SIEMENS

Data sheet 6ES7143-5AH00-0BA0

Siemens EcoTech

SIMATIC ET 200AL, DIQ 16x24 V DC/0.5 A, 8xM12, Degree of protection IP67



General information	
Product type designation	DIQ 16x24VDC/0.5A
HW functional status	FS06
Firmware version	V2.0.x
Product function	
● I&M data	Yes; I&M0 to I&M3
Engineering with	
● STEP 7 TIA Portal configurable/integrated from version	STEP 7 V14 or higher
● STEP 7 configurable/integrated from version	V5.5 SP4 Hotfix 7 or higher
● PROFIBUS from GSD version/GSD revision	GSD as of Revision 5
● PROFINET from GSD version/GSD revision	GSDML V2.3.1
Operating mode	
● DI	Yes
● Counter	Yes
● DQ	Yes
Supply voltage	
power supply according to NEC Class 2 required	No
Load voltage 1L+	
● 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; Against destruction; encoder power supply outputs applied with reversed polarity, loads pick up
Load voltage 2L+	
● 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; Against destruction; encoder power supply outputs applied with reversed polarity, loads pick up
Input current	
Current consumption (rated value)	60 mA; 60 mA (1L+) / 40 mA (2L+); without load
from load voltage 1L+ (unswitched voltage)	4 A; Maximum value
from load voltage 2L+, max.	4 A; Maximum value
Encoder supply	
Number of outputs	8
24 V encoder supply	

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● Short-circuit protection	Yes; Per load voltage, electronic
● Output current, max.	1.4 A; Total current of all encoders, max. 0.7 A per load voltage
Power loss	
Power loss, typ.	4 W
Digital inputs	
Number of digital inputs	16; Parameterizable as DIQ
Sourcing/sinking input	P-reading
Input characteristic curve in accordance with IEC 61131, type 3	Yes
Number of simultaneously controllable inputs	
all mounting positions	
— up to 55 °C, max.	16
Digital input functions, parameterizable	
● Freely usable digital input	Yes
● Counter	Yes
— Number, max.	4
— Counting frequency, max.	2 kHz
— Counting width	32 bit; Incl. sign
— Counting direction up/down	Yes
Input voltage	
● Rated value (DC)	24 V
● for signal "0"	-3 to +5V
● for signal "1"	+11 to +30V
Input current	
● for signal "1", typ.	3 mA
Input delay (for rated value of input voltage)	
for standard inputs	
— parameterizable	Yes
— at "0" to "1", min.	0.05 ms; 1.6 ms for channels 8 through 15
— at "0" to "1", max.	20 ms
— at "1" to "0", min.	0.05 ms; 1.6 ms for channels 8 through 15
— at "1" to "0", max.	20 ms
for technological functions	
— parameterizable	Yes
Cable length	
● unshielded, max.	30 m
Digital outputs	
Number of digital outputs	16; Parameterizable as DIQ
● in groups of	8; 2 load groups for 8 outputs each
Current-sourcing	Yes
output type acc. to IEC 61131, type 0.5	Yes
Short-circuit protection	Yes; per channel, electronic
● Response threshold, typ.	0.7 A
Limitation of inductive shutdown voltage to	L+ (-53 V)
Digital output functions, parameterizable	
● Switching tripped by comparison values	Yes
● Freely usable digital output	Yes
Switching capacity of the outputs	
● on lamp load, max.	5 W
Load resistance range	
● lower limit	48 Ω
● upper limit	4 kΩ
Output voltage	
● for signal "1", min.	L+ (-0.8 V)
Output current	
● for signal "1" rated value	0.5 A
● for signal "0" residual current, max.	0.5 mA
Switching frequency	
● with resistive load, max.	100 Hz
● with inductive load, max.	0.5 Hz

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● on lamp load, max.	1 Hz
Total current of the outputs	
● Current per group, max.	4 A
Cable length	
● unshielded, max.	30 m
Encoder	
Connectable encoders	
● 2-wire sensor	Yes
— permissible quiescent current (2-wire sensor), max.	1.5 mA
Interrupts/diagnostics/status information	
Substitute values connectable	Yes; channel by channel, parameterizable
Alarms	
● Diagnostic alarm	Yes; Parameterizable
Diagnoses	
● Short-circuit	Yes; Outputs to M; encoder supply to M; module by module
Diagnostics indication LED	
● Channel status display	Yes; green LED
● for module diagnostics	Yes; green/red LED
● For load voltage monitoring	Yes; green LED
Potential separation	
between the load voltages	Yes
Potential separation channels	
● between the channels, in groups of	8
● between the channels and backplane bus	Yes
● between the channels and the power supply of the electronics	No; 8 channels are non-isolated and 8 channels are isolated from supply voltage 1L+
Isolation	
Isolation tested with	707 V DC (type test)
Degree and class of protection	
IP degree of protection	IP65/67
Standards, approvals, certificates	
Suitable for safety-related tripping of standard modules	No
Security	
signed firmware update	Yes
data integrity	Yes
Ambient conditions	
Ambient temperature during operation	
● min.	-30 °C
● max.	55 °C
Altitude during operation relating to sea level	
● Ambient air temperature-barometric pressure-altitude	Up to max. 5 000 m, at installation height > 2 000 m additional restrictions
Connection method	
Design of electrical connection for the inputs and outputs	M12, 5-pole
Design of electrical connection for supply voltage	M8, 4-pole
ET-Connection	
● ET-Connection	M8, 4-pin, shielded
Dimensions	
Width	45 mm
Height	159 mm
Depth	40 mm
Weights	
Weight, approx.	195 g
Classifications	

	Version	Classification
eClass	16	27-24-26-04
eClass	14	27-24-26-04
eClass	12	27-24-26-04

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eClass	9.1	27-24-26-04
eClass	9	27-24-26-04
eClass	8	27-24-26-04
eClass	7.1	27-24-26-04
eClass	6	27-24-26-04
ETIM	10	EC001599
ETIM	9	EC001599
ETIM	8	EC001599
ETIM	7	EC001599
IDEA	4	3566
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval

Confirmation

EMV

Radio Equipment Type Approval Certificate

Miscellaneous

Test Certificates

Special Test Certificate

Miscellaneous

Maritime application

Maritime application

CCS (China Classification Society)

other

Miscellaneous

Miscellaneous

Confirmation

Manufacturer Declaration

Dangerous goods

Transport Information

Environment

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