




Figure similar

SIMATIC S7-300, FM352-5 with NPN output, High Speed Boolean Processor, for high-speed linking, 12 DI, 8 DO, 1 encoder interface for RS422 incr./SSI encoder

| Supply voltage | |
|--|---|
| Load voltage L+ | |
| • Rated value (DC) | 24 V |
| • permissible range, lower limit (DC) | 20.4 V |
| • permissible range, upper limit (DC) | 28.8 V |
| • Reverse polarity protection | Yes |
| Input current | |
| from load voltage 1L+, max. | 150 mA; typ. 60 mA |
| from load voltage 2L+ (without load), max. | 200 mA; typ. 60 mA, DI/DO supply |
| from load voltage 3L+ (with encoder), max. | 600 mA; typ. 80 mA plus encoder supply |
| from load voltage 3L+ (without load), max. | 200 mA; typ. 80 mA |
| from backplane bus 5 V DC, typ. | 135 mA |
| Encoder supply | |
| 5 V encoder supply | |
| • 5 V | Yes |
| • Short-circuit protection | Yes; Electronic overload protection; no protection on applying a normal or counter voltage. |
| • Output current, max. | 250 mA |
| 24 V encoder supply | |
| • 24 V | Yes |
| • Short-circuit protection | Yes; Overvoltage and overheating protection if overloaded; diagnostics if output reaches temperature limit; no protection on applying a normal or counter voltage |
| • Output current, max. | 400 mA |
| Power loss | |
| Power loss, typ. | 6.5 W |
| Memory | |
| Type of memory | RAM |
| Memory size | 128 kbyte; required for operation, MMC |
| Digital inputs | |
| Number of digital inputs | 8; Standard and up to 12 with 24 V DC encoder inputs as digital inputs |
| 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 |

| | |
|---|---|
| <ul style="list-style-type: none"> • for signal "1", typ. | 3.8 mA |
| Input delay (for rated value of input voltage) | |
| <ul style="list-style-type: none"> • Input frequency (with a time delay of 0.1 ms), max. • programmable digital filter delay | 200 kHz None, 5 µs, 10 µs, 15 µs, 20 µs, 50 µs, 1.6 ms |
| for standard inputs | |
| — at "0" to "1", max. | 3 µs; typ. 1.5 µs |
| Cable length | |
| <ul style="list-style-type: none"> • shielded, max. • unshielded, max. | 600 m 100 m; Shielded cable recommended if filtering delay is set to less than 1.6 ms |
| Digital outputs | |
| Number of digital outputs | 8 |
| Current-sinking | Yes |
| Current-sourcing | No |
| Short-circuit protection | Yes; Overvoltage protection, thermal protection |
| Limitation of inductive shutdown voltage to | 2M -45 V typ., (-40 V to -55 V); comment: no protection against inductive kickback >55 mJ |
| Controlling a digital input | No |
| Switching capacity of the outputs | |
| <ul style="list-style-type: none"> • on lamp load, max. | 5 W |
| Output voltage | |
| <ul style="list-style-type: none"> • Rated value (DC) • for signal "0", max. • for signal "1", max. | 24 V 28.8 V 0.5 V |
| Output current | |
| <ul style="list-style-type: none"> • for signal "1" rated value • for signal "1" permissible range for 0 to 60 °C, min. • for signal "1" permissible range for 0 to 60 °C, max. • for signal "0" residual current, max. | 0.5 A; At 60 °C 5 mA 600 mA 1 mA |
| Output delay with resistive load | |
| <ul style="list-style-type: none"> • "0" to "1", max. • "1" to "0", max. | 1 µs; 0.6 µs 50 mA / 1.0 µs 0.5 A 1.5 µs; 1.7 µs 50 mA / 1.5 µs 0.5 A |
| Parallel switching of two outputs | |
| <ul style="list-style-type: none"> • for uprating | Yes |
| Switching frequency | |
| <ul style="list-style-type: none"> • with resistive load, max. • with inductive load, max. • on lamp load, max. | 100 kHz; 20 kHz at 0.5 A; 100 kHz at 0.25 A 2 Hz; 2 Hz at 0.5 A with external commutator diodes; 0.5 Hz at 0.5 A without external commutator diodes 10 Hz |
| Cable length | |
| <ul style="list-style-type: none"> • shielded, max. • unshielded, max. | 600 m 100 m |
| Encoder | |
| Connectable encoders | |
| <ul style="list-style-type: none"> • Incremental encoder (symmetrical) • Incremental encoder (asymmetrical) • Absolute encoder (SSI) • 2-wire sensor <ul style="list-style-type: none"> — permissible quiescent current (2-wire sensor), max. | Yes Yes Yes Yes 1.5 mA |
| Encoder signals, incremental encoder (symmetrical) | |
| <ul style="list-style-type: none"> • Trace mark signals • Zero mark signal • Input voltage • Input frequency, max. • Cable length, shielded, max. | A, notA, B, notB N, notN 5 V difference signal (phys. RS 422) 500 kHz 100 m; 100 m with 24 V supply and 500 kHz; 32 m with 5 V supply and 500 kHz |
| Encoder signals, incremental encoder (asymmetrical) | |
| <ul style="list-style-type: none"> • Trace mark signals | A, B |

| | |
|---|--|
| <ul style="list-style-type: none"> • Zero mark signal • Input frequency, max. • Cable length, shielded, max. | <p>N</p> <p>200 kHz</p> <p>50 m; Cable length, HTL incremental encoder, Siemens, type 6FX2001-4: 50 kHz, 25 m shielded, max., 25 kHz, 50 m shielded, max.</p> |
| Encoder signals, absolute encoder (SSI) | |
| <ul style="list-style-type: none"> • Data signal • Clock signal • Telegram length, parameterizable • Clock frequency, max. • Cable length, shielded, max. • Monoflop time • Listening mode • Multiturn | <p>DATA, notDATA</p> <p>CK, notCK</p> <p>13 or 25 bit</p> <p>1 MHz; 125 kHz, 250 kHz, 500 kHz or 1 MHz</p> <p>320 m; At 125 kHz</p> <p>settable: 16/32/48/64 µs</p> <p>Yes; one or two stations</p> <p>Yes; 25 bit message frame</p> |
| Encoder signal evaluation | |
| <ul style="list-style-type: none"> • Counting direction, forward • Counting direction, backward | <p>Yes</p> <p>Yes</p> |
| Response times | |
| Input- to output response time | 5 V input to 24 V output, 0 filter: 1 to 4 µs (typ.); 24 V input to 24 V output, 0 filter: 2 to 6 µs (typ.) |
| Interfaces | |
| Point-to-point connection | |
| <ul style="list-style-type: none"> • Updating times | PLC interface: 1.7 ms |
| Interrupts/diagnostics/status information | |
| Alarms | |
| <ul style="list-style-type: none"> • Diagnostic alarm • Hardware interrupt | <p>Yes; 1L, 2L, 3L missing; MMC error; output overload (8); encoder supply overload; differential wire break; parameterization error; SSI message frame overflow</p> <p>Yes; 8 available; for generation by user program</p> |
| Diagnoses | |
| <ul style="list-style-type: none"> • Wire-break in signal transmitter cable • Overflow/underflow • missing load voltage | <p>Yes</p> <p>Yes</p> <p>Yes</p> |
| Diagnostics indication LED | |
| <ul style="list-style-type: none"> • RUN/STOP LED • Module supply 5 V DC (green) • I/O status IOF (red) • Micro Memory Card error MCF (red) • Group error SF (red) • Status indicator digital input (green) • Status indicator digital output (green) • Overload encoder supply voltage 24 V F (red) • Overload encoder supply voltage 5 V F (red) | <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes</p> <p>Yes; I 0 to I 11</p> <p>Yes; Q 0 to Q 7</p> <p>Yes</p> <p>Yes</p> |
| Counter | |
| Counting range, description | Counting range (16-bit counters): -32 768 to 32 767 (user-specific within this range); counting range (32-bit counters): -2 147 483 648 to 2 147 483 647 (user-specific within this range) |
| Counting range, lower limit | -2 147 483 648 |
| Counting range, upper limit | 2 147 483 647 |
| Counting mode | |
| <ul style="list-style-type: none"> • Counting mode, individual • Counting mode, continuous • Counting mode, periodic | <p>Yes</p> <p>Yes</p> <p>Yes</p> |
| Potential separation | |
| between 1L and 2L and 3L | Yes |
| Potential separation digital inputs | |
| <ul style="list-style-type: none"> • Potential separation digital inputs | Yes; Yes CPU, I/O and sensor units are isolated |
| Ambient conditions | |
| Ambient temperature during operation | |
| <ul style="list-style-type: none"> • min. | 0 °C |

| | |
|---|---|
| • max. | 60 °C |
| Ambient temperature during storage/transportation | |
| • min. | -40 °C |
| • max. | 70 °C |
| Configuration | |
| Programming | |
| • Program cycle time (scan) | 1 µs |
| Connection method | |
| required front connector | 1x 40-pin |
| Dimensions | |
| Width | 80 mm |
| Height | 125 mm |
| Depth | 120 mm |
| Weights | |
| Weight, approx. | 434 g; Module weight: approx. 434 g (with 1L connection and without I/O connection or MMC); shipping weight: approx. 500 g (with bus and 1L connection and without I/O connection or MMC) |
| last modified: | 1/17/2021  |