6AG1215-1AF40-5XB0

Data sheet



SIPLUS S7-1200 CPU 1215FC DC/DC/DC -25°C...55°C with conformal coating based on 6ES7215-1AF40-0XB0 . compact CPU, DC/DC/DC, 2 PROFINET PORT, "ONBOARD I/O: 14 DI 24VDC; 10 DO" "24V DC 0.5A; 2 AI 0-10V DC, 2" AO 0-20MA DC, POWER SUPPLY: DC 20.4 - 28.8 V DC, PROGRAM/DATA MEMORY 150 KB

Product type designation Supply voltage Rated value (DC) • 24 V DC permissible range, lower limit (DC) • 24 V DC permissible range, lower limit (DC) • 24 V OC permissible range, lower limit (DC) • Rated value (DC) • permissible range, lower limit (DC) • 250 V Input current Current consumption (rated value) • Doutput current, max. 1 500 mA; CPU only • DV with all expansion modules Inrush current, max. 1 2 x; at 28.8 V DC IPT • 0.5 AP's Output current for backplane bus (5 V DC), max. 1 600 mA; Max. 5 V DC for SM and CM Encoder supply • 24 V V L+ minus 4 V DC min. Power loss Power loss, typ. 12 W Memory Work memory • integrated • expandable • No Load memory • integrated • Plug-in (SIMATIC Memory Card), max. Backup • present • maintenance-free • yes • without battery Yes • without battery For word operations, typ. 1.7 ps; / instruction for word operations, typ. 1.7 ps; / instruction	General information		
Rated value (DC)	Product type designation	CPU 1215FC DC/DC/DC	
Permissible range, lower limit (DC)	Supply voltage		
permissible range, lower limit (DC) permissible range, upper limit (DC) 28.8 V Load voltage L+ Rated value (DC) permissible range, lower limit (DC) permissible range, lower limit (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) power loss permissible range, upper limit (DC) permissible r	Rated value (DC)		
permissible range, upper limit (DC) Load voltage L+ Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) permissible range, lower limit (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) permissible r	• 24 V DC	Yes	
Load voltage L+ Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) linput current Current consumption (rated value) Current consumption, max. 1 500 mA; CPU only Current consumption, max. 1 500 mA; CPU with all expansion modules Inrush current, max. 12 A; at 28.8 V DC It Output current for backplane bus (5 V DC), max. 1 600 mA; Max. 5 V DC for SM and CM Encoder supply 24 V encoder supply 24 V	permissible range, lower limit (DC)	20.4 V	
Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) Input current Current consumption (rated value) Current consumption, max. 1 500 mA; CPU only Current consumption, max. 1 500 mA; CPU with all expansion modules Inrush current, max. 1 2 A; at 22.8 V DC Otbut current for backplane bus (5 V DC), max. 1 600 mA; Max. 5 V DC for SM and CM Encoder supply 24 V encoder supply 24 V L+ minus 4 V DC min. Power loss Power loss, typ. 12 W Memory Work memory integrated expandable No Load memory integrated Plug-in (SIMATIC Memory Card), max. with SIMATIC memory card Backup present present yes without battery Yes without battery for bit operations, typ. 0.085 μs; / instruction	permissible range, upper limit (DC)	28.8 V	
permissible range, lower limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) 250 V			
permissible range, upper limit (DC) Input current Current consumption (rated value) Current consumption, max. 1 500 mA; CPU only Current consumption, max. 1 500 mA; CPU with all expansion modules Inrush current, max. 1 2 A; at 28.8 V DC I²t 0.5 A²-s Output current for backplane bus (5 V DC), max. 1 600 mA; Max. 5 V DC for SM and CM Encoder supply 24 V encoder supply 24 V encoder supply • 24 V L+ minus 4 V DC min. Power loss Power loss, typ. Memory Work memory • integrated • expandable No Load memory • integrated • Plug-in (SIMATIC Memory Card), max. Backup • present • present • maintenance-free • without battery Poug-in (SIMATIC Memory Yes • without battery CPU processing times for bit operations, typ. 0.085 µs; / instruction	Rated value (DC)	24 V	
Input current Summary	 permissible range, lower limit (DC) 	5 V	
Current consumption (rated value) Current consumption, max. Inrush current, max. IPt 0.5 A²-s Output current for backplane bus (5 V DC), max. Inrush current	 permissible range, upper limit (DC) 	250 V	
Current consumption, max. Inrush current, m	Input current		
Inrush current, max. It a at 28.8 V DC Output current for backplane bus (5 V DC), max. I 600 mA; Max. 5 V DC for SM and CM Encoder supply 24 V encoder supply 24 V encoder supply • 24 V L+ minus 4 V DC min. Power loss Power loss, typ. 12 W Memory Work memory • integrated • expandable No Load memory • integrated • Plug-in (SIMATIC Memory Card), max. Backup • present • present • maintenance-free • without battery For bit operations, typ. 12 A; at 28.8 V DC 0.5 A²-s 1600 mA; Max. 5 V DC for SM and CM Encoder SM and CM ### A Work of SM and CM #	Current consumption (rated value)	500 mA; CPU only	
Pit	Current consumption, max.	1 500 mA; CPU with all expansion modules	
Output current for backplane bus (5 V DC), max. 1 600 mA; Max. 5 V DC for SM and CM Encoder supply 24 V encoder supply 24 V • 24 V L+ minus 4 V DC min. Power loss, typ. 12 W Memory • integrated 150 kbyte • expandable No Load memory 4 Mbyte • integrated 4 Mbyte • Plug-in (SIMATIC Memory Card), max. with SIMATIC memory card Backup • present Yes • maintenance-free Yes • without battery Yes CPU processing times for bit operations, typ. 0.085 µs; / instruction	Inrush current, max.	12 A; at 28.8 V DC	
for backplane bus (5 V DC), max. Encoder supply 24 V encoder supply • 24 V L+ minus 4 V DC min. Power loss Power loss, typ. 12 W Memory Work memory • integrated • expandable No Load memory • integrated • Plug-in (SIMATIC Memory Card), max. Backup • present • present • maintenance-free • without battery For Dit operations, typ. 1 600 mA; Max. 5 V DC for SM and CM L+ minus 4 V DC min. Plug-in (SIMATIC Memory A V DC min. 4 W DC min. 4 W DC min. 4 Mbyte • With SIMATIC memory card For Simantenance A V Pes • without battery • present • pres	l²t	0.5 A ² ·s	
Encoder supply 24 V encoder supply 24 V L+ minus 4 V DC min. Power loss Power loss, typ. 12 W Memory Work memory integrated expandable No Load memory integrated Plug-in (SIMATIC Memory Card), max. Backup present present maintenance-free without battery Yes CPU processing times for bit operations, typ. L+ minus 4 V DC min. Let minus 4 V DC	Output current		
24 V encoder supply • 24 V L+ minus 4 V DC min. Power loss Power loss, typ. 12 W Memory Work memory • integrated • expandable Load memory • integrated • Plug-in (SIMATIC Memory Card), max. Backup • present • present • maintenance-free • without battery For bit operations, typ. 150 kbyte 150 k	for backplane bus (5 V DC), max.	1 600 mA; Max. 5 V DC for SM and CM	
L+ minus 4 V DC min. Power loss Power loss, typ. 12 W Memory Work memory integrated expandable No Load memory integrated Plug-in (SIMATIC Memory Card), max. Backup present minus 4 V DC min. 14 W Memory 150 kbyte No 4 Mbyte No Ves Vith SIMATIC memory card Present Minus 4 V DC min. 12 W Memory 150 kbyte No 150 kbyte Vex No 150 kbyte Vex Vex Vex Vex Vex Vex Vex Vex Vex Ve	Encoder supply		
Power loss Power loss, typ. 12 W Memory Work memory integrated expandable No Load memory integrated Plug-in (SIMATIC Memory Card), max. Backup present maintenance-free without battery CPU processing times for bit operations, typ. 12 W Memory 150 kbyte No 4 Mbyte No 4 Mbyte with SIMATIC memory card Yes Yes Yes O.085 µs; / instruction	24 V encoder supply		
Power loss, typ. Memory Work memory integrated expandable Load memory integrated Plug-in (SIMATIC Memory Card), max. Backup present emaintenance-free without battery CPU processing times for bit operations, typ. 150 kbyte No 4 Mbyte No 4 Mbyte with SIMATIC memory card Yes Yes Yes Yes O.085 µs; / instruction	• 24 V	L+ minus 4 V DC min.	
Work memory ● integrated ● expandable Load memory ● integrated ● Plug-in (SIMATIC Memory Card), max. Backup ● present ● maintenance-free ● without battery CPU processing times for bit operations, typ. 150 kbyte No 4 Mbyte with SIMATIC memory card Yes with SIMATIC memory card Yes yes Yes Yes O.085 µs; / instruction	Power loss		
Work memory ● integrated ● expandable Load memory ● integrated ● Plug-in (SIMATIC Memory Card), max. Backup ● present ● maintenance-free ● without battery CPU processing times for bit operations, typ. 150 kbyte No 4 Mbyte with SIMATIC memory card Yes with SIMATIC memory card Yes Yes O.085 µs; / instruction	Power loss, typ.	12 W	
 integrated expandable No Load memory integrated Plug-in (SIMATIC Memory Card), max. with SIMATIC memory card Backup present maintenance-free without battery CPU processing times for bit operations, typ. 0.085 μs; / instruction 	Memory		
● expandable Load memory ● integrated ● Plug-in (SIMATIC Memory Card), max. Backup ● present ● present ● maintenance-free ● without battery CPU processing times for bit operations, typ. No 4 Mbyte with SIMATIC memory card Yes Yes Yes Yes O.085 µs; / instruction	Work memory		
Load memory integrated Plug-in (SIMATIC Memory Card), max. Backup present maintenance-free without battery CPU processing times for bit operations, typ. 4 Mbyte with SIMATIC memory card Yes Yes Yes Yes Yes O.085 µs; / instruction	integrated	150 kbyte	
 integrated Plug-in (SIMATIC Memory Card), max. Backup present maintenance-free without battery CPU processing times for bit operations, typ. 4 Mbyte with SIMATIC memory card Yes Yes Yes O.085 µs; / instruction 	• expandable	No	
 Plug-in (SIMATIC Memory Card), max. Backup present maintenance-free with SIMATIC memory card Yes without battery Yes CPU processing times for bit operations, typ. 0.085 µs; / instruction 	Load memory		
Backup	integrated	4 Mbyte	
 present maintenance-free without battery CPU processing times for bit operations, typ. Yes 0.085 µs; / instruction 	 Plug-in (SIMATIC Memory Card), max. 	with SIMATIC memory card	
	Backup		
• without battery CPU processing times for bit operations, typ. O.085 µs; / instruction	present	Yes	
CPU processing times for bit operations, typ. 0.085 μs; / instruction	 maintenance-free 	Yes	
for bit operations, typ. 0.085 µs; / instruction	without battery	Yes	
	CPU processing times		
for word operations, typ. 1.7 µs; / instruction	for bit operations, typ.	0.085 μs; / instruction	
	for word operations, typ.	1.7 μs; / instruction	

CPU-blocks Number of blocks (total) OB Number, max. Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag Size, max. Local data per priority class, max. Address area Process image Inputs, adjustable Outputs, adjustable Outputs, adjustable Address or max. Hardware configuration Number of modules per system, max. Time of day Clock Hardware clock (real-time) Backup time Deviation per day, max.	byte byte comm. modules, 1 signal board, 8 signal modules
Number of blocks (total) OB Number, max. Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag Size, max. Local data per priority class, max. Address area Process image Inputs, adjustable Outputs, adjustable Outputs, adjustable Taken adjustable Address area Process image Inputs, adjustable Address area Process image Address area Process image Inputs, adjustable Address area Process image Address area Process image Address area Address area Address area Address area Process image Address area Addr	dressable blocks ranges from 1 to 65535. There is no restriction, the tire working memory can be used nited only by RAM for code kbyte byte; Size of bit memory address area kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 byte byte comm. modules, 1 signal board, 8 signal modules
● Number, max. Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag ● Size, max. Local data ● per priority class, max. Address area Process image ● Inputs, adjustable ● Outputs, adjustable ● Outputs, adjustable ● Take the the theorem and the temperature of modules per system, max. Time of day Clock ● Hardware clock (real-time) ● Backup time ● Deviation per day, max.	kbyte; Size of bit memory address area kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 byte byte byte comm. modules, 1 signal board, 8 signal modules b h; Typical
Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag Size, max. Local data per priority class, max. Address area Process image Inputs, adjustable Outputs, adjustable Outputs, adjustable Hardware configuration Number of modules per system, max. Time of day Clock Hardware clock (real-time) Backup time Deviation per day, max.	kbyte; Size of bit memory address area kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 byte byte byte comm. modules, 1 signal board, 8 signal modules b h; Typical
Retentive data area (incl. timers, counters, flags), max. Flag Size, max. Local data per priority class, max. Address area Process image Inputs, adjustable Outputs, adjustable Outputs, adjustable Hardware configuration Number of modules per system, max. Time of day Clock Hardware clock (real-time) Backup time Backup time Deviation per day, max.	byte; Size of bit memory address area kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 byte byte comm. modules, 1 signal board, 8 signal modules b h; Typical
Flag Size, max. Size, max. Size, max. Per priority class, max. Address area Process image Inputs, adjustable Outputs, adjustable Outputs, adjustable Hardware configuration Number of modules per system, max. Time of day Clock Hardware clock (real-time) Backup time Deviation per day, max.	byte; Size of bit memory address area kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 byte byte comm. modules, 1 signal board, 8 signal modules b h; Typical
Size, max. Local data per priority class, max. Address area Process image Inputs, adjustable Outputs, adjustable Outputs, adjustable Hardware configuration Number of modules per system, max. Time of day Clock Hardware clock (real-time) Backup time Deviation per day, max.	kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 byte byte comm. modules, 1 signal board, 8 signal modules 6 byte 6 chyte
Local data • per priority class, max. Address area Process image • Inputs, adjustable • Outputs, adjustable 1 kt • Outputs, adjustable 1 kt Hardware configuration Number of modules per system, max. 7 ime of day Clock • Hardware clock (real-time) • Backup time • Deviation per day, max.	kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 byte byte comm. modules, 1 signal board, 8 signal modules 6 byte 6 chyte
per priority class, max. Address area Process image Inputs, adjustable Outputs, adjustable Outputs, adjustable Hardware configuration Number of modules per system, max. Time of day Clock Hardware clock (real-time) Backup time Deviation per day, max.	byte byte comm. modules, 1 signal board, 8 signal modules s 0 h; Typical
Address area Process image Inputs, adjustable Outputs, adjustable Outputs, adjustable Hardware configuration Number of modules per system, max. Time of day Clock Hardware clock (real-time) Backup time Deviation per day, max.	byte byte comm. modules, 1 signal board, 8 signal modules s 0 h; Typical
Process image Inputs, adjustable Outputs, adjustable It kt Outputs, adjustable It kt Hardware configuration Number of modules per system, max. Time of day Clock Hardware clock (real-time) Backup time Deviation per day, max.	somm. modules, 1 signal board, 8 signal modules s o h; Typical
 Inputs, adjustable Outputs, adjustable 1 kt Hardware configuration Number of modules per system, max. Time of day Clock Hardware clock (real-time) Backup time Deviation per day, max. 1 kt 2 constant 3 constant 3 constant 4 constant 4 constant 5 constant 6 constant 7 constant 8 constant 9 constant<!--</td--><td>somm. modules, 1 signal board, 8 signal modules s o h; Typical</td>	somm. modules, 1 signal board, 8 signal modules s o h; Typical
Outputs, adjustable Hardware configuration Number of modules per system, max. 3 configuration Time of day Clock Hardware clock (real-time) Backup time Backup time Deviation per day, max.	somm. modules, 1 signal board, 8 signal modules s o h; Typical
Hardware configuration Number of modules per system, max. 3 continue of day Clock Hardware clock (real-time) Yes Backup time 480 Deviation per day, max. 60 s	somm. modules, 1 signal board, 8 signal modules s 0 h; Typical
Number of modules per system, max. Time of day Clock Hardware clock (real-time) Backup time Deviation per day, max.	s 0 h; Typical
Time of day Clock • Hardware clock (real-time) • Backup time • Deviation per day, max.	s 0 h; Typical
Clock • Hardware clock (real-time) • Backup time • Deviation per day, max. Yes 480	0 h; Typical
Clock • Hardware clock (real-time) • Backup time • Deviation per day, max. Yes 480	0 h; Typical
Backup timeDeviation per day, max.	0 h; Typical
• Deviation per day, max. 60 s	
• Deviation per day, max. 60 s	
Digital inputs	
Digital inputs	
	Integrated
	HSC (High Speed Counting)
Source/sink input Yes	
Number of simultaneously controllable inputs	
all mounting positions	
— up to 40 °C, max.	
Input voltage	
Rated value (DC) 24 '	V
• for signal "0" 5 V	/ DC at 1 mA
• for signal "1"	V DC at 2.5 mA
Input delay (for rated value of input voltage)	
for standard inputs	
— parameterizable Yes	s; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms,
sele	ectable in groups of four
— at "0" to "1", min.	2 ms
·	8 ms
for interrupt inputs	
— parameterizable Yes	S
for technological functions	
	ngle phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3
	30 kHz
Cable length • shielded, max. 500	0 m; 50 m for technological functions
	0 m; for technological functions: No
	o in, for technological functions. No
Digital outputs Number of digital outputs	Polavo
	Relays
Switching capacity of the outputs	
with resistive load, max. 2 A 2 A 2 O 3 O 3 O 3 O 3 O 3 O 3 O 3 O	
	W with DC, 200 W with AC
Output delay with resistive load	me: may
	ms; max.
• "1" to "0", max. 10 i	ms; max.

Noveles of relevantes	40
Number of relay outputs	10
Number of operating cycles, max. Cable length	mechanically 10 million, at rated load voltage 100 000
Cable length • shielded, max.	500 m
	150 m
• unshielded, max.	150 III
Analog inputs	
Number of analog inputs	2
Input ranges	V.
Voltage	Yes
Input ranges (rated values), voltages • 0 to +10 V	Voc
	Yes ≥100k ohms
— Input resistance (0 to 10 V) Cable length	≥ TOUR OTHINS
shielded, max.	100 m; twisted and shielded
Analog outputs	100 III, twisted and sincided
	2
Number of analog outputs Output ranges, current	Σ
O to 20 mA	Yes
Analog value generation for the inputs	100
Integration and conversion time/resolution per channel	10 bit
Resolution with overrange (bit including sign), max. Integration time, personatorizable.	
Integration time, parameterizable	Yes
Conversion time (per channel)	625 μs
Analog value generation for the outputs	
Integration and conversion time/resolution per channel	40.1%
Resolution with overrange (bit including sign), max.	10 bit
Encoder	
Connectable encoders	
2-wire sensor	Yes
1. Interface	
Interface type	PROFINET
Interface type Isolated	Yes
Interface type Isolated automatic detection of transmission rate	Yes Yes
Interface type Isolated automatic detection of transmission rate Autonegotiation	Yes Yes Yes
Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing	Yes Yes
Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types	Yes Yes Yes Yes Yes
Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet)	Yes Yes Yes Yes Yes
Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports	Yes Yes Yes Yes Yes 2
Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch	Yes Yes Yes Yes Yes
Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols	Yes Yes Yes Yes Yes Yes Yes Yes 2 Yes
Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller	Yes Yes Yes Yes Yes Yes Yes 2 Yes
Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device	Yes Yes Yes Yes Yes Yes Yes Yes 2 Yes Yes
Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication	Yes Yes Yes Yes Yes Yes Yes Yes 2 Yes Yes Yes
Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication	Yes
Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server	Yes Yes Yes Yes Yes Yes 2 Yes
Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy	Yes
Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller	Yes Yes Yes Yes Yes Yes Yes 2 Yes Yes
Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller • Transmission rate, max.	Yes Yes Yes Yes Yes Yes 2 Yes
Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller • Transmission rate, max. Services	Yes Yes Yes Yes Yes Yes Yes Yes Yes
Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller • Transmission rate, max. Services — PG/OP communication	Yes Yes Yes Yes Yes Yes 2 Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller • Transmission rate, max. Services — PG/OP communication — Isochronous mode	Yes Yes Yes Yes Yes Yes Yes Yes Yes
Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller • Transmission rate, max. Services — PG/OP communication — Isochronous mode — IRT	Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller • Transmission rate, max. Services — PG/OP communication — Isochronous mode — IRT — PROFIenergy	Yes Yes Yes Yes Yes Yes Yes Yes Yes
Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller • Transmission rate, max. Services — PG/OP communication — Isochronous mode — IRT — PROFIenergy — Prioritized startup	Yes Yes Yes Yes Yes Yes Yes Yes Yes
Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller • Transmission rate, max. Services — PG/OP communication — Isochronous mode — IRT — PROFIenergy	Yes Yes Yes Yes Yes Yes Yes Yes Yes
Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller • Transmission rate, max. Services — PG/OP communication — Isochronous mode — IRT — PROFIenergy — Prioritized startup — Number of IO devices with prioritized startup,	Yes Yes Yes Yes Yes Yes Yes Yes Yes
Interface type Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Open IE communication • Web server • Media redundancy PROFINET IO Controller • Transmission rate, max. Services — PG/OP communication — Isochronous mode — IRT — PROFIenergy — Prioritized startup — Number of IO devices with prioritized startup, max.	Yes Yes Yes Yes Yes Yes Yes Yes Yes

max.	40
— of which in line, max.	16
Activation/deactivation of IO Devices	Yes
Number of IO Devices that can be simultaneously activated (deactivated may).	8
simultaneously activated/deactivated, max.	The minimum value of the undate time also depends on the
— Updating time	The minimum value of the update time also depends on the communication component set for PROFINET IO, on the number of IO devices and the quantity of configured user data.
PROFINET IO Device	
Services	
— PG/OP communication	Yes
— Isochronous mode	No
— IRT	No
— PROFlenergy	Yes
— Shared device	Yes
 Number of IO Controllers with shared device, 	2
max.	
Protocols Supports protocol for PROFINET IO	Von
Supports protocol for PROFINET IO	Yes CM 1243 5 required
PROFIBUS AS Interface	Yes; CM 1243-5 required
AS-Interface	Yes; CM 1243-2 required
Protocols (Ethernet)	Vec
• TCP/IP	Yes
• DHCP	No Var
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Redundancy mode	
Media redundancy	V
— MRP — MRPD	Yes; as MRP client
SIMATIC communication	No
• S7 routing	Yes
Open IE communication	165
• TCP/IP	Yes
	8 kbyte
— Data length, max.◆ ISO-on-TCP (RFC1006)	Yes
,	8 kbyte
— Data length, max. ● UDP	Yes
— Data length, max.	1 472 byte
Web server	1 472 byte
supported	Yes
User-defined websites	Yes
Further protocols	
MODBUS	Yes
Communication functions	
S7 communication	
supported	Yes
as server	Yes
as client	Yes
User data per job, max.	See online help (S7 communication, user data size)
Number of connections	, (2
• overall	16; dynamically
Test commissioning functions	
Status/control	
Status/control variable	Yes
Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Forcing	, , , , , , , , , , , , , , , , , , , ,
Forcing	Yes
•	

Diagnostic buffer	
	Yes
• present Traces	100
Number of configurable Traces	2
Memory size per trace, max.	512 kbyte
Integrated Functions	012 103/0
Counter	
Number of counters	6
Counting frequency, max.	100 kHz
Frequency measurement	Yes
controlled positioning	Yes
Number of position-controlled positioning axes, max.	8
Number of positioning axes via pulse-direction interface	Up to 4 with SB 1222
PID controller	Yes
Number of alarm inputs	4
Potential separation	
Potential separation digital inputs	
Potential separation digital inputs	500V AC for 1 minute
between the channels, in groups of	1
Potential separation digital outputs	
Potential separation digital outputs Potential separation digital outputs	Relays
between the channels	No
between the channels, in groups of	2
EMC	
Interference immunity against discharge of static electricity	
Interference immunity against discharge of static	Yes
electricity acc. to IEC 61000-4-2	
 Test voltage at air discharge 	8 kV
 Test voltage at contact discharge 	6 kV
Interference immunity to cable-borne interference	
 Interference immunity on supply lines acc. to IEC 61000-4-4 	Yes
• Interference immunity on signal cables acc. to IEC 61000-4-4	Yes
Interference immunity against voltage surge	
 Interference immunity on supply lines acc. to IEC 61000-4-5 	Yes
Interference immunity against conducted variable disturbance	e induced by high-frequency fields
Interference immunity against high-frequency radiation acc. to IEC 61000-4-6	Yes
Emission of radio interference acc. to EN 55 011	V 0 4
Limit class A, for use in industrial areas	Yes; Group 1
Limit class B, for use in residential areas	Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011
Degree and class of protection	UDDO
IP degree of protection	IP20
Standards, approvals, certificates	
KC approval	Yes
Marine approval	Yes
Highest safety class achievable in safety mode	
Performance level according to ISO 13849-1	PLe
SIL acc. to IEC 61508	SIL 3
Ambient conditions	
Free fall	
Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	
• min.	-25 °C; = Tmin
• max.	55 °C; = Tmax
 horizontal installation, min. 	-25 °C; = Tmin

 horizontal installation, max. 	55 °C; = Tmax
vertical installation, min.	-25 °C; = Tmin
vertical installation, max.	45 °C; = Tmax
Ambient temperature during storage/transportation	70 0, Tillux
• min.	-40 °C
• max.	70 °C
Air pressure acc. to IEC 60068-2-13	
Storage/transport, min.	660 hPa
Storage/transport, max.	1 139 hPa
Altitude during operation relating to sea level	
Installation altitude above sea level, max.	2 000 m
Ambient air temperature-barometric pressure- altitude	Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m)
Relative humidity	
With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; incl. condensation / frost permitted (no commissioning under condensation conditions)
Vibrations	
 Vibration resistance during operation acc. to IEC 60068-2-6 	2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail
Operation, tested according to IEC 60068-2-6	Yes
Shock testing	
• tested according to IEC 60068-2-27	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms
Resistance	
Coolants and lubricants	
Resistant to commercially available coolants and lubricants	Yes
Use in stationary industrial systems	
— to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
 to chemically active substances according to EN 60721-3-3 	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
 to mechanically active substances according to EN 60721-3-3 	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
 to biologically active substances according to EN 60721-3-6 	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request
 to chemically active substances according to EN 60721-3-6 	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
 to mechanically active substances according to EN 60721-3-6 	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology	
 Against chemically active substances acc. to EN 60654-4 	Yes; Class 3 (excluding trichlorethylene)
 Environmental conditions for process, measuring and control systems acc. to ANSI/ISA- 71.04 	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)
Remark	
 Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04 	* The supplied plug covers must remain in place over the unused interfaces during operation!
Conformal coating	
Coatings for printed circuit board assemblies acc. to EN 61086	Yes; Class 2 for high reliability
 Protection against fouling acc. to EN 60664-3 	Yes; Type 1 protection
Military testing according to MIL-I-46058C, Amendment 7	Yes; Discoloration of coating possible during service life
 Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A 	Yes; Conformal coating, Class A
Configuration	
Programming	
Programming language	

— LAD	Yes; incl. failsafe
— FBD	Yes; incl. failsafe
— SCL	Yes
Know-how protection	
 User program protection/password protection 	Yes
 Copy protection 	Yes
Block protection	Yes
Access protection	
 Protection level: Write protection 	Yes
 Protection level: Read/write protection 	Yes
 Protection level: Complete protection 	Yes
Cycle time monitoring	
 adjustable 	Yes
Dimensions	
Width	130 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	585 g

3/2/2021

last modified: