## **SIEMENS**

## **Data sheet**

## 6ES7147-6BG00-0AB0



SIMATIC DP, ET 200ECO PN, 8 DIO 24 V DC/1.3 A; 8xM12, Degree of protection IP67

Figure similar

General information	
Vendor identification (VendorID)	002AH
Device identifier (DeviceID)	0306H
Supply voltage	
Rated value (DC)	24 V
Reverse polarity protection	Yes
power supply according to NEC Class 2 required	Yes
Load voltage 2L+	
<ul> <li>Rated value (DC)</li> </ul>	24 V
<ul> <li>permissible range, lower limit (DC)</li> </ul>	20.4 V
<ul> <li>permissible range, upper limit (DC)</li> </ul>	28.8 V
<ul> <li>Reverse polarity protection</li> </ul>	Yes
Input current	
Current consumption, typ.	100 mA
from supply voltage 1L+, max.	4 A
from load voltage 1L+ (unswitched voltage)	4 A
from load voltage 2L+, max.	4 A
Encoder supply	
24 V encoder supply	
Short-circuit protection	Yes; Electronic
<ul> <li>Output current, max.</li> </ul>	100 mA; per output
Power loss	
Power loss, typ.	6.5 W
Digital inputs	
Number of digital inputs	8
• in groups of	4
Input characteristic curve in accordance with IEC 61131, type 3	Yes
Number of simultaneously controllable inputs	
all mounting positions	
— up to 60 °C, max.	8
Input voltage	
<ul><li>Rated value (DC)</li></ul>	24 V
• for signal "0"	-3 to +5V
• for signal "1"	+11 to +30V
Input current	
• for signal "1", typ.	7 mA
Input delay (for rated value of input voltage)	
for standard inputs	
— at "0" to "1", max.	typically 3 ms

— at "1" to "0" max	typically 3 ms
— at "1" to "0", max.  Cable length	typically o tilo
• unshielded, max.	30 m
Digital outputs	
Number of digital outputs	8
• in groups of	4
Short-circuit protection	Yes; Electronic
Response threshold, typ.	1.8 A
Limitation of inductive shutdown voltage to	Typ. (L1+, L2+) -47 V
Controlling a digital input	Yes
Switching capacity of the outputs	
• on lamp load, max.	5 W
Output current	
• for signal "1" rated value	1.3 A; Maximum
<ul><li>for signal "1" permissible range, max.</li></ul>	1.3 A
• for signal "0" residual current, max.	1.5 mA
Parallel switching of two outputs	
• for uprating	No
for redundant control of a load	Yes
Switching frequency	
<ul> <li>with resistive load, max.</li> </ul>	100 Hz
<ul> <li>with inductive load, max.</li> </ul>	0.5 Hz
● on lamp load, max.	1 Hz
Total current of the outputs (per group)	
all mounting positions	
— up to 60 °C, max.	3.9 A
Cable length	
• unshielded, max.	30 m
Encoder	
Connectable encoders	
• 2-wire sensor	Yes
permissible quiescent current (2-wire sensor), max.	1.5 mA
Interfaces	
Transmission procedure	100BASE-TX
Number of PROFINET interfaces	1
1. Interface	
Interface types	
• M12 port	Yes
integrated switch	Yes Yes
• integrated switch Interface types	
• integrated switch Interface types M12 port	Yes
<ul> <li>integrated switch</li> <li>Interface types</li> <li>M12 port</li> <li>Autonegotiation</li> </ul>	Yes
<ul> <li>integrated switch</li> <li>Interface types</li> <li>M12 port</li> <li>Autonegotiation</li> <li>Autocrossing</li> </ul>	Yes Yes Yes
integrated switch  Interface types  M12 port      Autonegotiation     Autocrossing     Transmission rate, max.	Yes
integrated switch Interface types  M12 port      Autonegotiation     Autocrossing     Transmission rate, max.  Protocols	Yes Yes Yes 100 Mbit/s
integrated switch  Interface types  M12 port     Autonegotiation     Autocrossing     Transmission rate, max.  Protocols  Supports protocol for PROFINET IO	Yes Yes Yes 100 Mbit/s Yes
integrated switch  Interface types  M12 port     Autonegotiation     Autocrossing     Transmission rate, max.  Protocols  Supports protocol for PROFINET IO  PROFINET CBA	Yes Yes Yes 100 Mbit/s  Yes No
integrated switch  Interface types  M12 port     Autonegotiation     Autocrossing     Transmission rate, max.  Protocols  Supports protocol for PROFINET IO  PROFINET CBA  PROFIsafe	Yes Yes Yes 100 Mbit/s Yes
integrated switch Interface types  M12 port  Autonegotiation Autocrossing Transmission rate, max.  Protocols  Supports protocol for PROFINET IO PROFINET CBA PROFISafe PROFINET IO Device	Yes Yes Yes 100 Mbit/s  Yes No
integrated switch  Interface types  M12 port      Autonegotiation     Autocrossing     Transmission rate, max.  Protocols  Supports protocol for PROFINET IO  PROFINET CBA  PROFISATE  PROFINET IO Device  Services	Yes Yes Yes 100 Mbit/s  Yes No No
integrated switch Interface types  M12 port  Autonegotiation Autocrossing Transmission rate, max.  Protocols  Supports protocol for PROFINET IO  PROFINET CBA  PROFISATE  PROFINET IO Device  Services  — IRT with the option "high flexibility"	Yes Yes Yes 100 Mbit/s  Yes No No
integrated switch Interface types  M12 port  Autonegotiation  Autocrossing  Transmission rate, max.  Protocols  Supports protocol for PROFINET IO  PROFINET CBA  PROFISafe  PROFINET IO Device  Services  — IRT with the option "high flexibility"  — Prioritized startup	Yes Yes Yes 100 Mbit/s  Yes No No
integrated switch Interface types  M12 port  Autonegotiation Autocrossing Transmission rate, max.  Protocols  Supports protocol for PROFINET IO PROFINET CBA PROFISafe PROFINET IO Device Services — IRT with the option "high flexibility" — Prioritized startup Redundancy mode	Yes Yes Yes 100 Mbit/s  Yes No No
Interface types  M12 port  Autonegotiation Autocrossing Transmission rate, max.  Protocols  Supports protocol for PROFINET IO PROFINET CBA PROFISATE PROFINET IO Device Services — IRT with the option "high flexibility" — Prioritized startup  Redundancy mode Media redundancy	Yes Yes Yes 100 Mbit/s  Yes No No Yes Yes
integrated switch Interface types  M12 port  Autonegotiation Autocrossing Transmission rate, max.  Protocols  Supports protocol for PROFINET IO PROFINET CBA PROFISATE PROFINET IO Device Services — IRT with the option "high flexibility" — Prioritized startup  Redundancy mode  Media redundancy — MRP	Yes Yes Yes 100 Mbit/s  Yes No No
Interface types  M12 port  Autonegotiation Autocrossing Transmission rate, max.  Protocols  Supports protocol for PROFINET IO  PROFINET CBA  PROFISATE  PROFINET IO Device  Services  — IRT with the option "high flexibility" — Prioritized startup  Redundancy mode  Media redundancy — MRP  Open IE communication	Yes Yes Yes 100 Mbit/s  Yes No No Yes Yes Yes
<ul> <li>integrated switch</li> <li>Interface types</li> <li>M12 port</li> <li>Autonegotiation</li> <li>Autocrossing</li> <li>Transmission rate, max.</li> <li>Protocols</li> <li>Supports protocol for PROFINET IO</li> <li>PROFINET CBA</li> <li>PROFINET IO Device</li> <li>Services</li> <li>— IRT with the option "high flexibility"</li> <li>— Prioritized startup</li> <li>Redundancy mode</li> <li>Media redundancy</li> <li>— MRP</li> <li>Open IE communication</li> <li>TCP/IP</li> </ul>	Yes Yes Yes 100 Mbit/s  Yes No No No Yes Yes Yes
Interface types  M12 port  Autonegotiation Autocrossing Transmission rate, max.  Protocols  Supports protocol for PROFINET IO PROFINET CBA PROFISafe PROFINET IO Device Services — IRT with the option "high flexibility" — Prioritized startup  Redundancy mode  Media redundancy — MRP  Open IE communication  TCP/IP  SNMP	Yes Yes Yes Yes No No No Yes Yes Yes
<ul> <li>integrated switch</li> <li>Interface types</li> <li>M12 port</li> <li>Autonegotiation</li> <li>Autocrossing</li> <li>Transmission rate, max.</li> <li>Protocols</li> <li>Supports protocol for PROFINET IO</li> <li>PROFINET CBA</li> <li>PROFINET IO Device</li> <li>Services</li> <li>— IRT with the option "high flexibility"</li> <li>— Prioritized startup</li> <li>Redundancy mode</li> <li>Media redundancy</li> <li>— MRP</li> <li>Open IE communication</li> <li>TCP/IP</li> </ul>	Yes Yes Yes 100 Mbit/s  Yes No No No Yes Yes Yes

Interrupts/diagnostics/status information  Diagnostics function  Alarms  Diagnostic statum  Diagnostic statum  Diagnostic statum  Diagnostic statum  Diagnostic statum  Diagnostic information readable  Diagnostic information readable  Ves  Monitoring the supply voitage  Ves; green "ON" LED  Vire-break in actuator cable  Ves  Wire-break in signal transmitter cable  Short-circuit ves  Short-circuit encoder supply  Ves  Potential separation  Detween the load voitages  Ves  Potential separation  Detween the load voitages  No  Statution  Ested with  24 V DC circuits  Tor V DC (type test)  Test voitage for interface, rms value [Vrms]  Degree and class of protection  IP65/67  Standards, approvals, cortificatos  Suitable for safety-related tripping of standard modules  No  Design of electrical connection  Posign of electrical connection  Dimensions  Width  Bo mm  Height  175 mm  Depth	• ping	Yes
Diagnostic function  Alarms  Diagnostic alarm  Polagnostic laform  Polagnostic information readable  Nontroining the supply voltage  Wire-break in actuator cable  Short-circuit  Short-circuit  Short-circuit  Short-circuit  Potential separation  Detween the load voltages and all other switching components  No  Detween the channels  Potential separation channels  Shotween the channels  Potential separation channels  Test voltage for interface, rms value [Vrms]  Degree and class of protection  IP degree of protection  Potential separation  Degree and class of protection  IP degree of protection  Potential separation  Potential separation channels  No  Degree and class of protection  IP degree of protection  Potential separation channels  Alarms  No  Degree and class of protection  IP degree of protection  Potential separation channels  No  Degree and class of protection  Potential separation channels  No  Degree and class of protection  Potential separation channels  No  Degree and class of protection  Potential separation channels  No  Degree and class of protection  Potential separation channels  No  Degree and class of protection  Potential separation channels  No  Degree and class of protection  Potential separation channels  No  Degree and class of protection  Potential separation channels  No  Degree and class of protection  Potential separation channels  No  Degree and class of protection  Potential separation channels  No  Degree and class of protection  Potential separation channels  No  Design of electrical connection  4/5-pin M12 circular connectors  Dimensions  Width  Height  175 mm  Depth	. •	Yes
Diagnostic alarm	Interrupts/diagnostics/status information	
Diagnostic alarm	Diagnostics function	Yes
Diagnoses  Diagnostic information readable  Monitoring the supply voltage Wire-break in actuator cable Wire-break in signal transmitter cable Wire-break in signal transmitter cable Short-circuit Short-circuit yes Group error Yes, Red/yellow "SF/MT" LED  Potential separation  between the load voltages Detween the load voltages Wes Detween the channels No  between Ethernet and electronics Yes Potential separation channels  between the channels No  Isolation  tested with 24 V DC circuits Test voltage for interface, rms value [Vrms] Degree and class of protection IP degree of protection IP degree of protection IP degree of protection IP degree of protection Standards, approvals, certificates Suitable for safety-related tripping of standard modules Connection method Design of electrical connection  Midth 60 mm Height 175 mm Depth 49 mm		
Diagnostic information readable Monitoring the supply voltage Wire-break in actuator cable Wire-break in signal transmitter cable Wire-break in signal transmitter cable Short-circuit Short-circuit Short-circuit Short-circuit encoder supply Signal frams with the supply with the supply wire of the	Diagnostic alarm	Yes
Monitoring the supply voltage Wire-break in actuator cable Wire-break in signal transmitter cable Short-circuit Short-circuit Short-direct encoder supply Group error Yes; Red/yellow "SF/MT" LED  Potential separation  between the load voltages between load voltages Area Short-direct encoder switching components No between the channels No between the channels No between the channels No Isolation  Isolation  Fest voltage for interface, rms value [Vrms]  Pagee and class of protection  IP degree of protection  Standards, approvals, certificates  Suitable for safety-related tripping of standard modules No Deniesions  Width Begin of electrical connection  Midth Begin of electrical connection  Monitoring the supply vess Yes Yes Yes Post May Page Yes No On O	Diagnoses	
Wire-break in actuator cable Wire-break in signal transmitter cable Short-circuit Short-circuit Yes Short-circuit encoder supply Group error Yes; Red/yellow "SF/MT" LED  Potential separation  between the load voltages Yes between load voltage and all other switching components No between Ethernet and electronics Yes Potential separation Average and selectronics Yes Potential separation Average and selectronics Yes Potential separation channels  • between the channels  • between the channels  • between the channels  1 Solution  tested with  • 24 V DC circuits • Test voltage for interface, rms value [Vrms]  Degree and class of protection  IP degree of protection  IP degree of protection  IP degree of protection  IP degree of protection  Standards, approvals, certificates Suitable for safety-related tripping of standard modules  Connection method  Design of electrical connection  Jimensions Width Height Jips mm  Depth  49 mm	Diagnostic information readable	Yes
Wire-break in signal transmitter cable Short-circuit Short-circuit Short-circuit Yes Group error Yes, Red/yellow "SF/MT" LED  Potential separation  between the load voltages Yes between load voltage and all other switching components No between Ethernet and electronics Yes Potential separation channels  between the channels  between the channels  1 bot with 1 carry DC (type test) Tor V DC (type test) Tor	<ul> <li>Monitoring the supply voltage</li> </ul>	Yes; green "ON" LED
Short-circuit Yes Short-circuit encoder supply Yes Group error Yes; Red/yellow "SF/MT" LED  Potential separation  between the load voltages Yes between load voltage and all other switching components No between Ethernet and electronics Yes  Potential separation channels  • between the channels  • between the channels  No  Isolation  tested with • 24 V DC circuits • Test voltage for interface, rms value [Vrms]  Degree and class of protection  IP degree of protection  IP degree of protection  Standards, approvals, certificates  Suitable for safety-related tripping of standard modules  Connection method  Design of electrical connection  Width Height 175 mm  Depth  Depth  49 mm	Wire-break in actuator cable	Yes
Short-circuit encoder supply Group error Yes; Red/yellow "SF/MT" LED  Potential separation  between the load voltages Yes between load voltage and all other switching components No between Ethernet and electronics Potential separation channels  • between the channels  • between the channels  No  Isolation  tested with  • 24 V DC circuits To7 V DC (type test) • Test voltage for interface, rms value [Vrms]  Pegree and class of protection IP degree of protection IP degree of protection Standards, approvals, certificates Suitable for safety-related tripping of standard modules Connection method Design of electrical connection  Vidth Bo mm Height 175 mm Depth 49 mm	<ul> <li>Wire-break in signal transmitter cable</li> </ul>	Yes
• Group error  Potential separation  between the load voltages  between load voltage and all other switching components  No  between Ethernet and electronics  Potential separation channels  • between the channels  • between the channels  No  Isolation  tested with  • 24 V DC circuits  • Test voltage for interface, rms value [Vrms]  Pegree and class of protection  IP degree of protection  IP degree of protection  Standards, approvals, certificates  Suitable for safety-related tripping of standard modules  No  connection method  Design of electrical connection  Vidth  60 mm  Height  175 mm  Depth  49 mm	Short-circuit	Yes
Potential separation  between the load voltages  between load voltage and all other switching components  No  between Ethernet and electronics  Potential separation channels  • between the channels  No  Isolation  tested with  • 24 V DC circuits  • Test voltage for interface, rms value [Vrms]  Degree and class of protection  IP degree of protection  Standards, approvals, certificates  Suitable for safety-related tripping of standard modules  No  connection method  Design of electrical connection  Width  60 mm  Height  Depth  175 mm  Depth  49 mm	<ul> <li>Short-circuit encoder supply</li> </ul>	Yes
between the load voltages Yes between load voltage and all other switching components No between Ethernet and electronics Yes Potential separation channels  • between the channels  No Isolation  tested with  • 24 V DC circuits • Tor V DC (type test) • Test voltage for interface, rms value [Vrms]  Degree and class of protection  IP degree of protection  Standards, approvals, certificates  Suitable for safety-related tripping of standard modules  No connection method  Design of electrical connection  Vidth  60 mm  Height  175 mm Depth  Depth	Group error	Yes; Red/yellow "SF/MT" LED
between load voltage and all other switching components  between Ethernet and electronics  Potential separation channels  between the channels  between the channels  No  Isolation  tested with  24 V DC circuits  Test voltage for interface, rms value [Vrms]  Pegree and class of protection  IP degree of protection  IP degree of protection  Standards, approvals, certificates  Suitable for safety-related tripping of standard modules  Oesign of electrical connection  Dimensions  Width  60 mm  Height  175 mm  Depth  49 mm	Potential separation	
between Ethernet and electronics  Potential separation channels  • between the channels  No  Isolation  tested with  • 24 V DC circuits • Test voltage for interface, rms value [Vrms]  Pegree and class of protection  IP degree of protection  IP degree of protection  Standards, approvals, certificates  Suitable for safety-related tripping of standard modules  No  connection method  Design of electrical connection  Width  60 mm  Height  175 mm  Depth  49 mm	between the load voltages	Yes
Potential separation channels  • between the channels  No  Isolation  tested with  • 24 V DC circuits • Test voltage for interface, rms value [Vrms]  Degree and class of protection  IP degree of protection  IP degree of protection  Standards, approvals, certificates  Suitable for safety-related tripping of standard modules  No  connection method  Design of electrical connection  Width  60 mm  Height  175 mm  Depth  49 mm	between load voltage and all other switching components	No
between the channels  Isolation  tested with      24 V DC circuits     Tor V DC (type test)     Test voltage for interface, rms value [Vrms]  Degree and class of protection  IP degree of protection  IP degree of protection  Standards, approvals, certificates  Suitable for safety-related tripping of standard modules  Connection method  Design of electrical connection  Width  Height  Depth  No  No  60 mm  Height  175 mm  Depth	between Ethernet and electronics	Yes
Isolation  tested with  • 24 V DC circuits • Test voltage for interface, rms value [Vrms]  Degree and class of protection  IP degree of protection  IP degree of protection  Standards, approvals, certificates  Suitable for safety-related tripping of standard modules  No  connection method  Design of electrical connection  Width  60 mm  Height  175 mm  Depth  49 mm	Potential separation channels	
tested with  • 24 V DC circuits • 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  Standards, approvals, certificates  Suitable for safety-related tripping of standard modules  Connection method  Design of electrical connection  4/5-pin M12 circular connectors  Dimensions  Width  60 mm  Height  175 mm  Depth  49 mm	<ul> <li>between the channels</li> </ul>	No
• 24 V DC circuits     • Test voltage for interface, rms value [Vrms]     1 500 V; According to IEEE 802.3    Degree and class of protection	Isolation	
● Test voltage for interface, rms value [Vrms]  Degree and class of protection  IP degree of protection  IP65/67  Standards, approvals, certificates  Suitable for safety-related tripping of standard modules  Connection method  Design of electrical connection  Width  60 mm  Height  175 mm  Depth  49 mm	tested with	
Degree and class of protection  IP degree of protection  Standards, approvals, certificates  Suitable for safety-related tripping of standard modules  Connection method  Design of electrical connection  Width  60 mm  Height  175 mm  Depth  49 mm	• 24 V DC circuits	707 V DC (type test)
IP degree of protection  Standards, approvals, certificates  Suitable for safety-related tripping of standard modules  Connection method  Design of electrical connection  Width  60 mm  Height  175 mm  Depth  49 mm	<ul> <li>Test voltage for interface, rms value [Vrms]</li> </ul>	1 500 V; According to IEEE 802.3
Standards, approvals, certificates  Suitable for safety-related tripping of standard modules  Connection method  Design of electrical connection  4/5-pin M12 circular connectors  Dimensions  Width 60 mm Height 175 mm Depth 49 mm	Degree and class of protection	
Suitable for safety-related tripping of standard modules  Connection method  Design of electrical connection  Dimensions  Width  60 mm  Height  175 mm  Depth  49 mm	IP degree of protection	IP65/67
connection method       Design of electrical connection     4/5-pin M12 circular connectors       Dimensions     Width       Weight     60 mm       Height     175 mm       Depth     49 mm	Standards, approvals, certificates	
Design of electrical connection 4/5-pin M12 circular connectors  Dimensions  Width 60 mm  Height 175 mm  Depth 49 mm	Suitable for safety-related tripping of standard modules	No
Dimensions           Width         60 mm           Height         175 mm           Depth         49 mm	connection method	
Width         60 mm           Height         175 mm           Depth         49 mm	Design of electrical connection	4/5-pin M12 circular connectors
Height         175 mm           Depth         49 mm	Dimensions	
Depth 49 mm	Width	60 mm
TP T	Height	175 mm
Weights	Depth	49 mm
	Weights	
Weight, approx. 910 g	Weight, approx.	910 g

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