## **Data sheet**

6AG1212-1AE40-2XB0



SIPLUS S7-1200 CPU 1212C DC/DC/DC based on 6ES7212-1AE40-0XB0 with conformal coating, -40...+70 °C, start up -25 °C, signal board: 0, compact CPU, DC/DC/DC, onboard I/O: 8 DI 24 V DC; 6 DQ 24 V DC; 2 AI 0-10 V DC, power supply: 20.4-28.8 V DC, program/data memory 75 KB

| General information                                     |  |
|---|--|
| Product type designation                                | CPU 1212C DC/DC/DC                       |
| based on  | 6ES7212-1AE40-0XB0                       |
| 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+   |  |
| <ul><li>Rated value (DC)</li></ul>                      | 24 V                                     |
| <ul> <li>permissible range, lower limit (DC)</li> </ul> | 20.4 V                                   |
| <ul> <li>permissible range, upper limit (DC)</li> </ul> | 28.8 V                                   |
| Input current   |  |
| Current consumption (rated value)                       | 400 mA; CPU only                         |
| Current consumption, max.                               | 1 200 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.                        | 1 000 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.  | 9 W                                      |
| Memory  |  |
| Work memory   |  |
| integrated  | 75 kbyte                                 |
| Load memory   |  |
| • integrated  | 1 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 memory can be used |
|---|---|
| ОВ  |   |
| Number, max.  | Limited only by RAM for code  |
| Data areas and their retentivity  |   |
| Retentive data area (incl. timers, counters, flags), max.                             | 10 kbyte  |
| Flag  |   |
| • Size, max.  | 4 kbyte; Size of bit memory address area  |
| Local data  | ,   |
| per priority class, max.  | 16 kbyte; Priority class 1 (program cycle): 16 KB, priority class 2 to 26: 6 KB   |
| Address area  | To tayto, I field, didde I (program dydd). To tay, phothy didde 2 to 20. o tay  |
| Process image   |   |
|   | 1 khyto   |
| Inputs, adjustable     Outputs, adjustable  | 1 kbyte   |
| Outputs, adjustable   | 1 kbyte   |
| Hardware configuration  |   |
| Number of modules per system, max.  | 3 com. modules, no signal board can be used, 2 signal modules   |
| Time of day   |   |
| Clock   |   |
| Hardware clock (real-time)  | Yes   |
| Backup time   | 480 h; Typical  |
| Deviation per day, max.   | 60 s/month at 25 °C   |
| Digital inputs  |   |
| Number of digital inputs  | 8; Integrated   |
| <ul> <li>of which inputs usable for technological functions</li> </ul>                | 4; HSC (High Speed Counting)  |
| Source/sink input   | Yes   |
| Number of simultaneously controllable inputs  |   |
| all mounting positions  |   |
| — up to 40 °C, max.   | 8   |
| Input voltage   |   |
| 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)  | 10 1 20 4.210 1111  |
| for standard inputs   |   |
| — parameterizable   | 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 & 1 @ 30 kHz, differential: 3 @ 80 kHz & 1 @ 30   |
| P 3. 3  | 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   | 6   |
| 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.  | 5.0 A   |
|   |   |
| Output voltage  | 0.1 V: with 10 kOhm load  |
| • for signal "0", max.  | 0.1 V; with 10 kOhm load  |
| <ul><li>for signal "1", min.</li></ul>  | 20 V  |
|   |   |
| Output current  |   |
| Output current  • for signal "1" rated value  | 0.5 A   |
| Output current  • for signal "1" rated value  • for signal "0" residual current, max. |   |
| Output current  • for signal "1" rated value  | 0.5 A   |

| a "4" to "0" may  | Fue                         |
|---|-----------------------------|
| • "1" to "0", max.  | 5 μs                        |
| Switching frequency   | 100 kHz                     |
| of the pulse outputs, with resistive load, max.  Palar cutauts. | 100 KHZ                     |
| Relay outputs   | 0                           |
| Number of relay outputs  Coble length                           | U                           |
| Cable length  | F00 m                       |
| shielded, max.  | 500 m                       |
| • unshielded, max.  | 150 m                       |
| Analog inputs   |                             |
| Number of analog inputs   | 2                           |
| Input ranges  | Voc                         |
| Voltage     Input range (rated values) valtages                 | Yes                         |
| Input ranges (rated values), voltages  • 0 to +10 V             | Vaa                         |
|   | Yes                         |
| — Input resistance (0 to 10 V)                                  | ≥100k ohms                  |
| Cable length  | 400 ms builted and abialded |
| shielded, max.  Analog outputs                                  | 100 m; twisted and shielded |
| Analog outputs  | 0                           |
| Number of analog outputs  | 0                           |
| Analog value generation for the inputs                          |                             |
| Integration and conversion time/resolution per channel          | 4011                        |
| 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                         |
| 1. Interface  |                             |
| Interface type  | PROFINET                    |
| Isolated  | Yes                         |
| automatic detection of transmission rate                        | Yes                         |
| Autonegotiation   | Yes                         |
| Autocrossing  | Yes                         |
| Interface types   |                             |
| RJ 45 (Ethernet)  | Yes                         |
| Protocols   |                             |
| PROFINET IO Controller  | Yes                         |
| PROFINET IO Device  | Yes                         |
| Open IE communication   | Yes                         |
| Web server  | Yes                         |
| PROFINET IO Controller  |                             |
| Transmission rate, max.   | 100 Mbit/s                  |
| Services  |                             |
| — Number of connectable IO Devices, max.                        | 16                          |
| PROFINET IO Device  |                             |
| Services  | V                           |
| — Shared device   | Yes                         |
| Number of IO Controllers with shared device, max.               | 2                           |
| Protocols   |                             |
| Supports protocol for PROFINET IO                               | Yes                         |
| PROFISATE   | No                          |
| PROFIBUS  | Yes; CM 1243-5 required     |
| AS-Interface  | Yes                         |
| Protocols (Ethernet)  | V.                          |
| • TCP/IP  | Yes                         |
| Open IE communication   | · ·                         |
| • TCP/IP  | Yes                         |
| • ISO-on-TCP (RFC1006)  | Yes                         |
| • UDP   | Yes                         |
| Web server  |                             |

| Eutitier protected  *MODIUS  *MODIUS  *Nes  *Communication functions / header  \$7 communication functions / header  \$7 communication functions / header  \$8 sorver  *as a client  *Number of commissioning functions  *Status/control variable  *Ves  *Variable  *Status/control variable  *Tocking  *Frozing  *Frozing  *Present  *Innes  *Number of configurable Traces  *Number of position-controlled positioning axes, max.  *Number of position-controlled positioning axes, max.  *Number of position-controlled positioning axes, max.  *Number of positioning axes via pulse-direction inlerface  *Number of position-controlled positioning axes, max.  *Number of paraminiputs  *Number of paraminiputs  *Number of paraminiputs  *A  *Number of paraminiputs  *Predential separation digital inputs  *Potential separation digital inputs  *Detential separation digital inputs  *Detent | • supported   | Yes  |
|---|---|--|
| **NOBBUS** **NOBBUS** **NOBBUS** **Sommarication functions / header  **Sircommunication functions / header  **Sircommunication functions / header  **Sircommunications functions  **substance of the sircommunications functions  **Status scored   |   |  |
| • MODEUS Personal Communication functions / header  37 communication  • upported Yes • as server Yes • as client Yes  • as server Yes • as client Yes  • as server Yes • as client Yes  • Statis-control variable • Statis-control variable • Variables  • Statis-control variable • Variables  • Protring • Prosent  • Present • Pres    |   |  |
| ### Communication functions / header    Strommunication   Strommun    | •   | Yes  |
| SZ communication  • supported • as server • as clent • Number of connections • overall • Status-control variable • Variables • Variables • Variables • Variables • Forcing • Forcing • Forcing • Forcing • Pes • Inputatioutputs. memory bits, DBs, distributed NOs, timers, counters  Forcing • Forcing • Forcing • Forcing • Forcing • Pes • Diagnosts buffer • present • Pes • Inputatioutputs. memory bits, DBs, distributed NOs, timers, counters  Forcing • Forcing • Pes • Traces • Number of configurable Traces • Number of configurable Traces • Number of positioning aves, max. • Number of positioning aves are pulse-direction interface • All With integrated DO • Pilo controller • Positioning • Pes • Number of pulse outputs • Limit Hequency (pulse) • Potential separation digital inputs • Potential separation digital outputs • Potential separation digital inputs • Potential separation digital inputs • Potential separation digital inputs • Potential separation digital outputs • Potential separation digi    |   |  |
| supported     as server     as defent     Number of connections     **Control     **Status/control variable     **Variables     **Variables     **Variables     **Variables     **Variables     **Forcing     **Forcing     **Forcing     **Forcing     **Forcing     **Forcing     **Forcing     **Forcing     **Forcing     **Status/control variable     **Variables     **Variables     **Variables     **Possibles     **Variables     **Possibles     **Forcing     **Forcing     **Forcing     **Forcing     **Forcing     **Forcing     **Forcing     **Pessent     **Traces     **Number of configurable Traces     **Integrated Functions     **Frequency measurement     **Frequency measurement     **Yes     **Variables     **Outhood of postationary passive services are possible for the postationary passive services are possible for postationary passive          |   |  |
| * as server* * Yes * so client* * Number of connections  • overall 16: dynamically * Test commissioning functions  * Status/control variable  |   | Yes  |
| • set client     Number of connections     • overall     • coverall     • coverall     • coverall     • Status control variable     • Variables     • Variables     • Variables     • Variables     • Variables     • Percing     • Forcing     • Forcing     • Forcing     • Forcing     • Forcing     • Forcing     • Pesent     † Yes     • Number of configurable Traces     • Number of positioning axes, max.     • Number of positioning axes via pulse-direction interface     • PED controller     • Percental separation controlled positioning axes, max.     • Number of positioning axes via pulse-direction interface     • PED controller     • Percental separation     • Percental separation     • Percental separation digital inputs     • Petertal separation digital inputs     • Petertal separation digital inputs     • Petertal separation digital inputs     • Detween the channels, in groups of     • Petertal separation digital inputs     • Detween the channels, in groups of     • Petertal separation digital inputs     • Detween the channels, in groups of     • Interference immunity against discharge of static electricity     • Interference immunity against discharge of static electricity     • Interference immunity on pulsiple accit to IEC 61000-4-4     • Interference immunity on puly plines acc. to IEC 61000-4-5     • Interference immunity on signal cables acc. to IEC 61000-4-6     • Interference immunity against voltage surge     • Interference im         |   |  |
| Number of connections  - Versal  Test commissioning functions  Status/control  - Variables  - Variables  - Forcing  - Forcing  - Forcing  - Forcing  - Forcing  - Present  - Ves  - Number of configurable Traces  - Number of configurable Traces  - Number of positioning axes, max.  - Number of positioning axes via pulse-direction interface  - Prilo controlled positioning axes, max.  - Number of abarm inputs  - Wes  - Number of abarm inputs  - Wes  - Number of abarm inputs  - Wes  - Number of abarm inputs  - Ves  - Number of abarm inputs  - Ves  - Number of abarm inputs  - Ves  - Number of pulse outputs  - Wes  - Ves  - V    |   |  |
| e vicinity functions  Statuscontrol variable  Statuscontrol variable  Ves  Variables  Forcing  Forcing  Forcing  Forcing  Persent  Number of configurable Traces  Frequency measurement  controlled positioning axes via pulse-direction interface  PD controlled positioning axes via pulse-direction interface  PLO controlled positioning axes via pulse-direction interface  Number of positioning axes via pulse-direction interface  Potential separation digital inputs  Potential separation digital outputs  Potential separation digital inputs  Potential separation digital outputs     |   |  |
| Statuscontrol variable  Status control variable  Variables  Forcing  Forcin    |   | 16: dynamically  |
| Status/control variable  Status/control variable  Status/control variable  Ves Input/outputs, memory bits, DBs, distributed I/Os, timers, counters  Forcing  Forcing  Forcing  Forcing  Forcing  Forcing  Possent  Ves  Traces  Number of configurable Traces  Frequency measurement  Controlled positioning passes, max.  Frequency measurement  Ves  Number of position-controlled positioning axes, max.  Rumber of positioning axes via pulse-direction interface  PID controller  Ves  Number of positioning axes via pulse-direction interface  PID controller  Ves  Number of positioning axes via pulse-direction interface  Ves  Number of positioning axes via pulse-direction interface  PID controller  Ves  Number of positioning axes via pulse-direction interface  Ves  Ves  Ves  Ves  Ves  Potential separation  Solvi AC for 1 minute  Potential separation  Potential separation digital inputs  Potential separation digital outputs    |   | ,,,,,,,,,,   |
| Status/control variable Variables Inputs/couputs, memory bits, DBs, distributed I/Os, timers, counters  Forcing Forcing Forcing Forcing Forcing Present Ves Diagnostic buffer Present Ves Variables Number of configurable Traces Ves Number of configurable Traces Ves Number of positioning aves, max. Ves Number of positioning aves via pulse-direction interface Ves Number of pulse outputs Ves Number of pulse outputs Ves Number of positioning via   |   |  |
| Forcing Forcin    |   | Yes  |
| Forcing Forcin    |   |  |
| Diagnostic buffer   |   |  |
| Picenti yes present Yes  Number of configurable Traces  Number of positioning axes, max.  Number of positioning axes via pulse-direction interface PID controlled positioning axes via pulse-direction interface PID controlled positioning axes via pulse-direction interface PID controller Number of positioning axes via pulse-direction interface PID controller Number of positioning axes via pulse-direction interface PID controller Number of pulse outputs 4 Number of pulse outputs Potential separation digital inputs • Potential separation digital inputs • Potential separation digital outputs • Potentia    |   | Yes  |
| Traces  Number of configurable Traces  Number of positioning axes via pulse-direction interface  PiD controlled positioning axes, max.  Number of positioning axes via pulse-direction interface  PiD controlled positioning axes via pulse-direction interface  PiD controlled positioning axes via pulse-direction interface  PiD controller  Number of position-controlled positioning axes, max.  Number of positioning axes, max.  Number of position-controlled positioning axes, max.  Nu    | · · · · · · · · · · · · · · · · · · ·                             |  |
| Number of configurable Traces  Number of position-controlled positioning axes, max.  Number of positioning axes via pulse-direction interface  PID controller  Yes  Number of paistioning axes via pulse-direction interface  PID controller  Yes  Number of pulse outputs  Limit frequency (pulse)  Potential separation digital inputs  Potential separation digital outputs  Potential separation d    | -   | Yes  |
| Number of configurable Traces   Yes   |   |  |
| Precipion   Prec      |   | 2; Up to 512 KB of data per trace are possible   |
| Frequency measurement controlled positioning Nes Number of position-controlled positioning axes, max.  8 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 Limit frequency (pulse) 100 kHz Potential separation digital inputs • Potential separation digital outputs • No • between the channels, in groups of  1  EMC  EMC  Interference immunity against discharge of static electricity • Interference immunity on supply lines acc. to IEC 61000- 4-4 • Interference immunity on signal cables acc. to IEC 61000- 4-5 • Interference immunity against voltage surge •    |   |  |
| Controlled positioning  Number of position-controlled positioning axes, max.  8  Number of positioning axes via pulse-direction interface  PID controller  Yes  Number of alarm inputs  4  Number of pulse outputs  4  Limit frequency (pulse)  Potential separation  Potential separation digital inputs  • Potential separation digital inputs  • Potential separation digital inputs  • Potential separation digital outputs  • Potential separation digita    | -   | Yes  |
| Number of position-controlled positioning axes, max.  Number of positioning axes via pulse-direction interface  4; With integrated DO  PID controller  Yes  Number of pulse outputs  4  Number of pulse outputs  4  Limit frequency (pulse)  Potential separation  Potential separation digital inputs  • Potential separation digital inputs  • Potential separation digital inputs  • Potential separation digital outputs  • Detween the channels, in groups of 1  EMC  Interference immunity against discharge of static electricity  • Interference immunity against discharge of static electricity  • Interference immunity against discharge of static electricity acc. to IEC 61000-42  — Test voltage at contact discharge 6 kV  Interference immunity to cable-bome interference  • Interference immunity on supply lines acc. to IEC 61000-44  • Interference immunity on supply lines acc. to IEC 61000-45  Interference immunity against voltage surge  • Interference immunity against voltage surge  • Interference immunity against toonducted variable disturbance induced by high-frequency fields  • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6  Emission of radio interference acc. to IEC 55 011  • Limit class A, for use in industrial areas  Yes; Group 1  Yes; When appropriate measures are used to ensure compliance with the limit for Class B accoording to EN 55011  Pogree and class of protection  IP degree of protection   | <u> </u>  |  |
| 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) Potential separation digital inputs • Potential separation digital outputs • Poten    |   |  |
| PID controller  Number of alarm inputs  4  Number of pulse outputs  4  Limit frequency (pulse)  Potential separation  Potential separation digital inputs  • Potential separation digital inputs  • Potential separation digital outputs  • Potential     |   |  |
| Number of pulse outputs 4  Number of pulse outputs 4  Limit frequency (pulse) 100 kHz  Potential separation  Potential separation digital inputs 5  • Potential separation digital inputs 5  • Potential separation digital inputs 5  • Potential separation digital inputs 6  • Potential separation digital outputs 7  • Potential separation digital outputs 7  • Potential separation digital outputs 8  • Potential separation digital outputs 9  • Detween the channels, in groups of 1  EMC  Interference immunity against discharge of static electricity 9  • Interference immunity against discharge of static electricity 9  • Interference immunity active for 61000-4-2 9  — Test voltage at air discharge 8  • Interference immunity on supply lines acc. to IEC 61000-4-4 9  • Interference immunity on supply lines acc. to IEC 61000-4-4 9  • Interference immunity against voltage surge 9  • Interference immunity against high-frequency radiation acc. to IEC 61000-4-6  Emission of radio interference acc. to EN 55 011  • Limit class B, for use in industrial areas 19 Yes; Group 1 1920  Pegree and class of protection 1020   |   |  |
| Number of pulse outputs  Limit frequency (pulse)  Potential separation  Potential separation digital inputs  • Potential separation digital inputs  • Detential separation digital inputs  • Detential separation digital inputs  • Potential separation digital outputs  • Potential separati    |   |  |
| Limit frequency (pulse)  Potential separation  Potential separation digital inputs  • Potential separation digital inputs  • Detential separation digital inputs  • Detential separation digital outputs  • Potential separation digital outputs  • Detween the channels, in groups of  1  EMC  Interference immunity against discharge of static electricity  • Interference immunity against discharge of static electricity ac. to IEC 61000-4-2  — Test voltage at air discharge  • Interference immunity to cable-borne interference  • Interference immunity on supply lines acc. to IEC 61000-4-4  • Interference immunity on supply lines acc. to IEC 61000-4-4  Interference immunity against voltage surge  • Interference immunity against conducted variable disturbance induced by high-frequency fields  • Interference immunity against high-frequency radiation acc. to IEC 61000-4-5  Interference immunity against injh-frequency radiation acc. to IEC 61000-4-6  Emission of radio interference acc. to EN 55 011  • Limit class A, for use in industrial areas  • Limit class B, for use in residential areas  • Limit class B, for use in residential areas  • Limit class B, for use in residential areas  • Limit class Of protection  IP20  |   |  |
| Potential separation digital inputs  Potential separation digital inputs  between the channels, in groups of  Potential separation digital outputs  Potential separation digital inputs  Potential separation digital outputs  Pote    | i   |  |
| Potential separation digital inputs  • Potential separation digital inputs • between the channels, in groups of 1  Potential separation digital outputs • between the channels • between the channels, in groups of 1  EMC  Interference immunity against discharge of static electricity • Interference immunity against discharge of static electricity act to IEC 61000-4-2  — Test voltage at air discharge 6 kV  Interference immunity to active borne interference • Interference immunity to asbie-borne interference • Interference immunity on supply lines acc. to IEC 61000-4-4 • Interference immunity on signal cables acc. to IEC 61000-4-4 • Interference immunity against voltage surge • Interference immunity against voltage surge • Interference immunity against conducted variable disturbance induced by high-frequency fields • Interference immunity against conducted variable disturbance induced by high-frequency fields • Interference immunity against high-frequency radiation acc. to IEC 61000-4 • Emission of radio interference acc. to EN 55 011 • Limit class A, for use in industrial areas • Limit class B, for use in residential areas • Limit class B, for use in residential areas • Limit class B, for use in residential areas  Pegree and class of protection  IP degree of protection  |   |  |
| Potential separation digital inputs between the channels, in groups of  Potential separation digital outputs Potential separation digital outputs Potential separation digital outputs between the channels between the channels between the channels between the channels, in groups of  Interference immunity against discharge of static electricity Interference immunity against discharge of static electricity Interference immunity against discharge of static electricity Interference immunity against discharge Interference immunity on supply lines acc. to IEC 61000-4-2 Interference immunity to n supply lines acc. to IEC 61000-4-4 Interference immunity on supply lines acc. to IEC 61000-4-4 Interference immunity against voltage surge Interference immunity against voltage surge Interference immunity against voltage surge Interference immunity against conducted variable disturbance induced by high-frequency fields Interference immunity against high-frequency radiation acc. to IEC 61000-4-5 Interference immunity against high-frequency radiation acc. to IEC 61000-4-6 Emission of radio interference acc. to EN 55 011  Limit class A, for use in industrial areas Yes; Group 1 Yes; When appropriate measures are used to ensure compliance with the limit for Class B according to EN 55011  Degree and class of protection  IP degree of protection  IP degree of protection  IP degree of protection  IP degree of protection   |   |  |
| between the channels, in groups of     Potential separation digital outputs     Potential separation digital outputs     between the channels     between the channels     between the channels, in groups of  Interference immunity against discharge of static electricity     Interference immunity against discharge     Interference immunity on the static electricity     Interference immunity against discharge     Interference immunity on the static electricity     Interference immunity to electricity     Interference immunity to a static electricity     Interference immunity to a static electricity     Interference immunity on the static electricity     Interference immunity to electricity     Interference immunity to electricity     Interference immunity on supply lines acc. to IEC 61000-4-4  Interference immunity on supply lines acc. to IEC 61000-4-5  Interference immunity against voltage surge     Interference immunity against voltage surge     Interference immunity against conducted variable disturbance induced by high-frequency fields     Interference immunity against high-frequency radiation acc. to IEC 61000-4-6  Emission of radio interference acc. to EN 55 011      Limit class A, for use in industrial areas     Yes; Group 1      Yes; When appropriate measures are used to ensure compliance with the limit for Class B according to EN 55011  Degree and class of protection  IP degree of protection  IP degree of protection  | · · · · · · · · · · · · · · · · · · ·                             | 500V AC for 1 minute   |
| Potential separation digital outputs  Potential separation digital sep    |   |  |
| Potential separation digital outputs between the channels between the channels between the channels, in groups of  Interference immunity against discharge of static electricity Interference immunity against discharge of static electricity Interference immunity against discharge of static electricity acc. to IEC 61000-4-2  — Test voltage at air discharge — Test voltage at contact discharge — Test voltage at contact discharge — Nuterference immunity to cable-borne interference  Interference immunity on supply lines acc. to IEC 61000-4-4  Interference immunity on signal cables acc. to IEC 61000-4-4  Interference immunity against voltage surge  Interference immunity against voltage surge  Interference immunity against conducted variable disturbance induced by high-frequency fields  Interference immunity against high-frequency radiation acc. to IEC 61000-4-6  Emission of radio interference acc. to EN 55 011  Limit class A, for use in industrial areas Limit class B, for use in residential areas  Yes; Group 1  Yes; When appropriate measures are used to ensure compliance with the limit for Class B according to EN 55011  Degree and class of protection  IP degree of protection  IP degree of protection  IP20  |   |  |
| between the channels     between the channels, in groups of  EMC  Interference immunity against discharge of static electricity      Interference immunity against discharge of static electricity      Interference immunity against discharge of static electricity acc. to IEC 61000-4-2      — Test voltage at air discharge  | · · · · · · · · · · · · · · · · · · ·                             | Yes  |
| Interference immunity against discharge of static electricity         • Interference immunity against discharge of static electricity         • Interference immunity against discharge of static electricity acc. to IEC 61000-4-2   |   |  |
| Interference immunity against discharge of static electricity  Interference immunity against discharge of static electricity  Interference immunity against discharge of static electricity acc. to IEC 61000-4-2  Test voltage at air discharge 8 kV  Test voltage at contact discharge 6 kV  Interference immunity to cable-borne interference  Interference immunity on supply lines acc. to IEC 61000-4-4  Interference immunity on signal cables acc. to IEC 61000-4-4  Interference immunity against voltage surge  Interference immunity against voltage surge  Interference immunity against conducted variable disturbance induced by high-frequency fields  Interference immunity against high-frequency radiation acc. to IEC 61000-4-6  Emission of radio interference acc. to EN 55 011  Limit class A, for use in industrial areas 7 yes; Group 1  Limit class B, for use in residential areas 7 yes; When appropriate measures are used to ensure compliance with the limit for Class B according to EN 55011  Degree and class of protection IP20   |   |  |
| Interference immunity against discharge of static electricity  Interference immunity against discharge of static electricity acc. to IEC 61000-4-2  — Test voltage at air discharge 8 kV  — Test voltage at contact discharge 6 kV  Interference immunity to cable-borne interference  Interference immunity on supply lines acc. to IEC 61000-4-4  Interference immunity on signal cables acc. to IEC 61000-4-4  Interference immunity against voltage surge  Interference immunity against voltage surge  Interference immunity against conducted variable disturbance induced by high-frequency fields  Interference immunity against high-frequency radiation acc. to IEC 61000-4-6  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 limit for Class B according to EN 55011  Degree and class of protection IP20  |   |  |
| Interference immunity against discharge of static electricity acc. to IEC 61000-4-2  — Test voltage at air discharge 8 kV — Test voltage at contact discharge 6 kV  Interference immunity to cable-borne interference  Interference immunity on supply lines acc. to IEC 61000-4-4  Interference immunity on signal cables acc. to IEC 61000-4-4  Interference immunity against voltage surge  Interference immunity against voltage surge  Interference immunity against conducted variable disturbance induced by high-frequency fields  Interference immunity against high-frequency radiation acc. to IEC 61000-4-6  Emission of radio interference acc. to EN 55 011  Limit class A, for use in industrial areas 7es; Group 1  Limit class B, for use in residential areas 7es; When appropriate measures are used to ensure compliance with the limit for Class B according to EN 55011  Degree and class of protection IP20  |   |  |
| electricity acc. to IEC 61000-4-2  — Test voltage at air discharge  |   | Yes  |
| Test voltage at air discharge Test voltage at contact discharge Test voltage at contact discharge  Interference immunity to cable-borne interference Interference immunity on supply lines acc. to IEC 61000- 4-4 Interference immunity against voltage surge Interference immunity against voltage surge Interference immunity against conducted variable disturbance induced by high-frequency fields Interference immunity against high-frequency radiation acc. to IEC 61000-4-6  Interference immunity against high-frequency radiation acc. to IEC 61000-4-6  Emission of radio interference acc. to EN 55 011  Limit class A, for use in industrial areas Limit class B, for use in residential areas Limit class B, for use in residential areas  Yes; Group 1  Yes; When appropriate measures are used to ensure compliance with the limit for Class B according to EN 55011  Degree and class of protection  IP degree of protection  |   | 160  |
| Interference immunity to cable-borne interference  Interference immunity on supply lines acc. to IEC 61000- 4-4  Interference immunity on signal cables acc. to IEC 61000- 4-4  Interference immunity against voltage surge  Interference immunity on supply lines acc. to IEC 61000- 4-5  Interference immunity against conducted variable disturbance induced by high-frequency fields  Interference immunity against high-frequency radiation acc. to IEC 61000-4-6  Emission of radio interference acc. to EN 55 011  Limit class A, for use in industrial areas  Limit class B, for use in residential areas  Yes; Group 1  Yes When appropriate measures are used to ensure compliance with the limit for Class B according to EN 55011  Degree and class of protection  IP degree of protection  | •   | 8 kV   |
| <ul> <li>Interference immunity on supply lines acc. to IEC 61000-4-4</li> <li>Interference immunity on signal cables acc. to IEC 61000-4-4</li> <li>Interference immunity against voltage surge</li> <li>Interference immunity on supply lines acc. to IEC 61000-4-5</li> <li>Interference immunity against conducted variable disturbance induced by high-frequency fields</li> <li>Interference immunity against high-frequency radiation acc. to IEC 61000-4-6</li> <li>Emission of radio interference acc. to EN 55 011</li> <li>Limit class A, for use in industrial areas</li> <li>Limit class B, for use in residential areas</li> <li>Limit class of protection</li> <li>IP degree of protection</li> <li>IP20</li> </ul>   |   | 6 kV   |
| Interference immunity on supply lines acc. to IEC 61000-4-4  Interference immunity against voltage surge  Interference immunity on supply lines acc. to IEC 61000-4-5  Interference immunity against conducted variable disturbance induced by high-frequency fields  Interference immunity against conducted variable disturbance induced by high-frequency fields  Interference immunity against high-frequency radiation acc. to IEC 61000-4-6  Emission of radio interference acc. to EN 55 011  Limit class A, for use in industrial areas  Limit class B, for use in residential areas  Limit class B, for use in residential areas  Limit class B, for use in residential areas  Pegree and class of protection  IP degree of protection  IP degree of protection  |   |  |
| Interference immunity against voltage surge  Interference immunity on supply lines acc. to IEC 61000-4-5  Interference immunity against conducted variable disturbance induced by high-frequency fields  Interference immunity against high-frequency radiation acc. to IEC 61000-4-6  Emission of radio interference acc. to EN 55 011  Limit class A, for use in industrial areas  Limit class B, for use in residential areas  Yes; Group 1  Yes; When appropriate measures are used to ensure compliance with the limit for Class B according to EN 55011  Degree and class of protection  IP degree of protection  IP20  | • Interference immunity on supply lines acc. to IEC 61000-        | Yes  |
| <ul> <li>Interference immunity on supply lines acc. to IEC 61000- 4-5</li> <li>Interference immunity against conducted variable disturbance induced by high-frequency fields         <ul> <li>Interference immunity against high-frequency radiation acc. to IEC 61000-4-6</li> <li>Emission of radio interference acc. to EN 55 011</li> <li>Limit class A, for use in industrial areas</li> <li>Limit class B, for use in residential areas</li> <li>Yes; Group 1</li> <li>Limit class B, for use in residential areas</li> <li>Yes; When appropriate measures are used to ensure compliance with the limit for Class B according to EN 55011</li> </ul> </li> <li>Degree and class of protection</li> <li>IP degree of protection</li> </ul>   |   | Yes  |
| Interference immunity against conducted variable disturbance induced by high-frequency fields  Interference immunity against high-frequency radiation acc. to IEC 61000-4-6  Emission of radio interference acc. to EN 55 011  Limit class A, for use in industrial areas  Limit class B, for use in residential areas  Yes; Group 1  Yes; When appropriate measures are used to ensure compliance with the limit for Class B according to EN 55011  Degree and class of protection  IP degree of protection  IP20  | Interference immunity against voltage surge                       |  |
| <ul> <li>Interference immunity against high-frequency radiation acc. to IEC 61000-4-6</li> <li>Emission of radio interference acc. to EN 55 011</li> <li>Limit class A, for use in industrial areas</li> <li>Limit class B, for use in residential areas</li> <li>Yes; Group 1</li> <li>Yes; When appropriate measures are used to ensure compliance with the limit for Class B according to EN 55011</li> <li>Degree and class of protection</li> <li>IP degree of protection</li> </ul>   |   | Yes  |
| acc. to IEC 61000-4-6  Emission of radio interference acc. to EN 55 011  • Limit class A, for use in industrial areas  • Limit class B, for use in residential areas  Yes; Group 1  Yes; When appropriate measures are used to ensure compliance with the limit for Class B according to EN 55011  Degree and class of protection  IP degree of protection  IP20  | Interference immunity against conducted variable disturbance indu | ced by high-frequency fields   |
| <ul> <li>Limit class A, for use in industrial areas</li> <li>Limit class B, for use in residential areas</li> <li>Yes; Group 1</li> <li>Yes; When appropriate measures are used to ensure compliance with the limit for Class B according to EN 55011</li> <li>Degree and class of protection</li> <li>IP degree of protection</li> </ul>   |   | Yes  |
| Limit class B, for use in residential areas  Yes; When appropriate measures are used to ensure compliance with the limit for Class B according to EN 55011  Degree and class of protection  IP degree of protection  IP20   | Emission of radio interference acc. to EN 55 011                  |  |
| for Class B according to EN 55011  Degree and class of protection  IP degree of protection  IP20  | Limit class A, for use in industrial areas                        | Yes; Group 1   |
| IP degree of protection IP20  | • 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                                    |  |
| Ambient conditions  | IP degree of protection   | IP20   |
|   | Ambient conditions  |  |

| Free fall   |  |
|---|--|
| • Fall height, max.   | 0.3 m; five times, in product package  |
| Ambient temperature during operation  |  |
| ■ min. ■ max.   | $^{\rm o}$ C; = Tmin (incl. condensation/frost); start-up @ -25 °C 70 °C; = Tmax; Tmax > +55 °C number of simultaneously switched-on digital inputs 4, digital outputs 3, analog inputs 2 (no adjacent points) with horizontal mounting position; Tmax > +60 °C number of simultaneously switched-on digital inputs 3, digital outputs 2, analog inputs 0 (no adjacent points) with horizontal mounting position |
| At cold restart, min.   | -25 °C   |
| Ambient temperature during storage/transportation   |  |
| • min.  | -40 °C   |
| • max.  | 70 °C  |
| Altitude during operation relating to sea level   |  |
| <ul> <li>Installation altitude above sea level, max.</li> <li>Ambient air temperature-barometric pressure-altitude</li> </ul>   | 5 000 m  Tmin Tmax at 1 140 hPa 795 hPa (-1 000 m +2 000 m) // Tmin (Tma - 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  |  |
| <ul> <li>Vibration resistance during operation acc. to IEC 60068-<br/>2-6</li> </ul>  | 2 g (m/s²) wall mounting, 1 g (m/s²) DIN rail  |
| Operation, tested according to IEC 60068-2-6  | Yes  |
| • tested according to IEC 60068-2-27  | Yes; IEC 68, Part 2-27 half-sine: strength of the shock 15 g (peak value),   |
| Resistance  | duration 11 ms   |
| 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); $^{\star}$  |
| <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  | Yes; Class 6B2 mold and fungal spores (excluding fauna); Class 6B3 on  |
| 60721-3-6  — to chemically active substances according to EN 60721-3-6  | request Yes; Class 6C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity  |
| — to mechanically active substances according to EN 60721-3-6   | degree 3); * Yes; Class 6S3 incl. sand, dust; *  |
| Usage in industrial process technology  |  |
| — Against chemically active substances acc. to EN 60654-4   | Yes; Class 3 (excluding trichlorethylene)  |
| <ul> <li>Environmental conditions for process, measuring<br/>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<br/>conditions acc. to EN 60721, EN 60654-4 and<br/>ANSI/ISA-71.04</li> </ul>   | * The supplied plug covers must remain in place over the unused interfaces during operation!   |
| Conformal coating   |  |
| <ul> <li>Coatings for printed circuit board assemblies acc. to EN<br/>61086</li> </ul>  | Yes; Class 2 for high reliability  |
| <ul> <li>Protection against fouling acc. to EN 60664-3</li> </ul>   | Yes; Type 1 protection   |
| <ul> <li>Military testing according to MIL-I-46058C, Amendment 7</li> <li>Qualification and Performance of Electrical Insulating<br/>Compound for Printed Board Assemblies according to IPC-</li> </ul> | Yes; Discoloration of coating possible during service life<br>Yes; Conformal coating, Class A  |
| CC-830A   |  |
|   |  |
| CC-830A   |  |
| CC-830A onfiguration / header   |  |

| — FBD  | Yes    |
|--|--------|
| — SCL  | Yes    |
| programming / cycle time monitoring / header |        |
| <ul><li>adjustable</li></ul>                 | Yes    |
| Dimensions                                   |        |
| Width  | 90 mm  |
| Height                                       | 100 mm |
| Depth  | 75 mm  |
| Weights                                      |        |
| Weight, approx.                              | 370 g  |

last modified: 5/29/2024 🖸