STRAINSENSE
MAKING SENSE WITH SENSORS

@STRAINSENSE LIMITED

NEX[DAQ]: Off Highway Vehicle

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Common Measurement Systems

- often only support one or few dedicated sensor types
- do not provide enough or the right input channels
- are not made for harsh environments
- are difficult to supply in a vehicle
- are often bulky and heavy
- do not offer SAE J1939

How Can The NEX[DAQ] Help You?

FOR ELECTRIFIED VEHICLES:

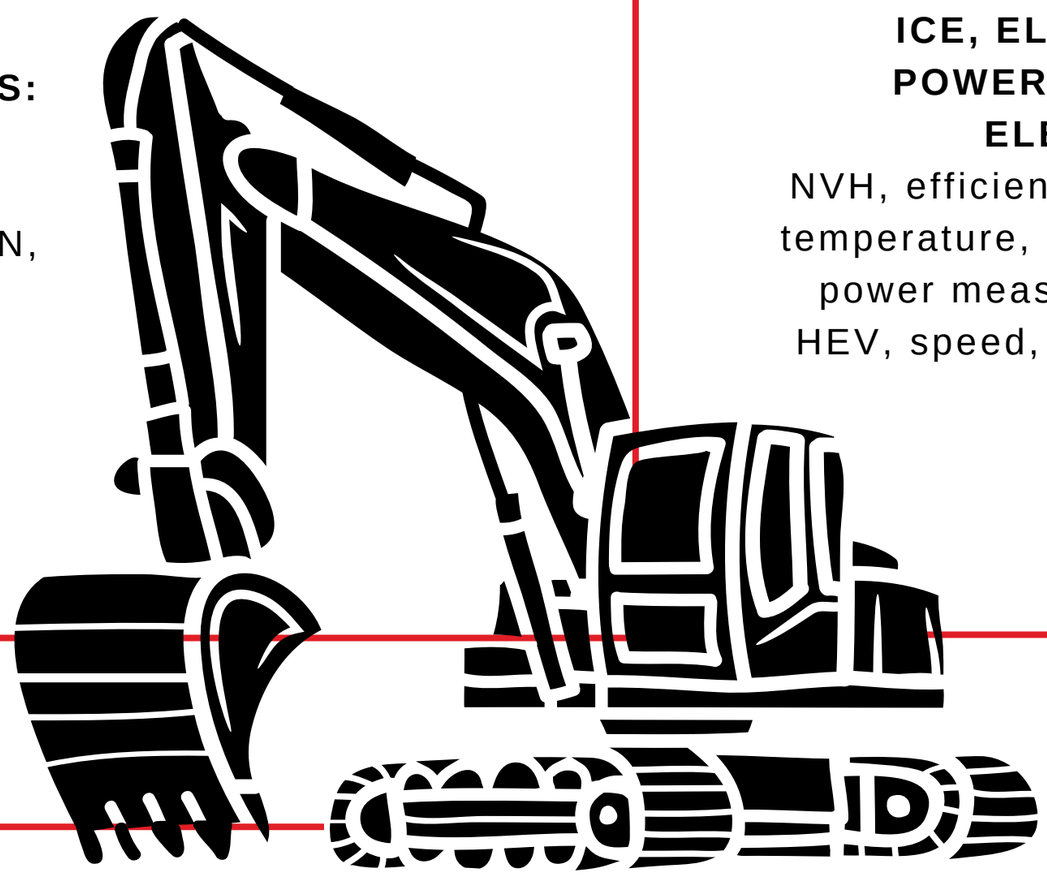
BATTERY: Cell characterization, charge discharge-cycles, efficiency, losses, life tests under different conditions, SoH, EoL, electrical power, temperature, range test, powertrain, electrical components, etc.

ENVIRONMENTAL INFLUENCES:
i.e. exterior noises

CHARGING:
Charging and charging infrastructure analysis, efficiency, energy loss, power, charging efficiency, flow rate, electromagnetic compatibility (EMC) with charging stations (harmonics), load profile & charging duration.

PASSENGER COMPARTMENT:
NVH, pressure, temperature

INTEGRATED SENSORS:
Precision, sensitivity, reliability, delay, communication bus (CAN, CAN-FD, J1939)



ICE, ELECTRIC MOTOR, POWERTRAIN & POWER ELECTRONICS:
NVH, efficiency, temperature, water temperature, electrical & mechanical power measurement for BEV and HEV, speed, rotation, acceleration.

INTEGRATED SENSORS:
Precision, sensitivity, reliability, delay, communication bus (CAN, CAN-FD, J1939)

NEX[DAQ] Applications

Thermal Management Test:

The NEX[DAQ] and our XR modules are ideal for thermal management tests, temperature monitoring in the cooling circuit but also for electrical power analysis.

Field Tests:

If you do test on excavators, bulldozers or other heavy machineries you need a rugged & small DAQ systems several analog and digital inputs as well as counter channels. Also, you need several mounting options. The NEX[DAQ] offers you exactly all those things.

Simple NVH Test:

Microphones and accelerometers can be connected for air and structure borne noise related tests. As the NEX[DAQ] is fanless it can be put close to the DUT to minimize the cable lengths.

Power Monitoring:

The NEX[DAQ] together with a MSI2-V-600 and current clamps is the ideal solution for in-field power measurements on the generator of the DUT. In addition, the signals on the DUT's communication bus can be monitored as reference.

Fulfilment of Labour Regulations:

Strong vibrations and noise are caused by heavy duty machines that can affect the driver. The vibration and noise inside the driver's cabin can be measured to ensure that labour regulations are fulfilled, and the driver is not harmed.

Component Tests:

The NEX[DAQ] can be used to measure strain, force and load on an excavator arm or can measure the pressure at different points in the hydraulic circuit simultaneously. The rugged design allow a mounting on the outside close to the measurement position.

NEX[DAQ] Is The Ideal DAQ System

> to identify the cause of problems - especially when you need several sensors like:

- Accelerometer
- Microphone
- Speed and angle sensors
- CAN or CAN-FD interface

> with multiple power supply options:

- Power-over-Ethernet oder USB-C
- or powered by the vehicle supply or a power bank

> for low-channel-count measurements with per channel

- sample rate capability up to 1 MS/s

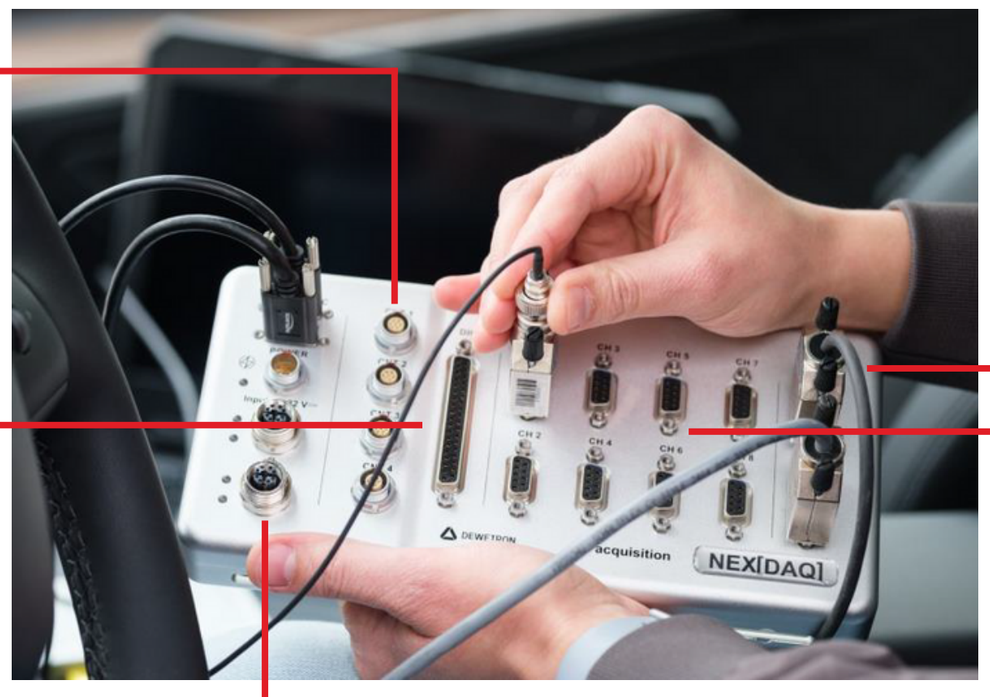
Compact & portable
Multiple power supply options
IP67 rating
Fanless
-20°C to +70°C

2 interfaces for CAN-FD and XR-module connection

XR modules for low-speed channel expansion, e.g. for many temperature

4 ADVANCED COUNTER
(e.g. for encoder)

8 DI + 4 DO
8 COUNTER



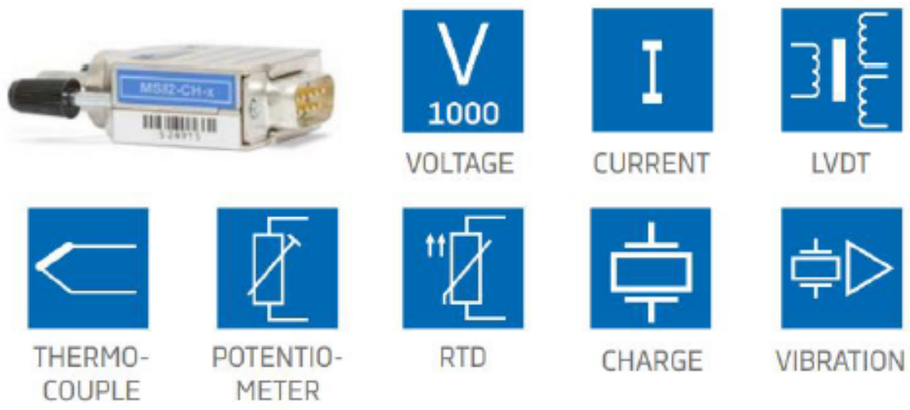
SYNCHRONIZATION via
Ethernet, PTP, IEEE1588

ETHERNET or USB-C
CONNECTION to PC for
data transfer

UNIVERSAL ANALOG INPUT CHANNELS
(native direct inputs + additional via MSI)

NATIVE INPUTS

ADDITIONAL INPUT SIGNALS: Every common analog sensor is supported with DEWETRON's MSI sensor adapters



NEX[DAQ] Features

Mounting Options:

You can fix the NEX[DAQ] in the measurement environment in several ways like with belt, DIN rail or screws

Expandable:

Daisy chain multiple NEX[DAQ]s to a multi-channel-system. A single cable is sufficient for data transfer and synchronization via Ethernet PTP/IEEE1588

It already comes with OXYGEN:

OXYGEN is our intuitive & easy-to-use measurement software.

Standard Software Features:

> Analysis & post-processing

> Visualization

> Math & calculation

> Trigger features

> FFT analysis

> Export features

> Reporting

> ... many more features available!

OXYGEN runs without restrictions on Windows and Linux based operating systems. The Linux distributions Red Hat Enterprise Linux 8 (RHEL8) and Ubuntu are supported.