# Ordering Information

## ■ List of Models

### CPU Units and Expansion I/O Units

| Unit | Name | No. of I/O points | LCD display | Power supply voltage | Inputs | | Outputs | | Buttons, calendar, and clock | Analog input | Model |
|---|---|---|---|---|---|---|---|---|---|---|---|
| CPU Units | Standard LCD type | 10 | Yes | 100 to 240 VAC | 6 | 100 to 240 VAC | 4 | Relays | Yes | No | ZEN-10C1AR-A-V2 |
| | | | | 12 to 24 VDC | | 12 to 24 VDC | | | | Yes | ZEN-10C1DR-D-V2 |
| | | | | | | | | Transistors | | | ZEN-10C1DT-D-V2 |
| | | 20 | | 100 to 240 VAC | 12 | 100 to 240 VAC | 8 | Relays | | No | ZEN-20C1AR-A-V2 |
| | | | | 12 to 24 VDC | | 12 to 24 VDC | | | | Yes | ZEN-20C1DR-D-V2 |
| | | | | | | | | Transistors | | | ZEN-20C1DT-D-V2 |
| | LED type without display (See note 1.) | 10 | No | 100 to 240 VAC | 6 | 100 to 240 VAC | 4 | Relays | No | No | ZEN-10C2AR-A-V2 |
| | | | | 12 to 24 VDC | | 12 to 24 VDC | | | | Yes | ZEN-10C2DR-D-V2 |
| | | | | | | | | Transistors | | | ZEN-10C2DT-D-V2 |
| | | 20 | | 100 to 240 VAC | 12 | 100 to 240V AC | 8 | Relays | | No | ZEN-20C2AR-A-V2 |
| | | | | 12 to 24 VDC | | 12 to 24 VDC | | | | Yes | ZEN-20C2DR-D-V2 |
| | | | | | | | | Transistors | | | ZEN-20C2DT-D-V2 |
| | Economy type (Expansion I/O Units cannot be connected) | 10 | Yes | 100 to 240 VAC | 6 | 100 to 240 VAC | 4 | Relays | Yes | No | ZEN-10C3AR-A-V2 |
| | | | | 12 to 24 VDC | | 12 to 24 VDC | | | | Yes | ZEN-10C3DR-D-V2 |
| | | 20 | | 100 to 240 VAC | 12 | 100 to 240 VAC | 8 | Relays | | No | ZEN-20C3AR-A-V2 |
| | | | | 12 to 24 VDC | | 12 to 24 VDC | | | | Yes | ZEN-20C3DR-D-V2 |
| | Communica-tions type | 9 | | 100 to 240 VAC | 6 | 100 to 240 VAC | 3 | Relays | | No | ZEN-10C4AR-A-V2 |
| | | | | 12 to 24 VDC | | 12 to 24 VDC | | | | Yes | ZEN-10C4DR-D-V2 |
| ZEN Kit | | Set containing CPU Unit (ZEN-10C1AR-A-V2), Connecting Cable, ZEN Support Software, and manual. | | | | | | | | | ZEN-KIT01-EV4 (See note 4.) |
| | | Set containing CPU Unit (ZEN-10C1DR-D-V2), Connecting Cable, ZEN Support Software, and manual. | | | | | | | | | ZEN-KIT02-EV4 (See note 4.) |
| Expansion I/O Units | | 8 | --- | 100 to 240 VAC | 4 | 100 to 240 VAC | 4 | Relays | --- | | ZEN-8E1AR (See notes 2, 3.) |
| | | | | 12 to 24 VDC | | 12 to 24 VDC | | | | | ZEN-8E1DR (See note 2.) |
| | | | | --- | | | | Transistors | | | ZEN-8E1DT (See note 2.) |

**Note: 1.** Programming is not possible using only the CPU in the LED-type CPU Unit. ZEN Support Software or a Memory Cassette is required.
**2.** Cannot be connected to pre-V1 and V1 CPU Units.
**3.** The ZEN-8E1AR cannot be connected to a CPU Unit with DC power supply.
**4.** Product no longer available to order.

### Power Supply Unit

| Power ratings | Input voltage | Output voltage | Output current | Model |
|---|---|---|---|---|
| 30 W | 100 to 240 VAC | 24 VDC | 1.3 A | ZEN-PA03024 |

**Note:** Product no longer available to order.
Refer to the *ZEN-PA03024 Datasheet* (Cat. No. L103) for detailed specifications.

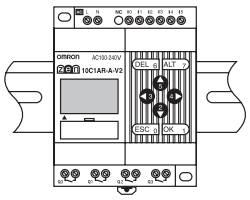
# Specifications

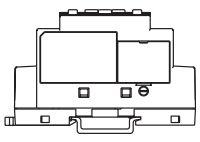
## ■ Ratings

| Item | Specification | |
|---|---|---|
| | **ZEN-□C□AR-A-V2/ZEN-8E1AR** | **ZEN-□C□D□-D-V2/ZEN-8E1D□** |
| **Rated supply voltage** | 100 to 240 VAC, 50/60 Hz | 12 to 24 VDC (DC ripple rate: 5% max.) |
| **Operating voltage range** | 85 to 264 VAC | 10.8 to 28.8 VDC |
| **Power consumption** | CPU Units without Expansion I/O Units<br>• ZEN-10C1AR-A-V2/ZEN-10C2AR-A-V2/ ZEN-10C3AR-A-V2<br>100 V AC: 5 VA max.<br>240 V AC: 7 VA max.<br>• ZEN-10C4AR-A-V2<br>100 V AC: 6 VA max.<br>240 V AC: 8 VA max.<br>• ZEN-20C□AR-A-V2<br>100 V AC: 7 VA max.<br>240 V AC: 10 VA max.<br>CPU Units with three Expansion I/O Units<br>• ZEN-10C1AR-A-V2/ZEN-10C2AR-A-V2<br>100 V AC: 6 VA max.<br>240 V AC: 8 VA max.<br>• ZEN-10C4AR-A-V2<br>100 V AC: 7 VA max.<br>240 V AC: 9 VA max.<br>• ZEN-20C□AR-A-V2<br>100 V AC: 8 VA max.<br>240 V AC: 11 VA max.<br>Expansion I/O Units<br>• ZEN-8E1AR<br>100 V AC: 3 VA max.<br>240 V AC: 4 VA max. | CPU Units without Expansion I/O Units<br>• ZEN-10C□DR-D-V2<br>12/24 V DC: 3 W max.<br>(ZEN-10C3DR-D-V2: 2.8 W max.)<br>• ZEN-10C□DT-D-V2<br>12/24 V DC: 2 W max.<br>• ZEN-20C□DR-D-V2<br>12/24 V DC: 4 W max.<br>• ZEN-20C□DT-D-V2<br>12/24 V DC: 2 W max.<br>CPU Units with three Expansion I/O Units<br>• ZEN-10C□DR-D-V2<br>12/24 V DC: 4 W max.<br>• ZEN-10C□DT-D-V2<br>12/24 V DC: 3 W max.<br>• ZEN-20C□DR-D-V2<br>12/24 V DC: 5 W max.<br>• ZEN-20C□DT-D-V2<br>12/24 V DC: 3 W max.<br>Expansion I/O Units<br>• ZEN-8E1DR<br>12/24 V DC: 2 W max. |
| **Inrush current** | ZEN-10C□AR-A-V2: 4.5 A max.<br>ZEN-20C□AR-A-V2: 4.5 A max.<br>ZEN-8E1AR: 4 A max. | ZEN-10C□D□-D-V2: 30 A max.<br>ZEN-20C□D□-D-V2: 30 A max.<br>ZEN-8E1DR: 15 A max. |
| **Ambient temperature** | 0 to 55°C (–25 to 55°C for ZEN-□C2□□-□-V2 models) | |
| **Ambient storage temperature** | –20 to 75°C (–40 to 75°C for ZEN-□C2□□-□-V2 models) | |
| **Ambient humidity** | 10% to 90% (with no condensation) | |
| **Ambient conditions** | No corrosive gases | |
| **Mounting method** | Surface mounting, DIN track mounting (standard (vertical) installation and horizontal installation) (See notes 1 and 2.) | |
| **Terminal block** | Solid-line terminal block (use solid wire or fine-stranded wire) | |
| **Terminal screw tightening torque** | 0.565 to 0.6 N·m (5 to 5.3 in-lb) | |
| **Degree of protection** | IP20 (Mounted inside a control panel) | |

**Note: 1.** Can be mounted to 35-mm DIN Track.

**2.** Standard (Vertical) installation Horizontal installation





## ■ Characteristics

| Item | Specification |
|---|---|
| **Control method** | Stored program control |
| **I/O control method** | Cyclic scan |
| **Programming language** | Ladder diagram |
| **Program capacity** | 96 lines (3 input conditions and 1 output per line) |
| **Max. No. of control I/O points** | 44 points (See note 1.)<br>CPU Units with 20 I/O points: 12 inputs and 8 outputs<br>Expansion I/O Units: 4 inputs and 4 outputs each, up to 3 Units. |
| **LCD display (See note 2.)** | 12 characters × 4 lines, with backlight |
| **Operation buttons (See note 2.)** | 8 (4 cursor buttons and 4 operation buttons) |
| **User program backup** | Internal EEPROM, Memory Cassette (optional) |
| **Power interruption hold** | Internal holding bit status, holding timer/counter present values, calendar and clock (year, month, day of month, day of week, time)<br>• Super capacitor backup time: 2 days min. (25°C)<br>• Life of optional battery: 10 years min. (25°C) |
| **Calendar and clock function (See note 2.)** | Accuracy: ±15 s/month (at 25°C) |
| **Timer accuracy** | 0.01 s unit: −0.05% −10 ms max. (rate for set value)<br>min/s unit: −0.05% −1 s max. (rate for set value)<br>h/min unit: −0.05% −1 min max. (rate for set value) |
| **Maximum counting speed** | 150 Hz: 8-Digit counter (F) set to high-speed operations (CPU Units with DC power supplies only)<br>(The counting speed may be less than 150 Hz depending on the cycle time of the program. See page 21.) |
| **Insulation resistance** | 20 MΩ (at 500 VDC) min.:<br>Between power supply terminals and all output terminals.<br>Between terminals of different output circuits.<br>Between all terminals of CPU Unit and all terminals of Expansion I/O Unit. |
| **Insulation** | • Reinforced insulation<br>Between power supply or input terminals and output terminals.<br>Between terminals of different output circuits.<br>Between all terminals of CPU Unit and all terminals of Expansion I/O Unit.<br>• No separation<br>Between power supply and input terminals of the same unit.<br>Between power supply terminals of CPU Unit and computer connector,<br>Battery Unit connector, or all Expansion Unit connectors (all interfaces are live parts). |
| **Dielectric strength** | 2,300 VAC, 50/60 Hz for 1 min (leakage current 1 mA max.):<br>Between power supply terminals and all output terminals.<br>Between terminals of different output circuit.<br>Between all terminals of CPU Unit and all terminals of Expansion I/O Unit. |
| **Vibration resistance** | Conforms to IEC60068-2-6, 5 to 9 Hz with 3.5-mm single amplitude, 9 to 150 Hz acceleration 9.8 $m/s^2$,<br>10 sweeps each in X, Y, and Z directions (1 octave/min) |
| **Shock resistance** | Conforms to IEC60068-2-27, 147 $m/s^2$, 3 times each in X, Y, and Z directions. |
| **Weight** | CPU Unit with 10 I/O points: Approx. 300 g max.<br>CPU Unit with 20 I/O points: Approx. 350 g max.<br>Expansion I/O Unit: Approx. 120 g max. |

**Note:** **1.** Up to 34 points for CPU Units with 10 I/O points. With Communications-type CPU Units, however, the CPU Unit has 6 inputs and 3 outputs, for a maximum of 33 I/O points.
**2.** Not provided for LED-type CPU Unit without display (i.e., ZEN-□C2□□-□-V2 models).

## ■ Communications Specifications (Communications-type CPU Units)

| Item | ZEN-10C4□R-□-V2 |
|---|---|
| **Communications** | RS-485 (two-wire, half duplex) |
| **Synchronization method** | Start-stop synchronization |
| **Baud rate** | 4800, 9600, or 19200 bps |
| **Transmission code** | ASCII |
| **Data bit length** | 7 or 8 bits |
| **Stop bit length** | 1 or 2 bits |
| **Error detection** | Vertical parity (none, even, odd), Block check character (BCC) |
| **Flow control** | None |
| **Interface** | RS-485 |
| **Retry function** | None |
| **Node number** | 0 to 99 (default: 1), XX (broadcasting) |