SIEMENS

Data sheet

6AG1515-2RN03-7AB0



SIPLUS S7-1500 CPU 1515R-2 PN based on 6ES7515-2RN03-0AB0 with conformal coating -40...+70 °C . central processing unit with work memory 1 MB for program and 4.5 MB for data, 1st interface: PROFINET RT with 2-port switch, 2nd interface: PROFINET, SIMATIC Memory Card required

Figure similar

i igure siinna	
General information	
Product type designation	CPU 1515R-2 PN
Firmware version	
FW update possible	Yes
based on	6ES7515-2RN03-0AB0
Product function	
● I&M data	Yes; I&M0 to I&M3
 Isochronous mode 	No
SysLog	Yes
Engineering with	
STEP 7 TIA Portal configurable/integrated from version	see entry ID: 109746275
Redundancy	
stand-alone operation	Yes
Display	
Screen diagonal [cm]	6.1 cm
Control elements	
Number of keys	8
Mode buttons	2
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
Mains buffering	
 Mains/voltage failure stored energy time 	5 ms
 Repeat rate, min. 	1/s
Input current	
Current consumption (rated value)	0.65 A
Current consumption, max.	0.88 A
Inrush current, max.	1.15 A
l²t	0.6 A ² ·s
Power	
Infeed power to the backplane bus	12 W
Power consumption from the backplane bus (balanced)	6.2 W
Power loss	
Power loss, typ.	3.6 W
Memory	
Number of slots for SIMATIC memory card	1
SIMATIC memory card required	Yes

Work memory			
• integrated (for program)	1 Mbyte		
integrated (for data)	4.5 Mbyte		
Load memory			
Plug-in (SIMATIC Memory Card), max.	32 Gbyte		
Backup			
maintenance-free	Yes		
CPU processing times			
for bit operations, typ.	20 ns		
for word operations, typ.	24 ns		
for fixed point arithmetic, typ.	32 ns		
for floating point arithmetic, typ.	128 ns		
CPU-blocks			
Number of elements (total)	8 000; Blocks (OB, FB, FC, DB) and UDTs		
DB			
Number range	Number range: 1 to 59 999		
• Size, max.	4.5 Mbyte; For non-optimized block accesses, the max. size of the DB is 64 KB		
FB			
Number range	0 65 535		
• Size, max.	1 Mbyte		
FC			
Number range	0 65 535		
• Size, max.	1 Mbyte		
OB			
• Size, max.	1 Mbyte		
Number of free cycle OBs	100		
Number of time alarm OBs	20		
Number of delay alarm OBs	20		
Number of cyclic interrupt OBs	20; with minimum OB 3x cycle of 10 ms		
Number of process alarm OBs	50		
Number of DPV1 alarm OBs	3		
Number of startup OBs	100		
Number of asynchronous error OBs	4		
Number of synchronous error OBs	2		
Number of diagnostic alarm OBs	1		
Nesting depth			
	24		
per priority class	24		
Counters, timers and their retentivity			
S7 counter	0.040		
• Number	2 048		
Retentivity			
— adjustable	Yes		
IEC counter			
• Number	Any (only limited by the main memory)		
Retentivity			
— adjustable	Yes		
S7 times			
Number	2 048		
Retentivity			
— adjustable	Yes		
IEC timer			
Number	Any (only limited by the main memory)		
Retentivity			
— adjustable	Yes		
Data areas and their retentivity			
Retentive data area (incl. timers, counters, flags), max.	512 kbyte; Available retentive memory for bit memories, timers, counters, DBs,		
	and technology data (axes): 472 KB		
Extended retentive data area (incl. timers, counters, flags), max.	4.5 Mbyte; When using PS 6 0W 24/48/60 V DC HF		
Flag			
• Size, max.	16 kbyte		
Number of clock memories	8; 8 clock memory bit, grouped into one clock memory byte		

Retentivity adjustable Yes		
Received by present to the control of the control	Data blocks	
Local data A per priority class, max. Address area Applications of 10 modules Application of 10 modules Address area I notus I notus		Yes
Address area Number of IO modules **Chiptus** **Chiptu	Retentivity preset	No
Address area Address area Aumber of IO modules A 986; max. number of modules / submodules Bo address area I pupils A 28 kbyte; All outputs are in the process image per integrated IO subsystem —Include (volume) —Include (volume) —Include (volume) —A 8 kbyte —A couputs volume —Include (volume) —A 8 kbyte —A couputs volume) —A 16; A distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integration of distributed IO system is characterized not only by the integrated system is characterized not only by the conscious of the Indianacterized not only by the conscious of the Indianacterized not only by the conscious of the Indianacterized not only by the conscious of Indianacterized not only by the integrated and the process of Indianacterized not only by the conscious of Indianacterized not only by the integrated and the process on Indianacterized n	Local data	
Number of ICI modules Number of ICI modules	• per priority class, max.	64 kbyte; max. 16 KB per block
Po address arise	Address area	
Inputs	Number of IO modules	4 096; max. number of modules / submodules
• Outputs sare in the process image per integrated IO subsystem — In profit (volume) 8 kbyte — Outputs (volume) 8 kbyte 8 kbyte — Outputs (volume) 8 kbyte 8 kby	I/O address area	
per integrated IQ Subsystem	• Inputs	32 kbyte; All inputs are in the process image
- Inputs (volume)	Outputs	32 kbyte; All outputs are in the process image
- Outputs (volume) 8 kbyte • Number of subprocess images, max. • Number of distributed I/O systems 15. A distributed I/O system is characterized not only by the integration of distributed I/O via PROFINET, but also by the connection of I/O via IE/PB-Links. Number of I/O Controllers • Integrated • Nodules per rack, max. • Nodules per rack, max. • Nodules per rack, max. • S. CPU + 2 PS + 2 CP Time of dry Clock • Type • Backup time • Deviation per day, max. 10 s. Typ: 2 s Operating hours counter • Number • One Ehermet via NTP Ves Timefraces Number of PROFINET interfaces • All of Clements • No Ehermet Via PROFINET interfaces • Linterface Interface types • Linterface • PROFINET IO Controller • PROFINET IO Device • Maker Communication • Open IE communication • Open IE communication • PROFINET IO Controller • PROFINET IO Device • Modia redundancy • Yes; Port user program • No • PROFINET IO Devices, max • Interface time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data - PROFINET Security Class 1 ms to 512 ms 2 linterface 1 ms to 512 ms 2 linterface 1 ms to 512 ms	per integrated IO subsystem	
- Outputs (volume) 8 kbyte • Number of subprocess images, max. • Number of distributed I/O systems 15. A distributed I/O system is characterized not only by the integration of distributed I/O via PROFINET, but also by the connection of I/O via IE/PB-Links. Number of I/O Controllers • Integrated • Nodules per rack, max. • Nodules per rack, max. • Nodules per rack, max. • S. CPU + 2 PS + 2 CP Time of dry Clock • Type • Backup time • Deviation per day, max. 10 s. Typ: 2 s Operating hours counter • Number • One Ehermet via NTP Ves Timefraces Number of PROFINET interfaces • All of Clements • No Ehermet Via PROFINET interfaces • Linterface Interface types • Linterface • PROFINET IO Controller • PROFINET IO Device • Maker Communication • Open IE communication • Open IE communication • PROFINET IO Controller • PROFINET IO Device • Modia redundancy • Yes; Port user program • No • PROFINET IO Devices, max • Interface time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data - PROFINET Security Class 1 ms to 512 ms 2 linterface 1 ms to 512 ms 2 linterface 1 ms to 512 ms	— Inputs (volume)	8 kbyte
Subprocess images Number of subprocess images, max. Number of distributed IO systems Integrated Integrated switch Integ		
Number of distributed IO systems 16; A distributed IO system is characterized not only by the integration of distributed IO systems 16; A distributed IO system is characterized not only by the integration of distributed IO systems 16; A distributed IO system is characterized not only by the integration of distributed IO systems 18; A distributed IO system is characterized not only by the integration of distributed IO systems 18; A distributed IO syste		
Hardware configuration Number of distributed IO systems 16; A distributed IO system is characterized not only by the integration of distributed IO via PROFINET, but also by the connection of IIO via IE/PB-LINKs. Number of IO Controllers Integrated 1 Rack Modules per rack, max. 15; CPU + 2 PS + 2 CP Timo of dsy Clock 1 Type Backup time Beakup time Beakup time Beakup time Beakup time Beakup time Beakup time Beakup t		31
Number of idistributed I/O systems 15. A distributed I/O system is characterized not only by the integration of distributed I/O via PROFINET, but also by the connection of I/O via IE/PB-Links. Number of I/O Controllers		
distributed I/O via PRÖFINET, but also by the connection of I/O via IE/PB-Links. Number of I/O Controllers • Integrated • Modules per rack, max. • Modules per rack, max. • SCPU + 2 PS + 2 CP Time of day Clock • Type • Backup time • Deviation per day, max. 10 s; Typ: 2 s Operating hours counter • Number • Number • Number • Number • Services • RJ 45 (Eithernet) • RJ 45 (Eithernet) • RJ 45 (Eithernet) • RJ 45 (Eithernet) • PROFINET IO Controller • PROFINET IO Controller • PROFINET IO Controller • PROFINET IO Controller • Media redundancy • Media dedundancy • PROFINET IO Controller • Media redundancy • PROFINET IO Controller • Media redundancy • Media redundancy • Yes; proportion of the update time also depends on communication share effor RC III on the number of IO devices, and on the quantity of configured user data - PROFINET Security Class I Dedate time for RT - PROFINET Security Class 1 Update time for RT - For send cycle of 1 ms 1 Interface Interface 1 Interface		16: A distributed I/O system is characterized not only by the integration of
Integrated 1	Number of distributed to systems	distributed I/O via PROFINET, but also by the connection of I/O via IE/PB-
Modules per rack, max. • Modules per rack, max. **Time of day** Clock • Type • Backup time • Deviation per day, max. Operating hours counter • Number • Number • On Ethernet via NTP • on Ethernet via NTP • Number of PROFINET interfaces • RJ 45 (Ethernet) • Number of ports • integrated switch • IP protocol • PROFINET IO Controller • Yes • Media redundancy • Yes • Media redundancy • Yes • Media redundancy • Yes • PROFINET IO Controller • Yes • PROFINET IO Controller • Yes • PROFINET IO Controller • Yes • Media redundancy • Yes • Media redundancy • Yes • Media redundancy • Yes • PROFINET IO Controller • Yes • PROFINET IO Con	Number of IO Controllers	
Modules per rack, max 5; CPU + 2 PS + 2 CP	integrated	1
Time of day	Rack	
Clock • Type • Backup time • Deviation per day, max. Operating hours counter • Number • Number • Number • on Ethernet via NTP • yes • on Ethernet) • Number of PROFINET interfaces • Rul 45 (Ethernet) • Number of ports • interface types • RJ 45 (Ethernet) • Interface types • RJ 45 (Ethernet) • Number of ports • interface types • RJ 45 (Ethernet) • Number of ports • interface types • RJ 45 (Ethernet) • Number of ports • interface types • RJ 45 (Ethernet) • Number of ports • interface types • RJ 45 (Ethernet) • Number of ports • interface types • RJ 45 (Ethernet) • No • SIMATIC communication • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Ves: Optionally also encrypted • Web server • Media rectundancy • Yes • Media rectundancy • Yes • Media rectundancy • Yes • PROFINET IO Controller • Web server • Media rectundancy • Yes • PROFINET IO Controller • Web server • Media rectundancy • Yes • PROFINET IO Controller • Web server • Media rectundancy • Yes • PROFINET IO Controller • Ves • Isochronous mode • Isochronous	Modules per rack, max.	5; CPU + 2 PS + 2 CP
Clock • Type • Backup time • Deviation per day, max. Operating hours counter • Number • Number • Number • on Ethernet via NTP • yes • on Ethernet) • Number of PROFINET interfaces • Rul 45 (Ethernet) • Number of ports • interface types • RJ 45 (Ethernet) • Interface types • RJ 45 (Ethernet) • Number of ports • interface types • RJ 45 (Ethernet) • Number of ports • interface types • RJ 45 (Ethernet) • Number of ports • interface types • RJ 45 (Ethernet) • Number of ports • interface types • RJ 45 (Ethernet) • Number of ports • interface types • RJ 45 (Ethernet) • No • SIMATIC communication • PROFINET IO Controller • PROFINET IO Device • SIMATIC communication • Ves: Optionally also encrypted • Web server • Media rectundancy • Yes • Media rectundancy • Yes • Media rectundancy • Yes • PROFINET IO Controller • Web server • Media rectundancy • Yes • PROFINET IO Controller • Web server • Media rectundancy • Yes • PROFINET IO Controller • Web server • Media rectundancy • Yes • PROFINET IO Controller • Ves • Isochronous mode • Isochronous	Time of day	
Type Backup time Backup time Deviation per day, max. Operating hours counter Number		
Backup time Deviation per day, max. Oberviation per day, max. Oberviation per day, max. Oberviation per day, max. Oberviation per day, max. It is, Typ.: 2 s Clock synchronization Supported Supported Supported Oberviation Obe	Type	Hardware clock
● Deviation per day, max. 10 s; Typ.: 2 s Operating hours counter 16 Clock synchronization *** ● supported Yes ● on Ethernet via NTP Yes Interfaces Number of PROFINET interfaces 1. Interface Interface types ● R4 5 (Ethernet) Yes; X1 ● Number of ports 2 ● Interface types *** ● R4 5 (Ethernet) Yes; X1 ● Number of ports 2 ● Interface types Yes ● PROFINET IO Controller Yes ● PROFINET IO Controller Yes ● PROFINET IO Controller Yes; Only Server ● Open IE communication Yes; Only Server ● Media redundancy Yes ● Media redundancy Yes PROFINET IO Controller No ● RFOFINET IO Controller No ● IRT No ● IRT No ● PROFINET IO Controller Yes; per user program ● RADE IN The m		6 wk: At 40 °C ambient temperature, typically
Operating hours counter Number Number Supported On Ethernet via NTP Yes Interfaces Interfaces Interface types Interface Interface types		
Number		
Clock synchronization • supported • on Ethernet via NTP Yes Number of PROFINET interfaces 2 1. Interface Interface types • RJ 45 (Ethernet) • Number of ports • integrated switch Protocols • IP protocol • PROFINET IO Controller • PROFINET IO Device • No • SIMATIC communication • Web server • Media redundancy • Web server • Media redundancy • PROFINET IO Controller • Web server • Media redundancy • PROFINET IO Controller • Ves • IP profices — Isochronous mode — IRT — PROFINET IO Devices, max. — Updating times • PROFINET Security Class 1 ms to 512 ms	·	16
supported on Ethernet via NTP Yes Number of PROFINET interfaces 2 1. Interface Interface types Ry 45 (Ethernet) Number of ports Number of connectable IO Devices, max. Number of ports Number of lo devices, and on the quantity of configured user data Number of ports Number of ports Number of ports Number of ports Number of lo devices, and on the quantity of configured user data Number of ports N		
on Ethernet via NTP Yes Interfaces Number of PROFINET interfaces 2 Interface types RJ 45 (Ethernet) Yes; X1 Number of ports 2 integrated switch Yes Protocols IP protocol Yes; IPv4 PROFINET IO Controller Yes PROFINET IO Device No SIMATIC communication Yes; Only Server Open IE communication Yes; Only Server Media redundancy Yes PROFINET IO Controller Services Isochronous mode No IRT No PROFINET IO Controller Services Isochronous mode No IRT No PROFINET IO Controller PROFINET IO Controller Services Insochronous mode No IRT No PROFINET IO Controller Services In Jeach Home Services In Jeach Home Services In Jeach Home Services No IRT No PROFINET IO Controller Services In Jeach Home Services No IRT No IRT No PROFINET IO Controller No IRT N	-	Vac
Number of PROFINET interfaces 2 1. Interface interface types PROFINET interface types Integrated switch Protocols Integrated switch Protocols PROFINET IO Controller Wes integrated switch PROFINET IO Controller PROFINET IO Controller Wes integrated switch PROFINET IO Communication Wes integrated switch PROFINET IO Communication PROFINET IO Communication Wes integrated switch PROFINET IO Controller PROFINET IO Controller Wes ever Media redundancy Yes; Optionally also encrypted Yes PROFINET IO Controller Services Isochronous mode IRT PROFINET IO Controller Services Isochronous mode IRT PROFINET IO Devices, max. Updating times An one of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data Update time for RT For send cycle of 1 ms Insto 512 ms		
Number of PROFINET interfaces 1. Interface lypes • RJ 45 (Ethernet) Yes; X1 • Number of ports 2 • integrated switch Yes Protocols • IP protocol Yes; IPv4 • PROFINET IO Controller Yes • PROFINET IO Device No • SIMATIC communication Yes; Optionally also encrypted • Web server Yes • Media redundancy Yes PROFINET IO Controller Services — Isochronous mode No — IRT No — PROFINET Gonnectable IO Devices, max. — Updating times A No — PROFINET Security Class 1 Update time for RT — for send cycle of 1 ms 1 ms to 512 ms		165
Interface types RI 45 (Ethernet) Interface types RI 45 (Ethernet) Interface types Integrated switch Protocols IP protocol PROFINET IO Controller PROFINET IO Device Media redundancy PROFINET IO Controller Services RI 45 (Sthernet) PROFINET IO Device No PROFINET IO Device Services RI 5 (Sptionally also encrypted) PROFINET IO Controller Services RI 6 (No RI 7 (No PROFINET IO Device) PROFINET IO Controller Services RI 8 (No PROFINET IO Controller Services RI 8 (No PROFINET IO Controller Services RI No PROFINET OF Connectable IO Devices, max. RI No PROFINET OF Connectable IO Devices, max. RI No PROFINET IO Controller Services RI No PROFINET OF Connectable IO Devices, max. RI No PROFINET Security Class RI Ne Interface RI No Interface RI PROFINET IO, on the number of IO devices, and on the quantity of configured user data RI Hamilianum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data RI Hamilianum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data RI Hamilianum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data RI Hamilianum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data RI Hamilianum value of ID devices, and on the quantity of configured user data RI Hamilianum value of ID devices, and on the quantity of configured user data RI Hamilianum value of ID devices, and on the quantity of configured user data RI Hamilianum value of ID devices, and on the quantity of configured user data		
Interface types Provided Switch Protocols Integrated switch Protocols Integrated Switch Protocols Integrated Switch Protocol Protocol Profine I O Controller Profine I O Controller Profine I O Silmatic communication Profine I O Service Profine I O Controller Profine I O Service Profine I O Controller Profine I O Controller Services I Isochronous mode I IRT Profine I O Controller Profine I O Controller Profine I O Controller I O Controller I IRT Profine I O Controller I IRT Profine I O Controller I Interface I I Interface I I I Interface I I I I I I I I I I I I I I I I I I I		2
RJ 45 (Ethernet) Number of ports Integrated switch Yes Protocols IP protocol PROFINET IO Controller PROFINET IO munication Yes; Optionally also encrypted Web server Media redundancy Yes PROFINET IO Controller Services Isochronous mode IRT PROFINET IO Devices, max. Updating times RJ 45 (Ethernet) Yes; X1 Yes Yes Yes PROFINET IO Controller Yes; Optionally also encrypted Yes Yes Yes Yes Yes Isochronous mode IRT PROFINET IO Controller Services The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data PROFINET Security Class I therface Interface Interface Interface Yes; X1 Yes Yes Yes Yes PROFINET IO Controller Yes; Optionally also encrypted Yes; Optionally also encrypted Yes; Optionally also encrypted Yes Yes Yes Yes Yes Yes Yes Yes Yes The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data I the to 512 ms		
Number of ports integrated switch Protocols IP protocol IP protocol PROFINET IO Controller PROFINET IO Device Simantic communication Open IE communication Web server Media redundancy PROFINET IO Controller Services Isochronous mode IRT PROFINergy No PROFInergy No No PROFInergy No No PROFInergy No No PROFINET IO Controller IO Devices, max. Hupdating times The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data Update time for RT For send cycle of 1 ms I ms to 512 ms		
integrated switch Protocols IP protocol PROFINET IO Controller PROFINET IO Device No SIMATIC communication Open IE communication Wes; Only Server Open IE communication Yes; Optionally also encrypted Web server Media redundancy Yes Media redundancy Yes PROFINET IO Controller Services IRT No PROFlenergy No No No Light PROFlenergy No No No Light PROFINET of connectable IO Devices, max. Hupdating times The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data Update time for RT For send cycle of 1 ms I ms to 512 ms	RJ 45 (Ethernet)	
Protocols IP protocol Yes; IPv4 PROFINET IO Controller Yes PROFINET IO Device No SIMATIC communication Yes; Only Server Open IE communication Yes; Optionally also encrypted Web server Yes Media redundancy Yes PROFINET IO Controller Services Isochronous mode No IRT No PROFlenergy Yes; per user program Anumber of connectable IO Devices, max. Updating times PROFINET Security Class 1 Update time for RT — for send cycle of 1 ms 1 ms to 512 ms	 Number of ports 	2
IP protocol PROFINET IO Controller PROFINET IO Device PROFINET IO Device No SIMATIC communication Yes; Only Server Open IE communication Yes; Optionally also encrypted Web server Yes Media redundancy Yes PROFINET IO Controller Services - Isochronous mode - IRT No - PROFIenergy - Number of connectable IO Devices, max. - Updating times - PROFINET Security Class 1 Update time for RT - for send cycle of 1 ms 1 ms to 512 ms	integrated switch	Yes
PROFINET IO Controller PROFINET IO Device No SIMATIC communication Yes; Only Server Open IE communication Yes; Optionally also encrypted Web server Media redundancy Yes PROFINET IO Controller Services Insochronous mode IRT PROFIenergy No PROFIenergy Yes; per user program Humber of connectable IO Devices, max. Updating times PROFINET Security Class 1 Update time for RT For send cycle of 1 ms 1 ms to 512 ms No Ves; Optionally also encrypted No Yes; Optionally also encrypted Yes Yes Yes Yes PROFINET IO Controller Services In minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data In ms to 512 ms	Protocols	
PROFINET IO Device SIMATIC communication Yes; Only Server Yes; Optionally also encrypted Yes optionally also encrypted Yes Media redundancy Yes PROFINET IO Controller Services Isochronous mode IRT PROFlenergy No PROFlenergy Number of connectable IO Devices, max. Updating times PROFINET Security Class Update time for RT For send cycle of 1 ms No Yes; Optionally also encrypted Yes; Optionally also encrypted Yes Yes ProFineTlO Controller Yes Yes Yes PROFINET IO Controller No No No No He minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data 1 ms to 512 ms	IP protocol	Yes; IPv4
SIMATIC communication Open IE communication Web server Web server Media redundancy Yes PROFINET IO Controller Services Isochronous mode IRT PROFlenergy No PROFlenergy Number of connectable IO Devices, max. Updating times The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data Update time for RT For send cycle of 1 ms 1 ms to 512 ms Yes; Optionally also encrypted Yes; Optionally also encrypted Yes Optionally also Yes Option	 PROFINET IO Controller 	Yes
Open IE communication Web server Web server Media redundancy Yes PROFINET IO Controller Services - Isochronous mode - IRT - PROFInergy - Number of connectable IO Devices, max Updating times - PROFINET IO Consumption - PROFINET Security Class Update time for RT - for send cycle of 1 ms Yes; Optionally also encrypted Yes Yes Yes Yes No No No No 1 ms to 512 ms Yes; per user program 64 1 ms to 512 ms	PROFINET IO Device	No
Open IE communication Web server Web server Media redundancy Yes PROFINET IO Controller Services - Isochronous mode - IRT - PROFInergy - Number of connectable IO Devices, max Updating times - PROFINET IO Consumption - PROFINET Security Class Update time for RT - for send cycle of 1 ms Yes; Optionally also encrypted Yes Yes Yes Yes No No No No 1 ms to 512 ms Yes; per user program 64 1 ms to 512 ms	SIMATIC communication	Yes; Only Server
	Open IE communication	
Media redundancy PROFINET IO Controller Services — Isochronous mode — IRT — PROFlenergy — Number of connectable IO Devices, max. — Updating times — PROFINET Security Class — PROFINET Security Class Update time for RT — for send cycle of 1 ms 1 ms to 512 ms Yes No No Yes No Yes No Yes; per user program 64 The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data 1 ms to 512 ms 2. Interface	•	
PROFINET IO Controller Services — Isochronous mode — IRT — No — PROFlenergy — Number of connectable IO Devices, max. — Updating times — PROFINET Security Class Update time for RT — for send cycle of 1 ms 1 ms to 512 ms No No Yes; per user program 64 The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data 1 ms to 512 ms 2. Interface		
Services - Isochronous mode - IRT No - PROFlenergy - Number of connectable IO Devices, max Updating times - PROFINET Security Class Update time for RT - for send cycle of 1 ms No No Yes; per user program 64 The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data 1 ms to 512 ms 1 ms to 512 ms	·	
- Isochronous mode - IRT - PROFlenergy - Number of connectable IO Devices, max Updating times - PROFINET Security Class - PROFINET Security Class - For send cycle of 1 ms - Isochronous mode No No No No No Heart Security Class 10 No		
— IRT — PROFlenergy — Number of connectable IO Devices, max. — Updating times — PROFINET Security Class Update time for RT — for send cycle of 1 ms No Yes; per user program 64 The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data 1 ms to 512 ms 1 ms to 512 ms		No
- PROFlenergy - Number of connectable IO Devices, max Updating times - PROFINET Security Class - PROFINET Security Class - For send cycle of 1 ms - I ms to 512 ms - Yes; per user program 64 - The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data - PROFINET Security Class - I ms to 512 ms		
 Number of connectable IO Devices, max. Updating times The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data PROFINET Security Class Update time for RT for send cycle of 1 ms 1 ms to 512 ms Interface 		
— Updating times The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data — PROFINET Security Class 1 Update time for RT — for send cycle of 1 ms 1 ms to 512 ms 2. Interface		
set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data — PROFINET Security Class 1 Update time for RT — for send cycle of 1 ms 1 ms to 512 ms 2. Interface		
Update time for RT — for send cycle of 1 ms 1 ms to 512 ms 2. Interface	— Opdating times	set for PROFINET IO, on the number of IO devices, and on the quantity of
— for send cycle of 1 ms 1 ms to 512 ms 2. Interface	— PROFINET Security Class	1
2. Interface	Update time for RT	
	— for send cycle of 1 ms	1 ms to 512 ms
Interface types	2. Interface	
	Interface types	

RJ 45 (Ethernet)	Yes; X2		
Number of ports	1		
integrated switch	No		
Protocols			
• IP protocol	Yes; IPv4		
PROFINET IO Controller	No		
PROFINET IO Device	No		
SIMATIC communication	Yes; Only Server		
Open IE communication	Yes; Optionally also encrypted		
Web server	Yes		
Media redundancy	No		
Interface types			
RJ 45 (Ethernet)	Von		
• 100 Mbps	Yes		
Autonogotiation	Yes		
Autocrossing Individual Ethernet status LED	Yes		
Industrial Ethernet status LED Protocols	Yes		
Protocols	No		
PROFIsafe Number of connections	No		
Number of connections	256: via integrated interfaces of the CDLL and connected CDs		
Number of connections, max. Number of connections recoved for ES/HMI/web.	256; via integrated interfaces of the CPU and connected CPs		
Number of connections reserved for ES/HMI/web Number of connections via integrated interfaces.	10 128		
Number of connections via integrated interfaces Number of S7 routing notice.	16		
Number of S7 routing paths Redundancy mode	10		
PROFINET system redundancy (S2)	Yes		
PROFINET system redundancy (S2) PROFINET system redundancy (R1)	No		
Media redundancy	INU		
Media redundancy	Yes; only via 1st interface (X1)		
— MRP	Yes; MRP Automanager according to IEC 62439-2 Edition 2.0		
MRP interconnection, supported	Yes; as MRP ring node according to IEC 62439-2 Edition 3.0		
— MRPD	No		
Switchover time on line break, typ.	200 ms; PROFINET MRP		
Number of stations in the ring, max.	50; Only 16 are recommended, however		
SIMATIC communication	oo, only to die recommended, nowever		
PG/OP communication	Yes; encryption with TLS V1.3 pre-selected		
• S7 routing	Yes		
S7 communication, as server	Yes		
S7 communication, as client	No		
Open IE communication			
• TCP/IP	Yes		
— Data length, max.	64 kbyte		
several passive connections per port, supported	Yes		
• ISO-on-TCP (RFC1006)	Yes		
— Data length, max.	64 kbyte		
• UDP	Yes		
— Data length, max.	2 kbyte; 1 472 bytes for UDP broadcast		
— UDP multicast	Yes; max. 118 multicast circuits		
• DHCP	No		
• DNS	Yes		
• SNMP	Yes		
• DCP	Yes		
• LLDP	Yes		
Encryption	Yes; Optional		
Web server			
• HTTP	No		
• HTTPS	Yes; only via Web API		
• web API	Yes		
— Number of sessions, max.	100		
— number of simultaneous HTTP calls, max.	4		
— HTTP request body, max.	131 072 byte		
· ————————————————————————————————————			

OPC UA			
Runtime license required	Yes; "Medium" license required per CPU		
OPC UA Client	No		
OPC UA Server	Yes; data access (read, write, subscribe), method call, custom address space, role-based access control		
 Application authentication 	Yes		
— Security policies	available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256, Aes128Sha256RsaOaep, Aes256Sha256RsaPss		
— User authentication	"anonymous" or by user name & password		
 — GDS support (certificate management) 	No		
Number of sessions, max.	24		
 Number of subscriptions per session, max. 	25		
— Sampling interval, min.	250 ms		
— Publishing interval, min.	250 ms		
— Number of server methods, max.	50; max. 20 concurrently running jobs each for asynchronous instructions OPC_UA_ServerMethodPre (V1.1) and OPC_UA_ServerMethodPost (V1.1)		
 Number of inputs/outputs per server method, max. 	20		
 Number of monitored items, recommended max. 	2 000; for 1 s sampling interval and 1 s send interval		
 Number of server interfaces, max. 	10 of each "Server interfaces" / "Companion specification" type and 20 of the type "Reference namespace"		
 Number of nodes for user-defined server interfaces, max. 	30 000		
Alarms and Conditions	No		
Further protocols			
• MODBUS	Yes; MODBUS TCP		
S7 message functions			
Number of login stations for message functions, max.	64		
number of subscriptions, max.	500		
number of tags/attributes for subscriptions, max.	8 000		
Program alarms	Yes		
Number of configurable program messages, max.	10 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH		
Number of loadable program messages in RUN, max.	10 000		
Number of simultaneously active program alarms			
 Number of program alarms 	1 000		
Number of alarms for system diagnostics	200		
Test commissioning functions			
Joint commission (Team Engineering)	Yes		
Status block	Yes; up to 8 simultaneously		
Single step	No		
Number of breakpoints	8; Breakpoints are only supported in RUN-Solo status		
Profiling	Yes		
Status/control	Vee		
Status/control variable Variables	Yes		
Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters		
Number of variables, max. of which status variables, max.	200; per job		
— of which status variables, max.	200; per job 200; per job		
— of which control variables, max.	200, p c i job		
Forcing ● Forcing	Yes		
ForcingForcing, variables	Peripheral inputs/outputs		
Number of variables, max.	200		
Diagnostic buffer			
• present	Yes		
Number of entries, max.	3 200		
— of which powerfail-proof	500		
— of which powerfail-proof Traces	500		
	4		
Traces			
Traces • Number of configurable Traces	4		
Traces • Number of configurable Traces • Memory size per trace, max.	4		

50000150	·		
• ERROR LED	Yes		
MAINT LED	Yes		
STOP ACTIVE LED Connection display LINK TY/PY	Yes		
Connection display LINK TX/RX Supported technology objects	Yes		
Motion Control	No		
Controller	INO		
PID Compact	Yes; Universal PID controller with integrated optimization		
• PID 3Step	Yes; PID controller with integrated optimization for valves		
PID-Temp	Yes; PID controller with integrated optimization for temperature		
Counting and measuring	Yes		
Standards, approvals, certificates			
Ecological footprint			
 environmental product declaration 	Yes		
Global warming potential			
— global warming potential, (total) [CO2 eq]	100 kg		
 global warming potential, (during production) [CO2 	25.8 kg		
eq] — global warming potential, (during operation) [CO2 eq]	75.2 kg		
— global warming potential, (after end of life cycle) [CO2 eq]	-0.83 kg		
product functions / security / header			
PROFINET Security Class	1		
signed firmware update	Yes		
Secure Boot	Yes		
safely removing data	Yes		
Ambient conditions			
Ambient temperature during operation			
 horizontal installation, min. 	-40 °C; = Tmin (incl. condensation/frost)		
horizontal installation, max.	70 °C; = Tmax; display: 50 °C, the display is switched off at an operating temperature of typically 50 °C		
vertical installation, min.	-40 °C; = Tmin		
vertical installation, max.	40 °C; = Tmax; display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off		
Ambient temperature during storage/transportation			
• min.	-40 °C		
• max.	70 °C		
Altitude during operation relating to sea level			
Installation altitude above sea level, max.	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual		
Relative humidity			
With condensation, tested in accordance with IEC 60068- 2-38, max.	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation		
Resistance			
Coolants and lubricants	Voc. Incl. diagol and oil droplete in the cir.		
 Resistant to commercially available coolants and lubricants 	Yes; Incl. diesel and oil droplets in the air		
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, fungal and dry rot spores (excluding fauna)		
— 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	Very Olera O (expludient biolate)		
— Against chemically active substances acc. to EN 60654-4 Environmental conditions for present measuring.	Yes; Class 3 (excluding trichlorethylene)		
Environmental conditions for process, measuring	Yes; Level GX group A/B (excluding trichlorethylene; harmful gas		

and control systems acc. to ANSI/ISA-71.04	concentrations up to the limits of LC3 (salt spray) and level LB3 (4 permissible); level		
Remark					
 Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04 	* The supplied plug covers mus during operation!	* The supplied plug covers must remain in place over the unused interfaces during operation!			
Conformal coating					
Coatings for printed circuit board assemblies acc. to EN 61086	Yes; Class 2 for high reliability				
 Protection against fouling acc. to EN 60664-3 	Yes; Type 1 protection				
 Military testing according to MIL-I-46058C, Amendment 7 	Yes; Discoloration of coating po	ossible during service life			
 Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC- CC-830A 	Yes; Conformal coating, Class	A			
configuration / header					
configuration / programming / header					
Programming language					
— LAD	Yes				
— FBD	Yes				
— STL	Yes				
— SCL	Yes				
— CFC	Yes				
— GRAPH	Yes				
Know-how protection					
User program protection/password protection	Yes				
Copy protection	No				
Block protection	Yes				
Access protection	100				
protection of confidential configuration data	Yes				
Password for display	Yes				
Protection level: Write protection					
Protection level: Read/write protection		Yes			
Protection level: Write protection for Failsafe	Yes				
Protection level: Complete protection	No Yes				
User administration	Yes; device-wide and centralized				
Number of users	Yes; device-wide and centralized				
Number of groups					
Number of glodps Number of roles	100 50				
programming / cycle time monitoring / header					
• lower limit	adjustable minimum cycle time				
• upper limit	adjustable minimum cycle time adjustable maximum cycle time				
Dimensions	adjustable maximum bytic time				
Width	70 mm				
Height					
Depth	147 mm				
Veights	129 mm				
	520 g				
Weight, approx. Classifications	520 g				
nassincations		,			
		Version	Classification		
	eClass	14	27-24-22-07		
	eClass	12	27-24-22-07		
	eClass	9.1	27-24-22-07		
	eClass	9	27-24-22-07		
	eClass	8	27-24-22-07		
	eClass	7.1	27-24-22-07		
	eClass	6	27-24-22-07		
	ETIM	9	EC000236		
	ETIM	8	EC000236		
	ETIM	7	EC000236		
	IDEA	4	3565		

UNSPSC 15 32-15-17-05

Approvals / Certificates

General Product Approval

For use in hazardous locations

<u>Miscellaneous</u>











Environment



last modified: 4/24/2025 🖸