



SIMATIC S7-300, FM 451 POSITIONING MODULE FOR RAPID/  
CREEP FEED DRIVE 3 CHANNELS INCL. CONFIG. PACKAGE ON  
CD

Figure similar

Supply voltage	
Rated value (DC)	24 V
Input current	
Current consumption, typ.	550 mA
Encoder supply	
5 V encoder supply	
• 5 V	Yes
• Output current, max.	210 mA
• Cable length, max.	35 m; at max. 210 mA
24 V encoder supply	
• 24 V	Yes
• Output current, max.	300 mA
• Cable length, max.	100 m; at max. 300 mA
Absolute encoder (SSI) encoder supply	
• Absolute encoder (SSI)	Yes
• Type of output voltage	24 V DC
• Output current, max.	300 mA
• Cable length, max.	300 m; At max. 156 kbit/s
Power loss	
Power loss, typ.	3.6 W
Digital inputs	
Number of digital inputs	12; 4 per axis

Functions	Reference cams, reversing cams, flying actual value setting, start/stop positioning
<b>Input voltage</b>	
<ul style="list-style-type: none"> <li>• Rated value (DC)</li> <li>• for signal "0"</li> <li>• for signal "1"</li> </ul>	24 V -3 to +5V +11 to +30V
<b>Input current</b>	
<ul style="list-style-type: none"> <li>• for signal "1", typ.</li> </ul>	6 mA
<b>for 2-wire sensor</b>	
<ul style="list-style-type: none"> <li>— for signal "1", typ.</li> </ul>	30 mA
<b>Digital outputs</b>	
Number of digital outputs	12; 4 per axis
Functions	Rapid traverse, creep, run right, run left
short-circuit protection	Yes
<b>Output voltage</b>	
<ul style="list-style-type: none"> <li>• for signal "1", min.</li> </ul>	UP -3 V
<b>Output current</b>	
<ul style="list-style-type: none"> <li>• for signal "1" permissible range for 0 to 55 °C, max.</li> <li>• for signal "0" residual current, max.</li> </ul>	600 mA; with UPmax 0.5 mA
<b>Encoder</b>	
<b>Connectable encoders</b>	
<ul style="list-style-type: none"> <li>• Incremental encoder (symmetrical)</li> <li>• Incremental encoder (asymmetrical)</li> <li>• Absolute encoder (SSI)</li> </ul>	Yes Yes Yes
<b>Encoder signals, incremental encoder (symmetrical)</b>	
<ul style="list-style-type: none"> <li>• Trace mark signals</li> <li>• Zero mark signal</li> <li>• Input signal</li> <li>• Input frequency, max.</li> </ul>	A, notA, B, notB N, notN 5 V difference signal (phys. RS 422) 1 MHz
<b>Encoder signals, incremental encoder (asymmetrical)</b>	
<ul style="list-style-type: none"> <li>• Trace mark signals</li> <li>• Zero mark signal</li> <li>• Input voltage</li> <li>• Input frequency, max.</li> <li>• Cable length, shielded, max.</li> </ul>	A, B N 24 V 50 kHz; for 25 m cable length, 25 kHz for 100 m cable length 100 m
<b>Encoder signals, absolute encoder (SSI)</b>	
<ul style="list-style-type: none"> <li>• Input signal</li> <li>• Data signal</li> <li>• Clock signal</li> <li>• Telegram length, parameterizable</li> </ul>	5 V difference signal (phys. RS 422) DATA, notDATA CL, notCL 13 or 25 bit serial

- Clock frequency, max. 1.25 MHz
- Gray code 1
- Cable length, shielded, max. 300 m; At max. 156 kbit/s

### Potential separation

#### Potential separation digital inputs

- Potential separation digital inputs Yes

#### Potential separation digital outputs

- Potential separation digital outputs Yes

### Degree and class of protection

#### Degree of protection acc. to EN 60529

- IP20 Yes

### Ambient conditions

#### Ambient temperature during operation

- min. 0 °C
- max. 55 °C

#### Ambient temperature during storage/transportation

- min. -40 °C
- max. 70 °C

#### Relative humidity

- Humidity class F Yes

### Connection method

required front connector 1x 48-pin

### Dimensions

Width 50 mm  
 Height 290 mm  
 Depth 210 mm

### Weights

Weight, approx. 1 300 g

**last modified:** 11.06.2015