## **SIEMENS**

## **Data sheet**

6AG1215-1AF40-5XB0





SIPLUS S7-1200 CPU 1215FC DC/DC/DC based on 6ES7215-1AF40-0XB0 with conformal coating, -25...+55 °C, compact CPU, DC/DC/DC, 2 PROFINET ports, onboard I/O: 14 DI 24 V DC; 10 DQ 24 V DC 0.5 A; 2 AI 0-10 V DC, 2 AQ 0-20 mA DC, power supply: DC 20.4 - 28.8 V DC, program/data memory 150 KB



General information	
Product type designation	CPU 1215FC DC/DC/DC
based on	<u>6ES7215-1AF40-0XB0</u>
Engineering with	
<ul> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	see entry ID: 109746275
Supply voltage	
Rated value (DC)	
• 24 V DC	Yes
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Load voltage L+	
<ul><li>Rated value (DC)</li></ul>	24 V
<ul> <li>permissible range, lower limit (DC)</li> </ul>	5 V
<ul> <li>permissible range, upper limit (DC)</li> </ul>	250 V
Input current	
Current consumption (rated value)	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
l²t	0.5 A <sup>2</sup> ·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	L+ minus 4 V DC min.
Power loss	
Power loss, typ.	12 W
Memory	
Work memory	
• integrated	150 kbyte
Load memory	
• integrated	4 Mbyte
<ul> <li>Plug-in (SIMATIC Memory Card), max.</li> </ul>	with SIMATIC memory card
Backup	
• present	Yes
• maintenance-free	Yes
without battery	Yes
CPU processing times	

for word operations, typ.  for holding point arthmetic, by.  CELLANCES  Number of blocks (total)  CELLANCES  Number of cellances  Number of blocks (total)  CELLANCES  Number of cellances  CELL		0.005
For floating point arithmetic, typ.  CPUILIBRANCE Number of blocks (total)  Bills, FCR, FBR, counters and timers. The maximum number of addressable brokes in ranges from 1 to 65535. There is no restriction, the entire working memory can be used  All arrans and their retention ty  Reserver data area (not. timens, counters, flags), max.  Fisig  Size, max.  Library  Size, max.  So total  Size, max.  So the memory address area  So total  Size, max.  So the memory address area  So total  Size, max.  So the memory address area  So to the memory address area  So the memory address area  So to the memory address area  So to the memory address area  So the memory address area  So to the memory address area  So the memory addr	for bit operations, typ.	0.085 µs; / instruction
Care Disclores		
blocks ranges from 1 to 65335. There is no restriction, the entire working memory, can be used per control of the per control o		2.3 μs; / instruction
• Number, max.  Data arrass and their retentivity  Reientive data area (not *mers, counters, flags), max.  10 kbyte  Riag  • Size, max.  10 kbyte, Size of bit memory address area  **Torcess image  **Torcess ima	Number of blocks (total)	blocks ranges from 1 to 65535. There is no restriction, the entire working
Retentive data area (mcl. timers, counters, flags), max.  Fig.  Size, max.  Size, size of bit memory address area.  Size, max.	OB	
Retentive data area (incl. timers, counters, flaga), max.  Figgr  Size, max.  S & byte. Size of bit memory address area  Porceas image  Process image  Proce	<ul><li>Number, max.</li></ul>	Limited only by RAM for code
Skbyte: Size of bit memory address area	Data areas and their retentivity	
Size, max	Retentive data area (incl. timers, counters, flags), max.	10 kbyte
Local data	Flag	
per priority class, max.  Address area  Process image in liputs, adjustable in liputs,	• Size, max.	8 kbyte; Size of bit memory address area
Process image    Injust, adjustable   1 kbyte	Local data	
Process image  Inputs, adjustable Outputs, adjustable Outputs, adjustable It kbyte  Hardware configuration  Number of modules per system, max.  Time of dry  Clock Hardware dock (real-time) Backup time Obviolation per day, max. Obviolation per day. Obviolation pe	• per priority class, max.	16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB
In Inputs, 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.  Digital inputs  Number of digital inputs  Number of digital inputs  Outputs, alian inputs usable for technological functions all mounting positions — up to 40 °C, max.  Input voltage Rated value (DC) of or signal "1"  Input voltage  Rated value (DC) of or signal "1"  Input voltage  For standard inputs  — parameterizable — parameterizable — parameterizable — parameterizable — at "0" to "1", min. — at "0" to "1", min. — at "0" to "1", max.  for interrupt inputs  — parameterizable	Address area	
Cutputs, adjustable	Process image	
Number of modules per system. max.   3 comm. modules, 1 signal board, 8 signal modules	<ul> <li>Inputs, adjustable</li> </ul>	1 kbyte
Number of modules per system, max.  Time of day  Clock  Hardware clock (real-time) Backup time Devalation per day, max.  Source/sink input  Number of digital inputs  Number of digital inputs  Number of signal inputs  Number of signal inputs  Source/sink input  Number of signal inputs  Hardware clock (real-time) Source/sink input  Number of digital inputs  14; Integrated Ge s/month at 25 °C  Digital inputs  14; Integrated Ge; HSC (High Speed Counting) Yes  Number of signal inputs  - up to 40 °C, max.  14  Input voltage  Rated value (DC) for signal '0' for signal '0' for signal '1' Input delay (for rated value of input voltage)  for standard inputs  - parameterizable - parameterizable - at '0' to "1", max. for interrupt inputs  - parameterizable - shielded, max yes included, max unshielded, max unsh	Outputs, adjustable	1 kbyte
Time of day	Hardware configuration	
Forestandard inputs   Forestandard input voltage   Forestandard input voltage   Forestandard inputs   Forest	Number of modules per system, max.	3 comm. modules, 1 signal board, 8 signal modules
Hardware clock (real-time) Backup time Devailation per day, max.  Digital inputs  Number of digital inputs of which inputs usable for technological functions Source/sink input  Input of digital inputs of which inputs usable for technological functions Source/sink input Of which inputs usable for technological functions Source/sink input Of which inputs usable for technological functions Source/sink input Of which inputs usable for technological functions Source/sink input Of which inputs usable for technological functions  Source/sink input Of which inputs usable for technological functions  — up to 40 °C, max.  14 Input voltage Of Rated value (DC) Of signal "1" Of or signal "2" Of signal "1" Of or signal "2" Of or signal "3" Of or signal "4" Of or signal ** Of signal	Time of day	
Backup time Deviation per day, max. Digital inputs Number of digital inputs of which input usable for technological functions Source/sink input Number of digital inputs  of which inputs usable for technological functions Source/sink input Number of simultaneously controllable inputs all mounting positions  — up to 40 °C max.  14  Input voitage  Rated value (DC) for signal °D' for signal °D' for signal °D' for signal °D' Source standard inputs  — parameterizable — parameterizable — at °D' to *1", min. — at °D' to *1", min. — at °D' to *1", min. — at °D' to *1", max.  for interrupt inputs — parameterizable — parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz  Cable length  • shielded, max. • unshielded, max. • unshielded, max. • unshielded, max. • on lamp load, max. • "1" to "0", max.  10 ms; max.  Pit or "0", max.  10 ms; max.  Pit or "0", max.  10 ms; max.  Pit on "0", max.  10 ms; max.  Pit or "0", max.  Pit or "0", max.  10 ms; max.  Pit or "0",	Clock	
Digital inputs  Number of digital inputs  of which inputs usable for technological functions  Source/sink input  Number of simultaneously controllable inputs all mounting positions  — up to 40 °C, max.	Hardware clock (real-time)	Yes
Number of digital inputs	Backup time	480 h; Typical
Number of digital inputs  • of which inputs usable for technological functions  Source/sink input  Number of simultaneously controllable inputs  all mounting positions  — up to 40 °C, max.	Deviation per day, max.	60 s/month at 25 °C
Of which inputs usable for technological functions  Source/sink input  Number of simultaneously controllable inputs  all mounting positions  — up to 40 °C, max.  Input voltage  • Rated value (DC) • for signal °0' • for signal °1' Input delay (for rated value of input voltage)  for standard inputs  — parameterizable — at °0' to °1", min. — at °0' to °1", max.  for interrupt inputs — parameterizable  Yes  for technological functions — parameterizable  Yes  for technological functions — parameterizable  Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz  Cable length  • shielded, max. • unshielded, max. • unshielded, max.  • unshielded, max. • on lamp load, max.  • on lamp load, max.  • on lamp load, max.  • on lamp load, max.  • '1' to '0', max.	Digital inputs	
• of which inputs usable for technological functions  Source/sink input  Number of simultaneously controllable inputs  all mounting positions  — up to 40 °C, max.  Input voltage  • Rated value (PC) • for signal "0" • for signal "1"  Input delay (for rated value of input voltage)  for standard inputs  — parameterizable — parameterizable — at "0" to "1", min. — at "0" to "1", max.  for interrupt inputs — parameterizable — yes  for technological functions — parameterizable  for technological functions — parameterizable  Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz &	Number of digital inputs	14; Integrated
Source/sink input  Number of simultaneously controllable inputs  all mounting positions  — up to 40 °C, max.  Input voltage  • Rated value (DC) • for signal "0" • for signal "1" 15 V DC at 2.5 mA  Input delay (for rated value of input voltage)  for standard inputs  — parameterizable — parameterizable — at "0" to "1", min. — at "0" to "1", max.  for interrupt inputs — parameterizable  for technological functions — parameterizable  Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30  KHz  Cable length • shielded, max. • unshielded, max.  • unshielded, max.  Source simultaneously controllable inputs  (Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30  KHz  Switching capacity of the outputs  • with resistive load, max. • on lamp load, max.  • on lamp load, max.  • '1" to "0", max.  10 ms; max.  Relay outputs  Relay outputs  Relay outputs		
all mounting positions  — up to 40 °C, max.  Input voltage  • Rated value (ICC) • for signal "0" • for signal "1"  15 V DC at 1 mA  • for signal "1"  15 V DC at 2.5 mA  Input delay (for rated value of input voltage)  for standard inputs  — parameterizable  — at "0" to "1", min. — at "0" to "4", max.  — parameterizable  Yes  for interrupt inputs  — parameterizable  Yes  for interrupt inputs  — parameterizable  Yes  for lechnological functions  — parameterizable  Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz  Cable length  • shielded, max. • unshielded, max.  • unshielded, max.  • unshielded, max.  • unshielded, max.  • on lamp load, max.  • on	Source/sink input	Yes
- up to 40 °C, max. 14  Input voltage  • Rated value (DC) 24 V • for signal "0" 5 V DC at 1 mA • for signal "1" 15 V DC at 2.5 mA  Input delay (for rated value of input voltage)  for standard inputs  - parameterizable Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four  - at "0" to "1", min. 0.2 ms  - at "0" to "1", max. 12.8 ms  for interrupt inputs  - parameterizable Yes  for technological functions  - parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz  Cable length  • shielded, max. 500 m; 50 m for technological functions: No  Digital outputs  Number of digital outputs  Number of digital outputs  • with resistive load, max. 2 A • on lamp load, max. 30 W with DC, 200 W with AC  Output delay with resistive load • "0" to "1", max. 10 ms; max. • "1" to "0", max. 10 ms; max.	Number of simultaneously controllable inputs	
Input voltage  • Rated value (DC) • for signal "0" • for signal "1"  Input delay (for rated value of input voltage) for standard inputs  - parameterizable - at "0" to "1", min at "0" to "1", max. 12.8 ms for interrupt inputs  - parameterizable  yes for technological functions - parameterizable  yes for technological functions - parameterizable  Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz  Cable length  • shielded, max. • unshielded, max.  10; Relays  Number of digital outputs  • with resistive load, max. • on lamp load, max.  • on lamp load, max.  Output delay with resistive load • "0" to "1", max.  10 ms; max.  Relay outputs  Relay outputs  Relay outputs  Relay outputs  10 ms; max.  - "1" to "0", max.  10 ms; max.  Relay outputs	all mounting positions	
Rated value (DC)     • for signal "0"     • for signal "1"     15 V DC at 1 mA     • for signal "1"     15 V DC at 2.5 mA  Input delay (for rated value of input voltage)  for standard inputs      — parameterizable     — parameterizable     — at "0" to "1", min.     — at "0" to "1", max.     12.8 ms  for interrupt inputs      — parameterizable     Yes  for technological functions     — parameterizable     Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz & 3 @ 3	— up to 40 °C, max.	14
<ul> <li>• for signal "0"</li> <li>• for signal "1"</li> <li>Input delay (for rated value of input voltage)</li> <li>for standard inputs</li> <li>— parameterizable</li> <li>— at "0" to "1", min.</li> <li>— at "0" to "4", max.</li> <li>for interrupt inputs</li> <li>— parameterizable</li> <li>Yes</li> <li>for interrupt inputs</li> <li>— parameterizable</li> <li>Yes</li> <li>for rechnological functions</li> <li>— parameterizable</li> <li>Single phase: 3 @ 100 kHz &amp; 3 @ 30 kHz, differential: 3 @ 80 kHz &amp; 3 @ 30 kHz</li> <li>&amp; Single phase: 3 @ 100 kHz &amp; 3 @ 30 kHz, differential: 3 @ 80 kHz &amp; 3 @ 30 kHz</li> <li>Cable length</li> <li>• shielded, max.</li> <li>• unshielded, max.</li> <li>500 m; 50 m for technological functions</li> <li>Number of digital outputs</li> <li>Number of digital outputs</li> <li>Number of digital outputs</li> <li>with resistive load, max.</li> <li>• on lamp load, max.</li> <li>• on lamp load, max.</li> <li>0 on the control of max.</li> <li>0 on the control</li></ul>	Input voltage	
of ror signal "1" 15 V DC at 2.5 mA  Input delay (for rated value of input voltage)  for standard inputs  - parameterizable Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four  - at "0" to "1", min. 0.2 ms  - at "0" to "1", max. 12.8 ms  for interrupt inputs  - parameterizable Yes  for technological functions  - parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz  Cable length  • shielded, max. 500 m; 50 m for technological functions  • unshielded, max. 300 m; for technological functions: No  Digital outputs  Number of digital outputs 10; Relays  Switching capacity of the outputs  • with resistive load, max. 2 A  • on lamp load, max. 30 W with DC, 200 W with AC  Output delay with resistive load  • "0" to "1", max. 10 ms; max.  • "1" to "0", max. 10 ms; max.  Relay outputs	Rated value (DC)	24 V
Input delay (for rated value of input voltage) for standard inputs	• for signal "0"	5 V DC at 1 mA
for standard inputs	• for signal "1"	15 V DC at 2.5 mA
— parameterizable — at "0" to "1", min. — at "0" to "1", min. — at "0" to "1", max.  for interrupt inputs — parameterizable — parameterizable  Yes for technological functions — parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz  Cable length  • shielded, max. • unshielded, max.  500 m; 50 m for technological functions: No  Digital outputs  Number of digital outputs  Switching capacity of the outputs  • with resistive load, max.  • on lamp load, max.  10 ms; max.  • "1" to "0", max.  Relay outputs  Relay outputs  Relay outputs  Relay outputs  Pyes  12.8 ms  12.8 ms  12.8 ms  10.2 ms  10.2 ms  10.2 ms  10.3 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four  0.2 ms  10.8 ms  10.8 ms  10.9 ms, max.  10 ms; max.  10 ms; max.  10 ms; max.  Relay outputs	Input delay (for rated value of input voltage)	
groups of four	for standard inputs	
- at "0" to "1", max.  for interrupt inputs  - parameterizable  - parameterizable  - parameterizable  Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz  Cable length  • shielded, max.  • unshielded, max.  Soo m; 50 m for technological functions  • unshielded, max.  10; Relays  Switching capacity of the outputs  • with resistive load, max.  • on lamp load, max.  Output delay with resistive load  • "0" to "1", max.  • "1" to "0", max.  Relay outputs  Relay outputs  12.8 ms  10 kHz  Yes  100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz & 4 & 3 @ 30 kHz & 4 & 4 & 4 & 4 & 4 & 4 & 4 & 4 &	— parameterizable	
for interrupt inputs	— at "0" to "1", min.	0.2 ms
- parameterizable Yes  for technological functions - parameterizable  Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz  Cable length  shielded, max. unshielded, max.  unshielded, max.  10; Relays  Switching capacity of the outputs  with resistive load, max.  on lamp load, max.  10; Relays  30 W with DC, 200 W with AC  Output delay with resistive load  "0" to "1", max. "1" to "0", max.  Relay outputs  Ringle phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz &	— at "0" to "1", max.	12.8 ms
for technological functions  — parameterizable  Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz  Cable length  • shielded, max.  • unshielded, max.  500 m; 50 m for technological functions  300 m; for technological functions: No  Digital outputs  Number of digital outputs  10; Relays  Switching capacity of the outputs  • with resistive load, max.  • on lamp load, max.  30 W with DC, 200 W with AC  Output delay with resistive load  • "0" to "1", max.  • "1" to "0", max.  Relay outputs  Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz & 3 @	for interrupt inputs	
Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz  Cable length  shielded, max. unshielded, max. 500 m; 50 m for technological functions 300 m; for technological functions: No  Digital outputs  Number of digital outputs 10; Relays  Switching capacity of the outputs with resistive load, max. on lamp load, max. 10 ms; max.  Pu'l to "0", max.  Relay outputs  Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30	·	Yes
Cable length  • shielded, max.  • unshielded, max.  • unshielded, max.  Soo m; 50 m for technological functions  300 m; for technological functions: No  Digital outputs  Number of digital outputs  10; Relays  Switching capacity of the outputs  • with resistive load, max.  • on lamp load, max.  • on lamp load, max.  10 ms; max.  • "1" to "0", max.  Relay outputs  Relay outputs	· ·	
Cable length  • shielded, max.  • unshielded, max.  Soo m; 50 m for technological functions  • unshielded, max.  Digital outputs  Number of digital outputs  Switching capacity of the outputs  • with resistive load, max.  • on lamp load, max.  • on lamp load, max.  Output delay with resistive load  • "0" to "1", max.  • "1" to "0", max.  Relay outputs  Soo m; 50 m for technological functions: No  10; Relays  2 A  2 A  10 ms; max.  10 ms; max.	— parameterizable	
<ul> <li>shielded, max.</li> <li>unshielded, max.</li> <li>300 m; 50 m for technological functions</li> <li>300 m; for technological functions: No</li> </ul> Digital outputs <ul> <li>Number of digital outputs</li> <li>Switching capacity of the outputs</li> <li>with resistive load, max.</li> <li>on lamp load, max.</li> <li>on lamp load, max.</li> <li>Output delay with resistive load</li> <li>"0" to "1", max.</li> <li>"1" to "0", max.</li> <li>Relay outputs</li> </ul> Relay outputs 500 m; 50 m for technological functions: No 10; Relays 2 A 30 W with DC, 200 W with AC 10 ms; max. 10 ms; max. 10 ms; max. 10 ms; max. Relay outputs	Cable length	
<ul> <li>unshielded, max.</li> <li>Digital outputs</li> <li>Number of digital outputs</li> <li>Switching capacity of the outputs</li> <li>with resistive load, max.</li> <li>on lamp load, max.</li> <li>Output delay with resistive load</li> <li>"0" to "1", max.</li> <li>"1" to "0", max.</li> <li>Relay outputs</li> </ul>	_	500 m; 50 m for technological functions
Digital outputs  Number of digital outputs  Switching capacity of the outputs  with resistive load, max.  on lamp load, max.  10 ms; max.  "1" to "0", max.  Relay outputs		· ·
Number of digital outputs  Switching capacity of the outputs  with resistive load, max.  on lamp load, max.  10; Relays  2 A  30 W with DC, 200 W with AC  Output delay with resistive load  on "0" to "1", max.  on "1" to "0", max.  10 ms; max.  Relay outputs	·	
Switching capacity of the outputs  • with resistive load, max.  • on lamp load, max.  Output delay with resistive load  • "0" to "1", max.  • "1" to "0", max.  Relay outputs  2 A  30 W with DC, 200 W with AC  10 ms; max.  10 ms; max.		10; Relays
<ul> <li>with resistive load, max.</li> <li>on lamp load, max.</li> <li>30 W with DC, 200 W with AC</li> </ul> Output delay with resistive load <ul> <li>"0" to "1", max.</li> <li>"1" to "0", max.</li> </ul> Relay outputs 2 A 30 W with DC, 200 W with AC 10 ms; max. 10 ms; max. 10 ms; max. 10 ms; max. Relay outputs		
<ul> <li>on lamp load, max.</li> <li>Output delay with resistive load</li> <li>"0" to "1", max.</li> <li>"1" to "0", max.</li> <li>Relay outputs</li> <li>30 W with DC, 200 W with AC</li> <li>10 ms; max.</li> <li>10 ms; max.</li> <li>10 ms; max.</li> </ul>		2 A
Output delay with resistive load  • "0" to "1", max.  • "1" to "0", max.  Relay outputs  10 ms; max.  10 ms; max.		
• "0" to "1", max.  • "1" to "0", max.  Relay outputs  10 ms; max.  10 ms; max.		
• "1" to "0", max.  Relay outputs		10 ms; max.
Relay outputs		
▼ INTILIDE OF LEIGA ORIGINALS	Number of relay outputs	10

N. J. C. W. J.	1 1 1 40 111 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Number of operating cycles, max.	mechanically 10 million, at rated load voltage 100 000
Cable length	F00 m
• shielded, max.	500 m
unshielded, max.  Analog inputs	150 m
Analog inputs  Number of analog inputs	2
Input ranges	2
Voltage	Yes
Input ranges (rated values), voltages	165
• 0 to +10 V	Yes
— Input resistance (0 to 10 V)	≥100k ohms
Cable length	- TOOK OILING
shielded, max.	100 m; twisted and shielded
Analog outputs	
Number of analog outputs	2
Output ranges, current	
• 0 to 20 mA	Yes
Analog value generation for the inputs	
Integration and conversion time/resolution per channel	
Resolution with overrange (bit including sign), max.	10 bit
• Integration time, parameterizable	Yes
Conversion time (per channel)	625 µs
Analog value generation for the outputs	
Integration and conversion time/resolution per channel	
Resolution with overrange (bit including sign), max.	10 bit
Encoder	
Connectable encoders	
• 2-wire sensor	Yes
1. Interface	
Interface type	PROFINET
Isolated	Yes
automatic detection of transmission rate	Yes
Autonegotiation	Yes
Autocrossing	Yes
Interface types	
• RJ 45 (Ethernet)	Yes
<ul> <li>Number of ports</li> </ul>	2
integrated switch	Yes
Protocols	
PROFINET IO Controller	Yes
PROFINET IO Device	Yes
SIMATIC communication	Yes
Open IE communication	Yes
Web server	Yes
Media redundancy  PROFINET IO Controller	Yes; as MRP client
PROFINET IO Controller	400 Mbitto
Transmission rate, max.  Sanitase	100 Mbit/s
Services	Von
— PG/OP communication	Yes
— Isochronous mode — IRT	No No
— IRT — PROFlenergy	No
PROFilenergy      Prioritized startup	Yes
— Prioritized startup  — Number of IO devices with prioritized startup, max.	res 16
Number of 10 devices with phornized startup, max.      Number of connectable IO Devices, max.	16
Number of connectable IO Devices, max.      Number of connectable IO Devices for RT, max.	16
— number of connectable to Devices for RT, max.      — of which in line, max.	16
Of which in line, max.      Activation/deactivation of IO Devices	Yes
Number of IO Devices that can be simultaneously activated/deactivated, max.	8
— 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 quantit 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 devi	
rotocols	
Supports protocol for PROFINET IO	Yes
PROFIsafe	Yes
PROFIBUS	Yes; CM 1243-5 required
AS-Interface	Yes, CM 1243-2 required
Protocols (Ethernet)	
• TCP/IP	Yes
• DHCP	No
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Redundancy mode	100
Media redundancy	
— MRP	Yes; as MRP client
— MRPD	No
SIMATIC communication	NO
• S7 routing	Yes
Open IE communication	103
• TCP/IP	Yes
— Data length, max.	8 kbyte
• ISO-on-TCP (RFC1006)	Yes
	8 kbyte
— Data length, max. ● UDP	Yes
— Data length, max.	1 472 byte
Web server	Voc
<ul><li>supported</li><li>User-defined websites</li></ul>	Yes
	Yes
Further protocols	V
• MODBUS	Yes
ommunication functions / header	
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	
• overall	16; dynamically
est commissioning functions	
Status/control	
Status/control variable	Yes
Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Forcing	
Forcing	Yes
Diagnostic buffer	
• present	Yes
Traces	
Number of configurable Traces	2
Memory size per trace, max.	512 kbyte
itegrated Functions	
Counter	
Number of counters	6

Number of counters

Counting frequency may	100 kHz
Counting frequency, max.  Frequency measurement	Yes
Frequency measurement 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	
<ul> <li>Potential separation digital inputs</li> </ul>	500 V AC for 1 minute
between the channels, in groups of	1
Potential separation digital outputs	
<ul> <li>Potential separation digital outputs</li> </ul>	Relays
<ul> <li>between the channels</li> </ul>	No No
between the channels, in groups of	2
EMC	
Interference immunity against discharge of static electricity	
<ul> <li>Interference immunity against discharge of static electricity acc. to IEC 61000-4-2</li> </ul>	Yes
<ul> <li>Test voltage at air discharge</li> </ul>	8 kV
Test voltage at contact discharge	6 kV
Interference immunity to cable-borne interference	
<ul> <li>Interference immunity on supply lines acc. to IEC 61000- 4-4</li> </ul>	Yes
<ul> <li>Interference immunity on signal cables acc. to IEC 61000- 4-4</li> </ul>	Yes
Interference immunity against voltage surge	
<ul> <li>Interference immunity on supply lines acc. to IEC 61000- 4-5</li> </ul>	Yes
Interference immunity against conducted variable disturbance indu	ced by high-frequency fields
Interference immunity against high-frequency radiation	Yes
acc. to IEC 61000-4-6	
Emission of radio interference acc. to EN 55 011	V 0 4
<ul><li>Limit class A, for use in industrial areas</li><li>Limit class B, for use in residential areas</li></ul>	Yes; Group 1 Yes; When appropriate measures are used to ensure compliance with the limits for Class B according to EN 55011
Degree and class of protection	for Class B decording to Err coorr
IP degree of protection	IP20
Standards, approvals, certificates	
KC approval	Yes
Marine approval	Yes
Ecological footprint	165
	Voc
environmental product declaration  Clobal warming potential	Yes
Global warming potential	106 kg
global warming potential, (total) [CO2 eq]      global warming potential, (during production) [CO2	106 kg 18.5 kg
eq] — global warming potential, (during operation) [CO2	88.2 kg
eq] — global warming potential, (after end of life cycle)	-1.12 kg
[CO2 eq] Highest safety class achievable in safety mode	
Performance level according to ISO 13849-1	PLe
SIL acc. to IEC 61508	SIL 3
Ambient conditions	OIL 0
Free fall	0.2 m; five times, in product peakage
• Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	05 °C. Turin
• min.	-25 °C; = Tmin
• max.	55 °C; = Tmax
	07.00
• horizontal installation, min.	-25 °C; = Tmin
	-25 °C; = Tmin 55 °C; = Tmax -25 °C; = Tmin

vertical installation, max.	45 °C; = Tmax
Ambient temperature during storage/transportation	
• 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	
<ul> <li>Installation altitude above sea level, max.</li> </ul>	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	
<ul> <li>With condensation, tested in accordance with IEC 60068- 2-38, max.</li> </ul>	100 %; incl. condensation / frost permitted (no commissioning under condensation conditions)
Vibrations	
<ul> <li>Vibration resistance during operation acc. to IEC 60068- 2-6</li> </ul>	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	
<ul> <li>to biologically active substances according to EN 60721-3-3</li> </ul>	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); $^{\star}$
<ul> <li>to mechanically active substances according to EN 60721-3-3</li> </ul>	Yes; Class 3S4 incl. sand, dust, *
Use on ships/at sea	
<ul> <li>to biologically active substances according to EN 60721-3-6</li> </ul>	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); $^{\star}$
— to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *
Usage in industrial process technology	
<ul> <li>Against chemically active substances acc. to EN 60654-4</li> </ul>	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
<ul> <li>Protection against fouling acc. to EN 60664-3</li> </ul>	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 / header	
configuration / programming / header	
Programming language	
— LAD	Yes; incl. failsafe
— FBD	Yes; incl. failsafe
— FBD — SCL	Yes
— SCL	
— SCL Know-how protection	Yes

Access protection	
<ul> <li>Protection level: Write protection</li> </ul>	Yes
<ul> <li>Protection level: Read/write protection</li> </ul>	Yes
Protection level: Complete protection	Yes
programming / cycle time monitoring / header	
<ul><li>adjustable</li></ul>	Yes
Dimensions	
Width	130 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	585 g

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