

**Wireless**  
**ECM-20-Z**  
**Light & Photo**  
**Wireless Dimmer**

## ZigBee Lighting & Photo Control ON/OFF & 0(1)-10V Dimming

### Product Features

- ZigBee Wireless Control of Luminaires
- ZigBee Photo Sensor
- 2.4GHz, +8dBm RF, +20dBm ZigBee transmit power
- ON/OFF and 0(1)-10V Analog Dimming Control, 100mA Sink
- Compatible with Electronic Ballasts & LED Drivers that comply with IEC60929 Annex E2, 1-10V Dimming.
- ON/OFF AC switching up to 277Vac
- Stores last dim setting even when powered off.

### Environmental

1. Operating temperature: Tc Maximum 72 °C, Ambient -5 to +50°C Max.
2. Storage temperature range: -40 to +80°C
3. Humidity (non-condensing): 5% - 95%RH
4. Cooling: Convection
5. Vibration Frequency: 5-55Hz/2g, 30 minutes
6. Impact resistance: 1g/s

### Safety and Compliance

1. UL244A Listed
2. FCC, 47CFR Part 15 Class B compliant
3. ZigBee HA Certified
4. Wet location Design IP66
5. Compatible with NEMA C-136-41-2013 7-prong ANSI standard receptacles

### Electrical Specifications at 25°C

- Input voltage range: 100-277Vac
- Frequency: 47 - 63HZ
- AC Relay Switched Current: ≤20A Resistive, See Page 3 for load ratings.
- AC Zero Cross Switching
- Input current Module Power: ≤0.05A for Units power use
- Twist lock dimming receptacle, complies w/ ANSI C136.41-2013



IP66



### Part Numbers

Part Number	Dimming US & CN Class 2	Control	ON/OFF Control	0(1)-10V Analog	Photo Sensor	Power Metering	GPS	AC Relay Voltage Range	AC Relay Maximum Current
ECM-20-Z	YES	ZigBee HA	YES	YES	YES	NO	NO	100-277Vac	20A
ECM-20-ZM*	YES	ZigBee HA	YES	YES	YES	YES	NO	100-277Vac	20A
ECM-20-ZMG*	YES	ZigBee HA	YES	YES	YES	YES	YES	100-277Vac	20A

\* ECM-20-ZM and ECM-20-ZMG are coming soon.

**Max Rated AC Relay Loads (RED Wire):** AC Zero Cross Switching  
Fluorescent Ballasts, LED Drivers, Incandescent & Inductive Loads:  
2,700W @ 277VAC, 10A  
2,400W @ 208-240VAC, 10A  
1,920W @ 120VAC, 16A  
AC Resistive Load: 100-277Vac 50/60Hz, 20A Maximum.

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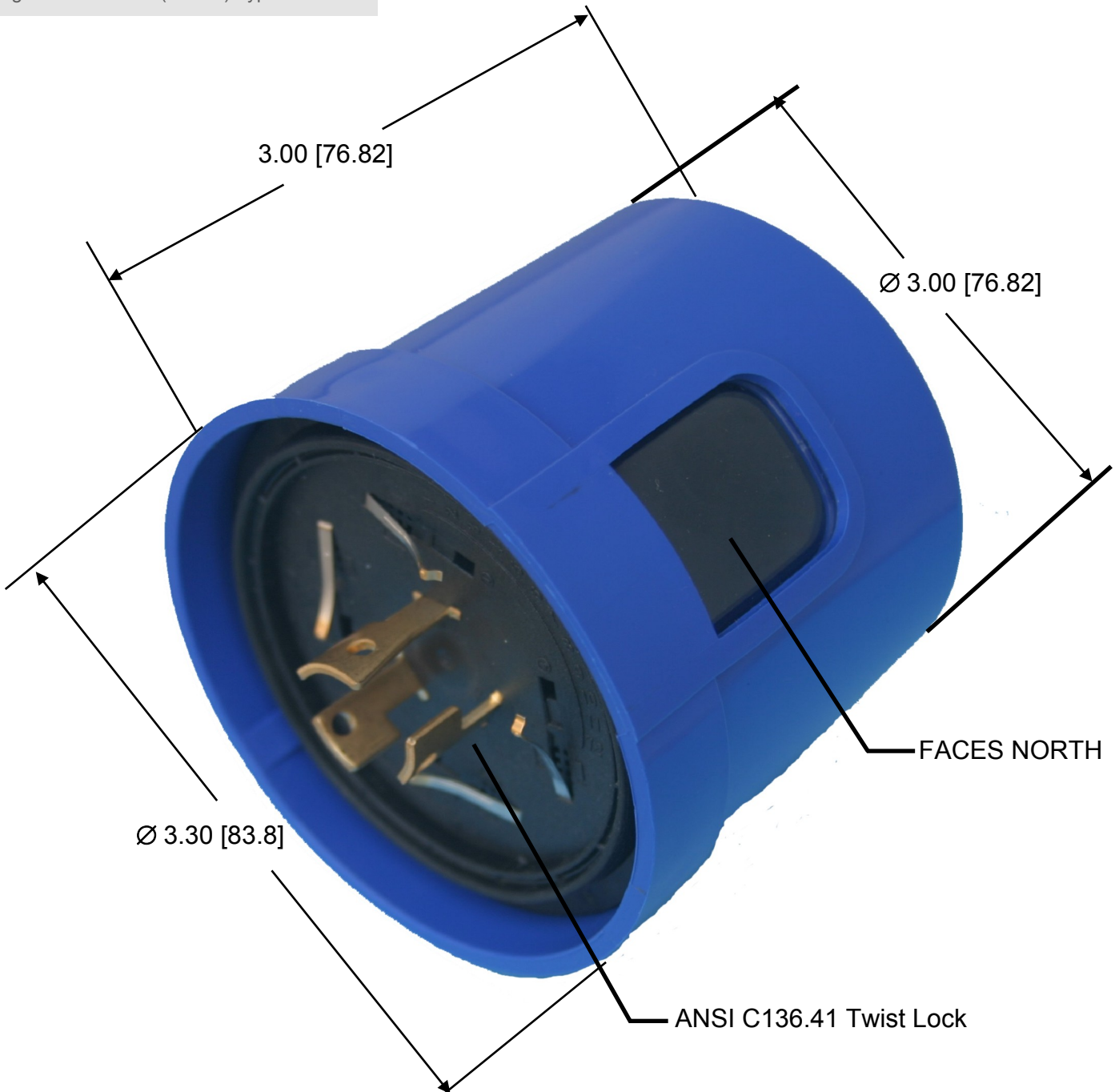
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## Mechanical Dimensions: Inches [mm]

Material: V0 PC Plastic Case  
Weight: 162 Grams (5.7 oz.) Typical

## Labeling Example



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### Input Specifications

Parameter	Min.	Typ.	Max.	Notes/Conditions
Input Voltage	90 Vac	—	277 Vac	120, 230, 240, 277 Vac Nominal Values
Input Frequency	47 Hz	—	63 Hz	50/60Hz Nominal
ZigBee Control Transmit Power	—	—	+20dBm	ON/OFF, 0-10V dimming & Photo Sensor, Standard ZigBee
ZigBee Control Receive	—	-95dBm	—	ZigBee Radio Receive Sensitivity
Photo Sensor Accuracy	1.5fc	—	+1.5fc	Within 1.5 fc ± 0.1 fc, complies w/ ANSI C136.10-2006

### Output Specifications

Parameter	Min.	Typ.	Max.	Notes/Conditions
AC Relay Switch ON/OFF (Vac)	0	—	277Vac	Isolated Relay N/O Contacts, AC Zero Cross Switching
AC Relay Load @120VAC (W)	0	—	1,920W	16A, Fluorescent, LED Drivers, Incandescent & Inductive Loads
AC Relay Load @ 208-240Vac (W)	0	—	2,400W	10A, Fluorescent, LED Drivers, Incandescent & Inductive Loads
AC Relay Load @ 277Vac (W)	0	—	2,700W	10A, Fluorescent, LED Drivers, Incandescent & Inductive Loads
AC Relay Load Resistive (A)	0	—	20A	Resistive Loads
Relay Inrush Current (Peak)	—	—	250A	Measured at 120Vac/60Hz Input 10% I <sub>peak</sub> duration ~2100 µsec (1/2*I <sub>p</sub> <sup>2</sup> *t) Design uses AC Zero Cross Switching
Relay Inrush Current (I <sup>2</sup> t)	—	—	65 A <sup>2</sup> s	
Sink Current on 0-10V (+) Purple Wire	0mA	—	100mA	IEC60929 Annex E2
Absolute Voltage Range on 0-10V (+) Purple Wire	-20.0V	—	+20V	IEC60929 Annex E2
Dimming Range	0.5V	—	+10V	Ballast or Led Driver provides Dim Voltage & Current per IEC60929 Annex E2, 0(1)-10V Analog Dimming

### Environmental Specifications

Parameter	Min.	Typ.	Max.	Notes/Conditions
Case Temperature (T <sub>c</sub> )	—	—	+72 °C	Measured at location specified on case.
Operating Temperature (T <sub>a</sub> )	-5 °C	—	+50 °C	Operating temperature range.
Storage Temperature (T <sub>s</sub> )	-40 °C	—	+85 °C	Non operating temperature range.
Operating Humidity	—	—	95% RH	Relative Humidity, non-condensing.
Vibration	5 Hz	—	55 Hz	2G, 10 minutes/1 cycle, period 30 minutes, each along X, Y, Z axis.

### Safety & EMC Compliance

Safety	Notes/Standards
UL/CUL Listed	UL244A
CE	EN61347-1, EN61347-2-13
Withstand Voltage Relay	Input to Output Across Relay Contacts: 700 Vac
Withstand Voltage AC In to Dim Out	Input to DIM: >1750 Vac
Dimming Circuit	UL & cUL Isolated Class 2, Dim+ Purple/Dim- Gray
FCC	Compliant Class B

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