

P100 - modular Multi Axes Positioning System with PC and PLC

P100T - The complete solution for your position tasks

In order for ever more complex machine management systems, and also as a supplement to the "conventional" ELGO compact controllers" the modular, with integrated and freely programmable PLC equipped positioning system P100 was developed. The philosophy: ELGO supplies the generously equipped hardware inclusive Industrial-PC (operating system Windows 95 A) and PLC-controller. The customer can program and adapt these accordingly. For this single knowledge in the usual PLC programming language CODESYS are necessary. The measuring systems of the individual axis are incremental signals (e.g. rotary encoders) and absolute measuring systems are also available. The P100 system has the ability to position 6 axes. The CAN bus connections between the components listed down are made by a fast connection with a cable plug-in. The other connections (e.g. in- and outputs) will be done with plugable, strain-relieved screw terminals.

The components:

1. ELGO Industrial - PC



- STPC-Atlas Architecture 133 MHz Clock frequency
- 64 MB or 128 MB Compact-Flash-Disc
- 32 MB RAM
- Operating system Win 95-A (higher against surcharge) in Compact-Flash-Disc
- 4 serial COM's (RS232, min. 56 K Bit/sec transmission rate at 7,5 m length, when using separate screened interfaces wires/Kat 5)
- 2 USB-Interfaces (Option)
- Alpha numeric keys, via 2. und 3. level addressable
- External PS2-Keyboard link with cover within the front area
- 8,4" TFT - colour monitor
- Optioneller Ethernet connector (e.g. Intel 82559ER, alternative Davicom DM9102)
- Internal keyboard controller
- Connection for mouse
- 3,5" Disc drive
- Optional CAN-interface
- Parallel interface for printer

2. CPU/PLC-Subsystem



2.1. Positioning module (2 axes PID)



- Plugable (72 pin simm socket)
- 2 Axes per module
- Approved components (LM 628 - PID Controller)
- Output PID "short circuit proofed"
- Up to 250 KHz counting frequency

- High Speed 16 bit CPU (INFINEON SAB C 167CR)
- Clock frequency 40 MHz
- 2 x RS-232 (expandable with 2 more RS-232 resp. RS-485), 1 x CAN
- IEC 61131-3 programmable
- Stand alone operation
- 256 K Bytes application-code-memory & data memory
- Cycle time 2 ms up to 1000 commands
- 16 digital inputs
- 16 digital outputs, PNP-500 mA, Diag-LED (over current monitor)
- "Plug in" Positioning- and Output-driver-modules
- 16 additionally outputs for digital positioning of up to 4 axes (also usable as PLC-output addition)
- 1... 6 motor feedback-inputs for connection to incremental or absolute measuring systems (RS-422 and A/B-inputs in one plug)

3. CAN -I/O Extension module



- 16 digital inputs
- 16 digital 500 mA outputs, PNP (durable short circuit proofed) or 16 x 50 mA PNP/push-pull (durable short circuit proofed)
- Diag-LED as "over current monitor"
- Connection to the PLC by "Patch cables" (no wiring is necessary)
- max. 32 I/O extensions possible (384 In- and Outputs)
- DIP-Switch for I/O- configuration
- Additional plugable power of the output-drivers

3.1. I/O Module



- Plugable (72 pin Simm Socket)
- 16 outputs
- 50 mA per output (push-pull) or 500 mA

4. DC - Servo Controller



- Connection to isolating transformers (max. 140 VAC/200 VDC)
- Difference - Set point input
- Speed- and Torque regulation
- Static and dynamic current limit
- Enable-logic
- Fast stop
- Power down break
- Temperature monitoring for device and engine

Regulation possibilities:

1. Armature voltage regulation
2. Encoder-refeed
3. DC-tachometer

Assembly of the modules

Plastic mounting-vat for snapping up on DIN-Rails



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- ⇒ Positioning up to 6 axes (PID +/- 10 VDC or digital)
- ⇒ „CODESYS“ as programming language for PLC
- ⇒ Visualization with CODESYS available (Option)



All system-connections from CPU/PLC-Subsystem to the components by "patch cables"

More specifications of the DC servo controller unit:

- for permanently excited DC-engines
- 6 A (starting current 10 A about app. 5 sec) for 24 - 200 V engines
- Tachometer refeeding, Encoder refeeding or I x R compensation

Specifications:

Output-deadlock current (continuously): 6 A
 Output-deadlock current (top): 10 A/ 5 sec.
 Electric consumption max.: 900 W
 ZW- fuses fast, installed state: 12,5... 16 AF
 External dimensions (W x H x D): 108 x 165 x 91 mm
 Protection class: IP00
 Layout of device: VDE 0100 Group C
 VDE 0160
 Operating temperature (continuously): 0... + 45 ° C
 Operating temperature (50 % load): 0... + 55 ° C
 Store temperature: - 30 ° C... + 80 ° C
 Regul. accuracy (without actual value error): +/- 0,5 %
 Range of regulation: 1 : 1000

PLC - Programming language

CoDeSys means Controller Development System and is a development tool for controllers. CoDeSys provides the PLC programmer an easy entry in the powerful language set of the IEC. The use of editors and debugging functions is modeled on the sophisticated development environments of high-level programming languages (e.g. Visual C++).

Advantages:

- Virtual start-up via integrated simulation processes
- Real-time debugging
- Reduction of start-up times and documentation
- Import of external projects
- Project comparison e.g. for adoption of modules from other projects

ELGO - P100

- ⇒ Positioning
- ⇒ Control
- ⇒ Visualizing
- ⇒ Communicate
- ⇒ Free configure



Measure - Control - Position



P100 series

Modular Positioning System up to 6 axes, inclusive Industrial-PC and freely programmable PLC