## **SIEMENS**

## **Data sheet**

6ES7212-1HE40-0XB0





SIMATIC S7-1200, CPU 1212C, compact CPU, DC/DC/relay, onboard I/O: 8 DI 24 V DC; 6 DO relay 2 A; 2 AI 0-10 V DC, power supply: DC 20.4-28.8 V DC, program/data memory 100 KB



Figure similar

General information	
Product type designation	CPU 1212C DC/DC/relay
Firmware version	V4.6
Engineering with	
<ul> <li>Programming package</li> </ul>	STEP 7 V18 or higher
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
Reverse polarity protection	Yes
Load voltage L+	
<ul> <li>Rated value (DC)</li> </ul>	24 V
<ul> <li>permissible range, lower limit (DC)</li> </ul>	20.4 V
<ul> <li>permissible range, upper limit (DC)</li> </ul>	28.8 V
Input current	
Current consumption (rated value)	400 mA; CPU only
Current consumption, max.	1 200 mA; CPU with all expansion modules
Inrush current, max.	12 A; at 28.8 V
l²t	0.8 A <sup>2</sup> ·s
Output current	
for backplane bus (5 V DC), max.	1 000 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.	9 W
Memory	
Work memory	
• integrated	100 kbyte
Load memory	
• integrated	2 Mbyte
<ul> <li>Plug-in (SIMATIC Memory Card), max.</li> </ul>	with SIMATIC memory card
Backup	
• present	Yes
maintenance-free	Yes

GRU processing times for bit operations, typ. for bit operations, typ. for bit operations, typ. for footing point arithmetic, typ. Cyb-blocks  Number of blocks (total)  Bis, FCs, RBs, counters and timers. The maximum number of addressable blocks (angles from 1 to 6555. There is no restriction, the entire working minory can be used.  Streement of blocks (total)  Bis, FCs, RBs, counters and timers. The maximum number of addressable blocks (angles from 1 to 6555. There is no restriction, the entire working minory can be used.  Streement of the restriction of the counters	<ul><li>without battery</li></ul>	Yes
for bit operations, byp.  Or word operations, byp.  Or word operations, byp.  Or word operations, byp.  Or booking point entithredic, byp.  CPUSHCKN  Number of blocks (total)  Number of blocks (total)  Number of blocks (total)  OBS, FCS, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65555. There is no resinction, the entire working memory are a used  Number, max.  Limited only by RAM for code  **Number of max.**  A kbyte: Size of bit memory address area  **Perporting class, max.**  14 kbyte: Size of bit memory address area  **Process image.**  **Inputs, adjustable*  **Inputs, adjustable*  **Inputs, adjustable*  **Inputs, adjustable*  **Inputs, adjustable*  **Inputs, adjustable*  **Perporting class, max.**  **A Number of reducies per system, max.**  **Insure of day  Clock  **Insure of day  **Decision image.**  **Perporting class in puts.**  **Inputs of day  **Insure of day and a continuance and a c		
for word operations, typ.  for floating point anthmatic, typ.  2.3 ps; / instruction  CPU Michael  Number of blocks (total)  DBS, FCs, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65555. There is no restriction, the entire working memory can be used  **Number, max.**  Data areas and timer reservitity  Retentive data area (incl. timers, counters, flags), max.  Flag  **Size, max.**  Limited only by RAM for code  **Distriction of the first counters of the first coun		0.08 us: / instruction
for floating point arithmetic, typ.  OBA, FOR, ERA, counters and timers. The maximum number of addressable between the country of the country and timers are in the country.  Number of blocks (total)  OBA, FOR, ERA, counters and timers. The maximum number of addressable between the country of the used in the country.  I will be a country of the used in the country of the country.  I will be a country of the country of the country of the country.  I will be a country of the country of the country.  I will be a country of the country of the country of the country.  I will be a country of the country of		
Number of blocks (total)   DBs, FCS, FBs, counters and timers. The maximum number of addressable blocks ranges from 1 to 65535. There is no restriction, the entire working memory can be used		
Number of blocks (total)  DBs, FCs, FBs, Counters and times. The maximum number of addressable blocks anges from 1 to 66583. There is no restriction, the entire working memory can be used  Number, max.  Limited only by RAM for code  **Retentive data area (incl. times, counters, flags), max.  Flag  **Size, max.  Local data  **per priority class. max.  Local data  **per priority class. max.  **Process image  **Inputs, adjustable  **Unique, adjustable  **Process image  **Inputs, adjustable  **Unique, adjustable  **Process image  **Individual data area (incl. time)  **Backup time  **Deviation per day, max.  **Digital inputs  **Deviation per day, max.  **Digital inputs  **Ource/sink input  **Number of sigilal inputs  **Ource/sink input  **Deviation positions  **—up to 40 °C, max.  **Backed value (OC)  **For siginal **Or*  **For signal **Or		2.3 μs, / πισιασαστ
Number, max.  Limited only by RAM for code  Data areas and their retentivity  Retentive data area (incl. timers, counters, flags), max.  Flag  Size, max.  Local data  • per priority class, max.  Local data  • per priority class, max.  Local data  • per priority class, max.  I fl kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB Address area  Process image  • inputs, adjustable  • Uniputs, adjustable  • Uniputs, adjustable  • Individuo configuracition  Number of redigital inputs  • Periority class per system, max.  I flow of day  Clock  • Hardware clock (real-time) • Backup time • Deviation per day, max.  • of which inputs usable for technological functions  - Up to 40°C, max.  • Input of day (Clock)  • Rated value (DC) • of signal "0" • 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", m		blocks ranges from 1 to 65535. There is no restriction, the entire working
Retertive data area (not. timers, counters, flags), max. Flag  • Size, max.  • Per priority class, max.  • Prioress image • Inputs, adjustable • Outputs, adjustable • Outputs, adjustable • Outputs, adjustable • Prioress image • Inputs, adjustable • Outputs, adjustable • Outputs, adjustable • Prioress image • Inputs, adjustable • Prioress image • Inputs, adjustable • Outputs, adjustable • Prioress image • Inputs, adjustable • Prioress image • Inputs, adjustable • Outputs, adjustable • Prioress image • Inputs, adjustable • Prioress image • Prioress image • Prioress image • Inputs, adjustable • Prioress image	OB	
Retentive data area (incl. timers, counters, flags), max.  Flag  Size, max.  Local data  • per priority class, max.  Address area  16 kbyle; Priority class 1 (program cycle): 16 KB, priority class 2 to 28: 6 KB  Address area  Process image  • Inquis, adjustable  • Outputs, adjustable  • Outputs, adjustable  • Outputs, adjustable  • Indiviror configuration  Number of modules per system, max.  3 comm. modules, 1 signal board, 2 signal modules  Time of day  Clock  • Hardware clock (real-time)  • Backup time  • Deviation per day, max.  Digital inputs  Number of digital inputs  • of which inputs usable for technological functions  5 curvelank input  Number of simultaneously controllable inputs  all mounting positions  — up to 40 °C, max.  Input voltage  • Rated value (DC)  • for signal °C  • SVD C at 1 mA  • of volto °C, max.  Input delay (for rated value of input voltage)  for standard inputs  — parameterizable  — at °O' to °1', min. — parameterizable  for technological functions  — parameterizable  orgue por four  Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 Mtz.  Cable length  • shelded, max.  • on lamp load, max.  Output delay with resistive load  Outputs of our  • with resistive load, max.  • on lamp load, max.  Output delay with resistive load	<ul> <li>Number, max.</li> </ul>	Limited only by RAM for code
Filips   Stee   Mark   Stee	Data areas and their retentivity	
Size, max.  4 kbyte; Size of bit memory address area  per priority class, max.  16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB.  Address area  Process image  Inputs, adjustable  Upturts, adjustable  I kbyte  Upturts, adjustable  I kbyte  I	Retentive data area (incl. timers, counters, flags), max.	14 kbyte
Local data  • per priority class, max.  16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26.6 KB Address area  Process image • Inputs, adjustable • Outputs, adjustable • Output	Flag	
per priority class, max.  16 kbyte; Priority class 1 (program cycle): 16 kB, priority class 2 to 26: 6 kB Address area  Process image  inputs, adjustable  Outputs, adjustable  Outputs, adjustable  I kbyte  Hardware configuration  Number of modules per system, max.  3 comm. modules, 1 signal board, 2 signal modules  Time of day  Clock  Hardware clock (real-time)  Backup time  Oeviation per day, max.  Digital inputs  Number of digital inputs  of which inputs usable for technological functions  Sourcesink input  All mounting positions  — up to 40 °C, max.  Input voltage  Rated value (DC)  of or signal 1"  for signal 1"  Input delay (for rated value of input voltage)  for standard inputs  — parameterizable  Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30  KHz  Cable length  • with resistive load, max.  • or slamp load, max.  Output clady with resistive load  Output delay with resistive load  Output delay with resistive load	• Size, max.	4 kbyte; Size of bit memory address area
Address area  Process image  Inputs, adjustable  Outputs, adjustable  Number of modules per system, max.  Ilmo of day  Clock  Hardware clock (real-time)  Backup time Deviation per day, max.  Digital inputs  of which inputs 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.  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 — parameterizable — parameterizable — parameterizable — parameterizable — parameterizable	Local data	
Process image  Inputs, adjustable Inputs, adjustable Outputs, adjustable It kbyte  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 of which inputs usable for technological functions All mounting positions  — up to 40 °C, max. Baltoutore  Rated value (DC) Iof risignal "0" Iof signal "0" Iof signal "0" Iof signal "1" Iof standard inputs  — parameterizable — at "0" to "1", min. — at "0" to "1", max. Iof miterrupt inputs  — parameterizable — Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz & 3 @ 30 m; for technological functions  — parameterizable — shelded, max  Sou m; for technological functions  — parameterizable — shelded, max  Sou m; for technological functions: No  Digital outputs  with resistive load.	per priority class, max.	16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB
Process image  Inputs, adjustable Inputs, adjustable Outputs, adjustable It kbyte  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 of which inputs usable for technological functions All mounting positions  — up to 40 °C, max. Baltoutore  Rated value (DC) Iof risignal "0" Iof signal "0" Iof signal "0" Iof signal "1" Iof standard inputs  — parameterizable — at "0" to "1", min. — at "0" to "1", max. Iof miterrupt inputs  — parameterizable — Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz & 3 @ 30 m; for technological functions  — parameterizable — shelded, max  Sou m; for technological functions  — parameterizable — shelded, max  Sou m; for technological functions: No  Digital outputs  with resistive load.	Address area	
● Inputs, adjustable ● Outputs, adjustable ● Outputs, adjustable ● Outputs, adjustable ● I kbyte  1 kbyte 1 k		
Outputs, adjustable Hardware configuration Number of modules per system, max.  Time of dry Clock  • Hardware clock (real-lime) • Backup time • Deviation per day, max.  Polital inputs  Of digital inputs • of which inputs usable for technological functions  Sources/ink input  Number of digital inputs • of which inputs usable for technological functions  all mounting positions  — up to 40 °C, max.  Input voltage  • Rated value (DC) • 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 — parameterizable for technological functions — parameterizable  — sheleded, max.  500 m; 50 m for technological functions  • with resistive load, max.  • unshielded, max.  0 on lamp load, max.  • Output delay with resistive load		1 kbyte
Number of modules per system, max.  3 comm. modules, 1 signal board, 2 signal modules  Timo of day  Clock  • Hardware clock (real-time) • Backup time • Deviation per day, max.  • Objectal 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.  Input voltage • Rated value (DC) • for signal "0" • 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 — at "0" to "1", min. — at "0" to "1", min. — at "0" to "1", min. — at "0" to "1", max.  For interrupt inputs — parameterizable for technological functions — parameterizable  (Cable length • shielded, max. • unshielded,	•	
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  of which inputs usable for technological functions  Sourcesink input  How and the control of the		
Time of day  Clock  Hardware clock (real-time) Backup time Oeviation per day, max. Digital inputs Of digital inputs Of digital inputs Of which inputs usable for technological functions Source/sink input Humber of simultaneously controllable inputs all mounting positions Up to 40 °C, max.  Refer of resignal "0" Of or signal "0" Of or signal "1" Input delay (for rated value of input voltage)  For standard inputs  Darameter/zable Darameter/zable Darameter/zable Darameter/zable Darameter/zable Darameter/zable Darameter/zable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz Shielded, max. United by Switching capacity of the outputs  Cable length  Switching capacity of the outputs  With resistive load, max. United by With DC, 200 W with AC Output delay with resistive load		3 comm. modules, 1 signal board, 2 signal modules
Clock		o comm. modules, i signal board, z signal modules
<ul> <li>Hardware clock (real-time)</li> <li>Backup time</li> <li>Deviation per day, max.</li> <li>Definatinputs</li> <li>Number of digital inputs</li> <li>of which inputs usable for technological functions</li> <li>Source/sink input</li> <li>Number of simultaneously controllable inputs</li> <li>all mounting positions</li> <li>— up to 40 °C, max.</li> <li>Input voltage</li> <li>Rated value (DC)</li> <li>for signal *10"</li> <li>for signal *10"</li> <li>for signal *10"</li> <li>for standard inputs</li> <li>— parameterizable</li> <li>— at "0" to "1", min.</li> <li>— at "0" to "1", max.</li> <li>for interrupt inputs</li> <li>— parameterizable</li> <li>— parameterizable</li> <li>— parameterizable</li> <li>— parameterizable</li> <li>— parameterizable</li> <li>Yes</li> <li>Single phase: 3 @ 100 kHz &amp; 3 @ 30 kHz, differential: 3 @ 80 kHz &amp; 3 @ 30 kHz</li> <li>Single phase: 3 @ 100 kHz &amp; 3 @ 30 kHz, differential: 3 @ 80 kHz &amp; 3 @ 30 kHz</li> <li>Single phase: 3 @ 100 kHz &amp; 3 @ 30 kHz, differential: 3 @ 80 kHz &amp; 3 @ 30 kHz</li> <li>Single phase: 3 @ 100 kHz &amp; 3 @ 30 kHz, differential: 3 @ 80 kHz &amp; 3 @ 30 kHz</li> <li>Single phase: 3 @ 100 kHz &amp; 3 @ 30 kHz, differential: 3 @ 80 kHz &amp; 3 @ 30 kHz</li> <li>Single phase: 3 @ 100 kHz &amp; 3 @ 30 kHz, differential: 3 @ 80 kHz &amp; 3 @ 30 kHz</li> <li>Single phase: 3 @ 100 kHz &amp; 3 @ 30 kHz, differential: 3 @ 80 kHz &amp; 3 @ 30 kHz</li> <li>Single phase: 3 @ 100 kHz &amp; 3 @ 30 kHz, differential: 3 @ 80 kHz &amp; 3 @ 30 kHz</li> <li>Single phase: 3 @ 100 kHz &amp; 3 @ 30 kHz, differential: 3 @ 80 kHz &amp; 3 @ 30 kHz</li> <li>Single phase: 3 @ 100 kHz &amp; 3 @ 30 kHz</li> <li>Single phase: 3 @ 100 kHz &amp; 3 @ 30 kHz</li> <li>Single phase: 3 @ 100 kHz &amp; 3 @ 30 kHz</li> <li>Single phase: 3 @ 100 kHz &amp; 3 @ 30 kHz</li> <li>Single phase: 3 @ 100 kHz &amp; 3 @ 30 kHz</li> <li>Single phase: 3 @ 100 kHz &amp; 3 @ 30 kHz</li> <li>Single phase: 3 @ 100 kHz &amp; 3 @ 30 kHz</li> <li>Single phase: 3 @ 100 kHz</li> <li>Single p</li></ul>		
Backup time  Deviation per day, max.  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.  Input voltage  Rated value (DC)  for signal "0"  for signal "1"  Input delay (for rated value of input voltage)  for standard inputs  — at "0" to "1", min.  — at "0" to "1", max.  for interrupt inputs  — parameterizable  Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz  Cable length  • shielded, max.  • unshielded, max.  • on lamp load, max.  • on lamp load, max.  • on lamp load, max.  Output delay with resistive load		Von
Deviation per day, max.  Digital inputs  Number of digital inputs  of which inputs usable for technological functions  Source/sink input  Yes  Number of simultaneously controllable inputs  all mounting positions  — up to 40 °C, max.  Input voltage  Rated value (DC) of or signal "0" of or signal "1" 15 V DC at 1 mA  Input delay (for rated value of input voltage)  for standard inputs  — parameterizable parameterizable parameterizable yes  for interrupt inputs  — parameterizable yes  for technological functions — parameterizable Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz  Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz  Number of digital outputs  Number of digital outputs  Number of digital outputs  with resistive load, max. on lamp load, max. on lamp load, max. on lamp load, max. Output delay with resistive load  Single phase: 3 @ 00 W with DC, 200 W with AC  Output delay with resistive load		
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.  Input voltage  • Rated value (DC) • for signal "0" • for signal "1"  Input delay (for rated value of input voltage)  for standard inputs  — at "0" to *1", min. — at "0" to *1", max.  for interrupt inputs  — parameterizable  — parameterizable  • parameterizable  — parameterizable  — parameterizable  — parameterizable  — parameterizable  — at "0" to *1", max.  for interrupt inputs  — parameterizable  — parameterizable  Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz  KHz  Cable length  • shielded, max. • unshielded, max.  • unshielded, max.  • unshielded, max.  • on lamp load, max.  • on lamp load, max.  • on lamp load, max.  Output delay with resistive load	·	
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.   Input voltage   • Rated value (DC)   • for signal "0"   • for signal "1"   Input delay (for rated value of input voltage)   for standard inputs   — at "0" to "1", min.   — at "0" to "1", max.   12.8 ms  for interrupt inputs   — parameterizable   • parameterizable   • parameterizable   • single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz &		±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"         • for signal "1"         • for signal "1"         • parameterizable             — at "0" to "1", min.             — at "0" to "1", max.             • for interrupt inputs             — parameterizable             • parameterizable             • parameterizable             • parameterizable             • parameterizable             • sinder diputs             — at "0" to "1", max.             • co may be a single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz.             • co my for technological functions             • unshielded, max.             • unshielded, max.             • unshielded, max.             • unshielded, max.             • on lamp load, max.  Output delay with resistive load		
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.  12.8 ms  for interrupt inputs  — parameterizable  — parameterizable  — parameterizable  — parameterizable  — parameterizable  — signal "1"  Yes  for interrupt inputs  — parameterizable  — parameterizable  — signal "0" to "1", max.  12.8 ms  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.  300 m; for technological functions  Digital outputs  Number of digital outputs  • with resistive load, max.  • on lamp load, max.  • on lamp load, max.  • on lamp load, max.  Output delay with resistive load		
Number of simultaneously controllable inputs  all mounting positions  — up to 40 °C, max.  8  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.  Input delay (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.  Digital outputs  Number of digital outputs  • with resistive load, max.  • on lamp load, max.  • on lamp load, max.  Output delay with resistive load  Output delay with resistive load  Output delay with resistive load		
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 parameterizable yes  for technological functions parameterizable yes  for interrupt inputs parameterizable yes  for technological functions parameterizable yes  for technological functions parameterizable yes  for technological functions parameterizable yes  Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz  Cable length  • shielded, max yes  unshielded, max yes  Soo m; 50 m for technological functions yes  Number of digital outputs  Number of digital outputs  Switching capacity of the outputs  • with resistive load, max yes  on lamp load, max.  30 W with DC, 200 W with AC  Output delay with resistive load	·	Yes
- 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  Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz  Cable length  • shielded, max. • unshielded, max.  Sumshielded, max.  Sumshielded, max.  Output delay with resistive load  9	i	
Input voltage  • 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 — 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  Cable length  • shielded, max. • unshielded, max.  100 m; 50 m for technological functions: No  Digital outputs  Number of digital outputs  • with resistive load, max. • on lamp load, max. • on lamp load, max.  • on lamp load, max.  Output delay with resistive load		
Rated value (DC)     • for signal "0"     • for signal "1"     15 ∨ DC at 1 mA     • for signal "1"     15 ∨ 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 "1", max.     — at "0" to "1", max.  for interrupt inputs     — parameterizable     Yes  for technological functions     — parameterizable     Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz     kHz  Cable length     • shielded, max.     • unshielded, max.  Journal of digital outputs  Number of digital outputs  Number of digital outputs  • with resistive load, max.  • with resistive load, max.  • on lamp load, max.  Output delay with resistive load		8
• 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  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.  Journal of digital outputs  Number of digital outputs  • with resistive load, max.  • on lamp load, max.  Output delay with resistive load  O 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  0.2 ms  12.8 ms		
for signal "1" Input delay (for rated value of input voltage) for standard inputs  - parameterizable 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 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.     soom; 50 m for technological functions - unshielded, max. Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz  Number of digital outputs  Number of digital outputs Switching capacity of the outputs  with resistive load, max. on lamp load, max.  15 V DC at 2.5 mA  15 V DC at 2.5 mA  12.8 ms 12.8	Rated value (DC)	
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  shielded, max.  unshielded, max.  unshielded, max.  South	•	5 V DC at 1 mA
for standard inputs  — parameterizable  — at "0" to "1", min.  — at "0" to "1", max.  for interrupt inputs  — parameterizable  parameterizable  for technological functions  — parameterizable  shielded, max.  unshielded, max.  unshielded, max.  pushielded, max.  pushielded, max.  pushielded, max.  for my for technological functions  for technological functions  — parameterizable  Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz  KHz  Cable length  shielded, max.  for my for technological functions  unshielded, max.  for my for technological functions  with resistive load, max.  with resistive load, max.  on lamp load, max.  Output delay with resistive load	• for signal "1"	15 V DC at 2.5 mA
- parameterizable - at "0" to "1", min at "0" to "1", max.  - at "0" to "1", max.  12.8 ms  for interrupt inputs - parameterizable  yes  for technological functions - parameterizable  shielded, max.  • unshielded, max.  • unshielded, max.  Digital outputs  Number of digital outputs  • with resistive load, max.  • with resistive load, max.  • output delay with resistive load  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  0.2 ms 10.2 ms 10.4 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 10.2 ms 10.3 ms 10.8 m	Input delay (for rated value of input voltage)	
groups of four  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.  for interrupt inputs  Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz  Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz  Right for technological functions  No  Digital outputs  Number of digital outputs  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	for standard inputs	
- 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  KHz  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  Switching capacity of the outputs  • with resistive load, max.  • on lamp load, max.  Output delay with resistive load	•	groups of four
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.  100 m; 50 m for technological functions  300 m; for technological functions: No  Digital outputs  Number of digital outputs  Switching capacity of the outputs  • with resistive load, max.  • on lamp load, max.  2 A  • on lamp load, max.  30 W with DC, 200 W with AC		
— 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.  100 m; 50 m for technological functions  100 m; for technological functions: No  101 Number of digital outputs  Number of digital outputs  Switching capacity of the outputs  • with resistive load, max.  100 on lamp load, max.  2 A  100 on lamp load, max.  2 A  3 0 W with DC, 200 W with AC		12.8 ms
for technological functions  — parameterizable  Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz kHz  Cable length  • shielded, max.  • unshielded, max.  500 m; 50 m for technological functions  • unshielded, max.  300 m; for technological functions: No  Digital outputs  Number of digital outputs  6; 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	·	
— parameterizable  Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz  Cable length  shielded, max. unshielded, max.  ounshielded, max.  Digital outputs  Number of digital outputs  Switching capacity of the outputs  with resistive load, max.  on lamp load, max.  Output delay with resistive load  Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 4 @ 30 kHz & 4 @	·	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  Switching capacity of the outputs  • with resistive load, max.  • on lamp load, max.  Output delay with resistive load	·	
<ul> <li>shielded, max.</li> <li>unshielded, max.</li> <li>unshielded, max.</li> <li>300 m; 50 m for technological functions: No</li> </ul> Digital outputs <ul> <li>Relays</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> </ul> 500 m; 50 m for technological functions: No 6; Relays 2 A 30 W with DC, 200 W with AC Output delay with resistive load		Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30 kHz
<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>300 m; for technological functions: No</li> <li>Relays</li> <li>Relays</li> <li>Q A</li> <li>30 W with DC, 200 W with AC</li> </ul>		
Digital outputs  Number of digital outputs  Switching capacity of the outputs  with resistive load, max.  on lamp load, max.  Output delay with resistive load  Signal outputs  6; Relays  2 A  30 W with DC, 200 W with AC		The state of the s
Number of digital outputs  Switching capacity of the outputs  with resistive load, max.  on lamp load, max.  Output delay with resistive load		300 m; for technological functions: No
Switching capacity of the outputs  • with resistive load, max.  • on lamp load, max.  Output delay with resistive load  2 A  30 W with DC, 200 W with AC		
<ul> <li>with resistive load, max.</li> <li>on lamp load, max.</li> <li>Output delay with resistive load</li> </ul> 2 A 30 W with DC, 200 W with AC	Number of digital outputs	6; Relays
on lamp load, max.     30 W with DC, 200 W with AC  Output delay with resistive load	Switching capacity of the outputs	
Output delay with resistive load	<ul><li>with resistive load, max.</li></ul>	2 A
	on lamp load, max.	30 W with DC, 200 W with AC
- 101 to 141 many	Output delay with resistive load	
• U to 1', max.	• "0" to "1", max.	10 ms; max.
• "1" to "0", max. 10 ms; max.	• "1" to "0", max.	10 ms; max.

Relay outputs	
Number of relay outputs	6
Number of operating cycles, max.	mechanically 10 million, at rated load voltage 100 000
Cable length	500
shielded, max.	500 m
• unshielded, max.	150 m
Analog inputs	
Number of analog inputs	2
Input ranges	Yes
Voltage     Input ranges (rated values), voltages	TES
• 0 to +10 V	Yes
- Input resistance (0 to 10 V)	≥100k ohms
Cable length	2 TOUR OTHERS
• shielded, max.	100 m; twisted and shielded
Analog outputs	Too III, twisted and shielded
Number of analog outputs	0
Analog value generation for the inputs	U
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
Encoder	ο Ευρ
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
Number of ports	1
• integrated switch	No
Protocols	
PROFINET IO Controller	Yes
PROFINET IO Device	Yes
SIMATIC communication	Yes
Open IE communication	Yes; Optionally also encrypted
Web server	Yes
Media redundancy	No
PROFINET IO Controller	
Transmission rate, max.	100 Mbit/s
Services	
— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
— Isochronous mode	No
— IRT	No
— PROFlenergy	No
<ul> <li>Prioritized startup</li> </ul>	Yes
<ul> <li>Number of IO devices with prioritized startup, max.</li> </ul>	16
<ul> <li>Number of connectable IO Devices, max.</li> </ul>	16
<ul> <li>Number of connectable IO Devices for RT, max.</li> </ul>	16
— of which in line, max.	16
<ul> <li>Activation/deactivation of IO Devices</li> </ul>	Yes
<ul> <li>Number of IO Devices that can be simultaneously activated/deactivated, max.</li> </ul>	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 quantity of configured user data.
PROFINET IO Device	o. cogurou door data.
THO METIO DOVIDE	

0 1	
Services	V 710 VI
— PG/OP communication	Yes; encryption with TLS V1.3 pre-selected
— Isochronous mode	No
— IRT	No
— PROFlenergy	Yes
<ul> <li>Shared device</li> </ul>	Yes
<ul> <li>Number of IO Controllers with shared device, max.</li> </ul>	2
Protocols	
Supports protocol for PROFINET IO	Yes
PROFIsafe	No
PROFIBUS	Yes; CM 1243-5 (master) or CM 1242-5 (slave) required
OPC UA	Yes; OPC UA Server
AS-Interface	Yes; CM 1243-2 required
	res, Givi 1245-2 required
Protocols (Ethernet)	V
• TCP/IP	Yes
• DHCP	No
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Redundancy mode	
Media redundancy	
— MRP	No
— MRPD	No
SIMATIC communication	
S7 routing	Yes
Open IE communication	
• TCP/IP	Yes
— Data length, max.	8 kbyte
• ISO-on-TCP (RFC1006)	Yes
— Data length, max.	8 kbyte
• UDP	Yes
— Data length, max.	1 472 byte
Web server	
• supported	Yes
User-defined websites	Yes
OPC UA	
<ul> <li>Runtime license required</li> </ul>	Yes; "Basic" license required
OPC UA Server	Yes; data access (read, write, subscribe), method call, runtime license required
<ul> <li>Application authentication</li> </ul>	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
<ul> <li>User authentication</li> </ul>	"anonymous" or by user name & password
— Number of sessions, max.	10
Number of subscriptions per session, max.	5
— Sampling interval, min.	100 ms
— Publishing interval, min.	200 ms
Number of server methods, max.	20
	1 000
Number of monitored items, recommended max.	
Number of server interfaces, max.	2
<ul> <li>Number of nodes for user-defined server interfaces, max.</li> </ul>	2 000
Further protocols	
MODBUS	Yes
	100
communication 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	PG Connections: 4 reserved / 4 max; HMI Connections: 12 reserved / 18 max; S7 Connections: 8 reserved / 14 max; Open User Connections: 8 reserved / 14 max; Web Connections: 2 reserved / 30 max; OPC UA Connections: 0 reserved

	/ 10 max; Total Connections: 34 reserved / 64 max
Test commissioning functions	
Status/control	
Status/control variable	Yes
<ul> <li>Variables</li> </ul>	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
Interrupts/diagnostics/status information	·
Diagnostics indication LED	
RUN/STOP LED	Yes
• ERROR LED	Yes
MAINT LED	Yes
Integrated Functions	
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
	4
Potential separation	
Potential separation digital inputs	FOO VAC for 4 minute
Potential separation digital inputs     hatus on the abandals in groups of	500 V AC for 1 minute
between the channels, in groups of  Detection of the channels and the channels are the channels.	1
Potential separation digital outputs	Deleve
Potential separation digital outputs	Relays
between the channels	No
between the channels, in groups of  EMC	2
Interference immunity against discharge of static electricity	Voc
<ul> <li>Interference immunity against discharge of static electricity acc. to IEC 61000-4-2</li> </ul>	Yes
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-	Yes
4-4	
<ul> <li>Interference immunity on signal cables acc. to IEC 61000-</li> </ul>	Yes
4-4	
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 conducted variable disturbance indu     Interference immunity against high-frequency radiation	Yes
acc. to IEC 61000-4-6	
Emission of radio interference acc. to EN 55 011	
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	
IP degree of protection	IP20
Standards, approvals, certificates	
CE mark	Yes
UL approval	Yes
cULus	Yes

FM approval	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes
Marine approval	Yes
Ecological footprint	
environmental product declaration	Yes
Global warming potential	
<ul><li>— global warming potential, (total) [CO2 eq]</li></ul>	76.4 kg
<ul> <li>global warming potential, (during production) [CO2</li> </ul>	13.8 kg
eq]	00.41
<ul> <li>— global warming potential, (during operation) [CO2 eq]</li> </ul>	63.4 kg
global warming potential, (after end of life cycle)	-0.885 kg
[CO2 eq]	
Ambient conditions	
Free fall	
Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	
• min.	-20 °C
• max.	60 °C; Number of simultaneously activated inputs or outputs 4 or 3 (no adjacent
	points) at 60 °C horizontal or 50 °C vertical, 8 or 6 at 55 °C horizontal or 45 °C vertical
<ul> <li>horizontal installation, min.</li> </ul>	-20 °C
horizontal installation, max.      vertical installation, min.	60 °C -20 °C
• vertical installation, min.	
vertical installation, max.  Applicat term are type during at a range (transportation).	50 °C
Ambient temperature during storage/transportation	-40 °C
• min.	-40 C 70 °C
• max.	70 C
Air pressure acc. to IEC 60068-2-13	705 hDa
Operation, min.	795 hPa
Operation, max.	1 080 hPa
Storage/transport, min.	660 hPa
Storage/transport, max.  Attitude during a partition of the standard form.	1 080 hPa
Altitude during operation relating to sea level	4.000
Installation altitude, min.	-1 000 m
Installation altitude, max.  Politica hypothetical	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Relative humidity	OF O/
Operation, max.  Wheelings	95 %; no condensation
Vibrations	0 = ((-2)
<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),
toolog goodaning to 120 occors 2 27	duration 11 ms
Pollutant concentrations	
<ul> <li>SO2 at RH &lt; 60% without condensation</li> </ul>	S02: < 0.5 ppm; H2S: < 0.1 ppm; RH < 60% condensation-free
configuration / header	
configuration / programming / header	
Programming language	
— LAD	Yes
— FBD	Yes
— SCL	Yes
Know-how protection	
User program protection/password protection	Yes
Copy protection	Yes
Block protection	Yes
Access protection	
protection of confidential configuration data	Yes
Protection level: Write protection	Yes
Protection level: Write protection     Protection level: Read/write protection	Yes
Protection level: Read/write protection     Protection level: Complete protection	Yes
- i roteotion ievol. Complete protection	100

programming / cycle time monitoring / header	
• adjustable	Yes
Dimensions	
Width	90 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	385 g

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