

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

PRODUCT BRAND

Siemens

PRODUCT MODEL

6ES7138-6BA01-0BA0

Siemens 6ES7138-6BA01-0BA0 is a SIMATIC ET 200SP TM PosInput 1 technology module for position detection, counting, and measurement. It supports RS422 or TTL incremental encoders and SSI absolute encoders, with two digital inputs and two transistor digital outputs.

The module requires a compatible ET 200SP station and BaseUnit A0, with a verified 24 V DC supply and encoder interface. Encoder type, signal levels, counter mode, measurement functions, digital I/O behavior, and hardware configuration must be parameterized before commissioning.

OFFICIAL SOURCE

SIMATIC ET 200SP TM PosInput 1 Technical Data

6ES7138-6BA01-0BA0

[Open current Siemens source](#)



Figure similar

SIMATIC ET 200SP, TM Posinput 1 counter and position decoder module for RS-422 incremental encoder or SSI absolute encoder, 2 DI, 2 DQ suitable for BU type A0, pack quantity: 1 unit

General information	
Product type designation	TM Posinput 1
Firmware version	V2.0
• FW update possible	Yes
usable BaseUnits	BU type A0
Color code for module-specific color-coded label	CC00
Product function	
• I&M data	Yes; I&M0 to I&M3
• Isochronous mode	Yes
Engineering with	
• STEP 7 TIA Portal configurable/integrated from version	STEP 7 V16 or higher
• STEP 7 configurable/integrated from version	V5.6 (use previous version "6BA00")
• PROFIBUS from GSD version/GSD revision	GSD Revision 5
• PROFINET from GSD version/GSD revision	GSDML V2.34
Supply voltage	
Rated value (DC)	24 V
Load voltage L+	
• 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.	75 mA; without load
Encoder supply	
Number of outputs	2
5 V encoder supply	
• 5 V	Yes
• Short-circuit protection	Yes; electronic/thermal
• Output current, max.	300 mA; Total current of all encoders
24 V encoder supply	
• 24 V	Yes; L+ (-0.8 V)
• Short-circuit protection	Yes; electronic/thermal
• Output current, max.	300 mA; Total current of all encoders
Power loss	
Power loss, typ.	1.5 W
Address area	
Address space per module	
• Inputs	16 byte; 4 bytes in Fast mode

• Outputs	12 byte; 4 bytes for Motion Control, 0 bytes for Fast mode
Hardware configuration	
Automatic encoding	Yes
• Mechanical coding element	Yes
• Type of mechanical coding element	type B
Digital inputs	
Number of digital inputs	2
Digital inputs, parameterizable	Yes
Input characteristic curve in accordance with IEC 61131, type 3	Yes
Digital input functions, parameterizable	
• Gate start/stop	Yes; only for pulse and incremental encoders
• Capture	Yes
• Synchronization	Yes; only for pulse and incremental encoders
• Freely usable digital input	Yes
Input voltage	
• Rated value (DC)	24 V
• for signal "0"	-5 ... +5 V
• for signal "1"	+11 to +30V
• permissible voltage at input, min.	-30 V; -5 V continuous, -30 V brief reverse polarity protection
• permissible voltage at input, max.	30 V
Input current	
• for signal "1", typ.	2.5 mA
Input delay (for rated value of input voltage)	
for standard inputs	
— parameterizable	Yes; none / 0.05 / 0.1 / 0.4 / 0.8 / 1.6 / 3.2 / 12.8 / 20 ms
for technological functions	
— parameterizable	Yes
Cable length	
• shielded, max.	1 000 m
• unshielded, max.	600 m
Digital outputs	
Type of digital output	Transistor
Number of digital outputs	2
Digital outputs, parameterizable	Yes
Short-circuit protection	Yes; electronic/thermal
• Response threshold, typ.	1 A
Limitation of inductive shutdown voltage to	L+ (-53 V)
Controlling a digital input	Yes
Digital output functions, parameterizable	
• Switching tripped by comparison values	Yes
• Freely usable digital output	Yes
Switching capacity of the outputs	
• with resistive load, max.	0.5 A; Per digital output
• on lamp load, max.	5 W
Load resistance range	
• lower limit	48 Ω
• upper limit	12 kΩ
Output voltage	
• for signal "1", min.	23.2 V; L+ (-0.8 V)
Output current	
• for signal "1" rated value	0.5 A; Per digital output
• for signal "1" permissible range, max.	0.6 A; Per digital output
• for signal "1" minimum load current	2 mA
• for signal "0" residual current, max.	0.5 mA
Output delay with resistive load	
• "0" to "1", max.	50 μs
• "1" to "0", max.	50 μs
Switching frequency	
• with resistive load, max.	10 kHz

• dew point, min.		-60 °C; suitable for dry room applications	
Decentralized operation			
to SIMATIC S7-300	Yes		
to SIMATIC S7-400	Yes		
to SIMATIC S7-1200	Yes		
to SIMATIC S7-1500	Yes		
to standard PROFIBUS master	Yes		
to standard PROFINET controller	Yes		
Dimensions			
Width	15 mm		
Height	73 mm		
Depth	58 mm		
Weights			
Weight, approx.	45 g		
Classifications			
		Version	Classification
	eClass	16	27-24-26-05
	eClass	14	27-24-26-05
	eClass	12	27-24-26-05
	eClass	9.1	27-24-26-05
	eClass	9	27-24-26-05
	eClass	8	27-24-26-05
	eClass	7.1	27-24-26-05
	eClass	6	27-24-26-05
	ETIM	10	EC001601
	ETIM	9	EC001601
	ETIM	8	EC001601
	ETIM	7	EC001601
	IDEA	4	3567
	UNSPSC	15	32-15-17-05
Approvals / Certificates			
General Product Approval			
 EG-Kenf.  Miscellaneous Manufacturer Declaration  UL  RCM			
General Product Approval		For use in hazardous locations	
 China RoHS  EG-Kenf.   UL FM			
For use in hazardous locations		Maritime application	
 ATEX Type Examination Certificate  IECEX Miscellaneous  ABS  BUREAU VERITAS			
Maritime application			