YASKAWA

Data sheet
CPU 019PN (019-CEFPM00)

Technical data

Order no.	019-CEFPM00
Type	CPU 019PN
Module ID	-
General information	
Note	-
Features	Powered by SPEED7 Work memory [KB]: 6.144 Integrated: PROFINET Controller / I-Device, PROFIBUS master/slave Interface [2x RJ45]: PROFINET, ModbusTCP master/slave, openCommunication InterfInterface [2x RJ45]: active Ethernet PG/OP communication with DHCP support, switch Interface [2x RS485]: MPI, PtP: ASCII, STX/ETX, 3964(R), USS master, Modbus master/slave OPC UA / Web server SD card slot with locking, up to 64 expansion modules, configurable with 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)	175 mA
Current consumption (rated value)	1.1 A
Inrush current	3 A
I^2t	0.1 A^2s
Max. current drain at backplane bus	3 A
Max. current drain load supply	10 A
Power loss	7.5 W
Load and working memory	
Load memory, integrated	6 MB
Load memory, maximum	6 MB
Work memory, integrated	6 MB
Work memory, maximal	6 MB
Memory divided in 50% program / 50% data	yes
Memory card slot	SD/MMC-Card with max. 2 GB
Hardware configuration	
Racks, max.	5
Modules per rack, max.	total max. 64 minus number line extensions
Number of integrated DP master	1
Number of DP master via CP	-
Operable function modules	64
Operable communication modules PtP	64
Operable communication modules LAN	-
Status information, alarms, diagnostics	
Status display	yes
Interrupts	no

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Process alarm	no
Diagnostic interrupt	no
Diagnostic functions	yes
Diagnostics information read-out	possible
Supply voltage display	green LED
Group error display	red SF LED
Channel error display	none
Command processing times	
Bit instructions, min.	0.01 µs
Word instruction, min.	0.01 µs
Double integer arithmetic, min.	0.01 µs
Floating-point arithmetic, min.	0.06 µs
Timers/Counters and their retentive characteristics	
Number of S7 counters	2048
S7 counter remanence	adjustable 0 up to 2048
S7 counter remanence adjustable	C0 .. C7
Number of S7 times	2048
S7 times remanence	adjustable 0 up to 2048
S7 times remanence adjustable	not retentive
Data range and retentive characteristic	
Number of flags	16384 Byte
Bit memories retentive characteristic adjustable	adjustable 0 up to 16384
Bit memories retentive characteristic preset	MB0 .. MB15
Number of data blocks	8191
Max. data blocks size	64 KB
Number range DBs	1 ... 8191
Max. local data size per execution level	4096 Byte
Max. local data size per block	4096 Byte
Blocks	
Number of OBs	24
Maximum OB size	64 KB
Total number DBs, FBs, FCs	8192
Number of FBs	8192
Maximum FB size	64 KB
Number range FBs	0 ... 8191
Number of FCs	8192
Maximum FC size	64 KB
Number range FCs	0 ... 8191
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

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Number of operating hours counter	8
Clock synchronization	yes
Synchronization via MPI	Master/Slave
Synchronization via Ethernet (NTP)	Slave
Address areas (I/O)	
Input I/O address area	8192 Byte
Output I/O address area	8192 Byte
Process image adjustable	yes
Input process image preset	256 Byte
Output process image preset	256 Byte
Input process image maximal	8192 Byte
Output process image maximal	8192 Byte
Digital inputs	65536
Digital outputs	65536
Digital inputs central	512
Digital outputs central	512
Integrated digital inputs	-
Integrated digital outputs	-
Analog inputs	4096
Analog outputs	4096
Analog inputs, central	512
Analog outputs, central	256
Integrated analog inputs	-
Integrated analog outputs	-
Communication functions	
PG/OP channel	yes
Global data communication	yes
Number of GD circuits, max.	8
Size of GD packets, max.	22 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
Functionality Sub-D interfaces	
Type	X2
Type of interface	RS485
Connector	Sub-D, 9-pin, female
Electrically isolated	yes
MPI	yes
MP²I (MPI/RS232)	-
DP master	-
DP slave	-
Point-to-point interface	yes
5V DC Power supply	max. 90mA, isolated
24V DC Power supply	max. 100mA, non-isolated

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Type	X3
Type of interface	RS485
Connector	Sub-D, 9-pin, female
Electrically isolated	yes
MPI	yes
MP²I (MPI/RS232)	-
DP master	optional
DP slave	optional
Point-to-point interface	-
5V DC Power supply	max. 90mA, isolated
24V DC Power supply	max. 100mA, non-isolated
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.	124
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	-

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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	-
Transfer memory inputs, max.	244 Byte
Transfer memory outputs, max.	244 Byte
Address areas, max.	32
User data per address area, max.	32 Byte
Functionality RJ45 interfaces	
Type	X1/X5
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	X4/X6
Type of interface	Ethernet 100 MBit
Connector	2 x RJ45
Electrically isolated	yes
PG/OP channel	yes
Number of connections, max.	32
Productive connections	yes
Fieldbus	PROFINET-IO
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/O controller via CP	
Realtime Class	-

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Conformance Class	PROFINET IO
Number of PN IO devices	128
IRT support	-
Shared Device supported	yes
MRP Client supported	yes
Prioritized start-up	-
Number of PN IO lines	1
Address range inputs, max.	6 KB
Address range outputs, max.	6 KB
Transmitting clock	1 ms
Update time	1 ms .. 512 ms
Isochronous mode	-
Parallel operation as controller and I-Device	yes
Properties PROFINET I-Device via PG/OP	
I/O Data range, max.	-
Update time	-
Mode as Shared I-Device	-
Properties PROFINET I-Device via CP	
I/O Data range, max.	768 Byte
Update time	1 ms .. 512 ms
Mode as Shared I-Device	-
Management & diagnosis via PG/OP	
Protocols	ICMP DCP LLDP / SNMP NTP
Web based diagnosis	yes
NCM diagnosis	-
Ethernet communication CP	
Number of configurable connections, max.	68
Number of productive connections by Siemens NetPro, max.	16
S7 connections	BSEND, BRCV, GET, PUT, Connection of active and passive data handling
User data per S7 connection, max.	32 KB
TCP-connections	FETCH PASSIV, WRITE PASSIV, Connection of passive data handling
User data per TCP connection, max.	8 KB
ISO-connections	-
User data per ISO connection, max.	-
ISO on TCP connections (RFC 1006)	FETCH PASSIV, WRITE PASSIV, Connection of passive data handling
User data per ISO on TCP connection, max.	8 KB
UDP-connections	-
User data per UDP connection, max.	-
UDP-multicast-connections	-
UDP-broadcast-connections	-
Ethernet open communication	
Number of connections, max.	68
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

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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
Ethernet communication via PG/OP	
Number of productive connections via PG/OP, max.	68
Number of productive connections by Siemens NetPro, max.	16
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.	68
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
WebVisu via PG/OP	
WebVisu is supported	yes
Max. number of connections WebVisu	4
WebVisu supports HTTP	yes
WebVisu supports HTTPS	yes
OPC UA server via PG/OP	
OPC UA server is supported	yes
Max. number of connections per interface	6
Services	Data Access (Read, Write, Subscribe)
Security policies	None, Basic128Rsa15, Basic256, Basic256Sha256
Authentication	Anonymous, username and password
WebVisu via CP	
WebVisu is supported	yes
Max. number of connections WebVisu	4
WebVisu supports HTTP	yes
WebVisu supports HTTPS	yes
OPC UA server via CP	
OPC UA server is supported	yes
Max. number of connections per interface	6
Services	Data Access (Read, Write, Subscribe)
Security policies	None, Basic128Rsa15, Basic256, Basic256Sha256
Authentication	Anonymous, username and password
Housing	
Material	PPE / PPE GF10

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Mounting	Profile rail 35 mm
Mechanical data	
Dimensions (WxHxD)	131.5 mm x 109 mm x 83 mm
Net weight	335 g
Weight including accessories	335 g
Gross weight	365 g
Environmental conditions	
Operating temperature	0 °C to 60 °C
Storage temperature	-25 °C to 70 °C
Certifications	
UL certification	yes
KC certification	-
UKCA certification	-
ChinaRoHS certification	yes

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