Peter Minnett, University of Miami

Mechanical Engineering and CAD: Hugh Milburn, Prev. chief engineer for NOAA PMEL, Seattle.

Electronic design and fabrication: Ray Edwards, Original designer of ISAR electronics. Brookhaven National Laboratory.

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