Data sheet

6ES7131-6BH01-0BA0



SIMATIC ET 200SP, Digital input module, DI 16x 24V DC Standard, type 3 (IEC 61131), sink input, (PNP, P-reading), Packing unit: 1 Piece, fits to BU-type A0, Colour Code CC00, input delay time 0,05..20ms, diagnostics wire break, diagnostics supply voltage

General information	
Product type designation	DI 16x24VDC ST
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	CC00
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 configurable/integrated from version 	V5.5 SP3
 PCS 7 configurable/integrated from version 	V8.1 SP1
 PROFIBUS from GSD version/GSD revision 	One GSD file each, Revision 3 and 5 and higher
 PROFINET from GSD version/GSD revision 	GSDML V2.3
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.	90 mA
Encoder supply	
24 V encoder supply	
• 24 V	No
Power loss	
Power loss, typ.	1.7 W
Address area	
Address space per module	
• Inputs	2 byte; + 2 bytes for QI information

Automatic encoding Mechanical coding element Type A Selection of BaseUnit for connection 1-wire connection 2-wire connection 3-wire connection But type A0 + Potential distributor module But type A1 + Subtail distributor module But type A1 + Subtail distributor module But type A1	Hardware configuration	
■ Type of mechanical coding element ■ 1-wire connection ■ 2-wire connection ■ 3-wire connection ■ 4-wire connection ■ 5-wire connection ■ 6-parameterizable ■ 6-par		Yes
■ Type of mechanical coding element ■ 1-wire connection ■ 2-wire connection ■ 3-wire connection ■ 4-wire connection ■ 5-wire connection ■ 6-parameterizable ■ 6-par	<u> </u>	Yes
Selection of Base-Unit for connection		
		1)60
		RII tyne A0
• 3-wire connection		
Mumber of digital inputs 16		
Number of digital inputs		
Number of digital inputs Digital inputs Present		BO type A0 + Potential distributor module
Ves P-reading		
Source/sink input P-reading Yes		
Input voltage	Digital inputs, parameterizable	Yes
type 3		P-reading
Rated value (DC) — 24 V DC — 724 V DC — 730 to +6 V — 730 to +7 V — 73		Yes
	Input voltage	
• for signal "0" +30 to +5 V +11 to +30V • for signal "1" +11 to +30V • for signal "1", typ.	 Rated value (DC) 	24 V
	— 24 V DC	Yes
Input current • for signal "1", typ. of ro signal "1", typ. for standard inputs — parameterizable — at "0" to "1", min. — at "0" to "1", max. — 20 ms — at "1" to "0", min. — at "1" to "0", min. — at "1" to "0", max. Cable length • shielded, max. • unshielded, max. • unshielded, max. 600 m Connectable encoders — permissible quiescent current (2-wire sensor), max. Diagnostics function Diagnostics function Poliagnostic alarm Diagnostic information readable • Monitoring of encoder power supply • Wire-break • Short-circuit • Short-circuit • Short-circuit • Short-circuit • Short-circuit • Monitoring of the supply voltage (PWR-LED) • Channel status display • For channel diagnostics • For expert the supply voltage • For channel diagnostics • For expert the supply voltage • For channel diagnostics • For expert the supply voltage • For expert the supply voltage • For expert the supply voltage (PWR-LED) • Channel diagnostics • For expert the supply voltage (PWR-LED) • Channel diagnostics • For expert the supply voltage (PWR-LED) • For expert the supply voltage (PWR-LED	• for signal "0"	-30 to +5 V
for signal "1", typ. 2.5 mA	• for signal "1"	+11 to +30V
Input delay (for rated value of input voltage) for standard inputs - parameterizable - parameterizable - at "0" to "1", min. - at "0" to "1", min. - at "0" to "1", min. - at "1" to "0", max. - shielded, max. - unshielded, max. - unshielded, max. - permissible quiescent current (2-wire sensor), max. 1 000 m	Input current	
Input delay (for rated value of input voltage) for standard inputs - parameterizable - parameterizable - at "0" to "1", min. - at "0" to "1", min. - at "0" to "1", min. - at "1" to "0", max. - shielded, max. - unshielded, max. - unshielded, max. - permissible quiescent current (2-wire sensor), max. 1 000 m	• for signal "1", typ.	2.5 mA
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 at "0" to "1", max at "1" to "0", min at "1" to "0", max. 20 ms at "1" to "0", max. 20 ms Cable length shielded, max to shielded, max	for standard inputs	
- at "0" to "1", min at "0" to "1", max at "1" to "0", min at "1" to "0", min at "1" to "0", min at "1" to "0", max. 20 ms Cable length • shielded, max. • unshielded, max. • unshielded, max. • unshielded max. • 2-wire sensor - permissible quiescent current (2-wire sensor), max. Interrupts/diagnostics/status information Diagnostics function Alarms • Diagnostic alarm Diagnostic information readable • Diagnostic information readable • Monitoring the supply voltage - parameterizable • Monitoring of encoder power supply • Wire-break • Short-circuit • Group error Diagnostics indication LED • Monitoring of the supply voltage (PWR-LED) • Channel status display • for channel diagnostics • for module diagnostics • Yes; green/red DIAG LED Potential separation	·	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 us, depending on line length)
- at "0" to "1", max. - at "1" to "0", min. - at "1" to "0", min. - at "1" to "0", max. 20 ms Cable length • shielded, max. • unshielded, max. • unshielded, max. • Oon m Connectable encoders • 2-wire sensor permissible quiescent current (2-wire sensor), max. Interrupts/diagnostics/status information Diagnostics function Alarms • Diagnostic alarm • Diagnostic information readable • Monitoring the supply voltage parameterizable • Monitoring of encoder power supply • Wire-break Short-circuit • Group error Diagnostics indication LED • Monitoring of the supply voltage (PWR-LED) • Channel status display • for channel diagnostics • For module diagnostics • Yes; green/red DIAG LED Potential separation	— at "0" to "1". min.	
- at "1" to "0", min.	·	
Cable length • shielded, max. • unshielded, max. • unshielded, max. • 2-wire sensor — permissible quiescent current (2-wire sensor), max. Interrupts/diagnostics/status information Diagnostics function Alarms • Diagnostic alarm • Diagnostic information readable • Monitoring the supply voltage • Monitoring of encoder power supply • Wire-break • Short-circuit • Group error Monitoring of the supply voltage (PWR-LED) • Monitoring of the supply voltage (PWR-LED) • Monitoring of the supply voltage (PWR-LED) • Channel status display • for channel diagnostics • for module diagnostics • Potential separation 1 000 m 6 000 m 1 000 m 9 Ves Yes Yes Yes Yes Yes 1.5 mA Yes Yes Yes Yes Yes Olagnostic information readable Yes • Monitoring the supply voltage Yes • Monitoring of encoder power supply No • Short-circuit • Group error Yes Diagnostics indication LED • Monitoring of the supply voltage (PWR-LED) • Channel status display • for channel diagnostics • for module diagnostics • for module diagnostics • Ves; green/red DIAG LED		
Cable length • shielded, max. • unshielded, max. • unshielded, max. • unshielded, max. • connectable encoders • 2-wire sensor — permissible quiescent current (2-wire sensor), max. Interrupts/diagnostics/status information Diagnostics function Alarms • Diagnostic alarm • Diagnostic alarm • Diagnostic information readable • Monitoring the supply voltage — parameterizable • Monitoring of encoder power supply • Wire-break • Short-circuit • Group error Diagnostics indication LED • Monitoring of the supply voltage (PWR-LED) • Channel status display • for channel diagnostics • for module diagnostics 1 000 m		
shielded, max. unshielded, max. unshielded, max. Encoder Connectable encoders 2-wire sensor —permissible quiescent current (2-wire sensor), max. Interrupts/diagnostics/status information Diagnostic function Alarms Diagnostic alarm Poiagnostic information readable Monitoring the supply voltage — parameterizable Monitoring of encoder power supply Wire-break Short-circuit Group error Monitoring of the supply voltage (PWR-LED) Group error Monitoring of the supply voltage (PWR-LED) Channel diagnostics No for module diagnostics No for module diagnostics Yes; green/red DIAG LED Potential separation		20 1113
Unshielded, max. 600 m Encoder Connectable encoders	-	1 000 m
Connectable encoders • 2-wire sensor		
Connectable encoders • 2-wire sensor Yes — permissible quiescent current (2-wire sensor), max. Interrupts/diagnostics/status information Diagnostics function Yes Alarms • Diagnostic alarm Yes Diagnoses • Diagnostic information readable Yes • Monitoring the supply voltage Yes — parameterizable Yes • Monitoring of encoder power supply No • Wire-break Yes; Module-by-module, optional protective circuit for preventing wire-break diagnostics in the case of simple encoder contacts: 25 kOhm to 45 kOhm • Short-circuit No • Group error Yes Diagnostics indication LED • Monitoring of the supply voltage (PWR-LED) • Channel status display • for channel diagnostics • for module diagnostics Fotential separation		600 111
2-wire sensor — permissible quiescent current (2-wire sensor), max. Interrupts/diagnostics/status information Diagnostics function Polagnostic alarm Diagnoses Diagnoses Diagnoses Diagnoses Monitoring the supply voltage — parameterizable Monitoring of encoder power supply Wire-break Short-circuit Group error Monitoring of the supply voltage (PWR-LED) Channel status display for channel diagnostics No for module diagnostics Yes 1.5 mA 1.5		
Interrupts/diagnostics/status information Diagnostics function Alarms • Diagnostic alarm Poliagnoses • Diagnostic information readable • Monitoring the supply voltage — parameterizable • Monitoring of encoder power supply • Wire-break • Short-circuit • Group error Diagnostics indication LED • Monitoring of the supply voltage (PWR-LED) • Channel status display • for channel diagnostics • for module diagnostics Potential separation		
Diagnostics function Alarms Diagnoses Diagnoses Diagnostic information readable Monitoring the supply voltage Potential separation Yes Yes Yes Yes Yes Yes Yes Ye		1.5 mA
Diagnoses Diagnostic information readable Diagnostic information readable Diagnostic information readable Monitoring the supply voltage Parameterizable Monitoring of encoder power supply Mo Wire-break Ves; Module-by-module, optional protective circuit for preventing wire-break diagnostics in the case of simple encoder contacts: 25 kOhm to 45 kOhm Short-circuit Group error Ves Diagnostics indication LED Monitoring of the supply voltage (PWR-LED) Channel status display For channel diagnostics For module diagnostics Yes; green/red DIAG LED Potential separation		
Diagnoses Diagnostic information readable Diagnostic information readable Monitoring the supply voltage Parameterizable Monitoring of encoder power supply Wire-break Short-circuit Group error Diagnostics indication LED Monitoring of the supply voltage (PWR-LED) Channel status display For module diagnostics For module diagnostics Yes For module diagnostics Yes Potential separation Yes Yes Pos Pos Pos Pos Pos Pos Pos P	Interrupts/diagnostics/status information	
Diagnoses Diagnostic information readable Diagnostic information readable Monitoring the supply voltage Personant Properties Preserved		Yes
 Diagnostic information readable Monitoring the supply voltage — parameterizable Monitoring of encoder power supply Wire-break Short-circuit Group error Monitoring of the supply voltage (PWR-LED) Channel status display for channel diagnostics for module diagnostics Yes; green/red DIAG LED Potential separation Yes Yes Potential separation Yes Yes Yes Potential separation Yes	Diagnostics function	Yes
Monitoring the supply voltage — parameterizable Monitoring of encoder power supply Wire-break Wire-break Short-circuit Group error Monitoring of the supply voltage (PWR-LED) Channel status display for module diagnostics for module diagnostics No Monitoring of the supply voltage (PWR-LED) for channel diagnostics for module diagnostics Yes Yes Module-by-module, optional protective circuit for preventing wire-break diagnostics in the case of simple encoder contacts: 25 kOhm to 45 kOhm No Yes Yes Yes Yes Yes Yes Yes Yes; green PWR LED Yes; green LED No Yes; green LED Potential separation	Diagnostics function Alarms	
 — parameterizable • Monitoring of encoder power supply • Wire-break • Short-circuit • Group error Diagnostics indication LED • Monitoring of the supply voltage (PWR-LED) • Channel status display • for channel diagnostics • for module diagnostics • For module diagnostics • Yes; green/red DIAG LED Potential separation	Diagnostics function Alarms • Diagnostic alarm	
 — parameterizable • Monitoring of encoder power supply • Wire-break • Short-circuit • Group error Diagnostics indication LED • Monitoring of the supply voltage (PWR-LED) • Channel status display • for channel diagnostics • for module diagnostics • For module diagnostics • Yes; green/red DIAG LED Potential separation	Diagnostics function Alarms • Diagnostic alarm Diagnoses	Yes
 Monitoring of encoder power supply Wire-break Yes; Module-by-module, optional protective circuit for preventing wire-break diagnostics in the case of simple encoder contacts: 25 kOhm to 45 kOhm Short-circuit Group error Monitoring of the supply voltage (PWR-LED) Channel status display for channel diagnostics for module diagnostics Yes; green/red DIAG LED Potential separation 	Diagnostics function Alarms • Diagnostic alarm Diagnoses • Diagnostic information readable	Yes
Wire-break Yes; Module-by-module, optional protective circuit for preventing wire-break diagnostics in the case of simple encoder contacts: 25 kOhm to 45 kOhm Short-circuit Group error Yes Diagnostics indication LED Monitoring of the supply voltage (PWR-LED) Channel status display for channel diagnostics for module diagnostics for module diagnostics Yes; green/red DIAG LED Potential separation	Diagnostics function Alarms • Diagnostic alarm Diagnoses • Diagnostic information readable • Monitoring the supply voltage	Yes Yes Yes
 Short-circuit Group error Diagnostics indication LED Monitoring of the supply voltage (PWR-LED) Channel status display for channel diagnostics for module diagnostics Tes; green PWR LED Yes; green LED No for module diagnostics Yes; green/red DIAG LED Potential separation	Diagnostics function Alarms Diagnostic alarm Diagnoses Diagnostic information readable Monitoring the supply voltage parameterizable	Yes Yes Yes Yes
Group error Diagnostics indication LED Monitoring of the supply voltage (PWR-LED) Channel status display for channel diagnostics for module diagnostics Yes; green PWR LED Yes; green LED No Yes; green LED No Yes; green/red DIAG LED Potential separation	Diagnostics function Alarms Diagnostic alarm Diagnoses Diagnostic information readable Monitoring the supply voltage — parameterizable Monitoring of encoder power supply	Yes Yes Yes Yes Yes No Yes; Module-by-module, optional protective circuit for preventing wire-break diagnostics in the case of simple encoder contacts: 25 kOhm to
Diagnostics indication LED • Monitoring of the supply voltage (PWR-LED) • Channel status display • for channel diagnostics • for module diagnostics	Diagnostics function Alarms Diagnostic alarm Diagnoses Diagnostic information readable Monitoring the supply voltage parameterizable Monitoring of encoder power supply Wire-break	Yes Yes Yes Yes Yes No Yes; Module-by-module, optional protective circuit for preventing wire-break diagnostics in the case of simple encoder contacts: 25 kOhm to 45 kOhm
Monitoring of the supply voltage (PWR-LED) Channel status display for channel diagnostics for module diagnostics Yes; green PWR LED Yes; green LED No Yes; green LED No Yes; green/red DIAG LED Potential separation	Diagnostics function Alarms Diagnostic alarm Diagnoses Diagnostic information readable Monitoring the supply voltage parameterizable Monitoring of encoder power supply Wire-break	Yes Yes Yes Yes Yes No Yes; Module-by-module, optional protective circuit for preventing wire-break diagnostics in the case of simple encoder contacts: 25 kOhm to 45 kOhm
 Channel status display for channel diagnostics for module diagnostics Yes; green LED No Yes; green/red DIAG LED Potential separation	Diagnostics function Alarms Diagnostic alarm Diagnoses Diagnostic information readable Monitoring the supply voltage parameterizable Monitoring of encoder power supply Wire-break Short-circuit Group error	Yes Yes Yes Yes No Yes; Module-by-module, optional protective circuit for preventing wire-break diagnostics in the case of simple encoder contacts: 25 kOhm to 45 kOhm No
 for channel diagnostics No for module diagnostics Yes; green/red DIAG LED Potential separation	Diagnostics function Alarms Diagnostic alarm Diagnoses Diagnostic information readable Monitoring the supply voltage parameterizable Monitoring of encoder power supply Wire-break Short-circuit Group error	Yes Yes Yes Yes No Yes; Module-by-module, optional protective circuit for preventing wire-break diagnostics in the case of simple encoder contacts: 25 kOhm to 45 kOhm No
for module diagnostics Yes; green/red DIAG LED Potential separation	Diagnostics function Alarms Diagnostic alarm Diagnoses Diagnostic information readable Monitoring the supply voltage parameterizable Monitoring of encoder power supply Wire-break Short-circuit Group error Diagnostics indication LED	Yes Yes Yes Yes No Yes; Module-by-module, optional protective circuit for preventing wire-break diagnostics in the case of simple encoder contacts: 25 kOhm to 45 kOhm No Yes
for module diagnostics Yes; green/red DIAG LED Potential separation	Diagnostics function Alarms Diagnostic alarm Diagnoses Diagnostic information readable Monitoring the supply voltage parameterizable Monitoring of encoder power supply Wire-break Short-circuit Group error Diagnostics indication LED Monitoring of the supply voltage (PWR-LED)	Yes Yes Yes Yes No Yes; Module-by-module, optional protective circuit for preventing wire-break diagnostics in the case of simple encoder contacts: 25 kOhm to 45 kOhm No Yes Yes; green PWR LED
Potential separation	Diagnostics function Alarms Diagnostic alarm Diagnoses Diagnostic information readable Monitoring the supply voltage — parameterizable Monitoring of encoder power supply Wire-break Short-circuit Group error Diagnostics indication LED Monitoring of the supply voltage (PWR-LED) Channel status display	Yes Yes Yes Yes No Yes; Module-by-module, optional protective circuit for preventing wire-break diagnostics in the case of simple encoder contacts: 25 kOhm to 45 kOhm No Yes Yes; green PWR LED Yes; green LED
	Diagnostics function Alarms Diagnostic alarm Diagnoses Diagnostic information readable Monitoring the supply voltage parameterizable Monitoring of encoder power supply Wire-break Short-circuit Group error Diagnostics indication LED Monitoring of the supply voltage (PWR-LED) Channel status display for channel diagnostics	Yes Yes Yes No Yes; Module-by-module, optional protective circuit for preventing wire-break diagnostics in the case of simple encoder contacts: 25 kOhm to 45 kOhm No Yes Yes; green PWR LED Yes; green LED No
	Diagnostics function Alarms Diagnoses Diagnostic information readable Monitoring the supply voltage parameterizable Monitoring of encoder power supply Wire-break Short-circuit Group error Diagnostics indication LED Monitoring of the supply voltage (PWR-LED) Channel status display for channel diagnostics for module diagnostics	Yes Yes Yes No Yes; Module-by-module, optional protective circuit for preventing wire-break diagnostics in the case of simple encoder contacts: 25 kOhm to 45 kOhm No Yes Yes; green PWR LED Yes; green LED No

 between the channels 	No
 between the channels and backplane bus 	Yes
 between the channels and the power supply of the electronics 	No
Isolation	
Isolation tested with	707 V DC (type test)
Ambient conditions	
Ambient temperature during operation	
 horizontal installation, min. 	-30 °C; < 0 °C as of FS02
 horizontal installation, max. 	60 °C
 vertical installation, min. 	-30 °C; < 0 °C as of FS02
 vertical installation, max. 	50 °C
Altitude during operation relating to sea level	
 Installation altitude above sea level, max. 	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

1/16/2021 🖸

last modified: