



SIMATIC S7-300, Analog output SM 332, isolated by channel, 4 AI, Resolution 16 bit, 0-10 V, 1-5 V, +/-10 V, +/-20 mA, 0/4-20mA, 20-pole, suitable for isochronous mode improved bus cycle times for the isochronous mode

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	
Mains buffering	
Load voltage L+	
<ul style="list-style-type: none"> <li>Rated value (DC)</li> <li>Reverse polarity protection</li> </ul>	24 V Yes
Load voltage 1L+	
Load voltage 2L+	
Load voltage L1	
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 load voltage L+ (without load), max.	290 mA
from backplane bus 5 V DC, max.	120 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.	3 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>	
Digital output functions, parameterizable	
Control supply voltage	
Switching capacity of the outputs	
Load resistance range	
Trend key points E	
Output voltage	
Output current	
Output delay with resistive load	
Parallel switching of two outputs	
Switching frequency	
Total current of the outputs	
horizontal installation	
Total current of the outputs (per group)	
all mounting positions	
horizontal installation	
vertical installation	
Total current of the outputs (per module)	
all mounting positions	
horizontal installation	
Pulse output (passive)	
Frequency output	
Relay outputs	
Integrated high-speed cams	
<b>Analog inputs</b>	
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	
<b>Analog outputs</b>	
Number of analog outputs	4; Isochronous mode
Voltage output, short-circuit protection	Yes
Voltage output, short-circuit current, max.	40 mA
Current output, no-load voltage, max.	18 V
Output ranges, voltage	
• 0 to 10 V	Yes
• 1 V to 5 V	Yes
• -10 V to +10 V	Yes
Output ranges, current	
• 0 to 20 mA	Yes

• -20 mA to +20 mA	Yes
• 4 mA to 20 mA	Yes
<b>Connection of actuators</b>	
<b>Load impedance (in rated range of output)</b>	
• with voltage outputs, min.	1 kΩ
• with voltage outputs, capacitive load, max.	1 μF
• with current outputs, max.	500 Ω
• with current outputs, inductive load, max.	1 mH
<b>Destruction limits against externally applied voltages and currents</b>	
<b>Cable length</b>	
• shielded, max.	200 m
<b>Analog value generation for the inputs</b>	
Integration and conversion time/resolution per channel	
<b>Analog value generation for the outputs</b>	
Integration and conversion time/resolution per channel	
• Resolution with overrange (bit including sign), max.	16 bit
• Conversion time (per channel)	200 μs; in isochronous mode 640 μs
<b>Settling time</b>	
• for resistive load	0.2 ms
• for capacitive load	3.3 ms
• for inductive load	0.5 ms
<b>Encoder</b>	
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	
<b>Drive axis</b>	
EC motor	
<b>Errors/accuracies</b>	
Operational error limit in overall temperature range	
• Voltage, relative to output range, (+/-)	0.12 %
• Current, relative to output range, (+/-)	0.18 %
Basic error limit (operational limit at 25 °C)	
• Voltage, relative to output range, (+/-)	0.02 %
• Current, relative to output range, (+/-)	0.02 %
<b>Power electronics</b>	
Control of heating elements	
Load connection type	
Setpoint input	
Heating power	
<b>Interfaces</b>	
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>	
Diagnostics function	Yes; Parameterizable
Alarms	
• Diagnostic alarm	Yes; Parameterizable
Diagnoses	
• Diagnostic information readable	Yes
Diagnostics indication LED	
• Group error SF (red)	Yes
<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
Potential separation analog inputs
Potential separation analog outputs
<ul style="list-style-type: none"> <li>• between the channels</li> <li>• between the channels and backplane bus</li> <li>• between the channels and the power supply of the electronics</li> </ul>
Yes
Yes
Yes
Potential separation channels
Potential separation valve outputs
Potential separation counter
Potential separation controller
<b>Isolation</b>
Isolation tested with
1 500 V DC
<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	117 mm
<b>Weights</b>	
Weight, approx.	220 g
<b>Other</b>	
Data for selecting a voltage transformer	



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