



SIMATIC S7-1500, CPU 1518-4 PN/DP, central processing unit with 6 MB work memory for program and 60 MB for data, 1st interface: PROFINET IRT with 2-port switch, 2nd interface: PROFINET RT, 3rd interface: Ethernet, 4th interface: PROFIBUS, 1 ns bit performance, SIMATIC Memory Card required

General information	
Product type designation	CPU 1518-4 PN/DP
HW functional status	FS10
Firmware version	V2.9
Product function	
<ul style="list-style-type: none"> <li>I&amp;M data</li> </ul>	Yes; I&M0 to I&M3
<ul style="list-style-type: none"> <li>Isochronous mode</li> </ul>	Yes; Distributed and central; with minimum OB 6x cycle of 125 µs (distributed) and 1 ms (central)
Engineering with	
<ul style="list-style-type: none"> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	V17 (FW V2.9) / V13 (FW V1.5) or higher
Configuration control	
via dataset	Yes
Display	
Screen diagonal [cm]	6.1 cm
Control elements	
Number of keys	6
Mode selector switch	1
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	19.2 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Mains buffering	
<ul style="list-style-type: none"> <li>Mains/voltage failure stored energy time</li> </ul>	5 ms
<ul style="list-style-type: none"> <li>Repeat rate, min.</li> </ul>	1/s
Input current	
Current consumption (rated value)	1.55 A
Inrush current, max.	2.4 A; Rated value
I <sup>2</sup> t	0.02 A <sup>2</sup> ·s
Power	
Infeed power to the backplane bus	12 W
Power consumption from the backplane bus (balanced)	30 W
Power loss	
Power loss, typ.	24 W
Memory	
Number of slots for SIMATIC memory card	1
SIMATIC memory card required	Yes
Work memory	
<ul style="list-style-type: none"> <li>integrated (for program)</li> </ul>	6 Mbyte
<ul style="list-style-type: none"> <li>integrated (for data)</li> </ul>	60 Mbyte

<b>Load memory</b>	
• Plug-in (SIMATIC Memory Card), max.	32 Gbyte
<b>Backup</b>	
• maintenance-free	Yes
<b>CPU processing times</b>	
for bit operations, typ.	1 ns
for word operations, typ.	2 ns
for fixed point arithmetic, typ.	2 ns
for floating point arithmetic, typ.	6 ns
<b>CPU-blocks</b>	
Number of elements (total)	20 000; Blocks (OB, FB, FC, DB) and UDTs
<b>DB</b>	
• 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.	16 Mbyte; For DBs with absolute addressing, the max. size is 64 KB
<b>FB</b>	
• Number range	0 ... 65 535
• Size, max.	1 Mbyte
<b>FC</b>	
• Number range	0 ... 65 535
• Size, max.	1 Mbyte
<b>OB</b>	
• Size, max.	1 Mbyte
• 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 100 µs
• Number of process alarm OBs	50
• Number of DPV1 alarm OBs	3
• Number of isochronous mode OBs	3
• 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
<b>Nesting depth</b>	
• per priority class	24
<b>Counters, timers and their retentivity</b>	
<b>S7 counter</b>	
• Number	2 048
Retentivity	
— adjustable	Yes
<b>IEC counter</b>	
• Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes
<b>S7 times</b>	
• Number	2 048
Retentivity	
— adjustable	Yes
<b>IEC timer</b>	
• Number	Any (only limited by the main memory)
Retentivity	
— adjustable	Yes
<b>Data areas and their retentivity</b>	
Retentive data area (incl. timers, counters, flags), max.	768 kbyte; In total; available retentive memory for bit memories, timers, counters, DBs, and technology data (axes): 700 KB
Extended retentive data area (incl. timers, counters, flags), max.	20 Mbyte; When using PS 6 0W 24/48/60 V DC HF
<b>Flag</b>	
• Size, max.	16 kbyte
• Number of clock memories	8; 8 clock memory bit, grouped into one clock memory byte

<b>Data blocks</b>	
• Retentivity adjustable	Yes
• Retentivity preset	No
<b>Local data</b>	
• per priority class, max.	64 kbyte; max. 16 KB per block
<b>Address area</b>	
Number of IO modules	16 384; max. number of modules / submodules
<b>I/O address area</b>	
• 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)	32 kbyte; max. 32 KB via X1; max. 8 KB via X2 or X4
— Outputs (volume)	32 kbyte; max. 32 KB via X1; max. 8 KB via X2 or X4
per CM/CP	
— Inputs (volume)	8 kbyte
— Outputs (volume)	8 kbyte
<b>Subprocess images</b>	
• Number of subprocess images, max.	32
<b>Hardware configuration</b>	
Number of distributed IO systems	64; 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)
<b>Number of DP masters</b>	
• integrated	1
• Via CM	8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total
<b>Number of IO Controllers</b>	
• integrated	2
• Via CM	8; A maximum of 8 CMs/CPs (PROFIBUS, PROFINET, Ethernet) can be inserted in total
<b>Rack</b>	
• Modules per rack, max.	32; CPU + 31 modules
• Number of lines, max.	1
<b>PtP CM</b>	
• Number of PtP CMs	the number of connectable PtP CMs is only limited by the number of available slots
<b>Time of day</b>	
<b>Clock</b>	
• Type	Hardware clock
• Backup time	6 wk; At 40 °C ambient temperature, typically
• Deviation per day, max.	10 s; Typ.: 2 s
<b>Operating hours counter</b>	
• Number	16
<b>Clock synchronization</b>	
• supported	Yes
• to DP, master	Yes
• in AS, master	Yes
• in AS, device	Yes
• on Ethernet via NTP	Yes
<b>Interfaces</b>	
Number of PROFINET interfaces	3
Number of PROFIBUS interfaces	1
<b>1. Interface</b>	
<b>Interface types</b>	
• RJ 45 (Ethernet)	Yes; X1
• Number of ports	2
• integrated switch	Yes
<b>Protocols</b>	
• 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
<b>PROFINET IO Controller</b>	
<b>Services</b>	
— PG/OP communication	Yes
— Isochronous mode	Yes
— Direct data exchange	Yes; Requirement: IRT and isochronous mode (MRPD optional)
— IRT	Yes
— PROFinergy	Yes; per user program
— Prioritized startup	Yes; Max. 32 PROFINET devices
— Number of connectable IO Devices, max.	512; In total, up to 1 000 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.	512
— of which in line, max.	512
— 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
<b>Update time for IRT</b>	
— for send cycle of 125 µs	125 µs
— for send cycle of 187.5 µs	187.5 µs
— for send cycle of 250 µs	250 µs to 4 ms
— 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 µs: 375 µs, 625 µs ... 3 875 µs)
<b>Update time for RT</b>	
— 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
<b>PROFINET IO Device</b>	
<b>Services</b>	
— PG/OP communication	Yes
— Isochronous mode	No
— IRT	Yes; Minimum send cycle of 250 µs
— PROFinergy	Yes; per user program
— Shared device	Yes
— Number of IO Controllers with shared device, max.	4
— activation/deactivation of I-devices	Yes; per user program
— Asset management record	Yes; per user program
<b>2. Interface</b>	
<b>Interface types</b>	
• RJ 45 (Ethernet)	Yes; X2
• Number of ports	1
• integrated switch	No
<b>Protocols</b>	
• 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	No
<b>PROFINET IO Controller</b>	

Services	
— PG/OP communication	Yes
— Isochronous mode	No
— Direct data exchange	No
— IRT	No
— PROFlenergy	Yes; per user program
— Prioritized startup	No
— Number of connectable IO Devices, max.	128; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET
— 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 RT	
— for send cycle of 1 ms	1 ms to 512 ms

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
— activation/deactivation of I-devices	Yes; per user program
— Asset management record	Yes; per user program

### 3. Interface

Interface types	
● RJ 45 (Ethernet)	Yes; X3
● Number of ports	1
● integrated switch	No

Protocols	
● IP protocol	Yes; IPv4
● PROFINET IO Controller	No
● PROFINET IO Device	No
● SIMATIC communication	Yes
● Open IE communication	Yes
● Web server	Yes

### 4. Interface

Interface types	
● RS 485	Yes; X4
● Number of ports	1

Protocols	
● PROFIBUS DP master	Yes
● PROFIBUS DP device	No
● SIMATIC communication	Yes

PROFIBUS DP master	
● Number of connections, max.	48; for the integrated PROFIBUS DP interface
● max. number of DP devices	125; In total, up to 1 000 distributed I/O devices can be connected via AS-i, PROFIBUS or PROFINET

Services	
— PG/OP communication	Yes
— Equidistance	Yes
— Isochronous mode	Yes
— activation/deactivation of DP devices	Yes

Interface types	
RJ 45 (Ethernet)	
● 100 Mbps	Yes

<ul style="list-style-type: none"> <li>• 1000 Mbps</li> <li>• Autonegotiation</li> <li>• Autocrossing</li> <li>• Industrial Ethernet status LED</li> </ul>	<p>Yes; Only possible at the X3 interface of the CPU 1518</p> <p>Yes</p> <p>Yes</p> <p>Yes</p>
<b>RS 485</b>	
<ul style="list-style-type: none"> <li>• Transmission rate, max.</li> </ul>	12 Mbit/s
<b>Protocols</b>	
PROFIsafe	No
<b>Number of connections</b>	
<ul style="list-style-type: none"> <li>• Number of connections, max.</li> <li>• Number of connections reserved for ES/HMI/web</li> <li>• Number of connections via integrated interfaces</li> <li>• Number of S7 routing paths</li> </ul>	<p>384; via integrated interfaces of the CPU and connected CPs / CMs</p> <p>10</p> <p>320</p> <p>64; in total, only 16 S7-Routing connections are supported via PROFIBUS</p>
<b>Redundancy mode</b>	
<ul style="list-style-type: none"> <li>• H-Sync forwarding</li> </ul>	Yes
<b>Media redundancy</b>	
<ul style="list-style-type: none"> <li>— Media redundancy</li> <li>— MRP</li> <li>— MRP interconnection, supported</li> <li>— MRPD</li> <li>— Switchover time on line break, typ.</li> <li>— Number of stations in the ring, max.</li> </ul>	<p>only via 1st interface (X1)</p> <p>Yes; MRP Automanager according to IEC 62439-2 Edition 2.0, MRP Manager; MRP Client</p> <p>Yes; as MRP ring node according to IEC 62439-2 Edition 3.0</p> <p>Yes; Requirement: IRT</p> <p>200 ms; For MRP, bumpless for MRPD</p> <p>50</p>
<b>SIMATIC communication</b>	
<ul style="list-style-type: none"> <li>• PG/OP communication</li> <li>• S7 routing</li> <li>• Data record routing</li> <li>• S7 communication, as server</li> <li>• S7 communication, as client</li> <li>• User data per job, max.</li> </ul>	<p>Yes; encryption with TLS V1.3 pre-selected</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>See online help (S7 communication, user data size)</p>
<b>Open IE communication</b>	
<ul style="list-style-type: none"> <li>• TCP/IP <ul style="list-style-type: none"> <li>— Data length, max.</li> <li>— several passive connections per port, supported</li> </ul> </li> <li>• ISO-on-TCP (RFC1006) <ul style="list-style-type: none"> <li>— Data length, max.</li> </ul> </li> <li>• UDP <ul style="list-style-type: none"> <li>— Data length, max.</li> <li>— UDP multicast</li> </ul> </li> <li>• DHCP</li> <li>• DNS</li> <li>• SNMP</li> <li>• DCP</li> <li>• LLDP</li> <li>• Encryption</li> </ul>	<p>Yes</p> <p>64 kbyte</p> <p>Yes</p> <p>Yes</p> <p>64 kbyte</p> <p>Yes</p> <p>2 kbyte; 1 472 bytes for UDP broadcast</p> <p>Yes; 128 multicast circuits (of which max. 5 via X1)</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes; Optional</p>
<b>Web server</b>	
<ul style="list-style-type: none"> <li>• HTTP</li> <li>• HTTPS</li> </ul>	<p>Yes; Standard and user pages</p> <p>Yes; Standard and user pages</p>
<b>OPC UA</b>	
<ul style="list-style-type: none"> <li>• Runtime license required</li> <li>• OPC UA Client <ul style="list-style-type: none"> <li>— Application authentication</li> <li>— Security policies</li> <li>— User authentication</li> <li>— Number of connections, max.</li> <li>— Number of nodes of the client interfaces, recommended max.</li> <li>— Number of elements for one call of OPC-UA-NodeGetHandleList/OPC-UA-ReadList/OPC-UA-WriteList, max.</li> <li>— Number of elements for one call of</li> </ul> </li> </ul>	<p>Yes; "Large" license required</p> <p>Yes</p> <p>Yes</p> <p>Available security policies: None, Basic128Rsa15, Basic256Rsa15, Basic256Sha256</p> <p>"anonymous" or by user name &amp; password</p> <p>40</p> <p>5 000</p> <p>300</p> <p>20</p>

OPC-UA\_NameSpaceGetIndexList, max.  
 — Number of elements for one call of  
 OPC-UA\_MethodGetHandleList, max.  
 — Number of simultaneous calls of the client  
 instructions for session management, per connection,  
 max.  
 — Number of simultaneous calls of the client  
 instructions for data access, per connection, max.  
 — Number of registerable nodes, max.  
 — Number of registerable method calls of  
 OPC-UA\_MethodCall, max.  
 — Number of inputs/outputs when calling  
 OPC-UA\_MethodCall, max.

100

1

5

5 000

100

20

● OPC UA Server

— Application authentication

— Security policies

— User authentication

— GDS support (certificate management)

— Number of sessions, max.

— Number of accessible variables, max.

— Number of registerable nodes, max.

— Number of subscriptions per session, max.

— Sampling interval, min.

— Publishing interval, min.

— Number of server methods, max.

— Number of inputs/outputs per server method, max.

— Number of monitored items, recommended max.

— Number of server interfaces, max.  
 — Number of nodes for user-defined server interfaces,  
 max.

Yes; Data access (read, write, subscribe), method call, custom address space

Yes

Available security policies: None, Basic128Rsa15, Basic256Rsa15,  
 Basic256Sha256

"anonymous" or by user name & password

Yes

64

200 000

50 000

20

10 ms

10 ms

100

20

10 000; for 1 s sampling interval and 1 s send interval

10 of each "Server interfaces" / "Companion specification" type and 20 of the  
 type "Reference namespace"

30 000

● Alarms and Conditions

— Number of program alarms

— Number of alarms for system diagnostics

Yes

400

200

Further protocols

● MODBUS

Yes; MODBUS TCP

Isochronous mode

Equidistance

Yes

S7 message functions

Number of login stations for message functions, max.

64

Program alarms

Yes

Number of configurable program messages, max.

10 000; Program messages are generated by the "Program\_Alarm" block,  
 ProDiag or GRAPH

Number of loadable program messages in RUN, max.

5 000

Number of simultaneously active program alarms

● Number of program alarms

4 000

● Number of alarms for system diagnostics

1 000

● Number of alarms for motion technology objects

480

Test commissioning functions

Joint commission (Team Engineering)

Yes; Parallel online access possible for up to 10 engineering systems

Status block

Yes; Up to 16 simultaneously (in total across all ES clients)

Single step

No

Number of breakpoints

20

Status/control

● Status/control variable

Yes

● Variables

Inputs/outputs, memory bits, DBs, distributed I/Os, timers, counters

● Number of variables, max.

— of which status variables, max.

200; per job

— of which control variables, max.

200; per job

Forcing

● Forcing

Yes

● Forcing, variables

Peripheral inputs/outputs

● Number of variables, max.

200

<b>Diagnostic buffer</b>	
<ul style="list-style-type: none"> <li>• present</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Number of entries, max.</li> </ul>	3 200
<ul style="list-style-type: none"> <li>— of which powerfail-proof</li> </ul>	1 000
<b>Traces</b>	
<ul style="list-style-type: none"> <li>• Number of configurable Traces</li> </ul>	8; Up to 512 KB of data per trace are possible
<b>Interrupts/diagnostics/status information</b>	
<b>Diagnostics indication LED</b>	
<ul style="list-style-type: none"> <li>• RUN/STOP LED</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• ERROR LED</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• MAINT LED</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Connection display LINK TX/RX</li> </ul>	Yes
<b>Supported technology objects</b>	
<b>Motion Control</b>	Yes; Note: The number of technology objects affects the cycle time of the PLC program; selection guide via the TIA Selection Tool
<ul style="list-style-type: none"> <li>• Number of available Motion Control resources for technology objects</li> </ul>	15 360
<ul style="list-style-type: none"> <li>• Required Motion Control resources</li> </ul>	
<ul style="list-style-type: none"> <li>— per speed-controlled axis</li> </ul>	40
<ul style="list-style-type: none"> <li>— per positioning axis</li> </ul>	80
<ul style="list-style-type: none"> <li>— per synchronous axis</li> </ul>	160
<ul style="list-style-type: none"> <li>— per external encoder</li> </ul>	80
<ul style="list-style-type: none"> <li>— per output cam</li> </ul>	20
<ul style="list-style-type: none"> <li>— per cam track</li> </ul>	160
<ul style="list-style-type: none"> <li>— per probe</li> </ul>	40
<ul style="list-style-type: none"> <li>• Positioning axis</li> </ul>	
<ul style="list-style-type: none"> <li>— Number of positioning axes at motion control cycle of 4 ms (typical value)</li> </ul>	140
<ul style="list-style-type: none"> <li>— Number of positioning axes at motion control cycle of 8 ms (typical value)</li> </ul>	192
<b>Controller</b>	
<ul style="list-style-type: none"> <li>• PID_Compact</li> </ul>	Yes; Universal PID controller with integrated optimization
<ul style="list-style-type: none"> <li>• PID_3Step</li> </ul>	Yes; PID controller with integrated optimization for valves
<ul style="list-style-type: none"> <li>• PID-Temp</li> </ul>	Yes; PID controller with integrated optimization for temperature
<b>Counting and measuring</b>	
<ul style="list-style-type: none"> <li>• High-speed counter</li> </ul>	Yes
<b>Ambient conditions</b>	
<b>Ambient temperature during operation</b>	
<ul style="list-style-type: none"> <li>• horizontal installation, min.</li> </ul>	0 °C
<ul style="list-style-type: none"> <li>• horizontal installation, max.</li> </ul>	60 °C; Display: 50 °C, at an operating temperature of typically 50 °C, the display is switched off
<ul style="list-style-type: none"> <li>• vertical installation, min.</li> </ul>	0 °C
<ul style="list-style-type: none"> <li>• vertical installation, max.</li> </ul>	40 °C; Display: 40 °C, at an operating temperature of typically 40 °C, the display is switched off
<b>Ambient temperature during storage/transportation</b>	
<ul style="list-style-type: none"> <li>• min.</li> </ul>	-40 °C
<ul style="list-style-type: none"> <li>• max.</li> </ul>	70 °C
<b>Altitude during operation relating to sea level</b>	
<ul style="list-style-type: none"> <li>• Installation altitude above sea level, max.</li> </ul>	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
<b>configuration / header</b>	
<b>configuration / programming / header</b>	
<b>Programming language</b>	
<ul style="list-style-type: none"> <li>— LAD</li> </ul>	Yes
<ul style="list-style-type: none"> <li>— FBD</li> </ul>	Yes
<ul style="list-style-type: none"> <li>— STL</li> </ul>	Yes
<ul style="list-style-type: none"> <li>— SCL</li> </ul>	Yes
<ul style="list-style-type: none"> <li>— GRAPH</li> </ul>	Yes
<b>Know-how protection</b>	
<ul style="list-style-type: none"> <li>• User program protection/password protection</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Copy protection</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Block protection</li> </ul>	Yes
<b>Access protection</b>	

- protection of confidential configuration data Yes
- Password for display Yes
- Protection level: Write protection Yes
- Protection level: Read/write protection 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	175 mm
Height	147 mm
Depth	129 mm

Weights	
Weight, approx.	1 988 g

Classifications			
		Version	Classification
	eClass	14	27-24-22-07
	eClass	12	27-24-22-07
	eClass	9.1	27-24-22-07
	eClass	9	27-24-22-07
	eClass	8	27-24-22-07
	eClass	7.1	27-24-22-07
	eClass	6	27-24-22-07
	ETIM	10	EC000236
	ETIM	9	EC000236
	ETIM	8	EC000236
	ETIM	7	EC000236
	IDEA	4	3565
	UNSPSC	15	32-15-17-05

**Approvals / Certificates**


**General Product Approval**

[Miscellaneous](#)    
 [Manufacturer Declaration](#)    
     
     
     
 [Miscellaneous](#)

**General Product Approval**     **For use in hazardous locations**

    
[TUEV](#)    
[FM](#)    
    
[FM](#)    
[CCC-Ex](#)

**For use in hazardous locations**     **Maritime application**

    
    
[Miscellaneous](#)    
[Type Examination Certificate](#)    
    


**Maritime application**

    
    
[NK / Nippon Kaiji Kyokai](#)    
    
    
[CCS \(China Classification Society\)](#)



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