## **SIEMENS**

## Data sheet

## 6ES7314-6CH04-0AB0



SIMATIC S7-300, CPU 314C-2 DP Compact CPU with MPI, 24 DI/16 DO, 4 AI, 2 AO, 1 Pt100, 4 high-speed counters (60 kHz), integrated DP interface, Integr. power supply 24 V DC, work memory 192 KB, Front connector (2x 40-pole) and Micro Memory Card required

General information	
HW functional status	01
Firmware version	V3.3
Engineering with	
<ul> <li>Programming package</li> </ul>	STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203
Supply voltage	
Rated value (DC)	
• 24 V DC	Yes
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
external protection for power supply lines (recommendation)	Miniature circuit breaker, type C; min. 2 A; miniature circuit breaker type B, min. 4 A
Mains buffering	
<ul> <li>Mains/voltage failure stored energy time</li> </ul>	5 ms
<ul> <li>Repeat rate, min.</li> </ul>	1 s
Load voltage L+	
Digital inputs	
— Rated value (DC)	24 V

— Reverse polarity protection	Yes
Digital outputs	
— Rated value (DC)	24 V
— Reverse polarity protection	No
Input current	
Current consumption (rated value)	880 mA
Current consumption (in no-load operation), typ.	150 mA
Inrush current, typ.	5 A
l <sup>2</sup> t	0.7 A <sup>2.</sup> s
Digital inputs	00 4
• from load voltage L+ (without load), max.	80 mA
Digital outputs	50 4
<ul> <li>from load voltage L+, max.</li> </ul>	50 mA
Power loss	
Power loss, typ.	13 W
Memory	
Work memory	
• integrated	192 kbyte
• expandable	No
<ul> <li>Size of retentive memory for retentive data</li> </ul>	64 kbyte
blocks	
Load memory	
• Plug-in (MMC)	Yes
• Plug-in (MMC), max.	8 Mbyte
<ul> <li>Data management on MMC (after last programming), min.</li> </ul>	10 y
Backup	
● present	Yes; Guaranteed by MMC (maintenance-free)
• without battery	Yes; Program and data
CPU processing times	
for bit operations, typ.	0.06 μs
for word operations, typ.	0.12 µs
for fixed point arithmetic, typ.	0.16 μs
for floating point arithmetic, typ.	0.59 µs
CPU-blocks	1 024: (DRo ECo ERo); the maximum number of loadable blacks
Number of blocks (total)	1 024; (DBs, FCs, FBs); the maximum number of loadable blocks can be reduced by the MMC used.
DB	
● Number, max.	1 024; Number range: 1 to 16000
● Size, max.	64 kbyte
FB	

• Number mey	1 024; Number range: 0 to 7999
• Number, max.	
• Size, max. FC	64 kbyte
Number, max.	1 024; Number range: 0 to 7999
	64 kbyte
• Size, max. OB	
Description	see instruction list
• Size, max.	64 kbyte
Number of free cycle OBs	1; OB 1
Number of time alarm OBs	1; OB 10
Number of delay alarm OBs	2; OB 20, 21
Number of cyclic interrupt OBs	4; OB 32, 33, 34, 35
Number of process alarm OBs	1; OB 40
Number of DPV1 alarm OBs	3; OB 55, 56, 57
Number of startup OBs	1; OB 100
Number of asynchronous error OBs	5; OB 80, 82, 85, 86, 87
Number of synchronous error OBs	2; OB 121, 122
Nesting depth	
• per priority class	16
<ul> <li>additional within an error OB</li> </ul>	4
Counters, timers and their retentivity	
• Number	256
	250
Retentivity	Yes
— adjustable — lower limit	0
	255
— upper limit — preset	Z 0 to Z 7
Counting range	
— lower limit	0
— upper limit	999
IEC counter	
• present	Yes
• Type	SFB
• Number	Unlimited (limited only by RAM capacity)
S7 times	
Number	256
Retentivity	
— adjustable	Yes
— lower limit	0
— upper limit	255
- F.F	

— preset	No retentivity
Time range	
— lower limit	10 ms
— upper limit	9 990 s
IEC timer	
• present	Yes
• Туре	SFB
• Number	Unlimited (limited only by RAM capacity)
Data areas and their retentivity	
retentive data area in total	All, max. 64 KB
Flag	
• Number, max.	256 byte
<ul> <li>Retentivity available</li> </ul>	Yes; MB 0 to MB 255
<ul> <li>Retentivity preset</li> </ul>	MB 0 to MB 15
Number of clock memories	8; 1 memory byte
Data blocks	
<ul> <li>Retentivity adjustable</li> </ul>	Yes; via non-retain property on DB
Retentivity preset	Yes
Local data	
• per priority class, max.	32 kbyte; Max. 2048 bytes per block
Address area	
I/O address area	2.049 hite
• Inputs	2 048 byte
• Outputs	2 048 byte
of which distributed	0.000 h. ta
— Inputs	2 003 byte
— Outputs	2 010 byte
Process image	2.049 hite
• Inputs	2 048 byte
• Outputs	2 048 byte
Inputs, adjustable	2 048 byte
Outputs, adjustable	2 048 byte
Inputs, default	128 byte
Outputs, default	128 byte
Default addresses of the integrated channels	
— Digital inputs	124.0 to 126.7
— Digital outputs	124.0 to 125.7
— Analog inputs	752 to 761
— Analog outputs	752 to 755
Digital channels	
<ul> <li>Inputs</li> </ul>	16 048

— of which central	1 016
Outputs	16 096
— of which central	1 008
Analog channels	
Inputs	1 006
— of which central	253
Outputs	1 007
— of which central	250
Hardware configuration	
Number of expansion units, max.	3
Number of DP masters	
• integrated	1
• via CP	4
Number of operable FMs and CPs (recommended)	
● FM	8
• CP, PtP	8
• CP, LAN	10
Rack	
• Racks, max.	4
<ul> <li>Modules per rack, max.</li> </ul>	8; In rack 3 max. 7

## Time of day Clock • Hardware clock (real-time) Yes • retentive and synchronizable Yes 6 wk; At 40 °C ambient temperature · Backup time • Deviation per day, max. 10 s; Typ.: 2 s Clock continues running after POWER OFF Behavior of the clock following POWER-ON Clock continues to run with the time at which the power failure • Behavior of the clock following expiry of backup occurred period Operating hours counter • Number 1 • Number/Number range 0 • Range of values 0 to 2^31 hours (when using SFC 101) 1 h Granularity Yes; Must be restarted at each restart retentive **Clock synchronization** Yes supported Yes • to MPI, master Yes • to MPI, slave • to DP, master Yes; With DP slave only slave clock Yes • to DP, slave

● in AS, master	Yes
● in AS, slave	No
Digital inputs Number of digital inputs	24
<ul> <li>of which inputs usable for technological functions</li> </ul>	16
integrated channels (DI)	24
Input characteristic curve in accordance with IEC 61131, type 1	Yes
Number of simultaneously controllable inputs	
horizontal installation	
— up to 40 °C, max.	24
— up to 60 °C, max.	12
vertical installation	
— up to 40 °C, max.	12
Input voltage	
• Rated value (DC)	24 V
• for signal "0"	-3 to +5V
• for signal "1"	+15 to +30V
Input current	
● for signal "1", typ.	8 mA
Input delay (for rated value of input voltage)	
for standard inputs	
— parameterizable	Yes; 0.1 / 0.3 / 3 / 15 ms (You can reconfigure the input delay of the standard inputs during program runtime. Please note that under certain circumstances your newly set filter time may not be effective until the next filter cycle.)
— Rated value	3 ms
for technological functions	
— at "0" to "1", max.	8 μs; Minimum pulse width/minimum pause between pulses at maximum counting frequency
Cable length	
• shielded, max.	1 000 m; 50 m for technological functions
• unshielded, max.	600 m; For technological functions: No
for technological functions	
— shielded, max.	50 m; at maximum count frequency
— unshielded, max.	not allowed
Digital outputs	
Number of digital outputs	16
<ul> <li>of which high-speed outputs</li> </ul>	4; Notice: You cannot connect the fast outputs of your CPU in parallel
integrated channels (DO)	16

Short-circuit protection	Yes; Clocked electronically
Response threshold, typ.	
Limitation of inductive shutdown voltage to	L+ (-48 V)
Controlling a digital input	Yes
Switching capacity of the outputs	
• on lamp load, max.	5 W
Load resistance range	
lower limit	48 Ω
• upper limit	4 kΩ
Output voltage	
● for signal "1", min.	L+ (-0.8 V)
Output current	
<ul> <li>for signal "1" rated value</li> </ul>	500 mA
<ul> <li>for signal "1" permissible range, min.</li> </ul>	5 mA
<ul> <li>for signal "1" permissible range, max.</li> </ul>	0.6 A
<ul> <li>for signal "1" minimum load current</li> </ul>	5 mA
<ul> <li>for signal "0" residual current, max.</li> </ul>	0.5 mA
Parallel switching of two outputs	
• for uprating	No
<ul> <li>for redundant control of a load</li> </ul>	Yes
Switching frequency	
<ul> <li>with resistive load, max.</li> </ul>	100 Hz
<ul> <li>with inductive load, max.</li> </ul>	0.5 Hz
<ul> <li>on lamp load, max.</li> </ul>	100 Hz
<ul> <li>of the pulse outputs, with resistive load, max.</li> </ul>	2.5 kHz
Total current of the outputs (per group)	
horizontal installation	
— up to 40 °C, max.	3 A
— up to 60 °C, max.	2 A
vertical installation	
— up to 40 °C, max.	2 A
Cable length	
• shielded, max.	1 000 m
	600 m
• unshielded, max.	
Analog inputs	
Number of analog inputs	5
<ul> <li>For voltage/current measurement</li> </ul>	4
<ul> <li>For resistance/resistance thermometer measurement</li> </ul>	1
integrated channels (AI)	5; 4x current/voltage, 1x resistance
permissible input voltage for current input (destruction limit), max.	5 V; Permanent

permissible input voltage for voltage input (destruction limit), max.         30 ½ Permanent           permissible input current for voltage input (destruction limit), max.         50 mA; Permanent           permissible input current for current input (destruction limit), max.         50 mA; Permanent           No-load voltage for resistance-type transmitter, typ.         3.3 V           Constant measurement current for resistance-type transmitter, typ.         3.3 V           Technical unit for temperature measurement adjustable         125 mA           input ranges         Ves; ±10 V / 100 kQ; 0 V to 10 V / 100 kQ           e Current         Ves; ±20 mA / 100 Q; 0 mA to 20 mA / 100 Q; 4 es; ±20 mA / 100 Q; 0 mA to 20 mA / 100 Q; 4 es; ±0 Q to 500 Q / 10 MQ           e Resistance thermometer         Yes; ±10 V / 100 kQ; 0 V to 10 V / 100 kQ           e Notage (rated values), voltages         Ves; ±0 Q to 500 Q / 10 MQ           e Resistance (0 to 10 V)         100 kQ           input resistance (0 to 10 V)         100 kQ           input resistance (0 to 20 mA)         Yes           e Input resistance (10 for 00 mA)         Yes           e Input resistanc		
(destruction limit), max.         50 mA; Permanent           permissible input current for current input (destruction inn), max.         50 mA; Permanent           No-load voltage for resistance-type transmitter, typ.         3.3 V           Constant measurement current for resistance-type transmitter, typ.         1.25 mA           Technical unit for temperature measurement adjustable         Ves; Degrees Celsius / degrees Fahrenheit / Kelvin adjustable           Input ranges         Ves; ±10 V / 100 kΩ; 0 V to 10 V / 100 kΩ           • Voltage         Yes; ±20 mA / 100 Ω; 0 mA to 20 mA / 100 Ω; 4 mA to 20 mA / 100 Ω           • Resistance thermometer         Yes; ±10 V / 100 kΩ; 0 V to 10 V / 100 kΩ           • Current         Yes; ±10 V / 100 kΩ; 0 V to 10 V / 100 kΩ           • Current         Yes; ±20 mA / 100 Ω; 0 mA to 20 mA / 100 Ω; 4 mA to 20 mA / 100 Ω           • Resistance thermometer         Yes; ±100 / 10 MΩ           • Lot +10 V         Yes           • Lot +01 V         Yes           • Lot 20 mA         Yes           • Input resistance (A mA to 20 mA)         Yes           • Lot 20 mA         Yes           • Lot 20 mA         Yes	permissible input voltage for voltage input (destruction limit), max.	30 V; Permanent
limit), max.         image           No-load voltage for resistance-type transmitter, typ.         3.3 V           Constant measurement current for resistance-type transmitter, typ.         1.25 mA           Technical unit for temperature measurement adjustable         Yes; Degrees Celsius / degrees Fahrenheit / Kelvin           Input ranges         Yes; ±10 V / 100 kΩ; 0 V to 10 V / 100 kΩ           • Current         Yes; ±10 V / 100 kΩ; 0 v to 10 V / 100 kΩ           • Current         Yes; ±20 mA / 100 Ω; 0 mA to 20 mA / 100 Ω; 4 mA to 20 mA / 100 Ω           • Resistance thermometer         Yes; 0 to 600 Ω / 10 MΩ           • Resistance         Yes; 0 to 600 Ω / 10 MΩ           • Resistance (0 to 10 V)         Yes           • 0 to +10 V         Yes           • 0 to 20 mA         Yes           • 10 put resistance (0 to 20 mA)         100 Ω           • 10 put resistance (1 mA to 20 mA)         Yes           • 10 put resistance (1 mA to 20 mA)         Yes           • 10 put resistance (1 mA to 20 mA)         100 Ω           • 10 put resistance (Pt 100)         Yes           • 10 put resistance (Pt 100)         Yes           • 10 to 600 ms         Yes		0.5 mA; Permanent
Constant measurement current for resistance-type transmitter, typ.         1.25 mA           Technical unit for temperature measurement adjustable         Yes; Degrees Celsius / degrees Fahrenheit / Kelvin           Input ranges         Yes; ±10 V / 100 kQ; 0 V to 10 V / 100 kQ           • Voltage         Yes; ±10 V / 100 kQ; 0 V to 10 V / 100 kQ           • Current         Yes; ±20 mA / 100 Q; 0 mA to 20 mA / 100 Q; 4 mA to 20 mA / Yes; ±20 mA / 100 Q           • Resistance thermometer         Yes; ±10 V / 100 kQ; 0 V to 10 V / 100 kQ           • Resistance         Yes; ±20 mA / 100 Q           • Resistance (freed values), voltages         Yes; ±20 mA / 100 MQ           • Input ranges (rated values), voltages         Yes; ±20 mA / 100 MQ           • Input resistance (0 to 10 V)         Yes           • 10 to 20 mA         Yes           • 10 put resistance (P1 100)         100 Ω           Input ranges (rated values), resistance         Yes           • 10 to 6000 hms         Ye		50 mA; Permanent
transmitter, typ.         Accession of degrees Fahrenheit / Kelvin adjustable           Technical unit for temperature measurement adjustable         Yes; Degrees Celsius / degrees Fahrenheit / Kelvin adjustable           Input ranges         Yes; ±10 V / 100 kD; 0 V to 10 V / 100 kD           • Voltage         Yes; ±10 V / 100 kD; 0 V to 10 V / 100 kD           • Current         Yes; ±20 mA / 100 Ω; 0 mA to 20 mA / 100 Ω; 4 mA to 20 mA / 100 Ω           • Resistance thermometer         Yes; ±20 mA / 100 Ω; 0 mA to 20 mA / 100 Ω; 4 mA to 20 mA / 100 Ω           • Resistance thermometer         Yes; ±20 mA / 100 Ω; 0 mA to 20 mA / 100 Ω; 4 mA to 20 mA           • Toput ranges (rated values), voltages         Yes; 0 to 10 MΩ           • Toput resistance (0 to 10 V)         Yes           • 10 to 20 mA         Yes           • 10 to 00 colms         Yes <t< td=""><td>No-load voltage for resistance-type transmitter, typ.</td><td>3.3 V</td></t<>	No-load voltage for resistance-type transmitter, typ.	3.3 V
adjustable         initianges           Input ranges         Yes; ±10 V / 100 kΩ; 0 V to 10 V / 100 kΩ           • Voltage         Yes; ±20 mA / 100 Ω; 0 mA to 20 mA / 100 Ω; 4 mA to 20 mA / 100 Ω;           • Resistance thermometer         Yes; ±20 mA / 100 Ω; 0 mA to 20 mA / 100 Ω; 4 mA to 20 mA / 100 Ω;           • Resistance thermometer         Yes; ±20 mA / 100 Ω; 0 mA to 20 mA / 100 Ω; 4 mA to 20 mA / 100 Ω;           • Resistance thermometer         Yes; Pt 100 / 10 MΩ           • Resistance (100 V)         Yes; Pt 100 / 10 MΩ           • Input resistance (0 to 10 V)         Yes           • Input resistance (0 to 20 mA)         Yes           • Input resistance (0 to 20 mA)         Yes           • Input resistance (0 to 20 mA)         Yes           • Input resistance (-20 mA to +20 mA)         Yes           • Input resistance (-20 mA to +20 mA)         Yes           • Input resistance (4 mA to 20 mA)         Yes           • Input resistance (4 mA to 20 mA)         Yes           • Input resistance (Pt 100)         Yes           • Input resistance (Pt 100)         Yes           • Input resistance (Pt 100)         Yes           • Input resistance (0 to 600 ohms)         Yes           • Input resistance (0 to 600 ohms)         Yes           • Inparemeterizable         No		1.25 mA
• VoltageYes; ±10 V / 100 kΩ; 0 V to 10 V / 100 kΩ• CurrentYes; ±20 mA / 100 Ω; 0 mA to 20 mA / 100 Ω; 4 mA to 20 mA / 100 Ω• Resistance thermometerYes; Pt 100 / 10 MΩ• ResistanceYes; 0 0 to 600 Ω / 10 MΩInput ranges (rated values), voltages100 kΩ• 0 to +10 VYes• 10 to +10 VYes• 10 put resistance (0 to 10 V)100 kΩInput resistance (0 to 20 mA)Yes• 10 to +20 mAYes• 10 to 20 mAYes• 10 to 600 ohmsYes• 10 to 600 ohmsYes by software• param	•	Yes; Degrees Celsius / degrees Fahrenheit / Kelvin
• Current         Yes; ±20 mA / 100 Ω; 0 mA to 20 mA / 100 Ω; 4 mA to 20 mA / 100 Ω           • Resistance thermometer         Yes; Pt 100 / 10 MΩ           • Resistance         Yes; 0 Ω to 600 Ω / 10 MΩ           Input ranges (rated values), voltages         Yes; 0 Ω to 600 Ω / 10 MΩ           • Input resistance (0 to 10 V)         Yes           • 0 to +10 V         Yes           • 0 to 20 mA         Yes           • 10 to 800 ohms         Yes           • 10 to 600 ohms         Yes           • 10 to 600 ohms         Yes           • 10 to 600 ohms         Yes           • 10	Input ranges	
Action100 Ω• Resistance thermometerYes; Pt 100 / 10 MΩ• ResistanceYes; 0 Ω to 600 Ω / 10 MΩInput ranges (rated values), voltages• 0 to +10 VYes• 0 to +10 VYes• 1 nput resistance (0 to 10 V)100 kΩInput resistance (0 to 20 mAYes• 1 nput resistance (0 to 20 mA)100 Ω• 1 nput resistance (0 to 20 mA)Yes• 1 nput resistance (1 to 20 mA)Yes• 1 nput resistance (20 mA to +20 mA)100 Ω• 1 nput resistance (4 mA to 20 mA)Yes• 1 nput resistance (1 to 00 QYes• 1 nput resistance (1 to 00 QY	Voltage	Yes; ±10 V / 100 kΩ; 0 V to 10 V / 100 kΩ
• ResistanceΥες; 0 Ω to 600 Ω / 10 MΩInput ranges (rated values), voltagesYes• 0 to +10 V100 kΩInput resistance (0 to 10 V)100 kΩInput ranges (rated values), currentsYes• 0 to 20 mAYes• 10 put resistance (0 to 20 mA)100 Ω• 20 mA to +20 mAYes• 10 put resistance (-20 mA to +20 mA)100 Ω• 10 put resistance (-20 mA to +20 mA)100 Ω• 10 put resistance (4 mA to 20 mA)Yes• 10 put resistance (4 mA to 20 mA)100 Ω• 10 put resistance (4 mA to 20 mA)100 Ω• 10 put resistance (4 mA to 20 mA)100 Ω• 10 put resistance (4 mA to 20 mA)100 Ω• 10 put resistance (4 mA to 20 mA)100 Ω• 10 put resistance (4 mA to 20 mA)100 Ω• 10 put resistance (4 mA to 20 mA)100 Ω• 10 put resistance (10 to 600 ohms)10 MΩ• 10 to 600 ohmsYes• 10 to 600 ohms10 MΩ• 10 to 600 ohmsNo• 10 parameterizableNo• 10 parameterizableNo• 10 parameterizableYes; by software• 10 parameterizable<	• Current	
Input ranges (rated values), voltages           • 0 to +10 V         Yes           • Input resistance (0 to 10 V)         100 kΩ           Input ranges (rated values), currents            • 0 to 20 mA         Yes           • 1nput resistance (0 to 20 mA)         100 Ω           • 1nput resistance (-20 mA to +20 mA)         Yes           • 1nput resistance (-20 mA to +20 mA)         100 Ω           • 4 mA to 20 mA         Yes           • 1nput resistance (4 mA to 20 mA)         100 Ω           Input ranges (rated values), resistance thermometer         Yes           • Pt 100         Yes           • 1nput resistance (Pt 100)         Yes           • 1nput resistance (0 to 600 ohms)         100 MΩ           Input resistance (0 to 600 ohms)         Yes           • 1nput resistance (0 to 600 ohms)         Yes           • 1nput resistance (0 to 600 ohms)         Yes           • 1nput resistance (0 to 600 ohms)         10 MΩ           Thermocouple (TC)         Yes           Temperature compensation         Yes           - parameterizable         No           Characteristic linearization         Yes; by software           - for resistance thermometer         Pt 100	Resistance thermometer	Yes; Pt 100 / 10 MΩ
• 0 to +10 VYes• Input resistance (0 to 10 V)100 kΩInput ranges (rated values), currentsYes• 0 to 20 mAYes• Input resistance (0 to 20 mA)100 Ω• -20 mA to +20 mAYes• Input resistance (-20 mA to +20 mA)100 Ω• A mA to 20 mAYes• Input resistance (4 mA to 20 mA)Yes• Input resistance (4 mA to 20 mA)00 Ω• Input resistance (Pt 100)Yes• D to 600 ohms10 MΩ• Input resistance (Pt 100)10 MΩInput ranges (rated values), resistors• 0 to 600 ohmsYes• 1 nput resistance (0 to 600 ohms)10 MΩThermocouple (TC)Temperature compensation- parameterizableNoCharacteristic linearization• parameterizableYes; by software- for resistance thermometerPt 100	Resistance	Yes; 0 $\Omega$ to 600 $\Omega$ / 10 $M\Omega$
input resistance (0 to 10 V)     100 kΩ       Input ranges (rated values), currents     Yes       0 to 20 mA     Yes       input resistance (0 to 20 mA)     100 Ω       - 20 mA to +20 mA     Yes       input resistance (-20 mA to +20 mA)     100 Ω       4 mA to 20 mA     Yes       input resistance (4 mA to 20 mA)     100 Ω       Input resistance (4 mA to 20 mA)     100 Ω       Input resistance (4 mA to 20 mA)     100 Ω       Input resistance (4 mA to 20 mA)     100 Ω       Input resistance (4 mA to 20 mA)     100 Ω       Input resistance (10 to 600 ohms)     10 MΩ       Input resistance (Pt 100)     10 MΩ       Input resistance (0 to 600 ohms)     10 MΩ       Input resistance (0 to 600 ohms)     10 MΩ       Thermocouple (TC)     Temperature compensation       — parameterizable     No       Characteristic linearization     Yes; by software       — for resistance thermometer     Pt 100	Input ranges (rated values), voltages	
Input ranges (rated values), currents         Yes           • 0 to 20 mA         Yes           • 1nput resistance (0 to 20 mA)         100 Ω           • 20 mA to +20 mA         Yes           • 1nput resistance (-20 mA to +20 mA)         100 Ω           • 4 mA to 20 mA         Yes           • 1nput resistance (-20 mA to +20 mA)         100 Ω           • 4 mA to 20 mA         Yes           • 1nput resistance (-20 mA to +20 mA)         100 Ω           • 1nput resistance (4 mA to 20 mA)         100 Ω           • 1nput resistance (4 mA to 20 mA)         100 Ω           • 1nput resistance (4 mA to 20 mA)         100 Ω           • 1nput resistance (4 mA to 20 mA)         100 Ω           • 1nput resistance (7 to 0)         Yes           • 1nput resistance (Pt 100)         10 MΩ           Input resistance (0 to 600 ohms)         10 MΩ           • 1nput resistance (0 to 600 ohms)         Yes           • 1nput resistance (0 to 600 ohms)         10 MΩ           Thermocouple (TC)         Temperature compensation           - parameterizable         No           • parameterizable         Yes; by software           • for resistance thermometer         Pt 100           Cable length         Yes; by software	• 0 to +10 V	Yes
• 0 to 20 mAYes• Input resistance (0 to 20 mA)100 Ω• -20 mA to +20 mAYes• Input resistance (-20 mA to +20 mA)100 Ω• 4 mA to 20 mAYes• Input resistance (4 mA to 20 mA)100 Ω• Pt 100Yes• Pt 10010 MΩ• Input resistance (Pt 100)10 MΩ• Input resistance (0 to 600 ohms)10 MΩ• Input resistance (0 to 600 ohms) <t< td=""><td><ul> <li>Input resistance (0 to 10 V)</li> </ul></td><td>100 kΩ</td></t<>	<ul> <li>Input resistance (0 to 10 V)</li> </ul>	100 kΩ
• Input resistance (0 to 20 mA)100 Ω• -20 mA to +20 mAYes• Input resistance (-20 mA to +20 mA)100 Ω• 4 mA to 20 mAYes• Input resistance (4 mA to 20 mA)100 ΩInput resistance (4 mA to 20 mA)100 ΩInput ranges (rated values), resistance thermometer100 Ω• Pt 100Yes• Input resistance (Pt 100)10 MΩInput ranges (rated values), resistors10 MΩ• Input resistance (0 to 600 ohms)10 MΩ• Input resistance (0 to 600 ohms)Pi MO• Oto 600 ohmsPi Pi P	Input ranges (rated values), currents	
• -20 mA to +20 mAYes• Input resistance (-20 mA to +20 mA)100 Ω• 4 mA to 20 mAYes• Input resistance (4 mA to 20 mA)100 ΩInput resistance (10 to 20 mA)10 MΩInput resistance (Pt 100)Yes• 0 to 600 ohmsYes• 0 to 600 ohms10 MΩ• Input resistance (0 to 600 ohms)10 MΩThermocouple (TC)Temperature compensation- parameterizableNo• 0 parameterizableNo• 0 parameterizableYes; by software• 0 for resistance thermometerPt 100	• 0 to 20 mA	Yes
• Input resistance (-20 mA to +20 mA)       100 Ω         • 4 mA to 20 mA       Yes         • Input resistance (4 mA to 20 mA)       100 Ω         Input resistance (4 mA to 20 mA)       100 Ω         Input resistance (4 mA to 20 mA)       100 Ω         Input resistance (4 mA to 20 mA)       100 Ω         Input resistance (7 to 0)       100 Ω         Input resistance (Pt 100)       Yes         • Input resistance (Pt 100)       10 MΩ         Input resistance (0 to 600 ohms)       Yes         • Input resistance (0 to 600 ohms)       10 MΩ         Thermocouple (TC)       Yes         Temperature compensation       No         - parameterizable       No         Characteristic linearization       Yes; by software         - for resistance thermometer       Pt 100	<ul> <li>Input resistance (0 to 20 mA)</li> </ul>	100 Ω
• 4 mA to 20 mAYes• 1nput resistance (4 mA to 20 mA)100 ΩInput ranges (rated values), resistance thermometer• Pt 100Yes• Input resistance (Pt 100)10 MΩInput ranges (rated values), resistors• 0 to 600 ohmsYes• 1nput resistance (0 to 600 ohms)10 MΩThermocouple (TC)Temperature compensation— parameterizableNoCharacteristic linearization• parameterizableYes; by software— for resistance thermometerPt 100	• -20 mA to +20 mA	Yes
• Input resistance (4 mA to 20 mA)     100 Ω       Input ranges (rated values), resistance thermometer     • Pt 100       • Pt 100     Yes       • Input resistance (Pt 100)     10 MΩ       Input ranges (rated values), resistors     • 0 to 600 ohms       • 0 to 600 ohms     Yes       • Input resistance (0 to 600 ohms)     10 MΩ       • Input resistance (0 to 600 ohms)     10 MΩ       • Thermocouple (TC)     10 MΩ       Temperature compensation     - parameterizable       • parameterizable     No       • parameterizable     Yes; by software       - for resistance thermometer     Pt 100	<ul> <li>Input resistance (-20 mA to +20 mA)</li> </ul>	100 Ω
Input ranges (rated values), resistance thermometer         • Pt 100       Yes         • Input resistance (Pt 100)       10 MΩ         Input ranges (rated values), resistors       7         • 0 to 600 ohms       Yes         • 1nput resistance (0 to 600 ohms)       10 MΩ         Thermocouple (TC)       10 MΩ         Temperature compensation       10 MΩ         - parameterizable       No         Characteristic linearization       Yes; by software         - for resistance thermometer       Pt 100	• 4 mA to 20 mA	Yes
• Pt 100Yes• Input resistance (Pt 100)10 MΩInput ranges (rated values), resistorsYes• 0 to 600 ohmsYes• Input resistance (0 to 600 ohms)10 MΩThermocouple (TC)Temperature compensation- parameterizableNoCharacteristic linearizationYes; by software- for resistance thermometerPt 100Cable lengthYes; by software	<ul> <li>Input resistance (4 mA to 20 mA)</li> </ul>	100 Ω
• Input resistance (Pt 100)10 MΩInput ranges (rated values), resistors• 0 to 600 ohmsYes• Input resistance (0 to 600 ohms)10 MΩThermocouple (TC)Temperature compensation- parameterizableNoCharacteristic linearization• parameterizableYes; by software- for resistance thermometerPt 100Cable length	Input ranges (rated values), resistance thermometer	
Input ranges (rated values), resistors         • 0 to 600 ohms       Yes         • Input resistance (0 to 600 ohms)       10 MΩ         Thermocouple (TC)       Temperature compensation         - parameterizable       No         Characteristic linearization       Yes; by software         - for resistance thermometer       Pt 100         Cable length       Yes; by software	• Pt 100	Yes
• 0 to 600 ohmsYes• Input resistance (0 to 600 ohms)10 MΩThermocouple (TC)Temperature compensation parameterizableNoCharacteristic linearizationYes; by software- for resistance thermometerPt 100Cable length	<ul> <li>Input resistance (Pt 100)</li> </ul>	10 MΩ
• Input resistance (0 to 600 ohms)     10 MΩ       Thermocouple (TC)     Temperature compensation       - parameterizable     No       Characteristic linearization     Yes; by software       - for resistance thermometer     Pt 100       Cable length     Yes	Input ranges (rated values), resistors	
Thermocouple (TC)       Temperature compensation       - parameterizable     No       Characteristic linearization       • parameterizable     Yes; by software       - for resistance thermometer     Pt 100       Cable length	• 0 to 600 ohms	Yes
Temperature compensation         - parameterizable       No         Characteristic linearization         • parameterizable       Yes; by software         - for resistance thermometer       Pt 100         Cable length       Yes	<ul> <li>Input resistance (0 to 600 ohms)</li> </ul>	10 MΩ
	Thermocouple (TC)	
Characteristic linearization       • parameterizable     Yes; by software       - for resistance thermometer     Pt 100       Cable length     Yes	Temperature compensation	
• parameterizable           - for resistance thermometer          Cable length	— parameterizable	No
- for resistance thermometer Pt 100 Cable length	Characteristic linearization	
Cable length	parameterizable	Yes; by software
	— for resistance thermometer	Pt 100
• shielded, max. 100 m	Cable length	
	• shielded, max.	100 m
Analog outputs	Analog outputs	
Number of analog outputs 2	Number of analog outputs	2

integrated channels (AO)	2
Voltage output, short-circuit protection	Yes
Voltage output, short-circuit current, max.	55 mA
Current output, no-load voltage, max.	14 V
Output ranges, voltage	
• 0 to 10 V	Yes
• -10 V to +10 V	Yes
Output ranges, current	
• 0 to 20 mA	Yes
• -20 mA to +20 mA	Yes
• 4 mA to 20 mA	Yes
Connection of actuators	
<ul> <li>for voltage output two-wire connection</li> </ul>	Yes; Without compensation of the line resistances
<ul> <li>for voltage output four-wire connection</li> </ul>	No
<ul> <li>for current output two-wire connection</li> </ul>	Yes
Load impedance (in rated range of output)	
<ul> <li>with voltage outputs, min.</li> </ul>	1 kΩ
<ul> <li>with voltage outputs, capacitive load, max.</li> </ul>	0.1 µF
<ul> <li>with current outputs, max.</li> </ul>	300 Ω
<ul> <li>with current outputs, inductive load, max.</li> </ul>	0.1 mH
Destruction limits against externally applied voltages an	d currents
<ul> <li>Voltages at the outputs towards MANA</li> </ul>	16 V; Permanent
• Current, max.	50 mA; Permanent
Cable length	
• shielded, max.	200 m
Analog value generation for the inputs	
Measurement principle	Actual value encryption (successive approximation)
Integration and conversion time/resolution per channel	
<ul> <li>Resolution with overrange (bit including sign), max.</li> </ul>	12 bit
<ul> <li>Integration time, parameterizable</li> </ul>	Yes; 16.6 / 20 ms
<ul> <li>Interference voltage suppression for interference frequency f1 in Hz</li> </ul>	50 / 60 Hz
<ul> <li>permissible input frequency, max.</li> </ul>	400 Hz
• Time constant of the input filter	0.38 ms
Basic execution time of the module (all	1 ms
channels released)	
Analog value generation for the outputs	
Integration and conversion time/resolution per channel	
<ul> <li>Resolution with overrange (bit including sign), max.</li> </ul>	12 bit
Conversion time (per channel)	1 ms

Settling time	
<ul> <li>for resistive load</li> </ul>	0.6 ms
<ul> <li>for capacitive load</li> </ul>	1 ms
<ul> <li>for inductive load</li> </ul>	0.5 ms

Encoder	
Connection of signal encoders	
<ul> <li>for voltage measurement</li> </ul>	Yes
<ul> <li>for current measurement as 2-wire transducer</li> </ul>	Yes; with external supply
<ul> <li>for current measurement as 4-wire transducer</li> </ul>	Yes
<ul> <li>for resistance measurement with two-wire connection</li> </ul>	Yes; Without compensation of the line resistances
<ul> <li>for resistance measurement with three-wire connection</li> </ul>	No
<ul> <li>for resistance measurement with four-wire connection</li> </ul>	No
Connectable encoders	
• 2-wire sensor	Yes
<ul> <li>permissible quiescent current (2-wire sensor), max.</li> </ul>	1.5 mA
Errors/accuracies	
Temperature error (relative to input range), (+/-)	0.006 %/K
Crosstalk between the inputs, min.	60 dB
Repeat accuracy in steady state at 25 °C (relative to input range), (+/-)	0.06 %
Output ripple (relative to output range, bandwidth 0 to 50 kHz), (+/-)	0.1 %
Linearity error (relative to output range), (+/-)	0.15 %
Temperature error (relative to output range), (+/-)	0.01 %/K
Crosstalk between the outputs, min.	60 dB
Repeat accuracy in steady state at 25 °C (relative to output range), (+/-)	0.06 %
Operational error limit in overall temperature range	
<ul> <li>Voltage, relative to input range, (+/-)</li> </ul>	1 %
<ul> <li>Current, relative to input range, (+/-)</li> </ul>	1 %
<ul> <li>Resistance, relative to input range, (+/-)</li> </ul>	1 %
<ul> <li>Voltage, relative to output range, (+/-)</li> </ul>	1 %
• Current, relative to output range, (+/-)	1 %
Basic error limit (operational limit at 25 °C)	
<ul> <li>Voltage, relative to input range, (+/-)</li> </ul>	0.8 %; Linearity error ±0.06 %
• Current, relative to input range, (+/-)	0.8 %; Linearity error ±0.06 %
• Resistance, relative to input range, (+/-)	0.8 %; Linearity error ±0.2 %
• Resistance thermometer, relative to input range, (+/-)	0.8 %

	0.8 %
• Voltage, relative to output range, (+/-)	0.8 %
• Current, relative to output range, (+/-)	
Interference voltage suppression for $f = n x (f1 + /-1 \%)$ ,	
Series mode interference (peak value of	30 dB
interference < rated value of input range), min.	
Common mode interference, min.	40 dB
Interfaces	
Number of industrial Ethernet interfaces	0
Number of PROFINET interfaces	0
Number of RS 485 interfaces	2; MPI and PROFIBUS DP
Number of RS 422 interfaces	0
1. Interface	
Interface type	Integrated RS 485 interface
Physics	RS 485
Isolated	No
Power supply to interface (15 to 30 V DC), max.	200 mA
Protocols	
• MPI	Yes
PROFIBUS DP master	No
PROFIBUS DP slave	No
<ul> <li>Point-to-point connection</li> </ul>	No
MPI	
• Transmission rate, max.	187.5 kbit/s
Services	
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	Yes
— S7 basic communication	Yes
- S7 communication	Yes; Only server, configured on one side
— S7 communication, as client	No; but via CP and loadable FB
— S7 communication, as server	Yes
2. Interface	
Interface type	Integrated RS 485 interface
Physics	RS 485
Isolated	Yes
Power supply to interface (15 to 30 V DC), max.	200 mA
Protocols	
• MPI	No
PROFINET IO Controller	No
PROFINET IO Device	No
PROFINET CBA	No

<ul> <li>PROFIBUS DP master</li> </ul>	Yes
PROFIBUS DP slave	Yes
Point-to-point connection	No
PROFIBUS DP master	
Transmission rate, max.	12 Mbit/s
Number of DP slaves, max.	124
Services	
— PG/OP communication	Yes
— Routing	Yes
— Global data communication	No
- S7 basic communication	Yes; I blocks only
- S7 communication	Yes; Only server, configured on one side
— S7 communication — S7 communication, as client	No
— S7 communication, as server	Yes
	Yes
<ul> <li>— Equidistance</li> <li>— Isochronous mode</li> </ul>	No
— SYNC/FREEZE	Yes
<ul> <li>— STNC/FREEZE</li> <li>— Activation/deactivation of DP slaves</li> </ul>	Yes
<ul> <li>Activation/deactivation of DP slaves</li> <li>Number of DP slaves that can be</li> </ul>	8
simultaneously activated/deactivated, max.	0
— Direct data exchange (slave-to-slave	Yes; As subscriber
communication)	
— DPV1	Yes
Address area	
— Inputs, max.	2 kbyte
— Outputs, max.	2 kbyte
User data per DP slave	
— Inputs, max.	244 byte
— Outputs, max.	244 byte
PROFIBUS DP slave	
• GSD file	The latest GSD file is available on the Internet
	(http://www.siemens.com/profibus-gsd)
• Transmission rate, max.	12 Mbit/s
<ul> <li>automatic baud rate search</li> </ul>	Yes; only with passive interface
<ul> <li>Address area, max.</li> </ul>	32
• User data per address area, max.	32 byte
Services	
— PG/OP communication	Yes
— Routing	Yes; Only with active interface
— Global data communication	No
— S7 basic communication	No
— S7 communication	Yes; Only server, configured on one side

	— S7 communication, as client	No
Direct data exchange (slave-to-slave communication)Yes DPV1NoTransfer memory244 byte Outputs244 byte Outputs244 byteCommunication functionsYesPG/OP communicationYesData record routingYesGlobal data communicationYesSupportedYesNumber of GD loops, max.8Number of GD packets, max.8Number of GD packets, transmitter, max.8Number of GD packets, treasiver, max.8Size of GD packets, treasiver, max.22 byteSize of GD packets, max.22 byteSize of GD packets, max.76 byteSize of GD packet (of which consistent), max.76 byteSize of GD packets, max.76 byteSize of GD packet, foresiver, max.76 byteSize of GD packet, foresiver, max.76 byteSize of GD packet, max.76 byteSize of GD packet, max.76 byteSize of GD packet, foresiver, max.76 byteSize of GD packet, max.76 byteSize of GD packet, foresiver, max.76 byteSize of GD packet, foresiver, max.76 byteSize of GD packet, max.76 byteSize of GD packet, foresiver, max.76 byteSize of GD packet, foresiver, max.76 byteSize of GD packet, foresiver, max.76 byteSize of GD packet,		Yes
communication         No           - DPV1         No           Transfer memory         244 byte           - Outputs         244 byte           Communication functions         244 byte           PG/OP communication         Yes           Data record routing         Yes           Global data communication         Yes           Supported         Yes           Number of GD lops, max.         8           Number of GD packets, max.         8           Number of GD packets, max.         8           Number of GD packets, max.         8           Size of GD packets, max.         22 byte           Size of GD packets, max.         76 byte           User data per job, max.         76 byte           VU For X_GET as server)         57           Size of GD packets, max.         24 byte           Size of GD packets, max.         24 byte           User data per job (of which consistent), max.         76 bytes (with X_SEND or X_RCV); 64 bytes (with X_SEND or X_RCV); 64 bytes (with X_SEND or X_RCV); 64 bytes (		Yes
Transfer memory         - Inputs       244 byte         - Outputs       244 byte         Communication functions       Yes         Data record routing       Yes         Global data communication       Yes         Supported       Yes         Number of GD loops, max.       8         Number of GD packets, max.       8         Number of GD packets, transmitter, max.       8         Size of GD packets, receiver, max.       8         Size of GD packets, receiver, max.       22 byte         Size of GD packets, max.       22 byte         Size of GD packets, max.       22 byte         Size of GD packets, max.       76 byte         Supported       Yes         User data per job, max.       76 byte         Stas server       Yes         as server       Yes         as server       Yes, Via CP and loadable FB         User data per job, max.       180 kbyte; With PUT/GET         User data per job (of which consistent), max.       240 byte; as server         scient       Yes; via CP and loadable FB         User data per job (of which consistent), max.       240 byte; as server         Scompatible communication       240 byte; as server         usel		
Inputs     244 byte       Outputs     244 byte       Communication functions     Yes       Data record routing     Yes       Global data communication     Yes       Supported     Yes       Number of GD lops, max.     8       Number of GD packets, max.     8       Number of GD packets, max.     8       Number of GD packets, receiver, max.     8       Size of GD packets, receiver, max.     8       Size of GD packets, receiver, max.     22 byte       Size of GD packet (of which consistent), max.     22 byte       Size of GD packet (of which consistent), max.     76 byte       Supported     Yes       Supported     Yes       Solar data per job (of which consistent), max.     76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_VEV); 64 bytes (with	— DPV1	No
Outputs244 byteCommunicationYesData record routingYesData record routingYesGlobal data communicationYes• supportedYes• Number of GD loops, max.8• Number of GD packets, max.8• Number of GD packets, transmitter, max.8• Number of GD packets, receiver, max.8• Size of GD packets, receiver, max.22 byte• Size of GD packets, receiver, max.22 byte• Size of GD packets, max.22 byte• Size of GD packets, max.22 byte• Size of GD packets, max.76 byte• User data per job, max.76 byte• User data per job (of which consistent), max.76 bytes (with X_SEND or X_RCV); 64 bytes (with X_GET as server)• SupportedYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedYes; Via CP and loadable FB• User data per job (of which consistent), max.180 kbyte; With PUT/GET• User data per job (of which consistent), max.12• user data per job (of which consistent), max.12	Transfer memory	
Orimunication functions         PG/OP communication       Yes         Data record routing       Yes         Global data communication       Yes         Supported       Yes         Number of GD loops, max.       8         Number of GD packets, max.       8         Number of GD packets, transmitter, max.       8         Number of GD packets, receiver, max.       8         Size of GD packets, receiver, max.       22 byte         Size of GD packets, max.       76 byte         User data per job, max.       76 byte         User data per job (of which consistent), max.       76 bytes (with X_SEND or X_RCV); 64 bytes (With Y_SEND or X_RCV); 64 bytes (With Y_SEND or X_RCV); 64 bytes (With Y_SEND or Y_RCV); 64 b	— Inputs	244 byte
PG/OP communication     Yes       Data record routing     Yes       Global data communication     •       • supported     Yes       • Number of GD loops, max.     8       • Number of GD packets, max.     8       • Number of GD packets, transmitter, max.     8       • Number of GD packets, transmitter, max.     8       • Size of GD packets, receiver, max.     22 byte       • Size of GD packets (of which consistent), max.     22 byte       S7 basic communication     22 byte       • User data per job, max.     76 byte       • User data per job (of which consistent), max.     76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)       S7 communication     Yes       • supported     Yes       • as client     Yes (Via CP and loadable FB       • User data per job (of which consistent), max.     240 byte; as server       S5 compatible communication     240 byte; as server       • user data per job (of which consistent), max.     240 byte; as server       S5 compatible communication     12       • usable for PG communication     11       - reserved for PG communication     11	— Outputs	244 byte
Data record routing         Yes           Global data communication         *           • supported         Yes           • Number of GD loops, max.         8           • Number of GD packets, max.         8           • Number of GD packets, transmitter, max.         8           • Number of GD packets, transmitter, max.         8           • Number of GD packets, receiver, max.         8           • Size of GD packets, max.         22 byte           • Size of GD packets, max.         22 byte           • Size of GD packet (of which consistent), max.         22 byte           • Size of GD packet (of which consistent), max.         76 byte           • User data per job, max.         76 byte           • User data per job (of which consistent), max.         76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)           SZ communication         Yes           • user data per job (of which consistent), max.         76 byte; 76 bytes (with PUT/GET           • user data per job, max.         180 kbyte; With PUT/GET           • user data per job, max.         240 byte; as server           SZ compatible communication         420 byte; as server           • User data per job (of which consistent), max.         240 byte; as server           SZ compatible communication         1	Communication functions	
Global data communication       Yes         • Number of GD loops, max.       8         • Number of GD packets, max.       8         • Number of GD packets, transmitter, max.       8         • Number of GD packets, transmitter, max.       8         • Number of GD packets, receiver, max.       8         • Size of GD packets, max.       22 byte         • Size of GD packet (of which consistent), max.       22 byte         S7 basic communication       22 byte         • User data per job, max.       76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)         S7 communication       Yes         • supported       Yes         • supported       Yes         • User data per job, max.       76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)         S7 communication       Yes         • supported       Yes         • as server       Yes         • as server       Yes         • user data per job, max.       180 kbyte; With PUT/GET         • User data per job (of which consistent), max.       240 byte; as server         S5 compatible communication       240 byte; as server         • use data per job (of which consistent), max.       12         • usable for PG communication	PG/OP communication	Yes
• supported       Yes         • Number of GD loops, max.       8         • Number of GD packets, max.       8         • Number of GD packets, transmitter, max.       8         • Number of GD packets, transmitter, max.       8         • Number of GD packets, receiver, max.       8         • Size of GD packets, max.       22 byte         • Size of GD packet (of which consistent), max.       22 byte         S7 basic communication       22 byte         • User data per job, max.       76 byte         • User data per job (of which consistent), max.       76 bytes (with X_SEND or X_RCV); 64 bytes (with X_VPUT or X_GET as server)         S7 communication       Yes         • supported       Yes         • sa clent       Yes         • luser data per job, max.       180 kbyte; With PUT/GET         • User data per job (of which consistent), max.       240 byte; as server         • sa clent       Yes; via CP and loadable FB         • User data per job (of which consistent), max.       240 byte; as server         • user data per job (of which consistent), max.       240 byte; as server         • user data per job (of which consistent), max.       240 byte; as server         • user data per job (of which consistent), max.       240 byte; as server         user data per job (o	Data record routing	Yes
Number of GD loops, max.8Number of GD packets, max.8Number of GD packets, transmitter, max.8Number of GD packets, receiver, max.8Size of GD packets, receiver, max.22 byteSize of GD packet (of which consistent), max.22 byteS7 basic communication22 byte• User data per job, max.76 byte• User data per job (of which consistent), max.76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_VPUT or X_GET as server)S7 communicationYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedYes; Via CP and loadable FB• User data per job (of which consistent), max.240 byte; as server• User data per job (of which consistent), max.240 byte; as server• user data per job (of which consistent), max.240 byte; as server• user data per job (of which consistent), max.240 byte; as server• user data per job (of which consistent), max.1• usable for PG communication1• overall12• usable for PG communication1	Global data communication	
Number of GD packets, max.8• Number of GD packets, transmitter, max.8• Number of GD packets, receiver, max.8• Size of GD packets, receiver, max.22 byte• Size of GD packets, max.22 byte• Size of GD packet (of which consistent), max.22 byteS7 basic communicationYes• User data per job, max.76 byte• User data per job (of which consistent), max.76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)S7 communicationYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedYes• supportedYes; Via CP and loadable FB• User data per job (of which consistent), max.240 byte; as server• User data per job (of which consistent), max.240 byte; as server• user data per job (of which consistent), max.240 byte; as server• User data per job (of which consistent), max.240 byte; as server• User data per job (of which consistent), max.240 byte; as server• User data per job (of which consistent), max.240 byte; as server• User data per job (of which consistent), max.240 byte; as server• User data per job (of which consistent), max.240 byte; as server• usable for PG communication12• usable for PG communication11- reserved for PG communication1 <td>• supported</td> <td>Yes</td>	• supported	Yes
• Number of GD packets, transmitter, max.8• Number of GD packets, receiver, max.22 byte• Size of GD packet (of which consistent), max.22 byte• Stability of GD packet (of which consistent), max.22 byte• SupportedYes• User data per job, max.76 byte• User data per job (of which consistent), max.76 bytes (with X_SEND or X_RCV); 64 bytes (with Y_SEND or Y_RCV); 64 bytes (with	<ul> <li>Number of GD loops, max.</li> </ul>	8
Number of GD packets, receiver, max.8• Number of GD packets, receiver, max.22 byte• Size of GD packet (of which consistent), max.22 byteS7 basic communication22 byte• supportedYes• User data per job, max.76 byte• User data per job (of which consistent), max.76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes	<ul> <li>Number of GD packets, max.</li> </ul>	8
<ul> <li>Size of GD packets, max.</li> <li>Size of GD packet (of which consistent), max.</li> <li>Size of GD packet (of which consistent), max.</li> <li>Size of GD packet (of which consistent), max.</li> <li>Supported</li> <li>Supported</li> <li>Ves</li> <li>User data per job, max.</li> <li>76 byte</li> <li>Ves (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)</li> <li>Size of ata per job (of which consistent), max.</li> <li>Ves</li> <li>Size of ata per job (of which consistent), max.</li> <li>Ves</li> <li>Ves (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)</li> <li>Size of ata per job, max.</li> <li>Supported</li> <li>Ves; Via CP and loadable FB</li> <li>User data per job (of which consistent), max.</li> <li>Ves; Via CP and loadable FB</li> <li>User data per job (of which consistent), max.</li> <li>Ves; Via CP and loadable FB</li> <li>User data per job (of which consistent), max.</li> <li>Ves; via CP and loadable FB</li> <li>User data per job (of which consistent), max.</li> <li>Ves; via CP and loadable FC</li> <li>Number of connections</li> <li>Ves; via CP and loadable FC</li> <li>Number of connections</li> <li>I</li> <li>usable for PG communication</li> <li>I</li> <li>PC communication</li> <li>I</li> </ul>	<ul> <li>Number of GD packets, transmitter, max.</li> </ul>	8
• Size of GD packet (of which consistent), max.22 byteS7 basic communicationYes• supportedYes• User data per job, max.76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)S7 communicationYes• supportedYes• supportedYes• supportedYes• as serverYes• as clientYes; Via CP and loadable FB• User data per job (of which consistent), max.180 kbyte; With PUT/GET• User data per job (of which consistent), max.240 byte; as server• User data per job (of which consistent), max.240 byte; as server• User data per job (of which consistent), max.12• usaple for PG communication1- reserved for PG communication1	<ul> <li>Number of GD packets, receiver, max.</li> </ul>	8
S7 basic communication       Yes         • supported       Yes         • User data per job, max.       76 byte         • User data per job (of which consistent), max.       76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)         S7 communication       Yes         • supported       Yes         • as server       Yes         • as client       Yes; Via CP and loadable FB         • User data per job, max.       180 kbyte; With PUT/GET         • User data per job (of which consistent), max.       240 byte; as server         S5 compatible communication       240 byte; via CP and loadable FC         Number of connections       Yes; via CP and loadable FC         • usable for PG communication       12         • usable for PG communication       11         - reserved for PG communication       1	<ul> <li>Size of GD packets, max.</li> </ul>	22 byte
• supportedYes• User data per job, max.76 byte• User data per job (of which consistent), max.76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)S7 communicationYes• supportedYes• as serverYes• as clientYes; Via CP and loadable FB• User data per job (of which consistent), max.180 kbyte; With PUT/GET• User data per job, max.240 byte; as server• User data per job (of which consistent), max.240 byte; as serverS5 compatible communicationYes; via CP and loadable FC• new portedYes; via CP and loadable FC• usable for PG communication12• usable for PG communication11- reserved for PG communication1	<ul> <li>Size of GD packet (of which consistent), max.</li> </ul>	22 byte
CupperiodAn• User data per job, max.76 byte• User data per job (of which consistent), max.76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)S7 communicationYeur or X_GET as server)• supportedYes• as serverYes; Via CP and loadable FB• User data per job, max.180 kbyte; With PUT/GET• User data per job (of which consistent), max.240 byte; as serverS5 compatible communication240 byte; as server• supportedYes; via CP and loadable FCNumber of connections12• overall12• usable for PG communication11- reserved for PG communication1	S7 basic communication	
• User data per job (of which consistent), max.76 byte; 76 bytes (with X_SEND or X_RCV); 64 bytes (with X_PUT or X_GET as server)S7 communication• supportedYes• as serverYes• as clientYes; Via CP and loadable FB• User data per job, max.180 kbyte; With PUT/GET• User data per job (of which consistent), max.240 byte; as server• S5 compatible communicationYes; via CP and loadable FC• supportedYes; via CP and loadable FC• supportedYes; via CP and loadable FC• supportedYes; via CP and loadable FC• usable for PG communication12• usable for PG communication11- reserved for PG communication1	• supported	Yes
X_PUT or X_GET as server)S7 communication• supportedYes• as serverYes• as clientYes; Via CP and loadable FB• User data per job, max.180 kbyte; With PUT/GET• User data per job (of which consistent), max.240 byte; as serverS5 compatible communicationYes; via CP and loadable FC• Number of connections12• overall12• usable for PG communication11- reserved for PG communication1	<ul> <li>User data per job, max.</li> </ul>	76 byte
• supportedYes• as serverYes; Via CP and loadable FB• as clientYes; Via CP and loadable FB• User data per job, max.180 kbyte; With PUT/GET• User data per job (of which consistent), max.240 byte; as serverS5 compatible communication240 byte; as server• supportedYes; via CP and loadable FC• number of connections12• overall12• usable for PG communication11- reserved for PG communication1	<ul> <li>User data per job (of which consistent), max.</li> </ul>	
• as serverYes• as clientYes; Via CP and loadable FB• User data per job, max.180 kbyte; With PUT/GET• User data per job (of which consistent), max.240 byte; as serverS5 compatible communication240 byte; as server• supportedYes; via CP and loadable FC• overall12• overall11- reserved for PG communication1	S7 communication	
• as clientYes; Via CP and loadable FB• User data per job, max.180 kbyte; With PUT/GET• User data per job (of which consistent), max.240 byte; as serverS5 compatible communication240 byte; as server• supportedYes; via CP and loadable FC• Number of connectionsYes; via CP and loadable FC• overall12• usable for PG communication11- reserved for PG communication1	• supported	Yes
• User data per job, max.180 kbyte; With PUT/GET• User data per job (of which consistent), max.240 byte; as serverS5 compatible communication240 byte; as server• supportedYes; via CP and loadable FCNumber of connections12• overall12• usable for PG communication11— reserved for PG communication1	• as server	Yes
• User data per job (of which consistent), max.240 byte; as serverS5 compatible communication• supportedYes; via CP and loadable FCNumber of connections12• overall12• usable for PG communication11— reserved for PG communication1	• as client	Yes; Via CP and loadable FB
S5 compatible communication       • supported     Yes; via CP and loadable FC       Number of connections     12       • overall     11       • usable for PG communication     11       — reserved for PG communication     1	• User data per job, max.	180 kbyte; With PUT/GET
• supported     Yes; via CP and loadable FC       Number of connections     12       • overall     12       • usable for PG communication     11       — reserved for PG communication     1	• User data per job (of which consistent), max.	240 byte; as server
Number of connections       • overall     12       • usable for PG communication     11       - reserved for PG communication     1	S5 compatible communication	
• overall       12         • usable for PG communication       11         — reserved for PG communication       1	• supported	Yes; via CP and loadable FC
usable for PG communication         — reserved for PG communication         1	Number of connections	
- reserved for PG communication 1	• overall	12
	<ul> <li>usable for PG communication</li> </ul>	11
- adjustable for PG communication, min. 1	— reserved for PG communication	1
	— adjustable for PG communication, min.	1
— adjustable for PG communication, max. 11	— adjustable for PG communication, max.	11
usable for OP communication     11	<ul> <li>usable for OP communication</li> </ul>	11
— reserved for OP communication 1	— reserved for OP communication	1
- adjustable for OP communication, min. 1	— adjustable for OP communication, min.	1

— adjustable for OP communication, max.	11
<ul> <li>usable for S7 basic communication</li> </ul>	8
- reserved for S7 basic communication	0
<ul> <li>— adjustable for S7 basic communication, min.</li> </ul>	0
<ul> <li>— adjustable for S7 basic communication, max.</li> </ul>	8
<ul> <li>usable for routing</li> </ul>	4; max.

S7 message functions		
Number of login stations for message functions, max.	12; Depending on the configured connections for PG/OP and S7 basic communication	
Process diagnostic messages	Yes	
simultaneously active Alarm-S blocks, max.	300	
Test commissioning functions		
Status block	Yes; Up to 2 simultaneously	
Single step	Yes	
Number of breakpoints	4	
Status/control		
<ul> <li>Status/control variable</li> </ul>	Yes	
Variables	Inputs, outputs, memory bits, DB, times, counters	
<ul> <li>Number of variables, max.</li> </ul>	30	
— of which status variables, max.	30	
— of which control variables, max.	14	
Forcing		
• Forcing	Yes	
<ul> <li>Forcing, variables</li> </ul>	Inputs, outputs	
<ul> <li>Number of variables, max.</li> </ul>	10	
Diagnostic buffer		
• present	Yes	
<ul> <li>Number of entries, max.</li> </ul>	500	
— adjustable	No	
— of which powerfail-proof	100; Only the last 100 entries are retained	
<ul> <li>Number of entries readable in RUN, max.</li> </ul>	499	
— adjustable	Yes; From 10 to 499	
— preset	10	
Service data		
• can be read out	Yes	
Interrupts/diagnostics/status information		
Diagnostics indication LED		
<ul> <li>Status indicator digital input (green)</li> </ul>	Yes	
<ul> <li>Status indicator digital output (green)</li> </ul>	Yes	

Number of counters         4: See "Technological Functions" manual           Counting frequency (counter) max.         60 kHz           Frequency measurement         Yes           Number of frequency meters         4: up to 80 kHz (see "Technological Functions" manual)           controlled positioning         Yes           Integrated function blocks (closed-loop control)         Yes; PID controller (see "Technological Functions" manual)           PID controller         Yes           Number of pulse outputs         4: Pulse width modulation up to 2.5 kHz (see "Technological Functions" manual)           Limit frequency (pulse)         2.5 kHz           Potential separation         Potential separation digital inputs           Potential separation digital inputs         Yes           • Detential separation digital outputs         Yes           • Detween the channels and backplane bus         Yes           • Detween the channels in groups of         8           • Detween the channels in groups of         8           • Detween the channels in and backplane bus         Yes           Potential separation analog inputs         Yes: Common for analog I/O <th>Integrated Functions</th> <th></th>	Integrated Functions	
Frequency measurement     Yes       Number of frequency meters     4: up to 60 kHz (see "Technological Functions" manual)       controlled positioning     Yes       Integrated function blocks (closed-loop control)     Yes: PID controller (see "Technological Functions" manual)       PID controller     Yes       Number of pulse outputs     4: Pulse width modulation up to 2.5 kHz (see "Technological Functions" manual)       Limit frequency (pulse)     2.5 kHz       Potential separation     Yes       Potential separation digital inputs     Yes       • Potential separation digital outputs     Yes       • Detential separation analog inputs     Yes: common for analog I/O       • between the channels and backplane bus     Yes:       Potential separation analog inputs     Yes: common for analog I/O       • between the channels and backplane bus     Yes       Potential separation analog outputs     Yes: common for analog I/O       • between the channels and backplane bus     Yes       Potential separation analog outputs     Yes: common for analog I/O       • between the chann	Number of counters	4; See "Technological Functions" manual
Number of frequency meters       4: up to 60 kHz (see "Technological Functions" manual)         controlled positioning       Yes         Integrated function blocks (closed-loop control)       Yes; PID controller (see "Technological Functions" manual)         PID controller       Yes         Number of pulse outputs       4; Pulse width modulation up to 2.5 kHz (see "Technological Functions" Manual)         Limit frequency (pulse)       2.5 kHz         Potential separation digital inputs       Yes         • Potential separation digital inputs       Yes         • Detential separation digital outputs       Yes         • Detential separation analog inputs       Yes; common for analog I/O         • Detential separation analog inputs       Yes; common for analog I/O         • Detential separation analog outputs       Yes; common for analog I/O         • Detential separation analog outputs       Yes; common for analog I/O         • Detential separation analog outputs       Yes; common for analog I/O         • Detential separation analog outputs       Yes; common for analog I/O         • Detential separation analo	Counting frequency (counter) max.	60 kHz
controlled positioning     Yes       Integrated function blocks (closed-loop control)     Yes, PID controller (see "Technological Functions" manual)       PID controller     Yes       Number of pulse outputs     4: Pulse width modulation up to 2.5 kHz (see "Technological Functions" Manual)       Limit frequency (pulse)     2.5 kHz       Potential separation digital inputs     Yes       • Potential separation digital inputs     Yes       • between the channels     No       • between the channels and backplane bus     Yes       • botential separation digital outputs     Yes       • between the channels     No	Frequency measurement	Yes
Integrated function blocks (closed-loop control)       Yes; PID controller (see "Technological Functions" manual)         PID controller       Yes         Number of pulse outputs       4; Pulse width modulation up to 2.5 kHz (see "Technological Functions" Manual)         Limit frequency (pulse)       2.5 kHz         Potential separation digital inputs       Yes         • Potential separation digital inputs       Yes         • between the channels and backplane bus       Yes; common for analog I/O         • between the channels and backplane bus       Yes;         Potential separation analog uputs       Yes; common for analog I/O         • between the channels and backplane bus       Yes         Potential separation analog outputs       Yes; common for analog I/O         • between the channels and backplane bus       Yes         Potential separation analog outputs       Yes; common for analog I/O	Number of frequency meters	4; up to 60 kHz (see "Technological Functions" manual)
Pilo controller     Yes       Number of pulse outputs     4: Pulse width modulation up to 2.5 kHz (see "Technological Functions" Manual)       Limit frequency (pulse)     2.5 kHz       Potential separation digital inputs     Yes       • Potential separation digital inputs     Yes       • Detential separation digital inputs     Yes       • Detential separation digital inputs     Yes       • Detential separation digital outputs     Yes       • between the channels     No       • between the channels     No       • between the channels     Yes: common for analog I/O       • between the channels     No       • between the channels     Yes: common for analog I/O       • between the channels     No       • between the channels     Yes       • between the channels     No       • betwee	controlled positioning	Yes
Number of pulse outputs       4; Pulse width modulation up to 2.5 kHz (see "Technological Functions" Manual)         Limit frequency (pulse)       2.5 kHz         Potential separation       2.5 kHz         Potential separation digital inputs       Yes         • Potential separation digital inputs       Yes         • between the channels       No         • between the channels and backplane bus       Yes         • Potential separation digital outputs       Yes         • between the channels, in groups of       8         • between the channels, in groups of       8         • between the channels and backplane bus       Yes         • between the channels and backplane bus       Yes         • between the channels in groups of       8         • between the channels       Yes: common for analog I/O         • between the channels and backplane bus       Yes         Potential separation analog outputs       Yes; common for analog I/O         • between the channels and backplane bus       Yes         Potential separation analog outputs       Yes; common for analog I/O         • between the channels and backplane bus       Yes         Potential separation analog outputs       Yes; common for analog I/O         • between the channels and backplane bus       Yes         P	integrated function blocks (closed-loop control)	Yes; PID controller (see "Technological Functions" manual)
Functions" Manual)           Limit frequency (pulse)         2.5 kHz           Potential separation digital inputs         Yes                • Potential separation digital inputs         Yes                • between the channels and backplane bus         Yes                • Potential separation digital outputs         Yes                • between the channels, in groups of         8                • between the channels         Yes: common for analog I/O                • between the channels and backplane bus         Yes:                • Potential separation analog outputs         Yes: common for analog I/O                • between the channels and backplane bus         Yes:                • Dotential separation analog outputs         Yes: common for analog I/O                • between the channels and backplane bus         Yes                • Dotential differenco:         VDC/60 V AC	PID controller	Yes
Potential separation digital inputs         Potential separation digital inputs         Potential separation digital inputs         No         between the channels         No         between the channels and backplane bus         Yes         Potential separation digital outputs         Yes         Potential separation digital outputs         Yes         between the channels         Yes         between the channels and backplane bus         Yes         between the channels and backplane bus         Yes         Potential separation analog inputs         Potential separation analog inputs         Potential separation analog outputs         Yes; common for analog I/O         between the channels         No         between the channels         Potential separation analog outputs         Yes; common for analog I/O         between the channels         No         between the channels         No         between the channels         No         between the channels         No         between different circuits         75 V DC/60 V AC         Betwee	Number of pulse outputs	
Potential separation digital inputs       Yes <ul> <li>Potential separation digital inputs</li> <li>No</li> <li>between the channels and backplane bus</li> <li>Yes</li> </ul> Potential separation digital outputs       Yes         Potential separation digital outputs       Yes <ul> <li>Potential separation digital outputs</li> <li>Yes</li> <li>between the channels</li> <li>Yes</li> <li>between the channels in groups of</li> <li>between the channels and backplane bus</li> <li>Yes</li> <li>Potential separation analog inputs</li> <li>Yes common for analog I/O</li> <li>between the channels and backplane bus</li> <li>Yes</li> <li>Potential separation analog inputs</li> <li>Yes common for analog I/O</li> <li>between the channels and backplane bus</li> <li>Yes</li> <li>Potential separation analog outputs</li> <li>Yes</li> <li>Potential difference</li> <li>Detween the channels and backplane bus</li> <li>Yes</li> <li>Peterneente circuits</li> <li>75 V DC/60 V AC</li> <li>Between the inputs and MANA (UCM)</li> <li>8 V DC</li> <li>between MANA and M internally (UISO)</li> <li>75 V DC/60 V AC</li> <li>Solation tested with</li> <li>6000 V DC</li> <li>Ambient temperature during operation</li> <li>min.</li> <li>0 °C</li> <li>max.</li> <li>00 °C</li> <li>C</li> <li>C</li> <li>C</li> <li>C</li> <li>C</li> <li>C</li></ul>	Limit frequency (pulse)	2.5 kHz
• Potential separation digital inputs       Yes         • between the channels       No         • between the channels and backplane bus       Yes         Potential separation digital outputs       Yes         • Detential separation digital outputs       Yes         • between the channels       Yes         • between the channels       Yes         • between the channels in groups of       8         • between the channels and backplane bus       Yes         Potential separation analog inputs       Yes; common for analog I/O         • between the channels       No         • between the channels and backplane bus       Yes; common for analog I/O         • between the channels and backplane bus       Yes         Potential separation analog outputs       Yes         • be	Potential separation	
• between the channels       No         • between the channels and backplane bus       Yes         • Potential separation digital outputs       Yes         • Potential separation digital outputs       Yes         • between the channels       Yes         • between the channels in groups of       8         • between the channels and backplane bus       Yes         • Detential separation analog inputs       Yes; common for analog I/O         • between the channels and backplane bus       Yes         • Potential separation analog inputs       Yes; common for analog I/O         • between the channels       No         • between the channels and backplane bus       Yes         • Dotential separation analog outputs       Yes; common for analog I/O         • between the channels       No         • between the channels and backplane bus       Yes; common for analog I/O         • between the channels and backplane bus       Yes         Permissible potential difference       Isolation         between the inputs and MANA (IUCM)       8 V DC         between MANA and M internally (UISO)       75 V DC/60 V AC         Isolat	Potential separation digital inputs	
• between the channels and backplane bus     Yes       Potential separation digital outputs     Yes       • Potential separation digital outputs     Yes       • between the channels     Yes       • between the channels, in groups of     8       • between the channels and backplane bus     Yes       Potential separation analog inputs     Yes; common for analog I/O       • between the channels     No       • between the channels     No       • between the channels and backplane bus     Yes; common for analog I/O       • between the channels     No       • between the channels and backplane bus     Yes; common for analog I/O       • between the channels     No       • between the channels and backplane bus     Yes; common for analog I/O       • between the channels and backplane bus     Yes; common for analog I/O       • between the channels and backplane bus     Yes       Potential separation analog outputs     Yes; common for analog I/O       • between the channels and backplane bus     Yes       Permissible potential difference     Detected I difference       between MANA and Minternally (UISO)     75 V DC/60 V AC       Isolation     Esolation       Isolation tested with     600 V DC       Ambient temperature during operation     0 °C       • max.     0 °C	<ul> <li>Potential separation digital inputs</li> </ul>	Yes
Potential separation digital outputs       Yes <ul> <li>Potential separation digital outputs</li> <li>Yes</li> <li>between the channels</li> <li>Yes</li> <li>between the channels and backplane bus</li> <li>Yes</li> <li>Potential separation analog inputs</li> <li>Yes; common for analog I/O</li> <li>between the channels</li> <li>No</li> <li>between the channels</li> <li>No</li> <li>between the channels and backplane bus</li> <li>Yes; common for analog I/O</li> <li>between the channels</li> <li>No</li> <li>between the channels and backplane bus</li> <li>Yes; common for analog I/O</li> <li>between the channels</li> <li>No</li> <li>between the channels and backplane bus</li> <li>Yes; common for analog I/O</li> <li>between the channels</li> <li>No</li> <li>between different circuits</li> <li>75 V DC/60 V AC</li> <li>Between different circuits</li> <li>75 V DC/60 V AC</li> <li>between different circuits</li> <li>75 V DC/60 V AC</li> <li>Isolation</li> <li>Isolation</li> <li>Isolation</li> <li>min.</li> <li>mix.</li> <li>0 °C</li> <li>o °C<td><ul> <li>between the channels</li> </ul></td><td>No</td></li></ul>	<ul> <li>between the channels</li> </ul>	No
• Potential separation digital outputs       Yes         • between the channels       Yes         • between the channels, in groups of       8         • between the channels and backplane bus       Yes         Potential separation analog inputs       Yes; common for analog I/O         • Potential separation analog inputs       Yes; common for analog I/O         • between the channels       No         • between the channels and backplane bus       Yes         Potential separation analog outputs       Yes; common for analog I/O         • between the channels and backplane bus       Yes         Potential separation analog outputs       Yes; common for analog I/O         • Potential separation analog outputs       Yes; common for analog I/O         • between the channels       No         • between the channels and backplane bus       Yes         Permissible potential difference          between different circuits       75 V DC/60 V AC         Between the inputs and MANA (UCM)       8 V DC         between MANA and M internally (UISO)       75 V DC/60 V AC         Isolation          Isolation       600 V DC         Ambient temperature during operation       0 °C         • max.       0 °C	<ul> <li>between the channels and backplane bus</li> </ul>	Yes
• between the channels       Yes         • between the channels, in groups of       8         • between the channels and backplane bus       Yes         Potential separation analog inputs       Yes; common for analog I/O         • between the channels       No         • between the channels and backplane bus       Yes         • between the channels       No         • between the channels and backplane bus       Yes         • Detential separation analog outputs       Yes; common for analog I/O         • between the channels and backplane bus       Yes         • Potential separation analog outputs       Yes; common for analog I/O         • between the channels and backplane bus       Yes         • between the channels and backplane bus       Yes         Permissible potential difference       Yes         between different circuits       75 V DC/60 V AC         Between the inputs and MANA (UCM)       8 V DC         between MANA and M internally (UISO)       75 V DC/60 V AC         Isolation       600 V DC         Ambient temperature during operation       600 V DC         Ambient temperature during operation       60 °C	Potential separation digital outputs	
• between the channels, in groups of       8         • between the channels and backplane bus       Yes         Potential separation analog inputs       Yes; common for analog I/O         • between the channels       No         • between the channels and backplane bus       Yes         Potential separation analog inputs       Yes; common for analog I/O         • between the channels and backplane bus       Yes         Potential separation analog outputs       Yes; common for analog I/O         • between the channels and backplane bus       Yes         Potential separation analog outputs       Yes; common for analog I/O         • between the channels       No         • between the channels and backplane bus       Yes         Permissible potential difference       Ves         between different circuits       75 V DC/60 V AC         Between the inputs and MANA (UCM)       8 V DC         between MANA and M internally (UISO)       75 V DC/60 V AC         Isolation       1solation         Isolation tested with       600 V DC         Ambient temperature during operation       0 °C         • max.       60 °C	<ul> <li>Potential separation digital outputs</li> </ul>	Yes
• between the channels and backplane bus       Yes         Potential separation analog inputs       Yes; common for analog I/O         • Potential separation analog inputs       Yes; common for analog I/O         • between the channels       No         • between the channels and backplane bus       Yes         Potential separation analog outputs       Yes; common for analog I/O         • between the channels and backplane bus       Yes; common for analog I/O         • between the channels       No         • between the channels       No         • between the channels and backplane bus       Yes; common for analog I/O         • between the channels and backplane bus       Yes         Potential separation analog outputs       Yes; common for analog I/O         • between the channels and backplane bus       Yes         Permissible potential difference       Yes         between different circuits       75 V DC/60 V AC         Between the inputs and MANA (UCM)       8 V DC         between MANA and M internally (UISO)       75 V DC/60 V AC         Isolation       600 V DC         Ambient conditions       0 °C         (min.       0 °C         (mix.       60 °C	<ul> <li>between the channels</li> </ul>	Yes
Potential separation analog inputs       Yes; common for analog I/O         • Potential separation analog inputs       No         • between the channels       No         • between the channels and backplane bus       Yes         Potential separation analog outputs       Yes; common for analog I/O         • Potential separation analog outputs       Yes; common for analog I/O         • Potential separation analog outputs       Yes; common for analog I/O         • between the channels       No         • between the channels and backplane bus       Yes;         Permissible potential difference       Yes         Detween different circuits       75 V DC/60 V AC         Between the inputs and MANA (UCM)       8 V DC         between MANA and M internally (UISO)       75 V DC/60 V AC         Isolation       600 V DC         Ambient conditions       0 °C         (min.       0 °C         (max.       60 °C	<ul> <li>between the channels, in groups of</li> </ul>	8
<ul> <li>Potential separation analog inputs</li> <li>Potential separation analog inputs</li> <li>between the channels</li> <li>between the channels and backplane bus</li> <li>Potential separation analog outputs</li> <li>Potential separation analog outputs</li> <li>Potential separation analog outputs</li> <li>Ves; common for analog I/O</li> <li>between the channels</li> <li>No</li> <li>between the channels and backplane bus</li> <li>Yes; common for analog I/O</li> <li>between the channels</li> <li>No</li> <li>Ves; common for analog I/O</li> <li>Permissible potential difference</li> <li>between the inputs and MANA (UCM)</li> <li>Between the inputs and MANA (UCM)</li> <li>Between MANA and M internally (UISO)</li> <li>75 V DC/60 V AC</li> <li>Isolation</li> <li>Isolation tested with</li> <li>600 V DC</li> <li>Ambient temperature during operation</li> <li>min.</li> <li>0 °C</li> <li>max.</li> </ul>	<ul> <li>between the channels and backplane bus</li> </ul>	Yes
• between the channels       No         • between the channels and backplane bus       Yes         Potential separation analog outputs       Yes; common for analog I/O         • Potential separation analog outputs       Yes; common for analog I/O         • between the channels       No         • between the channels and backplane bus       Yes         Permissible potential difference       Yes         between the inputs and MANA (UCM)       8 V DC         between the inputs and MANA (UCM)       8 V DC         between MANA and M internally (UISO)       75 V DC/60 V AC         Isolation       Isolation tested with         Ambient conditions       0 °C         • max.       60 °C	Potential separation analog inputs	
between the channels and backplane bus     Yes Potential separation analog outputs     Potential separation analog outputs     Potential separation analog outputs     Ves; common for analog I/O     between the channels     No     between the channels and backplane bus     Yes  Permissible potential difference between different circuits     75 V DC/60 V AC Between the inputs and MANA (UCM)     8 V DC between MANA and M internally (UISO)     75 V DC/60 V AC Isolation Isolation tested with     600 V DC  Ambient conditions Ambient temperature during operation     • min.     0 °C     • max.	<ul> <li>Potential separation analog inputs</li> </ul>	Yes; common for analog I/O
Potential separation analog outputs       Yes; common for analog I/O         • Potential separation analog outputs       No         • between the channels       No         • between the channels and backplane bus       Yes         Permissible potential difference       Yes         between different circuits       75 V DC/60 V AC         Between the inputs and MANA (UCM)       8 V DC         between MANA and M internally (UISO)       75 V DC/60 V AC         Isolation       600 V DC         Ambient conditions       Ambient temperature during operation         • min.       0 °C         • max.       60 °C	<ul> <li>between the channels</li> </ul>	No
<ul> <li>Potential separation analog outputs</li> <li>Petrmissible potential difference</li> <li>between the channels and backplane bus</li> <li>Yes</li> <li>Permissible potential difference</li> <li>between different circuits</li> <li>75 V DC/60 V AC</li> <li>Between the inputs and MANA (UCM)</li> <li>8 V DC</li> <li>between MANA and M internally (UISO)</li> <li>75 V DC/60 V AC</li> <li>Isolation</li> <li>Isolation tested with</li> <li>600 V DC</li> <li>Ambient conditions</li> <li>Ambient temperature during operation         <ul> <li>min.</li> <li>0 °C</li> <li>max.</li> <li>60 °C</li> </ul> </li> </ul>	<ul> <li>between the channels and backplane bus</li> </ul>	Yes
<ul> <li>between the channels</li> <li>between the channels and backplane bus</li> <li>Yes</li> <li>Permissible potential difference</li> <li>between different circuits</li> <li>75 V DC/60 V AC</li> <li>Between the inputs and MANA (UCM)</li> <li>8 V DC</li> <li>between MANA and M internally (UISO)</li> <li>75 V DC/60 V AC</li> <li>Isolation</li> <li>Isolation tested with</li> <li>600 V DC</li> <li>Ambient temperature during operation         <ul> <li>min.</li> <li>0 °C</li> <li>max.</li> <li>60 °C</li> </ul> </li> </ul>	Potential separation analog outputs	
between the channels and backplane bus Yes  Permissible potential difference between different circuits 75 V DC/60 V AC Between the inputs and MANA (UCM) 8 V DC between MANA and M internally (UISO) 75 V DC/60 V AC  Isolation Isolation tested with 600 V DC  Ambient temperature during operation     min.     0 °C     max.	<ul> <li>Potential separation analog outputs</li> </ul>	Yes; common for analog I/O
between the channels and backplane bus Yes  Permissible potential difference between different circuits 75 V DC/60 V AC Between the inputs and MANA (UCM) 8 V DC between MANA and M internally (UISO) 75 V DC/60 V AC  Isolation Isolation tested with 600 V DC  Ambient temperature during operation     min.     0 °C     max.	<ul> <li>between the channels</li> </ul>	No
between different circuits       75 V DC/60 V AC         Between the inputs and MANA (UCM)       8 V DC         between MANA and M internally (UISO)       75 V DC/60 V AC         Isolation       600 V DC         Ambient conditions       600 V DC         Ambient temperature during operation       0 °C         • min.       600 °C		Yes
between different circuits       75 V DC/60 V AC         Between the inputs and MANA (UCM)       8 V DC         between MANA and M internally (UISO)       75 V DC/60 V AC         Isolation       600 V DC         Ambient conditions       600 V DC         Ambient temperature during operation       0 °C         • min.       600 °C	Permissible potential difference	
between MANA and M internally (UISO)       75 V DC/60 V AC         Isolation       600 V DC         Ambient conditions       600 V DC         Ambient temperature during operation       0 °C         • min.       60 °C	· · · · · · · · · · · · · · · · · · ·	75 V DC/60 V AC
between MANA and M internally (UISO)       75 V DC/60 V AC         Isolation       600 V DC         Ambient conditions       600 V DC         Ambient temperature during operation       0 °C         • min.       60 °C	Between the inputs and MANA (UCM)	8 V DC
Isolation tested with     600 V DC       Ambient conditions     Ambient temperature during operation       • min.     0 °C       • max.     60 °C		75 V DC/60 V AC
Isolation tested with     600 V DC       Ambient conditions       Ambient temperature during operation       • min.     0 °C       • max.     60 °C	Isolation	
Ambient temperature during operation         • min.       0 °C         • max.       60 °C		600 V DC
• min. 0 °C • max. 60 °C	Ambient conditions	
• max. 60 °C	Ambient temperature during operation	
	• min.	0°0
Configuration	● max.	60 °C
	Configuration	

Configuration software	
• STEP 7	Yes; STEP 7 V5.5 + SP1 or higher or STEP 7 V5.3 + SP2 or higher with HSP 203
• STEP 7 Lite	No
Programming	
Command set	see instruction list
Nesting levels	8
<ul> <li>System functions (SFC)</li> </ul>	see instruction list
<ul> <li>System function blocks (SFB)</li> </ul>	see instruction list
Programming language	
— LAD	Yes
— FBD	Yes
— STL	Yes
— SCL	Yes
— CFC	Yes
— GRAPH	Yes
— HiGraph®	Yes
Know-how protection	
<ul> <li>User program protection/password protection</li> </ul>	Yes
<ul> <li>Block encryption</li> </ul>	Yes; With S7 block Privacy
Dimensions	
Width	120 mm
Height	125 mm
Depth	130 mm
Weights	
Weight, approx.	680 g
last modified:	12/08/2018