



SIMATIC ET 200SP, F-TM Count 1x1Vpp sin/cos HF, PROFIsafe, 1 channel, for incremental rotary encoders, sin/cos 1 Vpp, suitable for BU type A0, pack quantity: 1 unit

General information	
Product type designation	F-TM Count 1x1Vpp sin/cos HF
Firmware version	V1.0
<ul style="list-style-type: none"> <li>FW update possible</li> </ul>	Yes
usable BaseUnits	BU type A0
Color code for module-specific color identification plate	CC01
Product function	
<ul style="list-style-type: none"> <li>I&amp;M data</li> </ul>	Yes; I&M0 to I&M3
Engineering with	
<ul style="list-style-type: none"> <li>STEP 7 TIA Portal configurable/integrated from version</li> </ul>	Step 7 V17 or higher: use GSDML for prior versions
Supply voltage	
Rated value (DC)	24 V
power supply according to NEC Class 2 required	No
Load voltage L+	
<ul style="list-style-type: none"> <li>Rated value (DC)</li> <li>permissible range, lower limit (DC)</li> <li>permissible range, upper limit (DC)</li> <li>Reverse polarity protection</li> </ul>	24 V 20.4 V 28.8 V Yes
Input current	
Current consumption, max.	50 mA; without load, 150 mA with 300 mA encoder load
Encoder supply	
5 V encoder supply	
<ul style="list-style-type: none"> <li>5 V</li> <li>Short-circuit protection</li> <li>Output current, max.</li> </ul>	Yes; 5.1 V $\pm$ 3.5 % Yes; Electronic overload protection; no protection on applying a normal or counter voltage. 300 mA
Power loss	
Power loss, typ.	1.25 W
Address area	
Address space per module	
<ul style="list-style-type: none"> <li>Inputs</li> <li>Outputs</li> </ul>	14 byte; S7-300/400F CPU, 13 byte 5 byte; S7-300/400F CPU, 4 byte
Hardware configuration	
Automatic encoding	Yes
<ul style="list-style-type: none"> <li>Electronic coding element type H</li> </ul>	Yes
Digital inputs	
Number of digital inputs	1; (counter input)
Digital inputs, parameterizable	Yes
Digital input functions, parameterizable	

• Gate start/stop	Yes
• Counter for incremental encoder	Yes
— Number, max.	1
<b>Input voltage</b>	
• Type of input voltage	sin/cos 1 Vpp
<b>Input delay (for rated value of input voltage)</b>	
• Minimum pulse width for program reactions	2.5 µs for parameterization "none"
<b>for technological functions</b>	
— parameterizable	Yes
<b>Cable length</b>	
• shielded, max.	150 m
<b>Encoder</b>	
<b>Connectable encoders</b>	
• Incremental encoder (symmetrical)	Yes; up to 200 kHz depending on cable type and length
<b>Encoder signals, incremental encoder (symmetrical)</b>	
• Input voltage	1 Vpp, centered at 2.5 V offset
• Input frequency, max.	200 kHz
• Counting frequency, max.	800 kHz; with quadruple evaluation
• Cable length, shielded, max.	150 m
• Incremental encoder with A/B tracks, 90° phase offset	Yes; sin/cos
• Incremental encoder with A/B tracks, 90° phase offset and zero track	Yes; sin/cos/zero
<b>Interfaces</b>	
Number of RS 485 interfaces	0
<b>Interrupts/diagnostics/status information</b>	
Diagnostics function	Yes; see chapter "Diagnostic Messages" in the manual
<b>Alarms</b>	
• Diagnostic alarm	Yes
• Hardware interrupt	No
<b>Diagnoses</b>	
• Monitoring the supply voltage	Yes
• Wire-break	Yes
• Short-circuit	Yes
• A/B transition error at incremental encoder	Yes
<b>Diagnostics indication LED</b>	
• RUN LED	Yes; green LED
• ERROR LED	Yes; red LED
• Monitoring of the supply voltage (PWR-LED)	Yes; green LED
• Channel status display	Yes; green LED
• for channel diagnostics	Yes; red LED
• for module diagnostics	Yes; green/red DIAG LED
<b>Integrated Functions</b>	
<b>Counter</b>	
• Number of counters	1
• Counting frequency, max.	800 kHz; with quadruple evaluation
<b>Safety monitoring functions</b>	
• Safe Operating Stop (SOS)	Yes
• Safely-Limited Speed (SLS)	Yes
• Safe Direction (SDI)	Yes
• Safe Speed Monitor (SSM)	Yes
<b>Counting functions</b>	
• Continuous counting	Yes
• Counter response parameterizable	Yes
• Software gate	Yes
• Counting range, parameterizable	Yes
<b>Measuring functions</b>	
<b>Measuring range</b>	
— Frequency measurement, min.	0.04 Hz
— Frequency measurement, max.	800 kHz; with quadruple evaluation

— Cycle duration measurement, min.	1 µs	
— Cycle duration measurement, max.	25 s	
— Velocity measurement, min.	0 (speed in configured units per selected time basis - speed*1 000)	
— Velocity measurement, max.	2 147 483 (speed in configured units per selected time basis - speed*1 000)	
<b>Accuracy</b>		
— Frequency measurement	up to 100 ppm; depending on measuring interval and signal evaluation; at low frequency external noise may have an effect on accuracy (reference the graph in 2.2.3)	
— Cycle duration measurement	up to 100 ppm; depending on measuring interval and signal evaluation; at low frequency external noise may have an effect on accuracy (reference the graph in 2.2.3)	
— Velocity measurement	up to 100 ppm; depending on measuring interval and signal evaluation; at low frequency external noise may have an effect on accuracy (reference the graph in 2.2.3)	
<b>Potential separation</b>		
<b>Potential separation channels</b>		
• between the channels	No; Only one channel is available	
• between the channels and backplane bus	Yes	
• Between the channels and load voltage L+	No	
• between the channels and the power supply of the electronics	No	
<b>Isolation</b>		
Isolation tested with	707 V DC (type test)	
<b>Standards, approvals, certificates</b>		
Suitable for safety functions	Yes	
<b>Ecological footprint</b>		
• environmental product declaration	Yes	
<b>Global warming potential</b>		
— global warming potential, (total) [CO2 eq]	88.3 kg	
— global warming potential, (during production) [CO2 eq]	13.1 kg	
— global warming potential, (during operation) [CO2 eq]	76.6 kg	
— global warming potential, (after end of life cycle) [CO2 eq]	-1.37 kg	
<b>Highest safety class achievable in safety mode</b>		
• Performance level according to ISO 13849-1	Cat. 4, PLe	
• SIL acc. to IEC 61508	SIL 3	
<b>Probability of failure (for service life of 20 years and repair time of 100 hours)</b>		
— low demand mode: PFDavg in accordance with SIL1	< 2.00E-03 signal monitoring disabled	
— Low demand mode: PFDavg in accordance with SIL3	< 3.00E-05	
— high demand/continuous mode: PFH in accordance with SIL1	< 3.00E-08 1/h signal monitoring disabled	
— High demand/continuous mode: PFH in accordance with SIL3	< 1.00E-09 1/h	
<b>Ambient conditions</b>		
<b>Ambient temperature during operation</b>		
• horizontal installation, min.	0 °C	
• horizontal installation, max.	60 °C	
• vertical installation, min.	0 °C	
• vertical installation, max.	55 °C	
<b>Altitude during operation relating to sea level</b>		
• Ambient air temperature-barometric pressure-altitude	On request: Installation altitudes greater than 2 000 m	
<b>Dimensions</b>		
Width	15 mm	
Height	73 mm	
Depth	58 mm	
<b>Weights</b>		
Weight, approx.	42 g	
<b>Classifications</b>		
	<b>Version</b>	<b>Classification</b>

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**



[Manufacturer Declaration](#)

[Miscellaneous](#)



**General Product Approval      For use in hazardous locations      Functional Safety**

[KC](#)

[FM](#)



[CCC-Ex](#)

[Type Examination Certificate](#)

**Functional Safety      Maritime application**

[TUEV](#)



[NK / Nippon Kaiji Kyokai](#)

**Maritime application      Industrial Communication**



[CCS \(China Classification Society\)](#)



[PROFIsafe](#)

last modified:

10/23/2025