6ES7312-5BF04-0AB0

## **Data sheet**



SIMATIC S7-300, CPU 312C Compact CPU with MPI, 10 DI/6 DQ, 2 high-speed counters (10 kHz) Integr. power supply 24 V DC, work memory 64 KB, Front connector (1x 40-pole) and Micro Memory Card required

General information	
Product type designation	CPU 312C
HW functional status	01
Firmware version	V3.3
Engineering with	
Programming package	STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
external protection for power supply lines (recommendation)	Miniature circuit breaker, type C; min. 2 A; miniature circuit breaker type B, min. 4 A
Mains buffering	
Mains/voltage failure stored energy time	5 ms
Repeat rate, min.	1 s
Load voltage L+	
Digital outputs	
— Rated value (DC)	24 V
<ul> <li>Reverse polarity protection</li> </ul>	No
Input current	
Current consumption (rated value)	570 mA
Current consumption (in no-load operation), typ.	90 mA
Inrush current, typ.	5 A
l²t	0.7 A <sup>2</sup> ·s
Digital outputs	
<ul> <li>from load voltage L+, max.</li> </ul>	25 mA
Power loss	
Power loss, typ.	8 W
Memory	
Work memory	
• integrated	64 kbyte
expandable	No
Load memory	
<ul><li>Plug-in (MMC)</li></ul>	Yes
• Plug-in (MMC), max.	8 Mbyte
<ul> <li>Data management on MMC (after last programming), min.</li> </ul>	10 a
Backup	
• present	Yes; Guaranteed by MMC (maintenance-free)
without battery	Yes; Program and data

CPU processing times	
for bit operations, typ.	0.1 μs
for word operations, typ.	0.24 μs
for fixed point arithmetic, typ.	0.32 µs
for floating point arithmetic, typ.	1.1 µs
CPU-blocks	40
Number of blocks (total)	1 024; (DBs, FCs, FBs); the maximum number of loadable blocks can be
	reduced by the MMC used.
DB	4004 N
Number, max.	1 024; Number range: 1 to 16000
• Size, max.	64 kbyte
FB Number may	1.024: Number range: 0 to 7000
<ul><li>Number, max.</li><li>Size, max.</li></ul>	1 024; Number range: 0 to 7999 64 kbyte
FC	64 kbyte
Number, max.	1 024; Number range: 0 to 7999
• Size, max.	64 kbyte
OB	o-r huye
Number, max.	see instruction list
• Size, max.	64 kbyte
Number of free cycle OBs	1; OB 1
Number of time alarm OBs	1; OB 10
Number of delay alarm OBs	2; OB 20, 21
Number of cyclic interrupt OBs	4; OB 32, 33, 34, 35
Number of process alarm OBs	1; OB 40
Number of startup OBs	1; OB 100
Number of asynchronous error OBs	4; OB 80, 82, 85, 87
Number of asynchronous error OBs	2; OB 121, 122
Nesting depth	2, 00 121, 122
per priority class	16
additional within an error OB	4
Counters, timers and their retentivity	
S7 counter	
Number	256
Retentivity	230
•	Yes
— adjustable	
— preset  Counting range	Z 0 to Z 7
— lower limit	0
	999
— upper limit IEC counter	999
	Voc
• present	Yes
• Type	SFB Liplimited (limited only by PAM capacity)
• Number	Unlimited (limited only by RAM capacity)
S7 times	256
Number  Petantinitus	256
Retentivity	Voc
— adjustable	Yes
— preset	No retentivity
Time range	40
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	
• present	Yes
• Type	SFB
Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	64 kbyte
Retentive data area (incl. timers, counters, flags), max. Flag	
Retentive data area (incl. timers, counters, flags), max.	64 kbyte  256 byte  Yes; MB 0 to MB 255

<ul> <li>Retentivity preset</li> </ul>	MB 0 to MB 15
Number of clock memories	8; 1 memory byte
Number of clock memories  Data blocks	o, i momory byte
Retentivity adjustable	Yes; via non-retain property on DB
Retentivity adjustable     Retentivity preset	Yes
Local data	165
• per priority class, max.	32 kbyte; Max. 2048 bytes per block
Address area	oz kojte, max. 2040 bjilos per blook
I/O address area	
• Inputs	1 024 byte
Outputs	1 024 byte
of which distributed	
— Inputs	none
— Outputs	none
Process image	
• Inputs	1 024 byte
Outputs	1 024 byte
Inputs, adjustable	1 024 byte
Outputs, adjustable	1 024 byte
• Inputs, default	128 byte
Outputs, default	128 byte
Default addresses of the integrated channels	
— Digital inputs	124.0 to 125.1
— Digital outputs	124.0 to 124.5
Digital channels	
• Inputs	266
— of which central	266
Outputs	262
— of which central	262
Analog channels	
• Inputs	64
— of which central	64
• Outputs	64
— of which central	64
Hardware configuration	
Number of expansion units, max.	0
Number of DP masters	
• integrated	none
• via CP	4
Number of operable FMs and CPs (recommended)	
• FM	8
• CP, PtP	8
• CP, LAN	4
Rack	4
Racks, max.      Madulae per real, may.	1
Modules per rack, max.  Time of day.	8
Time of day	
Clock	Von
Software clock     retentive and eventuralizable	Yes
retentive and synchronizable     Deviation per day, may	No; Buffered: No, Can be synchronized: Yes
Deviation per day, max.     Repayior of the clock following POWER ON	10 s; Typ.: 2 s  the clock continues at the time of day it had when power was switched off
Behavior of the clock following POWER-ON     Operating hours counter	the clock continues at the time of day it had when power was switched off
Number	1
Number     Number/Number range	0
-	
Range of values     Granularity	0 to 2^31 hours (when using SFC 101) 1 h
Granularity     retentive	Yes; Must be restarted at each restart
Clock synchronization	1 63, must be restaited at each restait
• supported	Yes
- Supported	100

• to MPI, master	Yes
• on MPI, device	Yes
• in AS, master	Yes
• in AS, device	No
Digital inputs	
Number of digital inputs	10
of which inputs usable for technological functions	8
integrated channels (DI)	10
Input characteristic curve in accordance with IEC 61131, type 1	Yes
Number of simultaneously controllable inputs	
horizontal installation	
— up to 40 °C, max.	10
— up to 60 °C, max.	5
vertical installation	
— up to 40 °C, max.	5
Input voltage	
<ul><li>Rated value (DC)</li></ul>	24 V
• for signal "0"	-3 to +5V
• for signal "1"	+15 to +30 V
Input current	
• for signal "1", typ.	8 mA
Input delay (for rated value of input voltage)	
for standard inputs	
— parameterizable	Yes; 0.1 / 0.3 / 3 / 15 ms (You can reconfigure the input delay of the standard inputs during program runtime. Please note that under certain circumstances your newly set filter time may not be effective until the next filter cycle.)
— Rated value	3 ms
for technological functions	
— at "0" to "1", max.	48 µs; Minimum pulse width/minimum pause between pulses at maximum
	counting frequency
Cable length	
• shielded, max.	1 000 m; 100 m for technological functions
• unshielded, max.	600 m; for technological functions: No
for technological functions	400
— shielded, max.	100 m; at maximum count frequency
— unshielded, max.	not allowed
Digital outputs	
Number of digital outputs	6
of which high-speed outputs	2; Notice: You cannot connect the fast outputs of your CPU in parallel
integrated channels (DO)	6
Short-circuit protection	Yes; Clocked electronically
Response threshold, typ.	1 A
Limitation of inductive shutdown voltage to	L+ (-48 V)
Controlling a digital input	Yes
Switching capacity of the outputs	
• on lamp load, max.	5 W
Load resistance range	
• lower limit	48 Ω
• upper limit	4 kΩ
Output voltage	
• for signal "1", min.	L+ (-0.8 V)
Output current	
for signal "1" rated value	500 mA
for signal "1" rated value     for signal "1" permissible range, min.	5 mA
<ul> <li>for signal "1" rated value</li> <li>for signal "1" permissible range, min.</li> <li>for signal "1" permissible range, max.</li> </ul>	5 mA 0.6 A
<ul> <li>for signal "1" rated value</li> <li>for signal "1" permissible range, min.</li> <li>for signal "1" permissible range, max.</li> <li>for signal "1" minimum load current</li> </ul>	5 mA 0.6 A 5 mA
<ul> <li>for signal "1" rated value</li> <li>for signal "1" permissible range, min.</li> <li>for signal "1" permissible range, max.</li> <li>for signal "1" minimum load current</li> <li>for signal "0" residual current, max.</li> </ul>	5 mA 0.6 A
<ul> <li>for signal "1" rated value</li> <li>for signal "1" permissible range, min.</li> <li>for signal "1" permissible range, max.</li> <li>for signal "1" minimum load current</li> <li>for signal "0" residual current, max.</li> </ul> Parallel switching of two outputs	5 mA 0.6 A 5 mA 0.5 mA
for signal "1" rated value for signal "1" permissible range, min. for signal "1" permissible range, max. for signal "1" minimum load current for signal "0" residual current, max.  Parallel switching of two outputs for uprating	5 mA 0.6 A 5 mA 0.5 mA
<ul> <li>for signal "1" rated value</li> <li>for signal "1" permissible range, min.</li> <li>for signal "1" permissible range, max.</li> <li>for signal "1" minimum load current</li> <li>for signal "0" residual current, max.</li> </ul> Parallel switching of two outputs	5 mA 0.6 A 5 mA 0.5 mA

• with include load, max. • on inarp load, max.  - on the outputs ger group) • horizontal installation  - up to 40 °C, max. • up to 90 °C, max. • up to 90 °C, max. • up to 90 °C, max. • up to 40 °C, max. • up t		400 11
• on tamp load, max		100 Hz
• of the pulse cuptus, with resistive load, max.  Total current of the cuptus (per group) horizontal installation  — up to 40 °C, max. — up to 60 °C, max. — 15 A  vertical installation  — up to 40 °C, max. — 15 A  vertical installation  — up to 40 °C, max. — 15 A  Cable length — shielded, max.		
Total current of the outputs (per group)	·	
Intercent   Inte		2.5 kHz
	Total current of the outputs (per group)	
	horizontal installation	
List	— up to 40 °C, max.	2 A
	— up to 60 °C, max.	1.5 A
Cable length     • shielded, max.   1 000 m     • unshielded, max.   800 m     Analog injusts     Number of nalog inputs     Integrated channels (AI)   0     Analog outputs     Integrated channels (AO)   0     Encoder     Connectable encoders     • 2 wire sensor   Yes     — permissible quiescent current (2-wire sensor), max     Interface   1.5 mA     Interface	vertical installation	
** shelded, max.	— up to 40 °C, max.	1.5 A
unshelded, max.   600 m	Cable length	
Analog inputs  Number of analog inputs  Integrated channels (AI)  Analog outputs  Integrated channels (AO)  Encodor  Connectable encoders  * 2-wire sensor — permissible quiescent current (2-wire sensor), max.  1.5 mA  Interfaces  Number of RS 485 interfaces  Number of RS 485 interfaces  1. MPI Number of RS 422 interfaces  Interface type Isolated Interface type Isolated No	<ul><li>shielded, max.</li></ul>	1 000 m
Number of analog inputs	• unshielded, max.	600 m
Integrated channels (AI)	Analog inputs	
Analog outputs   Integrated channels (AO)   0   0	Number of analog inputs	0
Integrated channels (AO)	integrated channels (AI)	0
Connectable encoders	Analog outputs	
	integrated channels (AO)	0
— permissible quiescent current (2-wire sensor), max.  Number of PROFINET interfaces  0 Number of RS 485 interfaces 1; MPI Number of RS 422 interfaces 0 Interface type Interface type Interface type Interface type Interface type Interface type  • RS 485 • Output current of the interface, max.  Protocols  • MPI • PROFIBUS DP master • PROFIBUS DP device • Point-to-point connection  MPI • Transmission rate, max.  187.5 kbit/s  Services  — PG/OP communication — Routing — Global data communication — S7 communication, as server  PROFISIAS  PROFISIAS  PROFISIAS  No  No  No  PROFICE  — PG/OP communication — S7 communication, as server  PROFISIAS  PROFISIAS  No  No  No  Protocols  PROFISIAS  No  No  No  No  No  No  No  No  No  N		Yes
Interfaces		
Number of RS 485 interfaces		
Number of RS 425 interfaces   1; MPI		0
Number of RS 422 interfaces   0		
Interface type		
Interface type   Integrated RS 485 interface   Isolated   No     Interface types		0
Interface types		1
Interface types  • RS 485 • Output current of the interface, max.  Protocols  • MPI • PROFIBUS DP master • PROFIBUS DP master • PROFIBUS DP device • Point-to-point connection  MPI • Transmission rate, max.  187.5 kbit/s  Services  - PG/OP communication - Routing - Routing - Global data communication - S7 communication - S7 communication - S7 communication - S7 communication, as client - S7 communication, as server  Protocols  PROFIsafe No  communication functions / header  PG/OP communication  Yes  - S7 Communication - S8 communication - S9 communication - S	•	
RS 485 Output current of the interface, max.  200 mA  Protocols  MPI PROFIBUS DP master Proint-to-point connection  MPI  Transmission rate, max.  88 No Particular of GD packets, max.  88 Number of GD packets, max.  88 Number of GD packets, max.  88 Potocols Protocols Protocols Protocols Prospect of CD packets, max.  88 Number of GD packets, max.  88 Pupper MPI  200 mA  Pres Protocols Prospect Prospect Prospect Prospect Prospect Prospect Profocols Prospect Profocols Profo		No
Output current of the interface, max.  Protocols  MPI PROFIBUS DP master PROFIBUS DP device Point-to-point connection  MPI  Transmission rate, max.  Services  — PG/OP communication — S7 communication — S7 communication, as server  PROFISafe PROFISafe No  PROFISafe No  Communication PROFISafe No  Communication PROFISafe No  Communication PSOP communication PROFISafe No  Communication PROFISafe No  Communication PSOP communication PSOP communication PSOP communication PSOP communication PROFISafe No  Communication Server PGOP communication PSOP communication P	• •	
Protocols  MPI PROFIBUS DP master PROFIBUS DP device Point-to-point connection No  MPI  Transmission rate, max. 187.5 kbit/s Services PG/OP communication Routing Global data communication Pst		
MPI PROFIBUS DP master PROFIBUS DP device Point-to-point connection No  Point-to-point connection No  MPI  Transmission rate, max. 187.5 kbit/s  Services PG/OP communication Routing Sorvices PG obal data communication Pes; Only server, configured on one side S7 communication Pes; Only server, configured on one side PS7 communication, as client PS7 communication, as server Protocols PROFIsafe No  Data record routing Slobal data communication Pes Supported No Supported No Supported No No No Supported No No Supported No No No Supported No No No Supported No No No Supported No No No No Supported No No Supported No No No Supported No No No Supported No No Supported No No Supported No No No No Supported No No No No No No Supported No		200 mA
PROFIBUS DP master PROFIBUS DP device No Point-to-point connection No  MPI  Transmission rate, max.  187.5 kbit/s  Services  PG/OP communication Pes Global data communication Pes Communication, as server  Protocols  PROFISIAG  PROFIDE OF COMMUNICATION PROFISIAG  No  Communication functions / header  PG/OP communication PROFISIAG No  Services  PROFISIAG No  Data record routing No Supported No Supported No No Supported No No Supported No		
PROFIBUS DP device Point-to-point connection No  MPI  Transmission rate, max.  Services  PG/OP communication Routing		Yes
Point-to-point connection  MPI  Transmission rate, max.  Services  — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication — S7 communication, as client — S7 communication, as server  Protocols  PROFIsafe  No  Data record routing  Supported  • supported • supported • Number of GD packets, max. • Number of GD packets, receiver, max. • Size of GD packets, max.  • Size of GD packets, max.		No
Transmission rate, max.     187.5 kbit/s  Services  - PG/OP communication - Routing - Global data communication - S7 basic communication - S7 communication - S7 communication - S7 communication, as client - S7 communication, as server  Protocols  PROFIsafe  PROFIsafe  PG/OP communication  Yes  No  Data record routing  No  Global data communication  • supported • Number of GD packets, max. • Number of GD packets, receiver, max. • Size of GD packets, max.  • Size of GD packets, max.  • Size of GD packets, max.  • Size of GD packets, max.  • Size of GD packets, max.  • Size of GD packets, max.  • Size of GD packets, max.  • Size of GD packets, max.	PROFIBUS DP device	No
Transmission rate, max.  Services  - PG/OP communication - Routing - Global data communication - S7 basic communication - S7 communication - S7 communication - S7 communication - S7 communication, as client - S7 communication, as server - S7 communication, as server  Protocols  PROFIsafe No  communication functions / header  PG/OP communication - S7 communication - S7 communication - S7 communication - S7 communication / Yes  Protocols  PROFIsafe No  communication functions / header  PG/OP communication - Yes  Data record routing No  Global data communication  • supported • Number of GD loops, max. • Number of GD packets, max.  • Number of GD packets, max.  • Number of GD packets, transmitter, max.  • Number of GD packets, transmitter, max.  • Number of GD packets, receiver, max.  • Size of GD packets, max.  • Size of GD packets, max.	Point-to-point connection	No
Services  - PG/OP communication Yes - Routing No - Global data communication Yes - S7 basic communication Yes - S7 communication Yes; Only server, configured on one side - S7 communication, as client No; but via CP and loadable FB - S7 communication, as server Yes  Protocols  PROFIsafe No  communication functions / header  PG/OP communication  Paging No  Global data communication  • supported • Number of GD loops, max. • Number of GD packets, max. • Number of GD packets, transmitter, max. • Number of GD packets, receiver, max. • Size of GD packets, max.  • Size of GD packets, max.	MPI	
- PG/OP communication Yes - Routing No - Global data communication Yes - S7 basic communication Yes - S7 communication Yes; Only server, configured on one side - S7 communication, as client No; but via CP and loadable FB - S7 communication, as server Yes  Protocols  PROFIsafe No  communication functions / header  PG/OP communication Yes Data record routing No Global data communication  • supported Yes • Number of GD loops, max. • Number of GD packets, max. • Number of GD packets, transmitter, max. • Number of GD packets, receiver, max. • Size of GD packets, max. • Size of GD packets, max.	Transmission rate, max.	187.5 kbit/s
- Routing - Global data communication - S7 basic communication - S7 communication - S7 communication - S7 communication - S7 communication, as client - S7 communication, as server - Yes  PROFIsafe - No  Communication functions / header - PG/OP communication - Star record routing - No  Global data communication - Supported - Number of GD loops, max Number of GD packets, max Number of GD packets, transmitter, max Number of GD packets, receiver, max Number of GD packets, receiver, max Size of GD packets, max.	Services	
- Global data communication - S7 basic communication - S7 communication - S7 communication - S7 communication, as client - S7 communication, as server - Yes  PROFIsafe - No  Communication functions / header - PG/OP communication - Sate and the server of the se	— PG/OP communication	Yes
- S7 basic communication Yes  - S7 communication Yes; Only server, configured on one side  - S7 communication, as client No; but via CP and loadable FB  - S7 communication, as server Yes  Protocols  PROFIsafe No  communication functions / header  PG/OP communication Yes  Data record routing No  Global data communication  • supported Yes  • Number of GD loops, max. 8  • Number of GD packets, max. 8  • Number of GD packets, transmitter, max. 8  • Number of GD packets, receiver, max. 8  • Size of GD packets, max. 22 byte	— Routing	No
- S7 communication Yes; Only server, configured on one side - S7 communication, as client No; but via CP and loadable FB - S7 communication, as server Yes  Protocols  PROFIsafe No  communication functions / header  PG/OP communication Yes  Data record routing No  Global data communication  • supported • Number of GD loops, max. • Number of GD packets, max. • Number of GD packets, transmitter, max. • Number of GD packets, receiver, max. • Size of GD packets, max.  • Size of GD packets, max.  • Size of GD packets, max.	<ul> <li>Global data communication</li> </ul>	Yes
— S7 communication, as client — S7 communication, as server  Protocols  PROFIsafe  No  communication functions / header  PG/OP communication  Pata record routing  Supported  Number of GD loops, max.  Number of GD packets, max.  Number of GD packets, transmitter, max.  Number of GD packets, receiver, max.  Size of GD packets, max.  Size of GD packets, max.	<ul> <li>S7 basic communication</li> </ul>	Yes
Protocols PROFIsafe No  communication functions / header  PG/OP communication Data record routing No  Global data communication  • supported • Number of GD loops, max. • Number of GD packets, max. • Number of GD packets, transmitter, max. • Number of GD packets, receiver, max. • Size of GD packets, max.  • Size of GD packets, max.	— S7 communication	Yes; Only server, configured on one side
PROFIsafe  PROFIsafe  No  communication functions / header  PG/OP communication  Pata record routing  No  Global data communication  • supported  • Number of GD loops, max.  • Number of GD packets, max.  • Number of GD packets, transmitter, max.  • Number of GD packets, receiver, max.  • Size of GD packets, max.  22 byte	<ul> <li>S7 communication, as client</li> </ul>	
PROFIsafe  PROFIsafe  No  communication functions / header  PG/OP communication  Pata record routing  No  Global data communication  • supported  • Number of GD loops, max.  • Number of GD packets, max.  • Number of GD packets, transmitter, max.  • Number of GD packets, receiver, max.  • Size of GD packets, max.  22 byte	•	
PROFIsafe  communication functions / header  PG/OP communication  Pata record routing  Rolobal data communication  supported Number of GD loops, max. Number of GD packets, max.  Number of GD packets, transmitter, max. Number of GD packets, receiver, max. Size of GD packets, max.  No Number of GD packets, max.  Size of GD packets, max.  No Number of GD packets, max.  Size of GD packets, max.  Polytomerula Vess No Number of GD packets, receiver, max.  Size of GD packets, max.  Polytomerula Vess No Number of GD packets, receiver, max.  Size of GD packets, max.  Polytomerula Vess No Number of GD packets, receiver, max.  Size of GD packets, max.		
Communication functions / header  PG/OP communication  Data record routing  No  Global data communication  • supported • Number of GD loops, max. • Number of GD packets, max.  • Number of GD packets, transmitter, max. • Number of GD packets, receiver, max.  • Size of GD packets, max.  22 byte		No
PG/OP communication  Pata record routing  No  Global data communication  • supported  • Number of GD loops, max.  • Number of GD packets, max.  • Number of GD packets, transmitter, max.  • Number of GD packets, receiver, max.  • Size of GD packets, max.  22 byte		
Data record routing  Global data communication  • supported  • Number of GD loops, max.  • Number of GD packets, max.  • Number of GD packets, transmitter, max.  • Number of GD packets, receiver, max.  • Size of GD packets, max.  22 byte		Yes
Global data communication  • supported  • Number of GD loops, max.  • Number of GD packets, max.  • Number of GD packets, transmitter, max.  • Number of GD packets, receiver, max.  • Size of GD packets, max.  22 byte		
<ul> <li>supported</li> <li>Number of GD loops, max.</li> <li>Number of GD packets, max.</li> <li>Number of GD packets, transmitter, max.</li> <li>Number of GD packets, receiver, max.</li> <li>Size of GD packets, max.</li> </ul>		110
<ul> <li>Number of GD loops, max.</li> <li>Number of GD packets, max.</li> <li>Number of GD packets, transmitter, max.</li> <li>Number of GD packets, receiver, max.</li> <li>Size of GD packets, max.</li> </ul>		Voc
<ul> <li>Number of GD packets, max.</li> <li>Number of GD packets, transmitter, max.</li> <li>Number of GD packets, receiver, max.</li> <li>Size of GD packets, max.</li> <li>22 byte</li> </ul>		
<ul> <li>Number of GD packets, transmitter, max.</li> <li>Number of GD packets, receiver, max.</li> <li>Size of GD packets, max.</li> <li>22 byte</li> </ul>	·	
<ul> <li>Number of GD packets, receiver, max.</li> <li>Size of GD packets, max.</li> <li>22 byte</li> </ul>	·	
• Size of GD packets, max. 22 byte	·	
	•	
• Size of GD packet (of which consistent), max. 22 byte	•	
	<ul> <li>Size of GD packet (of which consistent), max.</li> </ul>	22 byte

S7 basic communication	
basic communication     supported	Yes
<ul><li>Supported</li><li>User data per job, max.</li></ul>	76 byte
User data per job (of which consistent), max.	76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET
• Oser data per job (of which consistent), max.	as server)
S7 communication	
• supported	Yes
• as server	Yes
• as client	Yes; Via CP and loadable FB
<ul> <li>User data per job, max.</li> </ul>	180 byte; (with PUT/GET)
User data per job (of which consistent), max.	240 byte; as server
S5 compatible communication	
• supported	Yes; via CP and loadable FC
Number of connections	
• overall	6
<ul> <li>usable for PG communication</li> </ul>	5
<ul> <li>reserved for PG communication</li> </ul>	1
— adjustable for PG communication, min.	1
— adjustable for PG communication, max.	5
usable for OP communication	5
— reserved for OP communication	1
— adjustable for OP communication, min.	1
— adjustable for OP communication, max.	5
usable for S7 basic communication	2
reserved for S7 basic communication	0
— adjustable for S7 basic communication, min.	0
— adjustable for S7 basic communication, max.	2
S7 message functions	
Number of login stations for message functions, max.	6; Depending on the configured connections for PG/OP and S7 basic communication
Process diagnostic messages	Yes
simultaneously active Alarm-S blocks, max.	300
Test commissioning functions	
Status block	Yes; Up to 2 simultaneously
Single step	Yes
Number of breakpoints	4
Status/control	
Status/control variable	Yes
<ul><li>Variables</li></ul>	Inputs, outputs, memory bits, DB, times, counters
<ul> <li>Number of variables, max.</li> </ul>	30
— of which status variables, max.	30
— of which control variables, max.	14
Forcing	
• Forcing	Yes
<ul><li>Forcing, variables</li></ul>	Inputs, outputs
	40
Number of variables, max.  Plansaction buffers	10
Diagnostic buffer	
Diagnostic buffer  • present	Yes
Diagnostic buffer  • present  • Number of entries, max.	Yes 500
Diagnostic buffer  ● present  ● Number of entries, max.  — adjustable	Yes 500 No
Diagnostic buffer  ● present  • Number of entries, max.  — adjustable  — of which powerfail-proof	Yes 500 No 100; Only the last 100 entries are retained
Diagnostic buffer  present  Number of entries, max.  adjustable  of which powerfail-proof  Number of entries readable in RUN, max.	Yes 500 No 100; Only the last 100 entries are retained 499
Diagnostic buffer  ● present  ● Number of entries, max.  — adjustable  — of which powerfail-proof  ● Number of entries readable in RUN, max.  — adjustable	Yes 500 No 100; Only the last 100 entries are retained 499 Yes; From 10 to 499
Diagnostic buffer  ● present  ● Number of entries, max.  — adjustable  — of which powerfail-proof  ● Number of entries readable in RUN, max.  — adjustable  — preset	Yes 500 No 100; Only the last 100 entries are retained 499
Diagnostic buffer  • present  • Number of entries, max.  — adjustable  — of which powerfail-proof  • Number of entries readable in RUN, max.  — adjustable  — preset  Service data	Yes 500 No 100; Only the last 100 entries are retained 499 Yes; From 10 to 499 10
Diagnostic buffer  present  Number of entries, max.  adjustable  of which powerfail-proof  Number of entries readable in RUN, max.  adjustable  preset  Service data  can be read out	Yes 500 No 100; Only the last 100 entries are retained 499 Yes; From 10 to 499
Diagnostic buffer  • present  • Number of entries, max.  — adjustable — of which powerfail-proof  • Number of entries readable in RUN, max. — adjustable — preset  Service data  • can be read out  Interrupts/diagnostics/status information	Yes 500 No 100; Only the last 100 entries are retained 499 Yes; From 10 to 499 10
Diagnostic buffer  • present  • Number of entries, max.  — adjustable — of which powerfail-proof  • Number of entries readable in RUN, max.  — adjustable — preset  Service data  • can be read out  Interrupts/diagnostics/status information  Diagnostics indication LED	Yes 500 No 100; Only the last 100 entries are retained 499 Yes; From 10 to 499 10 Yes
Diagnostic buffer  • present  • Number of entries, max.  — adjustable — of which powerfail-proof  • Number of entries readable in RUN, max.  — adjustable — preset  Service data  • can be read out  Interrupts/diagnostics/status information  Diagnostics indication LED  • Status indicator digital input (green)	Yes 500 No 100; Only the last 100 entries are retained 499 Yes; From 10 to 499 10  Yes
Diagnostic buffer  • present  • Number of entries, max.  — adjustable — of which powerfail-proof  • Number of entries readable in RUN, max.  — adjustable — preset  Service data  • can be read out  Interrupts/diagnostics/status information  Diagnostics indication LED	Yes 500 No 100; Only the last 100 entries are retained 499 Yes; From 10 to 499 10 Yes

Counter	
<ul> <li>Number of counters</li> </ul>	2; See "Technological Functions" manual
Counting frequency, max.	10 kHz
Frequency measurement	Yes
<ul> <li>Number of frequency meters</li> </ul>	2; up to 10 kHz (see "Technological Functions" manual)
controlled positioning	No
integrated function blocks (closed-loop control)	No
PID controller	No
Number of pulse outputs	2; Pulse width modulation up to 2.5 kHz (see "Technological Functions" Manual)
Limit frequency (pulse)	2.5 kHz
Potential separation	
Potential separation digital inputs	
<ul> <li>Potential separation digital inputs</li> </ul>	Yes
<ul> <li>between the channels</li> </ul>	No
<ul> <li>between the channels and backplane bus</li> </ul>	Yes
Potential separation digital outputs	
Potential separation digital outputs	Yes
between the channels	No
between the channels and backplane bus	Yes
Isolation	
Isolation tested with	600 V DC
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C
• max.	60 °C
configuration / header	
Configuration software	
• STEP 7	Voc. STED 7 \/5 5 + SD1 or higher or STED 7 \/5 2 + SD2 or higher with USD
• STEP 7 Lite	Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203 No
	NO
configuration / programming / header	and instruction list
Command set	see instruction list
Nesting levels	8
• System functions (SFC)	see instruction list
System function blocks (SFB)	see instruction list
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— GRAPH	Yes
— HiGraph®	Yes
Know-how protection	
<ul> <li>User program protection/password protection</li> </ul>	Yes
Block encryption	Yes; With S7 block Privacy
Dimensions	
Width	80 mm
Height	125 mm
Depth	130 mm
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Weights	

last modified: 4/25/2024 🖸