

SIMATIC S7-300, INTERFACE MODULE IM174,
FOR CONNECTING ANALOG DRIVES AND STEP DRIVES
VIA ISOCHRONOUS PROFIBUS TO MOTION
CONTROLLERS 4 CHANNELS (4 ENCOD.INP., 4 AO)
CONFIGURABLE WITH STEP7 V5.4 SP4



Supply voltage	
24 V DC	Yes
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
Absolute encoder (SSI) encoder supply	
Absolute encoder (SSI)	Yes
Short-circuit protection	Yes

Power losses	
Power loss, typ.	12 W
Digital inputs	
Number of digital inputs	10
Input voltage	
for signal "0"	-3 to +5 V
for signal "1"	11 to 30 V
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	
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
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	
Number of relay outputs	4
Number of operating cycles, max.	50000

Switching capacity of contacts	
with resistive load, max.	1 A
Cable length	
Cable length, shielded, max.	600 m
Analog outputs	
Number of analog outputs	4
Output ranges, voltage	
-10 to +10 V	Yes
Analog value generation	
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 signal	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
Message frame length, parameterizable	13, 21, 24 bit
Clock frequency, max.	1.5 MHz ; 187.5 KHz 1.5 MHz (parameterizable)
Binary code	1
Gray code	1
Cable length, shielded, max.	250 m ; 250 m at 187.5 kHz, 10 m at 1.5 MHz
Isochronous mode	
Isochronous operation (application synchronized up to terminal)	Yes
shortest clock pulse	1.5 ms
Interrupts/diagnostics/status information	
Alarms	

Diagnostic alarm	Yes
Drive interface	
Number of drive interfaces	4
Analog drive	
Setpoint signal	
Short circuit proof	Yes ; max. 45 mA, min. 3.3 kOhm load impedance
Range of rated voltage	-10.5 V to +10.5 V
Output current	-3 to +3 mA
Output controller release	
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.	50000 ; at 30 V DC, 1 A
Cable length (shielded), max.	35 m
Signal output I	
Number of relay contacts	2
Switching voltage, max.	30 V
Switching current, max.	1 A
Switching capacity, max.	30 V·A
Number of switching cycles, min.	50000 ; at 30 V DC, 1 A
Cable length (shielded), max.	35 m
Signal output II	
Differential output voltage, min.	2 V ; R = 100 Ohm
Differential output voltage for signal "1", min.	3.7 V ; 3.7 V at I = -20 mA; 4.5 V at I = -100 µA,
Differential output voltage for signal "0", max.	1 V ; For I = -20 mA
Load resistance, min.	55 Ω
Output current, max.	60 mA
Signal output III	
Pulse frequency	750 kHz
Cable length (shielded), max.	50 m ; in hybrid operation with analog axes 35 m, in asymmetrical transmission 10 m
Galvanic isolation	
Galvanic isolation digital inputs	
Galvanic isolation digital inputs	Yes ; to encoders, analog outputs, DP interface; no to other DI/DOs
Galvanic isolation digital outputs	
Galvanic isolation digital outputs	Yes ; to encoders, analog outputs, DP interface; no to other DI/DOs
Degree and class of protection	
IP20	Yes

Ambient conditions	
Operating temperature	
Min.	0 °C
max.	55 °C
Storage/transport temperature	
Min.	-40 °C
max.	70 °C
Relative humidity	
Humidity class F	Yes
Connection method	
required front connector	40-pin
Dimensions	
Width	160 mm
Height	125 mm
Depth	118 mm
Weights	
Weight, approx.	1 kg
Status	Jun 30, 2014