SIEMENS

Data sheet

6ES7677-2SB42-0GK0



SIMATIC ET 200SP Open Controller, CPU 1515SP PC2 F + HMI 128PT, 8 GB RAM (basic device 6ES7677-2DB40-0AA0), 128 GB CFast with Windows 10 IoT Enterprise LTSC 2019 64-bit, S7-1500 Failsafe Software Controller CPU 1505SP F V2x and WinCC Runtime Advanced V17 preinstalled, with 128 PowerTags license; interfaces: 1x slot CFast, 1x slot SD/MMC, 1x connection for ET 200SP BusAdapter PROFINET, 1x 10/100/1000 Mbps Ethernet, 2x USB 3.0, 2x USB 2.0, 1x DisplayPort; documentation on CFast,

F	١g	ur	e s	Imi	lar

General information	
Product type designation	CPU 1515SP PC2 F
HW functional status	from FS04
Firmware version	V20.8
Engineering with	
 STEP 7 TIA Portal configurable/integrated from version 	V16
Installed software	
Visualization	WinCC Runtime Advanced V16
Control	S7-1500 Software Controller CPU 1505SP F
Configuration control	
via dataset	Yes
Control elements	
Mode selector switch	1
Supply voltage	
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Mains buffering	
 Mains/voltage failure stored energy time 	5 ms
Input current	
Current consumption (rated value)	1.8 A; Full processor load, incl. ET 200SP modules and using USB
Current consumption (in no-load operation), typ.	0.5 A
Current consumption, max.	2.9 A
l²t	0.426 A ² ·s; with starting current inrush
Power	
Active power input, max.	55 W; incl. ET 200SP modules and using USB
Infeed power to the backplane bus	8.75 W
Power loss	
Power loss, typ.	16 W
Processor	
Processor type	Intel Atom E3940, 1.6 GHz, 4 cores
Memory	
Type of memory	DDR3L
Main memory	8 GB RAM
CFast memory card	Yes; 128 GB flash memory
SIMATIC memory card required	No
Work memory	
 integrated (for program) 	1.5 Mbyte
 integrated (for data) 	5 Mbyte

 integrated (for CPU function library of CPU Runtime) 	20 Mbyte		
Load memory			
integrated (on PC mass storage)	320 Mbyte		
Backup			
• with UPS	Yes; all memory areas declared retentive		
with non-volatile memory	Yes		
CPU-blocks			
Number of elements (total)	6 000; In addition to blocks such as DBs, FBs and FCs, UDTs, global		
Number of elements (total)	constants, etc. are also regarded as elements		
DB			
 Number, max. 	5 999; Number range: 1 to 65535		
• Size, max.	5 Mbyte		
FB			
• Number, max.	5 998; Number range: 1 to 65535		
• Size, max.	1 024 kbyte		
FC			
 Number, max. 	5 999; Number range: 1 to 65535		
• Size, max.	1 024 kbyte		
OB			
• Size, max.	1 024 kbyte		
Number of free cycle OBs	100		
Number of time alarm OBs	20		
Number of delay alarm OBs	20		
Number of cyclic interrupt OBs	20		
Number of process alarm OBs	50		
Number of DPV1 alarm OBs	3		
Number of isochronous mode OBs	1		
Number of technology synchronous alarm OBs	2		
Number of startup OBs	100		
Number of asynchronous error OBs	4		
Number of synchronous error OBs	2		
Number of diagnostic alarm OBs	- 1		
Nesting depth			
per priority class	24; Up to 8 possible for F-blocks		
Counters, timers and their retentivity			
S7 counter			
Number	2 048		
Retentivity			
— adjustable	Yes		
IEC counter			
Number	Any (only limited by the main memory)		
Retentivity			
— adjustable	Yes		
S7 times			
Number	2 048		
Number	2 048		
● Number Retentivity	2 048 Yes		
 Number Retentivity — adjustable 			
● Number Retentivity	Yes		
Number Retentivity adjustable IEC timer Number			
Number Retentivity adjustable IEC timer Number Retentivity	Yes		
Number Retentivity adjustable IEC timer Number Retentivity adjustable	Yes Any (only limited by the main memory)		
Number Retentivity — adjustable IEC timer Number Retentivity — adjustable Data areas and their retentivity	Yes Any (only limited by the main memory) Yes		
Number Retentivity	Yes Any (only limited by the main memory)		
Number Retentivity adjustable IEC timer Number Retentivity adjustable Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag	Yes Any (only limited by the main memory) Yes 410 kbyte; For storage in NVRAM; for storage in mass storage 5 242 020 bytes		
Number Retentivity adjustable IEC timer Number Retentivity adjustable Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag •Size, max.	Yes Any (only limited by the main memory) Yes 410 kbyte; For storage in NVRAM; for storage in mass storage 5 242 020 bytes 16 kbyte		
Number Retentivity adjustable IEC timer Number Retentivity adjustable Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag	Yes Any (only limited by the main memory) Yes 410 kbyte; For storage in NVRAM; for storage in mass storage 5 242 020 bytes		
 Number Retentivity adjustable IEC timer Number Retentivity adjustable Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag Size, max. Number of clock memories Data blocks 	Yes Any (only limited by the main memory) Yes 410 kbyte; For storage in NVRAM; for storage in mass storage 5 242 020 bytes 16 kbyte 8; 8 clock memory bit, grouped into one clock memory byte		
 Number Retentivity adjustable IEC timer Number Retentivity adjustable Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag Size, max. Number of clock memories Data blocks Retentivity adjustable 	Yes Any (only limited by the main memory) Yes 410 kbyte; For storage in NVRAM; for storage in mass storage 5 242 020 bytes 16 kbyte 8; 8 clock memory bit, grouped into one clock memory byte		
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 Number Retentivity adjustable IEC timer Number Retentivity adjustable Data areas and their retentivity Retentive data area (incl. timers, counters, flags), max. Flag Size, max. Number of clock memories Data blocks Retentivity adjustable 	Yes Any (only limited by the main memory) Yes 410 kbyte; For storage in NVRAM; for storage in mass storage 5 242 020 bytes 16 kbyte 8; 8 clock memory bit, grouped into one clock memory byte		

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Address area	
Number of IO modules	8 192
I/O address area	0.102
Inputs	32 kbyte; All inputs are in the process image
Outputs	32 kbyte; All outputs are in the process image
Subprocess images	52 kbyte, All bulputs are in the process image
Number of subprocess images, max.	32
· •	52
Hardware configuration	N.
Integrated power supply	Yes
Number of distributed IO systems	20
Number of DP masters	
• Via CM	1
Number of IO Controllers	
• via PC interfaces	1
Rack	
 Modules per rack, max. 	64; CPU 1515SP PC + 64 modules + server module
Quantity of operable ET 200SP modules, max.	64
 Quantity of operable ET 200AL modules, max. 	16
 Number of lines, max. 	1
PtP CM	
Number of PtP CMs	the number of connectable PtP CMs is only limited by the number of available
Time of day	slots
Time of day	
Clock	
•Туре	Hardware clock
Hardware clock (real-time)	Yes; Resolution: 1 s
Backup time	6 wk; At 40 °C ambient temperature, typically
 Deviation per day, max. 	10 s; Typ.: 2 s
Clock synchronization	
supported	Yes
• to DP, master	Yes
 on Ethernet via NTP 	Yes
 on Windows clock, device 	Yes
Interfaces	
Number of industrial Ethernet interfaces	2
Number of PROFINET interfaces	1
Number of PROFIBUS interfaces	1
Number of RS 485 interfaces	1; Via CM DP module
Number of USB interfaces	4; 2x USB 2.0, 2x USB 3.0 on front side
Number of SD card slots	1
Video interfaces	
Graphics interface	1x DisplayPort
1. Interface	
Interface type	PROFINET
automatic detection of transmission rate	Yes
Autonegotiation	Yes
	Yes
Autocrossing Number of connections	88
Interface types	Ver: Vie Bue Adenter BA (): D 145
RJ 45 (Ethernet)	Yes; Via BusAdapter BA 2x RJ45
— Transmission rate, max.	100 Mbit/s
— Industrial Ethernet status LED	Yes
Number of ports	2
 integrated switch 	Yes
BusAdapter (PROFINET)	Yes; Compatible BusAdapter: BA 2x RJ45, BA 2x FC, BA 2x SCRJ (from FS03, V2.2), BA SCRJ / RJ45 (from FS03, V3.1), BA SCRJ / FC (from FS03, V3.1), BA 2x LC (from FS03, V3.3), BA LC / RJ45 (from FS03, V3.3), BA LC / FC (from FS03, V3.3)
Protocols	
PROFINET IO Controller	Yes
PROFINET IO CONTONET	Yes
SIMATIC communication	Yes
	163

Open IE communication	Vec		
Open IE communication	Yes		
Web server PROFINET IO Controller	Yes		
Services — Isochronous mode	Yes		
— shortest clock pulse	500 µs		
— IRT	Yes		
— PROFlenergy	Yes		
— Prioritized startup	Yes; max. 32 PROFINET devices; if you want to use the "Prioritized startup" functionality in STEP 7 for the PROFINET interface of the CPU, the CPU and the device must be separated by means of a switch (e.g. SCALANCE X205)		
- Number of connectable IO Devices, max.	128		
 — Of which IO devices with IRT, max. 	64		
— of which in line, max.	64		
 — Number of connectable IO Devices for RT, max. 	128		
— of which in line, max.	128		
 — Number of IO Devices that can be simultaneously activated/deactivated, max. 	8		
 IO Devices changing during operation (partner ports), supported 	Yes		
- Number of IO Devices per tool, max.	8		
— Updating times	The minimum value of the update time also depends on communication share set for PROFINET IO, on the number of IO devices, and on the quantity of configured user data		
Update time for IRT			
— for send cycle of 500 μs	500 µs to 8 ms		
— for send cycle of 1 ms	1 ms to 16 ms		
— for send cycle of 2 ms	2 ms to 32 ms		
- for send cycle of 4 ms	4 ms to 64 ms		
- With IRT and parameterization of "odd" send cycles	Update time = set "odd" send clock (any multiple of 125 $\mu s:$ 625 μs 3 875 $\mu s)$ minimum cycle time start from 500 μs		
Update time for RT			
— for send cycle of 500 µs	500 µs to 256 ms		
— for send cycle of 1 ms	1 ms to 512 ms		
- for send cycle of 2 ms	2 ms to 512 ms		
— for send cycle of 4 ms	4 ms to 512 ms		
Address area			
— Inputs, max.	8 kbyte		
— Outputs, max.	8 kbyte		
PROFINET IO Device			
Services			
— Isochronous mode	No		
— shortest clock pulse	500 µs		
— IRT	Yes		
— IR I — PROFlenergy	Yes		
— Prioritized startup	Yes		
— Shared device	Yes		
 Number of IO Controllers with shared device, max. 	4		
Asset management record	Yes		
2. Interface			
Interface type	Integrated Ethernet interface		
automatic detection of transmission rate	Yes		
Autonegotiation	Yes		
Autocrossing	Yes		
Interface types			
• RJ 45 (Ethernet)	Yes; Integrated		
— Transmission rate, max.	1 000 Mbit/s		
 Industrial Ethernet status LED 	No		
Number of ports	1		
3. Interface			
Interface type	PROFIBUS with CM DP		
Number of connections	44		
Interface types			

• RS 485	Yes
RS 485 Protocols	
PROFIBUS DP master	Yes
PROFIBUS DP device	
SIMATIC communication	Yes
PROFIBUS DP master	Yes
	125
max. number of DP devices	125
Services	Ne
— Equidistance	No
— Isochronous mode Address area	No
— Inputs, max.	8 kbyte
— Outputs, max.	8 kbyte
Interface types	o kuyte
RS 485	12 Mbit/s
Transmission rate, max. Protocolo	12 MDIVS
Protocols	
PROFIsafe	Yes; V2.4 / V2.6
Number of connections	00
Number of connections, max.	88
Number of connections reserved for ES/HMI/web	10
Number of S7 routing paths	16
Redundancy mode	
Media redundancy	N
- MRP	Yes
— MRPD	Yes 200 ms
— Switchover time on line break, typ.	
— Number of stations in the ring, max. SIMATIC communication	50
PG/OP communication	Yes
	Yes
 S7 routing S7 communication, as server 	Yes
S7 communication, as client	Yes
User data per job, max.	64 kbyte; BSEND/BRCV: 64 KB; PUT/GET: 960 bytes
Open IE communication	04 NUYLE, BSEND/BROV. 04 RB, FOT/GET. 300 Dyles
• TCP/IP	Yes
 Data length, max. ISO-on-TCP (RFC1006) 	64 kbyte Yes
	64 kbyte
 Data length, max. UDP 	Yes
	2 048 byte
 Data length, max. SNMP 	Yes
• DCP	Yes
• LLDP	Yes
Web server	
• HTTP	Yes; Via Windows and PROFINET interface
• HTTPS	Yes; Via Windows and PROFINET interface
OPC UA	
Runtime license required	Yes; "Small" license required
OPC UA Client	Yes; From SW CPU 1505SP V2.6
OPC UA Server	Yes; Data access (read, write, subscribe), runtime license required
Application authentication	Yes; Available security policies: None, Basic128Rsa15, Basic256Rsa15,
	Basic256Sha256
Security policies	Yes; Available security policies: None, Basic128Rsa15, Basic256Rsa15,
Licor authentication	Basic256Sha256
— User authentication	Yes; "anonymous" or by user name & password
Further protocols	
MODBUS S7 massage functions	Yes; MODBUS TCP
S7 message functions	20
Number of login stations for message functions, max.	32 Voc
Program alarms	Yes

Number of configurable program messages, max.	10 000
Number of simultaneously active program alarms	1 000
Number of program alarms	1 000
Number of alarms for system diagnostics	200
Number of alarms for motion technology objects	160
Test commissioning functions	
Joint commission (Team Engineering)	Yes; Parallel online access possible for up to 8 engineering systems
Status block	Yes; up to 8 simultaneously
Single step	No
Number of breakpoints	8
Status/control	
Status/control variable	Yes
Variables	Inputs, outputs, memory bits, DB, times, counters
 Number of variables, max. 	
— of which status variables, max.	200
— of which control variables, max.	200
Forcing	
• Forcing	Yes
Forcing, variables	Inputs, outputs
 Number of variables, max. 	200
Diagnostic buffer	
• present	Yes
Number of entries, max.	1 000
— of which powerfail-proof	300
Traces	
 Number of configurable Traces 	4
Memory size per trace, max.	512 kbyte
Interrupts/diagnostics/status information	
Diagnostics indication LED	
RUN/STOP LED	Yes
• ERROR LED	Yes
MAINT LED	Yes
Supported technology objects	
Motion Control	Yes
 Number of available Motion Control resources for 	2 400
 Number of available Motion Control resources for technology objects 	2 400
	2 400
technology objects	2 400 40; per axis
technology objectsRequired Motion Control resources	
 technology objects Required Motion Control resources per speed-controlled axis 	40; per axis
technology objects Required Motion Control resources — per speed-controlled axis — per positioning axis 	40; per axis 80; per axis
technology objects Required Motion Control resources per speed-controlled axis per positioning axis per synchronous axis 	40; per axis 80; per axis 160; per axis
technology objects Required Motion Control resources per speed-controlled axis per positioning axis per synchronous axis per external encoder 	40; per axis 80; per axis 160; per axis 80; per external encoder
technology objects Required Motion Control resources per speed-controlled axis per positioning axis per synchronous axis per external encoder per output cam 	40; per axis 80; per axis 160; per axis 80; per external encoder 20; per cam
technology objects Required Motion Control resources per speed-controlled axis per positioning axis per synchronous axis per external encoder per output cam per cam track 	40; per axis 80; per axis 160; per axis 80; per external encoder 20; per cam 160; per cam track
technology objects Required Motion Control resources	40; per axis 80; per axis 160; per axis 80; per external encoder 20; per cam 160; per cam track
technology objects	40; per axis 80; per axis 160; per axis 80; per external encoder 20; per cam 160; per cam track 40; per probe
 technology objects Required Motion Control resources per speed-controlled axis per positioning axis per synchronous axis per external encoder per output cam per cam track per probe Positioning axis Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle 	40; per axis 80; per axis 160; per axis 80; per external encoder 20; per cam 160; per cam track 40; per probe 15 30
technology objects Required Motion Control resources	 40; per axis 80; per axis 160; per axis 80; per external encoder 20; per cam 160; per cam track 40; per probe 15 30 Yes; Universal PID controller with integrated optimization
technology objects Required Motion Control resources per speed-controlled axis per oper objects per external encoder per output cam per cam track per probe Positioning axis Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle of 8 ms (typical value) Controller PID_Compact PID_SStep	 40; per axis 80; per axis 160; per axis 80; per external encoder 20; per cam 160; per cam track 40; per probe 15 30 Yes; Universal PID controller with integrated optimization Yes; PID controller with integrated optimization for valves
technology objects Required Motion Control resources	 40; per axis 80; per axis 160; per axis 80; per external encoder 20; per cam 160; per cam track 40; per probe 15 30 Yes; Universal PID controller with integrated optimization
technology objects Required Motion Control resources per speed-controlled axis per oper objects per external encoder per output cam per cam track per probe Positioning axis Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle of 8 ms (typical value) Controller PID_Compact PID_SStep	 40; per axis 80; per axis 160; per axis 80; per external encoder 20; per cam 160; per cam track 40; per probe 15 30 Yes; Universal PID controller with integrated optimization Yes; PID controller with integrated optimization for valves
technology objects Required Motion Control resources per speed-controlled axis per positioning axis per synchronous axis per external encoder per output cam per cam track per probe Positioning axis Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle of 8 ms (typical value) Controller PID_Compact PID_Temp Counting and measuring High-speed counter	 40; per axis 80; per axis 160; per axis 80; per external encoder 20; per cam 160; per cam track 40; per probe 15 30 Yes; Universal PID controller with integrated optimization Yes; PID controller with integrated optimization for valves
technology objects Required Motion Control resources per speed-controlled axis per positioning axis per synchronous axis per external encoder per output cam per cam track per probe Positioning axis Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle of 8 ms (typical value) Controller PID_Compact PID_3Step PID-Temp Counting and measuring	 40; per axis 80; per axis 160; per axis 80; per external encoder 20; per cam 160; per cam track 40; per probe 15 30 Yes; Universal PID controller with integrated optimization Yes; PID controller with integrated optimization for valves Yes; PID controller with integrated optimization for temperature
technology objects Required Motion Control resources per speed-controlled axis per positioning axis per synchronous axis per external encoder per output cam per cam track per probe Positioning axis Number of positioning axes at motion control cycle of 4 ms (typical value) Number of positioning axes at motion control cycle of 8 ms (typical value) Controller PID_Compact PID_Temp Counting and measuring High-speed counter	 40; per axis 80; per axis 160; per axis 80; per external encoder 20; per cam 160; per cam track 40; per probe 15 30 Yes; Universal PID controller with integrated optimization Yes; PID controller with integrated optimization for valves Yes; PID controller with integrated optimization for temperature
technology objects Required Motion Control resources	 40; per axis 80; per axis 160; per axis 80; per external encoder 20; per cam 160; per cam track 40; per probe 15 30 Yes; Universal PID controller with integrated optimization Yes; PID controller with integrated optimization for valves Yes; PID controller with integrated optimization for temperature Yes
technology objects Required Motion Control resources	40; per axis 80; per axis 160; per axis 80; per external encoder 20; per cam 160; per cam track 40; per probe 15 30 Yes; Universal PID controller with integrated optimization Yes; PID controller with integrated optimization for valves Yes; PID controller with integrated optimization for temperature Yes
technology objects Required Motion Control resources	40; per axis 80; per axis 160; per axis 80; per external encoder 20; per cam 160; per cam track 40; per probe 15 30 Yes; Universal PID controller with integrated optimization Yes; PID controller with integrated optimization for valves Yes; PID controller with integrated optimization for temperature Yes

Intervention Processing of DB 1384/-1 PLs • Processing of DB according to DB 1384/-1 PLs • Low demant mode PFDerg in according at the ar 100 hours) - Low demant mode PFDerg in according at the accordi	Highest safety class achievable in safety mode	
situ act INEC 6150 Situ 3 Packability of barks (fits service like 42 sysmes and registrates of 100 hors) <200E 05		Pla
Probability of fallure (for service life of 20 years and repair time of 100 hours)	-	
SIL3 <1.00Er.091h		
with Sit 3 Anbient conditions Anbient conditions • min. 20 °C • unze. Up to 60 °C with max. 32 ET 2005P modules: up to 55 °C with max. 64 ET • horizontal installation, min. -20 °C • writcal installation, max. 80 °C • writcal installation, max. 80 °C • writcal installation, max. 80 °C. • writcal installation, max. 90 °C. • writcal installation, max. 90 °C. • writcal installation, max. 90 °C. • writcal installation, max. 70 °C • Writcal max 70 °C • Writcal max 70 °C • Diperation tested according to EC 80068-26 Yes • Stated according to EC 80068-27 Yes • Istated according to EC 80068-27 Yes • Istated according to EC 80068-27 Yes • State according to EC 80068-27 Yes • State according to EC 80068-27 Yes <tr< td=""><td>SIL3</td><td></td></tr<>	SIL3	
Ambient lemperature during operation		< 1.00E-09 1/n
• min. -20 °C • max. -20 °C • max. -20 °C • horizontal installation, min. -20 °C • horizontal installation, max. -20 °C • wertical installation, max. -20 °C • operation, tested according to IEC 0006-2-6 Yes • Transport, tested according to IEC 00068-2-7 Yes • tested according to IE	Ambient conditions	
• min. -20 °C • max. -20 °C • max. -20 °C • horizontal installation, min. -20 °C • horizontal installation, max. -20 °C • wertical installation, max. -20 °C • operation, tested according to IEC 0006-2-6 Yes • Transport, tested according to IEC 00068-2-7 Yes • tested according to IE	Ambient temperature during operation	
• max.Up b 80° (with max. 22 ET 2005P modules; up to 55° (with max. 64 ET 2010• horizontal installation, min.20° (C betractual installation, max.80° C 0 (C 0 (C) (Min max. 32 ET 2005P modules)• wertical installation, max.50° (C) (Min max. 32 ET 2005P modules)• wertical installation, max.60° C• min40° C• max.70° C• Wertical installation, tiest date. DEC 60068-2.6Yes• Transprint, itest date. DEC 60068-2.6Yes• Transprint, itest date. DEC 60068-2.6Yes• Instance To EC 60068-2.6Yes• Instance To EC 60068-2.6Yes• Instance To EC 60068-2.6Yes• Instance To EC 60068-2.27Yes• Instance To EC 60068-2.27Yes <td></td> <td>-20 °C</td>		-20 °C
• horizontal installation, max. 90 °C • vertical installation, max. 20 °C, VMM max. 32 ET 2005P modules Aminent temperature during storage/transportation -40 °C • min. -40 °C • min. 70 °C • min. 70 °C • min. 70 °C • Topation, fested according to EC 6008-2-8 Yes • Transport, fested according to EC 6008-2-8 Yes • Tested according to EC 6008-2-8 Yes • tested according to EC 6008-2-8 Yes • tested according to EC 6008-2-27 Yes • Tested according to Tested according to	• max.	
• vertical installation, min20 °C• vertical installation, max.50 °C, With max. 32 ET 200SP modulesAmbient temperature during storage/transportation	 horizontal installation, min. 	-20 °C
• vertical installation, max. 50 °C, With max. 32 ET 200SP modules Ambient temperature during storage/transportation -40 °C • max. 70 °C Vibrations - • Operation, tested according to IEC 60068-2.6 Yes • Transport, tested according to IEC 60068-2.7 Yes • tested according to IEC 60068-2.28 Yes • tested according to IEC 60068-2.27 Yes • tested according to IEC 60068-2.28 Yes • tested according to IEC 60068-2.27 Yes • Storagetmemport, tested acc, to IEC 60068-2.27 Yes • Tested according to IE 60068-2.28 Yes • Tested according to IEC 60068-2.27 Yes • Ordiguration / tested acc, to IEC 60068-2.27 Yes • Ordiguration / tested according to IEC 60068-2.27 Yes • Ordig	 horizontal installation, max. 	60 °C
Anbient temperature during storage/transportation • min. -40 ° C • max. 70 ° C Vibrations - • operation. tested according to ECE 0008-2.6 Yes • Transport, tested acc. to ECE 0008-2.6 Yes • isted according to ECE 6008-2.7 Yes • tested according to ECE 6008-2.73 Yes • tested according to ECE 6008-2.74 Yes • tested according to ECE 6008-2.75 Yes • tested according to ECE 6008-2.77 Yes • Configuration / header - configuration / header - configuration / header - • Configuration / programming / header - • Configuration / program protection Yes; incl. failsafe - SCL Yes -	 vertical installation, min. 	-20 °C
• min. -40 °C • max. 70 °C Vibrations - • Operation, tested according to EC 60068-2-6 Yes Shock testing - • tested according to EC 60068-2-7 Yes • configuration / header - • configuration / programming language - - FBD Yes; incl. failsafe - SCL Yes - OFC No - OFC No - OFAH Yes • Outpetcion Yes • Dick protection Yes	 vertical installation, max. 	50 °C; With max. 32 ET 200SP modules
• max.70 °CViransorVes• Operation, tested according to IEC 60068-2.6Yes• Iosted according to IEC 60068-2.6Yes• tested according to IEC 60068-2.7Yes• tested according to IEC 60068-2.27Yes• Terrinstalled operating systemVindows 10 IoT Enterprise 2016 LTSB, 64bit, MUIconfiguration / headerVes, incl. failaafe• Forgerming languageYes, incl. failaafe- LADYes, incl. failaafe- SCLYes- CFCNo- GRAPHYes• Oper program protection/password protectionYes• Deer program protection/password protectionYes• Deer program protection/password protectionYes• Deer program protection level: Read/write protectionYes• Protection level: Write protectionYes• Protection level: Nead/write protectionYes• Protection level: Read/write protectionYes• Prot	Ambient temperature during storage/transportation	
Vibrations • Operation, tested according to IEC 60068-2-6 Yes • Stock testing Yes • lested according to IEC 60068-2-6 Yes • lested according to IEC 60068-2-27 Yes • lested according to IEC 60068-2-29 Yes • lested according to IEC 60068-2-29 Yes • lested according to IEC 60068-2-29 Yes • Storage/transport, tested acc. to IEC 60068-2-27 Yes • Operating System Windows 10 IoT Enterprise 2016 LTSB, 64bit, MUI configuration / Ineader - profestation / programming / header - Programming language - LD Yes - SIL Yes - SIL Yes - OFC No - OFC Yes • Ordection Yes • Ordection level: Vine protection Yes • Ordection level: Vine protection Yes<	● min.	-40 °C
• Operation, tested according to IEC 60068-2-6 Yes • Transport, tested acc. to IEC 60068-2-6 Yes • tested according to IEC 60068-2-7 Yes • tested according to IEC 60068-2-29 Yes • tested according to IEC 60068-2-29 Yes • storagertransport, tested acc. to IEC 60068-2-27 Yes • operation system Windows 10 IoT Enterprise 2016 LTSB, 64bil, MUI configuration / header Windows 10 IoT Enterprise 2016 LTSB, 64bil, MUI configuration / programming / header Programming / header • Operation system Windows 10 IoT Enterprise 2016 LTSB, 64bil, MUI configuration / programming / header Yes; incl. failsafe • Operation system Windows 10 IoT Enterprise 2016 LTSB, 64bil, MUI configuration / programming / header Yes; incl. failsafe • Operation system Yes; incl. failsafe • SIL Yes • SIL Yes • SRPH Yes • Osc No	• max.	70 °C
• Transport, tested acc. to IEC 60068-2-6 Yes Stock testing Yes • tested according to IEC 60068-2-27 Yes • tested according to IEC 60068-2-28 Yes • tested according to IEC 60068-2-29 Yes • tested according to IEC 60068-2-27 Yes • torspetransport, tested acc. to IEC 60068-2-27 Yes • forspetransport, tested acc. to IEC 60068-2-27 Yes • Forspanning / header Yes • Solt Yes • Solt Yes • Octools heve: Vite protection Yes • Forection le	Vibrations	
Shock testing · • ested according to IEC 60068-2:7 Yes • tested according to IEC 60068-2:7 Yes • tested according to IEC 60068-2:27 Yes • storage/transport, tested acc. to IEC 60068-2:27 Yes pre-installed operating system Windows 10 IoT Enterprise 2016 LTSB, 64bit, MUI configuration / header	 Operation, tested according to IEC 60068-2-6 	Yes
• tested according to IEC 60068-2-6 Yes • tested according to IEC 60068-2-27 Yes • tested according to IEC 60068-2-27 Yes • Storage/transport, tested acc. to IEC 60068-2-27 Yes • pre-installed operating system Windows 10 IoT Enterprise 2016 LTSB, 64bit, MUI configuration / header • Programming / header • • LAD Yes; incl. failsafe - FBD Yes; incl. failsafe - STL Yes - SCL Yes - GFC No - GFC No - GFC No - GRAPH Yes • User program protection/password protection Yes • Bick protection Yes • Ordection level: Redwine protection Yes • Protection level: Redwine protection Yes • Protection level: Complete protection Yes • Protection level: Redwine protection Yes • Protection level: Redwine protection Yes • Protection level: Redwine protection Yes • Protection level: Complete protection Yes <td< td=""><td>• Transport, tested acc. to IEC 60068-2-6</td><td>Yes</td></td<>	• Transport, tested acc. to IEC 60068-2-6	Yes
• tested according to IEC 60088-2-27 Yes • betrad according to IEC 60088-2-27 Yes • betrad parlamsport, tested acc. to IEC 60088-2-27 Yes • pre-Installed operating system Windows 10 IoT Enterprise 2016 LTSB, 64bit, MUI configuration / testor Configuration / testor configuration / testor Configuration / testor configuration / testor Ves; incl. failsafe - EAD Yes; incl. failsafe - STL Yes - SCL Yes - OFC No - OFC No - OFC No - ORAPH Yes Stock protection Yes • Bitock protection Yes • Stock protection Yes • Protection level: Write protection Yes • Protection level: Complete protection Yes • Protection level: Complete protection Yes • Protection level: Complete protection Yes • Open Bevelopment interfaces adjustable mainimum cycle time • Oper Instit adjustable mainimum cycle time • Oper Instit	Shock testing	
• lested according to IEC 60068-2-29 Yes • Storage/transport, tested acc. to IEC 60068-2-27 Yes Operating systems Windows 10 IoT Enterprise 2016 LTSB, 64bit, MUI configuration / heador - - LAD Yes; incl. failsafe - FBD Yes; incl. failsafe - SCL Yes - SCL Yes - CFC No - GRAPH Yes • User program protection/password protection Yes • User program protection/password protection Yes • Bick protection Yes • Protection level: Write protection Yes • Protection level: Write protection Yes • Protection level: Kinte protection Yes • Protection level: Read/write	• tested according to IEC 60068-2-6	Yes
Storage/transport, tested acc. to IEC 60068-2-27 Yes Operating system Windows 10 IoT Enterprise 2016 LTSB, 64bit, MUI configuration / programming / header Mindows 10 IoT Enterprise 2016 LTSB, 64bit, MUI configuration / programming / header Yes; incl. failsafe Programming language Ves; incl. failsafe - LAD Yes; incl. failsafe - STL Yes - SCL Yes - CFC No - GRAPH Yes Wes protection Yes Block protection/password protection Yes Block protection Yes Block protection Yes Protection level: Read/write protection Yes Protection level: Read/write protection Yes Protection level: Complete protection Yes Protection level: Read/write protection <td< td=""><td>• tested according to IEC 60068-2-27</td><td>Yes</td></td<>	• tested according to IEC 60068-2-27	Yes
Operating systems Windows 10 IoT Enterprise 2016 LTSB, 64bit, MUI configuration / brader - configuration / programming / header - Programming language - - LAD Yes; incl. failsafe - STL Yes - SCL Yes - CFC No - GRAPH Yes Know-how protection Yes Opprotection Yes Block protection Yes Block protection Yes Protection level: Write protection Yes Protection level: Write protection Yes Protection level: Omplete protection Yes Protection level: Read/write protection Yes <tr< td=""><td>tested according to IEC 60068-2-29</td><td>Yes</td></tr<>	tested according to IEC 60068-2-29	Yes
pre-installed operating system Windows 10 IoT Enterprise 2016 LTSB, 64bit, MUI configuration / hoader ************************************	 Storage/transport, tested acc. to IEC 60068-2-27 	Yes
pre-installed operating system Windows 10 IoT Enterprise 2016 LTSB, 64bit, MUI configuration / hoader ************************************	Operating systems	
configuration / header Programming / header Programming language		Windows 10 IoT Enterprise 2016 LTSB, 64bit, MUI
configuration / programming / header Programming language - LAD Yes; incl. failsafe - FBD Yes; incl. failsafe - STL Yes - SCL Yes - CFC No - GRAPH Yes Vest program protection/password protection Yes • Copy protection Yes • User program protection/password protection Yes • Block protection Yes • Protection level: Write protection Yes • Protection level: Write protection Yes • Protection level: Read/write protection Yes programming / cycle time monitoring / header adjustable minimum cycle time • lower limit adjustable minimum cycle time • upper limit adjustable maximum cycle time • Size of ODK SO file, max. 5.8 Mbyte Peripherals/Options So card Optionally for additional mass storage Ommensions Width 160 mm <td>configuration / header</td> <td></td>	configuration / header	
- LAD Yes; incl. failsafe - FBD Yes; incl. failsafe - STL Yes - SCL Yes - CFC No - GRAPH Yes Mow-how protection Yes Copy protection Yes Opp rotection Yes Block protection Yes Access protection Yes Protection level: Write protection Yes Protection level: Complete protection Yes So card Optionally for additional mass storage Dimensions So card Vidth 160 mm Height 117 mm Depth 76 mm Weight, approx. 0.83 kg	configuration / programming / header	
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- STLYes- SCLYes- CFCNo- GRAPHYesKnow-how protectionYesUser program protection/password protectionYes• Copy protectionYes• Block protectionYes• Disck protectionYes• Protection level: Write protectionYes• Protection level: Complete protectionYes• Protection level: Read/write protectionYes• Protection level: Complete protectionYes• Protection level: Complete protectionYes• Protection level: Complete protectionYes• programming / cycle time monitoring / header• lower limitadjustable minimum cycle time• upper limitadjustable maximum cycle time• Size of ODK SO file, max.5.8 MbytePeripherals/OptionsSD cardOptionally for additional mass storageDimensions117 mmWeight, approx.0.83 kg	— FBD	
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• User program protection/password protectionYes• Copy protectionYes• Block protectionYes• Access protectionYes• Protection level: Write protectionYes• Protection level: Read/write protectionYes• Protection level: Complete protectionYes• lower limitadjustable minimum cycle time• lower limitadjustable maximum cycle time• lower limitadjustable maximum cycle time• Size of ODK SO file, max.5.8 MbytePeripherals/OptionsSD cardSD cardOptionally for additional mass storageDimensions117 mmDepth75 mmWeight, approx.0.83 kg		
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• Protection level: Complete protectionYesprogramming / cycle time monitoring / headeradjustable minimum cycle time• lower limitadjustable minimum cycle time• upper limitadjustable maximum cycle timeOpen Development interfaces5.8 Mbyte• Size of ODK SO file, max.5.8 MbytePeripherals/OptionsSD cardSD cardOptionally for additional mass storageDimensions160 mmHeight117 mmDepth75 mmWeights0.83 kg	-	
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Open Development interfaces• Size of ODK SO file, max.5.8 MbytePeripherals/OptionsSD cardOptionally for additional mass storageDimensionsWidth160 mmHeight117 mmDepth75 mmWeightsWeight, approx.0.83 kg		
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SD card Optionally for additional mass storage Dimensions Width 160 mm Height 117 mm Depth 75 mm Weights Weight, approx. 0.83 kg		
Dimensions Width 160 mm Height 117 mm Depth 75 mm Weights Weight, approx. 0.83 kg		Optionally for additional mass storage
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Depth 75 mm Weights Weight, approx. 0.83 kg		
Weights 0.83 kg		
Weight, approx. 0.83 kg		/5 mm
Classifications		0.83 kg

		Version	Classification
	eClass	14	27-24-26-07
	eClass	12	27-24-26-07
	eClass	9.1	27-24-26-07
	eClass	9	27-24-26-07
	eClass	8	27-24-26-07
	eClass	7.1	27-24-26-07
	eClass	6	27-24-26-07
	ETIM	9	EC001603
	ETIM	8	EC001603
	ETIM	7	EC001603
	IDEA	4	3565
	UNSPSC	15	32-15-17-05
Approvals / Certificates			
General Product Approval	Marine / Shipping	Environment	
Manufacturer Declara- tion Miscellaneous RCM	KARS	EPD	

last modified:

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