

## MICRO PLC

### High Performance in Micro Dimension

With the new „MICRO“, VIPA Controls will be presenting a very compact and extremely fast MICRO control system at the SPS IPC Drives 2016. The design has a definite wow-factor and it opens up completely new paths in regards to operating and status display. Thus the MICRO PLC is the starting signal for the new VIPA controller generation.

The MICRO PLCs are distinguished by modern and functional design, very compact size, high performance and high channel density. The design of the MICRO PLC contains a new display and operating concept that enables the user to see the essential control information of the system at a glance. For this, display and operating elements deliberately concentrate on the essentials that are required in practice. The new „MICRO“ – as the name suggests – is extremely compact. With a width of less than 72 millimeters the VIPA MICRO PLC is up to 50% smaller than typical MICRO controllers. With 30 integrated digital and analog I/O channels on board it offers multifarious usage options as a stand-alone CPU too, and can be expanded with up to eight modules. Digital, analog and serial modules are available, more modules are constantly being expanded.

#### Firm hold by spring terminal technology

The connection plugs of the „MICRO“ are individually detachable and therefore suitable for the pre-wiring in the series launch. Equipped with the convenient push-in technology they can be mounted and replaced quickly and easily, and without tools. In addition the plugs have spring terminals which not only allow easy wiring but also withstand every vibration. The allocation of the I/O display LEDs directly on the appropriate plug connection allows the user an easy and clear allocation of the channel status even at such a high channel density.



#### Highlights

- Up to date, pleasing, and functional design
- Extremely compact construction size
- Very high performance with SPEED7® technology
- Fast backplane bus connection of 48 MBit/s
- 30 integrated I/Os on board
- CPU expandable up to max. 8 modules
- Detachable connection plug with spring terminal and push-in technology
- 2-port Ethernet switch
- S7TCP, ISOonTCP, ModbusTCP, PROFINET-controller, -idevice, -MRP client
- Optional 2x RS485 module for MPI, PtP (ModbusRTU) and optional PROFIBUS slave
- 64 up to 128 kByte remanent work memory and 128 kByte load memory
- Full STEP7® compatible – supports IL, LAD, FBD, SCL and GRAPH7
- Programmable with SPEED7® Studio, SIEMENS SIMATIC manager and SIEMENS TIA Portal
- WebVisu on Board
- Very good price / performance ratio

All prices in euro excluding VAT

#### Interfaces, communication and memory

A powerful PROFINET controller, a PN i-device and a PN MRP client are part of the basic equipment. The MICRO PLC M13C communicates via Ethernet TCP / IP and supports S7TCP PG / OP protocol as well as ISOonTCP and ModbusTCP.

The user has also the option of using the PROFIBUS slave function, PtP with ModbusRTU and MPI with an expansion module. Further functionalities of the SLIO system such as larger memory or field bus connections can be enabled if necessary using the multiple award-winning VIPA Set Card (VSC), which is unique in the world of automation.

A special feature is a web server with a good equipped WebVisu, which can be configured via the Speed7 Studio.

Order No.:	CPU Technical data	PRICE in Euro
M13-CCF000	CPU M13C powered by SPEED7®, 64 - 128 kB onboard: 16 DE / 12 DA / 2 AE / 4 counter / 2 PWM switch 2x RJ45: PG/OP Ethernet-Interface for S7TCP, ModbusTCP, PROFINET Controller/i-Device for max. 4 connections, PtP: ASCII, STX/ETX, 3964(R), USS Master, Modbus Master/Slave, SD card slot, expandable up to max. 8 modules, programmable with SPEED7® Studio, WinPLC7, SIMATIC manager and SIEMENS TIA Portal HW-identification: 6ES7314-6EH04-0AB0 V3.3+6GK343-1EX30-0XE00	295,-

Order No.:	DIGITAL IN- & OUTPUT Technical data	PRICE in Euro
M21-1BH00	SM M21, 16 DI 24V DC	145,-
M22-1BH00	SM M22, 16 DO DC 24V, 0,5 A	145,-
M22-1HF10	SM M22, 8 DO 230V-AC / 2,5 A relay	95,-
M23-1BH00	SM M23, 8 DI 24DC, 8 DO 24V / 0,5 A	145,-
M31-1CD50	SM M31-4x AI, 16Bit, 0/1...10 V +-10 V, 0/4...20 mA, R 0...3000 Ohm, RTD PT100, PT1000, NI100, NI1000, TC Typ J, K, N, R, S, T, B, C, E, L and U +-80 mV	295,-
M32-1BD40	SM M32 - 4x AO, 0/4...20mA	295,-
M32-1BD70	SM M32 - 4x AO, 0/1...10V +-10V	295,-

Order No.:	EXTENSIONS Technical data	PRICE in Euro
M09-0CB00	IM M09, interface (2x RS485): MPI, PROFIBUS Slave, PtP: ASCII, 3964(R), USS Master, Modbus RTU M/S	95,-
955-000000	VIPA SD card standard (empty), necessary for WebVisu	50,-
FSC-C000020	64kByte FSC extension code	90,-

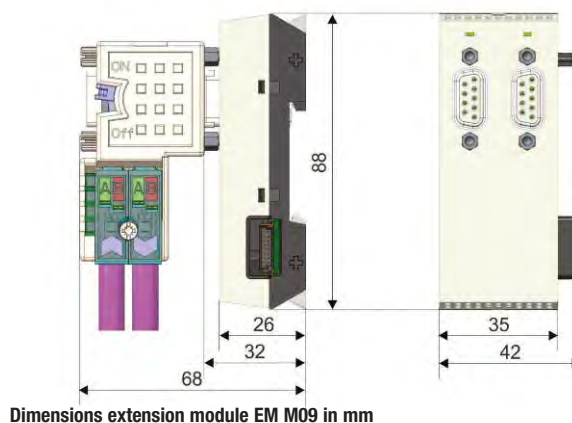
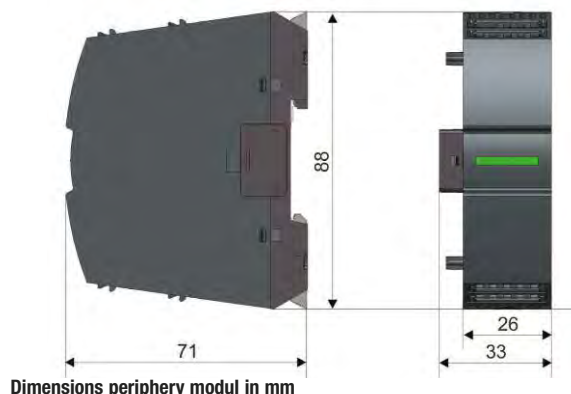
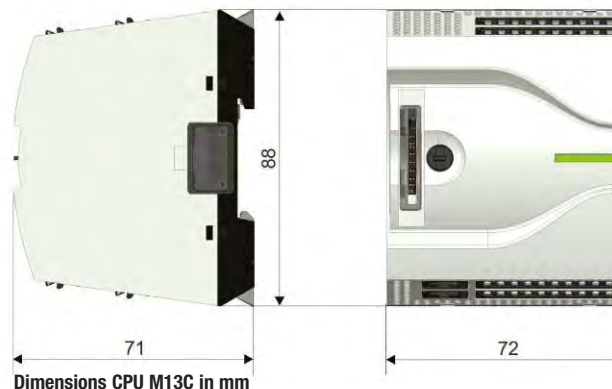


## MICRO PLC

### Technical data

<b>Order Nr.:</b>	<b>M13-CCF0000</b>
<b>Name</b>	<b>CPU M13C</b>
<b>Power supply</b>	
Power supply (rated value)	DC 24 V (20,4...28,8 VDC)
Reverse polarity protection	yes
Current consumption (no-load operation)	120 mA, (rated value) 360mA
<b>Environmental conditions</b>	
Operating temperature / Storage temperature	0 °C to 60 °C / -25 °C to 70 °C
<b>Inputs / Outputs</b>	
Number of inputs	16, input delay adjustable: 3 µs – 15 ms / 0,5 ms – 15 ms
Number of outputs	12
Output current at signal "1", rated value	0,5 A, trigger level: 1A
Output delay	„0“ to „1“ 2 µs to 30 µs / „1“ to „0“ 3 µs to 175 µs
<b>Analog inputs</b>	
Number of inputs	2
Input voltage ranges	0 V ... +10 V / 100 kΩ Min. input resistance (voltage range)
Resolution in bit	12 / successive approximation /
Basic conversion time	0,5 ms
<b>Counters</b>	
Number of counters	4 / max. 100 kHz
Counter width	32 Bit
<b>Address areas (I/O)</b>	
Address area input I/O / output I/O	2048 / 2048 Byte
Process image input / output	max. 2048 / 2048 Byte
Max. expansion	digital inputs 144 / digital outputs 140
<b>Point-to-Point protocols</b>	
Protokocols	ASCII, STX/ETX, 3964(R), USS Master, Modbus Master / Slave
<b>Load and working memory</b>	
Load memory, integrated	128 KB / max. 128 KB
Work memory, integrated	64 KB / max. 128 KB
Memory	geteilt (50% Code / 50% Daten)
Memory Card Slot	SD / MMC-Card with max. 2 GB
<b>Command processing times</b>	
Bit instructions	min. 0,02 µs
Word instruction	min. 0,02 µs
Double integer arithmetic	min. 0,02 µs
Floating-point arithmetic	min. 0,12 µs
<b>Timers/Counters and their retentive characteristics</b>	
Number of S7 counters / times	512 / 512
S7-counters / times	remanence adjustable 0 up to 512 / 0 to 512
S7-counters / times	preset remanence Z0 .. Z7 / no remanence
<b>Blocks</b>	
Number of OBs	22
Number of FBs	1024
Number of FCs	1024
<b>Time</b>	
Real-time clock buffered	yes
Number of operating hours counter	8
<b>Functionality RJ45 interfaces</b>	
Type of interface / connector	Ethernet 10/100 MBit Switch / 2 x RJ45
Number of connections	max. 4
<b>Ethernet communication via PG/OP</b>	
Number of productive connections via PG/OP	max. 2
Number of productive connections NetPro	max. 2
S7-connections	BSEND, BRCV, GET, PUT, connection of active and passive data handling
TCP-connections	FETCH PASSIV, WRITE PASSIV, connection of passive data handling
ISO on TCP-connections (RFC 1006)	FETCH PASSIV, WRITE PASSIV, connection of passive data handling
<b>Ethernet open communication via PG/OP</b>	
Number of configurable connections	max. 2
ISO on TCP connections (RFC 1006)	TSEND, TRCV, TCON, TDISCON

By using up to 8 peripheral modules, you can expand the internal I / O areas. The connection to the CPU is made by plugging in on the right side of the CPU.



<b>WebVisu via PG/OP</b>	
Number of connections WebVisu	max: 4
WebVisu supports	HTTP / HTTPS
<b>Properties PROFINET IO controller via PG/OP</b>	
Conformance Class	PROFINET IO
Number of PN IO Devices	8
Shared Device and MRP Client support	yes
Address range inputs / outputs	max. 2 KB / max. 2 KB
Update time	1 ms .. 512 ms
Parallel operation as controller and I-Device	yes
<b>Properties PROFINET I-Device via PG/OP</b>	
I/O data range	max. 768 Byte
Update time	1 ms .. 512 ms
Mode as Shared I-Device	yes
<b>Management &amp; diagnosis via PG/OP</b>	
Protocols	ICMP, DCP, DHCP, LLDP / SNMP, NTP
Web based diagnosis	yes