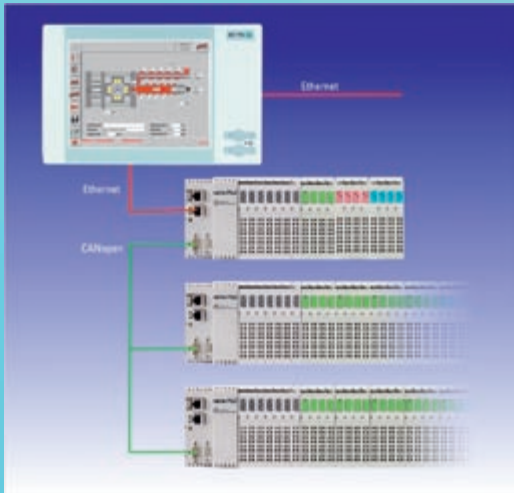


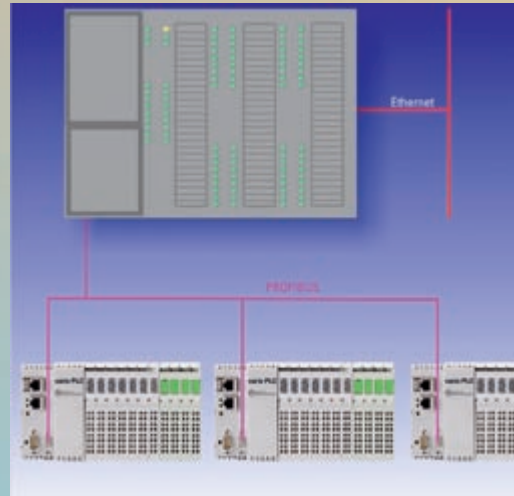
Compact solutions for standard machines – varioEC_{modular}



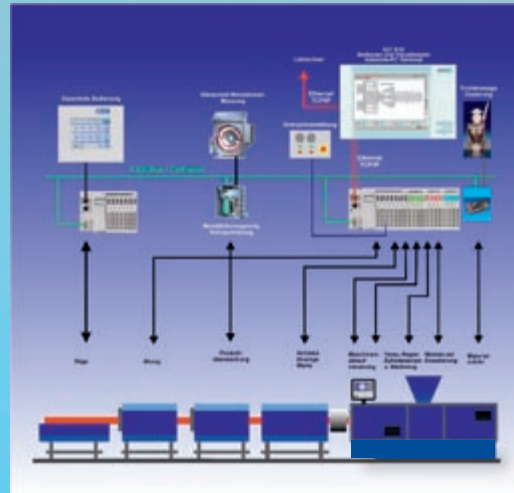
- Extruders (single machines, laboratory extruders, co-extruders, compounders, etc.)
- ★ The most compact and smartest solution for all basic functions



- Extrusion line with slit die
- ★ Reliable control for numerous temperature zones



- Extruders and co-extruders in large production plants
- ★ New approaches for the automation of large plants: Cost-effective networked extruder sub-system simply by linking into the required supervisory system



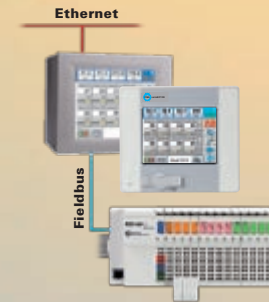
- Extrusion line
- ★ with mould, cooling section, haul-off, peripheral equipment

PMA system solutions for extrusion

vario EC_{mini} / EC 108

The compact extruder automation system with TouchPanel operation and modular KSvario multi-loop controllers for:

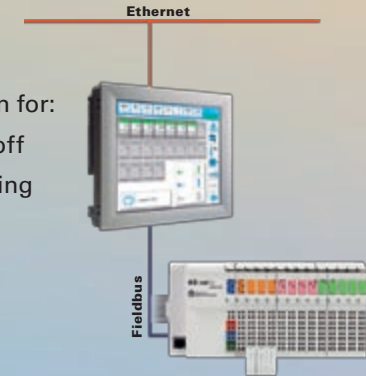
- Laboratory extruders
- Satellite extruders
- Co-extruders



vario EC

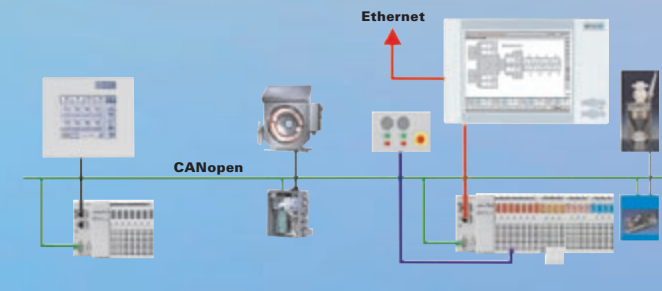
The all-inclusive solution for:

- Extruders with haul-off
- Extruders with batching
- Co-extrusion



varioEC_{modular}

The modular, freely configurable, all-inclusive package for the automation of extruder lines.



PMA Prozeß- und Maschinen-Automation GmbH
 Miramstraße 87
 34123 Kassel/Germany
 Tel./Fax: +49 (0)561 505-1307 / -1710
 E-mail: mailbox@pma-online.de
 www.pma-online.de

Compact solutions for standard machines

varioEC_{modular}



Automation of extrusion lines

Wir kriegen's geregelt
 Close the loop with



The hardware

Tailored for extruder applications



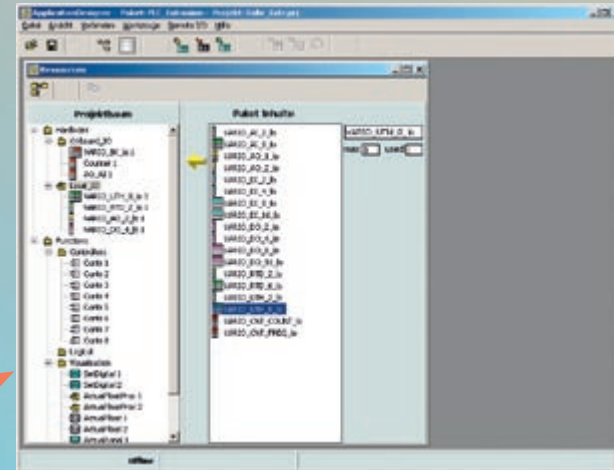
- Clearly structured
- Simple wiring
- Modular extensions
- Modern interfaces

Freely configurable extruder functions

“Application Designer”

Simple implementation of individual applications

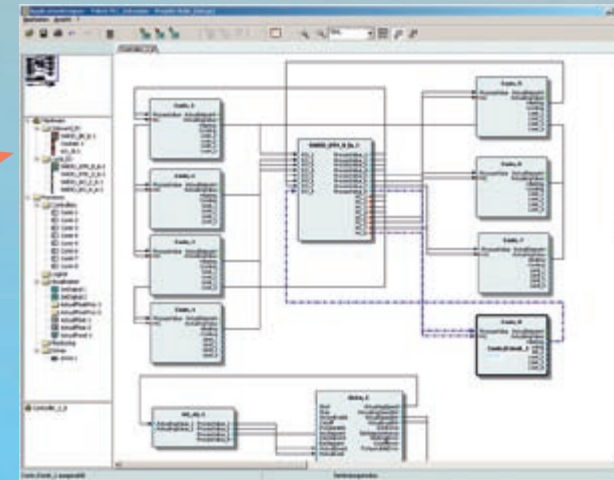
Resource Manager



- Drives (speed, torque)
 - ★ On-board analog inputs/outputs
 - ★ CANopen field bus interface
- Melt pressure (measurement, monitoring, control)
 - ★ On-board sensor energization
 - ★ Automatic calibration
- Alarms and messages/signals
 - ★ On-board status and enable signals

- Temperature control (I/O extension modules)
 - ★ Heating/cooling
 - ★ Heating current monitoring
 - ★ Measurement circuit monitoring
- Communication via field buses/Ethernet
 - ★ with additional sensors and actuators
 - ★ with external process control systems (gravimetry, profile dimensions, tube wall thickness, etc.)
 - ★ with peripheral equipment using EUROMAP 27 protocol
 - ★ into the company network (e.g. DAC, MES, ERP systems, etc.)

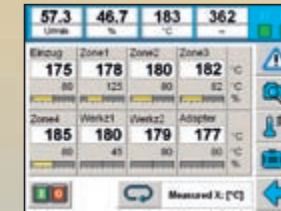
Engineering Editor



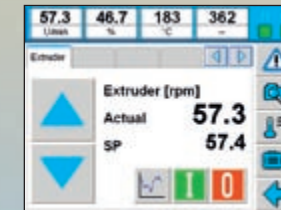
- Graphical wiring of the
 - ★ Hardware modules
 - ★ Functions
 - ★ Inputs/outputs
- Parametrizing the functions
- Online monitoring of the sequences
- Trend display of selected values

Operation

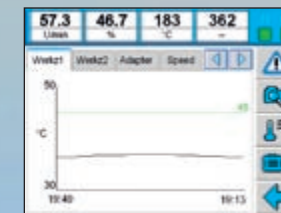
Practice-oriented with large / small display screens



All process values at a glance



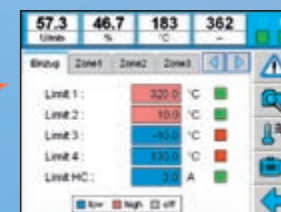
Control of drives



Trend curves assist during analysis



Freely definable dialogs for special functions



Individual monitoring per zone



Tailored for the automation of extruders

