



*Innovation makes the difference*

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***LEROY AUTOMATIQUE  
INDUSTRIELLE***

*Leroy Automation  
is the brand name of  
Leroy Automatique industrielle*

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[www.leroy-automation.com](http://www.leroy-automation.com)*



# *Main figures*

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- Created in 1984*
- Chairman : Pierre LEROY (founder)*
- SA (Public Company) with a capital of 199.152 euros dispatched between LEROY family [80%] and I.R.D.I (Regional Institute for Industrial Development) [20%]*
- Leroy Automatique Industrielle has a stake in ACEMIP Company (CEM Testing facilities)*
- In 2008, the turnover was 7 M€ with a workforce of 34 persons.*
- In 2009, the turnover will be 10 M€*



# *Leroy automatique industrielle*

## *Who is who ?*

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*Chairman : Pierre LEROY*

*General Manager: Alain WOJTASZAK*

*Sales Manager*  
***Ph GALAUP***  
*Sales Manager Assistant*  
***N MAZEAU***

*Marketing Manager*  
***P.LALLA***  
*Technical Support manager*  
***J.RUFFIE***

*Logical R&D:*  
***C.MARININI***

*Electronical R&D/TEST:*  
***O.MARLIAC***

*Mechanical R&D:*  
***G.BOUYJOU***

*Operation:*  
***P.RODRIGUEZ***

*HR/Finances*  
***S.MALAUZAT***



# *Leroy Automation Company*

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## Our job

-  designing
-  making
-  manufacturing

*programmable automatons (PLC) and  
automatism components (remote inputs/outputs  
module) for harsh environment*



# *Leroy Automation Company*

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Intrinsic characteristics of our products

Robustness and compactness

CEM Environment

Thermic

Mechanical

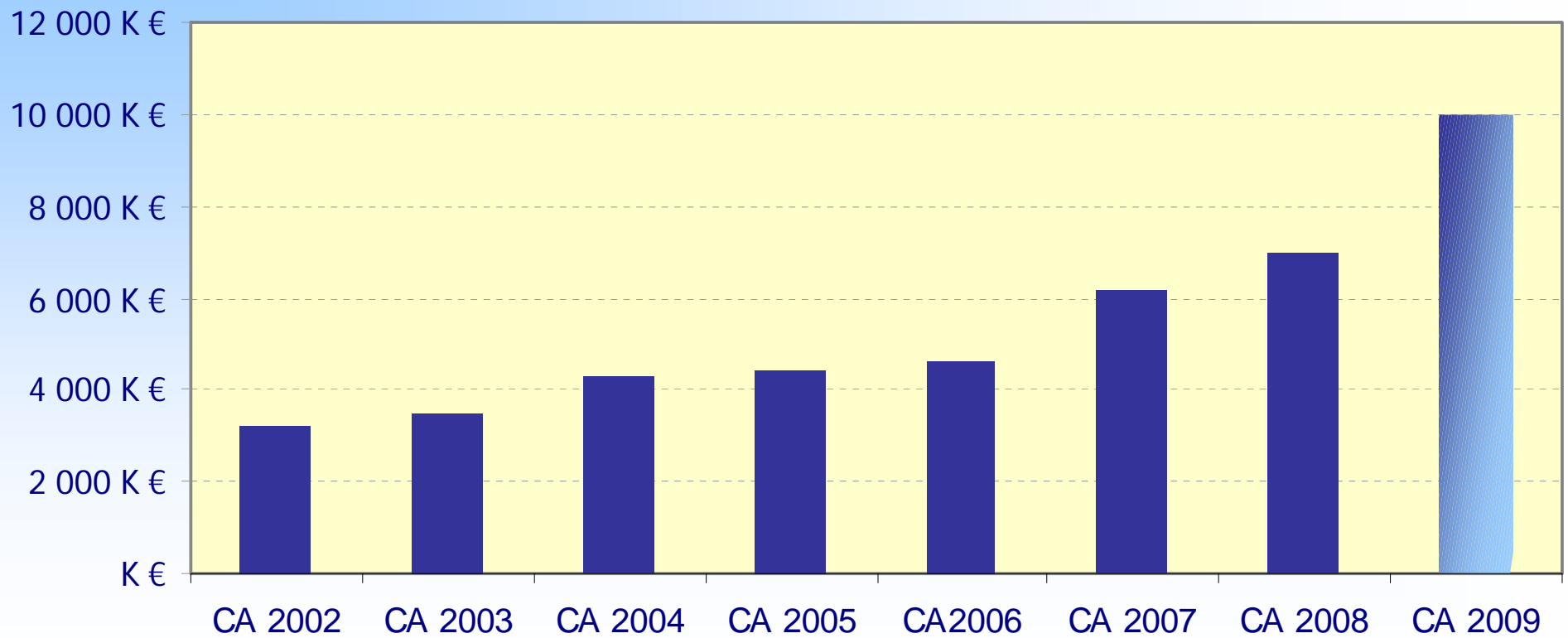
*Current and railway products*





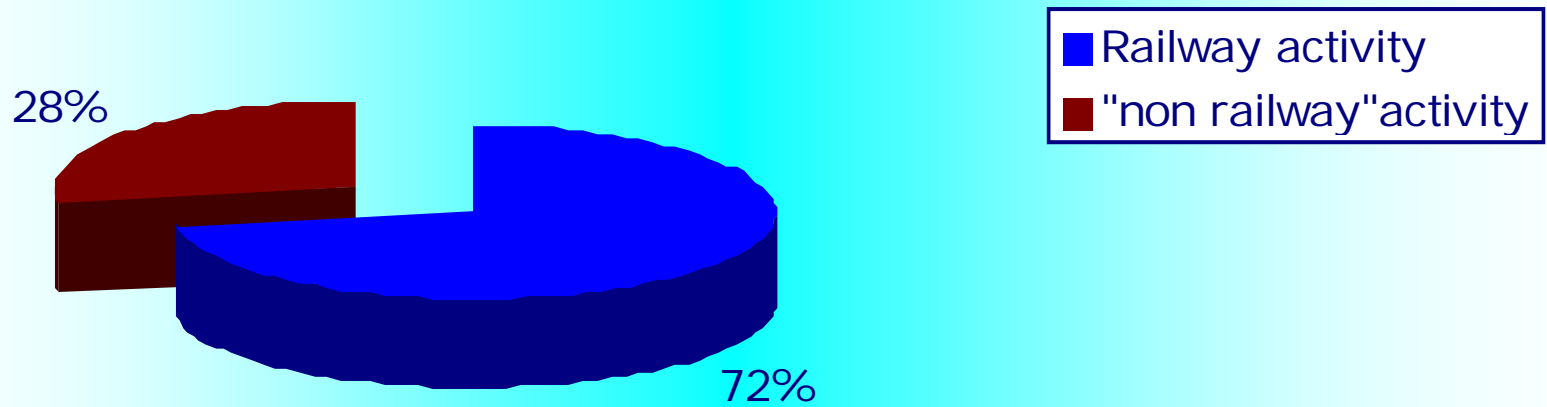
# *Leroy Automation Company*

*Evolution du CA LAI*



# Leroy Automation Company

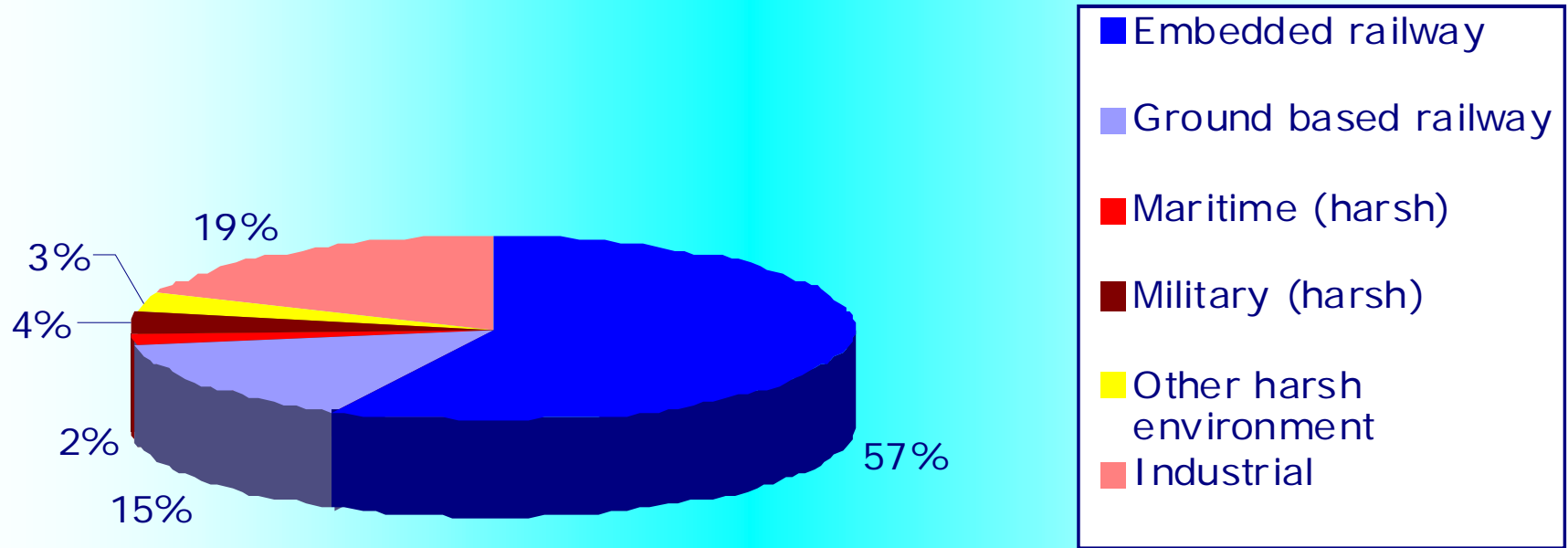
## LAI Turnover dividing



4 past years average

# Leroy Automation Company

## LAI Turnover Dividing



4 last years average



*Leroy Automation, the solution for*



*Railway market :*

*Embedded*

*and ground based*



# Embedded Railways Markets

*Leroy Automation makes, designs and markets several railway PLCs and RIOM ranges for embedded applications. Our solutions have been selected by Alstom Transport for embedded PLCs and RIOM for the MF2000 project (RATP) – Barcelona underground*

- ✿ *A modular PLC range (MESD range)*



- ✿ *Two compact PLC ranges (Railway Alto module)*



## *Northern Line*

- ✚ *Leroy Automation has provided the London Underground Remote Input Output Module (Northern Line) – 5000 RIOMs embedded in the Northern Line*



- ✚ *From a standard LT RIOM, we have made a customization :*
  - *Fit Software*
  - *Fit power supply -52V*
  - *Fit IP67 protection level*
  - *Fit 0 halogen (UL94-V0 norm) no toxic fumes*



## ***RIOM MESD LT***

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***The RIOM MESD LT is a modular Remote Input Output Module :***

***Power supply : 72 – 110 V***

***Train Network : Fip or Fip redundant***

***Embedded in : Shanghai underground, Sidney Underground, Singapore Underground, Pusan and Incheon (Korea) undergrounds***

***Around 12.000 embedded MESD LT in function in the world for railway application***



## *TER2N NG*

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*Leroy Automation has provided the Remote Input Output module for TER and TER2N NG projects*

*Final Customer : SNCF*

*For this project, Leroy Automation has been audited by the SNCF quality department*

## *MF 2000 underground*

*ALSTOM Transport has selected our products for the embedded automatism of the MF2000 project (Paris Public Transport System company).*



### **MAIN FUNCTIONS**

*Simple or redunded WorldFIP  
Serial Link : 2 to 6 independent  
asynchronous port  
32 or 64 logic inputs capture  
16 or 32 relay outputs command  
4 Analog inputs capture  
4 analog outputs command  
Download of the software application  
downloadwith the field network  
Data-Plug™*

# *Our New Range of PLC : ALTO Ethernet*

## *MAIN FUNCTIONS*



*Ethernet Interface*

*CAN Interface*

*LON or MVB Interface (with a PC 104 board)*

*Serial links : 2 to 6 independent asynchronous ports*

*32 or 64 logic inputs capture*

*16 or 32 relay outputs command*

*4 analog inputs capture*

*4 analog outputs command*

*Linux embedded*

*C++ or IEC1131 (Isagraf) programmable*

*Embedded on the Barcelona underground, Madrid XMU  
(Cercanias Project), Citadis and TGV*

# *Our RIOM (Remote Input Output Module)*



## ***MAIN FUNCTIONS***

***Ethernet Interface – TCP and UDP protocol***

***1 serial link***

***Serial links : 2 to 6 independent asynchronous ports***

***40 logic inputs 10 relay outputs***

***Power supply 72V-110V or 24V***

***Function diagnostic – watch dog***

***The product shall perform digital Input reading to Ethernet interface in less or equal than 10ms.***

***The product shall perform digital Output setting from Ethernet interface in less or equal than 10ms.***



# *LAI References for embedded railway automatism*

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## *Underground References*

- ✿ *Shanghai Underground*
- ✿ *Ximine Underground*
- ✿ *Sidney Underground*
- ✿ *Mexico Underground*
- ✿ *London Underground*
- ✿ *Paris Underground (MF2000 Project)*
- ✿ *Lisbon Underground*
- ✿ *Singapore Underground*
- ✿ *Barcelona Underground*
- ✿ *Pusan Underground*
- ✿ *Circle Line (London Underground)*



# *LAI References for embedded railway automation*

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## *Other Reference*

- ✿ *Madrid XMU (RER – Cercanias Project)*
- ✿ *Aussburg XMU (DB Frame Project)*
- ✿ *XMU for Stockholm and Copenhagen (X40 et X 60 project)*
- ✿ *BRAZIL XMU (Fortaleza Project)*
- ✿ *English XMU (Juniper – WCML projects)*
- ✿ *Budapest XMU*
  
- ✿ *Jerusalem Tramway*
  
- ✿ *Selected by ALSTOM Transport for Citadis and TGV products*

*Around 24.000 embedded PLCs in function in the world for railway application*



*Leroy Automation, the solution for*



*For harsh environment*



*Power Supply control*

# *Ground based railway PLC and Power supply centers*

*Leroy Automation has designed 2 products ranges for ground based application*



*These products are intended to control with a very hard security level managed by internal redundancies*





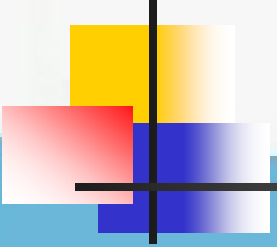
## *LAI Reference for ground based railway automation*

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### *Automatisms for Power Supply control :*

- ✿ Mediterranean TGV and Est TGV (France)*
- ✿ French RTRS*
- ✿ Korea TGV*
- ✿ Korea RTRS*

*Around 1000 PLCs for Power supply control  
on ground based application.*



*Leroy Automation, the solution for*

*Military environment*



*Marine*




*Shelter*



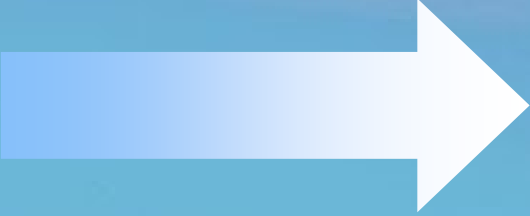
## *Military Markets*

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- Military Markets*



*Embedded PLC for Shelter  
(Thales Company) – More  
than 300 LT automatons  
in function*



*We are in touch with ELG  
and Cegelec Companies  
(Shelter for DCN)*



## *LAI References for Military automatism*

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*Leroy Automation provides embedded automatism shelter (military) for TANGO projects, MASTER and ERMES.*

*The majority of embedded automatism shelter for TANGO projects have been installed in China by Thales Defence.*

*Remote Input Output Module embedded on the aircraft carrier "Charles de Gaulle"*

*PLC and Remote Input Output Module embedded on gun boat*