



SIMATIC S7-MODULAR EMBEDDED CONTROLLER,
EC31-RTX, 1 GB RAM,
2 GB FLASH DISK WITH PREINSTALLED SW: WINDOWS
XP EMBEDDED;
SIMATIC WINAC RTX,
SIMATIC SOFTNET-S7/ LEAN,
INTERFACES: 1. IF: 2X PROFINET,
2. IF: 1X FAST ETHERNET,
3. IF: 2 X USB, MMC SLOT,
DOCUMENTATION ON CD/DVD, RESTORE CD/DVD

General information	
Hardware product version	04
Firmware version	V1.3
PC configuration	
Computer platform	SIMATIC S7 modular embedded controller
Processor selection	Intel Core Duo 1.2 GHz
Main memory	1 GB RAM
Flash Disk	2 Gbyte
Operating systems	Windows XP embedded SP2 FP2007
Installed software	
Control	SIMATIC WinAC RTX 2009
Communication	Yes
Supply voltage	
Rated value, 24 V DC	Yes
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Mains buffering	
Mains/voltage failure buffering time	5 ms
Input current	

Rated value at 24 V DC	800 mA ; without backplane bus and USB power supply
Power loss	
Power loss, typ.	34 W
Memory	
Type of memory	512 KB non-volatile memory for retentive data
Work memory	
integrated	1 Gbyte
CPU processing times	
for bit operations, typ.	0.0040 µs ; Typical
for fixed point arithmetic, typ.	0.0030 µs ; Typical
for floating point arithmetic, typ.	0.0040 µs ; Typical
CPU-blocks	
DB	
Number, max.	Max. code size and max. data size: 4 MB each
Size, max.	64 kbyte
FB	
Number, max.	Max. code size and max. data size: 4 MB each
Size, max.	64 kbyte
FC	
Number, max.	Max. code size and max. data size: 4 MB each
Size, max.	64 kbyte
OB	
Number, max.	Max. code size and max. data size: 4 MB each
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	1 ; OB 20
Number of time interrupt OBs	9 ; OB 30-38
Number of process alarm OBs	1 ; OB 40
Number of startup OBs	2 ; OB 100, 102
Number of asynchronous error OBs	7 ; OB 80, 82-85, 86, 88
Number of synchronous error OBs	2 ; OB 121, 122
Nesting depth	
per priority class	24
additional within an error OB	24
Counters, timers and their retentivity	
S7 counter	
Number	2048

Retentivity	
adjustable	Yes
lower limit	0
upper limit	2047
preset	8
Counting range	
adjustable	Yes
lower limit	0
upper limit	999
IEC counter	
present	Yes
Type	SFB
S7 times	
Number	2048
Retentivity	
adjustable	Yes
lower limit	0
upper limit	2047
Time range	
lower limit	10 ms
upper limit	9990 s
IEC timer	
present	Yes
Type	SFB
Data areas and their retentivity	
retentive data area, total	512 KB
Flag	
Number, max.	16 kbyte
of which retentive without battery	MB 0 to MB 16383
Retentivity preset	MB 0 to MB 15
Number of clock memories	8
Data blocks	
Number, max.	Max. code size and max. data size: 4 MB each
Size, max.	64 kbyte
Address area	
I/O address area	
Inputs	16 kbyte
Outputs	16 kbyte

of which distributed	
Inputs	8 kbyte
Outputs	8 kbyte
Process image	
Inputs, adjustable	16 kbyte
Outputs, adjustable	16 kbyte
Inputs, default	512 byte
Outputs, default	512 byte
Subprocess images	
Number of subprocess images, max.	15
Digital channels	
Inputs	128000
Outputs	128000
Analog channels	
Inputs	8000
Outputs	8000
Hardware configuration	
Integrated power supply	Yes
Time of day	
Clock	
Hardware clock (real-time clock)	Yes ; Resolution: 1 s
Clock synchronization	
supported	Yes
to PC-CP, slave	Yes
on Ethernet via NTP	Yes
Interfaces	
Number of USB interfaces	2
USB port	2 x USB 2.0 high speed/high current
serial interface	0
Industrial Ethernet	
Industrial Ethernet interface	X1: 2 ports 10/100 Mbit/s (ERTEC-based) X2: 1 port 10/100 Mbit/s
1. Interface	
Interface type	PROFINET
Physics	2x RJ45
automatic detection of transmission rate	Yes
Autonegotiation	Yes
Autocrossing	Yes
Number of connection resources	32

Functionality	
MPI	No
DP master	No
DP slave	No
PROFINET IO Device	No
PROFINET IO Controller	Yes
PROFINET CBA	Yes
Open IE communication	Yes
Point-to-point connection	No
PROFINET IO Controller	
Number of connectable IO Devices, max.	256
Number of IO Devices with IRT and the option "high flexibility"	64
IRT, supported	Yes
Prioritized startup supported	Yes
Number of IO Devices, max.	32
Activation/deactivation of IO Devices	Yes
Number of IO Devices that can be simultaneously activated/deactivated, max.	8
IO Devices changing during operation (partner ports), supported	Yes
Number of IO Devices per tool, max.	8
Send cycles	Adjustable: 250 µs, 500 µs and 1 ms
Updating times	250 µs - 128 ms (with signal cycle 250 µs); 500 µs - 256 ms (with signal cycle 500 µs); 1 ms - 512 ms (with signal cycle 1 ms)
Services	
PG/OP communication	Yes
S7 routing	Yes
S7 communication	Yes
Isochronous mode	No
Address area	
Inputs, max.	16 kbyte
Outputs, max.	16 kbyte
User data per address area, max.	2 kbyte
User data consistency, max.	256 byte
PROFINET CBA	
acyclic transmission	Yes
cyclic transmission	Yes
Open IE communication	
Open IE communication, supported	Yes

Number of connections, max.	32
Local port numbers used at the system end	0, 20, 21, 23, 25, 80, 102, 135, 161, 8080, 34962, 34963, 34964, 65532, 65533, 65534, 65535
PROFINET functions	
Detection of accessible nodes, supported	Yes ; DCP
Assignment of the IP address, supported	Yes ; DCP
Assignment of the device name, supported	Yes ; DCP
Topology recognition, supported	Yes ; LLDP, LLDP MIB, SNMP
extended network diagnostics with Standard MIB II, supported	Yes ; Standard MIB II, SNMP
2. Interface	
Interface type	Integrated Ethernet interface
Physics	Ethernet RJ45
automatic detection of transmission rate	Yes
Autonegotiation	Yes
Autocrossing	No
Number of connection resources	32
Functionality	
PROFINET IO Controller	No
PROFINET IO Device	No
PROFINET CBA	No
Communication functions	
PG/OP communication	Yes
Global data communication	
supported	No
S7 basic communication	
supported	No
S7 communication	
supported	Yes
as server	Yes
as client	Yes
Open IE communication	
TCP/IP	Yes ; Via integrated PROFINET interface (X1) and loadable FBs
Number of connections, max.	32
Data length, max.	8192 byte
ISO-on-TCP (RFC1006)	No
UDP	Yes ; Via integrated PROFINET interface (X1) and loadable FBs
Number of connections, max.	32
Data length, max.	1472 byte

Number of connections	
overall	64
usable for PG communication	
reserved for PG communication	1
usable for OP communication	
reserved for OP communication	1
S7 message functions	
Number of login stations for message functions, max.	62 ; The alarm functions cannot currently be used for central bus modules
Process diagnostic messages	Yes ; Alarm_S
Test commissioning functions	
Status/control	
Status/control variable	Yes
Forcing	
Forcing	No
Diagnostic buffer	
present	Yes
EMC	
Emission of radio interference acc. to EN 55 011	
Limit class A, for use in industrial areas	Yes
Degree and class of protection	
IP20	Yes
Standards, approvals, certificates	
CE mark	Yes
CSA approval	Yes ; Included in cULus
cULus	Yes
RCM (former C-TICK)	Yes
FM approval	Yes
Ambient conditions	
Operating temperature	
min.	0 °C
max.	50 °C
Storage/transport temperature	
min.	-40 °C
max.	70 °C
Vibrations	
Operation, tested according to IEC 60068-2-6	Yes
Transport, tested acc. to IEC 60068-2-6	Yes

Shock test	
tested according to IEC 60068-2-27	Yes
tested according to IEC 60068-2-29	Yes
Shock testing	
tested according to IEC 60068-2-29	Yes
Operation, tested according to IEC 60068-2-29	Operation, tested according to IEC 60068-2-27
Storage/transport, tested acc. to IEC 60068-2-29	Yes
Configuration	
Configuration software	
STEP 7	Yes
Programming	
Programming language	
LAD	Yes
FBD	Yes
STL	Yes
SCL	Yes
CFC	Yes
GRAPH	Yes
HiGraph®	Yes
Dimensions	
Width	160 mm
Height	125 mm
Depth	115 mm
Status	Jul 21, 2014