SIEMENS

Data sheet

6ES7151-7FA20-0AB0

*** SPARE PART*** SIMATIC DP, IM151-7 F-CPU FOR ET200S, 128KB WORKING MEMORY WITH INTEGRATED PROFIBUS DP INTERFACE (9 PIN SUB-D, FEMALE) AS DP SLAVE, W/O BATTERY



Figure similar

General information	
Hardware product version	01
Firmware version	V2.6
Engineering with	
 Programming package 	STEP 7 V5.2 + SP1 or higher with HW update
Supply voltage	
Load voltage L+	
 Rated value (DC) 	24 V
 permissible range, lower limit (DC) 	20.4 V
• permissible range, upper limit (DC)	28.8 V
 Short-circuit protection 	Yes
 Reverse polarity protection 	Yes
Input current	
from supply voltage 1L+, max.	250 mA; 280 mA with DP master module
Output current	
for backplane bus (5 V DC), max.	700 mA

Power loss	
Power loss, typ.	3.3 W
lemory	
Work memory	
• integrated	128 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 	10 у
programming), min.	
Backup	
• present	Yes; Guaranteed by MMC (maintenance-free)
PU processing times	
for bit operations, typ.	0.1 µs
for word operations, typ.	0.2 µs
for fixed point arithmetic, typ.	2 µs
for floating point arithmetic, typ.	3 µs
PU-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.	511; Number range: 1 to 511
• Size, max.	16 kbyte
FB	
 Number, max. 	1 024; Number range: 0 to 2047
• Size, max.	16 kbyte
FC	
• Number, max.	1 024; Number range: 0 to 2047
• Size, max.	16 kbyte
OB	
• Size, max.	16 kbyte
 Number of free cycle OBs 	1; OB 1
 Number of time alarm OBs 	1; OB 10
 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 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

Nesting depth	
• per priority class	8
 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	
— can be set	Yes
— lower limit	0
— upper limit	999
IEC counter	
• present	Yes
• Туре	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
• Туре	SFB
• Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags),	64 kbyte
max.	
Flag	256 buto
• Number, max.	256 byte
Retentivity available	Yes
Retentivity preset	MB 0 to MB 15
 Number of clock memories 	8; 1 memory byte

Data blocks	
 Number, max. 	511; Number range: 1 to 511
• Size, max.	16 kbyte
Local data	
 per priority class, max. 	510 byte
Address area	
	2 048 byte
Inputs Outputs	2 048 byte
Outputs Process image	2 040 byte
Inputs	128 byte; Not adjustable
	128 byte; Not adjustable
Outputs Digital channels	
Inputs	16 336
- of which central	248
Outputs	16 336
— of which central	248
Analog channels	270
Inputs	1 021
— of which central	124
Outputs	1 021
— of which central	124
	124
Hardware configuration	
Number of modules per system, max.	63; Centralized
Time of day	
Clock	
 Hardware clock (real-time) 	Yes
 retentive and synchronizable 	Yes
Backup time	6 wk; At 40 °C ambient temperature, typically
 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

• in AS, slaveNonumber of PROFINET interfaces0Number of Wireless interfaces0Number of wireless interfaces0Interface Uniterface of wireless interfaces0PhysicsRS 485 interfacePhysicsRS 485IsolatedYesPower supply to interface (15 to 30 V DC), max.80 mAFunctionalityVes• MPIYes• PROFIBUS DP masterNo• PROFIBUS DP slaveYes; active / passive• Polit-to-point connectionNoMIPIVes• Number of connections12: Notice: 12 connections per CPU, not per interface• Transmission rate, max.12: Notice: 12 connections per CPU, not per interface• Clobal data communicationYes• S communication, as clientNo• S communication, as clientYes• SubitisYes with yes were saver, max.• Subitis12: Notice: 12 connections per CPU, not per interface• S communication, as clientNo• Societies area, max.32• SubitisYes were saver, max.• SubitisYes were saver, max.• SubitisYes with were saver of the transfer memory <td< th=""><th>• in AS, master</th><th>No</th></td<>	• in AS, master	No
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PROFIBUS DP slave • Point-to-point connectionYes; active / passive NoMPI• Number of connections12; Notice: 12 connections per CPU, not per interface 12 Mbit/s• Transmission rate, max.12 Mbit/sServices PG/OP communicationYes Yes; With master module- Global data communicationYes- S7 basic communicationYes- S7 communicationYes- S7 communication, as clientNo- S7 communication, as serverYesDP slave-CBSD filehttp://www.siemens.com/profibus-gad- Transmission rate, max.12; Notice: 12 connections per CPU, not per interface- S7 communication, as clientNo- S7 communication, as clientYes; only with passive interface- GSD filehttp://www.siemens.com/profibus-gad- Transmission rate, max.12; Notice: 12 connections per CPU, not per interface- Address area, max.32- S2 communication, as clientYes; only with passive interface- Address area, max.32 byte; Up to max. size of the transfer memory- Sr communication, as clientNo- S7 communication, as clientNo- S7 communication, as serverYes; Only when interface active and in master mode- S7 communication, as serverYes- Direct data exchange (slave-to-slave communication)Yes	● MPI	Yes
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- RoutingYes; With master module- Global data communicationYes- S7 basic communicationYes- S7 communicationYes- S7 communication, as clientNo- S7 communication, as serverYes- S7 communication, as server12 (Notice: 12 connections per CPU, not per interface- GSD filehttp://www.siemens.com/profibus-gsd- Transmission rate, max.12 Mbit/s- automatic baud rate searchYes; only with passive interface- Address area, max.32- BoutingYes; Only when interface active and in master mode- S7 communication, as clientNo- S7 communication, as serverYes- Direct data exchange (slave-to-slave communication)Yes- Direct data exchange (slave-to-slave communication)Yes	Services	
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DP slave• Number of connections12; Notice: 12 connections per CPU, not per interface• GSD filehttp://www.siemens.com/profibus-gsd• Transmission rate, max.12 Mbit/s• automatic baud rate searchYes; only with passive interface• Address area, max.32• User data per address area, max.32 byte; Up to max. size of the transfer memoryServices- Routing- RoutingYes; Only when interface active and in master mode- S7 communication, as clientNo- S7 communication, as serverYes- Direct data exchange (slave-to-slave communication)Yes		Yes
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• Transmission rate, max.12 Mbit/s• automatic baud rate searchYes; only with passive interface• Address area, max.32• User data per address area, max.32 byte; Up to max. size of the transfer memoryServices- RoutingYes; Only when interface active and in master mode- S7 communication, as clientNo- S7 communication, as serverYes- Direct data exchange (slave-to-slave communication)Yes		
 automatic baud rate search Address area, max. User data per address area, max. 2 byte; Up to max. size of the transfer memory Services Routing S7 communication, as client S7 communication, as server S7 communication, as server S7 communication, as server Yes Services Yes Yes Yes Yes Yes Yes 		
• Address area, max.32• User data per address area, max.32 byte; Up to max. size of the transfer memoryServices- RoutingYes; Only when interface active and in master mode- S7 communication, as clientNo- S7 communication, as serverYes- Direct data exchange (slave-to-slave communication)Yes		
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	-	
— Direct data exchange (slave-to-slave Yes communication)		
communication)		
— DPV1 No		Yes
	— DPV1	No

— Inputs	244 byte
— Outputs	244 byte
2. Interface	Eutomal interface via master module 6E67429 4UA00 0AD0
Interface type Physics	External interface via master module 6ES7138-4HA00-0AB0 RS 485
- Isolated	Yes
Power supply to interface (15 to 30 V DC), max.	No
Functionality	
• MPI	No
PROFIBUS DP master	Yes
Point-to-point connection	No
DP master	
Number of connections, max.	12; Notice: 12 connections per CPU, not per interface
Transmission rate, max.	12 Mbit/s
Number of DP slaves, max.	32; Per station
Services	
— PG/OP communication	Yes
	Yes
 — Routing — Global data communication 	No
	Yes; I blocks only
— S7 basic communication	Yes
— S7 communication	
— S7 communication, as client	No Yes
— S7 communication, as server	
	Yes
— SYNC/FREEZE	Yes
 Activation/deactivation of DP slaves 	Yes
 — 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
Global data communication	

• supported	Yes
 Supported Number of GD packets, max. 	4
	4
Number of GD packets, transmitter, max.	4
Number of GD packets, receiver, max.	
• Size of GD packets, max.	22 byte
• Size of GD packet (of which consistent), max.	22 byte
S7 basic communication	Yes
• supported	
• User data per job, max.	76 byte
 User data per job (of which consistent), max. 	76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)
S7 communication	
 supported 	Yes
• as server	Yes
● as client	No
 User data per job, max. 	180 byte
 User data per job (of which consistent), max. 	64 byte
S5 compatible communication	
 supported 	No
Standard communication (FMS)	
• supported	No
Number of connections	
Number of connections • overall	12
	12 11
• overall	
overallusable for PG communication	11
 overall usable for PG communication reserved for PG communication 	11 1
 overall usable for PG communication reserved for PG communication adjustable for PG communication, max. 	11 1 11
 overall usable for PG communication reserved for PG communication adjustable for PG communication, max. usable for OP communication 	11 1 11 11
 overall usable for PG communication reserved for PG communication adjustable for PG communication, max. usable for OP communication reserved for OP communication 	11 1 11 11 1
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Single step Yes Number of breakpoints 2 Status/control variable Yes Status/control variables Variables Inputs, outputs, memory bits, DB, times, counters Aumber of variables, max. - of which control variables, max. - Forcing Forcing, variables - Number of variables, max. - Present - Present Ves - adjustable - adjustable - values - values	Status block	Yes
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System function blocks (SFB) see instruction list Programming language	Nesting levels	8
Programming language	 System functions (SFC) 	see instruction list
	 System function blocks (SFB) 	see instruction list
— LAD Yes	Programming language	
	— LAD	Yes

— FBD	Yes
— STL	Yes
— SCL	Yes; Optional
— GRAPH	Yes; Optional
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	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
last modified:	03/11/2017