



SIMATIC S7-300, Digital output SM 322, Isolated 16 DO, relay contacts, 1x 20-pole

Figure similar

General information	
Product function	
Protection function	
Engineering with	
Integrated drive control	
Operating mode	
Operator control and monitoring	
Process images	
User administration	
Alarms	
Recipes/user archives	
Display	
Line display	
Resolution (pixels)	
Control elements	
Input device	
Keyboard fonts	
Touch operation	
Connection type	
Special operator controls	
Frame size/design	
Ergonomics	
Supply voltage	
Line frequency	
Mains filter	
Load voltage L+	
<ul style="list-style-type: none"> <li>Rated value (DC)</li> </ul>	120 V
Load voltage 1L+	
Load voltage 2L+	
Load voltage L1	
<ul style="list-style-type: none"> <li>Rated value (AC)</li> </ul>	230 V
Auxiliary voltage 1L+, load voltage 2L+	
Input voltage	
Input voltage acc. to VDE	
Input voltage acc. to UL	
Line frequency	

<b>Input current</b>	
from supply voltage L+, max.	250 mA
from backplane bus 5 V DC, max.	100 mA
<b>Output current</b>	
horizontal installation	
vertical installation	
<b>Encoder supply</b>	
Output current	
5 V encoder supply	
24 V encoder supply	
Additional 24 V encoder supply	
<b>Power loss</b>	
Power loss, typ.	4.5 W
<b>Memory</b>	
Work memory	
Working memory for additional functions	
<b>Battery</b>	
Design	
<b>CPU-blocks</b>	
DB	
FB	
FC	
<b>Counters, timers and their retentivity</b>	
S7 counter	
IEC counter	
S7 times	
<b>Data areas and their retentivity</b>	
Flag	
<b>Address area</b>	
I/O address area	
of which distributed	
per integrated IO subsystem	
Process image	
Subprocess images	
Digital channels	
Analog channels	
Addressing volume	
<b>Hardware configuration</b>	
Formation of potential groups	
Module exchange	
Interface modules	
Number of DP masters	
Number of IO Controllers	
Number of operable FMs and CPs (recommended)	
Expansion modules	
Rack	
Submodules	
Selection of BaseUnit for connection variants	
PtP CM	
<b>Time of day</b>	
Clock	
Operating hours counter	
Time switching clocks	
<b>Digital inputs</b>	
Number of simultaneously controllable inputs	
all mounting positions	

horizontal installation	
Digital input functions, parameterizable	
Input voltage	
Input current	
for 10 k switched contact	
Internal preparation time	
Input delay (for rated value of input voltage)	
for standard inputs	
for interrupt inputs	
Encoder connection	
Connection method	
<b>Digital outputs</b>	
Number of digital outputs	16; Relays
Short-circuit protection	No
Controlling a digital input	Yes
Size of motor starters according to NEMA, max.	Size 5 according to NEMA
Digital output functions, parameterizable	
Control supply voltage	
Switching capacity of the outputs	
• on lamp load, max.	50 W; 230 V AC
Trend key points E	
Output current	
• for signal "1" rated value	2 A
• for signal "1" minimum load current	10 mA
Parallel switching of two outputs	
• for uprating	No
• for redundant control of a load	Yes
Switching frequency	
• with resistive load, max.	1 Hz
• with inductive load, max.	0.5 Hz
• With inductive load (to IEC 60947-5-1, DC13/AC15), max.	0.5 Hz
• on lamp load, max.	1 Hz
• mechanical, max.	10 Hz
Total current of the outputs	
horizontal installation	
Total current of the outputs (per group)	
all mounting positions	
horizontal installation	
— up to 60 °C, max.	8 A
vertical installation	
— up to 40 °C, max.	8 A
Total current of the outputs (per module)	
all mounting positions	
horizontal installation	
Pulse output (passive)	
Frequency output	
Relay outputs	
• Rated supply voltage of relay coil L+ (DC)	24 V
• Contact connection (internal)	No
• Number of operating cycles, max.	100 000; 50 000 (24 V DC, at 2 A); 700 000 (120 V AC, at 2 A); 100 000 (230 V AC, at 2 A)
Switching capacity of contacts	
— with inductive load, max.	2 A; 2 A (230 V AC), 2 A (24 V DC)
— with resistive load, max.	2 A; 2 A (230 V AC), 2 A (24 V DC)
— Thermal continuous current, max.	2 A
Integrated high-speed cams	
Connection method	
Cable length	

- shielded, max.
- unshielded, max.

1 000 m

600 m

### Analog inputs

Input ranges  
 Measuring range  
 Input ranges (rated values), voltages  
 Input ranges (rated values), currents  
 Input ranges (rated values), thermocouples  
 Input ranges (rated values), resistance thermometer  
 Input ranges (rated values), resistors  
 Input ranges (rated values), strain gauges (full bridges)  
 Thermocouple (TC)  
 Characteristic linearization

### Analog outputs

Output ranges, voltage  
 Output ranges, current  
 Connection of actuators  
 Load impedance (in rated range of output)

### Analog value generation for the inputs

Integration and conversion time/resolution per channel

### Analog value generation for the outputs

Integration and conversion time/resolution per channel

### Encoder

Connection of signal encoders  
 Connectable encoders  
 Incremental encoder  
 Encoder signals, incremental encoder (symmetrical)  
 Encoder signals, incremental encoder (asymmetrical)  
 Encoder signals, absolute encoder (SSI)  
 Encoder signals, IEPE

### Drive axis

EC motor

### Errors/accuracies

Operational error limit in overall temperature range  
 Basic error limit (operational limit at 25 °C)

### Power electronics

Control of heating elements  
 Load connection type  
 Setpoint input  
 Heating power

### Interfaces

Video interfaces  
 Touch interfaces  
 MPI  
 PROFIBUS DP  
 PROFIBUS PA  
 Supports protocol for PROFINET IO  
 PROFINET functions  
 Industrial Ethernet  
 Point-to-point connection  
 Integrated protocol driver  
 Telegram length, max.  
 Transmission rate, 20 mA (TTY)  
 Transmission rate, RS 422/485  
 Transmission speed, RS 232  
 Signals  
 ET-Connection

EtherNet/IP
AS-Interface
WLAN
<b>1. Interface</b>
Interface types
Protocols
MPI
PROFIBUS DP master
Services
PROFIBUS DP slave
PROFINET IO Controller
Services
Update time for IRT
PROFINET IO Device
Services
PROFINET CBA
Open IE communication
CAN
BACnet
<b>2. Interface</b>
Interface types
Protocols
PROFIBUS DP master
Services
PROFIBUS DP slave
PROFINET IO Controller
Services
Update time for IRT
PROFINET IO Device
Services
PROFINET CBA
<b>3. Interface</b>
Interface types
Protocols
PROFIBUS DP master
Services
PROFIBUS DP slave
PROFINET IO Controller
PROFINET IO Device
Services
PROFINET CBA
<b>4. Interface</b>
Interface types
Protocols
PROFIBUS DP master
PROFINET IO Controller
<b>Interface types</b>
RJ 45 (Ethernet)
RS 232
RS 485
RS 422
USB port
<b>Protocols</b>
Protocols (USB)
Protocols (Ethernet)
WEB characteristics
Protocols (terminal link)

Number of connections
PROFINET IO Device
Redundancy mode
SIMATIC communication
EtherNet/IP
Services
Updating times
Redundancy mode
Open IE communication
Web server
PROFIBUS DP
PROFIdrive
DALI
Integrated protocols
Freeport
3964 (R)
OPC UA
<b>Communication functions</b>
Global data communication
S7 basic communication
S7 communication
LOGO! communication
S5 compatible communication
Standard communication (FMS)
PROFINET CBA (at set setpoint communication load)
Remote interconnections with acyclic transmission
Remote interconnections with cyclic transmission
iPAR server
Number of connections
<b>Test commissioning functions</b>
Status/control
Forcing
Diagnostic buffer
<b>Interrupts/diagnostics/status information</b>
Alarms
Diagnostics function
Alarms
• Diagnostic alarm
Diagnoses
• Wire-break
• Short-circuit
• Fuse blown
• missing load voltage
Diagnostics indication LED
• Rated load voltage PWR (green)
• Fuse OK FSG (green)
• Status indicator digital output (green)
<b>Integrated Functions</b>
Monitoring functions
Safety monitoring functions
Counting functions
Load cell
Position detection
Control technology
Step-by-step controllers
Pulse generator
Measuring functions
Operating mode for measured value acquisition

Measuring range
Accuracy
Measuring inputs for voltage
Measuring inputs for current
Measuring inputs for current (Rog. or I/U converter)
Error limits
<b>Counter</b>
Counting mode
External gate counters
Counter input 5 V
Counter input 24 V
<b>Drive interface</b>
Signal Input
<b>Potential separation</b>
Potential separation digital inputs
Potential separation digital outputs
<ul style="list-style-type: none"> <li>• between the channels</li> <li>• between the channels, in groups of</li> <li>• between the channels and backplane bus</li> </ul>
Yes
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Yes; Optocoupler
Potential separation analog inputs
Potential separation analog outputs
Potential separation channels
Potential separation valve outputs
Potential separation counter
Potential separation controller
<b>Isolation</b>
Isolation tested with
1 500 V AC
<b>EMC</b>
Interference immunity against discharge of static electricity
Interference immunity against high-frequency electromagnetic fields
Interference immunity to cable-borne interference
Interference immunity against voltage surge
Interference immunity against conducted variable disturbance induced by high-frequency fields
Interference immunity to magnetic fields
Emission of radio interference acc. to EN 55 011
Emission of radio interference acc. to EN 55 022
<b>Standards, approvals, certificates</b>
Highest safety class achievable in safety mode
Highest safety class achievable for safety-related tripping of standard modules
Highest safety class achievable for deactivated dark test
Use in hazardous areas
Marine approval
<b>Ambient conditions</b>
Free fall
Ambient temperature during operation
Operation (vertical installation)
Air pressure acc. to IEC 60068-2-13
Vibrations
Shock testing
Resistance
Coolants and lubricants
Fire resistance
Pollutant concentrations
<b>Hardware requirement</b>
Processor
Graphic
<b>Operating systems</b>

pre-installed operating system	
Runs under operating system	
<b>Software</b>	
Preinstalled	
Software functions	
Multi-user system	
Runtime software	
Runtime	
Block	
Adjustable parameters	
<b>Configuration</b>	
Configuration	
Configuration software	
Script languages (Runtime)	
Programming	
Programming language	
Configuration examples	
Software libraries	
Know-how protection	
Access protection	
<b>Languages</b>	
Online languages	
<b>Functionality under WinCC (TIA Portal)</b>	
Multiproject	
Message system	
Recipe management	
Variables	
Images	
Image objects	
Complex image objects	
Attributes for dynamic objects	
Lists	
Archiving	
Filters	
Security	
Data carrier support	
Logging through printer	
Character sets	
Transfer (upload/download)	
Process coupling	
Functions	
<b>Functionality under WinCC Unified</b>	
Parameter set management (recipes)	
Image objects	
<b>Connection method</b>	
required front connector	20-pin
ET-Connection	
Terminals	
Connection I/O signals	
Conductor cross-section in mm <sup>2</sup>	
Conductor cross-section acc. to AWG	
<b>Dimensions</b>	
Width	40 mm
Height	125 mm
Depth	120 mm
<b>Weights</b>	
Weight, approx.	250 g



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