

Data sheet CPU 312SC (312-5BE23)

Technical data

Order no.	312-5BE23
Туре	CPU 312SC
General information	
Note	-
Features	Powered by SPEED7 Work memory [KB]: 1281.024 Onboard: 16x DI / 8x DO / 2x Counter / 2x PWM Interface [RJ45]: Ethernet PG/OP communication Interface [2x RS485]: MPI, PtP: ASCII, STX/ETX, 3964(R), USS master, Modbus master/slave Including front connector SD/MMC card slot with locking, up to 8 modules stackable, programmable with WinPLC7, SIMATIC Manager and TIA Portal
SPEED-Bus	-
Technical data power supply	
Power supply (rated value)	DC 24 V
Power supply (permitted range)	DC 20.428.8 V
Reverse polarity protection	yes
Current consumption (no-load operation)	135 mA
Current consumption (rated value)	500 mA
Inrush current	11 A
²t	0.7 A ² s
Max. current drain at backplane bus	3 A
Max. current drain load supply	-
Power loss	8 W
Technical data digital inputs	
Number of inputs	16
Cable length, shielded	1000 m
Cable length, unshielded	600 m
Rated load voltage	DC 24 V
Reverse polarity protection of rated load voltage	yes
Current consumption from load voltage L+ (without load)	70 mA
Rated value	DC 24 V
Input voltage for signal "0"	DC 05 V
Input voltage for signal "1"	DC 1528.8 V
Input voltage hysteresis	-
Signal logic input	Sinking input
Frequency range	-
Input resistance	-
Input current for signal "1"	6 mA
Connection of Two-Wire-BEROs possible	yes
Max. permissible BERO quiescent current	1.5 mA
Input delay of "0" to "1"	0.1 / 0.35 ms
Input delay of "1" to "0"	0.1 / 0.35 ms
Number of simultaneously utilizable inputs horizontal configuration	16

Number of simultaneously utilizable inputs vertical configuration 16

Input characteristic curve	IEC 61131-2, type 1
Initial data size	2 Byte
Technical data digital outputs	
Number of outputs	8
Cable length, shielded	1000 m
Cable length, unshielded	600 m
Rated load voltage	DC 24 V
Reverse polarity protection of rated load voltage	-
Current consumption from load voltage L+ (without load)	100 mA
Total current per group, horizontal configuration, 40°C	3 A
Total current per group, horizontal configuration, 60°C	2 A
Total current per group, vertical configuration	2 A
Output voltage signal "1" at min. current	L+ (-0.8 V)
Output voltage signal "1" at max. current	L+ (-0.8 V)
Output current at signal "1", rated value	0.5 A
Signal logic output	Sourcing output
Output current, permitted range to 40°C	5 mA to 0.6 A
Output current, permitted range to 60°C	5 mA to 0.6 A
Output current at signal "0" max. (residual current)	0.5 mA
Output delay of "0" to "1"	100 µs
Output delay of "1" to "0"	100 µs
Minimum load current	-
Lamp load	5 W
Parallel switching of outputs for redundant control of a load	possible
Parallel switching of outputs for increased power	not possible
Actuation of digital input	yes
Switching frequency with resistive load	max. 2.5 kHz
Switching frequency with inductive load	max. 0.5 Hz
Switching frequency on lamp load	max. 2.5 kHz
Internal limitation of inductive shut-off voltage	L+ (-52 V)
Short-circuit protection of output	yes, electronic
Trigger level	1 A
Number of operating cycle of relay outputs	-
Switching capacity of contacts	-
Output data size	1 Byte
Technical data analog inputs	
Number of inputs	-
Cable length, shielded	-
Rated load voltage	-
Reverse polarity protection of rated load voltage	-
Current consumption from load voltage L+ (without load)	-
Voltage inputs	-
Min. input resistance (voltage range)	-
Input voltage ranges	-
Operational limit of voltage ranges	-
Operational limit of voltage ranges with SFU	-
Basic error limit voltage ranges	-

Basic error limit voltage ranges with SFU	
Destruction limit voltage	-
Current inputs	-
Max. input resistance (current range)	-
Input current ranges	
Operational limit of current ranges	
Operational limit of current ranges with SFU	
Basic error limit current ranges	-
Radical error limit current ranges with SFU	
Destruction limit current inputs (electrical current)	
Destruction limit current inputs (voltage)	-
Resistance inputs	
Resistance ranges	-
Operational limit of resistor ranges	-
Operational limit of resistor ranges with SFU	-
Basic error limit	-
Basic error limit with SFU	
Destruction limit resistance inputs	-
Resistance thermometer inputs	-
Resistance thermometer ranges	-
Operational limit of resistance thermometer ranges	-
Operational limit of resistance thermometer ranges with SFU	-
Basic error limit thermoresistor ranges	-
Basic error limit thermoresistor ranges with SFU	-
Destruction limit resistance thermometer inputs	-
Thermocouple inputs	-
Thermocouple ranges	-
Operational limit of thermocouple ranges	-
Operational limit of thermocouple ranges with SFU	-
Basic error limit thermocouple ranges	-
Basic error limit thermocouple ranges with SFU	-
Destruction limit thermocouple inputs	-
Programmable temperature compensation	-
External temperature compensation	-
Internal temperature compensation	-
Technical unit of temperature measurement	-
Resolution in bit	-
Measurement principle	-
Basic conversion time	-
Noise suppression for frequency	-
Initial data size	
Technical data analog outputs	
Number of outputs	-
Cable length, shielded	
Rated load voltage	-
Reverse polarity protection of rated load voltage	
Current consumption from load voltage L+ (without load)	-
Voltage output short-circuit protection	-

Voltage outputs	
Min. load resistance (voltage range)	-
Max. capacitive load (current range)	
Max. inductive load (current range)	
Output voltage ranges	-
Operational limit of voltage ranges	
Basic error limit voltage ranges with SFU	
Destruction limit against external applied voltage	-
Current outputs	-
Max. in load resistance (current range)	-
Max. inductive load (current range)	
Typ. open circuit voltage current output	-
Output current ranges	-
Operational limit of current ranges	
Radical error limit current ranges with SFU	
Destruction limit against external applied voltage	-
Settling time for ohmic load	
Settling time for capacitive load	-
Settling time for inductive load	
Resolution in bit	
Conversion time	-
Substitute value can be applied	-
Output data size	-
Technical data counters	
Number of counters	2
Counter width	32 Bit
Maximum input frequency	10 kHz
Maximum count frequency	10 kHz
Mode incremental encoder	yes
Mode pulse / direction	yes
Mode pulse	yes
Mode frequency counter	yes
Mode period measurement	yes
Gate input available	yes
Latch input available	yes
Reset input available	-
Counter output available	yes
Load and working memory	
Load memory, integrated	1024 KB
Load memory, maximum	1024 KB
Work memory, integrated	128 KB
Work memory, maximal	1024 KB
Memory divided in 50% program / 50% data	yes
Memory card slot	SD/MMC-Card with max. 2 GB
Hardware configuration	
Racks, max.	1
Modules per rack, max.	8
Modules per rack, max. Number of integrated DP master	8 0

Number of DP master via CP	4
Operable function modules	8
Operable communication modules PtP	8
Operable communication modules LAN	8
Status information, alarms, diagnostics	
Status display	yes
Interrupts	yes
Process alarm	yes
Diagnostic interrupt	yes
Diagnostic functions	no
Diagnostics information read-out	possible
Supply voltage display	green LED
Group error display	red SF LED
Channel error display	red LED per group
Isolation	
Between channels	yes
Between channels of groups to	16
Between channels and backplane bus	yes
Between channels and power supply	-
Max. potential difference between circuits	DC 75 V/ AC 50 V
Max. potential difference between inputs (Ucm)	-
Max. potential difference between Mana and Mintern (Uiso)	-
Max. potential difference between inputs and Mana (Ucm)	-
Max. potential difference between inputs and Mintern (Uiso)	-
Max. potential difference between Mintern and outputs	-
Insulation tested with	DC 500 V
Command processing times	
Bit instructions, min.	0.02 µs
Word instruction, min.	0.02 µs
Double integer arithmetic, min.	0.02 µs
Floating-point arithmetic, min.	0.12 µs
Timers/Counters and their retentive characteristic	cs
Number of S7 counters	512
S7 counter remanence	adjustable 0 up to 128
S7 counter remanence adjustable	C0C7
Number of S7 times	512
S7 times remanence	adjustable 0 up to 128
S7 times remanence adjustable	not retentive
Data range and retentive characteristic	
Number of flags	8192 Byte
Bit memories retentive characteristic adjustable	adjustable 0 up to 128
Bit memories retentive characteristic preset	MB0 MB15
Number of data blocks	4095
Max. data blocks size	64 KB
Max. local data size per execution level	510 Byte
Blocks	
Number of OBs	15

Number of PGs9248Maximum nesting depth per priority class8Maximum nesting depth additional within an orro DB4Real-mine dock bufferedyesClock buffered periority class0 %Clock buffered periority class0 %Clock buffered periority class10 %Number of perating hours counter8Clock synchronization via PIMasterSlaveSynchronization via PIMasterSlaveSynchronization via PI1248 PyleOutput I/O address area1024 PyleOutput I/O address area1248 PyleI/O address area1264 Pyle<	Number of FBs	2048
Maximum nesting depth additional within an error OB 4 Time Ves Reak-time clock buffered yes Clock buffered period (min.) 6 w Accuracy (max. deviation per dey) 10 s Number of operating hours counter 8 Clock synchronization via Ethernet (NTP) no Address areas (I/O) Input VO address area Input VO address area 1024 Byte Output I/O address area 1024 Byte Digital outputs 244 Integrated digital nouts 16 Integrated analog outputs	Number of FCs	2048
Time Real-time dook buffered yea Clock buffered period (min.) 6 w Accuracy (max. deviaten per day) 10 s Number of operating hours counter 8 Clock synchronization yes Synchronization via MPI Master/Slave Synchronization via MPI Master/Slave Synchronization via Bemeret (NTP) no Address areas (I/O) Input 100 address area Input process image maximal 1024 Byte Oulput Jo address area 1024 Byte Oulput Jo address area 1024 Byte Oulput process image maximal 128 Byte Oulput seareral 272 Digital inputs 272 Digital outputs 264 Digital inputs 16 Integrated digital inputs 16 Integrated digital outputs 64 Analog outputs 64 Analog outputs 64 Analog inputs 64 Analog outputs, central 64 Nategrated analog outputs 0 Global data communication yes Size of GD packets, max. 22 Byte Size of GD packets, max. 22 Byte Size of GD packets, max. 22 Byte Size of GD packets	Maximum nesting depth per priority class	8
Real-time clock buffered period (min.)yesClock buffered period (min.)6 wAccurary (max. deviation per day)10 sNumber of operating hours counter8Clock synchronizationyesSynchronization via MPIMaster/StaveSynchronization via Ethemet (NTP)noAddress area1024 ByteDutu U dodress area1024 ByteOutput I/O address area1024 ByteOutput I/O address area1024 ByteOutput process image maximal128 ByteOutput process image maximal272Ogtal outputs264Digital nuputs16Integrated digital inputs16Integrated digital inputs8Analog outputs64Analog outputs64Analog outputs64Analog inputs0Integrated analog inputs0Integrated analog inputs0Analog outputs, central64Analog outputs, central64Analog outputs0Communication functionsyesPG/OP channelyesStar of Da pocks, max.2Star of Da pocks, max.2Star of Da pocks, max.3Star of Op actes, max.3Star of Op actes, max.3Star of Op actes, max.3Star of Op actes, max.4Star of Op actes, max.4Star of Op actes, max.3Star of Op actes, max.3Star of Op actes, max.3Sta	Maximum nesting depth additional within an error OB	4
Clock buffered period (min.)6 wAccuracy (max. deviation per day)10 sNumber of operating hours counter8Clock synchronizationyesSynchronization via Ethernet (NTP)noAddress areas (I/O)Iuput I/O address areaDuput I/O address area1024 ByteOutput I/O address area1024 ByteOutput I/O address area1024 ByteDigital notputs272Digital notputs272Digital notputs284Digital notputs284Digital notputs284Digital notputs16Integrated digital outputs8Analog outputs64Analog outputs64Analog notputs64Analog notputs0Integrated digital outputs0Integrated digital outputs0CommunicationyesGlobal data communicationyesSize of OD packets, max.22 ByteSize of OD packets, max.32	Time	
Acouracy (max. deviation per day)10 sNumber of operating hours counter8Clock synchronizationyesSynchronization via MPIMastar/SlaveSynchronization via MPImoAddress areas (I/O)noInput I/O address area1024 ByteOutput I/O address area1024 ByteInput process image maximal128 ByteOutput process image maximal128 ByteOutput process image maximal272Digital outputs272Digital outputs central272Digital outputs central272Digital outputs central64Analog inputs64Analog outputs64Analog outputs64Analog outputs0Integrated digital outputs64Analog outputs0Integrated analog outputs0Number of OperationsyesNumber of OperationsyesStace of Operationsyes <td>Real-time clock buffered</td> <td>yes</td>	Real-time clock buffered	yes
Number of operating hours counter8Clock synchronizationyesSynchronization via KIPIMaster/SlaveSynchronization via KIPInoAddress areas1024 ByteOutput I/O address area1024 ByteOutput I/O address area1024 ByteOutput I/O address area1024 ByteOutput I/O address area1024 ByteOutput process image maximal128 ByteDigital inputs272Digital outputs264Digital inputs central272Digital outputs8Analog inputs64Analog inputs64Analog inputs0Integrated digital outputs64Analog outputs0Communication functions90sPG/OP channelyosStasic communicationyesStasic communication user data per job76 ByteS7 obsic communication, user data per job76 ByteS7 communication, user data per job160 ByteS7 communication, user data per job76 ByteS7 communication, user data per job76 ByteS7 communication, user data per job160 Byte	Clock buffered period (min.)	6 w
Clock synchronization via MPIyesSynchronization via MPIMaster/SlaveSynchronization via Ethernet (NTP)noAddress areas (I/O)IUUnput I/D address area1024 ByteOutput I/O address area1024 ByteOutput process image maximal128 ByteOutput process image maximal128 ByteOutput process image maximal128 ByteOutput process image maximal272Digital inputs272Digital outputs264Digital inputs central272Digital outputs oentral8Analog inputs64Analog outputs64Analog outputs64Analog outputs0Integrated digital outputs64Analog outputs0Integrated analog inputs0Integrated analog outputs0CommunicationyesQiOP channelyesGlobal data communicationyesNumber of GD circuits, max.4Ste and CommunicationyesST basic communication serveryesST communication serveryesST communication serveryesST communication server32PWM channels2PWM channels2PWM channels0Prior outputHighside with 1.1kOhm puldown	Accuracy (max. deviation per day)	10 s
Synchronization via Ethernet (NTP) no Address areas (I/O) Input I/O address area 1024 Byte Input I/O address area 1024 Byte Input I/O address area 1024 Byte Input process image maximal 128 Byte Output I/O address area 1024 Byte Output process image maximal 128 Byte Digital inputs 272 Digital outputs central 272 Digital outputs central 264 Integrated digital outputs 16 Integrated digital outputs 8 Analog outputs 64 Analog outputs 64 Analog outputs 0 Communication functions 9 PG/OP chanel yes Global data communication yes Stae of GD packets, max. 22 Byte S7 basic communication user data per job 76 Byte S7 communication, user data per job 160 Byte Number of GD circuits, max. 32 S7 communication, user data per job 76 Byte S7 communication, user data per job 100 Byte Number of concentions, max. 32 S7 communication, user data per job 100 Byte Number of concentions, max. 32 S7 communication as client <td>Number of operating hours counter</td> <td>8</td>	Number of operating hours counter	8
Synchronization via Ethernet (NTP) no Address area 1024 Byte Output I/O address area 1024 Byte Output process image maximal 128 Byte Output process image maximal 128 Byte Digital inputs 272 Digital outputs central 272 Digital outputs central 264 Integrated digital nputs 16 Integrated digital outputs 8 Analog inputs 64 Analog outputs, central 64 Integrated analog inputs 0 Ordentunction functions PGOP chanel PGOP chanel yes Global data communication yes Sta ef Op packets, max. 22 Byte S7 communication user data per job 76 Byte S7 communication a server yes S7 communication a server yes S7 communication as server yes S7 commu	Clock synchronization	yes
Address area1024 ByteInput I/O address area1024 ByteOutput I/O address area1024 ByteInput process image maximal128 ByteOutput process image maximal128 ByteDigital inputs272Digital inputs284Digital inputs central272Digital inputs central272Digital inputs16Integrated digital inputs16Integrated digital outputs84Analog inputs64Analog inputs64Analog outputs64Analog outputs0Integrated analog inputs0Integrated analog inputs0Integrated analog outputs0Communication functionsyesPG/OP channelyesSize of CD packets, max.22 ByteS7 communicationyesS7 communicationyesS7 communicationyesS7 communication use relate-S7 communication use relate-S7 communication use relate-S7 communication as alerit-S7 communication as alerit-S7 communication as alerit-S7 communication as alerit2PWM data0.1 ms / msPWM data0.1 ms / msPWM data0.5 * Peried durationType of outputHighside with 1.1kOhm puldown	Synchronization via MPI	Master/Slave
Input I/O address area1024 ByteOutput I/O address area1024 ByteInput process image maximal128 ByteOutput process image maximal128 ByteDigital notus272Digital notus264Digital inputs central264Digital inputs central264Integrated digital inputs16Integrated digital inputs64Analog inputs64Analog inputs64Analog inputs64Analog outputs64Analog outputs0Integrated analog inputs0Integrated analog inputs0Integrated analog outputs0Score9PG/OP channelyesSize of GD packets, max.2Size of GD packets, max.2Size of CommunicationyesST communication user data per job76 ByteST communication user data per job160 ByteNumber of connections, max.32ST communication as elient-ST communication serveryesST communication serveryesST communication server160 ByteNumber of connections, max.32PWM data0.1 ms / 1 msPWM data0.1 ms / 1 msPWM data0.0.5 * Period durationType of outputHighside with 1.1 kOhm puldown	Synchronization via Ethernet (NTP)	no
Output I/O address area1024 ByteInput process image maximal128 ByteOutput process image maximal128 ByteDigital inputs272Digital inputs272Digital outputs central264Digital outputs central264Integrated digital inputs16Integrated digital outputs8Analog inputs64Analog outputs, central64Analog outputs, central64Analog outputs, central64Analog outputs, central64Analog outputs, central64Analog outputs, central64Analog outputs, central0Communication functions9PG/OP channelyesGlobal data communicationyesSize of GD packets, max.22 ByteS7 basic communicationyesS7 communication, user data per job76 ByteS7 communicationyesS7 communication, user data per job160 ByteNumber of connections, max.32PWM dta2PWM dtan2PWM time basis0.1 ms/1 msPeriod length465535 f time baseMinimur pulse width00.5 * Period durationType of outputHighside with 1.1kOhm pulldown	Address areas (I/O)	
Input process image maximal128 ByteOutput process image maximal128 ByteDigital inputs272Digital outputs264Digital inputs central272Digital outputs central264Integrated digital outputs central64Analog inputs64Analog outputs central64Analog outputs central64Analog outputs64Analog outputs0Integrated digital outputs64Analog outputs0Integrated analog outputs0Integrated analog outputs0Integrated analog outputs0PG/OP channelyesPG/OP channelyesSize of Op ackets, max.22 ByteSize of Op ackets, max.22 ByteSiz of Op ackets, max.22 ByteSiz communicationyesSiz communicat	Input I/O address area	1024 Byte
Dutput process image maximal128 ByteDigital inputs272Digital outputs264Digital outputs central272Digital outputs central264Integrated digital inputs16Integrated digital outputs8Analog inputs64Analog outputs64Analog outputs64Analog outputs64Analog outputs64Analog outputs0Integrated analog outputs0Communication functions0PG/OP channelyesGlobal data communicationyesNumber of GD circuits, max.4Size of GD packets, max.22 ByteS7 basic communicationyesS7 communication, user data per job76 ByteS7 communication as centeryesS7 communication as centeryesS7 communication user data per job160 ByteNumber of concectors, max.32PWM data2PWM data2PWM data0.1 ms / 1 msPreiod length465535 1165535 * time baseMinimum pulse width00.5 * Period durationType of outputHighside with 1.1kOhm pulldown	Output I/O address area	1024 Byte
Digital inputs272Digital outputs264Digital outputs central272Digital outputs central272Digital outputs central264Integrated digital outputs8Analog inputs64Analog outputs64Analog outputs, central64Analog outputs, central64Analog outputs, central64Integrated analog inputs0Integrated analog outputs0Communication functions98PG/OP channelyesSize of GD packets, max.22 ByteS7 basic communicationyesS7 communicationyesS7 communicationyesS7 communicationyesS7 communication serveryesS7 communication server	Input process image maximal	128 Byte
Digital outputs264Digital outputs central272Digital outputs central264Integrated digital inputs16Integrated digital outputs8Analog inputs64Analog outputs64Analog outputs, central64Analog outputs, central64Integrated analog inputs0Integrated analog inputs0Integrated analog outputs, central64Analog outputs, central64Analog outputs, central0Integrated analog outputs0Communication functions0PG/OP channelyesGlobal data communicationyesSize of GD packets, max.22 ByteS7 basic communicationyesS7 communicationyesS7 communicationyesS7 communicationyesS7 communication, user data per job76 ByteS7 communication as serveryesS7 communication, user data per job160 ByteNumber of connections, max.32PWM dataPWM data2PWM data2PWM dita005.* Period durationType of outputHighside with 1.1kOhm pulldown	Output process image maximal	128 Byte
Digital ioputs central272Digital outputs central264Integrated digital ioputs16Integrated digital outputs8Analog ioputs64Analog outputs64Analog outputs, central64Analog outputs, central64Integrated analog outputs0Integrated analog outputs0Communication goutputs0Communication functionsyesPG/OP channelyesSize of GD packets, max.4Size of GD packets, max.22 ByteS7 basic communicationyesS7 communicationyesS7 communication serveryesS7	Digital inputs	272
Digital outputs central264Integrated digital inputs16Integrated digital outputs8Analog inputs64Analog outputs64Analog outputs, central64Analog outputs, central64Integrated analog outputs0Communication surputs0PG/OP channelyesGlobal data communicationyesNumber of GD circuits, max.4Size of GD packets, max.22 ByteS7 basic communicationyesS7 communicationyesS7 communication surpriseyesS7 communicationyesS7 communication surprise160 ByteS7 communication surprise2PWM data-PWM data2PWM data2PWM deta2PWM detainels2PWM up basis0.1 ms / 1 msPeriod length465535 * time baseMinimum pulse width00.5 * Period durationType of outputHighside with 1.1kOhm pulldown	Digital outputs	264
Integrated digital inputs16Integrated digital outputs8Analog inputs64Analog outputs64Analog outputs, central64Analog outputs, central64Integrated analog inputs0Integrated analog outputs0Communication functions9PG/OP channelyesGlobal data communicationyesSize of GD packets, max.22 ByteS7 basic communication, user data per job76 ByteS7 communication as client-S7 communication as client-S7 communication, user data per job160 ByteS7 communication as client-S7 communication as client <td< td=""><td>Digital inputs central</td><td>272</td></td<>	Digital inputs central	272
Integrated digital outputs8Analog inputs64Analog outputs64Analog outputs, central64Analog outputs, central64Integrated analog inputs0Integrated analog outputs0Communication functions9PG/OP channelyesGlobal data communicationyesSize of GD packets, max.4Size of GD packets, max.22 ByteS7 basic communicationyesS7 communication user data per job76 ByteS7 communication a serveryesS7 communication user data per job160 ByteNumber of connections, max.32PWM data-S7 communication user data per job160 ByteNumber of connections, max.32PWM data-PWM channels2PWM data00.5 * Period durationType of outputHighside with 1.1kOhm pulldown	Digital outputs central	264
Analog jouts64Analog outputs64Analog jouts, central64Analog outputs, central64Analog outputs, central64Integrated analog outputs0Integrated analog outputs0Communication functions9PG/OP channelyesGlobal data communicationyesNumber of GD circuits, max.4Size of GD packets, max.22 ByteS7 basic communicationyesS7 basic communicationyesS7 communication user data per job76 ByteS7 communication, user data per job160 ByteS7 communication, user data per job160 ByteNumber of connections, max.32PWM data2PWM channels2PWM data0.1 ms / 1 msPeriod length465535 * time baseMinimum pulse width00.5 * Period durationType of outputHighside with 1.1kOhm pulldown	Integrated digital inputs	16
Analog outputs64Analog inputs, central64Analog outputs, central64Integrated analog inputs0Integrated analog outputs0Communication functions0PG/OP channelyesGlobal data communicationyesNumber of GD circuits, max.4Size of GD packets, max.22 ByteS7 basic communicationyesS7 basic communicationyesS7 communication serveryesS7 communication as serveryesS7 communication serveryesS7 communication user data per job160 ByteNumber of connections, max.32PWM data2PWM data2PWM data2PWM time basis0.1 ms / 1 msPeriod length465535 * time baseMinimum pulse width00.5 * Period durationType of outputHighside with 1.1kOhm pulldown	Integrated digital outputs	8
Analog inputs, central64Analog outputs, central64Integrated analog outputs0Integrated analog outputs0Communication functions0PG/OP channelyesGlobal data communicationyesNumber of GD circuits, max.4Size of GD packets, max.22 ByteS7 basic communicationyesS7 basic communicationyesS7 basic communicationyesS7 communication user data per job76 ByteS7 communication as erveryesS7 communication as client-S7 communication, user data per job160 ByteNumber of connections, max.32PWM data2PWM data2PWM channels2PWM time basis0.1 ms / 1 msPeriod length465535 * time baseMinimum pulse width00.5 * Period durationType of outputHighside with 1.1kOhm pulldown	Analog inputs	64
Analog outputs, central64Integrated analog inputs0Integrated analog outputs0Communication functionsPG/OP channelyesGlobal data communicationyesNumber of GD circuits, max.4Size of GD packets, max.22 ByteS7 basic communicationyesS7 basic communicationyesS7 communication, user data per job76 ByteS7 communication as serveryesS7 communication as client-S7 communication, user data per job160 ByteNumber of connections, max.32PWM data2PWM time basis0.1 ms / 1 msPeriod length465535 * time baseMinimum pulse width00.5 * Period durationType of outputHighside with 1.1kOhm pulldown	Analog outputs	64
Integrated analog inputs0Integrated analog outputs0Communication functionsPG/OP channelyesGlobal data communicationyesNumber of GD circuits, max.4Size of GD packets, max.22 ByteS7 basic communicationyesS7 basic communicationyesS7 communication, user data per job76 ByteS7 communication as serveryesS7 communication as client-S7 communication, user data per job160 ByteS7 communication, user data per job160 ByteVM data2PWM channels2PWM time basis0.1 ms / 1 msPeriod length465535 * time baseMinimum pulse width00.5 * Period durationType of outputHighside with 1.1kOhm pulldown	Analog inputs, central	64
Integrated analog outputs0Communication functionsPG/OP channelyesGlobal data communicationyesNumber of GD circuits, max.4Size of GD packets, max.22 ByteS7 basic communicationyesS7 basic communication, user data per job76 ByteS7 communication as serveryesS7 communication as client-S7 communication, user data per job160 ByteS7 communication, user data per job160 ByteS7 communication, user data per job160 ByteS7 communication, user data per job160 ByteNumber of connections, max.32PWM data-PWM channels2PWM time basis0.1 ms / 1 msPeriod length465535 * time baseMinimum pulse width00.5 * Period durationType of outputHighside with 1.1KOhm pulldown	Analog outputs, central	64
Communication functionsPG/OP channelyesGlobal data communicationyesNumber of GD circuits, max.4Size of GD packets, max.22 ByteS7 basic communicationyesS7 basic communication, user data per job76 ByteS7 communication as serveryesS7 communication as serveryesS7 communication as client-S7 communication, user data per job160 ByteS7 communication, user data per job160 ByteNumber of connections, max.32PWM data-PVM channels2PVM time basis0.1 ms / 1 msPeriod length465535 / 165535 * time baseMinimum pulse width00.5 * Period durationType of outputHighside with 1.1kOhm pulldown	Integrated analog inputs	0
PG/OP channelyesGlobal data communicationyesNumber of GD circuits, max.4Size of GD packets, max.22 ByteS7 basic communicationyesS7 basic communication, user data per job76 ByteS7 communicationyesS7 communication as serveryesS7 communication as client-S7 communication, user data per job160 ByteS7 communication, user data per job160 ByteS7 communication, user data per job160 ByteVumber of connections, max.32PWM data2PVW dtannels2PvVM time basis0.1 ms / 1 msPeriod length465535 / 165535 * time baseMinimum pulse width00.5 * Period durationType of outputHighside with 1.1kOhm pulldown	Integrated analog outputs	0
Global data communicationyesNumber of GD circuits, max.4Size of GD packets, max.22 ByteS7 basic communicationyesS7 basic communication, user data per job76 ByteS7 communicationyesS7 communication as serveryesS7 communication as client-S7 communication, user data per job160 ByteS7 communication, user data per job160 ByteS7 communication, user data per job160 ByteNumber of connections, max.32PWM data-PVM channels2PVM time basis0.1 ms / 1 msPeriod length465535 / 16553 * time baseMinimum pulse width00.5 * Period durationType of outputHighside with 1.1kOhm pulldown	Communication functions	
Number of GD circuits, max.4Size of GD packets, max.22 ByteS7 basic communicationyesS7 basic communication, user data per job76 ByteS7 communicationyesS7 communication as serveryesS7 communication as client-S7 communication, user data per job160 ByteS7 communication, user data per job160 ByteNumber of connections, max.32PWM dataPVW channels2PVM time basis0.1 ms / 1 msPeriod length465535 / 165535 * time baseMinimum pulse width00.5 * Period durationType of outputHighside with 1.1kOhm pulldown	PG/OP channel	yes
Size of GD packets, max.22 ByteS7 basic communicationyesS7 basic communication, user data per job76 ByteS7 communicationyesS7 communication as serveryesS7 communication as client-S7 communication, user data per job160 ByteS7 communication, user data per job160 ByteNumber of connections, max.32PWM data-PVM channels2PVM time basis0.1 ms / 1 msPeriod length465535 / 165535 * time baseMinimum pulse width00.5 * Period durationType of outputHighside with 1.1kOhm pulldown	Global data communication	yes
S7 basic communicationyesS7 basic communication, user data per job76 ByteS7 communicationyesS7 communication as serveryesS7 communication as serveryesS7 communication as client-S7 communication, user data per job160 ByteNumber of connections, max.32PWM data-PVWM channels2PWM time basis0.1 ms / 1 msPeriod length465535 / 165535 * time baseMinimum pulse width00.5 * Period durationType of outputHighside with 1.1kOhm pulldown	Number of GD circuits, max.	4
S7 basic communication, user data per job76 ByteS7 communicationyesS7 communication as serveryesS7 communication as client-S7 communication, user data per job160 ByteNumber of connections, max.32PWM data-PVWM channels2PWM time basis0.1 ms / 1 msPeriod length465535 * time baseMinimum pulse width00.5 * Period durationType of outputHighside with 1.1kOhm pulldown	Size of GD packets, max.	22 Byte
S7 communicationyesS7 communication as serveryesS7 communication as client-S7 communication, user data per job160 ByteNumber of connections, max.32PWM dataPWM channels2PWM time basis0.1 ms / 1 msPeriod length465535 / 165535 * time baseMinimum pulse width00.5 * Period durationType of outputHighside with 1.1kOhm pulldown	S7 basic communication	yes
S7 communication as serveryesS7 communication as client-S7 communication, user data per job160 ByteNumber of connections, max.32PWM data-PWM channels2PWM time basis0.1 ms / 1 msPeriod length465535 / 165535 * time baseMinimum pulse width00.5 * Period durationType of outputHighside with 1.1kOhm pulldown	S7 basic communication, user data per job	76 Byte
S7 communication as client-S7 communication, user data per job160 ByteNumber of connections, max.32PWM data2PWM channels2PWM time basis0.1 ms / 1 msPeriod length465535 / 165535 * time baseMinimum pulse width00.5 * Period durationType of outputHighside with 1.1kOhm pulldown	S7 communication	yes
S7 communication, user data per job160 ByteNumber of connections, max.32PWM data2PWM channels2PWM time basis0.1 ms / 1 msPeriod length465535 / 165535 * time baseMinimum pulse width00.5 * Period durationType of outputHighside with 1.1kOhm pulldown	S7 communication as server	yes
Number of connections, max.32PWM data2PWM channels0.1 ms / 1 msPWM time basis0.1 ms / 1 msPeriod length465535 / 165535 * time baseMinimum pulse width00.5 * Period durationType of outputHighside with 1.1kOhm pulldown	S7 communication as client	-
PWM dataPWM channels2PWM time basis0.1 ms / 1 msPeriod length465535 / 165535 * time baseMinimum pulse width00.5 * Period durationType of outputHighside with 1.1kOhm pulldown	S7 communication, user data per job	160 Byte
PWM channels2PWM time basis0.1 ms / 1 msPeriod length465535 / 165535 * time baseMinimum pulse width00.5 * Period durationType of outputHighside with 1.1kOhm pulldown	Number of connections, max.	32
PWM time basis0.1 ms / 1 msPeriod length465535 / 165535 * time baseMinimum pulse width00.5 * Period durationType of outputHighside with 1.1kOhm pulldown	PWM data	
Period length465535 / 165535 * time baseMinimum pulse width00.5 * Period durationType of outputHighside with 1.1kOhm pulldown	PWM channels	2
Minimum pulse width 00.5 * Period duration Type of output Highside with 1.1kOhm pulldown	PWM time basis	0.1 ms / 1 ms
Type of output Highside with 1.1kOhm pulldown	Period length	465535 / 165535 * time base
	Minimum pulse width	00.5 * Period duration
Functionality Sub-D interfaces	Type of output	Highside with 1.1kOhm pulldown
	Functionality Sub-D interfaces	

	YASKAWA
Туре	X2
Type of interface	RS485
Connector	Sub-D, 9-pin, female
Electrically isolated	
MPI	yes
MP ² I (MPI/RS232)	
DP master	
DP slave	-
Point-to-point interface	
5V DC Power supply	max. 90mA, non-isolated
24V DC Power supply	max. 100mA, non-isolated
Туре	X3
Type of interface	RS485
Connector	Sub-D, 9-pin, female
Electrically isolated	yes
MPI	-
MP ² I (MPI/RS232)	-
DP master	-
DP slave	
Point-to-point interface	yes
5V DC Power supply	max. 90mA, isolated
24V DC Power supply	max. 100mA, non-isolated
Functionality MPI	
Number of connections, max.	32
PG/OP channel	yes
Routing	
Global data communication	yes
S7 basic communication	yes
S7 communication	yes
S7 communication as server	yes
S7 communication as client	-
Transmission speed, min.	19.2 kbit/s
Transmission speed, max.	187.5 kbit/s
Functionality PROFIBUS master	
Number of connections, max.	
PG/OP channel	
Routing	-
S7 basic communication	-
S7 communication	-
S7 communication as server	-
S7 communication as client	-
Activation/deactivation of DP slaves	-
Direct data exchange (slave-to-slave communication)	-

-

-

-

_

DPV1

Transmission speed, min.

Transmission speed, max.

Number of DP slaves, max.

Address range inputs, max.	-
Address range outputs, max.	-
User data inputs per slave, max.	-
User data outputs per slave, max.	-
Functionality PROFIBUS slave	
Number of connections, max.	-
PG/OP channel	-
Routing	-
S7 communication	-
S7 communication as server	-
S7 communication as client	-
Direct data exchange (slave-to-slave communication)	-
DPV1	-
Transmission speed, min.	-
Transmission speed, max.	-
Automatic detection of transmission speed	-
Transfer memory inputs, max.	
Transfer memory outputs, max.	
Address areas, max.	-
User data per address area, max.	
Functionality RJ45 interfaces	
Туре	X5
Type of interface	Ethernet 10/100 MBit
Connector	RJ45
Electrically isolated	yes
PG/OP channel	yes
Number of connections, max.	4
Productive connections	
Point-to-point communication	
PtP communication	yes
Interface isolated	yes
RS232 interface	-
RS422 interface	-
RS485 interface	yes
Connector	Sub-D, 9-pin, female
Transmission speed, min.	150 bit/s
Transmission speed, max.	115.5 kbit/s
Cable length, max.	500 m
Point-to-point protocol	
ASCII protocol	yes
STX/ETX protocol	yes
3964(R) protocol	yes
RK512 protocol	•
USS master protocol	yes
Modbus master protocol	yes
Modbus slave protocol	-
Special protocols	•
Housing	

Material	PPE
Mounting	Rail System 300
Mechanical data	
Dimensions (WxHxD)	80 mm x 125 mm x 120 mm
Net weight	410 g
Weight including accessories	-
Gross weight	-
Environmental conditions	
Operating temperature	0 °C to 60 °C
Storage temperature	-25 °C to 70 °C
Certifications	
UL certification	yes
KC certification	yes