SIEMENS

Data sheet

6ES7151-7AA21-0AB0

SIMATIC DP, IM151-7 CPU FOR ET200S, 128 KB WORKING MEMORY INTEGR. PROFIBUS DP INTERFACE (9 PIN SUB-D, FEMALE) AS DP SLAVE, W/O BATTERY SIMATIC MMC REQUIRED



General information	
Hardware product version	01
Firmware version	V3.3
Engineering with	
Programming package	V5.5 + SP1 or higher or V5.2 + SP1 or higher + HSP 219
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 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, max.	1.8 A; Typical
l²t	0.09 A²·s
from supply voltage 1L+, max.	320 mA; 410 mA with DP master module

for backplane bus (5 V DC), max.	
ioi backpiane bus (5 v bc), max.	700 mA
Power loss	
Power loss, typ.	4.2 W
5.4	
Memory Work memory	
• integrated	128 kbyte
expandable	No
Size of retentive memory for retentive data	64 kbyte
blocks	C-1 NOVICE
Load memory	
• Plug-in (MMC)	Yes
● Plug-in (MMC), max.	8 Mbyte
 Data management on MMC (after last 	10 y
programming), min.	
Backup	
• present	Yes; Ensured by SIMATIC Micro Memory Card (maintenance-
	free)
CPU processing times	
for bit operations, typ.	0.06 µs
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	
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	
 Description 	See S7-300 operation list
• Size, max.	64 kbyte
. 1	1; OB 1
 Number of free cycle OBs 	
 Number of free cycle OBs Number of time alarm OBs Number of delay alarm OBs 	1; OB 10 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 startup OBs 	1; OB 100
 Number of asynchronous error OBs 	6; OB 80, 82, 83 (for centralized I/O only, not for distributed I/O), 85, 86, 87
 Number of synchronous error OBs 	2; OB 121, 122
Nesting depth	
• per priority class	16
 additional within an error OB 	4
Counters, timers and their retentivity	
S7 counter	
Number	256
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	255
— preset	Z 0 to Z 7
Counting range	
— lower limit	0
— upper limit	999
IEC counter	
• present	Yes
• Type	SFB
• Number	Unlimited (limited only by RAM capacity)
S7 times	
Number	256
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	255
— preset	No retentivity
Time range	
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	
• present	Yes
● Type	SFB
Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	
Flag	

Flag

Number, max.	256 byte
Retentivity available	Yes; MB 0 to MB 255
 Retentivity preset 	MB 0 to MB 15
Number of clock memories	8; 1 memory byte
Data blocks	
Number, max.	1 024; Number range: 1 to 16000
• Size, max.	64 kbyte
Retentivity adjustable	Yes; via non-retain property on DB
Retentivity preset	Yes
Local data	
• per priority class, max.	32 kbyte; Max. 2048 bytes per block
Address area	
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	2 048 byte
Outputs	2 048 byte
 Inputs, adjustable 	2 048 byte
Outputs, adjustable	2 048 byte
• Inputs, default	128 byte
Outputs, default	128 byte
Digital channels	
• Inputs	16 336
— of which central	496
Outputs	16 336
— of which central	496
Analog channels	
• Inputs	1 021
— of which central	124
Outputs	1 021
— 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

Flandware clock (real-time clock)	Time of day	
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 of values Range of values Granularity retentive To MPI, master No PP, slave No P, slave No PROFINET interfaces No Number of wireless interfaces D Number of wireless interfaces Number of wireless interfaces No P, slave Power supply to interface (15 to 30 V DC), max. PROFIBUS DP slave P PORIBUS DP slave P PORIBUS DP slave P PORIBUS DP slave P PORIBUS DP slave P PROFIBUS DP slave P PORIBUS DP slave P PORIBUS DP slave P PORIBUS DP slave P PORIBUS DP slave P PROFIBUS DP slave P PORIBUS DP slave P PROFIBUS DP slave P PROFIBUS DP slave P Possible DP slave P PROFIBUS DP slave P PROFIBUS DP slave P PROFIBUS DP slave P PROFIBUS DP slave P Possible DP slave P Point-to-point connection No MPI Transmission rate, max. 12 Mbit/s	Clock	
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 1 Number/Number range 0 Range of values 0 to 2^31 hours (when using SFC 101) I hour retentive 7 test 1 thours 1 thours (when using SFC 101) I hour retentive 7 test 1 thours 1 thours 1 thour	Hardware clock (real-time clock)	Yes
Deviation per day, max. Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Departing hours counter Number Number I Number I Number I Number I Number I Number Number range Of to 2*31 hours (when using SFC 101) Sequentially Testinated at each restart I Number I	 retentive and synchronizable 	Yes
Behavior of the clock following POWER-ON Behavior of the clock following expiry of backup period Operating hours counter Number Number Number	Backup time	6 wk; At 40 °C ambient temperature, typically
Behavior of the clock following expiry of backup period occurred Operating hours counter Number Number Number 1 Number 0 Range of values 0 to 2*31 hours (when using SFC 101) retentive Yes; Must be restarted at each restart Clock synchronization supported Yes to MPI, slave Yes No No Interfaces/bus type 1 x MPI/PROFIBUS DP Number of wireless interfaces 0 Number of wireless interface (15 to 30 V DC), max. FUNCHIONALIS DP slave PROFIBUS DP master Yes No PROFIBUS DP master Yes No PROFIBUS DP slave Preside (15 to 30 V DC), max. PROFIBUS DP slave Preside (15 to 30 V DC), max. Preside (15 to 30 V DC), max. Presides/bus DP slave Presides/bus DP sla	 Deviation per day, max. 	10 s; Typ.: 2 s
period occurred Operating hours counter Number Number range Range of values Oto 2^31 hours (when using SFC 101) Granularity I hour retentive Ves; Must be restarted at each restart Clock synchronization Supported Ves Oto MPI, slave Ves Oto MPI, slave Oto MPI, slave Ves No Interfaces Interfaces/bus type Number of PROFINET interfaces O Interface Interface type Physics RS 485 RS 485 RS 485 RS 485 Power supply to interface (15 to 30 V DC), max. Functionality MPI PROFIBUS DP master Ves; With DP slave No Occurred Oto 2^31 hours (when using SFC 101) 1 hour Yes; Must be restarted at each restart Ves; With DP slave only slave clock Ves On No 1 x MPI/PROFIBUS DP Interfaces Unterfaces/bus type Integrated RS 485 interface Physics RS 485 RS 485 RS 485 Power supply to interface (15 to 30 V DC), max. Profibus DP slave Profibus DP slave PROFIBUS DP master PROFIBUS DP master PROFIBUS DP slave Point-to-point connection No MPI Transmission rate, max. 12 Mbit/s	 Behavior of the clock following POWER-ON 	Clock continues running after POWER OFF
Operating hours counter Number Number Number		
Number Number 1 Number/Number range 0 Range of values 0 to 2^31 hours (when using SFC 101) Granularity 1 hour Pretentive Yes; Must be restarted at each restart Clock synchronization Supported Yes Supporte	·	occurred
Number/Number range Range of values O to 2^31 hours (when using SFC 101) Granularity retentive Yes; Must be restarted at each restart Clock synchronization supported to MPI, master to MPI, slave Yes to DP, master Yes To DP, slave Interfaces Interfaces/bus type Number of PROFINET interfaces VLAN Number of wireless interfaces Interface type Physics RS 485 Isolated PROFIBUS DP master No PROFIBUS DP master Yes No PROFIBUS DP master PROFIBUS DP master PROFIBUS DP master PROFIBUS DP master PROFIBUS DP slave Point-to-point connection No MPI Transmission rate, max. 12 Mbit/s		
Range of values Granularity Thour retentive Yes; Must be restarted at each restart Clock synchronization supported to MPI, master to MPI, slave To DP, slave To SP, slave T		
Granularity retentive Yes; Must be restarted at each restart Clock synchronization supported Yes to MPI, master to MPI, slave Yes to DP, master Yes Yes With DP slave only slave clock Yes in AS, master No No Interfaces Interfaces/bus type 1 x MPI/PROFIBUS DP Number of PROFINET interfaces Unterface type Interface type Interface type Interface (15 to 30 V DC), max. Functionality MPI PROFIBUS DP master No PROFIBUS DP master Yes No 1 x MPI/PROFIBUS DP Integrated RS 485 interface RS 485 Isolated Yes Power supply to interface (15 to 30 V DC), max. PROFIBUS DP master PROFIBUS DP master PROFIBUS DP slave Point-to-point connection No MPI Transmission rate, max. 12 Mbit/s	-	
retentive Yes; Must be restarted at each restart Clock synchronization supported Yes to MPI, master Yes to MPI, slave Yes to DP, master Yes; With DP slave only slave clock to DP, slave Yes in AS, master No in AS, slave No Interfaces Interfaces Interfaces/bus type 1 x MPI/PROFIBUS DP Number of PROFINET interfaces ULAN Number of wireless interfaces Interface type Integrated RS 485 interface Physics RS 485 Isolated Yes Power supply to interface (15 to 30 V DC), max. 80 mA Functionality MPI Yes PROFIBUS DP slave Yes; active / passive Point-to-point connection No MPI Transmission rate, max. 12 Mbit/s		
Clock synchronization • supported • to MPI, master • to MPI, slave • to DP, master • to DP, master • to DP, slave • in AS, master • in AS, slave Interfaces Interfaces/bus type Interfaces/bus type 1 x MPI/PROFIBUS DP Number of wireless interfaces Interface (15 to 30 V DC), max. • MPI • PROFIBUS DP master • PROFIBUS DP master No Yes No Integrated RS 485 Interface (15 to 30 V DC), max. RS PROFIBUS DP master No PROFIBUS DP master No Yes PROFIBUS DP master No PROFIBUS DP slave • Point-to-point connection MPI • Transmission rate, max. 12 Mbit/s	Granularity	1 hour
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● to MPI, master ● to MPI, slave ● to DP, master ● to DP, master ● to DP, slave ● in AS, master ● in AS, slave No Interfaces Interfaces/bus type Number of PROFINET interfaces WLAN ● Number of wireless interfaces Interface type Interface type Physics Isolated Power supply to interface (15 to 30 V DC), max. Functionality ● MPI ● PROFIBUS DP master ● PROFIBUS DP master ● PROFIBUS DP master ● PROFIBUS DP slave ● Point-to-point connection MPI ● Transmission rate, max. 12 Mbit/s	Clock synchronization	
to MPI, slave to DP, master to DP, slave to DP, slave in AS, master in AS, slave Interfacess Interfaces/bus type Interfaces/bus type Interfaces	• supported	Yes
to DP, master to DP, slave to DP, slave in AS, master in AS, slave No Interfaces Interfaces/bus type	● to MPI, master	Yes
to DP, slave in AS, master No Interfaces Interfaces/bus type 1 x MPI/PROFIBUS DP Number of PROFINET interfaces WLAN Number of wireless interfaces Interface Interface Interface type Integrated RS 485 interface Physics RS 485 Isolated Yes Power supply to interface (15 to 30 V DC), max. Functionality MPI PROFIBUS DP master PROFIBUS DP slave PROFIBUS DP slave Point-to-point connection MPI Transmission rate, max. 12 Mbit/s	● to MPI, slave	Yes
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● in AS, slave Interfaces Interfaces/bus type Number of PROFINET interfaces 0 WLAN ● Number of wireless interfaces 0 1. Interface Interface type Interface type Interface type Interface Tyes Physics RS 485 Isolated Yes Power supply to interface (15 to 30 V DC), max. Functionality ● MPI ● PROFIBUS DP master ● PROFIBUS DP slave ● Point-to-point connection MPI ● Transmission rate, max. 12 Mbit/s	• to DP, slave	Yes
Interfaces Interfaces/bus type Number of PROFINET interfaces WLAN Number of wireless interfaces Interface Interface Interface type Interface type Physics RS 485 Isolated Yes Power supply to interface (15 to 30 V DC), max. Functionality MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection MPI Transmission rate, max. 12 Mbit/s	● in AS, master	No
Interfaces/bus type 1 x MPI/PROFIBUS DP Number of PROFINET interfaces 0 WLAN Number of wireless 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. 80 mA Functionality MPI Yes PROFIBUS DP master No PROFIBUS DP slave Yes; active / passive Point-to-point connection No MPI Transmission rate, max. 12 Mbit/s	• in AS, slave	No
Number of PROFINET interfaces WLAN Number of wireless interfaces Interface Interface type Integrated RS 485 interface Physics RS 485 Isolated Yes Power supply to interface (15 to 30 V DC), max. Functionality NO PROFIBUS DP master PROFIBUS DP slave Point-to-point connection MPI Transmission rate, max. 12 Mbit/s	Interfaces	
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Number of wireless interfaces 1. Interface Interface type Integrated RS 485 interface Physics RS 485 Isolated Yes Power supply to interface (15 to 30 V DC), max. 80 mA Functionality NO PROFIBUS DP master PROFIBUS DP slave Point-to-point connection MPI Transmission rate, max. 12 Mbit/s	Number of PROFINET interfaces	0
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Interface type Physics RS 485 Isolated Yes Power supply to interface (15 to 30 V DC), max. Functionality MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection MPI Transmission rate, max. Integrated RS 485 interface RS 485 Yes No No WA Tes No No No No MPI Transmission rate, max. 12 Mbit/s	 Number of wireless interfaces 	0
Physics RS 485 Isolated Yes Power supply to interface (15 to 30 V DC), max. 80 mA Functionality • MPI Yes • PROFIBUS DP master No • PROFIBUS DP slave Yes; active / passive • Point-to-point connection No MPI • Transmission rate, max. 12 Mbit/s	1. Interface	
Isolated Yes Power supply to interface (15 to 30 V DC), max. Functionality MPI PROFIBUS DP master PROFIBUS DP slave Proint-to-point connection MPI Transmission rate, max. Yes No Yes Yes; active / passive No MPI	Interface type	Integrated RS 485 interface
Power supply to interface (15 to 30 V DC), max. Functionality • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection MPI • Transmission rate, max. 80 mA Yes No Yes No Yes; active / passive No	Physics	RS 485
Functionality • MPI • PROFIBUS DP master • PROFIBUS DP slave • Point-to-point connection MPI • Transmission rate, max. Yes Yes; active / passive No No 12 Mbit/s	Isolated	Yes
 MPI PROFIBUS DP master PROFIBUS DP slave Point-to-point connection MPI Transmission rate, max. Yes No MPI 12 Mbit/s 	Power supply to interface (15 to 30 V DC), max.	80 mA
 PROFIBUS DP master PROFIBUS DP slave Point-to-point connection MPI Transmission rate, max. No Mbit/s 	Functionality	
 PROFIBUS DP slave Point-to-point connection MPI Transmission rate, max. Yes; active / passive No MPI 12 Mbit/s 	• MPI	Yes
 Point-to-point connection MPI Transmission rate, max. Mbit/s 	 PROFIBUS DP master 	No
MPI • Transmission rate, max. 12 Mbit/s	PROFIBUS DP slave	Yes; active / passive
• Transmission rate, max. 12 Mbit/s	Point-to-point connection	No
	MPI	
Services	Transmission rate, max.	12 Mbit/s
	Services	

Routing Yes; With master module Global data communication Yes S7 basic communication Yes S7 communication, as client S7 communication, as client S7 communication, as server P slave SSD file The latest GSD file is available on the Internet (http://www.siemens.com/profibus.gsd) Transmission rate, max. 12 Mbil/s Services PG/OP communication Routing PG/OP communication Routing PG/OP communication PS7 basic communication S7 basic communication S7 basic communication S7 basic communication S7 communication S7 communication S7 communication S7 communication S7 communication S7 communication, as server Direct data exchange (slave-to-slave communication) DP/U1 No Transfer memory Inputs Outputs S1 tetrace Physics RS 485 Routing Poor Routing Poor Routing Power supply to interface (15 to 30 V DC), max. Poor Routing Poor Routing No Power supply to interface (15 to 30 V DC), max. Poor Routing Poor	— PG/OP communication	Yes
- Global data communication - \$7 basic communication - \$7 communication, as client - \$7 communication, as server - \$8 communication - \$7 communication, as client - \$7 communication, as server - \$7 communication, as \$8 client - \$7 communication - \$7 communicat		
So communication Yes: Only server, configured on one side So communication, as client So communication, as server Pes DP slave • GSD file The latest GSD file is available on the Intermet (http://www.siemens.com/profibus-gsd) • Transmission rate, max. • ututomatic baud rate search • Address area, max. • User data per address area, max. • Services Pyes. Only with passive interface Pyes. Only with passive interface and inserted DP master memory Pyes. Only with active, integrated DP slave interface and inserted DP master module in DP master • Transmission rate, max. • Ves Power supply to interface (15 to 30 V DC), max. Power supply to interface (15 to 30 V DC), max. ProcFibus DP master • Transmission rate, max. • Ves • Transmission rate,		
- S7 communication, as client - S7 communication, as server - S9 communication, as server - S9 communication, as server - S9 communication - S7 communication - S8 communication - S9 communication - S7 communication - S8 communication - S9 co		
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PP slave GSD file The latest GSD file is available on the Internet (http://www.siemens.com/profibus-gsd) Transmission rate, max. automatic baud rate search Address area, max. automatic baud rate search Address area, max. User data per address area, max. Services PG/OP communication Routing Pmaster module in DP master mode Services PG/OP communication No Services PG/OP communication Pmaster module in DP master mode Pmaster module in DP master mode Pmaster module in DP master mode No Services Polipate data exchange (slave-to-slave communication, as client Pf communication, as server Direct data exchange (slave-to-slave communication) DPV1 No Transfer memory Inputs Outputs Playlics RS 485 Statemal interface via master module 6ES7138-4HA00-0AB0 Physics RS 485 Isolated Power supply to interface (15 to 30 V DC), max. Procipolativ MPI PROFIBUS DP master PROFIBUS DP slave No PP master Transmission rate, max. Pumber of DP slaves, max. 12 Mbit/s No Number of DP slaves, max.		
The latest GSD file is available on the Internet (http://www.siemens.com/profibus-gsd) Transmission rate, max. automatic baud rate search Address area, max. Address area, max. User data per address area, max. PG/OP communication Routing Pmaster module in DP master memory Past only server, configured on one side Pfromunication Pfrom Stromunication Pfrom Stro		165
(http://www.siemens.com/profibus-gsd) It Mbit/s automatic baud rate search Address area, max. Address area, max. User data per address area, max. PG/OP communication Routing PG/OP communication PG abaic communication No Sr basic communication PS communication PS communication PS communication, as client PS communication, as server Direct data exchange (slave-to-slave communication) DPV1 No Transfer memory Inputs Outputs External interface via master module 6ES7138-4HA00-0AB0 Physics POWER supply to interface (15 to 30 V DC), max. Functionality PMP asser PROFIBUS DP slave PMP asser PROFIBUS DP slave PT max. No Pmaster It Mbit/s No Pmaster PROFIBUS DP slave PMP asser PT assers PMP assers		The latest GSD file is available on the Internet
automatic baud rate search Address area, max. User data per address area, max. User data per address area, max. 22 byte; Up to max. size of the transfer memory Services - PG/OP communication - Routing - Global data communication - S7 basic 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 Interface type - Prysics - Isolated - Yes - Power supply to interface (15 to 30 V DC), max PROFIBUS DP master - PROFIBUS DP master - PROFIBUS DP slave - Transmission rate, max Number of DP slaves, max. 12 Mbit/s - Number of DP slaves, max Suterial interface via master module file Extention - S2 byte; Up to max. size of the transfer memory - Yes - Olly with active, integrated DP slaves interface and inserted DP master - RoFibus DP slaves, max Suterial interface via master memory - Logical Profit of the transfer memory - S2 byte; Up to max. size of the transfer memory - Yes - Olly with active, integrated DP slaves interface and inserted DP master - Transmission rate, max Suterial interface via master medule 6ES7138-4HA00-0AB0 - PROFIBUS DP slaves - No - PROFIBUS DP slaves - Transmission rate, max Number of DP slaves, max.	COD IIIC	
Address area, max. User data per address area, max. PG/OP communication Routing PG/OP communication Routing PG assic communication ST basic communication ST basic communication PST communication PST communication PST communication PST communication PST communication, as client PST communication, as server Direct data exchange (slave-to-slave communication) DPV1 No Transfer memory Inputs Outputs POutputs Power supply to interface (15 to 30 V DC), max. PROFIBUS DP master PROFIBUS DP master PT ransmission rate, max. No PM master Pt master max. Pumbler of DP slaves, max. Pumbler of DP slaves, max. Pumbler of DP slaves, max. Pussics isolated PT ransmission rate, max. No Power supply to plaves, max. Pumbler of DP slaves, max. Passer interface of the transfer memory Yes; Only with active, integrated DP slaves nax. Pees; Only with active, integrated DP slaves nax. 32 byte; Up to max. size of the transfer memory Yes; Only with active, integrated DP slaves interface and inserted DP slaves nax. Pees; Only with active, integrated DP slaves nax. 32 byte; Up to max. size of the transfer memory Yes; Only with active, integrated DP slaves interface and inserted DP slaves nax. Pees only with active, integrated DP slaves nave interface only size on paster only size on paster on pa	Transmission rate, max.	12 Mbit/s
User data per address area, max. Services - PG/OP communication - Routing - Global data communication - S7 basic 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 Interface type - External interface via master module 6ES7138-4HA00-0AB0 Physics - RS 485 Isolated - PROFIBUS DP master - PROFIBUS DP slave - No DP master • Transmission rate, max Number of DP slaves, max. 12 Mbit/s - Number of DP slaves, max. 32 byte; Up to max. size of the transfer memory Yes - Yes; Only with active, integrated DP slaves interface and inserted DP master - Yes; Only with active, integrated DP slaves interface and inserted DP master - Yes; Only with active, integrated DP slaves, max. 32 byte; Up to max. size of the transfer memory - Yes; Only with active, integrated DP slaves interface and inserted DP master - Yes; Only with active, integrated DP slaves interface and inserted DP master - Yes; Only with active, integrated DP slave interface and inserted DP master - Yes; Only with active, integrated DP slaves interface and inserted DP master - Yes; Only with active, integrated DP slave interface and inserted DP master - Yes; Only with active, integrated DP slave interface and inserted DP master - Yes; Only with active, integrated DP slave interface and inserted DP slave inter	automatic baud rate search	Yes; only with passive interface
Services - PG/OP communication Yes - Routing Yes; Only with active, integrated DP slave interface and inserted DP master module in DP master mode - Global data communication No - S7 basic communication No - S7 communication Yes; Only server, configured on one side - S7 communication, as client No - S7 communication, as server Yes - Direct data exchange (slave-to-slave communication) - DPV1 No - Transfer memory - Inputs 244 byte - Outputs 244 byte 2. Interface Interface type External interface via master module 6ES7138-4HA00-0AB0 Physics RS 485 Isolated Yes - Power supply to interface (15 to 30 V DC), max. No - Functionality - MPI No - PROFIBUS DP master Yes - PROFIBUS DP slave No - PROFIBUS DP slave - Transmission rate, max Transmission rate, max Transmission rate, max Number of DP slaves, max Signature And Interface interface and inserted DP master Test, integrated DP slave interface and inserted DP master Interface interface and inserted DP slaves interface and inserted DP master Interface in	Address area, max.	32
PG/OP communication Routing Yes; Only with active, integrated DP slave interface and inserted DP master module in DP master mode Global data communication So basic communication So communication So communication, as client So communication, as server Direct data exchange (slave-to-slave communication) DPV1 No Transfer memory Inputs Outputs Late of Late	User data per address area, max.	32 byte; Up to max. size of the transfer memory
PG/OP communication Routing Yes; Only with active, integrated DP slave interface and inserted DP master module in DP master mode Global data communication So a basic communication So communication So communication, as client So communication, as server Direct data exchange (slave-to-slave communication) DPV1 No Transfer memory Inputs Outputs 244 byte 2. Interface Interface type External interface via master module 6ES7138-4HA00-0AB0 Physics RS 485 Isolated Yes Power supply to interface (15 to 30 V DC), max. No Functionality MPI PROFIBUS DP master PROFIBUS DP slave PD master Transmission rate, max. Tansmission rate, max. Number of DP slaves, max. 12 Mbit/s Number of DP slaves, max. 12 Mbit/s Number of DP slaves, max. 12 Mbit/s Number of DP slaves, max. 24 Mpil Prescriptional interface i	·	
Prouting Pres; Only with active, integrated DP slave interface and inserted DP master module in DP master mode Proprocess of the proof of DP master module in DP master mode Proprocess of DP master module in DP master mode No Proprocess of DP master module in DP master mode No Proprocess of DP master module in DP master mode No Proprocess of DP master module in DP master in DP master module in DP master in DP slaves, max. Publication in DP master		Yes
— S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as selvent — S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 — No Transfer memory — Inputs — Outputs — 244 byte 2. Interface Interface type — External interface via master module 6ES7138-4HA00-0AB0 Physics — RS 485 Isolated — Yes Power supply to interface (15 to 30 V DC), max. Functionality • MPI • PROFIBUS DP master • PROFIBUS DP slave • Transmission rate, max. • Number of DP slaves, max. 12 Mbit/s • Number of DP slaves, max. 32; Per station	— Routing	-
— 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 Interface type External interface via master module 6ES7138-4HA00-0AB0 Physics Isolated Power supply to interface (15 to 30 V DC), max. Functionality • MPI • PROFIBUS DP master • PROFIBUS DP slave Pund Size (12 Mbit/s) • Number of DP slaves, max. 12 Mbit/s • Number of DP slaves, max. 12 Mbit/s • Number of DP slaves, max.	 Global data communication 	No
— S7 communication, as client — S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 No Transfer memory — Inputs — Outputs 244 byte 2.44 byte 2.44 byte 2.1nterface Interface type External interface via master module 6ES7138-4HA00-0AB0 Physics RS 485 Isolated Yes Power supply to interface (15 to 30 V DC), max. No Functionality • MPI • PROFIBUS DP master • PROFIBUS DP slave DP master • Transmission rate, max. • Number of DP slaves, max. 12 Mbit/s • Number of DP slaves, max.	 S7 basic communication 	No
— S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 No Transfer memory — Inputs — Outputs 244 byte 2. Interface Interface type External interface via master module 6ES7138-4HA00-0AB0 Physics RS 485 Isolated Prower supply to interface (15 to 30 V DC), max. No Functionality • MPI • PROFIBUS DP master • PROFIBUS DP slave DP master • Transmission rate, max. • Number of DP slaves, max. 12 Mbit/s • Number of DP slaves, max.	— S7 communication	Yes; Only server, configured on one side
— Direct data exchange (slave-to-slave communication) — DPV1 No Transfer memory — Inputs 244 byte — Outputs 244 byte 2. Interface Interface type External interface via master module 6ES7138-4HA00-0AB0 Physics RS 485 Isolated Yes Power supply to interface (15 to 30 V DC), max. No Functionality • MPI No • PROFIBUS DP master Yes • PROFIBUS DP slave DP master • Transmission rate, max. • Number of DP slaves, max. 12 Mbit/s • Number of DP slaves, max.	 S7 communication, as client 	No
communication) — DPV1 No Transfer memory — Inputs 244 byte 2. Interface Interface type External interface via master module 6ES7138-4HA00-0AB0 Physics RS 485 Isolated Yes Power supply to interface (15 to 30 V DC), max. No Functionality • MPI No • PROFIBUS DP master Yes • PROFIBUS DP slave DP master • Transmission rate, max. • Number of DP slaves, max. 12 Mbit/s • Number of DP slaves, max. 32; Per station	 S7 communication, as server 	Yes
Transfer memory — Inputs — Outputs 244 byte 244 byte 2544 byte 2544 byte 2645 byte 2745 byte 2746 byte 2747 byte External interface via master module 6ES7138-4HA00-0AB0 Physics PRS 485 Isolated Pres Prower supply to interface (15 to 30 V DC), max. No Functionality PROFIBUS DP master PROFIBUS DP master PROFIBUS DP slave No DP master Transmission rate, max. No 12 Mbit/s Number of DP slaves, max. 32; Per station		Yes
- Inputs - Outputs 244 byte 2. Interface Interface type Interface type External interface via master module 6ES7138-4HA00-0AB0 Physics RS 485 Isolated Yes Power supply to interface (15 to 30 V DC), max. No Functionality • MPI • PROFIBUS DP master • PROFIBUS DP slave DP master • Transmission rate, max. • Number of DP slaves, max. 12 Mbit/s • Number of DP slaves, max.	— DPV1	No
2. Interface Interface type External interface via master module 6ES7138-4HA00-0AB0 Physics RS 485 Isolated Yes Power supply to interface (15 to 30 V DC), max. No Functionality MPI PROFIBUS DP master PROFIBUS DP slave No DP master Transmission rate, max. No 12 Mbit/s Number of DP slaves, max. 32; Per station	Transfer memory	
2. Interface Interface type External interface via master module 6ES7138-4HA00-0AB0 Physics RS 485 Isolated Yes Power supply to interface (15 to 30 V DC), max. No Functionality • MPI No • PROFIBUS DP master Yes • PROFIBUS DP slave No DP master • Transmission rate, max. • Number of DP slaves, max. 12 Mbit/s • Number of DP slaves, max.	— Inputs	244 byte
Interface type External interface via master module 6ES7138-4HA00-0AB0 Physics RS 485 Isolated Yes Power supply to interface (15 to 30 V DC), max. No Functionality MPI PROFIBUS DP master PROFIBUS DP slave No DP master Transmission rate, max. No 12 Mbit/s Number of DP slaves, max. 32; Per station	— Outputs	244 byte
Interface type External interface via master module 6ES7138-4HA00-0AB0 Physics RS 485 Isolated Yes Power supply to interface (15 to 30 V DC), max. No Functionality MPI PROFIBUS DP master PROFIBUS DP slave No DP master Transmission rate, max. No 12 Mbit/s 32; Per station	2. Interface	
Isolated Power supply to interface (15 to 30 V DC), max. No Functionality MPI PROFIBUS DP master PROFIBUS DP slave No DP master Transmission rate, max. Number of DP slaves, max. Yes No 12 Mbit/s 32; Per station		External interface via master module 6ES7138-4HA00-0AB0
Power supply to interface (15 to 30 V DC), max. Functionality • MPI • PROFIBUS DP master • PROFIBUS DP slave No DP master • Transmission rate, max. • Number of DP slaves, max. No No No 12 Mbit/s 32; Per station	Physics	RS 485
Functionality • MPI • PROFIBUS DP master • PROFIBUS DP slave No DP master • Transmission rate, max. • Number of DP slaves, max. 12 Mbit/s 32; Per station	Isolated	Yes
 MPI No PROFIBUS DP master PROFIBUS DP slave No DP master Transmission rate, max. Number of DP slaves, max. 12 Mbit/s 32; Per station 	Power supply to interface (15 to 30 V DC), max.	No
 PROFIBUS DP master PROFIBUS DP slave No DP master Transmission rate, max. Number of DP slaves, max. 12 Mbit/s 32; Per station 	Functionality	
 PROFIBUS DP slave DP master Transmission rate, max. Number of DP slaves, max. 32; Per station 	• MPI	No
DP master • Transmission rate, max. • Number of DP slaves, max. 12 Mbit/s 32; Per station	 PROFIBUS DP master 	Yes
 Transmission rate, max. Number of DP slaves, max. 32; Per station 	 PROFIBUS DP slave 	No
Number of DP slaves, max. 32; Per station	DP master	
· Landau de la companya de la compan	• Transmission rate, max.	12 Mbit/s
Services	Number of DP slaves, max.	32; Per station
	Services	

— PG/OP communication	Yes
— Routing	Yes
Global data communication	No
— S7 basic communication	Yes; I blocks only
— S7 basic communication — S7 communication	Yes; Only server, configured on one side
	No
— S7 communication, as client	Yes
— S7 communication, as server	Yes
— Equidistance	No
— Isochronous mode	Yes
— SYNC/FREEZE	
— Activation/deactivation of DP slaves	Yes
 Number of DP slaves that can be simultaneously activated/deactivated, max. 	8
 Direct data exchange (slave-to-slave communication) 	Yes
— DPV1	Yes
Address area	
— Inputs, max.	2 kbyte
— Outputs, max.	2 kbyte
User data per DP slave	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
Isochronous mode	
Isochronous operation (application synchronized up	No
to terminal)	
Communication functions	
PG/OP communication	Yes
Data record routing	Yes; With DP master module
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. 	70 h. to. 70 h. too (with V CEND on V DOV). C4 h. too (with
	76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)

Yes
Yes
No
See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication)
See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication)
12
11
1
1
11
11
1
1
11
10
0
0
10
4; As slave only with active interface, with IM 151-7 CPU as DP master
12; Depending on the configured connections for PG/OP and S7
12; Depending on the configured connections for PG/OP and S7 basic communication
basic communication Yes; ALARM_S, ALARM_SC, ALARM_SQ, ALARM_D, ALARM_DQ
basic communication Yes; ALARM_S, ALARM_SC, ALARM_SQ, ALARM_D,
basic communication Yes; ALARM_S, ALARM_SC, ALARM_SQ, ALARM_D, ALARM_DQ
basic communication Yes; ALARM_S, ALARM_SC, ALARM_SQ, ALARM_D, ALARM_DQ
basic communication Yes; ALARM_S, ALARM_SC, ALARM_SQ, ALARM_D, ALARM_DQ 300
basic communication Yes; ALARM_S, ALARM_SC, ALARM_SQ, ALARM_D, ALARM_DQ 300 Yes; Up to 2 simultaneously
basic communication Yes; ALARM_S, ALARM_SC, ALARM_SQ, ALARM_D, ALARM_DQ 300 Yes; Up to 2 simultaneously Yes
basic communication Yes; ALARM_S, ALARM_SC, ALARM_SQ, ALARM_D, ALARM_DQ 300 Yes; Up to 2 simultaneously Yes
basic communication Yes; ALARM_S, ALARM_SC, ALARM_SQ, ALARM_D, ALARM_DQ 300 Yes; Up to 2 simultaneously Yes 4
basic communication Yes; ALARM_S, ALARM_SC, ALARM_SQ, ALARM_D, ALARM_DQ 300 Yes; Up to 2 simultaneously Yes 4
basic communication Yes; ALARM_S, ALARM_SC, ALARM_SQ, ALARM_D, ALARM_DQ 300 Yes; Up to 2 simultaneously Yes 4 Yes Inputs, outputs, memory bits, DB, times, counters

Forcing	
• Forcing	Yes
• Forcing, variables	Inputs, outputs
Number of variables, max.	10
Diagnostic buffer	
• present	Yes
Number of entries, max.	500
— can be set	No
— of which powerfail-proof	100; Only the last 100 entries are retained
 Number of entries readable in RUN, max. 	499
— can be set	Yes; From 10 to 499
— preset	10
Service data	
• can be read out	Yes
Interrupto/diagnoctics/status information	
Interrupts/diagnostics/status information Alarms	Yes
Diagnostic functions	Yes
Diagnostics indication LED	
• Group error SF (red)	Yes
Monitoring 24 V voltage supply ON (green)	Yes
Monitoring 21 V Voltage supply STV (green)	
Potential separation	
between PROFIBUS DP and all other circuit	Yes
components	
Permissible potential difference	
between different circuits	75 V DC/60 V AC
Isolation	
Isolation tested with	500 V DC
Degree and class of protection	ID20
IP degree of protection	IP20
Configuration	
Configuration rules	max. 63 peripheral modules per station; station width < 1 m or < 2
	m; max. 10 A per load group (power module); master interface module on right next to IM 151-7 CPU (X2 interface)
Configuration software	module off right flext to livi 131-7 GFO (AZ iliteriace)
• STEP 7 Lite	No
Programming	
Command set	see instruction list
Nesting levels	8
	see instruction list
• System functions (SEC)	
System functions (SFC)System function blocks (SFB)	see instruction list

Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes; Optional
— CFC	Yes; Optional
— GRAPH	Yes; Optional
— HiGraph®	Yes; Optional
Know-how protection	
User program protection/password protection	Yes
Block encryption	Yes; With S7 block Privacy
Cycle time monitoring	
• lower limit	1 ms
• upper limit	6 000 ms
• adjustable	Yes
• preset	150 ms
Dimensions	
Width	60 mm; DP master module: 35 mm
Height	119.5 mm
Depth	75 mm
Weights	
Weight, approx.	200 g; DP master module: Approx. 100 g