



Figure similar

SIPLUS ET 200S IM 151-7 CPU based on 6ES7151-7AA21-0AB0 with conformal coating, -25...+60 °C, ET 200S, 128 KB work memory with integrated PROFIBUS DP interface (9-pole D-sub socket) as DP Slave, without battery SIMATIC MMC required

General information	
HW functional status	01
Firmware version	V3.3
Product function	
• Isochronous mode	No
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)	24 V DC/16 A miniature circuit breaker with type B and C tripping characteristics. Note: A 24 V DC/16 A miniature circuit breaker with type B tripping characteristics trips before and with type C tripping characteristic after the device protection fuse.
Mains buffering	
• Mains/voltage failure stored energy time	5 ms
Input current	
Inrush current, typ.	1.8 A
I ² t	0.09 A ² ·s
from supply voltage 1L+, max.	320 mA; 410 mA with DP master module
Output current	
for backplane bus (5 V DC), max.	700 mA
Power loss	
Power loss, typ.	4.2 W
Memory	
Work memory	
• integrated	128 kbyte
• expandable	No
Load memory	
• Plug-in (MMC)	Yes
• Plug-in (MMC), max.	8 Mbyte
• Data management on MMC (after last programming), min.	10 a
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	
• 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 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
— 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
— 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	
• Size, max.	256 byte

<ul style="list-style-type: none"> • Retentivity available • Retentivity preset • Number of clock memories 	Yes; MB 0 to MB 255 MB 0 to MB 15 8; 1 memory byte
Data blocks	
<ul style="list-style-type: none"> • Retentivity adjustable • Retentivity preset 	Yes; via non-retain property on DB Yes
Local data	
<ul style="list-style-type: none"> • per priority class, max. 	32 kbyte; Max. 2048 bytes per block
Address area	
I/O address area	
<ul style="list-style-type: none"> • Inputs • Outputs 	2 048 byte 2 048 byte
of which distributed	
<ul style="list-style-type: none"> — Inputs — Outputs 	2 048 byte 2 048 byte
Process image	
<ul style="list-style-type: none"> • Inputs • Outputs • Inputs, adjustable • Outputs, adjustable • Inputs, default • Outputs, default 	2 048 byte 2 048 byte 2 048 byte 2 048 byte 128 byte 128 byte
Digital channels	
<ul style="list-style-type: none"> • Inputs <ul style="list-style-type: none"> — of which central • Outputs <ul style="list-style-type: none"> — of which central 	16 336 496 16 336 496
Analog channels	
<ul style="list-style-type: none"> • Inputs <ul style="list-style-type: none"> — of which central • Outputs <ul style="list-style-type: none"> — of which central 	1 021 124 1 021 124
Hardware configuration	
Number of modules per system, max.	63; Centralized
Mounting rail	
<ul style="list-style-type: none"> • Number of mounting rails that can be used • Length of mounting rail, max. 	1 Station width: ≤ 1 m or < 2 m
Time of day	
Clock	
<ul style="list-style-type: none"> • 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 	Yes Yes 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
Operating hours counter	
<ul style="list-style-type: none"> • Number • Number/Number range • Range of values • Granularity • retentive 	1 0 0 to 2 ³¹ hours (when using SFC 101) 1 h Yes; Must be restarted at each restart
Clock synchronization	
<ul style="list-style-type: none"> • supported • to MPI, master • on MPI, device • to DP, master • on DP, device • in AS, master • in AS, device 	Yes Yes Yes Yes; With DP slave only slave clock Yes No No

Interfaces	
Interfaces/bus type	1 x MPI/PROFIBUS DP
1. Interface	
Interface type	Integrated RS 485 interface
Isolated	Yes
Interface types	
<ul style="list-style-type: none"> • RS 485 • Output current of the interface, max. 	Yes 80 mA
Protocols	
<ul style="list-style-type: none"> • MPI • PROFIBUS DP master • PROFIBUS DP device • Point-to-point connection 	Yes No Yes; active / passive No
MPI	
<ul style="list-style-type: none"> • Transmission rate, max. 	12 Mbit/s
Services	
<ul style="list-style-type: none"> — 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; Only server, configured on one side No Yes
PROFIBUS DP device	
<ul style="list-style-type: none"> • GSD file • Transmission rate, max. • automatic baud rate search • Address area, max. • User data per address area, max. 	The latest GSD file is available on the Internet (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	
<ul style="list-style-type: none"> — PG/OP communication — Routing — Global data communication — S7 basic communication — S7 communication — S7 communication, as client — S7 communication, as server — Direct data exchange (slave-to-slave communication) — DPV1 	Yes Yes; Only with active, integrated DP slave interface and inserted DP master module in DP master mode No No Yes; Only server, configured on one side No Yes Yes No
Transfer memory	
<ul style="list-style-type: none"> — Inputs — Outputs 	244 byte 244 byte
2. Interface	
Interface type	External interface via master module 6ES7138-4HA00-0AB0
Isolated	Yes
Interface types	
<ul style="list-style-type: none"> • RS 485 • Output current of the interface, max. 	Yes No
Protocols	
<ul style="list-style-type: none"> • MPI • PROFIBUS DP master • PROFIBUS DP device 	No Yes No
PROFIBUS DP master	
<ul style="list-style-type: none"> • Transmission rate, max. • max. number of DP devices 	12 Mbit/s 32; Per station
Services	
<ul style="list-style-type: none"> — PG/OP communication 	Yes

— Routing	Yes
— Global data communication	No
— S7 basic communication	Yes; 1 blocks only
— S7 communication	Yes; Only server, configured on one side
— S7 communication, as client	No
— S7 communication, as server	Yes
— Equidistance	Yes
— Isochronous mode	No
— SYNC/FREEZE	Yes
— activation/deactivation of DP devices	Yes
— max. number of DP devices that can be activated/deactivated at the same time	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 device	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
Protocols	
Open IE communication	
• TCP/IP	No
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.	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.	See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication)
• User data per job (of which consistent), max.	See online help of STEP 7 (shared parameters of the SFBs/FBs and of the SFCs/FCs of S7 Communication)
Number of connections	
• overall	12
• 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 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.	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	Inputs, outputs
• 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
• Number of entries readable in RUN, max.	499
— adjustable	Yes; From 10 to 499
— preset	10
Service data	
• can be read out	Yes
Interrupts/diagnostics/status information	
Alarms	Yes
Diagnostics function	Yes
Diagnostics indication LED	
• Group error SF (red)	Yes
• Monitoring 24 V voltage supply ON (green)	Yes
Potential separation	
between PROFIBUS DP and all other circuit components	Yes
Isolation	
Isolation tested with	500 V DC
Standards, approvals, certificates	
CE mark	Yes
Ambient conditions	
Ambient temperature during operation	
• min.	-25 °C; = Tmin
• max.	60 °C; = Tmax
Altitude during operation relating to sea level	
• Installation altitude above sea level, max.	5 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m) // Tmin ... (Tmax - 10 K) at 795 hPa ... 658 hPa (+2 000 m ... +3 500 m) // Tmin ... (Tmax -20 K) at 658 hPa ... 540 hPa (+3 500 m ... +5 000 m)
Relative humidity	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
Resistance	
Use in stationary industrial systems	
— to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request

— to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	
— to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *	
Use on ships/at sea		
— to biologically active substances according to EN 60721-3-6	Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on request	
— to chemically active substances according to EN 60721-3-6	Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *	
— to mechanically active substances according to EN 60721-3-6	Yes; Class 6S3 incl. sand, dust; *	
Usage in industrial process technology		
— Against chemically active substances acc. to EN 60654-4	Yes; Class 3 (excluding trichlorethylene)	
— Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)	
Remark		
— Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04	* The supplied plug covers must remain in place over the unused interfaces during operation!	
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 Lite	No	
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	
— 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	
Classifications		
	Version	Classification
eClass	14	27-24-26-07
eClass	12	27-24-26-07
eClass	9.1	27-24-26-07
eClass	9	27-24-26-07
eClass	8	27-24-26-07

eClass	7.1	27-24-26-07
eClass	6	27-24-26-07
ETIM	10	EC001603
ETIM	9	EC001603
ETIM	8	EC001603
ETIM	7	EC001603
IDEA	4	3565
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval



[Manufacturer Declaration](#)



[China RoHS](#)



EMV

For use in hazardous locations



[CCC-Ex](#)

last modified:

12/8/2024