

I/O systems

SIMATIC ET 200 systems for the control cabinet
SIMATIC ET 200SP

Fail-safe I/O modules > Fail-safe special modules

Overview



Digital fail-safe power module:
F-PM-E PPM 24 V DC/8 A for BU type C0, color code
CC52

Other properties:

- Certified up to SIL 3 (IEC 61508), PL e (ISO 13849)
- Safety-related shutdown of output modules within the potential group of the F-PM-E
- Two fail-safe digital inputs, for reading of sensor information (1 or 2 channels)
- One fail-safe digital output onboard (ppm switching, up to 2 A, up to SIL 3/PL e)

- Fail-safe digital output and potential supply pp or pm switching can be parameterized
- Parameterizable onboard evaluation of the fail-safe inputs for control of the fail-safe digital outputs and of the potential group
- Digital standard output modules can be shut down up to PL d (ISO 13849) and SIL 2 (IEC 61508) (up to 8 A)
- Can be plugged onto type C0 BaseUnits (BU) with automatic coding
- LED display for error, operation, supply voltage and status
- Clear labeling on front of module
 - Plain text identification of the module type and function class
 - 2D matrix code (order and serial number)
 - Connection diagram
 - Color coding of the DI module type: white
 - Hardware and firmware version
 - Color code (CC) for module-specific color coding of the potentials at the terminals of the BU
 - Complete Article No.
- Optional labeling accessories
 - Labeling strips
 - Reference identification label
- Optional module-specific color identification of the terminals according to the color code (CC)
- Optional system-integrated shield connection
- The modules support PROFIsafe in both PROFIBUS and PROFINET configurations. They can be used with all fail-safe SIMATIC S7 CPUs

Technical specifications

Article number	6ES7136-6PA00-0BC0 ET 200SP, POWERMOD. F-PM-E PPM, DC24V
General information	
Product type designation	F-PM-E PPM 24VDC
Product function	
• I&M data	Yes; I&M0 to I&M3
Engineering with	
• STEP 7 TIA Portal configurable/integrated as of version	V12
• STEP 7 configurable/integrated as of version	V5.5 SP3 / -
• PROFIBUS as of GSD version/GSD revision	V2.3
• PROFINET as of GSD version/GSD revision	V2.31
Supply voltage	
Type of supply voltage	24 V DC
Rated value (DC)	24 V
Reverse polarity protection	Yes
Output voltage	
Type of output voltage	DC
Encoder supply	
Number of outputs	2
Short-circuit protection	Yes; Electronic (response threshold 0.7 A to 2.1 A)
Output current	
• up to 60 °C, max.	0.3 A
24 V encoder supply	
• 24 V	Yes; min. L+ (-1.5 V)
• Short-circuit protection	Yes
• Output current, max.	600 mA; Total current of all encoders

Article number	6ES7136-6PA00-0BC0 ET 200SP, POWERMOD. F-PM-E PPM, DC24V
Digital inputs	
Number of digital inputs	2
Source/sink input	Yes; P-reading
Input characteristic curve in accordance with IEC 61131, type 1	Yes
Input voltage	
• Type of input voltage	DC
• Rated value (DC)	24 V
• for signal "0"	-30 to +5V
• for signal "1"	+15 to +30V
Input current	
• for signal "1", typ.	3.7 mA
Input delay (for rated value of input voltage) for standard inputs	
- parameterizable	Yes
for counter/technological functions	
- parameterizable	No
Cable length	
• shielded, max.	1 000 m
• unshielded, max.	500 m
Digital outputs	
Number of digital outputs	1
Digital outputs, parameterizable	Yes
Short-circuit protection	Yes
Open-circuit detection	Yes
Overload protection	Yes
Limitation of inductive shutdown voltage to	max. 1.5 V

Technical specifications (continued)

Article number	6ES7136-6PA00-0BC0 ET 200SP, POWERMOD. F-PM-E PPM, DC24V
Switching capacity of the outputs	
• with resistive load, max.	8 A
• on lamp load, max.	100 W
Load resistance range	
• lower limit	3 Ω
• upper limit	2 000 Ω
Output voltage	
• for signal "1", min.	24 V; L+ (-0.5 V)
Output current	
• for signal "1" rated value	8 A
• for signal "0" residual current, max.	1.5 mA; PP-switching: max. 1.5 mA; PM-switching: max. 1 mA
Switching frequency	
• with resistive load, max.	10 Hz; Symmetrical
• with inductive load, max.	0.1 Hz; according to IEC 60947-5-1, DC-13, symmetrical
• on lamp load, max.	4 Hz; Symmetrical
Total current of the outputs	
• Current per channel, max.	8 A; Note derating data in the manual
• Current per module, max.	8 A; Note derating data in the manual
Cable length	
• shielded, max.	1 000 m
• unshielded, max.	500 m
Interrupts/diagnostics/ status information	
Diagnostics function	Yes, "Alarms/diagnostic messages" section in the manual
Substitute values connectable	No
Alarms	
• Diagnostic alarm	Yes
• Hardware interrupt	No

Article number	6ES7136-6PA00-0BC0 ET 200SP, POWERMOD. F-PM-E PPM, DC24V
Diagnostics indication LED	
• RUN LED	Yes; Green LED
• ERROR LED	Yes; Red LED
• Monitoring of the supply voltage (PWR-LED)	Yes; green PWR LED
• Channel status display	Yes; Green LED
• for channel diagnostics	Yes; Red LED
• for module diagnostics	Yes; green/red DIAG LED
Potential separation	
Potential separation channels	
• between the channels and backplane bus	Yes
Isolation	
Isolation tested with	707 V DC (type test)
Standards, approvals, certificates	
Suitable for safety functions	Yes
Highest safety class achievable in safety mode	
• Performance level according to ISO 13849-1	PLe
• SIL acc. to IEC 61508	SIL 3
Probability of failure (for service life of 20 years and repair time of 100 hours)	
- Low demand mode: PFDavg in accordance with SIL3	< 2.00E-05 1/h
- High demand/continuous mode: PFH in accordance with SIL3	< 1.00E-09 1/h
Ambient conditions	
Ambient temperature during operation	
• horizontal installation, min.	0 °C
• horizontal installation, max.	60 °C
• vertical installation, min.	0 °C
• vertical installation, max.	50 °C
Dimensions	
Width	20 mm
Height	72 mm
Depth	55 mm
Weights	
Weight, approx.	70 g

Ordering data

Ordering data	Article No.
Digital F power module F-PM-E 24 V DC/8 A PPM Standard	6ES7136-6PA00-0BC0
BU type C0, color code CC52. 2 inputs, 1 output, SIL3/Cat.4/PLe	
Type C0 BaseUnits	
BU20-P6+A2+4D	6ES7193-6BP20-0DC0
BU type C0; BaseUnit (light) with 6 push-in terminals (1...6) to the module and an additional 2 AUX terminals; new load group	
Accessories	
Reference identification label	6ES7193-6LF30-0AW0
10 sheets of 16 labels	
Labeling strips	
1000 labeling strips DIN A4, yellow, card, for inscription with laser printer	6ES7193-6LA10-0AG0

Article No.

BU cover	
for covering empty slots (gaps); 5 units	
• 20 mm wide	6ES7133-6CV20-1AM0
Shield connection	6ES7193-6SC00-1AM0
5 shield supports and 5 shield terminals	
Color-coding plates	
• Color code CC52, module-specific, for 8 push-in terminals; 10 units	6ES7193-6CP52-2MC0
E-coding element type F	6ES7193-6EF00-1AA0
5 units, spare part	

Technische Daten		Ordering data	Article No.
Article number	6AG1136-6PA00-2BC0	SIPLUS digital F power module F-PM-E 24 V DC/8 A PPM Standard (Extended temperature range and exposure to media) BU type C0, color code CC52. 2 inputs, 1 output, SIL3/Cat.4/PLe	6AG1136-6PA00-2BC0
Based on	6ES7136-6PA00-0BC0 SIPLUS ET 200SP F-PM-E 24VDC/8A PPM		
Ambient conditions		Type C0 BaseUnits	
Ambient temperature during operation		BU20-P6+A2+4D	6AG1193-6BP20-7DC0
• horizontal installation, min.	-25 °C	(Extended temperature range and exposure to media)	
• horizontal installation, max.	60 °C	BU type C0; BaseUnit (light) with 6 push-in terminals (1...6) to the module and an additional 2 AUX terminals; new load group	
• vertical installation, min.	-25 °C		
• vertical installation, max.	50 °C		
Extended ambient conditions		Accessories	See SIMATIC ET 200SP, fail-safe special modules, page 9/123
• relative to ambient temperature- atmospheric pressure-installation altitude	Tmin ... Tmax at 1080 hPa ... 795 hPa (-1000 m ... +2000 m)		
Relative humidity			
- With condensation, tested in accordance with IEC 60068-2-38, max.	100 %; RH incl. condensation/frost (no commissioning under conden- sation conditions)		
Resistance			
- against biologically active substances / conformity with EN 60721-3-3	Yes; Class 3B2 mold, fungus and dry rot spores (with the exception of fauna). The supplied connector covers must remain on the unused interfaces during operation!		
- against chemically active substances / conformity with EN 60721-3-3	Yes; Class 3C4 (RH < 75%) incl. salt spray according to EN 60068-2-52 (degree of severity 3). The supplied connector covers must remain on the unused interfaces during operation!		
- against mechanically active substances / conformity with EN 60721-3-3	Yes; Class 3S4 incl. sand, dust. The supplied connector covers must remain on the unused interfaces during operation!		