

# USER MANUAL

**BarnPalette-OCS (optical changeover switch)**

**Barnfind Technologies AS**

**Norway**



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## 1. INTRODUCTION

Thank you for choosing Barnfind products!

Welcome to the **BarnPalette-OCS User Manual**. This guide is designed to help you quickly set up, operate, and maintain your product to ensure optimal, long-term performance.

## 2. SAFETY INFORMATION (general)

**⚠ Important:** Read all safety instructions before use.

- Protect from water and moisture exposure.
- Keep out of reach of children.
- Disconnect before cleaning.

### 2.1 SAFETY INFORMATION (laser safety)



- Never look directly into a laser beam.
- Avoid pointing lasers at reflective surfaces to prevent unintended reflections.
- Do not point a laser at people, animals, or vehicles.
- Keep unauthorized personnel out of laser operation areas.
- Use lasers only in controlled environments designed for their class.

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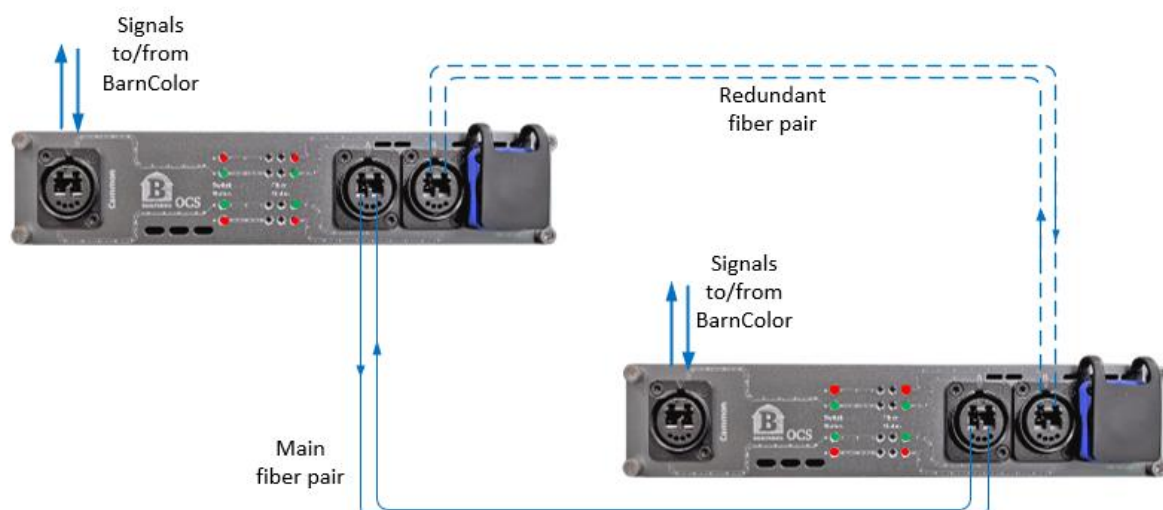
## 3. WHAT'S IN THE BOX / PACKAGE CONTENTS

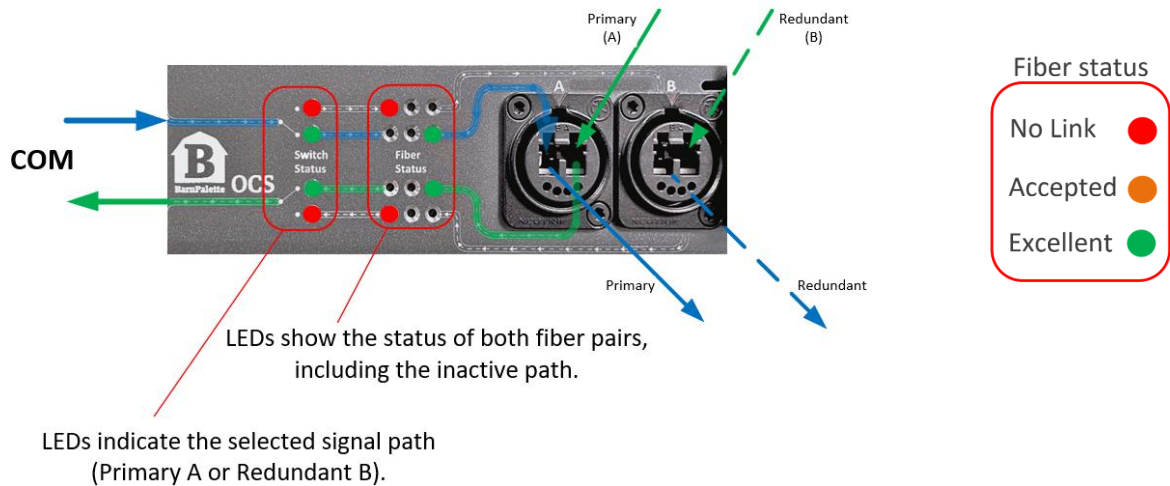
- 1(2)x **BarnPalette-OCS**
- 2x Interconnection bracket
- 4x Rack ear

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## 4. PRODUCT OVERVIEW

Designed to ensure uninterrupted fiber connectivity in mission-critical applications. This system comprises two units connected by dual fiber strands – primary and backup. The OCS continuously monitors the primary fiber, instantly switching to the backup strand if any issues are detected. This ultra high-speed transition guarantees maximum uptime and reliability, making it an indispensable tool for any high-stakes environment.

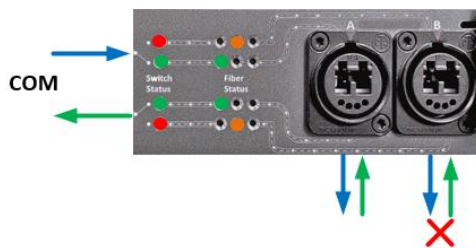




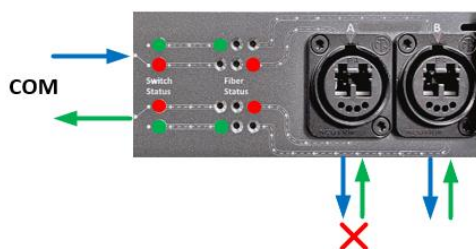
The **BarnPalette-OCS** is an intelligent optical switch designed to trigger an immediate failover upon detecting signal loss, ensuring bi-directional transmission security. The physical switching process is rated at approximately **8ms**.

⚠ To monitor system health, a pair of BarnPalette-OCS units communicate via a dedicated **1270nm internal light source**. [This specific wavelength is reserved exclusively for inter-unit status signaling; it is not utilized by other BarnPalette or BarnColor devices and cannot be used by any other hardware within a daisy chain.](#)

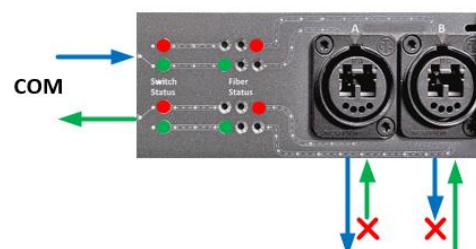
Some examples of BarnPalette status:



The COM port is currently routed to Primary (A), while the Redundant (B) path reports an orange fiber status.



The COM port is currently routed to Redundant (B), while the Primary (A) path reports a red fiber status.



The COM port is currently routed to Primary (A) on the input signal, while the output signal is routed to Redundant (B).

## 5. INSTALLATION / SETUP

1. Unpack all items.
2. If mounted in a 19" rack, attach the interconnection between units in front and rear, then the rack ears.
3. Power up the unit

### 5.1 Brackets for mounting

The units offer versatile mounting options for a 19" rack, allowing installation as single units or interconnected double units. Additionally, an optional bracket is available to securely mount and fasten a unit to an overhanging truss system.

You will need a Torx (T20) driver for this modification.



#### **Mount rack ears (included):**

Remove the two corner screws (T20) from either the left or right side of the unit.

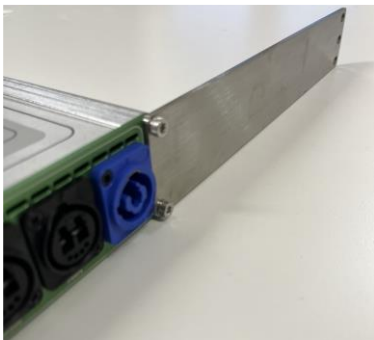
Use these same two screws to mount the "rack ear."



#### **Mount interconnection plate (Included):**

Remove the two corner screws (T20) from either the left or right side of the unit. Same side as the unit you want to inter-connect.

Use these same two screws to mount the "connection bracket"



#### **Mount a blind plate for single unit in a 19" rack (Optional):**

Remove the two corner screws (T20) from either the left or right side of the unit.

Use these same two screws to mount the "blind plate."



**Mount a truss bracket (Optional):**

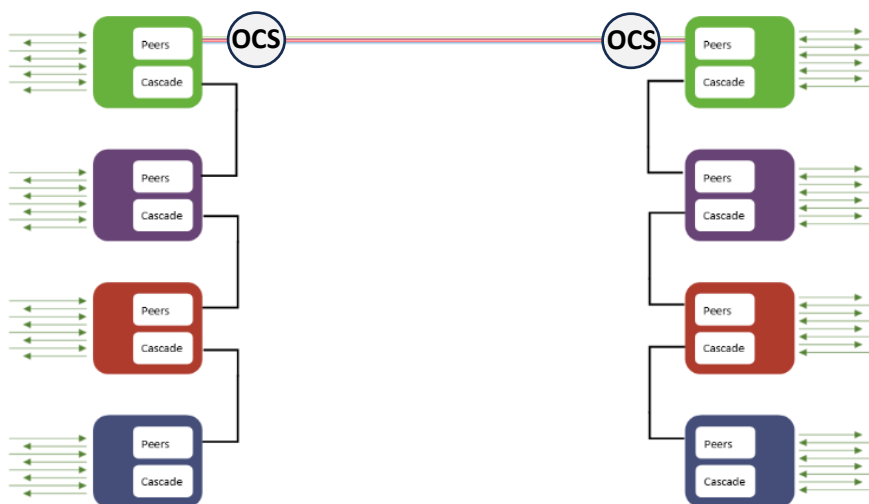
Remove the four corner screws (T20) from rear side of the unit. Pull the rear panel slightly sideways, enough to access the side rail.

Slide in the truss bracket all the way to the front panel.

Re-assemble the rear panel.

**6. HOW TO USE**

The **BarnPalette-OCS** serves as a versatile, automatic optical changeover switch compatible with single BarnColor pairs, full BarnColor cascades, or any third-party optical transmission system. By continuously monitoring both fiber paths, the unit ensures maximum reliability with an immediate failover the moment a signal loss is detected.



Barncolor products offer flexible connectivity, allowing them to be linked using two different connector types: the specialized Neutrik opticalCON DUO, or a standard duplex Single Mode fiber with LC-LC connectors.



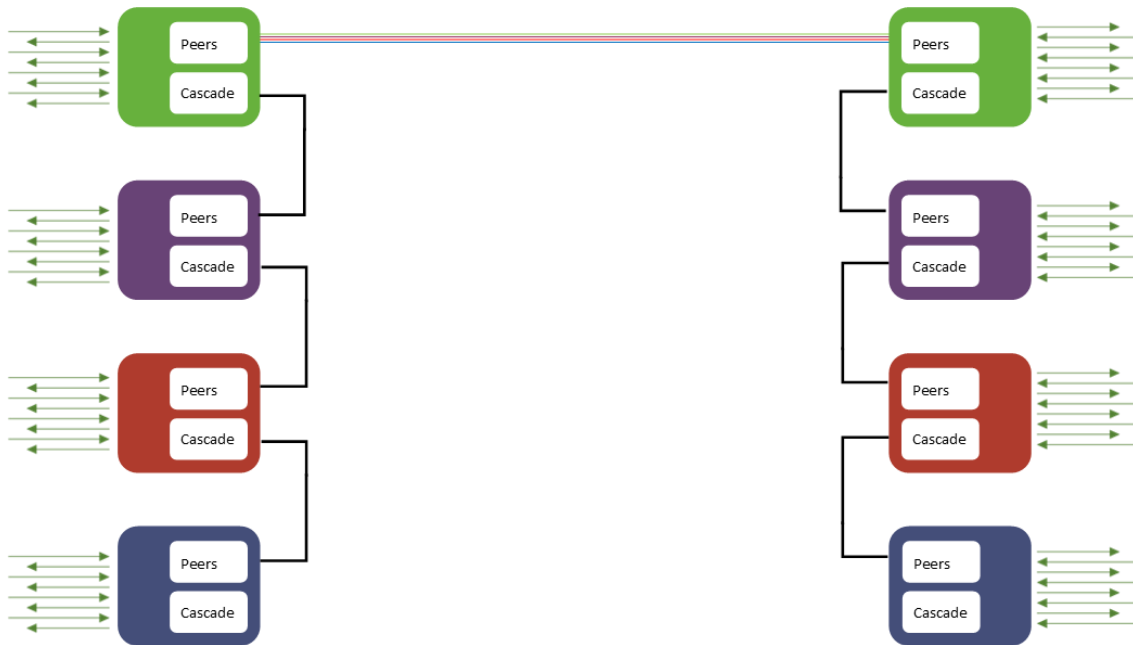
*Neutrik opticalCON DUO*



*Standard LC-LC connectors*

## 6.2 Cascade multiple units

BarnColor devices can be daisy-chained and all signals for both directions will be transferred into the same fiber pair. Follow the diagram below for connections. You do not need to follow a specific color order when connecting. You will find the same diagram on top of the device.



## 6.3 Cascade multiple units, different models

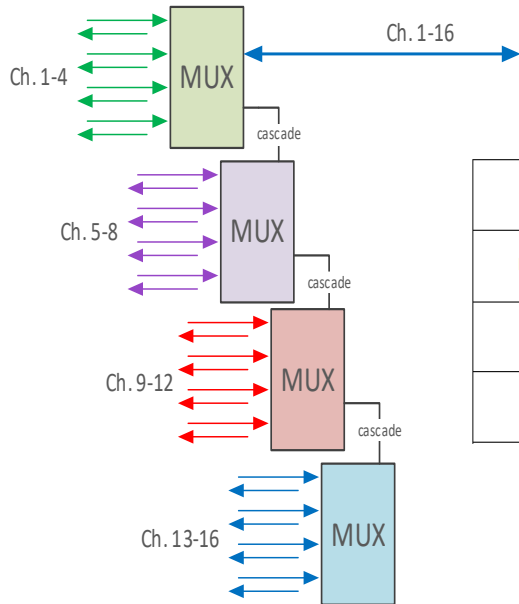


You can create a customized daisy-chain system by combining different models of BarnColors or using multiple units of the same model, **provided the colors used are distinct**. This flexibility allows you to tailor the system precisely to your required signal formats and quantities.

- You do not need to follow a specific color order when connecting
- Units within the daisy-chain can be placed across various locations, such as different rooms, floors, or even buildings, provided the total transmission distance does not exceed 10 km.

## 6.4 Add more signals to a “full” daisy-chain

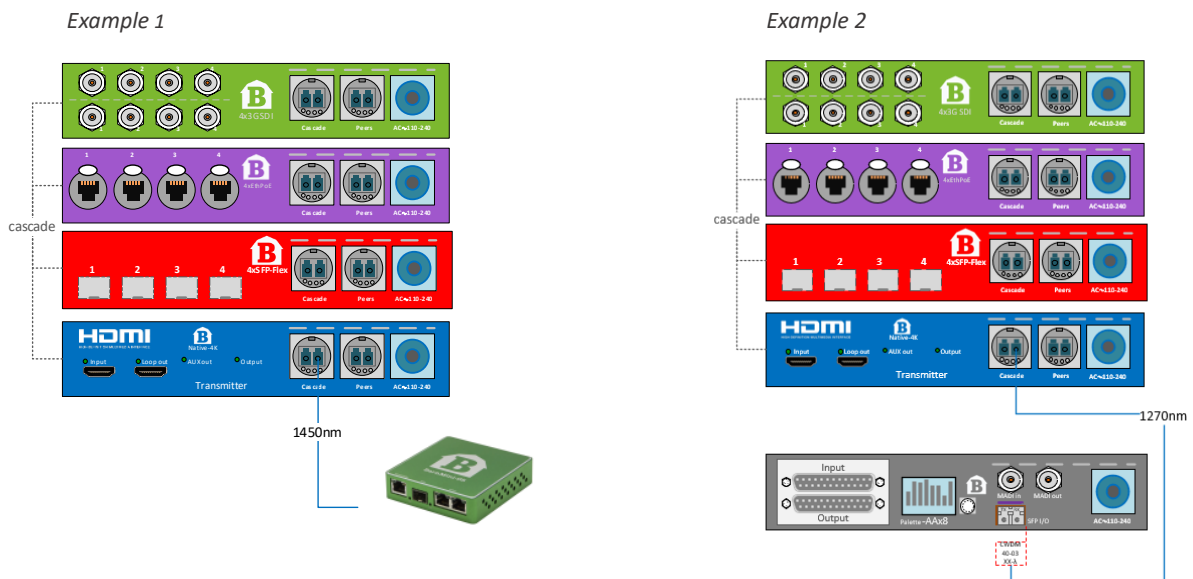
BarnColor units utilize (CWDM) technology. This enables the transport of multiple signals over a single fiber core. Each Color unit converts signals to a unique wavelength, allowing signals from various Color units to be daisy-chained (as illustrated below).



BarnColor CWDM Wavelength table

|        |      |      |      |      |
|--------|------|------|------|------|
| Green  | 1290 | 1310 | 1330 | 1350 |
| Purple | 1370 | 1390 | 1410 | 1430 |
| Red    | 1470 | 1490 | 1510 | 1530 |
| Blue   | 1550 | 1570 | 1590 | 1610 |

The BarnColor system intentionally reserves 1270nm and 1450nm wavelengths. This capacity can be utilized to integrate additional devices—including Barnfind products, network switches, or equipment from any third-party vendor—that operates at these specific wavelengths.



**⚠** When using BarnPalette OCS, 1270nm is occupied and cannot be used as described above.

## 7. TROUBLESHOOTING

| Issue                                       | Solution   |
|---|--|
| No signal                                   | <ul style="list-style-type: none"><li>• Are both Primary and Redundant connected</li><li>• Check connectors.</li><li>• Check if [Fiber Status LED] is green. This indicates an excellent fiber connection.</li></ul>         |
| Fiber Status LED shows orange or red status | <ul style="list-style-type: none"><li>• Clean all fiber connectors and fiber ends. <u>See chapter 9.0 about fiber cleaning.</u></li><li>• Fiber distance long/too long.</li><li>• Poor fiber or connector quality.</li></ul> |

## 8. FREQUENTLY ASKED QUESTIONS

### Q: How long distance can I transmit my signals?

A: Up to 10 km (from beginning to end of the cascade) depending on the connector and fiber quality. Signals with lower bandwidth will reach longer than high-speed signals. You can expect a 3G-SDI signal to reach 40km+.

### Q: What should I check if there is no picture/signal at the receiver?

A: Make sure all your connections are properly made. Then follow the steps in the “Troubleshooting” table.

### Q: Can I mix & match different BarnColor models, e.g a green SDI and a blue Flex?

A: Yes, this is the concept of BarnColor. You can mix any models in your daisy-chain as long as the color is different.

### Q: How about redundant power?

A: There is no redundant power supply in BarnColor or BarnPalette units but let us know if this is mandatory and we can add a PDU (Power Distribution Unit, with redundancy) to your design.

### Q: What if I need more than 4 signals?

A: All BarnColor models are available in four (4) colors. You can daisy-chain a green SDI unit and a purple SDI unit in the same chain.

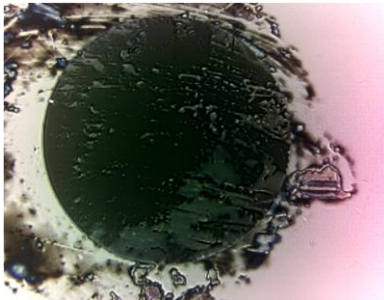
## 9. MAINTENANCE & CARE

It is critically important to clean fiber optic connector ends because even microscopic contamination can severely degrade or completely block the optical signal, leading to performance issues and potential permanent equipment damage.

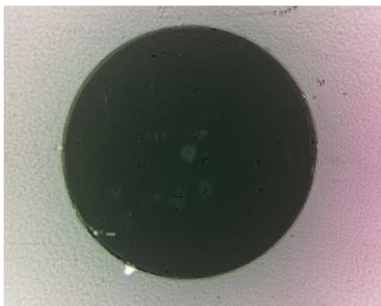
Contamination on the connector end-face is consistently cited as the number one cause of fiber optic network failures across all environments.

### Always clean Before Mating!

- Use Only Fiber-Specific Cleaners: Never use alcohol, solvents, or cloths not specifically designed for fiber optics.
- Dry Cleaning: Use a fiber cleaning tool (e.g., a stick cleaner or cassette cleaner) designed for the specific ferrule size and connector type (LC)



This microscope screenshot shows a typical contaminated fiber end, illustrating the residue left by a finger touch. This level of contamination will inevitably lead to a severely degraded signal strength, or potentially permanent damage to the fiber end.



Same fiber end, after cleaning



**⚠ Important:** The Neutrik opticalCON DUO connectors, used for Peer and Cascade connections, feature an internal sealing shutter to protect against contamination when the connector is disengaged.

Before inserting a cleaning tool, you must push the connector front inwards to open the sealing shutter.

## *10. TECHNICAL SPECIFICATIONS*

|                    |  |
|--------------------|--|
| Physical size:     | 223mm x 277mm x 44mm (8.8" x 10.9" x 1.7") |
| Weight:            | 1.4 kg                                     |
| Power Supply:      | AC 100V~240V                               |
| Power Consumption: | 15W  |
| Power plug:        | Neutrik powerCON or TRUE1                  |

### **Fiber port (Common, Ch. A and Ch. B )**

- Neutrik opticalCON DUO, also compatible with duplex Single Mode fiber LC-LC

### **Power plug**

- Neutrik powerCON or TRUE1
  - 100-240VAC, 15Watt
- 

## *11. Optional Accessories:*

- BC-PowerCable-EU – 220VAC **Europe**/Schuko (Hybrid CEE 7/7 plug)
- BC-PowerCable-US – 110VAC **US** (NEMA 5-15 grounded (Type B))
- Blind plate
- Bracket for truss

## *12. WARRANTY & SUPPORT*

This product comes with a 2-year limited warranty.

Contact support at [support@barnfind.no](mailto:support@barnfind.no) for claims and inquiries.