

SIMOTION Drive-based Control Unit D445-2 DP/PN; programmable motion controller; HIGH performance; interfaces: 12 DI, 16 DI/DO, 6 DRIVE-CLiQ, 2 PROFIBUS, 3 PROFINET ports, 2 ethernet, 2 USB, 1 option slot; incl. dual fan / battery module and battery



Article number	
Product brand name	SIMOTION
Product type designation	D445-2 DP/PN
Performance class for motion control system	HIGH Performance
Version of the motion control system	Multiple-axis system

PLC and motion control performance	
Number of axes / maximum	64
Minimum PROFIBUS cycle clock	1 ms
Minimum PROFINET send cycle clock	0.25 ms
Minimum interpolator cycle clock	0.25 ms
Minimum servo cycle clock	0.25 ms
<ul style="list-style-type: none"> <li>• note</li> </ul>	0.25 ms for SERVO or SERVO-FAST

Integrated drive control	
Maximum number of axes for integrated drive control	
<ul style="list-style-type: none"> <li>• servo</li> </ul>	6
<ul style="list-style-type: none"> <li>• vector</li> </ul>	6
<ul style="list-style-type: none"> <li>• V/f</li> </ul>	12
<ul style="list-style-type: none"> <li>• note</li> </ul>	Alternative control modes; drive control based on SINAMICS S120 CU320-2, firmware version V4.x/V5.x

Memory	
RAM (work memory)	190 Mbyte
Additional RAM work memory for Java applications	20 Mbyte
RAM disk (load memory)	68 Mbyte
Retentive memory	512 kbyte
Persistent memory (user data on CF)	300 Mbyte

Communication	
Interfaces	
<ul style="list-style-type: none"> <li>• DRIVE-CLiQ</li> <li>• USB</li> <li>• Industrial Ethernet</li> <li>• PROFIBUS <ul style="list-style-type: none"> <li>— note</li> </ul> </li> <li>• PROFINET <ul style="list-style-type: none"> <li>— note</li> </ul> </li> </ul>	<p>6</p> <p>2</p> <p>2</p> <p>2</p> <p>Equidistant and isochronous; Can be configured as master or slave</p> <p>1</p> <p>1 interface with 3 ports onboard 1 interface with 4 ports optional via CBE30-2 functionality: - supports PROFINET / EtherNet/IP IO with IRT and RT - configurable as PROFINET / EtherNet/IP IO Control and/or device - supports media redundancy (MRP and MRPD)</p>

General technical data	
Fan	Double fan/battery module included in scope of delivery
DC supply voltage	
<ul style="list-style-type: none"> <li>• rated value</li> <li>• minimum</li> <li>• maximum</li> </ul>	<p>24 V</p> <p>20.4 V</p> <p>28.8 V</p>
Consumed current / typical	1 900 mA
<ul style="list-style-type: none"> <li>• Note</li> </ul>	with no load on inputs/outputs, no 24 V supply via DRIVE-CLiQ and PROFIBUS interface
Making current, typ.	5 A
Power loss, typ.	46 W
Ambient temperature, during	
<ul style="list-style-type: none"> <li>• long-term storage</li> <li>• transport</li> <li>• operation</li> <li>— note</li> </ul>	<p>-25 ... +55 °C</p> <p>-40 ... +70 °C</p> <p>0 ... 55 °C</p> <p>Maximum installation altitude 4000 m (13124 ft) above sea level. Above an altitude of 2000 m (6562 ft), the maximum ambient temperature decreases by 7 °C (12.6 °F) per 1000 m (3281 ft).</p>
Relative humidity	
<ul style="list-style-type: none"> <li>• during operation</li> <li>• without condensation, tested acc. to IEC 60068-2-38</li> </ul>	<p>5 ... 95 %</p> <p>Wert fehlt</p>
Product property / Conformal coating	No

Resistance	<ul style="list-style-type: none"> <li>• to biologically active substances, / conformity acc. to EN 60721-3-3</li> <li>• to chemically active substances, / conformity acc. to EN 60721-3-3</li> </ul>	No
Air pressure		620 ... 1 060 hPa
Degree of protection		IP20 / UL open type
Height		380 mm
Width		50 mm
Depth		270 mm
• Note		When the spacer is removed 230 mm (9.05 in) deep
Net weight		4 300 g

### Digital inputs

Number of digital inputs		12
DC input voltage	<ul style="list-style-type: none"> <li>• rated value</li> <li>• for signal "1"</li> <li>• for signal "0"</li> </ul>	24 V 15 ... 30 V -3 ... +5 V
Electrical isolation	• note	Yes Yes, in groups of 6
Current consumption for "1" signal level, typ.		9 mA
Input delay time for	<ul style="list-style-type: none"> <li>• signal "0" → "1", typ.</li> <li>• signal "1" → "0", typ.</li> </ul>	50 µs 150 µs

### Digital inputs/outputs

Number of digital I/Os		16
Parameterization possibility of the digital I/Os		can be parameterized - as DI - as DO - as probe input (max. 16) - as cam output (max. 8)

### If used as an input

DC input voltage	<ul style="list-style-type: none"> <li>• rated value</li> <li>• for signal "1"</li> <li>• for signal "0"</li> </ul>	24 V 15 ... 30 V -3 ... +5 V
Electrical isolation		No
Current consumption for "1" signal level, typ.		9 mA
Input delay time for	<ul style="list-style-type: none"> <li>• signal "0" → "1", typ.</li> <li>• signal "1" → "0", typ.</li> </ul>	5 µs 50 µs
Measuring input / reproducibility		5 µs
Measuring input / resolution		1 µs

### If used as an output

Load voltage	
<ul style="list-style-type: none"> <li>• rated value</li> <li>• minimum</li> <li>• maximum</li> </ul>	<p>24 V</p> <p>20.4 V</p> <p>28.8 V</p>
Electrical isolation	No
Current carrying capacity for each output, max.	500 mA
Leakage current, max.	2 mA
Output delay for	
<ul style="list-style-type: none"> <li>• signal "0" → "1", typ.</li> <li>• signal "0" → "1", max.</li> <li>• signal "1" → "0", typ.</li> <li>• signal "1" → "0", max.</li> <li>— note</li> </ul>	<p>150 μs</p> <p>400 μs</p> <p>75 μs</p> <p>150 μs</p> <p>Data for Vcc = 24 V; load 48 Ohm; "1" = 90 % VOut, "0" = 10 % VOut</p>
Cam output	
<ul style="list-style-type: none"> <li>• reproducibility</li> <li>• resolution</li> </ul>	<p>10 μs</p> <p>1 μs</p>
Switching frequency of the outputs for	
<ul style="list-style-type: none"> <li>• resistive load, max.</li> <li>• inductive load, max.</li> <li>• lamp load, max.</li> </ul>	<p>4 kHz</p> <p>2 Hz</p> <p>11 Hz</p>
Short-circuit protection	Yes

#### Additional technical data

Back-up of non-volatile data	
<ul style="list-style-type: none"> <li>• of retentive data</li> <li>• of real-time clock, min.</li> <li>• note</li> </ul>	<p>unlimited buffer duration</p> <p>4 d</p> <p>longer buffer duration of the real-time clock using a battery inserted in the double fan/battery module</p>
Approvals	
<ul style="list-style-type: none"> <li>• USA</li> <li>• Canada</li> <li>• Australia</li> <li>• Korea</li> <li>• Russia, Belarus and Kazakhstan</li> </ul>	<p>cULus</p> <p>cULus</p> <p>RCM (formerly C-Tick)</p> <p>KCC</p> <p>EAC</p>