## **SIEMENS**

## **Data sheet**

6ES7131-6BF01-2BA0



SIMATIC ET 200SP, digital input module, DI 8x 24V DC standard, Input type 3 (IEC 61131), sink input, (PNP, sink input), Packing unit: 10 units, suitable for BU type A0, color code CC01, Input delay 0.05..20ms; Module diagnostics for: Encoder power supply short circuit, wire break, supply voltage

Figure similar

Product type designation	* ****	
HW functional status From FS02 Firmware version V0.0  • FW update possible No usable BaseUnits BU type A0 Color code for module-specific color identification plate CC01  Product function  • I&M data Yes; I&M0 to I&M3  • Isochronous mode No Engineering with  • STEP 7 TIA Portal configurable/integrated from version V14  • STEP 7 TIA Portal configurable/integrated from version V5.5 SP3 /- • PCS 7 configurable/integrated from version V8.1 SP1  • PCS 7 configurable/integrated from version V8.1 SP1  • PROFINET from GSD version/GSD revision GSDfile each, Revision 3 and 5 and higher  • PROFINET from GSD version/GSD revision No • PROFINET from GSD version W8.1 SP1  • Counter No • Oversampling No • MSI Supply voltage  Rated value (DC) 24 V permissible range, lower limit (DC) 28.8 V Reverse polarity protection Yes Input current Current consumption, max. 50 mA; All channels are supplied from the encoder supply Input current Current consumption, max. 80 mA; All channels are supplied from the encoder supply  • AND Yes Output voltage, min. 19.2 V Short-circuit protection Yes; per module  24 V encoder supply  • 24 V • Short-circuit protection Yes • Output current, max. 700 mA	General information	
Firmware version  FW update possible  No usable BaseUnits  Color code for module-specific color identification plate  Product function  IM data Sectoronous mode No Engineering with STEP 7 TIA Portal configurable/integrated from version FPC onfigurable/integrated from version FPC 7 configurable/integrated from version FPC 7 configurable/integrated from version FPC 7 configurable/integrated from version FPC 8 FROFIBUS from GSD version/GSD revision FPCFIBUS from VS1	Product type designation	
FW update possible usable BaseUnits Color code for module-specific color identification plate Product function  I & M data I Section on the Section of Se	HW functional status	From FS02
usable BaseUnits BU type A0  Color code for module-specific color identification plate  Product function  • (8M data Yes; 18M0 to 18M3)  • (sochronous mode No  Engineering with  • STEP 7 TIA Portal configurable/integrated from version  • STEP 7 transpective function of the product of the pr	Firmware version	V0.0
Color code for module-specific color identification plate  Product function  • I&M data • Isochronous mode  Engineering with  • STEP 7 TIA Potlal 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  One GSD file each, Revision 3 and 5 and higher • PROFINET from GSD version/GSD revision  One GSD file each, Revision 3 and 5 and higher  • PROFINET from GSD version/GSD revision  One GSD file each, Revision 3 and 5 and higher  • PROFINET from GSD version/GSD revision  One GSD file each, Revision 3 and 5 and higher  • PROFINET from GSD version/GSD revision  • No  • Oversampling • No  • Oversampling • No  • No  Supply voltage  Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  permissible range, upper limit (DC)  28.8 V  Reverse polarity protection  Yes  Input current  Current consumption, max.  50 mA; All channels are supplied from the encoder supply  Providage, min.  19.2 V  Short-circuit protection  Yes; per module  24 V encoder supply  • 24 V  • Short-circuit protection  Yes  • Output vurrent, max.  700 mA	FW update possible	No
Product function  • I&M data • Isochronous mode Engineering with  • STEP 7 TIA Portal configurable/integrated from version • STEP 7 Ton figurable/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 • PROFINET from GSD version/GSD revision • DI • Ves • Counter • No • Oversampling • No • MSI • No  Supply voltage  Rated value (DC) • 24 V • permissible range, lower limit (DC) • 29.8 V • Reverse polarity protection • Yes  Input current  Current consumption, max • 50 mA; All channels are supplied from the encoder supply  Encoder supply  Number of outputs • August 19.2 V • Short-circuit protection • Yes; per module  24 V encoder supply • 24 V • Short-circuit protection • Yes • Output voltage, min. • Output current, max.  700 mA	usable BaseUnits	BU type A0
I I&M data I Sochronous mode I Isolaronous Modeline grated from version I Isolaronous Modeline grated from V8.1 SP1 I Isolaronous M	Color code for module-specific color identification plate	CC01
Isochronous mode  Ingineering with  Isochronous mode  Isochronous mode mode moder moderated from version  Isochronous mode moderated from version  Isochronous mode moderated from version  Isochronous moderated from version on the section of the section on the encoder supply  Isochronous moderated from version on the section on the se	Product function	
Engineering with  STEP 7 TIA Portal configurable/integrated from version STEP 7 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 PROFINET from GSD version/GSD revision Operating mode  DI Yes Counter No Oversampling No MSI No 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) Permissible range with the conder supply Input current Current consumption, max. So mA; All channels are supplied from the encoder supply Encoder supply Number of outputs Output voltage, min. Short-circuit protection Yes Permissible range with the encoder supply Poly voltage with the encoder supply Poly voltage with the encoder supply Number of outputs Short-circuit protection Yes; per module 24 V encoder supply  24 V Short-circuit protection Yes Output voltage, min. Proceeding the protection Yes Proceder supply Poly voltage with the encoder with the encoder supply Poly voltage with the encoder with th	● 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 PROFINET from GSD version/GSD revision Operating mode  DI Yes Counter No Oversampling No No Supply voltage Rated value (DC) Permissible range, lower limit (DC) Permissible range, upper limit (DC) Reverse polarity protection Yes  Reverse polarity protection Storman  Storman	<ul> <li>Isochronous mode</li> </ul>	No
STEP 7 configurable/integrated from version PCS 7 configurable/integrated from version PROFIBUS from GSD version/GSD revision PROFINET from GSD version/GSD revision PROFINET from GSD version/GSD revision GSDML V2.3  Operating mode  DI Yes Counter No Oversampling No MSI No  Supply voltage Rated value (DC) Permissible range, lower limit (DC) Permissible range, upper limit (DC) Permissible range, upper limit (DC) Permissible range of upper limit (DC) Premissible range, upper limit (DC) Premissib	Engineering with	
PCS 7 configurable/integrated from version PROFIBUS from GSD version/GSD revision PROFIBUS from GSD version/GSD revision PROFINET from GSD version/GSD revision Operating mode  PDI Yes Counter Oversampling No MSI No  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) Permissible range to work and the encoder supply  Reverse polarity protection Ves  Input current Current consumption, max.  50 mA; All channels are supplied from the encoder supply  Encoder supply  Number of outputs 8 Output voltage, min. 19.2 V Short-circuit protection Yes; per module  24 V encoder supply  • 24 V • Short-circuit protection Yes Output current, max. 700 mA	<ul> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	V14
PROFIBUS from GSD version/GSD revision PROFINET from GSD version/GSD revision GSDML V2.3  Operating mode  DI PC Counter No Oversampling No MSI  Supply voltage  Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) Reverse polarity protection Turnent  Current consumption, max.  DI SO mA; All channels are supplied from the encoder supply  Encoder supply  Number of outputs Output voltage, min.  Short-circuit protection Yes Pes Permissible range, upper limit (DC) Permissible range, lower limit (DC	<ul> <li>STEP 7 configurable/integrated from version</li> </ul>	V5.5 SP3 / -
PROFINET from GSD version/GSD revision  Operating mode  DI Counter Oversampling Mo MSI No  Supply voltage Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Reverse polarity protection Yes  Input current Current consumption, max.  50 mA; All channels are supplied from the encoder supply  Encoder supply  Number of outputs Output voltage, min. Short-circuit protection Yes; per module  24 V Yes Short-circuit protection Yes  Output current Yes  Provided Supply	<ul> <li>PCS 7 configurable/integrated from version</li> </ul>	V8.1 SP1
Operating mode  • DI Yes  • Counter No  • Oversampling No  • MSI No  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  Input current  Current consumption, max. 50 mA; All channels are supplied from the encoder supply  Encoder supply  Number of outputs 8  Output voltage, min. 19.2 V  Short-circuit protection Yes; per module  24 V encoder supply  • 24 V  • Short-circuit protection Yes  • Output current, max. 700 mA	<ul> <li>PROFIBUS from GSD version/GSD revision</li> </ul>	One GSD file each, Revision 3 and 5 and higher
DI Counter Counter No Oversampling No MSI No  Supply voltage  Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) permissible range, upp	PROFINET from GSD version/GSD revision	GSDML V2.3
Counter Oversampling No MSI No  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) 28.8 V Reverse polarity protection Yes  Input current  Current consumption, max. 50 mA; All channels are supplied from the encoder supply  Encoder supply  Number of outputs  Output voltage, min. 19.2 V  Short-circuit protection Yes; per module 24 V encoder supply  • 24 V • Short-circuit protection Yes • Short-circuit protection Yes  Output current, max. 700 mA	Operating mode	
Oversampling  MSI  MSI  No  Supply voltage  Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  permissible range, upper limit (DC)  Reverse polarity protection  Yes  Input current  Current consumption, max.  50 mA; All channels are supplied from the encoder supply  Encoder supply  Number of outputs  Output voltage, min.  19.2 V  Short-circuit protection  Yes; per module  24 V encoder supply  • 24 V  • Short-circuit protection  Yes  • Output current, max.  700 mA	• DI	Yes
● MSI No  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  Input current  Current consumption, max. 50 mA; All channels are supplied from the encoder supply  Encoder supply  Number of outputs 8  Output voltage, min. 19.2 V  Short-circuit protection Yes; per module  24 V encoder supply  ● 24 V  ● Short-circuit protection Yes  ● Short-circuit protection Yes  ● Output current, max. 700 mA	Counter	No
Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  Reverse polarity protection  Yes  Input current  Current consumption, max.  50 mA; All channels are supplied from the encoder supply  Encoder supply  Number of outputs  0utput voltage, min.  19.2 V  Short-circuit protection  Yes; per module  24 V encoder supply  • 24 V  • Short-circuit protection  Yes  • Output current, max.	<ul> <li>Oversampling</li> </ul>	No
Rated value (DC)  permissible range, lower limit (DC)  permissible range, upper limit (DC)  Reverse polarity protection  Yes  Input current  Current consumption, max.  50 mA; All channels are supplied from the encoder supply  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, max.  700 mA	• MSI	No
permissible range, lower limit (DC)  permissible range, upper limit (DC)  Reverse polarity protection  Yes  Input current  Current consumption, max.  50 mA; All channels are supplied from the encoder supply  Encoder supply  Number of outputs  8  Output voltage, min.  19.2 V  Short-circuit protection  24 V encoder supply  • 24 V  • Short-circuit protection  Short-circuit protection  Yes  • Output current, max.  700 mA	Supply voltage	
permissible range, upper limit (DC)  Reverse polarity protection  Yes  Input current  Current consumption, max.  50 mA; All channels are supplied from the encoder supply  Encoder supply  Number of outputs  Output voltage, min.  19.2 V  Short-circuit protection  Yes; per module  24 V encoder supply  • 24 V  • Short-circuit protection  • Output current, max.  700 mA	Rated value (DC)	24 V
Reverse polarity protection  Input current  Current consumption, max.  50 mA; All channels are supplied from the encoder supply  Encoder supply  Number of outputs  0utput voltage, min.  19.2 V  Short-circuit protection  24 V encoder supply  • 24 V  • Short-circuit protection  • Short-circuit protection  • Output current, max.  700 mA	permissible range, lower limit (DC)	19.2 V
Input current Current consumption, max.  50 mA; All channels are supplied from the encoder supply  Encoder supply  Number of outputs  0utput voltage, min.  Short-circuit protection  24 V encoder supply  24 V  Short-circuit protection  Yes; per module  Yes  Short-circuit protection  Yes  Output current, max.  700 mA	permissible range, upper limit (DC)	28.8 V
Current consumption, max.  50 mA; All channels are supplied from the encoder supply  Number of outputs  0utput voltage, min.  Short-circuit protection  24 V encoder supply  24 V  Short-circuit protection  Short-circuit protection  Yes  Short-circuit protection  Yes  Output current, max.  700 mA	Reverse polarity protection	Yes
Encoder supply  Number of outputs  Output voltage, min.  Short-circuit protection  24 V encoder supply  • 24 V  • Short-circuit protection  Short-circuit protection  Yes  • Output current, max.  Output current, max.	Input current	
Number of outputs  Output voltage, min.  Short-circuit protection  24 V encoder supply  • 24 V  • Short-circuit protection  • Short-circuit protection  • Output current, max.  8  19.2 V  Yes; per module  Yes  Yes  • Output current, max.	Current consumption, max.	50 mA; All channels are supplied from the encoder supply
Output voltage, min.  Short-circuit protection  24 V encoder supply  • 24 V  • Short-circuit protection  • Short-circuit protection  • Output current, max.  19.2 V  Yes; per module  Yes  Yes  700 mA	Encoder supply	
Output voltage, min.  Short-circuit protection  24 V encoder supply  • 24 V  • Short-circuit protection  • Short-circuit protection  • Output current, max.  19.2 V  Yes; per module  Yes  Yes  700 mA	Number of outputs	8
Short-circuit protection  24 V encoder supply  • 24 V  • Short-circuit protection  • Output current, max.  Yes; per module  Yes  Yes  Yes  Yes	·	19.2 V
24 V encoder supply  • 24 V  • Short-circuit protection  • Output current, max.  Yes  700 mA	· · · · · · · · · · · · · · · · · · ·	Yes; per module
<ul> <li>24 V</li> <li>Short-circuit protection</li> <li>Output current, max.</li> </ul> Yes 700 mA	·	
<ul> <li>Short-circuit protection</li> <li>Output current, max.</li> <li>Yes</li> <li>700 mA</li> </ul>		Yes
Output current, max.  700 mA		
	·	
Output current per module, max.  700 mA		
Power loss		

Power loss, typ.	1 W; 24 V, 8 inputs supplied via encoder supply
Address area	A Company of the Comp
Address space per module	
• Inputs	1 byte; + 1 byte for QI information
Hardware configuration	1919 - 1911 - 19
Automatic encoding	Yes
Mechanical coding element	Yes
Type of mechanical coding element	Type A
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	
Number of digital inputs	8
Digital inputs, parameterizable	Yes
Source/sink input	P-reading
Input characteristic curve in accordance with IEC 61131, type 3	Yes
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	V 0051041041001401001400100 / 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
— 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
— permissible quiescent current (2-wire sensor), max.	1.5 mA
Interrupts/diagnostics/status information	
Diagnostics function	Yes
Alarms	
Diagnostic alarm	Yes
Diagnoses	Voo
Diagnostic information readable     Manitoring the supply voltage	Yes
Monitoring the supply voltage     parameterizable	Yes Yes
<ul><li>— parameterizable</li><li>• Monitoring of encoder power supply</li></ul>	Yes Yes; Module-by-module, optional protective circuit for preventing wire-break
• Monitoring of encoder power supply	diagnostics in the case of simple encoder contacts: 25 kOhm to 45 kOhm
Wire-break	Yes; Module-wise
Short-circuit	Yes; Module-wise
Diagnostics indication LED	
<ul> <li>Monitoring of the supply voltage (PWR-LED)</li> </ul>	Yes; green PWR LED
<ul> <li>Channel status display</li> </ul>	Yes; green LED
<ul> <li>for channel diagnostics</li> </ul>	No
for module diagnostics	Yes; green/red DIAG LED
Potential separation	
Potential separation channels	
• between the channels	No
between the channels and backplane bus	Yes
<ul> <li>between the channels and the power supply of the</li> </ul>	No

electronics	
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 FS02
<ul> <li>horizontal installation, max.</li> </ul>	60 °C
<ul> <li>vertical installation, min.</li> </ul>	-30 °C; < 0 °C as of FS02
vertical installation, max.	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:

9/24/2021