The OMEGA® CNi16 is the popular ¼ DIN size (48 mm²) controller. It is available with a single (model CNi16) or dual display (model CNi16D) that displays a setpoint along with the process value. The CNi16 display can be programmed to change color between GREEN, AMBER, and RED at any setpoint or alarm point. The CNi16 is the first ¼ DIN controller with the option of both RS232 and RS485 in 1 instrument with straightforward OMEGA® ASCII protocol. And of course the CNi16 is the first ¼ DIN controller that can connect directly to an Ethernet network and features an embedded Web server. OMEGA® provides free configuration and data acquisition software downloaded off of the Web.

The CNi16 enclosure has a NEMA 4 (IP65) rated front bezel. The electronics are removable from the front panel.
### Options

<table>
<thead>
<tr>
<th>Ordering Suffix</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-AL</td>
<td>Limit alarm version (alarms only, no PID control)(^*)(^4)</td>
</tr>
<tr>
<td>-SM</td>
<td>Simplified menu (on/off control or alarms, no PID)(^*)(^5)</td>
</tr>
</tbody>
</table>

### Network Options

<table>
<thead>
<tr>
<th>Network Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>-EIT</td>
<td>Ethernet with embedded Web server(^*)(^6)</td>
</tr>
<tr>
<td>-C24</td>
<td>Isolated RS232 and RS485/422, 300 to 19.2 Kb(^*)(^2)</td>
</tr>
<tr>
<td>-C4EIT</td>
<td>Ethernet with embedded Web server + isolated RS485/422 hub for up to 31 devices(^<em>)(^8)(^</em>)(^6)</td>
</tr>
</tbody>
</table>

### Power Supply

<table>
<thead>
<tr>
<th>Power Supply</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-DC</td>
<td>12 to 36 Vdc, 24 Vac(^*)(^4)</td>
</tr>
</tbody>
</table>

### Factory Setup

<table>
<thead>
<tr>
<th>Factory Setup</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-FS</td>
<td>Factory setup and configuration</td>
</tr>
<tr>
<td>-FS(RTD-1N)</td>
<td>Customized CNiS model for MIL-T-7990B nickel RTD input, 0 to 200°C (32 to 392°F)</td>
</tr>
<tr>
<td>-FS(RTD-2N)</td>
<td>Customized CNiS model for MIL-T-7990B nickel RTD input, -40 to 300°C (-40 to 572°F)</td>
</tr>
</tbody>
</table>

### Software (Requires Network Option)

<table>
<thead>
<tr>
<th>OPC-SERVER LICENSE</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPC server/driver software license</td>
<td></td>
</tr>
</tbody>
</table>

---

\(^1\) Ethernet options are available for the CNi16D and CNiS16D controllers only.

\(^2\) “-DC”, “-C24”, and “-C4EIT” not available with excitation.

\(^3\) Analog output (option 5) is not available with “-AL” units or CNi16A models.

\(^4\) 20 to 36 Vdc for CNi16D, CNi16D-C4EIT, CNi16D-EIT and CNi16A.

\(^5\) “-SM” option not available on CNi16S or CNi16A models.

\(^6\) Ethernet options are not available for CNi16A models.

\(^7\) For CNi16A0x-AL: one alarm and one analog retransmission.

---

To Order

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Output 1</th>
<th>Output 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNi1633</td>
<td>Relay</td>
<td>Relay</td>
</tr>
<tr>
<td>CNi1644</td>
<td>DC pulse</td>
<td>DC pulse</td>
</tr>
<tr>
<td>CNi1643</td>
<td>DC pulse</td>
<td>Relay</td>
</tr>
<tr>
<td>CNi1642</td>
<td>DC pulse</td>
<td>0.5 A SSR</td>
</tr>
<tr>
<td>CNi1622</td>
<td>0.5 A SSR</td>
<td>0.5 A SSR</td>
</tr>
<tr>
<td>CNi1623</td>
<td>0.5 A SSR</td>
<td>Relay</td>
</tr>
<tr>
<td>CNi1624</td>
<td>0.5 A SSR</td>
<td>DC pulse</td>
</tr>
<tr>
<td>CNi1653</td>
<td>Analog</td>
<td>Relay</td>
</tr>
<tr>
<td>CNi1654</td>
<td>Analog</td>
<td>DC pulse</td>
</tr>
<tr>
<td>CNi1652</td>
<td>Analog</td>
<td>0.5 A SSR</td>
</tr>
</tbody>
</table>

### Single Display with 2 Control Outputs

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Output 1</th>
<th>Output 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNi16D33</td>
<td>Relay</td>
<td>Relay</td>
</tr>
<tr>
<td>CNi16D44</td>
<td>DC pulse</td>
<td>DC pulse</td>
</tr>
<tr>
<td>CNi16D43</td>
<td>DC pulse</td>
<td>Relay</td>
</tr>
<tr>
<td>CNi16D42</td>
<td>DC pulse</td>
<td>0.5 A SSR</td>
</tr>
<tr>
<td>CNi16D22</td>
<td>0.5 A SSR</td>
<td>0.5 A SSR</td>
</tr>
<tr>
<td>CNi16D23</td>
<td>0.5 A SSR</td>
<td>Relay</td>
</tr>
<tr>
<td>CNi16D24</td>
<td>0.5 A SSR</td>
<td>DC pulse</td>
</tr>
<tr>
<td>CNi16D53</td>
<td>Analog</td>
<td>Relay</td>
</tr>
<tr>
<td>CNi16D54</td>
<td>Analog</td>
<td>DC pulse</td>
</tr>
<tr>
<td>CNi16D52</td>
<td>Analog</td>
<td>0.5 A SSR</td>
</tr>
</tbody>
</table>

### Single Display Strain/Process Input with 2 Control Outputs

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Output 1</th>
<th>Output 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNi1633</td>
<td>Relay</td>
<td>Relay</td>
</tr>
<tr>
<td>CNi1644</td>
<td>DC pulse</td>
<td>DC pulse</td>
</tr>
<tr>
<td>CNi1643</td>
<td>DC pulse</td>
<td>Relay</td>
</tr>
<tr>
<td>CNi1642</td>
<td>DC pulse</td>
<td>0.5 A SSR</td>
</tr>
<tr>
<td>CNi1622</td>
<td>0.5 A SSR</td>
<td>0.5 A SSR</td>
</tr>
<tr>
<td>CNi1623</td>
<td>0.5 A SSR</td>
<td>Relay</td>
</tr>
<tr>
<td>CNi1624</td>
<td>0.5 A SSR</td>
<td>DC pulse</td>
</tr>
<tr>
<td>CNi1653</td>
<td>Analog</td>
<td>Relay</td>
</tr>
<tr>
<td>CNi1654</td>
<td>Analog</td>
<td>DC pulse</td>
</tr>
<tr>
<td>CNi1652</td>
<td>Analog</td>
<td>0.5 A SSR</td>
</tr>
</tbody>
</table>

### Single Display with 2 Control Outputs and Isolated Analog Output

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Output 1</th>
<th>Output 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNi16A33</td>
<td>Relay</td>
<td>Relay</td>
</tr>
<tr>
<td>CNi16A24</td>
<td>0.5 A SSR</td>
<td>DC pulse</td>
</tr>
<tr>
<td>CNi16A42</td>
<td>DC pulse</td>
<td>0.5 A SSR</td>
</tr>
<tr>
<td>CNi16A43</td>
<td>DC pulse</td>
<td>Relay</td>
</tr>
</tbody>
</table>

### Dual Display Strain/Process Input with 2 Control Outputs

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Output 1</th>
<th>Output 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CNi16D33</td>
<td>Relay</td>
<td>Relay</td>
</tr>
<tr>
<td>CNi16D44</td>
<td>DC pulse</td>
<td>DC pulse</td>
</tr>
<tr>
<td>CNi16D43</td>
<td>DC pulse</td>
<td>Relay</td>
</tr>
<tr>
<td>CNi16D42</td>
<td>DC pulse</td>
<td>0.5 A SSR</td>
</tr>
<tr>
<td>CNi16D22</td>
<td>0.5 A SSR</td>
<td>0.5 A SSR</td>
</tr>
<tr>
<td>CNi16D23</td>
<td>0.5 A SSR</td>
<td>Relay</td>
</tr>
<tr>
<td>CNi16D24</td>
<td>0.5 A SSR</td>
<td>DC pulse</td>
</tr>
<tr>
<td>CNi16D53</td>
<td>Analog</td>
<td>Relay</td>
</tr>
<tr>
<td>CNi16D54</td>
<td>Analog</td>
<td>DC pulse</td>
</tr>
<tr>
<td>CNi16D52</td>
<td>Analog</td>
<td>0.5 A SSR</td>
</tr>
</tbody>
</table>

* Comes complete with operator’s manual.

**Ordering Examples:** CNi1633, temperature/process controller, output 1 relay, output 2 relay: single display, 90 to 240 Vac power.

CNi1643, strain/process controller, output 1 DC pulse, output 2 relay, single display, 90 to 240 Vac power.
Universal Temperature and Process Input (DPi/CNi Models)
Accuracy: ±0.5°C temp; 0.03% rdg
Resolution: 1°/0.1°; 10 μV process
Temperature Stability:
RTD: 0.04°C/C
TC @ 25°C (77°F): 0.05°C/C
Cold Junction Compensation
Process: 50 ppm/C
NMRR: 60 dB
CMRR: 120 dB
A/D Conversion: Dual slope
Reading Rate: 3 samples/s
Digital Filter: Programmable
Input Types: Thermocouple, RTD, analog voltage, analog current

Thermocouple Voltages Input:
0 to 100 mVdc, 0 to 1 Vdc, 0 to 10 Vdc
Analog voltage and current Input Types:
Digital Filter: 3 samples/s
Dual slope
CMRR:
NMRR:
Temperature Stability:
Resolution:
Accuracy:
Input (DPiS/CNiS Models)
Universal Strain and Process (not available for low-power option)
Communication): 24 Vdc @ 25 mA
Excitation (Not Included with TC @ 25°C (77°F):
Accuracy:
Process Input (DPi/CNi Models)
-1999 to 9999
to 10 Vdc
Voltage Input:
0 to 100 mV, 0 to 1 V
Voltage Input:
0 to 100 mVdc,
-100 mVdc to 1 Vdc, 0 to 10 Vdc
Input Impedance:
10 MΩ for 100 mV;
1 MΩ for 1 V or 10 Vdc
Current Input:
0 to 20 mA (5 Ω load)
Linearization Points: Up to 10
Configuration: Single-ended
Polarity: Unipolar
Step Response: 0.7 sec for 99.9%
Decimal Selection: None, 0.1, 0.01 or 0.001
Setpoint Adjustment:
-1999 to 99999 counts
Span Adjustment:
0.001 to 99999 counts
Offset Adjustment: -1999 to 9999
Excitation (Optional In Place Of Communication): 5 Vdc @ 40 mA;
10 Vdc @ 60 mA
Control
Action: Reverse (heat) or direct (cool)
Modes: Time and amplitude proportional control; selectable manual or auto PID, proportional, proportional with integral, proportional with derivative and anti-reset Windup, and on/off
Rate: 0 to 399.9 s
Reset: 0 to 3999 s
Cycle Time: 1 to 199 s; set to 0 for on/off
Gain: 0.5 to 100% of span; setpoints 1 or 2
Damping: 0000 to 0008
Soak: 00.00 to 99.59 (HH:MM), or OFF
Ramp to Setpoint:
00.00 to 99.59 (HH:MM), or OFF
Auto Tune: Operator initiated from front panel
Control Output 1 and 2
Relay:
250 Vac or 30 Vdc @ 3 A (resistive load); configurable for on/off, PID and ramp and soak
Output 1:
SPDT, can be configured as alarm 1 output
Output 2:
SPDT, can be configured as alarm 2 output
SSR: 20 to 265 Vac @ 0.05 to 0.5 A (resistive load); continuous
DC Pulse: Non-isolated; 10 Vdc @ 20 mA
Analog Output (Output 1 Only):
Non-isolated, proportional 0 to 10 Vdc or 0 to 20 mA; 500 Ω max
Output 3 Retransmission:
Isolated Analog Voltage and Current
Current: 10 V max @ 20 mA output
Voltage: 20 mA max for 0 to 10 V output
Network and Communications
Ethernet:
Standards compliance
IEEE 802.3 10 Base-T
Supported Protocols:
TCP/IP, ARP, HTTP/GET
RS232/RS422/RS485:
Select from menu; both ASCII and MODBUS protocol selectable from menu; programmable setup capability; program to transmit current display, alarm status, min/max, actual measured input value and status
RS485: Addressable from 0 to 199
Connection: Screw terminals
Alarm 1 and 2 (Programmable)
Type: Same as output 1 and 2
Operation: High/low, above/below, band, latch/unlatch, normally open/ normally closed and process/deviation; front panel configurations
Analog Output (Programmable):
Non-isolated, retransmission 0 to 10 Vdc or 0 to 20 mA, 500 Ω max (output 1 only); accuracy is ± 1% of FS when following conditions are satisfied: input is not scaled below 1% of input FS, analog output is not scaled below 3% of output FS
General
Power: 90 to 240 Vac ±10%, 50 to 400 Hz*, 110 to 300 Vdc, equivalent voltage
Low Voltage Power Option: 24 Vac**, 12 to 36 Vdc for DPi/CNi/DPiS/CNiS;
20 to 36 Vdc for dual display, ethernet and isolated analog output from qualified safety approved source
Isolation
Power to Input/Output: 2300 Vac per 1 minute test
For Low Voltage Power Option:
1500 Vac per 1 minute test
Power to Relay/SSR Output:
2300 Vac per 1 minute test
Power to Relay/SSR Output:
2300 Vac per 1 minute test
RS232/485 to Input/Output:
500 Vac per 1 minute test
Environmental Conditions:
All Models: 0 to 55°C (32 to 131°F) 90% RH non-condensing
Dual Display Models:
0 to 50°C (32 to 122°F), 90% RH non-condensing (for UL only)
Protection:
DPI/CNI/DPi/CNiS32,16,16D, 8C:
NEMA 4X/Type 4 (IP65) front bezel
DPI/CNI/DPiS/CNiS8, 8DH, 8DV:
NEMA 1/Type 1 front bezel
Approvals:
UL, C-UL, CE per 2014/35/EU, FM (temperature units only)
Dimensions
i/8 Series:
48 H x 96 W x 127 mm D
(1.89 x 3.78 x 5”)
i/16 Series:
48 H x 96 W x 127 mm D
(1.89 x 3.78 x 5”)
i/32 Series:
25.4 H x 96 W x 127 mm D
(1.0 x 3.78 x 5”)
Panel Cutout
i/8 Series:
45 H x 92 mm W
(1.772 x 3.622")
i/16 Series:
45 mm (1.772") square,
1/8 DIN
i/32 Series:
22.5 H x 45 mm W
(0.886 x 1.772")
1/8 DIN
Weight
i/8 Series:
295 g (0.65 lb)
i/16 Series:
159 g (0.35 lb)
i/32 Series:
127 g (0.28 lb)
* No CE compliance above 60 Hz.
** Units can be powered safely with 24 Vac power, but no certification for CE/UL are claimed.