## **Data sheet**

## 6ES7142-6BR00-0BB0



SIMATIC ET 200eco PN, DQ 8x 24 V DC/2A, M12-L, 8x M12, single and double assignment, source output (PNP,switching to P potential), substitute value output, channel diagnostics for wire break and short-circuit at the output, shared device with 2 controllers, 0.25 ms isochronous mode, prioritized startup, MSO, MRP, S2 redundancy, I&M0...3, multi-fieldbus, PN IO, Ethernet IP, Modbus TCP, degree of protection IP67 / IP69K

HW functional status Firmware version Fi	General information	
FW update possible  Vendor identification (VendorID)  Device identifier (DeviceID)  Manufacturer ID according to ODVA (VendorID)  Device ID according to ODVA (Product code)  Product function  I & M data I sochronous mode Prioritized startup  Fragineering with  STEP 7 TIA Portal configurable/integrated from version PROFINET from GSD version/GSD revision Multi Fieldbus Configuration Tool (MFCT)  Operating mode  DQ Yes  MSO  Supply voltage  power supply according to NEC Class 2 required  Rated value (DC) Permissible range, lower limit (DC) Preversion (DV AC) Province (DC) Preversion (D	HW functional status	FS02
Vendor identification (VendorID)  Device identifier (DeviceID)  Manufacturer ID according to ODVA (VendorID)  Device ID according to ODVA (Product code)  Product function  • I&M data  • Isochronous mode  • Prioritized startup  Profuct from GSD version/GSD revision  • Multi Fieldbus Configuration Tool (MFCT)  Operating mode  • DQ  • MSO  Supply voltage  power supply according to NEC Class 2 required  • Rated value (DC)  • permissible range, lower limit (DC)  • Reverse polarity protection  • Reverse polarity protection  • Reverse polarity protection	Firmware version	V5.1.x
Device identifier (DeviceID)  Manufacturer ID according to ODVA (VendorID)  Device ID according to ODVA (Product code)  Product function  • (&M data	FW update possible	Yes
Manufacturer ID according to ODVA (VendorID)  Device ID according to ODVA (Product code)  Product function  I &M data Selsochronous mode Prioritized startup  Engineering with  STEP 7 TIA Portal configurable/integrated from version PROFINET from GSD version/GSD revision Multi Fieldbus Configuration Tool (MFCT)  Operating mode  DQ MSO  MSO  SUMD  Yes  Supply voltage  power supply according to NEC Class 2 required  No  Load voltage 1L+ Rated value (DC) Permissible range, lower limit (DC) Product function  OFA7H  Yes; I&M0 to I&M3  Yes; I&M0 to I&M3  Yes  STEP 7 V17 or higher with HSP 0363  GSDML V2.3.x  from V1.3 SP1  OFA7H  STEP 7 V17 or higher with HSP 0363  GSDML V2.3.x  from V1.3 SP1  Operating mode  No  Ves  Supply voltage  Power supply according to NEC Class 2 required  No  Load voltage 1L+ Rated value (DC) Permissible range, lower limit (DC) Permissible range, upper limit (DC) Permissible range, upper limit (DC) Reverse polarity protection  Ves	Vendor identification (VendorID)	002AH
Device ID according to ODVA (Product code)  Product function  I&M data Selsochronous mode Prioritized startup Yes Prioritized startup Yes  Engineering with STEP 7 TIA Portal configurable/integrated from version PROFINET from GSD version/GSD revision Multi Fieldbus Configuration Tool (MFCT)  Operating mode DQ MSO Yes  MSO Yes  Supply voltage  power supply according to NEC Class 2 required No  Load voltage 1L+ Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection  OFA7H  Yes; I&M0 to I&M3  Yes; I&M0 to I&M3  Yes  STEP 7 V17 or higher with HSP 0363  GSDML V2.3.x  from V1.3 SP1  OFA7H  Yes  NO  STEP 7 V17 or higher with HSP 0363  STEP 7 V17 or hig	Device identifier (DeviceID)	0306H
Product function  I&M data  Isochronous mode  Prioritized startup  Yes  Engineering with  STEP 7 TIA Portal configurable/integrated from version  PROFINET from GSD version/GSD revision  Multi Fieldbus Configuration Tool (MFCT)  Operating mode  DQ  MSO  Yes  MSO  Yes  Supply voltage  power supply according to NEC Class 2 required  Load voltage 1L+  Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  Reverse polarity protection  Yes  Yes  Sub Ves  24 V  Permissible range, upper limit (DC)  PROFINED (MMSO  Yes  28.8 V  Pes  Reverse polarity protection	Manufacturer ID according to ODVA (VendorID)	04E3H
I I I I I I I I I I I I I I I I I I I	Device ID according to ODVA (Product code)	0FA7H
<ul> <li>Isochronous mode</li> <li>Prioritized startup</li> <li>Yes</li> <li>Engineering with</li> <li>STEP 7 TIA Portal configurable/integrated from version</li> <li>PROFINET from GSD version/GSD revision</li> <li>Multi Fieldbus Configuration Tool (MFCT)</li> <li>Operating mode</li> <li>DQ</li> <li>MSO</li> <li>Yes</li> <li>MSO</li> <li>Yes</li> <li>Supply voltage</li> <li>power supply according to NEC Class 2 required</li> <li>Rated value (DC)</li> <li>permissible range, lower limit (DC)</li> <li>permissible range, upper limit (DC)</li> <li>Reverse polarity protection</li> <li>Yes</li> </ul>	Product function	
Prioritized startup  Engineering with  STEP 7 TIA Portal configurable/integrated from version PROFINET from GSD version/GSD revision Multi Fieldbus Configuration Tool (MFCT)  Operating mode  DQ MSO Yes  Supply voltage  power supply according to NEC Class 2 required  No  Load voltage 1L+ Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection  Yes  STEP 7 V17 or higher with HSP 0363  GSDML V2.3.x from V1.3 SP1  Yes  Yes  Yes  Yes  24 V  24 V  20.4 V  Permissible range, upper limit (DC) 28.8 V  Reverse polarity protection  Yes	I&M data	Yes; I&M0 to I&M3
Engineering with  STEP 7 TIA Portal configurable/integrated from version PROFINET from GSD version/GSD revision Multi Fieldbus Configuration Tool (MFCT)  Operating mode DQ MSO Yes  Supply voltage  power supply according to NEC Class 2 required No  Load voltage 1L+ Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection  STEP 7 V17 or higher with HSP 0363 GSDML V2.3.x from V1.3 SP1  Yes  No  Yes  Yes  Ves  Supply voltage  24 V 24 V 20.4 V 20.4 V Permissible range, upper limit (DC)	Isochronous mode	Yes
STEP 7 V17 or higher with HSP 0363  PROFINET from GSD version/GSD revision Multi Fieldbus Configuration Tool (MFCT)  Operating mode  DQ MSO  MSO  Supply voltage  power supply according to NEC Class 2 required  Rated value (DC) permissible range, lower limit (DC) Permissible range, upper limit (DC) Reverse polarity protection  STEP 7 V17 or higher with HSP 0363  GSDML V2.3.x  from V1.3 SP1  Yes  Yes  Yes  Ves  Ves  Supply voltage  Power supply according to NEC Class 2 required No  Load voltage 1L+ Rated value (DC) Permissible range, lower limit (DC) Permissible range, upper limit (DC)	Prioritized startup	Yes
<ul> <li>PROFINET from GSD version/GSD revision</li> <li>Multi Fieldbus Configuration Tool (MFCT)</li> <li>Operating mode</li> <li>DQ</li> <li>MSO</li> <li>Yes</li> <li>MSO</li> <li>Yes</li> <li>Supply voltage</li> <li>power supply according to NEC Class 2 required</li> <li>Load voltage 1L+</li> <li>Rated value (DC)</li> <li>permissible range, lower limit (DC)</li> <li>permissible range, upper limit (DC)</li> <li>Reverse polarity protection</li> <li>GSDML V2.3.x</li> <li>from V1.3 SP1</li> <li>No</li> <li>24 V</li> <li>24 V</li> <li>24 V</li> <li>26.8 V</li> <li>Reverse polarity protection</li> <li>Yes</li> </ul>	Engineering with	
<ul> <li>Multi Fieldbus Configuration Tool (MFCT) from V1.3 SP1</li> <li>Operating mode <ul> <li>DQ</li> <li>Yes</li> <li>MSO</li> <li>Yes</li> </ul> </li> <li>Supply voltage <ul> <li>power supply according to NEC Class 2 required</li> <li>No</li> </ul> </li> <li>Load voltage 1L+ <ul> <li>Rated value (DC)</li> <li>permissible range, lower limit (DC)</li> <li>permissible range, upper limit (DC)</li> <li>permissible range, upper limit (DC)</li> <li>Reverse polarity protection</li> <li>Yes</li> </ul> </li> </ul>	STEP 7 TIA Portal configurable/integrated from version	STEP 7 V17 or higher with HSP 0363
Operating mode  • DQ Yes  • MSO 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	<ul> <li>PROFINET from GSD version/GSD revision</li> </ul>	GSDML V2.3.x
POQ     MSO     Yes  Supply voltage  power supply according to NEC Class 2 required  Load voltage 1L+  Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection  Yes	Multi Fieldbus Configuration Tool (MFCT)	from V1.3 SP1
MSO     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	Operating mode	
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	• DQ	Yes
power supply according to NEC Class 2 required  Load voltage 1L+  Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  Reverse polarity protection  No  24 V  20.4 V  28.8 V	• MSO	Yes
Load voltage 1L+  Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  Reverse polarity protection  24 V  28.8 V  Reverse polarity protection	Supply voltage	
<ul> <li>Rated value (DC)</li> <li>permissible range, lower limit (DC)</li> <li>permissible range, upper limit (DC)</li> <li>Reverse polarity protection</li> </ul> 24 V 29.4 V 29.8 V 29.8 V	power supply according to NEC Class 2 required	No
<ul> <li>permissible range, lower limit (DC)</li> <li>permissible range, upper limit (DC)</li> <li>Reverse polarity protection</li> <li>Yes</li> </ul>	Load voltage 1L+	
<ul> <li>permissible range, upper limit (DC)</li> <li>Reverse polarity protection</li> <li>Yes</li> </ul>	Rated value (DC)	24 V
• Reverse polarity protection Yes	• permissible range, lower limit (DC)	20.4 V
	• permissible range, upper limit (DC)	28.8 V
Load voltage 2L+	Reverse polarity protection	Yes
	Load voltage 2L+	
• Rated value (DC) 24 V	Rated value (DC)	24 V
• permissible range, lower limit (DC) 20.4 V	<ul> <li>permissible range, lower limit (DC)</li> </ul>	20.4 V
• permissible range, upper limit (DC) 28.8 V	• permissible range, upper limit (DC)	28.8 V
• Reverse polarity protection Yes; against destruction	Reverse polarity protection	Yes; against destruction
Input current	Input current	
Current consumption (rated value) 65 mA; without load	Current consumption (rated value)	65 mA; without load
from load voltage 1L+ (unswitched voltage)  12 A; Maximum value	from load voltage 1L+ (unswitched voltage)	12 A; Maximum value
from load voltage 2L+, max.  12 A; Maximum value	from load voltage 2L+, max.	12 A; Maximum value
Power loss	Power loss	
Power loss, typ. 8.2 W	Power loss, typ.	8.2 W
Address area	Address area	
Address space per module	Address space per module	
• Inputs 1 byte for QI information	• Inputs	1 byte for QI information

<ul><li>Outputs</li></ul>	1 byte
Hardware configuration	,
Submodules	
Number of configurable submodules, max.	2
Digital outputs	
Number of digital outputs	8
Current-sourcing	Yes
Short-circuit protection	Yes; per channel, electronic
Response threshold, typ.	4 A
Limitation of inductive shutdown voltage to	Type -14 V
Controlling a digital input	Yes
Switching capacity of the outputs	
<ul> <li>with resistive load, max.</li> </ul>	2 A
<ul> <li>with inductive load, max.</li> </ul>	2 A
• on lamp load, max.	10 W
Load resistance range	
<ul> <li>lower limit</li> </ul>	12 Ω
• upper limit	4 kΩ
Output voltage	
• for signal "1", min.	2L+ (-0,8 V)
Output current	
for signal "1" rated value	2 A
<ul><li>for signal "1" permissible range, max.</li></ul>	2 A
• for signal "0" residual current, max.	0.2 mA
Output delay with resistive load	
• "0" to "1", max.	50 μs; at rated load
• "1" to "0", max.	100 μs; at rated load
Parallel switching of two outputs	
• for uprating	No
for redundant control of a load	Yes
Switching frequency	40011
with resistive load, max.	100 Hz
with inductive load, max.	0.5 Hz
• on lamp load, max.	1 Hz
Total current of the outputs	9.4
Current per module, max.  Cable largeth	8 A
Cable length	30 m
unshielded, max.  Interfaces	OV III
	1
Number of PROFINET interfaces	1
1. Interface	DDOEINET with 400 Mbit/o full duralow (400DACE TV)
Interface type	PROFINET with 100 Mbit/s full duplex (100BASE-TX)
Interface types	Voc. 2v M12. 4 pin D coded
M12 port     Number of ports	Yes; 2x M12, 4-pin, D-coded
<ul><li>Number of ports</li><li>integrated switch</li></ul>	2 Yes
Protocols	163
PROFINET IO Device	Yes
Open IE communication	Yes
Interface types	
M12 port	
Autonegotiation	Yes
Autoriegoliation     Autoriegoliation	Yes
Transmission rate, max.	100 Mbit/s
Protocols	100 Minito
Supports protocol for PROFINET IO	Yes
PROFIsafe	No No
EtherNet/IP	Yes
Modbus TCP	Yes
PROFINET IO Device	
THO THE TO DEVICE	

Services	
— IRT	Yes; 250 µs to 4 ms in 125 µs frame
<ul><li>— Prioritized startup</li></ul>	Yes
— Shared device	Yes
<ul> <li>Number of IO Controllers with shared device, max.</li> </ul>	2
Redundancy mode	
<ul> <li>PROFINET system redundancy (S2)</li> </ul>	Yes
— on S7-1500R/H	Yes
— on S7-400H	Yes
<ul> <li>PROFINET system redundancy (R1)</li> </ul>	No
H-Sync forwarding	Yes
Media redundancy	
— MRP	Yes
EtherNet/IP	
Services	
— CIP Implicit Messaging	Yes
CIP Explicit Messaging	Yes
— CIP Safety	No
— Shared device	Yes; 2x EtherNet/IP Scanner
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	
<ul> <li>Address space per module, max.</li> </ul>	20 byte
— LargeForwardOpen (Class3)	No
Modbus TCP	
Services	
— read coils (code=1)	Yes
— read discrete inputs (code=2)	Yes
— Read Holding Registers (Code=3)	Yes
— write single coil (code=5)	Yes
— write multiple coils (code=15)	Yes
Write Multiple Registers (Code=16)	Yes
Parameter change by master	No
Modbus TCP Security Protocol	No
Address space per station	INO
·	20 byte
Address space per station, max.	•
Access-consistent address space	2 byte
Updating time	
— I/O request interval	2 ms
Connections	
Number of connections per slave	12
Open IE communication	
• TCP/IP	Yes; (only EtherNet/IP or Modbus TCP)
• SNMP	Yes
• LLDP	Yes
• ARP	Yes
Isochronous mode	
Equidistance	Yes
shortest clock pulse	250 µs
max. cycle	4 ms
Jitter, max.	10 μs
Interrupts/diagnostics/status information	
Substitute values connectable	Yes
Alarms	
	Vas: Parameterizable
Diagnostic alarm     Maintenance interrupt	Yes; Parameterizable
Maintenance interrupt	Yes; Parameterizable
Diagnoses	V
Diagnostic information readable	Yes

<ul> <li>Monitoring the supply voltage</li> </ul>	Yes
— parameterizable	Yes
Wire-break	Yes
Short-circuit	Yes; Outputs to M; channel by channel
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 LED
<ul> <li>Channel status display</li> </ul>	Yes; green LED
<ul> <li>for channel diagnostics</li> </ul>	Yes; red LED
<ul> <li>For load voltage monitoring</li> </ul>	Yes; green LED
<ul> <li>Connection display LINK TX/RX</li> </ul>	Yes; green LED, only link
Potential separation	
between the load voltages	Yes
between Ethernet and electronics	Yes
Potential separation channels	
• between the channels	No
<ul> <li>between the channels and the power supply of the electronics</li> </ul>	Yes
Isolation	
tested with	
• 24 V DC circuits	707 V DC (type test)
Test voltage for interface, rms value [Vrms]	1 500 V; According to IEEE 802.3
Degree and class of protection	
IP degree of protection	IP65/67/69K
Standards, approvals, certificates	
Suitable for safety-related tripping of standard modules	Yes; From FS02
Highest safety class achievable for safety-related tripping of star	ndard modules
<ul> <li>Performance level according to ISO 13849-1</li> </ul>	PL d
Category according to ISO 13849-1	Cat. 3
<ul> <li>SIL acc. to IEC 62061</li> </ul>	SIL 2
<ul> <li>remark on safety-oriented shutdown</li> </ul>	https://support.industry.siemens.com/cs/de/en/view/39198632
Ambient conditions	
Ambient temperature during operation	
• min.	-40 °C
• max.	60 °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	4/5-pin M12 circular connectors
Design of electrical connection for the inputs and outputs	M12, 5-pin, A-coded
Design of electrical connection for supply voltage	M12, 4-pin, L-coded
Dimensions	
Width	45 mm
Height	200 mm
Depth	48 mm
Weights	
Weight, approx.	780 g
last modified:	8/16/2023 🕜

last modified: 8/16/2023 🖸