SIEMENS

Data sheet

6ES7138-6DB00-0BB1



SIMATIC ET 200SP, TM Pulse 2x24V PWM and pulse output 2 channels 2 A for proportional valves and DC motors

Product type designation TM Pulse 2x24 V HW functional status From FS03 From FS03 From FS03 V1.0 FW update possible Yes usable BaseUnits BU type B1 Color code for module-specific color identification plate Product function I&M data Yes; I&M 0 Isochronous mode Yes Engineering with STEP 7 TIA Portal configurable/integrated from version FROFINET from GSD version/GSD revision FROFINET from GSD version/GSD version/GSD version/GSD version/GSD version/GSD version/GSD version/GSD version/G	General information	
Firmware version FW update possible usable BaseUnits Color code for module-specific color identification plate Product function I & M data STEP 7 TIA Portal configurable/integrated from version FPROFIBUS from GSD version/GSD revision PROFIBUS from GSD version/GSD revision FPROFIBUS from GSD version/GSD revision PROFIBUS from GSD version/GSD revision FPROFIBUS f	Product type designation	TM Pulse 2x24 V
FW update possible usable BaseUnits BU type B1 Color code for module-specific color identification plate Product function IsM data Isochronus mode Fengineering with STEP 7 TIA Portal configurable/integrated from version FROFIBUS from GSD version/GSD revision PROFIBUS from GSD version/GSD	HW functional status	From FS03
usable BaseUnits Color code for module-specific color identification plate Product function • (8M data • (sochronous mode Engineering with • (STEP 7 TIA Portal configurable/integrated from version • (STEP 7 TIA Portal configurable/integrated from version) • (STEP 7 TIA Portal configurable/integrated from version) • (STEP 7 TIA Portal configurable/integrated from version) • (STEP 7 TIA Portal configurable/integrated from version) • (SED Revision 5 • (SED Revisi	Firmware version	V1.0
Color code for module-specific color identification plate Product function I I&M data I Ses; I&M 0 I Scortronous mode I STEP 7 TIA Portal configurable/integrated from version I STEP 7 TIA Portal configurable/integrated from version I STEP 7 Configurable integrated from version I STEP 7 Configurab	FW update possible	Yes
Product function • I&M data • Isochronous mode Engineering with • STEP 7 TIA Portal configurable/integrated from version • STEP 7 TO configurable/integrated from version • STEP 7 TIA Portal configurated from version • V5.5 SP4 and higher • SSP 4 and	usable BaseUnits	BU type B1
IskM data Iscorporous mode Iscorporous mode President Market Mar	Color code for module-specific color identification plate	CC40
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 Supply voltage Load voltage L+ 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, voltage Reverse polarity protection Pess Reverse polarity protection Pess, against destruction Input current Current consumption, max. To mA; without load Encoder supply Number of outputs Pres; L+ (-0.8 V) Short-circuit protection Output current, max. Power loss Power loss Power loss, typ. Address area Address area Address space per module Inputs Outputs Plays for channel Pote; 8 per channel Pote; 12 per channel Pardware configuration	Product function	
Engineering with STEP 7 TIA Portal configurable/integrated from version STEP 7 configurable/integrated from version SPROFIBUS from GSD version/GSD revision SDML V2.31 Supply voltage Load voltage L+ Rated value (DC) permissible range, lower limit (DC) permissible range, lower limit (DC) short-circuit protection Reverse polarity protection Reverse polarity protection Fes; against destruction Input current Current consumption, max. 70 mA; without load Encoder supply Number of outputs 2; A common 24V encoder supply for both channels 24 V encoder supply 24 V Short-circuit protection Supply Short-circuit protection Output current, max. 300 mA Power loss Power loss Power loss, typ. 1.7 W Address area Address area Address space per module Inputs Outputs 16 byte; 8 per channel Outputs 24 byte; 12 per channel Hardware configuration	● I&M data	Yes; I&M 0
STEP 7 TIA Portal configurable/integrated from version STEP 7 configurable/integrated from version PROFIBUS from GSD version/GSD revision PROFINET from GSD version/GSD revision PROFINET from GSD version/GSD revision Supply voltage Load voltage L+ 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, version Pressible range, version Pression	Isochronous mode	Yes
version • STEP 7 configurable/integrated from version • PROFIBUS from GSD version/GSD revision • PROFIBUS from GSD version/GSD revision • PROFINET from GSD version/GSD revision Supply voltage Load voltage L+ • Rated value (DC) • permissible range, lower limit (DC) • permissible range, upper limit (DC) • permissible range, upper limit (DC) • Short-circuit protection • Reverse polarity protection • Reverse polarity protection Input current Current consumption, max. Fracoder supply Number of outputs 24 V encoder supply • 24 V • Short-circuit protection • Output current, max. 900 mA Power loss Power loss Power loss, typ. Address area Address area Address space per module • Inputs • Outputs 16 byte; 8 per channel Hardware configuration	Engineering with	
PROFIBUS from GSD version/GSD revision PROFINET from GSD version/GSD revision GSDML V2.31 Supply voltage Load voltage L+ Pated value (DC) Permissible range, lower limit (DC) Permissible range, upper limit (DC		V13 SP1 + HSP
PROFINET from GSD version/GSD revision Supply voltage Load voltage L+ Rated value (DC) permissible range, lower limit (DC) Short-circuit protection Reverse polarity protection prut current Current consumption, max. To mA; without load Encoder supply Number of outputs 24 V Short-circuit protection Yes; against destruction Input current Current consumption, max. 70 mA; without load Encoder supply Number of outputs 25 A common 24V encoder supply for both channels 24 V encoder supply 24 V Short-circuit protection Output current, max. Power loss Power loss, typ. Address area Address space per module Inputs Outputs Purple channel Address space per channel Address space per channel Address configuration	 STEP 7 configurable/integrated from version 	V5.5 SP4 and higher
Supply voltage Load voltage L+ Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) Permissible range, lower limit (DC) Permissible range, upper limit (DC) Permissible ran	 PROFIBUS from GSD version/GSD revision 	GSD Revision 5
Load voltage L+ Rated value (DC) permissible range, lower limit (DC) short-circuit protection recorder supply Number of outputs 24 V Short-circuit protection 25 A common 24V encoder supply for both channels 24 V Short-circuit protection 27 Ma; without load 28 A common 24V encoder supply for both channels 24 V encoder supply Pes; L+ (-0.8 V) Short-circuit protection Output current, max. 300 mA Power loss Power loss, typ. Address space per module Inputs	 PROFINET from GSD version/GSD revision 	GSDML V2.31
 Rated value (DC) permissible range, lower limit (DC) permissible range, upper limit (DC) permissible range, upper limit (DC) 28.8 V Short-circuit protection Reverse polarity protection Yes; against destruction Input current Current consumption, max. 70 mA; without load Encoder supply Number of outputs 2; A common 24V encoder supply for both channels 24 V encoder supply 24 V Short-circuit protection Output current, max. Output current, max. Power loss Power loss, typ. 1.7 W Address area Address space per module Inputs Inputs Outputs Outputs Byte; 8 per channel Outputs Outputs Hardware configuration 	Supply voltage	
permissible range, lower limit (DC) permissible range, upper limit (DC) short-circuit protection Reverse polarity protection Pes; against destruction Input current Current consumption, max. To mA; without load Encoder supply Number of outputs 2; A common 24V encoder supply for both channels 24 V encoder supply 24 V Short-circuit protection Short-circuit protection Output current, max. Power loss Power loss, typ. Address area Address space per module Inputs Outputs 16 byte; 8 per channel Outputs 19.2 V 28.8 V Yes; against destruction Ves; against destruction	Load voltage L+	
permissible range, upper limit (DC) Short-circuit protection Reverse polarity protection Peser sepolarity protection Peser sepolarity protection Peser sepolarity protection Input current Current consumption, max. 70 mA; without load Encoder supply Number of outputs 2; A common 24V encoder supply for both channels 24 V encoder supply 24 V Short-circuit protection Output current, max. 90 mA Power loss Power loss, typ. 1.7 W Address area Address space per module Inputs Outputs Outputs 16 byte; 8 per channel Outputs 4 byte; 12 per channel Hardware configuration	Rated value (DC)	24 V
Short-circuit protection Reverse polarity protection Pes; against destruction Input current Current consumption, max. 70 mA; without load Encoder supply Number of outputs 2; A common 24V encoder supply for both channels 24 V encoder supply Short-circuit protection Output current, max. Power loss Power loss Power loss, typ. Address area Address space per module Inputs Inputs Outputs 16 byte; 8 per channel Hardware configuration	 permissible range, lower limit (DC) 	19.2 V
 Reverse polarity protection Input current Current consumption, max. To mA; without load Encoder supply Number of outputs 2; A common 24V encoder supply for both channels 24 V encoder supply 24 V Short-circuit protection Output current, max. Power loss Power loss, typ. Address area Address space per module Inputs Inputs Outputs Outputs Encoder supply Yes; against destruction Yes against destruction To mA; without load Yes against destruction To mA; without load Yes apply To M Address area Address space per module Inputs Outputs Outputs Abyte; 8 per channel Outputs Hardware configuration 		28.8 V
Input current Current consumption, max. Fincoder supply Number of outputs 2; A common 24V encoder supply for both channels 24 V encoder supply 24 V Short-circuit protection Output current, max. Power loss Power loss, typ. Address area Address space per module Inputs Outputs 16 byte; 8 per channel Outputs Hardware configuration	 Short-circuit protection 	Yes
Current consumption, max. Fincoder supply Number of outputs 2; A common 24V encoder supply for both channels 24 V encoder supply • 24 V • Short-circuit protection • Output current, max. Power loss Power loss, typ. Address area Address space per module • Inputs • Outputs 16 byte; 8 per channel • Outputs Hardware configuration	Reverse polarity protection	Yes; against destruction
Number of outputs 2; A common 24V encoder supply for both channels 24 V encoder supply • 24 V • Short-circuit protection • Output current, max. Power loss Power loss, typ. Address area Address space per module • Inputs • Outputs • Outputs 16 byte; 8 per channel • Outputs Hardware configuration	Input current	
Number of outputs 2; A common 24V encoder supply for both channels 24 V encoder supply • 24 V • Short-circuit protection • Output current, max. Power loss Power loss, typ. Address area Address space per module • Inputs • Outputs • Outputs 16 byte; 8 per channel Hardware configuration	Current consumption, max.	70 mA; without load
24 V encoder supply • 24 V • Short-circuit protection • Output current, max. Power loss Power loss, typ. Address area Address space per module • Inputs • Outputs • Outputs Hardware configuration	Encoder supply	
Yes; L+ (-0.8 V) Short-circuit protection Output current, max. Power loss Power loss, typ. Address area Address space per module Inputs Outputs Outputs 16 byte; 8 per channel Hardware configuration	Number of outputs	2; A common 24V encoder supply for both channels
Short-circuit protection Output current, max. Power loss Power loss, typ. Address area Address space per module Inputs Outputs Outputs Hardware configuration Yes; per module, electronic 300 mA 1.7 W 1.7 W 1.6 byte; 8 per channel 24 byte; 12 per channel Hardware configuration	24 V encoder supply	
Output current, max. Power loss Power loss, typ. 1.7 W Address area Address space per module Inputs Outputs Outputs Hardware configuration	• 24 V	Yes; L+ (-0.8 V)
Power loss Power loss, typ. 1.7 W Address area Address space per module Inputs Outputs Outputs Address 24 byte; 12 per channel Hardware configuration	 Short-circuit protection 	Yes; per module, electronic
Power loss, typ. Address area Address space per module Inputs Outputs Outputs Hardware configuration	Output current, max.	300 mA
Address area Address space per module Inputs Outputs Outputs Hardware configuration	Power loss	
Address space per module Inputs Outputs Outputs Address space per module 24 byte; 8 per channel 24 byte; 12 per channel Hardware configuration	Power loss, typ.	1.7 W
 Inputs Outputs Hardware configuration 16 byte; 8 per channel 24 byte; 12 per channel 	Address area	
Outputs 24 byte; 12 per channel Hardware configuration	Address space per module	
Hardware configuration	• Inputs	16 byte; 8 per channel
	Outputs	24 byte; 12 per channel
A L C C	Hardware configuration	
Automatic encoding Yes	Automatic encoding	Yes

Mechanical coding element	Yes
Type of mechanical coding element	type C
Digital inputs	960 0
Number of digital inputs	2; 1 per channel
Digital inputs, parameterizable	Yes
Input characteristic curve in accordance with IEC 61131,	Yes
type 3	100
Digital input functions, parameterizable	
 Freely usable digital input 	Yes
HW enable for digital output	Yes
Input voltage	
 Type of input voltage 	DC
 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	Van rana 10.05 10.4 10.4 10.0 14.0 10.0 140.0 100
— parameterizable	Yes; none / 0.05 / 0.1 / 0.4 / 0.8 / 1.6 / 3.2 / 12.8 / 20 ms
— at "0" to "1", min.	4 μs; for parameterization "none"
— at "1" to "0", min.	4 μs; for parameterization "none"
Digital outputs	B 114 "11
Type of digital output	P- and M-switching
Number of digital outputs	2; 1 per channel
Current-sinking	Yes
Current-sourcing	Yes
Digital outputs, parameterizable	Yes
Short-circuit protection	Yes; electronic/thermal
Response threshold, typ. Limitation of industries abutdown voltage to	6.8 A with Standard output, 2 A with High Speed output -0.8 V
Limitation of inductive shutdown voltage to Controlling a digital input	Yes
Accuracy of pulse duration	±100 ppm ±0.5 μs with High Speed output, ±100 ppm ±9 μs with
Accuracy of pulse duration	Standard output
minimum pulse duration	1.5 µs; With High Speed output, 10 µs with Standard output
Digital output functions, parameterizable	
Freely usable digital output	Yes
PWM output	Yes
— Number, max.	2; 1 per channel
 Cycle duration, parameterizable 	Yes; Max. 85 s
— ON period, min.	0 %
— ON period, max.	100 %
 Resolution of the duty cycle 	0.0036 %; For S7 analog format, min. 20 ns
 Connection of a proportional valve 	Yes
Dithering	Yes
 Frequency adjustable 	Yes
 Amplitude adjustable 	Yes
 Current measurement 	Yes
Current control	Yes
 Connection of a DC motor 	Yes
ON-delay	Yes
OFF-delay	Yes
 Frequency output 	Yes
Pulse train	Yes
Pulse output	Yes
Switching capacity of the outputs	
with resistive load, max.	2 A
 on lamp load, max. 	10 W; 1 W with High Speed output

Load resistance range	
● lower limit	12 Ω; 240 ohm with High Speed output
• upper limit	12 kΩ
Output voltage	
Type of output voltage	DC
• for signal "0", max.	1 V
● for signal "1", min.	23.2 V; L+ (-0.8 V)
Output current	
for signal "1" rated value	2 A; 0.1 A with High Speed output, observe derating
Output delay with resistive load	, , , , , , , , , , , , , , , , , , , ,
• "0" to "1", typ.	0 μs; With High Speed output, 4.5 μs with Standard output
• "0" to "1", max.	0.8 μs; With High Speed output, 9 μs with Standard output
• "1" to "0", typ.	0 μs; With High Speed output, 4.5 μs with Standard output
• "1" to "0", max.	0.8 μs; With High Speed output, 9 μs with Standard output
Parallel switching of two outputs	3 - Francisco
• for uprating	Yes
Switching frequency	
with resistive load, max.	100 kHz; With High Speed output, 10 kHz with standard output
with resistive load, max. with inductive load, max.	100 kHz; With High Speed output, 10 kHz with standard output
on lamp load, max.	10 Hz
Total current of the outputs	
Current per channel, max.	2 A
Current per group, max.	4 A
Current per module, max.	4 A
·	TA
Isochronous mode	250 year with 4 channel configuration 275 year with 2 channel
Bus cycle time (TDP), min.	250 μs; with 1 channel configuration, 375 μs with 2 channel configuration
Jitter, max.	1 µs; typically ±
Interrupts/diagnostics/status information	, po, 1, p. 100
	Yes
Diagnostics function Substitute values connectable	Yes; Parameterizable
Alarms	1 es, Farametenzable
	Yes
Diagnostic alarm Diagnoses	165
Diagnoses ■ Monitoring the supply voltage	Yes
	Yes
Short-circuit Diagnostics indication LED	Tes
3	Voc. groop DWD LED
Monitoring of the supply voltage (PWR-LED)	Yes; green PWR LED
Channel status display for module dispraction	Yes
for module diagnostics	Yes; green/red DIAG LED
Integrated Functions	
Counter	No
Potential separation	
Potential separation channels	
 between the channels 	No
 between the channels and backplane bus 	Yes
Isolation	
Isolation tested with	707 V DC (type test)
Standards, approvals, certificates	
Suitable for safety functions	No
Ambient conditions	
Ambient temperature during operation	
horizontal installation, min.	-30 °C
horizontal installation, max.	60 °C; Observe derating
•	-30 °C
• vertical inetallation min	-50 C
vertical installation, min.	50 °C: Observe denating
vertical installation, max.	50 °C; Observe derating
	50 °C; Observe derating 5 000 m; restrictions for installation altitudes > 2 000 m, see ET 200SP

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	20 mm	
Height	73 mm	
Depth	58 mm	
Weights		
Weight, approx.	50 g	

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