OMEGA SQUARE - DATASHEET

C.C.

10 ÷ 500 mA
Software
configurable

RIPPLE FREE FLICKER FREE

Ripple and
Flicker free
IEEE1789
Analog Modulation
I > 100mA
PWM Modulation
I < 100mA

MULTISTANDARD BUS
- **0-10V / 1-10V**
- **100KΩ Pot.**
- **PWM**
- **Push-Dim**
- **Digital Control**

With External Interface
(isolated):
- DALI
- CASAMBI
- 0-10V/1-10V/PWM

PATENT-PENDING

0,2%

Deep &
Smooth
to 0,2%

Wide
output
range for
flexible led
selection

Up to 100°
Tc Point
Temperature

Overheating;
Short-circuits;
Voltage spikes;
Overloads;
Polarity
inversion;

Special Thermal
Protection with
safety dimming
threshold

DEVELED SUITE
- Iout setting;
- Max Power Setting;
- Dimming Curve
  Linear/Logarithm
  setting
- Thermal Protection
- Threshold setting
- Diagnostics Info

CE

DESCRIPTION

OMEGA SQUARE is an open frame DC/DC driver that delivers Constant Current programmable output and can be used as built-in driver for lighting fixtures.
Small dimensions, square shape and 2-orientation of output connector allow product designers for more flexibility and miniaturization of their lighting luminaries.

FEATURES

- Constant Current mode output
- 22W output driver
- Open frame for built-in solutions
- Ripple Free
- Flicker Free, IEEE 1789
- Smooth dimming from 100% to 0.2%
- High efficiency: >92% at full load
- Protection against overheating, short circuits, overloads
- Wise Programming with SW **DEVELED SUITE**
- Dimensions 36x19.5x7 mm (with mylar shell) – 1.41 x 0.76 x 0.27 inch
- Standard safety: UL 8750 - UL 8754 - EN 61347-1 - EN 61347-2-13
- Standard EMC: EN 55015 - FCC part 15, EN 61547
- Typical lifetime > 50.000 hours
- 5 years warranty

OMEGA SQUARE - DATASHEET

ELECTRICAL

Nominal Vin Voltage Range	22 ÷ 27V DC; 42 ÷ 55V DC (configurable with SW "DEVELED SUITE")
Maximum Input Voltage	56V (not recommended)
Max. Efficency	> 92% @ full load
Max. Output Power	22W
Standby Power	<500mW
Output Nominal Current	10mA ÷ 550mA (configurable with SW "DEVELED SUITE")
Output Current Tolerance	±2% of nominal setting ±5% including temperature variations
Output Voltage Range	2.5 ÷ 40V DC (@ Pout max)
Channel Output	N° 1
Current Regulation	• I < 100mA Digital • I > 100mA Analogic • Custom configurable with SW "DEVELED SUITE"
Start-Up Time	<100ms ±10%
MULTIFUNCTION BUS (not isolated)	• 0-10V • 1-10V • 100KΩ Potentiometer • PWM (*) • Push-Dim • Digital Control
With External ISOLATED COMPACT CONTROLLER MODULE	• 0-10V • 1-10V • 100KΩ Potentiometer • PWM (*) • Push-Dim • Digital Control • DALI • CASAMBI
Dim to Off	Yes
Minimum Dim Level	1mA
Dimming Curve	Linear/Logarithm (configurable with SW "DEVELED SUITE")
Hot Pluggable Output	Yes

PROTECTION

Inrush/Over Current	Constant Current limit, recovers automatically after fault condition is removed
Short Circuit	Constant Current limit, recovers automatically after fault condition is removed in 10sec with slow fade time
Over Voltage	Shut down o/p voltage, recovers automatically after fault condition is removed
Over Temperature	Shut down o/p voltage, recovers automatically after fault condition is removed Special "Thermal Protection Algorithm" with dimming threshold configurable by SW "Light performance Suite"
Against Mains Voltage Spikes	Yes, on Input Port
Against Polarity Inversion	Yes
Under Voltage Lock Out Protection	Yes: 36Vdc ÷ 38Vdc (for 48V nominal input); 18Vdc ÷ 19Vdc (for 24V nominal input)
Input Safety	Fused. Product falls safe when 230 applied
HOT Pluggable Input	Yes

(*) Minimum voltage value for logical high level: 14V

OMEGA SQUARE - DATASHEET

ENVIRONMENT

Max Tc temperature	100°C
Storage Temperature/Humidity	-20° ÷ +60°C; 10 ÷ 95%RH
Lifetime	50.000hrs
Warranty	5 years

MECHANICAL

Dimensions	Device: 36x19.5x7 mm Board: 35x19x6.5 mm
Electrical Connections	• 2-way IDC Connectors 22AWG (input): V+, V- *(changeable on request 22÷30AWG)* • 1-way IDC Connectors 26AWG (input): BUS+ *(changeable on request 22÷30AWG)* • 2-way IDC Connectors 26AWG (output): Iout+, Iout- *(changeable on request orientation and 22÷30AWG)*
Mechanical fixing	2 snap-lock support post, 2.5mm hole diam. x 1.65mm max thickness
Materials	FR4 circuit board Copper alloy electrical contacts Mylar sheet Nylon 6.6 spacer Glass-Filled Nylon 46 connector; Silicone thermal filler

STANDARD

Safety Standards	EN 61347-1 - EN 61347-2-13, Am1 - EN 60838-2-2 UL8750, UL8754
EMC Interference	EN 55015 - FCC part 15
EMC Immunity	EN 61547
Environmental	Rohs and reach compliant

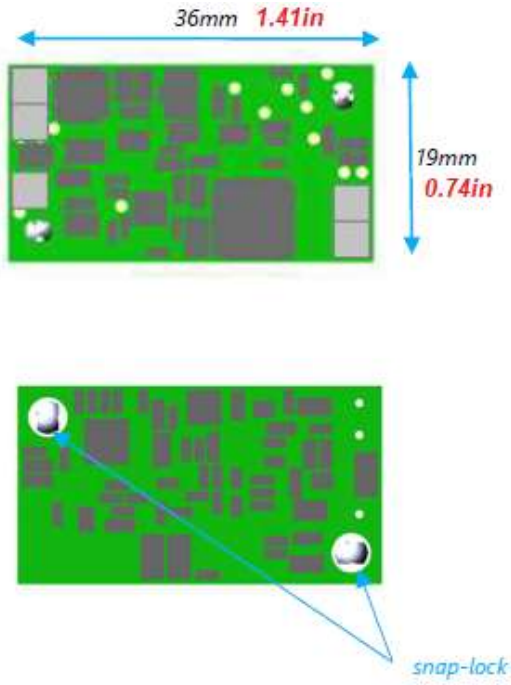
DIAGNOSTIC and PERFORMANCE FUNCTION

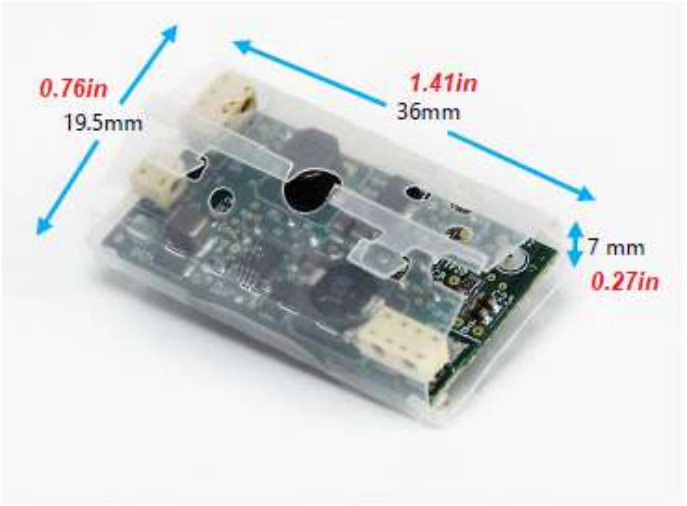
DEVELED SUITE SOFTWARE

- Set any Iout value from the Nominal Range
- Select Linear or Logarithm dimming curve
- Setting VIN DC Voltage 24/48 VDC
- Select Dimming Protocol
- Set Fade Time value
- Set Minimum Dimming Iout Value
- Set Thermal Thresholds of Thermal Protection Algorithm
- Read tc Realtime Temperature
- Read SN, FW/HW version, OEM
- It is possible to create and download custom configuration profile

OMEGA SQUARE - DATASHEET

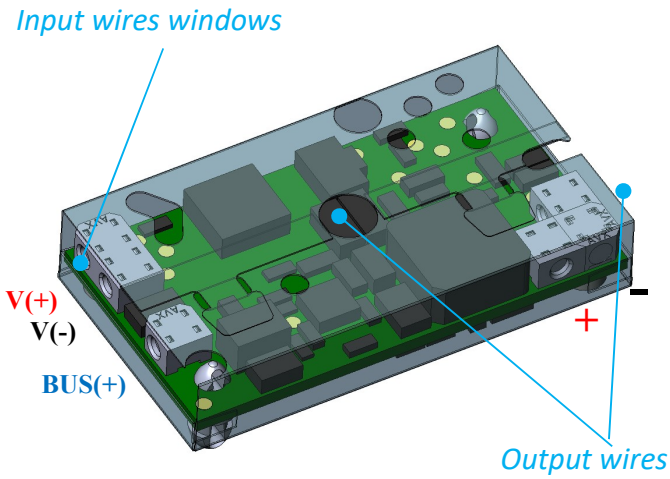
MECHANICAL SPECIFICATION





REQUIREMENTS

CONNECTIONS



Signal	Description
Vin (-), GND	Common from 48Vdc and Communication Bus, connector 22AWG *(changeable on request 22÷30AWG)*
Vin (+)	48Vdc from Power Supply, connector 22AWG *(changeable on request 22÷30AWG)*
Bus (+)	Communication Bus Voltage, connector 26AWG *(changeable on request 22÷30AWG)*
Iout (+)	Anode (positive), connector 26AWG *(changeable on request orientation and 22÷30AWG)*
Iout (-)	Cathode (negative), connector 26AWG *(changeable on request orientation and 22÷30AWG)*

POWER SUPPLY

An European SELV class I & II or US NEC class 2 or Isolated low-voltage limited output of 48Vdc (limited 25A) must be used to power the Led Driver OMEGA 35. Maximum output voltage should not exceed 56Vdc. Input signal needs to be applied to wires Red Vin (+) and black Vin (-)

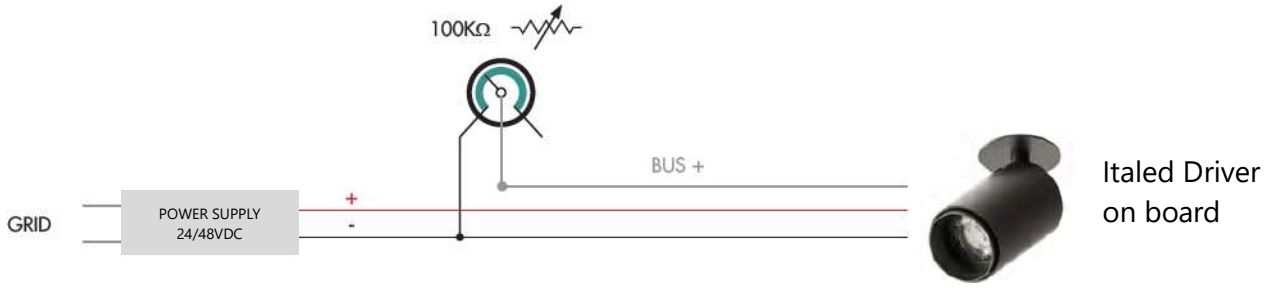
DIMMING FUNCTION

To regulate the LED light intensity, a signal needs to be applied to wires White Bus (+) and black Vin (-). If no signal is applied to BUS, the output current is at maximum level

ARCHITECTURE

STAND ALONE APPLICATION WITH POTENTIOMETER

LED Driver OMEGA SQUARE built-in lamp with 100kΩ trimmer potentiometer
- 0-10V ANSI E1.3, Entertainment Tecnology
- 1-10V IEC 60629 (Annex E) (100kΩ)

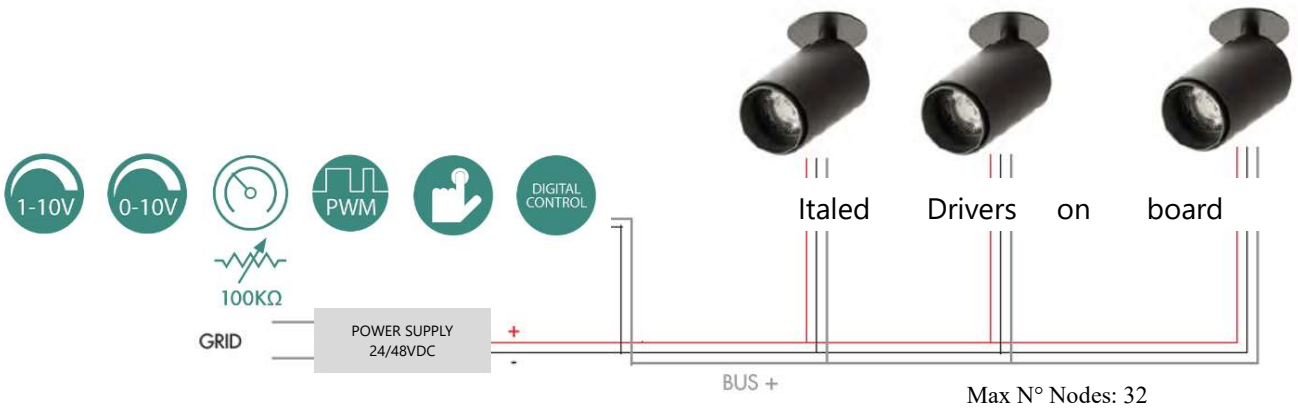


STAND ALONE APPLICATION WITH PUSH DIM

LED Driver OMEGA SQUARE built-in lamp with PUSH-DIM
- Push for on/off
- Keep pushed for dimming up and down

0-10V/1-10V/POTENTIOMETER/PWM/DIGITAL CONTROL ARCHITECTURE (NOT ISOLATED)

- It is possible to send broadcast command to Led Driver OMEGA SQUARE
- Every LED Driver OMEGA SQUARE executes the same command



Max N° Nodes: 32

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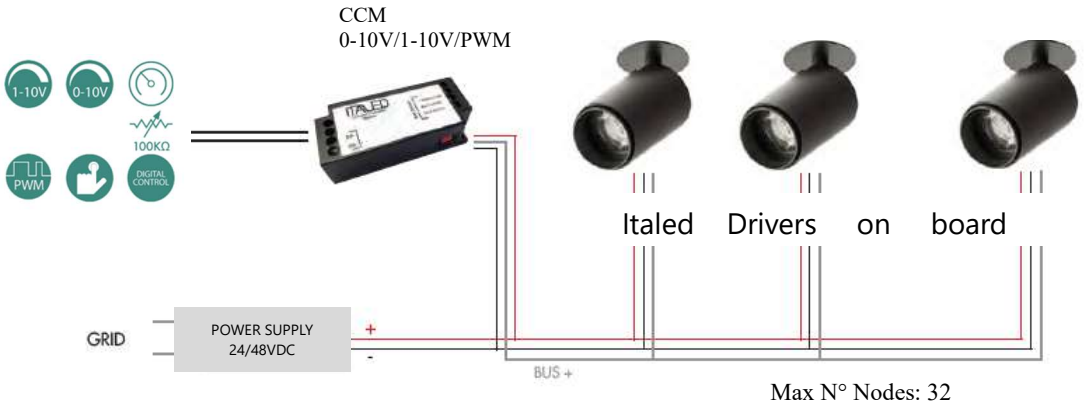
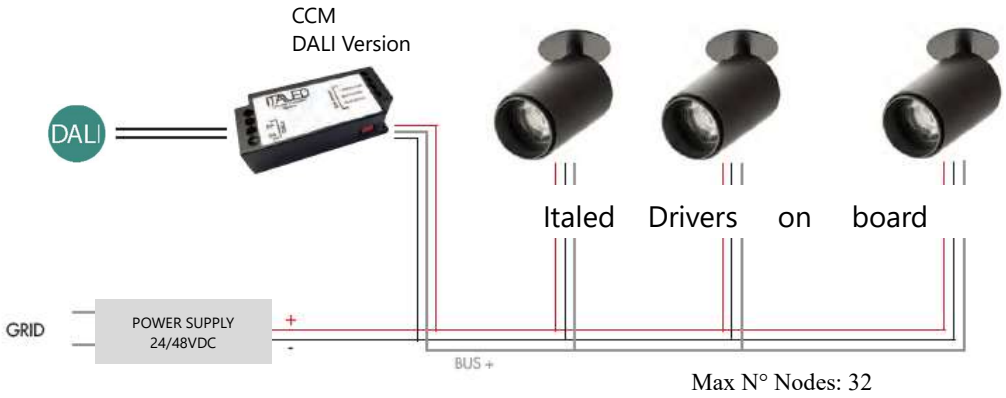


Max N° Nodes: 32

DALI ARCHITECTURE

- Throw controller, it is possible manage each single LED Driver OMEGA SQUARE as an independent address



Max N° Nodes: 32

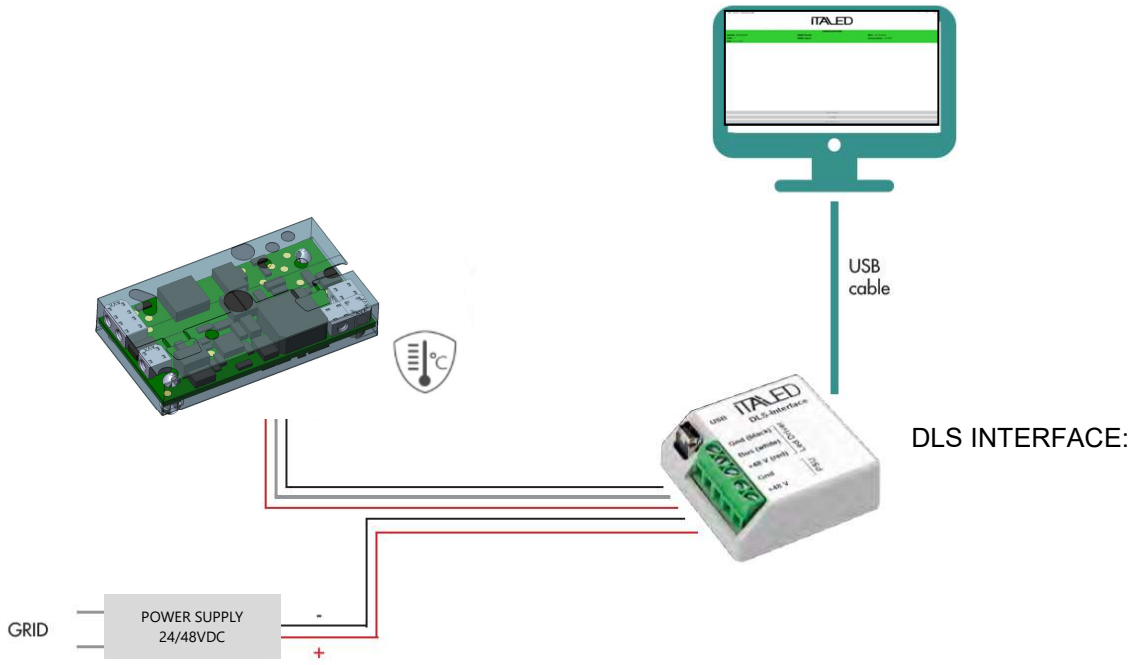
CASAMBI ARCHITECTURE

- Throw controller, it is possible manage each single LED Driver OMEGA SQUARE as an independent address

Max N° Nodes: 16

PROGRAM TOOL SW

Full Program and Configuration using PC and Interface



SW DEVELED SUITE

- Set any I-out value from the Nominal Range
- Select Linear or Logarithm dimming curve
- Select Dimming Protocol
- Set Fade Time value
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- Set Thermal Thresholds of Thermal Protection Algorithm
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THERMAL PROTECTION LIMIT ALGORITHM

This special Algorithm define five zones of functionality.
For each zone it is set an operating Tc temperature and a Dimming level.
When the Tc is out of the tolerance zone, this Algorithm can reduce the light level to reestablish the Tc temperature and preserving the product life.
It is possible to set the dimming level and the tolerance timings for each zone.