

cNODE[®] IQAM

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INTELLIGENT DATA ANALYSIS AND MONITORING

cNODE[®] IQAM (Intelligent Data Analysis and Monitoring) is an advanced instrument developed for a broad range of subsea data acquisition, monitoring and control applications. Data and events can be telemetered with robust Cymbal acoustic protocols to cNODE[®] Modem transponders or any portable or vessel fit HiPAP[®] SSBL system running Cymbal software.

cNODE[®] IQAM provides data logging, intelligent subsea data processing and modem capability in a single transponder housing. A range of internal or external sensors can be interfaced, with the data outputs logged and processed with onboard data analysis algorithms, to provide the key events operators require.

cNODE[®] IQAM has a modular design so that the transponder can be configured to suit operational deployment and recovery needs, for example with the IQAM module fitted below the transducer it is possible to use a release endcap and floatation collar, for recovery of the instrument.

cNODE[®] IQAM can operate with both internal and external batteries. The low power electronics and configurable sensor logging intervals maximize the subsea deployment time.

Applications

cNODE[®] IQAM's flexibility to interface internal or external sensors provides capability for a large number of subsea monitoring applications for seabed structures including anchor piles, manifolds, PLETS, well heads or pipelines and also for envi-

ronmental, leak detection, seabed deformation or subsidence, anywhere in fact the integrity of an asset or the environment needs to be monitored.

The cNODE[®] IQAM is particularly suited for subsea installation and commissioning since it has the flexibility to operate as a standard cNODE[®] transponder for LBL and SSBL positioning, allowing a seamless transition from the installation task through to long term monitoring.

Internal sensor modules are available to measure inclination, acceleration, pressure and sound velocity. External sensors that can be interfaced include ADCP's, pressure sensors, inclinometers, current meters, KM Contros CO₂, CH₄ and O₂ sensors. Other sensors interfaces can be included into the library to meet customer requirements.

The intelligent data acquisition processor on board the cNODE[®] IQAM is capable of running custom algorithms or standard event analysis based on simple statistics of min / max and mean. The statistical values can be used to trigger alarms.

Data can be recovered via the serial interface, optical modem or via integrated CYMBAL acoustic telemetry. Cymbal KM propriety digital telemetry has a number of profiles to ensure the robustness of data transfer depending upon the environment.

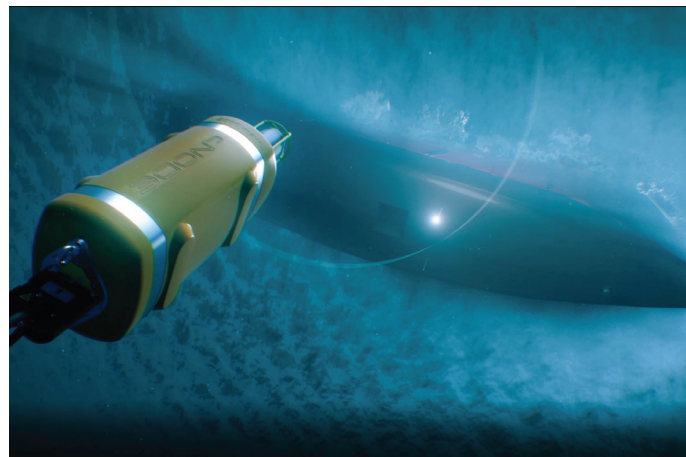
The cNODE® IQAM can be built in a range of materials including hard anodized aluminium through to super duplex stainless steel for corrosion resistance. With a standard depth rating of 4000m, two housing lengths are available based on the cNODE® Maxi and cNODE® Midi, depending upon the battery endurance required.

With the cNODE® IQAM Control, up to two remote subsea valves can be actuated via the integrated solenoid drivers. In addition 4-20 mA, RS232 or RS485 sensors can be interfaced for read backs or sensor logging.

cNODE® IQAM

The cNODE® IQAM can be supplied in two configurations, either with the interface module as a top section below the transducer or as an endcap. Both options feature:

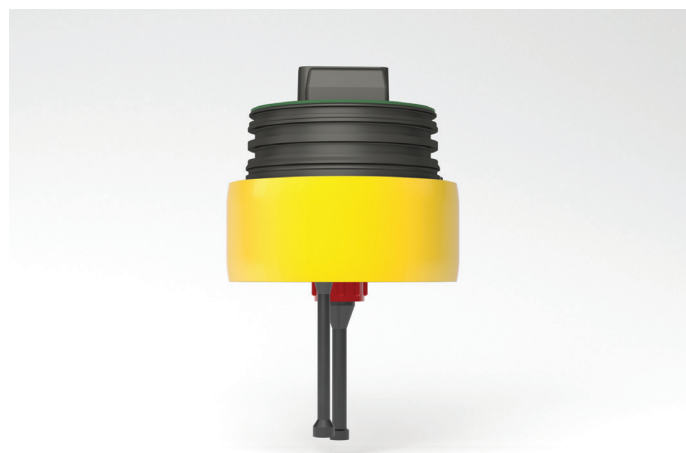
- Sensor interface and logging: Up to 4 sensors
- On board processor
- Alarms based on algorithm or limits
- 32 GB µSD data storage
- 1 x isolated RS232 channel
- 2 x non-isolated SIO configurable to be RS232 or RS485
- 1 x non-isolated SIO configurable to be TTL UART, RS232 or RS485
- On-board 9-axis IMU (3 axis for gyro, accelerometer & magnetometer)
- Connectors (top section): 2 x 8 pin Subconn
- Connectors (endcap): 16 pin Subconn or Gisma



cNODE® IQAM Control

cNODE® IQAM Control is designed for interfacing analogue sensors and remote actuation of subsea valves via the solenoid drivers built into the endcap. Up to four analogue 4 – 20 mA sensor or read backs can be interfaced. The control module also acts as a modem and sensor logger. Features include:

- 2 x 24 VDC Solenoid driver (cannot be used simultaneously)
- Sensor interface and logging: Up to 4 sensors
- On board processor
- Alarms based on algorithm or limits
- 32GB µSD data storage
- 4 x 4-20mA ADC channels
- 2 x 0-5V ADC channels
- 1 x non-isolated RS232
- 1 x non-isolated RS422/RS485
- On-board 9-axis IMU (3 axis for gyro, accelerometer & magnetometer)
- Connectors top section model: 2 x 8 pin Subconn
- Connectors endcap model: 16 pin Subconn or Gisma



Specifications subject to change without any further notice.