

DESCRIPTION

The Gooee Core Module provides all of the key features required to make a device or driver Gooee enabled in a small modular package for easy integration.

The Core comes with a fully approved Gooee Bluetooth SmartMesh module, tested with options for either an integrated or external antenna. The integrated Gooee application processor provides a range of standard electronic interfaces enabling core functions such as power switching, dimming, power monitoring and integration of the Gooee Sensor platform into devices or drivers.

Additionally, the use of standard interfaces allows for future extensions and other applications.

The interfaces are arranged along both sides of the Core Module. For convenience, the typical interfaces used in smart lighting applications are presented in one easy to use edge connector with a wide pitch to allow simple integration into products.

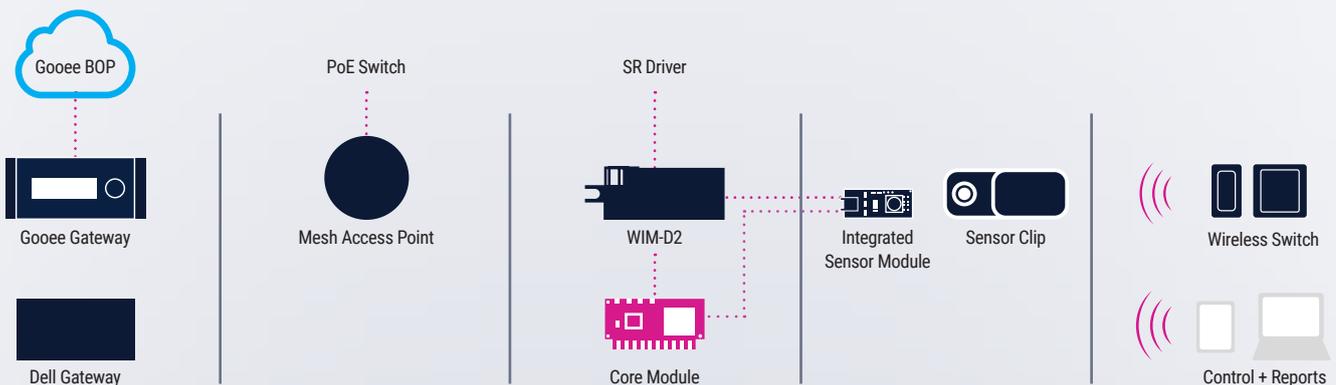
The second side carries interfaces more commonly used for further expansion, test and debug and has a narrower pitch.

The Core Module can either be soldered flat onto a parent or daughter board if all interfaces are required or if only the primary smart lighting interfaces are needed it can be soldered vertically in a slot prepared in the base board providing a compact and easy to integrate solution.

FEATURES

- Gooee Bluetooth SmartMesh
- Connector for an external antenna
- Integrated Gooee application processor
- Standard electronic interfaces
- Power switching, dimming, power monitoring and DALI control functions
- Interfaces required for integration of the Gooee Sensor platform into devices or drivers
- Enables connection to Gooee Building Operating System (BoS) platform and services
- Communication via Gooee Bluetooth SmartMesh
- Supports power switching via the relay interface
- Controls interfaces for integration of either DALI or analogue dimming
- 3 x PWM output (for multi-channel analog dimming) at 4 kHz frequency of operation providing a duty cycle between 0% and 100%. The PWM output is linear
- 1 x DALI output (supporting legacy DALI drivers)

ECOSYSTEM ARCHITECTURE



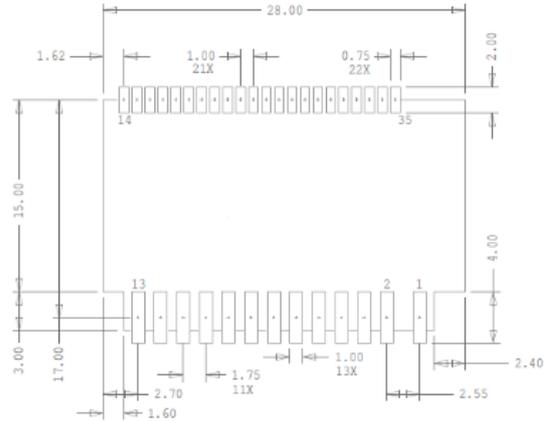
TECHNICAL SUMMARY

Identification

Each GC2 is identified with a unique UUID which is pre-provisioned in the Gooee platform during manufacturing. The UUID is related to the Core ID which is included in the label

Label Details

The label includes the Core ID which is issued when manufactured. This is a unique code used to identify the Core through its full lifetime from manufacture, pre-provisioning to integration into a product and on into the lighting installation



TEST/RUN Interface

The Core provides a test mode during manufacture to enable specific test functions within the firmware to be run.

When mounted horizontally the TEST pin on the Core should be brought out to a test pad to allow the device to be run in test mode during production.

If mounted vertically provision should be made in manufacture to reach and activate the test pin unless testing is provided by other means.

Under normal operation the TEST pin can be connected to ground (best practice) or left unconnected and the Core firmware will run normally bypassing test mode

Environmental Conditions Intended for indoor use only!

Ambient Temperature (Celsius)	-20°C to +85°C
Ambient Temperature (Fahrenheit)	-4°F to +185°C

Power Supply Specifications

DC Supply Voltage	3.3V Nominal (Minimum 1.98V - Maximum 3.6V)
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DALI

A single DALI command from controller to driver is Manchester encoded consisting of one start bit (1), eight address bits, eight data bits and two stop bits (idle) (MSb first). Data rate = 1200bps.

GC2 uses DALI broadcast messaging to set dimming level

- 0xFF: Indicates a broadcast of command type
- 0xFE: Indicates a broadcast of direct arc power level type
- 0xA3: This 'special' command is used to indicate a write to the DTR0 register (for defining fade times)

The following commands (data byte) are used after the FF address byte:

- 0x2E: Sets the fade time (based on value stored in DTR0)

The following commands (data byte) are used after the FE address byte:

- 0x00 (OFF) - 0xFF: 0-100% dimming, based on curve

The following fade times are set as the data byte value after the A3 address byte:

0x00 = 0s	0x06 = 4s	0x0C = 32s
0x01 = 0.7s	0x07 = 5.6s	0x0D = 45.2s
0x02 = 1s	0x08 = 8s	0x0E = 64s
0x03 = 1.4s	0x09 = 11.3s	0x0F = 90.5s
0x04 = 2s	0x0A = 16s	
0x05 = 2.8s	0x0B = 22.6s	

The DALI signal from the Core is logic level (0-3.3V) and has to be interfaced to the DALI Bus to enable it to read from and write to the DALI Bus

PIN NO ¹	PIN NAME	TYPE ²	DESCRIPTION ³
1	GND		
2	SDA	IO	I2C Data (Power monitor)
3	SCL	O	I2C Clock (Power monitor)
4	DALI IN	I	
5	DALI OUT	O	
6	SENSOR RXD	I	
7	SENSOR TXD	O	
8	RELAY	O	Relay control
9	PWM1	O	Analog dimming #1
10	PWM2	O	Analog dimming #2
11	PWM3	O	Analog dimming #3
12	VCC	P	
13	GND		
14	GND		
15	GND		
16	NC	IO	(GPIO1 - GPIO / ADC)
17	MCU_LED	O	
18	NC	O	(SPI SS)
19	NC	O	(SPI SCK)
20	NC	I	(SPI MISO / UART RXD)
21	NC	O	(SPI MOSI / UART TXD)
22	RESET	I	RESET FOR MCU / CORE
23	NC	IO	(GPIO2)
24	NC	IO	(PROGRAM-SWDIO)
25	BT_LED	O	
26	NC	O	(PROGRAM-SWCLK)
27	NC	IO	(GPIO3)
28	NRF_RESET	I	RESET nRF52 MODULE
29	GND		
30	NC	O	(NRF_SWCLK)
31	GND		
32	NC	IO	(NRF_SWDIO)
33	GND		
34	NC	I	TEST INPUT / TEST-RUN / LOW = RUN
35	GND		

¹ 1-13 on 1.75mm pitch for surface or through hole mounting. 14-35 on a 1mm pitch surface mount only
² O: Digital Output, I: Digital Input, IO: Digital BiDirectional, P: Power, AI: Analogue Input, AO: Analogue Output
³ (Italic) Hardware interfaces available for future expansion. Support not available in initial firmware release.