


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 |
| 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 | |
| • 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 |
| 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 |
| Height | 125 mm |
| Depth | 118 mm |
| Weights | |
| Weight, approx. | 1 kg |
| last modified: | 2/26/2021  |