



COMPANY OVERVIEW



ELECTRONICONS AS

INNOVATING ELECTRONICS





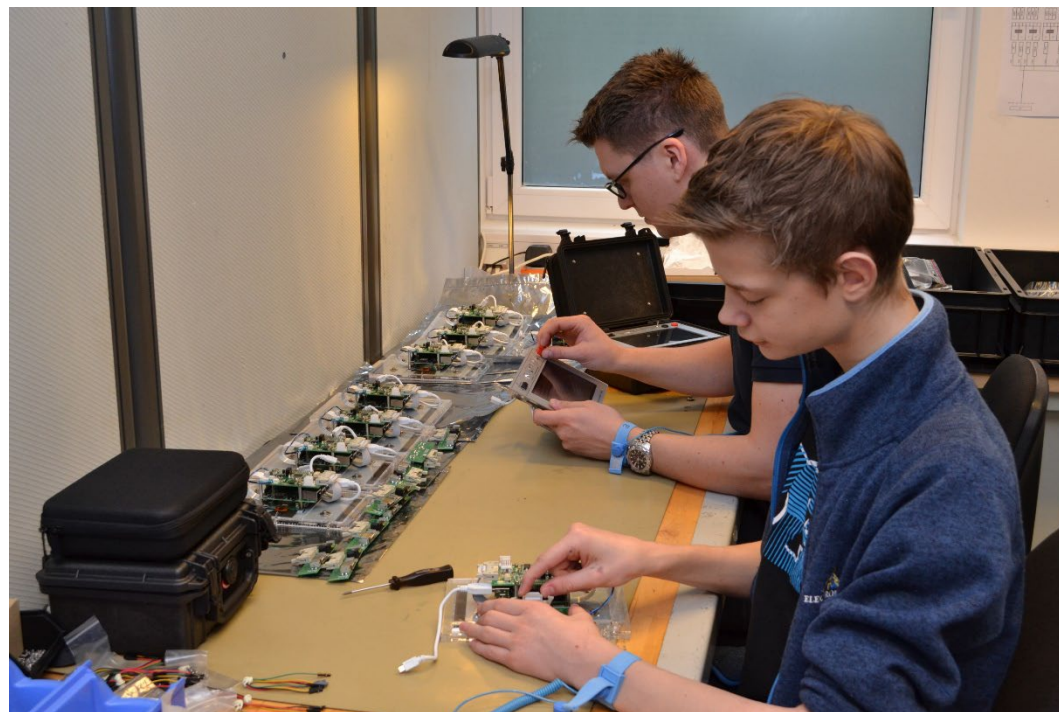
COMPANY AT A GLANCE

- Established 1969
- Family owned
- 12 employees
- Average yearly turnaround 2Mil €



FACILITIES

- Located close to Norwegian largest Navy Base Haakonsvern
- Office space
- Workshop
- Manufacturing Area





MANAGEMENT SYSTEMS

- HSE
 - Compliant according to Norwegian rules
- ISO 9001 2015
 - Certified since 1996
- Security
 - Several security agreement
 - All Personnel has security National/ NATO secret
- Code of conduct
 - Based upon Norwegian Defense Guide lines

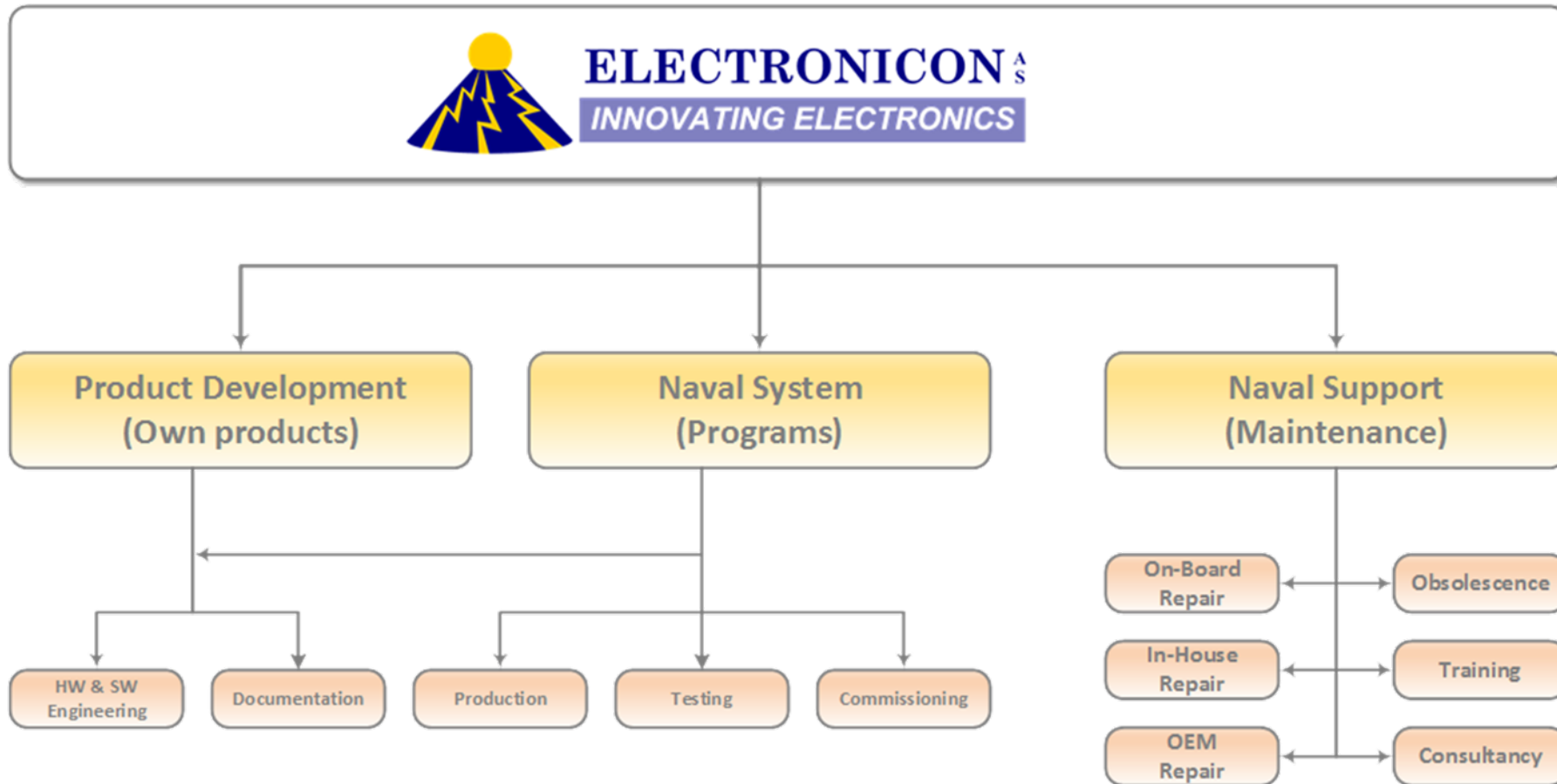


BUSINESS MODEL

- Cooperation with Defense supplier to the Norwegian Armed Forces
 - Seek program with potentials for local content
 - Seek programs that enhance current capabilities within Electronicon.
- Develop and strengthen niche know-how.
 - Develop existing products
 - Seek new similar markets.
- Develop Maintenance and Support
 - See new maintenance areas.
 - Market obsolescence engineering
- Seek new markets
 - Export to defense market
 - Adapt products for civilian market



ORGANIZATION AND SKILLS



SKILLS: ENGINEERING

- Requirement management
 - Establish requirement and verification requirement
 - Interpreter requirement into solutions
- Hardware development
- Firmware and Software development
- Printed Circuit Board development
- Documentation
 - Test Documentation
 - System manuals
 - Logistic



Hardware Development Examples

- Data Distribution Unit
- Navigation Integration Unit
- Launcher Distribution Unit
- Helideck Communication
- LSCU Communication
- Helicopter Radar: Power Unit

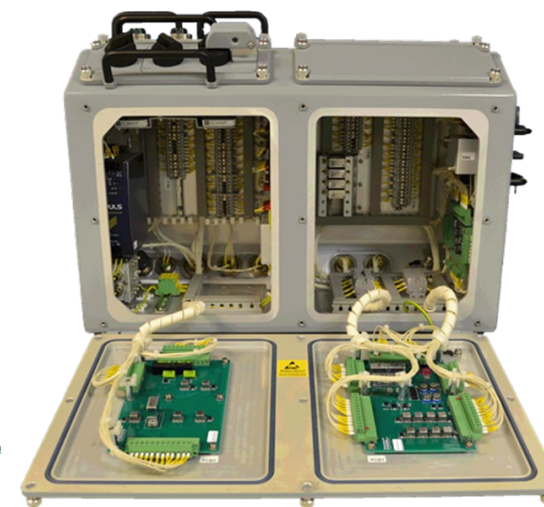
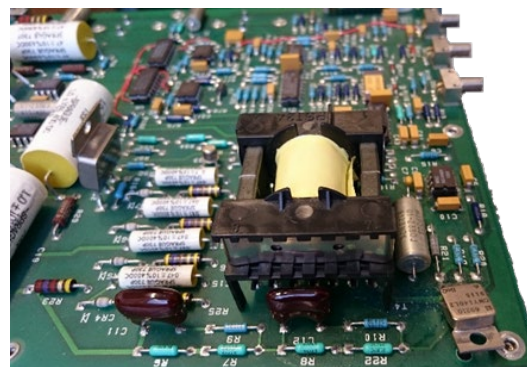


Software Development Examples

- Interface message handling
- INS simulation Software
- Control Software
- Display Software

SKILLS: OBSOLESCENCE ENGINEERING

- Redesign off obsolete parts and sub systems
- Reversed Engineering
- Software analysing
- Replacement PCB
- Mechanical solutions
- Resulting in either modified units with new components or complete new "form, fit and function" solutions



Successful Examples

Launcher Distribution Unit for torpedo system.

Printed circuit cards for Radar systems

Printed circuit cards for periscope systems

Reversed Engineering Challenges

Poor documentation

Obsolete key components

New environmental requirements

Old CPU technology

Electronicon AS has the ability to analyse and propose best solution.

HYPER CONVERGE INFRASTRUCTURE SYSTEM

- Experience from an operational tactical system

- Configure "Node cluster"
- Define Virtual architecture
- Configure "Virtual Machines" (VM)
 - ✓ Build VMs
 - ✓ Install SW on VMs
- Configure Security system settings
 - ✓ Configure Tool
 - ✓ Configure "security policy"
 - ✓ Install and configure protection/monitoring SW (NGAV, Next-Generation Antivirus)



PRODUCTS: NAVIGATION INTEGRATION AND DISTRIBUTION

- 100% In house Development
- Modular and Tailored solutions
- High data rate
- Low latency
- Functions
 - Distribution
 - Data fusion
 - Format translation
 - Remote Control
 - Sensor Status
 - Sensor selection



Reference RNoN Platforms

Nordkapp Coastguard Class
KV Svalbard
Ula Class Submarine
Nansen class Frigate
KNM Maud
Alta/Oksøy class MCMV

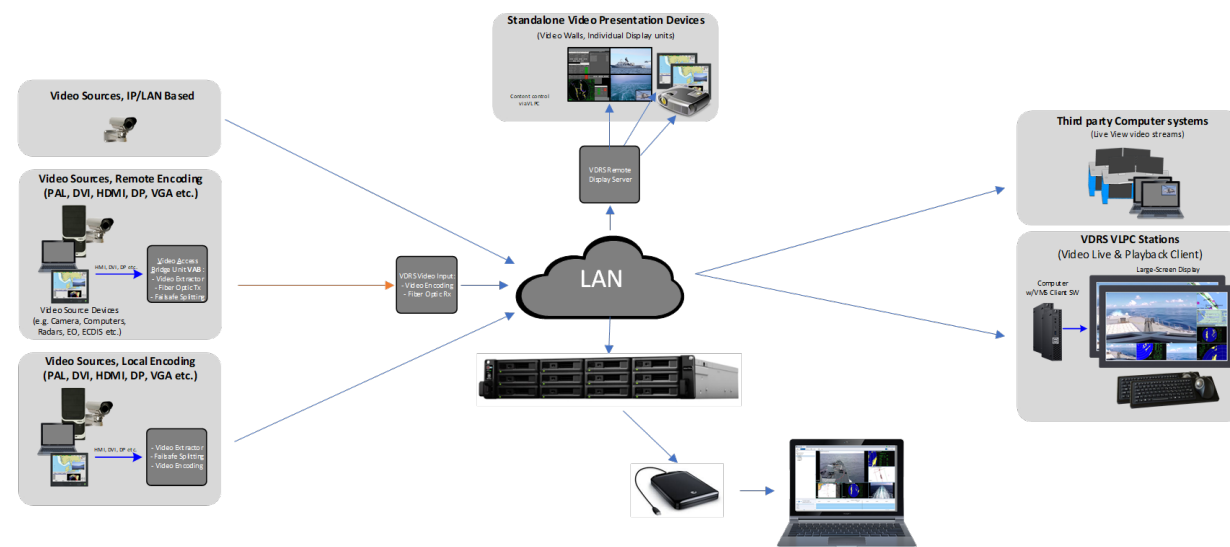
Export

New Zealand
United Arab Emirates
Poland
Non disclosed Nato Country
Pakistan

PRODUCTS: VIDEO DISTRIBUTION AND RECORDING SYSTEM (VDRS)

• VDRS Highlights

- Camera and Computer Video distribution and recording based on standard IP video streams
- Integrate videos from multiple system and sources
- Turnkey solution
- Highly scalable system size and capacity
- Build to best practice and best available COTS hardware and software
- Nonproprietary components to avoid obsolescence
- Easily upgradeable



Video Distribution

- Typical video sources: Cameras (PAL/NTSC) / CCTVs (IP) / Computers and Workstations (HDMI/DVI/DP)
- Typical video destinations: Standalone Display Devices / Video walls / Standard Computer software / Third party computer software

Video recording & Viewing

- Instant Live video and Playback of Archived video
- Searchable recording archive
- Synchronised replay of multiple videos
- Video Export: timestamp and authenticity validation
- Recording system integrated in standalone server hardware or on virtualized machines in a HCI

PRODUCTS: ENCLOSURES

- Small series
- Close cooperation between manufacturer and Electronicon AS design
- In house assembly
- Integration and testing



Delivered Enclosures

Coast Guard: TMS MFC
Coast Guard: TMS system cabinets
Ula: Link 11 cabinet
Ula: RESM Cabinet
Nansen: HCR 210 system cabinet
ELC: own equipment enclosures

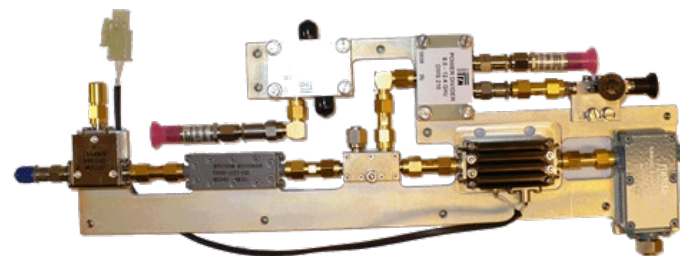


Enclosure specific

Platform adapted
EMC and shock requirement
High component density
Complex cable harness
Complex cooling system

SKILLS: PRODUCTION

- System Assembly
- Cable harness
- Local network of sub supplier
- System Integration and Testing
- Documentation



Production Electronicon AS Systems

- Data Distribution Unit
- Navigation Integration Unit
- Launcher Distribution Unit
- Helideck Communication
- LSCU Communication

Program Production (examples)

- 210 N Helicopter Control Radar
- Transmitter
- Power Distribution Units
- RESM Cabinet ULA
- MFC Link 11 ULA
- Cabinets & MFC TMS Coastguard

SKILLS: COMMISSIONING

- Develop Installation, Commissioning and test documentation
- Physical installation
- Setting To Work / Commissioning
- Acceptance testing



Experience for following Platforms: (examples)

- Nansen class Frigate
- Skjold class Corvette
- Ula class Submarine
- Alta/Oksøy class MCMV
- Nordkapp class /KV Svalbard CGV

Type of systems (examples)

- Radar Systems
- Communication System
- Navigation Systems
- Command Control Systems

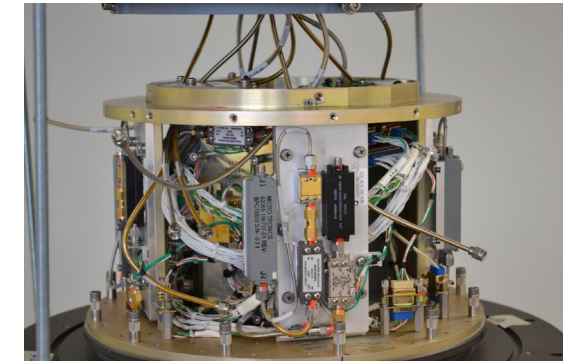
SKILLS: SUPPORT

- System maintenance
 - Preventive
 - Repair
 - Modifications
- Training
- Obsolescence monitoring
- Site Survey / Consulting
- Documentation Upgrades



Typical Support task

- On Site repair
- On Site training
- In House repair
- Manage OEM repair
- System training



Existing Maintenance Contracts

- 210 N Helicopter Control Radar
- Flight deck communication
- Metrological Sensor System
- Link 11 system (Ula Class)
- Coastal Radar Chain
- CS 3701 RESM

EXAMPLES OF ELECTRONIC AS DEVELOPMENT

