

coemar

bidIRECTIONAL • OPTO • SPLITTER • 6
DMX 512 HUB

**manuale
di istruzioni
instruction
manual**

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1st edition, june 2002

Bidirectional Opto Splitter

numero di serie/serial number

data di acquisto/date of purchase

fornitore/retailer

indirizzo/address

cap/città/suburb

provincia/capital city

stato/state

tel./fax/

Prendete nota, nello spazio apposito, dei dati relativi al modello e al rivenditore del vostro **Bidirectional Opto Splitter**: in caso di richiesta di informazioni, pezzi di ricambio, servizi di riparazione o altro ci permetteranno di assistervi con la massima rapidità e precisione.

Please note in the space provided above the relative service information of the model and the retailer from whom you purchased your **Bidirectional Opto Splitter**: This information will assist us in providing spare parts, repairs or in answering any technical enquiries with the utmost speed and accuracy.

ATTENZIONE: la sicurezza dell'apparecchio è garantita solo con l'uso appropriato delle presenti istruzioni, pertanto è necessario conservarle.

WARNING: the security of the fixture is granted only if these instructions are strictly followed; therefore it is absolutely necessary to keep this manual.

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1. Introduction

Congratulations on having purchased a **Coemar** product. You have assured yourself of a fixture of the highest quality, both in componentry and in the technology used.

We renew our invitation to you to complete the service information on the previous page, to expedite any request for service information or spares (in case of problems encountered either during, or subsequent to, installation). This information will assist in providing prompt and accurate advice from your **coemar** service centre

1.1 Why BIDOS?

BIDOS is an indispensable tool for fully utilising the DMX 512-A bi-directional transmission protocol

In fact, when installed in a DMX 512-A network where projectors are capable of bi-directional communication with a control console, or when being utilised with the DR1 and DR2, BIDOS acts as a true HUB: isolating, amplifying and regenerating the DMX signal whilst allowing for full dual way communication.

BIDOS is also a splitter and opto isolator with an isolation rating of 2500 V and offering protection on all outputs.

1.2 Where to use BIDOS

In a standard DMX 512 network, the device will operate as a traditional Opto splitter, isolating the DMX signal, amplifying and regenerating it.

The **Bidirectional Opto Splitter** is available in two versions:

- **Bidirectional Opto Splitter DMX 512 HUB rack** for installation in a mobile rack;
- **Bidirectional Opto Splitter DMX 512 HUB truss** for installation in truss and lighting support systems.

Following the instructions and procedures outlined in this manual will ensure the maximum efficiency of this product for years to come.

2. Packaging

Open the packaging and ensure that no part of the equipment has suffered damage in transit. In case of damage to the equipment, contact your carrier immediately by telephone or fax, following this with formal notification in writing.

packing list

Ensure the packaging contains:

Bidirectional Opto Splitter DMX 512 HUB rack

- 1 **Bidirectional Opto Splitter DMX 512 HUB rack**
- 1 Power cable
- 1 Instruction manual

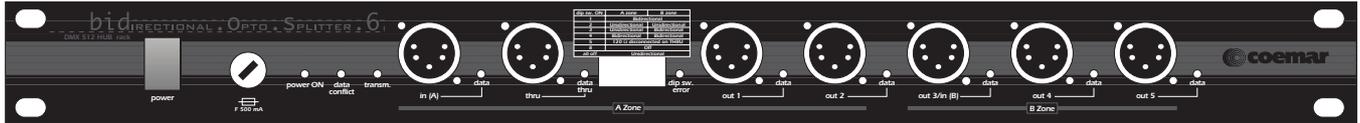
or

Bidirectional Opto Splitter DMX 512 HUB truss

- 1 **Bidirectional Opto Splitter DMX 512 HUB truss**
- 1 Hanging bracket
- 1 pvc packet containing screws for affixing the bracket
- 1 Power cable
- 1 Instruction manual

3. Technical characteristics

3.1 Technical characteristics - Bidos rack

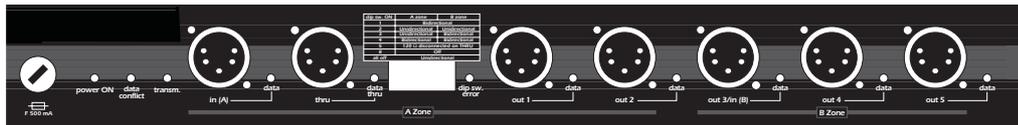


Technical characteristics:

- Operating voltage: 90/240V 50/60 Hz (auto-selecting);
- Inputs/outputs Data DMX 512/DMX 512A via 6 XLR5 F/ 1 XLR5 M;
- On/off switch;
- External fuse protection;
- Over-voltage protection;
- Led monitors for:
 - power;
 - data conflict;
 - active transmission;
 - dip-switch setting error;
 - signal presence via the XLRs.

This **coemar** product conforms to all CE norms.

3.2 Technical characteristics - Bidos truss



Technical characteristics:

- Operating voltage: 90/240V 50/60 Hz (auto-selecting);
- Inputs/outputs Data DMX 512/DMX 512A via 6 XLR5 F/ 1 XLR5 M;
- External fuse protection;
- Over-voltage protection;
- Led monitors for:
 - power;
 - data conflict;
 - active transmission;
 - dip-switch setting error;
 - signal presence via the XLRs.

This **coemar** product conforms to all CE norms.

4. Important safety information

IMPORTANT:

Any damage which occurs due to a failure to read these instructions fully is not subject to warranty. The reseller accepts no responsibility for any damage which may occur due to a failure to carefully follow the instructions contained in this manual.

Fire prevention:

1. Do not connect the **Bidirectional Opto Splitter** in situations with high humidity. The **Bidirectional Opto Splitter** is not water resistant.
2. Never subject the **Bidirectional Opto Splitter** to extreme heat.
3. Replace damaged fuses only with those of identical dimensions and ratings. If necessary, consult the connection diagram.
4. Connect the device only on an electrical circuit which is protected by a thermal magnetic circuit breaker.

Preventing electric shock:

1. When connecting the **Bidirectional Opto Splitter** to mains electricity, follow the instructions contained in this manual.
2. The level of technology inherent in the **Bidirectional Opto Splitter** necessitates the use of specialist personnel for all service applications; refer all work to your authorised **coemar** service centre.
3. A good earth connection is essential for proper functioning of the projector. Never operate the unit without proper earth connection.
4. High voltage is present in the internals of the unit. Isolate the projector from mains supply prior to performing any function which involves touching the internals of the **Bidirectional Opto Splitter**.
5. Do not allow the mains power cable to come into contact with other cabling. The mains cable and all other cabling should be maintained in good order. Never touch the **Bidirectional Opto Splitter** with wet hands.
6. Ensure that the mains power available to the unit is within the normal operating parameters specified in this manual.

Safety:

1. **Always install the unit using** bolts, clamps, and other fixings which are suitably rated to support its weight.
2. The ambient operating temperature for the **Bidirectional Opto Splitter** should be between -10°C and +40°C.
3. **Never install the unit in direct contact with the elements, particularly rain, nor in areas of high humidity or temperatures above 40°C.**
4. Do not place any liquids on or near the unit. Should any liquid accidentally penetrate the interior of the unit, immediately remove mains power and have the unit checked by qualified personnel prior to reusing it.
5. **The unit should be transported in either its original packaging or in a suitably constructed roadcase or housing.**
6. When cleaning the **Bidirectional Opto Splitter** never use any detergents or solvents which may damage the unit. We recommend a damp soft cloth.
7. Only use the device after having carefully read this manual. Untrained personnel should not operate the device. Inexperienced operators may cause damage.
8. Unauthorised modifications may be dangerous.
9. Any modifications will immediately void the warranty.
10. Keep the device out of reach of children!

Protection rating against penetration by solids and liquids:

1. This device is rated as an ordinary device. Its protection rating is IP20.

5. Installation

Rack-mount installation, or installation into a similar device, should proceed in accordance with the advice detailed below to ensure safe and proper operation of the device.

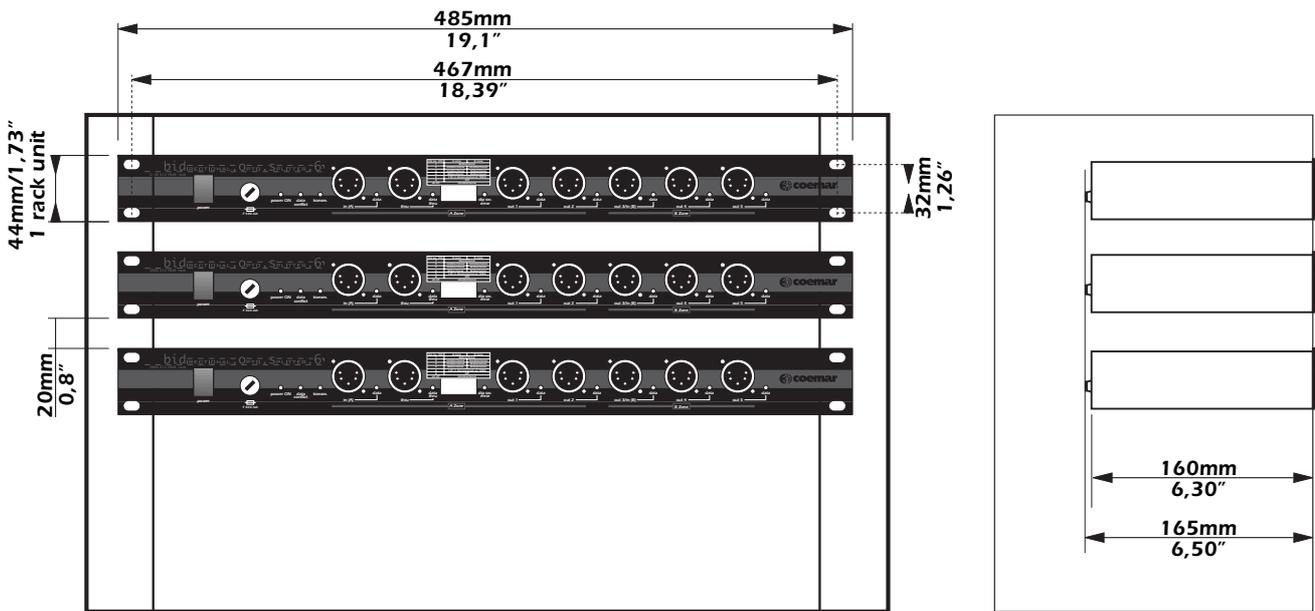
Attention

The construction and dimensions of the **Bidirectional Opto Splitter** are suitable for installation in a standard 19" rack.

If installing the **Bidirectional Opto Splitter** in a rack which houses dimming equipment, care should be taken to ensure that the ambient operating temperature within the rack does not exceed 40° C. Since dimmers can produce substantial heat, it is important to install the **Bidirectional Opto Splitter** leaving at least 2 centimetres of space between the housing and any wall or device which may obstruct air flow. We recommend that any such rack mount housings be fitted with cooling fans to allow air to circulate in and around the unit.

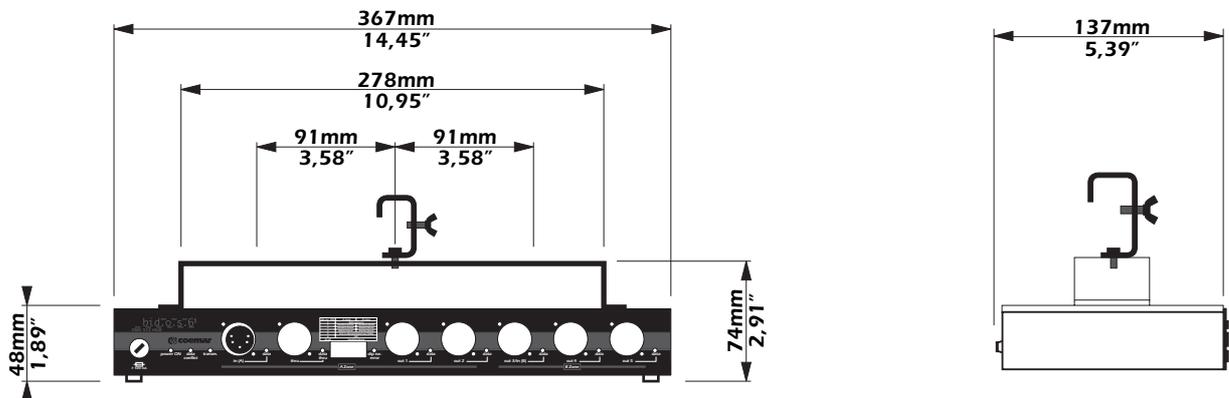
5.1 Installing the Bidirectional Opto Splitter Rack

The **Bidirectional Opto Splitter** rack may be installed in a standard 19" rack.



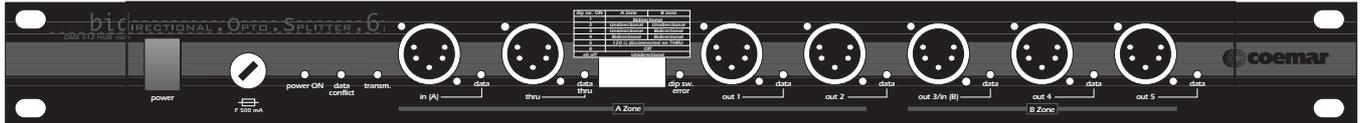
5.2 Installing the Bidirectional Opto Splitter Truss

The **Bidirectional Opto Splitter Truss** is provided with 3 holes to allow for the connection of an appropriate clamp for attaching the unit to a truss structure. The structure from which the **Bidirectional Opto Splitter Truss** is hung should be of sufficient rating to hold the weight of the unit.



6. Zone descriptions

The front panel of the **Bidirectional Opto Splitter** is divided into zones:



Power Zone

The on/of **switch** allows the **Bidirectional Opto Splitter** to be powered up. Only available on the **rack version**.

Fuse Zone

The **Bidirectional Opto Splitter** is fitted with a F 500 mA fuse. When replacing the fuse, ensure that an identical unit with the same dimensions and rating is utilised.

Led Zone

- The power **ON** led monitors the on/off state of the **Bidirectional Opto Splitter**.
- The **data conflict** led comes on when the cable connected to an XLR 5 socket is not fitted correctly. For further information, read the section entitled "**Data conflicts**" on page 13.
- **Transm led:**
 - In monodirectional mode: always on;
 - In bidirectional mode: Flashes if there is an incoming signal to the **Bidirectional Opto Splitter**.
- The **data thru** led will come on a load of 120Ω is attached to the **thru input**.
- The **dip switch** error led will come on if there is an error in the setting of dip switches is identified. For further information, read the section entitled "**Dip switch setting errors**" on page 13.
- **Data led:**
 - On: indicated sockets set to input;
 - Flashing: indicates that there is bidirectional communication between the **Bidirectional Opto Splitter** and a connected fixture
 - Off: indicates no bidirectional communication is occurring.

Zone A

The XLR 5/M connector **(A)** is the input for DMX 512 signal.

The XLR 5/F **thru socket is an output to which** the **Bidirectional Opto Splitter** may be connected to other DMX 512 devices via a non-optoisolated signal.

The XLR 5/F **out1** and **out2 connectors are:**

- in monodirectional mode: optoisolated outputs;
- in bidirectional mode: optoisolated input/outputs.

The **dip-switch** panel allows for the selection of the mode of operation (bidirectional/monodirectional) via zones **A** and **B**.

Zone B

The XLR 5/F connector **out3/in (B)** is:

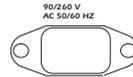
- in monodirectional mode: the input for DMX 512 for zone **B**;
- in bidirectional mode: an optoisolated input/output.

The XLR 5/F connectors **out4** and **out 5** are:

- in monodirectional mode: optoisolated outputs;
- in bidirectional mode: optoisolated input/outputs.

For further information on the modes of operation of the zones on the front panel, refer to **section 8 on page 10** of this manual.

7. Rear panel elements



The rear panel of the **Bidirectional Opto Splitter** features the following elements:

- the **serial number** of the unit;
- the mains power socket and a sticker indicating the range of operating voltages and frequencies (90 260 V AC 50-60Hz) which are acceptable.

8. Connecting DMX 512 signal

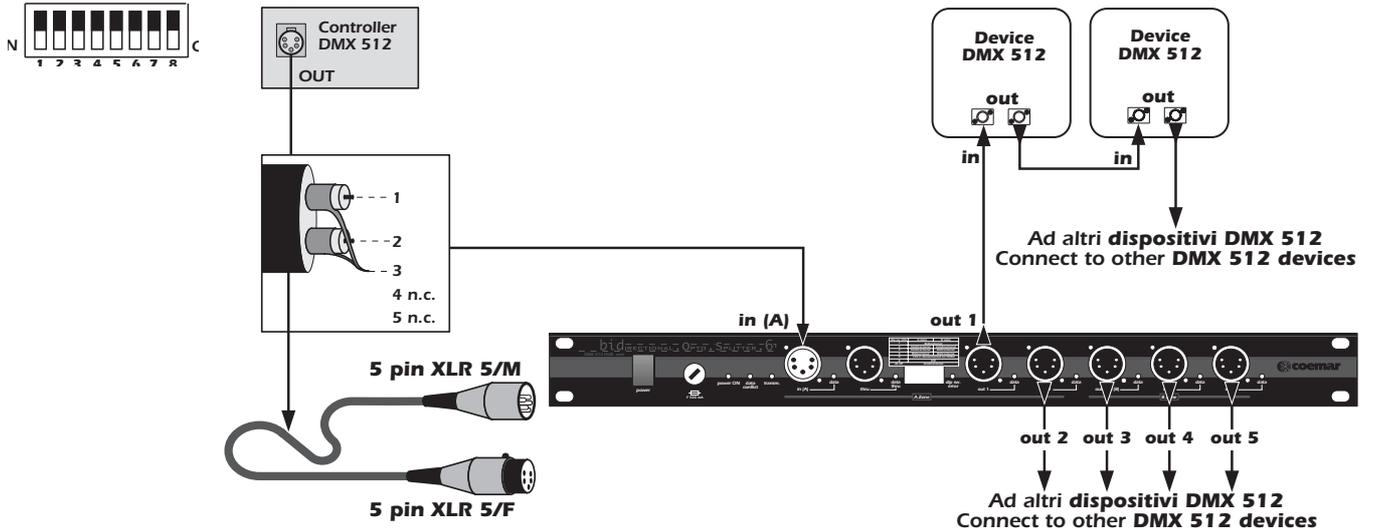
SETTING UP BIDOS:

The 8 dip-switch panel allows for various configurations of the 7 XLR 5 installed on the front panel:

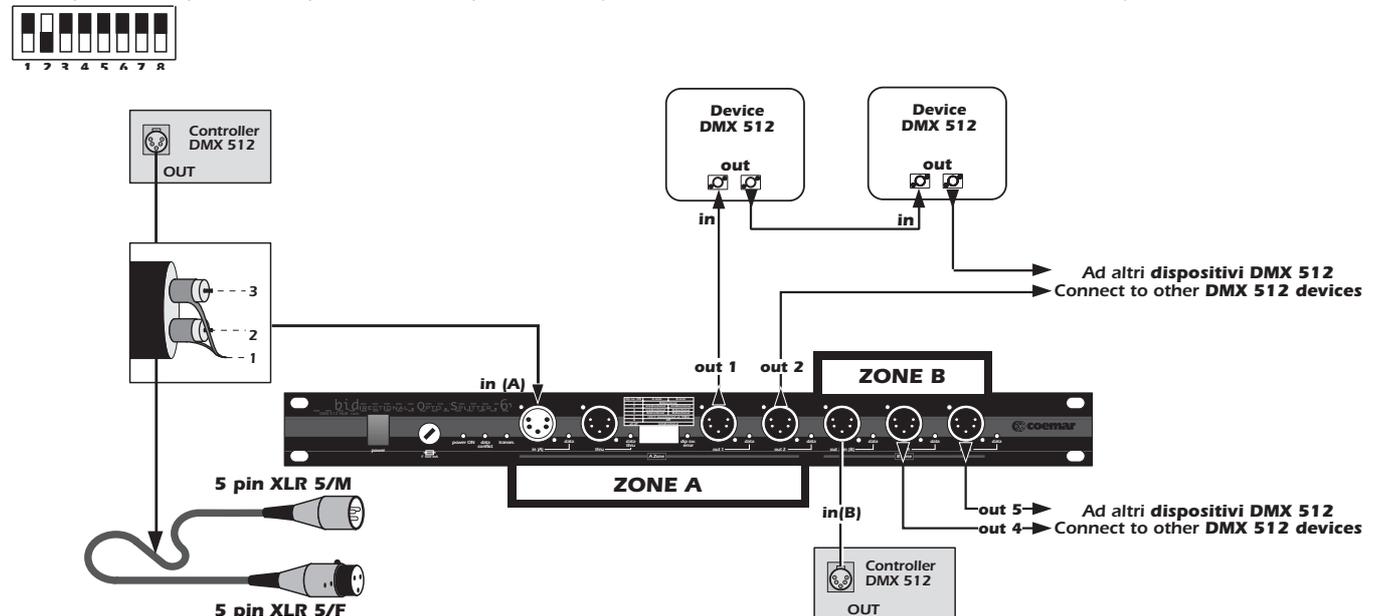
dip sw. ON	A zone	B zone
1	Bidirectional	
2	Unidirectional	Unidirectional
3	Unidirectional	Bidirectional
4	Bidirectional	Bidirectional
5	120 Ω disconnected on THRU	
8	Off	
all off	Unidirectional	

8.1 Suggested setup for monodirectional data operation

1 input- 5 outputs - 1 thru (monodirectional)

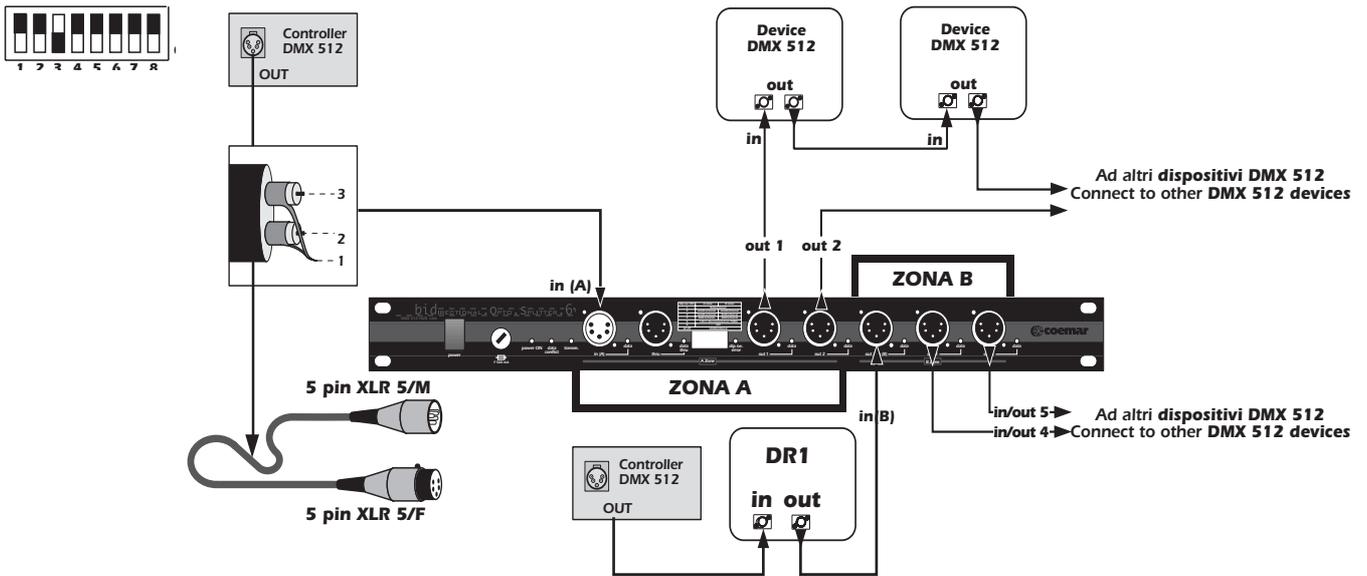


2 independent inputs - 2 outputs for each input - 1 thru (Zone A monodirectional -Zone B monodirectional)

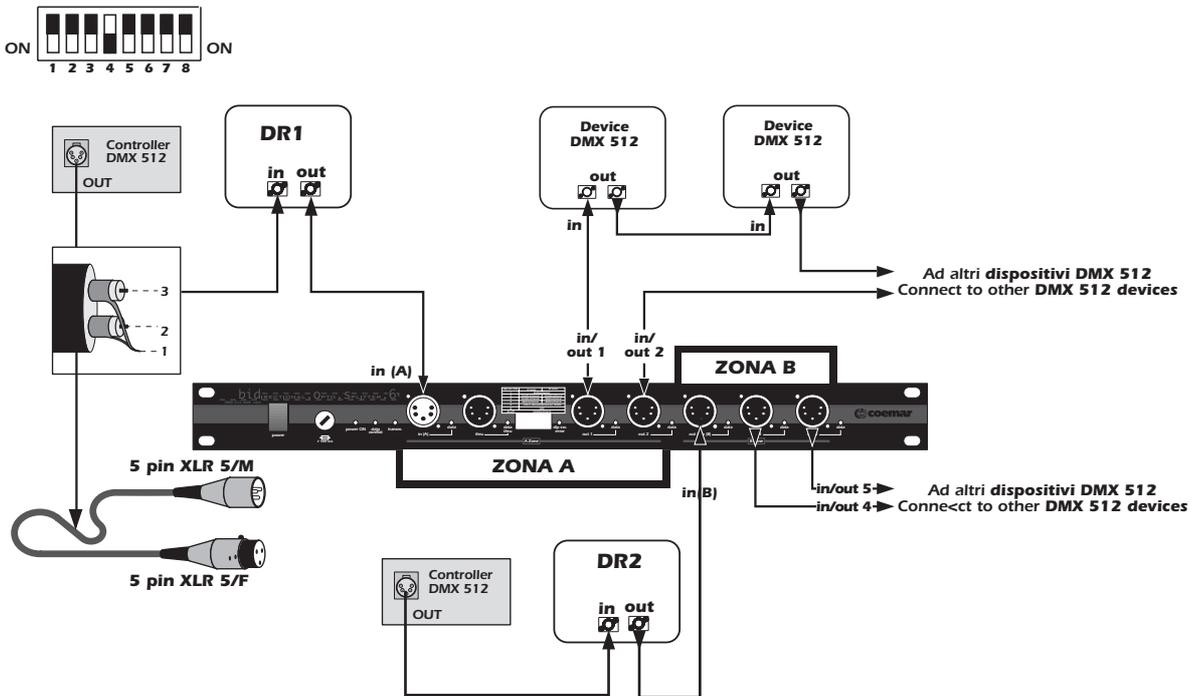


8.2 Suggested setup for mixed bidirectional/monodirectional data operation

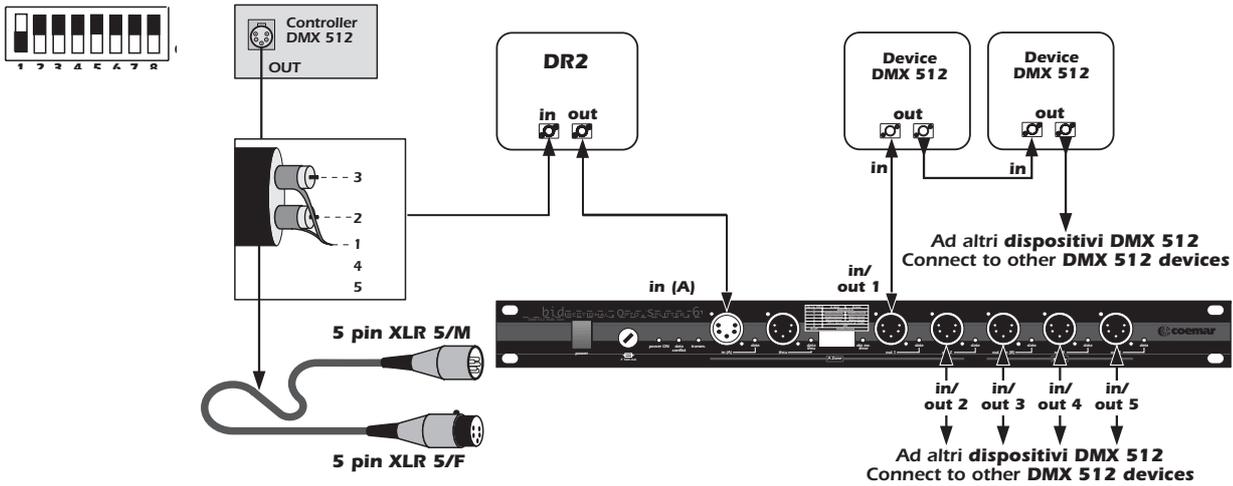
1 monodirectional input - 2 monodirectional outputs - 1 bidirectional inputs/outputs - 2 bidirectional inputs/outputs - 1 thru (Zone A monodirectional-Zone B bidirectional)



2 bidirectional inputs - 4 bidirectional outputs - 1 thru (Zone A bidirectional -Zone B bidirectional)



8.3 Suggested setup for bidirectional data operation 6 bidirectional inputs/outputs - 1 thru (bidirectional)



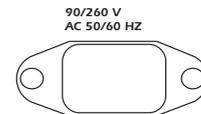
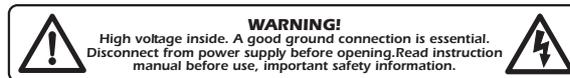
9. Mains connection

Important note:

Prior to connecting to mains power, ensure that the supply voltage corresponds to the settings indicated on your device as acceptable.

9.1 Power

The **Bidirectional Opto Splitter** may operate at voltages between 90 and 260V AC at a frequency of 50/60 Hz, as indicated on the sticker on the rear of the projector.



The mains cable provided with the **Bidirectional Opto Splitter** is a specific manufacture which conforms to all the recent international safety norms and requirements.

NB: If the cable requires replacement, use only cable which is similar to: (coemar cod. RZ-CON 04).

10. Error messages

10.1 Data conflicts

Data conflicts can occur when a incorrectly connected cable in inserted into one of outputs of the **Bidirectional Opto Splitter**.

The conflict is indicated by the Data Conflict led which will switch on.

10.2 Dip-switch setting errors

An error in setting the dip-switches will occur when more than one dip-switch is in the **ON position**.

Dip-switch error example:



The error is indicated by the Dip Switch led which will switch on.

11. Led functions

The following table indicates the Led functions:

led	Input/output status	Mono-directional function		Bi-directional function	
Power ON	None	ON		ON	
data conflict	Short circuit pin1-2 on out	quick flashing		quick flashing	
	Short circuit pin1-3 on out	slow flashing		slow flashing	
	Short circuit pin2-3 on out	ON		ON	
	corto ingresso	OFF		OFF	
transm.	Input signal	ON		ON	
	no input signal	OFF		OFF	
Data	Input signal	Data in ON	Data out OFF	Data in ON	Data out OFF
	no input signal	Data in ON	Data out OFF	Data in ON	Data out OFF
	bi-directional input signal	Data in ON	Data out OFF	Data in ON	Data out flashing
	mono-directional input signal	Data in ON	Data out OFF	Data in ON	Data out OFF
Data thru	It flashes when a 120Ω resistive load is applied to XLR thru				
Dip-switch error	It flashes if a setting error of dip-switches from 1 to 4 is made				

12. Spare parts

All the components of the **Bidirectional Opto Splitter** are available as spare parts from your authorised **Coemar** service centre. Accurate description of the item, model number, and the part required will assist us in providing for your requirements in an efficient and effective manner.

13. Troubleshooting

Symptom	Possible cause	Possible solution
The on/off power led is off	The mains cable may not be connected to mains power or the switch or power supply may be in the off position.	Connect the mains cable to a working power supply and turn the on/off switch to the on position.
When signal cable is attached the led does not come on to acknowledge its presence.	Check the the leds indicating signal errors are on. If so, the signal cable may be damaged.	Consult section 11 of the manual. Test and, if necessary, replace the signal cable.
When connected to a DMX universe, the Bidos does not allow projectors to operate normally.	The Bidos splitter has not been set to the correct mode.	Check the mode setting on the unit, using the table in section 8 (pag.10) if needed.
Signal comes into the splitter but does not exit via one of the outputs	The output of the splitter is damaged or the splitter is not set in the correct mode.	Connect the input cable of the splitter to the output cable which is not receiving signal. If signal flows through correctly, insert the connector into another outlet and see section 10.1 error settings.