



PSI135

Power supply module for backplane isolated

Power supply modules type PSI135 feed the backplane and the internal supply sections of plugged modules. The integrated galvanic isolation decouples disturbances and separates supply groups strictly. Up to 4 PSI135 modules can be operated simultaneously on one backplane, providing supply redundancy in the event of a primary supply or infrastructure failure. The remaining load is distributed evenly on the unaffected modules. The devices measure all relevant quantities of supply and load circuit automatically, aggregate them to meaningful diagnostic information on the application interface as well as visual indication.

Features

- 35 W rated power output at $T_a = -30\text{ °C}$ to $+70\text{ °C}$
- Buffering for failure according to IEC 61131-2 PS2, logging
- Galvanic isolation of 850 V AC, rms to the system
- Supply redundancy due to multiple power feeds
- Measurement of supply and load circuit
- Extended diagnostics and load aggregation
- Eventlog power fail safe

Part type designation	Part number
PSI135	00028967-00
PSI135 EC	00040514-00

Common properties	
Basic function	Station power supply with galvanic isolation
System	Bachmann system M100
Module bus interface	
System	M100
Synchronization/clocks	
Distributed clocks	Yes
Time stamp format	64 bit in ns
Time resolution	10 ns
Time precision	25 ns within the station 100 ns via network (typ.) 1 µs via network (max.)
Synchronization functions	Latch input of the measured values (e.g. supply voltage, output power) Event time stamp (e.g. powerfail)
Diagnostics	
Electronic type plate	Yes (application interface and in the engineering tool)
Machine readable type plate	Yes (QR code with type and part information and internet link)
Environmental conditions sensor	Integrated (temperature)
Diagnostics interface	API
Diagnostics interface, functions	Measured value supply voltage Measured value output power Measured value module interior temperature Extreme values of supply voltage with time stamp Extreme values of output power with time stamp Extreme values of different temperature loads with time stamp Various time aggregations Events and current operating state Historical event list
Operational indications	Two-color LED MOD for module state and OUT for output state
Error indications	- Single-color LED input side: I: state (green), OV overvoltage (red), UV undervoltage (red), PF powerfail (red) - Single-color LED output side: O: state (green), OT overtemperature (red), UV undervoltage (red), OL overload (red)
Powerfail, logic supply	Input voltage < 14.4 V → Output deactivation (failure) Input voltage > 16.6 V → (Re-)activation of output (power supply active)
Overload/short-circuit	Output current > 4.4 A (44 W) on backplane side → Overload protection active (hiccup mode)
Energy supply	
Supply voltage, nominal	24 V DC
Supply voltage, range	18 V to 32 V DC
Supply voltage, short-term overload	40 V for 100 ms
Power consumption, continuous, max.	40.7 W @ 24 V DC, T _a = 25 °C, P _{out} = 35 W 41.5 W @ 24 V DC, T _a = 60 °C, P _{out} = 35 W
Input current, continuous, max.	1.7 A typ. @ 24 V DC, T _a = 25 °C, P _{out} = 35 W 1,73 A typ. @ 24 V DC, T _a = 60 °C, P _{out} = 35 W
Input current, inrush	25.4 A for < 1 ms (@ 24 V DC, T _a = 25 °C)
Input capacity	Typ. 330 µF

Energy supply	
Maximum residual ripple	3.6 V _{SS} at 50 Hz, 60 Hz, 100 Hz and 120 Hz
Power output for I/O modules/backplane	35 W @ 24 V DC, T _a ≤ 70 °C
Permitted voltage interruptions	PS2 acc. IEC 61131-2
Reverse polarity protection	Yes, continuously (up to -32 V)
Limitation of supply / fusing	No internal protection External protection with circuit breaker characteristic: B, C, D, Z or K
Parallel operation	Yes, up to 4x PSI135 parallel on backplane Yes, with node adapter with integrated power supply (if galvanic isolation is required, the node adapter must not be supplied with power)
Power dissipation	2.5 W @ 24 V DC, T _a = 25 °C, P _{out} = 0 W 5.6 W @ 24 V DC, T _a = 25 °C, P _{out} = 35 W
Power consumption from backplane	408 mW
Supply terminal block bridge	Yes, internal connection (from 1+ to 2+ and 1- to 1+)
Product safety	
Galvanic isolation	850 V AC
Degree of protection acc. IEC 60529	IP40, terminal block IP30
Protection class acc. IEC 61010-1, IEC 61010-2-201	III
Overvoltage category acc. IEC 61010-1	II
Short-circuit protected, outputs	Yes
Keying of backplane slots	IO (1/E, 2, 3, 4, ...31)
Environmental conditions	
Temperature, operating	-30 °C to +70 °C
Temperature, transport and storage	-40 °C to +85 °C
Installation altitude, max.	Up to 2000 m without temperature derating 2000 m to 4500 m: Reduction of the max. ambient temperature by 0.1 °C per 100 m elevation
Air pressure	106 kPa to 58 kPa (0 m to 4500 m)
Relative humidity, operation	Standard: 0 % to 100 % noncondensing Extended Climate: 0 % to 100 % with temporary condensation
Pollution degree acc. IEC 61010-1	Standard: 2, noncondensing Extended Climate: 2
Vibration	6 g (14.1 Hz to 500 Hz) 7.5 mm amplitude (2 Hz to 14.1 Hz) Test duration: 15 h
Shock	45 g max. (test scope 18 shocks) 20 g permanently (test scope 6000 shocks)
Approvals/certificates	
Product safety	CE, UKCA cULus (NRAQ, NRAQ7)
Hazard area operation	ATEX: Ex II 3G Ex ec IIC Gc
Maritime	ABS, BV, DNV, KR, LR, NK, RINA: in preparation
Hazardous substances and waste treatment	RoHS, RoHS China, REACH, WEEE
Quality management	ISO 9001 for development and production
Engineering	
Configuration tool	SolutionCenter (> 2.90)
Firmware package update	Yes (via SolutionCenter or console interface on the head module)

Mounting/installation	
Mounting type	Inserting and screwing onto the backplane with integrated M4 screw
Ground connection for protection class I	Not required
Dimensions	
Number of slots	1
Size unpacked W × H × D	95.7 mm × 152.5 mm × 23.3 mm
Mass unpacked	347g

Order data

Part type designation	Part number	Description
PSI135	00028967-00	Power supply module for backplane/modules system M100 Power supply module 35 W, galvanically isolated; multiply pluggable for extended power or availability, outage buffering PS2 acc. IEC 61131-2, extended diagnostics; without terminal block
PSI135 EC	00040514-00	Like PSI135 with Extended Climate Range ⚡

Accessories

Part type designation	Part number	Description
BPR1nn	00039235-nn	Backplane for DIN-rail mounting Active backplane system M100: BPR1nn with nn = 04 to 16 slots in increments of 1, as well as 20, 24, 28, 32 slots, for DIN-rail mounting; delivery without backplane slot covers and without mounting rail
BPR1nn EC	00039236-nn	Like BPR1nn; Extended Climate Range ⚡
BPS1nn	00039237-nn	Backplane for direct screw mounting Active backplane system M100: BPS1nn with nn = 04 to 16 slots in increments of 1, as well as 20, 24, 28, 32 slots, for direct screw mounting; delivery without backplane slot covers and without screws
BPS1nn EC	00039238-nn	Like BPS1nn; Extended Climate Range ⚡
TPI100_W4_P5.0_Cgy_Lsup		Supply terminal block Completely removable terminal block, push-in spring connector for system M100, 4-way/contacts, pitch 5.0 mm, female, conductors flexible 0.2 mm ² to 2.5 mm ² (24 to 14 AWG), solid 0.2 mm ² to 1.5 mm ² (24 to 16 AWG), with wire end ferrules 0.25 mm ² to 1.5 mm ² (24 to 16 AWG), stripping length: 10 mm, rating: 300 V / 8 A per contact, connector color: gray, push-release: yellow, labeling: 1+/1-/2+/2-
TKP106		Keying element Keying element for signal terminal blocks and supply terminal blocks TPI100 for system M100, plastic ring with 6 keying elements
TPI100_W4_Set ¹⁾	00042413-00	Terminal block set for M100 modules with front supply only: 1x TPI100_W4_P5.0_Cgy_Lsup 1x TKP106

¹⁾ All components of the set are also available in bulk packages.