## **SIEMENS**

## **Data sheet**

6ES7143-5BF00-0BA0



SIMATIC ET 200AL, DIQ 4+DQ 4x 24 V DC/0.5 A, 8XM8, Degree of protection IP67

Load voltage 1L+  Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  Reverse polarity protection  Pasted value (DC)  Reverse polarity protection  Pasted value (DC)  permissible range, lower limit (DC)  Rated value (DC)  permissible range, lower limit (DC)  permissible range, lower limit (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  Reverse polarity protection  Reverse polarity protection  Reverse polarity protection  Reverse polarity protection  Pasted value  And mA; without load increasing  Power loss, typ.  And mA; without load  An; Maximum value  An; Maximum value  An; Maximum value  An; Maximum value  Power loss, typ.  An; Total current of all encoders  Power loss, typ.  2.5 W	General information	
Firmware version V1.0.x  Product function  • I&M data  Engineening with  • STEP 7 TIA Portal configurable/integrated from version • PROFIBUS from GSD version/GSD revision • FROFIBUS from GSD ver	Product type designation	DIQ 4+DQ 4x24VDC/0.5A
Product function    NaM data	HW functional status	E01
• I&M data	Firmware version	V1.0.x
### STEP 7 TIA Portal configurable/integrated from version	Product function	
• STEP 7 TIA Portal configurable/integrated from version • STEP 7 configurable/integrated from version • STEP 7 configurable/integrated from version • PROFIBUS from GSD version/GSD revision • PROFINET from SSD version/GSD revision • PROFINET from SSD version/GSD revision • SDML V2.3.1  Supply voltage  Load voltage 1L+ • Rated value (DC) • permissible range, lower limit (DC) • permissible range, upper limit (DC) • Reverse polarity protection • Rated value (DC) • permissible range, lower limit (DC) • Reverse polarity protection • Reverse polarity protection • Reverse polarity protection • Reverse polarity protection • And will be a consider the form of the protection (and the protection of t	I&M data	Yes; I&M0 to I&M3
• STEP 7 configurable/integrated from version • PROFIBUS from GSD version/GSD revision • PROFIBUS from GSD version/GSD revision • PROFINET from GSD version/GSD revision • Sabott value • CDC • Parmissible range, lower limit (DC) • permissible range, upper limit (DC) • Reverse polarity protection • Patient value • Patient value • PROFINET protection • Patient value • Patient value • Provisible range, lower limit (DC) • permissible range, lower limit (DC) • Parmissible ra	Engineering with	
PROFIBUS from GSD version/GSD revision PROFINET from GSD version/GSD revision  PROFINET from GSD version/GSD revision  Supply voltage  Load voltage 11+  Rated value (DC)  permissible range, lower limit (DC) Permissible range, upper limit (DC) Permissible range, lower limit (DC) Permissible range, lower limit (DC) Permissible range, upper limit (DC) Persissible range, upper limit (DC) Persissible range, upper limit (DC) Pe	<ul> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	STEP 7 V13 SP1 or higher
PROFINET from GSD version/GSD revision  Supply voltage  Load voltage 1L+  Rated value (DC)  permissible range, lower limit (DC)  Reverse polarity protection  Load voltage 2L+  Rated value (DC)  permissible range, lower limit (DC)  Reverse polarity protection  Load voltage 2L+  Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  Reverse polarity protection  Pass against destruction; load increasing  mput current  Current consumption (rated value)  from load voltage 1L+ (unswitched voltage)  Ay, Maximum value  from load voltage 1L+ (unswitched voltage)  Ay, Maximum value  From load voltage 1L+ (unswitched voltage)  Short-circuit protection  Output current, max.  Power loss, typ.  24 V encoder supply  Short-circuit protection  Output current, max.  Power loss, typ.  25 W  Load voltage Inputs  Number of digital inputs  Number of simultaneously controllable inputs  all mounting positions	<ul> <li>STEP 7 configurable/integrated from version</li> </ul>	From V5.5 SP4 Hotfix 3
Load voltage 1L+  Rated value (DC)  permissible range, lower limit (DC)  Reverse polarity protection  Load voltage 2L+  Rated value (DC)  permissible range, upper limit (DC)  Reverse polarity protection  Load voltage 2L+  Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  permissible range, uper limit (DC	<ul> <li>PROFIBUS from GSD version/GSD revision</li> </ul>	GSD as of Revision 5
Load voltage 1L+  Rated value (DC) permissible range, lower limit (DC) Reverse polarity protection  Pate of value (DC) permissible range, upper limit (DC) Reverse polarity protection  Pate of value (DC) permissible range, lower limit (DC) Reverse polarity protection Pate of value (National Pate of value) Pate	<ul> <li>PROFINET from GSD version/GSD revision</li> </ul>	GSDML V2.3.1
Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Reverse polarity protection Passible range, upper limit (DC) Reverse polarity protection Passible range, lower limit (DC) Permissible range, lower limit (DC) Permissible range, lower limit (DC) Permissible range, upper limit (DC) Reverse polarity protection Passible applied with reversed polarity, loads pick up Reverse polarity up Reverse polarity up Reverse polarity up Reverse polarity up Reverse p	Supply voltage	
permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Pass, Against destruction; encoder power supply outputs applied with reversed polarity, loads pick up  Load voltage 2L+ Rated value (DC) permissible range, lower limit (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Permissible range, lower limit (DC) Permissible range, lower limit (DC) Reverse polarity protection Pass, against destruction; load increasing  nput current  Current consumption (rated value) And max; without load  from load voltage 1L+ (unswitched voltage) And Maximum value  from load voltage 2L+, max. And Maximum value  Encoder supply  Number of outputs A 4  4 V escoder supply Post-circuit protection Output current, max. A 7 Total current of all encoders  Power loss, typ.  Digital inputs  Number of digital inputs  Number of digital inputs  Number of simultaneously controllable inputs all mounting positions	Load voltage 1L+	
permissible range, upper limit (DC) Reverse polarity protection Paginate destruction; encoder power supply outputs applied with reversed polarity, loads pick up  Load voltage 2L+ Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Reverse polarity protection Paginate destruction; load increasing  put current  Current consumption (rated value) 40 mA; without load  from load voltage 1L+ (unswitched voltage) 44; Maximum value  From load voltage 2L+, max. 44; Maximum value  Encoder supply  Number of outputs 44 V encoder supply Short-circuit protection Yes; per module, electronic Output current, max. 7-over loss Power loss, typ.  Digital inputs  Number of digital inputs  Number of digital inputs  Number of simultaneously controllable inputs all mounting positions	Rated value (DC)	24 V
Power loss typ.  Number of digital inputs  Number of simultaneously controllable inputs applied with reversed polarity, loads pick up  Yes; Against destruction; encoder power supply outputs applied with reversed polarity, loads pick up  24 V  24 V  24 V  20.4 V  28.8 V  28.8 V  40 mA; without load increasing  40 mA; without load  40 mA; without load  41 Maximum value  42 Maximum value  42 Maximum value  43 Maximum value  44 Maximum value  45 Maximum value  45 Maximum value  46 Maximum value  47 Maximum value  48 Maximum value  49 Maximum value  40 Maximum va	<ul> <li>permissible range, lower limit (DC)</li> </ul>	20.4 V
Load voltage 2L+  Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  Reverse polarity protection  pout current  Current consumption (rated value)  from load voltage 1L+ (unswitched voltage)  from load voltage 2L+, max.  4 A; Maximum value  From load voltage 2L+, max.  4 A; Maximum value  From load voltage 2L+, max.  A A; Maximum value  From load voltage 2L+, max.  Power loss, typ.  2.5 W  Digital inputs  Number of digital inputs  Number of digital inputs  Number of simultaneously controllable inputs  all mounting positions	<ul> <li>permissible range, upper limit (DC)</li> </ul>	28.8 V
Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  Reverse polarity protection  Reverse polarity protection  Permitsible range, upper limit (DC)  Reverse polarity protection  Permitsible range, upper limit (DC)  Reverse polarity protection  Permitsible range, upper limit (DC)  Reverse polarity protection  Permitsible range, lower limit (DC)  Reverse polarity protection  Permitsible range, lower limit (DC)  Permitsible range limitsible range limitsible limitsible range limi	Reverse polarity protection	
permissible range, lower limit (DC)     permissible range, upper limit (DC)     Peverse polarity protection     Reverse polarity protection     Yes; against destruction; load increasing      nut current  Current consumption (rated value)     40 mA; without load     from load voltage 1L+ (unswitched voltage)     4 A; Maximum value  from load voltage 2L+, max.  Incoder supply  Number of outputs  4 V encoder supply  Short-circuit protection Output current, max.  Power loss  Power loss, typ.  Digital inputs  Number of digital inputs  Number of digital inputs  Number of simultaneously controllable inputs all mounting positions	Load voltage 2L+	
permissible range, upper limit (DC)     Reverse polarity protection     Yes; against destruction; load increasing  nput current  Current consumption (rated value) from load voltage 1L+ (unswitched voltage) from load voltage 2L+, max.  4 A; Maximum value  Incoder supply  Number of outputs  Short-circuit protection Output current, max.  Power loss  Power loss, typ.  Digital inputs  Number of digital inputs  Number of digital inputs  Number of simultaneously controllable inputs all mounting positions  28.8 V  Yes; against destruction; load increasing Yes Yes Yes Yes Yes Number of simultaneously controllable inputs all mounting positions	<ul> <li>Rated value (DC)</li> </ul>	24 V
Reverse polarity protection  Pes; against destruction; load increasing  Power loss  Power loss  Power loss  Power loss  Number of digital inputs  Number of digital inputs  Number of digital inputs  Number of digital inputs  Number of simultaneously controllable inputs  all mounting positions  Power loss  Number of simultaneously controllable inputs  all mounting positions  Power loss  Power loss  Power loss  Number of simultaneously controllable inputs  all mounting positions  Power loss  Power loss  Power loss  Power loss  Reverse polarity protection against destruction; load increasing  4 Maximum value  4 A; Maximum value  5 A; Maximum value  4 A; Maximum value  5 A; Maximum value  4 A; Maximum value  5 A; Maximum value  5 A; Maximum value  4 A; Maximum value  5 A; Maximum value  5 A; Maximum value  5 A; Parameterizable as DIQ  7 Yes	<ul> <li>permissible range, lower limit (DC)</li> </ul>	20.4 V
Current consumption (rated value)  from load voltage 1L+ (unswitched voltage)  from load voltage 2L+, max.  4 A; Maximum value  from load voltage 2L+, max.  4 A; Maximum value  Facoder supply  Number of outputs  4 Short-circuit protection  Output current, max.  O.7 A; Total current of all encoders  Power loss  Power loss, typ.  2.5 W  Digital inputs  Number of digital inputs  A; Parameterizable as DIQ  Input characteristic curve in accordance with IEC 61131, type 3  Number of simultaneously controllable inputs  all mounting positions	<ul> <li>permissible range, upper limit (DC)</li> </ul>	28.8 V
Current consumption (rated value)  from load voltage 1L+ (unswitched voltage)  from load voltage 2L+, max.  4 A; Maximum value  Encoder supply  Number of outputs  • Short-circuit protection • Output current, max.  Power loss  Power loss, typ.  Digital inputs  Number of digital inputs  Number of digital inputs  Number of simultaneously controllable inputs  all mounting positions  4 A; Maximum value  5 Counting of a district or a distri	<ul> <li>Reverse polarity protection</li> </ul>	Yes; against destruction; load increasing
from load voltage 1L+ (unswitched voltage)  from load voltage 2L+, max.  4 A; Maximum value  From load voltage 2L+, max.  4 A; Maximum value  From load voltage 2L+, max.  4 A; Maximum value  From load voltage 2L+, max.  4 A; Maximum value  5 A; Maximum value  6 A; Maximum value  7 A; Total current of all encoders  8 D; Maximum value  8 A; Maximum value  9 A; Maximum value  9 A; Parameterizable as DIQ  1 A; Parameterizable as DIQ	Input current	
from load voltage 2L+, max.  4 A; Maximum value  Encoder supply  Number of outputs  4  24 V encoder supply  • Short-circuit protection • Output current, max.  O.7 A; Total current of all encoders  Power loss  Power loss, typ.  2.5 W  Digital inputs  Number of digital inputs  A; Parameterizable as DIQ  Input characteristic curve in accordance with IEC 61131, type 3  Number of simultaneously controllable inputs  all mounting positions	Current consumption (rated value)	40 mA; without load
Number of outputs  24 V encoder supply  Short-circuit protection Output current, max.  Power loss Power loss, typ.  2.5 W  Digital inputs  Number of digital inputs  A; Parameterizable as DIQ  Input characteristic curve in accordance with IEC 61131, type 3  Number of simultaneously controllable inputs  all mounting positions	from load voltage 1L+ (unswitched voltage)	4 A; Maximum value
Number of outputs  24 V encoder supply  • Short-circuit protection  • Output current, max.  O.7 A; Total current of all encoders  Power loss  Power loss, typ.  2.5 W  Digital inputs  Number of digital inputs  Input characteristic curve in accordance with IEC 61131, type 3  Number of simultaneously controllable inputs  all mounting positions	from load voltage 2L+, max.	4 A; Maximum value
24 V encoder supply  Short-circuit protection Output current, max.  Output current of all encoders  Power loss  Power loss, typ.  Digital inputs  Number of digital inputs  Input characteristic curve in accordance with IEC 61131, type 3  Number of simultaneously controllable inputs  all mounting positions	Encoder supply	
Short-circuit protection     Output current, max.     Output current of all encoders  Power loss  Power loss, typ.  Digital inputs  Number of digital inputs  Input characteristic curve in accordance with IEC 61131, type 3  Number of simultaneously controllable inputs  all mounting positions  Yes; per module, electronic  0.7 A; Total current of all encoders  2.5 W  2.5 W  Yes  Yes	Number of outputs	4
Output current, max.  Output current of all encoders  Output current, max.  Output current of all encoders  Output current of all encoders  Output class, typ.  Outpu	24 V encoder supply	
Power loss, typ.  Power loss, typ.  2.5 W  Digital inputs  Number of digital inputs  Input characteristic curve in accordance with IEC 61131, type 3  Number of simultaneously controllable inputs  all mounting positions	Short-circuit protection	Yes; per module, electronic
Power loss, typ.  Digital inputs  Number of digital inputs  Input characteristic curve in accordance with IEC 61131, type 3  Number of simultaneously controllable inputs  all mounting positions	<ul> <li>Output current, max.</li> </ul>	0.7 A; Total current of all encoders
Number of digital inputs  A; Parameterizable as DIQ Input characteristic curve in accordance with IEC 61131, type 3  Number of simultaneously controllable inputs all mounting positions	Power loss	
Number of digital inputs  4; Parameterizable as DIQ  Input characteristic curve in accordance with IEC 61131, type 3  Number of simultaneously controllable inputs  all mounting positions	Power loss, typ.	2.5 W
Input characteristic curve in accordance with IEC 61131, type 3  Number of simultaneously controllable inputs  all mounting positions	Digital inputs	
Number of simultaneously controllable inputs  all mounting positions	Number of digital inputs	4; Parameterizable as DIQ
all mounting positions	Input characteristic curve in accordance with IEC 61131, type 3	Yes
ÿ .	Number of simultaneously controllable inputs	
— up to 55 °C, max. 4	all mounting positions	
	— up to 55 °C, max.	4

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.	3.2 mA
Input delay (for rated value of input voltage)	
for standard inputs	
— at "0" to "1", min.	1.2 ms
— at "0" to "1", max.	4.8 ms
— at "1" to "0", min.	1.2 ms
— at "1" to "0", max.	4.8 ms
Cable length	
<ul><li>unshielded, max.</li></ul>	30 m
Digital outputs	
Number of digital outputs	8; 4 DQ fixed, 4 DIQ parameterizable
• in groups of	4; 2 load groups for 4 outputs each
Short-circuit protection	Yes; per channel, electronic
Response threshold, typ.	0.7 A
Limitation of inductive shutdown voltage to	2L+ (-47 V)
Switching capacity of the outputs	
• on lamp load, max.	5 W
Load resistance range	
lower limit	48 Ω
• upper limit	4 kΩ
Output voltage	1 1/42
• for signal "1", min.	L+ (-0.8 V)
Output current	L' (-v.o v)
• for signal "1" rated value	0.5 A
• for signal "0" residual current, max.	0.5 mA
Switching frequency	0.5 HIA
· · ·	100 Hz
with resistive load, max.      with industria load may.	0.5 Hz
with inductive load, max.	
• on lamp load, max.	1 Hz
Total current of the outputs	0.4
Current per group, max.	2 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	4; DIQ channels are isolated from DQ channels
between the channels and backplane bus	Yes
between the channels and the power supply of the	No; DIQ channels are non-isolated and DQ channels are isolated from supply
electronics	voltage 1L+
Isolation	
Isolation tested with	707 V DC (type test)
	(7)

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		
<ul> <li>Performance level according to ISO 13849-1</li> </ul>	PL d	
<ul> <li>Category according to ISO 13849-1</li> </ul>	Cat. 3	
• SIL acc. to IEC 62061	SIL 2	
Ambient conditions		
Ambient temperature during operation		
• min.	-30 °C	
• max.	55 °C	
connection method		
Design of electrical connection for the inputs and outputs	M8, 3-pole	
Design of electrical connection for supply voltage	M8, 4-pole	
ET-Connection ET-Connection		
ET-Connection	M8, 4-pin, shielded	
Dimensions		
Width	30 mm	
Height	159 mm	
Depth	40 mm	
Weights		
Weight, approx.	145 g	

last modified:

3/7/2022