Compact sensing.
Motion-aware measurements.

A subsea fluxgate platform that brings magnetic measurements, local motion sensing and network time synchronization into one compact instrument.

Three magnetic axes.

Local motion sensing.

One shared time base.



Pressure vessel prototype

Ø29 × 140 mm
DESIGN ENVELOPE

≈6000 m
VESSEL TESTED AT 600 BAR

Ethernet + PTP
NETWORK & TIMING

Built around the survey measurement

01 Motion sensing at the measurement point

A mechanically coupled IMU captures motion alongside the fluxgate. Local attitude data supports electronic self-leveling and compensation without relying solely on a distant vehicle IMU.

02 Compact integration

The slender cylindrical housing gives AUV and ROV designers more flexibility to place the sensor where magnetic interference is lower.

03 Synchronized sensor networks

Ethernet and PTP support a shared time base for multiple units, enabling compact gradiometer layouts and phase-sensitive power-cable measurements.

04 Calibration and processing expertise

The processing approach builds on years of subsea fluxgate acquisition experience. Platform calibration and motion compensation are central to the measurement workflow.

Applications: AUV / ROV geophysical surveys • Cable detection and tracking • Ferrous target screening • Marine mineral exploration

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Small envelope. Connected data.

Design specifications and release placeholders

Sensor architecture	3-axis fluxgate with mechanically coupled IMU
Housing envelope	Ø29 mm × 140 mm, including connector*
Pressure vessel test	Passed 600 bar (≈6000 m); RISE, Borås, Sweden, 2025
Data interface	Ethernet; TCP sensor streaming
Configuration & updates	HTTP REST; firmware updates over Ethernet
Time synchronization	PTPv2 (IEEE 1588); NTP fallback
Network configuration	DHCP or static IPv4
Power supply	12 / 24 V DC
Connector	SubConn Micro Circular, 8-pin male
Power consumption	≈0.8 W (measured)
Mass / weight in seawater	210 g dry / ≈135 g equivalent (estimated)*

*Envelope: confirm final dimensions. Wet weight: 1025 kg/m³, no mating plug/cable; connector geometry approximate.

Connector & pinout

SubConn Micro Circular · 8-pin male



Face view · male

Looking into instrument connector

PIN	FUNCTION
1	GND
2	12/24VDC
3	RX+
4	RX−
5	TX+
6	TX−
7	NC
8	NC

Pin 2: supply input accepts 12 or 24 V DC.

NC: not connected.

Precision and noise performance

Measured outdoor noise results; other figures are provisional.

PARAMETER	RESULT	BASIS / STATUS
Effective resolution	≈0.32 nT	Estimated; verification pending
Initial bias (25°C)	< ±100 nT	Provisional; verification pending
Linearity	0.1% full scale	Provisional; verification pending
Noise density, 1 Hz	0.750 / 0.659 / 0.159	nT/√Hz; outdoor measurement*
Noise density, 10 Hz	0.183 / 0.319 / 0.060	nT/√Hz; outdoor measurement*
RMS noise	2.60 / 3.82 / 0.74 nT	0.1-100 Hz; 94.42 Hz retained*
Range / output rate	120 µT / 250 sps	Provisional range / current rate

*Noise values: X / Y / Z, 10-minute outdoor record (2 Oct 2026); environmental contributions remain. ASD: local medians within ±0.1 Hz of each reference. RMS excludes ±0.5 Hz around 16.67, 33.33, 50, 66.67, 83.33 and 100 Hz (last band clipped at 100 Hz). These are measured residuals, not intrinsic limits.

Other provisional figures and compensation performance await verification.