Data sheet

6ES7317-7TK10-0AB0



SIMATIC S7-300, CPU 317T-3 PN/DP, Central processing unit for PLC and technology tasks, 1024 KB work memory, 1st interface MPI/DP 12 Mbit/s, 2nd interface DP (drive), 3rd interface Ethernet PROFINET with 2-port switch, Integr. I/O for technology, Front connector (1x 40-pole) and Micro Memory Card min. 8 MB required

HW functional status	01
Firmware version	CPU: V3.2; integrated technology V4.1.5
Product function	Voc. Via DDOCIDUO DD ay DDOCINET interfera
Isochronous mode	Yes; Via PROFIBUS DP or PROFINET interface
Engineering with	OTED 7 V5 5 OD0 kink-a 07 Tk-a-l
Programming package	STEP 7 V5.5 SP2 or higher and S7-Technology option package V4.2 SP3
supply voltage	041/
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)	2 A min.
Load voltage L+	2437
Rated value (DC)	24 V
Reverse polarity protection	Yes
Digital outputs	
— Rated value (DC)	24 V; 2L+
— Reverse polarity protection	No; 2L+
nput current	
Current consumption (rated value)	1 050 mA
Current consumption (in no-load operation), typ.	230 mA
Inrush current, typ.	6.5 A
l ² t	1 A ² ·s
lower loss	
Power loss, typ.	7.5 W
lemory	
Work memory	
integrated	1 024 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
PU processing times	
for bit operations, typ.	0.025 µs
for word operations, typ.	0.03 µs

for fixed point arithmetic, typ.	0.04 µs
for floating point arithmetic, typ.	0.04 μs
CPU-blocks	3 э до
Number of blocks (total)	2 048; (DBs, FCs, FBs); the maximum number of loadable blocks can be
Number of blocks (total)	reduced by the MMC used.
DB	
Number, max.	2 048; Number range: 1 to 16000
• Size, max.	64 kbyte
FB	
Number, max.	2 048; Number range: 0 to 7999
• Size, max.	64 kbyte
FC	0.040 N. J. 2000
Number, max.	2 048; Number range: 0 to 7999
• Size, max.	64 kbyte
OB	and implemental training
Number, max. Size may.	see instruction list
Size, max. Number of free evels ORs.	64 kbyte
 Number of free cycle OBs Number of time alarm OBs 	1; OB 1 1; OB 10
Number of delay alarm OBs Number of cyclic interrupt OBs	2; OB 20, 21 4; OB 32, 33, 34, 35
Number of process plarm OPs	
 Number of process alarm OBs Number of DPV1 alarm OBs 	1; OB 40
Number of DPV1 alarm OBs Number of isochronous mode OBs	3; OB 55, 56, 57 1; OB 61 - isochronous mode is possible either on DP or PROFINET IO (not
• Number of isocilionous mode OBS	simultaneously)
 Number of technology synchronous alarm OBs 	1; OB 65
Number of startup OBs	1; OB 100
Number of asynchronous error OBs	6; OB 80, 82, 83, 85, 86, 87 (OB83 only for PROFINET IO)
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	512
Retentivity	
— adjustable	Yes
— preset	Z 0 to Z 7
Counting range	
— adjustable	Yes
— lower limit	0
— upper limit	999
IEC counter	
• present	Yes
• Type	SFB
Number	Unlimited (limited only by RAM capacity)
S7 times	
Number	512
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)
ata areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	256 kbyte
Flag	

• Size, max.	4 096 byte
Retentivity available	Yes; From MB 0 to MB 4 095
Retentivity preset	MB 0 to MB 15
Number of clock memories	8; 1 memory byte
Data blocks	
Retentivity adjustable	Yes; via non-retain property on DB
Retentivity preset	Yes
Local data	
per priority class, max.	32 768 byte; Max. 2048 bytes per block
Address area	
I/O address area	0.400 h.t-
• Inputs	8 192 byte
Outputs	8 192 byte
of which distributed	0.4001
— Inputs	8 192 byte
— Outputs	8 192 byte
Process image	0.4001
• Inputs	8 192 byte
• Outputs	8 192 byte
• Inputs, adjustable	8 192 byte
Outputs, adjustable	8 192 byte
• Inputs, default	256 byte
Outputs, default	256 byte
Default addresses of the integrated channels	
— Digital inputs	66
— Digital outputs	66
Subprocess images	
Number of subprocess images, max.	1; With PROFINET IO, the length of the user data is limited to 1600 bytes
Digital channels	
• Inputs	65 536
— of which central	256
Outputs	65 536
— of which central	256
Analog channels	
• Inputs	4 096
— of which central	64
 Outputs 	4 096
— of which central	64
Hardware configuration	
Number of expansion units, max.	0
Number of DP masters	
• integrated	2; 1 DP and 1 DP (drive)
• via CP	2; for DP
Number of operable FMs and CPs (recommended)	
• FM	8
• CP, PtP	8
• CP, LAN	8
Rack	
• Racks, max.	1
Modules per rack, max.	8
Time of day	
Clock	
Hardware clock (real-time)	Yes
 retentive and synchronizable 	Yes
Backup time	6 wk; At 40 °C ambient temperature
 Deviation per day, max. 	10 s; Typ.: 2 s
 Behavior of the clock following POWER-ON 	Clock continues running after POWER OFF
Behavior of the clock following expiry of backup period	the clock continues at the time of day it had when power was switched off
Operating hours counter	
Number	4

Range of values Care June 19 values Cancel strip Cancel		
Cocke spectromotation * ciprotive Cocke spectromotation * upported * upported * upported * up MPI, master * up M	 Number/Number range 	0 to 3
- netertive	Range of values	0 to 2^31 hours (when using SFC 101)
Courts synchronization	Granularity	1 h
* in Depth master		Yes; Must be restarted at each restart
	Clock synchronization	
• to DP, labre	supported	Yes
• D DP, master	to MPI, master	Yes
• In AS, starter • In	• to MPI, slave	Yes
In AS, master	• to DP, master	Yes
Name of Digital Inputs Yes Yes Yes As client		Yes; Only time-of-day slave
• on Ethernet via NTP Number of digital inputs • of which inputs sable for technological functions • of which inputs sable for technological functions funct characteristic curve in accordance with IEC 61131, type 1 Number of simultaneously controllable inputs horizontal installation — up to 40 °C, max. 4 — up to 60 °C, max. 4 — up to 60 °C, max. 4 — up to 40 °C, max. 4 — in signal °1 — 115 to 430 V for technological functions — at °0 'to °1*, max. 10 µs; Typical for technological functions — at °10 to °1*, max. 10 µs; Typical Cable length • shielded, max. 10 up to Typical Other in the speed outputs Functions Functions Short-circuit protection • Response threshold, typ. 1A Limitation of inductive shuldown voltage to • Ne sponse threshold, typ. 1A Limitation of inductive shuldown voltage to • Response threshold, typ. 1 in A Limitation of inductive shuldown voltage to • Or signal °1*, min. Counterling a diplat input Voltage in signal °1 * A KO Counterling a diplat input • or signal °1*, min. Counterling a diplat input • or signal °1*, min. Counterling a diplat input • or signal °1*, min. Counterling a diplat input • or signal °1*, min. Counterling a diplat counterling a No • or signal °1* permissible range for 0 to 60 °C, min. • or signal °1* permissible range for 0 to 60 °C, min. • or signal °1* permissible range for 0 to 60 °C, min. • for signal °1* permissible range for 0 to 60 °C, min. • for signal °1* permissible range for 0 to 60 °C, min. • for signal °1* permissible range for 0 to 60 °C, min. • for signal °1* permissible range for 0 to 60 °C, min. • for signal °1* permissible range for 0 to 60 °C, min. • for signal °1* permissible range for 0 to 60 °C, min. • for signal °1* permissible range for	•	Yes
Digital Inputs A A A A A A A A A	• in AS, slave	Yes
Number of digital inputs of which inputs usable for technological functions of which inputs usable for technological functions 4 Personal input dealeratistic curve in accordance with IEC 61131, type 1 Number of simultaneously controllable inputs horizontal installation — up to 40 °C, max. — up to 60 °C, max. 4 vertical installation — up to 40 °C, max. 5 °W 10 µs. Typical 2a vertical installation — up to 40 °C, max. 10 µs. Typical 2a vertical installation — up to 40 °C, max. 10 µs. Typical 2a vertical installation — up to 40 °C, max. 10 µs. Typical 2a vertical installation — up to 40 °C, max. 10 µs. Typical 2a vertical installation — up to 40 °C, max. 10 µs. Typical 2a vertical installation — up to 40 °C, max. 10 µs. Typical 2a vertical installation 4 Vertical installation — up to 40 °C, max. 4 vertical installation 4 ver		Yes; As client
of which inputs usable for technological functions 4	Digital inputs	
Input characteristic curve in accordance with IEC 61131, type 1 Number of simulatineously controllable inputs horizontal institution — up to 40 °C, max. 4 — up to 60 °C, max. 4 vertical installation — up to 40 °C, max. 4 Input voltage • Rated value (DC) 24 V • for signal "1" + 115 to +30 V Input voltage • Rated value (DC) 7	Number of digital inputs	4
Number of simultaneously controllable inputs horizontal installation — up to 40 °C, max. — up to 60 °C, max. — 4 Input voltage — Raded value (ICC) — for signal '1" — this to 430 V — to resignal '1" — this to 430 V — to resignal '1", max. — to for signal '1", max. — to yet, max. — to	of which inputs usable for technological functions	4
horizontal installation	Input characteristic curve in accordance with IEC 61131, type 1	Yes
up to 40 °C, max.	Number of simultaneously controllable inputs	
vertical installation	horizontal installation	
vertical installation — up to 40 °C, max. 4 Input voltage • Rated value (DC) 24 V • for signal "0" 3 to +5V • for signal "1", typ. 115 to +30 V Input current • for signal "1", typ. 7 mA Input dealing (for rated value of input voltage) for technological functions — at "0" to "1", max. 10 μs; Typical — at "1" to "0", max. 10 μs; Typical Cable length • shielded, max. 10 μs; Typical 1 000 m Digital outputs Number of digital outputs 8 • of which high-speed outputs 8 • of which high-speed outputs 9 Functions for technology functions, e.g. high-speed cam switch signals short-circuit protection Yes • Response threshold, typ. 1 A Limitation of inductive shutdown voltage to 48 V Controlling a digital input No 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" permissible range for 0 to 60 °C, min. 6 ror signal "1" permissible range for 0 to 60 °C, min. 7 or signal "1" permissible range for 0 to 60 °C, min. 6 ror signal "1" permissible range for 0 to 60 °C, min. 6 ror signal "1" permissible range for 0 to 60 °C, min. 6 ror signal "1" permissible range for 0 to 60 °C, min. 6 ror signal "1" permissible range for 0 to 60 °C, min. 6 ror signal "1" permissible range for 0 to 60 °C, min. 6 ror signal "1" permissible range for 0 to 60 °C, min. 6 ror signal "1" permissible range for 0 to 60 °C, min. 6 ror signal "1" permissible range for 0 to 60 °C, min. 6 ror signal "1" permissible range for 0 to 60 °C, min. 6 ror signal "1" permissible range for 0 to 60 °C, min. 6 ror signal "1" permissible range for 0 to 60 °C, min. 6 ror signal "1" permissible range for 0 to 60 °C, min. 6 ror signal "1" permissible range for 0 to 60 °C, min. 6 ror signal "1" permissible range for 0 to 60 °C, min. 6 ror signal "1" permissible range for 0 to 60 °C, min. 6 ror signal "1" permissible range for 0 to 60 °C, min. 6 ror signal "1" permissible range for 0 to 60 °C, min. 6 ror signal "1" permissible range for 0 to 60 °C, min	•	4
Input voltage Rated value (DC) 24 V 3 to +5V 5 to 7 signal *10* 15 to 430 V 11 to 70* 17 max 10 μs; Typical 10 μs; Typica	— up to 60 °C, max.	4
Rated value (DC)	vertical installation	
Rated value (DC) • for signal "0" • for signal "1" • for signal "1" • for signal "1", typ. Input delay (for rated value of input voltage) for technological functions — at "0" to "1", max. — at "1" to "0", max. — at "1" to "0", max. Cable length • shielded, max. I 0 us; Typical Cable length • of which high-speed outputs • of which high-speed outputs • runctions Functions for technology functions, e.g. high-speed cam switch signals Short-circuit protection • Response threshold, typ. 1 A Limitation of inductive shutctown voltage to Controlling a digital input No Switching capacity of the outputs • on lamp load, max. Load resistance range • lower limit • upper limit Output voltage • for signal "1", min. Rated voltage -2.5 ∨ Output current • for signal "1" permissible range for 0 to 60 "C, min. • for signal "1" permissible range for 0 to 60 "C, min. • for signal "1" permissible range for 0 to 60 "C, min. • for signal "1" permissible range for 0 to 60 "C, max. • for signal "0" residual current, max. • for signal "0" residual current, max. • for signal "0" residual current, max. • for greating of two outputs • for redundant control of a load Switching requencey	— up to 40 °C, max.	4
• for signal "0"	Input voltage	
for signal "1"	 Rated value (DC) 	24 V
for signal "1", typ.	• for signal "0"	-3 to +5V
	• for signal "1"	+15 to +30 V
Input delay (for rated value of input voltage) for technological functions - at "1" to "0", max.	Input current	
for technological functions — at "0" to "1", max. — at ""1" to "0", max. 10 μs; Typical 10 μs	• for signal "1", typ.	7 mA
- at "0" to "1", max.	Input delay (for rated value of input voltage)	
- at "1" to "0", max. 10 μs; Typical Cable length • shielded, max. 1 000 m Digital outputs Number of digital outputs 8 • of which high-speed outputs 8 Functions for technology functions, e.g. high-speed cam switch signals Short-circuit protection Yes Short-circuit protection 48 V Controlling a digital input No Switching capacity of the outputs • on lamp load, max. 5 W Load resistance range • lower limit 48 Ω • upper limit 4kΩ Output voltage • for signal "0", max. 3 V; (2L+) • for signal "1" rated value • for signal "1" retred value • for signal "1" retred value • for signal "1" remissible range for 0 to 60 °C, min. 5 mA • for signal "1" remissible range for 0 to 60 °C, max. 0.6 A • for signal "0" residual current, max. 0.3 mA Parallel switching of two outputs • for uprating • for redundant control of a load Switching frequency	for technological functions	
e shielded, max. 1 000 m Digital outputs Number of digital outputs 8 of which high-speed outputs 8 Functions for technology functions, e.g. high-speed cam switch signals Short-circuit protection Yes 1 A Limitation of inductive shutdown voltage to 48 V Controlling a digital input No Switching capacity of the outputs on lamp load, max. 5 W Load resistance range lower limit 48 Ω upper limit 4kΩ Output voltage of or signal "1", min. Rated voltage -2.5 V Output current of or signal "1" rated value of or signal "1" remissible range for 0 to 60 °C, min. of or signal "1" remissible range for 0 to 60 °C, max. of or signal "0" residual current, max. 0.3 mA Parallel switching of two outputs of or redundant control of a load No Switching frequency	— at "0" to "1", max.	10 μs; Typical
• shielded, max. Digital outputs Number of digital outputs • of which high-speed outputs 8 Functions Short-circuit protection • Response threshold, typ. Limitation of inductive shutdown voltage to Controlling a digital input Switching capacity of the outputs • on lamp load, max. Load resistance range • lower limit • upper limit • for signal "1", min. Output voltage • for signal "1" rated value • for signal "1" rated value • for signal "1" reprmissible range for 0 to 60 °C, min. • for signal "1" permissible range for 0 to 60 °C, max. • for signal "1" reprmissible range for 0 to 60 °C, max. • for signal "1" remissible range for 0 to 60 °C, max. • for signal "1" permissible range for 0 to 60 °C, max. • for signal "1" permissible range for 0 to 60 °C, max. • for signal "1" permissible range for 0 to 60 °C, max. • for signal "0" residual current, max. Parallel switching of two outputs • for redundant control of a load No Switching frequency	— at "1" to "0", max.	10 μs; Typical
Digital outputs Number of digital outputs 8 • of which high-speed outputs 8 Functions for technology functions, e.g. high-speed cam switch signals Short-circuit protection Yes • Response threshold, typ. 1 A Limitation of inductive shutdown voltage to 48 V Controlling a digital input No Switching capacity of the outputs 5 W • on lamp load, max. 5 W Load resistance range lower limit 4 kΩ • Uower limit 4 kΩ Output voltage • for signal "0", max. 3 V; (2L+) • for signal "1", min. Rated voltage -2.5 V Output current • for signal "1" rated value 0.5 A • for signal "1" permissible range for 0 to 60 °C, min. 5 mA • for signal "1" permissible range for 0 to 60 °C, max. 0.6 A • for signal "1" permissible range for 0 to 60 °C, max. 0.8 A • for uprating No • for uprating No • for redundant control of a load No Switching frequency	Cable length	
Number of digital outputs of which high-speed outputs Functions for technology functions, e.g. high-speed cam switch signals Short-circuit protection Response threshold, typ. 1 A Limitation of inductive shutdown voltage to Controlling a digital input No Switching capacity of the outputs on lamp load, max. 5 W Load resistance range olower limit upper limit for signal "0", max. for signal "1", min. Cutput current of or signal "1" rated value of or signal "1" rated value of or signal "1" permissible range for 0 to 60 °C, min. of or signal "1" permissible range for 0 to 60 °C, max. of or signal "1" residual current, max. Parallel switching of two outputs of or redundant control of a load No Switching frequency	• shielded, max.	1 000 m
of which high-speed outputs Functions for technology functions, e.g. high-speed cam switch signals Short-circuit protection • Response threshold, typ. 1 A Limitation of inductive shutdown voltage to Controlling a digital input No Switching capacity of the outputs • on lamp load, max. Load resistance range • lower limit • upper limit 4 kΩ Output voltage • for signal "1", min. Output current • for signal "1" rated value • for signal "1" rated value • for signal "1" permissible range for 0 to 60 °C, min. • for signal "1" permissible range for 0 to 60 °C, max. • for signal "1" permissible range for 0 to 60 °C, max. • for signal "1" permissible range for 0 to 60 °C, max. • for signal "0" residual current, max. Parallel switching of two outputs • for uprating • for redundant control of a load Switching frequency	Digital outputs	
Functions for technology functions, e.g. high-speed cam switch signals Short-circuit protection Response threshold, typ. 1 A Limitation of inductive shutdown voltage to 48 V Controlling a digital input No Switching capacity of the outputs on lamp load, max. 5 W Load resistance range lower limit upper limit 48 Ω upper limit 4 kΩ Output voltage of or signal "0", max. of or signal "1", min. Rated voltage -2.5 V Output current of or signal "1" repermissible range for 0 to 60 °C, min. of or signal "1" permissible range for 0 to 60 °C, max. of or signal "0" residual current, max. on a mA Parallel switching of two outputs of or redundant control of a load No Switching frequency	Number of digital outputs	8
Short-circuit protection Response threshold, typ. I A Limitation of inductive shutdown voltage to 48 V Controlling a digital input No Switching capacity of the outputs on lamp load, max. 5 W Load resistance range lower limit upper limit 48 Ω upper limit 4 kΩ Output voltage for signal "0", max. for signal "1", min. Rated voltage -2.5 V Output current for signal "1" rated value for signal "1" rated value for signal "1" permissible range for 0 to 60 °C, min. for signal "1" permissible range for 0 to 60 °C, max. for signal "0" residual current, max. Parallel switching of two outputs for uprating No Switching frequency	of which high-speed outputs	8
Response threshold, typ. Limitation of inductive shutdown voltage to A8 V Controlling a digital input No Switching capacity of the outputs on lamp load, max. Load resistance range lower limit upper limit 48 Ω upper limit 4 kΩ Output voltage for signal "0", max. for signal "1", min. Rated voltage -2.5 V Output current of or signal "1" permissible range for 0 to 60 "C, min. for signal "1" permissible range for 0 to 60 "C, max. of or signal "0" residual current, max. For uprating for uprating for uprating of redundant control of a load Switching frequency 1 A Val V Val V Val V Val V AB Ω AB NO AB AB OL	Functions	for technology functions, e.g. high-speed cam switch signals
Limitation of inductive shutdown voltage to Controlling a digital input No Switching capacity of the outputs on lamp load, max. 5 W Load resistance range lower limit upper limit upper limit 4 kΩ Output voltage for signal "0", max. for signal "1", min. Rated voltage -2.5 V Output current of or signal "1" rated value for signal "1" remissible range for 0 to 60 °C, min. for signal "4" permissible range for 0 to 60 °C, max. for signal "0" residual current, max. Parallel switching of two outputs for redundant control of a load Switching frequency	Short-circuit protection	Yes
Controlling a digital input Switching capacity of the outputs on lamp load, max. 5 W Load resistance range lower limit upper limit 48 Ω upper limit 4 kΩ Output voltage for signal "0", max. for signal "1", min. Rated voltage -2.5 V Output current for signal "1" reted value for signal "1" remissible range for 0 to 60 °C, min. for signal "1" permissible range for 0 to 60 °C, max. for signal "1" permissible range for 0 to 60 °C, max. for signal "0" residual current, max. Parallel switching of two outputs for uprating for redundant control of a load Switching frequency	Response threshold, typ.	1 A
Switching capacity of the outputs on lamp load, max. 5 W Load resistance range lower limit 48 \O upper limit 4 k\O Output voltage for signal "0", max. for signal "1", min. Rated voltage -2.5 V Output current for signal "1" rated value for signal "1" permissible range for 0 to 60 °C, min. for signal "1" permissible range for 0 to 60 °C, max. for signal "0" residual current, max. Parallel switching of two outputs for uprating for redundant control of a load Switching frequency	Limitation of inductive shutdown voltage to	48 V
 on lamp load, max. Load resistance range lower limit upper limit 4 kΩ Output voltage for signal "0", max. for signal "1", min. Rated voltage -2.5 V Output current for signal "1" rated value for signal "1" permissible range for 0 to 60 °C, min. for signal "1" permissible range for 0 to 60 °C, max. for signal "0" residual current, max. Parallel switching of two outputs for redundant control of a load Switching frequency No Switching frequency No 	Controlling a digital input	No
Load resistance range • lower limit • upper limit 4 kΩ Output voltage • for signal "0", max. • for signal "1", min. Rated voltage -2.5 V Output current • for signal "1" rated value • for signal "1" permissible range for 0 to 60 °C, min. • for signal "1" permissible range for 0 to 60 °C, max. • for signal "1" permissible range for 0 to 60 °C, max. • for signal "0" residual current, max. Parallel switching of two outputs • for uprating • for redundant control of a load Switching frequency	Switching capacity of the outputs	
 lower limit upper limit 4 kΩ Output voltage for signal "0", max. for signal "1", min. Rated voltage -2.5 V Output current for signal "1" rated value for signal "1" permissible range for 0 to 60 °C, min. for signal "1" permissible range for 0 to 60 °C, max. for signal "0" residual current, max. 0.5 A 0.6 A 0.3 mA Parallel switching of two outputs of or uprating No for redundant control of a load No Switching frequency	on lamp load, max.	5 W
 upper limit 4 kΩ Output voltage for signal "0", max. for signal "1", min. Rated voltage -2.5 V Output current for signal "1" rated value for signal "1" permissible range for 0 to 60 °C, min. for signal "1" permissible range for 0 to 60 °C, max. for signal "0" residual current, max. Parallel switching of two outputs for uprating No Switching frequency 	Load resistance range	
Output voltage • for signal "0", max. • for signal "1", min. Rated voltage -2.5 V Output current • for signal "1" rated value • for signal "1" permissible range for 0 to 60 °C, min. • for signal "1" permissible range for 0 to 60 °C, max. • for signal "0" residual current, max. Parallel switching of two outputs • for uprating • for redundant control of a load Switching frequency	• lower limit	48 Ω
 for signal "0", max. for signal "1", min. Rated voltage -2.5 V Output current for signal "1" rated value for signal "1" permissible range for 0 to 60 °C, min. for signal "1" permissible range for 0 to 60 °C, max. for signal "0" residual current, max. O.5 A of or signal "0" residual current, max. Parallel switching of two outputs of or uprating of or redundant control of a load No Switching frequency No Switching frequency	upper limit	4 kΩ
for signal "1", min. Output current for signal "1" rated value for signal "1" permissible range for 0 to 60 °C, min. for signal "1" permissible range for 0 to 60 °C, max. for signal "0" residual current, max. Parallel switching of two outputs for uprating for redundant control of a load Switching frequency Rated voltage -2.5 V 0.5 A 0.6 A 0.7 mA 0.8 mA 0.9 mA 0.9 mA No No No Switching frequency	Output voltage	
Output current • for signal "1" rated value • for signal "1" permissible range for 0 to 60 °C, min. • for signal "1" permissible range for 0 to 60 °C, max. • for signal "0" residual current, max. Parallel switching of two outputs • for uprating • for redundant control of a load Switching frequency	• for signal "0", max.	3 V; (2L+)
for signal "1" rated value for signal "1" permissible range for 0 to 60 °C, min. for signal "1" permissible range for 0 to 60 °C, max. for signal "0" residual current, max. Parallel switching of two outputs for uprating for redundant control of a load Switching frequency 0.5 A 0.6 A 0.6 A 0.3 mA No	• for signal "1", min.	Rated voltage -2.5 V
for signal "1" permissible range for 0 to 60 °C, min. for signal "1" permissible range for 0 to 60 °C, max. for signal "0" residual current, max. Parallel switching of two outputs for uprating for redundant control of a load Switching frequency No	Output current	
for signal "1" permissible range for 0 to 60 °C, max. for signal "0" residual current, max. O.3 mA Parallel switching of two outputs for uprating No for redundant control of a load Switching frequency	• for signal "1" rated value	0.5 A
for signal "0" residual current, max. Parallel switching of two outputs for uprating No for redundant control of a load Switching frequency 0.3 mA No No	• for signal "1" permissible range for 0 to 60 °C, min.	5 mA
Parallel switching of two outputs • for uprating • for redundant control of a load No Switching frequency	• for signal "1" permissible range for 0 to 60 °C, max.	0.6 A
Parallel switching of two outputs • for uprating • for redundant control of a load No Switching frequency		0.3 mA
 for uprating for redundant control of a load No Switching frequency 		
• for redundant control of a load No Switching frequency		No
	• for redundant control of a load	No
• with resistive load, max. 100 Hz	Switching frequency	
	with resistive load, max.	100 Hz

with industry land and	0.0 Hm. According to IEO 00047.5.4. DO 40
with inductive load, max.	0.2 Hz; According to IEC 60947-5-1, DC-13
• on lamp load, max.	100 Hz
Total current of the outputs (per group)	
horizontal installation	
— up to 40 °C, max.	4 A
— up to 60 °C, max.	3 A
all other mounting positions	
— up to 40 °C, max.	4 A
Integrated high-speed cams	
Switching accuracy (+/-)	70 μs
Cable length	
• shielded, max.	1 000 m
Analog inputs	
Number of analog inputs	0
Analog outputs	
Number of analog outputs	0
Encoder	
Connectable encoders	
• 2-wire sensor	No
Interfaces	
Number of industrial Ethernet interfaces	1
Number of PROFINET interfaces	1
Number of RS 485 interfaces	2
Number of RS 422 interfaces	0
1. Interface	
Interface type	Integrated RS 485 interface
Isolated	Yes
Interface types	
• RS 485	Yes
 Output current of the interface, max. 	200 mA
Protocols	
• MPI	Yes
PROFIBUS DP master	Yes
PROFIBUS DP slave	Yes
Point-to-point connection	No
MPI	
Transmission rate, max.	12 Mbit/s
Services	
— PG/OP communication	Yes
— Routing	Yes
Global data communication	Yes
— S7 basic communication	Yes
— S7 communication	Yes
— S7 communication, as client	No; but via CP and loadable FB
— S7 communication, as server	Yes
PROFIBUS DP master	
Transmission rate, max.	12 Mbit/s
Number of DP slaves, max.	124
Services	
— PG/OP communication	Yes
— Routing	Yes
Global data communication	No
— S7 basic communication	Yes; I blocks only
— S7 communication	Yes
S7 communication, as client	No
— S7 communication, as server	Yes
— Equidistance	Yes
— Isochronous mode	Yes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO
— SYNC/FREEZE	Yes
Activation/deactivation of DP slaves	Yes

Number of DP Staves that can be simultaneously advisor/boticativation, max Direct data exchange (talave-to-daive or to the control of	Number of DD clayes that can be simultaneously	0
communication)		8
	 Direct data exchange (slave-to-slave 	Yes; as subscriber
Address area	· · · · · · · · · · · · · · · · · · ·	
		Yes
— Outputs, max. User data par DP stave — Imputs, max. — Outputs, max. — Outputs, max. — 244 byte — User data par DP stave • Transmission rate, max. • 12 Mabtis • Judicial band rate search • Address area, max. • Address area, max. • User data par address area, max. 32 byte Services — PGOP communication — Routing — Global data communication — S7 communication — S7 communication — S7 communication, as client — S7 communication, as client — S7 communication, as client — DPV1 — DPV1 — No Transfer memory — Imputs — Outputs — 244 byte — Outputs — Ves • R3 485 • Ves • Output current of the interface, max. PROFIBUS DP master • PROFIBUS DP master • PROFIBUS DP master • PROFIBUS DP master • PROFIBUS DP praster • PROFIBUS DP master • PRO		
User data par DP slave		
		8 kbyte
PROFIBUS DP alaee		
PROFIBUS DP slave 12 Mbit/s 2 Mbit/s	•	
■ Transmission rate, max ■ automatic band rate search ■ Audress area, max. ■ Services ■ Audress area, max. ■ User data per address area, max. Services ■ PGOP communication ■ Routing ■ Global data communication ■ S7 basic communication ■ S7 basic communication ■ S7 communication, as client ■ S7 communication, as client ■ S7 communication, as client ■ S7 communication, as server ■ S7 communication, as client ■ S7 communication ■ S7 communication ■ S8 communication ■ S8 communication ■ S8 communication ■ DPV1 No Transfer memory ■ Integrated R8 485 interface Integrated R8 485 interface Integrated R8 485 interface Integrated R8 485 interface Yes ■ S8 485 ■ Output current of the interface, max. 200 mA PROFIBUS DP master ■ PROFICE MAX ■ S8 communication No ■ S7 communication No ■ S7 communication No ■ S7 basic communication No ■ S9 basic	· · · · · · · · · · · · · · · · · · ·	244 byte
automatic baud rate search Address area, max. 32 byte Services — PGC/P communication — Routing — Global data communication — S7 basic communication — S7 communication, as client — S8 communication — S8 communication — S8 communication — S9		40 M 7//
■ Address area, max. ■ User data per address area, max. Services - PG/OP communication - Routing - Global data communication - S7 basic communication - S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 - No Transfer memory - Inputs - Q44 byte - Outputs - Outputs - Ves - RS 485 - Ves - RS 485 - Ves - RS 485 - Output current of the interface, max Protocols - MP - PROFIBUS DP alwae - PROFIBUS DP alwae - PROFIBUS DP master - Transmission rate, max Ves - Number of DP slaves, max PROCOCOL - Routing - Global data communication - Routing - Global data communication - S7 communication - No - Routing - Global data communication - No - Routing - Global data communication - No - Routing - Global data communication - No - S7 communication -		
● User data per address area, max. Services — PGO/D communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication — S7 communication, as client — S7 communication, as client — S7 communication, as server — Dieter data exchange (slave to-slave communication) — DPV1 — No Transfer memory — Inputs — Outputs — Quipts — Outputs — Ves — Outputs — Ves — No Interface type Interface type Interface type ■ R8 485 — Output current of the interface, max. Protocols ■ MPI ■ PROFIBUS DP master ■ PROFIBUS DP max. ■ 12 Mbl/s ■ Transmission rate, max. ■ 12 Mbl/s ■ Transmission rate, max. ■ 12 Mbl/s ■ Transmission rate, max. ■ 12 Mbl/s ■ Services — PGO/D communication No — S7 communication No — S7 basic communication No — S7 communication No — S7 basic comm		
Services - PG/OP communication - Routing - Routing - Global data communication - ST basic communication - ST communication - ST communication - ST communication - ST communication, as server - ST communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 - No - DPV1 - No - Transfer memory - Inputs - Outputs - Unputs - Unputs - No - ST 485 - No - No No - ST 485 - No - No - ST 485 - No - No - ST 485 - No - No - PROFIBUS DP master - Transfersion rate, max Protocols - Transfersion rate, max Number of DP slaves, max Number of DP slaves, max Routing - ST basic communication - ST communication - ST communication - No - Address area - Inputs, max Uputs, max		
PGIOP communication Routing Global data communication S7 basic communication S7 basic communication S7 communication S8 communication S9 commu		32 byte
Routing Yes; Only with active interface Global data communication No No ST basic communication No No ST basic communication Yes ST communication, as a server Yes; Connection configured on one side only Yes Connection, as server Yes; Connection configured on one side only Yes Connection Configured On One State State Configured Conf		V
Global data communication S7 basic communication S7 communication S7 communication, as client S7 communication, as client S7 communication, as client Direct data exchange (slave-to-slave communication) DPV1 Transfer memory Inputs Cutputs Cutputs Interface type Interface type Interface type Interface type Interface type Solated Yes Output current of the interface, max. PROFIBUS DP master Protocols PROFIBUS DP master Protocols PROFIBUS DP master Protocols A by tes PROFIBUS DP slave Point-to-point connection No PROFIBUS DP master Protocols PROFIBUS DP slave Protocols PROFIBUS DP master Protocols PROFIBUS DP slave Point-to-point connection No PROFIBUS DP slave Protocols PROFIBUS DP slave Protocols PROFIBUS DP slave Protocols PROFIBUS DP slave Protocols PROFIBUS DP slave Protocols PROFIBUS DP slave Protocols PROFI		
	3	
- S7 communication, as server - S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs - Outputs 244 byte 2. Interface Interface type Interface type Isolated Yes - Outputs - RS 485 Yes - Output current of the interface, max Output current of the interface, max PROFIBUS DP master - PROFIBUS DP master - PROFIBUS DP slave - Point-to-point connection - Frontiage - Transmission rate, max Number of DP slaves, max Outputs - Strices - PG/OP communication - Routing - Global data communication - S7 communication - No - S7 communication - S7 communication - No -		
- S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs - Outputs - Output current of the interface (yes) - RS 485 - Output current of the interface, max Output current of the interface, max Output current of the interface, max PROFIBUS DP master - PROFIBUS DP master - PROFIBUS DP slave - PROFIBUS DP slave - PROFIBUS DP slave - Outputs - Out		
communication) - DPV1 Transfer memory - Inputs - Outputs 244 byte 2. Interface Interface type Interface type Isolated Yes Interface type • RS 485 • Output current of the interface, max. Protocools • MPI • PROFIBUS DP master • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection No PROFIBUS DP saster • PROFIBUS DP save • Point-to-point connection No PROFIBUS DP master • Transmission rate, max. • Number of DP slaves, max. • Number of DP slaves, max. 64 Services - PG/OP communication No - Routing - Global data communication No - S7 basic part Profits - Inputs, max Liputs, max Liputs		
— DPV1		Yes
Transfer memory	· · · · · · · · · · · · · · · · · · ·	No
Inputs		
	·	244 byte
Interface type		
Interface type	·	2.1.2,10
Interface types		
Nest	Interface type	Integrated RS 485 interface
	· ·	-
Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection No PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Number of DP slaves, max. Services PG/OP communication Routing Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication S7 communication S8 cytes S9	Isolated	-
Protocols	Isolated Interface types	Yes
	Isolated Interface types • RS 485	Yes Yes
	Isolated Interface types RS 485 Output current of the interface, max.	Yes Yes
	Isolated Interface types RS 485 Output current of the interface, max. Protocols	Yes Yes 200 mA
PROFIBUS DP master • Transmission rate, max. • Number of DP slaves, max. 64 Services - PG/OP communication - Routing - Global data communication - S7 basic communication - S7 communication - S7 communication - Equidistance - Equidistance - Isochronous mode - SYNC/FREEZE - Activation/deactivation of DP slaves - DPV1 No Address area - Inputs, max Outputs, max Inputs, max Unputs, max Outputs, max.	Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI	Yes Yes 200 mA
PROFIBUS DP master • Transmission rate, max. • Number of DP slaves, max. 64 Services - PG/OP communication - Routing - Global data communication - S7 basic communication - S7 communication - Equidistance - Equidistance - Isochronous mode - SYNC/FREEZE - Activation/deactivation of DP slaves - DPV1 No Address area - Inputs, max Outputs, max Unputs, max Outputs, max.	Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master	Yes Yes 200 mA No Yes; DP(DRIVE)-Master
Number of DP slaves, max. Services - PG/OP communication No - Routing No - Global data communication No - S7 basic communication No - S7 communication No - S7 communication No - Equidistance Yes - Isochronous mode Yes - SYNC/FREEZE No - Activation/deactivation of DP slaves Yes - DPV1 No Address area - Inputs, max. 1 024 byte - Outputs, max. 1 024 byte User data per DP slave - Inputs, max. 244 byte - Outputs, max. 244 byte	Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No
● Number of DP slaves, max. Services - PG/OP communication No - Routing No - Global data communication No - S7 basic communication No - S7 communication No - S7 communication No - Equidistance Yes - Isochronous mode Yes - SYNC/FREEZE No - Activation/deactivation of DP slaves Yes - DPV1 No Address area - Inputs, max. 1 024 byte - Outputs, max. 1 024 byte User data per DP slave - Inputs, max. 244 byte - Outputs, max. 244 byte - Outputs, max. 244 byte	Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No
Services - PG/OP communication No - Routing No - Global data communication No - S7 basic communication No - S7 communication No - Equidistance Yes - Isochronous mode Yes - SYNC/FREEZE No - Activation/deactivation of DP slaves Yes - DPV1 No Address area - Inputs, max. 1 024 byte - User data per DP slave - Inputs, max. 244 byte - Outputs, max. 244 byte - Outputs, max. 244 byte	Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PROFIBUS DP master	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No
 Routing Global data communication S7 basic communication No S7 communication No Equidistance Isochronous mode SYNC/FREEZE Activation/deactivation of DP slaves DPV1 No Address area Inputs, max. Outputs, max. Inputs, max. User data per DP slave Inputs, max. User data per DP slave Inputs, max. Outputs, max. Outputs, max. Outputs, max. 244 byte Outputs, max. Outputs, max. 244 byte 	Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PROFIBUS DP master Transmission rate, max.	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No No
- Global data communication No - S7 basic communication No - S7 communication No - S7 communication No - Equidistance Yes - Isochronous mode Yes - SYNC/FREEZE No - Activation/deactivation of DP slaves Yes - DPV1 No Address area - Inputs, max. 1 024 byte - Juputs, max. 1 024 byte User data per DP slave - Inputs, max. 244 byte - Outputs, max. 244 byte	Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PROFIBUS DP master Transmission rate, max. Number of DP slaves, max.	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No No
- Global data communication No - S7 basic communication No - S7 communication No - S7 communication No - Equidistance Yes - Isochronous mode Yes - SYNC/FREEZE No - Activation/deactivation of DP slaves Yes - DPV1 No Address area - Inputs, max. 1 024 byte - Juputs, max. 1 024 byte User data per DP slave - Inputs, max. 244 byte - Outputs, max. 244 byte	Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Services	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No 12 Mbit/s 64
- S7 communication No - Equidistance Yes - Isochronous mode Yes - SYNC/FREEZE No - Activation/deactivation of DP slaves Yes - DPV1 No Address area - Inputs, max. 1 024 byte - Outputs, max. 1 024 byte User data per DP slave - Inputs, max. 244 byte - Outputs, max. 244 byte	Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Services — PG/OP communication	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No 12 Mbit/s 64
 Equidistance Isochronous mode SYNC/FREEZE No Activation/deactivation of DP slaves DPV1 No Address area Inputs, max. Outputs, max. 1 024 byte User data per DP slave Inputs, max. 1 024 byte 244 byte Outputs, max. Outputs, max. 244 byte 	Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Services — PG/OP communication — Routing	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No No 12 Mbit/s 64 No No
— Isochronous mode Yes — SYNC/FREEZE No — Activation/deactivation of DP slaves Yes — DPV1 No Address area — Inputs, max. 1 024 byte — Outputs, max. 1 024 byte User data per DP slave — Inputs, max. 244 byte — Outputs, max. 244 byte	Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Services PG/OP communication Routing Global data communication	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No 12 Mbit/s 64 No No No
— Isochronous mode Yes — SYNC/FREEZE No — Activation/deactivation of DP slaves Yes — DPV1 No Address area — Inputs, max. 1 024 byte — Outputs, max. 1 024 byte User data per DP slave — Inputs, max. 244 byte — Outputs, max. 244 byte	Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Pervices PG/OP communication Routing Global data communication S7 basic communication	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No 12 Mbit/s 64 No No No No No No
- SYNC/FREEZE No - Activation/deactivation of DP slaves Yes - DPV1 No Address area - Inputs, max. 1 024 byte - Outputs, max. 1 024 byte User data per DP slave - Inputs, max. 244 byte - Outputs, max. 244 byte	Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. PG/OP communication Routing Global data communication S7 basic communication S7 communication	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No 12 Mbit/s 64 No No No No No No No No No
 — Activation/deactivation of DP slaves — DPV1 No Address area — Inputs, max. — Outputs, max. User data per DP slave — Inputs, max. — Inputs, max. — Outputs, max. — Outputs,	Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. PG/OP communication Routing Global data communication S7 basic communication S7 communication Equidistance	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No 12 Mbit/s 64 No No No No No No No No No N
— DPV1 No Address area — Inputs, max. 1 024 byte — Outputs, max. 1 024 byte User data per DP slave — Inputs, max. 244 byte — Outputs, max. 244 byte	Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication Equidistance Isochronous mode	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No No 12 Mbit/s 64 No No No No No No No Yes Yes
Address area — Inputs, max. 1 024 byte — Outputs, max. 1 024 byte User data per DP slave — Inputs, max. 244 byte — Outputs, max. 244 byte	Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Periode PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication Equidistance Isochronous mode SYNC/FREEZE	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No 12 Mbit/s 64 No No No No No No No No No N
— Inputs, max. 1 024 byte — Outputs, max. 1 024 byte User data per DP slave — Inputs, max. — Outputs, max. 244 byte — Outputs, max. 244 byte	Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Pervices PG/OP communication Routing Global data communication S7 basic communication S7 communication Equidistance Isochronous mode SYNC/FREEZE Activation/deactivation of DP slaves	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No 12 Mbit/s 64 No No No No No No No No No N
 Outputs, max. User data per DP slave Inputs, max. Outputs, max. Outputs, max. 244 byte 	Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Protocols PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication Equidistance Isochronous mode SYNC/FREEZE Activation/deactivation of DP slaves DPV1	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No 12 Mbit/s 64 No No No No No No No No No N
User data per DP slave — Inputs, max. 244 byte — Outputs, max. 244 byte	Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. PG/OP communication Routing Global data communication S7 basic communication S7 communication A S7 communication S7 communication A S7 communication D S7 communication D S7 communication A S7 communication D S7 communication D S7 communication	Yes 200 mA No Yes; DP(DRIVE)-Master No No 12 Mbit/s 64 No
— Inputs, max.— Outputs, max.244 byte244 byte	Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. PG/OP communication Routing Global data communication Rotomy Global data communication S7 basic communication S7 communication S7 communication S7 communication S7 communication S7 communication PROFIBUS DP master Transmission rate, max. Number of DP slaves, max.	Yes 200 mA No Yes; DP(DRIVE)-Master No No 12 Mbit/s 64 No
— Outputs, max. 244 byte	Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication Equidistance Isochronous mode SYNC/FREEZE Activation/deactivation of DP slaves DPV1 Address area Inputs, max. Outputs, max.	Yes 200 mA No Yes; DP(DRIVE)-Master No No No 12 Mbit/s 64 No
	Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Rervices — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — Equidistance — Isochronous mode — SYNC/FREEZE — Activation/deactivation of DP slaves — DPV1 Address area — Inputs, max. — Outputs, max. User data per DP slave	Yes 200 mA No Yes; DP(DRIVE)-Master No No No 12 Mbit/s 64 No Yes Yes Yes No Yes No 1 024 byte 1 024 byte
TOTAL COLOR COLOR	Interface types RS 485 Output current of the interface, max. Protocols MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Services PG/OP communication Routing Global data communication S7 basic communication S7 communication Equidistance Isochronous mode SYNC/FREEZE Activation/deactivation of DP slaves DPV1 Address area Inputs, max. Outputs, max. User data per DP slave Inputs, max. User data per DP slave Inputs, max.	Yes Yes 200 mA No Yes; DP(DRIVE)-Master No No No No 12 Mbit/s 64 No No No No No No Yes Yes Yes No 1 024 byte 1 024 byte 244 byte

• GSD file	http://support.automation.siemens.com in Product Support area
Transmission rate, max.	12 Mbit/s
3. Interface	
Interface type	PROFINET
Isolated	Yes
automatic detection of transmission rate	Yes; 10/100 Mbit/s
Autonegotiation	Yes
Autocrossing	Yes
Change of IP address at runtime, supported	Yes
Interface types	v
• RJ 45 (Ethernet)	Yes
Number of ports	2
• integrated switch	Yes
Protocols	No
MPI PROFINET IO Controller	No Yes; Also simultaneously with IO-Device functionality
PROFINET TO Controller PROFINET TO Device	Yes; Also simultaneously with IO Controller functionality
PROFIBUS DP master	No
PROFIBUS DP master PROFIBUS DP slave	No
Open IE communication	Yes; Via TCP/IP, ISO on TCP, and UDP
Web server	Yes
Media redundancy	Yes
PROFINET IO Controller	
Transmission rate, max.	100 Mbit/s
Services	
— PG/OP communication	Yes
— Routing	Yes
— S7 communication	Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32
— Isochronous mode	Yes; OB 61; isochronous mode can only be used alternatively on PROFIBUS DP or PROFINET IO
— Shared device	Yes
 Prioritized startup 	Yes
 Number of IO devices with prioritized startup, max. 	32
 Number of connectable IO Devices, max. 	128
 Of which IO devices with IRT, max. 	64
— of which in line, max.	64
 Number of connectable IO Devices for RT, max. 	128
— of which in line, max.	128
 Activation/deactivation of IO Devices 	Yes
 Number of IO Devices that can be simultaneously activated/deactivated, max. 	8
 — IO Devices changing during operation (partner ports), supported 	Yes
Number of IO Devices per tool, max.	8
Device replacement without swap medium	Yes
— Send cycles	250 μs, 500 μs, 1 ms, 2 ms, 4 ms
— Updating time	250 μs to 512 ms (depending on the operating mode, see Manual "S7-300 CPU 31xC and CPU 31x, technical Data" for more details)
Address area	
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
— User data consistency, max.	1 024 byte
PROFINET IO Device	
Services	Voc
— PG/OP communication	Yes
— Routing	Yes
	Vacuumb landable I De many configurable compactions of many number of
— S7 communication	Yes; with loadable FBs, max. configurable connections: 16, max. number of instances: 32
— S7 communication— Isochronous mode— IRT	

Observed desiring	Ver
— Shared device	Yes
Number of IO Controllers with shared device, max.	2
Transfer memory	
— Inputs, max.	1 440 byte; Per IO Controller with shared device
— Outputs, max.	1 440 byte; Per IO Controller with shared device
Submodules	
— Number, max.	64
— User data per submodule, max.	1 024 byte
Open IE communication	
 Number of connections, max. 	16
 Local port numbers used at the system end 	0, 20, 21, 23, 25, 80, 102, 135, 161, 443, 8080, 34962, 34963, 34964, 65532,
	65533, 65534, 65535
Keep-alive function, supported	Yes
Protocols	
PROFIsafe	No
Redundancy mode	
Media redundancy	
 Switchover time on line break, typ. 	200 ms; PROFINET MRP
— Number of stations in the ring, max.	50
Open IE communication	
• TCP/IP	Yes; via integrated PROFINET interface and loadable FBs
 Number of connections, max. 	16
 Data length for connection type 01H, max. 	1 460 byte
 Data length for connection type 11H, max. 	32 768 byte
 several passive connections per port, supported 	Yes
• ISO-on-TCP (RFC1006)	Yes; via integrated PROFINET interface and loadable FBs
— Number of connections, max.	16
— Data length, max.	32 768 byte
• UDP	Yes; via integrated PROFINET interface and loadable FBs
 Number of connections, max. 	16
— Data length, max.	1 472 byte
Web server	
supported	Yes
User-defined websites	Yes
Number of HTTP clients	5
communication functions / header	
PG/OP communication	Yes
Data record routing	Yes
Global data communication	103
supported	Yes
• •	
Number of GD loops, max. Number of GD pockets, 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
Size of GD packet (of which consistent), max.	22 byte
S7 basic communication	
communication function / S7 basic communication	Yes
 User 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
S7 communication	as server)
	Voc
• supported	Yes Yes
as server as alient	
• as client	Yes; via integrated PROFINET interface and loadable FB or via CP and loadable FB
User data per job, max	See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication)
S5 compatible communication	
• supported	Yes; via CP and loadable FC
Number of connections	
• overall	32

usable for PG communication	31
 reserved for PG communication 	1
 adjustable for PG communication, min. 	1
adjustable for PG communication, max.	31
usable for OP communication	31
— reserved for OP communication	1
adjustable for OP communication, min.	1
adjustable for OP communication, max.	31
usable for S7 basic communication	30
reserved for S7 basic communication	0
	0
adjustable for S7 basic communication, min.	30
 — adjustable for S7 basic communication, max. • usable for S7 communication 	16
— reserved for S7 communication	0
— adjustable for S7 communication, min.	0
— adjustable for S7 communication, max.	16
total number of instances, max.	32
usable for routing	X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max.
S7 message functions	
Number of login stations for message functions, max.	32; 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; without continuation
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
Number of variables, max.	10
Diagnostic buffer	10
• present	Yes
Number of entries, max.	500
— adjustable	No
— of which powerfail-proof	100; Only the last 100 entries are retained
Number of entries readable in RUN, max.	499 Van Franc 40 to 400
— adjustable	Yes; From 10 to 499
— preset	10
Service data	V
• can be read out	Yes
Interrupts/diagnostics/status information	
Alarms	No
Diagnostics function	No
Diagnostics indication LED	
 Status indicator digital input (green) 	Yes
Status indicator digital output (green)	Yes
Potential separation	
Potential separation digital inputs	
between the channels and backplane bus	Yes
Potential separation digital outputs	
 between the channels and backplane bus 	Yes
Isolation	
Isolation tested with	500 V DC

Ambient conditions	
Ambient temperature during operation	
• min.	0°C
• max.	60 °C
configuration / header	
Configuration software	
• STEP 7	Yes; STEP 7 V5.5 SP2 or higher and S7-Technology option package V4.2 SP3
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
— CFC	Yes
— GRAPH	Yes
— HiGraph®	Yes
Know-how protection	
 User program protection/password protection 	Yes
Block encryption	Yes; With S7 block Privacy
Dimensions	
Width	120 mm
Height	125 mm
Depth	130 mm
Weights	
Weight, approx.	640 g

last modified:

9/7/2023