SIEMENS

Data sheet **6ES7870-1AA01-0YA1**

SIMATIC S7, MODBUS Master V3.1 single license for 1 installation R-SW, without SW and without documentation, HW dongle, Class A, 3 languages (de, de, fr, en fr), executable in STEP 7 V4.02 or higher, reference hardware: CP 341 and CP 441-2

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+
Digital inputs
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

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Output current	
horizontal installation	
vertical installation	
Encoder supply	
Output current	
5 V encoder supply	
24 V encoder supply	
Additional 24 V encoder supply	
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 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	
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	
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

Alarms	

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	

Potential separation

Potential separation digital inputs	
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

developed in accordance with IEC 61131	Yes
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	

Ambient conditions

Free fall	
Ambient temperature during operation	
Operation (vertical installation)	

Operation (max. tilt angle)	
Ambient temperature during storage/transportation	
Air pressure acc. to IEC 60068-2-13	
Altitude during operation relating to sea level	
Relative humidity	
Vibrations	
Shock testing	
Resistance	
Coolants and lubricants	
Use in stationary industrial systems	
Use on land craft, rail vehicles and special-purpose vehicles	
Use on ships/at sea	
Fire resistance	
Hardware requirement	
Graphic	
Drives	
Operating systems	
pre-installed operating system	
Runs under operating system	
● Windows 9x	No
● Windows ME	No
● Windows NT 4.0	No
● Windows 2000	No
● Windows XP	Yes
● Windows 7	Yes
Software	
Software required	STEP 7 V4.02 or higher
Target system	CP 341 AND CP 441-2
Preinstalled	
Software functions	
Multi-user system	
Block	
Authorization/licenses	
● Single license (EL)	Yes
Configuration	
Configuration	
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	
Documentation	
Languages	
● German	Yes
● English	Yes
● French	Yes
Connection method	
ET-Connection	
Terminals	
Connection I/O signals	
Conductor cross-section in mm²	
Conductor cross-section acc. to AWG	
Other	
Data for selecting a voltage transformer	

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