MIOS ELETTRONICA

Company Profile

September 2016

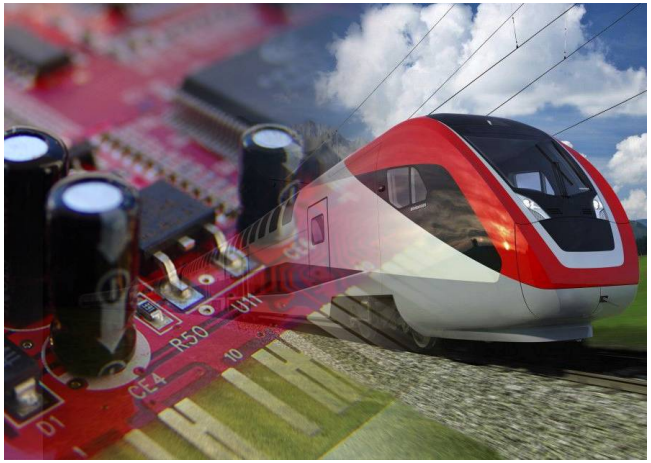
www.mioselettronica.com

WHO WE ARE

MIOS Elettronica has been established in 2011 based on a vision and an entrepreneurial initiative of few experienced managers coming from leading Engineering Companies in the field of Railway business, Oil & Gas and Aeronautics.
We felt there was a gap between futuristic to come innovation and cutting edge technology for actual needs and problems.

MIOS Elettronica is active in the field of electronics for on-board solutions in the Railway specialized in the TCN technologies and providing innovative solutions for Oil&Gas. High skilled engineers and a quick decision making process make of MIOS a responsive and reliable Partner.

COMPANY STRUCTURE



MIOS ELETTRONICA

MIOS US, Inc.

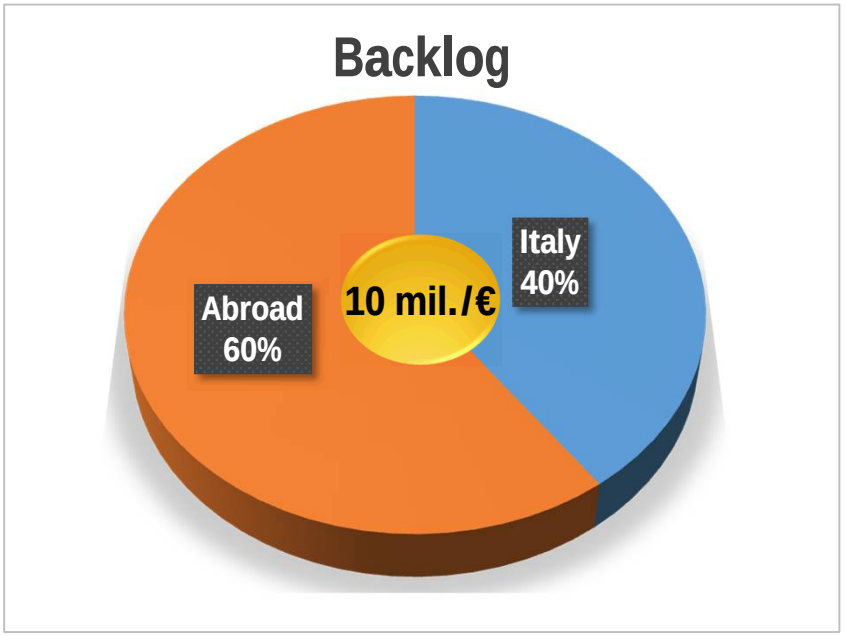
MIOS CANADA

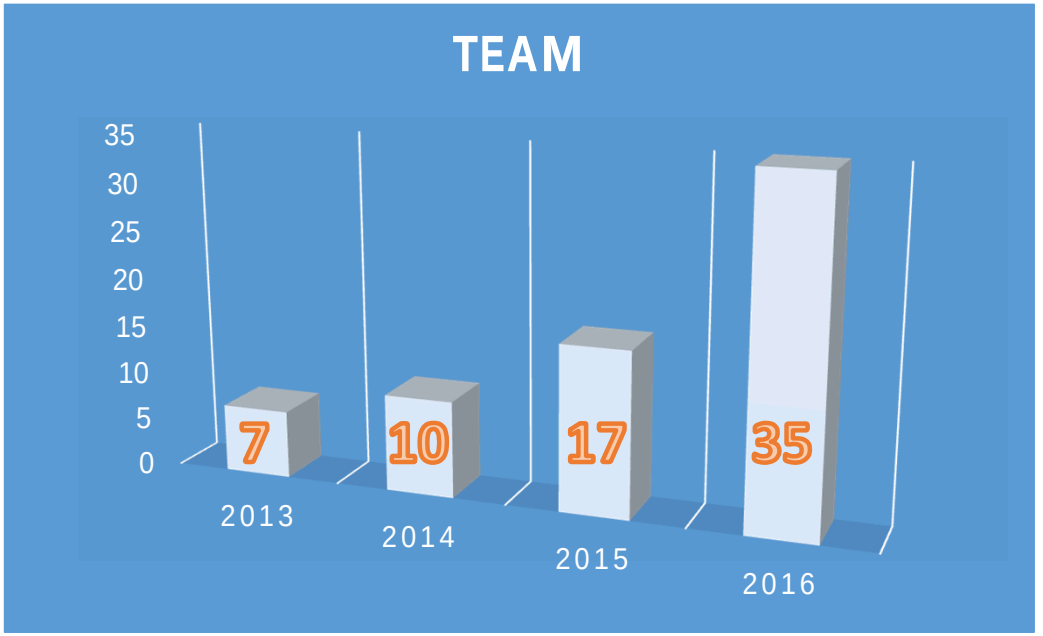
RAILWAY division

INDUSTRY division

SERVICE division

KEY FIGURES





MIOS Elettronica is a company fully owned by a Financial holding (from 2016) with a consolidated turnover of 200 million €. with plants in Italy, North America, Singapore, China and in the UK. The Companies of the Group are active mainly in the Railway sector, Power Generation and in the offshore Equipment for the Oil&Gas market.

MIOS EXTENDED ORGANIZATION

Network of professionals with long term contracts (with exclusivity)

Qualified presence to the main international standardization and industrial organizations

Partnership with important Universities and Research Institutes

Access to financed programs for R&D projects

Qualified EMS's with global presence

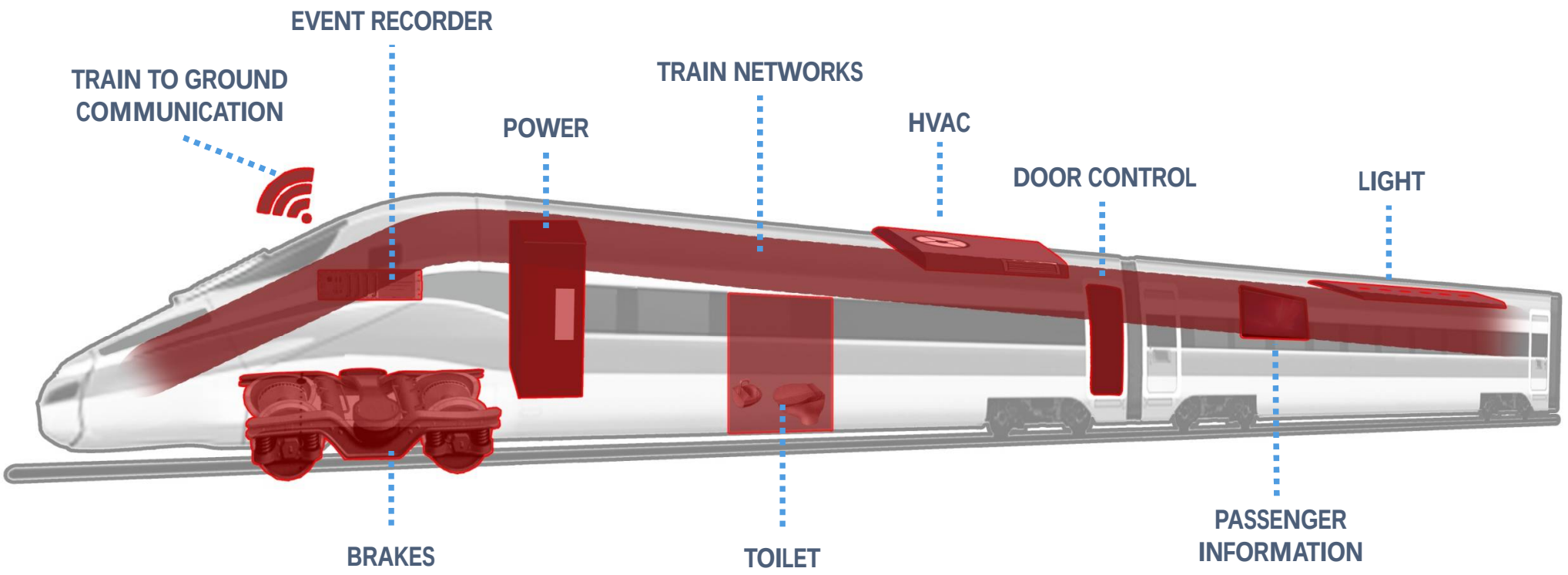
RAILWAY Division

We deliver on-board technologies and solutions for

Train communications
Data and events recording
Train automation & diagnostic

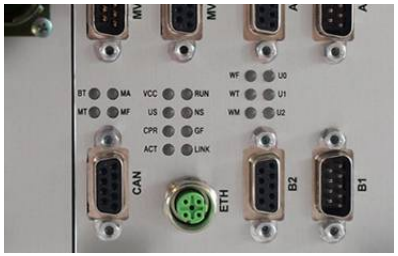
OUR EXPERTISE

Train Communication Network (TCN)
Train Control & Monitoring System
Train Subsystems Integration



TCN GATEWAY

RGWM1000



MAIN FEATURES

- Microprocessor Xilinx Zynq® dual core ARM Cortex A9 + internal FPGA
- 512 MB DDR3
- 32 MB NOR Flash
- SD Card Up to 16 Gb (optional)
- 1 Ethernet 10/100 Base-T (2nd optional)
- 1 WTB full redundant with fritting function
- 1 MVB bus full redundant EMD (ESD or OGF available on request)
- 1 isolated CAN bus (optional)
- 1 isolated RS232/485/422 (optional)
- 2 Digital Inputs
- 1 Digital Output
- EN 50155 - IEC 60571 - IEC 61375

The RGWM1000 equipment is a railway on-board gateway coupling to IEC 61375 and UIC 556 leaflet.
The RGWM1000 is enclose in a compact 3U sub-rack. Coupling two RGWM1000 units by means of the serial interface the
Gateways act as a redundant TCN node. Traffic data, redundancies and all other features are programmable by XML files.
RGWM1000 has been homologated by Italcertifer on March 2016

PROTOCOL CONVERTER

RGWD2000

MAIN FEATURES

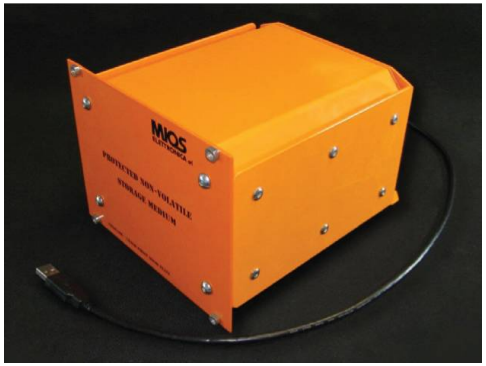
- 1 Ethernet 10/100 Base-T (2nd Gbit Ethernet optional)
- 1 MVB bus full redundant EMD (ESD and OGF are also available on request) class up to 4
- 1 isolated RS232/485/422
- 1 isolated CAN bus (optional)
- EN 50155 - IEC 60571 - IEC 61375

The RGWD2000 is as on-board railway device that implements the gateway function between the Ethernet network and the MVB bus.
Additional interfaces are available, e.g. CAN bus and/or RS232/485/422 which can handle other standard or customer specific protocols.

CRASH PROTECTED MEMORY

MAIN FEATURES

- Approvals/Compliance: EN 50155, IEC 60571, IEEE Std 1482.1-1999 and IEC 62625-1
- Internetworking Standards: IEEE 802.3u (Fast Ethernet 802.3ab), IEEE 802.3at (Power over Ethernet)
- Storage capacity up to 32 GB
- USB 2.0 or Ethernet 100 Base-T (in option)



MAIN FEATURES

- Approvals/Compliance: EN 50155, IEC 60571, IEEE Std 1482.1-1999, IEEE Std 1482.1-2013, IEC 62625-1 and FRA 49 CFR Part 229
- Internetworking Standards: IEEE 802.3u (Fast Ethernet 802.3ab), IEEE 802.3at (Power over Ethernet)
- Storage Up to 32 GB (under evaluation SATA and USB 3.0 to improve storage capacity)
- USB 2.0 or Ethernet 100 Base-T (in option)

ON-BOARD EVENT RECORDER

EVR1000

MAIN FEATURES

- Microprocessor Xilinx Zynq® dual core ARM Cortex A9 + internal FPGA
- 2 Ethernet 10/100 Base-T
- 1 MVB bus full redundant EMD class up to 4
- 1 CAN bus (on request)
- 4 I/O slots configurable with:
  - 16 full isolated digital inputs board;
  - 2 speed (frequency) inputs + 4 analogue inputs ad 2 relays outputs board;
  - Further available I/O boards with different configuration
- Different I/O configuration available on request.
- EN 50155 - IEC 60571 – IEC 61375
- 49 CFR Part 229 rule - IEEE 1482.1-1999; IEEE 1482.1-2013; IEC 626225-1

VEHICLE CONTROL UNIT

VCU1000

MAIN FEATURES

- EN 50155 - IEC 60571 - IEC 61375
- Microprocessor Xilinx Zynq® dual core ARM Cortex A9 + internal FPGA
- 1 Ethernet 1000/100/10 Base-T (2nd optional)
- 1 MVB bus full redundant EMD class up to 4
- 1 isolated can bus (optional)
- I/O slots (up to 8) configurable with:
  - 24 isolated digital inputs board
  - 16 fully isolated digital inputs board
  - 8 isolated digital inputs & 8 isolated digital outputs board
  - 16 isolated digital output & 2 PWM inputs board
  - 2 frequency inputs + 4 Analogue inputs + 2 Relays board
  - Different I/O configuration available on request

The VCU is a vehicle control unit equipped with MVB and Ethernet interfaces fully designed for railway systems applications.

BENCH TEST EQUIPMENT

BTEK0001

MAIN FEATURES

- External Power supply: 110 Vac – 240 Vac @50-60 Hz up to 5A.
- Industrial PC Windows 64-bit OS, Intel Core processor @2.4GHz, 4GB RAM and 500GB HDD
- National Instruments PXI with DAQ, DMM and Digital I/O Boards
- APC Smart UPS
- TDK Lambda Programmable Power Suppliers
- MIOS TCN Gateways, IEC 61375 compliant and UIC 556 certified
- External connectivity:
  - 1 Ethernet 10/100 Mbps
  - 2 Frontal USB 2.0
  - 1 DVD/CD R-W drive
- UTT connectivity:
  - 2 Ethernet 10/100 Mbps with M12 connector
  - 1 MVB bus
  - 1 WTB bus
  - 10 I/O DIN-41612 connectors for each LRU configuration
- CE marking

ADDITIONAL RAILWAY PRODUCTS

HMI for visualization of diagnostic data and status of the on-board systems to driver and crew.

Reading **spotlight** with cable, socket and power supply integrated in the seat.

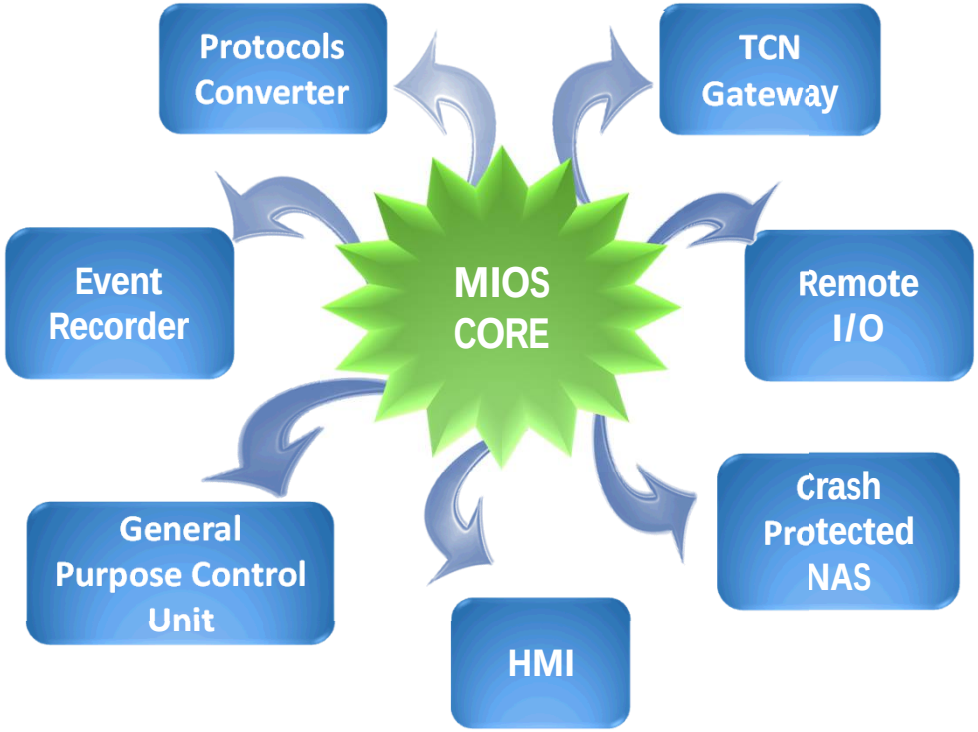
Door control unit with mechanical integration

A solid core and a brand new technology

MIOS products are based on state of the art technology for embedded systems.
The main core of MIOS devices is the Xilinx Zynq® 7000 “System On a Chip”. It is an highly integrated, all programmable single chip that integrate the software programmability of an ARM®-based processor with the hardware programmability of an FPGA.
This solution is the key part of our platform for customizable intelligence of our current embedded systems to support our present and future application requirements offering quick project based scalability.

Advantages:

- Costs reduction in the development phase and in the final mass production phase.
- Enable the user to work on one software platform for all applications reducing total owner and development costs.
- High level of modularity, flexibility and scalability.
- Open environment: third parties software hosting.
- Easy integration with existing systems.
- Short term development of new products.
- Expandability to new functions, protocols and applications
- TCN busses are native as Application Specific Standard Products (ASSP).

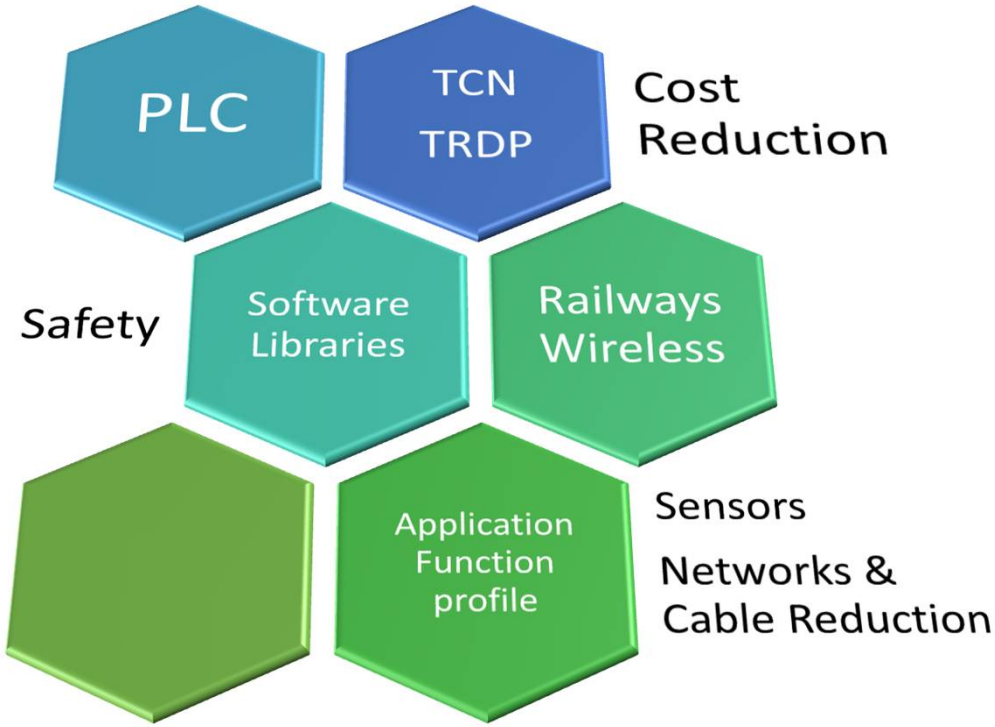


Shaping the future

MIOS is active part of main European Standardization comities. This give us an overview on the directions for future technologies, requested by Car-builders and Railway Undertakings. We are working to equip our device with the latest technology to be ready for the new standards requirements.

Currently our R&D Dept. is engaged on the following activities:

- Train Real-time Data Protocol (TRDP);
- IEC 61375 Application Standard Profile;
- Lightweight Crash Memory;
- IEC 61131 PLC software module;
- Safety applications;
- Wireless network to introduce full connectivity on-board, and board-to-ground;



RAILWAY REFERENCES

Smart Automation for Oil & Gas

Drilling Electronic Solutions

- Enhanced Proportional Valve Driver & Controller
- Intelligent Remote I/O
- Wireless solution

Data Acquisition

- Data Logger module
- Tele-diagnostic module

INDUSTRY TECHNOLOGIES

MIOS Elettronica has developed a specific experience in the Oil & Gas sector and has provided competencies and solution with high technological content.

- Design, development and supply of automation and control systems
- PLC and SCADA programming (SIEMENS and ABB environment)
- Design and supply of electrical cabinets and automation systems
- Systems for communication, networking, data acquisition and analysis
- Monitoring and remote control solutions

OIL & GAS AUTOMATION

Pipe Layer Vessel (Goriziane)

Automation and control systems of movement and lifting lines of the pipe-line

On-board commissioning support

Pipe Layer Vessel (Subsea 7)

Functional analysis and system design of a double-joint welding line

Stinger Load Monitoring System (Bumiarmada)

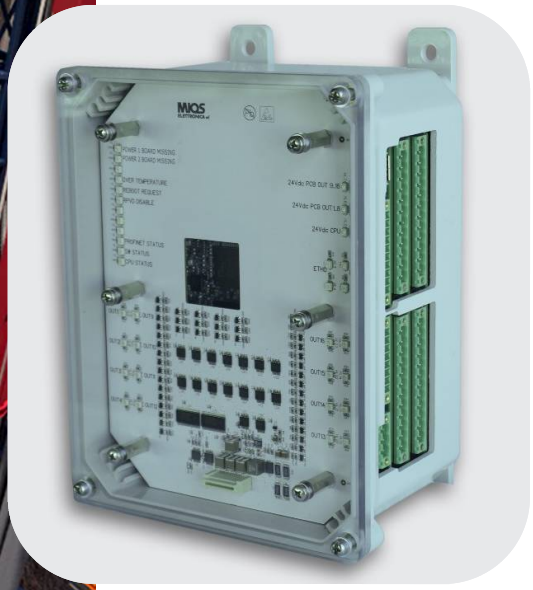
Design and development of the control and monitoring system (sensors, PLC, SCADA)

System integration and on-board commissioning

DRILLING SOLUTIONS

(partnership with DRILLMEC)

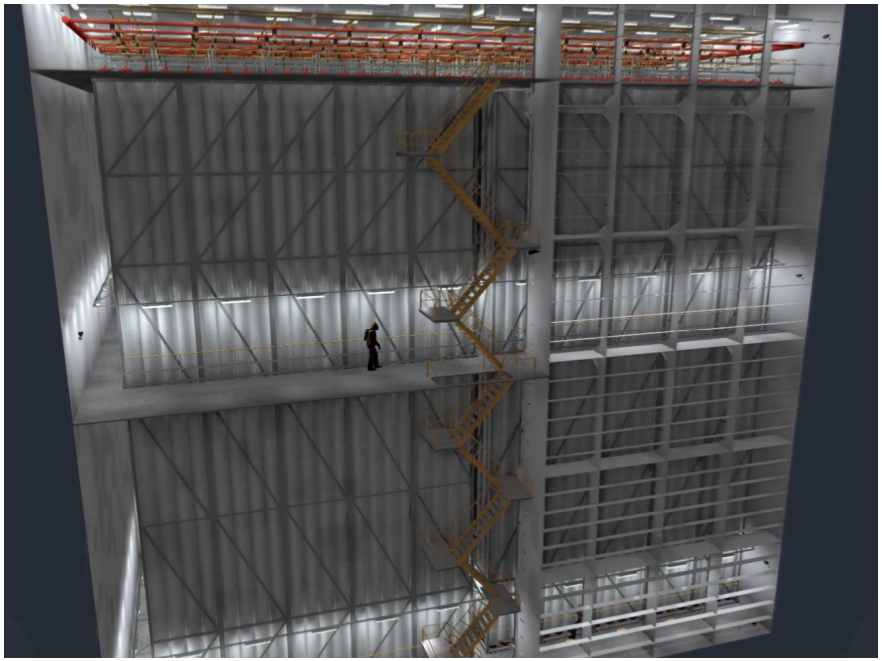
Automation and control architectures (with integrated electronic) for drilling systems



RPVD1000

MAIN OIL & GAS PROJECTS

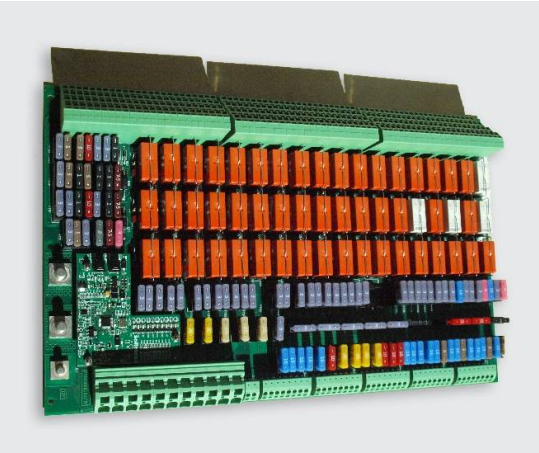
FINCANTIERI
The sea ahead

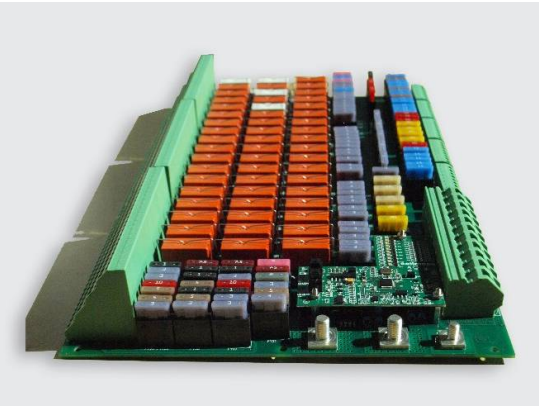


Long term development agreement with Fincantieri (2015 – 2022) to develop innovative monitoring and controlling solutions for oil and gas “offshore” applications”

AUTOMOTIVE BOARD FOR EARTHMOVING MACHINERY

FBRD1000





MAIN FEATURES

- IEC 60068 - DIN 40839 - EN 55011 - ISO 10605 - EN 55025 - EN 61000
- Nominal power supply: 24 Vdc
- Operati ng temperature -40°C to +85°C
- Terminal box or connectors
- 56 out protected power distributi on
- 53 command relais
- 2 delay ti mer relais

OIL & GAS REFERENCES

GLOBAL PRESENCE

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EMEA (Europe, Middle-East, Africa)

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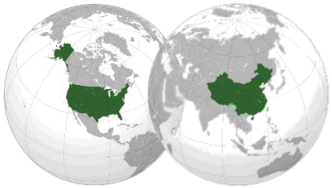

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