

*** 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
Memory	
Work memory	
<ul style="list-style-type: none"> integrated 	128 kbyte; For program and data
<ul style="list-style-type: none"> expandable 	No
Load memory	
<ul style="list-style-type: none"> Plug-in (MMC) 	Yes
<ul style="list-style-type: none"> Plug-in (MMC), max. 	8 Mbyte
<ul style="list-style-type: none"> Data management on MMC (after last programming), min. 	10 y
Backup	
<ul style="list-style-type: none"> present 	Yes; Guaranteed by MMC (maintenance-free)
CPU processing times	
for bit operations, typ.	0.1 μ s
for word operations, typ.	0.2 μ s
for fixed point arithmetic, typ.	2 μ s
for floating point arithmetic, typ.	3 μ s
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	
<ul style="list-style-type: none"> Number, max. 	511; Number range: 1 to 511
<ul style="list-style-type: none"> Size, max. 	16 kbyte
FB	
<ul style="list-style-type: none"> Number, max. 	1 024; Number range: 0 to 2047
<ul style="list-style-type: none"> Size, max. 	16 kbyte
FC	
<ul style="list-style-type: none"> Number, max. 	1 024; Number range: 0 to 2047
<ul style="list-style-type: none"> Size, max. 	16 kbyte
OB	
<ul style="list-style-type: none"> Size, max. 	16 kbyte
<ul style="list-style-type: none"> Number of free cycle OBs 	1; OB 1
<ul style="list-style-type: none"> Number of time alarm OBs 	1; OB 10
<ul style="list-style-type: none"> Number of delay alarm OBs 	1; OB 20
<ul style="list-style-type: none"> Number of cyclic interrupt OBs 	1; OB 35
<ul style="list-style-type: none"> Number of process alarm OBs 	1; OB 40
<ul style="list-style-type: none"> Number of DPV1 alarm OBs 	3; OB 55, 56, 57
<ul style="list-style-type: none"> Number of startup OBs 	1; OB 100
<ul style="list-style-type: none"> 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
• 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	
Retentive data area (incl. timers, counters, flags), max.	64 kbyte
Flag	
• 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	
I/O address area	
• Inputs	2 048 byte
• Outputs	2 048 byte
Process image	
• Inputs	128 byte; Not adjustable
• Outputs	128 byte; Not adjustable
Digital channels	
• Inputs	16 336
— of which central	248
• Outputs	16 336
— of which central	248
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
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, master
- in AS, slave

No
No

Interfaces

Number of PROFINET interfaces
Number of wireless interfaces

0
0

1. Interface

Interface type
Physics
Isolated
Power supply to interface (15 to 30 V DC), max.

Integrated RS 485 interface
RS 485
Yes
80 mA

Functionality

- MPI
- PROFIBUS DP master
- PROFIBUS DP slave
- Point-to-point connection

Yes
No
Yes; active / passive
No

MPI

- Number of connections
- Transmission rate, max.

12; Notice: 12 connections per CPU, not per interface
12 Mbit/s

Services

- PG/OP communication
- Routing
- Global data communication
- S7 basic communication
- S7 communication
- S7 communication, as client
- S7 communication, as server

Yes
Yes; With master module
Yes
Yes
Yes
No
Yes

DP slave

- Number of connections
- GSD file
- Transmission rate, max.
- automatic baud rate search
- Address area, max.
- User data per address area, max.

12; Notice: 12 connections per CPU, not per interface
<http://www.siemens.com/profibus-gsd>
12 Mbit/s
Yes; only with passive interface
32
32 byte; Up to max. size of the transfer memory

Services

- Routing
- S7 communication, as client
- S7 communication, as server
- Direct data exchange (slave-to-slave communication)
- DPV1

Yes; Only when interface active and in master mode
No
Yes
Yes
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
• 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
— Routing	Yes
— Global data communication	No
— S7 basic communication	Yes; I blocks only
— S7 communication	Yes
— S7 communication, as client	No
— S7 communication, as server	Yes
— Equidistance	Yes
— 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 to terminal)	No
Communication functions	
PG/OP communication	Yes
Global data communication	

<ul style="list-style-type: none"> • supported 	Yes
<ul style="list-style-type: none"> • Number of GD packets, max. 	4
<ul style="list-style-type: none"> • Number of GD packets, transmitter, max. 	4
<ul style="list-style-type: none"> • Number of GD packets, receiver, max. 	4
<ul style="list-style-type: none"> • Size of GD packets, max. 	22 byte
<ul style="list-style-type: none"> • Size of GD packet (of which consistent), max. 	22 byte
S7 basic communication	
<ul style="list-style-type: none"> • supported 	Yes
<ul style="list-style-type: none"> • User data per job, max. 	76 byte
<ul style="list-style-type: none"> • 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	
<ul style="list-style-type: none"> • supported 	Yes
<ul style="list-style-type: none"> • as server 	Yes
<ul style="list-style-type: none"> • as client 	No
<ul style="list-style-type: none"> • User data per job, max. 	180 byte
<ul style="list-style-type: none"> • User data per job (of which consistent), max. 	64 byte
S5 compatible communication	
<ul style="list-style-type: none"> • supported 	No
Standard communication (FMS)	
<ul style="list-style-type: none"> • supported 	No
Number of connections	
<ul style="list-style-type: none"> • overall 	12
<ul style="list-style-type: none"> • usable for PG communication 	11
<ul style="list-style-type: none"> — reserved for PG communication 	1
<ul style="list-style-type: none"> — adjustable for PG communication, max. 	11
<ul style="list-style-type: none"> • usable for OP communication 	11
<ul style="list-style-type: none"> — reserved for OP communication 	1
<ul style="list-style-type: none"> — adjustable for OP communication, max. 	11
<ul style="list-style-type: none"> • usable for S7 basic communication 	10
<ul style="list-style-type: none"> — reserved for S7 basic communication 	0
<ul style="list-style-type: none"> — adjustable for S7 basic communication, max. 	10
<ul style="list-style-type: none"> • usable for routing 	4; As slave only with active interface, with IM 151-7 CPU as DP master
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.	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
Potential separation	
between load voltage and all other switching components	Yes
between PROFIBUS DP and all other circuit components	Yes
Permissible potential difference	
between different circuits	75 V DC/60 V AC
Isolation	
Isolation tested with	500 V DC
Degree and class of protection	
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	
• STEP 7	Yes
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; Optional
— GRAPH	Yes; Optional

Know-how protection

• User program protection/password protection	Yes
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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
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last modified: 03/11/2017