## **SIEMENS**

## **Data sheet**

6ES7131-6BF00-0CA0



SIMATIC ET 200SP, digital input module, DI 8x 24 V DC High Feature, input type 3 (IEC 61131), sink input, (PNP, sink input) Packing unit: 1 unit, suitable for BU type A0, color code CC01, input delay 0.05..20 ms; Channel diagnostics for: Encoder power supply short circuit, wire break, supply voltage, channel fault LED

Figure similar

Product type designation DI 8x24 V DC HF HW functional status From FS07 Firmware version  FW update possible Yes usable BaseUnits BU type A0 Color code for module-specific color identification plate Product function  New designation With Status Yes; I&MO to I&M3 Isachronous mode Yes; I&MO to I&M3 Isachronous mode Yes Engineering with  STEP 7 TIA Portal configurable/integrated from version FSTEP 7 TIA Portal Configurabl	Consequence information		
HW functional status From FS07 Firmware version FW providate possible Usable BaseUnits BU type A0 Color code for module-specific color identification plate PRODUCT function IBM data Island data Isla	General information	DI 8v24 V DO HE	
Firmware version  • FW update possible  usable BaseUnits  Color code for module-specific color identification plate  Product function  • I&M data  • Isochronous mode  Engineering with  • STEP 7 ThA Portal configurable/integrated from version  • PCS 7 configurable/integrated from version  • PCS 7 configurable/integrated from version  • PROFIBUS from GSD version/GSD revision  • PROFIBUS from GSD version/GSD revision  Operating mode  • DI  • Counter  • Oversampling  • MSI  Supply voltage  Rated value (DC)  permissible range, lower limit (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  permissible range, upper limit (DC)  permissible range, upper limit (DC)  28.8 V  Reverse polarity protection  Encoder supply  Number of outputs  8  Output voltage, min.  19.2 V  Short-circuit protection  Yes  - Output current per channel, max.  • Output current per module, max.  Power loss, typ.  1.5 W; 24 V, 8 inputs supplied via encoder supply  Address area	· · · · · · · · · · · · · · · · · · ·		
FW update possible usable BaseUnits BU type A0 Color code for module-specific color identification plate CC01 Product function  I &M data Isochronous mode Engineering with STEP 7 TIA Portal configurable/integrated from version FP TIA Portal configurable/integrated from version FP TIA Portal configurable/integrated from version FP CF TIA PORTAL CONFIGURATION FP CF TIA PORTA		From F507	
usable BaseUnits			
Color code for module-specific color identification plate Product function  • I&M data • Isochronous mode Press  Engineering with • STEP 7 TIA Portal configurable/integrated from version • STEP 7 TIA Portal configurable/integrated from version • STEP 7 Tonfigurable/integrated from version • PCS 7 configurable/integrated from version • PCS 7 configurable/integrated from version • PROFIBUS from GSD version/GSD revision • PROFIBUS from GSD version/GSD revision • PROFINET from GSD version/GSD revision • DI     Yes • Counter • No • Oversampling • MSI • Yes  Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Pressible range, upper limit (DC) Pressible range, upper limit (DC) PReverse polarity protection  Encoder supply  Number of outputs  Output voltage, min.  19.2 V Short-circuit protection  Yes  24 V • Short-circuit protection  Yes  24 V • Short-circuit protection  Yes  Prover loss  Power loss  Power loss  Power loss, typ.  1.5 W; 24 V, 8 Inputs supplied via encoder supply  Address area			
Product function  IBM data Isochronous mode Pes Engineering with  STEP 7 TIA Portal configurable/integrated from version STEP 7 configurable/integrated from version PROFIBUS from GSD version/GSD revision PROFIBUS from GSD version/GSD revision PROFINET		· ·	
Is M data Isochronous mode Isochronous mode Iengineering with Isochronous mode Indicating the state of the s		CC01	
Indicated with the state of th			
Engineering with  STEP 7 TIA Portal configurable/integrated from version STEP 7 configurable/integrated from version PCS 8 SP1 PCS 7 Configurable/integrated from version PCS 8 PCS 9 Configurable/integrated from version PCS 9 Configurable/in	I&M data	Yes; I&M0 to I&M3	
STEP 7 TIA Portal configurable/integrated from version STEP 7 configurable/integrated from version PCS 7 configurable/integrated from version PROFIBUS from GSD version/GSD revision PROFIBUS from GSD version/GSD revision PROFIBUT from GSD version/GSD r	Isochronous mode	Yes	
STEP 7 configurable/integrated from version PCS 7 configurable/integrated from version PROFIBUS from GSD version/GSD revision PROFIBUS from GSD version/GSD revision PROFINET from GSD version/GSD revision One GSD file each, Revision 3 and 5 and higher  PROFINET from GSD version/GSD revision Operating mode  DI Yes Counter No Oversampling MSI Yes  Supply voltage  Rated value (DC) Permissible range, lower limit (DC) 19.2 V Permissible range, upper limit (DC) 28.8 V Reverse polarity protection Pres  Encoder supply Number of outputs  Output voltage, min. 19.2 V Short-circuit protection Yes 24 V Short-circuit protection Yes Short-circuit protection Yes Short-circuit protection Yes Power loss, typ. Power loss, typ.  1.5 W; 24 V, 8 inputs supplied via encoder supply Address area	Engineering with		
PCS 7 configurable/integrated from version PROFIBUS from GSD version/GSD revision PROFINET from GSD version/GSD revision One GSD file each, Revision 3 and 5 and higher PROFINET from GSD version/GSD revision Operating mode  DI PCOUNTER Oversampling No MSI PVes  Supply voltage Rated value (DC) Permissible range, lower limit (DC) Permissible range, upper limit (DC) Permissible range, upper limit (DC) Permissible range, upper limit (DC) PROVED SUPPLY Voltage  Routed voltage  Routed voltage  Routed voltage  Routed value (DC) Permissible range, upper limit (DC) Permiss	<ul> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	V13 SP1 / -	
PROFIBUS from GSD version/GSD revision PROFINET from GSD version/GSD revision GSDML V2.3  Operating mode  DI Ves Counter Oversampling MSI Ves Supply voltage Rated value (DC) Permissible range, lower limit (DC) Permissible range, upper limit (DC)	<ul> <li>STEP 7 configurable/integrated from version</li> </ul>	V5.5 / -	
PROFINET from GSD version/GSD revision Operating mode  DI Counter Oversampling MSI Supply voltage Rated value (DC) Permissible range, lower limit (DC) Permissible range, upper limit (DC) Permissible range, upp	<ul> <li>PCS 7 configurable/integrated from version</li> </ul>	V8.1 SP1	
Operating mode  • DI  • Counter  • Counter  • Oversampling  • MSI  Supply voltage  Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  permissible range, upper limit (DC)  Reverse polarity protection  Face and the supply  Number of outputs  Output voltage, min.  Short-circuit protection  24 V  Yes  24 V  Short-circuit protection  Yes  24 V  • Short-circuit protection  Yes  24 V  • Short-circuit protection  Yes  24 V  • Output current per channel, max.  Output current per module, max.  700 mA  • Output current per module, max.  Power loss  Power loss, typ.  1.5 W; 24 V, 8 inputs supplied via encoder supply	<ul> <li>PROFIBUS from GSD version/GSD revision</li> </ul>	One GSD file each, Revision 3 and 5 and higher	
DI Counter No Counter No Oversampling No MSI Yes  Supply voltage  Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Yes  Encoder supply  Number of outputs Output voltage, min. Short-circuit protection Yes  24 V Short-circuit protection Yes  25 V Permissible range, upper limit (DC) Yes  Encoder supply  Number of outputs Number of outputs Yes  Output voltage, min. Yes  24 V Pes  24 V Pes  24 V Pes  24 V Pes  Output current per channel, max. 700 mA Output current per module, max. Four loss  Power loss  Power loss, typ. 1.5 W; 24 V, 8 inputs supplied via encoder supply	<ul> <li>PROFINET from GSD version/GSD revision</li> </ul>	GSDML V2.3	
Counter Oversampling No MSI Yes  Supply voltage  Rated value (DC) Permissible range, lower limit (DC) Permissible range, upper limit (DC)	Operating mode		
Oversampling     MSI     Yes  Supply voltage  Rated value (DC)     24 V     permissible range, lower limit (DC)     permissible range, upper limit (DC)     permissible range, upper limit (DC)     Reverse polarity protection  Reverse polarity protection  Encoder supply  Number of outputs     8     Output voltage, min.     19.2 V  Short-circuit protection     Yes  24 V encoder supply      • 24 V     • Short-circuit protection     Yes  Short-circuit protection     Yes; per channel, electronic     • Output current per channel, max.     • Output current per module, max.  Power loss  Power loss, typ.  1.5 W; 24 V, 8 inputs supplied via encoder supply	• DI	Yes	
Supply voltage  Rated value (DC) 24 V  permissible range, lower limit (DC) 19.2 V  permissible range, upper limit (DC) 28.8 V  Reverse polarity protection Yes  Encoder supply  Number of outputs 8  Output voltage, min. 19.2 V  Short-circuit protection Yes  24 V encoder supply    • 24 V  • Short-circuit protection  • Output current per channel, max.  • Output current per module, max.  Power loss, typ.  Address area	Counter	No	
Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  permissible range, upper limit (DC)  Reverse polarity protection  Yes  Encoder supply  Number of outputs  Output voltage, min.  19.2 V  Short-circuit protection  Yes  24 V encoder supply  • 24 V  • Short-circuit protection  • Output current per channel, max.  • Output current per module, max.  Power loss  Power loss, typ.  Address area	<ul> <li>Oversampling</li> </ul>	No	
Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  Reverse polarity protection  Yes  Encoder supply  Number of outputs  Output voltage, min.  Short-circuit protection  Yes  24 V encoder supply  • 24 V  • Short-circuit protection  Yes  24 V encoder supply  • Output current per channel, max.  • Output current per module, max.  • Output current per module, max.  Power loss  Power loss, typ.  1.5 W; 24 V, 8 inputs supplied via encoder supply  Address area	• MSI	Yes	
permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Yes  Encoder supply  Number of outputs  Output voltage, min. 19.2 V  Short-circuit protection Yes  24 V encoder supply  • 24 V • Short-circuit protection Yes  Short-circuit protection Yes; per channel, electronic • Output current per channel, max. • Output current per module, max.  Power loss  Power loss, typ.  1.5 W; 24 V, 8 inputs supplied via encoder supply	Supply voltage		
permissible range, upper limit (DC)  Reverse polarity protection  Yes  Encoder supply  Number of outputs  Output voltage, min.  Short-circuit protection  24 V encoder supply  • 24 V  • Short-circuit protection  Yes  Short-circuit protection  Yes  Output current per channel, max.  • Output current per module, max.  Power loss  Power loss, typ.  28.8 V  Yes  8  Ves  Yes  Yes  Yes  Yes  Yes  700 mA  700 mA  1.5 W; 24 V, 8 inputs supplied via encoder supply	Rated value (DC)	24 V	
Reverse polarity protection  Fincoder supply  Number of outputs  Output voltage, min.  Short-circuit protection  24 V encoder supply  • 24 V  • Short-circuit protection  Output current per channel, max.  Output current per module, max.  Fower loss  Power loss, typ.  Address area	permissible range, lower limit (DC)	19.2 V	
Encoder supply  Number of outputs  Output voltage, min.  19.2 V  Short-circuit protection  24 V encoder supply  • 24 V  • Short-circuit protection  Output current per channel, max.  Output current per module, max.  Power loss  Power loss, typ.  1.5 W; 24 V, 8 inputs supplied via encoder supply  Address area	permissible range, upper limit (DC)	28.8 V	
Number of outputs  Output voltage, min.  19.2 V  Short-circuit protection  24 V encoder supply  • 24 V  • Short-circuit protection  • Short-circuit protection  • Output current per channel, max.  • Output current per module, max.  700 mA  Power loss  Power loss, typ.  1.5 W; 24 V, 8 inputs supplied via encoder supply  Address area	Reverse polarity protection	Yes	
Output voltage, min.  Short-circuit protection  24 V encoder supply  • 24 V  • Short-circuit protection  • Short-circuit protection  • Output current per channel, max.  • Output current per module, max.  700 mA  Power loss  Power loss, typ.  1.5 W; 24 V, 8 inputs supplied via encoder supply  Address area	Encoder supply		
Short-circuit protection  24 V encoder supply  • 24 V  • Short-circuit protection  • Short-circuit protection  • Output current per channel, max.  • Output current per module, max.  700 mA  • Output current per module, max.  Power loss  Power loss  Power loss, typ.  1.5 W; 24 V, 8 inputs supplied via encoder supply  Address area	Number of outputs	8	
24 V encoder supply  24 V Short-circuit protection Output current per channel, max. Output current per module, max.  700 mA  Power loss  Power loss, typ.  1.5 W; 24 V, 8 inputs supplied via encoder supply  Address area	Output voltage, min.	19.2 V	
Yes     Short-circuit protection     Output current per channel, max.     Output current per module, max.     Output current per module, max.      Power loss  Power loss, typ.  1.5 W; 24 V, 8 inputs supplied via encoder supply  Address area	Short-circuit protection	Yes	
Short-circuit protection Output current per channel, max. Output current per module, max.  Output current per module, max.  700 mA  Power loss  Power loss, typ.  1.5 W; 24 V, 8 inputs supplied via encoder supply  Address area	24 V encoder supply		
Output current per channel, max.  Output current per module, max.  700 mA  700 mA  Power loss  Power loss, typ.  1.5 W; 24 V, 8 inputs supplied via encoder supply  Address area	• 24 V	Yes	
● Output current per module, max.  Power loss  Power loss, typ.  1.5 W; 24 V, 8 inputs supplied via encoder supply  Address area	Short-circuit protection	Yes; per channel, electronic	
Power loss  Power loss, typ.  1.5 W; 24 V, 8 inputs supplied via encoder supply  Address area	<ul> <li>Output current per channel, max.</li> </ul>	700 mA	
Power loss, typ. 1.5 W; 24 V, 8 inputs supplied via encoder supply  Address area	Output current per module, max.	700 mA	
Address area	Power loss		
Address area	Power loss, typ.	1.5 W; 24 V, 8 inputs supplied via encoder supply	
Address space per module			
	Address space per module		

• Inputs	1 byte; + 1 byte for QI information
Hardware configuration	
Automatic encoding	Yes
Mechanical coding element	Yes
Type of mechanical coding element	Type A
Submodules	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Number of configurable submodules, max.	4
Selection of BaseUnit for connection variants	
1-wire connection	BU type A0
2-wire connection	BU type A0
3-wire connection	BU type A0 with AUX terminals or potential distributor module
4-wire connection	BU type A0 + Potential distributor module
Digital inputs	Bo type Ao - 1 oteritial distributor module
	8
Number of digital inputs	Yes
Digital inputs, parameterizable	
Source/sink input	P-reading
Input characteristic curve in accordance with IEC 61131, type 3	Yes
Pulse extension	Yes; Pulse duration from 4 µs
• Length	2 s; 50 ms, 100 ms, 200 ms, 500 ms, 1 s, 2 s
Edge evaluation	Yes; rising edge, falling edge, edge change
Input voltage	
Rated value (DC)	24 V
• for signal "0"	-30 to +5 V
• for signal "1"	+11 to +30V
Input current	
■ for signal "1", typ.	2.5 mA
Input delay (for rated value of input voltage)	
for standard inputs	
— parameterizable	Yes; 0.05 / 0.1 / 0.4 / 0.8 / 1.6 / 3.2 / 12.8 / 20 ms (in each case + delay of 30 to
	500 μs, depending on line length)
— at "0" to "1", min.	0.05 ms
— at "0" to "1", max.	20 ms
— at "1" to "0", min.	0.05 ms
— at "1" to "0", max.	20 ms
Cable length	
• shielded, max.	1 000 m
• unshielded, max.	600 m
Encoder	
Connectable encoders	
• 2-wire sensor	Yes
<ul> <li>permissible quiescent current (2-wire sensor), max.</li> </ul>	1.5 mA
Isochronous mode	
Filtering and processing time (TCI), min.	420 μs
Bus cycle time (TDP), min.	500 μs
Jitter, max.	8 µs
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Alarms	
Diagnostic alarm	Yes; channel by channel
Hardware interrupt	Yes; Parameterizable, channels 0 to 7
Diagnoses	
Diagnostic information readable	Yes
Monitoring the supply voltage	Yes
— parameterizable	Yes
Monitoring of encoder power supply	Yes; channel by channel
Wire-break	Yes; Channel by channel, optional protective circuit for preventing wire-break
• WIII DIGUIN	diagnostics in the case of simple encoder contacts: 25 kOhm to 45 kOhm
Short-circuit	Yes; channel by channel
Diagnostics indication LED	
Monitoring of the supply voltage (PWR-LED)	Yes; green PWR LED
Channel status display	Yes; green LED
* *r * */	

<ul> <li>for channel diagnostics</li> </ul>	Yes; red LED
<ul> <li>for module diagnostics</li> </ul>	Yes; green/red DIAG LED
Potential separation	
Potential separation channels	
<ul> <li>between the channels</li> </ul>	No
<ul> <li>between the channels and backplane bus</li> </ul>	Yes
<ul> <li>between the channels and the power supply of the electronics</li> </ul>	No
Isolation	
Isolation tested with	707 V DC (type test)
Standards, approvals, certificates	
Suitable for safety functions	No
Ambient conditions	
Ambient temperature during operation	
<ul> <li>horizontal installation, min.</li> </ul>	-30 °C; < 0 °C as of FS07
<ul> <li>horizontal installation, max.</li> </ul>	60 °C
<ul> <li>vertical installation, min.</li> </ul>	-30 °C; < 0 °C as of FS07
<ul> <li>vertical installation, max.</li> </ul>	50 °C
Altitude during operation relating to sea level	
<ul> <li>Installation altitude above sea level, max.</li> </ul>	5 000 m; Restrictions for installation altitudes > 2 000 m, see manual
Dimensions	
Width	15 mm
Height	73 mm
Depth	58 mm
Weights	
Weight, approx.	28 g

last modified:

8/16/2023