



**Machine To Cloud  
Solutions**

# **M2C HELIOS**

**Light control for smart cities**

**Datasheet**  
Ref. M2C Helios  
Rev. 1.0

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## Applications:

Smart cities, industrial lighting

### Features

- Single or dual 0-10v Dimming control
- Single or dual AC line control
- Energy meter
- Temperature sensor
- Programmable light levels schedule
- RF interface

### Characteristics

- Maximum current: 10A, 20A, 40A
- Operating voltage: 110/220 VAC
- Consumption: <1 W

### Wireless interface

- ISM wireless
- 868 MHz (Europe) / 915 MHz
- Maximum RF power: 14dBm
- RF data range: Max. 200m. line of sight



### Mechanicals

- Dimensions: 160x67x41 mm
- Weight: 150 g
- Protection level: IP65

### Operating environment

- Operating temperature: -15°C to +60°C
- Operating humidity: 10% to 90% RH

### Part numbers

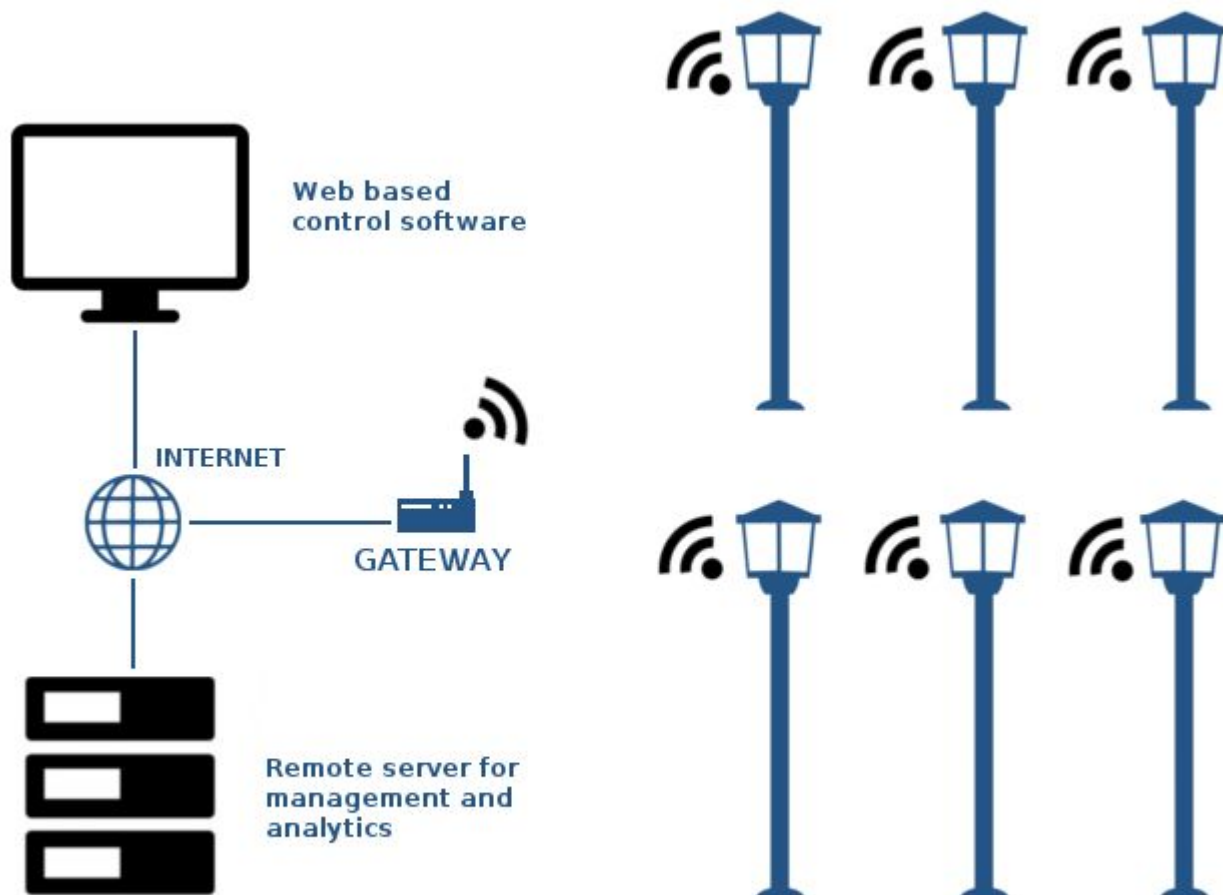
## Introduction

The powerful M2C Helios provides a fully integrated solution for lighting systems. It integrates a 0-10v output for third-parties dimming devices, energy metering and line control. An RF interface is provided to access data or to configure parameters such as cutting current or light levels. The system is compliant with the M2C RF network, so they can be integrated on an existent network, or more devices could be added in the future. This capability allows the user to combine a lighting system with sensors or other actuators, creating a very strong solution for industrial environment or public lighting in smart cities.



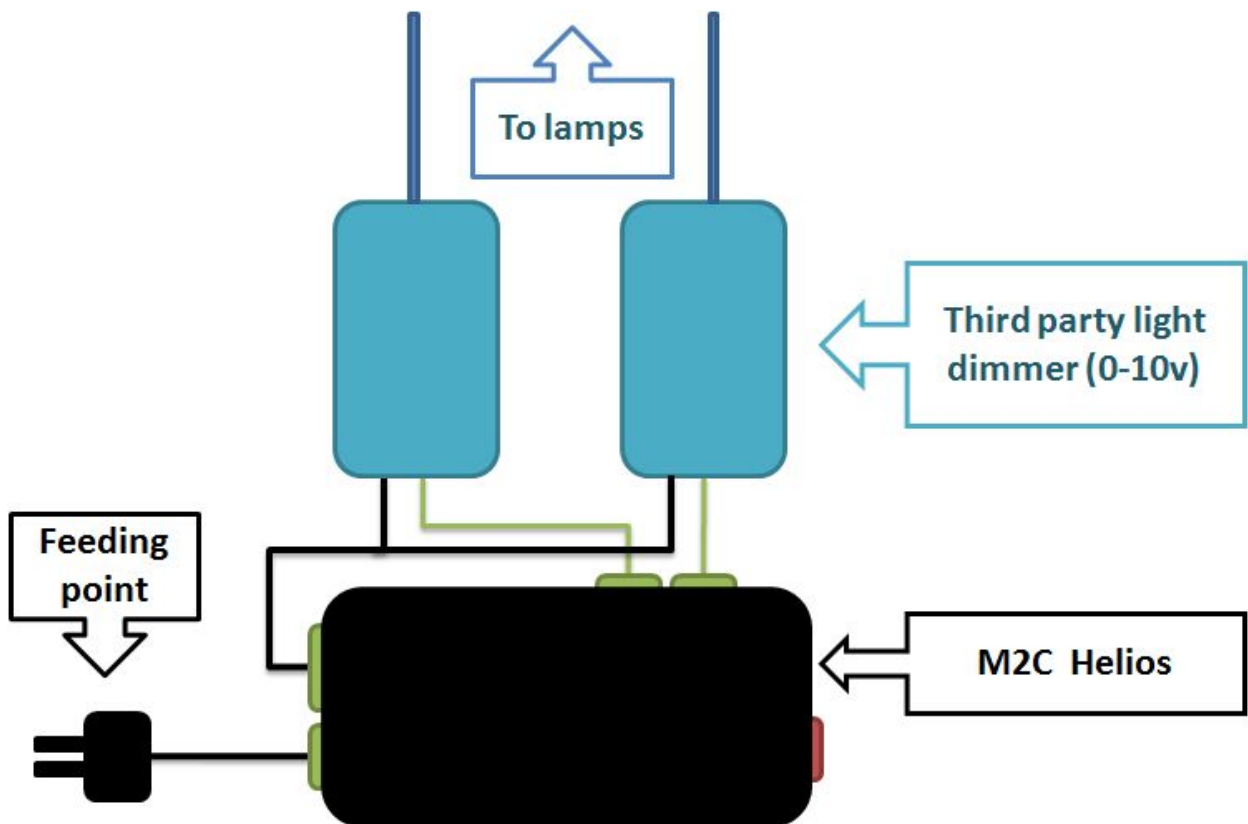
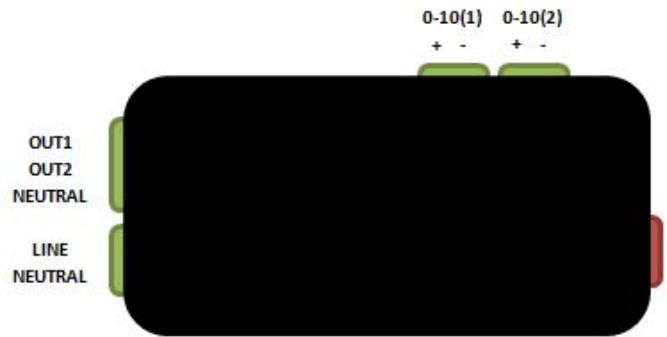
As shown in the image above, it is possible to create a big network covering several blocks with only one gateway

This is an example of how the whole system works. Up to 200 nodes can be connected to one gateway. This allows the user to have a web based interface where light schedules can be created and energy consumption information is displayed. Furthermore, data can be collected in remote servers for future analysis.



## Connection diagram

The image below shows the proper connection to control two external light dimmers



## Features

The M2C Helios light control system is designed to achieve full control of two independent lines. Line and light level controls as well as energy metering are available in each line. In order to be able to create a light levels profile, a real time clock calendar is implemented with up to 10 configurable alarms. Finally, an on-board temperature sensor is available. Note that its purpose is to measure board temperature, not environment.

The table below shows some detailed parameters.

Technical Data	Value
<b>Output ratings</b>	
0-10v output max current	40 mA
<b>Input ratings</b>	
Nominal Voltage (VN)	110/220 VAC
Frequency	60/50 Hz
Nominal Current (IN)	1-40 A
<b>Energy Meter</b>	
Available information	IRMS, VRMS, WRMS, Active energy, power factor and line frequency
<b>Temperature sensor</b>	
Temperature range	-55 to 115°C
Accuracy	1°C @ Temperature range
<b>RTCC</b>	
Configurable alarms	10

## Operation

The M2C Helios system can work in two ways. Stand-alone operation and gateway controlled.

- Stand-alone operation:

In this mode the system works following a pre-defined parameters. Light levels depending on time and no-lighting intervals are the basics. Other parameters can be configured such as alarms or maximum allowed current.

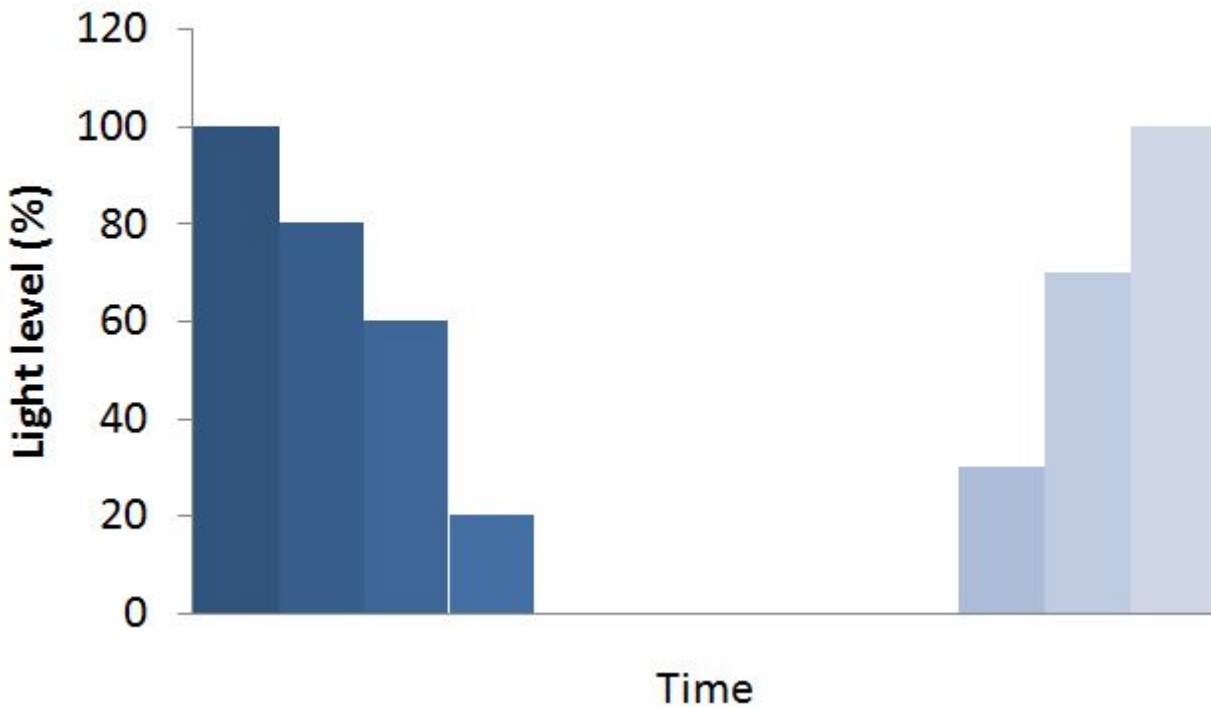
- Gateway controlled:

A direct order can be given by the gateway at anytime. This allows the user to create a dynamic light levels profile, or to cut the line at any moment if necessary.

Besides the lighting control, the system is also equipped with an energy meter. Energy consumption information will be sent to the gateway at user defined intervals.

A smart lighting control system can be created by combining the stand-alone operation, with direct gateway orders related with the information collected from the energy metering unit. Highest lighting performance at minimum energy consumption can be achieved.

## Light levels profile



This is an example of a light levels profile. The purpose of this is to generate optimal illumination conditions at lowest possible energy consumption. Note that during daylight the line should be cut to reduce residual energy consumption from external dimmers.





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