

Data sheet
 VIPA CPU M13C (M13-CCF0000)

Technical data

Order no.	M13-CCF0000
Type	VIPA CPU M13C
Module ID	-
General information	
Note	-
Features	Powered by SPEED7 Work memory [KB]: 64...128 Onboard: 16x DI / 12x DO / 2x AI [voltage 0...10 V] / 4x Counter / 2x [PWM/Pulse Train] Interface [2x RJ45]: active Ethernet PG/OP communication with DHCP support, switch, ModbusTCP master/slave, openCommunication, SmartPROFINET (iDevice and Control up to 8 Device) Optional: [2x RS485]: MPI, PROFIBUS slave, PtP: ASCII, STX/ETX, 3964 (R), USS master, Modbus master/slave Web server SD/MMC card slot with locking, up to 8 expansion modules, configurable via SPEED7 Studio, SIMATIC Manager and TIA Portal
Technical data power supply	
Power supply (rated value)	DC 24 V
Power supply (permitted range)	DC 20.4...28.8 V
Reverse polarity protection	yes
Current consumption (no-load operation)	120 mA
Current consumption (rated value)	360 mA
Inrush current	3 A
$I_{\Delta t}$	0.1 A ² s
Max. current drain at backplane bus	1 A
Max. current drain load supply	-
Power loss	7 W
Load and working memory	
Load memory, integrated	128 KB
Load memory, maximum	128 KB
Work memory, integrated	64 KB
Work memory, maximal	128 KB
Memory divided in 50% program / 50% data	yes
Memory card slot	SD/MMC-Card with max. 2 GB
Hardware configuration	
Racks, max.	1
Modules per rack, max.	8
Number of integrated DP master	-
Number of DP master via CP	-
Operable function modules	-
Operable communication modules PtP	-
Operable communication modules LAN	-
Status information, alarms, diagnostics	
Status display	yes

Interrupts	yes, parameterizable
Process alarm	yes, parameterizable
Diagnostic interrupt	yes, parameterizable
Diagnostic functions	yes, parameterizable
Diagnostics information read-out	possible
Supply voltage display	green LED
Group error display	red LED
Channel error display	red LED per group

Command processing times

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

Timers/Counters and their retentive characteristics

Number of S7 counters	512
S7 counter remanence	adjustable 0 up to 256
S7 counter remanence adjustable	C0 .. C7
Number of S7 times	512
S7 times remanence	adjustable 0 up to 256
S7 times remanence adjustable	not retentive

Data range and retentive characteristic

Number of flags	8192 Byte
Bit memories retentive characteristic adjustable	adjustable 0 up to 256
Bit memories retentive characteristic preset	MB0 .. MB15
Number of data blocks	1024
Max. data blocks size	64 KB
Number range DBs	1 ... 4095
Max. local data size per execution level	4096 Byte
Max. local data size per block	4096 Byte

Blocks

Number of OBs	22
Maximum OB size	64 KB
Total number DBs, FBs, FCs	1024
Number of FBs	1024
Maximum FB size	64 KB
Number range FBs	0 ... 4095
Number of FCs	1024
Maximum FC size	64 KB
Number range FCs	0 ... 4095
Maximum nesting depth per priority class	16
Maximum nesting depth additional within an error OB	4

Time

Real-time clock buffered	yes
Clock buffered period (min.)	30 d
Type of buffering	Goldcap
Load time for 50% buffering period	15 min

Load time for 100% buffering period	1 h
Accuracy (max. deviation per day)	10 s
Number of operating hours counter	8
Clock synchronization	yes
Synchronization via MPI	Master/Slave
Synchronization via Ethernet (NTP)	no

Address areas (I/O)

Input I/O address area	2048 Byte
Output I/O address area	2048 Byte
Process image adjustable	yes
Input process image preset	128 Byte
Output process image preset	128 Byte
Input process image maximal	2048 Byte
Output process image maximal	2048 Byte
Digital inputs	144
Digital outputs	140
Digital inputs central	144
Digital outputs central	140
Integrated digital inputs	16
Integrated digital outputs	12
Analog inputs	2
Analog outputs	0
Analog inputs, central	2
Analog outputs, central	0
Integrated analog inputs	2
Integrated analog outputs	0

Communication functions

PG/OP channel	yes
Global data communication	yes
Number of GD circuits, max.	8
Size of GD packets, max.	54 Byte
S7 basic communication	yes
S7 basic communication, user data per job	76 Byte
S7 communication	yes
S7 communication as server	yes
S7 communication as client	-
S7 communication, user data per job	160 Byte
Number of connections, max.	32

PWM data

PWM channels	2
PWM time basis	1 μ s / 0.1 ms / 1 ms
Period length	-
Minimum pulse width	0...0.5 * Period duration
Type of output	Highside

Functionality Sub-D interfaces

Type	X1
Type of interface	RS422/485 isolated
Connector	Sub-D, 9-pin, female

Electrically isolated	yes
MPI	-
MP ² I (MPI/RS232)	-
DP master	-
DP slave	-
Point-to-point interface	yes
5V DC Power supply	max. 90mA, isolated
24V DC Power supply	-

Type	X2
Type of interface	RS485 isolated
Connector	Sub-D, 9-pin, female
Electrically isolated	yes
MPI	yes
MP ² I (MPI/RS232)	-
DP master	-
DP slave	optional
Point-to-point interface	-
5V DC Power supply	max. 90mA, isolated
24V DC Power supply	-

Functionality MPI

Number of connections, max.	32
PG/OP channel	yes
Routing	yes
Global data communication	yes
S7 basic communication	yes
S7 communication	yes
S7 communication as server	yes
S7 communication as client	-
Transmission speed, min.	19.2 kbit/s
Transmission speed, max.	12 Mbit/s

Functionality PROFIBUS slave

Number of connections, max.	32
PG/OP channel	yes
Routing	yes
S7 communication	yes
S7 communication as server	yes
S7 communication as client	-
Direct data exchange (slave-to-slave communication)	-
DPV1	yes
Transmission speed, min.	9.6 kbit/s
Transmission speed, max.	12 Mbit/s
Automatic detection of transmission speed	yes
Transfer memory inputs, max.	244 Byte
Transfer memory outputs, max.	244 Byte
Address areas, max.	32
User data per address area, max.	32 Byte

Point-to-point communication

PtP communication	yes
Interface isolated	yes
RS232 interface	-
RS422 interface	yes
RS485 interface	yes
Connector	Sub-D, 9-pin, female
Transmission speed, min.	1200 bit/s
Transmission speed, max.	115.2 kbit/s
Cable length, max.	500 m

Point-to-point protocol

ASCII protocol	yes
STX/ETX protocol	yes
3964(R) protocol	yes
RK512 protocol	-
USS master protocol	yes
Modbus master protocol	yes
Modbus slave protocol	yes
Special protocols	-

Properties PROFINET I-Device via PG/OP

I/O Data range, max.	768 Byte
Update time	1 ms .. 512 ms
Mode as Shared I-Device	-

Functionality RJ45 interfaces

Type	-
Type of interface	Ethernet 10/100 MBit Switch
Connector	2 x RJ45
Electrically isolated	yes
PG/OP channel	yes
Number of connections, max.	4
Productive connections	yes
Fieldbus	-

Type	-
Type of interface	-
Connector	-
Electrically isolated	-
PG/OP channel	-
Number of connections, max.	-
Productive connections	-
Fieldbus	-

Ethernet communication via PG/OP

Number of productive connections via PG/OP, max.	2
Number of productive connections by Siemens NetPro, max.	2
S7 connections	BSEND, BRCV, GET, PUT, Connection of active and passive data handling
User data per S7 connection, max.	64 KB

TCP-connections	FETCH PASSIV, WRITE PASSIV, Connection of passive data handling
User data per TCP connection, max.	8 KB
ISO on TCP connections (RFC 1006)	FETCH PASSIV, WRITE PASSIV, Connection of passive data handling
User data per ISO connection, max.	8 KB

Ethernet open communication via PG/OP

Number of configurable connections, max.	2
ISO on TCP connections (RFC 1006)	TSEND, TRCV, TCON, TDISCON
User data per ISO on TCP connection, max.	32 KB
TCP-Connections native	TSEND, TRCV, TCON, TDISCON
User data per native TCP connection, max.	32 KB
User data per ad hoc TCP connection, max.	1460 Byte
UDP-connections	TUSEND, TURCV
User data per UDP connection, max.	1472 Byte

Management & diagnosis via PG/OP

Protocols	ICMP DCP LLDP / SNMP NTP
Web based diagnosis	yes
NCM diagnosis	-

Housing

Material	PPE / PPE GF10
Mounting	Profile rail 35 mm

Mechanical data

Dimensions (WxHxD)	72 mm x 88 mm x 71 mm
Net weight	230 g
Weight including accessories	230 g
Gross weight	250 g

Environmental conditions

Operating temperature	0 °C to 60 °C
Storage temperature	-25 °C to 70 °C

Certifications

UL certification	in preparation
KC certification	in preparation