

SIEMENS

Product data sheet

6ES7352-5AH01-0AE0



SIMATIC S7-300, FM352-5 WITH SINK OUT,
HIGH SPEED BOOLEAN PROCESSOR,
FOR HIGH-SPEED LOGIC OPERATION 12 DI,
8 DO,
1 ENCODER INTERF. FOR RS422 INCR./SSI
ENCODER

Supply voltage

24 V DC	Yes
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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 encoder), max.	200 mA ; typ. 80 mA
from backplane bus 5 V DC, max.	135 mA ; typ.

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 losses	
Power loss, typ.	6.5 W
Memory	
Memory card, RAM	128 kbyte ; required for operation, MMC
Digital inputs	
Number/binary 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 30 V
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)	
Input frequency (with a time delay of 0.1 ms), max.	200 kHz
Programmable digital filter delay	None, 5 μ s, 10 μ s, 15 μ s, 20 μ s, 50 μ s, 1.6 ms
Minimum pulse width for program reactions	1 μ s, 5 μ s, 10 μ s, 15 μ s, 20 μ s, 50 μ s, 1.6 ms
for standard inputs	
at "0" to "1", max.	3 μ s ; typ. 1.5 μ s
Cable length	
Cable length, shielded, max.	600 m
Cable length unshielded, max.	100 m ; Shielded cable recommended if filtering delay is set to less than 1.6 ms

Digital outputs	
Number/binary outputs	8
Current-sinking	Yes
Current-sourcing	No
Functionality/short-circuit strength	Yes ; Overvoltage protection, thermal protection
Response threshold, typ.	1.7 to 3.5 A
Limitation of inductive shutdown voltage to	2M -45 V typ., (-40 to -55 V); comment: no protection against inductive kickback >55mJ
Lamp load, max.	5 W
Controlling a digital input	No
Output voltage	
Rated value (DC)	24 V
for signal "0", max.	28.8 V
for signal "1", max.	0.5 V
Output current	
for signal "1" rated value	0.5 A ; At 60 °C
for signal "1" permissible range for 0 to 60 °C, min.	5 mA
for signal "1" permissible range for 0 to 60 °C, max.	600 mA
for signal "0" residual current, max.	1 mA
Output delay with resistive load	
"0" to "1", max.	1 µs ; 0.6 µs 50 mA / 1.0 µs 0.5 A
"1" to "0", max.	1.5 µs ; 1.7 µs 50 mA / 1.5 µs 0.5 A
Parallel switching of 2 outputs	
for increased power	Yes ; 2
Switching frequency	
with resistive load, max.	100 kHz ; 20 kHz at 0.5 A; 100 kHz at 0.25 A
with inductive load, max.	2 Hz ; 2 Hz at 0.5 A with external commutator diodes; 0.5 Hz at 0.5 A without external commutator diodes
on lamp load, max.	10 Hz
Cable length	
Cable length, shielded, max.	600 m
Cable length unshielded, max.	100 m
Encoder	

Connectable encoders	
Incremental encoder (symmetrical)	Yes
Incremental encoder (asymmetrical)	Yes
Absolute encoder (SSI)	Yes
2-wire sensor	Yes
Permissible quiescent current (2-wire sensor), max.	1.5 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.	500 kHz
Cable length, shielded, max.	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)	
Trace mark signals	A, B
Zero mark signal	N
Input voltage	24 V
Input frequency, max.	200 kHz
Cable length, shielded, max.	50 m ; Cable length, HTL incremental encoder, Siemens, type 6FX2001-4: 50 kHz, 25 m shielded, max., 25 kHz, 50 m shielded, max.
Encoder signals, absolute encoder (SSI)	
Data signal	DATA, notDATA
Clock signal	CK, notCK
Message frame length, parameterizable	13 or 25 bit
Clock frequency, max.	1 MHz ; 125 kHz, 250 kHz, 500 kHz or 1 MHz
Cable length, shielded, max.	320 m ; At 125 kHz
Monoflop time	settable: 16/32/48/64 µs
Listening mode	Yes ; one or two stations
Multiturn	Yes ; 25 bit message frame
Encoder signal evaluation	
Counting direction, forward	Yes
Counting direction, backward	Yes

Response times	
Input and output response time	5 V input to 24 V output, 0 filter: 1 to 4 μ s (typ.); 24 V input to 24 V output, 0 filter: 2 to 6 μ s (typ.)
Interfaces	
Point-to-point	
Updating time	PLC interface: 1.7 ms
Interrupts/diagnostics/status information	
Alarms	
Diagnostic alarm	Yes ; 1L, 2L, 3L missing; MMC error; output overload (8); encoder supply overload; differential wire break; parameterization error; SSI message frame overflow
Hardware interrupt	Yes ; 8 available; for generation by user program
Diagnostic messages	
Wire break in signal transmitter cable	Yes
Overflow/underflow	Yes
Missing load voltage	Yes
Diagnostics indication LED	
Module supply 5 V DC (green)	Yes
I/O status IOF (red)	Yes
Micro Memory Card error MCF (red)	Yes
Run mode RUN (green)	Yes
Group error SF (red)	Yes
Status indicator digital output (green)	Yes ; Q 0 to Q 7
Status indicator digital input (green)	Yes ; I 0 to I 11
Stop mode STOP (yellow)	Yes
Overload encoder supply voltage 24 V F (red)	Yes
Overload encoder supply voltage 5 V F (red)	Yes
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	-2147483648
Counting range, upper limit	2147483647
Counting mode	

Counting mode, individual	Yes
Counting mode, continuous	Yes
Counting mode, periodic	Yes
Galvanic isolation	
between 1L and 2L and 3L	Yes ; 75 VDC / 60 VAC
between digital I/O and 2L and encoder I/O and 3L	Yes (75 V DC, 60 V AC)
between backplane bus and digital encoder I/O & 1L & 2L & 3L	Yes (75 V DC, 60 V AC)
Galvanic isolation digital inputs	
Galvanic isolation digital inputs	Yes ; Yes CPU, I/O and sensor units are isolated
Degree and class of protection	
IP20	Yes
Ambient conditions	
Operating temperature	
Min.	0 °C
max.	60 °C
Storage/transport temperature	
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
Weight	
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)
Status	Jul 17, 2012