



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

General information	
Product type designation	TM Pulse 2x24 V
HW functional status	From FS03
Firmware version	V1.0
<ul style="list-style-type: none"> FW update possible 	Yes
usable BaseUnits	BU type B1
Color code for module-specific color identification plate	CC40
Product function	
<ul style="list-style-type: none"> I&M data 	Yes; I&M 0
<ul style="list-style-type: none"> Isochronous mode 	Yes
Engineering with	
<ul style="list-style-type: none"> STEP 7 TIA Portal configurable/integrated from version 	V13 SP1 + HSP
<ul style="list-style-type: none"> STEP 7 configurable/integrated from version 	V5.5 SP4 and higher
<ul style="list-style-type: none"> PROFIBUS from GSD version/GSD revision 	GSD Revision 5
<ul style="list-style-type: none"> PROFINET from GSD version/GSD revision 	GSDML V2.31
Supply voltage	
Load voltage L+	
<ul style="list-style-type: none"> Rated value (DC) 	24 V
<ul style="list-style-type: none"> permissible range, lower limit (DC) 	19.2 V
<ul style="list-style-type: none"> permissible range, upper limit (DC) 	28.8 V
<ul style="list-style-type: none"> Short-circuit protection 	Yes
<ul style="list-style-type: none"> 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	
<ul style="list-style-type: none"> 24 V 	Yes; L+ (-0.8 V)
<ul style="list-style-type: none"> Short-circuit protection 	Yes; per module, electronic
<ul style="list-style-type: none"> Output current, max. 	300 mA
Power loss	
Power loss, typ.	1.7 W
Address area	
Address space per module	
<ul style="list-style-type: none"> Inputs 	16 byte; 8 per channel
<ul style="list-style-type: none"> Outputs 	24 byte; 12 per channel
Hardware configuration	
Automatic encoding	Yes

<ul style="list-style-type: none"> • Mechanical coding element 	Yes
<ul style="list-style-type: none"> • Type of mechanical coding element 	type C
Digital inputs	
Number of digital inputs	2; 1 per channel
Digital inputs, parameterizable	Yes
Input characteristic curve in accordance with IEC 61131, type 3	Yes
Digital input functions, parameterizable	
<ul style="list-style-type: none"> • Freely usable digital input 	Yes
<ul style="list-style-type: none"> • HW enable for digital output 	Yes
Input voltage	
<ul style="list-style-type: none"> • Type of input voltage 	DC
<ul style="list-style-type: none"> • Rated value (DC) 	24 V
<ul style="list-style-type: none"> • for signal "0" 	-5 ... +5 V
<ul style="list-style-type: none"> • for signal "1" 	+11 to +30V
<ul style="list-style-type: none"> • permissible voltage at input, min. 	-30 V; -5 V continuous, -30 V brief reverse polarity protection
<ul style="list-style-type: none"> • permissible voltage at input, max. 	30 V
Input current	
<ul style="list-style-type: none"> • for signal "1", typ. 	2.5 mA
Input delay (for rated value of input voltage)	
for standard inputs	
<ul style="list-style-type: none"> — parameterizable 	Yes; none / 0.05 / 0.1 / 0.4 / 0.8 / 1.6 / 3.2 / 12.8 / 20 ms
<ul style="list-style-type: none"> — at "0" to "1", min. 	4 µs; for parameterization "none"
<ul style="list-style-type: none"> — at "1" to "0", min. 	4 µs; for parameterization "none"
Digital outputs	
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
<ul style="list-style-type: none"> • Response threshold, typ. 	6.8 A with Standard output, 2 A with High Speed output
Limitation of inductive shutdown voltage to	-0.8 V
Controlling a digital input	Yes
Accuracy of pulse duration	±100 ppm ±0.5 µs with High Speed output, ±100 ppm ±9 µs with Standard output
minimum pulse duration	1.5 µs; With High Speed output, 10 µs with Standard output
Digital output functions, parameterizable	
<ul style="list-style-type: none"> • Freely usable digital output 	Yes
<ul style="list-style-type: none"> • PWM output 	Yes
<ul style="list-style-type: none"> — Number, max. 	2; 1 per channel
<ul style="list-style-type: none"> — Cycle duration, parameterizable 	Yes; Max. 85 s
<ul style="list-style-type: none"> — ON period, min. 	0 %
<ul style="list-style-type: none"> — ON period, max. 	100 %
<ul style="list-style-type: none"> — Resolution of the duty cycle 	0.0036 %; For S7 analog format, min. 20 ns
<ul style="list-style-type: none"> • Connection of a proportional valve 	Yes
<ul style="list-style-type: none"> • Dithering 	Yes
<ul style="list-style-type: none"> — Frequency adjustable 	Yes
<ul style="list-style-type: none"> — Amplitude adjustable 	Yes
<ul style="list-style-type: none"> • Current measurement 	Yes
<ul style="list-style-type: none"> • Current control 	Yes
<ul style="list-style-type: none"> • Connection of a DC motor 	Yes
<ul style="list-style-type: none"> • ON-delay 	Yes
<ul style="list-style-type: none"> • OFF-delay 	Yes
<ul style="list-style-type: none"> • Frequency output 	Yes
<ul style="list-style-type: none"> • Pulse train 	Yes
<ul style="list-style-type: none"> • Pulse output 	Yes
Switching capacity of the outputs	
<ul style="list-style-type: none"> • with resistive load, max. 	2 A
<ul style="list-style-type: none"> • on lamp load, max. 	10 W; 1 W with High Speed output

Load resistance range	
<ul style="list-style-type: none"> • lower limit • upper limit 	12 Ω; 240 ohm with High Speed output 12 kΩ
Output voltage	
<ul style="list-style-type: none"> • Type of output voltage • for signal "0", max. • for signal "1", min. 	DC 1 V 23.2 V; L+ (-0.8 V)
Output current	
<ul style="list-style-type: none"> • for signal "1" rated value 	2 A; 0.1 A with High Speed output, observe derating
Output delay with resistive load	
<ul style="list-style-type: none"> • "0" to "1", typ. • "0" to "1", max. • "1" to "0", typ. • "1" to "0", max. 	0 μs; With High Speed output, 4.5 μs with Standard output 0.8 μs; With High Speed output, 9 μs with Standard output 0 μs; With High Speed output, 4.5 μs with Standard output 0.8 μs; With High Speed output, 9 μs with Standard output
Parallel switching of two outputs	
<ul style="list-style-type: none"> • for uprating 	Yes
Switching frequency	
<ul style="list-style-type: none"> • with resistive load, max. • with inductive load, max. • on lamp load, max. 	100 kHz; With High Speed output, 10 kHz with standard output 100 kHz; With High Speed output, 10 kHz with standard output 10 Hz
Total current of the outputs	
<ul style="list-style-type: none"> • Current per channel, max. • Current per group, max. • Current per module, max. 	2 A 4 A 4 A
Isochronous mode	
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	
Diagnostics function	Yes
Substitute values connectable	Yes; Parameterizable
Alarms	
<ul style="list-style-type: none"> • Diagnostic alarm 	Yes
Diagnoses	
<ul style="list-style-type: none"> • Monitoring the supply voltage • Short-circuit 	Yes Yes
Diagnostics indication LED	
<ul style="list-style-type: none"> • Monitoring of the supply voltage (PWR-LED) • Channel status display • for module diagnostics 	Yes; green PWR LED Yes Yes; green/red DIAG LED
Integrated Functions	
Counter	No
Potential separation	
Potential separation channels	
<ul style="list-style-type: none"> • between the channels • between the channels and backplane bus 	No Yes
Isolation	
Isolation tested with	707 V DC (type test)
Standards, approvals, certificates	
Suitable for safety functions	No
Ambient conditions	
Ambient temperature during operation	
<ul style="list-style-type: none"> • horizontal installation, min. • horizontal installation, max. • vertical installation, min. • vertical installation, max. 	-30 °C 60 °C; Observe derating -30 °C 50 °C; Observe derating
Altitude during operation relating to sea level	
<ul style="list-style-type: none"> • Installation altitude above sea level, max. 	5 000 m; restrictions for installation altitudes > 2 000 m, see ET 200SP system manual

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
last modified:	12/28/2021 