Data sheet
CPU 112 (112-4BH02)

Technical data

Order no.	112-4BH02
Type	CPU 112
General information	
Note	-
Features	8 (12) inputs 8 (4) outputs 8 kB work memory, 16 kB load memory
Technical data power supply	
Power supply (rated value)	DC 24 V
Power supply (permitted range)	DC 20.4...28.8 V
Reverse polarity protection	✔
Current consumption (no-load operation)	50 mA
Current consumption (rated value)	1 A
Inrush current	58 A
I^2t	0.38 A^2s
Max. current drain at backplane bus	-
Power loss	5 W
Reverse polarity protection	✔
Technical data digital inputs	
Number of inputs	8 (12
Cable length, shielded	1000 m
Cable length, unshielded	600 m
Rated load voltage	DC 24 V
Reverse polarity protection of rated load voltage	✔
Current consumption from load voltage L+ (without load)	-
Rated value	DC 24 V
Input voltage for signal "0"	DC 0...5 V
Input voltage for signal "1"	DC 15...28.8 V
Input current for signal "1"	7 mA
Connection of Two-Wire-BEROs possible	✔
Max. permissible BERO quiescent current	1.5 mA
Input delay of "0" to "1"	3 ms
Input delay of "1" to "0"	3 ms
Input characteristic curve	IEC 61131-2, type 1
Initial data size	3 Byte
Technical data digital outputs	
Number of outputs	8 (4
Cable length, shielded	1000 m
Cable length, unshielded	600 m
Rated load voltage	DC 24 V

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Reverse polarity protection of rated load voltage	-
Current consumption from load voltage L+ (without load)	50 mA
Total current per group, horizontal configuration, 40°C	4 A
Total current per group, horizontal configuration, 60°C	4 A
Total current per group, vertical configuration	4 A
Output voltage signal "1" at min. current	L+ (-125 mV)
Output voltage signal "1" at max. current	L+ (-0.8 V)
Output current at signal "1", rated value	0.5 A
Output delay of "0" to "1"	max. 100 µs
Output delay of "1" to "0"	max. 350 µs
Minimum load current	-
Lamp load	5 W
Switching frequency with resistive load	max. 1000 Hz
Switching frequency with inductive load	max. 0.5 Hz
Switching frequency on lamp load	max. 10 Hz
Internal limitation of inductive shut-off voltage	L+ (-52 V)
Short-circuit protection of output	yes, electronic
Trigger level	1 A
Output data size	3 Byte

Technical data counters

Number of counters	-
Counter width	-
Maximum input frequency	-
Maximum count frequency	-
Mode incremental encoder	-
Mode pulse / direction	-
Mode pulse	-
Mode frequency counter	-
Mode period measurement	-
Gate input available	-
Latch input available	-
Reset input available	-
Counter output available	-

Status information, alarms, diagnostics

Status display	yes
Interrupts	yes
Process alarm	yes
Diagnostic interrupt	yes
Diagnostic functions	no
Diagnostics information read-out	possible
Supply voltage display	green LED
Group error display	red SF LED
Channel error display	none

Isolation

Between channels of groups to	8
Between channels and backplane bus	✓

Insulation tested with	DC 500 V

PWM data

PWM channels	-
PWM time basis	-
Period length	-
Minimum pulse width	-
PtP communication	-

Load and working memory

Load memory, integrated	16 KB
Load memory, maximum	16 KB
Work memory, integrated	8 KB
Work memory, maximal	8 KB
Memory divided in 50% program / 50% data	-
Memory card slot	MMC-Card with max. 512 MB

Hardware configuration

Racks, max.	-
Modules per rack, max.	-
Number of integrated DP master	-
Number of DP master via CP	-
Operable function modules	-
Operable communication modules PtP	-
Operable communication modules LAN	-

Command processing times

Bit instructions, min.	0.25 µs
Word instruction, min.	1.2 µs
Double integer arithmetic, min.	2.6 µs
Floating-point arithmetic, min.	50 µs

Timers/Counters and their retentive characteristics

Number of S7 counters	256
S7 counter remanence	adjustable 0 up to 64
S7 counter remanence adjustable	C0 .. C7
Number of S7 times	256
S7 times remanence	adjustable 0 up to 128
S7 times remanence adjustable	not retentive

Data range and retentive characteristic

Number of flags	8192 Bit
Bit memories retentive characteristic adjustable	adjustable 0 up to 256
Bit memories retentive characteristic preset	MB0 .. MB15
Number of data blocks	2047
Max. data blocks size	16 KB
Number range DBs	1 ... 2047
Max. local data size per execution level	1024 Byte
Max. local data size per block	1024 Byte

Blocks

Number of OBs	14
Maximum OB size	16 KB
Total number DBs, FBs, FCs	-
Number of FBs	1024
Maximum FB size	16 KB
Number range FBs	0 ... 1023
Number of FCs	1024
Maximum FC size	16 KB
Number range FCs	0 ... 1023
Maximum nesting depth per priority class	8
Maximum nesting depth additional within an error OB	1

Time

Real-time clock buffered	✓
Clock buffered period (min.)	30 d
Type of buffering	Vanadium Rechargeable Lithium Battery
Load time for 50% buffering period	20 h
Load time for 100% buffering period	48 h
Accuracy (max. deviation per day)	10 s
Number of operating hours counter	8
Clock synchronization	-
Synchronization via MPI	-
Synchronization via Ethernet (NTP)	-

Address areas (I/O)

Input I/O address area	1024 Byte
Output I/O address area	1024 Byte
Process image adjustable	-
Input process image preset	128 Byte
Output process image preset	128 Byte
Input process image maximal	128 Byte
Output process image maximal	128 Byte
Digital inputs	12
Digital outputs	8
Digital inputs central	12
Digital outputs central	8
Integrated digital inputs	8 (12
Integrated digital outputs	8 (4
Analog inputs	-
Analog outputs	-
Analog inputs, central	-
Analog outputs, central	-
Integrated analog inputs	-
Integrated analog outputs	-

Communication functions

PG/OP channel	✓

Global data communication	✓
Number of GD circuits, max.	4
Size of GD packets, max.	22 Byte
S7 basic communication	✓
S7 basic communication, user data per job	76 Byte
S7 communication	✓
S7 communication as server	✓
S7 communication as client	-
S7 communication, user data per job	160 Byte
Number of connections, max.	16

Functionality Sub-D interfaces

Type	MP²I
Type of interface	RS485
Connector	Sub-D, 9-pin, female
Electrically isolated	-
MPI	✓
MP²I (MPI/RS232)	✓
Point-to-point interface	-

Functionality MPI

Number of connections, max.	16
PG/OP channel	✓
Routing	-
Global data communication	✓
S7 basic communication	✓
S7 communication	✓
S7 communication as server	✓
S7 communication as client	-
Transmission speed, min.	19.2 kbit/s
Transmission speed, max.	187.5 kbit/s

Housing

Material	PPE / PA 6.6
Mounting	Profile rail 35 mm

Mechanical data

Dimensions (WxHxD)	101.6 mm x 76 mm x 48 mm
Weight	219 g

Environmental conditions

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

Certifications

UL508 certification	yes