



SIPLUS ET 200SP DI 4x120/230VAC TX rail based on 6ES7131-6FD01-0BB1 with conformal coating, -40...+70 °C, OT4 with ST1/2 (+85 °C for 10 minutes), digital input module, suitable for BU type B1, color code CC41, module diagnostics input type 3 (IEC 61131),

General information	
Product type designation	DI 4x120 ... 230 V AC ST
Firmware version	
• FW update possible	No
usable BaseUnits	BU type B1
Color code for module-specific color identification plate	CC41
Product function	
• I&M data	Yes; I&M0 to I&M3
• Isochronous mode	No
Operating mode	
• DI	Yes
• Counter	No
• Oversampling	No
• MSI	No
Supply voltage	
Rated value (AC)	230 V
permissible range, lower limit (AC)	187 V
permissible range, upper limit (AC)	264 V
Reverse polarity protection	No
Input current	
Current consumption (rated value)	10 mA
Encoder supply	
Number of outputs	4
Short-circuit protection	No; when using BU type B1, a fuse with 10 A tripping current must be provided
Output current	
• up to 60 °C, max.	10 A
Power loss	
Power loss, typ.	1 W; Active power, load voltage 230 V, all inputs connected with 230 V, 50 Hz
Address area	
Address space per module	
• Inputs	1 byte; + 1 byte for QI information
Hardware configuration	
Automatic encoding	Yes
• Mechanical coding element	Yes
Selection of BaseUnit for connection variants	
• 1-wire connection	BU type B1
• 2-wire connection	BU type B1
• 3-wire connection	BU type B1
• 4-wire connection	BU type B1 + potential distributor module
Digital inputs	

Number of digital inputs	4
Input characteristic curve in accordance with IEC 61131, type 3	Yes
Input voltage	
<ul style="list-style-type: none"> • Rated value (AC) • for signal "0" • for signal "1" 	230 V 0V AC to 40V AC 74 V AC to 264 V AC
Input current	
<ul style="list-style-type: none"> • for signal "1", typ. 	10.8 mA
Input delay (for rated value of input voltage)	
for standard inputs	
<ul style="list-style-type: none"> — parameterizable — at "0" to "1", min. — at "0" to "1", max. — at "1" to "0", min. — at "1" to "0", max. 	No 1.5 ms 4 ms 10 ms 10 ms
Cable length	
<ul style="list-style-type: none"> • shielded, max. • unshielded, max. 	1 000 m 600 m
Encoder	
Connectable encoders	
<ul style="list-style-type: none"> • 2-wire sensor 	Yes
Interrupts/diagnostics/status information	
Alarms	
<ul style="list-style-type: none"> • Diagnostic alarm • Hardware interrupt 	No No
Diagnoses	
<ul style="list-style-type: none"> • Monitoring the supply voltage • Wire-break • Short-circuit 	No No No
Diagnostics indication LED	
<ul style="list-style-type: none"> • Monitoring of the supply voltage (PWR-LED) • Channel status display • for channel diagnostics • for module diagnostics 	Yes; green PWR LED Yes; green LED No Yes; green/red DIAG LED
Potential separation	
Potential separation channels	
<ul style="list-style-type: none"> • between the channels • between the channels and backplane bus • between the channels and the power supply of the electronics 	No Yes No
Isolation	
Isolation tested with	2 545 V DC (type test) and according to EN 50155 (routine test)
Standards, approvals, certificates	
Suitable for safety functions	No
Railway application	
<ul style="list-style-type: none"> • EN 50121-3-2 • EN 50121-4 • EN 50124-1 • EN 50125-1 • EN 50125-2 • EN 50125-3 • EN 50155 • EN 61373 • Fire protection acc. to EN 45545-2 	Yes; EMC for rail vehicles Yes; EMC for signal and telecommunications systems Yes; Railway applications - overvoltage category OV3; pollution degree PD2; UNm = 230 V AC Yes; Rail vehicles - see ambient conditions Yes; Stationary electrical equipment - see ambient conditions Yes; Signal and telecommunications systems - see ambient conditions; vibrations and shocks: Application point outside of tracks (1 m to 3 m away from track) Yes; Rail vehicles - temperature class OT4, ST1/ST2, horizontal mounting position Yes; Rail vehicles - vibrations and shocks: Category 1 Class A/B Yes; For proof of conformity, see Service & Support
Ambient conditions	
Ambient temperature during operation	
<ul style="list-style-type: none"> • horizontal installation, min. • horizontal installation, max. 	-40 °C; = Tmin (incl. condensation/frost) 70 °C; = Tmax; +85 °C for 10 min (OT4, ST1/ST2 acc. to EN 50155)

<ul style="list-style-type: none"> vertical installation, min. vertical installation, max. 	<p>-40 °C; = Tmin</p> <p>50 °C; = Tmax</p>
Altitude during operation relating to sea level	
<ul style="list-style-type: none"> Installation altitude above sea level, max. Ambient air temperature-barometric pressure-altitude 	<p>2 000 m</p> <p>Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)</p>
Relative humidity	
<ul style="list-style-type: none"> With condensation, tested in accordance with IEC 60068-2-38, max. 	100 %; RH incl. condensation / frost (no commissioning in bedewed state), horizontal installation
Resistance	
Coolants and lubricants	
<ul style="list-style-type: none"> Resistant to commercially available coolants and lubricants 	Yes; Incl. diesel and oil droplets in the air
Use in stationary industrial systems	
<ul style="list-style-type: none"> to biologically active substances according to EN 60721-3-3 to chemically active substances according to EN 60721-3-3 to mechanically active substances according to EN 60721-3-3 Against mechanical environmental conditions acc. to EN 60721-3-3 	<p>Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna); Class 3B3 on request</p> <p>Yes; Class 3C4 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *</p> <p>Yes; Class 3S4 incl. sand, dust, *</p> <p>Yes; Class 3M8 using the SIPLUS Mounting Kit ET 200SP (6AG1193-6AA00-0AA0)</p>
Use on land craft, rail vehicles and special-purpose vehicles	
<ul style="list-style-type: none"> to biologically active substances according to EN 60721-3-5 to chemically active substances according to EN 60721-3-5 to mechanically active substances according to EN 60721-3-5 Against mechanical environmental conditions acc. to EN 60721-3-5 against mechanical environmental conditions in agriculture acc. to ISO 15003 	<p>Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request</p> <p>Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 60068-2-52 (severity degree 3); *</p> <p>Yes; Class 5S3 incl. sand, dust; *</p> <p>Yes; Class 5M2 using the SIPLUS Mounting Kit ET 200SP (6AG1193-6AA00-0AA0)</p> <p>Yes; level 1 (Location LE) using the SIPLUS Mounting Kit ET 200SP (6AG1193-6AA00-0AA0)</p>
Usage in industrial process technology	
<ul style="list-style-type: none"> Against chemically active substances acc. to EN 60654-4 Environmental conditions for process, measuring and control systems acc. to ANSI/ISA-71.04 	<p>Yes; Class 3 (excluding trichlorethylene)</p> <p>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)</p>
Remark	
<ul style="list-style-type: none"> 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	
<ul style="list-style-type: none"> 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 	<p>Yes; Class 2 for high reliability</p> <p>Yes; Type 1 protection</p> <p>Yes; Class PC2 protective coating acc. to EN 50155:2017</p> <p>Yes; Discoloration of coating possible during service life</p> <p>Yes; Conformal coating, Class A</p>
Dimensions	
Width	20 mm
Height	73 mm
Depth	58 mm
Weights	
Weight, approx.	36 g
Other	
Note:	for use in railway applications, also observe the product information "SIPLUS extreme RAIL" A5E37661960A, Online Support article 109736776

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