varioPLC

Compact PLC with display driver

PLC with embedded controller

Comprehensive on-board I/O

Extension bus for vario I/O modules

Connection for colour ‘touch’ display

Communication via CAN, Profibus, and Ethernet

- **Compact, robust hardware**
- **Programming acc. to IEC 61131-3**
- **Soft PLC runtime (realtime operation)**
- **Comprehensive function library**
- **Integrated process controller**
- **Multitasking possible**
- **Convenient debugging and commissioning tools**
- **Fully integrated graphical visualization system**
- **Direct connection of displays with ‘touch’ control**
- **Web visualization**
- **On-board I/O**
- **Extension bus for vario I/O**
- **Ethernet**
- **CAN**
- **Fieldbus extension module (optional)**
- **USB**

APPLICATIONS

- **Plastics processing**
- **Machine building**
- **Factory automation**
- **Process automation**
- **Plant engineering**
- **Building automation**

DESCRIPTION

GENERAL

As the central element in an automation system, PMA's **varioPLC** performs all relevant sequencing tasks such as:

- Sequence control, programming acc. to IEC 61131-3
- Process control with accustomed PMA quality
- Visualization and operation, if required

Operation of the application's most important signals is covered by the on-board inputs/outputs. Modular expansion is possible by means of the PMA vario I/O series. Access is fast and highly efficient.

Selectable task priorities enable the program sequence to be adapted individually to the needs of the application. This ensures optimum use of processor performance for short response times.

For on-site operation, display units with ‘touch’ can be controlled directly. Naturally, the **varioPLC** can also communicate with external visualization systems, if required.

If the varioDISP display is used, the integration of control and operating software in a joint programming environment results in significant savings in cost and time. Thanks to the joint use of data in the sequencing program and for visualization, typical error sources are eliminated.

Via the Ethernet port, the **varioPLC** can be linked into existing networks very easily. By means of network variables, other PLCs are able to access the common data.
FTP and web services provide convenient access to data and programs. This makes remote diagnostics an easy matter.

Construction

The **varioPLC** is a module for ‘top hat’ DIN rail mounting in the PMA vario system design.
Plug-in terminal strips ensure fast and highly efficient field wiring.

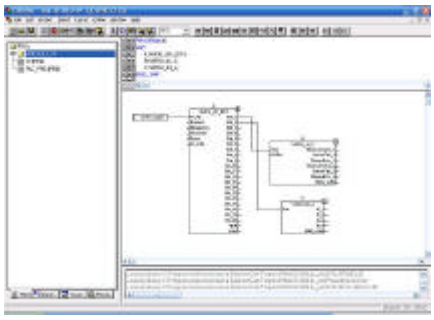
The computer core consists of a 'low power' processor, which works without the need for active cooling. On-board Flash memories are used to store the programs. Thanks to this design, the device's hardware is particularly robust for a long service life.

Directly controllable varioDISP displays with 5,7 to 12-inch screens are available. Moreover, the resistive touch feature permits direct operation via the screen. Connections are made via a cost-effective standard cable.

IEC 61131 programming environment
Programming of the terminal is based on the standard IEC 61131-3. The CoDeSys system is completely compatible with the standard, and offers convenient programming in all of the languages defined in IEC 61131:

- Instruction List (IL)
- Function Block Diagram (FBD)
- Ladder Diagram (LD)
- Structured Text (ST)
- Sequential Function Chart (SFC)
- Continuous Function Chart (CFC)

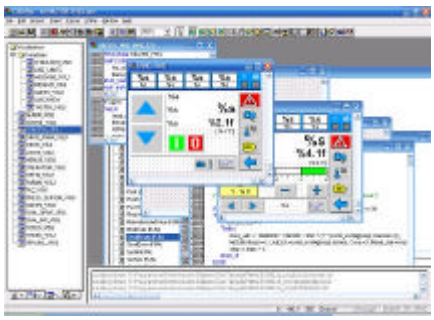
Powerful test functions greatly reduce the necessary programming and commissioning times.



- Monitoring of variables
- Writing and forcing of variables
- Breakpoints and stepping
- Single-cycle operation
- Sequence monitoring
- Recording and graphical representation of variables (tracing)
- Online program changes

The integrated visualization system has access to the variables of the PLC program. This eliminates the risk of multiple definitions. Numerous functions are available for creating user-specific operating screens.

- Basic elements: rectangle, ellipse, graphics, etc.
- Complex elements: alarm handling, trends, tables, etc.
- Process & plant graphics
- Animation
- various data entry keypads
- etc.



TECHNICAL DATA

PROCESSOR

CPU: Freescale Power PC
varioPLC 100/101: 266 MHz
varioPLC 103: 400 MHz
Passive cooling
Working Memory
varioPLC 100/101: 64 MByte
varioPLC 103: 128 MByte
Flash memory
varioPLC 100/101: 16 Mbyte
varioPLC 103: 32 Mbyte
Backup memory
16 kbyte buffered RAM
Realtime clock
Backup: with lithium battery

DISPLAY OPTIONS

varioPLC 101:
QVGA 320 x 240 pixels

varioPLC 103:
SVGA 80 x 600 pixels

resistive touch operation
Cable length up to 10 m

ANALOG INPUTS / OUTPUTS

4 analog inputs
0...10 V differential inputs
Resolution 12 bits

2 analog outputs
-10...10 V outputs
Resolution 12 bits
Output current: max. 5 mA
Short circuit proof

sensor supply
10 V constant voltage source
Output current: max. 60 mA
Short circuit resistant (max. 1 h)

2 heating current inputs
0...50 mA
Input resistance approx. 100 Ω

DIGITAL INPUTS / OUTPUTS

6 digital inputs/outputs
individually configurable as 24 VDC inputs or outputs
Output current: max. 100 mA

6 digital outputs
24 VDC
Output current: max. 100 mA
All outputs are short circuit proof and have reverse polarity protection.

2 x Relay outputs
contact rating: max. 36V DC, 0,5A

2 counter
2 inputs for every counter, using as pulse/direction or A/B encoder interface

INTERFACES

CAN interface
Sub-D, galvanically isolated, 9 pins
Cable lengths according to CANopen

Ethernet
Ethernet port (10/100 base T), galvanically isolated

USB interface
USB host (Type A)

Extensions
Socket for coummunication module (eg. Profibus, CAN or RS485)

POWER SUPPLY

Supply voltage:
24 VDC (-15%/+20% / SELV)
galvanically isolated
Residual ripple: ≤ 5%
Current consumption: max. 3 A

ENVIRONMENTAL CONDITIONS

Permissible temperatures
For specified accuracy: 0...50 °C
Storage & transport: -20...70 °C

Relative humidity: max. 85 %, no condensation

INFLUENCING FACTORS

Power supply
No effect. No loss of configuration data in case of a power supply failure (Flash EEPROM memory).

Vibration test
Sinusoidal oscillations acc. to IEC 60068-2-6 and EN 60068-2-6
Test Fc: 10…150 Hz, 1 g

Shock test
to IEC 60068-2-27 and EN 60068-2-27
Test Ea: 15 g for 10 ms, half sinewave

ELECTROMAGNETIC COMPATIBILITY

Immunity
In accordance with EN 61 000-6-2 and EN 61326-1, industrial

Emission
In accordance with EN 61 000-6-2 and EN 61326-1, industrial

GENERAL

Weight
approx. 0,5 kg

Protection class
Front panel: IP 65
Rear: IP 20

Electrical safety
Complies with EN 61 010-1 and
EN 61131-2
Over-voltage category II
Contamination degree 2
Protection Class III (protective low voltage)

CE marking
Fulfills the EU Directives for electro-magnetic compatibility and low voltage.

UL / cUL
Pending

Standard accessories
Connecting terminals

Summary interfaces

① Status LED
② Service switch
③ Network connector (Ethernet)
④ CAN termination resistor
⑤ CAN connector
⑥ Connector for option module
⑦ USB connector
⑧ Display connector

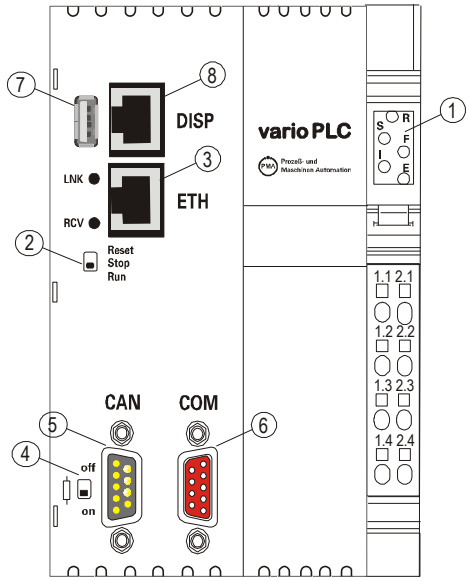
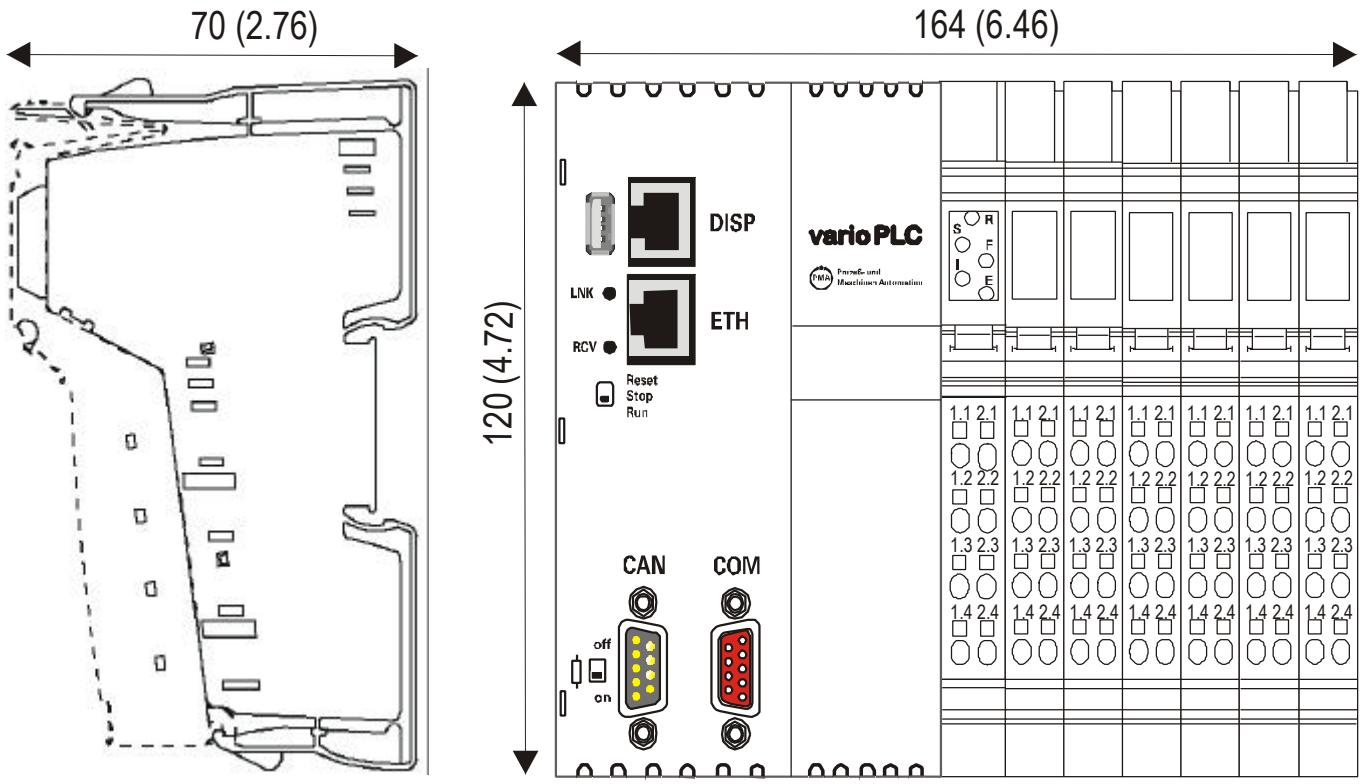


Figure 1: Interfaces varioPLC



Alle Maße in mm (inch) / All dimensions in mm (inch)

Figure 2: Dimensions varioPLC

Ordering information

Description	*Order no.*	*Features*
varioPLC100	KSVC-200-0x101	Compact PLC with 4 AI, 2 AO, 6 DI/O, 6 DO
varioPLC101	KSVC-201-0x101	As varioPLC100, but with QVGA display control (only 5,7-inch display)
varioPLC103	KSVC-203-0x101	As varioPLC100, but with SVGA display control
Options	x	
none	0	Connector COM is not used
RS 232	1	Connector COM is a RS-232 interface
RS 485	2	Connector COM is a RS-485 interface
CAN	3	Connector COM is a second CAN interface
Profibus DP (slave)	4	Connector COM is a Profibus-DP Slave interface

Accessories

Display modules

Description	*Order no.*	*Features*
varioDISP06	KSVC-221-10001	5,7” TFT display, see data sheet ... (www.pma-online.de)
varioDISP12	KSVC-223-10001	12,1” TFT display See data sheet ... (www.pma-online.de)

I/O modules

Description	*Order no.*	*Features*
vario	KSVC-1xx-xxxxx	See data sheet ... (www.pma-online.de)

Engineering tool

Description	*Order no.*	*Features*
Support CD	PMA-PLC-TOOLS01	CoDeSys programming system

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