SIEMENS

Data sheet

6ES7511-1FK02-0AB0



SIMATIC S7-1500F, CPU 1511F-1 PN, CENTRAL PROCESSING UNIT WITH WITH WORKING MEMORY 225 KB FOR PROGRAM AND 1 MB FOR DATA, 1. INTERFACE: PROFINET IRT WITH 2 PORT SWITCH, 60 NS BIT-PERFORMANCE, SIMATIC MEMORY CARD NECESSARY

via dataset Yes Display Screen diagonal [cm] 3.45 cm Screen diagonal [cm] 3.45 cm Sontrol elements Number of keys 8 Mode buttons 2 Supply voltage 2 permissible range, lower limit (DC) 19.2 V permissible range, upper limit (DC) 28.8 V Reverse polarity protection Yes Mains buffering	General information	
Firmware version V2.8 Product function Ves; 18M0 to 18M3 • 18.M data Yes; 18M0 to 18M3 • Isochronous mode Yes; Distributed and central; with minimum OB 6x cycle of 625 µs (distributed) and 1 ms (central) Engineering with Ves; Distributed and central; with minimum OB 6x cycle of 625 µs (distributed) and 1 ms (central) Engineering with Ves; Distributed and central; with minimum OB 6x cycle of 625 µs (distributed) and 1 ms (central) Configuration control Ves; Distributed and central; with minimum OB 6x cycle of 625 µs (distributed) and 1 ms (central) Screen diagonal [cm] Ves; Distributed and central; with minimum OB 6x cycle of 625 µs (distributed) and 1 ms (central) Screen diagonal [cm] Ves; Distributed and central; with minimum OB 6x cycle of 625 µs (distributed) and 1 ms (central) Screen diagonal [cm] Ves; Distributed and central; with minimum OB 6x cycle of 625 µs (distributed) and 1 ms (central) Screen diagonal [cm] Ves; Distributed and central; with minimum OB 6x cycle of 625 µs (distributed) and 1 ms (central) Screen diagonal [cm] Streen diagonal [cm] Ves; Distributed and central; with minimum OB 6x cycle of 625 µs (distributed) and 1 ms (central) Port of Stop [ms] Streen diagonal [cm] Port of song [cm] Streen diagonal [cm] Port of song [cm] Streen diagonal [cm] Port of song [cm] Streen diagonal [cm] Port of song [cm] </th <th>Product type designation</th> <th>CPU 1511F-1 PN</th>	Product type designation	CPU 1511F-1 PN
Product function Ves: I&N0 to I&M3 • I&M data Yes: IbM to I&M3 • Isochronous mode Yes: IbM to I&M3 Engineering with - • STEP 7 TIA Portal configurable/integrated from version Vfa (FW V2.8) / V15 (FW V2.5) or higher, with older TIA Portal versions configurable as 6ES7511-1FK01-0AB0 Configuration control - via dataset Yes Display - Screen diagonal [cm] 3.45 cm Control elements 2 Number of keys 8 Mode buttons 2 permissible range, lower limit (DC) 19.2 V permissible range, upper limit (DC) 28.8 V Reverse polarity protection Yes Mains buffering - Verse - Queren consumption (rated value) 0.7 A Current consumption (rate backplane bus (balanced) 5.5 W	HW functional status	FS03
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• Mains/voltage failure stored energy time 5 ms • Repeat rate, min. 1/s nput current 0.7 A Current consumption (rated value) 0.7 A Current consumption, max. 0.95 A Inrush current, max. 1.9 A; Rated value I²t 0.02 A²-s Power 10 W Power to the backplane bus 10 W Power loss 10 V Power loss, typ. 5.7 W Memory 1 Number of slots for SIMATIC memory card 1 SIMATIC memory card required Yes Work memory	Reverse polarity protection	Yes
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Memory 1 Number of slots for SIMATIC memory card 1 SIMATIC memory card required Yes Work memory Yes	Power loss	
Number of slots for SIMATIC memory card 1 SIMATIC memory card required Yes Work memory	Power loss, typ.	5.7 W
SIMATIC memory card required Yes Work memory	Memory	
Work memory	Number of slots for SIMATIC memory card	1
	SIMATIC memory card required	Yes
integrated (for program) 225 kbyte	Work memory	
	 integrated (for program) 	225 kbyte

 integrated (for data) 	1 Mbyte
Load memory	
Plug-in (SIMATIC Memory Card), max.	32 Gbyte
Backup	
maintenance-free	Yes
CPU processing times	00
for bit operations, typ.	60 ns
for word operations, typ.	72 ns
for fixed point arithmetic, typ.	96 ns
for floating point arithmetic, typ.	384 ns
CPU-blocks	
Number of elements (total)	2 000; Blocks (OB, FB, FC, DB) and UDTs
DB	
Number range	1 60 999; subdivided into: number range that can be used by the user: 1 59 999, and number range of DBs created via SFC 86: 60 000 60 999
• Size, max.	1 Mbyte; For DBs with absolute addressing, the max. size is 64 KB
FB	
Number range	0 65 535
• Size, max.	150 kbyte
FC	
Number range	0 65 535
• Size, max.	150 kbyte
OB	
• Size, max.	150 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; With minimum OB 3x cycle of 500 μs
Number of process alarm OBs	50
Number of DPV1 alarm OBs	3
Number of isochronous mode OBs	2
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	04. Up to 0 monoible for E block
• 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
Retentivity	
— adjustable	Yes
IEC timer	
Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes
Data areas and their retentivity	
Retentive data area (incl. timers, counters, flags), max.	128 kbyte; In total; available retentive memory for bit memories, timers,
	counters, DBs, and technology data (axes): 88 KB
Extended retentive data area (incl. timers, counters, flags), max.	1 Mbyte; When using PS 6 0W 24/48/60 V DC HF
Flag	
• Size, max.	16 kbyte

Number of clock memories	8; 8 clock memory bit, grouped into one clock memory byte
Data blocks	
 Retentivity adjustable 	Yes
Retentivity preset	No
Local data	
• per priority class, max.	64 kbyte; max. 16 KB per block
Address area	
Number of IO modules	1 024; max. number of modules / submodules
I/O address area	
Inputs	32 kbyte; All inputs are in the process image
Outputs	32 kbyte; All outputs are in the process image
per integrated IO subsystem	
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
per CM/CP	
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
Subprocess images	
Number of subprocess images, max.	32
Hardware configuration	
Number of distributed IO systems	32; A distributed I/O system is characterized not only by the integration of
	distributed I/O via PROFINET or PROFIBUS communication modules, but also by the connection of I/O via AS-i master modules or links (e.g. IE/PB-Link)
Number of DP masters	
● Via CM	4; A maximum of 4 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total
Number of IO Controllers	
 integrated 	1
• Via CM	4; A maximum of 4 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be
Dask	inserted in total
Rack	
Modules per rack, max.	32; CPU + 31 modules
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 slots
Time of day	
Clock	
• Туре	Hardware clock
Backup time	6 wk; At 40 °C ambient temperature, typically
 Deviation per day, max. 	10 s; Typ.: 2 s
Operating hours counter	
Number	16
Clock synchronization	
• supported	Yes
• in AS, master	Yes
• in AS, slave	Yes
 on Ethernet via NTP 	Yes
Interfaces	
Number of PROFINET interfaces	1
1. Interface	
Interface types	Van V4
RJ 45 (Ethernet)	Yes; X1
Number of ports	2
integrated switch	Yes
Protocols	
IP protocol	Yes; IPv4
PROFINET IO Controller	Yes
PROFINET IO Device	Yes
 SIMATIC communication 	Yes
Open IE communication	Yes; Optionally also encrypted
Web server	Yes

Media redundancy	Yes; MRP Automanager according to IEC 62439-2 Edition 2.0
PROFINET IO Controller	
Services	
— PG/OP communication	Yes
— Isochronous mode	Yes
— Direct data exchange	Yes; Requirement: IRT and isochronous mode (MRPD optional)
— IRT	Yes
— PROFlenergy	Yes
— Prioritized startup	Yes; Max. 32 PROFINET devices
— Number of connectable IO Devices, max.	128; In total, up to 256 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
- Of which IO devices with IRT, 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; in total across all interfaces
 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 250 μs	250 μs to 4 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 625 μs of the isochronous OB is decisive
— for send cycle of 500 μ s	500 μs to 8 ms; Note: In the case of IRT with isochronous mode, the minimum update time of 625 μs of the isochronous OB is decisive
— 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 μs: 375 μs, 625 μs 3 875 μs)
Update time for RT	
— for send cycle of 250 μs	250 µs to 128 ms
— 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
PROFINET IO Device	
Services	
- PG/OP communication	Yes
— Isochronous mode	No
— IRT — PROFlenergy	Yes
— Shared device	Yes; per user program Yes
 — Shared device — Number of IO Controllers with shared device, max. 	4
Asset management record	Yes; per user program
2. Interface	
PROFINET IO Device	
Services	
— PG/OP communication	Yes
— Isochronous mode	No
— IRT	No
— PROFlenergy	Yes; per user program
— Prioritized startup	No
— Shared device	Yes
 Number of IO Controllers with shared device, max. 	4
— Asset management record	Yes; per user program
Interface types	
RJ 45 (Ethernet)	
• 100 Mbps	Yes
Autonegotiation	Yes
Autocrossing	Yes
Industrial Ethernet status LED	Yes

Protocols

PROFIsafe	Yes
Number of connections	
Number of connections, max.	96; via integrated interfaces of the CPU and connected CPs / CMs
Number of connections reserved for ES/HMI/web	10
 Number of connections via integrated interfaces 	64
Number of S7 routing paths	16
Redundancy mode	
H-Sync forwarding	Yes
Media redundancy	
— MRP	Yes; as MRP redundancy manager and/or MRP client; max. number of devices in the ring: 50
— MRPD	Yes; Requirement: IRT
 — Switchover time on line break, typ. 	200 ms; For MRP, bumpless for MRPD
 Number of stations in the ring, max. 	50
SIMATIC communication	
S7 routing	Yes
• S7 communication, as server	Yes
S7 communication, as client	Yes
• User data per job, max.	See online help (S7 communication, user data size)
Open IE communication	
• TCP/IP	Yes
— Data length, max.	64 kbyte
 — several passive connections per port, supported 	Yes
• ISO-on-TCP (RFC1006)	Yes
— Data length, max.	64 kbyte
• UDP	Yes
— Data length, max.	2 kbyte; 1 472 bytes for UDP broadcast
— UDP multicast	Yes; Max. 5 multicast circuits
• DHCP	No
• SNMP	Yes
• DCP	Yes
• LLDP	Yes
Web server HTTP	Vac: Standard and user pages
• HTTPS	Yes; Standard and user pages Yes; Standard and user pages
OPC UA	res, Standard and user pages
Runtime license required	Yes
OPC UA Client	Yes
Application authentication	Yes
— Security policies	Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256
— User authentication	"anonymous" or by user name & password
- Number of connections, max.	4
 — Number of nodes of the client interfaces, recommended max. 	1 000
 Number of elements for one call of OPC_UA_NodeGetHandleList/OPC_UA_ReadList/OPC_U max. 	300
 Number of elements for one call of OPC_UA_NameSpaceGetIndexList, max. 	20
 — Number of elements for one call of OPC_UA_MethodGetHandleList, max. 	100
 Number of simultaneous calls of the client instructions for session management, per connection, max. 	1
 — Number of simultaneous calls of the client instructions for data access, per connection, max. 	5
- Number of registerable nodes, max.	5 000
 — Number of registerable method calls of OPC_UA_MethodCall, max. 	100
 — Number of inputs/outputs when calling OPC_UA_MethodCall, max. 	20
OPC UA Server	Yes; Data access (read, write, subscribe), method call, custom address space
 Application authentication 	Yes

 — Security policies 	Available security policies: None, Basic128Rsa15, Basic256Rsa15,
Licensutherities	Basic256Sha256
— User authentication	"anonymous" or by user name & password
— Number of sessions, max.	32
— Number of accessible variables, max.	50 000
 Number of registerable nodes, max. 	10 000
 Number of subscriptions per session, max. 	20
— Sampling interval, min.	100 ms
— Publishing interval, min.	500 ms
— Number of server methods, max.	20
— Number of inputs/outputs per server method, max.	20
 Number of monitored items, recommended max. 	1 000; for 1 s sampling interval and 1 s send interval
- Number of server interfaces, max.	10
 — Number of nodes for user-defined server interfaces, max. 	1 000
Further protocols	
MODBUS	Yes; MODBUS TCP
Isochronous mode	
Equidistance	Yes
S7 message functions	
	32
Number of login stations for message functions, max. Program alarms	Yes
Number of configurable program messages, max.	
Number of configurable program messages, max.	5 000; Program messages are generated by the "Program_Alarm" block, ProDiag or GRAPH
Number of loadable program messages in RUN, max.	2 500
Number of simultaneously active program alarms	
Number of program alarms	600
 Number of alarms for system diagnostics 	100
 Number of alarms for motion technology objects 	80
Test commissioning functions	
Joint commission (Team Engineering)	Yes; Parallel online access possible for up to 5 engineering systems
Status block	Yes; Up to 8 simultaneously (in total across all ES clients)
Single step	No
Number of breakpoints	8
Status/control	
Status/control variable	Yes; without fail-safe
Variables	inputs/outputs, bit memories, DBs, peripheral I/Os (without fail-safe), times,
	counters
 Number of variables, max. 	
— of which status variables, max.	200; per job
- of which control variables, max.	200; per job
Forcing	
• Forcing	Yes; without fail-safe
 Forcing, variables 	peripheral inputs/outputs (without fail-safe)
 Number of variables, max. 	200
Diagnostic buffer	
• present	Yes
Number of entries, max.	1 000
— of which powerfail-proof	500
Traces	
Number of configurable Traces	4; Up to 512 KB of data per trace are possible
Interrupts/diagnostics/status information	
Diagnostics indication LED	
RUN/STOP LED	Yes
• ERROR LED	Yes
MAINT LED	Yes
STOP ACTIVE LED	Yes
 Connection display LINK TX/RX 	Yes
Supported technology objects	
Motion Control	Yes; Note: The number of technology objects affects the cycle time of the PLC
	program; selection guide via the TIA Selection Tool
 Number of available Motion Control resources for 	15 360

technology objects	
 Required Motion Control resources 	
— per speed-controlled axis	40
— per positioning axis	80
— per synchronous axis	160
— per external encoder	80
— per output cam	20
— per cam track	160
— per probe	40
 Number of available Extended Motion Control resources for technology objects 	512
 Required Extended Motion Control resources 	
— per cam (1 000 points and 50 segments)	2
— per cam (10 000 points and 50 segments)	20
— for each set of kinematics	30
 Per leading axis proxy 	3
 Positioning axis 	
 — Number of positioning axes at motion control cycle of 4 ms (typical value) 	140
 — Number of positioning axes at motion control cycle of 8 ms (typical value) 	192
Controller	
PID_Compact	Yes; Universal PID controller with integrated optimization
PID_3Step	Yes; PID controller with integrated optimization for valves
PID-Temp	Yes; PID controller with integrated optimization for temperature
Counting and measuring	
High-speed counter	Yes
Standards, approvals, certificates	
Highest safety class achievable in safety mode	
Performance level according to ISO 13849-1	PLe
• SIL acc. to IEC 61508	SIL 3
Probability of failure (for service life of 20 years and repair time	
 Low demand mode: PFDavg in accordance with SIL3 	< 2.00E-05
	< 2.00E-05 < 1.00E-09
SIL3 — High demand/continuous mode: PFH in accordance	
SIL3 — High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions	
SIL3 — High demand/continuous mode: PFH in accordance with SIL3	
SIL3 — High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation	< 1.00E-09
SIL3 — High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation • horizontal installation, min.	< 1.00E-09 -25 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the
SIL3 — High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max.	< 1.00E-09 -25 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off
SIL3 — High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max.	< 1.00E-09 -25 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -25 °C; No condensation
SIL3 — High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, min.	< 1.00E-09 -25 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -25 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the
SIL3 — High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max.	< 1.00E-09 -25 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -25 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the
SIL3 — High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max. Ambient temperature during storage/transportation	< 1.00E-09 -25 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -25 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off
SIL3 — High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max. Ambient temperature during storage/transportation • min.	< 1.00E-09 -25 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -25 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C
SIL3 — High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max. Ambient temperature during storage/transportation • min. • max.	< 1.00E-09 -25 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -25 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C
SIL3 — High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max. Ambient temperature during storage/transportation • min. • max. Altitude during operation relating to sea level	< 1.00E-09 -25 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -25 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C
SIL3 — High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, max. • vertical installation, max. Ambient temperature during storage/transportation • min. • max. Altitude during operation relating to sea level • Installation altitude above sea level, max.	< 1.00E-09 -25 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -25 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C
SIL3 — High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max. Ambient temperature during storage/transportation • min. • max. Attitude during operation relating to sea level • Installation altitude above sea level, max. configuration / header	< 1.00E-09 -25 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -25 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C
SIL3 — High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max. Ambient temperature during storage/transportation • min. • max. Attitude during operation relating to sea level • Installation altitude above sea level, max. configuration / header configuration / programming / header	< 1.00E-09 -25 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -25 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C
SIL3 — High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, max. • vertical installation, max. Ambient temperature during storage/transportation • min. • max. Attitude during operation relating to sea level • Installation altitude above sea level, max. configuration / header Programming language	< 1.00E-09 -25 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -25 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
SIL3 — High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, max. • vertical installation, max. Ambient temperature during storage/transportation • min. • max. Attitude during operation relating to sea level • Installation altitude above sea level, max. configuration / header Programming language — LAD	< 1.00E-09 -25 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -25 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe
SIL3 — High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, max. • vertical installation, max. Ambient temperature during storage/transportation • min. • max. Attitude during operation relating to sea level • Installation altitude above sea level • Installation altitude above sea level • Installation / header Configuration / programming / header Programming language — LAD — FBD	< 1.00E-09 -25 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -25 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes; incl. failsafe
SIL3 High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max. Ambient temperature during storage/transportation • min. • max. Attitude during operation relating to sea level • Installation altitude above sea level, max. configuration / header Programming language LAD FBD STL	< 1.00E-09 -25 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -25 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes; incl. failsafe Yes; incl. failsafe
SIL3 High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, max. • vertical installation, max. Ambient temperature during storage/transportation • min. • max. Attitude during operation relating to sea level • Installation altitude above sea level, max. configuration / header Programming language LAD FBD STL SCL GRAPH	< 1.00E-09 -25 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -25 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes; incl. failsafe Yes Yes
SIL3 High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, max. • vertical installation, max. Ambient temperature during storage/transportation • min. • max. Attitude during operation relating to sea level • Installation altitude above sea level • Installation altitude above sea level • Installation / header Configuration / header Programming language - LAD - FBD - STL - SCL - GRAPH Know-how protection	< 1.00E-09 -25 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -25 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
SIL3 High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, max. • vertical installation, max. Ambient temperature during storage/transportation • min. • max. Attitude during operation relating to sea level • Installation altitude above sea level • Installation altitude above sea level • Installation / header Configuration / header Programming language - LAD - FBD - STL - SCL - GRAPH Know-how protection • User program protection/password protection	< 1.00E-09 -25 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -25 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes; incl. failsafe Yes Yes Yes Yes Yes Yes
SIL3 High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, max. • vertical installation, max. Ambient temperature during storage/transportation • min. • max. Attitude during operation relating to sea level • Installation altitude above sea level • Installation altitude above sea level • Installation / header Configuration / programming / header Programming language LAD FBD STL SCL GRAPH Know-how protection • User program protection/password protection • Copy protection	< 1.00E-09 -25 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -25 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes Yes
SIL3 — High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, max. • vertical installation, max. Ambient temperature during storage/transportation • min. • max. Attitude during operation relating to sea level • Installation altitude above sea level • Installation altitude above sea level • Installation altitude above sea level • Installation / header Configuration / programming / header Programming language — LAD — FBD — STL — SCL — GRAPH Know-how protection • User program protection/password protection • Copy protection • Block protection	< 1.00E-09 -25 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -25 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes; incl. failsafe Yes Yes Yes Yes Yes Yes Yes Yes Yes Ye
SIL3 High demand/continuous mode: PFH in accordance with SIL3 Ambient conditions Ambient temperature during operation • horizontal installation, min. • horizontal installation, max. • vertical installation, max. • vertical installation, max. Ambient temperature during storage/transportation • min. • max. Attitude during operation relating to sea level • Installation altitude above sea level • Installation altitude above sea level • Installation / header Configuration / programming / header Programming language LAD FBD STL SCL GRAPH Know-how protection • User program protection/password protection • Copy protection	< 1.00E-09 -25 °C; No condensation 60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off -25 °C; No condensation 40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off -40 °C 70 °C 5 000 m; Restrictions for installation altitudes > 2 000 m, see manual Yes; incl. failsafe Yes Yes

Protection level: Write protection	Yes; Specific write protection both for Standard and for Failsafe
 Protection level: Read/write protection 	Yes
 Protection level: Write protection for Failsafe 	Yes
Protection level: Complete protection	Yes
programming / cycle time monitoring / header	
lower limit	adjustable minimum cycle time
upper limit	adjustable maximum cycle time
Dimensions	
Width	35 mm
Height	147 mm
Depth	129 mm
Weights	
Weight, approx.	405 g

last modified:

8/16/2023 🖸