

**Data sheet**  
 VIPA CPU 013C (013-CCF0R00)

**Technical data**

<b>Order no.</b>	<b>013-CCF0R00</b>
Type	VIPA CPU 013C
Module ID	-
<b>General information</b>	
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) Interface [RS485]: MPI, PtP: ASCII, STX/ETX, 3964 (R), USS master, Modbus master/slave Optional: PROFIBUS master/slave Web server SD card slot with locking, up to 64 expansion modules, configurable with SPEED7 Studio, SIMATIC Manager and TIA Portal
<b>Technical data power supply</b>	
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
$I^2t$	0.1 A <sup>2</sup> s
Max. current drain at backplane bus	1 A
Max. current drain load supply	6 A
Power loss	7 W
<b>Load and working memory</b>	
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
<b>Hardware configuration</b>	
Racks, max.	5
Modules per rack, max.	total max. 64 minus number line extensions
Number of integrated DP master	-
Number of DP master via CP	-
Operable function modules	64
Operable communication modules PtP	64
Operable communication modules LAN	-
<b>Status information, alarms, diagnostics</b>	

Status display	yes
Interrupts	yes
Process alarm	yes
Diagnostic interrupt	yes
Diagnostic functions	yes, parameterizable
Diagnostics information read-out	possible
Supply voltage display	green LED
Group error display	red SF 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	528
Digital outputs	524
Digital inputs central	528
Digital outputs central	524
Integrated digital inputs	16
Integrated digital outputs	12
Analog inputs	514
Analog outputs	256
Analog inputs, central	514
Analog outputs, central	256
Integrated analog inputs	2
Integrated analog outputs	-

#### 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 $\mu$ s / 0.1 ms / 1 ms
Period length	50 $\mu$ s...65.535ms / 0.1...87ms / 1...87ms
Minimum pulse width	0...0.5 * Period duration
Type of output	Highside

#### Functionality Sub-D interfaces

Type	X3
Type of interface	RS485

Connector	Sub-D, 9-pin, female
Electrically isolated	yes
MPI	yes
MP <sup>2</sup> I (MPI/RS232)	-
DP master	optional
DP slave	optional
Point-to-point interface	yes
5V DC Power supply	max. 90mA, isolated
24V DC Power supply	max. 100mA, non-isolated

Type	-
Type of interface	-
Connector	-
Electrically isolated	-
MPI	-
MP <sup>2</sup> I (MPI/RS232)	-
DP master	-
DP slave	-
Point-to-point interface	-
5V DC Power supply	-
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 master

Number of connections, max.	32
PG/OP channel	yes
Routing	yes
S7 basic communication	yes
S7 communication	yes
S7 communication as server	yes
S7 communication as client	-
Activation/deactivation of DP slaves	yes
Direct data exchange (slave-to-slave communication)	-
DPV1	yes
Transmission speed, min.	9.6 kbit/s
Transmission speed, max.	12 Mbit/s
Number of DP slaves, max.	32
Address range inputs, max.	2 KB
Address range outputs, max.	2 KB

User data inputs per slave, max.	244 Byte
User data outputs per slave, max.	244 Byte

### 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	-
RS485 interface	yes
Connector	Sub-D, 9-pin, female
Transmission speed, min.	1200 bit/s
Transmission speed, max.	115.5 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	X1/X2
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)	147 mm x 100 mm x 83 mm
Net weight	320 g
Weight including accessories	320 g
Gross weight	355 g

**Environmental conditions**

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

**Certifications**

UL certification	yes
KC certification	yes