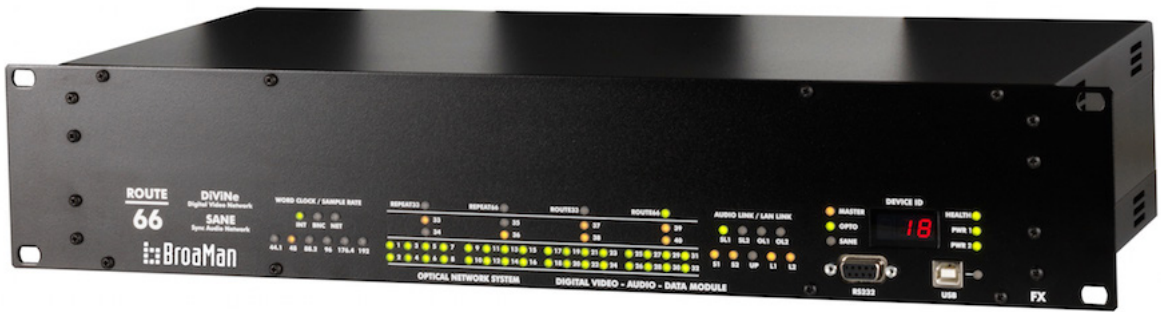




Broadcast Manufacturer



Quick Start Guide to Route66-Optocore AutoRouter

Route66-OAR

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BROAMAN GmbH
Alte Allee 28
81245 Munich
Germany

Route66-OAR

Quick Start Guide
Rev. 1.1

Device Description

Congratulations on your purchase of BroaMan Route66-Optocore AutoRouter (Route66-OAR).

Route66-OAR is a plug-and-play solution that is ready to be used straight from the box. It does not require any initial setup or configuration. It contains pre-programmed special firmware stored in the device. The firmware is not related to any externally connected devices or their firmware. The firmware should only be changed after prior consultation with the support team.

The main task performed by Route66-OAR is to transform fiber ring-based topology into the star, where Route66 is the central point. Route66-OAR automatically discovers all connected devices and creates loop connectivity between them. Once a device is disconnected or powered down, Route66 immediately closes the loop with the remaining devices. It always discovers and switches the links automatically to establish redundancy, without any user interaction – there is no need to control or change fiber patching by user. Route66-OAR is an automatic intelligent patchbay that speeds up system layout and configuration for any production. It can be used in the installation and live sound market, where mixed ring/star or star topology is more desirable due to a star based fibre cable layout.

Route66-OAR is compatible with all major fiber-based ring systems: Optocore, ProGrid Optocore, DiGiCo Optocore, Yamaha TWINLANe and AVID AVB.

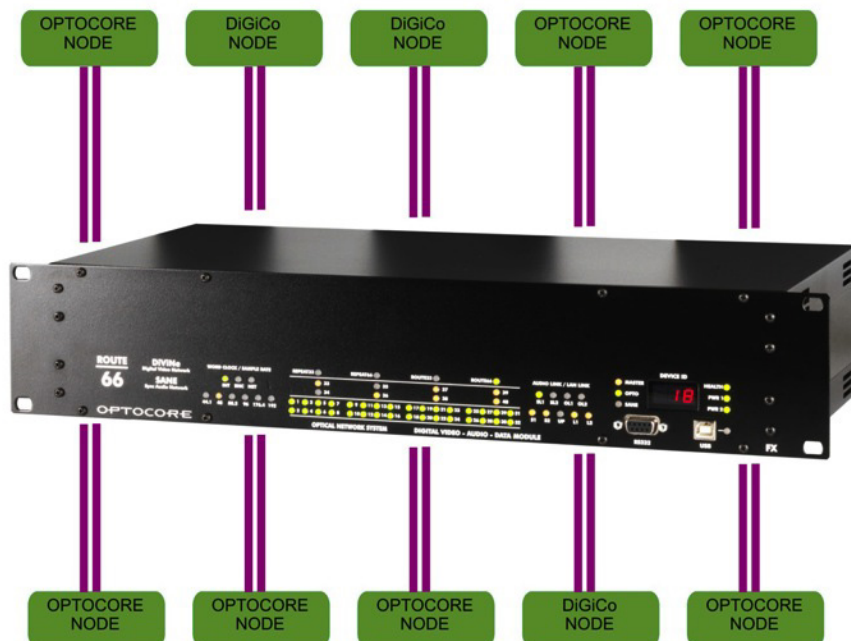
Device can be equipped with up to 40 duplex LC sockets what allows up to 20 different connections from different locations, devices or device groups (sub-rings). Each device/location should be connected with two duplex fibers. Route66-OAR is available in four different versions: Route66-OAR-5 (5 locations – 10 duplex LC connectors), Route66-OAR-10 (10 locations – 20 duplex LC connectors), Route66-OAR-15 (15 locations – 30 duplex LC connectors), Route66-OAR-20 (20 locations – 40 duplex LC connectors).

Each Route66-OAR port can be equipped with singlemode or multimode transceiver.

The Route66-OAR shall not be used for purposes other than described in this manual (i.e. SDI routing).

Please note:

Route66-OAR is transparent to the routed protocol therefore it is not a part of the network it operates.



Connecting Route66-OAR

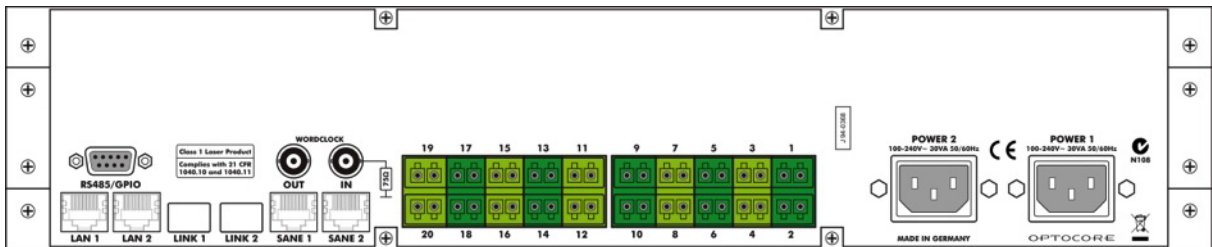
The Route66-OAR automatically creates cross-points between all router ports connected to active devices to form a closed fiber optic ring network.

While using Route66-OAR it is important to properly setup the fiber ring protocol before connecting via Route66-OAR. It is recommended to test the standalone system before plugging it to Route66-OAR.

Two corresponding LC router ports starting with the odd port number creates the connection SLOT for a single device fiber optic links (Router port 1 & 2, Router port 3 & 4 ... Router port 39 & 40). It is recommended to connect always port A of the external device to the odd Route66 port in the SLOT and port B to the even Route66 port of the same SLOT (port naming might differ depending on the protocol, in some protocols, i.e. Optocore, keeping this order is not required). Always both duplex fiber links from one device/location **must** be connected to two neighbour router ports – to the same SLOT. Different connection than described above may lead to incorrect Route66 patching which won't allow closing the loop between all devices.

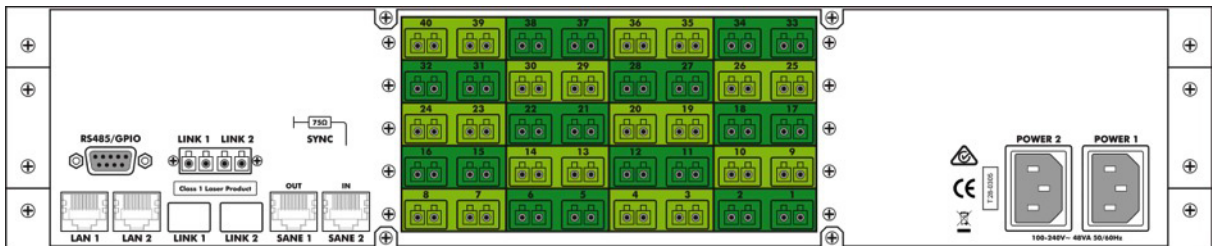
The router SLOTS do not need to be used consecutively, pair-wise router ports can be left blank, or the connected devices can be switched off. Route66 automatically discovers which slots are occupied and patches them will all other occupied SLOTS.

Route66-OAR advanced port routing algorithm discovers which SLOTS are occupied and routes from the first active even port to the next active odd port. The last active even port is patched then to the first odd which closes the loop. Example: if devices are connected to SLOT 1 (ports 1,2), SLOT 4 (ports 7,8) and SLOT 8 (ports 15,16) Route66 will patch with the following order: 2 -> 7, 8 -> 15, 16 -> 1. All inactive ports are skipped. Once another device is added in SLOT 3 (ports 5,6) the Route66-OAR will reroute to: 2 -> 5, 6 -> 7, 8 -> 15, 16 -> 1. Routing action is very fast however it may affect network stability for a very short time – this depends on the fiber ring protocol.



Two connection slots - 1,2 - SLOT1, 3,4 - SLOT2

Route66 – Optocore Autorouter – 10 Slots, 20 Duplex fiber ports.



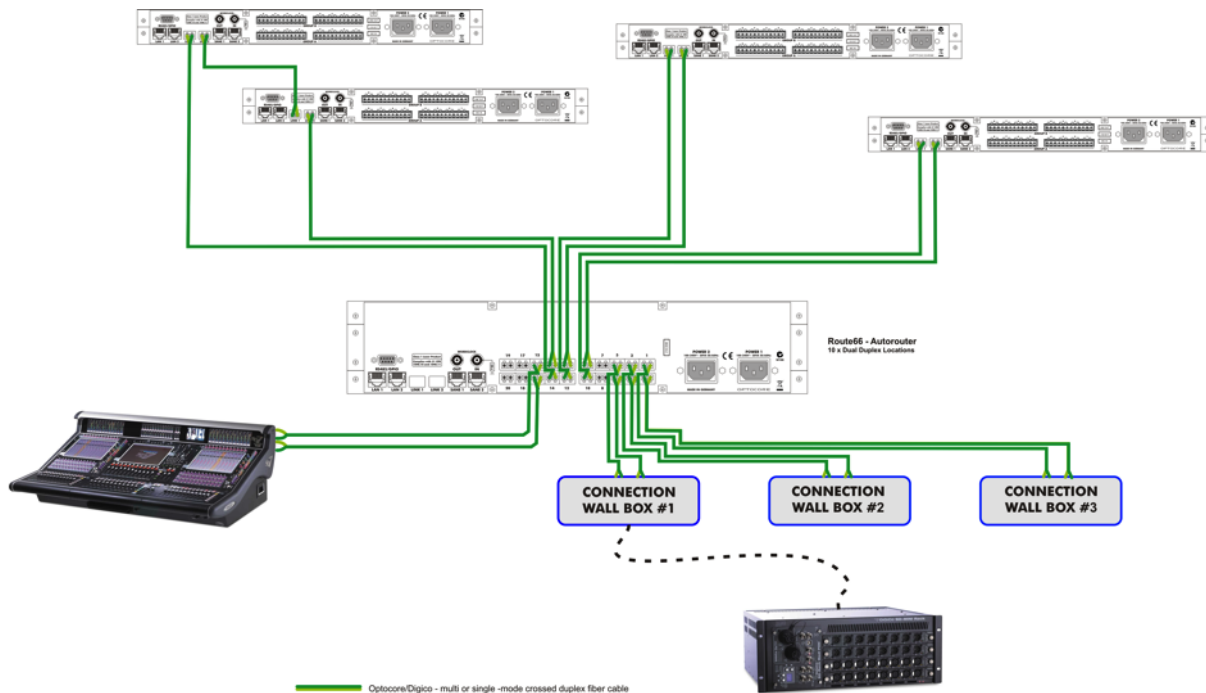
Two connection SLOTS - 1,2 - SLOT1, 3,4 - SLOT2

Route66 – Optocore Autorouter – 20 Slots, 40 Duplex fiber ports.

Connection Examples – Optocore Autorouter

EXAMPLE 1

An example below shows a mix of Optocore and Digico devices connected to the central Route66. Some devices connect directly to the Route66 SLOTS. If part of the system layout is intended to work in the ring topology, only the first and the last link of such sub-ring can connect to the single Route66 SLOT (in this example SLOT 7) – all devices in this sub-ring will be added to the main ring created by Route66. In the example first 3 Router SLOTS provide connectivity for the remote device/devices. Whenever the external mobile device is disconnected or moved to a different location, Route66 will recognize it and automatically close the loop with all active devices without leaving any open links – keeping the redundancy.



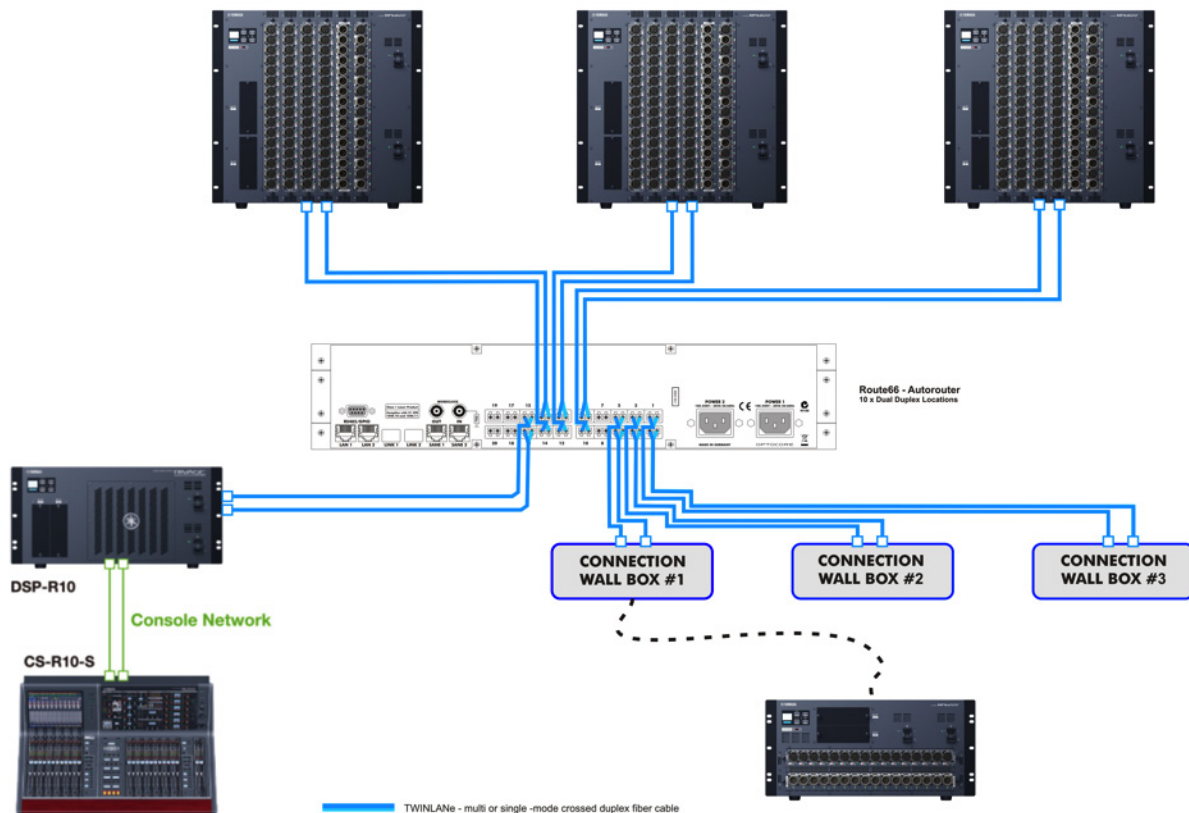
In this particular example remote stagebox is connected to Wall Box #1, which connects to SLOT 3 (ports 5,6). SLOTS 1 and 2 are open (no active device connected). All fixed devices are connected to SLOT 5 (ports 9,10), SLOT 6 (ports 11,12) and SLOT 8 (ports 15,16). Additionally a small sub-ring is connected to SLOT 7 (ports 13,14).

Route66-OAR will make the following cross-points: 6 -> 9, 10 -> 11, 12 -> 13, 14 -> 15, 16 -> 5.

If stagebox is moved to Wall Box #3, which connects to SLOT 1, the patching in Route66-OAR will change automatically to: 2 -> 9, 10 -> 11, 12 -> 13, 14 -> 15, 16 -> 1.

EXAMPLE 2

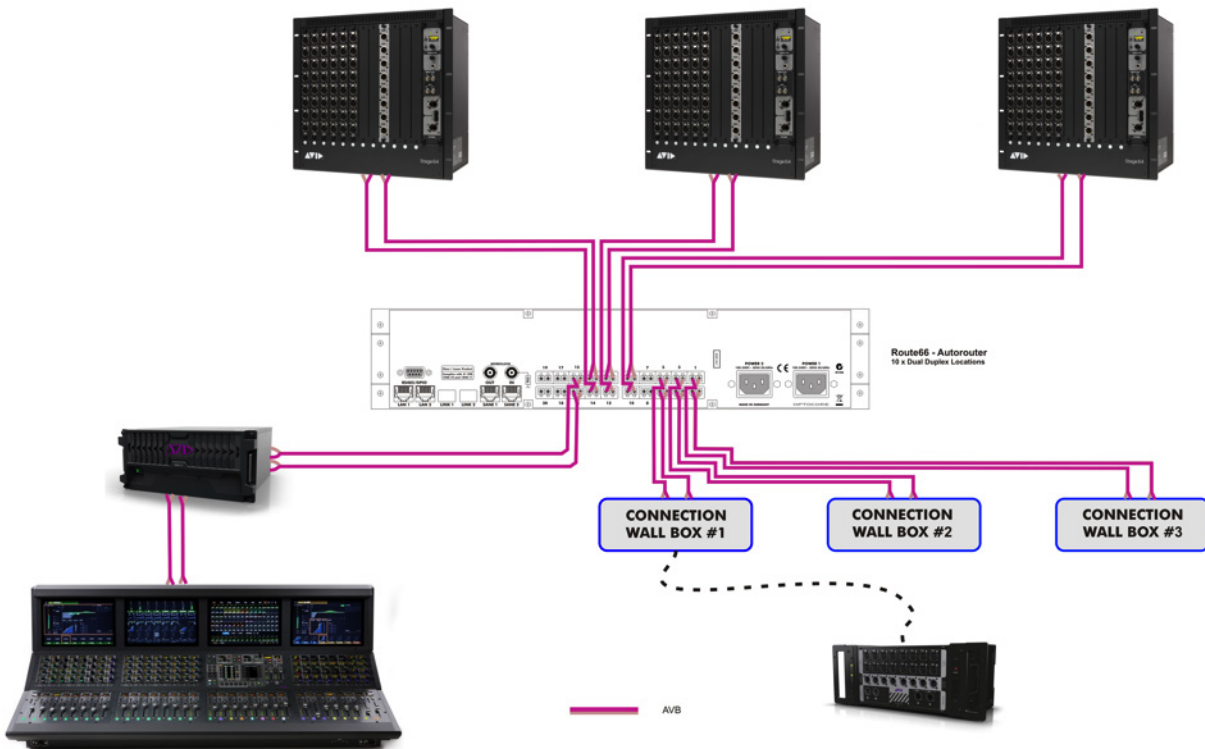
The second example shows automatic operation with Yamaha TWINLANe protocol. The rules of connection are similar to the one described in Example 1. Please note that due to Yamaha TWINLANe IN and OUT port layout the connection to Route66's odd and even ports should be done in proper order – all IN should be connected to odd while all OUT should connect to even ports.



Route66-OAR patching in Example 2 will be exactly the same as in Example 1.

EXAMPLE 3

AVID AVB connectivity is also supported by Route66-OAR, which is shown on the third example . Connection scheme is similar as in Example 1. Here again the Route66-OAR connections should follow the proper order for A and B ports in Avid – A to even, B to odd ports within a SLOT.



Route66-OAR patching in Example 3 will be exactly the same as in Example 1.

Company Information

Mailing Address:

BROAMAN – Broadcast Manufactur capitalGmbH
Alte Allee 28
81245 Munich
Germany

Telephone:

+49 – (0)89 – 8999640

Facsimile:

+49 – (0)89 – 89996455

Internet:

www.BroaMan.com

Email:

support@BroaMan.com