## **SIEMENS**

## **Data sheet**



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
<ul> <li>Output current, max.</li> </ul>	1.2 A
Cable length, max.	25 m
24 V encoder supply	
• 24 V	Yes
<ul> <li>Output current, max.</li> </ul>	1.4 A
Cable length, max.	100 m
Absolute encoder (SSI) encoder supply	
<ul> <li>Absolute encoder (SSI)</li> </ul>	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	
<ul><li>for signal "0", max. (permissible quiescent current)</li></ul>	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	

a with registive lead, may	1 Λ
with resistive load, max.	1 A
• on lamp load, max.	30 W
Output voltage	24.16.1
Rated value (DC)  for a invaluation of the control of the con	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	
<ul> <li>with resistive load, max.</li> </ul>	500 Hz
with inductive load, max.	0.5 Hz
Relay outputs	
<ul> <li>Number of relay outputs</li> </ul>	4
Number of operating cycles, max.	50 000
Switching capacity of contacts	
— with resistive load, max.	1 A
Cable length	
<ul><li>shielded, max.</li></ul>	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	
<ul> <li>Resolution with overrange (bit including sign), max.</li> </ul>	15 bit
Encoder	
Number of connectable encoders, max	4
Number of connectable encoders, max.  Connectable encoders	4
Connectable encoders	
Connectable encoders  • Incremental encoder (symmetrical)	Yes
Connectable encoders  • Incremental encoder (symmetrical)  • Absolute encoder (SSI)	Yes Yes
Connectable encoders  Incremental encoder (symmetrical)  Absolute encoder (SSI)  2-wire sensor	Yes Yes Yes
Connectable encoders  • Incremental encoder (symmetrical)  • Absolute encoder (SSI)	Yes Yes
Connectable encoders  Incremental encoder (symmetrical)  Absolute encoder (SSI)  2-wire sensor  — permissible quiescent current (2-wire sensor),	Yes Yes Yes
Connectable encoders  Incremental encoder (symmetrical)  Absolute encoder (SSI)  2-wire sensor  — permissible quiescent current (2-wire sensor), max.  Encoder signals, incremental encoder (symmetrical)	Yes Yes Yes 2 mA
Connectable encoders  Incremental encoder (symmetrical)  Absolute encoder (SSI)  2-wire sensor  — permissible quiescent current (2-wire sensor), max.  Encoder signals, incremental encoder (symmetrical)  Trace mark signals	Yes Yes Yes Yes 2 mA  A, notA, B, notB
Connectable encoders  Incremental encoder (symmetrical)  Absolute encoder (SSI)  2-wire sensor — permissible quiescent current (2-wire sensor), max.  Encoder signals, incremental encoder (symmetrical)  Trace mark signals  Zero mark signal	Yes Yes Yes Yes 2 mA  A, notA, B, notB N, notN
Connectable encoders  Incremental encoder (symmetrical)  Absolute encoder (SSI)  2-wire sensor — permissible quiescent current (2-wire sensor), max.  Encoder signals, incremental encoder (symmetrical)  Trace mark signals  Zero mark signal  Input voltage	Yes Yes Yes Yes 2 mA  A, notA, B, notB
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Connectable encoders  Incremental encoder (symmetrical)  Absolute encoder (SSI)  2-wire sensor — permissible quiescent current (2-wire sensor), max.  Encoder signals, incremental encoder (symmetrical)  Trace mark signals  Zero mark signal  Input voltage  Input frequency, max.  Cable length, shielded, max.	Yes Yes Yes Yes 2 mA  A, notA, B, notB N, notN 5 V difference signal (phys. RS 422)
Connectable encoders  Incremental encoder (symmetrical)  Absolute encoder (SSI)  2-wire sensor — permissible quiescent current (2-wire sensor), max.  Encoder signals, incremental encoder (symmetrical)  Trace mark signals  Zero mark signal  Input voltage Input frequency, max.  Cable length, shielded, max.  Encoder signals, absolute encoder (SSI)	Yes Yes Yes 2 mA  A, notA, B, notB N, notN 5 V difference signal (phys. RS 422) 1 MHz 35 m; 35 m at max. 500 kHz; 10 m at max. 1 MHz
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<ul> <li>Rated voltage range</li> </ul>	-10.5 V to +10.5 V
— Output current	-3 to +3 mA
Output controller enable	
<ul> <li>Number of relay contacts</li> </ul>	4
<ul><li>— Switching voltage, max.</li></ul>	30 V
<ul><li>— Switching current, max.</li></ul>	1 A
<ul><li>— Switching capacity, max.</li></ul>	30 V·A
<ul> <li>Number of switching cycles, min.</li> </ul>	50 000; at 30 V DC, 1 A
— Cable length, shielded, max.	35 m
Stepper drive	
<ul> <li>Differential output voltage, min.</li> </ul>	2 V; R = 100 Ohm
<ul> <li>Differential output voltage for signal "0", max.</li> </ul>	1 V; For I = -20 mA
<ul> <li>Differential output voltage for signal "1", min.</li> </ul>	3.7 V; 3.7 V at I = -20 mA; 4.5 V at I = -100 $\mu$ A,
<ul> <li>Load resistance, min.</li> </ul>	55 Ω
<ul> <li>Output current, max.</li> </ul>	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	
<ul> <li>Potential separation digital inputs</li> </ul>	Yes; to encoders, analog outputs, DP interface; no to other DI/DOs
Potential separation digital outputs	
<ul> <li>Potential separation digital outputs</li> </ul>	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
<ul><li>min.</li><li>max.</li></ul>	-40 °C 70 °C
• max.	
max.  connection method / header	70 °C
max.  connection method / header  required front connector	70 °C
max.  connection method / header  required front connector  Dimensions	70 °C 40-pin
max.  connection method / header  required front connector  Dimensions  Width	70 °C  40-pin  160 mm
max.  connection method / header  required front connector  Dimensions  Width  Height	70 °C  40-pin  160 mm  125 mm
<ul> <li>max.</li> <li>connection method / header</li> <li>required front connector</li> <li>Dimensions</li> <li>Width</li> <li>Height</li> <li>Depth</li> </ul>	70 °C  40-pin  160 mm  125 mm

last modified:

2/26/2021