



SIMATIC S7, digital input SM 321, isolated, 4 DI; 24 V DC, NAMUR/DIN 19234, for signals from the hazardous area, diagnostics-capable, PTB tested

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"> Rated value (DC) Reverse polarity protection 	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	
Input current	
from load voltage L+ (without load), max.	50 mA
from backplane bus 5 V DC, max.	80 mA
Output current	
horizontal installation	
vertical installation	
Encoder supply	
Type of output voltage	via the inputs
Output current	
5 V encoder supply	
24 V encoder supply	
Additional 24 V encoder supply	
Power loss	
Power loss, typ.	1.1 W
Memory	
Work memory	
Working memory for additional functions	
Battery	
Design	
CPU-blocks	
DB	
FB	
FC	
Counters, timers and their retentivity	
S7 counter	
IEC counter	
S7 times	
Data areas and their retentivity	
Flag	
Address area	
I/O address area	
of which distributed	
per integrated IO subsystem	
Process image	
Subprocess images	
Digital channels	
Analog channels	
Addressing volume	
Hardware configuration	
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	
Time of day	
Clock	
Operating hours counter	
Time switching clocks	
Digital inputs	

Number of digital inputs	4
Number of NAMUR inputs	4
Number of simultaneously controllable inputs	
all mounting positions	
horizontal installation	
Digital input functions, parameterizable	
Input voltage	
• Type of input voltage	DC
• Rated value (DC)	8.2 V; from internal power circuit supply
Input current	
• on wire-break, max.	0.1 mA
• on short-circuit, max.	8.5 mA
for 10 k switched contact	
for unswitched contact	
for NAMUR encoders	
— for signal "0"	0.35 to 1.2 mA
— for signal "1"	2.1 to 7 mA
Internal preparation time	
Input delay (for rated value of input voltage)	
• Input frequency (with a time delay of 0.1 ms), max.	2 kHz
for standard inputs	
for interrupt inputs	
for technological functions	
for NAMUR inputs	
— parameterizable	Yes; 0.1 / 0.5 / 3 / 15 / 20 ms (plus 0.25 ms preparation time)
Encoder connection	
Connection method	
Cable length	
• unshielded, max.	200 m
Digital outputs	
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	
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
• NAMUR encoder
Yes; Two-wire connection
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
1. Interface
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
2. Interface
Interface types
Protocols
PROFIBUS DP master
Services
PROFIBUS DP slave
PROFINET IO Controller
Services
Update time for IRT
PROFINET IO Device
Services
PROFINET CBA
3. Interface
Interface types
Protocols
PROFIBUS DP master
Services
PROFIBUS DP slave
PROFINET IO Controller
PROFINET IO Device
Services
PROFINET CBA
4. Interface
Interface types
Protocols
PROFIBUS DP master
PROFINET IO Controller
Interface types
RJ 45 (Ethernet)
RS 232
RS 485
RS 422
USB port
Protocols
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	
Communication functions	
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	
Test commissioning functions	
Status/control	
Forcing	
Diagnostic buffer	
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Alarms	
Diagnoses	
• Diagnostic information readable	Yes
Diagnostics indication LED	
• Group error SF (red)	Yes
• Status indicator digital input (green)	Yes
• Channel fault indicator F (red)	Yes
Integrated Functions	
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	
Counter	
Counting mode	
External gate counters	
Counter input 5 V	
Counter input 24 V	

Drive interface	
Signal Input	
Ex(i) characteristics	
Module for Ex(i) protection	Yes
maximum values for connecting terminals for gas group IIC	
<ul style="list-style-type: none"> • U_o (no-load voltage), max. • I_o (short-circuit current), max. • P_o (power output), max. • C_o (permissible external capacity), max. • L_o (permissible external inductivity), max. 	<ul style="list-style-type: none"> 10 V 14.1 mA 33.7 mW 3 µF 100 mH
Potential separation	
Potential separation digital inputs	
<ul style="list-style-type: none"> • between the channels 	Yes; 60 V DC/30 V AC when used in the hazardous area; 400 V DC/250 V AC when used in NON-hazardous area
<ul style="list-style-type: none"> • between the channels, in groups of • between the channels and backplane bus 	1
<ul style="list-style-type: none"> • Between the channels and load voltage L+ 	Yes; 60 V DC/30 V AC when used in the hazardous area; 400 V DC/250 V AC when used in NON-hazardous area
Potential separation digital outputs	
Potential separation analog inputs	
Potential separation analog outputs	
Potential separation channels	
Potential separation valve outputs	
Potential separation counter	
Potential separation controller	
EMC	
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	
Standards, approvals, certificates	
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	
<ul style="list-style-type: none"> • Type of protection acc. to EN 50020 (CENELEC) • Type of protection acc. to FM • Test number PTB 	<ul style="list-style-type: none"> [Ex ib] IIC Class II, Division 2, Group A, B, C, D T4 Ex-96.D.2094X
Ambient conditions	
Free fall	
Ambient temperature during operation	
<ul style="list-style-type: none"> • max. 	60 °C
Operation (vertical installation)	
Air pressure acc. to IEC 60068-2-13	
Vibrations	
Shock testing	
Resistance	
Coolants and lubricants	
Use on land craft, rail vehicles and special-purpose vehicles	
Fire resistance	
Pollutant concentrations	
Hardware requirement	
Processor	

Graphic	
Operating systems	
pre-installed operating system	
Runs under operating system	
Software	
Preinstalled	
Software functions	
Multi-user system	
Runtime software	
Runtime	
Block	
Adjustable parameters	
Configuration	
Configuration	
Configuration software	
Script languages (Runtime)	
Programming	
Programming language	
Configuration examples	
Software libraries	
Know-how protection	
Access protection	
Languages	
Online languages	
Functionality under WinCC (TIA Portal)	
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	
Functionality under WinCC Unified	
Parameter set management (recipes)	
Image objects	
Connection method	
required front connector	20-pin
ET-Connection	
Terminals	
Connection I/O signals	
Conductor cross-section in mm ²	
Conductor cross-section acc. to AWG	
Dimensions	
Width	40 mm
Height	125 mm
Depth	120 mm

Weights

Weight, approx.

230 g

Other

Data for selecting a voltage transformer

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