

SIPLUS S7-1500 CM PTP RS422/485 RAIL based on 6ES7541-1AB01-0AB0 with conformal coating, OT4: -40...+70 °C ST1/2: 85 °C for 10 minutes RS422/485 HF communications module for serial connection RS-422 and RS-485, Freeport, 3964(R), USS, Modbus RTU Master, device, 250000 bit/s, 15-pin D-sub socket 15-pin D-sub socket

General information	
Product type designation	CM PtP RS 422 / 485 HF
based on	<a href="#">6ES7541-1AB01-0AB0</a>
Product function	
• I&M data	Yes; I&M 0
• Fast startup	Yes
Engineering with	
• STEP 7 TIA Portal configurable/integrated from version	see entry ID: 109746275
Installation type/mounting	
Rail mounting	Yes; S7-1500 mounting rail
Input current	
Current consumption (rated value)	43 mA; From the backplane bus
Power	
Power consumption from the backplane bus	0.65 W
Power loss	
Power loss, typ.	0.6 W
Address area	
Address space per module	
• Inputs	8 byte; performance mode: 32 byte
• Outputs	0 byte; performance mode: 32 byte
Interface types	
RS 485	
• Transmission rate, max.	250 kbit/s
• Cable length, max.	1 200 m
RS 422	
• Transmission rate, max.	115.2 kbit/s
• Cable length, max.	1 200 m
• 4-wire full duplex connection	Yes
• 4-wire multipoint connection	No
Protocols	
Integrated protocols	
Freeport	
— Telegram length, max.	4 kbyte
— Bits per character	7 or 8
— Number of stop bits	1 or 2 bit
— Parity	None, even, odd, always 1, always 0, any
3964 (R)	
— Telegram length, max.	4 kbyte
— Bits per character	7 or 8
— Number of stop bits	1 or 2 bit
— Parity	None, even, odd, always 1, always 0, any
Modbus RTU master	
— Address area	1 to 247, extended 1 to 65535
— max. number of devices	32
Modbus RTU device	
— Address area	1 to 247, extended 1 to 65535
Telegram buffer	

<ul style="list-style-type: none"> <li>• Buffer memory for telegrams</li> </ul>	8 kbyte
<ul style="list-style-type: none"> <li>• Number of telegrams which can be buffered</li> </ul>	255
<b>Interrupts/diagnostics/status information</b>	
Diagnostics function	Yes
<b>Alarms</b>	
<ul style="list-style-type: none"> <li>• Diagnostic alarm</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Hardware interrupt</li> </ul>	No
<b>Diagnoses</b>	
<ul style="list-style-type: none"> <li>• Wire break</li> </ul>	Yes
<b>Diagnostics indication LED</b>	
<ul style="list-style-type: none"> <li>• RUN LED</li> </ul>	Yes; green LED
<ul style="list-style-type: none"> <li>• ERROR LED</li> </ul>	Yes; red LED
<ul style="list-style-type: none"> <li>• Receive RxD</li> </ul>	Yes; Yellow LED
<ul style="list-style-type: none"> <li>• Transmit TxD</li> </ul>	Yes; Yellow LED
<b>Potential separation</b>	
between backplane bus and interface	Yes
<b>Isolation</b>	
Isolation tested with	750 V DC (type test) and according to EN 50155 (routine test)
<b>Standards, approvals, certificates</b>	
<b>Railway application</b>	
<ul style="list-style-type: none"> <li>• EN 50121-3-2</li> </ul>	Yes; EMC for rail vehicles
<ul style="list-style-type: none"> <li>• EN 50121-4</li> </ul>	Yes; EMC for signal and telecommunications systems
<ul style="list-style-type: none"> <li>• EN 50121-5</li> </ul>	Yes; EMC for fixed installations and railway power supply equipment
<ul style="list-style-type: none"> <li>• EN 50124-1</li> </ul>	Yes; Railway applications - overvoltage category OV2; pollution degree PD2; rated surge voltage UNi = 0.5 kV; UNm = 24 V DC
<ul style="list-style-type: none"> <li>• EN 50125-1</li> </ul>	Yes; Rail vehicles - see ambient conditions
<ul style="list-style-type: none"> <li>• EN 50125-2</li> </ul>	Yes; Stationary electrical equipment - see ambient conditions
<ul style="list-style-type: none"> <li>• EN 50125-3</li> </ul>	Yes; Signal and telecommunications systems - see ambient conditions; vibrations and shocks: Application point outside of tracks (1 m to 3 m away from track)
<ul style="list-style-type: none"> <li>• EN 50155</li> </ul>	Yes; Rail vehicles - temperature class OT4, ST1/ST2, horizontal mounting position
<ul style="list-style-type: none"> <li>• EN 61373</li> </ul>	Yes; Rail vehicles - vibrations and shocks: Category 1 Class A/B
<ul style="list-style-type: none"> <li>• Fire protection acc. to EN 45545-2</li> </ul>	Yes; For proof of conformity, see Service & Support
<b>Security</b>	
signed firmware update	Yes
<b>Ambient conditions</b>	
<b>Ambient temperature during operation</b>	
<ul style="list-style-type: none"> <li>• horizontal installation, min.</li> </ul>	-40 °C; = Tmin (incl. condensation/frost)
<ul style="list-style-type: none"> <li>• horizontal installation, max.</li> </ul>	70 °C; = Tmax; +85 °C for 10 min (OT4, ST1/ST2 acc. to EN 50155)
<ul style="list-style-type: none"> <li>• vertical installation, min.</li> </ul>	-40 °C; = Tmin
<ul style="list-style-type: none"> <li>• vertical installation, max.</li> </ul>	40 °C; = Tmax
<b>Altitude during operation relating to sea level</b>	
<ul style="list-style-type: none"> <li>• Installation altitude above sea level, max.</li> </ul>	2 000 m
<ul style="list-style-type: none"> <li>• Ambient air temperature-barometric pressure-altitude</li> </ul>	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)
<b>Relative humidity</b>	
<ul style="list-style-type: none"> <li>• With condensation, tested in accordance with IEC 60068-2-38, max.</li> </ul>	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation
<b>Resistance</b>	
<b>Coolants and lubricants</b>	
— Resistant to commercially available coolants and lubricants	Yes; Incl. diesel and oil droplets in the air
<b>Use in stationary industrial systems</b>	
— to biologically active substances according to EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request
— to chemically active substances according to EN 60721-3-3	Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *
— to mechanically active substances according to EN 60721-3-3	Yes; Class 3S4 incl. sand, dust, *
<b>Use on land craft, rail vehicles and special-purpose vehicles</b>	
— to biologically active substances according to EN	Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna);

60721-3-5  
 — to chemically active substances according to EN 60721-3-5  
 — to mechanically active substances according to EN 60721-3-5

Class 5B3 on request  
 Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); \*  
 Yes; Class 5S3 incl. sand, dust; \*

**Usage in industrial process technology**

— Against chemically active substances acc. to EN 60654-4  
 — Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04

Yes; Class 3 (excluding trichlorethylene)  
 Yes; Level GX group A/B (excluding trichlorethylene; harmful gas concentrations up to the limits of EN 60721-3-3 class 3C4 permissible); level LC3 (salt spray) and level LB3 (oil)

**Remark**

— Note regarding classification of environmental conditions acc. to EN 60721, EN 60654-4 and ANSI/ISA-71.04

\* The supplied plug covers must remain in place over the unused interfaces during operation!

**Conformal coating**

- Coatings for printed circuit board assemblies acc. to EN 61086
- Protection against fouling acc. to EN 60664-3
- Electronic equipment on rolling stock acc. to EN 50155
- Military testing according to MIL-I-46058C, Amendment 7
- Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A

Yes; Class 2 for high reliability  
 Yes; Type 1 protection  
 Yes; class PC2 protective coating acc. to EN 50155  
 Yes; Discoloration of coating possible during service life  
 Yes; Conformal coating, Class A

**Decentralized operation**

to SIMATIC S7-300	Yes
to SIMATIC S7-400	Yes
to SIMATIC S7-1500	Yes
to standard PROFINET controller	Yes

**Dimensions**

Width	35 mm
Height	147 mm
Depth	127 mm

**Weights**

Weight, approx.	0.22 kg
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**Other**

Note: for use in railway applications, also observe the product information "SIPLUS extreme RAIL" A5E37661960A, Online Support article 109736776

**Classifications**

	Version	Classification
eClass	14	27-24-22-08
eClass	12	27-24-22-08
eClass	9.1	27-24-22-08
eClass	9	27-24-22-08
eClass	8	27-24-22-08
eClass	7.1	27-24-22-08
eClass	6	27-24-22-08
ETIM	10	EC001423
ETIM	9	EC001423
ETIM	8	EC001423
ETIM	7	EC001423

**Approvals / Certificates**

<b>General Product Approval</b>	<b>Railway</b>
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[Manufacturer Declaration](#)



[China RoHS](#)

[Confirmation](#)

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