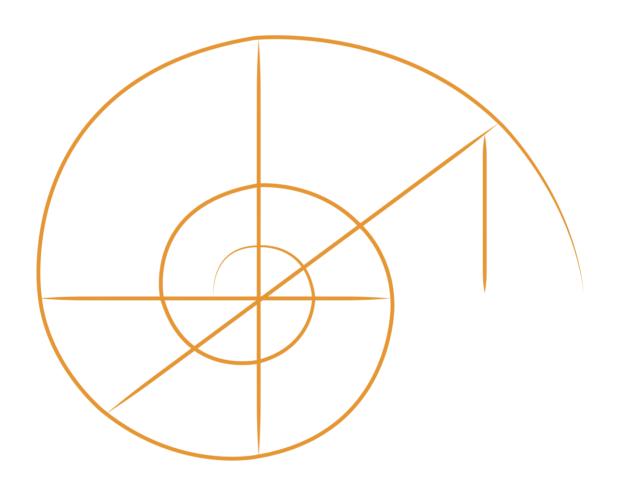


# SAFETY SOLUTIONS DESIGNER





CLEARSY OFFER PRODUCTS AND SERVICES

CONTACT@CLEARSY.COM



### **COMPANY PROFILE**

- French SMF created in 2001
- Independent from any customer and owned by French the ICE Group, founders and employees
- About 160 employees (mainly engineers & PhDs)
- Located in France (Aix-en-Provence, Lyon, Paris, Strasbourg)
- ISO certified (9001:2015) for:

Design and implementation of safety critical control-command systems and software - Consulting

- UTO qualified for I&C design
- In-depth knowledge of signalling systems, CBTC, ERTMS/ETCS, interlocking, rolling stock, railway rules and standards
- In-depth knowledge of Energy standards and I&C safety systems
- Sectors: Railways, Energy/Nuclear, Defence, Micro-electronics
- Development of a portfolio of safety critical products for Railways www.clearsy.com

### **CORE SKILLS**

- Creation and maintenance of the software development toolkit: Atelier B, used by major signalling companies and technical universities worldwide, to produce mathematically proven safety critical software and systems
- Design of safety critical hardware and software SIL2 to SIL4 and classified I&C
- Provision of certified safety critical systems SIL2 to SIL4
- Use of formal methods to develop and verify such systems and software applications





### **EXPERTISE AND SERVICES**

- Software and systems mathematically proven (B method)
- Safety critical data validation tools and services
- Safety cases using IEC 61508, 61513 and CENELEC 50126,128,129 standards
- Security of industrial systems
- Safety critical system and software architecture design and development
- Safety PLC program development
- Safety critical electronic hardware design and development
- Safety critical software and hardware commissioning
- Expertise to meet exceptional or unusual safety requirements
- Expertise in pattern recognition from sensors (laser, radar, video) and embedded algorithms
- Safe train track transmission by induction loop
- Test automation tools and solutions
- Provision of specialists in safety critical developments
- Provision of CBTC and ERTMS/ETCS specialists
- Ability to manage a complete project, from design to deployment and commissioning and level 1 maintenance management
- Management of production, multi-site manufacturing (subcontracting)

## MAIN CUSTOMERS

The customers are mainly end users, operators, industrial companies, integration and installation companies.





## clearsy -

# EXAMPLES OF SAFETY CRITICAL SYSTEMS AND PRODUCTS

The following products have been designed and produced by CLEARSY. About 20 products are certified according to CENELEC standards.



> DETECTION OF A PERSON IN A GAP



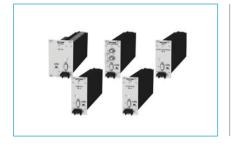
> SAFETY CENTRALIZED SUPERVISOR OF FIRE SAFETY SYSTEMS



> PLATFORM SCREEN DOORS CONTROL



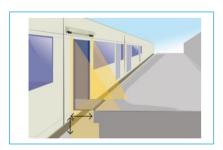
> SIL4 VITAL RELAYS



> CONTROLLER AND SAFETY I/O NETWORK



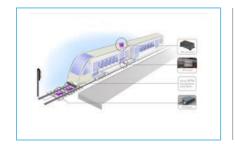
> TRACK SAFETY MONITORING



> PLATFORM DETECTION



> CLEARSY SAFETY PLATFORM - SAFETY CRITICAL COMPUTER



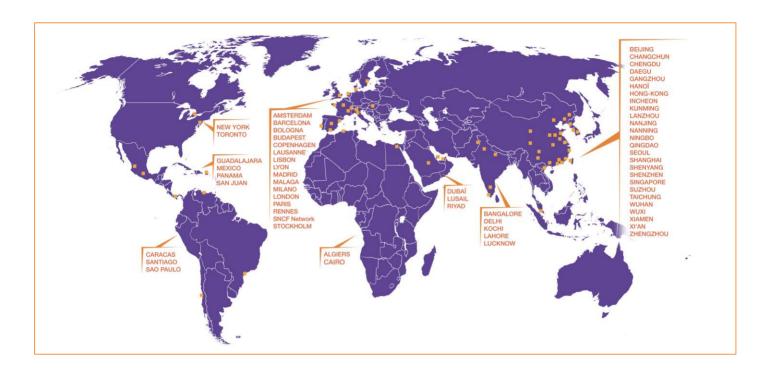
- > AUTOMATIC TRAIN STOP
- OVERSPEED
- SIGNAL



- > HMI SAFETY PLATFORM
- ETCS BASELINE 3
- FITTED FOR INDUSTRIAL AND NUCLEAR USE



## THE B METHOD TOOLKIT DEVELOPED AND EDITED BY CLEARSY



### ISO 9001:2015 CERTIFICATE

The scope of the certificate is:

« Design and Implementation of safety control-command and I&C systems and software - Consulting »





# clearsy

Safety Solutions Designer



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