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
 Reverse polarity protection 	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 ² ·s
Digital outputs	
• from load voltage L+, max.	25 mA
Power loss	
Power loss, typ.	8 W
Memory	
Work memory	
• integrated	64 kbyte
• expandable	No
Load memory	
• Plug-in (MMC)	Yes
• Plug-in (MMC), max.	8 Mbyte
 Data management on MMC (after last programming), min. 	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	1.1 pc
Number of blocks (total)	1 024; (DBs, FCs, FBs); the maximum number of loadable blocks can be
	reduced by the MMC used.
DB	
Number, max.	1 024; Number range: 1 to 16000
• Size, max.	64 kbyte
FB	
Number, max.	1 024; Number range: 0 to 7999
• Size, max.	64 kbyte
FC	
Number, max.	1 024; Number range: 0 to 7999
• Size, max.	64 kbyte
OB	
• 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 synchronous error OBs	2; OB 121, 122
Nesting depth	
 per priority class 	16
additional within an error OB	4
Counters, timers and their retentivity	
S7 counter	
Number	256
Retentivity	
— adjustable	Yes
— preset	Z 0 to Z 7
Counting range	
— lower limit	0
— upper limit	999
IEC counter	
• present	Yes
• Type	SFB
• Number	Unlimited (limited only by RAM capacity)
S7 times	
• Number	256
Retentivity	
— adjustable	Yes
— preset	No retentivity
Time range	
— 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	
Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max.	64 kbyte
Data areas and their retentivity	
Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max.	64 kbyte 256 byte Yes; MB 0 to MB 255

Retentivity preset	MB 0 to MB 15
Number of clock memories	8; 1 memory byte
Data blocks	o,
Retentivity adjustable	Yes; via non-retain property on DB
Retentivity preset	Yes
Local data	
per priority class, max.	32 kbyte; Max. 2048 bytes per block
Address area	oz najto, mani zo to ajtoc per atom
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	
• Racks, max.	1
Modules per rack, max.	8
Time of day	
Clock	
Software clock	Yes
 retentive and synchronizable 	No; Buffered: No, Can be synchronized: Yes
 Deviation per day, max. 	10 s; Typ.: 2 s
Behavior of the clock following POWER-ON	the clock continues at the time of day it had when power was switched off
Operating hours counter	
• Number	1
 Number/Number range 	0
 Range of values 	
	0 to 2^31 hours (when using SFC 101)
Granularity	1 h
• retentive	
	1 h

• 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	
Rated value (DC)	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
 for signal "1" rated value for signal "1" permissible range, min. for signal "1" permissible range, max. 	5 mA 0.6 A
 for signal "1" rated value for signal "1" permissible range, min. for signal "1" permissible range, max. for signal "1" minimum load current 	5 mA 0.6 A 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. 	5 mA 0.6 A
 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	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
 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	5 mA 0.6 A 5 mA 0.5 mA

• with inductive bode, max. • with inductive bode, max. • with inductive bode, max. • on the register outputs, with residive load, max. • of the putser outputs, with residive load, max. • of the putser outputs, with residive load, max. 2 5 Met 2 Total current of the coupus to groups) horizonati industation — up to 40 °C, max. — up to 90 °C, max. — up to 40 °C, max. — up to 40 °C, max. — up to 40 °C, max. • windical evisibilitation — up to 40 °C, max. • windical evisibilitation — up to 40 °C, max. • windical evisibilitation — up to 40 °C, max. • bidded, max. • unatherised, max. • bidded, max. • unatherised, max. • bidded, max. • unatherised, max. Number of annicy injuris **Commodation encoders • 2-ware sensor		
	 with resistive load, max. 	100 Hz
Total current of the outputs (per group) Noticonation Installation - up to 40 °C, max. 2 A - up to 90 °C, max. 1.5 A vertical installation - up to 40 °C, max. 1.5 A vertical installation - up to 40 °C, max. 1.5 A Saletie length - shielded, max. 1000 m - un to 40 °C, max. 800 m Analog inputs - shielded, max. 800 m Analog inputs Number of analog sputs 0 - stroughd channels (AI) 1.5 mA - permissible quisscent current (2-wire sensor), max. 1.5 mA Interface of PROFINET interfaces 0 Number of PROFINET interfaces 1, ii.MP1 Number of PROFINET interfaces 1, ii.MP1 Number of PROFINET interfaces 0 1 interface byes - interface byes - interface byes - interface byes - PAGP communication No - PROFIBUS DP master	,	
Total current of the outputs (per group)	on lamp load, max.	100 Hz
Description	 of the pulse outputs, with resistive load, max. 	2.5 kHz
	Total current of the outputs (per group)	
	horizontal installation	
Legislation	— up to 40 °C, max.	2 A
	— up to 60 °C, max.	1.5 A
Cable length Shielded, max. 1 000 m	vertical installation	
	— up to 40 °C, max.	1.5 A
Manley injusts	Cable length	
Analog inputs	• shielded, max.	1 000 m
Number of analog inputs 0 1 1 1 1 1 1 1 1 1		600 m
Integrated channels (AI) 0	Analog inputs	
Integrated channels (AO)	Number of analog inputs	0
Integrated channels (AO)	integrated channels (AI)	0
Connectable encoders	Analog outputs	
Connectable encoders Yes	integrated channels (AO)	0
	Encoder	
permissible quiescent current (2-wire sensor), max Intoracos Number of RPOFINET 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 No MPI • Transmission rate, max. 187.5 kbit/s Services - PG/OP communication - Routing - St pasic communication - ST posic communication - ST communication, as client - ST communication, as server PROFIsafe PROFIsafe No Data record routing No Communication (Pes - PGOP communication - ST communication -	Connectable encoders	
Interfaces	• 2-wire sensor	Yes
Number of RS 485 interfaces 0	— permissible quiescent current (2-wire sensor), max.	1.5 mA
Number of RS 422 interfaces 1; MP	Interfaces	
Number of RS 422 interfaces 1. 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 — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server Protocols PROFIsafe No communication functions / header PG/OP communication • Yes PROFIsafe No communication PGOP communication • Yes PGOP communication PGOP communication Pes Protocols PROFIsafe No communication functions / header PG/OP communication • S9 supported • No Global data communication • Yes Protocols PROFIsafe No communication functions / header PG/OP communication • Yes Protocols PROFIsafe No communication functions / header PG/OP communication • Supported • Number of GD packets, max. 8 • Number of GD packets, max. • Number of GD packets, transmitter, max. • Number of GD packets, max. • Number of GD packets, max. • Size of GD packets, max. • Size of GD packets, max. 2 bypte	Number of PROFINET interfaces	0
Interface type	Number of RS 485 interfaces	1; MPI
Interface type Integrated RS 485 interface Interface types	Number of RS 422 interfaces	0
Interface types	1. Interface	
Interface types	Interface type	Integrated RS 485 interface
RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master Proint-to-point connection MPI Transmission rate, max. 187.5 kbit/s Services PG/OP communication Ro; but via CP and loadable FB S7 communication, as client S7 communication, as server Protocols PROFISAG PG/OP communication Yes S7 basic communication Yes S7 basic communication Yes S7 communication, as client S7 communication, as server Yes Protocols PROFISAG PG/OP communication Yes No Communication functions / header PG/OP communication Yes No Communication functions / header PG/OP communication Yes S1 communication Yes S2 communication Yes S3 communication Yes S4 communication Yes S5 communication Yes S6 communication S7 communication S7 communication S7 communication S6 communication S7 communication S7 communication S6 communication S7 communication S7 communication S7 communication S8 communication S7 communication S8 communication S9 c	· ·	
RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master Proint-to-point connection MPI Transmission rate, max. 187.5 kbit/s Services PG/OP communication Ro; but via CP and loadable FB S7 communication, as client S7 communication, as server Protocols PROFISAG PG/OP communication Yes S7 basic communication Yes S7 basic communication Yes S7 communication, as client S7 communication, as server Yes Protocols PROFISAG PG/OP communication Yes No Communication functions / header PG/OP communication Yes No Communication functions / header PG/OP communication Yes S1 communication Yes S2 communication Yes S3 communication Yes S4 communication Yes S5 communication Yes S6 communication S7 communication S7 communication S7 communication S6 communication S7 communication S7 communication S6 communication S7 communication S7 communication S7 communication S8 communication S7 communication S8 communication S9 c	Interface types	
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		Yes
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	Output current of the interface, max.	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 Protocols PROFISER PROPISER No Protocols PROPISER No Data record routing No Supported No No Supported No Supported No No Supporte		
PROFIBUS DP device Point-to-point connection No MPI Transmission rate, max. 187.5 kbit/s Services - PG/OP communication Pasic communication PST communication PST communication PST communication, as client ST communication, as server Protocols PROFIsafe No Communication functions / header PG/OP communication PG/OP comm	• MPI	Yes
PROFIBUS DP device Point-to-point connection No MPI Transmission rate, max. 187.5 kbit/s Services - PG/OP communication Pasic communication PST communication PST communication PST communication, as client ST communication, as server Protocols PROFIsafe No Communication functions / header PG/OP communication PG/OP comm	PROFIBUS DP master	No
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 No Global data communication • supported • 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. • 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, as client - S7 communication, as server Protocols PROFIsafe No communication / Yes PG/OP communication Yes No 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, transmitter, max. • Number of GD packets, receiver, max. • Size of GD packets, max. • Size of GD packets, max.		
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 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		
- PG/OP communication Yes - Routing No - Global data communication Yes - S7 basic communication Yes - S7 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 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.	Transmission rate, max.	187.5 kbit/s
- PG/OP communication Yes - Routing No - Global data communication Yes - S7 basic communication Yes - S7 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 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.	·	
- Routing No - Global data communication Yes - S7 basic 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 Pata 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.		Yes
- Global data communication - S7 basic communication - S7 communication - S7 communication - S7 communication, as client - 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 Number of GD packets, receiver, max Size of GD packets, max.		
- 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	<u> </u>	
- 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. 22 byte		
— S7 communication, as client — S7 communication, as server Protocols PROFIsafe PG/OP communication Pata record routing Supported Number of GD packets, max. Number of GD packets, receiver, max. No; but via CP and loadable FB Yes No Yes No Yes No Size of GD packets, max. No; but via CP and loadable FB No; but via CP and loadable FB Yes No Yes No 8 8 8 8 8 8 8 8 8 8 8 8 8		
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.		
PROFIsafe PROFIsafe No 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. 22 byte	•	
PROFIsafe 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.		
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		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. Size of GD packets, max.		Vac
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		
 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. 		INU
 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. 		Vec
 Number of GD packets, max. Number of GD packets, transmitter, max. Number of GD packets, receiver, max. Size of GD packets, max. 22 byte 		
 Number of GD packets, transmitter, max. Number of GD packets, receiver, max. Size of GD packets, max. 22 byte 	·	
 Number of GD packets, receiver, max. Size of GD packets, max. 22 byte 		
• Size of GD packets, max. 22 byte		
	·	
• Size of GD packet (of which consistent), max. 22 byte		
	● Size of GD packet (of which consistent), max.	ZZ DYTE

S7 basic communication	
basic communication supported	Yes
SupportedUser data per job, max.	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
 User data per job, max. 	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
 usable for PG communication 	5
 reserved for PG communication 	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
Variables	Inputs, outputs, memory bits, DB, times, counters
 Number of variables, max. 	30
— of which status variables, max.	30
— of which control variables, max.	14
Forcing	
• Forcing	Yes
Forcing, variables	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	
 Number of counters 	2; See "Technological Functions" manual
Counting frequency, max.	10 kHz
Frequency measurement	Yes
Number of frequency meters	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	
 Potential separation digital inputs 	Yes
 between the channels 	No
 between the channels and backplane bus 	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	000 V 50
Ambient temperature during operation	
min.	0 °C
	60 °C
• max.	00 C
configuration / header	
Configuration software	V 0750 7.V5 5 : 004 11 1 0750 7.V5 0 : 000 11 1 11 1100
• STEP 7	Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203
• STEP 7 Lite	No
configuration / programming / header	
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
	103
Know-how protection	103
	Yes
Know-how protection	
Know-how protection • User program protection/password protection	Yes
Know-how protection User program protection/password protection Block encryption	Yes
Know-how protection • User program protection/password protection • Block encryption Dimensions Width	Yes Yes; With S7 block Privacy 80 mm
Know-how protection • User program protection/password protection • Block encryption Dimensions Width Height	Yes Yes; With S7 block Privacy 80 mm 125 mm
Know-how protection • User program protection/password protection • Block encryption Dimensions Width	Yes Yes; With S7 block Privacy 80 mm

last modified: 4/25/2024 🖸