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OverledBUSnode:

- RGB constant current 350mA
- RGB PWM output
- OverledBUS module
- Power supply 12/24vdc
- 3 constant current out 350mA
- 3 PWM rgb out for power top

OverledBUSnode, è un modulo slave di OverledBUSpilot, questo è collegabile alla rete con le modalità di overledBUSdriver, ma al posto di essere installato dentro la lampada questo modulo dotato di scatola e fermacavo permette di essere installato in quadri elettrici, pareti, controsoffitti. Una delle caratteristiche essenziali di questo modulo, è che dispone di due tipi di uscita, uno in corrente costante per il controllo di led da 350mA, ed uno in tensione costante PWM per il controllo di strip led RGB o qualsiasi altro dispositivo compatibile con segnale PWM.Un led rosso indica la ricezione e trasmissione del segnale overledBUS, il numero massimo di node su di una rete overledBUS è 32, e può essere presente nella rete anche altri tipi di slave come overledBUSdriver, ma senza superare 32 unità.Il numero massimo di led collegabili a 24vdc per canale R,G o B è 4 questi devono avere una Vf<3,5vdc, mentre la massima potenza di strisce collegabili è 30W per il totale RGB.Questo modulo si riconosce in rete overledBUS con un suo ID assegnato con sistema RDM tramite sub net mask,questo poi sarà visto da DMX come indirizzo di memoria nello spazio dei 512 indirizzi,stesso per art net.

OverledBUSnode, it is a slave module of OverledBUS, this can be connected in the network as overledBUSdriver, but not integrated in the fixture.This module have a cable lock and connectors for harness and holes for electrical housing or wall mounting.OverledBUSnode can drive constant current led or powertop led, thanks to two separated RGB output. Constant current can drive 4 led per channel at 24vdc supply with Vf<3,5vdc, the voltage PWM output can drive up to 30W.Always 32 unit maxim they can be connected to overledBUS, they can be NODE or DRIVE tipology, and they have ID assigned by RDM using subnet mask in the ECCO RDM interface window.The ID it can be seen as one of 512 DMX address space.Red led on board indicate bus activity, receive and transmit data.

Overled OverledBUSnode

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Funzioni OverLed Bus:

OverledBUSnode (master) e puo' gestire fino a 32 "Slave".
La filosofia OverLed Bus e' basata su uno schema master/slave (un master, tanti slave). Uno slave viene denominato "OverledBUS driver o node e puo' essere un faretto o qualsiasi altro dispositivo dotato di un certo numero di canali, equivalenti in funzionalita' al concetto dei canali DMX.
Ogni slave ha un codice univoco impostato in fabbrica non modificabile che serve ad identificarlo sul BUS.
Quando uno slave viene connesso in rete, questo codice viene confrontato con un database interno a OverledBUSnode, se e' uno slave conosciuto (precedentemente memorizzato) l'indirizzo DMX a lui associato viene letto dal database e l'unita' inizia subito a funzionare come programmato. In caso contrario, verra' assegnato un indirizzo DMX = 1 per default. Inviando dati DMX o ArtNet sui canali corrispondenti, gli slave reagiranno di conseguenza.
Il DMX Patch dei OverledBUS driver o node e' come segue:

CH1 = Shutter (255 = sempre aperto)
CH2 = Dimmer
CH3 = R
CH4 = G
CH5 = B
CH6 = Color Temperature control
CH7 = Macro
Ch8 = Color Mode

OverLed Bus:

OverLed Bus Pilot (master) can manage up to 32 slave on the bus.
OverLedBUS architecture is master/slave based,the overledBUS slave can be Driver for internal fixture application or node for external fixture application those electronics have inside constant current driver for led power supply or PWM voltage output for powertop strip led.
Each slave have factory ID that can't be changed, this default data it is used for network identification.
In the overledBUS architecture, as soon a slave is connected, it's ID is checked with internal (OverledBUSnode) database list if this not recognized, not memorized before,a new DMX addres on the BUS it is assigned =1 as default, if this units is recognized (found it's ID in database) start to run on the BUS.

Salve module DMX Patching:

CH1 = Shutter (255 =open)
CH2 = Dimmer
CH3 = R
CH4 = G
CH5 = B
CH6 = Color Temperature control
CH7 = Macro
CH8 = Color Mode

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Memorizzazione di un nuovo Slave:
La memorizzazione di un nuovo slave (node o driver) consiste nell'attribuzione di un OverLed Bus driver ID (fra 1e 32, che e' il numero massimo di dispositivi collegabili ad una rete) e dell'indirizzo DMX di base.Lo slave id viene assegnato arbitrariamente da OverledBUSnode ogni volta che uno slave sconosciuto si presenta in rete. Il node evita di assegnare ID gia' in uso da parte di eventuali slave gia' presenti, anche se momentaneamente non connessi nel BUS.
Una volta memorizzato, lo slave otterra' sempre lo stesso ID ad ogni successiva accensione e a questa potra' essere associata una serie di impostazioni, fra cui l'indirizzo DMX di base.
La memorizzazione puo' essere effettuata in due modi:
Pulsante presente sullo slave: inviare un segnale DMX al OverledBUSnode con un solo canale a 255, che sara' il numero del canale DMX assegnato. Tenere premuto il pulsante sullo slave fino a notare una breve interruzione nel lampeggio del led rosso (a bordo del point). Il point viene memorizzato nell'OverledBUSnode con l'indirizzo desiderato. Ogni volta che lo slave verra' rilevato in rete, gli sara' assegnato quell'indirizzo.

Comandi RDM: E' necessario disporre del software ed interfaccia RDM ECCO. Dopo aver effettuato un DISCOVERY (OverledBUSnode deve comparire nell'elenco dei dispositivi RDM con il codice OL 01000000) procedere ad identificare lo slave desiderato impostando via via numeri diversi nella casella "SUB DEVICE" (fra 1 e 32) e premendo il tasto IDENTIFY. La casella SUB DEVICE altro non e' che il OverLed Bus ID (fra 1 e 32) univoco con il quale e' possibile interagire con ciascuno slave.
Se lo slave non e' mai stato memorizzato (quindi il suo ID e' temporaneo e potrebbe cambiare alla prossima accensione), esso lampeggerà in BIANCO per qualche istante.
Se invece si tratta di uno slave gia' noto, si accederà in BIANCO FISSO per qualche istante. E' possibile allora scrivere l'indirizzo DMX desiderato nella casella DMX ADDRESS.

New slave module setting:
Setting a new slave module on OverledBUS is performed assigning ID of overledBUS from 1 to 32 (32 it is a maximum ID available on the OverledBUS) with DMX address position.
The Slave module ID it's arbitrary assigned mode from the OverledBUSnode if this is not registred, avoiding to use same ID already in use for other salve, if they in use or in memory only.

Once the slave module is already in the memory of the OverledBUSnode it will use same ID every time and this can be linked to DMX address thru RDM system.
ID setting for the slave can be made in two ways, using a pushbutton on the salve module or using RDM system, by the pushbutton it is necessary send DMX data signal value at 255 in the channel you want to be associated to the address, for example, sending 255 on the channel 9 and pressing the push button on the slave channel 9 it is assumed on this slave as first DMX address, the slave on board led blink shortelely to indicate ID assigned on the slave, at every power on this ID will be linked to the DMX address assigned.

RDM ID assignement:
Ecco RDM software and hardware it is necessary, use ECCO software to perform Discovery (refer to it's user manual), after this a list of device found will appear on the left of screen,the overledBUSnode appear with the code OL 01000000 (OL is Overled device), then proceede to identify the SUBdevice, the slave on overledBUS are seen as sub device on RDM, now set the ID from 1-32 and assign the DMX value on the DMX address windows.

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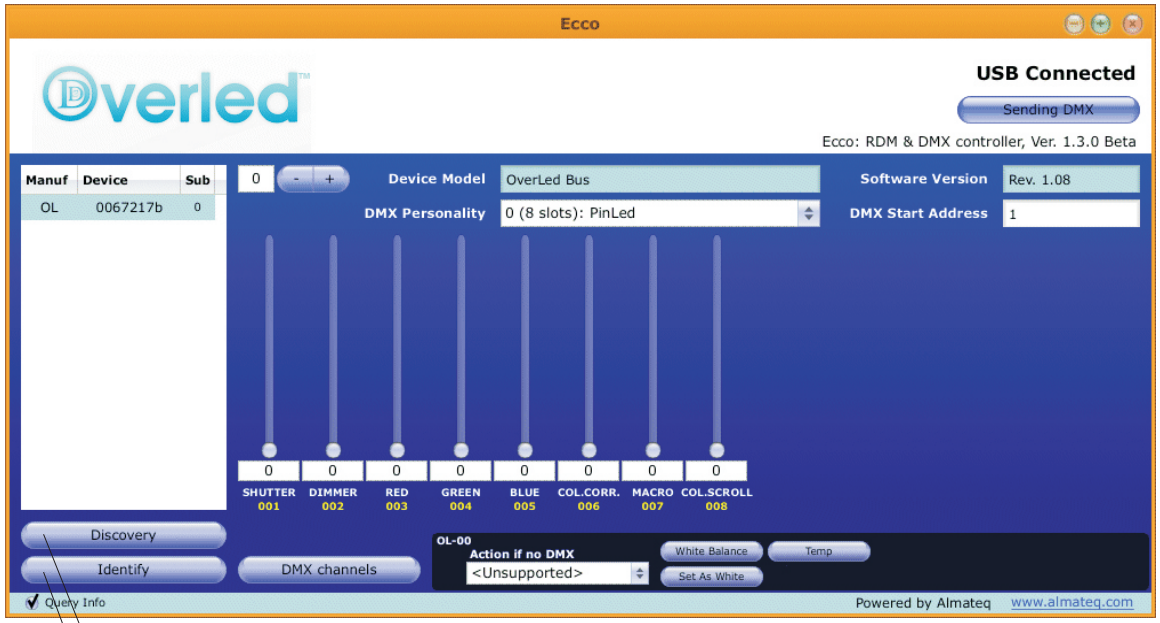
RDM Setting Screen shot

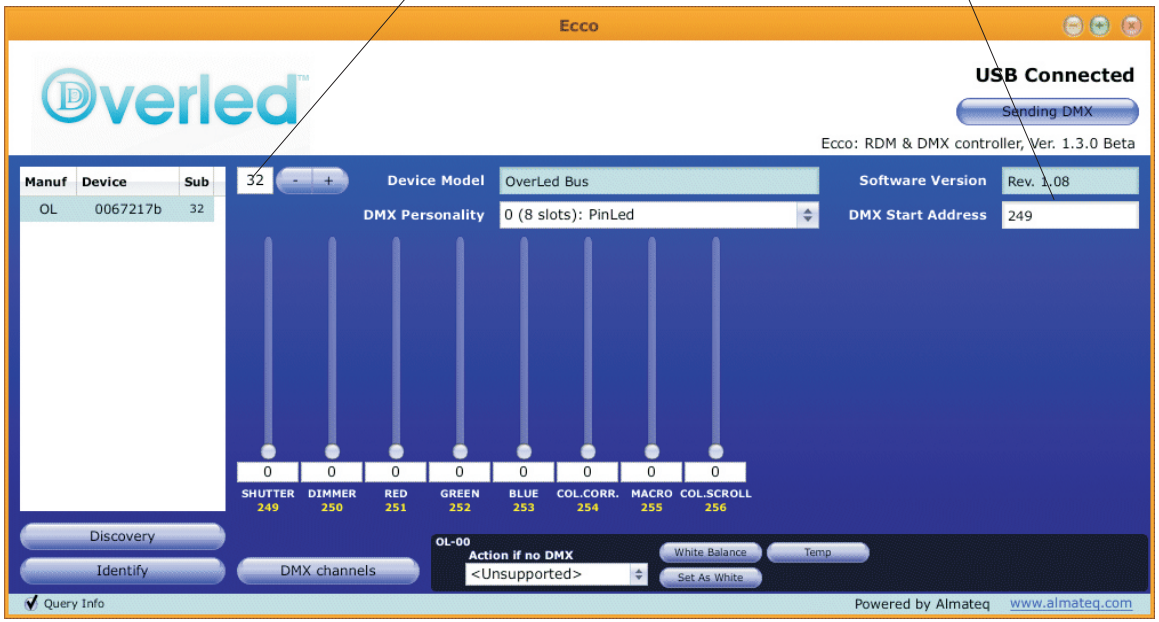


Slave Discovery

Slave identification on bus

Sub Net device

DMX address



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Sostituzione di uno slave:

La sostituzione di uno slave ha lo scopo di assegnare il suo ID (fra 1 e 32) ad un nuovo slave, facendo ereditare a quest'ultimo tutte le impostazioni compreso l'indirizzo DMX di base.

Tutte le operazioni si effettuano mediante i tasti P2, P3 ed il led LD2.

Prima di procedere, collegare UN nuovo slave in sostituzione. NOTA: non collegare piu' di un nuovo slave per volta.

Su OverledBUSnode Premere il tasto P2: se il led LD2 lampeggia verde, tutti gli slave registrati sono in salute. Se lampeggia rosso, uno o piu' di loro non si sono presentati all'OverledBUSnode. In questo caso (durata lampeggio = 5 sec) premere di nuovo P2: se non ci sono nuovi slave (sostitutivi) la procedura termina immeditatamente.

Altrimenti il primo slave trovato (scansione slot a partire dal primo) viene usato come target; e' bene installare un solo nuovo slave per volta in modo da sapere a priori quale sarà il target. Il led LD2 lampeggia fra blu e magenta (come prima ma con blu fisso). Il timeout e' ora 15 secondi. Ad ogni pressione di P2 verra' associato al nuovo slave l'indirizzo DMX di uno degli slave trovati non funzinanti sul bus (se e' uno solo, la pressione non avra' alcun effetto).

Quando (e se) l'indirizzo DMX corrisponde (il nuovo slave si comporta come quello che deve sostituire) premere P3: il vecchio slave verra' eliminato dal database e sovra scritto in EEprom con l'UID di quello sostitutivo. Anche il numero di RDM_SUBDEVICE viene ereditato.

Procedere eventualmente a collegare un nuovo point per sostituirne un altro.

Slave Replacement:

Slave replacement target is to assign new ID from1 to 32, assuming to this slave connected all features that replaced has.

The replacement procedures are made using P2,P3 and led Ld2. Before to start with this procedure, replace the salve desired with a new one. Note: do not replace more then one slave at the same time.

Pressing pushbutton P2 if Ld2 green blink all slave are registred and they are healty, if Ld2 red blink mean, one or more slave it is not in the bus.

If this happen, Ld2 blink for 5 seconds, then press P2 again on the OverledBUSnode, if no new slave connected the procedure end immediatelely.

If first new slave found this it will be used as target; this is the reason why the best is to install one slave at the time, to know excatelely wich one is the replaced on the BUS.

Ld2 blink between magenta and blue, at every P2 pression a new device is associated at new DMX address, if non working salve found nothing will happen.

When new salve it is associated with DMX, it will work as the previous replaced, pressing P3 the old slave it will be deleted from OverledBUSnode database, also sub device RDM will assume this as new one.Repeat for every device replaced this procedure.

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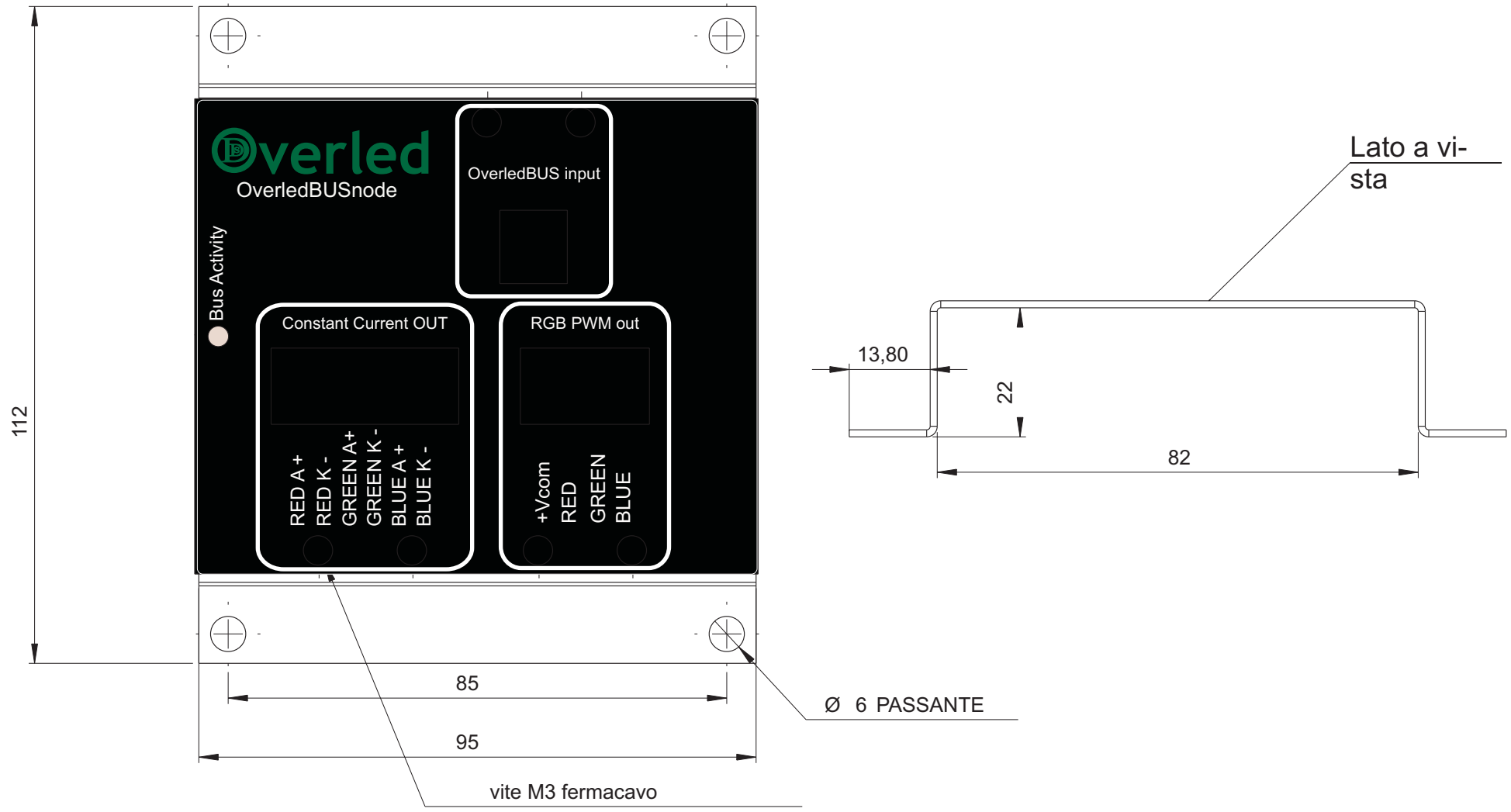

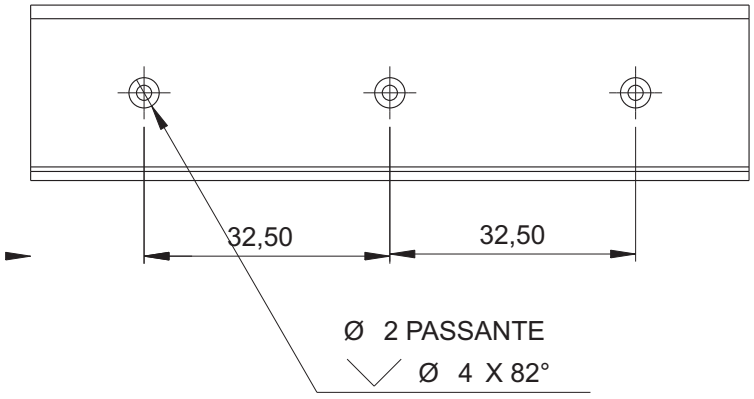

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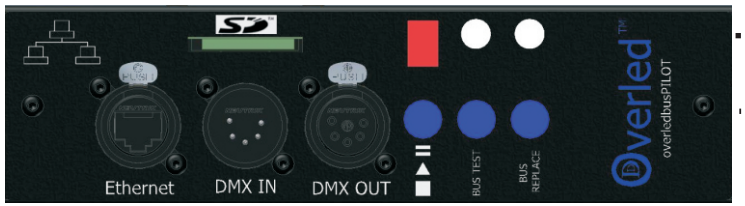
Cablaggio:

2 wire twisted, cavo 2 poli



MAX 100mt

T

Terminatore
Terminator
BUS

Modulo OverledBUSnode

OvrledBUSnode

modulo #1 .... #32

module #1 .... #32

Alimentatore
12 o 24Vdc dimensionato
per il carico lampade

110/220VAC

External switching power
supply 12/24VDC out with
correct power for the load.

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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. The controller 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 used the 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.A DMX 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 ANSI E1.20 - 2006.

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 talk-back 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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