



Figure similar

\*\*\*spare part\*\*\* SIMATIC S7-300, FM352-5 with NPN output, high-speed Boolean processor, for high-speed linking, 12 DI, 8 DO, 1 encoder interface for RS-422 incremental/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
• for signal "1", typ.	3.8 mA
Input delay (for rated value of input voltage)	

<ul style="list-style-type: none"> <li>• Input frequency (with a time delay of 0.1 ms), max.</li> </ul>	200 kHz
<ul style="list-style-type: none"> <li>• programmable digital filter delay</li> </ul>	None, 5 $\mu$ s, 10 $\mu$ s, 15 $\mu$ s, 20 $\mu$ s, 50 $\mu$ s, 1.6 ms
<ul style="list-style-type: none"> <li>• Minimum pulse width for program reactions</li> </ul>	1 $\mu$ s, 5 $\mu$ s, 10 $\mu$ s, 15 $\mu$ s, 20 $\mu$ s, 50 $\mu$ s, 1.6 ms
<b>for standard inputs</b>	
<ul style="list-style-type: none"> <li>— at "0" to "1", max.</li> </ul>	3 $\mu$ s; typ. 1.5 $\mu$ s
<b>Cable length</b>	
<ul style="list-style-type: none"> <li>• shielded, max.</li> </ul>	600 m
<ul style="list-style-type: none"> <li>• unshielded, max.</li> </ul>	100 m; Shielded cable recommended if filtering delay is set to less than 1.6 ms
<b>Digital outputs</b>	
Number of digital outputs	8
Current-sinking	Yes
Current-sourcing	No
Short-circuit protection	Yes; Overvoltage protection, thermal protection
<ul style="list-style-type: none"> <li>• Response threshold, typ.</li> </ul>	1.7 to 3.5 A
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
<b>Switching capacity of the outputs</b>	
<ul style="list-style-type: none"> <li>• on lamp load, max.</li> </ul>	5 W
<b>Output voltage</b>	
<ul style="list-style-type: none"> <li>• Rated value (DC)</li> </ul>	24 V
<ul style="list-style-type: none"> <li>• for signal "0", max.</li> </ul>	28.8 V
<ul style="list-style-type: none"> <li>• for signal "1", max.</li> </ul>	0.5 V
<b>Output current</b>	
<ul style="list-style-type: none"> <li>• for signal "1" rated value</li> </ul>	0.5 A; At 60 °C
<ul style="list-style-type: none"> <li>• for signal "1" permissible range for 0 to 60 °C, min.</li> </ul>	5 mA
<ul style="list-style-type: none"> <li>• for signal "1" permissible range for 0 to 60 °C, max.</li> </ul>	600 mA
<ul style="list-style-type: none"> <li>• for signal "0" residual current, max.</li> </ul>	1 mA
<b>Output delay with resistive load</b>	
<ul style="list-style-type: none"> <li>• "0" to "1", max.</li> </ul>	1 $\mu$ s; 0.6 $\mu$ s 50 mA / 1.0 $\mu$ s 0.5 A
<ul style="list-style-type: none"> <li>• "1" to "0", max.</li> </ul>	1.5 $\mu$ s; 1.7 $\mu$ s 50 mA / 1.5 $\mu$ s 0.5 A
<b>Parallel switching of two outputs</b>	
<ul style="list-style-type: none"> <li>• for uprating</li> </ul>	Yes; 2
<b>Switching frequency</b>	
<ul style="list-style-type: none"> <li>• with resistive load, max.</li> </ul>	100 kHz; 20 kHz at 0.5 A; 100 kHz at 0.25 A
<ul style="list-style-type: none"> <li>• with inductive load, max.</li> </ul>	2 Hz; 2 Hz at 0.5 A with external commutator diodes; 0.5 Hz at 0.5 A without external commutator diodes
<ul style="list-style-type: none"> <li>• on lamp load, max.</li> </ul>	10 Hz
<b>Cable length</b>	
<ul style="list-style-type: none"> <li>• shielded, max.</li> </ul>	600 m
<ul style="list-style-type: none"> <li>• unshielded, max.</li> </ul>	100 m
<b>Encoder</b>	
<b>Connectable encoders</b>	
<ul style="list-style-type: none"> <li>• Incremental encoder (symmetrical)</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Incremental encoder (asymmetrical)</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Absolute encoder (SSI)</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• 2-wire sensor</li> </ul>	Yes
<ul style="list-style-type: none"> <li>— permissible quiescent current (2-wire sensor), max.</li> </ul>	1.5 mA
<b>Encoder signals, incremental encoder (symmetrical)</b>	
<ul style="list-style-type: none"> <li>• Trace mark signals</li> </ul>	A, notA, B, notB
<ul style="list-style-type: none"> <li>• Zero mark signal</li> </ul>	N, notN
<ul style="list-style-type: none"> <li>• Input voltage</li> </ul>	5 V difference signal (phys. RS 422)
<ul style="list-style-type: none"> <li>• Input frequency, max.</li> </ul>	500 kHz
<ul style="list-style-type: none"> <li>• Cable length, shielded, max.</li> </ul>	100 m; 100 m with 24 V supply and 500 kHz; 32 m with 5 V supply and 500 kHz
<b>Encoder signals, incremental encoder (asymmetrical)</b>	
<ul style="list-style-type: none"> <li>• Trace mark signals</li> </ul>	A, B
<ul style="list-style-type: none"> <li>• Zero mark signal</li> </ul>	N
<ul style="list-style-type: none"> <li>• Input voltage</li> </ul>	24 V
<ul style="list-style-type: none"> <li>• Input frequency, max.</li> </ul>	200 kHz

<ul style="list-style-type: none"> <li>• Cable length, shielded, max.</li> </ul>	50 m; Cable length, HTL incremental encoder, Siemens, type 6FX2001-4: 50 kHz, 25 m shielded, max., 25 kHz, 50 m shielded, max.
<b>Encoder signals, absolute encoder (SSI)</b>	
<ul style="list-style-type: none"> <li>• Data signal</li> <li>• Clock signal</li> <li>• Telegram length, parameterizable</li> <li>• Clock frequency, max.</li> <li>• Cable length, shielded, max.</li> <li>• Monoflop time</li> <li>• Listening mode</li> <li>• Multiturn</li> </ul>	DATA, notDATA CK, notCK 13 or 25 bit 1 MHz; 125 kHz, 250 kHz, 500 kHz or 1 MHz 320 m; At 125 kHz settable: 16/32/48/64 µs Yes; one or two stations Yes; 25 bit message frame
<b>Encoder signal evaluation</b>	
<ul style="list-style-type: none"> <li>• Counting direction, forward</li> <li>• Counting direction, backward</li> </ul>	Yes Yes
<b>Response times</b>	
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.)
<b>Interfaces</b>	
<b>Point-to-point connection</b>	
<ul style="list-style-type: none"> <li>• Updating times</li> </ul>	PLC interface: 1.7 ms
<b>Interrupts/diagnostics/status information</b>	
<b>Alarms</b>	
<ul style="list-style-type: none"> <li>• Diagnostic alarm</li> <li>• Hardware interrupt</li> </ul>	Yes; 1L, 2L, 3L missing; MMC error; output overload (8); encoder supply overload; differential wire break; parameterization error; SSI message frame overflow Yes; 8 available; for generation by user program
<b>Diagnoses</b>	
<ul style="list-style-type: none"> <li>• Wire-break in signal transmitter cable</li> <li>• Overflow/Underflow</li> <li>• missing load voltage</li> </ul>	Yes Yes Yes
<b>Diagnostics indication LED</b>	
<ul style="list-style-type: none"> <li>• RUN/STOP LED</li> <li>• Module supply 5 V DC (green)</li> <li>• I/O status IOF (red)</li> <li>• Micro Memory Card error MCF (red)</li> <li>• Group error SF (red)</li> <li>• Status indicator digital input (green)</li> <li>• Status indicator digital output (green)</li> <li>• Overload encoder supply voltage 24 V F (red)</li> <li>• Overload encoder supply voltage 5 V F (red)</li> </ul>	Yes Yes Yes Yes Yes Yes; I 0 to I 11 Yes; Q 0 to Q 7 Yes Yes
<b>Counter</b>	
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	-2.14748E+9
Counting range, upper limit	2.14748E+9
<b>Counting mode</b>	
<ul style="list-style-type: none"> <li>• Counting mode, individual</li> <li>• Counting mode, continuous</li> <li>• Counting mode, periodic</li> </ul>	Yes Yes Yes
<b>Potential separation</b>	
between 1L and 2L and 3L	Yes
<b>Potential separation digital inputs</b>	
<ul style="list-style-type: none"> <li>• Potential separation digital inputs</li> </ul>	Yes; Yes CPU, I/O and sensor units are isolated
<b>Ambient conditions</b>	
<b>Ambient temperature during operation</b>	
<ul style="list-style-type: none"> <li>• min.</li> <li>• max.</li> </ul>	0 °C 60 °C
<b>Ambient temperature during storage/transportation</b>	
<ul style="list-style-type: none"> <li>• min.</li> </ul>	-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)

**Classifications**

	Version	Classification
eClass	14	27-24-22-05
eClass	12	27-24-22-05
eClass	9.1	27-24-22-05
eClass	9	27-24-22-05
eClass	8	27-24-22-05
eClass	7.1	27-24-22-05
eClass	6	27-24-22-05
ETIM	10	EC001422
ETIM	9	EC001422
ETIM	8	EC001422
ETIM	7	EC001422
IDEA	4	3567
UNSPSC	15	32-15-17-05

**Approvals / Certificates**

**General Product Approval**



[Miscellaneous](#)

[Manufacturer Declaration](#)



**General Product Approval**

EMV

For use in hazardous locations

[China RoHS](#)



[FM](#)



**For use in hazardous locations**

**Maritime application**

[Miscellaneous](#)

[CCC-Ex](#)



**Maritime application**



[CCS \(China Classification Society\)](#)

---

last modified:

4/7/2025