



SIMATIC S7-300, Counter module FM 350-1 for S7-300, Counter functions up to 500 kHz 1 channel for connection of 5 V and 24 V incremental encoders  
Isochronous mode; Measuring range types incl. configuration package on CD

| Supply voltage                                          |                                                              |
|---------------------------------------------------------|--------------------------------------------------------------|
| Auxiliary voltage 1L+, load voltage 2L+                 |                                                              |
| • Rated value (DC)                                      | 24 V                                                         |
| • permissible range, lower limit (DC)                   | 20.4 V; Dynamic 18.5 V                                       |
| • permissible range, upper limit (DC)                   | 28.8 V; dynamic 30.2 V                                       |
| Input current                                           |                                                              |
| from load voltage 1L+ (without load), max.              | 40 mA                                                        |
| from backplane bus 5 V DC, max.                         | 160 mA                                                       |
| Encoder supply                                          |                                                              |
| 5 V encoder supply                                      |                                                              |
| • 5 V                                                   | Yes; 5.2 V $\pm 2\%$                                         |
| • Output current, max.                                  | 300 mA                                                       |
| 24 V encoder supply                                     |                                                              |
| • 24 V                                                  | Yes; 1L+ (-3 V)                                              |
| • Output current, max.                                  | 400 mA                                                       |
| Power loss                                              |                                                              |
| Power loss, typ.                                        | 4.5 W                                                        |
| Digital inputs                                          |                                                              |
| Number of digital inputs                                | 3                                                            |
| Functions                                               | 1 for gate start, 1 for gate stop, 1 for setting the counter |
| Input voltage                                           |                                                              |
| • for signal "0"                                        | -28.8 ... +5V                                                |
| • for signal "1"                                        | +11 to +28.8V                                                |
| Input current                                           |                                                              |
| • for signal "1", typ.                                  | 9 mA                                                         |
| Digital outputs                                         |                                                              |
| Number of digital outputs                               | 2                                                            |
| Short-circuit protection                                | Yes; Clocked electronically                                  |
| Limitation of inductive shutdown voltage to             | 2L+ (-39 V)                                                  |
| Output voltage                                          |                                                              |
| • for signal "0", max.                                  | 3 V                                                          |
| • for signal "1", min.                                  | 2L+ (-1,5 V)                                                 |
| Output current                                          |                                                              |
| • for signal "1" rated value                            | 0.5 A                                                        |
| • for signal "1" permissible range for 0 to 60 °C, min. | 5 mA                                                         |
| • for signal "1" permissible range for 0 to 60 °C, max. | 0.6 A                                                        |
| Output delay with resistive load                        |                                                              |
| • "0" to "1", max.                                      | 300 $\mu$ s                                                  |
| Encoder                                                 |                                                              |
| Connectable encoders                                    |                                                              |

|                                                                                                                                                                                                                                           |                                                                                               |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Incremental encoder (symmetrical)</li> <li>• Incremental encoder (asymmetrical)</li> <li>• 24 V initiator</li> <li>• 24 V directional element</li> </ul>                                         | Yes; With 2 pulse trains offset by 90°<br>Yes<br>Yes<br>Yes; 1 pulse train, 1 direction level |
| <b>Counter</b>                                                                                                                                                                                                                            |                                                                                               |
| Number of counter inputs                                                                                                                                                                                                                  | 1; 32 bit or ±31 bit                                                                          |
| <b>Counter input 5 V</b>                                                                                                                                                                                                                  |                                                                                               |
| <ul style="list-style-type: none"> <li>• Type</li> <li>• Terminating resistor</li> <li>• Differential input voltage</li> <li>• Counting frequency, max.</li> </ul>                                                                        | RS 422<br>220 Ω<br>1,3 V<br>500 kHz                                                           |
| <b>Counter input 24 V</b>                                                                                                                                                                                                                 |                                                                                               |
| <ul style="list-style-type: none"> <li>• Input voltage for signal "0"</li> <li>• Input voltage for signal "1"</li> <li>• Input current for signal "1", typ.</li> <li>• Counting frequency, max.</li> <li>• Minimum pulse width</li> </ul> | -28.8 ... +5V<br>+11 to +28.8V<br>9 mA<br>200 kHz<br>2.5 μs                                   |
| <b>Potential separation</b>                                                                                                                                                                                                               |                                                                                               |
| <b>Potential separation digital inputs</b>                                                                                                                                                                                                |                                                                                               |
| <ul style="list-style-type: none"> <li>• between the channels and backplane bus</li> </ul>                                                                                                                                                | Yes; Optocoupler                                                                              |
| <b>Potential separation digital outputs</b>                                                                                                                                                                                               |                                                                                               |
| <ul style="list-style-type: none"> <li>• between the channels and backplane bus</li> </ul>                                                                                                                                                | Yes; Optocoupler                                                                              |
| <b>Potential separation counter</b>                                                                                                                                                                                                       |                                                                                               |
| <ul style="list-style-type: none"> <li>• between the channels and backplane bus</li> </ul>                                                                                                                                                | Yes; Optocoupler                                                                              |
| <b>Isolation</b>                                                                                                                                                                                                                          |                                                                                               |
| Isolation tested with                                                                                                                                                                                                                     | 500 V                                                                                         |
| <b>connection method</b>                                                                                                                                                                                                                  |                                                                                               |
| required front connector                                                                                                                                                                                                                  | 1x 20-pin                                                                                     |
| <b>Dimensions</b>                                                                                                                                                                                                                         |                                                                                               |
| Width                                                                                                                                                                                                                                     | 40 mm                                                                                         |
| Height                                                                                                                                                                                                                                    | 125 mm                                                                                        |
| Depth                                                                                                                                                                                                                                     | 120 mm                                                                                        |
| <b>Weights</b>                                                                                                                                                                                                                            |                                                                                               |
| Weight, approx.                                                                                                                                                                                                                           | 250 g                                                                                         |

**last modified:** 3/12/2024 