## SIEMENS

## Data sheet

## 6AG1214-1AG40-5XB0



SIPLUS S7-1200 CPU 1214C DC/DC/DC based on 6ES7214-1AG40-0XB0 with conformal coating, -40...+60 °C, start up -25 °C, compact CPU, DC/DC/DC, onboard I/O: 14 DI 24 V DC; 10 DQ 24 V DC; 2 AI 0-10 V DC, power supply: DC 20.4-28.8 V DC, program/data memory 100 KB

Figure	similar	

General information	
Product type designation	CPU 1214C DC/DC/DC
based on	6ES7214-1AG40-0XB0
Engineering with	
STEP 7 TIA Portal configurable/integrated from version	see entry ID: 109746275
Supply voltage	
Rated value (DC)	
• 24 V DC	Yes
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Load voltage L+	
Rated value (DC)	24 V
<ul> <li>permissible range, lower limit (DC)</li> </ul>	20.4 V
• permissible range, upper limit (DC)	28.8 V
Input current	
Current consumption (rated value)	500 mA; CPU only
Current consumption, max.	1 500 mA; CPU with all expansion modules
Inrush current, max.	12 A; at 28.8 V DC
Output current	
for backplane bus (5 V DC), max.	1 600 mA; Max. 5 V DC for SM and CM
Encoder supply	
24 V encoder supply	
• 24 V	L+ minus 4 V DC min.
Power loss	
Power loss, typ.	12 W
Memory	
Work memory	
integrated	100 kbyte
Load memory	
integrated	4 Mbyte
<ul> <li>Plug-in (SIMATIC Memory Card), max.</li> </ul>	with SIMATIC memory card
Backup	
• present	Yes; maintenance-free
without battery	Yes
CPU processing times	
for bit operations, typ.	0.085 µs; / instruction
for word operations, typ.	1.7 μs; / instruction
for floating point arithmetic, typ.	2.3 µs; / instruction

CPU-blocks	
Number of blocks (total)	DBs, FCs, FBs, counters and timers. The maximum number of addressable
	blocks ranges from 1 to 65535. There is no restriction, the entire working
00	memory can be used
OB	Limited only by DAM for code
Number, max.	Limited only by RAM for code
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	10 kbyte
Flag	O libertas Oira af hitaranana a ddaraa araa
• Size, max.	8 kbyte; Size of bit memory address area
Local data	16 khyte: Drierity class 1 (program cycle): 16 KP, priority class 2 to 26: 6 KP
<ul> <li>per priority class, max.</li> <li>Address area</li> </ul>	16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB
Process image Inputs, adjustable	1 kbyte
Outputs, adjustable	1 kbyte
Hardware configuration	T KDyte
Number of modules per system, max.	3 comm. modules, 1 signal board, 8 signal modules
Time of day	S comm. modules, i signal board, o signal modules
Clock	Vac
Hardware clock (real-time)	Yes
Backup time     Deviation per day, max	480 h; Typical
Deviation per day, max.	60 s/month at 25 °C
Digital inputs	14. Integrated
Number of digital inputs	14; Integrated
of which inputs usable for technological functions	6; HSC (High Speed Counting)
Source/sink input	Yes
Number of simultaneously controllable inputs	
all mounting positions	
— up to 40 °C, max.	14
Input voltage	0414
Rated value (DC)	24 V
• for signal "0"	5 V DC at 1 mA
• for signal "1"	15 V DC at 2.5 mA
Input delay (for rated value of input voltage) for standard inputs	
	0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in
— parameterizable	groups of four
— at "0" to "1", min.	0.2 ms
— at "0" to "1", max.	12.8 ms
for interrupt inputs	
— parameterizable	Yes
for technological functions	
— parameterizable	Single phase: 3 @ 100 kHz & 3 @ 30 kHz, differential: 3 @ 80 kHz & 3 @ 30
	kHz
Cable length	
• shielded, max.	500 m; 50 m for technological functions
• unshielded, max.	300 m; for technological functions: No
Digital outputs	
Number of digital outputs	10
of which high-speed outputs	4; 100 kHz Pulse Train Output
Limitation of inductive shutdown voltage to	L+ (-48 V)
Switching capacity of the outputs	
• with resistive load, max.	0.5 A
• on lamp load, max.	5 W
Output voltage	
<ul> <li>for signal "0", max.</li> </ul>	0.1 V; with 10 kOhm load
• for signal "1", min.	20 V
Output current	
<ul> <li>for signal "1" rated value</li> </ul>	0.5 A
<ul> <li>for signal "0" residual current, max.</li> </ul>	0.1 mA

Judia day and in each and a         1 µa           • "O" for "I max.         5 µa           Standing frequency         100 Mbz           • Anthe or forling outputs         0           • Case length         0           • Case length         0           • under forling outputs         0           • under day and a mode inputs         100 m           • under day and a mode inputs         100 m           • under day and a mode inputs         100 m           • under day and input settem         100 m           • under day and a mode inputs         100 m           • under day and a mode inputs         100 m           • under day and a mode inputs         100 m           • under day and a mode inputs         100 m           • under day and a mode outputs         0           <	Output delay with resistive lead	
• • **** ************************************	Output delay with resistive load	4
Switching Frequency         100 kHz           e dire plugte adjuste, with resistive load, max.         100 kHz           Relay catpude         0           • Alta long adjuste         0           • Alta long adjuste         0           • Alta long adjuste         0           • Analog inputs         100 m           • Analog inputs         2           • Analog inputs         2           • Analog inputs         2           • Nonge         Yes           • Analog inputs         7           • Oto + 10 V         Yes           • Input resistance (0 to 10 V)         2 to0k ohms           • Analog outouts         0           • Analog out		
• of the pulse outputs100 kHzRelaxy outputs0Gatebelength0Catebelength180 m• shielded, max.180 m• nine of the pulse outputs2• nine of the pulse outputs2• Nine of analog inputs2• Nine of analog inputs100 m; tweated and shielded• Nine of analog outputs0• ning transition of the liquets0• Analog solguts0• Analog solguts0• ning transition of the liquets0• Analog solguts0• Nine of analog outputs0• Solde dimentersolution per channel0• Solde dimentersolution per channel0• Conversion time, parametersolution per channel0• Conversion time, parametersolution925 jus• Conversion time, parametersolution925 jus• Solde dimension ratioYes• Nine of bottoYes• AutorcosingYes• Nine of bottoYes• Nine of bottoYes• Nine of connectable lio Devices100 Moties• Nine of connectable lio Devices, max.16• PROFINET i D Connellar<		s ha
Relay advances         .           • Number of relay odputs         0           Cable length		100 kHz
• Number of relay outputs0Gable inergit500 m• Initial dock, max.500 m• Initial dock, max.150 mAnalog inputs2Number of analog inputs2• OlvingoYes• OlvingoYes• OlvingoYes• Olvingo100 m. bivisid and shelded• Analog inputs0• Analog inputs0• Analog outputs0• Onervation finne (part channel)0• Onervation finne		
Case i engin         ISB m           • windshedded, max.         ISB m           Analog inputs         ISB m           Number of analog inputs         2           Input residence (Inputs)         Ves           Input residence (Input		0
• unshielded, max.500 mAnalog inputs150 mAnalog inputs2• voltageYes• voltage (inder values), voltages-• voltage (inder values), voltages-• ofta + 10 VYes• ofta + 10 V100 m, twisted and shielded• ahinded, max.100 m, twisted and shielded• ahinded, max.0• Analog outputs0• Analog outputs0• Analog outputs0• Analog outputs0• Analog outputs0• Analog outputs10 bit d• Resolution with overrange (including sign), max.10 bit d• Nutber of analog outputsYes• Conversion time (per channel)26 jus• Conversion time (per channel)26 jus• Analog voltage sensorYes• AutorozosingYes• AutorozosingYes• AutorozosingYes• AutorozosingYes• PROFINET IO ExocoseYes• PROFINET IO ExocoseYes• PROFINET IO ExocoseYes• PROFINET IO DeviceYes• PROFINET IO DeviceYes		0
Analog inputs150 mAnalog inputs2Input register and provided values by voltages		500 m
Analog inputs         2           Number of analog inputs         2           • Voltage         Yes           • Nottage (ridet values), voltages         Yes           • 0 to +10 V         Yes           • on put resistance (0 to 10 V)         > 2100k ohms           Cable length         Input resistance (0 to 10 V)         > 2100k ohms           Cable length         Input resistance (0 to 10 V)         > 2100k ohms           Cable rength         0         Analog value generation for the Inputs           Number of analog volueuts         0         Analog value generation for the Inputs           Integration and conversion time/resolution per channel         Ves         - Conversion time (per channel)           • Resolution with overrange (bit including sign), max.         10 bit		
Number of analog inputs         2           Input ranges (raide values), voltages         Yes           Input ranges (raide values), voltages         -           • O to + 10 V         Yes           - Input resistance (0 to 10 V)         2100k ohms           Cable length         -           • shieled, max.         100 m; twisted and shielded           Analog value generation for the inputs         0           Number of analog outputs         0           Analog value generation for the inputs         10 bit           • Integration sime, concernance (bit recluding sign), max.         10 bit           • Integration time, parameterizable         625 µs           Encoder         Conversion time/sero (bit recluding sign), max.         10 bit           • Integration time, parameterizable         626 µs           Integration time (parameterizable         628 µs           Connectable encoders         -           • Conversion time/sero (bit recluding sign), max.         10 bit           Integration         Yes           Autorogotable         Yes           Autorogotable         Yes           Autorogotable         Yes           Protocods         Yes           Protocods         Yes           Protocods <td></td> <td></td>		
Input ranges         Yes           • Voltage         Yes           • 0 to +10 V         Yes           • O to +10 V         2400k chms           Cable length         2400k chms           Cable length         100 m; bvitated and shielded           Analog stou puts         0           Analog stou puts         0           Analog stou person for the lengts         100 m; bvitated and shielded           Integration and conversion firm/resolution per channel         1           • Resolution with overange (bi including sign), max.         10 bit           • Integration firm (resolution ger channel)         625 µs           Econversion time (see storme)         252 µs           Econversion time (see storme)         Yes           1 Interface         Yes           1 Interface         Yes           2 vire sonsor         Yes           1 Interface         Yes           2 vire sonsor         Yes           1 Interface         Yes           2 vire sonsor         Yes           2 vire sontarision rate		2
Volage         Yes           Input residued values), voltages            • 0 to + 10 V         Yes           - Input residue (0 to 10 V)         ±100k chms           Cable length            • a hielded, max.         100 m, twisted and shielded           Analog outputs         0           Number of analog outputs         0           Analog outputs         0           Integration and conversion time/secolution per hannel            • Resolution with overrange (bit including sign), max.         10 bit           • Integration and conversion time/secolution per hannel         Yes           • Conversion time (per channel)         Yes           • Autoregedation         Yes           • Autoregedation         Yes           • Autoregedation         Yes           • PACPINET IO Controller         Yes           • PACPINET IO Controller         Yes           • PACPINET IO Controller         Yes <t< td=""><td></td><td>L</td></t<>		L
Input ranges (relet values), voltages         Yes           • 0 to +10 V         Yes           - Input resistance (0 to 10 V)         Yes           Stolko kms         2100k okms           Cable length         100 m; twisted and shielded           Analog outputs         0           Analog stoup generation for the Inputs         1           Integration and conversion time/resolution gene channel         Ves           • Resolution with overrange (bit including sign), max.         10 bit           • Integration time (per channel)         625 µs           Encoder         Ves           Conversion time (per channel)         625 µs           Interface stope         Yes           1.Interface         Yes           1.Interface stope         PROFINET           Isolated         Yes           1.Interface type         Yes           1.Intef	· · ·	Yes
• lo + 10 V         Yes           - Input resistance (0 to 10 V)         > 100 kn knms           Cable length         -           - shielded, max.         100 m; twisted and shielded           Analog outputs         0           Analog outputs         0           Integration and conversion time/resolution per channel         -           • Resolution with overrange (bit incluing sign), max.         10 bit incluing and metricable           • Integration and conversion time/resolution per channel         -           • Conversion time (per channel)         626 jus           Encoder         -           • Conversion time (per channel)         626 jus           • Conversion time (per channel)         7 ves           • Linterface         -           Interface type         PROFINET           Interface type         Yes           • Linterface type         Yes <t< td=""><td></td><td></td></t<>		
— Input resistance (0 to 10 V)         ≥100k ohms           Cable length         100 m; twisted and shielded           Analog value (a max.         0           Analog value (b in bulk (max.         0           Analog value (c in bulk (max.         0           Analog value (c in bulk (max.         10 bit           Integration and conversion time/resolution per channel)         Yes           Conversion time (per channel)         262 jus           Encoder         Yes           Conversion time (per channel)         Yes           Autornosing         Yes           automatic detection of transmission rate         Yes           Autornosing         Yes           Autornosing         Yes           Autornosing         Yes           PROFINET 10 Controller         Yes           PROFINET 10 Contr		Yes
Cable length       100 m; twisted and shielded         Analog outputs       0         Analog value generation for the inputs       0         Integration and coversion time/resolution per channel       •         • Resolution with overrange (bit including sign), max.       10 bit         • Integration fune, parameterizable       Yes         • Conversion time (per channel)       525 ps         Encoder       Conversion time (per channel)         • Conversion time (per channel)       525 ps         Connectable encoders       Yes         • Conversion time (per channel)       525 ps         Encoder       Conversion time (per channel)         • Conversion time (per channel)       525 ps         • Conversion time (per channel)       Yes         • Linterface       Interface         Interface type       PROFINET         Isolated       Yes         - Autorogotation       Yes         Autorogotation       Yes         Interface types       Yes         • ROFINET IO Controller       Yes         • PROFINET IO Controller       Yes         • PROFINET IO Controller       Yes         • Transmission rate, max.       100 Mbit/s         Services       Yes		
100 m; twisted and shielded           Analog outputs         0           Analog outputs         10 bit           Interfaces         prescription           Connectable encoders         Yes           - Conversion time (per channel)         Yes           1. Interface type         PROFINET           Interface type         Yes           Autonogotation         Yes           Autorogotation         Yes           Autorogotation         Yes           Protocols         Yes           Protocols         Yes           Protocols         Yes           - Number of IO Controller         Yes           - Number of Controller		
Analog outputs       0         Number of analog outputs       0         Analog value generation for the inputs       Integration and conversion time/resolution per channel         • Resolution with overrange (bit including sign), max.       10 bit         • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 µs         Encoder       Connectable encoders         • Zwrite sensor       Yes         1 Interface       Interface         Interface type       PROFINET         Isolated       Yes         Autorogotation       Yes         Autorogotation       Yes         Autorogotation       Yes         Autoropotation       Yes         Autoropotation       Yes         PROFINET IO Controller       Yes         • Transmission rate, max.       100 Mbit/s         Services       Yes         — Number of connotcable IO Devices, max.       1		100 m; twisted and shielded
Number of analog outputs         0           Analog value generation for the inputs         Integration and conversion time/resolution per channel           Integration time, parameterizable         Yes           - Conversion time (per channel)         625 js           Encoder         Conversion time (per channel)           2.5 js         Encoder           Connectable encoders         Yes           1 Interface         PROFINET           Isolated         Yes           automatic detection of transmission rate         Yes           Autorogotation         Yes           Autorogotation         Yes           Autorogotation         Yes           Protocols         Yes           • PROFINET IO Controller         Yes           • PROFINET IO Controller         Yes           • PROFINET IO Device         Yes           • PROFINET IO Device         Yes           • PROFINET IO Device         Yes           PROFINET IO Device         Yes           PROFINET IO Device         Yes           Services         -           - Number of connectable IO Devices, max.         16           PROFINET IO Device         Yes           Protocols         Yes           S	,	
Analog value generation for the inputs         Integration and conversion time/resolution per channel         • Resolution with overange (bit including sign), max.       10 bit         • Integration time, parameterizable       Yes         • Conversion time (per channel)       E25 µs         Connectable encoders       Yes         • 2-wire sensor       Yes         • Interface       Interface         Interface type       PROFINET         Isolated       Yes         automatic detection of transmission rate       Yes         • Autocrossing       Yes         • Repolition       Yes         • PROFINET IO Controller       Yes         • PROFINET IO Controller       Yes         • PROFINET IO Controller       Yes         - Number of connectable IO Devices, max.       100 Mbbbits         Services       Services         • Services       Yes		0
Integration and conversion time/resolution per channel		
• Resolution with overrange (bit including sign), max.       10 bit         • Integration time, parameterizable       Yes         • Conversion time (per channel)       625 µs         Encoder       Connectable encoders         • 2-wire sensor       Yes         • 2-wire sensor       Yes         1 Interface       PROFINET         Isolated       Yes         automatic detection of transmission rate       Yes         Autorogotistion       Yes         Autorosing       Yes         Interface types       Yes         Autorosing       Yes         Autorosing       Yes         Interface types       Yes         • RodFINET IO Controller       Yes         • PROFINET IO Controller       Yes         • PROFINET IO Controller       Yes         • PROFINET IO Controller       Yes         • Transmission rate, max.       100 Mbit/s         Services       -         - Number of IO Controllers with shared device, max.       2         Protocols       Yes         Services       Yes         - Number of IO Controllers with shared device, max.       2         Protocols       Yes         PROFINET IO Device		
• Integration time, parameterizable     Yes       • Conversion time (per channel)     625 µs       Encoder     Connectable encoders       • 2-wire sensor     Yes       • 1.nterface     PROFINET       Isolated     Yes       automatic detection of transmission rate     Yes       Autoregotiation     Yes       Autoregotiation     Yes       Autoregotiation     Yes       Interface type     Yes       Interface type     Yes       Autoregotiation     Yes       Autoregotiation     Yes       PROFINET IO Controller     Yes       • PROFINET IO Controller     Yes       • PROFINET IO Device     Yes       PROFINET IO Device     Yes       PROFINET IO Device     Yes       • PROFINET IO Devices, max.     100 Mbit/s       Services     -       - Number of connectable IO Devices, max.     16       PROFINET IO Device     Yes       - Supports protocol for PROFINET IO     Yes       Supports protocol for PROFINET IO     Yes       PROFINET     Yes       PROFINET     Yes       PROFINET     Yes       PROFINET     Yes       Protocols     Yes       PROFINET IO Controllers with shared device, max.     2 </td <td>-</td> <td>10 bit</td>	-	10 bit
<ul> <li>Conversion time (per channel)</li> <li>625 µs</li> <li>Encoder</li> <li>Connectable encoders</li> <li>• 2-wire sensor</li> <li>Yes</li> <li>Interface type</li> <li>Interface type</li> <li>PROFINET</li> <li>Isolated</li> <li>Yes</li> <li>automatic detection of transmission rate</li> <li>Yes</li> <li>Autorossing</li> <li>Yes</li> <li>Interface types</li> <li>Reference</li> <li>Yes</li> <li>Interface types</li> <li>Protocols</li> <li>PROFINET IO Controller</li> <li>Yes</li> <li>PROFINET IO Controller</li> <li>Services</li> <li>Se</li></ul>		
Encoder         Connectable encoders         • 2-wire sensor         2-wire sensor         Interface         Interface type         Interface type         PROFINET         Isolated         automatic detection of transmission rate         Yes         Autoregoliation         Ves         Autoregoliation         Ves         Autoregoliation         Yes         Interface types         • RU 45 (Ethernet)         Yes         Protocols         • PROFINET IO Controller         • ROFINET IO Controller         • ROFINET IO Controller         • Transmission rate, max.         100 Mbit/s         Services         - Number of connectable IO Devices, max.         Services         - Shared device       Yes         Protocols         Vescols         - Number of IO Controllers with shared device, max.         Supports protocol for PROFINET IO       Yes         PROFIBUS       Yes; CM 1243-5 required         AS-Interface       Yes         PROFIBUS       Yes         Protocols (Ethernet)       Yes </td <td></td> <td></td>		
Connectable encoders         • 2-wire sensor       Yes         1 Interface       Interface         Interface type       PROFINET         Isolated       Yes         automegicate type       PROFINET         Isolated       Yes         automegication       Yes         Autoregoliation       Yes         Autoregoliation       Yes         Autoregoliation       Yes         Autoregoliation       Yes         Autoregoliation       Yes         Autoregoliation       Yes         Protocols       Yes         • PROFINET IO Dervice       Yes         PROFINET IO Controller       Yes         • Transmission rate, max.       100 Mbit/s         Services	· ·	
• 2-wire sensor     Yes       1. Interface     Interface type       Interface type     PROFINET       isolated     Yes       automatic detection of transmission rate     Yes       autoragoliation     Yes       Autocrossing     Yes       Autocrossing     Yes       Interface types		
1. Interface       PROFINET         Isolated       Yes         automatic detection of transmission rate       Yes         Autonegotiation       Yes         Interface types       ************************************		Yes
Interface type         PROFINET           Isolated         Yes           automatic detection of transmission rate         Yes           Autoregotiation         Yes           Autoregotiation         Yes           Autoregotiation         Yes           Autoregotiation         Yes           Autoregotiation         Yes           Autoregotiation         Yes           Interface types		
Isolated     Yes       automatic detection of transmission rate     Yes       Autorossing     Yes       Autocrossing     Yes       Interface types     *       • RJ 45 (Ethernet)     Yes       Protocols     *       • PROFINET IO Controller     Yes       • PROFINET IO Device     Yes       PROFINET IO Controller     Yes       • PROFINET IO Device     Yes       PROFINET IO Controller     Yes       • Transmission rate, max.     100 Mbit/s       Services     *       - Number of connectable IO Devices, max.     16       PROFINET IO Device     Yes       - Number of IO Controllers with shared device, max.     2       Protocols     *       Supports protocol for PROFINET IO     Yes       Supports protocol for PROFINET IO     Yes       PROFISafe     No       PROFIBUS     Yes; CM 1243-5 required       AS-Interface     Yes       Protocols (Ethernet)     Yes       • TCP/IP     Yes       Open IE communication     Yes       • TCP/IP     Yes       • IDCP/IP     Yes       • UDP     Yes		
automatic detection of transmission rate     Yes       Autoroposition     Yes       Autorossing     Yes       Interface types     • R1 45 (Ethernet)       • R1 45 (Ethernet)     Yes       Protocols     •       • PROFINET IO Controller     Yes       • Transmission rate, max.     100 Mbit/s       Services     •       - Number of connectable IO Devices, max.     16       PROFINET IO Device     Yes       - Number of IO Controllers with shared device, max.     2       Protocols     •       Supports protocol for PROFINET IO     Yes       PROFIBUS     Yes; CM 1243-5 required       AS-Interface     Yes       Protocols (Ethernet)     Yes       • TCP/IP     Yes       • TCP/IP     Yes       • TCP/IP     Yes       • ISO-on-TCP (RFC1006)     Yes       • UDP     Yes	Interface type	PROFINET
Autocrossing       Yes         Interface types       • RJ 45 (Ethernet)         • RJ 45 (Ethernet)       Yes         Protocols       •         • PROFINET IO Controller       Yes         • PROFINET IO Device       Yes         PROFINET IO Controller       Yes         • Transmission rate, max.       100 Mbit/s         Services       -         - Number of connectable IO Devices, max.       16         PROFINET IO Device       Yes         Services       -         - Shared device       Yes         Protocols       Yes         Protocols       Yes         PROFINET IO       Yes         PROFINET IO       Yes         PROFINET IO Device       Yes         Supports protocol for PROFINET IO       Yes         PROFISafe       No         PROFISafe       No         PROFISATE       Yes (CM 1243-5 required         AS-Interface       Yes         Protocols (Ethernet)       Yes         • TCP/IP       Yes         Open IE communication       -         • TCP/IP       Yes         • ISO-on-TCP (RFC1006)       Yes         • UDP       Yes		
Autocrossing       Yes         Interface types	Isolated	Yes
Interface types         • RJ 45 (Ethernet)         Yes         PROFINET IO Controller         • PROFINET IO Controller         • PROFINET IO Controller         • Transmission rate, max.         100 Mbit/s         Services         Number of connectable IO Devices, max.         16         PROFINET IO Device         Services         Number of connectable IO Devices, max.         16         PROFINET IO Device         Services         Shared device         Yes         - Number of IO Controllers with shared device, max.         2         Protocols         Supports protocol for PROFINET IO         Yes         PROFISafe         No         PROFIBUS         AS-Interface         Yes         Protocols (Ethernet)         • TCP/IP         Yes         Open IE communication         • TCP/IP       Yes         • ISO-on-TCP (RFC1006)       Yes         • UDP       Yes	Isolated automatic detection of transmission rate	Yes Yes
• RJ 45 (Ethernet)YesProtocols• PROFINET IO ControllerYes• PROFINET IO DeviceYesPROFINET IO DoctorelYes• Transmission rate, max.100 Mbit/sServices Number of connectable IO Devices, max.16PROFINET IO DeviceYes- Shared deviceYes- Shared deviceYes- Number of IO Controllers with shared device, max.2Protocols-Supports protocol for PROFINET IOYesPROFIBUSYes; CM 1243-5 requiredAS-InterfaceYesProtocols (Ethernet)-• TCP/IPYes• TCP/IPYes• TCP/IPYes• TCP/IPYes• TCP/IPYes• UDPYes• UDPYes	Isolated automatic detection of transmission rate Autonegotiation	Yes Yes Yes
Protocols         • PROFINET IO Controller       Yes         • PROFINET IO Device       Yes         PROFINET IO Controller       100 Mbit/s         Services       -         - Number of connectable IO Devices, max.       100 Mbit/s         PROFINET IO Device       16         PROFINET IO Device       Yes         - Number of connectable IO Devices, max.       16         PROFINET IO Device       Yes         - Shared device       Yes         - Number of IO Controllers with shared device, max.       2         Protocols       2         Protocols       Supports protocol for PROFINET IO         Yes       Yes         PROFIBUS       Yes; CM 1243-5 required         AS-Interface       Yes         Protocols (Ethernet)       Yes         • TCP/IP       Yes         Open IE communication       Yes         • TCP/IP       Yes         • ISO-on-TCP (RFC1006)       Yes         • UDP       Yes	Isolated automatic detection of transmission rate Autonegotiation Autocrossing	Yes Yes Yes
• PROFINET IO DeviceYesPROFINET IO Controller100 Mbit/s• Transmission rate, max.100 Mbit/sServices Number of connectable IO Devices, max.16PROFINET IO DeviceServices- Shared deviceYes- Number of IO Controllers with shared device, max.2ProtocolsYesSupports protocol for PROFINET IOYesPROFIBUSNoPROFIBUSYes; CM 1243-5 requiredAS-InterfaceYesProtocols (Ethernet)Yes• TCP/IPYes• TCP/IPYes• TCP/IPYes• ISO-on-TCP (RFC1006)Yes• UDPYes	Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types	Yes Yes Yes Yes
PROFINET IO Controller            • Transmission rate, max.         Services            – Number of connectable IO Devices, max.         PROFINET IO Device         Services            – Shared device            – Number of IO Controllers with shared device, max.         2         Protocols         Supports protocol for PROFINET IO         Yes         PROFIBUS         AS-Interface         No         Protocols         Yes; CM 1243-5 required         AS-Interface         Yes         Open IE communication            • TCP/IP         Yes         ISO-on-TCP (RFC1006)         Yes	Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet)	Yes Yes Yes Yes
• Transmission rate, max.100 Mbit/sServices Number of connectable IO Devices, max.16PROFINET IO DeviceServices- Shared deviceYes- Number of IO Controllers with shared device, max.2ProtocolsSupports protocol for PROFINET IOSupports protocol for PROFINET IOYesPROFIBUSYes; CM 1243-5 requiredAS-InterfaceYesProtocols (Ethernet)Yes• TCP/IPYesOpen IE communicationYes• TCP/IPYes• ISO-on-TCP (RFC1006)Yes• UDPYes	Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) Protocols	Yes Yes Yes Yes
Services       16         PROFINET IO Device       16         Services       -         - Shared device       Yes         - Number of IO Controllers with shared device, max.       2         Protocols       2         Supports protocol for PROFINET IO       Yes         PROFISATE       No         PROFIBUS       Yes; CM 1243-5 required         AS-Interface       Yes         Protocols (Ethernet)       Yes         • TCP/IP       Yes         Open IE communication       Yes         • TCP/IP       Yes         • ISO-on-TCP (RFC1006)       Yes         • UDP       Yes	Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) Protocols • PROFINET IO Controller	Yes Yes Yes Yes Yes
Services       16         PROFINET IO Device       16         Services       Ves         - Number of IO Controllers with shared device, max.       2         Protocols       2         Supports protocol for PROFINET IO       Yes         PROFIBUS       Yes; CM 1243-5 required         AS-Interface       Yes         Protocols (Ethernet)       Yes         • TCP/IP       Yes         • UDP       Yes	Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) Protocols • PROFINET IO Controller • PROFINET IO Device	Yes Yes Yes Yes Yes
PROFINET IO Device         Services         Shared device       Yes         Number of IO Controllers with shared device, max.       2         Protocols       2         Supports protocol for PROFINET IO       Yes         PROFISAFe       No         PROFIBUS       Yes; CM 1243-5 required         AS-Interface       Yes         Protocols (Ethernet)       Yes         • TCP/IP       Yes         Open IE communication       Yes         • TCP/IP       Yes         • ISO-on-TCP (RFC1006)       Yes         • UDP       Yes	Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) Protocols • PROFINET IO Controller • PROFINET IO Device PROFINET IO Controller	Yes Yes Yes Yes Yes Yes
Services       Yes         - Number of IO Controllers with shared device, max.       2         Protocols       2         Supports protocol for PROFINET IO       Yes         PROFIsafe       No         PROFIBUS       Yes; CM 1243-5 required         AS-Interface       Yes         Protocols (Ethernet)       Yes         • TCP/IP       Yes         • ISO-on-TCP (RFC1006)       Yes         • UDP       Yes	Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) Protocols • PROFINET IO Controller • PROFINET IO Controller • PROFINET IO Device PROFINET IO Controller • Transmission rate, max.	Yes Yes Yes Yes Yes Yes
Shared deviceYes Number of IO Controllers with shared device, max.2ProtocolsSupports protocol for PROFINET IOYesPROFIsafeNoPROFIBUSYes; CM 1243-5 requiredAS-InterfaceYesProtocols (Ethernet)Yes• TCP/IPYes• ISO-on-TCP (RFC1006)Yes• UDPYes	Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) Protocols • PROFINET IO Controller • PROFINET IO Controller • PROFINET IO Device PROFINET IO Controller • Transmission rate, max. Services	Yes Yes Yes Yes Yes Yes Yes
Number of IO Controllers with shared device, max.       2         Protocols       Supports protocol for PROFINET IO       Yes         PROFIsafe       No         PROFIBUS       Yes; CM 1243-5 required         AS-Interface       Yes         Protocols (Ethernet)       Yes         • TCP/IP       Yes         Open IE communication       Yes         • TCP/IP       Yes         • ISO-on-TCP (RFC1006)       Yes         • UDP       Yes	Isolated         automatic detection of transmission rate         Autonegotiation         Autocrossing         Interface types         • RJ 45 (Ethernet)         Protocols         • PROFINET IO Controller         • PROFINET IO Device         PROFINET IO Controller         • Transmission rate, max.         Services         - Number of connectable IO Devices, max.	Yes Yes Yes Yes Yes Yes Yes
ProtocolsSupports protocol for PROFINET IOYesPROFIsafeNoPROFIBUSYes; CM 1243-5 requiredAS-InterfaceYesProtocols (Ethernet)Yes• TCP/IPYesOpen IE communicationYes• TCP/IPYes• TCP/IPYes• ISO-on-TCP (RFC1006)Yes• UDPYes	Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) Protocols • PROFINET IO Controller • PROFINET IO Controller • PROFINET IO Device PROFINET IO Controller • Transmission rate, max. Services — Number of connectable IO Devices, max. PROFINET IO Device	Yes Yes Yes Yes Yes Yes Yes
Supports protocol for PROFINET IO       Yes         PROFIsafe       No         PROFIBUS       Yes; CM 1243-5 required         AS-Interface       Yes         Protocols (Ethernet)       Yes         • TCP/IP       Yes         Open IE communication       Yes         • TCP/IP       Yes         • ISO-on-TCP (RFC1006)       Yes         • UDP       Yes	Isolated automatic detection of transmission rate Autonegotiation Autocrossing Interface types • RJ 45 (Ethernet) Protocols • PROFINET IO Controller • PROFINET IO Device PROFINET IO Controller • Transmission rate, max. Services — Number of connectable IO Devices, max. PROFINET IO Device Services	Yes Yes Yes Yes Yes Yes 100 Mbit/s 16
PROFIsafe     No       PROFIBUS     Yes; CM 1243-5 required       AS-Interface     Yes       Protocols (Ethernet)     Yes       • TCP/IP     Yes       Open IE communication     Yes       • TCP/IP     Yes       • ISO-on-TCP (RFC1006)     Yes       • UDP     Yes	Isolated         automatic detection of transmission rate         Autonegotiation         Autocrossing         Interface types         • RJ 45 (Ethernet)         Protocols         • PROFINET IO Controller         • PROFINET IO Device         PROFINET IO Controller         • Transmission rate, max.         Services         - Number of connectable IO Devices, max.         PROFINET IO Device         Services         - Shared device	Yes Yes Yes Yes Yes Yes 100 Mbit/s 16
PROFIBUS       Yes; CM 1243-5 required         AS-Interface       Yes         Protocols (Ethernet)       Yes         • TCP/IP       Yes         Open IE communication       Yes         • TCP/IP       Yes         • TCP/IP       Yes         • ISO-on-TCP (RFC1006)       Yes         • UDP       Yes	Isolated         automatic detection of transmission rate         Autonegotiation         Autocrossing         Interface types         • RJ 45 (Ethernet)         Protocols         • PROFINET IO Controller         • PROFINET IO Device         PROFINET IO Controller         • Transmission rate, max.         Services         - Number of connectable IO Devices, max.         PROFINET IO Device         Services         - Shared device         - Number of IO Controllers with shared device, max.	Yes Yes Yes Yes Yes Yes 100 Mbit/s 16
AS-Interface     Yes       Protocols (Ethernet)        • TCP/IP     Yes       Open IE communication        • TCP/IP     Yes       • TCP/IP     Yes       • ISO-on-TCP (RFC1006)     Yes       • UDP     Yes	Isolated         automatic detection of transmission rate         Autonegotiation         Autocrossing         Interface types         • RJ 45 (Ethernet)         Protocols         • PROFINET IO Controller         • PROFINET IO Device         PROFINET IO Controller         • Transmission rate, max.         Services         - Number of connectable IO Devices, max.         PROFINET IO Device         Services         - Shared device         - Number of IO Controllers with shared device, max.	Yes Yes Yes Yes Yes Yes 100 Mbit/s 16
Protocols (Ethernet)         • TCP/IP       Yes         Open IE communication         • TCP/IP       Yes         • ISO-on-TCP (RFC1006)       Yes         • UDP       Yes	Isolated         automatic detection of transmission rate         Autonegotiation         Autocrossing         Interface types         • RJ 45 (Ethernet)         Protocols         • PROFINET IO Controller         • PROFINET IO Controller         • Transmission rate, max.         Services         - Number of connectable IO Devices, max.         PROFINET IO Device         Services         - Shared device         - Number of IO Controllers with shared device, max.         Protocols	Yes Yes Yes Yes Yes Yes 100 Mbit/s 16 Yes 2
• TCP/IP     Yes       Open IE communication        • TCP/IP     Yes       • ISO-on-TCP (RFC1006)     Yes       • UDP     Yes	Isolated         automatic detection of transmission rate         Autonegotiation         Autocrossing         Interface types         • RJ 45 (Ethernet)         Protocols         • PROFINET IO Controller         • PROFINET IO Device         PROFINET IO Controller         • Transmission rate, max.         Services         - Number of connectable IO Devices, max.         PROFINET IO Device         Services         - Shared device         - Number of IO Controllers with shared device, max.         Protocols         Supports protocol for PROFINET IO         PROFISafe	Yes Yes Yes Yes Yes Yes 100 Mbit/s 16 Yes 2
Open IE communication       • TCP/IP     Yes       • ISO-on-TCP (RFC1006)     Yes       • UDP     Yes	Isolated         automatic detection of transmission rate         Autonegotiation         Autocrossing         Interface types         • RJ 45 (Ethernet)         Protocols         • PROFINET IO Controller         • PROFINET IO Device         PROFINET IO Controller         • Transmission rate, max.         Services         - Number of connectable IO Devices, max.         PROFINET IO Device         Services         - Shared device         - Number of IO Controllers with shared device, max.         Protocols         Supports protocol for PROFINET IO         PROFIBUS	Yes Yes Yes Yes Yes Yes 100 Mbit/s 16 Yes 2 Yes 2
• TCP/IP     Yes       • ISO-on-TCP (RFC1006)     Yes       • UDP     Yes	Isolated         automatic detection of transmission rate         Autonegotiation         Autocrossing         Interface types         • RJ 45 (Ethernet)         Protocols         • PROFINET IO Controller         • PROFINET IO Device         PROFINET IO Controller         • Transmission rate, max.         Services         - Number of connectable IO Devices, max.         PROFINET IO Device         Services         - Number of connectable IO Devices, max.         PROFINET IO Device         Services         - Shared device         - Number of IO Controllers with shared device, max.         Protocols         Supports protocol for PROFINET IO         PROFIBUS         AS-Interface	Yes Yes Yes Yes Yes Yes 100 Mbit/s 16 Yes 2 Yes 2
ISO-on-TCP (RFC1006) Yes     UDP Yes	Isolated         automatic detection of transmission rate         Autonegotiation         Autocrossing         Interface types         • RJ 45 (Ethernet)         Protocols         • PROFINET IO Controller         • PROFINET IO Device         PROFINET IO Controller         • Transmission rate, max.         Services         - Number of connectable IO Devices, max.         PROFINET IO Device         Services         - Number of connectable IO Devices, max.         PROFINET IO Device         Services         - Number of IO Controllers with shared device, max.         Protocols         Supports protocol for PROFINET IO         PROFIBUS         AS-Interface         Protocols (Ethernet)	Yes Yes Yes Yes Yes Yes 100 Mbit/s 16 Yes 2 Yes 2 Yes 2
• UDP Yes	Isolated         automatic detection of transmission rate         Autonegotiation         Autocrossing         Interface types         • RJ 45 (Ethernet)         Protocols         • PROFINET IO Controller         • PROFINET IO Controller         • PROFINET IO Controller         • Transmission rate, max.         Services         - Number of connectable IO Devices, max.         PROFINET IO Device         Services         - Shared device         - Number of IO Controllers with shared device, max.         Protocols         Supports protocol for PROFINET IO         PROFIBUS         AS-Interface         Protocols (Ethernet)         • TCP/IP	Yes Yes Yes Yes Yes Yes 100 Mbit/s 16 Yes 2 Yes 2 Yes 2
	Isolated         automatic detection of transmission rate         Autonegotiation         Autocrossing         Interface types         • RJ 45 (Ethernet)         Protocols         • PROFINET IO Controller         • PROFINET IO Controller         • PROFINET IO Controller         • Transmission rate, max.         Services         - Number of connectable IO Devices, max.         PROFINET IO Device         Services         - Number of connectable IO Devices, max.         PROFINET IO Device         Services         - Number of IO Controllers with shared device, max.         Protocols         Supports protocol for PROFINET IO         PROFIBUS         AS-Interface         Protocols (Ethernet)         • TCP/IP         Open IE communication	Yes Yes Yes Yes Yes Yes Yes Yes 100 Mbit/s 16 Yes 2 Yes 2 Yes Yes Yes Yes Yes Yes
Web server	Isolated         automatic detection of transmission rate         Autonegotiation         Autocrossing         Interface types         • RJ 45 (Ethernet)         Protocols         • PROFINET IO Controller         • PROFINET IO Device         PROFINET IO Controller         • Transmission rate, max.         Services         - Number of connectable IO Devices, max.         PROFINET IO Device         Services         - Number of connectable IO Devices, max.         PROFINET IO Device         Services         - Shared device         - Number of IO Controllers with shared device, max.         Protocols         Supports protocol for PROFINET IO         PROFIBUS         AS-Interface         Protocols (Ethernet)         • TCP/IP         Open IE communication         • TCP/IP	Yes         Yes         Yes         Yes         Yes         100 Mbit/s         100 Mbit/s         16         Yes         Yes <tr< td=""></tr<>
	Isolated         automatic detection of transmission rate         Autonegotiation         Autocrossing         Interface types         • RJ 45 (Ethernet)         Protocols         • PROFINET IO Controller         • PROFINET IO Device         PROFINET IO Controller         • Transmission rate, max.         Services         Number of connectable IO Devices, max.         PROFINET IO Device         Services         Number of connectable IO Devices, max.         PROFINET IO Device         Services         Number of Controllers with shared device, max.         Protocols         Supports protocol for PROFINET IO         PROFIBUS         AS-Interface         Protocols (Ethernet)         • TCP/IP         Open IE communication         • TCP/IP         • ISO-on-TCP (RFC1006)	Yes         Yes         Yes         Yes         Yes         Yes         100 Mbit/s         100 Mbit/s         16         Yes         Yes <tr< td=""></tr<>

	N .
supported	Yes
User-defined websites	Yes
Further protocols	Ver
MODBUS	Yes
communication functions / header	
S7 communication	
supported	Yes
• as server	Yes
as client	Yes
Number of connections  • overall	16; dynamically
• overall Test commissioning functions	
Status/control	
Status/control variable	Yes
Variables	Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters
Forcing	inputs/outputs, memory bits, DBs, distributed 1/Os, timers, counters
• Forcing	Yes
Diagnostic buffer	105
present	Yes
Traces	
Number of configurable Traces	2; Up to 512 KB of data per trace are possible
Integrated Functions	
Counter	
Number of counters	6
Counting frequency, max.	100 kHz
Frequency measurement	Yes
controlled positioning	Yes
Number of position-controlled positioning axes, max.	8
Number of positioning axes via pulse-direction interface	4; With integrated DO
PID controller	Yes
Number of alarm inputs	4
Number of pulse outputs	4
Limit frequency (pulse)	100 kHz
Potential separation	
Potential separation digital inputs	
Potential separation digital inputs	500V AC for 1 minute
between the channels, in groups of	1
Potential separation digital outputs	
Potential separation digital outputs	Yes
between the channels	No
<ul> <li>between the channels, in groups of</li> </ul>	1
EMC	
Interference immunity against discharge of static electricity	
Interference immunity against discharge of static	Yes
electricity acc. to IEC 61000-4-2	
— Test voltage at air discharge	8 kV
<ul> <li>— Test voltage at contact discharge</li> </ul>	6 kV
Interference immunity to cable-borne interference	
<ul> <li>Interference immunity on supply lines acc. to IEC 61000- 4-4</li> </ul>	Yes
<ul> <li>Interference immunity on signal cables acc. to IEC 61000-</li> </ul>	Yes
4-4	
Interference immunity against voltage surge	
• Interference immunity on supply lines acc. to IEC 61000-	Yes
4-5	
Interference immunity against conducted variable disturbance induc	
<ul> <li>Interference immunity against high-frequency radiation acc. to IEC 61000-4-6</li> </ul>	Yes
Emission of radio interference acc. to EN 55 011	
Limit class A, for use in industrial areas	Yes; Group 1
Limit class B, for use in residential areas	Yes; When appropriate measures are used to ensure compliance with the limits
	for Class B according to EN 55011

Degree and class of protection IP degree of protection	IP20
mbient conditions	
Free fall	
• Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	
• min.	-40 °C; = Tmin (incl. condensation/frost); start-up @ -25 °C
• max.	60 °C; = Tmax; Tmax > +55 °C number of simultaneously switched-on digital inputs 7, digital outputs 5, analog inputs 2 (no adjacent points) with horizontal mounting position
At cold restart, min.	-25 °C
Ambient temperature during storage/transportation	40.00
• min.	-40 °C 70 °C
max.     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)
Vibrations	
Vibration resistance during operation acc. to IEC 60068- 2-6	2 g (m/s <sup>2</sup> ) wall mounting, 1 g (m/s <sup>2</sup> ) DIN rail
Operation, tested according to IEC 60068-2-6      Shock testing	Yes
shock testing	Voc IEC 69. Dart 2.37 holf since strength of the sheak 45 s (see to us to )
tested according to IEC 60068-2-27	Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value), duration 11 ms
Resistance	
Coolants and lubricants — Resistant to commercially available coolants and lubricants	Yes; Incl. diesel and oil droplets in the air
Use in stationary industrial systems	
<ul> <li>— to biologically active substances according to EN 60721-3-3</li> </ul>	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
<ul> <li>— to chemically active substances according to EN 60721-3-3</li> </ul>	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
<ul> <li>— to mechanically active substances according to EN 60721-3-3</li> </ul>	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	Vec: Clase 3 (excluding trichlorothylono)
<ul> <li>Against chemically active substances acc. to EN 60654-4</li> </ul>	Yes; Class 3 (excluding trichlorethylene)
<ul> <li>Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04</li> </ul>	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	
<ul> <li>— Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04</li> </ul>	* 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
<ul> <li>Protection against fouling acc. to EN 60664-3</li> </ul>	Yes; Type 1 protection
Military testing according to MIL-I-46058C, Amendment 7	Yes; Discoloration of coating possible during service life
<ul> <li>Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC- CC-830A</li> </ul>	Yes; Conformal coating, Class A
onfiguration / header	
configuration / programming / header	

Programming language	
— LAD	Yes
— FBD	Yes
— SCL	Yes
programming / cycle time monitoring / header	
adjustable	Yes
Dimensions	
Width	110 mm
Height	100 mm
Depth	75 mm
Weights	
Weight, approx.	415 g

last modified:

5/29/2024 🖸