## **SIEMENS**

## Data sheet

## 6ES7214-1AD23-0XB0

SIMATIC S7-200, CPU 224, COMPACT UNIT, DC POWER SUPPLY 14 DI DC/10 DO DC, 8/12 KB CODE/8 KB DATA, PROFIBUS DP EXTENDABLE



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.	12 A; at 28.8 V
from supply voltage L+, max.	700 mA; 110 mA to 700 mA, output current for expansion modules (5 V DC) 660 mA
Encoder supply	
24 V encoder supply	
• 24 V	Yes; permissible range: 15.4 to 28.8 V
Short-circuit protection	Yes; electronic at 280 mA
• Output current, max.	280 mA

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>	12 kbyte; 8 KB with active run-time edit
<ul> <li>integrated (for data)</li> </ul>	8 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>	100 h; (min. 70 h at 40 $^\circ\text{C}$ ); 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
— lower limit	1
— upper limit	256
Counting range	
— lower limit	0
— upper limit	32 767
S7 times	
Number	256
Retentivity	
— adjustable	Yes; via high-performance capacitor or battery
— upper limit	64
Time range	
— 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 54 min
Data areas and their retentivity	
Flag	
<ul> <li>Number, max.</li> </ul>	32 byte
<ul> <li>Retentivity available</li> </ul>	Yes; M 0.0 to M 31.7

• of which retentive without battery         0 to 112 in EEPROM, adjustable           Hardware configuration         7; Only expansion modules of the 57-22x series can be used. Due to the funded output current, the use of expansion modules may be limited.           connectable programming devices/PCs         SIMATIC PO/PC, standard PC           Expansion modules         35; max. 28 inputs and 7 outputs (EM) or max. 0 inputs and 14 outputs (FM)           • Digital inputs/outputs, max.         166; max. 94 inputs and 74 outputs (CPU + EM)           • Analog inputs/outputs, max.         166; max. 94 inputs and 74 outputs (CPU + EM)           • Analog inputs/outputs, max.         167; only expansion.           • Optial inputs         14           Source/sink input         Yes: optionally, per group           Input voltage         -           • Reted value (DC)         24 V           • for signal *0"         0 to 5 V           • for signal *1"         min. 15 V           Input delay (for rated value of input voltage)         -           for signal *1"         0.2 ms           - parameterizable         Yes; all           - at *0" to *1", max.         12.8 ms           for interrupt inputs         -           - parameterizable         Yes; (E 0.0 to E 1.5) 30 kHz           Cable length         shelded, max.         300 m, not	<ul> <li>of which retentive with battery</li> </ul>	0 to 255, via high-performance capacitor or battery, adjustable
Number of expansion units, max.       7: Only expansion modules of the S7-22x series can be used. Due to the limited output current, the use of expansion modules may be limited.         connectable programming devices/PCs       SIMATIC PG/PC, standard PC         Expansion modules       4. Analog inputs/outputs, max.         • Analog inputs/outputs, max.       35; max. 28 inputs and 7 outputs (EM) or max. 0 inputs and 14 outputs (EM)         • Digital inputs       168; max. 94 inputs and 74 outputs (CPU + EM)         • AS-Interface inputs/outputs, max.       62; AS-Interface A/B slaves (CP 243-2)         Optical inputs       14         Source/sink input       Yes; optionally, per group         Input voltage       24 V         • for signal "0"       0 to 5 V         • for signal "1"       min. 15 V         Input delay (for rated value of input voltage)       for standard inputs         for signal "1", typ.       2.5 mA         Input delay (for rated value of input voltage)       Yes; all         - at "0" to "1", min.       0.2 ms         - parameterizable       Yes; i 0.0 to 1 0.3         for contret/rechnological functions       -         - parameterizable       Yes; i (E 0.0 to E 1.5) 30 kHz         Cable length       500 m; Standard input; 500 m, high-speed counters; 50 m         unshielded, max.       300 m; not for h	<ul> <li>of which retentive without battery</li> </ul>	0 to 112 in EEPROM, adjustable
Number of expansion units, max.       7: Only expansion modules of the S7-22x series can be used. Due to the limited output current, the use of expansion modules may be limited.         connectable programming devices/PCs       SIMATIC PG/PC, standard PC         Expansion modules       4. Analog inputs/outputs, max.         • Analog inputs/outputs, max.       35; max. 28 inputs and 7 outputs (EM) or max. 0 inputs and 14 outputs (EM)         • Digital inputs       168; max. 94 inputs and 74 outputs (CPU + EM)         • AS-Interface inputs/outputs, max.       62; AS-Interface A/B slaves (CP 243-2)         Optical inputs       14         Source/sink input       Yes; optionally, per group         Input voltage       24 V         • for signal "0"       0 to 5 V         • for signal "1"       min. 15 V         Input delay (for rated value of input voltage)       for standard inputs         for signal "1", typ.       2.5 mA         Input delay (for rated value of input voltage)       Yes; all         - at "0" to "1", min.       0.2 ms         - parameterizable       Yes; i 0.0 to 1 0.3         for contret/rechnological functions       -         - parameterizable       Yes; i (E 0.0 to E 1.5) 30 kHz         Cable length       500 m; Standard input; 500 m, high-speed counters; 50 m         unshielded, max.       300 m; not for h	llender og formalier	
to the limited output current, the use of expansion modules may be limited.           connectable programming devices/PCs         SIMATIC PG/PC, standard PC           Expansion modules         35; max. 28 inputs and 7 outputs (EM) or max. 0 inputs and 14 outputs (EM)           • Digital inputs/outputs, max.         166; max. 94 inputs and 74 outputs (CPU + EM)           • As-Interface inputs/outputs, max.         62; AS-Interface A/B slaves (CP 243-2)           Digital inputs         14           Source/sink input         Yes; optionally, per group           Input voltage         -           • For signal "0"         0 to 5 V           • for signal "1", typ.         2.5 mA           Input delay (for rated value of input voltage)         -           for signal "1", typ.         2.5 mA           Input delay (for rated value of input voltage)         -           for interrupt inputs         -           - 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 outpret-schenological functions         -           - parameterizable         Yes; I 0.0 to I 0.3           for interrupt inputs         -           - parameterizable         Yes;		7: Only expansion modules of the S7-22x series can be used. Due
Expansion modules         • Analog inputs/outputs, max.       35; max. 28 inputs and 7 outputs (EM) or max. 0 inputs and 14 outputs (CPU + EM)         • Digital inputs/outputs, max.       62; AS-Interface A/B slaves (CP 243-2)         Policial inputs       14         Source/sink input       Yes; optionally, per group         Input voltage       70 to 5 V         • for signal "0"       0 to 5 V         • for signal "1"       min. 15 V         Input due of input voltage       2.5 mA         Input due of input voltage       70 to 5 V         • for signal "1"       min. 15 V         Input due of input voltage       2.5 mA         Input due of input voltage       70 to 10 to 5 V         • for signal "1", min.       0.2 ms         - at "0" to "1", min.       0.2 ms         - at "0" to "1", min.       0.2 ms         - parameterizable       Yes; all         - parameterizable       Yes; (E 0.0 to E 1.5) 30 KHz         Cable length       500 m; Standard input: 500 m, high-speed counters; 50 m         • unshielded, max.       300 m; not for high-speed signals         Policial outputs       10; Transistor         Number of digital outputs       10; Transistor         Shried of the outputs       0.75 A         •		to the limited output current, the use of expansion modules may
• Analog inputs/outputs, max.       35; max. 28 inputs and 7 outputs (EM) or max. 0 inputs and 14 outputs (EM)         • Digital inputs/outputs, max.       168; max. 94 inputs and 74 outputs (CPU + EM)         • AS-Interface inputs/outputs, max.       62; AS-Interface A/B slaves (CP 243-2)         Digital inputs       14         Source/sink input       Yes; optionally, per group         Input voltage       14         • Rated value (DC)       24 V         • for signal "0"       0 to 5 V         • for signal "1"       min. 15 V         Input delay (for rated value of input voltage)       for standard inputs         • for signal "1", min.       0.2 ms         - at "0" to "1", max.       12.8 ms         for interrupt inputs       yes; 10.0 to 1 0.3         for counter/technological functions       -         - parameterizable       Yes; 10.0 to 1 0.3         for counter/technological functions       -         - parameterizable       Yes; 10.0 to 1 0.3         for counter/technological functions       -         - parameterizable       Yes; 10.0 to 1 0.3         for counter/technological functions       -         - parameterizable       Yes; 10.0 to 1 0.3         for counter/technological functions       -         - unshielded, max.	connectable programming devices/PCs	SIMATIC PG/PC, standard PC
outputs (EM)       outputs (EM)         • Digital inputs/outputs, max.       168; max. 94 inputs and 74 outputs (CPU + EM)         • AS-Interface inputs/outputs, max.       62; AS-Interface A/B slaves (CP 243-2)         Digital inputs       14         Number of digital inputs       14         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 standard inputs       -         • for standard inputs       -         - parameterizable       Yes; all         - at "0" to "1", max.       12.8 ms         for interrupt inputs       -         - parameterizable       Yes; (E 0.0 to E 1.5) 30 kHz         Cable length       -         • shielded, max.       500 m; Standard input: 500 m, high-speed counters: 50 m         300 m; not for high-speed signals       -         Digital outputs       10; Transistor         Number of digital outputs       10; Transistor         Shielded, max.       0.75 A         • on lamp load, max.       5 W	Expansion modules	
• AS-Interface inputs/outputs, max.       62; AS-Interface A/B slaves (CP 243-2)         Digital inputs       14         Source/sink input       Yes; optionally, per group         Input voltage       24 V         • Rated value (DC)       24 V         • for signal "0"       0 to 5 V         • for signal "1"       min. 15 V         Input current       0 to signal "1", typ.         • 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; 10.0 to 1 0.3         for counter/flechnological functions       -         - parameterizable       Yes; (E 0.0 to E 1.5) 30 kHz         Cable length       500 m; Standard input: 500 m, high-speed counters: 50 m         shielded, max.       300 m; not for high-speed signals         Digital outputs       10; Transistor         Number of digital outputs       10; Transistor         Short-circuit protection       No; to be provided externally         Limitation of inductive shutdown voltage to       1W         <	<ul> <li>Analog inputs/outputs, max.</li> </ul>	
Digital inputs         14           Source/sink input         Yes; optionally, per group           Input voltage         24 V           • Rated value (DC)         24 V           • for signal "0"         0 to 5 V           • for signal "1", typ.         2.5 mA           Input delay (for rated value of input voltage)         for signal "1", typ.           • 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", max.         12.8 ms           for interrupt inputs         - parameterizable           - parameterizable         Yes; 10.0 to 10.3           for counter/technological functions         - parameterizable           - parameterizable         Yes; (E 0.0 to E 1.5) 30 kHz           Cable length         500 m; Standard input: 500 m, high-speed counters: 50 m           • unshielded, max.         300 m; not for high-speed signals           Digital outputs         10; Transistor           Number of digital outputs         10; Transistor           Short-circuit protection         No; to be provided externally           Limitation of inductive shutdown voltage to         1W           Switching capacity of the outputs         0.7	<ul> <li>Digital inputs/outputs, max.</li> </ul>	168; max. 94 inputs and 74 outputs (CPU + EM)
Number of digital inputs       14         Source/sink input       Yes; optionally, per group         Input voltage       24 V         • Rated value (DC)       24 V         • for signal "0"       0 to 5 V         • for signal "1", typ.       2.5 mA         Input delay (for rated value of input voltage)       for signal "1", typ.         for standard inputs       -         - parameterizable       Yes; all         - at "0" to "1", max.       12.8 ms         for interrupt inputs       -         - parameterizable       Yes; 10.0 to 1 0.3         for counter/technological functions       -         - parameterizable       Yes; (E 0.0 to E 1.5) 30 kHz         Cable length       500 m; Standard input: 500 m, high-speed counters: 50 m         ounshielded, max.       300 m; not for high-speed signals         Digital outputs       10; Transistor         Number of digital outputs       10; Transistor         Short-circuit protection       No; to be provided externally         Limitation of inductive shutdown voltage to       1 W         with resistive load, max.       0.75 A         • on lamp load, max.       5 W	<ul> <li>AS-Interface inputs/outputs, max.</li> </ul>	62; AS-Interface A/B slaves (CP 243-2)
Number of digital inputs       14         Source/sink input       Yes; optionally, per group         Input voltage       24 V         • Rated value (DC)       24 V         • for signal "0"       0 to 5 V         • for signal "1", typ.       2.5 mA         Input delay (for rated value of input voltage)       for signal "1", typ.         for standard inputs       -         - parameterizable       Yes; all         - at "0" to "1", max.       12.8 ms         for interrupt inputs       -         - parameterizable       Yes; 10.0 to 1 0.3         for counter/technological functions       -         - parameterizable       Yes; (E 0.0 to E 1.5) 30 kHz         Cable length       500 m; Standard input: 500 m, high-speed counters: 50 m         ounshielded, max.       300 m; not for high-speed signals         Digital outputs       10; Transistor         Number of digital outputs       10; Transistor         Short-circuit protection       No; to be provided externally         Limitation of inductive shutdown voltage to       1 W         with resistive load, max.       0.75 A         • on lamp load, max.       5 W	Digital inputs	
Input voltage         • Rated value (DC)       24 V         • for signal "0"       0 to 5 V         • for signal "1"       min. 15 V         Input current       2.5 mA         • 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; 1 0.0 to 1 0.3         for counter/technological functions       -         - parameterizable       Yes; (E 0.0 to E 1.5) 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       10; Transistor         Number of digital outputs       10; Transistor         Short-circuit protection       No; to be provided externally         Limitation of inductive shutdown voltage to       1 W         Switching capacity of the outputs       0.75 A         • on lamp load, max.       5 W		14
• Rated value (DC)       24 V         • for signal "0"       0 to 5 V         • for signal "1"       min. 15 V         Input current       2.5 mA         • 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; 10.0 to 1 0.3         for counter/technological functions       -         - parameterizable       Yes; (E 0.0 to E 1.5) 30 kHz         Cable length       500 m; Standard input: 500 m, high-speed counters: 50 m         . unshielded, max.       300 m; not for high-speed signals         Digital outputs       10; Transistor         Number of digital outputs       10; Transistor         Short-circuit protection       No; to be provided externally         Limitation of inductive shutdown voltage to       1 W         Switching capacity of the outputs       0.75 A         • on lamp load, max.       5 W	Source/sink input	Yes; optionally, per group
Intervent0 to 5 Vi for signal "1"min. 15 VInput current2.5 mAInput delay (for rated value of input voltage)for signal "1", typ.for standard inputs2.5 mA— parameterizableYes; all— at "0" to "1", min.0.2 ms— at "0" to "1", max.12.8 msfor interrupt inputs-— parameterizableYes; 1 0.0 to 1 0.3for counter/technological functions-— parameterizableYes; (E 0.0 to E 1.5) 30 kHzCable length500 m; Standard input: 500 m, high-speed counters: 50 m• shielded, max.500 m; Standard input: 500 m, high-speed counters: 50 m• unshielded, max.300 m; not for high-speed signalsDigital outputs10; TransistorNumber of digital outputs10; TransistorShort-circuit protectionNo; to be provided externallyLimitation of inductive shutdown voltage to1 WSwitching capacity of the outputs0.75 A• on lamp load, max.5 W	Input voltage	
• for signal "1"       min. 15 V         Input current       2.5 mA         • 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; 1 0.0 to 1 0.3         for counter/technological functions       -         - parameterizable       Yes; (E 0.0 to E 1.5) 30 kHz         Cable length       500 m; Standard input: 500 m, high-speed counters: 50 m         • unshielded, max.       300 m; not for high-speed signals         Digital outputs       10; Transistor         Number of digital outputs       10; Transistor         Short-circuit protection       No; to be provided externally         Limitation of inductive shutdown voltage to       1 W         Switching capacity of the outputs       0.75 A         • on lamp load, max.       5 W	<ul> <li>Rated value (DC)</li> </ul>	24 V
Input current       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; 10.0 to 10.3         for counter/technological functions       -         - parameterizable       Yes; (E 0.0 to E 1.5) 30 kHz         Cable length       500 m; Standard input: 500 m, high-speed counters: 50 m         • unshielded, max.       300 m; not for high-speed signals         Digital outputs       10; Transistor         Number of digital outputs       10; Transistor         Short-circuit protection       No; to be provided externally         Limitation of inductive shutdown voltage to       1 W         Switching capacity of the outputs       0.75 A         • on lamp load, max.       5 W	● for signal "0"	0 to 5 V
• 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; 10.0 to 1 0.3         for counter/technological functions       -         - parameterizable       Yes; (E 0.0 to E 1.5) 30 kHz         Cable length       500 m; Standard input: 500 m, high-speed counters: 50 m         • unshielded, max.       500 m; ot for high-speed signals <b>Digital outputs</b> 10; Transistor         Number of digital outputs       10; Transistor         Short-circuit protection       No; to be provided externally         Limitation of inductive shutdown voltage to       1 W         Switching capacity of the outputs       0.75 A         • on lamp load, max.       5 W	● for signal "1"	min. 15 V
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; 10.0 to 10.3 for counter/technological functions - parameterizable Yes; (E 0.0 to E 1.5) 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 10; 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. 5W	Input current	
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	● for signal "1", typ.	2.5 mA
— parameterizableYes; all— at "0" to "1", min.0.2 ms— at "0" to "1", max.12.8 msfor interrupt inputs-— parameterizableYes; 1 0.0 to 1 0.3for counter/technological functions-— parameterizableYes; (E 0.0 to E 1.5) 30 kHzCable length-• shielded, max.500 m; Standard input: 500 m, high-speed counters: 50 m• unshielded, max.300 m; not for high-speed signalsDigital outputs10; TransistorNumber of digital outputs10; TransistorShort-circuit protectionNo; to be provided externallyLimitation of inductive shutdown voltage to1 WSwitching capacity of the outputs0.75 A• on lamp load, max.5 W	Input delay (for rated value of input voltage)	
- at "0" to "1", min.0.2 ms- at "0" to "1", max.12.8 msfor interrupt inputs- parameterizableYes; 10.0 to 10.3for counter/technological functions- parameterizableYes; (E 0.0 to E 1.5) 30 kHzCable lengthYes; (E 0.0 to E 1.5) 30 kHz• shielded, max.500 m; Standard input: 500 m, high-speed counters: 50 m• unshielded, max.300 m; not for high-speed signalsDigital outputs10; TransistorNumber of digital outputs10; TransistorShort-circuit protectionNo; to be provided externallyLimitation of inductive shutdown voltage to1 WSwitching capacity of the outputs0.75 A• on lamp load, max.5 W	for standard inputs	
	— parameterizable	Yes; all
for interrupt inputs	— at "0" to "1", min.	0.2 ms
parameterizableYes; I 0.0 to I 0.3for counter/technological functions parameterizableYes; (E 0.0 to E 1.5) 30 kHzCable length• shielded, max.500 m; Standard input: 500 m, high-speed counters: 50 m• unshielded, max.300 m; not for high-speed signalsDigital outputs10; TransistorNumber of digital outputs10; TransistorShort-circuit protectionNo; to be provided externallyLimitation of inductive shutdown voltage to1 WSwitching capacity of the outputs0.75 A• with resistive load, max.5 W	— at "0" to "1", max.	12.8 ms
for counter/technological functions         — parameterizable       Yes; (E 0.0 to E 1.5) 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       10; Transistor         Number of digital outputs       10; Transistor         Short-circuit protection       No; to be provided externally         Limitation of inductive shutdown voltage to       1 W         Switching capacity of the outputs       0.75 A         • with resistive load, max.       5 W	for interrupt inputs	
— parameterizableYes; (E 0.0 to E 1.5) 30 kHzCable length• shielded, max.500 m; Standard input: 500 m, high-speed counters: 50 m• unshielded, max.300 m; not for high-speed signalsDigital outputsNumber of digital outputs10; TransistorShort-circuit protectionNo; to be provided externallyLimitation of inductive shutdown voltage to1 WSwitching capacity of the outputs0.75 A• on lamp load, max.5 W	— parameterizable	Yes; I 0.0 to I 0.3
Cable length• shielded, max.500 m; Standard input: 500 m, high-speed counters: 50 m 300 m; not for high-speed signalsDigital outputs300 m; not for high-speed signalsDigital outputs10; TransistorNumber of digital outputs10; TransistorShort-circuit protectionNo; to be provided externallyLimitation of inductive shutdown voltage to1 WSwitching capacity of the outputs0.75 A• on lamp load, max.5 W	for counter/technological functions	
Cable length• shielded, max.500 m; Standard input: 500 m, high-speed counters: 50 m 300 m; not for high-speed signalsDigital outputs300 m; not for high-speed signalsNumber of digital outputs10; TransistorShort-circuit protectionNo; to be provided externallyLimitation of inductive shutdown voltage to1 WSwitching capacity of the outputs0.75 A• with resistive load, max.0.75 A• on lamp load, max.5 W	-	Yes; (E 0.0 to E 1.5) 30 kHz
<ul> <li>shielded, max.</li> <li>unshielded, max.</li> <li>unshielded, max.</li> <li>300 m; not for high-speed signals</li> </ul> Digital outputs           Number of digital outputs         10; Transistor           Short-circuit protection         No; to be provided externally           Limitation of inductive shutdown voltage to         1 W           Switching capacity of the outputs         0.75 A           • on lamp load, max.         5 W		
• unshielded, max.300 m; not for high-speed signalsDigital outputs10; TransistorNumber of digital outputs10; TransistorShort-circuit protectionNo; to be provided externallyLimitation of inductive shutdown voltage to1 WSwitching capacity of the outputs0.75 A• with resistive load, max.5 W		500 m; Standard input: 500 m, high-speed counters: 50 m
Number of digital outputs       10; Transistor         Short-circuit protection       No; to be provided externally         Limitation of inductive shutdown voltage to       1 W         Switching capacity of the outputs       0.75 A         • with resistive load, max.       5 W		300 m; not for high-speed signals
Number of digital outputs       10; Transistor         Short-circuit protection       No; to be provided externally         Limitation of inductive shutdown voltage to       1 W         Switching capacity of the outputs       0.75 A         • with resistive load, max.       5 W	Digital outputs	
Limitation of inductive shutdown voltage to       1 W         Switching capacity of the outputs       0.75 A         • with resistive load, max.       0.75 A         • on lamp load, max.       5 W		10; Transistor
Switching capacity of the outputs         • with resistive load, max.         • on lamp load, max.         5 W		No; to be provided externally
<ul> <li>with resistive load, max.</li> <li>on lamp load, max.</li> <li>5 W</li> </ul>		
• on lamp load, max. 5 W	Switching capacity of the outputs	
		0.75 A
	• on lamp load, max.	5 W
	·	

● for signal "1", min.	20 V DC
Output current	
<ul> <li>for signal "1" rated value</li> </ul>	750 mA
<ul> <li>for signal "0" residual current, max.</li> </ul>	10 μΑ
Output delay with resistive load	
• "0" to "1", max.	15 μs; of the standard outputs, max. (Q 0.2 to Q 1.1) 2 μs; of the
	pulse outputs, max. (Q 0.0 to Q 0.1) 2 µs
• "1" to "0", max.	130 $\mu s;$ of the standard outputs, max. (Q 0.2 to Q 1.1) 10 $\mu s;$ of
	the pulse outputs, max. (Q 0.0 to Q 0.1) 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	
— up to 40 °C, max.	6 A
horizontal installation	
— up to 55 °C, max.	6 A
Relay outputs	
<ul> <li>Number of relay outputs, integrated</li> </ul>	0
Cable length	
• shielded, max.	500 m
• unshielded, max.	150 m
Analog inputs	
Number of analog potentiometers	2; Analog potentiometer; resolution 8 bit
	, <b>.</b> ,,,
Encoder	
Connectable encoders	
• 2-wire sensor	Yes
— permissible quiescent current (2-wire	1 mA
sensor), max.	
1. Interface	
Interface type	Integrated RS 485 interface
Physics	RS 485
Functionality	
• MPI	Yes; As MPI slave for data exchange with MPI masters (S7- 300/S7-400 CPUs, 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 kbit/s
• PPI	Yes; with PPI protocol for program functions, HMI functions (TD 200, OP), S7-200-internal CPU/CPU communication ; transmission rates 9.6/19.2/187.5 kbit/s

• 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 / 2.4 / 4.8 / 9.6 / 19.2 / 38.4 / 57.6 / 115.2 kbps; the PC/PPI cable can also be used as RS 232/RS 485 converter
MPI	
<ul> <li>Transmission rate, min.</li> </ul>	19.2 kbit/s
• Transmission rate, max.	187.5 kbit/s
Integrated Functions Number of counters	6; High-speed counters (30 kHz each), 32 bits (incl. sign), can be
Number of counters	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 (counter) max.	30 kHz
Number of alarm inputs	4; 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)	20 kHz
Potential separation	
Potential separation digital inputs	
• between the channels	Yes
<ul> <li>between the channels, in groups of</li> </ul>	6 and 8
Potential separation digital outputs	
<ul> <li>between the channels</li> </ul>	Yes; Optocoupler
<ul> <li>between the channels, in groups of</li> </ul>	5
Permissible potential difference	
between different circuits	500 V DC between 24 V DC and 5 V DC
Degree and class of protection	
Degree of protection acc. to EN 60529	
• IP20	Yes
Ambient conditions	
Ambient temperature during operation	
<ul> <li>horizontal installation, min.</li> </ul>	0 °C
<ul> <li>horizontal installation, max.</li> </ul>	55 °C
• vertical installation, min.	0°C
• vertical installation, max.	45 °C
Air pressure acc. to IEC 60068-2-13	
• permissible range, lower limit	860 hPa
• permissible range, upper limit	1 080 hPa
Relative humidity	
• Operation, min.	5 %

• Operation, max.

Configuration	
Programming	
<ul> <li>Command set</li> </ul>	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	Yes
Dimensions	
Width	120.5 mm
Height	80 mm
Depth	62 mm
Weights	
Weight, approx.	360 g
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