



MANGŌPARE SENSOR MOUNTING OPTIONS



MANGŌPARE SENSOR OPERATIONS

Mangōpare is a fully automatic underwater temperature sensing instrument, requiring no user intervention.

To ensure reliable long term operation in an unpredictable and harsh range of operating conditions, Mangōpare uses a variety of robust on-board data processing algorithms to determine its state and subsequently what functions to undertake.

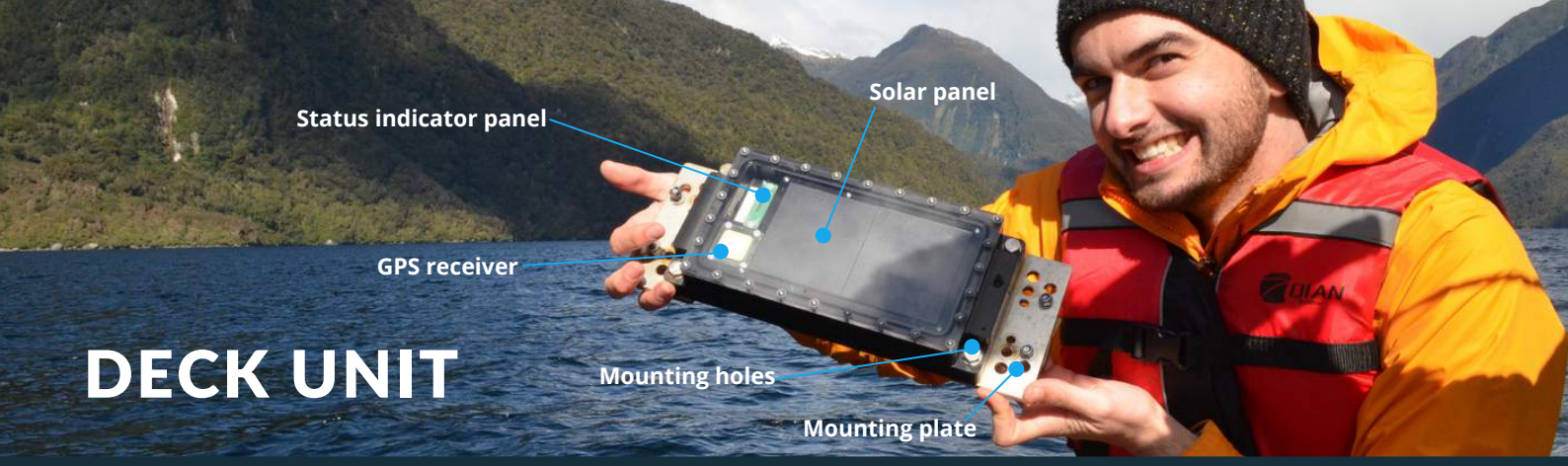
When Mangōpare is in the air, it constantly measures atmospheric pressure. When there is a change in pressure compared to the atmospheric pressure, the sensor detects that it has been submerged in water. This processes enables Mangōpare to reliably start measuring quickly after it is submerged, within a relatively small depth change, despite changing atmospheric pressure, temperature changes, splash conditions, and long-term sensor drift.

During the dive state, Mangōpare records depth and temperature at every 1m depth change down to a depth of 200m and at every 4m of depth change below 200m.

If the depth does not change (by more than 1m at a depth equal to or less than 200m or by more than 4m at a depth of more than 200m), then temperature and depth measurements are recorded every 5 minutes. Mangōpare operates a depth dependent real-time wave filtering algorithm between the surface and 35m water depth. This prevents unnecessary recordings of measurements that are triggered by wave induced pressure changes.

When Mangōpare emerges from the water and the dive ends, the Bluetooth becomes active after 5 seconds. Data is then offloaded autonomously by the Zebra-Tech Deck Unit. If an offload event doesn't occur after 1 day, the Bluetooth will remain active, but will reduce advertising frequency to 30 seconds. After 3 days, the Bluetooth is shut down to conserve battery power.

If Mangōpare starts a new dive event before the previous measurements are offloaded, the data is still retained and can be offloaded at a later date. After the data has been successfully offloaded, the data on Mangōpare is deleted and cannot be retrieved.



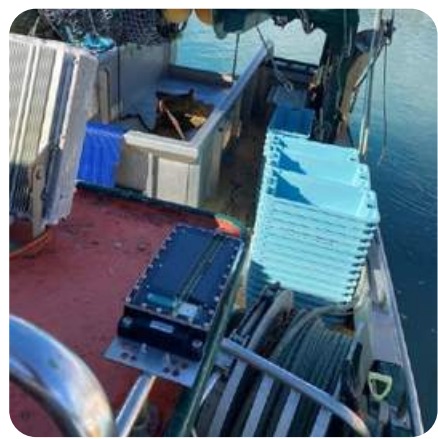
DECK UNIT

The Deck Unit is a self-contained, standalone communication device. It has an internal battery, solar panel, wireless receiver for communicating with Mangōpare sensors, and internal modem for uploading data to the cloud server, housed in a tough waterproof housing. Currently there are two versions: Wi-Fi for uploading data over a local Wi-Fi network and cellular for uploading data over a 3 and 4G cellular network.

The Moana Deck Unit should be installed in a location where it has good unobstructed line of sight with the Mangōpare sensor when it is lifted onto the vessel. The maximum operating range is around 20m.

The Deck Unit requires a clear view of the sky for good GPS reception and to maximise solar charging. The Deck Unit should be secured firmly onto a physical structure. The Deck Unit can be secured onto a handrail or similar structure using optional stainless steel mounting plates, compatible with a range of U-bolt sizes.

DECK UNITS IN OPERATION:



MOUNTING OPTIONS

TOUGH JACKETS

A variety of protective tough jackets and attachment options are available to simplify mounting Mangōpare to most types of fishing gear. Please do not hesitate to contact Zebra-Tech to discuss your particular requirements and gear type.

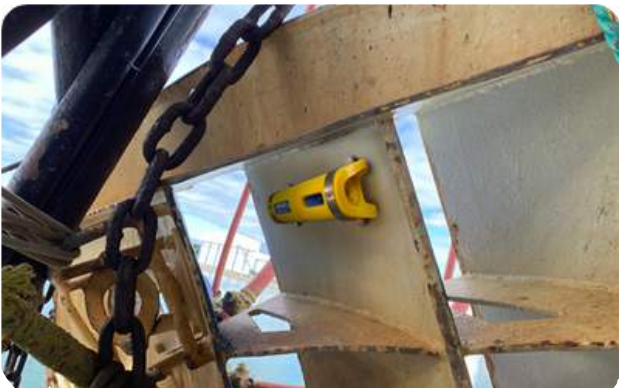
COASTAL TRAWLING

The Mangōpare can be attached in a variety of ways, depending on the gear setup.

TRAWL DOOR

Mangōpare can be attached to the trawl door; however, it is essential that when the trawl door is lifted, the sensor has clear line of sight with the deck unit.

If the doors are mounted against the side of the vessel, door mounting may not be suitable. Tough Jacket #3 is used for trawl door mounting, and is attached by two stainless saddle clamps.



Tough Jacket #3 door mounted



Tough Jacket #3 attachment

HEAD ROPE



Example of Tough Jacket #3 rope attachment method

As an alternative to door mounting, Mangōpare can be attached to a line, using Tough Jacket #3, which has four attachment points.

DEEPWATER TRAWLING

We have a variety of Tough Jacket options available. Please contact Zebra-Tech to discuss your gear, and mounting requirements

NETTING

We have several options for net attachment. Please note that winding the Tough Jackets onto the net roll may cause damage, unless light gear is being used.



Net attachment example with Tough Jacket #3



Net attachemnet: Tough Jacket #2 with net plate

LONG LINING

With long lining, the Mangōpare is attached to the backbone using a shark clip and short leader. If the Mangōpare is likely to hit the bed, it is recommended that the protective Tough Jacket #4 is used, otherwise the Mangōpare can be attached with the tow ring.



Tow ring attachment for long lining



Tough jacket #4 for long lining

MANUAL CASTING

Mangōpare can be deployed by fishing rod and weighted. Attachment is using the tow ring. Note that the down and up cast line speed should not exceed 1m per second.



POTTING

Mangōpare can be mounted inside fishing pots using the Mounting Plate #2 with Stauff clamp (Part number 538-PP-H). The stainless steel plate is supplied with U-bolts for easy attachment to the pot, or can be permanently welded onto the pot.



Mounting Plate #2 with Stauff Clamp



MISCELLANEOUS

For other mounting situations, please do not hesitate to contact us.



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