SIEMENS

Data sheet 6ES7226-6ME50-0XB0



SIMATIC S7-1200 G2, digital I/O, SM 1226, F-DI 4x / F-DQ 2x 2A PPM / DI 2x, 24 V DC, up to PL e (ISO 13849-1) / SIL3 (IEC 61508)

General information	
Product type designation	SM 1226, F-DI 4x 24 V DC, F-DQ 2x 24 V DC, DI 2x 24 V DC
HW functional status	01
Firmware version	V1.0.0
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Reverse polarity protection	Yes
Input current	
from backplane bus 5 V DC, max.	80 mA
Digital inputs	
● from load voltage L+ (without load), max.	42 mA; 1L+ plus 6 mA / input used plus any VS0 to VS3 current used
Digital outputs	
● from load voltage L+, max.	45 mA; 2L+ plus load current for all P-switch outputs
Encoder supply	
Number of outputs	4; Vs0 - Vs3
24 V encoder supply	
● Short-circuit protection	Yes; per channel, electronic
● Output current, max.	0.5 A; per sensor supply; 1.0 A total sensor supplies
Power loss	
Power loss, typ.	6 W
Digital inputs	
Number of digital inputs	6; 4 fail-safe inputs: 2 (1oo2), 4 (1oo1), or a mix; 2 standard inputs
● in groups of	6
Sourcing/sinking input	No
Input characteristic curve in accordance with IEC 61131, type 1	Yes; Current-sinking
Input voltage	
● Rated value (DC)	24 V
● for signal "0"	-3 to +5V
● for signal "1"	+15 to +30 V
Input current	
● for signal "0", max. (permissible quiescent current)	0.5 mA
● for signal "1", min.	2.5 mA
● for signal "1", typ.	4 mA; 6 mA maximum
Input delay (for rated value of input voltage)	
for standard inputs	
— parameterizable	Yes; Fail-safe: 0.8 / 1.6 / 3.2 / 6.4 / and 12.8 ms (selectable individually) Standard: 0.2 / 0.4 / 0.8 / 1.6 / 3.2 / 6.4 / and 12.8 ms (selectable together)

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Cable length	
● shielded, max.	500 m
● unshielded, max.	300 m
Digital outputs	
Number of digital outputs	2
● in groups of	2
Short-circuit protection	Yes; per channel, electronic
● Response threshold, typ.	10 A
Open-circuit detection	Yes; per channel, only detects when output is off with PM load that allows small negative current
Overload protection	Yes; per channel
● Response threshold, typ.	4 A; measured at P-switch for more than 0.5 s
Limitation of inductive shutdown voltage to	Typ. -74 V (typ. -26 V P-switch; typ. +48 V M-switch)
Controlling a digital input	Yes; Only permitted in PP mode, not with PM mode
Switching capacity of the outputs	
● on lamp load, max.	10 W
Output voltage	
● Rated value (DC)	24 V
● for signal "1", min.	2L+ (-2.0 V); P-switch: 2L+ (-1.5 V); M-switch: 0.5 V
Output current	
● for signal "1" rated value	2 A
● for signal "1" permissible range, max.	10 mA to 2 A; 4 A total for all outputs
● for signal "0" residual current, max.	0.5 mA; P-switch or M-switch
Parallel switching of two outputs	
● for uprating	No
● for redundant control of a load	No
Switching frequency	
● with resistive load, max.	30 Hz
● with inductive load, max.	0.1 Hz
● on lamp load, max.	10 Hz
Cable length	
● shielded, max.	500 m
● unshielded, max.	30 m for hardware version FS-01; 10 m for hardware revision FS-01 when used in burner applications related to EN 298
Interrupts/diagnostics/status information	
Diagnostics function	Yes; available for the module and failsafe I/O only; not supported for standard inputs
Diagnostics indication LED	
● DIAG LED	Yes
● for status of the inputs	Yes
● for status of the outputs	Yes
Potential separation	
Potential separation digital inputs	
● between the channels	No
● Number of potential groups	1
● between the channels and backplane bus	Yes
Potential separation digital outputs	
● between the channels	No
● between the channels and backplane bus	Yes
Isolation	
Isolation tested with	707 V DC (type test)
Degree and class of protection	
IP degree of protection	IP20
Standards, approvals, certificates	
Siemens Eco Profile (SEP)	Siemens EcoTech
CE mark	Yes
cULus	Yes
RCM (formerly C-TICK)	Yes
KC approval	Yes

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Highest safety class achievable in safety mode	
● Performance level according to ISO 13849-1	PLd (F-DI single-channel, F-DQ with Dark test disabled), PLe (F-DI two-channel, F-DQ including Dark test disabled for 48 hours)
● Category according to ISO 13849-1	Cat. 3 (F-DI single-channel, F-DQ with Dark test disabled), Cat. 4 (F-DI two-channel, F-DQ including Dark test disabled for 48 hours)
● SIL acc. to IEC 61508	SIL 2 (F-DI single-channel, F-DQ with Dark test disabled), SIL 3 (F-DI two-channel, F-DQ including Dark test disabled for 48 hours)
Probability of failure (for service life of 20 years and repair time of 100 hours)	
— Low demand mode: PFDavg in accordance with SIL2	< 2.00E-04 F-DI; < 2.00E-04 F-DQ
— Low demand mode: PFDavg in accordance with SIL3	< 3.00E-05 F-DI; < 3.00E-05 F-DQ
— High demand/continuous mode: PFH in accordance with SIL2	< 5.00E-09 1/h F-DI; < 6.00E-09 1/h F-DQ
— High demand/continuous mode: PFH in accordance with SIL3	< 5.00E-10 1/h F-DI; < 5.00E-09 1/h F-DQ
Ambient conditions	
Free fall	
● Fall height, max.	0.3 m; five times, in product package
Ambient temperature during operation	
● horizontal installation, min.	0 °C; No condensation
● horizontal installation, max.	60 °C; at max. specification
● vertical installation, min.	0 °C; No condensation
● vertical installation, max.	50 °C; at max. specification
Ambient temperature during storage/transportation	
● min.	-40 °C
● max.	70 °C
Air pressure acc. to IEC 60068-2-13	
● Operation, min.	540 hPa
● Operation, max.	1 140 hPa
● Storage/transport, min.	540 hPa
● Storage/transport, max.	1 140 hPa
Altitude during operation relating to sea level	
● Installation altitude, min.	-1 000 m
● Installation altitude, max.	5 000 m
● Ambient air temperature-barometric pressure-altitude	For altitudes above 2 000 m, the maximum permissible ambient temperature must be derated: >2 000 m 0.9 factor, >3 000 m 0.8 factor, >4 000 m 0.7 factor. 5 000 m is max allowed altitude.
Relative humidity	
● Operation at 25 °C without condensation, max.	95 %
Mechanics/material	
Enclosure material (front)	
● Plastic	Yes
Dimensions	
Width	30 mm
Height	125 mm
Depth	100 mm
Weights	
Weight, approx.	180 g

Classifications

	Version	Classification
eClass	16	27-24-22-04
eClass	14	27-24-22-04
eClass	12	27-24-22-04
eClass	9.1	27-24-22-04
eClass	9	27-24-22-04
eClass	8	27-24-22-04
eClass	7.1	27-24-22-04
eClass	6	27-24-22-04

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ETIM	10	EC001419
ETIM	9	EC001419
ETIM	8	EC001419
ETIM	7	EC001419

Approvals / Certificates

General Product Approval

Miscellaneous

China RoHS

General Product Approval	EMV	For use in hazardous locations		Functional Saftey	
			CCC-Ex	TUEV	TUEV

Environment

last modified: 9/8/2026

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