

\*\*\* SPARE PART\*\*\* SIMATIC DP, IM 154-8 PN/DP PLC FOR ET200PRO, 256KB WORK MEMORY, INT. PROFINET IF, INT.PROFIBUS DP MASTER/SLAVE IF PROT. IP65/67, MMC REQUIRED



General information	
Hardware product version	01
Firmware version	V2.5.0
Engineering with	
<ul style="list-style-type: none"> <li>Programming package</li> </ul>	STEP 7 V5.4 SP1 with HW update
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
external protection for power supply lines (recommendation)	MCB 24 V DC / 16 A with tripping characteristic Type B and C (see ET 200pro manual)
Load voltage L+	
<ul style="list-style-type: none"> <li>Rated value (DC)</li> <li>permissible range, lower limit (DC)</li> <li>permissible range, upper limit (DC)</li> <li>Reverse polarity protection</li> </ul>	24 V 20.4 V 28.8 V Yes
Input current	
Current consumption, typ.	350 mA

Current consumption (in no-load operation), typ.	200 mA; Typical, current consumption for CPU in STOP state
Inrush current, typ.	2 A
I <sup>2</sup> t	0.04 A <sup>2</sup> -s; Typical

### Power loss

Power loss, typ.	8.5 W
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### Memory

#### Work memory

• integrated	256 kbyte
• expandable	No

#### Load memory

• Plug-in (MMC)	Yes
• Plug-in (MMC), max.	8 Mbyte
• Data management on MMC (after last programming), min.	10 y

#### Backup

• present	Yes
• without battery	Yes

### CPU 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

### CPU-blocks

Number of blocks (total)	1 024; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.
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#### DB

• Number, max.	1 023; Number band: 1 to 1023
• 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 isochronous mode OBs	1; OB 61
• Number of startup OBs	1; OB 100
• Number of asynchronous error OBs	6; OB 80, 82, 83, 85, 86, 87 (OB83 only for PROFINET IO)
• Number of synchronous error OBs	2; OB 121, 122
<b>Nesting depth</b>	
• per priority class	8
• additional within an error OB	4
<b>Counters, timers and their retentivity</b>	
<b>S7 counter</b>	
• Number	256
<b>Retentivity</b>	
— adjustable	Yes
— lower limit	0
— upper limit	255
— preset	8
<b>Counting range</b>	
— can be set	Yes
— lower limit	0
— upper limit	999
<b>IEC counter</b>	
• present	Yes
• Type	SFB
<b>S7 times</b>	
• Number	256
<b>Retentivity</b>	
— adjustable	Yes
— lower limit	0
— upper limit	255
— preset	No retentivity
<b>Time range</b>	
— lower limit	10 ms
— upper limit	9 990 s
<b>IEC timer</b>	
• present	Yes
• Type	SFB
<b>Data areas and their retentivity</b>	
retentive data area in total	All, 128 KB max.
<b>Flag</b>	
• Number, max.	2 048 byte
• Retentivity available	Yes; MB 0 to MB 2047

• Retentivity preset	MB 0 to MB 15
• Number of clock memories	8
<b>Data blocks</b>	
• Number, max.	1 023; From DB 1 to DB 1023
• Size, max.	16 kbyte
• Retentivity adjustable	Yes; From DB 1 to DB 1023
• Retentivity preset	Yes
<b>Local data</b>	
• per priority class, max.	1 024 byte; per block max. 510
<b>Address area</b>	
<b>I/O address area</b>	
• Inputs	2 048 byte
• Outputs	2 048 byte
of which distributed	
— Inputs	2 048 byte
— Outputs	2 048 byte
<b>Process image</b>	
• Inputs, adjustable	2 048 byte
• Outputs, adjustable	2 048 byte
• Inputs, default	128 byte
• Outputs, default	128 byte
<b>Subprocess images</b>	
• Number of subprocess images, max.	1
<b>Digital channels</b>	
• Inputs	16 384
— of which central	128
• Outputs	16 384
— of which central	64
<b>Analog channels</b>	
• Inputs	1 024
— of which central	64
• Outputs	1 024
— of which central	64
<b>Hardware configuration</b>	
Integrated power supply	Yes; 24 V DC
<b>Number of DP masters</b>	
• integrated	1
<b>Rack</b>	
• Racks, max.	1
• Modules per rack, max.	16; Expansion width max. 1 m

Time of day	
<b>Clock</b>	
• Hardware clock (real-time)	Yes
• retentive and synchronizable	Yes; on MPI: master/slave; on DP: when operated as DP master: master/slave; on PROFINET: via NTP (client only)
• Backup time	6 wk; At 40 °C ambient temperature
• Deviation per day, max.	10 s
<b>Operating hours counter</b>	
• Number	1
• Range of values	0 to 2 <sup>31</sup> hours (when using SFC 101)
• Granularity	1 h
• retentive	Yes; Must be restarted at each restart
<b>Clock synchronization</b>	
• supported	Yes
• to MPI, master	Yes
• to MPI, slave	Yes
• to DP, master	Yes
• to DP, slave	Yes; With DP slave only slave clock
• in AS, master	No
• in AS, slave	No
• on Ethernet via NTP	Yes; As client
<b>Interfaces</b>	
Interfaces/bus type	1x MPI/PROFIBUS DP, 1x PROFINET (3 ports)
Number of industrial Ethernet interfaces	1; Ethernet (2 x M12 d-coded; 1 x RJ45)
Number of PROFINET interfaces	1
Number of USB interfaces	0
Number of parallel interfaces	0
Number of wireless interfaces	0
<b>1. Interface</b>	
Interface type	Integrated RS 485 interface
Physics	RS 485
Isolated	Yes
<b>Functionality</b>	
• MPI	Yes
• PROFIBUS DP master	Yes
• PROFIBUS DP slave	Yes
• Point-to-point connection	No
<b>MPI</b>	
• Number of connections	16
• Transmission rate, max.	12 Mbit/s
<b>Services</b>	

— PG/OP communication	Yes
— Routing	Yes
— Global data communication	Yes
— S7 basic communication	Yes
— S7 communication	Yes
— S7 communication, as client	No
— S7 communication, as server	Yes
<b>DP master</b>	
• Transmission rate, max.	12 Mbit/s
• Number of DP slaves, max.	124
<b>Services</b>	
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	No
— S7 basic communication	Yes
— S7 communication	Yes
— S7 communication, as client	No
— S7 communication, as server	Yes
— Equidistance	Yes
— Isochronous mode	Yes; OB 61
— SYNC/FREEZE	Yes
— Activation/deactivation of DP slaves	Yes
— DPV1	Yes
<b>Address area</b>	
— Inputs, max.	2 048 byte
— Outputs, max.	2 048 byte
<b>User data per DP slave</b>	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
<b>DP slave</b>	
• Transmission rate, max.	12 Mbit/s
• automatic baud rate search	Yes; only with passive interface
• Address area, max.	32
• User data per address area, max.	32 byte
<b>Services</b>	
— Routing	Yes
— Global data communication	No
— S7 basic communication	No
— S7 communication	Yes
— S7 communication, as client	No
— S7 communication, as server	Yes

— Direct data exchange (slave-to-slave communication)	Yes
— DPV1	No
<b>Transfer memory</b>	
— Inputs	244 byte
— Outputs	244 byte
<b>2. Interface</b>	
Interface type	PROFINET
Physics	Ethernet
Isolated	Yes
automatic detection of transmission rate	Yes
<b>Functionality</b>	
• MPI	No
• PROFINET IO Controller	Yes
• PROFINET CBA	Yes
• PROFIBUS DP master	No
• PROFIBUS DP slave	No
• Point-to-point connection	No
<b>PROFINET IO Controller</b>	
• Transmission rate, max.	100 Mbit/s
<b>Services</b>	
— PG/OP communication	Yes
— Routing	Yes
— S7 routing	Yes
— S7 communication	Yes
— Isochronous mode	No
— Open IE communication	Yes; Via TCP/IP, ISO on TCP, and UDP
— IRT	No
— Prioritized startup	No
— Number of connectable IO Devices, max.	128
— of which in line, max.	128
— Activation/deactivation of IO Devices	Yes
— IO Devices changing during operation (partner ports), supported	No
— Device replacement without swap medium	No
— Send cycles	250 µs, 500 µs, 1 ms
— Updating time	250 µs - 128 ms (with send cycle of 250 µs); 500 µs - 256 ms (with send cycle of 500 µs); 1 ms - 512 ms (with send cycle 1 ms); minimum value of the send cycle is also dependent on the set communication share for PROFINET IO, on the number of IO Devices
<b>Address area</b>	

— Inputs, max.	2 048 byte
— Outputs, max.	2 048 byte
— User data consistency, max.	254 byte
<b>PROFINET CBA</b>	
• acyclic transmission	Yes
• cyclic transmission	Yes
<b>Isochronous mode</b>	
Isochronous operation (application synchronized up to terminal)	Yes; For PROFIBUS only
Number of DP masters with isochronous mode	1
<b>Communication functions</b>	
PG/OP communication	Yes
<b>Global data communication</b>	
• 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
<b>S7 basic communication</b>	
• supported	Yes
• User data per job, max.	76 byte
• User data per job (of which consistent), max.	76 byte
<b>S7 communication</b>	
• supported	Yes
• as server	Yes
• as client	Yes
<b>Open IE communication</b>	
• TCP/IP	Yes
— Number of connections, max.	8
— Data length, max.	8 kbyte; 8192 bytes with connection type 11h; 1460 bytes with connection type 01h
• ISO-on-TCP (RFC1006)	Yes
— Number of connections, max.	8
— Data length, max.	8 kbyte
• UDP	Yes
— Number of connections, max.	8
— Data length, max.	1 472 byte
<b>PROFINET CBA (at set setpoint communication load)</b>	
• Setpoint for the CPU communication load	50 %



• Number of remote interconnection partners	32
• Number of functions, master/slave	30
• Total of all master/slave connections	1 000
• Data length of all incoming connections master/slave, max.	4 000 byte
• Data length of all outgoing connections master/slave, max.	4 000 byte
• Number of device-internal and PROFIBUS interconnections	500
• Data length of device-internal und PROFIBUS interconnections, max.	4 000 byte
• Data length per connection, max.	1 400 byte
<b>Remote interconnections with acyclic transmission</b>	
— Sampling frequency: Sampling time, min.	500 ms
— Number of incoming interconnections	100
— Number of outgoing interconnections	100
— Data length of all incoming interconnections, max.	2 000 byte
— Data length of all outgoing interconnections, max.	2 000 byte
— Data length per connection, max.	1 400 byte
<b>Remote interconnections with cyclic transmission</b>	
— Transmission frequency: Transmission interval, min.	1 ms
— Number of incoming interconnections	200
— Number of outgoing interconnections	200
— Data length of all incoming interconnections, max.	2 000 byte
— Data length of all outgoing interconnections, max.	2 000 byte
— Data length per connection, max.	250 byte
<b>HMI variables via PROFINET (acyclic)</b>	
— Number of stations that can log on for HMI variables (PN OPC/iMap)	3; 2x PN OPC/1x iMap
— HMI variable updating	500 ms
— Number of HMI variables	200
— Data length of all HMI variables, max.	2 000 byte
<b>PROFIBUS proxy functionality</b>	
— supported	Yes
— Number of linked PROFIBUS devices	16
— Data length per connection, max.	240 byte
<b>Number of connections</b>	
• overall	16

- usable for PG communication
  - reserved for PG communication
  - adjustable for PG communication, min.
  - adjustable for PG communication, max.
- usable for OP communication
  - reserved for OP communication
  - adjustable for OP communication, min.
  - adjustable for OP communication, max.
- usable for S7 basic communication
  - reserved for S7 basic communication
  - adjustable for S7 basic communication, min.
  - adjustable for S7 basic communication, max.
- usable for routing

15
1
1
15
15
1
1
15
14
0
0
14
X1 as MPI: max. 10; X1 as DP master: max. 24; X1 as DP slave (active): max. 14; X2 as PROFINET: 24 max.

### S7 message functions

Number of login stations for message functions, max.	16
Process diagnostic messages	Yes
simultaneously active Alarm-S blocks, max.	40

### Test commissioning functions

Status block	Yes
Single step	Yes
Number of breakpoints	2

### Status/control

• Status/control variable	Yes
• Variables	Inputs, outputs, memory bits, DB, times, counters
• Number of variables, max.	30
— of which status variables, max.	30
— of which control variables, max.	14

### Forcing

• Forcing	Yes
• Forcing, variables	I/O
• Number of variables, max.	10

### Diagnostic buffer

• present	Yes
• Number of entries, max.	500
— adjustable	No

### Potential separation

between backplane bus and electronics	No
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between backplane bus and all other circuit components	Yes
between supply and all other circuits	Yes
<b>Permissible potential difference</b>	
between different circuits	75 V DC/60 V AC
<b>Isolation</b>	
Isolation tested with	In general 500 V DC, Ethernet interface 1500 V AC (for P1 and P2 on CM, for P3 on IM)
<b>Degree and class of protection</b>	
IP degree of protection	IP65/67
<b>Standards, approvals, certificates</b>	
CE mark	Yes
CSA approval	No
cULus	Yes
FM approval	No
RCM (formerly C-TICK)	Yes
<b>Configuration</b>	
<b>Configuration software</b>	
• STEP 7	Yes; From V 5.3 SP1 + HW-Support Package
<b>Programming</b>	
• Command set	see instruction list
• Nesting levels	8
• System functions (SFC)	see instruction list
• System function blocks (SFB)	see instruction list
<b>Programming language</b>	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— CFC	Yes
— GRAPH	Yes
— HiGraph®	Yes
<b>Know-how protection</b>	
• User program protection/password protection	Yes
<b>Dimensions</b>	
Width	135 mm
Height	130 mm
Depth	65 mm; 60 mm without cover for RJ45 socket; 65 mm with cover for RJ45 socket
<b>Weights</b>	

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Weight, approx.

555 g

**last modified:**

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