



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

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"> <li>• Freely usable digital input</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• HW enable for digital output</li> </ul>	Yes
Input voltage	
<ul style="list-style-type: none"> <li>• Type of input voltage</li> </ul>	DC
<ul style="list-style-type: none"> <li>• Rated value (DC)</li> </ul>	24 V
<ul style="list-style-type: none"> <li>• for signal "0"</li> </ul>	-5 ... +5 V
<ul style="list-style-type: none"> <li>• for signal "1"</li> </ul>	+11 to +30V
<ul style="list-style-type: none"> <li>• permissible voltage at input, min.</li> </ul>	-30 V; -5 V continuous, -30 V brief reverse polarity protection
<ul style="list-style-type: none"> <li>• permissible voltage at input, max.</li> </ul>	30 V
Input current	
<ul style="list-style-type: none"> <li>• for signal "1", typ.</li> </ul>	2.5 mA
Input delay (for rated value of input voltage)	
for standard inputs	
<ul style="list-style-type: none"> <li>— parameterizable</li> </ul>	Yes; none / 0.05 / 0.1 / 0.4 / 0.8 / 1.6 / 3.2 / 12.8 / 20 ms
<ul style="list-style-type: none"> <li>— at "0" to "1", min.</li> </ul>	4 µs; for parameterization "none"
<ul style="list-style-type: none"> <li>— at "1" to "0", min.</li> </ul>	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"> <li>• Response threshold, typ.</li> </ul>	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"> <li>• Freely usable digital output</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• PWM output</li> </ul>	Yes
<ul style="list-style-type: none"> <li>— Number, max.</li> </ul>	2; 1 per channel
<ul style="list-style-type: none"> <li>— Cycle duration, parameterizable</li> </ul>	Yes; Max. 85 s
<ul style="list-style-type: none"> <li>— ON period, min.</li> </ul>	0 %
<ul style="list-style-type: none"> <li>— ON period, max.</li> </ul>	100 %
<ul style="list-style-type: none"> <li>— Resolution of the duty cycle</li> </ul>	0.0036 %; For S7 analog format, min. 20 ns
<ul style="list-style-type: none"> <li>• Connection of a proportional valve</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Dithering</li> </ul>	Yes
<ul style="list-style-type: none"> <li>— Frequency adjustable</li> </ul>	Yes
<ul style="list-style-type: none"> <li>— Amplitude adjustable</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Current measurement</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Current control</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Connection of a DC motor</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• ON-delay</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• OFF-delay</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Frequency output</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Pulse train</li> </ul>	Yes
<ul style="list-style-type: none"> <li>• Pulse output</li> </ul>	Yes
Switching capacity of the outputs	
<ul style="list-style-type: none"> <li>• with resistive load, max.</li> </ul>	2 A
<ul style="list-style-type: none"> <li>• on lamp load, max.</li> </ul>	10 W; 1 W with High Speed output
Load resistance range	

<ul style="list-style-type: none"> <li>• lower limit</li> <li>• upper limit</li> </ul>	12 Ω; 240 ohm with High Speed output 12 kΩ
<b>Output voltage</b>	
<ul style="list-style-type: none"> <li>• Type of output voltage</li> <li>• for signal "0", max.</li> <li>• for signal "1", min.</li> </ul>	DC 1 V 23.2 V; L+ (-0.8 V)
<b>Output current</b>	
<ul style="list-style-type: none"> <li>• for signal "1" rated value</li> </ul>	2 A; 0.1 A with High Speed output, observe derating
<b>Output delay with resistive load</b>	
<ul style="list-style-type: none"> <li>• "0" to "1", typ.</li> <li>• "0" to "1", max.</li> <li>• "1" to "0", typ.</li> <li>• "1" to "0", max.</li> </ul>	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
<b>Parallel switching of two outputs</b>	
<ul style="list-style-type: none"> <li>• for uprating</li> </ul>	Yes
<b>Switching frequency</b>	
<ul style="list-style-type: none"> <li>• with resistive load, max.</li> <li>• with inductive load, max.</li> <li>• on lamp load, max.</li> </ul>	100 kHz; With High Speed output, 10 kHz with standard output 100 kHz; With High Speed output, 10 kHz with standard output 10 Hz
<b>Total current of the outputs</b>	
<ul style="list-style-type: none"> <li>• Current per channel, max.</li> <li>• Current per group, max.</li> <li>• Current per module, max.</li> </ul>	2 A 4 A 4 A
<b>Isochronous mode</b>	
Bus cycle time (TDP), min.	250 μs; with 1 channel configuration, 375 μs with 2 channel configuration
Jitter, max.	1 μs; typically ±
<b>Interrupts/diagnostics/status information</b>	
Diagnostics function	Yes
Substitute values connectable	Yes; Parameterizable
<b>Alarms</b>	
<ul style="list-style-type: none"> <li>• Diagnostic alarm</li> </ul>	Yes
<b>Diagnoses</b>	
<ul style="list-style-type: none"> <li>• Monitoring the supply voltage</li> <li>• Short-circuit</li> </ul>	Yes Yes
<b>Diagnostics indication LED</b>	
<ul style="list-style-type: none"> <li>• Monitoring of the supply voltage (PWR-LED)</li> <li>• Channel status display</li> <li>• for module diagnostics</li> </ul>	Yes; green PWR LED Yes Yes; green/red DIAG LED
<b>Integrated Functions</b>	
Counter	No
<b>Potential separation</b>	
<b>Potential separation channels</b>	
<ul style="list-style-type: none"> <li>• between the channels</li> <li>• between the channels and backplane bus</li> </ul>	No Yes
<b>Isolation</b>	
Isolation tested with	707 V DC (type test)
<b>Standards, approvals, certificates</b>	
Suitable for safety functions	No
<b>Ambient conditions</b>	
<b>Ambient temperature during operation</b>	
<ul style="list-style-type: none"> <li>• horizontal installation, min.</li> <li>• horizontal installation, max.</li> <li>• vertical installation, min.</li> <li>• vertical installation, max.</li> </ul>	-30 °C 60 °C; Observe derating -30 °C 50 °C; Observe derating
<b>Altitude during operation relating to sea level</b>	
<ul style="list-style-type: none"> <li>• Installation altitude above sea level, max.</li> </ul>	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
<b>last modified:</b>	2/6/2021 