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Data sheet 6ES7174-0AA10-0AA0

SIMATIC S7-300, Interface module IM174, for connection of analog drives and stepper drives on isochronous PROFIBUS to Motion Control systems 4 channels (4 encoder inputs, 4 AO), configurable with STEP 7 V5.4 SP4



Figure similar

Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Input current	
Current consumption, max.	500 mA
from backplane bus 5 V DC, max.	100 mA
Encoder supply	
5 V encoder supply	
• 5 V	Yes
• Output current, max.	1.2 A
• Cable length, max.	25 m
24 V encoder supply	
• 24 V	Yes
• Output current, max.	1.4 A
• Cable length, max.	100 m

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Absolute encoder (SSI) encoder supply	
• Absolute encoder (SSI)	Yes
• Short-circuit protection	Yes
Power loss	
Power loss, typ.	12 W
Digital inputs	
Number of digital inputs	10
Input voltage	
• for signal "0"	-3 to +5V
• for signal "1"	+11 to +30V
Input current	
• for signal "0", max. (permissible quiescent current)	2 mA
• for signal "1", typ.	8 mA
Input delay (for rated value of input voltage)	
for standard inputs	
— at "0" to "1", min.	15 µs
Cable length	
• shielded, max.	100 m
Digital outputs	
Number of digital outputs	8
Short-circuit protection	Yes
Switching capacity of the outputs	
• with resistive load, max.	1 A
• on lamp load, max.	30 W
Output voltage	
• Rated value (DC)	24 V; L+
• for signal "1", min.	L+ (-3 V)
• for signal "1", max.	3 V
Output current	
• for signal "1" permissible range for 0 to 55 °C, min.	5 mA
• for signal "1" permissible range for 0 to 55 °C, max.	300 mA
• for signal "0" residual current, max.	0.4 mA
Output delay with resistive load	
• "0" to "1", max.	500 µs
Switching frequency	
• with resistive load, max.	500 Hz
• with inductive load, max.	0.5 Hz
Relay outputs	

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• Number of relay outputs	4
• Number of operating cycles, max.	50 000
Switching capacity of contacts	
— with resistive load, max.	1 A
Cable length	
• shielded, max.	600 m
Analog outputs	
Number of analog outputs	4
Output ranges, voltage	
• -10 V to +10 V	Yes
Analog value generation for the outputs	
Integration and conversion time/resolution per channel	
• Resolution with overrange (bit including sign), max.	15 bit
Encoder	
Number of connectable encoders, max.	4
Connectable encoders	
• Incremental encoder (symmetrical)	Yes
• Absolute encoder (SSI)	Yes
• 2-wire sensor	Yes
— permissible quiescent current (2-wire sensor), max.	2 mA
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)
• Input frequency, max.	1 MHz
• Cable length, shielded, max.	35 m; 35 m at max. 500 kHz; 10 m at max. 1 MHz
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, 21, 24 bit
• Clock frequency, max.	1.5 MHz; 187.5 KHz 1.5 MHz (parameterizable)
• Binary code	Yes
• Gray code	Yes
• Cable length, shielded, max.	250 m; 250 m at 187.5 kHz, 10 m at 1.5 MHz
Interrupts/diagnostics/status information	
Alarms	
• Diagnostic alarm	Yes

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Drive interface	
Number of drive interfaces	4
Analog drive	
Setpoint signal	
— Short-circuit proof	Yes; max. 45 mA, min. 3.3 kOhm load impedance
— Rated voltage range	-10.5 V to +10.5 V
— Output current	-3 to +3 mA
Output controller enable	
— Number of relay contacts	4
— Switching voltage, max.	30 V
— Switching current, max.	1 A
— Switching capacity, max.	30 V·A
— Number of switching cycles, min.	50 000; at 30 V DC, 1 A
— Cable length, shielded, max.	35 m
Stepper drive	
• Differential output voltage, min.	2 V; R = 100 Ohm
• Differential output voltage for signal "0", max.	1 V; For I = -20 mA
• Differential output voltage for signal "1", min.	3.7 V; 3.7 V at I = -20 mA; 4.5 V at I = -100 µA,
• Load resistance, min.	55 Ω
• Output current, max.	60 mA
• Pulse frequency	750 kHz
• Cable length, shielded, max.	50 m; in hybrid operation with analog axes 35 m, in asymmetrical transmission 10 m
Potential separation	
Potential separation digital inputs	
• Potential separation digital inputs	Yes; to encoders, analog outputs, DP interface; no to other DI/DOs
Potential separation digital outputs	
• Potential separation digital outputs	Yes; to encoders, analog outputs, DP interface; no to other DI/DOs
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	40-pin
Dimensions	
Width	160 mm

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Height	125 mm
Depth	118 mm

Weights	
Weight, approx.	1 kg

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