

# Clear perspectives with KS 108

The new format for process & machine automation



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Wir kriegen's geregelt  
Close the loop with PMA



# Innovations “Made by PMA”

PMA's roots go back to 1929 and the company Georg C.K. Withof in Kassel, Germany. During the past 8 decades, the company's pioneering achievements and practice-oriented solutions had a decisive influence on the speed of innovation in the field of control technology.

Since then, several million controllers have been sold worldwide. Networked automation systems that are operated via colour display screens have been supplied to the international market since the early 80's.

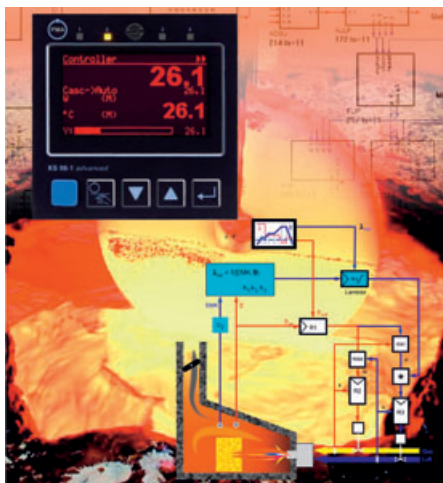
PMA is at home in all areas of thermal processing, and meets the demands for high precision and low cost of ownership in our customer's processing plants.



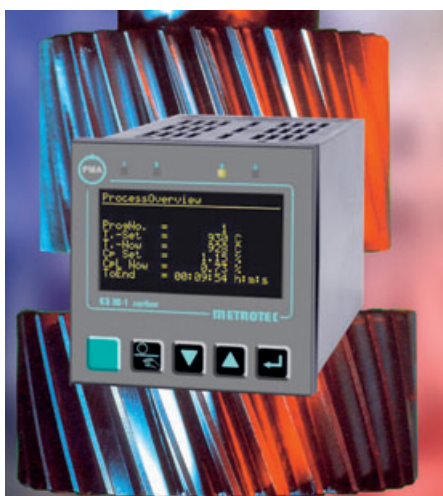
*Automation of the first CD production lines – one of the many pioneering achievements in close cooperation with the customer.*



# Process and machine automation



In accordance with the increasing demands placed on process & machine automation, PMA's product range includes compact, universal single-loop controllers and multi-function units for direct mounting in the control panel, as well as versions for cost-effective mounting to DIN rails.



Moreover, there is a wide range of single and multi-loop controllers with remote operating facilities. Engineering Tools provide the decisive means for successful controller operation.

What's more, since 1998 PMA has been gathering experience with touch-panel PCs for the automation of complex machines, multi-loop controllers, and even gas supply plants.

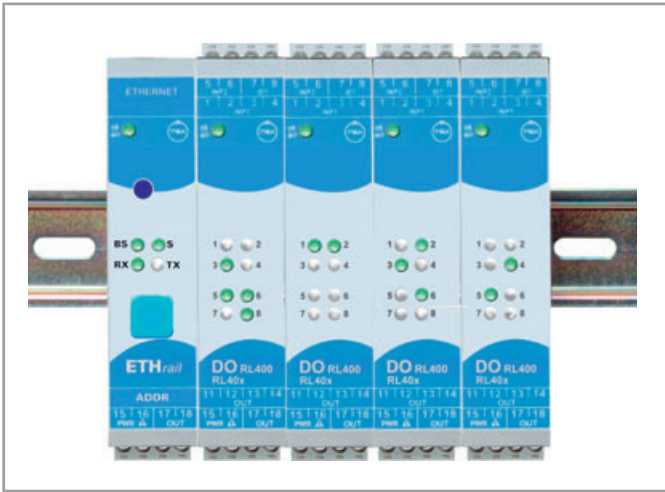


So it almost seemed natural for PMA to develop a new process controller format based on this wealth of experience: The automation concept KS 108.

**Innovative drive**  
**Use our experience**  
**from all formats**  
**Set aims and**  
**achieve them – with**  
**success!**

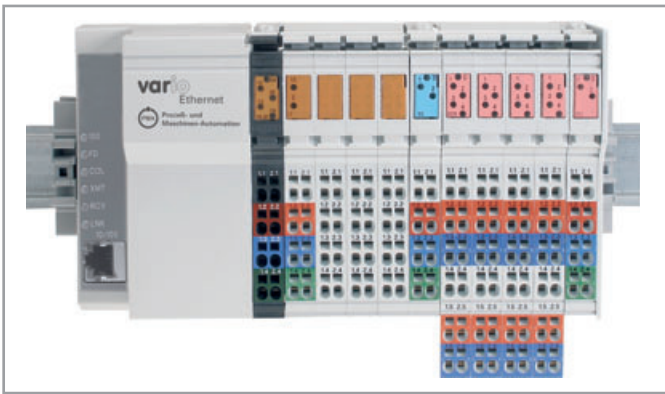
# Automation in a new format: KS 108

Field signals are connected via remote I/O modules for all requirements:

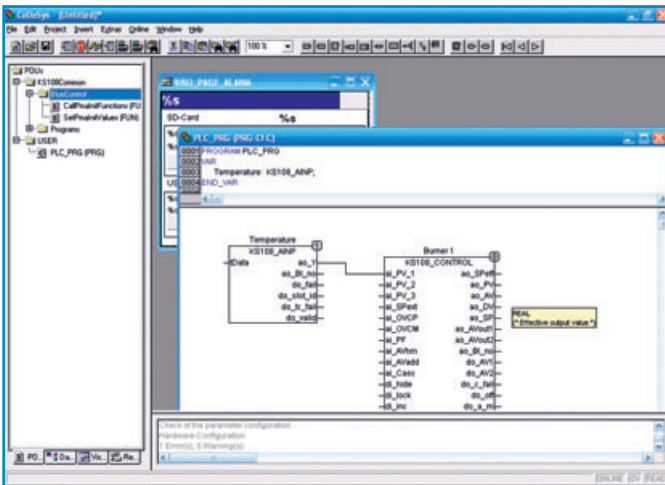


RL 400 system for precise process signals

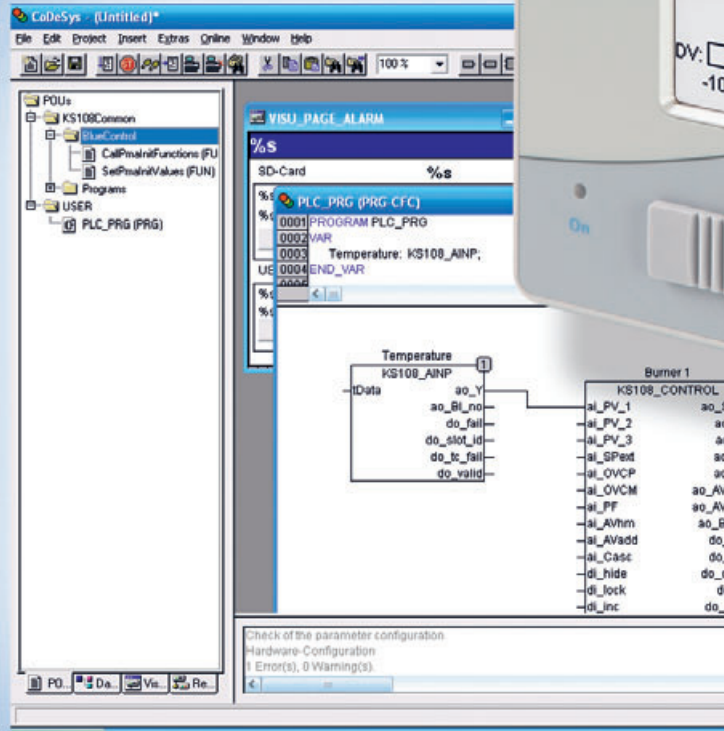
Vario I/O, the system for numerous standard signals



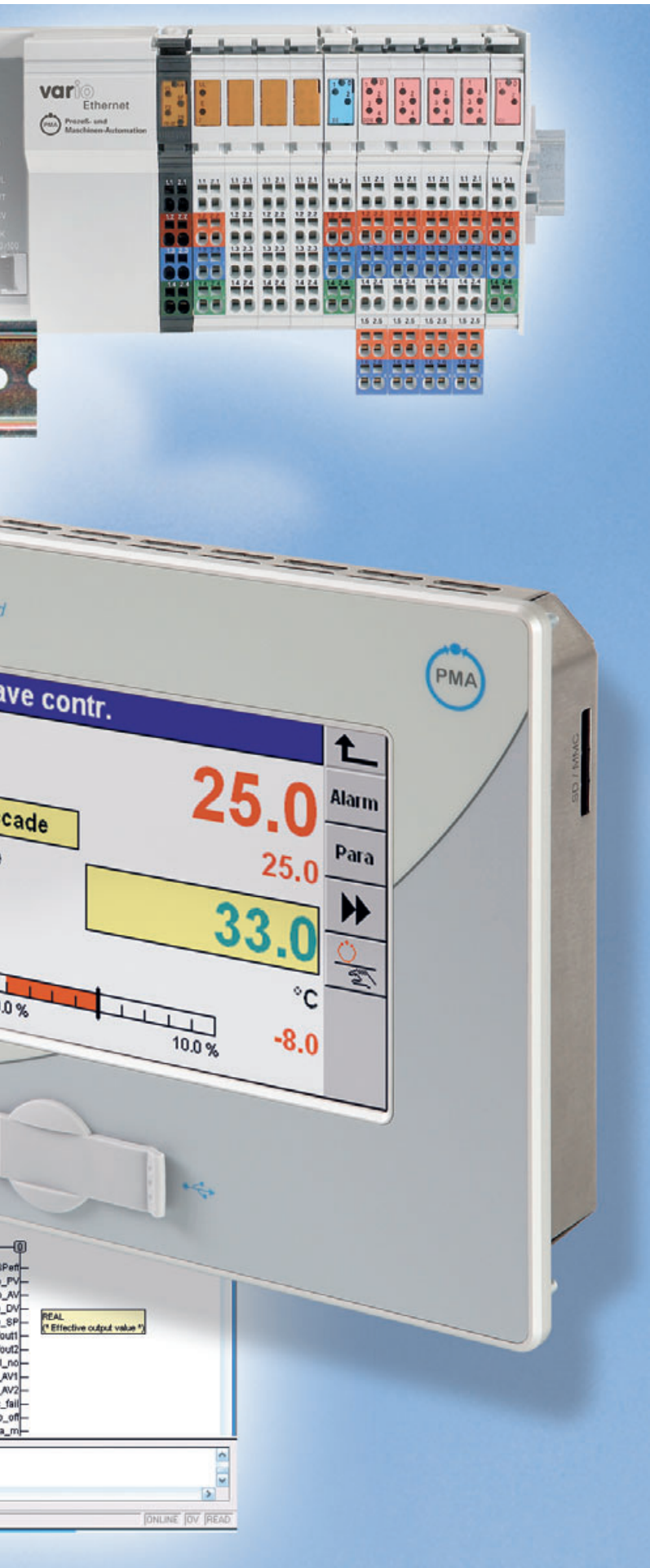
Programming acc. to the international standard IEC 61131-3



PMA has made all its extensive know-how available – in particular for complex control technology. Use this opportunity to benefit from the cost advantages offered by the KS 108 concept. We will be happy to support you.



# Three columns: Hardware, Software, Support



The KS 108 not only features a brilliant TFT touch-panel in a robust metal housing, but also:



Cost-effective memory expansion with an SD card (e.g. measurement data acquisition)



Simple recipe storage and software update via front USB port

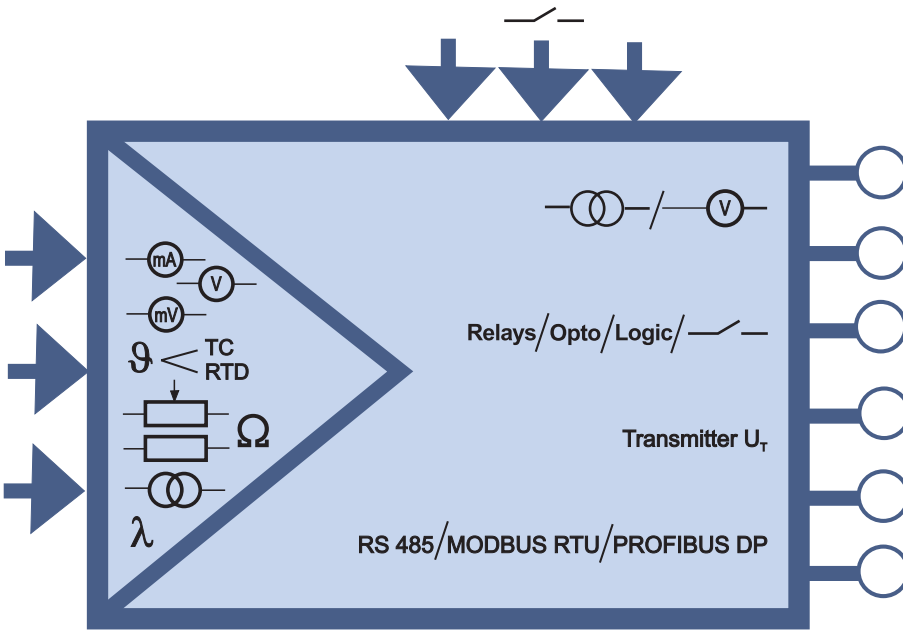


Numerous field interface ports at the rear of the unit – simple termination

**The KS 108 concept:**  
**Simple, clear, and robust for industrial use.**  
**Customized solutions now have a new basis: the KS 108!**

# KS 108: Engineering made easy!

The KS 108 provides much more than control solutions in a PLC!



Customized control strategies are implemented easily, safely, and reliably.

```

KS108_A_PROG
ai_PSet          ao_SP
ai_DBlock        ao_TNetto
ai_ProgNo        ao_TBruTT
ai_PV            ao_TRest
ai_SlavNo        ao_SegNo
di_hide          ao_SPend
di_lock          ao_ProgNo
di_run           ao_SegRes
di_reset         ao_BI_no
di_preset       do_run
di_search        do_reset
di_p_show        do_end
di_halt          do_fkey
di_manfree       do_preset
tData           do_manual
    
```

For multi-term, cascade, and override control you simply combine the preconfigured and pretested functions from PMA's know-how library to obtain your individual solution. In this way, you apply your own expertise using PMA's basic functions.

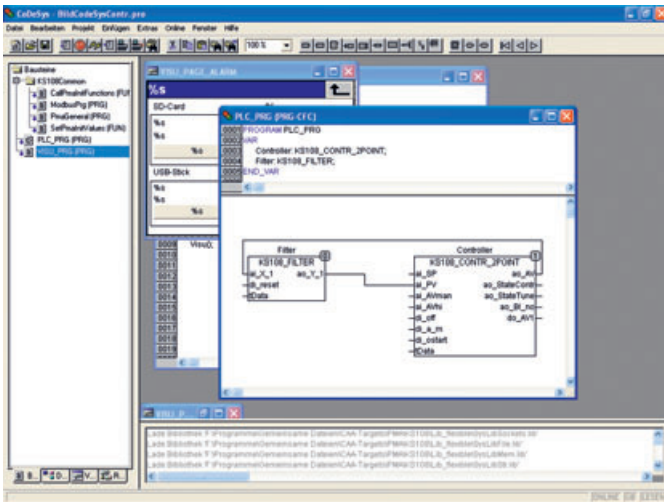
For this, you have full access to PMA's comprehensive function library, from which you simply select and connect the required function blocks.

The image displays a grid of function blocks for the KS 108 PLC, organized into several categories:

- Scaling & Calculation:** ABSV (IXI), SCAL, ADSU, MUDI (A\*B, C), SQRT, 10 EXP, LG10, 10<sup>x</sup>, LN, LN x, In x.
- Non-linear Functions:** GAP, CHAR LINEA.
- Time Functions:** LEAD, INTE, FILT, LAG1, DELA.
- Logical Functions:** AND (&), NOT (1), OR, EXOR (=1), FLIP, MONO, TIME, BOUNCE, STEP.
- Controller & Profiler:** CONTR, CONTR+, PIDMA, APROG, DPROG, APROGD, APROGD2, DPROGD.
- Selection & Storage:** EXTR, PEAK, TRST, REZEPT, SELC, SELV, SELP, FAIL, SELV2, SELD.
- Trigonometric Functions:** sin, arcsin, cos, arccos, tan, arctan, cot, arccot.
- Alarming & Limitation:** ALLP, ALLV, EQUAL (x1=x2), VELO (x/t), ALARM, LIMIT.
- Signal Processing:** PULS, COUN, 2OF3, TRUNC, ABIN (1 2 4 8, 1 aus 8, dezimal), MEAN.
- Additional Functions:** CONST (K), STATUS.
- Indication & Operation:** VTREND, VVWERT, VBAR, VALARM, LED, INFO, TEXT, ABC, CALLPG.

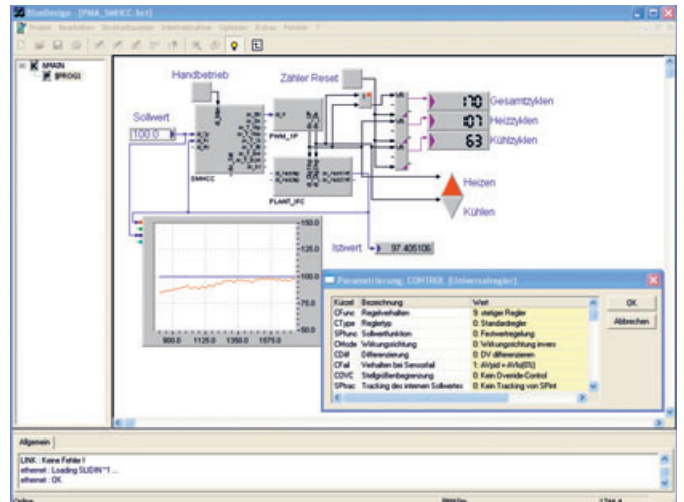
# PMA tools for every project situation

## Practical optimization is equally convenient



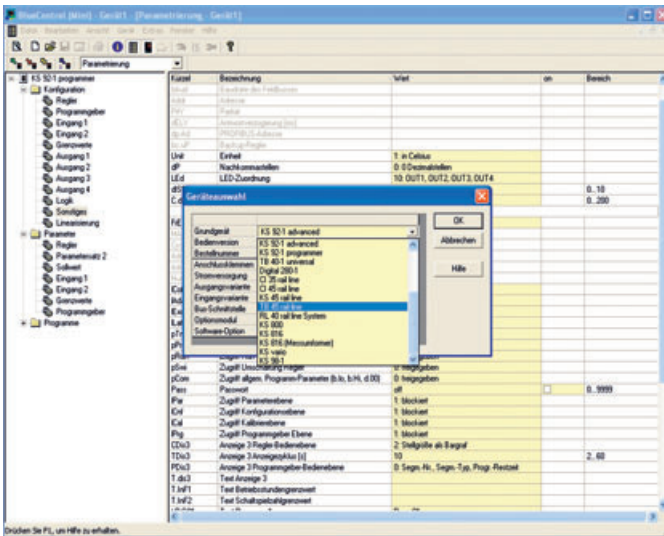
### Programmed like a PLC

The basis: CoDeSys to IEC 61131-3 is a worldwide standard, supplemented with useful control functions by PMA.



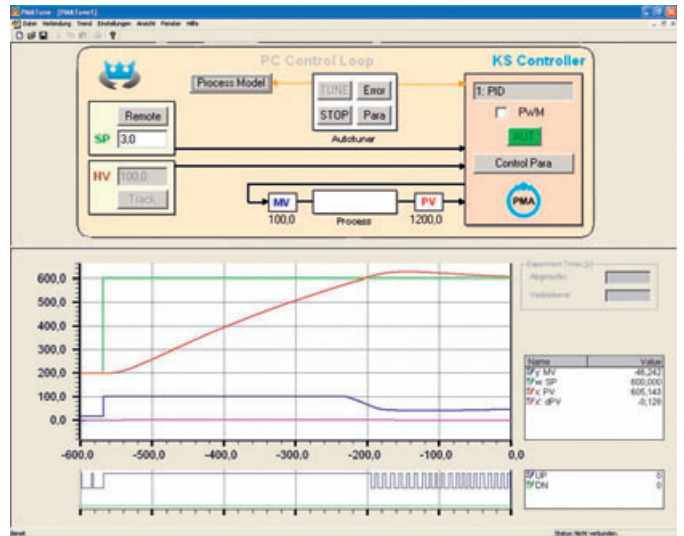
### Projecting with graphic tool BlueDesign®

PMA's convenient alternative for the control engineer – no programming experience required. The easiest way to find solutions for complex tasks.



### Customized commissioning

The completed multi-function application is parameterized easily with BlueControl®, in the same way as for other PMA controllers. Practice, not theory!



### No nervous stress on site

Even when commissioning problematic loops, PMATune quickly and automatically determines the optimum settings for the control parameters  $X_p$ ,  $T_n$ , and  $T_v$ .



**Practice-proven function library**  
**Convenient generation of projects**  
**Practice-oriented tools**

# Convenient visualization and operation

## Individual projects built on a sound basis

**Operating pages**

A_PROG	▲
Master contr.	▲▲
Slave contr.	▲▲▲
Bargraph horiz.	▼
Bargraph vertic.	▼▼
Display1	▼▼▼

**Alarm**

	Date	Time	Alarm class	Message
0	03-08-2006	10:33:32	no_ack	
1	03-08-2006	10:33:53	no_ack	
2	03-08-2006	10:33:32	no_ack	
3	03-08-2006	10:33:20	no_ack	

Confirm   Confirm All   History   Service

**Service - Alarm files**

SD-Card **File deleted**

Total size	128 MByte
Free Space	122 MByte

Delete all   Delete SD-Card

USB-Stick **Error**

Total size	256 MByte
Free Space	204 MByte

Move to USB-Stick   Copy to USB-Stick

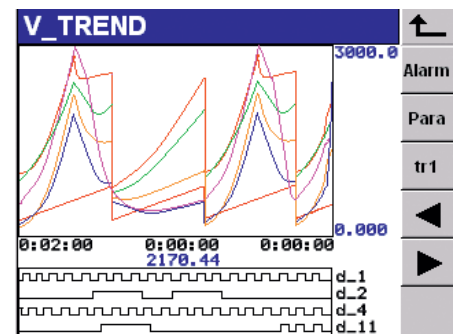
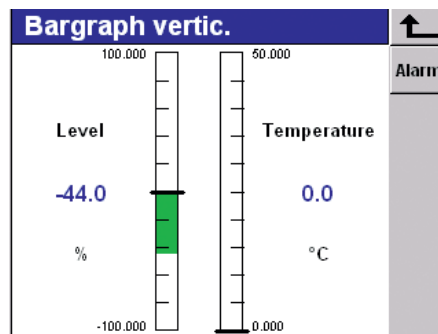
**CONTROL+**

P1 **34** Alarm

SP **36** Para

PV-UNIT **28.1**

AV: 0.0 %   100.0 %



**DigitalProgrammer**

Rec 1

Segment: 1 **0 1 1 0 1 0** Para

tSegRest [h] 0:02:54

tNetto [h] 0:00:05

tRest [h] 0:06:44

run

Operating dialogs are an integral part of the engineering library – a standard feature with PMA.

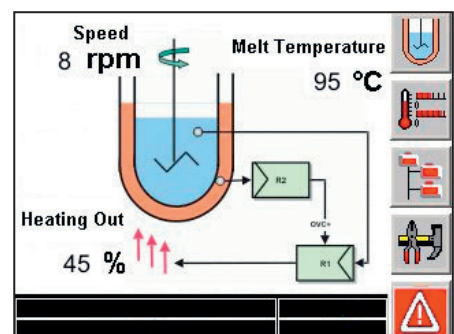
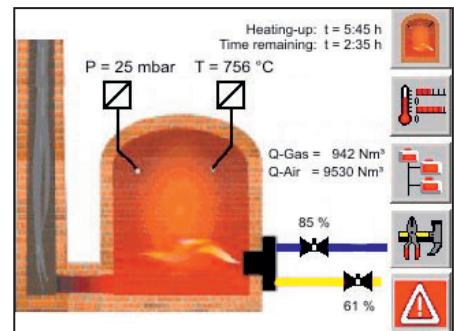
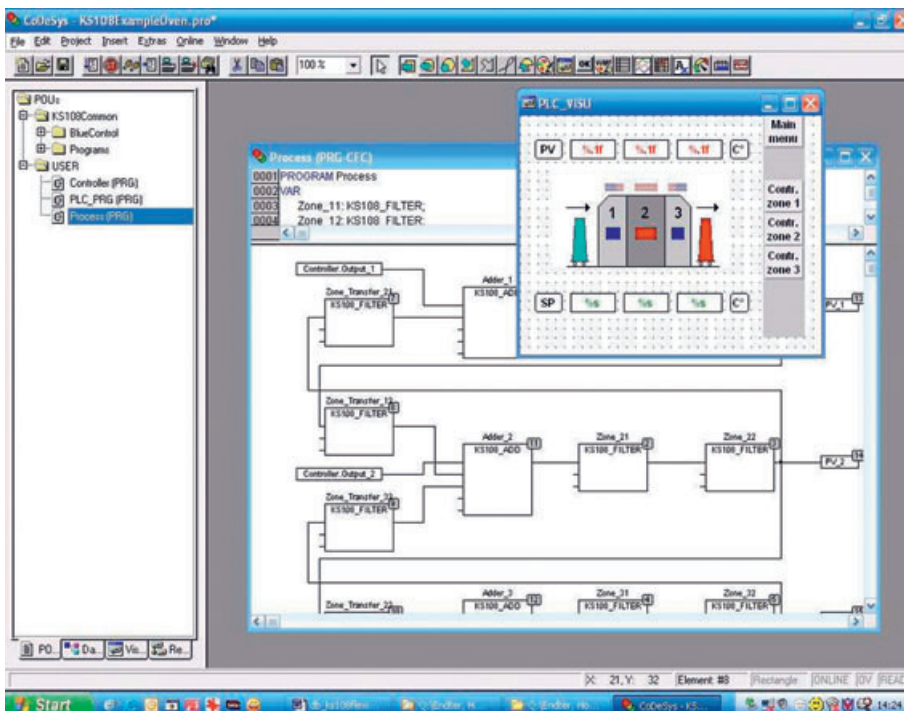
**Slave contr.**

Cascade **25.0** Alarm

SPe **33.0** Para

DV: -10.0 %   10.0 %   -8.0 °C

You then complete your project with individual operating displays:

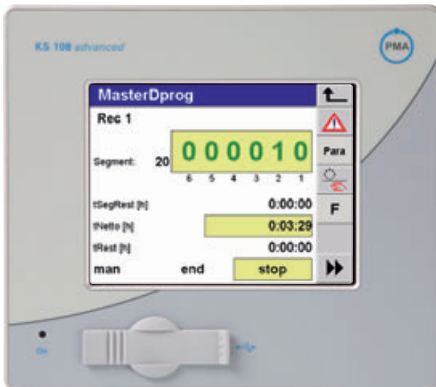
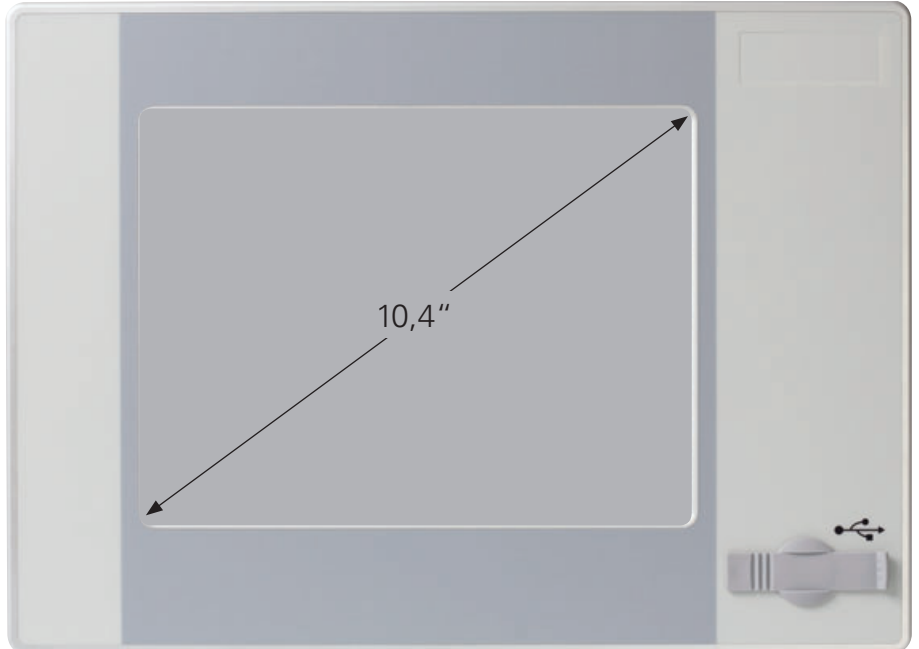




# KS 108 for high flexibility

Select your hardware solution!  
Select the tools best suited for your needs!

5,7 or 10,4-inch screen diagonals  
CSTN or TFT technology



The KS 108 hardware adapts to your demands as flexibly as the software.

## The KS 108 family:

Three roads to success.  
Select the one you need.  
Cut your projecting times dramatically.

### Version KS 108 PLC:

Standard according to IEC 61131-3

**The tool for PLC experts!**

### Version KS 108 flexible:

IEC 61131-3 extended with PMA's control functions

**Don't reinvent the "control technology wheel" – benefit from PMA's proven functions and the ready-made operating displays!**

### Version KS 108 easy:

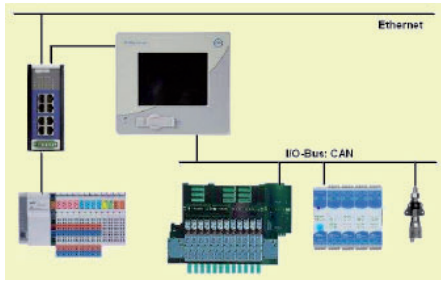
Graphic engineering tool for creating interlocked automation and control functions:  
BlueDesign®

**The easiest way to find solutions for complex tasks – without programming know-how!**



# KS 108: Top fit for your application

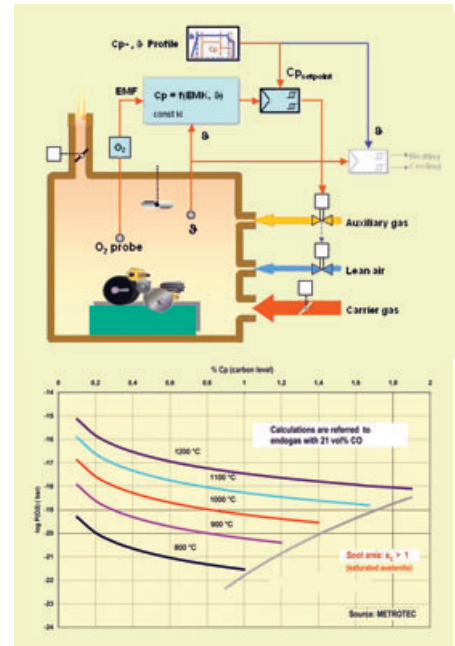
**Decentralized automation**  
– breaks new ground!



**Saves installation time and cuts investment costs**  
– simplifies commissioning

**Integrated process technology –**

thermal treatment processes made transparent for the user



**Extruder automation made easy with varioEC108!**

Ready-to-connect solutions from PMA – freely scalable for individual adaptation, and with all the performance features required by the application.



**Reduce your commissioning times**  
**Control your process reliably**  
**Create confidence!**



**Corporate Design**

We assist you when designing an individual front panel according to your house rules.



# Customer support and teamwork

## Support from a team – use our strengths!

**PMA vario EC 108**  
Grafisches Steuerungsterminal für die Extruderantriebe  
Steuerungsterminal mit kundenspezifischer Bedienoberfläche zum Anschluss an ein KS 108-Regelgerät

**PMA KS 108 flexible**  
Compact information unit for industrial & process engineering  
Combined control, sequencing, and operation

**PMA KS 108 PLC**  
Compact PLC with touch operating screen  
S7-300 controller  
PLC functions in accordance with IEC 61131-3  
Integrated visualization system  
IO integration via COM and/or Ethernet  
Communication via field bus and Ethernet

**KS 108 advanced**  
Vario & Extruderantrieb  
Datei-Steuerungsterminal

**PMA**  
Wir zeigen Ihnen die Lösung für Ihre Aufgabe



## As your partners, we are present worldwide!



# The PMA product range

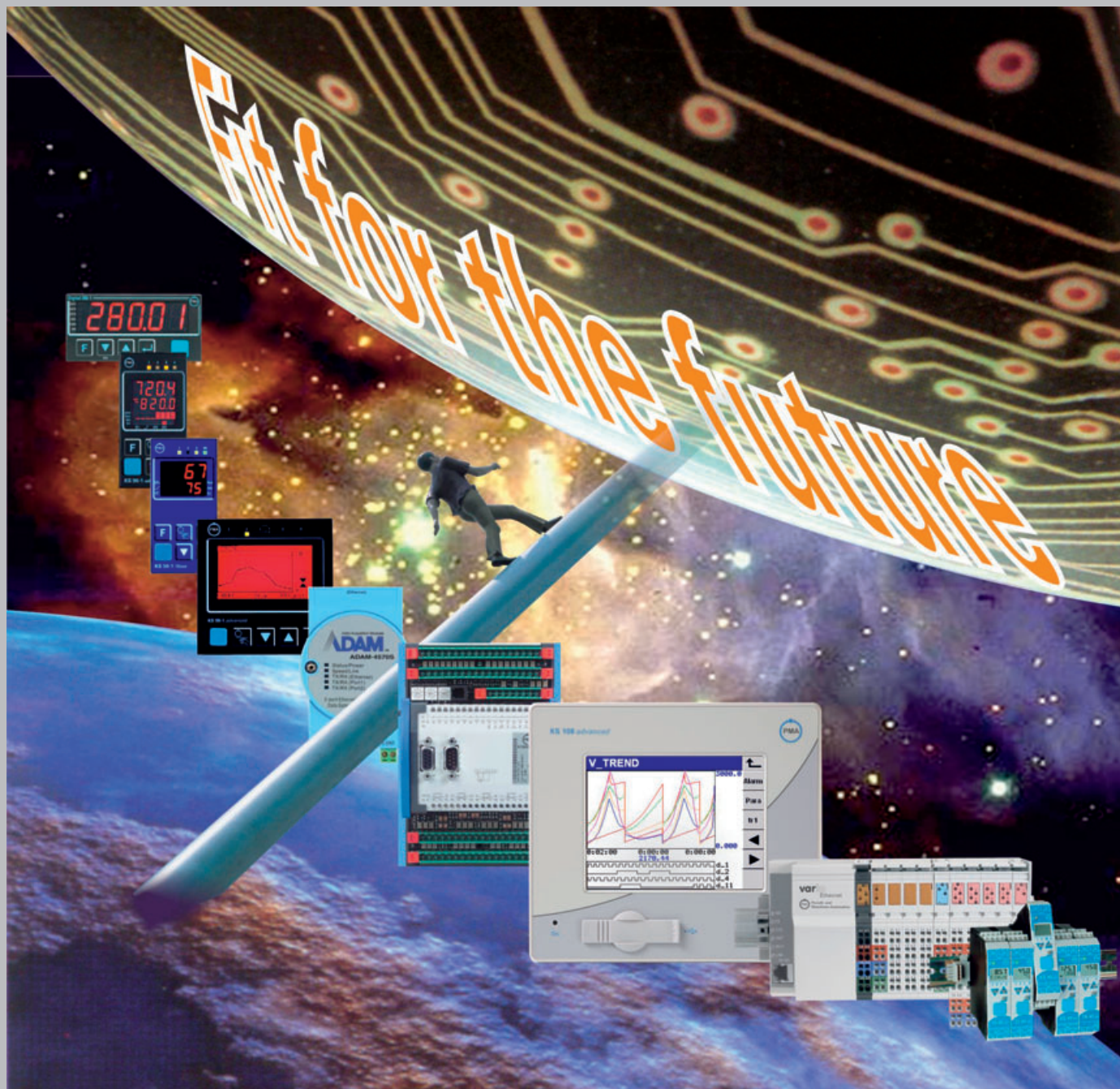
Apart from controllers, PMA also supplies all the other components required to close the control loop: From sensors to actuators, from data monitors up to communication modules.

We support you from the initial idea through product selection and up to the finished solution.

Simply ask us – we are happy to help!

Visit our website for interesting news, useful applications, and the latest downloads.

Contact us directly, our experts are available all over the world.



Since 2005, PMA is a member of the global company Danaher Sensors & Controls.

Benefit from our extensive sales and support channels – we would be proud to help you reach your goals!



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