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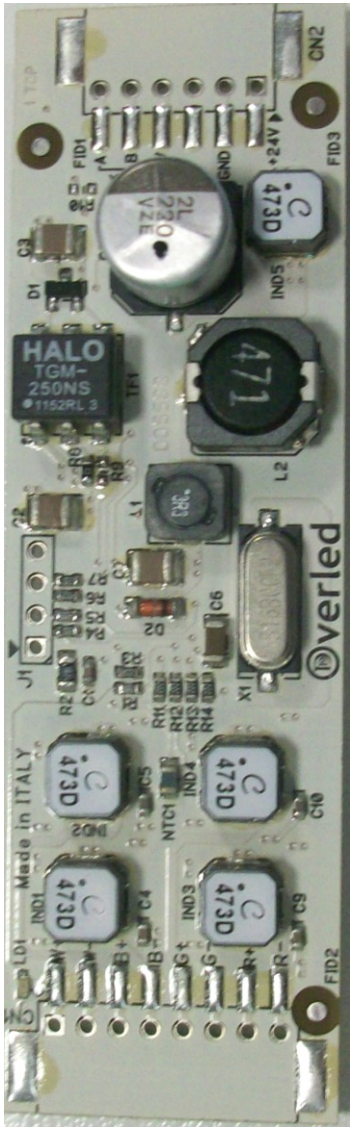

DDS588 è un controller per led in corrente costante a quattro canali.Questo modulo è funziona in modalità DMX/RDM/ stand alone con show preprogrammati.
La tensione di alimentazione di questo modulo 24vdc permette di collegare per ogni canale 6 led (vf <3,3Vdc) in serie per un totale di 24 led la tipologia di controllo in corrente del led è Istereticа e garantisce la massima performance di regolazione luminosa nella modalità a 16bit.

Il dispositivo è protetto da sovraccarico o guasto con fusibile non ripristinabile, l'alimentazione è fornibile su appositi morsetti, le uscite led hanno sia il positivo che il negativo per ogni uscita led, per un totale di 8.

DDS588 4 channel in costant current can supply up to 6 led in series @24vd 350mA. This module can work in several mode DMX/RDM/ and stand alone.In current mode the hysteretic control guarantee the best light dimmering perfomance..All output are positive and negative per each color. The power supply is applied to connector.

Technical Specifications :

Power supply:24Vdc
Current per channel 350mA
DMX standard USITT512
DMX optoinsulated
RDM 2.0 Compatible
Short Circuit output Protection
Common positive/negative for each led out
Hysteretic Frequency out 500Khz
Hysteretic Constant Current
4 channel output
up to 6 led per channel @24vdc
MAX led 24x1W each
Spring connector for power supply and led

<u>environmental</u>
operating temperature: -10° to +54°C
Storage temperature: Tst -20° to +85°
Case temperature: Tc +65°
Relative humidity: RH 80%

SIZE: 27x89x18mm
Wight: 22gr

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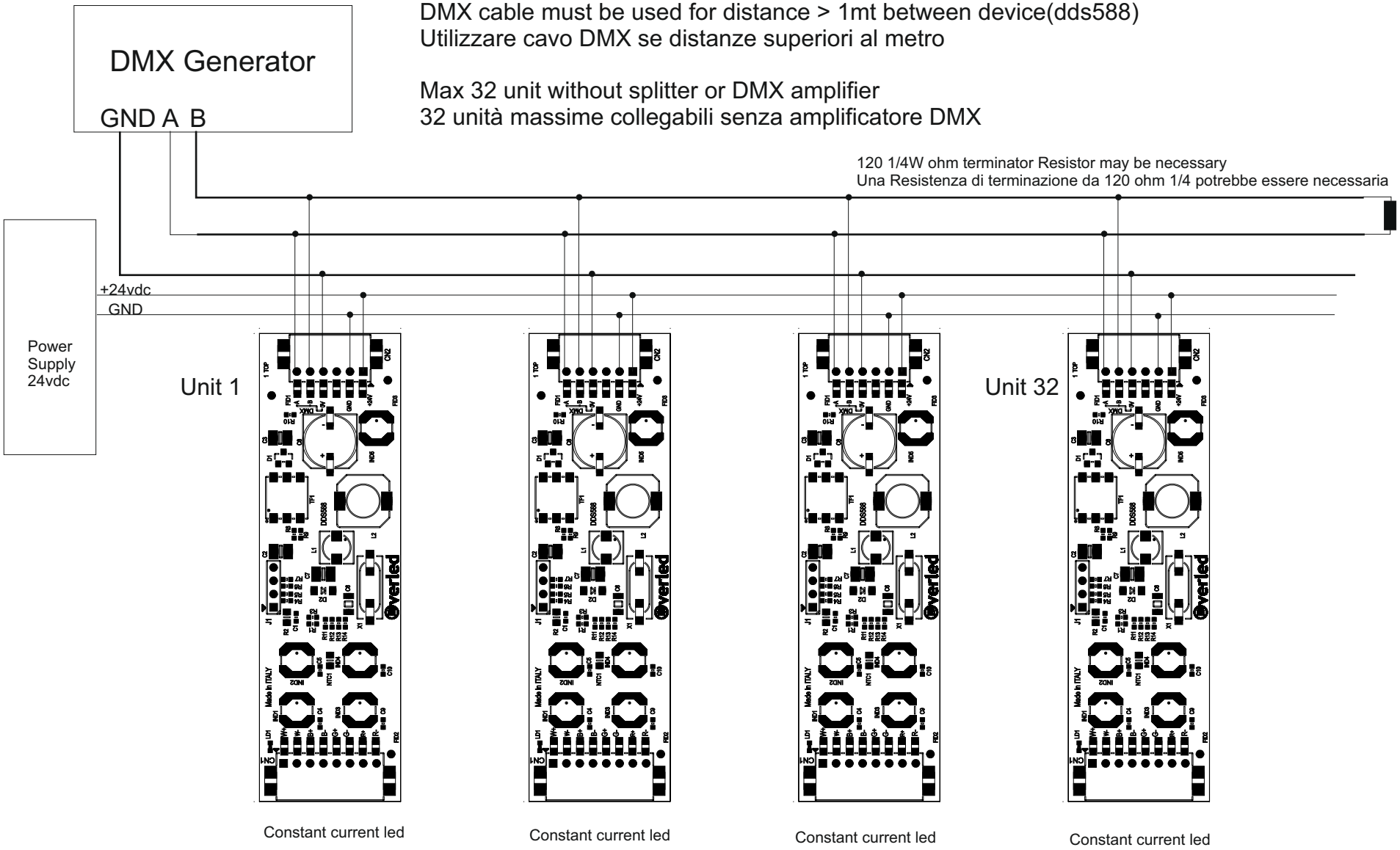
Power supply and DMX looping
Alimentazione e DMX collegamenti multipli



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DMX specification standard
Specifiche standard DMX

DMX512

Developed by the Engineering Commission of United States Institute for Theatre Technology (USITT), the standard was created in 1986, with subsequent revisions in 1990 leading to USITT DMX512/1990.DMX512-A In 1998 the Entertainment Services and Technology Association(ESTA) began a revision process to develop the standard as an ANSI standard. The resulting revised standard, known officially as "Entertainment Technology — USITT DMX512-A — Asynchronous Serial Digital Data Transmission Standard for Controlling Lighting Equipment and Accessories", was approved by the American National Standards Institute (ANSI) in November 2004. This current standard is also known as"E1.11, USITT DMX512-A", or just "DMX512-A", and is maintained by ESTA.

Network topology

ADMX512 network employs a multi-drop bus topology with nodes strung together in what is commonly called a daisy chain. Anetwork consists of asingle DMX512 controller — which is the sole master of the network — and one or more slave devices. For example, a lighting console is frequently employed as the controller for a network of slave devices such as dimmers, fog machines and intelligent moving lights.Each slave device has a DMX512 "IN" connector and, in many case, a DMX512 "OUT" connector (sometimes marked "THRU") as well. The controller, which has only an OUT connector, is connected via a DMX512 cable to the IN connector of the first slave. Asecond cable then links the OUTor THRU connector of the first slave to the IN connector of the next slave in the chain, and so on. The final, empty, OUTor THRU connector ofthe last slave on the daisy chain should have a terminator plugged into it. Aterminator is a stand-alone male connector with a built-in resistor. Theresistor — typically 120 Oto match the cable characteristic impedance, is connected across the primary data signal pair. If a secondary data pair isused, then another termination resistor is connected across it as well. Although simple systems, i.e., systems having few devices and short cableruns, may work reliably without a terminator, it is considered good practice always to use a terminator at the end of the daisy chain. Some DMXdevices have built-in terminators that can be manually activated with a mechanical switch or by software, or by automatically sensing the absence of a connected cable.Each DMX network is called a "DMX universe". Large control desks (operator consoles) may have the capacity to control multiple universes, with an OUTconnector provided for each universe.

Electrical

DMX512 data are sent using EIA-485 voltage levels. However, quoting from E1.11, "The electrical specifications of this Standard are those of EIA-485-A, except where specifically stated in this document. Where a conflict between EIA-485-A and this document exists, this document is controlling as far as this Standard is concerned."DMX512 is a bus network no more than 1200 meters long, with not more than 32 devices on a single bus. If more than 32 devices need to communicate, the network can be expanded across parallel buses using DMX splitters. Network wiring consists of a shielded twisted pair, with a characteristic impedance of 120 Ohms, with a termination resistor at the end of the cable furthest from the controller to absorb signal reflections.

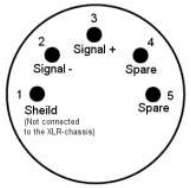
Connectors

DMX512 1990 specifies that where connectors are used, the data link shall use five-pin XLR style electrical connectors (XLR-5), with female connectors used on transmitting (OUT) ports and male connectors on receiving ports. DMX512-A (E1.11) requires the use of an XLR-5 connector,unless there is insufficient physical space on the device, in which case an XLR-5 adapter shall be supplied. DMX512-A(E1.11-2008) allows the use ofeight-pin modular (RJ-45) connectors for fixed installations where regular plugging and unplugging of equipment is not required.Some DMX512 equipment manufacturers employ non-compliant connectors and pinouts; the most common of these is the three-pin XLR connector, since theelectrical specification currently only defines a purpose for a single wire pair.There is risk of equipment damage if a novice unfamiliar with lighting technology accidentally plugs XLR 3-pin DMX into an audio device, since the DMX signal voltages are much higher than what audio equipment normally uses.Also, devices are sometimes fitted with four-pin connectors when both communications and power are sent through a common cable.

The RJ-45 connector pinout matches the conductor pairing scheme used by Category 5(Cat5) twisted pair patch cables. The avoidance of pins 4 and 5 helps to prevent equipment damage, if the cabling is accidentally plugged into a single-line public switched telephone network phone jack.Cabling for DMX512 was removed from the standard and a separate cabling standards project was started in 2004. Two cabling standards have been developed, one for portable DMX512 cables (ANSI E1.27-1 - 2006) and one for permanent installations (draft standard BSR E1.27-2). This resolved issues arising from the differences in requirements for cables used in touring shows versus those used for permanent infrastructure.The electrical characteristics of DMX512 cable are specified in terms of impedance and capacitance, although there are often mechanical and other considerations that must be considered as well. Cable types that are appropriate for DMX512 usage will have a nominal characteristic impedance of 120 ohms. Cat5 cable, commonly used for networking and telecommunications, has been tested by ESTA for use with DMX512A.Also, cables designed for EIA485 typically meet the DMX512 electrical specifications. Conversely, microphone and line level audio cables lack the requisite electrical characteristics and thus are not suitable for DMX512 cabling. The significantly lower impedance and higher capacitance of these cables distort the DMX512 digital waveforms, which in turn can cause irregular operation or intermittent errors that are difficult to identify and correct.

XLR-5 pinout
1. Signal Common
2. Data 1- (Primary Data Link)
3. Data 1+ (Primary Data Link)
4. Data 2- (Optional Secondary Data Link)
5. Data 2+ (Optional Secondary Data Link)

RJ-45 pinout
1. Data 1+
2. Data 1-
3. Data 2+
4. Not Assigned
5. Not Assigned
6. Data 2-
7. Signal Common (0 V) for Data 1
8. Signal Common (0 V) for Data 2



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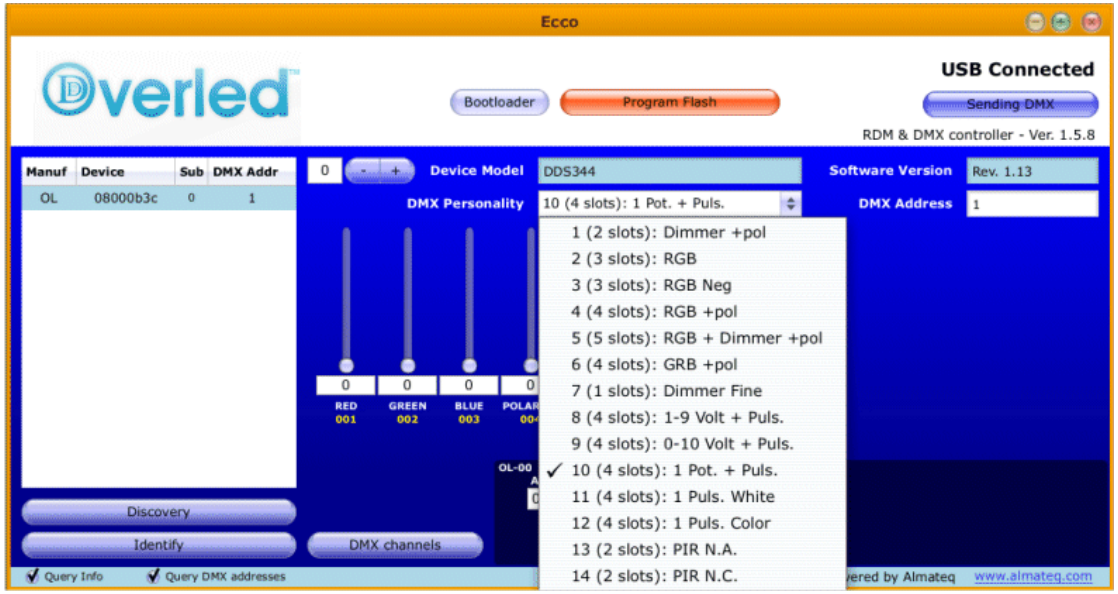
RDM interface operating mode
Interfaccia RDM modo operativo

- Alimentazione al dispositivo
- Allacciare segnale DMX ai poli (A+) e (B-)
- Predisporre il collegamento a PC attraverso l'interfaccia ECCO e lanciare l'omonimo programma di gestione
- Alimentare la scheda, quindi lanciare la ricerca rapida dei componenti dall'Ecco col comando Discovery tenendo contemporaneamente premuto il tasto Shift (rilasciarlo appena lanciato il comando)
- Nella finestra a sinistra del pannello di visualizzazione Ecco appare la riga relativa al componente identificato
- Selezionare il componente col mouse e quindi appare la videata relativa al componente selezionato
- Aprire la finestra relativa alle DMX Personality cliccando col mouse sulle freccette a destra
- Selezionare la personalità desiderata cliccando col mouse sulla riga relativa che viene evidenziata (anche con il simbolo di “spunta” a sinistra)
- La scheda memorizza immediatamente la nuova personalità ed è pronta per essere utilizzata
- Spegnere l'alimentatore prima di staccare i cavi dalla scheda

N.B. Utilzzando Ecco è poi possibile andare a programmare anche il suo indirizzo DMX (DMXAddress) o la sua azione in assenza di DMX (Action if no DMX) ecc.

- Connect Ecco RDM signal to the device DMX input , A and B or + and - (A+) (B-)
- Run Ecco or Esuite in PC /MAC
- Power device On (DDS588)
- USE Discovery button on the screen of your pc, to get all devices connected on the DMX line
- In to the left window a complete list of device appear
- Select with the mouse one of device on the list
- Click on right button on you mouse to get info from device
- Choice the personality you wanted
- Now the device have stored in memory the personality
- Same for addressing , select device you want to change Address and edit the new one in the ADDRESS window.
-Select also what the device must do if no DMX available, just click in the window “ACTION IF NO DMX”and select all available for this device.



More detail on ECCO http://www.overled.com/overledDDSdatasheet/Eccox3.pdf

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RDM personality list Elenco personalità RDM

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Personality	DMX Channel Offset
1	1 slot, '1CH (Dimmer)
2	1 slot, '1CH (Shutter)
3	7 slot, 'ST7 GRBW - Speedy ST7
4	3 slot, 'RGB'
5	4 slot, 'RGB + Dimmer'
6	4 slot, 'RGBW'
7	5 slot, 'RGBW + Dimmer'
8	4 slot, 'GRBW'
9	7 slot, 'ST7 RGBW - Speedy'
10	7 slot, 'RGBW Sync Strobo Delay' GAMMA Curve
11	8 slot, 'RGBW Sync Strobo Delay Dimmer'
12	14 slot, 'RGBW16 Strobo Dimm. CTC Fade Frq'
13	8 slot, 'RGB16 + Frq'
14	4 slot, '1-9 Volt + Puls.' Input 1-9V e/o pulsanti UP/DW
15	4 slot, '0-10 Volt + Puls.'Input 0-10V e/o switches UP/DW
16	4 slot, '1 Pot. + Puls.'Input Potentiometer e/o switch UP/DW
17	4 slot, '3 Pot.' 3 input potentiometer → R, G, B.

DMX slot (DMX used Channel per personality)														DDS 453 output			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	Out 1	Out 2	Out 3	Out 4
Dimmer	nu	nu	nu	nu	nu	nu	nu	nu	nu	nu	nu	nu	nu	0-255	0-255	0-255	0-255
Shutter	nu	nu	nu	nu	nu	nu	nu	nu	nu	nu	nu	nu	nu	255-0	255-0	255-0	255-0
Green	Red	Blue	White	Syncro	Strobe	Delay	nu	nu	nu	nu	nu	nu	nu	Green	Red	Blue	White
Red	Green	Blue	nu	nu	nu	nu	nu	nu	nu	nu	nu	nu	nu	Red	Green	Blue	nu
Red	Green	Blue	Dimmer	nu	nu	nu	nu	nu	nu	nu	nu	nu	nu	Red	Green	Blue	nu
Red	Green	Blue	White	nu	nu	nu	nu	nu	nu	nu	nu	nu	nu	Red	Green	Blue	White
Red	Green	Blue	White	Dimmer	nu	nu	nu	nu	nu	nu	nu	nu	nu	Red	Green	Blue	White
Green	Red	Blue	White	nu	nu	nu	nu	nu	nu	nu	nu	nu	nu	Green	Red	Blue	White
Red	Green	Blue	White	Syncro	Strobe	Delay	nu	nu	nu	nu	nu	nu	nu	Red	Green	Blue	White
Red	Green	Blue	White	Syncro	Strobe	Delay	nu	nu	nu	nu	nu	nu	nu	Red	Green	Blue	White
Red	Green	Blue	White	Strobe	Syncro	Delay	Dimmer							Red	Green	Blue	White
Red-H	Red-L	Green-H	Green-L	Blue-H	Blue-L	White-H	White-L	Strobe	Dimmer	CTC	Fade	Freq-H	Freq-L	Red	Green	Blue	White
Red-H	Red-L	Green-H	Green-L	Blue-H	Blue-L	Freq-H	Freq-L	nu	nu	nu	nu	nu	nu	Red	Green	Blue	nu
Red	Green	Blue	White	nu	nu	nu	nu	nu	nu	nu	nu	nu	nu	Red	Green	Blue	White
Red	Green	Blue	White	nu	nu	nu	nu	nu	nu	nu	nu	nu	nu	Red	Green	Blue	White
Red	Green	Blue	White	nu	nu	nu	nu	nu	nu	nu	nu	nu	nu	Red	Green	Blue	White
Red	Green	Blue	White	nu	nu	nu	nu	nu	nu	nu	nu	nu	nu	Red	Green	Blue	White

Default personality = 16

nu not used

Dimmer	Adjust all out value 0 = off , 255 = maximum light out
Shutter	Adjust all out value 255 = off , 0 = maximum light out
Syncro	send syncro to all DMX devices
Strobe	Flash all the output 0 = all off 1-255 flash different speed
Delay	Delay output respect syncro signal
CTC	Colour Table Wheel start from > 28
Fade	smooth colour change time, 0 = none 255= maximum 2,5 sec.
Freq H/L	Flicker Free Frequency 244-1000hz for TV camera shutter

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RDM Standard Specification

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RDM Physical layer

The RDM protocol and the RDM physical layer were designed to be compatible with legacy equipment. All compliant legacy DMX512 receivers should be usable in mixed systems with an RDM controller (console) and RDM responders (receivers). DMX receivers and RDM responders can be used with a legacy DMX console to form a DMX512 only system. From a user's point of view the system layout is very similar to a DMX system. Thecontroller is placed at one end of the main cable segment. The cable is run receiver to receiver in a daisy-chain fashion. RDM enabled splitters are usedthe same way DMX splitters would be. The far end (the non console or splitter end) of a cable segment should be terminated.RDM requires two significant topology changes compared to DMX. However, these changes are generally internal to equipment and therefore not seen by the user.First, a controller's (console's) output is terminated. Second, this termination must provide a bias to keep the line in the 'marking state'when no driver is enabled.The reason for the additional termination is that a network segment will be driven at many points along its length. Hence, either end of the segment, if unterminated, will cause reflections.ADMX console's output drivers are always enabled. The RDM protocol is designed so that except during discovery, there should never be data collisions. To assure this lack of collisions, while making possible implementation on different platforms, there are times when all line drivers are required to be disabled. If nothing more than the termination was done, the line would float to some unknown level. In that case one or more random changes might be read on the line. These random changes greatly decrease system accuracy. So the biasing of the line is requiredTo assure this, section 2.4.1 (Line Bias Networks) of the standard says; "The command port shall provide a means to bias the termination of the data link to a value of at least 245 mV and verified by using the test circuit described in Appendix F."The standard further states that, the biasing mean "shall be polarized such that Data+ of the data link is positive with respect to Data- the data link. The Line Biasing network shall maintain this bias when the data link is loaded with the equivalent of 32 unit loads and common mode voltage is varied over the range of +7 volts to -7 voltThe standard does not require any particular circuit for providing the basis and termination; however, the simplest method is often a passive pull apart network.Whatever method is used must be tested with the chosen driver chip to see that the design combination still meets the requirement of E1.20. Tests are given in Appendix F of the standard. These tests are for design verification and are not required as production testing. Experience has shown many EIA485 drivers designed for 5 volt operation will pass the required tests. It is not so clear that all 3.3 volt parts will pass. In either case this performance must be verified. Details of the pull apart network and the tests can be found in

Protocol

RDM packets are inserted in-between the existing DMX data packets being used to control the lighting data. The DMX 512 specification always requires that DMX packets begin with the start code. The default Start Code is 0x00(also known as the Null Start Code). By using the start code 0xCC, RDM packets can be safely inserted between DMX data packets without older non-RDM aware devices attempting to read them.The DMX 512 specification required DMX connectors to be a 5-pin XLR type, with only the first 3 pins being used (pins 4 and 5 were reserved for "future use"). Unfortunately, various manufacturers started using the final two pins for various, proprietary purposes, such as low-voltage power or proprietary talkback protocols. As a result, the decision was made to have all RDM communication on pins 2 and 3. This raises data collision concerns.The RDM standard addresses this problem by ensuring that in all cases (except discovery) only one device is authorized to be transmitting at any given time (somewhat similar to the token passing approach). Only the controller (of which there can be only one) can start an RDM exchange. Responders can speak only if spoken to. The controller will always initiate all RDM communication. All RDM devices have a unique identifier (UID) that consists of a manufacturer ID and serial number.Protocol

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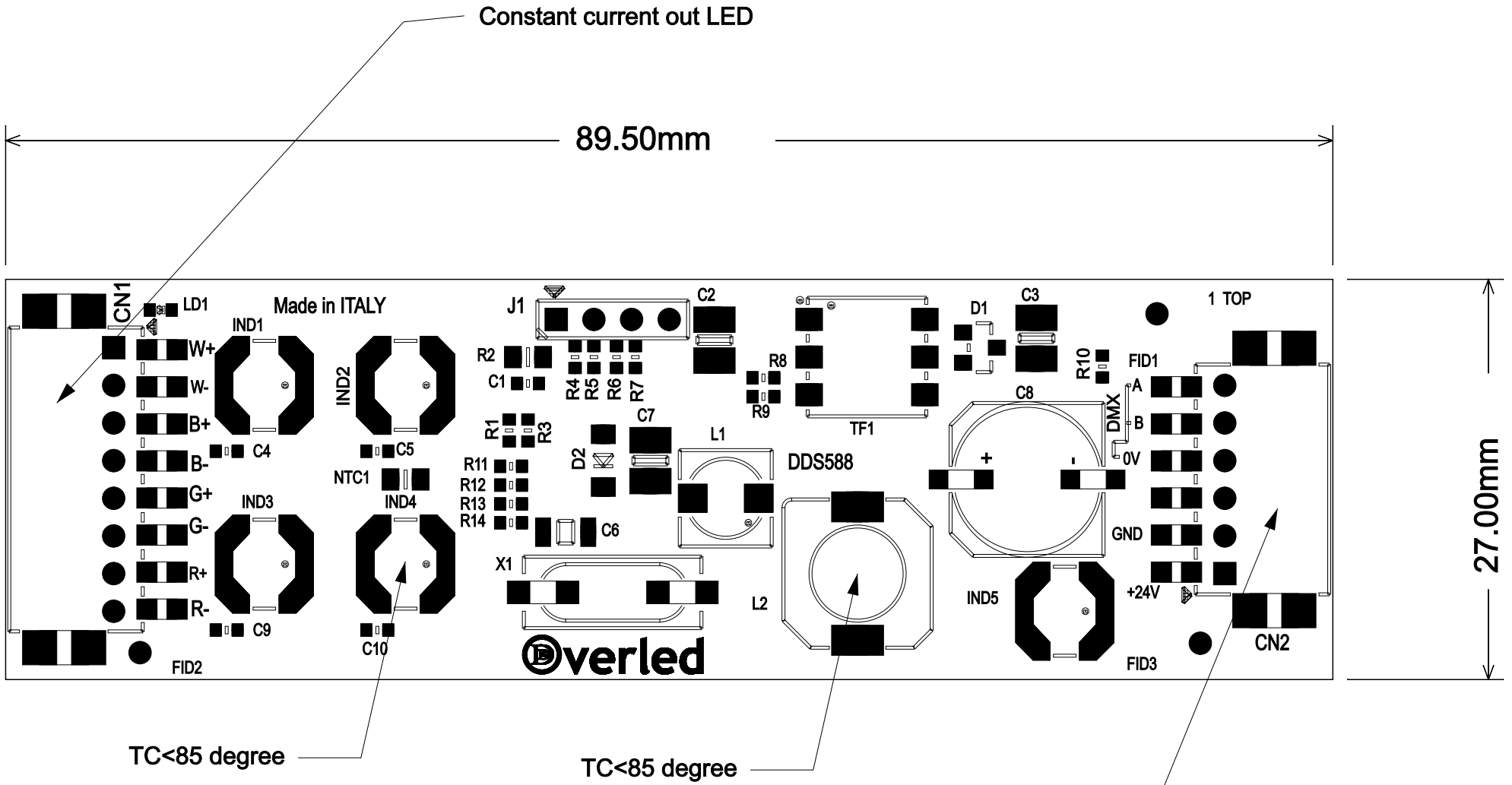

Ordering Code:
Constant Voltage DDS588

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