Cost-Effective Alternative to Multiple Discrete Controls
Simplifies Machine Operation and Maintenance

» Advanced timing, counting and relay functions
» Simple programming
» Reduced wiring, maintenance costs
» Password protection for security
» Replaces up to 44 relay contacts and timers
Just a few examples of what the ZEN can do: Enormous added value in automating everyday facilities

- **Fan and Pump Control**
- **Coin-operated Car Wash**
- **Greenhouse Air Circulator Control**
- **Research and Development Devices**
- **Testing Equipment**
- **Lighting Pattern Control**
- **Factories (Jigs, Operator Error Prevention, Small Equipment)**
- **Preventing Assembly Omissions and Other Mistakes**
- **Energy Conservation and Automation of Building Facilities**

Easier small-scale automatic control. That is what the ZEN from OMRON provides. The ZEN can be used almost as easily as wiring materials. The ZEN enables quick automation of small machines or facilities. Add to this the LCD screen and 8 buttons on the front panel for easy ladder program input. You want a more compact control panel or reduced assembly or wiring? AC inputs, easier circuit design, or multiple-timer control? The OMRON ZEN gives you these, and more, to fill all your automation requirements. Increase system convenience and added value using the automation excellence provided by the ZEN.

- **Application of Bit Logic and Timer Functions**
- **Parameter Settings**

Example Program

- **Holding timer starts**
- **Hold for 1st coin cleared**
- **Hold for 2nd coin cleared**
- **Hold for 3rd coin cleared**
- **Holding timer reset**

Parameter Settings

- **Holiday Timer 
  TT0**
- **Weekly Timer 01 (Mon to Fri: 7:00 to 10:00)**
- **Weekly Timer 02 (Mon to Fri: 17:00 to 22:00)**
- **Set to 1 h.**
- **Set to 2 minutes**
- **Set to 3**

Example Program

- **When the operation switch is pressed, fan 1 starts and 30 seconds later fan 2 starts. The fans repeat a cycle of 1 hour operating, 1 hour 30 minutes stopped.**
- **An escalator can operate continuously between specified days and times. It can also be set to conserve energy by operating outside those times only when a person approaches the escalator.**

Example Program

- **Performing test**
- **Counter reset**
- **Performing test**

Example Program

- **Switch 2 (I1) turned ON, light groups 1 and 3 turn ON.**
- **Switch 3 (I2) turned ON, light groups 1 and 2 turn ON.**
- **Switch 4 (I3) turned ON, all lights turn OFF.**

Example Program

- **Switches Light Counter rese**
- **S0, Number of Times**
- **S1, Number of Times**
- **S2, Number of Times**
- **S3, Number of Times**

Example Program

- **Set the required light patterns and change between patterns with the flick of a switch to save energy by improving lighting efficiency.**
Just a few examples of what the ZEN can do:

Enormous added value in automating everyday facilities

- **Fan and Pump Control**
  - **Coin-operated Car Wash**
    - Example Program
    - Parameter Settings
    - The ZEN can be used to change the operating time depending on the number of coins inserted. If a holding timer (#) is used with holding bits (H) in self-holding programming, the remaining time will not be reset even if there are unexpected power interruptions.
  
  The ZEN can be used to circulate carbon dioxide or warm air. Two circulation fans can be operated at regular intervals. Startup current can also be reduced by staggering operation of the two fans.

- **Factory (Jigs, Operator Error Prevention, Small Equipment)**
  - **Preventing Assembly Omissions and Other Mistakes**
    - Example Program
    - If the part required for assembly does not pass through the sensor, the screw tool will not be supplied with air to prevent mistakes.

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- **Energy Conservation and Automation of Building Facilities**
  - **Automatic Escalator**
    - Example Program
    - Parameter Settings
    - Two weekly timers are used to operate the escalator between 7:00 and 10:00 am and 5:00 and 10:00 pm on weekdays. Outside those times, the escalator uses the OFF-delay timer to operate for 3 minutes after a person has been detected.

  An escalator can operate continuously between specified days and times. It can also be set to conserve energy by operating outside those times only when a person approaches the escalator.

- **Research and Development Devices**
  - **Testing Equipment**
    - Example Program
    - Parameter Settings
    - Set the required light patterns and change between patterns with the flick of a switch to save energy by improving lighting efficiency.

  ON/OFF switching can be performed for durability and other tests in R&D.
Omron’s Easy-To-Use Programmable Relay
Offers Precision and Space Savings for Small Scale Control Applications

ZEN STARTER01-V2
AC I/O Kit with ZEN-10C1AR-A-V2

ZEN STARTER02-V2
DC I/O Kit with ZEN-10C1AR-D-V2

System Advantages
• Delivers the flexibility and functionality of separate timers, counters, and relays for control applications with up to 44 I/O.
• New economy CPU models – perfect for applications that require less than 10 or 20 points of I/O. (Does not accept expansion units).
• Save time by using the memory cassette to transfer programs between ZEN units and standardize updates to end users.
• Reduce wiring and engineering time using simple ladder logic programmable with the push of a button or click of the mouse.
• Easily add up to 3 ultra-slim 35mm, 8 I/O expansion units when more points of control are required.

System Features
• Accurate analog inputs ±1.5% FS.
• Wide supply voltage range of 10.8 to 28.8 VDC.
• Flexible mounting – either horizontal or vertical.
• New CPUs with built-in RS-485 communications for data sharing.
• Advanced high-value counting with 8-digit counter and 8-digit comparator in addition to 16 standard counters.
• One 150-Hz high-speed counter available on models with DC power supplies.
• Twin-timer operation allows you to set ON and OFF times separately, greatly simplifying intermittent operation.
• Password function ensures security.
• Display user-set messages or analog-converted values.

ZEN Support Software
• Easily write ladder programs, monitor programs online, set parameters, print, and save files in the Windows® environment.
• Offers simulation capability to simplify program debugging; allows programs to be simulated on a personal computer without connecting to ZEN.
10-Point CPU Programmable Relay Units

<table>
<thead>
<tr>
<th>Appearance</th>
<th>Description</th>
<th>Inputs / Power Supply</th>
<th>Outputs</th>
<th>Analog Input / Comparators</th>
<th>8-digit Counter / Comparators</th>
<th>Model Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 I/O CPU Expandable up to 34 I/O</td>
<td>6</td>
<td>100 to 240 VAC 12 to 24 VDC</td>
<td>4 Relays</td>
<td>-</td>
<td>Yes / 4</td>
<td>ZEN-10C1AR-A-V2</td>
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<tr>
<td>10 I/O CPU Economy model (non-expandable)</td>
<td>100 to 240 VAC 12 to 24 VDC</td>
<td>Relays</td>
<td>-</td>
<td>2 Ch. 0 - 10V / 4</td>
<td>Yes / 4</td>
<td>ZEN-10C1DR-B-V2</td>
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<td>9 I/O CPU with RS-485 Communications Expandable up to 33 I/O</td>
<td>100 to 240 VAC 12 to 24 VDC</td>
<td>3</td>
<td>-</td>
<td>2 Ch. 0 - 10V / 4</td>
<td>Yes / 4</td>
<td>ZEN-10C3AR-A-V2</td>
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20-Point CPU Programmable Relay Units

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<tr>
<th>Appearance</th>
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<th>Inputs / Power Supply</th>
<th>Outputs</th>
<th>Analog Input / Comparators</th>
<th>8-digit Counter / Comparators</th>
<th>Model Number</th>
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<tbody>
<tr>
<td>20 I/O CPU Expandable up to 44 I/O</td>
<td>12</td>
<td>100 to 240 VAC 12 to 24 VDC</td>
<td>8 Relays</td>
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<td>ZEN-20C1AR-A-V2</td>
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<tr>
<td>20 I/O CPU Economy model (non-expandable)</td>
<td>100 to 240 VAC 12 to 24 VDC</td>
<td>Transistors</td>
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<td>2 Ch. 0 - 10V / 4</td>
<td>Yes / 4</td>
<td>ZEN-20C3DR-B-V2</td>
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<tr>
<td>20 I/O CPU with RS-485 Communications Expandable up to 33 I/O</td>
<td>100 to 240 VAC 12 to 24 VDC</td>
<td>3</td>
<td>-</td>
<td>2 Ch. 0 - 10V / 4</td>
<td>Yes / 4</td>
<td>ZEN-20C3AR-A-V2</td>
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I/O Expansion Units

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<th>Outputs</th>
<th>Model Number</th>
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<tbody>
<tr>
<td>8 I/O Expansion units</td>
<td>4</td>
<td>100 to 240 VAC 12 to 24 VDC</td>
<td>4 Relays</td>
<td>ZEN-8E1AR</td>
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<td>ZEN-8E1DR</td>
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<td>Transistors</td>
<td>ZEN-8E1DT</td>
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ZEN Accessories

<table>
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<th>Appearance</th>
<th>Description</th>
<th>Model Number</th>
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<tbody>
<tr>
<td></td>
<td>ZEN Support Software</td>
<td>ZEN-SOFT01V4</td>
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<td></td>
<td>ZEN Programming Cable - Serial to ZEN (2m)</td>
<td>ZEN-CIF01</td>
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<td></td>
<td>Memory Cassette EEPROM - Copies program to multiple units</td>
<td>ZEN-MEO1</td>
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<td></td>
<td>ZEN Battery - Use with controller CPU to provide 10 years of memory protection to prevent data loss in the event of an extended power outage (45 H x 17.5 W x 44 D mm)</td>
<td>ZEN-BAT01</td>
</tr>
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</table>
Authorized Distributor:

Controllers & I/O
- Machine Automation Controllers (MAC) • Motion Controllers
- Programmable Logic Controllers (PLC) • Temperature Controllers • Remote I/O

Robotics
- Industrial Robots • Mobile Robots

Operator Interfaces
- Human Machine Interface (HMI)

Motion & Drives
- Machine Automation Controllers (MAC) • Motion Controllers • Servo Systems
- Frequency Inverters

Vision, Measurement & Identification
- Vision Sensors & Systems • Measurement Sensors • Auto Identification Systems

Sensing
- Photoelectric Sensors • Fiber-Optic Sensors • Proximity Sensors
- Rotary Encoders • Ultrasonic Sensors

Safety
- Safety Light Curtains • Safety Laser Scanners • Programmable Safety Systems
- Safety Mats and Edges • Safety Door Switches • Emergency Stop Devices
- Safety Switches & Operator Controls • Safety Monitoring/Force-guided Relays

Control Components
- Power Supplies • Timers • Counters • Programmable Relays
- Digital Panel Meters • Monitoring Products

Switches & Relays
- Limit Switches • Pushbutton Switches • Electromechanical Relays
- Solid State Relays

Software
- Programming & Configuration • Runtime