

SIPLUS ET 200SP IM155-6PN ST BA TX RAIL -40 ... +70 °C (TX with 85°C for 10 min) with conformal coating BasedOn: 6ES7155-6AA01-0BN0 . max. 32 Peripherymodules and 16 ET 200AL Modules, Single Hot SWAP, Bundle contains: Interface-Module (6AG2155-6AU01-4BN0), Server-Module (6AG1193-6PA00-7AA0), Busadapter BA 2xRJ45

### General information

Product type designation	IM 155-6 PN ST
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>Module swapping during operation (hot swapping)</li> </ul>	Yes; Single hot swapping

### Configuration control

via dataset	Yes
-------------	-----

### 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
Short-circuit protection	Yes

### Mains buffering

<ul style="list-style-type: none"> <li>Mains/voltage failure stored energy time</li> </ul>	10 ms
--	-------

### Input current

Current consumption (rated value)	450 mA
Current consumption, max.	550 mA
Inrush current, max.	3.7 A
$I^2t$	0.09 A <sup>2</sup> ·s

### Power

Infeed power to the backplane bus	4.5 W
-----------------------------------	-------

### Power loss

Power loss, typ.	1.9 W
------------------	-------

### Address area

Address space per module	
<ul style="list-style-type: none"> <li>Address space per module, max.</li> </ul>	256 byte; per input / output
Address space per station	
<ul style="list-style-type: none"> <li>Address space per station, max.</li> </ul>	512 byte; Dependent on configuration

Hardware configuration	
Rack	
• Modules per rack, max.	32; + 16 ET 200AL modules
Submodules	
• Number of submodules per station, max.	256
Interfaces	
Number of PROFINET interfaces	1; 2 ports (switch)
1. Interface	
Interface types	
• Number of ports	2
• integrated switch	Yes
• RJ 45 (Ethernet)	Yes; Pre-assembled BusAdapter BA 2x RJ45
• BusAdapter (PROFINET)	Yes; Applicable BusAdapter: BA 2x RJ45, BA 2x FC
Functionality	
• PROFINET IO Device	Yes
• Open IE communication	Yes
• Media redundancy	Yes; PROFINET MRP
Interface types	
RJ 45 (Ethernet)	
• Transmission procedure	PROFINET with 100 Mbit/s full duplex (100BASE-TX)
• 10 Mbps	Yes; for Ethernet services
• 100 Mbps	Yes; PROFINET with 100 Mbit/s full duplex (100BASE-TX)
• Autonegotiation	Yes
• Autocrossing	Yes
Protocols	
PROFINET IO Device	
Services	
— Isochronous mode	No
— Open IE communication	Yes
— IRT	Yes; with send cycles of between 250 µs and 4 ms in increments of 125 µs
— PROFIenergy	Yes
— Prioritized startup	Yes
— Shared device	Yes
— Number of IO Controllers with shared device, max.	2
Redundancy mode	
— MRP	Yes
— MRPD	No
— PROFINET system redundancy (S2)	No

Open IE communication	
• TCP/IP	Yes
• SNMP	Yes
• LLDP	Yes
Isochronous mode	
Isochronous operation (application synchronized up to terminal)	No
Interrupts/diagnostics/status information	
Status indicator	Yes
Alarms	Yes
Diagnostic functions	Yes
Diagnostics indication LED	
• RUN LED	Yes; Green LED
• ERROR LED	Yes; Red LED
• MAINT LED	Yes; yellow LED
• Monitoring of the supply voltage (PWR-LED)	Yes; green PWR LED
• Connection to network LINK (green)	Yes; 2x green link LEDs on BusAdapter
Potential separation	
between backplane bus and electronics	No
between PROFINET and all other circuits	Yes; 1500 V AC
between supply and all other circuits	No
Permissible potential difference	
between different circuits	Safety extra low voltage SELV
Isolation	
Isolation tested with	707 V DC (type test) and according to EN 50155 (routine test)
Standards, approvals, certificates	
Network loading class	2
Security level	According to Security Level 1 Test Cases V1.1.1
Railway application	
• EN 50121-3-2	Yes; EMC for rail vehicles
• EN 50121-4	Yes; EMC for signal and telecommunications systems
• EN 50124-1	Yes; Railway applications - overvoltage category OV2; pollution degree PD2; rated surge voltage UNi = 0.5 kV; UNm = 24 V DC
• EN 50125-1	Yes; Rail vehicles - see ambient conditions
• EN 50125-2	Yes; Stationary electrical equipment - see ambient conditions
• EN 50125-3	Yes; Signal and telecommunications systems - see ambient conditions; vibrations and shocks: Application point outside of tracks (1 m to 3 m away from track)
• EN 50155	Yes; Rail vehicles - temperature class Tx, horizontal mounting position, salt spray Class ST2
• EN 61373	Yes; Rail vehicles - vibrations and shocks: Category 1 Class A/B

- Fire protection acc. to EN 45545-2

Yes; Rail vehicles - verification on request

## Ambient conditions

<b>Ambient temperature during operation</b>	
• horizontal installation, min.	-40 °C
• horizontal installation, max.	70 °C; = Tmax; +85 °C for 10 min (Tx acc. to EN 50155)
<b>Altitude during operation relating to sea level</b>	
• Installation altitude above sea level, max.	2 000 m
• Ambient air temperature-barometric pressure-altitude	Tmin ... Tmax at 1 140 hPa ... 795 hPa (-1 000 m ... +2 000 m)
<b>Relative humidity</b>	
• With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under condensation conditions)
<b>Resistance</b>	
<b>Coolants and lubricants</b>	
— Resistant to commercially available coolants and lubricants	Yes
<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 60721-3-5	Yes; Class 5B2 mold, fungus and dry rot spores (with the exception of fauna); Class 5B3 on request
— to chemically active substances according to EN 60721-3-5	Yes; Class 5C3 (RH < 75 %) incl. salt spray acc. to EN 50155 (ST2); *
— to mechanically active substances according to EN 60721-3-5	Yes; Class 5S3 incl. sand, dust; *
<b>from supply voltage 1L+</b>	
— Note regarding classification of environmental conditions acc. to EN 60721	* The supplied plug covers must remain in place over the unused interfaces during operation!
<b>Conformal coating</b>	
• Coatings for printed circuit board assemblies acc. to EN 61086	Yes
• Protection against fouling acc. to EN 60664-3	Yes
• Electronic equipment on rolling stock acc. to EN 50155	Yes
• Acceptance criteria for electronic modules in accordance with IPC-A-610	Yes
• Qualification and Performance of Electrical Insulating Compound for Printed Board Assemblies according to IPC-CC-830A	Yes

Connection method	
ET-Connection	
• via BU/BA Send	Yes; + 16 ET 200AL modules
Dimensions	
Width	50 mm
Height	117 mm
Depth	74 mm
Weights	
Weight, approx.	190 g; IM 155-6 PN BA with 2x RJ45 ports and server module
Other	
Note:	For use in railway applications, also observe the product information "SIPLUS extreme RAIL" A5E37661960A Online Support article 109736776
<b>last modified:</b>	05/16/2018