



WELCOME

WireFlow company presentation

The Company

- Privately held engineering company, based in Gothenburg, Sweden
- Founded in 2011
 - "Provide cutting-edge control and measurement systems"



What we do

- Off-the-shelf electronics and software components within test and measurement.
- Solutions within three main expertise areas: Battery Test & Measurement, PCB Testing and Advanced Sensor Simulation.
- Expert services on NI's technology platforms LabVIEW, TestStand and CompactRIO

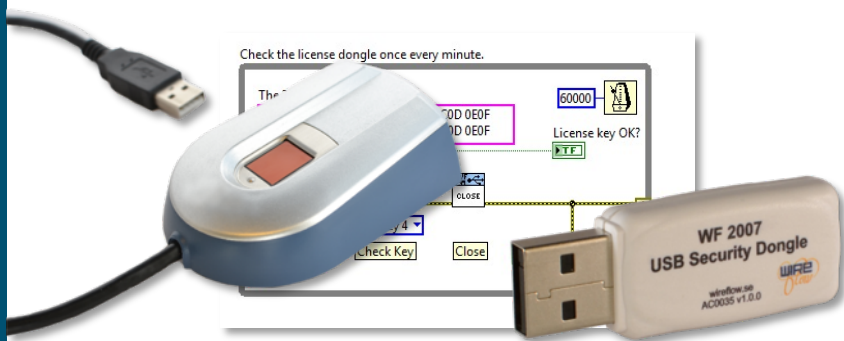


Products

Off the shelf products for the LabVIEW ecosystem.



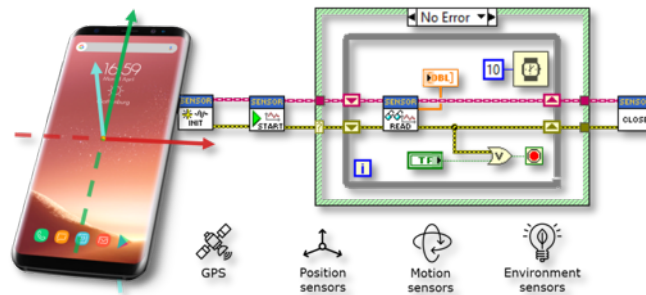
WireFlow Security Suite



C Series modules



LabVIEW Software & Toolkits



Products: Customers

Solutions

Flexible and robust solutions within our three main expertise areas.



Battery Test & Measurement



PCB Testing



Advanced Sensor Simulation

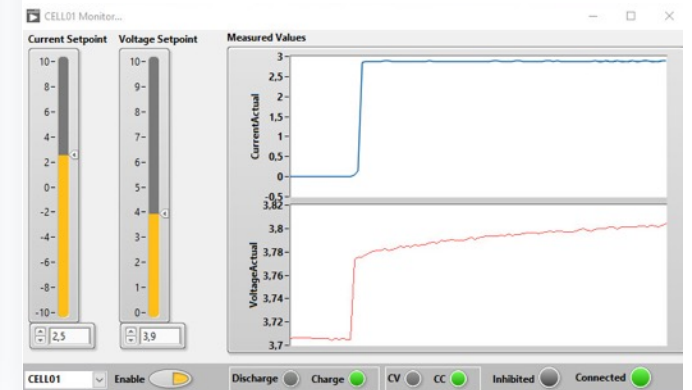


Battery Test & Measurement



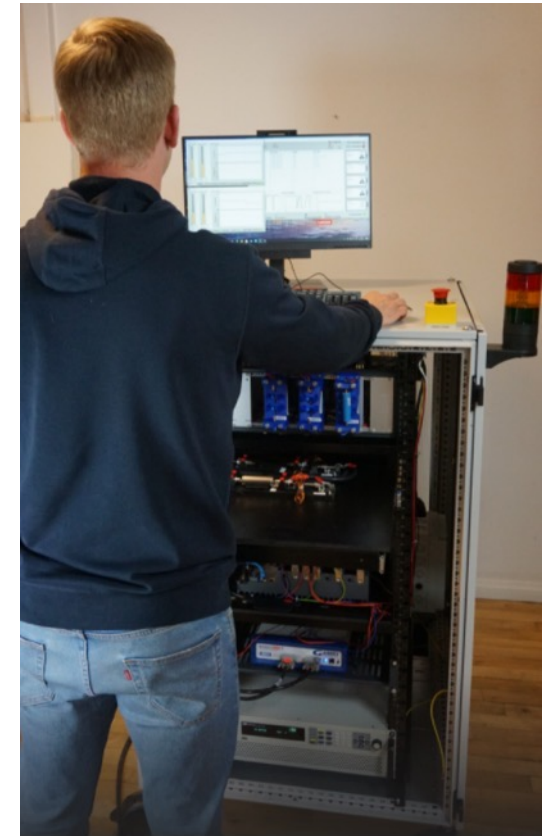
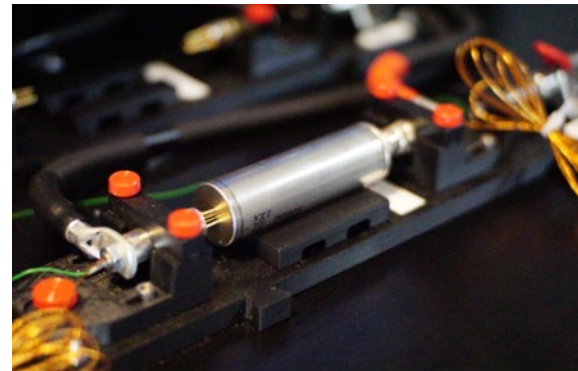
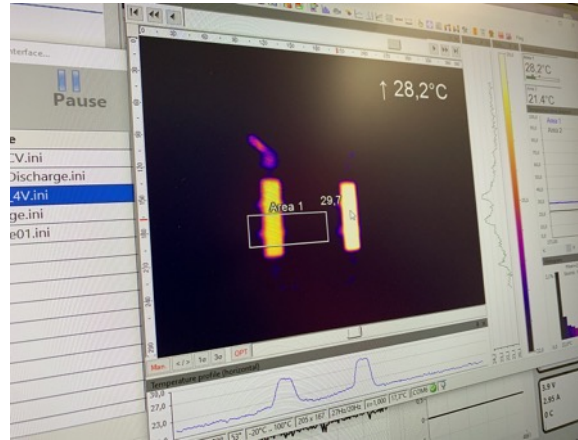
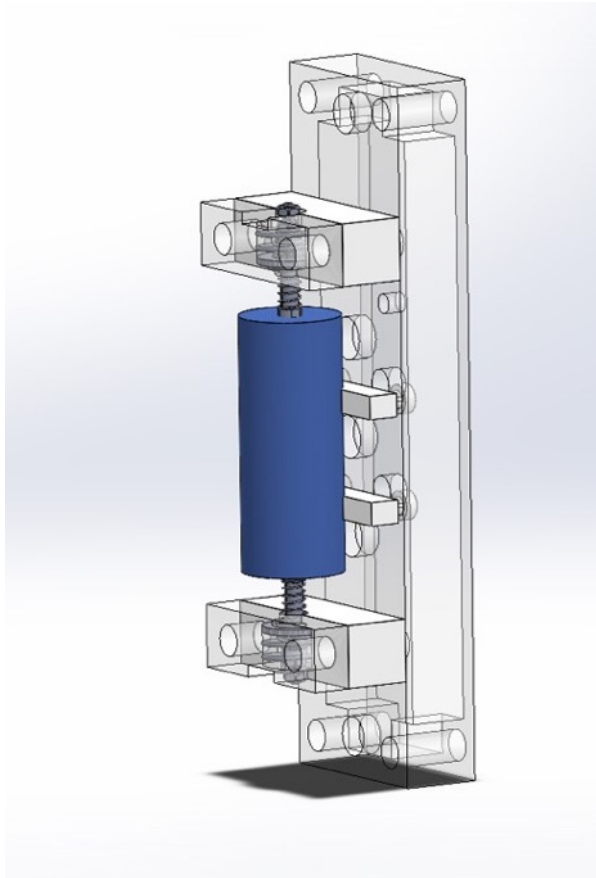
Battery Test & Measurement

We develop and manufacture battery test and measurement systems for both production test and design characterization based on your needs.



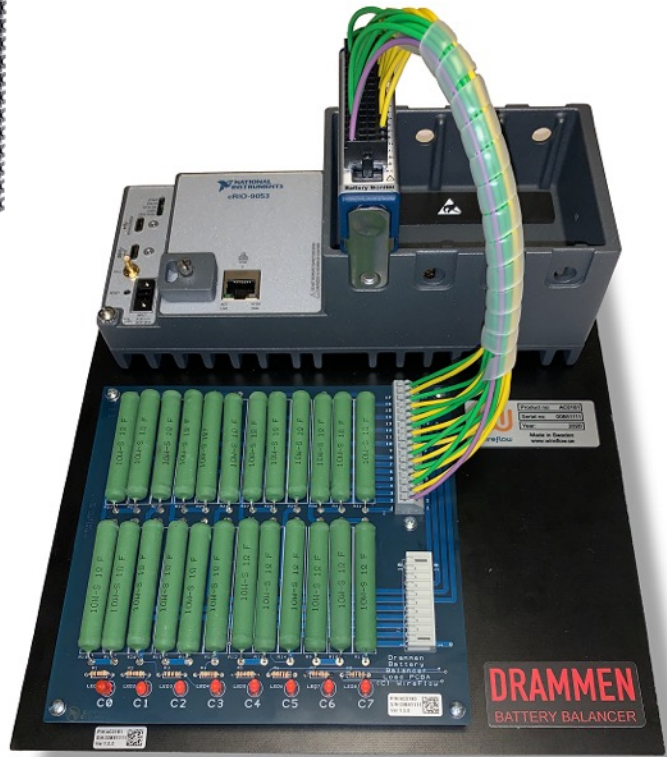
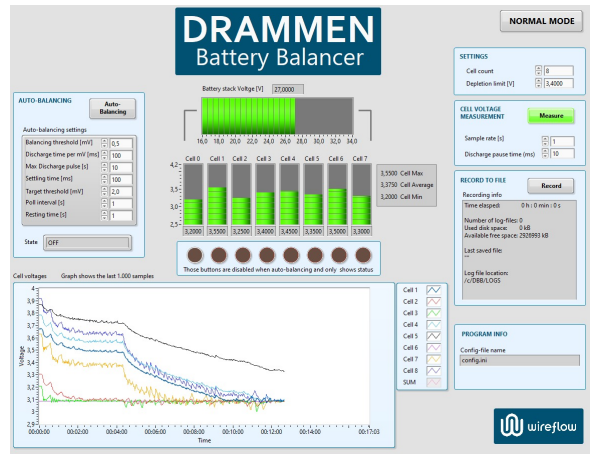


Cell Characterization





Rapid BMS prototyping



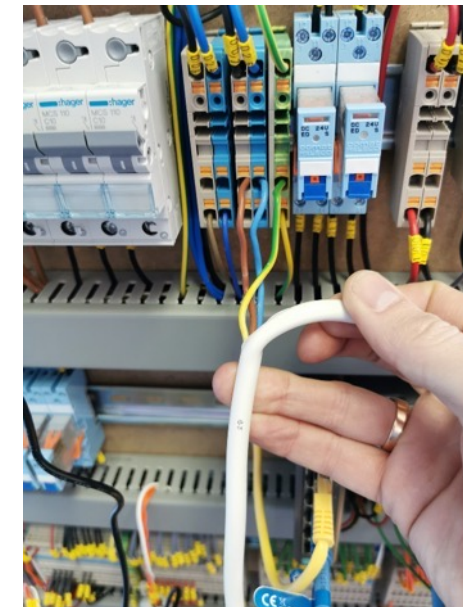
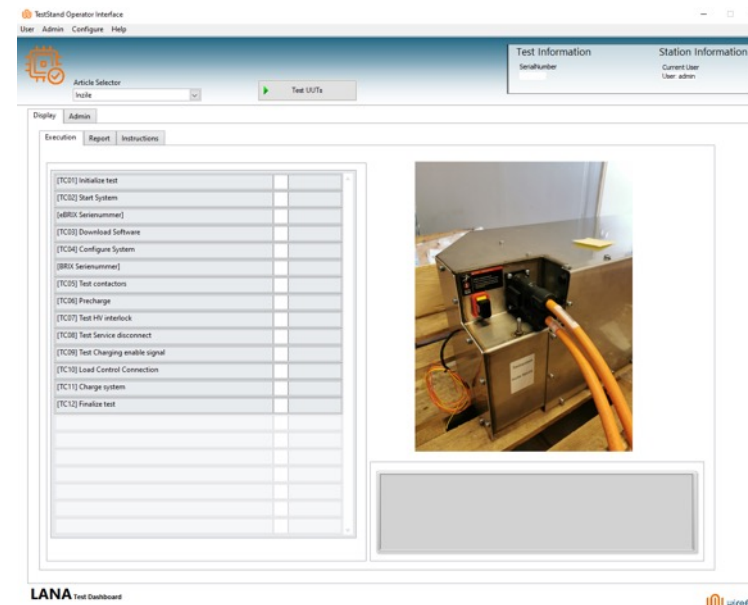


Pack verification





Production Testing and (Dis)charging



Building Blocks



I/O Modules

- Battery Stack monitoring
- Cell Discharging
- Temperature measurement
- Current Measurement



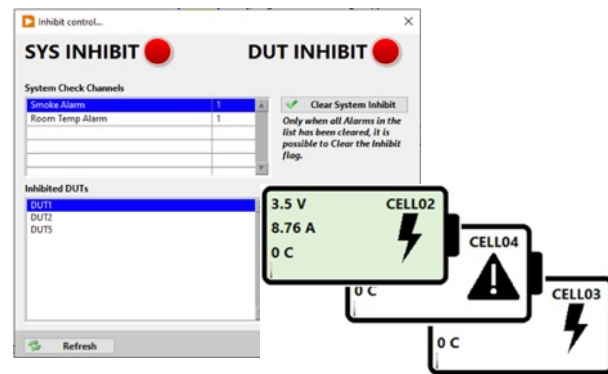
Fire Protection

Sensors & Extinguishing Systems



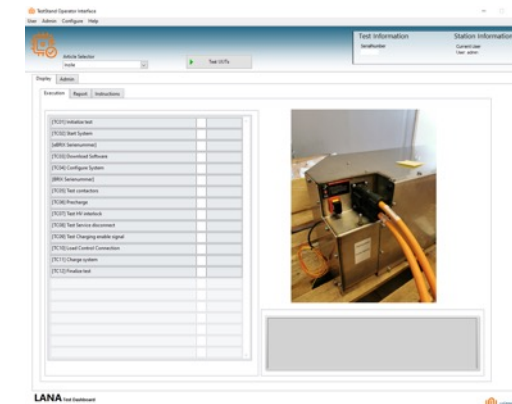
Chargers & Loads

- Regenerative power supplies
- Electronic loads
- Application specific charges



VALAND

Battery Test & Measurement Framework



LANA

Test Dashboard



Cameras

Thermal imaging



Customers

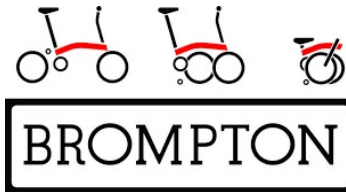
TOYOTA

MATERIAL HANDLING

**MICROPOWER
GROUP**

northvolt®

 **STENA**
RECYCLING



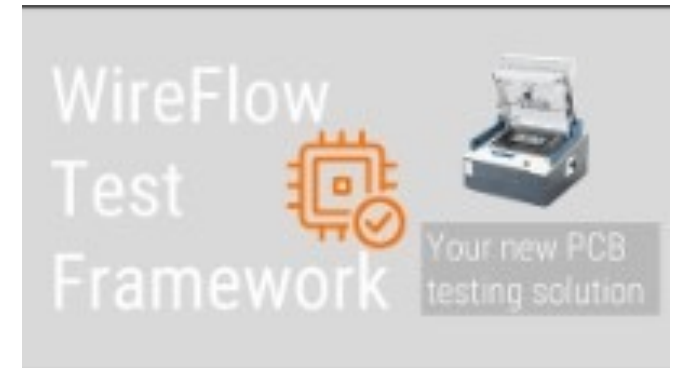
PCB Testing

We can jump-start your project
by using our well-defined
development process

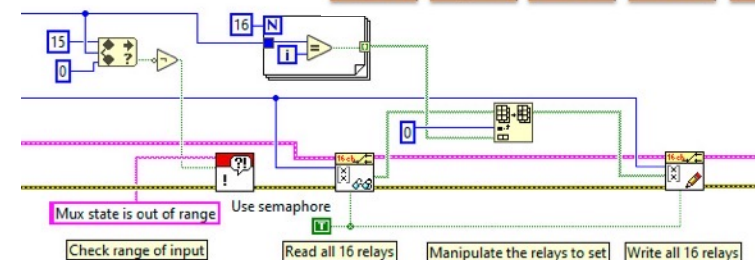
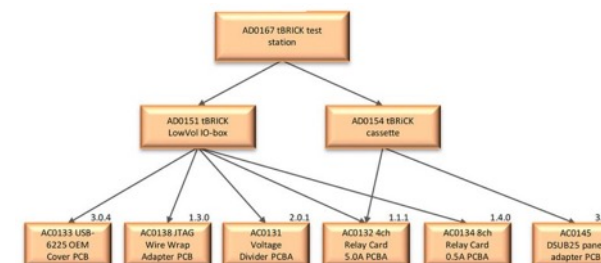
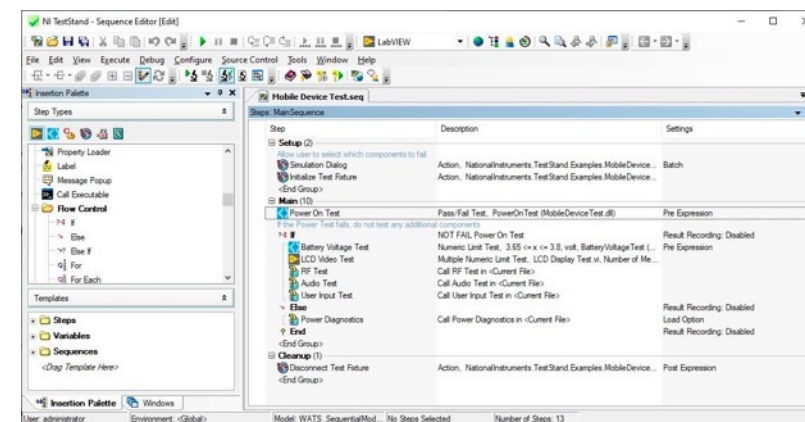


PCB Testing

We offer you a versatile platform for your circuit
board testing – configurable, modular, affordable
and robust

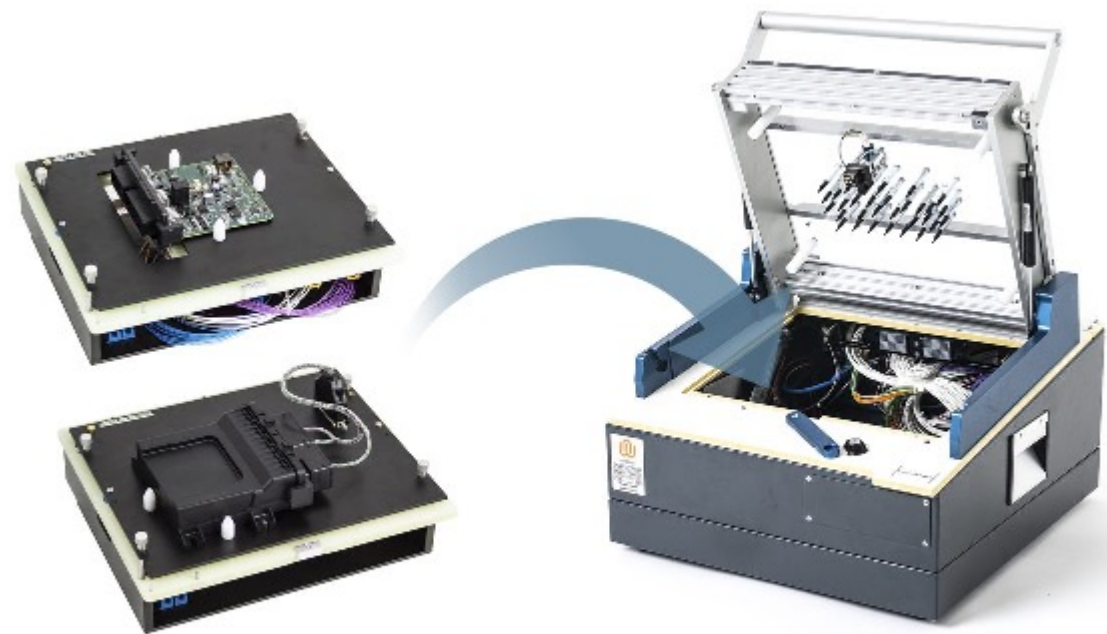
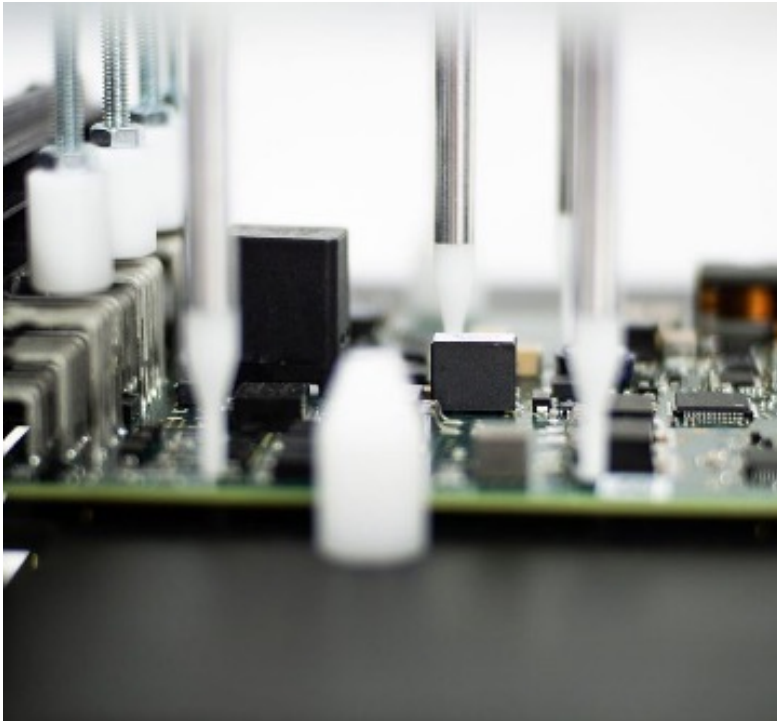


Test expert services





Fixtures

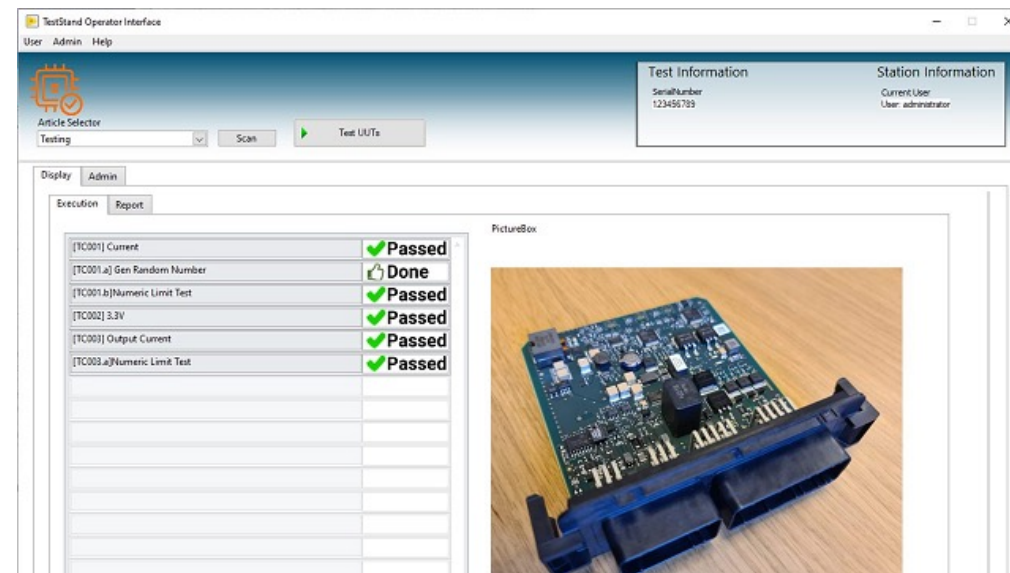
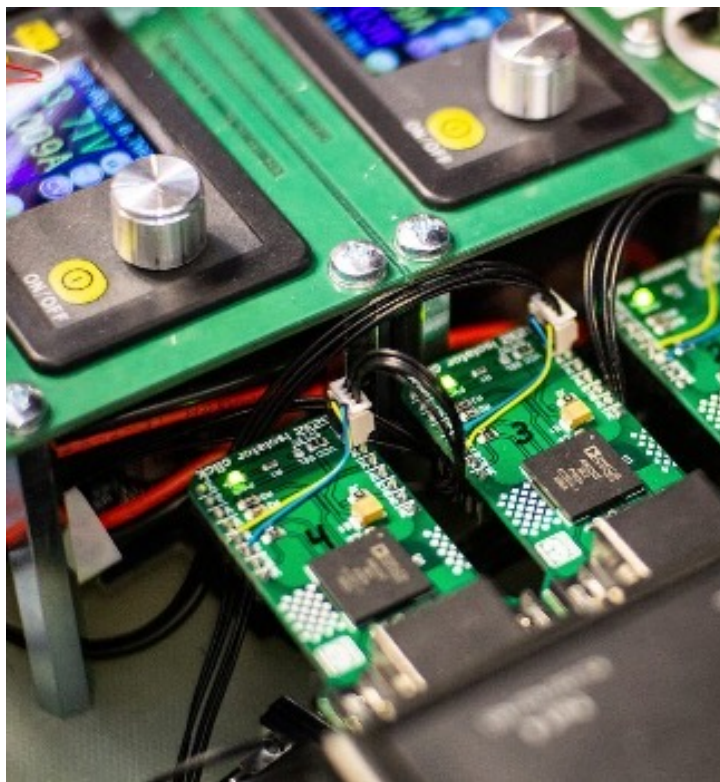


Multiple cassettes

I/O Box



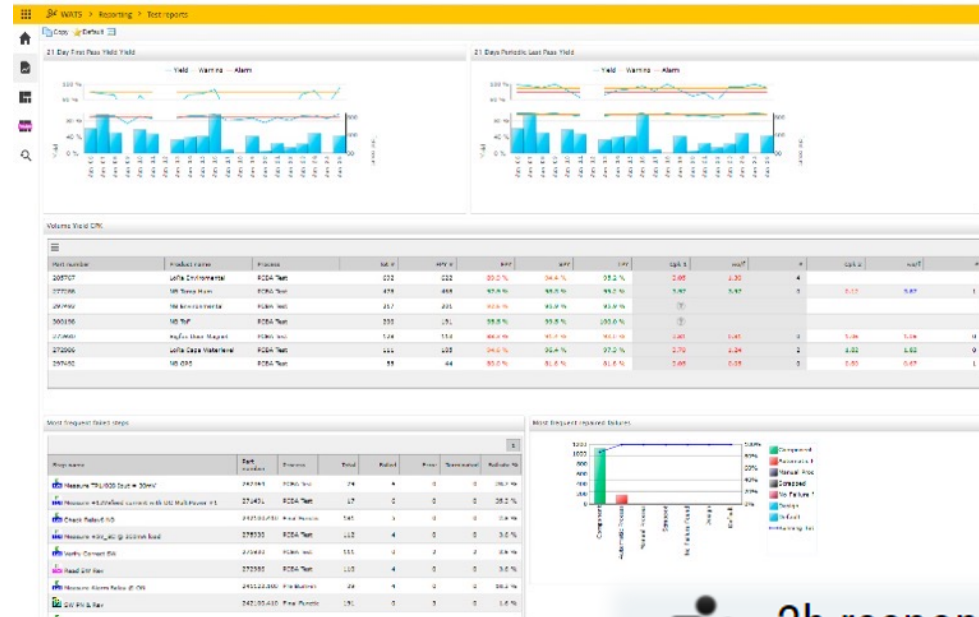
HW & SW building blocks



Peripheral systems



Support services



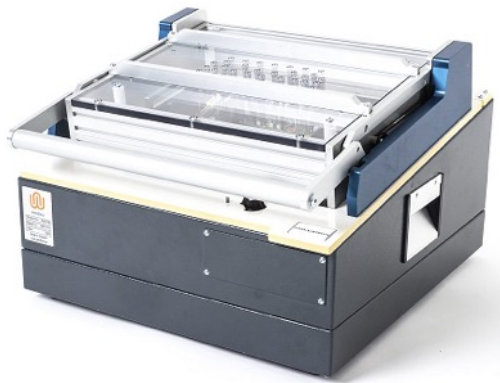
- 2h response
- 48h response
- One week response



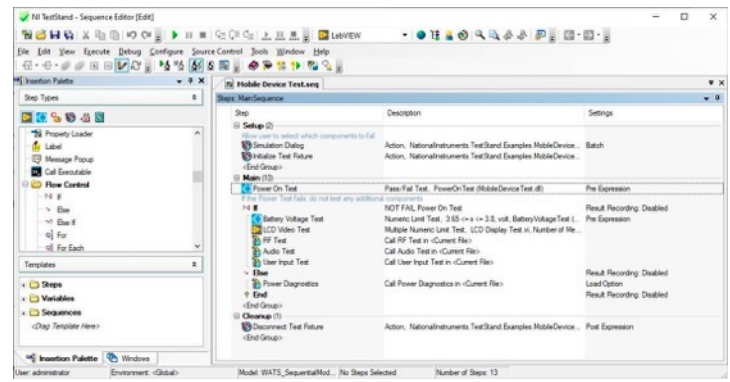
Building Blocks



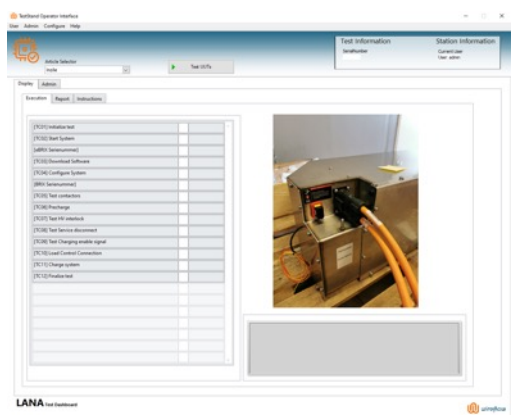
WATS
Manufacturing Intelligence



Stenpiren
Test Fixtures



NI TestStand
Test Management Software



LANA
Test Dashboard



Instrumentation
Modular and easy sw integration



Customers



**MICROPOWER
GROUP**

NOTE™
YOUR MANUFACTURING PARTNER

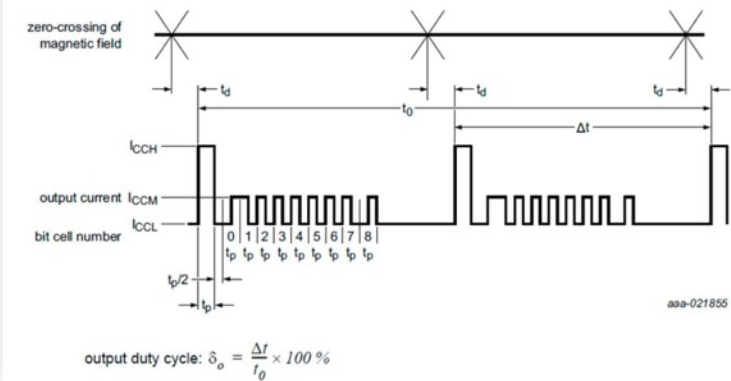
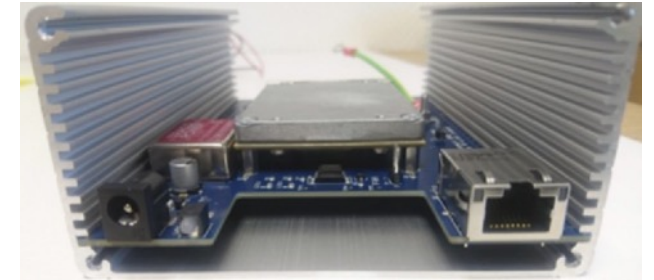
ABB

Advanced Sensor Simulation



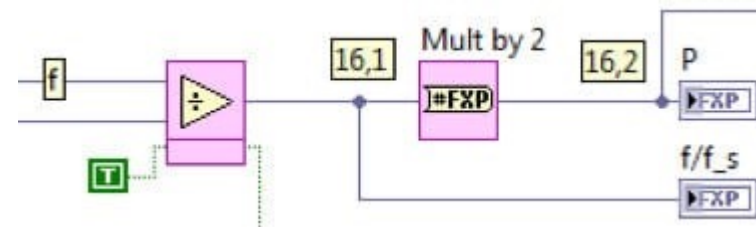
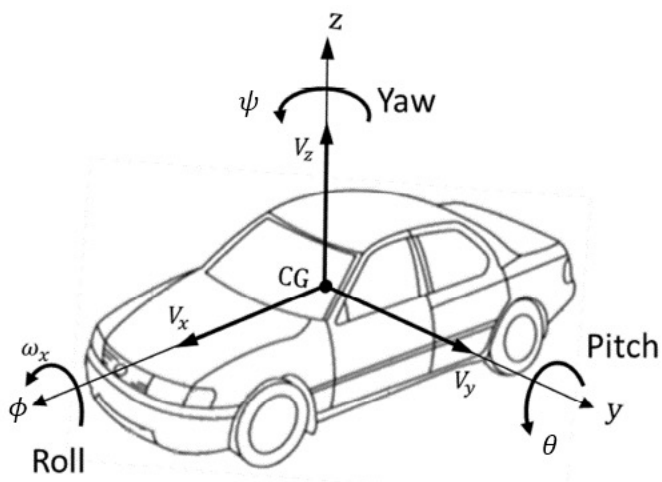
Advanced Sensor Simulation

We offer customized sensor simulators for advanced sensors that uses built-in signal processing.



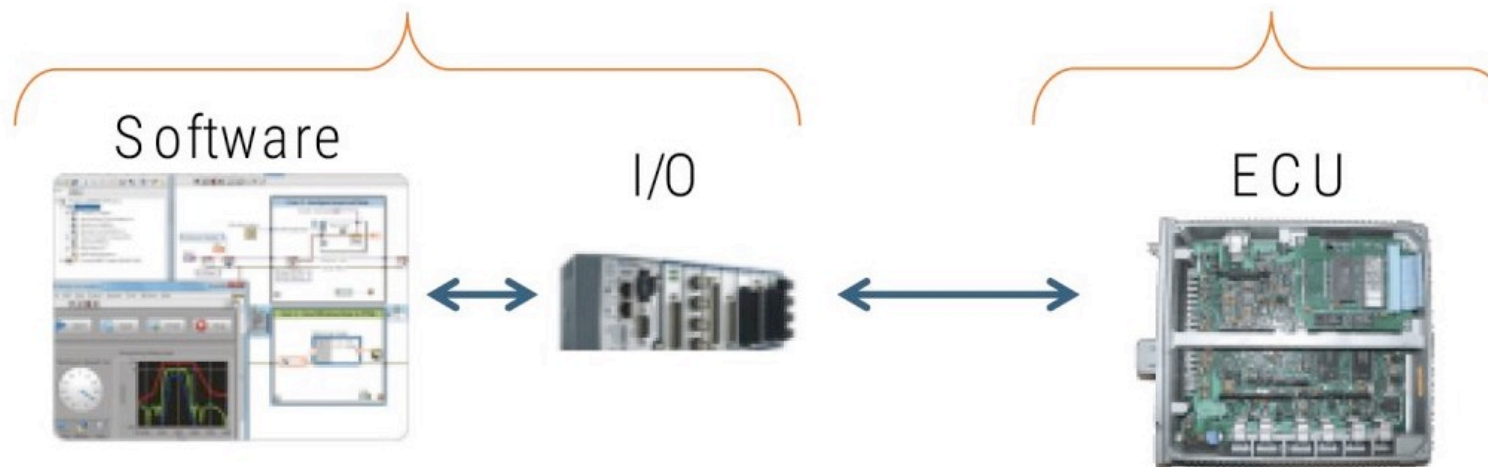
Typical use case

- Inertial Sensors
- Speed sensors
- Proximity sensors
- Temperature Sensors
- Ultrasonic sensors

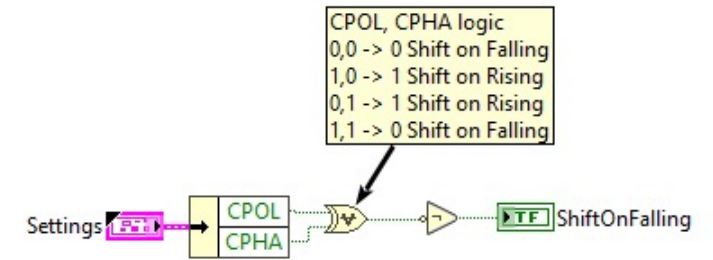


Simulation of sensors

Device Under Test



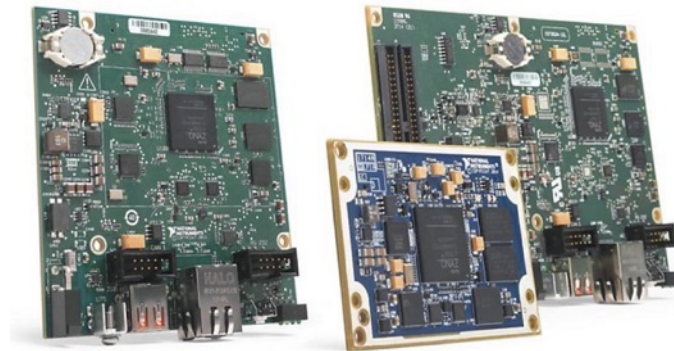
Building Blocks



NI LabVIEW
Systems engineering software



WF 3144
Programmable Resistor Module



NI sbRIO
Single-Board Controller



NI compact RIO
Real-Time cpu & FPGA



Customers



Services

LabVIEW ecosystem experts at your service



Custom Electronics



Integration Services



Consulting



Services

The Engineering Team

- Have for three decades successfully integrated NI products in numerous control and measurement systems
- Certified LabVIEW developers, architects and instructors as well as certified TestStand developers
- A unique competence and experience of LabVIEW FPGA/RT and hardware integration



NI Partnership



Certified LabVIEW Architect
National Instruments



Certified LabVIEW Developer
National Instruments



Certified TestStand Developer
National Instruments



NI Certified Professional
Instructor
National Instruments

Services: Customers

	 SAAB	 SAHLGRENKA UNIVERSITETSSJUKHUSET	ERICSSON 
 GKN AEROSPACE			 KONGSBERG AUTOMOTIVE
		 CHALMERS UNIVERSITY OF TECHNOLOGY	 FINGERPRINTS

Project examples



CASE | WireFlow Integration Services

SSPA Upgrades MDL

SSPA is a maritime consultancy company hosting unique testing facilities for physical validation of ship models. WireFlow's assignment were to develop the software framework controlling the hardware from National Instruments.



CASE | WireFlow Integration Services

Validation System for Biometric ID Chip

Our client needed a fast and reliable test system for both manual characterizations as well as for automatic regression testing. Together with our client, WireFlow has created a platform with the ability to adapt and scale with the company's innovations and short development cycles.

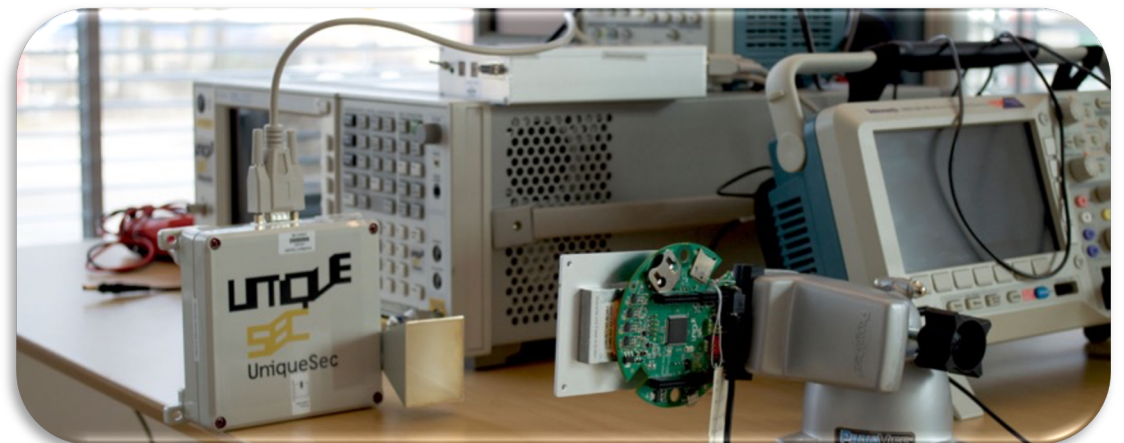
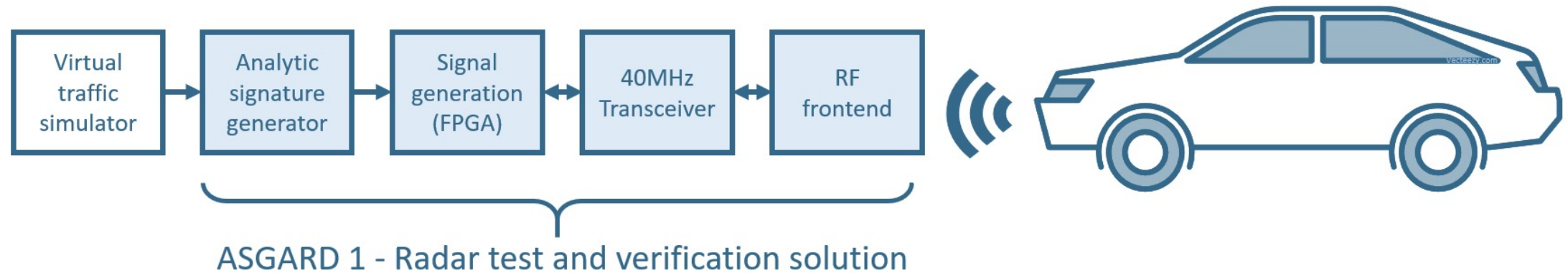


CASE | WireFlow Integration Services

Seatwirl

We developed a control and monitoring system for a vertical and floating Wind turbine for Deep Sea Deployment. The ambition was to provide the most cost-effective product for the production of renewable energy.

Radar test and verification solution based on FlexRIO and LabVIEW FPGA



HiL experience

- Volvo Aero
- Volvo Penta
- Volvo Mobility Systems
- Volvo Construction Equipment
- Volvo Trucks system test
- Volvo Powertrain
- Volvo Chassis Dynamics
- Dynapac



Enabling maritime Sensor-Fusion inventions

National Instruments' SOM-platform in deep water (in a good sense).

- The Challenge

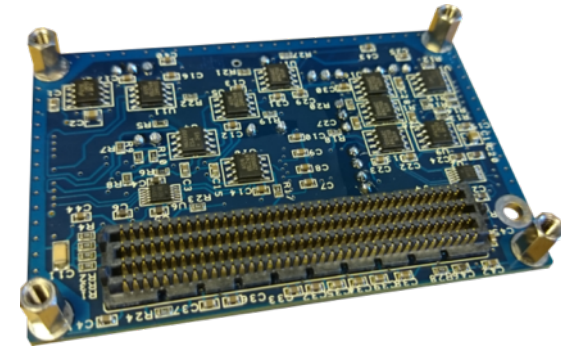
- A compact multi-sensory device for maritime applications

- The solution

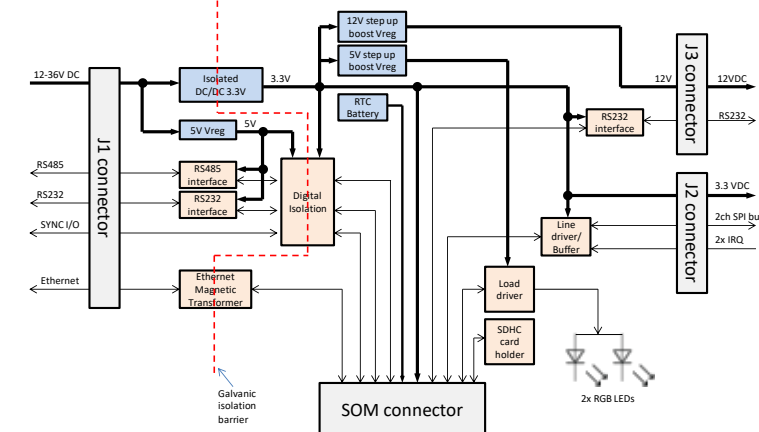
- "CompactRIO System On a Module"-platform
- LabVIEW software for FPGA and ARM processor

- Features

- Gigabit Ethernet, RS232, RS485, SPI
- 3.3V and 5V Digital I/O. 12V supply out
- RTC Battery, MicroSD Card, RGB LED
- Software platform in LabVIEW



Block diagram

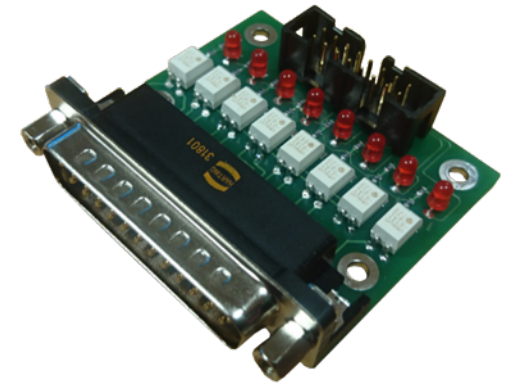
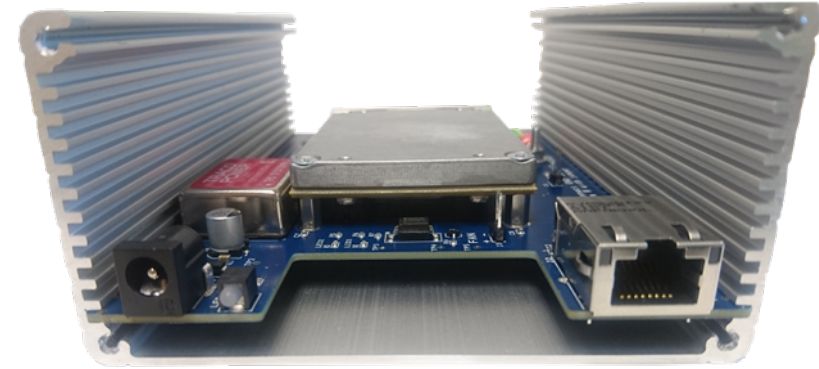


Custom Electronics



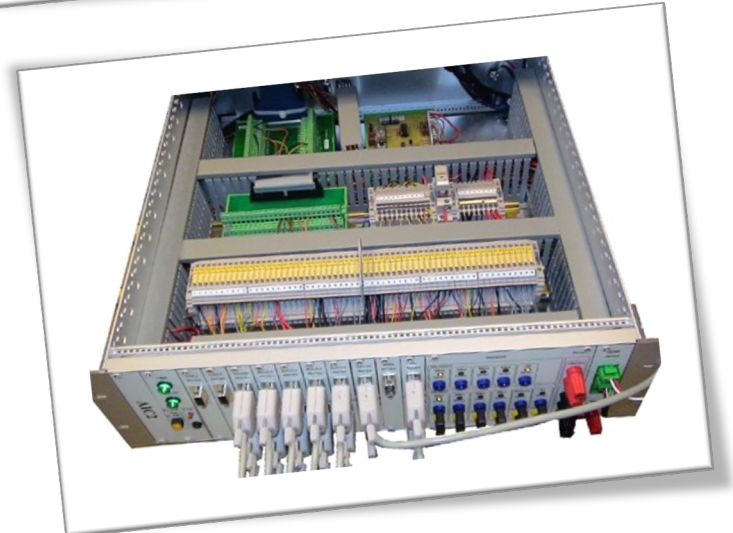
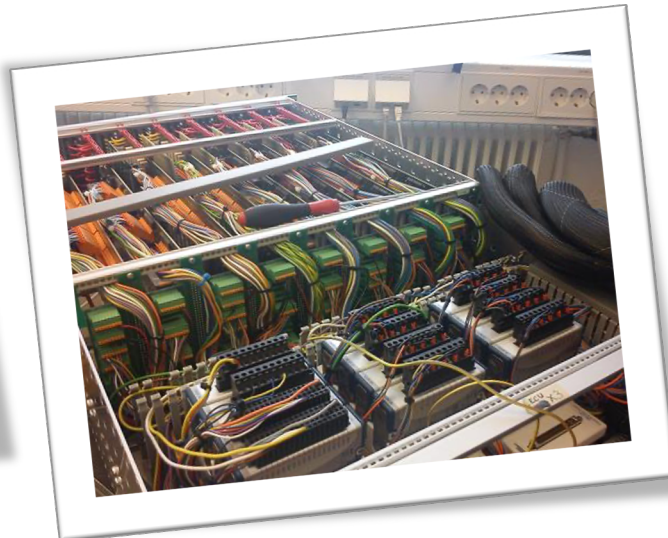
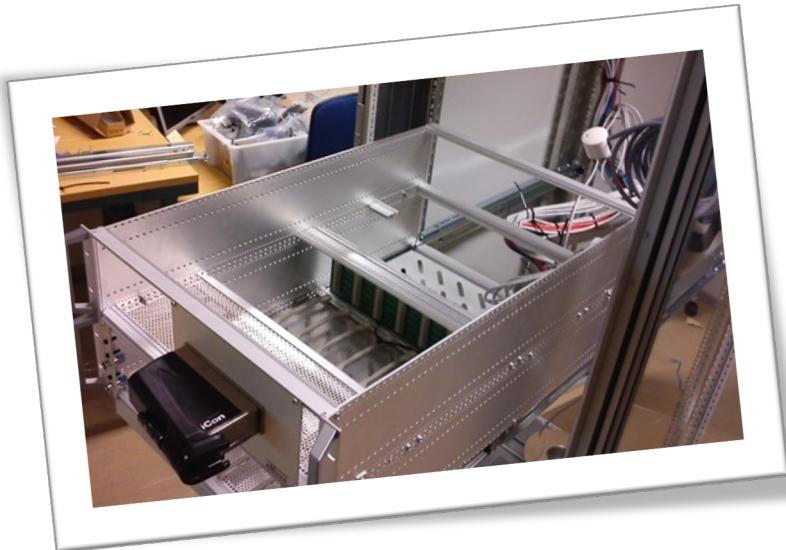
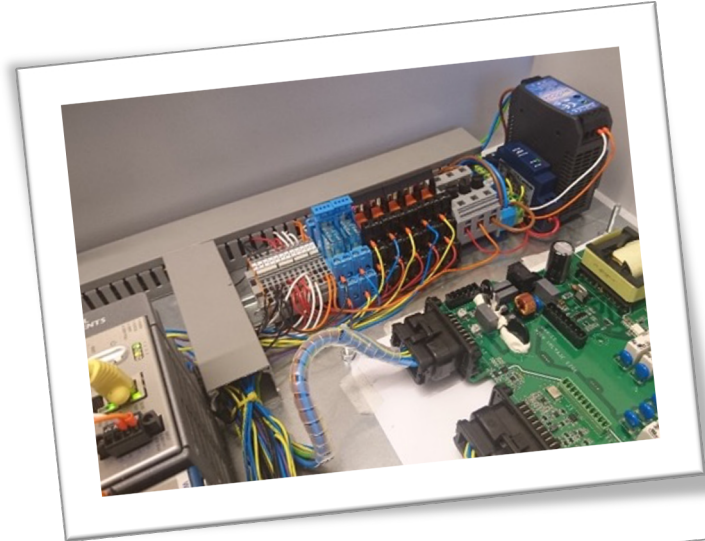
Off the shelf products for specific customers.

- Mezzanine-boards for Single-board RIO
- Custom C-series modules
- FlexRIO-adapter Modules – FAM
- Custom PXI-boards
- Signal conditioning boards

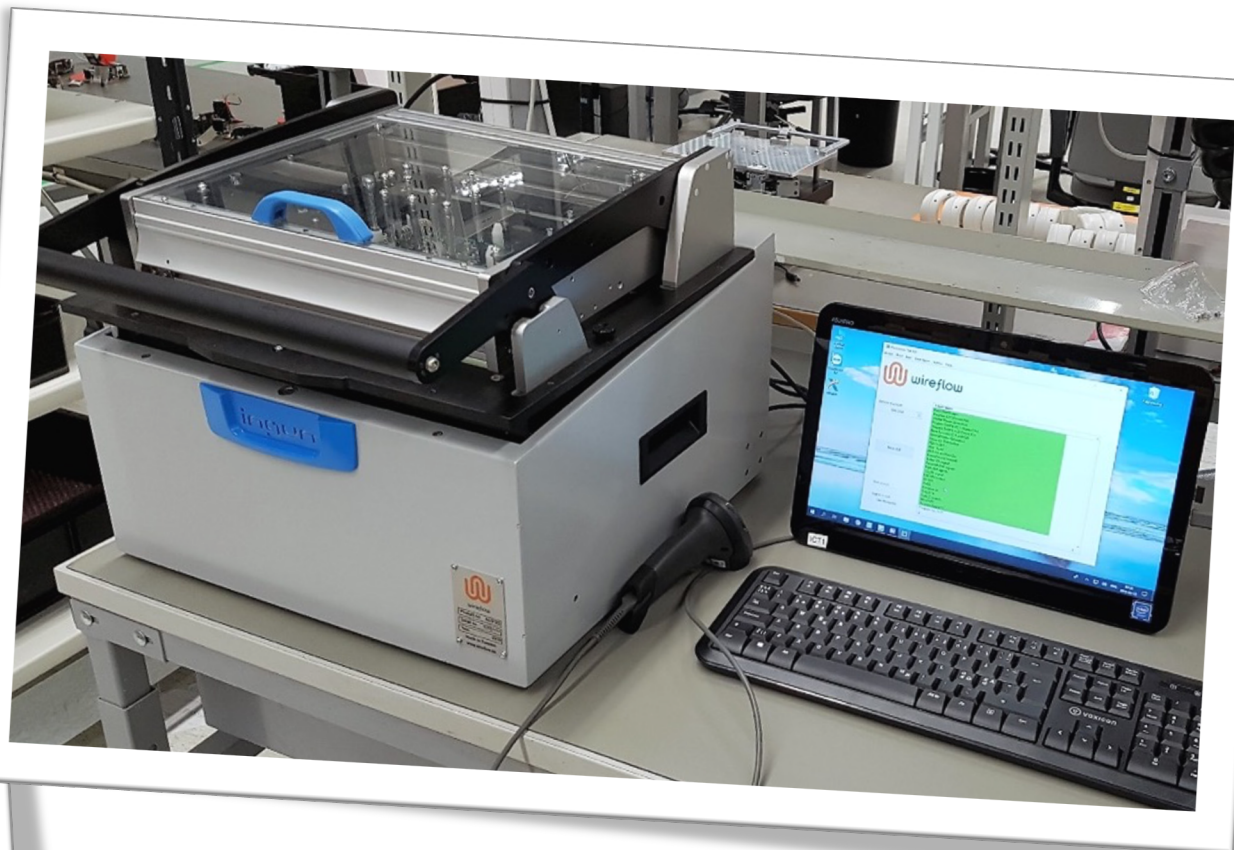
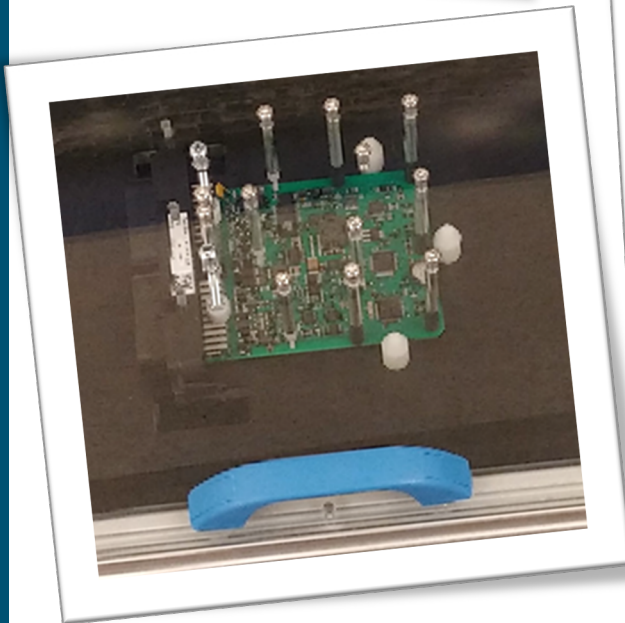
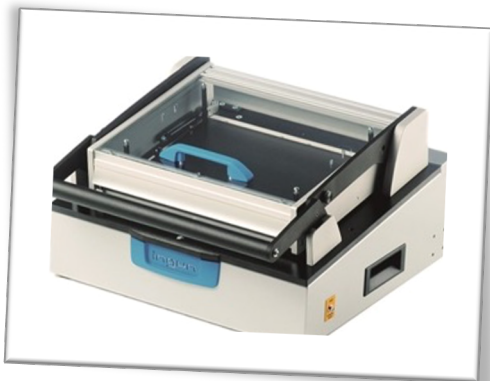


WireFlow can take care of manufacturing, maintaining, stockholding etc. so that you can buy more whenever you need, just as if it was a customized off-the-shelf product.

Mechanical and electrical design

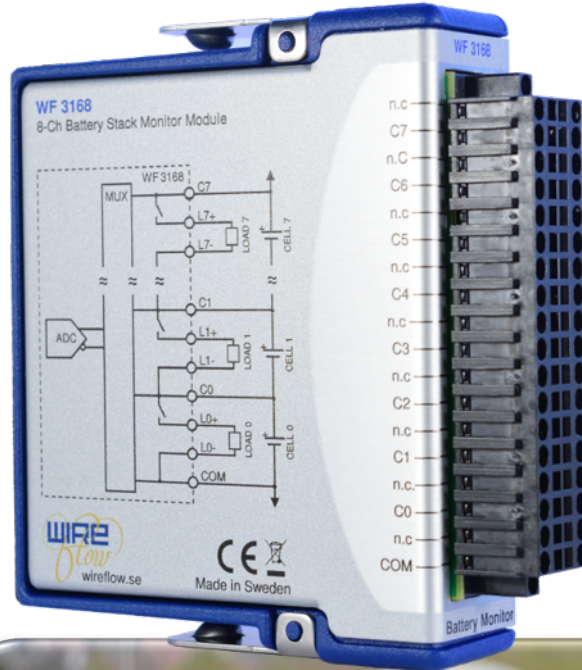


Production tester (BMS Circuit board)

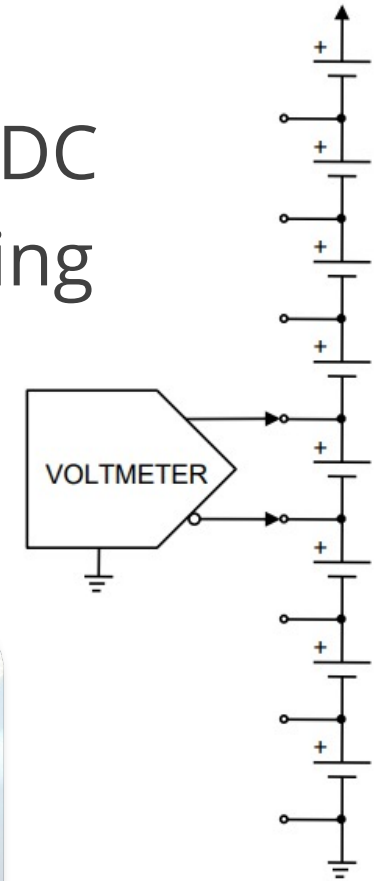


Complete production tester setup with fixture to the left, hand scanner in the middle and the controller PC to the right.

Battery Stack Monitor And Balancing Modules

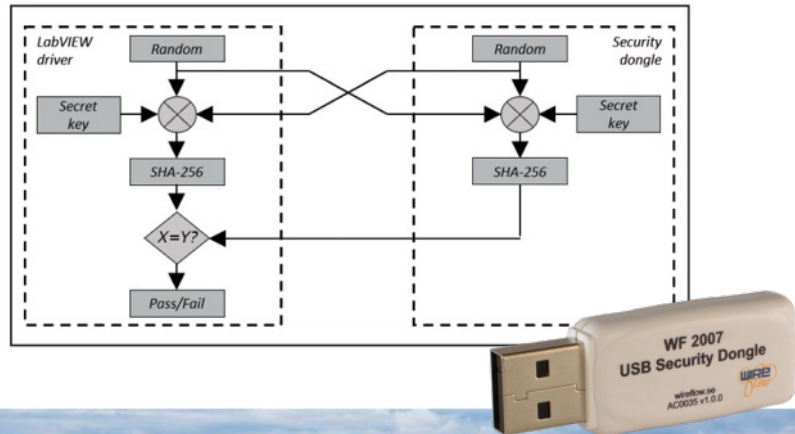
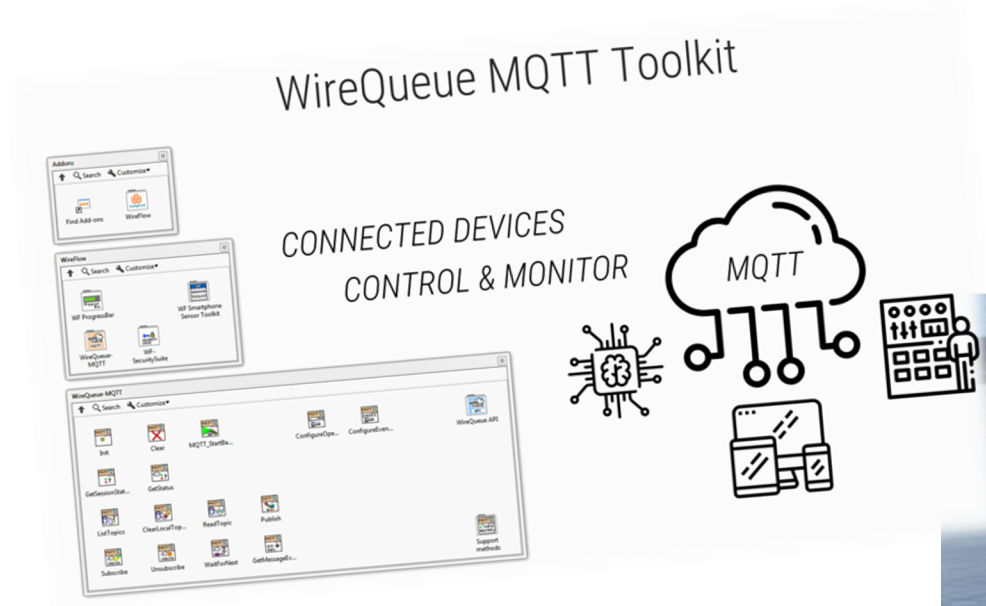


- For NI Compact RIO
- Stackable design, up to 1000 VDC
- WF 3168: 8 ch, 15V with balancing
- WF 3169: 24 ch, 5V



Secure IoT

- Products and solutions



SCADA solution for subsea Workover

- SCADA platform based on LabVIEW
- 1000+ channels
- Redundant systems
- Configuration database
- Logging + control
- Alarms + Events





wireflow

Thank you



wireflow