SIEMENS

Data sheet 6ES7157-1MA00-0AB0

SIMATIC ET 200AL, MultiFieldbus interface module IM 157-1 MF, PN IO, EtherNet/IP, Modbus TCP, PN security class 1, degree of protection IP67

General information	
Product type designation	IM 157-1 MF
HW functional status	FS01
Firmware version	V1.0.x
● FW update possible	Yes
Vendor identification (VendorID)	002AH
Device identifier (DeviceID)	0314H
Manufacturer ID according to ODVA (VendorID)	0x04E3
Device ID according to ODVA (Product code)	0x0FB6
Product function	
● I&M data	Yes; I&M0 to I&M4
● Isochronous mode	No
● IRT	Yes
Engineering with	
● STEP 7 TIA Portal configurable/integrated from version	STEP 7 V19 or higher
● STEP 7 configurable/integrated from version	from V5.6
● PROFINET from GSD version/GSD revision	GSDML V2.4.x
● Multi Fieldbus Configuration Tool (MFCT)	from V1.5
Configuration control	
via dataset	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
Input current	
Current consumption (rated value)	80 mA
from load voltage 1L+ (unswitched voltage)	4 A; Maximum value
from load voltage 2L+, max.	4 A; Maximum value
Power loss	
Power loss, typ.	2.5 W
Address area	
Address space per module	
● Address space per module, max.	264 byte; For input and output data respectively
Address space per station	
● Address space per station, max.	1 440 byte
Hardware configuration	

Submodules	
● Number of submodules per station, max.	125
Interfaces	
Number of PROFINET interfaces	1; 2 ports (switch)
1. Interface	
Interface type	PROFINET
Interface types	
● M12 port	Yes; 2x M12 D-coded
● integrated switch	Yes
Protocols	
● PROFINET IO device	Yes
● Open IE communication	Yes
PROFINET IO Device	
Services	
— IRT	Yes; 250 µs, 500 µs, 1 ms, 2 ms, 4 ms, 8 ms, 16 ms, 32 ms, 64 ms, 128 ms
— PROFIenergy	Yes
— Prioritized startup	Yes
— Shared device	Yes
— Number of IO Controllers with shared device, max.	14; 4x PN controller + 2x EtherNet/IP scanner + 10x Modbus TCP master
Interface types	
M12 port	
● Transmission procedure	PROFINET with 100 Mbit/s full duplex (100BASE-TX)
● 100 Mbps	Yes; PROFINET with 100 Mbit/s full duplex (100BASE-TX)
● Autonegotiation	Yes
● Autocrossing	Yes
Protocols	
PROFINET IO	Yes
PROFIsafe	No
PROFIBUS	No
EtherNet/IP	Yes
Modbus TCP	Yes
Redundancy mode	
● PROFINET system redundancy (S2)	Yes
— on S7-1500R/H	Yes
— on S7-400H	Yes
● PROFINET system redundancy (R1)	No
● H-Sync forwarding	Yes
Media redundancy	
— MRP	Yes
— MRPD	Yes
EtherNet/IP	
Services	
— CIP Implicit Messaging	Yes
— CIP Explicit Messaging	Yes
— CIP Safety	No
— Configuration control via Explicit Messaging	No
— Shared device	Yes; 4x PN controller + 2x EtherNet/IP scanner + 10x Modbus TCP master
— Number of scanners with shared device, max.	2
Updating times	
— Requested Packet Interval (RPI)	2 ms
Redundancy mode	
— DLR (Device Level Ring)	No
Address area	
— Address space per module, max.	264 byte
— ForwardOpen (Class1 & 32 bit Header)	500 byte
— LargeForwardOpen (Class3)	4 002 byte
Modbus TCP	
Services	
— read coils (code=1)	Yes

— read discrete inputs (code=2)	Yes
— Read Holding Registers (Code=3)	Yes
— Read Input Register (Code=4)	Yes
— write single coil (code=5)	Yes
— Write Single Register (Code=6)	Yes
— write multiple coils (code=15)	Yes
— Write Multiple Registers (Code=16)	Yes
— Read/Write Multiple Registers (Code=23)	Yes
— Parameter change by master	Yes
— Modbus TCP Security Protocol	No
Address space per station	
— Address space per station, max.	500 byte; (246 byte outputs / 500 byte inputs)
— Access-consistent address space	250 byte; (246 byte outputs / 250 byte inputs)
Updating time	
— I/O request interval	2 ms
Connections	
— number of connections per device	9; (1x inputs / 2x outputs / 4x volatile registers / 2x Device Info)
Open IE communication	
● TCP/IP	Yes
● SNMP	Yes
● LLDP	Yes
● ARP	Yes
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Alarms	
● Diagnostic alarm	Yes
Diagnostics indication LED	
● RUN LED	Yes; green LED
● ERROR LED	Yes; red LED
● MAINT LED	Yes; Yellow LED
● NS LED	Yes; green/red LED
● MS LED	Yes; green/red LED
● IO LED	Yes; red/green/yellow LEDs
● Connection display LINK TX/RX	Yes; 2x green LED
Potential separation	
between the load voltages	Yes
between PROFINET and all other circuits	Yes
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	Yes; from FS01
Highest safety class achievable for safety-related tripping of standard modules	
● Performance level according to ISO 13849-1	PL d
● Category according to ISO 13849-1	Cat. 3
● SIL acc. to IEC 62061	SIL 2
● remark on safety-oriented shutdown	https://support.industry.siemens.com/cs/de/en/view/39198632
Security	
PROFINET Security Class	1
signed firmware update	Yes
Secure Boot	Yes
safely removing data	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 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.	215 g

Classifications

	Version	Classification
eClass	16	27-24-26-08
eClass	14	27-24-26-08
eClass	12	27-24-26-08
eClass	9.1	27-24-26-08
eClass	9	27-24-26-08
eClass	8	27-24-26-08
eClass	7.1	27-24-26-08
eClass	6	27-24-26-08
ETIM	10	EC001604
ETIM	9	EC001604
ETIM	8	EC001604
ETIM	7	EC001604

Approvals / Certificates

General Product Approval

Manufacturer Declaration

Miscellaneous

General Product Approval

China RoHS

EMV

Maritime application

Maritime application

CCS (China Classification Society)

KR (Korean Register of Shipping)

Industrial Communication

PROFINET

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