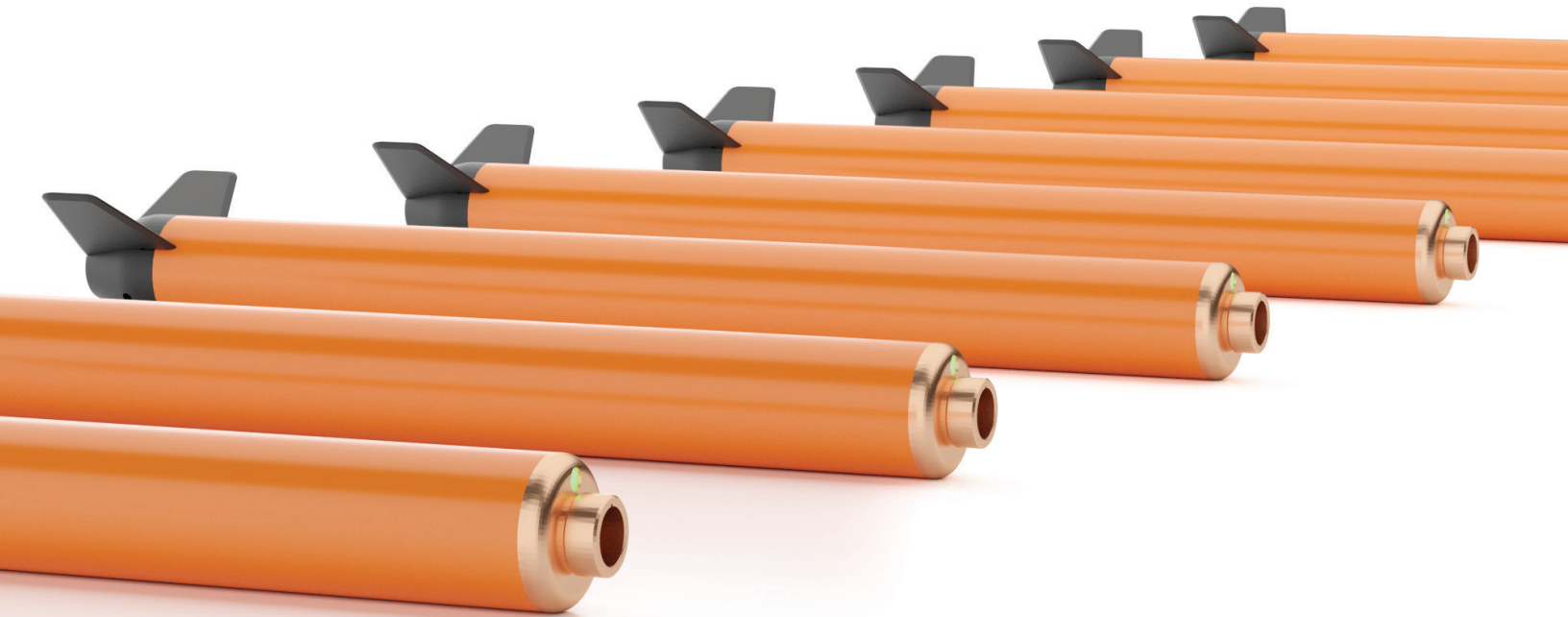


# Synapse

## Synchronized Magnetic Gradiometer Array



### Net it and Forget it

Scalable up to 30 nodes, the network array is practically self-configuring, requiring minimal setup and troubleshooting to operate.

#### More is less

A survey company can stockpile a few dozen nodes, grab however many they need based on a survey's parameters, connect them and "go."

The nodes are identical and interchangeable. Instead of humans micro-managing sensor relationships, they figure it out independently. One of the sensors takes charge, coordinates data from the network and sends it to the humans topside.

If you add another sensor, the sensor in charge recognizes and integrates the new sensor.

Less downtime can lower on-vessel equipment setup from half a day to half an hour.

#### Crush Survey Ops Costs

The network array weighs a fraction of the payload of comparable systems, creating cascading returns:

- Requires a smaller, less expensive vessel
- Survey in shallower water
- Survey in rougher weather = Less downtime
- Less payload to lift off the deck = Safer to crew and lower risk of damaging expensive boat machinery

# Innovation

## Time-Synced Precision

The consequences of poor time synchronization range from bad data to useless data. **Synapse** keeps its nodes synchronized to within microseconds. Automatically.

## Scale up to 30

Right size your network up to 30 nodes based on a survey parameters.

## Higher Definition

Get sharper data with faster sampling rates and tighter survey tracks with more compact mags.

## Ultralight

Our smaller sensors can reduce an array's size and weight by a factor of 4-5.

# System Configurations:

## Synapse Node

- **Any combination of sensors:** Scalar Magnetometer, Pressure, Altimeter, and Tilt IMU
- Network Status LED
- Leak Detector

## Practical Configurations Might Include:

- **Magnetometer Only:** Magnetometer Sensor
- **Combined:** Magnetometer, Pressure, and Altimeter Sensors
- **Accessory Tow-fish:** Pressure, Altimeter, and Tilt IMU Sensors

## Additional Components

- Larger pressure housing for greater depth rating (Optional)
- 24V universal AC power supply or battery clip cable
- USB or RS-232 cable
- BOB data acquisition and visualization software
- Shipping case

## Max Flexibility

Combine support sensors in any magnetometer node to keep arrays small.

Or use a dedicated support tow-fish (without the magnetometer) for larger gradiometer arrays. This keeps the magnetometer nodes identical for maximum interchangeability.

# Specifications

## Performance

Operating Zones	Worldwide
Absolute Accuracy	TBD
Sensor Sensitivity	10 pT/rt-Hz
Resolution	1 pT
Dead Zone	1 Zone (+/- 6 degrees from center) <i>Sensor can be easily rotated for worldwide operation</i>
Sampling Rate	Up to 20hz
Sensor Type	Scalar (Rubidium optically-pumped)
Power Consumption	4.5 W per node
Range	18,000 nT to 120,000 nT
Gradient Tolerance	Over 10,000 nT/m
Depth Rating	1000m (1420 psi)
Interface	USB or RS232
Power Supply	24 VDC (120-240 VAC compatible) (Acceptable range 9-30 VDC)

## Magnetometer

Length	86 cm (33.75 in)
Diameter	7.6 cm (3 in)
Weight in Air	3.5 kg (7.7 lbs)
Weight in Water	Neutral

## Accessory Tow-fish (Optional)

Sensors	Pressure-depth, Echosounder-altitude, and Tilt Inertial Measurement Unit (IMU)
Length	43 cm (17 in)
Diameter	7.6 cm (3 in)
Weight in Air	2.4 kg (5.5 lbs)
Weight in Water	Neutral