



**Automation Systems and Network Engineering**

## **PRESENTATION OF THE COMPANY**

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**ISARTEC** is a service company in automation, industrial networks, process control, electricity and industrial computing.

### **Description of the available services :**

#### **1) Functional analysis of installations**

We work with the customer at the beginning of the project to organize analysis meetings. During these meetings, the customer expresses his requirements and his constraints and we explain to him the most suitable solutions.

It is our responsibility to create an analysis document that contains all decisions taken together. This document is also used as a support for the final acceptance.

Among other things, we have experience of food processes. In this business, we are able to advise the customer on the installation design.

As a general rule, we try to place our study at the factory level and not at the installation level. The aim is to see how the new installation can best fit into the global architecture of the plant. The durability of the installation, actually, depends on the choice of communication network and the coherence of the used hardware.

#### **2) Electrical studies and documents**

We carry out all of the necessary electrical studies :

- Power distribution, choice of power, command and security voltages,
- Choice, calculation and purchase of these materials,
- Realization of the electrical plan, cable list and cabinet design with CAO software such as AUTOCAD or SEE3000.

#### **3) Making of the electrical cabinets**

We make the installation and the cabling of the material in the electrical cabinets in our workshop.

The different types of cabinet are :

- Low voltage board,
- Motor protection cabinet,
- Control Panel and control cabinet,
- Pneumatic cabinet,
- Computer cabinet.

#### **4) Cabling in factory**

It is our responsibility to put in place the cable trees (galvanized or stainless according to the type of plant). Then, all cables and pneumatic tubes are placed, attached and connected between the devices and the cabinets.

#### **5) Programming of the PLC and the control-command systems**

The PLC programming is carried out in accordance with the functional analysis.

We can use the PLC of most manufacturers on the market, such as :

- SIEMENS (S7 and S5),
- TELEMECANIQUE (Premium and série 7),
- ALLEN BRADLEY (ControlLogix, PLC5 and SLC500),
- MODICON (Quantum and 984),
- OMRON.

Otherwise, to look after the control of the installations, we develop process visualization applications using software like WONDERWARE's INTOUCH, ARC INFORMATIQUE's PCVUE32, ROCKWELL's FTVIEW or SIEMENS's WINCC. During the development, these applications are submitted to the customer for approval. The different views are studied to offer the best ergonomics possible and to prioritize user-friendliness.

We can also put a production tracking in place. Production events and data are stored in a database like MS ACCESS or SQL SERVER.

Finally, sometimes, we make specific developments using programming languages like VISUAL BASIC or VISUAL C++.

### **6) Installation of the industrial communication networks**

In order to establish the communication between all the different equipment (PLC, Process visualization computers), we install networks. The type of network depends on the equipment used and the networks already in place in the plant.

We install and configure the following networks :

- SIEMENS : Profibus L2, MPI, Ethernet,
- TELEMECANIQUE : Unitelway, Fipway, Ethway,
- ALLEN BRADLEY : Ethernet, ControlNet, Data Highway +,
- MODICON : Modbus, Modbus +, Ethernet.

For Ethernet networks, we can install optical fibers. We can also test all types of Ethernet cables.

Also, we install remote I/O architecture based on DeviceNet, Profibus DP, Profinet, Interbus or ASI bus field.

### **7) Commissioning and validation of installations**

Before commissioning, we carry out a large number of tests and run simulations in order to guarantee a quick, hazard-free start.

After, we can do the industrial commissioning of the installation.

We adjust and test instrumentation devices one by one (pressure sensors, flowmeters, thermocouples, regulation valves, ...). Then, we can do production trials.

### **8) User training**

During commissioning, we train the operators to use the control-command systems. We can also train the maintenance teams how to repair the installation.

Finally, we install remote control systems using modem lines or internet such as PCANYWHERE or LAPLINK. This enables quick intervention in the operations of an installation from anywhere in the world, without constraint of a travel in the plant.