SIEMENS

Data sheet 6ES7451-3AL00-0AE0

	SIMATIC S7-400, positioning module FM 451 for rapid/slow traverse drives, 3 channels incl. configuration package on CD
Supply voltage	
Rated value (DC)	24 V
Input current	
Current consumption, typ.	550 mA
Encoder supply	
5 V encoder supply	
● 5 V	Yes
● Output current, max.	210 mA
● Cable length, max.	35 m; at max. 210 mA
24 V encoder supply	
● 24 V	Yes
● Output current, max.	300 mA
● Cable length, max.	100 m; at max. 300 mA
Absolute encoder (SSI) encoder supply	
● Absolute encoder (SSI)	Yes
● Type of output voltage	24 V DC
● Output current, max.	300 mA
● Cable length, max.	300 m; At max. 156 kbit/s
Power loss	
Power loss, typ.	3.6 W
Digital inputs	
Number of digital inputs	12; 4 per axis
Functions	Reference cams, reversing cams, flying actual value setting, start/stop positioning
Input voltage	
● Rated value (DC)	24 V
● for signal "0"	-30 to +5 V
● for signal "1"	+11 to +30V
Input current	
● for signal "0", max. (permissible quiescent current)	1.5 mA
● for signal "1", typ.	9 mA
Digital outputs	
Number of digital outputs	12; 4 per axis
Functions	Rapid traverse, creep, run right, run left
Short-circuit protection	Yes
Output voltage	
● for signal "1", min.	UP -3 V
Output current	
● for signal "1" permissible range for 0 to 55 °C, max.	600 mA; with UPmax
● for signal "0" residual current, max.	0.5 mA
Encoder	
Connectable encoders	
● Incremental encoder (symmetrical)	Yes
● Incremental encoder (asymmetrical)	Yes
● Absolute encoder (SSI)	Yes
Encoder signals, incremental encoder (symmetrical)	
● Trace mark signals	A, notA, B, notB
● Zero mark signal	N, notN
● Input voltage	5 V difference signal (phys. RS 422)

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● Input frequency, max.	1 MHz
Encoder signals, incremental encoder (asymmetrical)	
● Trace mark signals	A, B
● Zero mark signal	N
● Input voltage	24 V
● Input frequency, max.	50 kHz; for 25 m cable length, 25 kHz for 100 m cable length
● Cable length, shielded, max.	100 m
Encoder signals, absolute encoder (SSI)	
● Input signal	5 V difference signal (phys. RS 422)
● Data signal	DATA, notDATA
● Clock signal	CL, notCL
● Telegram length, parameterizable	13 or 25 bit serial
● Clock frequency, max.	1.25 MHz
● Gray code	Yes
● Cable length, shielded, max.	300 m; At max. 156 kbit/s
Potential separation	
Potential separation digital inputs	
● Potential separation digital inputs	Yes
Potential separation digital outputs	
● Potential separation digital outputs	Yes
Ambient conditions	
Ambient temperature during operation	
● min.	0 °C
● max.	55 °C
Ambient temperature during storage/transportation	
● min.	-40 °C
● max.	70 °C
Connection method	
required front connector	1x 48-pin
Dimensions	
Width	50 mm
Height	290 mm
Depth	210 mm
Weights	
Weight, approx.	1 300 g

Classifications

	Version	Classification
eClass	16	27-24-22-05
eClass	14	27-24-22-05
eClass	12	27-24-22-05
eClass	9.1	27-24-22-05
eClass	9	27-24-22-05
eClass	8	27-24-22-05
eClass	7.1	27-24-22-05
eClass	6	27-24-22-05
ETIM	10	EC001422
ETIM	9	EC001422
ETIM	8	EC001422
ETIM	7	EC001422
IDEA	4	3567
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval

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Miscellaneous

General Product Approval			EMV		For use in hazardous locations
China RoHS	Miscellaneous	Manufacturer Declaration			

For use in hazardous locations

FM

Type Examination Certificate

Maritime application

NK / Nippon Kaiji Kyokai

Maritime application

CCS (China Classification Society)

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