



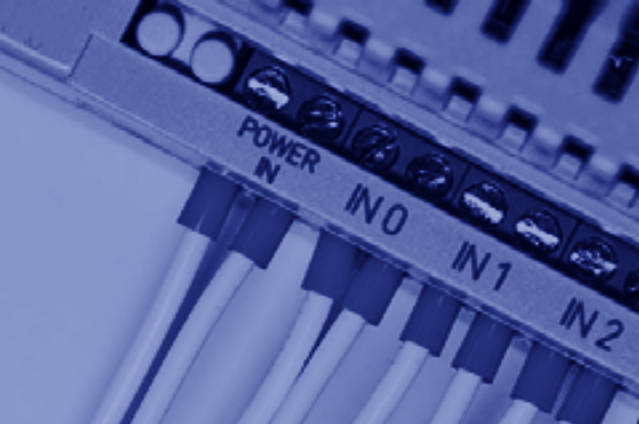
ELECTRONIC DESIGN

MECHANICAL AND PNEUMATIC DESIGN

AUTOMATIC TEST EQUIPMENT

PROTOTYPING AND PRODUCTION

ASSEMBLY AND WIRING



TOGETHER TO **OPTIMIZE** YOUR **BUSINESS**

CEMI-DIGITEC Partnership offer customers-focused solutions to overcome today's challenges. We offer complete Electronic, Mechanic and Pneumatic products engineering, testing and production services.

Our engineering capability and experience can help customers in significant time to market reduction and can improve development and production costs. Long term experience of 30 years in Automotive and Railway market, makes the difference when High Quality and Reliable services and products are mandatory.

CEMI cooperate closely with DIGITEC. Synergy and integration between our Companies improve services we can provide to customers, keeping high-quality services and expectation over the years.

INTERNATIONAL **EXPERIENCE**

Our Automated Test Systems are installed in countries including France, U.K., Belgium, Sweden, Portugal, Czechoslovakia, U.S.A, Canada, China, India, Iran and Vietnam.

We provide Systems Training for Customers and Local Technical Staff in charge of System usage.

Systems Spare Parts are supplied to customers for maintenance and repair purpose. Maintenance of Systems Hardware and Software are done by remote connection 24/7/365.



CEMI
Electrical Solutions

DIGITEC
INGEGNERIA ELETTRONICA

OUR SERVICES

1 ELECTRONIC DESIGN

- Electronic cards and Railway Equipments compliant with EN50155 standard.
- Automated Test Equipments for Railway Electronic and Electro-Pneumatic Products testing
- Train simulators used in Railway Systems development and debug
- We provide Temperature Test, Vibration Test, EMI qualification or other products qualifications.

2 MECHANICAL AND PNEUMATIC DESIGN

- Electrical Boxes and Enclosures for Railway electronics and Pneumatic equipment.
- Pneumatic circuits acting in air generation and control to be used in Railways Systems Development, Debug and production Testing.



3 AUTOMATIC TEST EQUIPMENT

Automatic Test Equipments & Repair service:

- Automatic Test Equipment for Railway Electronic Systems Testing.
- Automatic Test Equipment for Railway Electro-Pneumatic Systems Testing.
- Life Cycle Tester and Fatigue Tester
- Maintenance and Repair service for Railway Electronic Card and Systems.

4 PROTOTYPING AND PRODUCTION

Electronic Boards:

- PCB development
- Assembling and debug
- Test and Burn-in

Railway Electropneumatic Systems:

- Mechanical Assembling
- Pneumatics Assembling
- Piping and Electrical Cabling

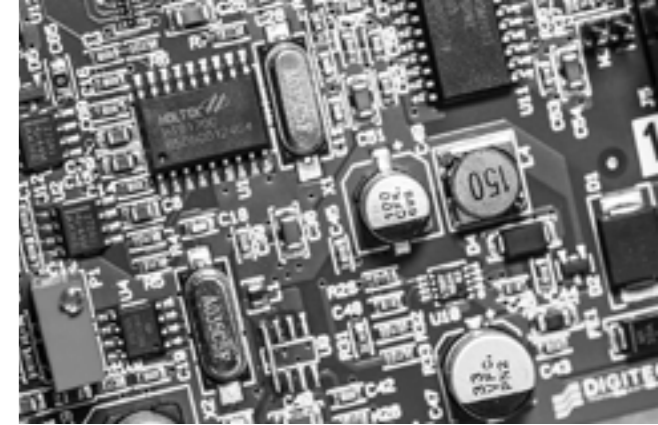
5 RAILWAYS CABLING

Supply of Railway systems:

- Control Box
- E-Cabinet

Supply and Cabling:

- Air Generation and Air Dryer
- Brake Panels and Cabin Panels
- Pantograph Systems
- Doors Control Systems



OUR PRODUCTS

TRAIN SIMULATORS

Train simulators are modular systems that reproduce the train braking system, including electronics, Pneumatics, Software, Hardware and Communication Lines (Can, MVB, Ethernet, etc).

More Car/Bogie components can be simulated.

The System contains Electropneumatic Interface to mate Brake systems and Brake panels used on Trains.

BLACK BOX

Microprocessor Electronic System with solid state memory, communication capabilities and data logging Software in order to log System Messages and Inputs / Outputs System state.



SYSTEM LIFE CYCLE TESTER

This systems are used to determine the life of a product (i.e. a pneumatic valve or a pressure switch).

The Unit Under Test is stimulated by continuous cycles and the functional behaviour is monitored in order to check the life cycle limits.

The test scope can be both the determination of life cycle or the production verification over some product sample.

SYSTEM AND SOFTWARE STRESS TESTER

This systems are used to determine the stability of a given system.

The goals of such tests is to ensure the System and software do not crash in conditions of heavy load and has great robustness in error handling also in critical conditions.

A friendly Programming language, let user to set stimulus and System responses.

PUBLIC ADDRESS SYSTEMS

Our Public Address systems are operating on Urban Train of Turin City, Messina City, Verona City and Barcelona City.

The systems are composed by Audio and Display devices, are connected to localization system and provide Public Address for:

- Next Stop Messages
- Driver Messages
- Remote messages from Control Center
- Passengers - Driver Communication



AUTOMATIC TEST EQUIPMENT FOR **PNEUMATICS DEVICES**

Automatic test Benches are built by mechanical, pneumatic and electronic interface. Devices Under test include Valves, Pressure Switch, Dump Valves, Average load Valves, Application Valves, Distributors.

The device under test is fixed on a test bench pneumatic flange, Test bench SW automatically test devices functional performances and tightness behaviour.



AUTOMATIC TEST EQUIPMENT FOR **ELECTRO-PNEUMATICS DEVICES**

Automatic test Benches are built by mechanical, pneumatic, electronic and communications interface.

Devices Under test include Electro-pneumatic modulators, Brake Systems and Brake Frames.

Test bench must be designed in order to simulate all the train devices the Unit Under Test is connected to during its operating cycle.

Test bench Pneumatics, Electronics and Communication lines must act together in order to verify the correct static and dynamic behaviour of the Unit under test.

AUTOMATIC TEST EQUIPMENT FOR **ELECTRONIC BOARDS AND ELECTRONICS SYSTEMS**

These test Benches are used to perform functional test for Electronic including Power Supply, CPU Boards, Analog Boards, Digital Boards, Speed Boards, PWM Boards, Communication Boards and Whole Electronic Systems.

Test Bench contains instruments including Programmable Power Supply, Function generators, Multimeters, Oscilloscope.

Test bench Electronic interface contains all the Stimulus and Loads in order to mate all the characteristic for the Unit Under Test.

ALARM AND AUDIO COMMUNICATION SYSTEM FOR METRO LINE

The system is based on a steel vandalism-proof housing Box and is connected with a telephone cable to a central unit acting as signals concentrator.

The BOX implement an ISDN 2B1Q at 160 Kbit/sec line and can be powered directly from Telephone line up to 2Km from signal concentrator.

The box contains One Push Button, One light indicator, One speaker and one microphone and its function is to communicate its state to control center and in case of necessity (push Button) to establish a Voice communication between local BOX and Control Center.

ASSEMBLY AND WIRING

Electrical, Electronic and Pneumatic Switchboards Production, Bundles and Cables compliant with the strictest Railways and Automation rules.

We use advanced equipment and machinery for production and process control:

- Automatic cutting line, wires stripping and marking with special inkjet printers.
- Automatic crimping machinery with real time crimping verification by torque control.
- Electronic dynamometer for crimping test.
- Programmable and Automatic Equipment for continuity check and short circuit check of cabling bundles.
- Equipment for Dielectric Strength Test, Insulation Test and ground continuity test.

All the activities are monitored by in-process and final process test. 100% Production testing.



CEMI

Electrical Solutions

Beyond Railway Market

- Industrial Automation Test Systems
- Automotive Systems production
- Electronic board prototypes wiring
- Electric Design
- Digital Archives Building
- Video Surveillance and Intrusion Alarm Systems
- Photovoltaic Installations



CEMI

COMPANY PROFILE



Cemi was established in 1994 from a group of people high motivated and passionate in electric and electronics field. Cemi mission was te capitalisation of high professionalism and experience acquired in Industrial automation. Thanks to many main manufacturers cooperation, Cemi developed over the years high experience in Railway field as testing systems, switchboard systems and cabling supplier.



DIGITEC

COMPANY PROFILE

Digitec was established in 1988 in TURIN from a group of electronic engineers that developed their previous experience in some of major Italian company. Thanks to continuous research and development investments, we offer advanced technological solutions to our customers.



DIGITEC

INGEGNERIA ELETTRONICA

Beyond Railway Market

Automotive Vehicle Simulators (engine signal generator, PT1000 simulator, Lambda sensor simulator, Single ended, Differential, LVDT analog outputs, Analog Inputs, Digital I/O, High Side, Low side and HBridge load Simulation).

- Hybrid Vehicle Battery Control Systems
- High Technology Home Automation Systems

Software Development and Hw Interfaces
Supply for Smart Inline Metrology Systems used in inspection and measurement of carbody assemblies and/or mechanical component.

Automated Production Calibration And Test Systems for Automotive components, Hardware and Software Development.

Board and System Design, Prototyping and production of Industrial Systems.

Committed to
inspire your future

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Electrical Solutions

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