Data sheet

*** SPARE PART*** SIMATIC S7-300, CPU 315T-2 DP, CENTRAL PROCESSING UNIT FOR PLC AND TECHNOLOGY 256 KBYTE WORKING MEMORY, 1. INTERFACE MPI/DP 12MBIT/S 2. INTERFACE DP(DRIVE), INTEGRATED I/O FOR TECHNOLOGY FRONT CONNECTOR (1 X 40PIN) AND MICRO MEMORY CARD MIN. 8 MB NECESSARY



General information	
Hardware product version	01
Firmware version	CPU: V2.7, integrated technology: V4.1.5
Engineering with	
Programming package	STEP 7 V5.4 + SP5 (and higher) and Optional package S7- Technology V4.2
Supply voltage	
Rated value (DC)	
• 24 V DC	Yes
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
external protection for power supply lines (recommendation)	2 A min.
Load voltage L+	
● Rated value (DC)	24 V
 Reverse polarity protection 	Yes
Digital outputs	
— Rated value (DC)	24 V; (2L+)
 Reverse polarity protection 	No; (2L+)

Input current	
Current consumption (in no-load operation), typ.	200 mA
Inrush current, typ.	2.5 A
² t	1 A²·s
Power loss	
Power loss, typ.	6 W
Memory	
Work memory	
• integrated	256 kbyte
• expandable	No
Load memory	
● Plug-in (MMC)	Yes
Plug-in (MMC), max.	8 Mbyte
 Data management on MMC (after last programming), min. 	10 y
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 bit operations, max.	0.1 μs
for word operations, typ.	0.2 µs
for fixed point arithmetic, typ.	2 µs
for floating point arithmetic, typ.	3 µs
CPU-blocks	
Number of blocks (total)	1 024; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.
DB	can be reduced by the wilvio used.
Number, max.	1 023; Number band: 1 to 1023
• Size, max.	64 kbyte
FB	
• Number, max.	1 024; Number range: 0 to 2047
• Size, max.	64 kbyte
FC	
Number, max.	1 024; Number range: 0 to 2047
• Size, max.	64 kbyte
OB	
Description	see instruction list
• Size, max.	64 kbyte
Size, max.Number of free cycle OBs	64 kbyte 1; OB 1

 Number of delay alarm OBs 	1; OB 20
 Number of cyclic interrupt OBs 	1; OB 35
 Number of process alarm OBs 	1; OB 40
 Number of DPV1 alarm OBs 	3; OB 55, 56, 57
 Number of isochronous mode OBs 	1; OB 61
 Number of technology synchronous alarm OBs 	1; OB 65
 Number of startup OBs 	1; OB 100
 Number of asynchronous error OBs 	5; OB 80, 82, 85, 86, 87
 Number of synchronous error OBs 	2; OB 121, 122
Nesting depth	
per priority class	8
 additional within an error OB 	4
Counters, timers and their retentivity	

S7 counter	
• Number	256; Number range: 0 to 255
Retentivity	
— adjustable	Yes
— preset	8
Counting range	
— can be set	Yes
— lower limit	0
— upper limit	999
EC counter	
Number	Unlimited (limited only by RAM capacity)
S7 times	
Number	256; Number range: 0 to 255
Retentivity	
— adjustable	Yes
— preset	No retentivity
Time range	
— lower limit	10 ms
— upper limit	9 990 s
EC timer	
• present	Yes
• Type	SFB
Number	Unlimited (limited only by RAM capacity)

Data areas and their retentivity	
retentive data area in total	All DBs, max. 128 KB
Flag	
Number, max.	2 048 byte
Retentivity available	Yes; MB 0 to MB 2047

Retentivity preset	MB 0 to MB 15
Number of clock memories	8; 1 memory byte
Data blocks	
Number, max.	1 023; From DB 1 to DB 1023
• Size, max.	64 kbyte
Retentivity adjustable	Yes; via non-retain property on DB
Retentivity preset	Yes
Local data	
• per priority class, max.	1 024 byte
Address area	
I/O address area	
● Inputs	2 048 byte
Outputs	2 048 byte
of which distributed	
— Inputs	2 048 byte
— Outputs	2 048 byte
Process image	
● Inputs, adjustable	2 048 byte
Outputs, adjustable	2 048 byte
• Inputs, default	128 byte
 Outputs, default 	128 byte
Default addresses of the integrated channels	
— Digital inputs	66
— Digital outputs	66
Subprocess images	
 Number of subprocess images, max. 	1
Digital channels	
• Inputs	16 384
— of which central	512
Outputs	16 384
— of which central	512
Analog channels	
• Inputs	1 024
— of which central	64
Outputs	1 024
— 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	10
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
Operating hours counter	
• Number	1
Number/Number range	0
Range of values	0 to 2^31 hours (when using SFC 101)
Granularity	1 hour
• retentive	Yes; Must be restarted at each restart
Clock synchronization	
• supported	Yes
• to MPI, master	Yes
● to MPI, slave	Yes
• to DP, master	Yes
• to DP, slave	Yes
• in AS, master	Yes
• in AS, slave	Yes
Digital inputs	
Number of digital inputs	4
 of which inputs usable for technological functions 	4
Input characteristic curve in accordance with IEC 61131, type 1	Yes
Number of simultaneously controllable inputs	
horizontal installation	
— 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"	• for signal "0"	-3 to +5V
Input current • for signal "1", typ. Input delay (for rated value of input voltage) for counter/technological functions — at "0" to "1", max. — at "1" to "0", max. — at "1" to "0", max. • shielded, max. 10 µs; Typical		+15 to +30V
• for signal "1", typ. 7 mA Input delay (for rated value of input voltage) for counter/technological functions — at "0" to "1", max. 10 µs; Typical — at "1" to "0", max. 10 µs; Typical • shielded, max. 1000 m Digital outputs • of which high-speed outputs 8 • of which high-speed outputs 8 Functions For technology functions, e.g. high-speed cam switch signals 9 Functions For technology functions, e.g. high-speed cam switch signals 9 Functions For technology functions, e.g. high-speed cam switch signals 9 Functions For technology functions, e.g. high-speed cam switch signals 9 Functions For technology functions, e.g. high-speed cam switch signals 9 Functions For technology functions, e.g. high-speed cam switch signals 9 Functions For technology functions, e.g. high-speed cam switch signals 9 For technology	<u> </u>	
Input delay (for rated value of input voltage) for counter/technological functions		7 mA
For counter/technological functions	· · · · · · · · · · · · · · · · · · ·	
Cable length • shielded, max. 1 000 m Digital outputs Number of digital outputs • of which high-speed outputs Functions Short-circuit protection • Response threshold, typ. 1 A Limitation of inductive shutdown voltage to Controlling a digital input No Switching capacity of the outputs • for signal "1" max. • for signal "1", min. Output voltage • for signal "1" rated value • 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. • for outputs of the outputs • for uprating • for redundant control of a load Switching requency • with resistive load, max. • with inductive load, max. • output loutput lout loud, max. • output loutput loutputs • for uprating • for redundant control of a max. • output loutput loutputs • for uprating • for redundant control of a load Switching frequency • with resistive load, max. • outputs load, max. • load load load load load load load load		10 µs; Typical
Cable length • shielded, max. 1 000 m Digital outputs Number of digital outputs • of which high-speed outputs 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. 1 S W Load resistance range • lower limit • upper limit • upper limit • upper limit • for signal "1", min. Cutput voltage • for signal "1", min. Rated voltage -2.5 V Cutput current • for signal "1" rated value • 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. • for uprating • for uprating • for redundant control of a load No Switching frequency • with resistive load, max. • output signal max. • output signa		
Short-circuit protection Response threshold, typ. Limitation of inductive shutdown voltage to On lamp load, max. Switching capacity of the outputs I of signal "1", max. I of signal "1" permissible range for 0 to 60 "C, max. For signal "1" permissible range for 0 to 60 "C, max. I of or uprating I of or uprating I of or redundant control of a load Switching fequency I on lamp load, max. I output voltage I of or signal "1" permissible range for 0 to 60 "C, max. I of or signal "1" permissible range for 0 to 60 "C, max. I of or uprating I on uptating I on the sistative load, max. I on Jamp load, max. I on lamp load,	·	- F-2 2F
Number of digital outputs • of which high-speed outputs • of which high-speed outputs Functions For technology functions, e.g. high-speed cam switch signals Short-circuit protection • Response threshold, typ. Limitation of inductive shutdown voltage to Controlling a digital input • on lamp load, max. • on lamp load, max. • on lamp load, max. • on signal "1" rated value • for signal "1" permissible range for 0 to 60 °C, max. • for signal "1" permissible range for 0 to 60 °C, max. • for output outputs • for uprating • for uprating • for redundant control of a load Switching frequency • with resistive load, max. • on lamp load, max. 100 Hz Output counces 100 Hz		1 000 m
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. Limitation of inductive shutdown voltage to Controlling a digital input No Switching capacity of the outputs on lamp load, max. SW Load resistance range lower limit upper limit strong all "0", max. for signal "0", max. for signal "1" rated value for signal "1" rated value for signal "1" permissible range for 0 to 60 °C, max. for signal "0" residual current, max. for signal "0" residual current, max. No Parallel switching of two outputs output current for uprating for or redundant control of a load Switching frequency with resistive load, max. on lamp load, max. 100 Hz Output current of the outputs (per group)		
Functions For technology functions, e.g. high-speed cam switch signals Short-circuit protection Response threshold, typ. Limitation of inductive shutdown voltage to Controlling a digital input No Switching capacity of the outputs on lamp load, max. SW Load resistance range lower limit upper limit Output voltage of or signal "0", max. of or signal "1", min. Rated voltage -2.5 V Cutput current of or signal "1" permissible range for 0 to 60 °C, max. of or signal "1" permissible range for 0 to 60 °C, max. of or signal "0" residual current, max. of or		
Functions For technology functions, e.g. high-speed cam switch signals Short-circuit protection Response threshold, typ. 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 upper limit for signal "0", max. for signal "1", min. Suttly current of or signal "1" rated value for signal "1" permissible range for 0 to 60 °C, max. for signal "1" residual current, max. of or signal "0" residual current, max. No Parallel switching of two outputs of or uprating for uprating for redundant control of a load Switching frequency with resistive load, max. on lamp load, max. 100 Hz Total current of the outputs (per group)		
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 48 Ω • lower 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" 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 "0" residual current, max. 0.3 mA Parallel switching of two outputs • for uprating No • for uprating No • for redundant control of a load No Switching frequency • with resistive load, max. 100 Hz • with inductive load, max. 0.2 Hz; According to IEC 60947-5-1, DC-13 • on lamp load, max. 100 Hz		
Response threshold, typ. Limitation of inductive shutdown voltage to 48 V Controlling a digital input No Switching capacity of the outputs on lamp load, max. Load resistance range lower limit quiper limit 48 Ω upper limit 44 κΩ Output voltage for signal "1", min. Rated voltage -2.5 V Output current 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, min. for signal "0" residual current, max. for signal "0" residual current, max. for or signal "0" residual current, max. for uprating for uprating for uprating for redundant control of a load Switching frequency with resistive load, max. with inductive load, max. for lamp load, max. loo Hz Total current of the outputs (per group)		
Limitation of inductive shutdown voltage to Controlling a digital input on lamp load, max. on lamp load, max. lower limit upper limit of risignal "1", min. of or signal "1" permissible range for 0 to 60 °C, max. of or signal "1" permissible range for 0 to 60 °C, max. of or signal "0" residual current, max. of or signal "0" residual current, max. of or or uprating of or uprating of or redundant control of a load Switching frequency with resistive load, max. on lamp load, max.	·	
Controlling a digital input No Switching capacity of the outputs 5 W • on lamp load, max. 5 W Load resistance range 48 Ω • lower limit 4 kΩ • upper limit 4 kΩ Output voltage 6 for signal "0", max. 3 V; (2L+) • for signal "1", min. Rated voltage -2.5 V Output current 0.5 A 5 mA • for signal "1" permissible range for 0 to 60 °C, min. 5 mA 6 for signal "1" permissible range for 0 to 60 °C, max. 6 for signal "0" residual current, max. 0.6 A Parallel switching of two outputs 0.3 mA Parallel switching of two outputs No • for uprating No • for redundant control of a load No Switching frequency • with resistive load, max. 100 Hz • with inductive load, max. 0.2 Hz; According to IEC 60947-5-1, DC-13 • on lamp load, max. 100 Hz		
Switching capacity of the outputs on lamp load, max. load resistance range lower limit upper limit 48 Ω 4 kΩ Output voltage for signal "0", max. 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. for signal "0" residual current, max. No Parallel switching of two outputs for or dundant control of a load Switching frequency with resistive load, max. with inductive load, max. on lamp load, max. on lamp load, max. look A SW Total current of the outputs (per group)	•	
• on lamp load, max. Load resistance range • lower limit • upper limit • 48 Ω 4 kΩ Output voltage • for signal "0", max. • 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. • for signal "0" residual current, max. • for uprating • for redundant control of a load Switching frequency • with resistive load, max. • with inductive load, max. • on lamp load, max. • Total current of the outputs (per group)		No
Load resistance range • lower limit • upper limit • kΩ Output voltage • for signal "0", max. • 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. • for uprating • for uprating • for uprating • with resistive load, max. • with inductive load, max. • on lamp load, max. • on lamp load, max. • total current of the outputs (per group)	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. for signal "0" residual current, max. O.5 A 0.6 A Parallel switching of two outputs of or uprating of or redundant control of a load No Switching frequency with resistive load, max. with inductive load, max. on lamp load, max. tool Hz Total current of the outputs (per group)	• on lamp load, max.	5 W
• upper limit Output voltage • for signal "0", max. • 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, min. • for signal "1" permissible range for 0 to 60 °C, max. • for signal "0" residual current, max. • for uprating • for uprating • for redundant control of a load Switching frequency • with resistive load, max. • with inductive load, max. • on lamp load, max. • on lamp load, max. Total current of the outputs (per group)	Load resistance range	
Output voltage • for signal "0", max. • 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, min. • for signal "1" permissible range for 0 to 60 °C, max. • for signal "0" residual current, max. • for uprating • for uprating • for redundant control of a load Switching frequency • with resistive load, max. • with inductive load, max. • on lamp load, max. • on lamp load, max. Total current of the outputs (per group)	• 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. for signal "0" residual current, max. Parallel switching of two outputs for uprating for redundant control of a load Switching frequency with resistive load, max. with inductive load, max. on lamp load, max. on lamp load, max. Total current of the outputs (per group) suppose the voltage -2.5 V Rated voltage -2.5 V Rated voltage -2.5 V No SmA no. No A No No No No Switching frequency with inductive load, max. 100 Hz Total current of the outputs (per group)	• 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. for signal "0" residual current, max. No Parallel switching of two outputs for uprating for redundant control of a load Switching frequency with resistive load, max. with inductive load, max. on lamp load, max. on lamp load, max. Total current of the outputs (per group) Parallel voltage -2.5 V Output O	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. • for signal "0" residual current, max. • for uprating • for redundant control of a load Switching frequency • with resistive load, max. • with inductive load, max. • on lamp load, max. • on lamp load, max. • Total current of the outputs (per group)	● 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. for uprating for redundant control of a load Switching frequency with resistive load, max. with inductive load, max. on lamp load, max. for uprating loud Hz with resistive load, max. loud Hz Total current of the outputs (per group)	● 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. for uprating for redundant control of a load Switching frequency with resistive load, max. with inductive load, max. on lamp load, max. Total current of the outputs (per group) smA 0.6 A No No No No No 100 Hz 0.2 Hz; According to IEC 60947-5-1, DC-13	Output current	
min. • for signal "1" permissible range for 0 to 60 °C, max. • for signal "0" residual current, max. 0.3 mA Parallel switching of two outputs • for uprating • for redundant control of a load Switching frequency • with resistive load, max. • with inductive load, max. • on lamp load, max. Total current of the outputs (per group)	● for signal "1" rated value	0.5 A
max. • for signal "0" residual current, max. 0.3 mA Parallel switching of two outputs • for uprating • for redundant control of a load No Switching frequency • with resistive load, max. • with inductive load, max. • on lamp load, max. Total current of the outputs (per group)		5 mA
Parallel switching of two outputs • for uprating • for redundant control of a load No Switching frequency • with resistive load, max. • with inductive load, max. • on lamp load, max. Total current of the outputs (per group)		0.6 A
 for uprating for redundant control of a load No Switching frequency with resistive load, max. with inductive load, max. on lamp load, max. Total current of the outputs (per group) No No No No 100 Hz 100 Hz Total current of the outputs (per group)	• for signal "0" residual current, max.	0.3 mA
 for redundant control of a load Switching frequency with resistive load, max. with inductive load, max. on lamp load, max. Total current of the outputs (per group) No No Switching frequency 0.2 Hz According to IEC 60947-5-1, DC-13 100 Hz Total current of the outputs (per group)	Parallel switching of two outputs	
Switching frequency • with resistive load, max. • with inductive load, max. • on lamp load, max. 100 Hz 100 Hz 100 Hz 100 Hz 100 Hz	• for uprating	No
 with resistive load, max. with inductive load, max. on lamp load, max. Total current of the outputs (per group) 	for redundant control of a load	No
 with resistive load, max. with inductive load, max. on lamp load, max. Total current of the outputs (per group) 	Switching frequency	
 with inductive load, max. on lamp load, max. Total current of the outputs (per group) 		100 Hz
• on lamp load, max. 100 Hz Total current of the outputs (per group)		0.2 Hz; According to IEC 60947-5-1, DC-13
Total current of the outputs (per group)		
	•	

— up to 40 °C, max.	4 A
— up to 60 °C, max.	3 A
all other mounting positions	
— up to 40 °C, max.	3 A
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	0
Number of RS 485 interfaces	2
Number of RS 422 interfaces	0
1. Interface Interface type	Integrated RS 485 interface
Physics	RS 485
Isolated	Yes
Power supply to interface (15 to 30 V DC), max.	200 mA
Functionality	200 11# 1
• MPI	Yes
PROFIBUS DP master	Yes
PROFIBUS DP slave	Yes
Point-to-point connection	No
MPI	
Number of connections	32
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 — S7 communication, as client	No; but via CP and loadable FB
S7 communication, as server	Yes; Connection configured on one side only
DP master	. 25, 25 mission comigator on one one only
• Transmission rate, max.	12 Mbit/s
Transmission rate, max.	

Services - PG/OP communication Yes - Routing Yes - Global data communication No - S7 basic communication Yes; I blocks only - S7 communication, as client No; but via CP and loadable FB - S7 communication, as server Yes; Connection configured on one side only - Equidistance Yes - Isochronous mode Yes: OB 61 - SYNC/FREEZE Yes - Activation/deactivation of DP slaves Yes - OPV1 Yes - Address area - Inputs, max. 2048 byte - User data per DP slave - Inputs, max. 244 byte - User data per DP slave - Inputs, max. 244 byte - Outputs, max. 244 byte - Address area, max. 32 - User data per address area, max. 32 - User data per address area, max. 32 - User data per address area, max. 32 - FROUTING Services - PG/OP communication No - S7 communication Yes - S8 consection configured on one side only - Yes - Outputs - Outputs - Outputs - Let face - Interface	 Number of DP slaves, max. 	124
Routing Yes Global data communication No Yes; I blocks only Yes Sasic communication Yes; I blocks only Yes Sasic communication Yes; I blocks only Yes Sasic communication, as client No; but via CP and loadable FB Yes; Connection configured on one side only Yes Sasic communication, as server Yes; Connection configured on one side only Yes; Connection configured on Yes; Connection configured Yes; Connection configured Yes; Connection configured	Services	
Global data communication Global data communication S7 basic communication S7 communication S7 communication S7 communication, as client S7 communication, as server Gquidistance Isochronous mode S8 NOC/FREZE Activation/deactivation of DP slaves PPV1 Address area Inputs, max. Outputs, max. Outputs, max. Outputs, max. Outputs, max. 244 byte Transmission rate, max. automatic baud rate search Address area, max. User data per address area, max. User data per address area, max. User data per address area, max. Services PG/OP communication S7 basic communication S7 basic communication S7 communication, as server Direct data exchange (slave-to-slave communication) DPV1 Transfer memory Inputs Outputs Address area No No Ves Connection configured on one side only Yes Connection configured on one side only Yes Connection configured on one side only Yes No, but via CP and loadable FB Yes Connection configured on one side only Yes Connection configured on one side only Yes Communication, DPV1 Transfer memory Inputs Outputs 244 byte 2. Interface	— PG/OP communication	Yes
S7 basic communication S7 communication S7 communication, as client S7 communication, as client S7 communication, as client S7 communication, as server Equidistance S8 connection configured on one side only Yes S9 Connection Connection Configured on one side only Yes S9 Connection configured on one side only Yes Connection configured connection Connection configured connection Connection configured connection Connectio	— Routing	Yes
- S7 communication, as client - S7 communication, as server - S7 communication, as server - S7 communication, as server - Equidistance - Isochronous mode - SYNC/FREEZE - Activation/deactivation of DP slaves - DPV1 - Inputs, max Outputs, max Outputs	 Global data communication 	No
S7 communication, as client S7 communication, as server S7 communication, as server Ves; Connection configured on one side only Yes Lequidistance Isochronous mode SYNC/FREEZE Activation/deactivation of DP slaves DPV1 Address area Inputs, max. Outputs, max. Outputs, max. Outputs, max. Ves 12 44 byte Inputs, max. Address area, max. Vere Transmission rate, max. User data per address area, max. Veservices PG/OP communication S7 communication S7 communication, as client S7 communication, as client S7 communication, as server Direct data exchange (slave-to-slave communication) DPV1 Transfer memory Inputs Outputs PG/Otputs	 — S7 basic communication 	Yes; I blocks only
- S7 communication, as server - Equidistance - Isochronous mode - SYNC/FREEZE - Activation/deactivation of DP slaves - DPV1 - Address area - Inputs, max Outputs, max Ou	— S7 communication	Yes
- Equidistance Yes; OB 61 - SYNC/FREZE Yes - Activation/deactivation of DP slaves Yes - DPV1 Yes Address area - Inputs, max. 2048 byte - Outputs, max. 244 byte - Inputs, max. 32 - Outputs, max. 32 - Outputs, max. 32 - Outputs, max. 32 - Outputs area, max. 32 - Outputs	 — S7 communication, as client 	No; but via CP and loadable FB
- Isochronous mode - SYNC/FREZE - Activation/deactivation of DP slaves - DPV1 - Address area - Inputs, max Outputs, max 12 Mbit/s - Outputs, max 12 Mbit/s - Outputs, max Outputs,	 S7 communication, as server 	Yes; Connection configured on one side only
- SYNC/FREEZE - Activation/deactivation of DP slaves - DPV1 Yes Address area - Inputs, max Outputs, max. 2 048 byte User data per DP slave - Inputs, max. 2 444 byte Outputs, max. 2 12 Mbit/s • Transmission rate, max. • User data per address area, max. • User data per address area, max. 3 2 • User data per address area, max. 3 2 • User data per address area, max. • User data per address area, max. Services - PG/OP communication - Routing - Routing - Global data communication - S7 basic communication - S7 communication - S7 communication - S7 communication, as client - S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs - Outputs 2 Interface	— Equidistance	Yes
— Activation/deactivation of DP slaves — DPV1 Yes Address area — Inputs, max. 2 048 byte — Outputs, max. 2 048 byte User data per DP slave — Inputs, max. 244 byte — Outputs, max. 244 byte — Outputs, max. 244 byte DP slave • Transmission rate, max. 12 Mbits • automatic baud rate search No • Address area, max. 32 • User data per address area, max. 32 byte Services — PG/OP communication Yes — Routing Yes; Only with active interface No — S7 basic communication No — S7 communication Yes — S7 communication, as client No; but via CP and loadable FB — S7 communication, as server Yes; Connection configured on one side only — Direct data exchange (slave-to-slave communication) — DPV1 No Transfer memory — Inputs — Outputs 2. Interface	— Isochronous mode	Yes; OB 61
— DPV1 Address area — Inputs, max. — Outputs, max. — 12 Mbit/s — automatic baud rate search — No — Address area, max. — 12 Mbit/s — Outputs area, max. — 32 — User data per address area, max. — Services — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 No Transfer memory — Inputs — Outputs 244 byte 2. Interface	— SYNC/FREEZE	Yes
Address area - Inputs, max Outputs, max. 2 048 byte User data per DP slave - Inputs, max. 244 byte - Outputs, max. 244 byte DP slave • Transmission rate, max. • automatic baud rate search • Address area, max. 32 • User data per address area, max. 32 • User data per address area, 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 - Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs - Outputs - Outputs - User data beta per address area, max 12 Mbit/s - 244 byte - 244 byte - 244 byte - Outputs - 244 byte - Outputs - 244 byte - 244 byte - 255 communication - 10 country count	 Activation/deactivation of DP slaves 	Yes
- Inputs, max Outputs, max Outputs, max. 2 048 byte User data per DP slave - Inputs, max Outputs, max. 244 byte DP slave • Transmission rate, max. • automatic baud rate search • Address area, max. • User data per address area, max. 32 • User data per address area, 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 client - S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs - Outputs 2 44 byte 2 Interface	— DPV1	Yes
	Address area	
User data per DP slave Inputs, max Outputs, max Outputs	— Inputs, max.	2 048 byte
Inputs, max Outputs, max Outputs, max Outputs, max Outputs, max Outputs, max Outputs, max. Outputs, max Outputs Outputs, max Outputs Outputs, max Outputs Outputs, max Outputs Output	— Outputs, max.	2 048 byte
Outputs, max. DP slave • Transmission rate, max. • automatic baud rate search • Address area, max. • User data per address area, max. • User data per address area, max. PG/OP communication Routing Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication S7 communication S7 communication, as client S7 communication, as server Direct data exchange (slave-to-slave communication) DPV1 Transfer memory Inputs Outputs 244 byte 2. Interface	User data per DP slave	
P slave ● Transmission rate, max. • automatic baud rate search • Address area, max. • User data per address area, max. — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication — S7 communication — S7 communication, as client — S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 Transfer memory — Inputs — Outputs 12 Mbit/s No No No Yes 32 9 byte Services Yes Only with active interface No No No No No No Yes Connection configured on one side only Yes Connection configured on one side only Yes Communication) — DPV1 No Transfer memory — Inputs — Outputs 244 byte 2. Interface	— Inputs, max.	244 byte
Transmission rate, max. automatic baud rate search Address area, max. User data per address area, max. PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication S7 communication S7 communication, as client S7 communication, as server S8 communication S9 communication, as server S9 connection configured on one side only Yes Communication) DPV1 No Transfer memory Inputs Diputs S44 byte S44 byte S44 byte S45 connection configured on configured configured on configured configured on configured on configured on configured on configured confi	— Outputs, max.	244 byte
automatic baud rate search Address area, max. User data per address area, max. PG/OP communication Routing Global data communication S7 basic communication S7 communication S7 communication, as client S7 communication, as server Direct data exchange (slave-to-slave communication) DPV1 Transfer memory Inputs Outputs No 32 No 32 No 32 No 32 Services Yes Only with active interface No No No No No No No No No N	DP slave	
Address area, max. User data per address area, max. 22 User data per address area, max. 32 Bervices	• Transmission rate, max.	12 Mbit/s
User data per address area, max. Services - PG/OP communication Yes - Routing Yes; Only with active interface - Global data communication No - S7 basic communication Yes - S7 communication Yes - S7 communication Yes - S7 communication, as client No; but via CP and loadable FB - S7 communication, as server Yes; Connection configured on one side only - Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs 244 byte - Outputs 2. Interface	 automatic baud rate search 	No
Services - PG/OP communication - Routing - Global data communication - S7 basic communication - S7 communication - S7 communication - S7 communication, as client - S7 communication, as server - S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs - Outputs 2. Interface	 Address area, max. 	32
PG/OP communication Routing 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 Direct data exchange (slave-to-slave communication) DPV1 DPV1 No Transfer memory Inputs Outputs Outputs Interface	 User data per address area, max. 	32 byte
 Routing Global data communication S7 basic communication No S7 communication S7 communication S7 communication, as client S7 communication, as server S7 communication, as server Pirect data exchange (slave-to-slave communication) DPV1 No Transfer memory Inputs Outputs 244 byte Interface 	Services	
— Global data communication — S7 basic communication — S7 communication — S7 communication — S7 communication, as client — S7 communication, as server — S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 No Transfer memory — Inputs — Outputs No No No No No 244 byte 244 byte	— PG/OP communication	Yes
- S7 basic communication - S7 communication - S7 communication, as client - S7 communication, as server - S7 communication, as server - S7 communication, as server - Direct data exchange (slave-to-slave communication) - DPV1 - No Transfer memory - Inputs - Outputs 2. Interface	— Routing	Yes; Only with active interface
- S7 communication Yes - S7 communication, as client No; but via CP and loadable FB - S7 communication, as server Yes; Connection configured on one side only - Direct data exchange (slave-to-slave communication) - DPV1 No Transfer memory - Inputs 244 byte - Outputs 244 byte 2. Interface	 Global data communication 	No
— S7 communication, as client — S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 Transfer memory — Inputs — Outputs No; but via CP and loadable FB Yes; Connection configured on one side only Yes Yes Yes Yes Yes Yes Yes Yes	 — S7 basic communication 	No
 — S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 No Transfer memory — Inputs — Outputs 244 byte 244 byte 244 byte 	— S7 communication	Yes
 — Direct data exchange (slave-to-slave communication) — DPV1 No Transfer memory — Inputs — Outputs 244 byte 244 byte 244 byte 	 S7 communication, as client 	No; but via CP and loadable FB
communication) — DPV1 No Transfer memory — Inputs 244 byte — Outputs 244 byte 2. Interface	 S7 communication, as server 	Yes; Connection configured on one side only
Transfer memory — Inputs — Outputs 244 byte 244 byte 2 Interface		Yes
 — Inputs — Outputs 244 byte 244 byte 2. Interface	— DPV1	No
— Outputs 244 byte 2. Interface	Transfer memory	
2. Interface	— Inputs	244 byte
	— Outputs	244 byte
Interface type Integrated RS 485 interface	2. Interface	
	Interface type	Integrated RS 485 interface

Physics	RS 485
Isolated	Yes
Power supply to interface (15 to 30 V DC), max.	200 mA
Functionality	
● MPI	No
 PROFIBUS DP master 	Yes; DP(DRIVE)-Master
 PROFIBUS DP slave 	No
Point-to-point connection	No
DP master	
Transmission rate, max.	12 Mbit/s
Number of DP slaves, max.	64
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
— Outputs, max.	1 024 byte
User data per DP slave	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
DP slave	
● GSD file	http://www.ad.siemens.de/support in Product Support area
• Transmission rate, max.	12 Mbit/s
Communication functions	
PG/OP communication	Yes
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
 Size of GD packet (of which consistent), max. 	22 byte

S7 basic communication	
• supported	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), 76 bytes (with X_PUT or X_GET as server)
S7 communication	
• supported	Yes
• as server	Yes
• as client	Yes; 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	16
 usable for PG communication 	15
 reserved for PG communication 	1
 adjustable for PG communication, min. 	1
 adjustable for PG communication, max. 	15
 usable for OP communication 	15
 reserved for OP communication 	1
 adjustable for OP communication, min. 	1
 adjustable for OP communication, max. 	15
 usable for S7 basic communication 	12
 reserved for S7 basic communication 	0
 adjustable for S7 basic communication, min. 	0
— adjustable for S7 basic communication,	12
max. ■ usable for routing	8; additional
S7 message functions	
Number of login stations for message functions, max.	16; Depending on the configured connections for PG/OP and S7 basic communication
Process diagnostic messages	Yes
simultaneously active Alarm-S blocks, max.	40
Test commissioning functions	
Status block	Yes
Single step	Yes
Number of breakpoints	2
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	
• present	Yes
 Number of entries, max. 	100
— adjustable	No
Interrupts/diagnostics/status information	
Alarms	No
Diagnostic functions	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
Permissible potential difference	
between different circuits	75 V DC/60 V AC
Isolation	
Isolation tested with	500 V DC
Ambient conditions	
Ambient temperature during operation	
• min.	0 °C
• max.	0°C
Configuration	
Configuration software	
• STEP 7	Yes; V5.2 SP1 or higher and S7 Technology option package
Programming	
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
Cycle time monitoring	
• lower limit	1 ms
• upper limit	6 000 ms
• adjustable	Yes
• preset	150 ms
Dimensions	
Width	160 mm
Height	125 mm
Depth	130 mm
Weights	
Weight, approx.	750 g
last modified:	08/28/2017