SIEMENS

Data sheet

6ES7151-8FB01-0AB0



Figure similar

SIMATIC DP, IM151-8F PN/DP CPU f. ET200S, 256 KB work memory, int. PROFINET interface (with three RJ45 ports) as IO controller/l-device without battery, MMC required

General information	
HW functional status	01
Firmware version	V3.2
Product function	
Isochronous mode	No
Engineering with	
Programming package	as of STEP 7 V5.5, Distributed Safety V5.4 SP4 or as of STEP 7 TIA Portal V11
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes; against destruction
external protection for power supply lines (recommendation)	2 A min.
Mains buffering	
 Mains/voltage failure stored energy time 	5 ms
Input current	
Inrush current, typ.	1.8 A
l²t	0.13 A ² ·s
from supply voltage 1L+, max.	352 mA; 426 mA with DP master module
Output current	
for backplane bus (5 V DC), max.	700 mA
Power loss	
Power loss, typ.	5.5 W
Memory	
Work memory	
• integrated	256 kbyte; For program and data
• 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; Ensured by SIMATIC Micro Memory Card (maintenance-free)
CPU processing times	
for bit operations, typ.	0.06 µs

for word operations, two	0.12 με
for word operations, typ.	0.12 μs
for fixed point arithmetic, typ.	0.16 μs
for floating point arithmetic, typ.	0.59 μs
CPU-blocks	4004 (PR 50 5R) (I
Number of blocks (total)	1 024; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.
DB	
Number, max.	1 024; Number range: 1 to 16000
• Size, max.	64 kbyte
FB	
Number, max.	1 024; Number range: 0 to 7999
• Size, max.	64 kbyte
FC	
Number, max.	1 024; Number range: 0 to 7999
• Size, max.	64 kbyte
OB	
Number, max.	See S7-300 operation list
• Size, max.	64 kbyte
 Number of free cycle OBs 	1; OB 1
 Number of time alarm OBs 	1; OB 10
 Number of delay alarm OBs 	2; OB 20, 21
 Number of cyclic interrupt OBs 	4; OB 32, 33, 34, 35
 Number of process alarm OBs 	1; OB 40
Number of DPV1 alarm OBs	3; OB 55, 56, 57
 Number of isochronous mode OBs 	1; OB 61; only for PROFINET
 Number of startup OBs 	1; OB 100
 Number of asynchronous error OBs 	6; OB 80, 82, 83, 85, 86, 87 (OB83 only for centralized I/O and 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	256
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	255
— 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	256
Retentivity	
— adjustable	Yes
-	0
— lower limit	255
— lower limit — upper limit	
— upper limit	No retentivity
— upper limit — preset	No retentivity
— upper limit — preset Time range	
upper limit preset Time range lower limit	10 ms
— upper limit — preset Time range	

Number Unlimited (limited only by RAM capacity) Dista crass and their rotentivity Retentive data area (ind. timers. counters, flags), max. Filing Size, max. Retentivity available Retentivity preset Number of clock memories Number of clock memories Number of violation from the color of the colo	• Type	SFB
Potentive data area (incl. timers, counters, flags), max.		
Filipa Size, max		Character (miniot only 2) to an expectly
Size		64 khyte
Size, max 2.56 byte		04 Noyte
Retentivity variable Retentivity preset Number of clock memories Retentivity preset Prese Retentivity preset Retentivity preset Prese Retentivity preset Prese Retentivity preset Prese Profits 2 Prese P		256 hyte
Retentivity preset		
Number of clock memories 8; 1 memory byte		
Data blocks		
Retentivity adjustable		o, i memory byte
National Property Ves		Ves: via non-retain property on DR
Per priority class, max. 32 788 byte; Max. 2048 bytes per block		
		1 65
Address area		32 768 hyte: Max. 2048 hytes per block
Inputs		32 700 byte, max. 2040 bytes per block
• Inputs		
Outputs of which distributed — Inputs — Outputs — Outputs, adjustable — Outputs, adjustable — Outputs, adjustable — Outputs, default — Outputs — Number of wsubprocess images, max. — Inputs — of which central — Outputs — of which central — Outputs — of which central — Outputs — of which central — Number of moudles per system, max. — Outputs — Outputs — Outputs — Outputs — Outputs — of which central — Packed on the color of system on t		2.049 buto
of which distributed Inputs Outputs Outputs Outputs Outputs Outputs Outputs Outputs, adjustable Outputs, adjustable Outputs, default Outputs Output		
- Inputs	·	Z UHO DYLE
Process image		2.048 byte
Process image	•	·
 Inputs, adjustable Outputs, default Outputs, default Outputs, default Outputs, default Outputs, default 128 byte Outputs, default Outputs, default 128 byte 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 of which central Outputs of which central 1021 of which central 124 Outputs Outputs 1021 of which central 124 Hardware configuration Number of modules per system, max. Assignment of mounting rails that can be used Length of mounting rail, max. Station width: ≤ 1 m or < 2 m Time of day Clock Hardware clock (real-time) retentive and synchronizable Beakupt time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following POWER-ON Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Operating hours counter Number Number Number Number Number Number Number Range of values O to 2°31 hours (when using SFC 101) ferentive Yes; Must be restarted at each restart 	·	2 OTO DYIC
 Outputs, adjustable inputs, default 128 byte Outputs, default 22 byte 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 16 336 - of which central 496 Outputs 16 336 - of which central 496 Analog channels inputs 1 1021 - of which central 224 Outputs - of which central 244 Outputs - of which central 124 Outputs - of which central 124 Number of modules per system, max. 63; Centralized Mounting rail Number of mounting rails that can be used Length of mounting rail, max. Station width: ≤ 1 m or < 2 m Clock Hardware clock (real-time) Person of day Clock Behavior of the clock following POWER-ON Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Operating hours counter Number Nu	9	2 048 hvte
 Inputs, default Outputs, default 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 Outputs In 336 Outputs In 336 Outputs In 21 Outputs In 221 Outputs Of which central 124 Number of modules per system, max. Mounting rail Number of modules per system, max. Station width: ≤ 1 m or < 2 m Time of day Clock Hardware clock (real-time) Pes In elentive and synchronizable Behavior of the clock following POWER-ON Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Operating hours counter Number Number Number Number Number Pange of values Oto 2^31 hours (when using SFC 101) Fetentive Yes; Must be restarted at each restart 		
Outputs, default 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 I6 336 Outputs Outputs I6 336 Outputs I6 336 Inputs I0 21 I0		
Number of subprocess images, max. 1; With PROFINET IO, the length of the user data is limited to 1600 bytes		
Position of subprocess images, max. 1; With PROFINET IO, the length of the user data is limited to 1600 bytes		120 byte
Digital channels Inputs Outputs Outp		1: With PROFINET IO, the length of the user data is limited to 1600
Inputs Inputs Inputs In inputs In it is a 336 Inputs Inputs In it is a 336 Inputs Input	Transcr of Susprocess images, max.	
Outputs 16 336 Outputs 496 Outputs 496 Analog channels Inputs 1 021 Outputs 1 021 Outputs 1 1021 Outputs 1 1 1 1021 Outputs 1 1 1 1 1021 Outputs 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Digital channels	
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- of which central 496 Analog channels Inputs 1 021 - of which central 124 Outputs 1 1021 - of which central 124 Hardware configuration Number of modules per system, max. 63; Centralized Mounting rail Number of mounting rails that can be used 1 Length of mounting rail, max. Station width: ≤ 1 m or < 2 m Time of day Clock Hardware clock (real-time) Yes retentive and synchronizable Sackup time 6 wk; At 40 °C ambient temperature, typically Deviation per day, max. 10 s; Typ:: 2 s Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Operating hours counter Number Number Number Number 1 Number 1 Number/Number range 0 Range of values 0 to 2^31 hours (when using SFC 101) Freientive 496 Freientiv	of which central	496
Inputs	 Outputs 	16 336
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Outputs Outputs Outputs Outputs Of which central Hardware configuration Number of modules per system, max. 63; Centralized Mounting rail Number of mounting rails that can be used Length of mounting rail, max. Station width: ≤ 1 m or < 2 m Time of day Clock Hardware clock (real-time) retentive and synchronizable Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup off Number Number Number Oto continues at the time of day it had when power was switched off Operating hours counter Number Range of values Oto 2^31 hours (when using SFC 101) Free Must be restarted at each restart	Analog channels	
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 Length of mounting rail, max. Station width: ≤ 1 m or < 2 m Time of day Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Operating hours counter Number Number/Number range Range of values Granularity retentive Station width: ≤ 1 m or < 2 m Yes Wes Ok At 40 °C ambient temperature, typically Clock continues running after POWER OFF the clock continues at the time of day it had when power was switched off Oto 2^31 hours (when using SFC 101) f annularity retentive Yes; Must be restarted at each restart 	Mounting rail	
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Clock Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Operating hours counter Number Number Range of values Granularity retentive Yes Yes Yes Cwarbient temperature, typically 10 s; Typ.: 2 s Clock continues running after POWER OFF the clock continues at the time of day it had when power was switched off Operating hours counter 1 0 0 to 2^31 hours (when using SFC 101) 1 h Yes; Must be restarted at each restart	 Length of mounting rail, max. 	Station width: ≤ 1 m or < 2 m
 Hardware clock (real-time) retentive and synchronizable Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Operating hours counter Number Number/Number range Range of values Granularity retentive Yes Yes Yes Yes Clock cambient temperature, typically 10 s; Typ.: 2 s Clock continues running after POWER OFF the clock continues at the time of day it had when power was switched off 0 <l< td=""><td>Time of day</td><td></td></l<>	Time of day	
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 Backup time Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Operating hours counter Number Number/Number range Range of values Granularity retentive 6 wk; At 40 °C ambient temperature, typically 10 s; Typ.: 2 s Clock continues running after POWER OFF the clock continues at the time of day it had when power was switched off 0 1 2 3 4 4 5 6 4 6 7 7 8 9 9 9 1 1 1 1 1 1 1 2 4 5 6 7 7 8 9 9 9 1 1 1 1 1 1 1 2 2 3 4 4 5 6 7 7 8 9 <l< td=""><td>Hardware clock (real-time)</td><td>Yes</td></l<>	Hardware clock (real-time)	Yes
 Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Operating hours counter Number Number/Number range Range of values Granularity retentive Deck continues running after POWER OFF the clock continues at the time of day it had when power was switched off 1 0 0 1 Yes; Must be restarted at each restart 	 retentive and synchronizable 	Yes
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 Behavior of the clock following expiry of backup period Operating hours counter Number Number/Number range Range of values Granularity retentive the clock continues at the time of day it had when power was switched off 0 1 0 2^31 hours (when using SFC 101) 1 h retentive Yes; Must be restarted at each restart 	 Deviation per day, max. 	10 s; Typ.: 2 s
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Operating hours counter Number Number/Number range Range of values Granularity retentive Output 1 0 0 0 1 1 1 1 1 1 1 1 1		
 Number Number/Number range Range of values Granularity retentive Number/Number range 0 to 2^31 hours (when using SFC 101) 1 h restarted at each restart 	·	off
 Number/Number range Range of values Granularity retentive Number/Number range 0 to 2^31 hours (when using SFC 101) 1 h Yes; Must be restarted at each restart 		
 Range of values Granularity retentive 0 to 2^31 hours (when using SFC 101) 1 h Yes; Must be restarted at each restart 		
 Granularity retentive 1 h Yes; Must be restarted at each restart 		
• retentive Yes; Must be restarted at each restart		
·	-	
Clock synchronization		Yes; Must be restarted at each restart
	Clock synchronization	

• supported	Yes
• to MPI, master	No
• to MPI, slave	No
• to DP, master	Yes; With DP master module
• to DP, slave	Yes; With DP master module
• in AS, master	No
• in AS, slave	No
on Ethernet via NTP	Yes; As client

on Ethernet via NTP	Yes; As client
1. Interface	
Interface type	PROFINET
Isolated	Yes
automatic detection of transmission rate	Yes
Autonegotiation	Yes
Autocrossing	Yes
Change of IP address at runtime, supported	Yes
Interface types	
 RJ 45 (Ethernet) 	Yes
 Number of ports 	3; RJ45
integrated switch	Yes
Protocols	
• MPI	No
 PROFINET IO Controller 	Yes; Also simultaneously with IO-Device functionality
 PROFINET IO Device 	Yes; Also simultaneously with IO Controller functionality
 PROFINET CBA 	Yes
 PROFIBUS DP master 	No
 PROFIBUS DP slave 	No
 Open IE communication 	Yes; Via TCP/IP, ISO on TCP, and UDP
 Web server 	Yes
Point-to-point connection	No
PROFINET IO Controller	
 Transmission rate, max. 	100 Mbit/s; full duplex
Services	
— PG/OP communication	Yes

ransinission rate, max.	100 Mibito, full duplex
rvices	
— PG/OP communication	Yes
— Routing	Yes; With DP master module
— S7 communication	Yes; with loadable FBs
— Isochronous mode	Yes; OB 61; only for PROFINET IO
— IRT	Yes
— Shared device	Yes
— Prioritized startup	Yes
 Number of IO devices with prioritized startup, 	32
max.	
 Number of connectable IO Devices, max. 	128
— Of which IO devices with IRT, max.	64
— of which in line, max.	64
 Number of IO Devices with IRT and the option "high flexibility" 	128
— of which in line, max.	61
— Number of connectable IO Devices for RT,	128

max.

— of which in line, max.

— Activation/deactivation of IO Devices

— Number of IO Devices that can be
simultaneously activated/deactivated, max.

— IO Devices changing during operation (partner Ves

- IO Devices changing during operation (partner ports), supported

Number of IO Devices per tool, max.
Device replacement without swap medium
Send cycles

— Updating time

 $250~\mu\text{s},\,500~\mu\text{s},1~\text{ms};\,2~\text{ms},\,4~\text{ms}$ (not in the case of IRT with "high flexibility" option)

Minimum value depends on communication share set for PROFINET I/O, on the number of I/O devices, and on the number of configured user data items.

— Updating times	250 μs to 512 ms (depends on operating mode; for more details, refer to Operating Instructions, "Interface Module IM151-8 PN/DP CPU")
Address area	
— Inputs, max.	2 kbyte
— Outputs, max.	2 kbyte
— User data consistency, max.	1 024 byte; with PROFINET I/O
PROFINET IO Device	
Services	
— PG/OP communication	Yes
— Routing	Yes
— S7 communication	Yes; with loadable FBs
Isochronous mode	No
— IRT	Yes
— PROFlenergy	Yes; With SFB 73 / 74 prepared for loadable PROFlenergy standard FB for I-Device
— Shared device	Yes
Number of IO Controllers with shared device,	2
max.	
Transfer memory	4.440 h. ta. Day 10.00 anta-11
— 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
PROFINET CBA	
 acyclic transmission 	Yes
cyclic transmission	Yes
Open IE communication	
 Number of connections, max. 	8
 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
2. Interface	
2. Interface Interface type	External interface via master module 6ES7138-4HA00-0AB0
	External interface via master module 6ES7138-4HA00-0AB0 Yes
Interface type Isolated	
Interface type Isolated Interface types	Yes
Interface type Isolated Interface types • RS 485	
Interface type Isolated Interface types RS 485 Output current of the interface, max.	Yes Yes
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols	Yes Yes No
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI	Yes Yes No No
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFINET IO Controller	Yes Yes No No No
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFINET IO Controller PROFINET IO Device	Yes Yes No No No No
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFINET IO Controller PROFINET IO Device PROFINET CBA	Yes Yes No No No No No No
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFINET IO Controller PROFINET IO Device PROFINET CBA PROFIBUS DP master	Yes Yes No No No No No No No No Yes
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFINET IO Controller PROFINET IO Device PROFINET CBA PROFIBUS DP master PROFIBUS DP slave	Yes Yes No No No No No No No No No N
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFINET IO Controller PROFINET IO Device PROFINET CBA PROFIBUS DP master PROFIBUS DP slave Open IE communication	Yes Yes No No No No No No No No No N
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFINET IO Controller PROFINET IO Device PROFINET CBA PROFIBUS DP master PROFIBUS DP slave Open IE communication Web server	Yes Yes No No No No No No No No No N
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFINET IO Controller PROFINET IO Device PROFINET CBA PROFIBUS DP master PROFIBUS DP slave Open IE communication Web server PROFIBUS DP master	Yes No
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFINET IO Controller PROFINET IO Device PROFINET CBA PROFIBUS DP master PROFIBUS DP slave Open IE communication Web server PROFIBUS DP master Transmission rate, max.	Yes Yes No No No No No No No No No N
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFINET IO Controller PROFINET IO Device PROFINET CBA PROFIBUS DP master PROFIBUS DP slave Open IE communication Web server PROFIBUS DP master Transmission rate, max. Number of DP slaves, max.	Yes No
Interface types Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFINET IO Controller PROFINET IO Device PROFINET CBA PROFIBUS DP master PROFIBUS DP slave Open IE communication Web server PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Services	Yes No Yes No No No No No No No Po Table Mbit/s 32; Per station
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFINET IO Controller PROFINET IO Device PROFINET CBA PROFIBUS DP master PROFIBUS DP slave Open IE communication Web server PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Services — PG/OP communication	Yes Yes No No No No No No No No Yes No No No No No Yes Yes Yes
Interface types Interface types RS 485 Output current of the interface, max. Protocols MPI PROFINET IO Controller PROFINET IO Device PROFINET CBA PROFIBUS DP master PROFIBUS DP slave Open IE communication Web server PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Services — PG/OP communication — Routing	Yes Yes No No No No No No No No No N
Interface type Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFINET IO Controller PROFINET IO Device PROFINET CBA PROFIBUS DP master PROFIBUS DP slave Open IE communication Web server PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Services — PG/OP communication	Yes Yes No No No No No No No No Yes No No No No No Yes Yes Yes
Interface types Interface types RS 485 Output current of the interface, max. Protocols MPI PROFINET IO Controller PROFINET IO Device PROFINET CBA PROFIBUS DP master PROFIBUS DP slave Open IE communication Web server PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Services — PG/OP communication — Routing	Yes Yes No No No No No No No No No N
Interface types Interface types RS 485 Output current of the interface, max. Protocols MPI PROFINET IO Controller PROFINET IO Device PROFINET CBA PROFIBUS DP master PROFIBUS DP slave Open IE communication Web server PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Services PG/OP communication Routing Global data communication	Yes No
Interface types RS 485 Output current of the interface, max. Protocols MPI PROFINET IO Controller PROFINET IO Device PROFINET CBA PROFIBUS DP master PROFIBUS DP slave Open IE communication Web server PROFIBUS DP master Transmission rate, max. Number of DP slaves, max. Services — PG/OP communication — Routing — Global data communication — S7 basic communication	Yes No
Interface types RS 485 Output current of the interface, max. Protocols MPI PROFINET IO Controller PROFINET IO Device PROFIBUS DP master PROFIBUS DP slave Open IE communication Web server 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	Yes No
Interface types Isolated Interface types RS 485 Output current of the interface, max. Protocols MPI PROFINET IO Controller PROFINET IO Device PROFINET CBA PROFIBUS DP master PROFIBUS DP slave Open IE communication Web server 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 S7 communication	Yes No
Interface types RS 485 Output current of the interface, max. Protocols MPI PROFINET IO Controller PROFINET IO Device PROFIBUS DP master PROFIBUS DP slave Open IE communication Web server 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, as client S7 communication, as server	Yes Yes No No No No No No Yes No No No Yes No No Yes 12 Mbit/s 32; Per station Yes Yes No Yes Yes No No Yes; I blocks only Yes No Yes
Interface types RS 485 Output current of the interface, max. Protocols MPI PROFINET IO Controller PROFINET IO Device PROFIBUS DP master PROFIBUS DP slave PROFIBUS DP slave Open IE communication Web server 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 S7 communication, as client S7 communication, as server Equidistance	Yes No
Interface types RS 485 Output current of the interface, max. Protocols MPI PROFINET IO Controller PROFINET IO Device PROFIBUS DP master PROFIBUS DP slave PROFIBUS DP slave Open IE communication Web server 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 S7 communication S7 communication S7 communication S7 communication, as client S7 communication, as server Equidistance Isochronous mode	Yes No

— Number of DP slaves that can be	8
simultaneously activated/deactivated, max. — Direct data exchange (slave-to-slave	Yes
communication)	res
— 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
Protocols	
Redundancy mode	
Media redundancy	
— MRP	Yes
 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.	8
 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.	8
Data length, max.	32 768 byte
■ Data length, max. • UDP	Yes; via integrated PROFINET interface and loadable FBs
Number of connections, max.	8
Data length, max.	1 472 byte
Web server	1 472 byte
• supported	Yes
User-defined websites	Yes
Number of HTTP clients	5
communication functions / header	
PG/OP communication	Yes
Data record routing	Yes; With DP master module
Global data communication	
• supported	No
S7 basic communication	
supported	Yes; I blocks
User data per job, max.	76 byte
 User data per job (of which consistent), max. 	76 byte
S7 communication	
• supported	Yes
as server	Yes
• as client	Yes; via integrated PROFINET interface and loadable FBs
• 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)
communication functions / PROFINET CBA (with set target of	·
Setpoint for the CPU communication load	50 %
number of remote connection partners / with PROFINET CBA	32
number of technological functions / with PROFINET CBA / for master or slave	30
number of connections / with PROFINET CBA / for master or slave / total	1 000
 data volume / of the input variables / with PROFINET CBA / for master or slave 	4 000 byte
 data volume / of the output variables / with PROFINET CBA / for master or slave 	4 000 byte
 number of internal and PROFIBUS interconnections 	500

/ with PROFINET CBA / maximum	
data volume / of internal and PROFIBUS interconnections / with PROFINET CBA / for master or slave	4 000 byte
data volume / with PROFINET CBA / per connection / maximum	1 400 byte
performance data / PROFINET CBA / remote interconne	ction / with acyclic transfer / header
 update time / of the remote interconnections / in the case of acyclic transmission / with PROFINET CBA 	500 ms
 number of remote connections to input variables / in the case of acyclic transmission / with PROFINET CBA / maximum 	100
 number of remote connections to output variables / in the case of acyclic transmission / with PROFINET CBA / maximum 	100
 data volume / as user data for remote interconnections with input variables / in the case of acyclic transmission / with PROFINET CBA 	2 000 byte
 data volume / as user data for remote interconnections with output variables / in the case of acyclic transmission / with PROFINET CBA 	2 000 byte
 data volume / as user data for remote interconnections / in the case of acyclic transmission / with PROFINET CBA / per connection / maximum 	1 400 byte
performance data / PROFINET CBA / remote interconne	ction / with cyclic transfer / header
 update time / of the remote interconnections / with cyclical transfer / with PROFINET CBA 	1 ms
 number of remote connections to input variables / with PROFINET CBA / with cyclic transfer / maximum 	200
 number of remote connections to output variables / with cyclical transfer / with PROFINET CBA / maximum 	200
 data volume / as user data for remote interconnections with input variables / with cyclical transfer / with PROFINET CBA / maximum 	2 000 byte
 data volume / as user data for remote interconnections with output variables / with cyclical transfer / with PROFINET CBA / maximum 	2 000 byte
 data volume / as user data for remote interconnections / with cyclical transfer / with PROFINET CBA / per connection / maximum 	450 byte
performance data / PROFINET CBA / HMI variables via I	PROFINET / acyclic / header
 number of connectable HMI stations / for HMI variables / in the case of acyclic transmission / with PROFINET CBA 	3; 2x PN OPC/1x iMap
 update time / of the HMI variables / in the case of acyclic transmission / with PROFINET CBA 	500 ms
 number of HMI variables / in the case of acyclic transmission / with PROFINET CBA / maximum 	200
 data volume / as user data for HMI variables / in the case of acyclic transmission / with PROFINET CBA / maximum 	2 000 byte
performance data / PROFINET CBA / PROFIBUS proxy	functionality / header
— product function / with PROFINET CBA / PROFIBUS proxy functionality	Yes
 number of coupled PROFIBUS devices / with PROFIBUS functionality 	16
 — data volume / with PROFIBUS proxy functionality / with PROFINET CBA / per connection / maximum 	240 byte; Slave-dependent
PAR server	
• supported	Yes
Number of connections	
overall	12

- usable for DC communication	44
usable for PG communication	11
— reserved for PG communication	1
— adjustable for PG communication, min.	1
— adjustable for PG communication, max.	11
usable for OP communication	11
— reserved for OP communication	1
— adjustable for OP communication, min.	1
— adjustable for OP communication, max.	11
usable for S7 basic communication	10
— reserved for S7 basic communication	0
— adjustable for S7 basic communication, min.	0
— adjustable for S7 basic communication, max.	10
usable for S7 communication	10; with loadable FBs
— adjustable for S7 communication, max.	10
 total number of instances, max. 	32
usable for routing	4; max.
S7 message functions	
Number of login stations for message functions, max.	12; Depending on the configured connections for PG/OP and S7 basic communication
Process diagnostic messages	Yes; ALARM_S, ALARM_SC, ALARM_SQ, ALARM_D, ALARM_DQ
simultaneously active Alarm-S blocks, max.	300
Test commissioning functions	
Status block	Yes; Up to 2 simultaneously
Single step	Yes
Number of breakpoints	4
Status/control	
Status/control variable	Yes
 Variables 	Inputs, outputs, memory bits, DB, times, counters
 Number of variables, max. 	30
— of which status variables, max.	30
— of which control variables, max.	14
Forcing	
• Forcing	Yes
Forcing, variables	I/O
Number of variables, max.	10
Diagnostic buffer	
• present	Yes
Number of entries, max.	500
— adjustable	No
— of which powerfail-proof	100; Only the last 100 entries are retained
Interrupts/diagnostics/status information	,,
Alarms	Yes
Diagnostics function	Yes
Diagnostics indication LED	100
for maintenance	Yes; MT
Bus fault BF (red)	Yes; BF-PN
Group error SF (red)	Yes
Monitoring 24 V voltage supply ON (green)	Yes
Bus activity PROFINET (green)	Yes; P1-/P2-/P3-Link
Potential separation	100, 1 11 2 11 0 Link
between PROFIBUS DP and all other circuit components	Yes
·	160
Isolation	500 V D O
Isolation tested with	500 V DC
Degree and class of protection	
IP degree of protection	IP20
configuration / header	
Configuration software	
• STEP 7	Yes; V5.5 or higher
configuration / programming / header	

see instruction list
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see instruction list
see instruction list
Yes
Yes
Yes
Yes; Optional
Yes; Optional
Yes; Optional
Yes; Optional
Yes
Yes; With S7 block Privacy
1 ms
6 000 ms
Yes
150 ms
120 mm; DP master module: 35 mm
120 mm; DP master module: 35 mm 119.5 mm
119.5 mm

last modified: