

Labelling Raltime Module for

eePLC

Another way of labelling



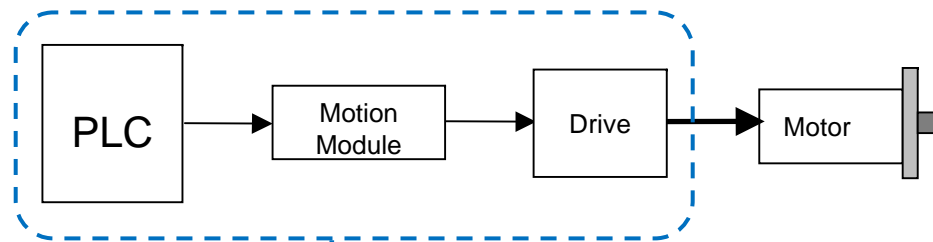
SlimLine Applications



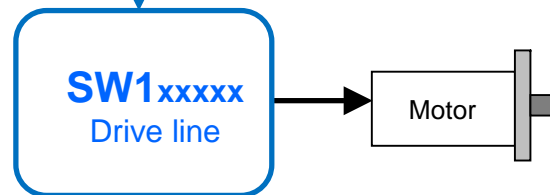
Background

- Thanks to their **Full Digital** technology and significant automation experience in the labelling sector, EVER have realized a new control system for labelling heads
- The **eePLC** system is based on stepper motor and drive of the low cost series SW1xxxx with integrated the *Realtime software labelling module* and the *eePLCstudio* software

Traditional solution

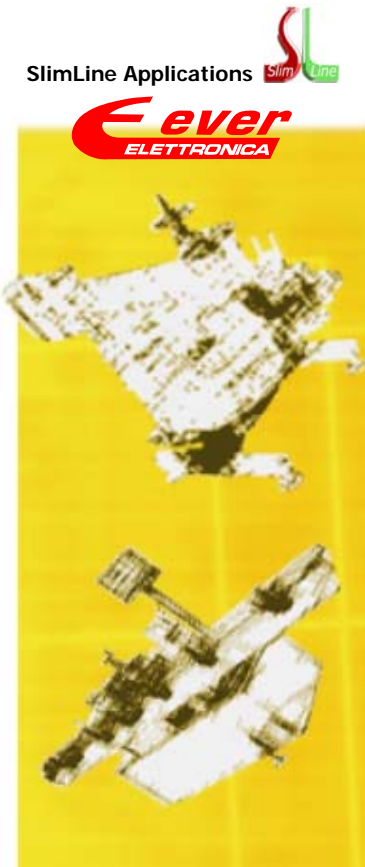


eePLC solution



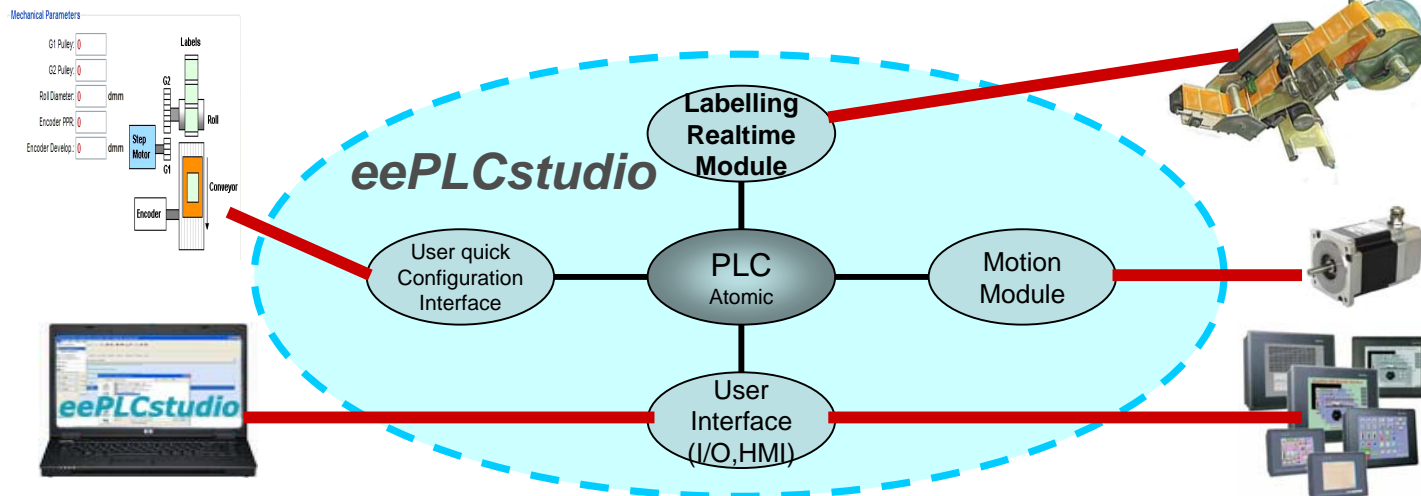
ever **e**lectronica **P**rogrammable **L**abeler **C**ontroller

- This solution relieve the user from the management of realtime labelling signals that are often critical to achieve with common PLC



Technology

- The **eePLC**, patented by Ever Elettronica, consists of the embedding in one unique device the functionalities of motion controller, PLC and *Realtime software labelling module* to control at the background the labelling functions
- Thanks to the *eePLCstudio* environment, the user is able to configure in few instances the labelling head eventually adding extra necessary functionalities
- The *eePLCstudio* environment exists of:
 - user interface for a fast configuration of labelling head
 - programming environment, based on the ATOMIC environment for SDM/MD drives, which allows to add PLC functions and the information exchange between the *Realtime software labelling module* and the PLC and motion control functions



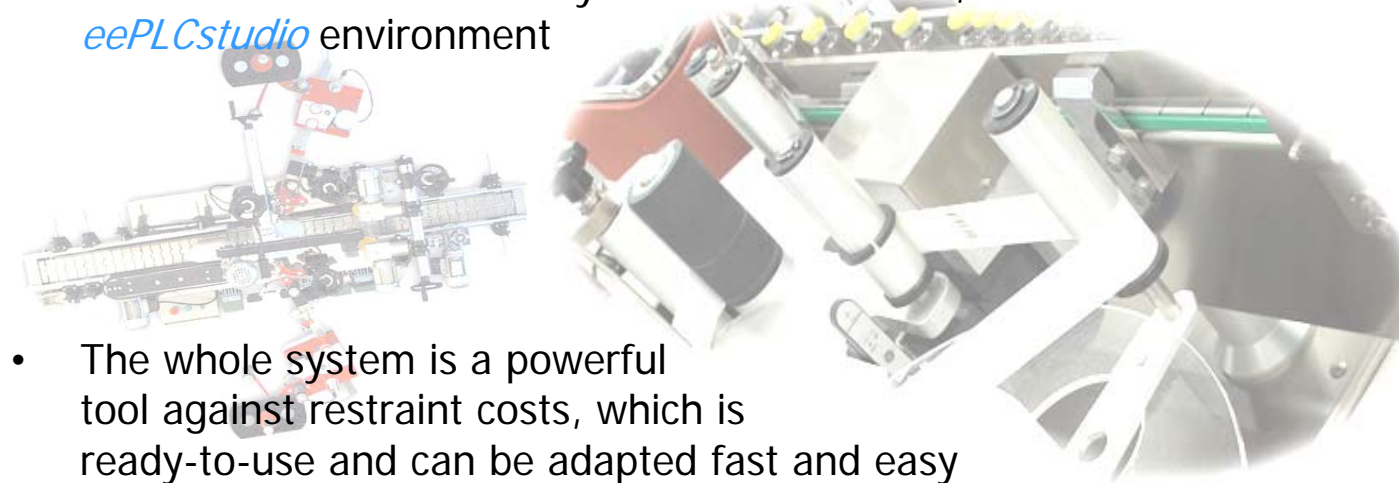
Advantages

- **Higher performances:**
 - as the integrated *Realtime software labelling module* permits to manage at DSP level the critical signals of the application guaranteeing excellent results in terms of velocity and positioning precision of the label, also when speed variations occur of the product which has to be labelled
- **Higher reliability:**
 - as the drive SW1xxxx embeds the PLC, motion module, power drive and the *Realtime software labelling module* in one single device, the chance of damage is limited and as a result the reliability of the system increases
- **Less development time:**
 - as the *Realtime software labelling module* manages the complete labelling cycle, the user doesn't have to spend time anymore with managing all real-time critical aspects, by delegating the management of small problems to the *Realtime software labelling module*. Besides with the programming environment *eePLCstudio* the programming can be done at such a high level that the user doesn't need to have any programming knowledge
- **Maximum flexibility:**
 - the *eePLCstudio* environment allows to reconfigure fast and easy the SW1xxxx drive for the different types of labelling systems currently available on the market
- **Less costs:**
 - using less devices results into a reduction of the costs of devices and wiring



Features

- The **eePLC** allows to manage with absolute precision the typical signals of a labelling head:
 - product presence detection (start)
 - label gap detection (stop)
 - synchronisation of the labelling speed with the product speed and labelling application always on the same point during the phases of acceleration/deceleration of the product transporting beltand allow to the user's a system customization, thanks to the **eePLCstudio** environment

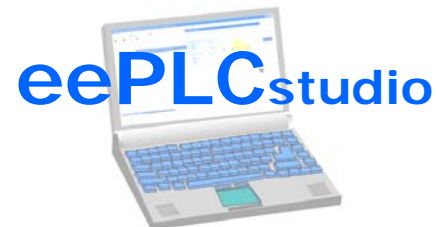


- The whole system is a powerful tool against restraint costs, which is ready-to-use and can be adapted fast and easy to different types of nowadays labelling heads, thanks to the availability of up to 16 digital inputs, 10 digital outputs, 2 analogue inputs, 1 serial port to allow the programming and/or interfacing through HMI



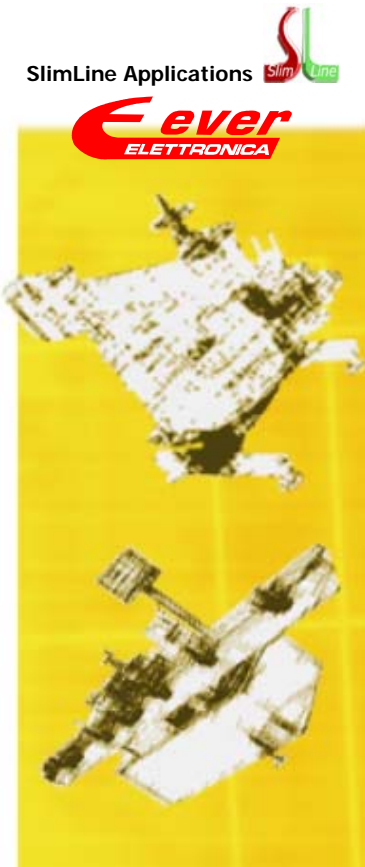
Easy to use

- The user only needs to take care of the high level programming of the supplementary I/O's (start-stop conveyor, control of various pneumatics, control of printing devices, printing control, etc.) while all labelling problems are solved by the *Realtime labelling software module*, which runs on the background, guaranteeing excellent results in terms of labelling precision, labelling speed, synchronization in all circumstances of velocity and position of the label with the velocity and position of the product.
- This is possible thanks to the *eePLCstudio* software



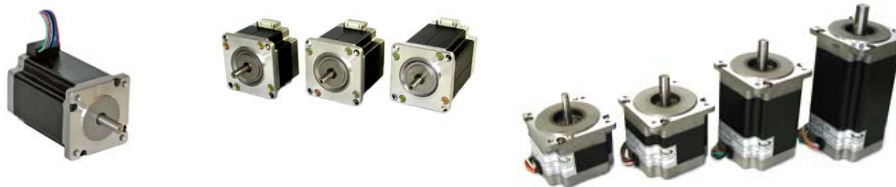
- All labelling problems are in charge of the *Realtime labelling software module* that working in background guarantees excellent results of precision, velocity and synchronicity

SlimLine drives SW1D4080N361-00 with the *Realtime labelling software module*



Components

- The components list to realize the application includes:
 - a step motor selected between various types of the Ever Elettronica catalogue considering the torque needed



- a drives of the SlimLine software controlled SW1xxxx series with included the *Realtime labelling software module*, selected considering the motor size and the number of inputs/outputs needed



- a programming kit *eePLCstudio starter kit* that include the cd-rom *eePLCstudio* and the cable for the serial connection with the drives



- With the *eePLCstudio starter kit* Ever Elettronica also supplies a series of ready to use applications developed for the most common use of labelling heads which the customer can use as a basis to add the necessary code for the management of the I/O's of the own application



eePLC: the state of the art

16 digital inputs for:

- Product sensor (start)
- Label gap sensor (stop)
- Label end sensor
- Speed ref from encoder
- Conveyor
- Other signals:
 - vision device signals
 - product check in signal
 - product check out signals
 - pneumatic signals
 - ...

10 digital outputs for:

- Fault
- Busy
- Printer device signal
- Other signals:
 - Start/Stop for other devices
 - Trigger vision system
 - Pneumatic signals
 - ...

2 Analogue inputs for:

- Label eject speed
- Label position on product
- Label position on belt
- ...

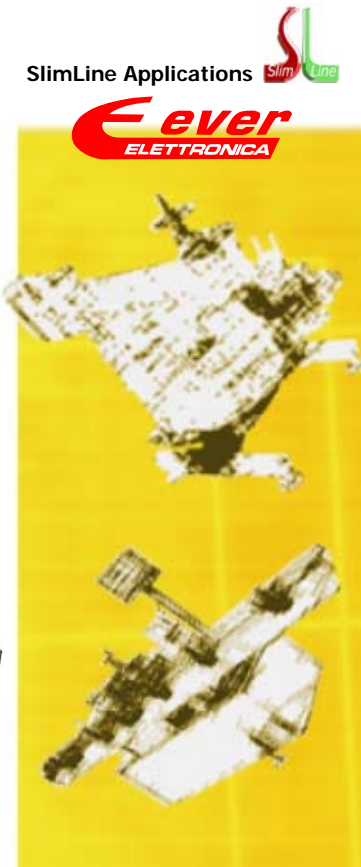
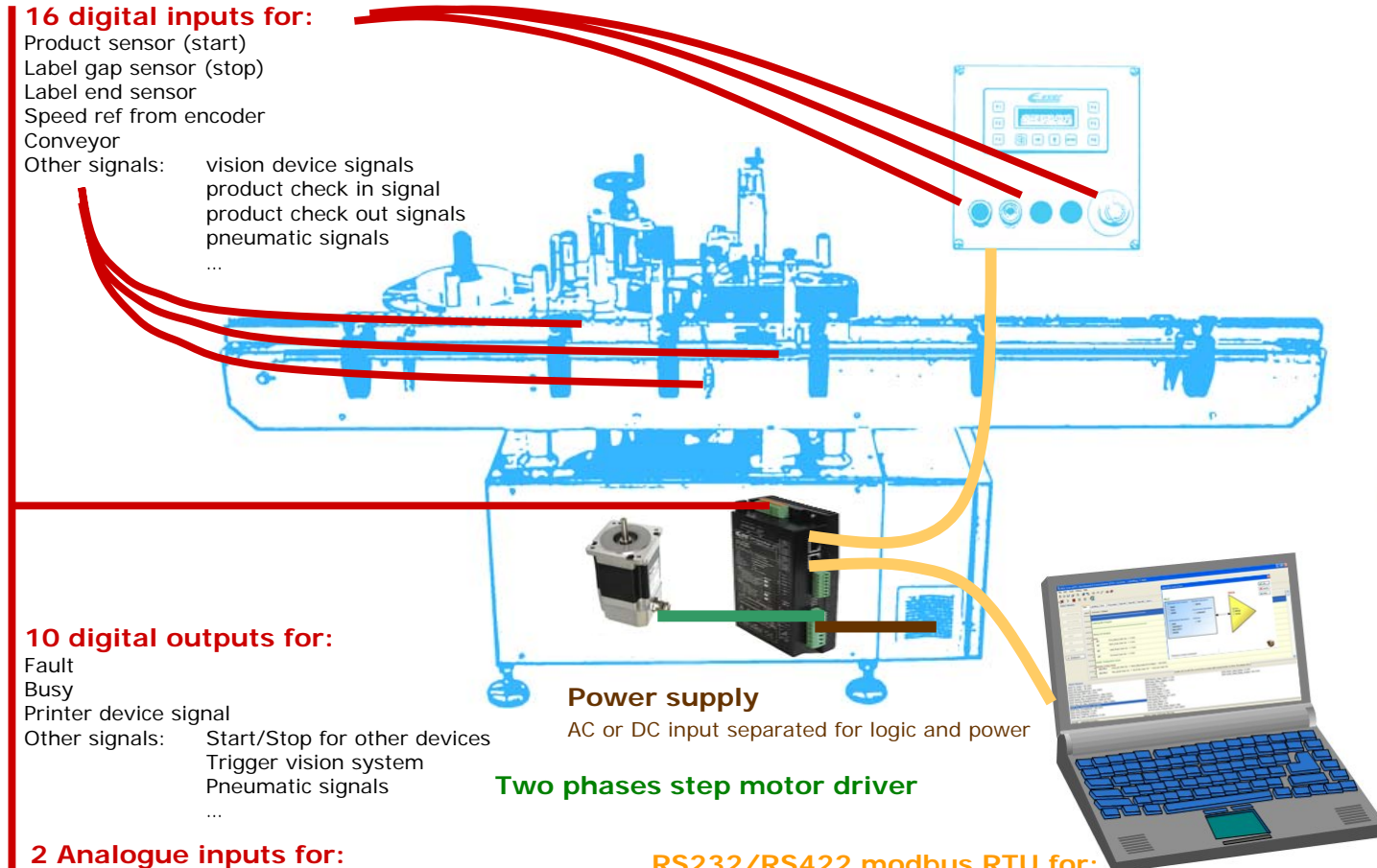
RS232/RS422 modbus RTU for:

- Drives configuration
- HMI connection

Power supply

AC or DC input separated for logic and power

Two phases step motor driver



Configuration

- Thanks to the *eePLCstudio* environment, it is possible to configure and put into operation the concerning labelling head in few steps :
 - Step1: Installation of *eePLCstudio* on the PC windows



The State of The Art Programming for the State of The Art Drives



This software is licensed to:

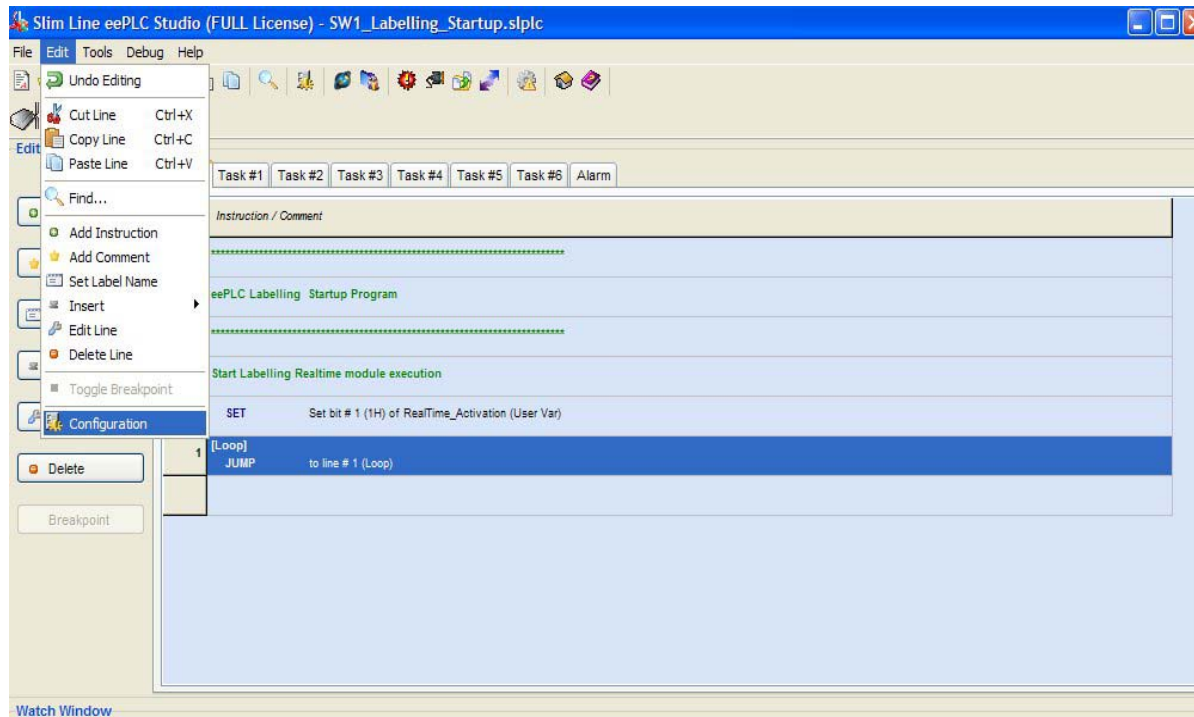
Organization Name: EVER SNC
Key Serial #: 1972
License Level: FULL
Expiration Date: No Expiration

OK



Configuration

- Step2: start the *eePLCstudio* environment and selects Configuration item in the Edit menü



Configuration

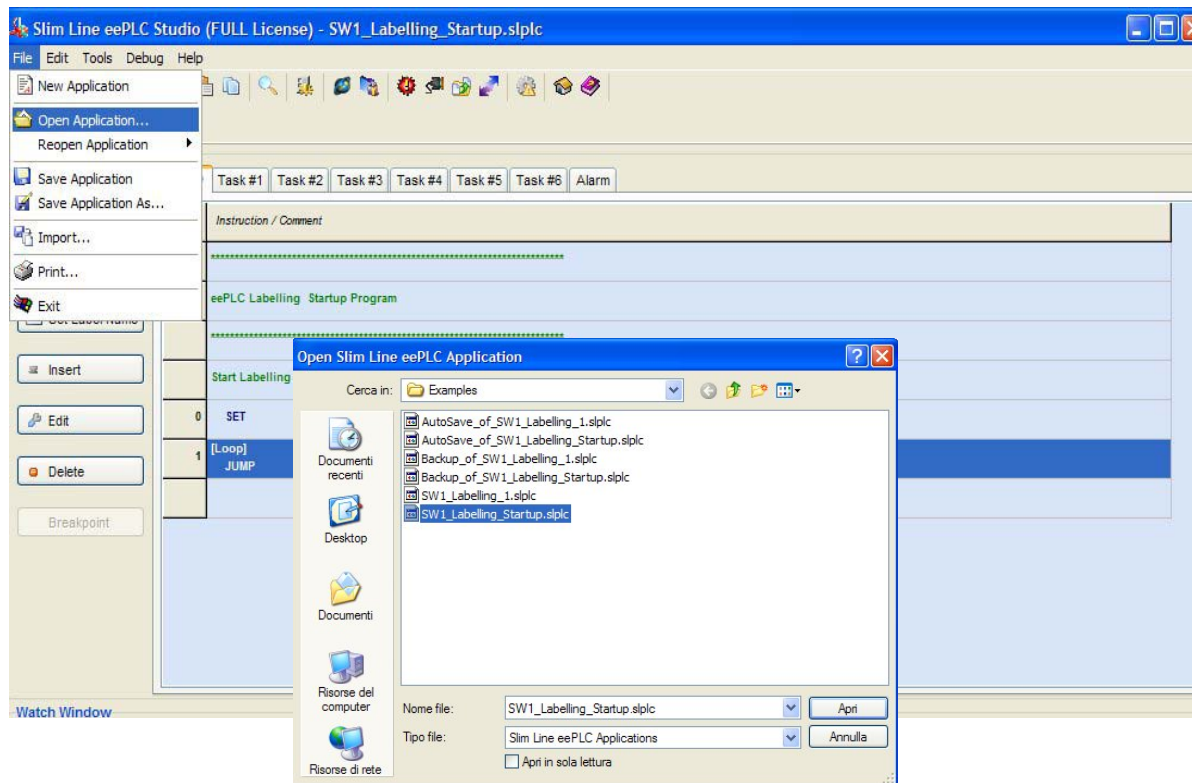
- Step3: Configure the serial port with the settings Baud Rate=57600 and Node=1 and set the dip switches of the SW1xxxx drive to work with the same parameters

The screenshot shows the 'Setup Configuration' dialog box in the Slim Line eePLC Studio. The 'Communication Interface' section is active, showing 'RS232 Interface (MODBUS)' selected. The 'Serial Port' is set to 'COM1' and the 'Serial Baud Rate' is set to '57600'. The 'Drive Settings' section shows 'Drive Node Id' set to '1' and 'Drive Model' set to 'Generic Slim Line'. A red arrow points from the 'Serial Baud Rate' field to a physical DIP switch on a hardware component labeled 'DIP1' and 'DIP2'.



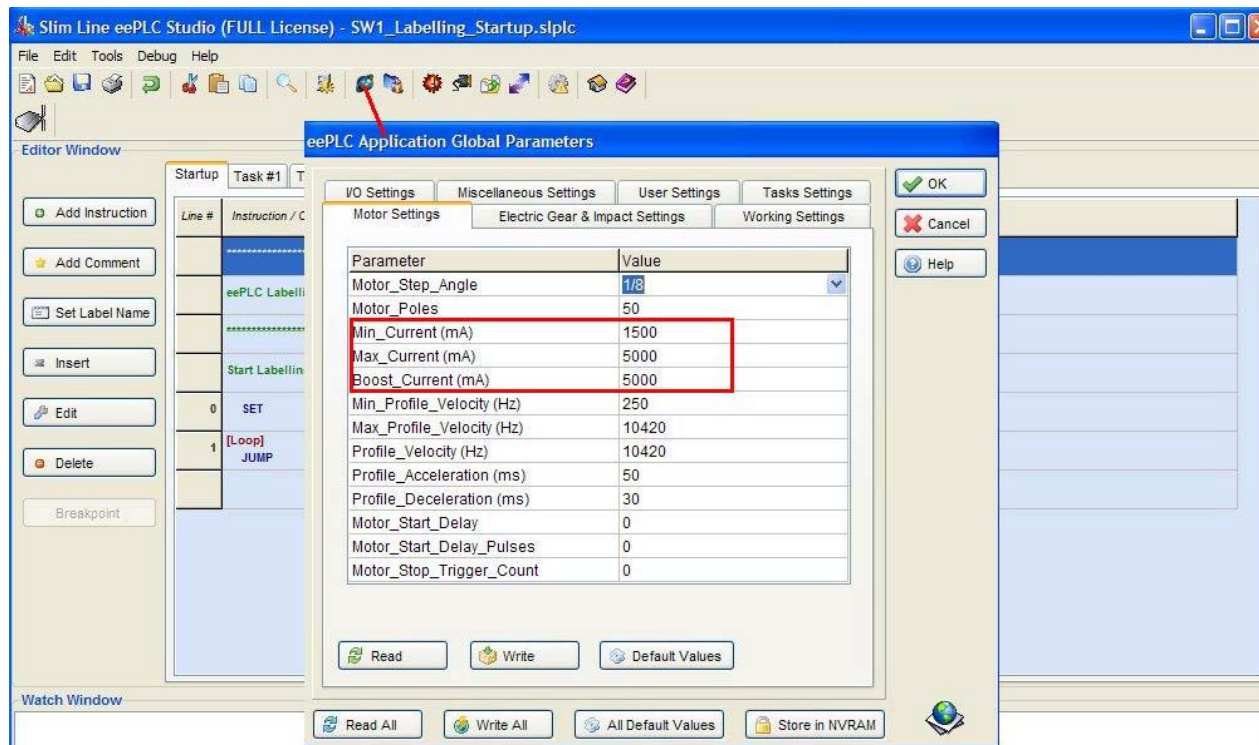
Configuration

- Step4: selects from menù File the item Open Application and open the file 'SW1_Labelling_Startup.slpic' present on the eePLCstudio CD-Rom



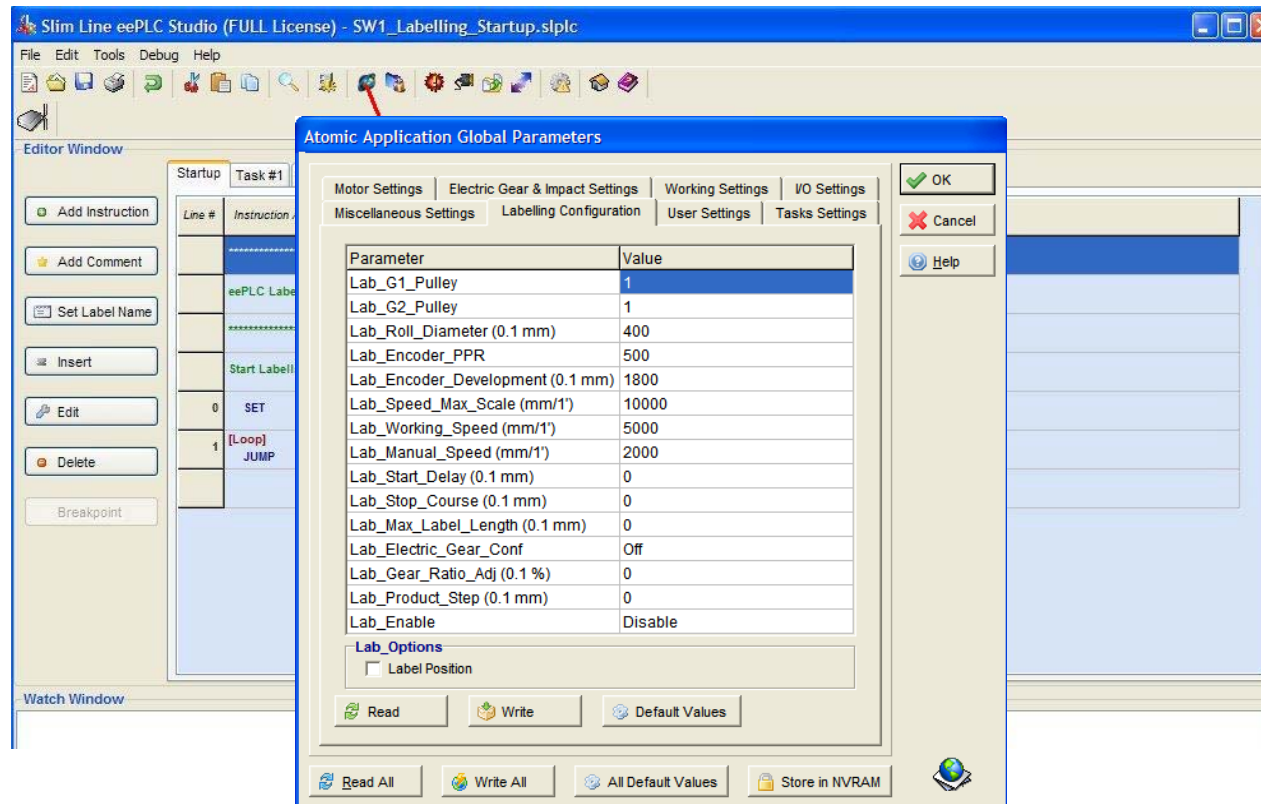
Configuration

- Step5: from the menù Tools selects the item Global Parameters and in the tab Motor Settings modify the electrical motor parameters



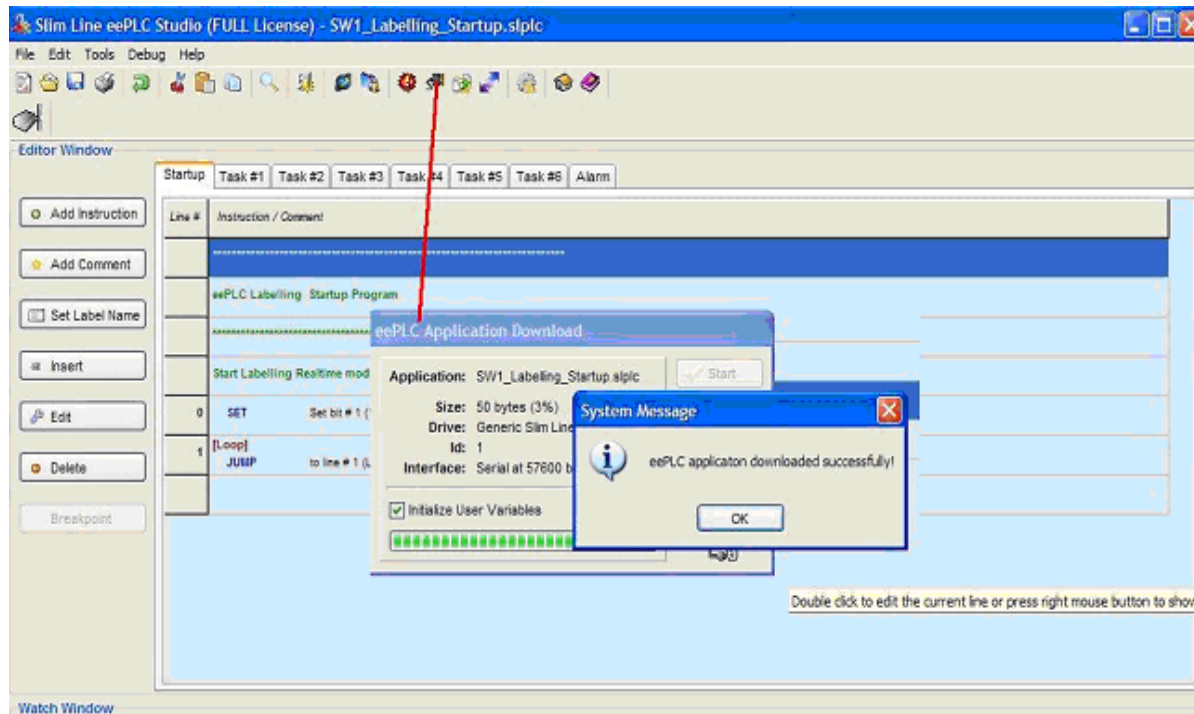
Configuration

- Step6: then select the tab Labelling Configuration and set the variables of the head labelling



Configuration

- Step7: send the program to the SW1xxxx drives

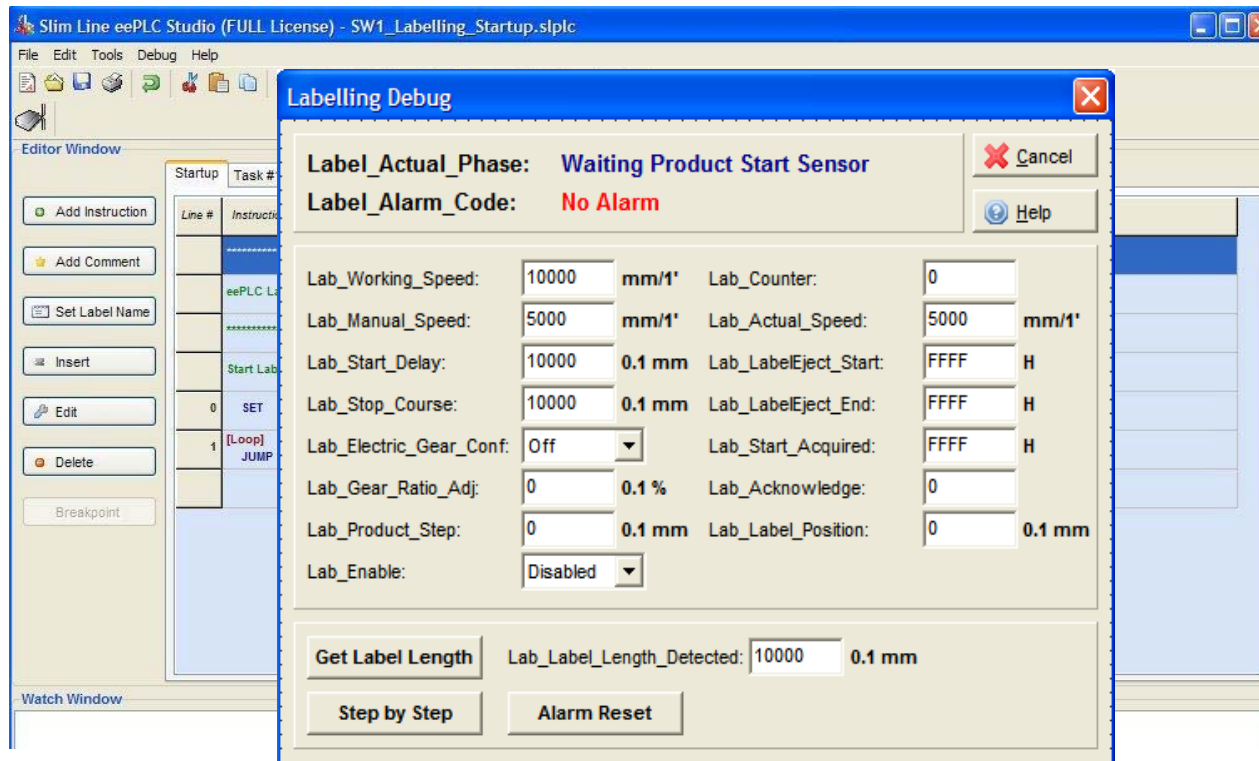


- Step8: connect the product photocell (start) to input B0_In0 and gap (stop) detection sensor to input B0_In1. Now is possible to start the application. If the user wants to try the electrical shaft, the reference frequency has to be connected to input B0_In3



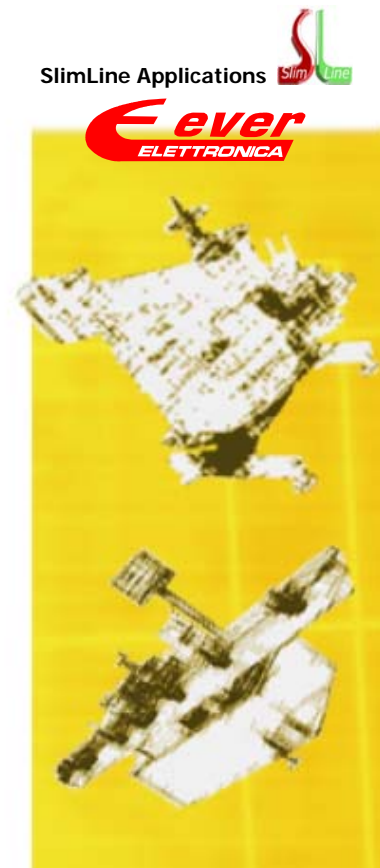
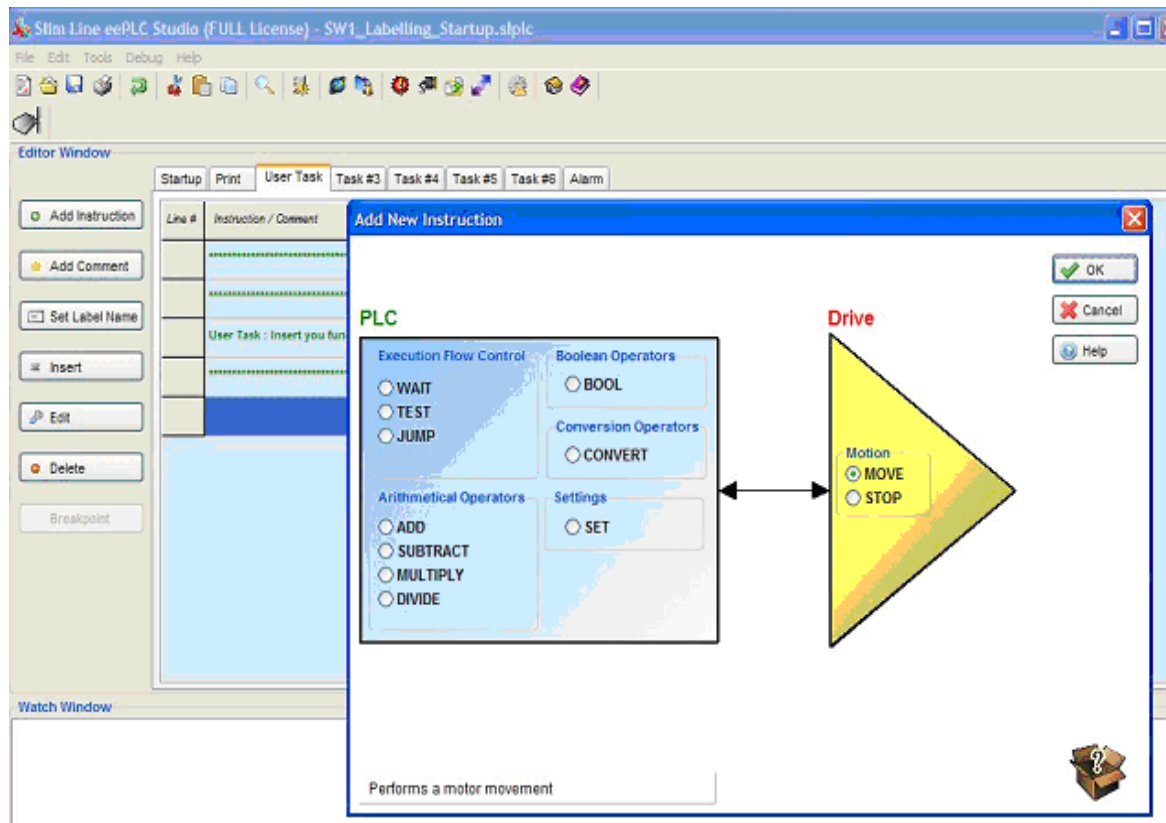
Configuration

- Step9: with the software tools in the menù Debug is possible to verify and test step by step on field the configuration



Configuration

- Step10: if necessary is possible add functionalities using the embedded graphical macro instruction editor



eePLC

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Applicazioni SlimLine

