UN2 - Universal controller
Building automation’s missing link

Introduction
A flexible line of controllers that allows facility managers, contractors and OEM manufacturers to deploy integrated solutions for HVAC, lighting, and more, quickly and efficiently linking multiple devices based on many standard protocols. They are all interoperable with any BACnet compliant building management system.

Control features
> Control of wired end-devices (6 inputs and 6 outputs).
> Wireless control of EnOcean end-devices (128/128 I/O per UN2).
> Wireless control of ZigBee end-devices (128/128 I/O per UN2).
> Modbus (optional).
> Programmable via the CAN2GO Web BEMS or a BACnet IP system.
> Real-time response to scripting/graphical programming.

Applications
Supports any HVAC & lighting application including:
> HVAC and lighting room and zone control.
> Unitary equipment such as rooftop HVAC units, air handling units, heat pumps and dehumidification units.
> Mechanical rooms and equipment closets.
> Metering.

Networking between units
> Wireless - ZigBee wireless mesh network (self-forming/healing).
> Wired - Daisy chain.
> IP/Ethernet - Ethernet port.

Embedded gateway
> EnOcean (wireless) to BACnet IP.
> ZigBee (wireless) to BACnet IP.
> Modbus to BACnet IP.

CAN2GO Web Building Energy Management System
The UN2 has an embedded web server hosting the CAN2GO Web BEMS. The BEMS offers management and monitoring of building systems (HVAC, Lighting, Metering, etc.) through dashboards, maps, graphical programming and scripting. Visit our website for more information.
## Specifications

### UN2 - Universal controller

#### POWER
- **Voltage**
  - 24VAC; ± 15%; 50/60HZ; Class 2.
  - 24VDC; ± 10%
- **Typical Consumption**
  - 3 VA + Output (VAC)
  - 1.2W + Output (VDC)

#### GENERAL
- **Processor**
  - ARM9 32-bit, 400MHz
- **Memory**
  - 64MB RAM
- **Storage**
  - 2GB Flash
- **Real-time clock**
  - Battery backed (10,000 hours)
- **Communication**
  - Zigbee Pro, EnOcean, BACnet
  - CANbus (125-500 Kbps)
  - Ethernet (10/100 Mbps)

#### ENCLOSURE
- **Material**
  - Rigid ABS
- **Dimensions**
  - 132mm (5.20 in) X 126mm (4.96 in)
- **Rating**
  - UL940-5VA
- **Mounting**
  - Din-rail, wall or ceiling mount

#### ENVIRONMENTAL
- **Operating Temperature**
  - 0°C (32°F) to 60°C (140°F)
- **Storage Temperature**
  - -20°C (4°F) to 60°C (140°F)
- **Relative Humidity**
  - 0 to 90% non-condensing

#### AGENCY APPROVALS
- **CFR47 FCC Part15, Subpart B 2009**
- **CE**

### INPUTS
- **Quantity**
  - 6
- **Voltage**
  - 0-10 volt
- **Current**
  - 4-20mA with 249 Ω external resistor
- **Resistance**
  - 1 kΩ to 100 kΩ
- **Resolution**
  - 14-bit

### OUTPUTS
- **Analog (x4)**
  - 0-12V, nominal 50 mA max each, 12-bit resolution
- **Relay (x2)**
  - 24V, 1.1 Amp per relay

### SOFTWARE
- **Type**
  - Embedded web interface
- **Local installation**
  - None necessary
- **PDA/Smartphone compatible**
  - Yes
- **Browser compatibility**
  - Firefox 3.6 and 4.0

### RS 485 (OPTIONAL)
- **Supported protocols**
  - Modbus

### ENOCEAN TRANSCEIVER (OPTIONAL)
- **Frequency**
  - 315.0 MHz or 868.3 MHz
- **Receiver Sensitivity**
  - -95dBm
- **Conducted Output Power**
  - 5dBm
- **Range**
  - Up to 1000m/3000ft. open air / Up to 300m/1000ft. in building
- **Antenna**
  - 15 cm wire
  - (Optional) External whip, RP SMA 0dB

### ZIGBEE TRANSCEIVER (OPTIONAL)
- **Frequency**
  - 2400 – 2483.5 MHz, 16 RF channels
- **Data rate / Mod. type**
  - 250 Kbps
- **Receiver Sensitivity**
  - -101dBm / -105dBm (amplified)
- **Nominal Output Power**
  - 8dBm / 18dBm (amplified)
- **Range**
  - Up to 1000m/3000ft. open air / Up to 300m/1000ft. in building
- **Antenna**
  - Internal
  - (Optional) External whip, RP SMA 2.5db
Dimensions & Wiring

UN2 - Universal controller

**Output port**
- 126mm (4.96 in)
- Ethernet 100B/T

**Input port**
- B
- A
- GND
- AI6
- GND
- AI5
- GND
- AI4
- GND
- AI3
- GND
- AI2
- GND
- AI1
- 24V
- AC/DC
- CAN H
- CAN L
- GND

**Side view**
- 34mm (1.34 in)

**Back view**
- 126mm (4.96 in)

**RS 485 connectors for Modbus (optional)**

**IMPORTANT! NEW PINOUT**

- RP SMA external antenna for ZigBee
  (Pink striped antenna for 2.4GHz)
- (optional)
- RP SMA external antenna for EnOcean
  (Green striped antenna for 315MHz)
  (Gray striped antenna for 868MHz)

**For DIN rail mount**

| CAN2GO Specifications |

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# Ordering information

**Model: UN2 - Universal controller**

Code all blocks in table.

<table>
<thead>
<tr>
<th>Model</th>
<th>EnOcean radio</th>
<th>ZigBee radio</th>
<th>Communication</th>
<th>Pressure sensor</th>
<th>Actuator</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN2</td>
<td>A = 315MHz wire antenna</td>
<td>N = Nominal (8dBm)</td>
<td>4 = RS-485 (Modbus)</td>
<td>S = Equipped</td>
<td>0 = Not equipped</td>
</tr>
<tr>
<td></td>
<td>B = 868MHz wire antenna</td>
<td>M = Nominal + external antenna</td>
<td>0 = None</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>C = 315MHz external whip antenna</td>
<td>I = High + external antenna</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>D = 868MHz external whip antenna</td>
<td>0 = No radio</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0 = No radio</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

Available:
- UN2 - AN0 - 00
- UN2 - CI0 - 00
- UN2 - CI4 - 00
- UN2 - DM4 - 00
- UN2 - AN4 - 00
- UN2 - C00 - 00
- UN2 - 0M0 - 00
- UN2 - 000 - 00
- UN2 - AN4 - S0
- UN2 - BN0 - 00
- UN2 - D00 - 00

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**Option detail**

- ZigBee external antenna
  - PINK = 2.4GHz
- EnOcean external antenna
  - GREEN = 315MHz
  - GRAY = 868MHz

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**to order, contact Zeno Controls**

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CAN2GO System architecture

CAN2GO can be used as stand-alone solution, complete with programmable controllers and an embedded web building energy management system. It can also be integrated with third party BACnet IP/Ethernet building automation systems.

**SYSTEM ARCHITECTURE**

- **Third party BEMS**
  - BACnet IP/Ethernet
  - Network, server or software

- **CAN2GO web BEMS**
  - Hosted by the controllers.
  - Accessible via web browser, smartphone* or touch panel

- **IP/ETHERNET (LAN)**
  - Gateway
  - Conversion of end-devices into BACnet objects is performed by the controllers. They are equipped with embedded BACnet gateways.

- **WIRELESS MESH**
  - HVAC, Lighting, Metering & Access

- **CAN2GO WIRELESS PERIPHERALS**
  - RS 485, MODBUS
  - WIRED DIGITAL & ANALOG I/Os
  - BIDIRECTIONAL ENOCEAN
  - BIDIRECTIONAL ZIGBEE

**CONTROLLERS**

- **Server**
  - The controller is the server. Connect one CAN2GO unit to the LAN to access the web interface and manage your entire network.

- **Gateway**
  - The controller is the gateway. Conversion of end-devices into BACnet objects is performed by the controllers. They are equipped with embedded BACnet gateways.

- **Models & Applications**
  - CAN2GO offers a variety of controller models including the Universal, VAV and Gateway controllers. They are fully programmable with local storage and can manage all types of HVAC, lighting and metering applications.

- **End-devices**
  - CAN2GO controllers can manage EnOcean, ZigBee, Modbus and wired end-devices, for multiple applications, all at the same time.

**BEAMS**

- **CAN2GO web BEMS**
  - Using a web browser, smartphone* or touch panel interface, the BEMS is accessible via the local area network (LAN) or online through a secure virtual private network (VPN).
  - It offers centralized control, monitoring and local programming of each controller.

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