Advanced Sensing Technologies
3DX smart perception sensors combine advanced 2D/3D imaging/mapping technologies with an IMU and GPU within a compact underwater housing to facilitate the rapid development of advanced robotic inspection, manipulation, and navigation solutions.

Integrated Local and Remote Software
3DX sensors run an on-board Resident User Interface (RUI) that offers a web browser based portal for local system interface. In addition, 3DX sensors include Numurus’ NEPI smart IoT software interface for remote system and data monitoring/management.

ROS Based Data and Control Interface
Quickly integrate 3DX data and control into existing user interfaces or autonomous control systems leveraging intuitive well documented ROS topics.

On-Board AI Support
All 3DX sensors are outfitted with NVIDIA’s Jetson TX2 embedded AI-engine to turn raw data into real-time automation and inspection information within the sensor, rather than relying on an external processing solutions.
Applications

Automated Inspection
Create unique on-board detection and classification processing pipelines and feed in data from a combination of sensing technologies to achieve reliable and robust results across a variety of conditions and targets.

Improved Localization
Combine on-board inertial navigation algorithms with a variety of non-traditional image based localization techniques such as optical flow, FBO, and SLAM to achieve high position accuracy in GPS-denied environments.

Automated Manipulation
Apply trained object detection and orientation classifiers to create continuous streams of manipulator-to-object pose estimates.

Specifications

Hardware

Stereo Camera
- Air: 90° (H) x 60° (V) x 100° (D)
- Water: 56° (H) x 35° (V) x 50° (D)
- Image Res: 2.2K / 1080p / 720p
- Image Rates: Up to 30 fps
- Depth Range: 0.1 - 15 m (0.32 to 50 ft)
- Point Cloud Rates: Up to 30 fps
- IMU: Translation 1.0 % Rotation 0.013°/m

Internal Storage
- 256 GB SD Card

Communications
- Interface I/O: Ethernet 100 or 1000 Gbps

Electrical
- Supply Voltage Range: 10-36 VDC
- Power Estimates: 5 W / 15 W / 30 W (LED add 5-15 W)

Mechanical
- Connector Options: Impulse MKS 310 (100 Mbits/s) SubConn DBCR2013M (GigE)
- Housing Dimensions: 18 cm x 14.3 cm x 7.6 cm
- Weight in Air/Water: 2.4 lb / 0.5 lb
- Depth Rating: 1 km

Thermal
- Operating Range: -20°C to +65°C

Dimensions: mm