



PERFECT COMPONENTS.
PERFECT SYSTEMS.

A MEMBER OF  HTI GROUP

Theysohn[®] Extruder Control System

TEC 4s

The new Extruder Control System TEC 4s, developed according to the newest state-of-the-art technique, combines simple handling and an efficient control system in a unique way. An operating terminal optimized for heavy industrial conditions enables in combination with the modern HMI-Software a comfortable control of the whole extrusion line. The 19" touch screen guarantees easiest operation by large soft-keys and intuitive colour and graphic design. The core of the new Theysohn Extruder Control System is a powerful, fanless and therefore maintenance-free industrial-PC. The communication between the TEC 4s and all drives, peripheral devices and the whole downstream equipment works through the most efficient bussystem - PROFIBUS. Operational reliability and short down time are achieved by simple wiring because of selected high-class components, analysis program and remote maintenance via LAN and/or WAN.

Visualizing system (IPC)

Processor	Core 2 Duo, 1,2 GHz, 800 MHz FSB
Operating system	Windows XP embedded
Memory	2 G Byte DDR3 1066 SDRAM
Hard Drives	1 x Compact Flash Card, 4 Gbyte min.
Interfaces	1 x Profibus Master 2 x Gigabit Ethernet 4 x USB 2.0 1 x RS232 1 x DVI/VGA
Display	19" TFT touch screen 1280x1024 pixel

Peripheral devices (Standard equipment)

Inputs/Outputs	32 digital inputs 40 digital outputs 2 incremental counters 8 analog inputs, 12 Bit 8 analog outputs, 12 Bit 16 TC inputs 3-5 motor starters with diagnostic function 1-2 strain gauge amplifier module
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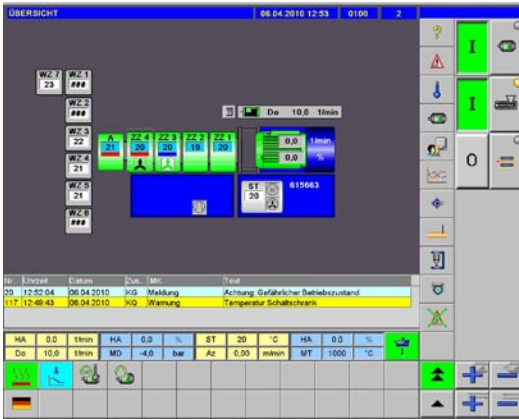
Additional features

internal monitoring of operating voltage and temperatures
backup of CMOS data
tediagnosis and remote maintenance via LAN and/or Internet
2 MB battery backed SRAM for data storage
electrically insulated power supply

Temperature controllers

The temperature controllers are made as software controllers. 64 controller zones can be driven.

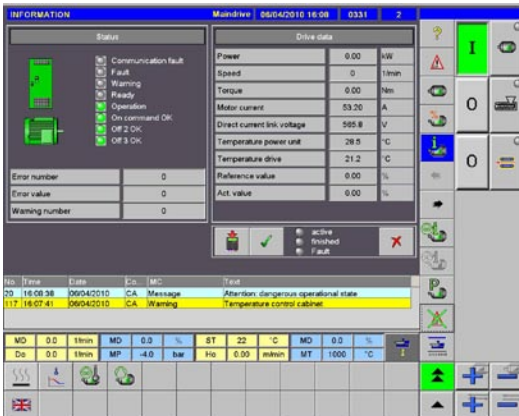
- configureable as 2- or 3-step controller, as well as setting element
- PID control mode
- selftune
- automatic selftune with each heating process, thus guarantees best control results after change of tooling without any additional effort
- adaptation at the set point
- check of controller loop plausibility
- check of actual value plausibility
- automatic adjustment of controller outputs in case of sensor failure
- heating timer
- optional heating current control
- heating with solid state relays, fuse protection without lead fuse



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Operating status for drives



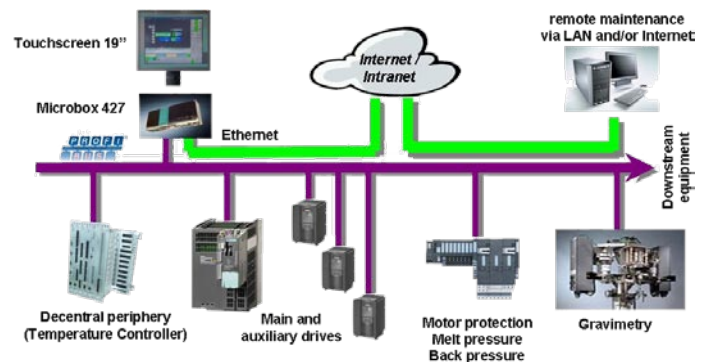
Overview heating zones

Standard

- a logical colour scheme and transparent screen information provide clear overview and easy handling
- general layout / user concept
- operating system: Windows XP embedded
- several main operating parameters can be freely selected to be displayed on all screen pages
- touch screen for easy operation and input of data
- on-line shifting between languages (up to 32 languages)
- saving and loading of formulas and process parameters
- alarm messages are shown as clear text in pop-up windows
- alarm history
- trend graphs register the relevant production parameters for periods of up to 4 weeks
- production protocols can be printed and stored on flash disk
- synchronization of up to 12 drives
- self-tuning temperature controllers
- timer for barrel and tooling heating zones
- powerful SoftPLC on high solid operating realtime system
- automatic adjustment of controller outputs in case of temperature sensor failure
- online help system
- automatic breaker
- maintenance management
- PROFIBUS guarantees quick and safe data transfer
- voltage loss protection of the control voltage by buffer battery at sudden voltage loss (up to 3 seconds)

Options

- 6 up to 54 tooling zones
- production data acquisition
- co-extrusion control
- remote maintenance via LAN and/or Internet
- integration of gravimetric feeding unit
- integration of wall thickness measuring device and wall thickness control
- saw cut control including wall thickening program
- heat current control for barrel zones
- heat current control for tooling zones



The extruder control system based on SoftPLC which is integrated in the industrial PC through RTX-Dos real time kernel. The performance is far beyond a SIMATIC S7-400 CPU. Interface to the peripheral devices is the PROFIBUS.