## **Data sheet**



 $^{***}$  spare part  $^{***}$  SIMATIC S7-200, CPU 221 Compact unit, DC power supply 6 DI DC/4 DO DC 4 KB progr./2 KB data

Figure similar

| Supply voltage  |   |
|---|---|
| Rated value (DC)  |   |
| • 24 V DC   | 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   |   |
| Inrush current, max.                                    | 10 A; at 28.8 V   |
| from supply voltage L+, max.                            | 450 mA; 80 to 450 mA  |
| Encoder supply  |   |
| 24 V encoder supply                                     |   |
| • 24 V  | Yes; permissible range: 15.4 to 28.8 V  |
| Short-circuit protection                                | Yes; electronic at 600 mA   |
| <ul> <li>Output current, max.</li> </ul>                | 180 mA  |
| Power loss  |   |
| Power loss, typ.  | 3 W   |
| Memory  |   |
| Number of memory modules (optional)                     | 1; pluggable memory module, content identical with integral EEPROM; can additionally store recipes, data logs and other files   |
| Work memory   |   |
| <ul><li>integrated (for program)</li></ul>              | 4 kbyte   |
| • integrated (for data)                                 | 2 kbyte   |
| Backup  |   |
| • present   | Yes; Program: Entire program maintenance-free on integral EEPROM, programmable via CPU; data: Entire DB 1 loaded from PG/PC maintenance-free on integral EEPROM, current values of DB 1 in RAM, retentive memory bits, timers, counters, etc. maintenance-free via high-performance capacitor; optional battery for long-term buffering |
| Battery   |   |
| Backup battery  |   |
| <ul> <li>Backup time, max.</li> </ul>                   | 50 h; (min. 8 h at 40 °C); 200 days (typ.) with optional battery module   |
| CPU processing times                                    |   |
| for bit operations, max.                                | 0.22 µs   |
| Counters, timers and their retentivity                  |   |
| S7 counter  |   |
| Number  | 256   |
| Retentivity   |   |
| — adjustable  | Yes; via high-performance capacitor or battery  |
| Counting range  |   |

| — lower limit   | 0   |
|---|---|
| — upper limit   | 32 767  |
| S7 times  | <u>0</u> 2 i 0l   |
| Number  | 256   |
| Retentivity   | 230   |
| — adjustable  | Yes; via high-performance capacitor or battery  |
| Time range  | 100, via high performance capacitor of battery  |
| — lower limit   | 1 ms  |
| — upper limit   | 54 min; 4 timers: 1 ms to 30 s; 16 timers: 10 ms to 5 min; 236 timers: 100 ms to  |
| аррог пппс  | 54 min  |
| Data areas and their retentivity                                    |   |
| Flag  |   |
| • Size, max.  | 32 byte   |
| Retentivity available   | Yes; M 0.0 to M 31.7  |
| <ul> <li>of which retentive with battery</li> </ul>                 | 0 to 255, via high-performance capacitor or battery, adjustable   |
| <ul> <li>of which retentive without battery</li> </ul>              | 0 to 112 in EEPROM, adjustable  |
| Hardware configuration  |   |
| connectable programming devices/PCs                                 | SIMATIC PG/PC, standard PC  |
| Digital inputs  |   |
| Number of digital inputs  | 6; Integrated   |
| Source/sink input   | Yes; optionally, per group  |
| Input voltage   |   |
| Rated value (DC)  | 24 V  |
| • for signal "0"  | 0 to 5 V  |
| • for signal "1"  | min. 15 V   |
| Input current   |   |
| • for signal "1", typ.  | 2.5 mA  |
| Input delay (for rated value of input voltage)                      |   |
| for standard inputs   |   |
| — parameterizable   | Yes; all  |
| — at "0" to "1", min.   | 0.2 ms  |
| — at "0" to "1", max.   | 12.8 ms   |
| for interrupt inputs  |   |
| — parameterizable   | Yes; I 0.0 to I 0.3   |
| for technological functions   |   |
| — parameterizable   | Yes; (E 0.0 to E 0.5) 30 kHz  |
| Cable length  |   |
| • shielded, max.  | 500 m; Standard input: 500 m, high-speed counters: 50 m   |
| • unshielded, max.  | 300 m; not for high-speed signals   |
| Digital outputs   |   |
| Number of digital outputs   | 4; Transistor   |
| Short-circuit protection  | No; to be provided externally   |
| Limitation of inductive shutdown voltage to                         | 1 W   |
| Switching capacity of the outputs                                   |   |
| with resistive load, max.   | 0.75 A  |
| • on lamp load, max.  | 5 W   |
| Output voltage  |   |
| • for signal "1", min.  | 20 V DC   |
| Output current  |   |
| • for signal "1" rated value  | 750 mA  |
| • for signal "0" residual current, max.                             | 0.1 mA  |
| Output delay with resistive load                                    |   |
| • "0" to "1", max.  | 15 $\mu s;$ of the standard outputs, max. (Q0.2 to Q0.3) 15 $\mu s;$ of the pulse outputs, max. (Q0.0 to Q0.1) 2 $\mu s$    |
| • "1" to "0", max.  | 130 $\mu s;$ of the standard outputs, max. (Q0.2 to Q0.3) 100 $\mu s;$ of the pulse outputs, max. (Q0.0 to Q0.1) 10 $\mu s$ |
| Parallel switching of two outputs                                   |   |
| • for uprating  | Yes   |
| Switching frequency   |   |
| <ul> <li>of the pulse outputs, with resistive load, max.</li> </ul> | 20 kHz; Q0.0 to Q0.1  |
| Total current of the outputs (per group)                            |   |
|   |   |

|   | all mounting positions  |   |
|---|---|---|
| honcortal installation — up to 55°C, max. 8 Relay captate  • Number of rolay outbuts  • Number of rolay outbuts  • Number of rolay outbuts  • Unableded, max. • Unableded, max      | · ·   | 3 Δ   |
| - up to 55 °C. max.  Rolay outputs  • Number of rolay outputs  • Number of rolay outputs  • Number of analog potentionelers  • Up to the control of analog potentionelers  • Number of analog potentionelers  • 2-wire swarps  • 1 mA      |   |   |
| Retay carbules  Number of relay outputs  One of thirded, m.x.  Solo m  Interfaced, m.x.  Solo m  Analog papers  Number of analog potentiometers  1: Analog potentiometer, resolution 8 bit  Encoder  Countedcatic encoders  - 2-wire sensor  — permissible quiescent current (2-wire sensor), max.  Interface type  Interface bype  Protectoria  • MPI  Protectoria  • PPI  As Analog potentiometer, resolution 8 bit  Interface bype  Interface bype  Interface bype  Interface bype  Protectoria  • MPI  PPI  As Analog potentiometer, resolution 8 bit  Interface bype  Interface bype  Interface bype  Interface bype  Interface bype  Protectoria  • MPI  PPI  As Analog potentiometer, resolution 8 bit  Interface bype  Protectoria  • MPI  PPI  As Analog potentiometer, resolution 8 bit  Interface bype  Interface b      |   | 3 A   |
| **White of relay autiputs     **Sinetided, max.**     **Initiation of management            |   |   |
| Cable largin  | •   | 0   |
| Inhelicted, max.     Interface by exercised exercises and the properties of the           |   |   |
| - unshielded, max.   150 m  Number of analog potentiometers   1. Analog potentiometer; resolution 8 bit    Encoder   7  |   | 500 m   |
| Asabos injurits Number of analog potentiometers 1; Analog potentiometer, resolution 8 bit Encocker Connectable encoders 2-Wes assersor — permissible quiescent current (2-wire sensor), max 1.interface Interface type Protocols  • MPI  Yes, As MPI stave for data exchange with MPI masters (\$7-300-\$7-400 CPUs, OPs, Tos, Push Button Panels), \$7-200-internal CPUsCPU communication is about the protocols or the MPI control of the protocol for program functions, HMI functions (TD 200, OP), \$10-100-100-100-100-100-100-100-100-100-   |   | 150 m   |
| Encoder  Connectable encoders  - 2-verie sensor  - permissible quiescent current (2-wire sensor), max.  1. Interface Interface type Interface type Protocols  - MPI  Yes, As MPI stave for data exchange with MPI masters (S7-300/S7-400 CPUs, OPs, Tos, Pusil Button Panels), 57-200-internal CPU/CPU communication is possible in the MPI network with restrictions, transmission rate (S17-57-50), the masters of the protocol of program functions, MMI functions (TD 200, OP), S7-200-internal CPU/CPU communication is possible in the MPI network with restrictions, transmission rates 6 8/19, 2/18/15/15/  - PPI  Ves, with PPI protocol for program functions, MMI functions (TD 200, OP), S7-200-internal CPU/CPU communication is ransmission rates 6 8/19/2/18/15/16/15/  - serial data exchange  Ves, As freely programmable interface with interrupt facility for serial data exchange with thirt-party devices with ASCII protocol fransfer rates: 1.2 / 2.4 / 4.8 / 8.6 / 19.1/2.8 / 15/7.6 / 11/5.2 kbps; the PC/PPI cable can also be used as RS 232/RS 485 converter  MPI  - Transmission rate, max.  187.5 kbit/s  Integrated Functions  Courter  - Number of counters  4; High-speed counters (30 kHz each), 32 bit (incl. sign.), can be used as updrown counters or for connecting 2 incremental encoders with 2 pulse trains offset by 90' (max. 20 kHz (AD counters)), parameterizable enable and reset input interrupt facilities (proc. call of subroutine with any content) when the september of pulse outputs  - Counting frequency, max.  Number of alarm inputs  4; 4 rasing edges and/or 4 falling edges  2; High-speed outputs, 20 kHz, with interrupt option; pulse-width and frequency modilation option  Umit frequency (pulse)  20 kHz  Potential separation digital inputs  - between the channels, in groups of  2 and 4  Potential separation digital inputs  - between the channels, in groups of  2 and 4  Potential separation digital inputs  - between the channels, in groups of  2 and 4  Potential separation digital inputs  - between the channels of the process of the p      |   |   |
| Connectable encoders  - 2-wire sensor - permissible quiescent current (2-wire sensor), max. 1 mA 1.Interface Protocols  - MPI  - MPI  - Permissible quiescent current (2-wire sensor), max. 1 mA 1.Interface Protocols  - MPI  - MPI  - Permissible quiescent current (2-wire sensor), max. 1 mA 1.Interface Protocols  - MPI  - Yes, As MPI slave for data exchange with MPI masters (57:300:57:400 CPUs.) - ORs, TDs, Plans Button Panesis, 57:200-internal CPU/CPU communication is possible in the MPI network with restrictions, transmission rates 12:121.75 kbits - PPI  - Yes, with PPI protocol for program functions, HMI functions (TD 200, OP), 57:200-internal CPU/CPU communication; it ansmission rates 9.619.2187.5 kbits - Senal data exchange  - Yes, As freely programmable interface with interrupt facility for send data exchange with hirt-party devices with ASCII protocol transfer rates 12:12.24 / 4.518.61192.736.4157.81115.2 kbps, the PC/PPI cable can also be used as RS 23/2878.865 converter  - Transmission rate, min 19.2 kbit/s - Transmission rate, min 19.2 kbit/s - Transmission rate, min 19.2 kbit/s - Transmission rate, max 19.5 kbit/s - Transmission rate, min 19.4 kbit/s - Transmission rate, min 19.5 kbit/s - Transmission rate, min 19.4 kbit/s - Transmission rate, min 19.5 kbit/s - Transmission  | Number of analog potentiometers   | 1; Analog potentiometer; resolution 8 bit   |
| Parmissible quiescent current (2-wire sensor), max.    Interface type   | Encoder   |   |
| Interface  Interface type  Interface type  Protocols  • MPI  • MPI  • Yes; As MPI slave for data exchange with MPI masters (\$7-300/\$7-400 CPUs, OPs, TDs, Push Button Panels); \$7-200-Internal CPUCPU communication is possible in the MPI network with restrictions; transmission rates 19,2187.5 kbt/s  • SPPI  • PPI  • Serial data exchange  • Transmission rate, min, in 19,2 / 38,4 / 57,6 / 115,2 kbps; the PC/PPI cable can also be used as RS 23/RS 485 converter  MPI  • Transmission rate, min, in 19,2 / 38,4 / 57,6 / 115,2 kbps; the PC/PPI cable can also be used as RS 23/RS 485 converter  • Number of counters  • Number of counters  • Counter  • Number of counters  • Counting frequency, max.  187.5 kbt/s  • Counting frequency, max.  38 kt/  Number of lasm inputs  • Counting frequency, max.  39 kt/  Number of lasm inputs  • Counting frequency (pulse)  • Counting frequency (pulse)  • Deternal separation digital inputs  • between the channels, in groups of 2 and 4  Potential separation digital inputs  • between the channels, in groups of 4  Protectial separation digital inputs  • between the channels, in groups of 4  Potential separation digital inputs  • between the channels, in groups of 4  Potential separation digital outputs  • Detween the channels, in groups of 4  Potential separation digital outputs  • Detween the channels, in groups of 4  Potential separation digital outputs  • Detween the channels, in groups of 4  Potential separation digital outputs  • Detween the channels, in groups of 4  Potential separation digital outputs  • Detween the channels, in groups of 5  • Detween the channels, in groups of 4  Potential separation digital outputs  • Detween the channels, in groups of 5  • Detween the channels, in groups of 4  Potential separation digital outputs  • Detween the channels, in groups of 5  • Detween the channels, in groups of 5  • Detween the channels, in groups of 5  • Detween the channe   | Connectable encoders  |   |
| Interface lyne Protocols  MPI  Yes, As MPI slave for data exchange with MPI masters (\$7.300.\$7.400 CPUs, OPs, TDs, Push Button Panels); \$7.200-internal CPUCPU communication is possible in the MPI network with restrictions; transmission rates. 19.2187.5 kbits  PPI  Yes, with PPI protocol for program functions, HMI functions (TD, OP), \$7.200-internal CPUCPU communication is possible in the MPI network with restrictions; transmission rates. 9.819.2187.5 kbits  **serial data exchange**  **serial data exchange**  **serial data exchange**  **serial data exchange**  **Yes, As freely programmable interface with interrupt facility for serial data exchange with third-party devices with ASCII protocol transfer rates. 12.12.4 / RS 232/RS 485 convertor**  **MPI  **Transmission rate, min.**  **Transmission rate, max.**  **Integrated Functions**  Counter**  **Number of counters**  **Number of counters**  **Number of counters**  **Outline facility of the protocol from the protocol transfer rates and the protocol transfer rates. 12.12.4 / RS 232/RS 485 convertor**  **Unify the protocol for the protocol transfer rates. 12.12.4 / RS 232/RS 485 convertor**  **Number of counters**  **Outline facility of the protocol from the protocol from the protocol transfer rates. 12.12.4 / RS 232/RS 485 convertor**  **Unify the protocol for the protocol from the protocol fr  | • 2-wire sensor   | Yes   |
| Interface type Protocols  • MPI  • MPI  • MPI  • Yes, 'As MPI slave for data exchange with MPI masters (\$7:300/\$7:400 CPUs, OPs, TDs, Push Button Panels), \$7:200-internal CPU/CPU comunication is possible in the MPI enlewfork with restrictions, transmission rates: 19:2/187.5 kbits  • PPI  • Serial data exchange  • Transmission rate, min.  • Transmission rate, min.  • Transmission rate, min.  • Transmission rate, min.  • Transmission rate, max.  Integrated Functions  Counter  • Number of counters  • Number of counters  • Counting frequency, max.  Number of alam inputs  • Counting frequency, max.  Number of alam inputs  • Counting frequency (pulse)  • Counting frequency (pulse)  • Detween the channels of the pulse outputs  • Det   | <ul> <li>permissible quiescent current (2-wire sensor), max.</li> </ul> | 1 mA  |
| Protocols  MPI  Yes, As MPI slave for data exchange with MPI masters (\$7.300(\$7.400 CPUs, OPs, TDs, Push Button Panels); \$7.200-internal CPU/CPU communication is possible in the MPI network with restrictions; transmission rates. 19.27187.5 bitis.  PPI  Yes, with PPI protocol for program functions, HMI functions for TD 200, OPy, \$7.200-internal CPU/CPU communication; transmission rates. 19.27187.5 bitis.  **serial data exchange**  **serial data exchange**  **restriction of the MPI person of the program functions, HMI functions of TD 200, OPy, \$7.200-internal central ce | 1. Interface  |   |
| Protocols  MPI  Yes, As MPI slave for data exchange with MPI masters (\$7.300(\$7.400 CPUs, OPs, TDs, Push Button Panels); \$7.200-internal CPU/CPU communication is possible in the MPI network with restrictions; transmission rates. 19.27187.5 bitis.  PPI  Yes, with PPI protocol for program functions, HMI functions for TD 200, OPy, \$7.200-internal CPU/CPU communication; transmission rates. 19.27187.5 bitis.  **serial data exchange**  **serial data exchange**  **restriction of the MPI person of the program functions, HMI functions of TD 200, OPy, \$7.200-internal central ce | Interface type  | Integrated RS 485 interface   |
| Ves: As MPI clave for data exchange with MPI masters (87.300/87.400 CPUs. OPes TDs, Push Button Panels, \$2.700.internal CPU/CPU communication is possible in the MPI network with restrictions; transmission rates: 19.2/187.5 kbits  PPI  Yes: with PPI protocol for program functions, HMI functions (TD 200, OP), \$7.500-internal CPU/CPU communication; transmission rates 9.6/19.2/187.5 kbits  **serial data exchange**  Yes: As freely programmable interface with interrupt facility for serial data exchange with third-party devices with ASCII protocol transfer rates: 1.2 (2.41 4.8 / 3.6 / 19.2 / 3.84 / 5.76 / 115.2 kbps; the PC/PPI cable can also be used as RS 232/RS.485 converter  **MPI  **Transmission rate, min.**  19.2 kbits  **Transmission rate, max.**  Integrated Functions  Counter  **Number of counters*  Counter  **Number of counters*  **Counting frequency, max.**  30 kHz  **Counting frequency, max.**  30 kHz  Number of alarm inputs  **Ves: As freely as a counters; (30 kHz each), 32 bit (incl. sign), can be used as upfdown counters or for connecting 2 incremental encoders with and reset input, interrupt facilities (incl. call of subroutines with any content) when the setpoint is reached, reversal in counting direction, etc.  **Counting frequency, max.**  Number of pulse outputs  2. High-speed outputs, 20 kHz, with interrupt option; pulse-width and frequency modulation option  Limit frequency (pulse)  2. High-speed outputs, 20 kHz, with interrupt option; pulse-width and frequency modulation option  Limit frequency (pulse)  **Potential separation  Potential separation digital inputs  **Detween the channels, in groups of 2 and 4  **Potential separation digital inputs  **Detween the channels, in groups of 4  **Pormissible potential difference  Detween of the channels, in groups of 4  **Pormissible potential difference  Detween the channels, in groups of 4  **Pormissible potential difference  Detween different circuits  50 °C Counter (1.2 °C Counter (1.         |   | •   |
| OPs., TDs., Push Button Panels); 57:200-internal CPUICPU communication is possible in the MPI network with restrictions; ratission rates: 19:2187.5 kbl/s bbl/s  • serial data exchange  • Yes. Sa freely programmable interface with interrupt facility serial data exchange with third-party devices with ASCII protocol transfer rates: 1.2 / 2.4 / 4.8 / 9.6 / 19.2 / 38.4 / 57.6 / 115.2 kbps; the PC/PPI cable can also be used as R8 232/RS 485 converter  MPI  • Transmission rate, min.  • Transmission rate, min.  • Transmission rate, min.  • Transmission rate, min.  • Number of counters  • Number of counters  • Number of counters  • Number of counters  • Counting frequency, max.  At High-speed counters (30 kHz each), 32 bit (incl. sign), can be used as updown counters or for commenting incremental encoders with 2 guids trains offset by 50° (max. 20 kHz (AIR counters)), parameterizable enable and reset input interrupt facilities (incl. call of subrotine way content) when the setpoint is reached; reversal in counting direction, etc.  • Counting frequency, max.  Aumber of pluse outputs  • Counting frequency (pulse)  • Counting frequency (pulse)  • Os kHz  • Potential separation  Potential separation digital inputs  • between the channels  • Detween the channels  • Detween the channels in groups of  • Permissible potential difference  • Detween the channels, in groups of  • Permissible potential difference  • Detween the channels, in groups of  • Permissible potential difference  • Detween the channels, in groups of  • Permissible potential difference  • Detween the channels, in groups of  • Potential separation digital outputs  • Detween the channels, in groups of  • Permissible potential difference  • Detween the channels, in groups of  • Permissible potential difference  • Detween the channels, in groups of  • Permissible potential difference  • Detween the channels, in groups of       |   | Yes; As MPI slave for data exchange with MPI masters (S7-300/S7-400 CPUs.   |
| Serial data exchange     Serial data exchange with hird-party devices with ASCII protocol transfer rates: 1.2 / 2.4 / 4.8 / 9.6 / 19.2 / 134 / 157.6 / 115.2 kbps; the PC/PPI cable can also be used as RS 232/RS 485 converter  MPI     Transmission rate, min.     Stransmission rate, min.     Serial data exchange with hird-party devices with ASCII protocol transfer rates: 1.2 / 2.4 / 4.8 / 9.6 / 19.2 / 134 / 157.6 / 115.2 kbps; the PC/PPI cable can also be used as RS 232/RS 485 converter  MPI     Transmission rate, min.     Serial data exchange     Serial data exchange with hird-party devices with ASCII protocol transfer rates: 1.2 / 2.4 / 4.8 / 9.6 / 19.2 / 134 / 157.6 / 115.2 kbps; the PC/PPI cable can also be used as RS 232/RS 485 converter  MPI     Transmission rate, min.     Serial data exchange with hird-party devices with ASCII protocol transfer rates: 1.2 / 2.4 / 4.8 / 18.5 kbl/s  Integrated Functions  Counter     Sumber of counters:  4; High-speed counters (30 kHz each), 32 bit (incl. sign), can be used as up/down counters or for connecting 2 incremental encoders with 2 pulse trains offset by 96 / (max. 20 kHz (A/B counters)), purple used as up/down counters or for connecting 2 incremental encoders with 2 pulse trains offset by 96 / (max. 20 kHz (A/B counters)), purple used as up/down counters or for connecting 2 incremental encoders with 2 pulse trains offset by 96 / (max. 20 kHz (A/B counters)), purple used as up/down counters or for connecting 2 incremental encoders with 2 pulse trains offset by 96 / (max. 20 kHz (A/B counters)), purple used as up/down counters or for connecting 2 incremental encoders with 2 pulse trains offset by 96 / (max. 20 kHz (A/B counters)), purple used as up/down counters or for connecting 2 incremental encoders with 2 pulse trains offset by 96 / (max. 20 kHz (A/B counters)), purple used as up/down counters or for connecting 2           |   | OPs, TDs, Push Button Panels); S7-200-internal CPU/CPU communication is possible in the MPI network with restrictions; transmission rates: 19.2/187.5   |
| exchange with third-party devices with ASCII protocol transfer rates: 1.2 / 2.4 / 4.8 / 9.6 / 1.15.2 (3.4 / 1.5 / 1.15.2 (1.15.2 kpps; the PC/PPI cable can also be used as RS 232/RS 485 converter    Transmission rate, min.  | • PPI   | 200-internal CPU/CPU communication; transmission rates 9.6/19.2/187.5   |
| MPI  Transmission rate, min. Transmission rate, min. Transmission rate, max.  Integrated Functions  Counter  Number of counters  Counting frequency, max.  A typic or alarm inputs  Cumber of alarm inputs  Transmission rate, max.  Integrated Functions  Counter  Number of counters  Counting frequency, max.  A typic or alarm inputs  Counting frequency, max.  A typic or alarm inputs  A typic or alarm inputs  A typic or alarm inputs  Cypic or alarm inputs  A typic or alarm inputs  Cypic or alarm inputs  Cypic or alarm inputs  A typic or alarm inp      | serial data exchange  | exchange with third-party devices with ASCII protocol transfer rates: 1.2 / 2.4 / 4.8 / 9.6 / 19.2 / 38.4 / 57.6 / 115.2 kbps; the PC/PPI cable can also be used as   |
| Transmission rate, min.  Transmission rate, max.  187.5 kbit/s  187.5         | MPI   | NO 202/NO 400 CONVENE   |
| • Transmission rate, max.  Integrated Functions  Counter  • Number of counters  • Counting frequency, max.  Number of alarm inputs  • Counting frequency, max.  Number of alarm inputs  • Limit frequency (pulse outputs  • Limit frequency (pulse)  • Determined as paration digital inputs  • between the channels        |   | 19.2 khit/s   |
| Integrated Functions  Counter  Number of counters  Number of counters  A; High-speed counters (30 kHz each), 32 bit (incl. sign), can be used as up/down counters or for connecting 2 incremental encoders with 2 pulse trains offset by 90' (max. 20 kHz (A/B counters)); parameterizable enable and reset input; interrupt facilities (incl. call bits protein) any content) when the setpoint is reached; reversal in counting direction, etc.  Ocunting frequency, max.  Number of alarm inputs  A; 4 ising edges and/or 4 falling edges  Number of pulse outputs  2; High-speed outputs, 20 kHz, with interrupt option; pulse-width and frequency modulation option  Limit frequency (pulse)  Potential separation  Potential separation digital inputs  • between the channels, in groups of  Potential separation digital outputs  • between the channels, in groups of  Potential separation digital outputs  • between the channels, in groups of  Potential separation digital outputs  • between the channels, in groups of  A Permissible potential difference  between different circuits  Sou V DC between 24 V DC and 5 V DC  Degree and class of protection  IP degree of protection  IP degree of protection  Ambient conditions  Ambient conditions  Ambient conditions  Ambient conditions  Ambient condition, min.  • horizontal installation, min.  • horizontal installation, min.  • vertical installation, max.  A 55 °C  Air pressure acc. to IEC 60068-2-13  • permissible range, lower limit  860 hPa  |   |   |
| Counter  Number of counters  Number of counters  A; High-speed counters (30 kHz each), 32 bit (incl. sign), can be used as up/down counters or for connecting 2 incremental encoders with 2 pulse trains offset by 90° (max. 20 kHz (A/B counters)); parameterizable enable and reset input, interrupt facilities (incl. call bitsourbutine with any content) when the setpoint is reached; reversal in counting direction, etc.  Number of alarm inputs  A; 4; sining edges and/or 4 falling edges  Number of pulse outputs  2; High-speed outputs, 20 kHz, with interrupt option; pulse-width and frequency modulation option  Limit frequency (pulse)  Potential separation  Potential separation digital inputs  • between the channels  • between the channels  • between the channels, in groups of  Potential separation digital outputs  • between the channels, in groups of  Potential separation digital outputs  • between the channels, in groups of  Potential separation digital outputs  • between the channels, in groups of  A Permissible potential difference  between different circuits  Soo V DC between 24 V DC and 5 V DC  Degree and class of protection  IP degree of protection  IP degree of protection  IP20  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, min.  • horizontal installation, min.  • vertical installation, min.  • vertical installation, min.  • vertical installation, min.  • vertical installation, min.  • permissible range, lower limit  860 hPa  |   | 107.0 (000)   |
| Number of counters   4; High-speed counters (30 kHz each), 32 bit (incl. sign), can be used as up/down counters or for connecting 2 incremental encoders with 2 pulse trains offset by 90" (max. 20 kHz (A/B counters)); parameterizable enable and reset input; interrupt facilities (incl. call of subroutine with any content) when the setpoint is reached; reversal in counting direction, etc.    Counting frequency, max.  |   |   |
| Number of alarm inputs  A; 4 rising edges and/or 4 falling edges  Number of pulse outputs  2; High-speed outputs, 20 kHz, with interrupt option; pulse-width and frequency modulation option  Limit frequency (pulse)  Potential separation  Potential separation digital inputs  • between the channels • between the channels, in groups of • between the channels • between the channels • between the channels • between the channels, in groups of  Potential separation digital outputs  • between the channels, in groups of  4  Permissible potential difference  between different circuits  500 V DC between 24 V DC and 5 V DC  Degree and class of protection  IP degree of protection  IP degree of protection  IP20  Ambient conditions  Ambient temperature during operation • horizontal installation, min. • horizontal installation, max.  • vertical installation, min. • vertical installation, max.  • vertical installation, max.  45 °C  Air pressure acc. to IEC 60068-2-13 • permissible range, lower limit  860 hPa   |   | up/down counters or for connecting 2 incremental encoders with 2 pulse trains offset by 90° (max. 20 kHz (A/B counters)); parameterizable enable and reset input; interrupt facilities (incl. call of subroutine with any content) when the |
| Number of pulse outputs  2; High-speed outputs, 20 kHz, with interrupt option; pulse-width and frequency modulation option  Limit frequency (pulse)  Potential separation  Potential separation digital inputs  • between the channels  • between the channels, in groups of  Potential separation digital outputs  • between the channels  • between the channels  • between the channels  • petween the channels, in groups of  Permissible potential difference  between different circuits  Degree and class of protection  IP degree of protection  IP degree of protection  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, min.  • vertical installation, max.  • permissible range, lower limit  860 hPa   | Counting frequency, max.  | 30 kHz  |
| Limit frequency (pulse)  20 kHz  Potential separation  Potential separation digital inputs  • between the channels • between the channels, in groups of • between the channels, in groups of  Potential separation digital outputs • between the channels • between the channels • between the channels, in groups of  4  Permissible potential difference  between different circuits  500 V DC between 24 V DC and 5 V DC  Degree and class of protection  IP degree of protection  IP degree of protection  Ambient conditions  Ambient temperature during operation • horizontal installation, min. • horizontal installation, min. • horizontal installation, min. • vertical installation, max. • vertical installation, max.  45 °C  Air pressure acc. to IEC 60068-2-13 • permissible range, lower limit  860 hPa   | Number of alarm inputs  | 4; 4 rising edges and/or 4 falling edges  |
| Potential separation  Potential separation digital inputs  • between the channels • between the channels, in groups of  Potential separation digital outputs  • between the channels • between the channels • between the channels • between the channels, in groups of  4  Permissible potential difference  between different circuits  500 V DC between 24 V DC and 5 V DC  Degree and class of protection  IP degree of protection  IP degree of protection  IP degree of protection  Ambient conditions  Ambient temperature during operation  • horizontal installation, min. • horizontal installation, max.  • vertical installation, min. • vertical installation, max.  • vertical installation, max.  • vertical installation, max.  45 °C  Air pressure acc. to IEC 60068-2-13 • permissible range, lower limit  860 hPa  | Number of pulse outputs   |   |
| Potential separation digital inputs  • between the channels • between the channels, in groups of  Potential separation digital outputs  • between the channels • between the channels • between the channels, in groups of  Permissible potential difference  between different circuits  500 V DC between 24 V DC and 5 V DC  Degree and class of protection  IP degree of protection  IP degree of protection  Ambient conditions  Ambient temperature during operation  • horizontal installation, min. • horizontal installation, max.  • vertical installation, min. • vertical installation, max.  45 °C  Air pressure acc. to IEC 60068-2-13 • permissible range, lower limit  860 hPa   | , ,   | 20 kHz  |
| between the channels     between the channels, in groups of     2 and 4  Potential separation digital outputs     between the channels     between the channels     between the channels, in groups of 4  Permissible potential difference  between different circuits 500 V DC between 24 V DC and 5 V DC  Degree and class of protection  IP degree of protection  IP degree of protection  Ambient conditions  Ambient temperature during operation      horizontal installation, min.     horizontal installation, max.     horizontal installation, min.     vertical installation, min.     vertical installation, max.  At 5°C  Air pressure acc. to IEC 60068-2-13  permissible range, lower limit  860 hPa   |   |   |
| between the channels, in groups of     Potential separation digital outputs     between the channels     between the channels, in groups of     4  Permissible potential difference  between different circuits     500 V DC between 24 V DC and 5 V DC  Degree and class of protection  IP degree of protection  IP degree of protection  Ambient conditions  Ambient temperature during operation      horizontal installation, min.     horizontal installation, max.     vertical installation, min.     vertical installation, max.  Air pressure acc. to IEC 60068-2-13     permissible range, lower limit      2 and 4  Yes; Optocoupler  4  Co C             | Potential separation digital inputs                                     |   |
| Potential separation digital outputs  • between the channels • between the channels, in groups of  4  Permissible potential difference  between different circuits  500 V DC between 24 V DC and 5 V DC  Degree and class of protection  IP degree of protection  Ambient conditions  Ambient temperature during operation  • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max.  • vertical installation, max.  Air pressure acc. to IEC 60068-2-13 • permissible range, lower limit  860 hPa   |   |   |
| between the channels     between the channels, in groups of  Permissible potential difference  between different circuits  500 V DC between 24 V DC and 5 V DC  Degree and class of protection  IP degree of protection  IP20  Ambient conditions  Ambient temperature during operation      horizontal installation, min.     horizontal installation, max.      vertical installation, min.     vertical installation, max.  |   | 2 and 4   |
| between the channels, in groups of  Permissible potential difference  between different circuits  500 V DC between 24 V DC and 5 V DC  Degree and class of protection  IP degree of protection  IP20  Ambient conditions  Ambient temperature during operation      horizontal installation, min.      horizontal installation, max.      vertical installation, min.      vertical installation, max.      vertical installation, max.  Air pressure acc. to IEC 60068-2-13      permissible range, lower limit  860 hPa  | ·   |   |
| Permissible potential difference  between different circuits  500 V DC between 24 V DC and 5 V DC  Degree and class of protection  IP degree of protection  IP20  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, max.  • vertical installation, min.  • vertical installation, max.  45 °C  Air pressure acc. to IEC 60068-2-13  • permissible range, lower limit  860 hPa   |   |   |
| between different circuits  Degree and class of protection  IP degree of protection  IP20  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, max.  • vertical installation, min.  • vertical installation, max.  Air pressure acc. to IEC 60068-2-13  • permissible range, lower limit  500 V DC between 24 V DC and 5 V DC  IP20  Are Detailed in 5 V DC  O °C  O °C  O °C  O °C  O °C  Air pressure acc. to IEC 60068-2-13  • permissible range, lower limit  860 hPa   |   | 4   |
| Degree and class of protection  IP degree of protection  Ambient conditions  Ambient temperature during operation  • horizontal installation, min. • horizontal installation, max.  • vertical installation, min. • vertical installation, max.  45 °C  Air pressure acc. to IEC 60068-2-13 • permissible range, lower limit  IP20  IP20  O °C  45 °C   | Permissible potential difference  |   |
| IP degree of protection  Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, max.  • horizontal installation, max.  • vertical installation, min.  • vertical installation, max.  • vertical installation, max.  45 °C  Air pressure acc. to IEC 60068-2-13  • permissible range, lower limit  860 hPa  |   | 500 V DC between 24 V DC and 5 V DC   |
| Ambient conditions  Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, max.  • vertical installation, min.  • vertical installation, max.  Air pressure acc. to IEC 60068-2-13  • permissible range, lower limit  860 hPa  | Degree and class of protection  |   |
| Ambient temperature during operation  • horizontal installation, min.  • horizontal installation, max.  • vertical installation, min.  • vertical installation, max.  Air pressure acc. to IEC 60068-2-13  • permissible range, lower limit  860 hPa  | IP degree of protection   | IP20  |
| <ul> <li>horizontal installation, min.</li> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>vertical installation, max.</li> <li>vertical installation, max.</li> <li>vertical installation, max.</li> <li>45 °C</li> </ul> Air pressure acc. to IEC 60068-2-13 <ul> <li>permissible range, lower limit</li> <li>860 hPa</li> </ul>   | Ambient conditions  |   |
| <ul> <li>horizontal installation, max.</li> <li>vertical installation, min.</li> <li>0 °C</li> <li>vertical installation, max.</li> <li>vertical installation, max.</li> <li>45 °C</li> </ul> Air pressure acc. to IEC 60068-2-13 <ul> <li>permissible range, lower limit</li> <li>860 hPa</li> </ul>   | Ambient temperature during operation                                    |   |
| <ul> <li>vertical installation, min.</li> <li>vertical installation, max.</li> <li>45 °C</li> </ul> Air pressure acc. to IEC 60068-2-13 <ul> <li>permissible range, lower limit</li> <li>860 hPa</li> </ul>   | <ul> <li>horizontal installation, min.</li> </ul>                       | 0 °C  |
| <ul> <li>vertical installation, max.</li> <li>Air pressure acc. to IEC 60068-2-13</li> <li>permissible range, lower limit</li> <li>860 hPa</li> </ul>   | <ul> <li>horizontal installation, max.</li> </ul>                       | 55 °C   |
| Air pressure acc. to IEC 60068-2-13  • permissible range, lower limit  860 hPa  | <ul> <li>vertical installation, min.</li> </ul>                         | 0 °C  |
| permissible range, lower limit     860 hPa  | vertical installation, max.   | 45 °C   |
|   | Air pressure acc. to IEC 60068-2-13                                     |   |
| • permissible range, upper limit 1 080 hPa  | <ul> <li>permissible range, lower limit</li> </ul>                      | 860 hPa   |
|   | <ul> <li>permissible range, upper limit</li> </ul>                      | 1 080 hPa   |

| Relative humidity   |   |
|---|---|
| Operation, min.   | 5 %   |
| <ul><li>Operation, max.</li></ul>                               | 95 %; RH class 2 in accordance with IEC 1131-2  |
| configuration / header  |   |
| configuration / programming / header                            |   |
| Command set   | Bit logic instructions, compare instructions, timer instructions, counter instructions, clock instructions, transmissions instructions, table instructions, logic instructions, shift and rotate instructions, conversion instructions, program control instructions, interrupt and communications instructions, logic stack instructions, integer maths, floating-point math instructions, numerical functions |
| <ul> <li>Program processing</li> </ul>                          | free cycle (OB 1), interrupt-controller, time-controlled (1 to 255 ms)  |
| <ul> <li>Program organization</li> </ul>                        | 1 OB, 1 DB, 1 SDB subroutines with/without parameter transfer   |
| <ul> <li>Number of subroutines, max.</li> </ul>                 | 64  |
| Programming language  |   |
| — LAD   | Yes   |
| — FBD   | Yes   |
| — STL   | Yes   |
| Know-how protection   |   |
| <ul> <li>User program protection/password protection</li> </ul> | Yes; 3-stage password protection  |
| connection method   |   |
| Plug-in I/O terminals   | No  |
| Dimensions  |   |
| Width   | 90 mm   |
| Height  | 80 mm   |
| Depth   | 62 mm   |
| Weights   |   |
| Weight, approx.   | 270 g   |

last modified:

5/22/2024