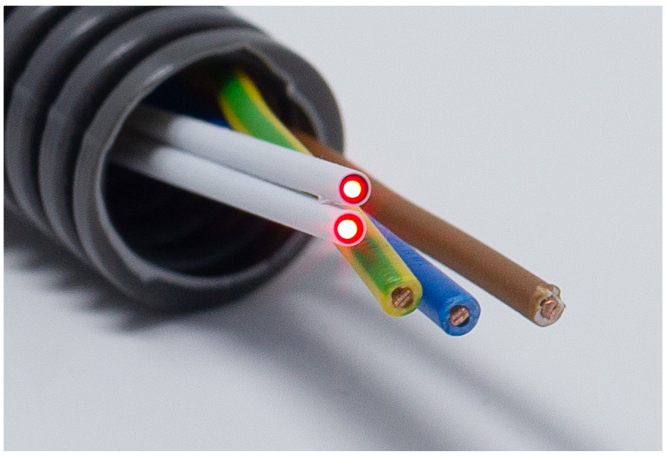
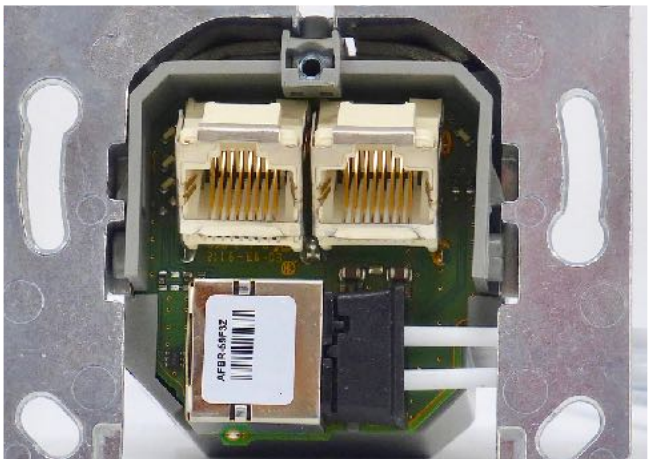
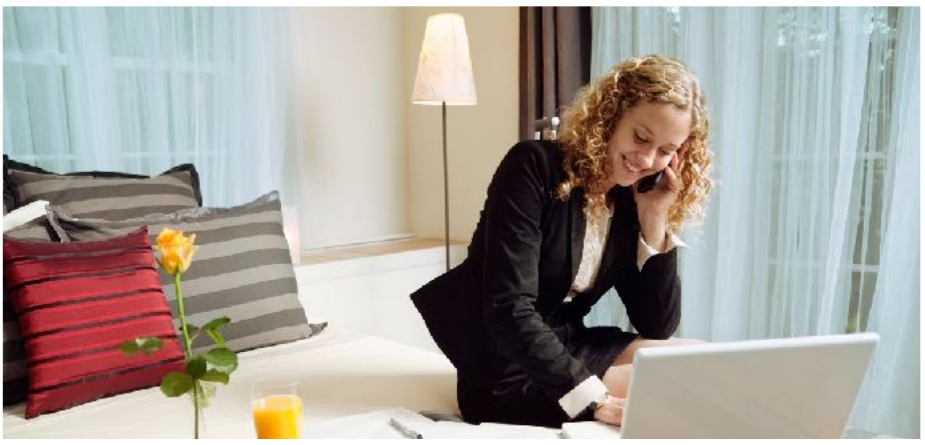






OPTICAL NETWORK FOR HOME AND OFFICE

PRODUCTS AND SYSTEMS

homefibre

THE NETWORK IS THE KEY TO THE DIGITAL FUTURE HOME

New digital services such as IP-TV, HD & UHD TV, Online games, HD video telephony or 3D TV and Augmented Reality are forcing their way into the market. As a result of the massive expansion of the access networks with high bandwidths (FTTH, VDSL, etc.), system providers are increasingly offering higher quality services. In addition, personal digital content such as videos, photos, music and data are being stored at home and transmitted to several appliances. In the field of home automation, energy management and safety, systems and applications are more and more networked with PC, smart phones, tablets, voice-controlled intelligent personal assistant services and touch screens.

CONNECTIVITY REDEFINED

The ideal network fix wired applications and mobile devices are used in an optimized way. Free frequencies are a limited resource and should only be occupied with mobile applications. Services with high bandwidth demand work best when linked to a wired network.

In order to ensure the long-term, consistent and an issue free functionality of this integration, a stable and reliable infrastructure and transmission technology is required in the home. It should be widely available and offer the largest possible number of connection possibilities. For us at Homefibre, the ideal solution is an optical data backbone.

Together with its cooperation partners, Homefibre has set itself the goal of offering innovative products and system solutions, as well as technical support for the installation, that deliver environmentally safe and reliable digital home networking.

With the Polymer Optical Fibre (POF) we use a proven technology that is ideally suited to a new and innovative infrastructure which satisfies these demands.

Josef Faller
Managing Director

ALL-IP

APPLICATIONS AND SERVICES

Digital applications and services will be more and more networked and connected. Today IP-based Internet services are coming from the Internet and with an increasing number also from home internal sources (NAS).

Smart Home - App Control

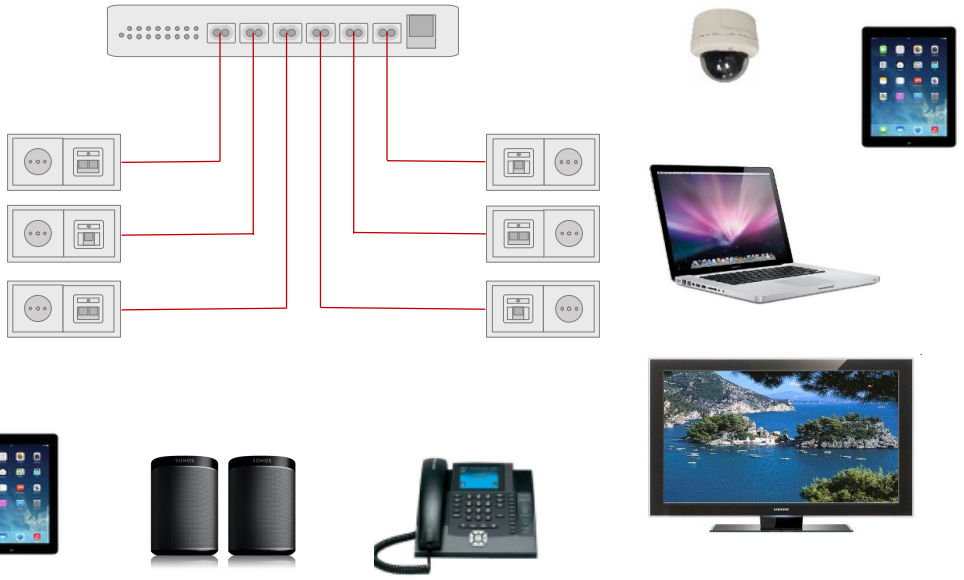
(Heating, Climatisation, Energy, Shutter, Light etc...)

AAL
(Ambient Assisted Living)

Safety & Security

ISP

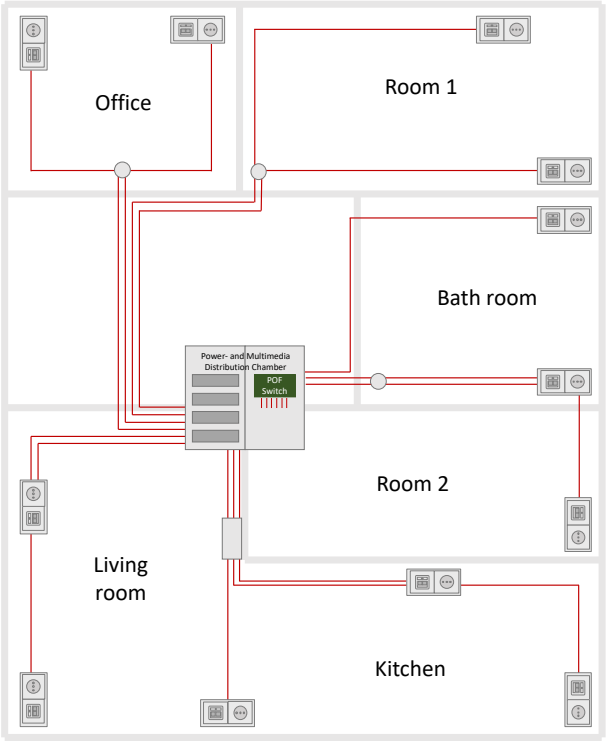
IP-TV



ASTRA

SAT>IP

VIDEO & AUDIO	GAMING & TELEPHONY	SMART HOME & SECURITY
BANDWIDTH	RELIABILITY	SECURITY
High Definition Video Streaming and other video services e.g. HDMI over IP need a high and reliable bandwidth. Music and radio can also be streamed via the internet and/or from an internal home audio server. Loudspeakers and other audio clients today are also capable of the IP technology and need to be connected to the home network.	For gaming and telephony the latency has to be constant and as small as possible. There is nothing worse than not being able to respond to the other person in the call or to react to the moves of the other player in an online game.	Due to security reasons devices as security cameras or door bells should be connected to a wired network. Smart home devices are more and more connected over wireless technologies. Also, it's common to use mobile devices for the controlling of smart home applications. These devices need an optimized WIFI coverage and fix installed devices e.g. touch panels should be hooked to a wired network.

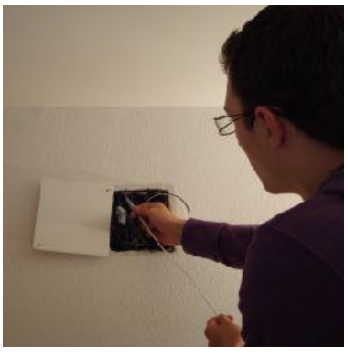


THE OPTICAL IN-HOUSE BROADBAND NETWORK

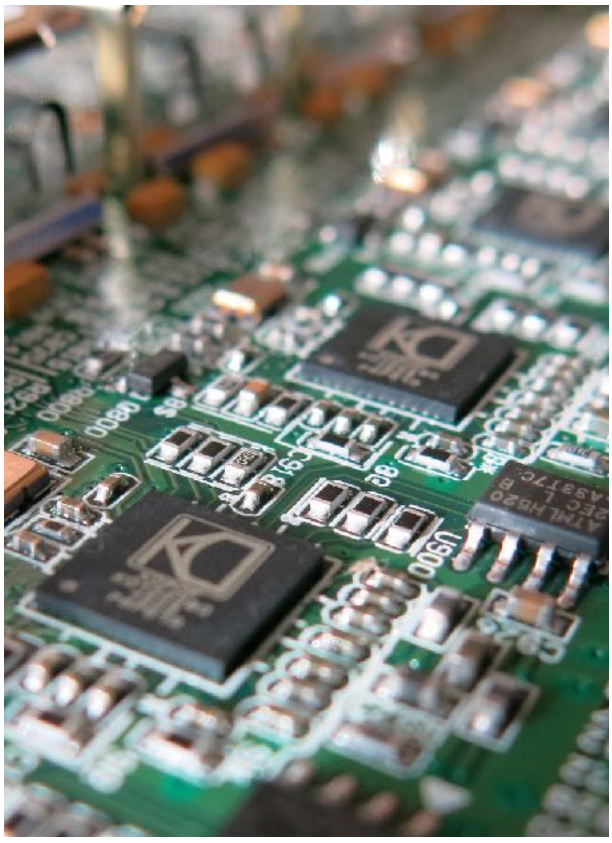
With the concept of optical in-house broadband cabling, Homefibre offers a future-proof and easy installation infrastructure solution which enables the integration of computer, multimedia and home automation systems in an ideal way via Ethernet and IP (Internet protocol). The optical cable which is made of polymer optical fibre (POF) has been successfully used in the automotive sector and in the industry for many years. The POF cable is robust and can be easily installed and connected. It can be installed separately or drawn into a conduit together with the electrical installation. Every plug socket in the house can thus be inexpensively equipped with a data interface. It is also available for a data connection in all splitter boxes.
All IP-based automation systems in the house can be linked via the optical cable and integrated into one system with computers and multimedia devices.

The benefits of the Homefibre system are:

* **reliable** and **stable** data transmission
* **unaffected** by electromagnetic interference
* **radiation-free:** no electromagnetic smog via the leads
* **simple** and **variable** installation
* **low power** consumption of the components
* **lightning protected data link** due to galvanic isolated POF cable.



USER INSTALLATION	FOR RETROFITTING	FOR NEW BUILDINGS
EASY	FLEXIBLE	FUTURE-PROOF
Thanks to its simple handling the POF cable can even be installed by non-experts. The small cable diameter allows the cable to be placed and concealed behind the skirting board or under the carpet.	The POF cable can be easily integrated into the existing electrical installation without cutting channels or drilling. Flush-mounting plug sockets, flush-mounting switches or plug socket adapters serve as interfaces between your device and the network and can be installed as standard in your home.	In order to minimize the installation costs of a full-size home network, it is sufficient to lay an inexpensive POF cable together with the electrical cables during the initial installation. A safe optical data port can thus be prepared at each main plug socket. With the flush-mounted optical media switches from Homefibre, the connection is converted into a standard Ethernet port with two RJ45 jacks or a one RJ45 jack and Wifi access.



THE TECHNOLOGY

For the optical transmission, electric signals are converted into optical signals, transmitted by light and converted back into an electric signal by a media converter. Today, red light with a wavelength of 650nm is used for the transmission.

With the availability of Gigabit transmission over Polymer Optical Fibre (POF) the installation of powerful networks becomes much easier.

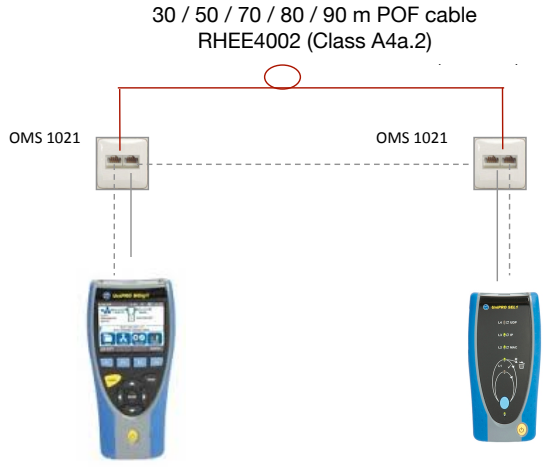
The gigabit system components are compatible with all common devices using the international standard IEEE 802.3ab. With the gigabit technology by KDPOF it is possible, to transmit data with 1Gbps over 50m POF cable. An adaptive smaller bandwidth will be used for the transmission up to 80m.

The gigabit system components are backwards compatible to 100Mbps components so that both device generations can be mixed in a system. In this case a transmission rate of 100Mbps will be used by the gigabit devices for these transmission paths.

Homefibre offers a wide range of optical media converters and optical POF switches for the installation of a network. Wifi integration is also possible with the innovative products.

THE OPTICAL TRANSMISSION	TRANSMITTER AND RECEIVER	CABLE AND COMPONENTS
RADIATION-FREE	RELIABLE AND STABLE	LOW POWER CONSUMPTION
The optical transmission is unaffected by electromagnetic interference and does not conduct electricity. As a result the cable can be installed together with the electrical installation, reducing installation cost and time. The optical transmission can be tested by measuring the light intensity in dBm at the beginning and end of the optical cable.	The optical interfaces consist of transmitters and receivers. With the POF cable a reliable and stable connection for both transmission directions is established. The optical transmission uses visible and for human eyes safe red light with RC-LED (Resonant Cavity Light-Emitting Diode) and offers easy checking for the functionality of the connections.	The POF cable is sturdy, has a small diameter and is very low in weight. The typical cable rating is approx. 15dBm to 18dBm per km. Approx. -7dBm are measured directly at the connection. The optical cable can be connected to the optical interfaces of the system components without plugs (e.g. Optolock) or with an easily fitted plug (e.g. SMI connectors) The receivers can process a signal down to -24dBm.

QUALITY AND COMPATIBILITY



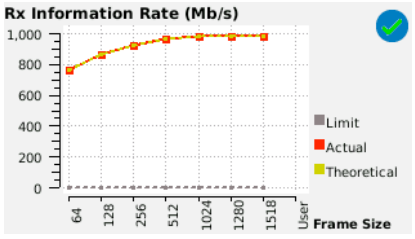
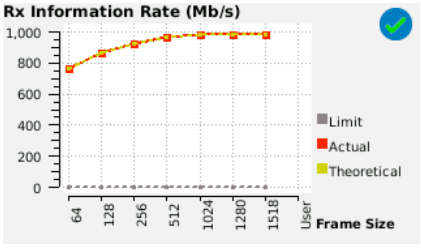
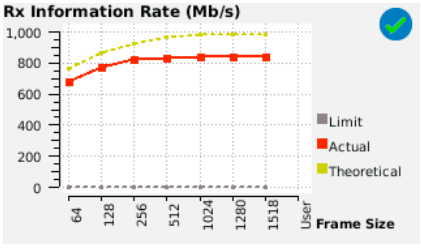
Test setup RFC2544 and SLA-tick test

At homefibre digital networks, products and applications are tested in comprehensive scenarios. These tests follow international standards and procedures (e.g. RFC2544).

In these tests the maximum transmission rate based on different packet sizes in data transmission are verified.

Beside standardized test procedures also comparison to other network solutions are implemented and tested in different network scenarios and with different applications to ensure quality and compatibility.

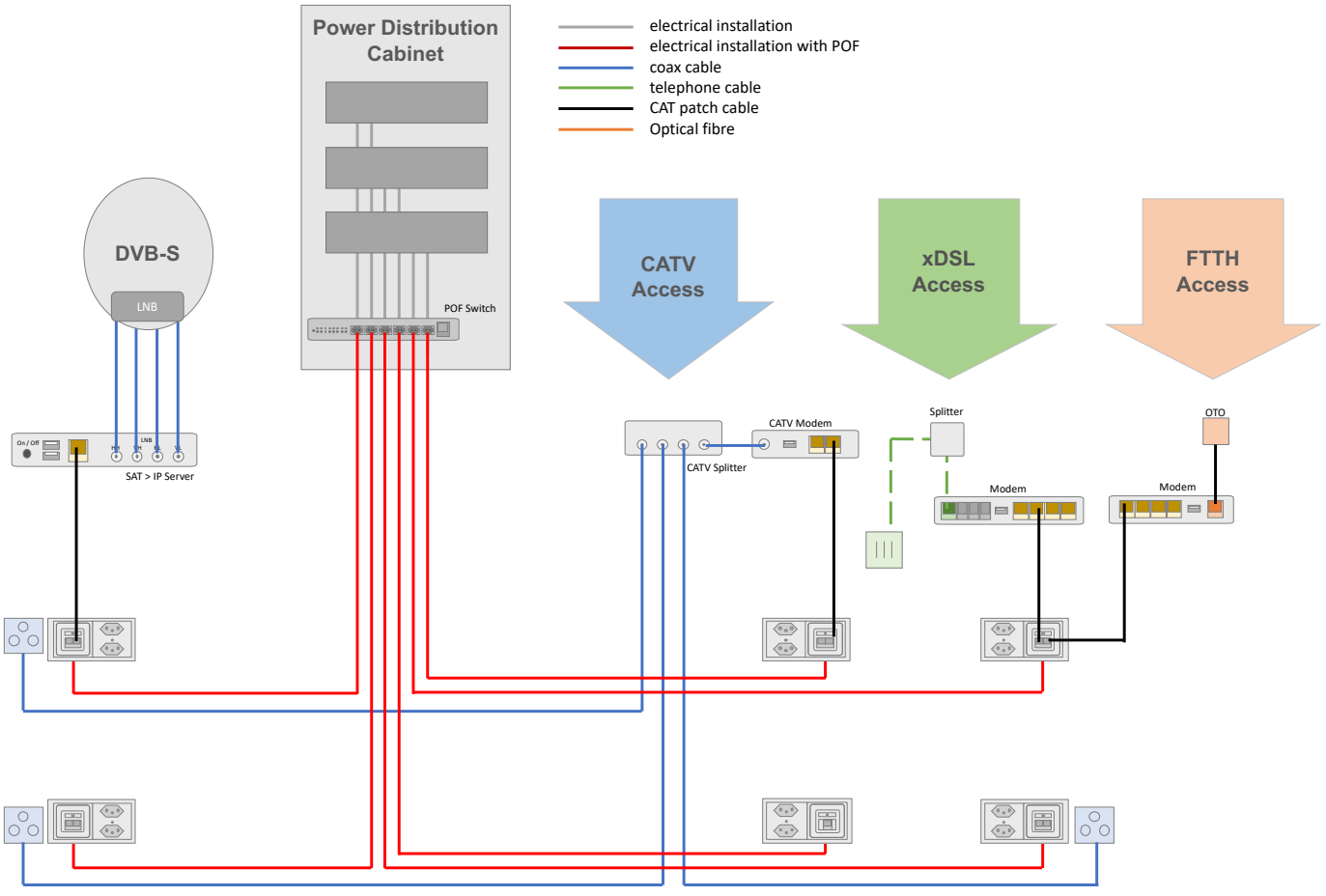
We know that at the end only the real quality of the data connection is what makes a system work properly.

50 METER	60 METER	80 METER
		
Test Nr: OMS1021_DV_TEST 001 Optical power: approx. -12,6dBm	Test Nr: OMS1021_DV_TEST 008 Optical power: approx. -14,9dBm	Test Nr: OMS1021_DV_TEST 014 Optical power: approx. -17,9dBm

NOTE: The performance of adaptive bandwidth depends on several parameters (e.g. cable attenuation, LED source power, LED receiver sensitivity, operating temperature).

STANDARDIZING	INTEGRATED NETWORK	ONE NETWORK FOR ALL
POF home networking is based on international standards and specifications. **IEC 60793-2-40:** Optical fibres -Part 2-40 **ETSI TS 105 175-1 V2.0.0** (2011-10): Access, Terminals, Transmission and Multiplexing (ATTM); Plastic Optical Fibre System Specifications for 100Mbps and 1Gbps **ISO 11801:** Information Technology - Generic Cabling for Customers Premises **IEC 60825 series:** Safety of laser products **DIN EN 50173:** Dimensions and broadcasting requirements **IEEE 1000Base-RHx (working group)**	The optical network components are integrated into the electrical installation. Wall outlets and network access points are available everywhere in the home. Devices can be linked to the network on several positions as required in each room. This forces reliability due to no laying-around devices, cables or connections which can be damaged.	The POF cable is available everywhere in the electrical installation. This allows to link new IP applications easily, fast and safe to the network. For example an in-wall distribution box enables to integrate a switch with sensor interfaces or security cameras to the network at any time.

THE SYSTEM



A POF network will be installed as a structured cable installation. The optical core network gives more availability and flexibility for realizing an innovative network infrastructure. In combination with the electrical installation it will be a data backbone for all IP applications. It results in a star-tree structure, in which in every place in your home, regarding your demand, new network applications and services could be integrated.

The central switch will be placed near the power distribution cabinet. The access (e.g. Modem, Router, SAT>IP Server, etc…) can be connected to the network anywhere in the house.

The thin POF cable (2.2mm/4.4mm) can be used for retrofit with little space and the network components can be placed in a small distribution cabinet.

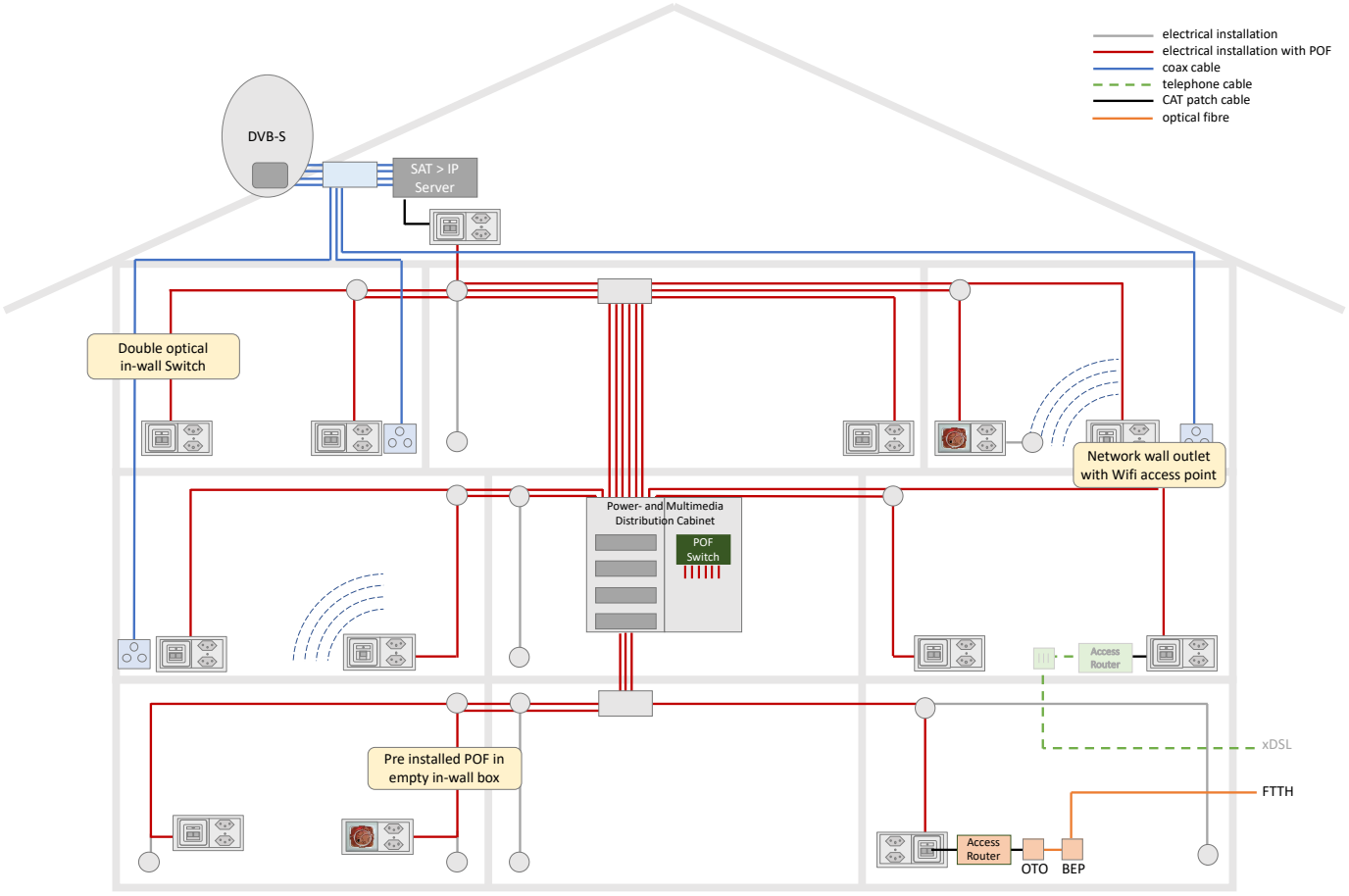
The interfaces for the network devices are common RJ45 ports or Wifi access points.

Through the star structure the connection to the internet can be established by every access point in the house. The wired network offers the highest possible bandwidth for each data port independent of the direct distance to the router.

The network can be established as a Fast Ethernet network, a Gigabit Ethernet network, or as a combination of both options depending on the demand.

*IP = Internet Protocol over Ethernet

APPLICATION: INTEGRATED IP NETWORK



The draft above shows a house with combined POF and electrical installation. The main part of the power sockets are wired with a POF cable. So multiple network interfaces can be prepared for further use. This is a big advantage with the Homefibre system.

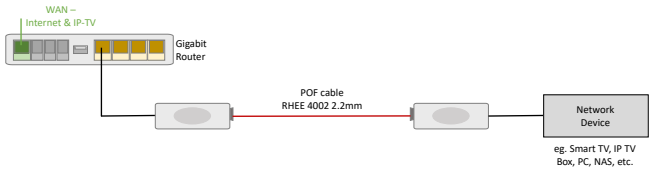
A data socket or an wifi access point would be installed, where it is needed. In other power sockets the wire will be “parked“ invisible behind a power socket or visible with a low-cost optical network interface (SMI-Interface). If necessary, the network could be expanded to the needed additional data interfaces. Thus means that the data interfaces can be wherever they may be needed without free cables lying across the rooms.

Also additional POF cables can be placed at the junction boxes. This gives the possibility to add additional devices e.g. switches, sensors, cameras, components for smart homes etc. at any given time and without any extra effort.

IP-TV, Internet television or internet streaming services could be received by the modem (Router) to the network. Via SAT>IP protocol also satellite TV can be transmitted over the POF network and the WIFI access points in the whole house.

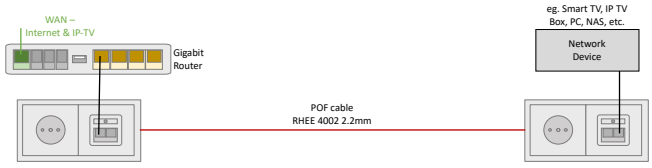
The combination of optical wired backbone and WIFI grants an optimized network coverage in the whole house. Smaller wifi clusters help to reduce the intensity of electromagnetic fields and improve the performance for wifi access. Smaller Wifi clusters can also be turned on or off depending on needs.

APPLICATION SCENARIOS / EXAMPLES

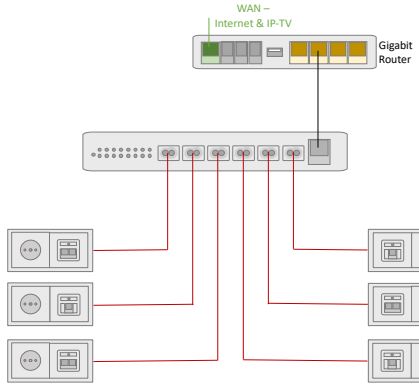


Simple point to point solution

In this example an simple point to point connection with an OMC 1001 GIG media converter set is used to connect the computer with the router of the internet service provider so that the internet services can be used

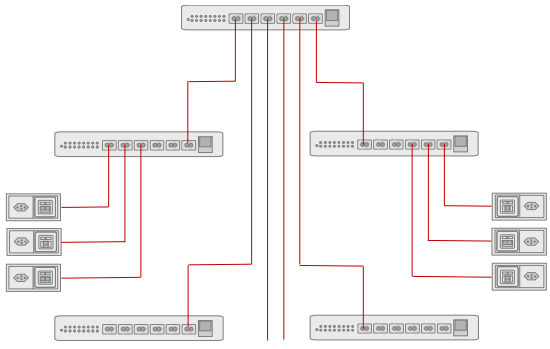


It is also possible to install a point to point link with two wall outlet switches OMS 1021 UP-GIG or OMS 121 UP



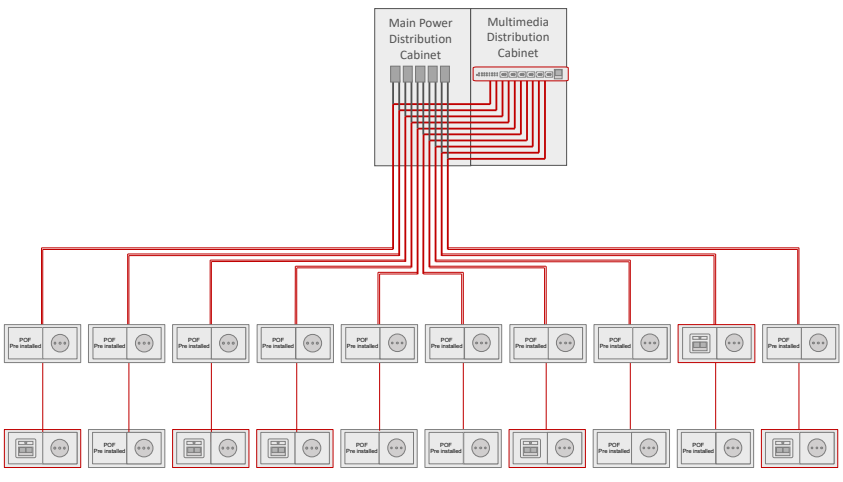
Easy home network solution

This example shows a typical solution for a POF home network with six connections. Gigabit data outlets (OMS 1021 UP-GIG) and 100Mbps data outlets (OMS 121 UP) and Wifi access points (OMA 111 WLAN) can be used in any combination. All components are compatible to each other.



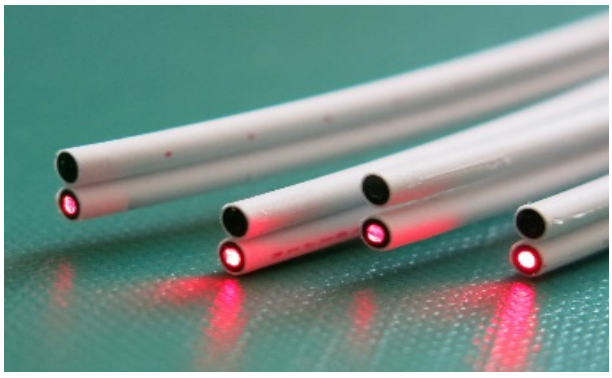
Complex office- and hotel networks

In most cases for offices and hotels a switch is not enough due to the fact that many more network connections are necessary. With the Homefibre switches it is possible to use multiple switches in a row, called cascading, which gives the opportunity to provide many more interfaces and longer transmission distances.



Advanced network solutions

This advanced network architecture shows multiple power outlets pre-installed with POF fibre, some equipped with active data outlets. This wiring system allows flexible installation of WiFi clusters and/or LAN data outlets. The gigabit POF cable is available everywhere. The network can be adapted to the requirement of the user. Depending on the number of active data outlets switches with related number of POF ports can be installed.



THE OPTICAL CABLE

The Polymer Optical Fibre, also called POF, is being used and approved for years in industry and the automotive industry as well as for lightning issues and many more. The POF cable is a duplex cable with two fibres, which means that one fibre is used for transmitting and the other fibre is used for receiving optical signals. This increases the transmission length and raises transmission quality and bandwidth. The optical cable may be placed next to electrical wires due to their galvanic non-conduciveness and independency to electromagnetic fields.

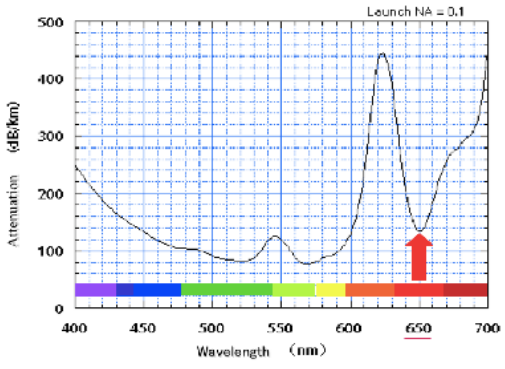
For the core fibre the well approved Step Index fibre (SI-fibre) is used for the Homefibre system. This high quality fibre is made of PMMA (Polmethyl-Metharcrylate) which has shown the best specifications for the transmission of visible red light signals.

With “OPTOHOME“, a brand by Mitsubishi Rayon, an innovative optical fibre for home and office networks was developed. This product was optimized to high robustness and a long life expectancy. Also a fire retardant cable is available.

ADVANTAGES

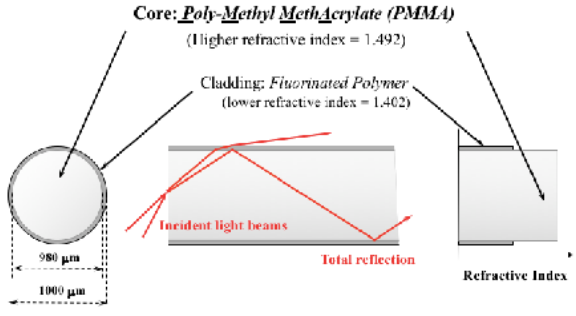
- easy installation
- simple bonding
- small diameter, light weight
- sturdy, safe and free from radiation
- visible light for visual proof of function
- galvanically non-conducting, no lightning issues

ATTTENUATION



For the Datalight system a wave length of 650nm is used. The optical fibre shows a minimum of attenuation at this wavelength. The colors blue, green and yellow might be used in future to optimize the maximum data rate.

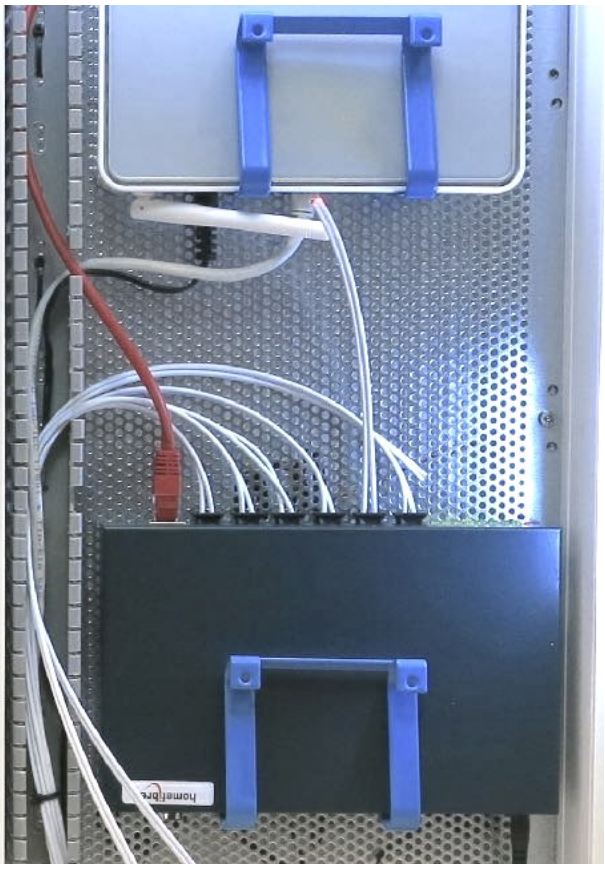
MULTIMODE TRANSMISSION



POF is a multimode fibre. The light is reflected on the cladding and is transmitted through the PMMA core. The core diameter of 1mm improves the easy installation. Cutting and plugging are the only two steps necessary to enable transmission.

POF CABLE BUNDLE (INCL. CUTTER)	POF CABLE REEL	POF CABLE - FIRE RETARDANT
RHEE 4002-W-20 CUT 20m bundle **RHEE 4002-W-30 CUT** 30m bundle **RHEE 4002-W-40 CUT** 40m bundle **RHEE 4002-W-50 CUT** 50m bundle **RHEE 4002-W-70 CUT** 70m bundle **RHEE 4002-W-100 CUT** 100m bundle	**RHEE 4002-W-500** 500m reel **RHEE 4002-W-1000** 1000m reel	**GHV 4002-G-100 CUT** 100m bundle **GHV 4002-G-1000** 1000m reel
Cladding: double Polyethylen cladding Core diameter: 980µm Numerical Aperture: 0.5 Outer diameter: 2x 2.2mm Jacketing: white Transmission length: 100Mbps / 80m * 1Gbps up to 50m * with ABA: around 400Mbps at 80m Operating temperature: -55ºC to 70ºC Delivery unit: 20m, 30m, 40m, 50m, 70m, 100m bundle	Cladding: double Polyethylen cladding Core diameter: 980µm Numerical Aperture: 0.5 Outer diameter: 2x 2.2mm Jacketing: white Transmission length: 100Mbps / 80m * 1Gbps up to 50m * with ABA: around 400Mbps at 80m Operating temperature: -55ºC to 70ºC Delivery unit: 500m or 1000m reel	Cladding: Polyvinylchloride cladding Core diameter: 980µm Numerical Aperture: 0.5 Outer diameter: 2x 2.2mm Jacketing: grey Transmission length: 100Mbps / 80m * 1 Gbps up to 50m * with ABA: around 400Mbps at 80m Operating temperature: -40ºC to 85ºC Delivery unit: 100m bundle or 1000m reel
ABA = Adaptive Bandwidth Allocation ** with Homefibre media converters*	*ABA = Adaptive Bandwidth Allocation* ** with Homefibre media converters*	*ABA = Adaptive Bandwidth Allocation* ** with Homefibre media converters*

INSTALLATION FLEX TUBE WITH POF AND YE (KOBER)	INSTALATION CONDUIT WITH POF (FRÄNKISCHE ROHRWERKE)
FMP 20+3XYE1.5+POF 2.2 Pre-wired installation flex tube diameter 20mm	**FFFKUS DATALIGHT 25** Installation conduit with integrated 2.2mm POF cable
BENEFITS • quick and cost saving network wiring combined with electrical installation • Customized designs available on request (e.g. YE1.5 + 2x POF; coax cable + POF, etc...) • parameter POF cable see RHEE 4002 2,2mm	**BENEFITS** • optical wire pre-installed in the whole installation • more pre-installed network access points • low installation cost
Delivery unit: 50m bundle	Delivery unit: 100m bundle



THE OPTICAL SWITCH

Switches are used to connect computer networking devices by using packet switching to receive, process and forward data to the destination device.

The Homefibre optical media switches also include media converter function. The electrical signal of any copper network is transformed to an optical signal to be transmitted over the plastic optical fibre (POF).

In a typical home network the switches are used to distribute the network access to the different locations along to the electrical installations. So it is possible to provide a great amount of network connections with gigabit speed.

In this example you can see the OMS 126 RR POF 6+2 port switch connected to an internet access modem via standard CAT5e patch cable, which allows to distribute the internet access to six different locations.

In home networks commonly all the multimedia devices will be placed in a multimedia distribution box in a central place.

In bigger, more professional networks some network racks can be used on different places.

MAIN POWER AND MULTIMEDIA DISTRIBUTION BOX

Besides the POF 6+2 port switch the router and a SAT>IP server were also placed beside the main power distribution box in a small multimedia distribution box.

19“ NETWORK RACK

In this network rack some POF 12+4 port switches are connected together and so they provide many network connections in the different rooms of this hotel.

POF 3+1 PORT SWITCH 100MBPS - FAST ETHERNET	6+2 PORT SMART SWITCH 100MBPS - FAST ETHERNET
OMS 113-FC • 3x POF port with OPTOLOCK™ interface for 2,2mm POF (100Mbps) • 1x RJ45 interface (100Mbps)	**OMS 126 RR** • 6x POF port with OPTOLOCK™ interface for 2.2mm POF (100Mbps) • 2x RJ45 interface (1Gbps)
FUNCTIONS • IEEE802.3 Ethernet • IEEE802.3u Fast Ethernet • Store and Forward Switching • 1K MAC address table	**FUNCTIONS** • IEEE 802.3 Ethernet • IEEE 802.3u Fast Ethernet • IEEE 802.3ab Gigabit Ethernet (UTP) • Store and Forward Switching • 4K MAC address table • Managed via webinterface

POF 4+1 PORT SWITCH 1GBPS - GIGABIT ETHERNET	POF 6+2 PORT SWITCH 1GBPS - GIGABIT ETHERNET	POF 12+4 PORT SMART SWITCH 1GBPS - GIGABIT ETHERNET
OMS 1014 GIG • 4x POF port connector less / Broadcom for 2.2mm POF (1Gbps) • 1x RJ45 interface (1Gbps)	**OMS 1026 RR-GIG** • 6x POF port connector less / Broadcom for 2.2mm POF (1Gbps) • 2x RJ45 interface (1Gbps)	**OMS1412 RS-GIG** • 12x POF port connector less / Broadcom for 2.2mm POF (1Gbps) • 2x RJ45 interface (1Gbps) • 2x SFP interface (1Gbps (10Gbps on request)
FUNCTIONS • IEEE 802.3 Ethernet • IEEE 802.3u Fast Ethernet • IEEE 802.3ab Gigabit Ethernet • Store and Forward Switching • 8K MAC address table	**FUNCTIONS** • IEEE 802.3 Ethernet • IEEE 802.3u Fast Ethernet • IEEE 802.3ab Gigabit Ethernet • Store and Forward Switching • 8K MAC address table	**FUNCTIONS** • IEEE 802.3 Ethernet • IEEE 802.3u Fast Ethernet • IEEE 802.3ab Gigabit Ethernet • Store and Forward Switching • 10K MAC address table • Managed via webinterface and Console / SSH

NETWORK SOCKETS & WIFI ACCESS POINTS

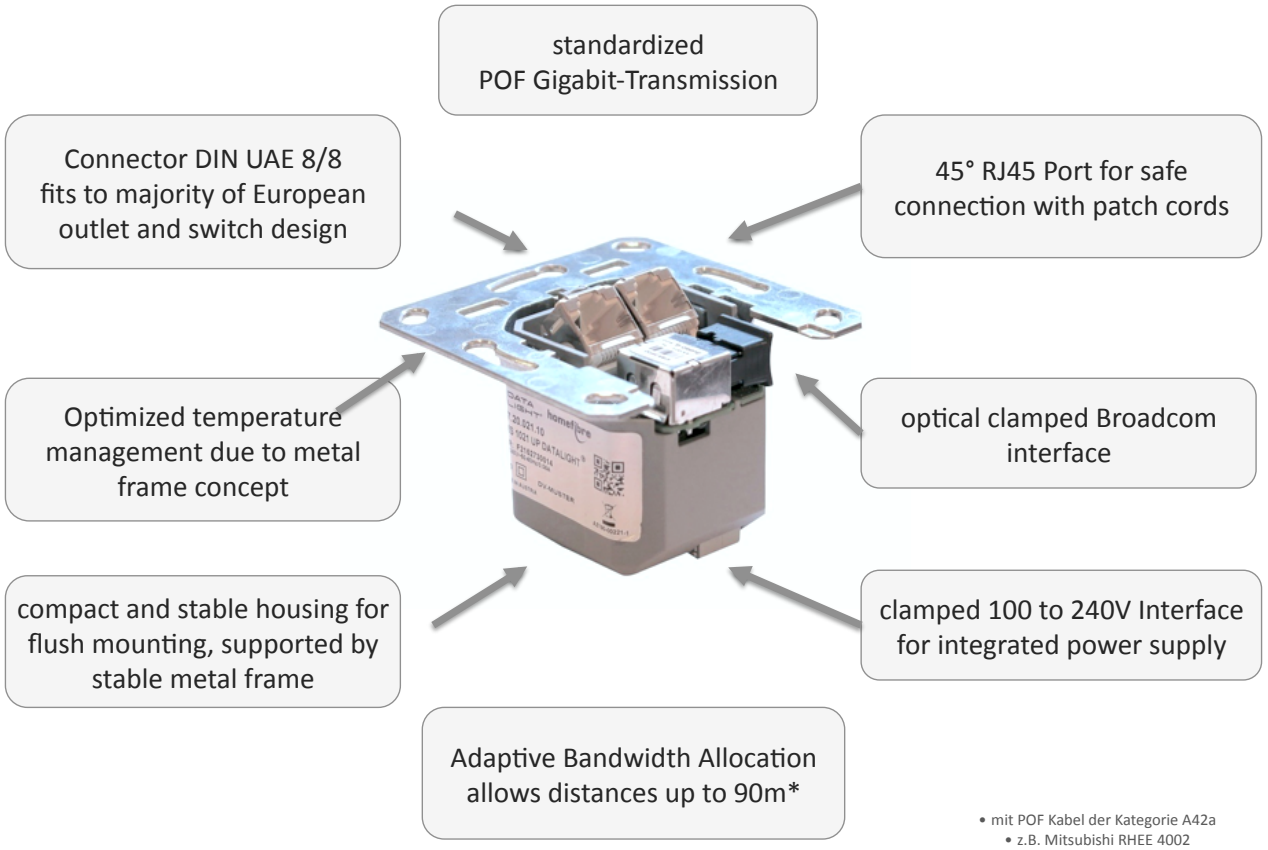
The networks sockets are flush-mounted switches provide two standard RJ45 network interfaces for all kinds of networking devices in the different locations.

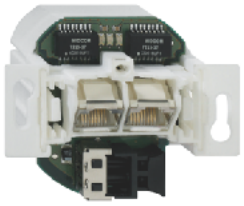
For mobile devices also a flush-mounted optical media wifi access point is available. With the access points it is also possible to connect devices without need for a cable.

To provide standard RJ45 connections and electromagnetic fields it is necessary to convert the electrical signals into optical signals. Therefore the active flush-mounted devices and Wifi access points also include a media converter function and provides integrated power supply (100 - 240V / AC).

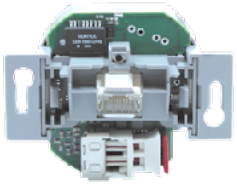
All our devices are build with the focus of long durability, energy efficiency and proper temperature management.

The flush-mounted devices are suitable for standard flush-mounted sockets. We also offer special solutions for different countries (e.g. Switzerland)

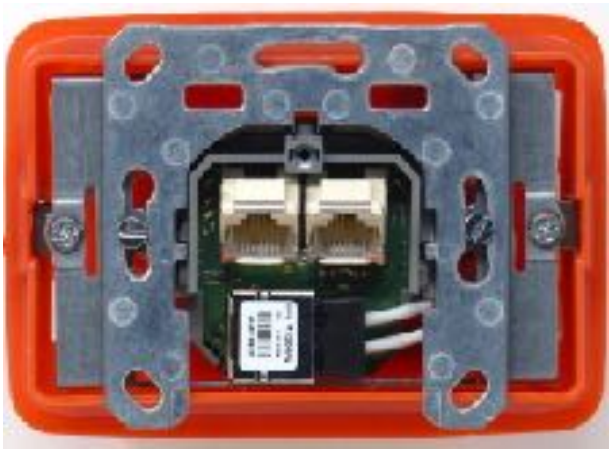




POF NETWORK SOCKET 2X RJ45 FLUSH-MOUNTED 100MBPS - FAST ETHERNET	POF NETWORK SOCKET 2X RJ45 FLUSH-MOUNTED 1GBPS - GIGABIT ETHERNET	INSTALLATION EXAMPLE
OMS 121 UP • 1x POF port OPTOLOCK™ interface for 2.2mm POF (100Mbps) • 2x RJ45 interfaces (100Mbps) **FUNCTIONS** • IEEE 802.3 Ethernet • IEEE 802.3u Fast Ethernet • suitable for standard flush-mounted sockets • UAE cover plates available from multiple well-known manufacturers	**OMS 1021 UP** • 1x POF port connector less / Broadcom for 2.2mm POF (1Gbps) • 2x RJ45 interface (1Gbps) **FUNCTIONS** • IEEE 802.3 Ethernet • IEEE 802.3u Fast Ethernet • IEEE 802.3ab Gigabit Ethernet • suitable for standard flush-mounted sockets • UAE cover plates available from multiple well-known manufacturers	 



POF WIFI ACCESS POINT 1X RJ45 FLUSH-MOUNTED 100MBPS - FAST ETHERNET	POF CAP WIFI ACCESS POINT WALL / CEILING MOUNTED 1GBPS - GIGABIT ETHERNET	INSTALLATION EXAMPLE
OMA 111 WLAN • 1x POF port OPTOLOCK™ interface for 2,2mm POF (100Mbps) • 1x RJ45 interface (100Mbps) • 1x Wifi antenna (150Mbps) **FUNCTIONS** • IEEE 802.3 Ethernet • IEEE 802.3u Fast Ethernet • IEEE 802.11n 150Mbps WiFi 4 • suitable for standard flush-mounted sockets • UAE cover plates available from multiple well-known manufacturers	**OMA 1201 WLAN-GIG** • 1x POF port connector less / Broadcom for 2,2mm POF (1Gbps) • 2x Wifi antenna 2.4GHz (300Mbps) • 2x Wifi antenna 5GHz (867Mbps) **FUNCTIONS** • IEEE 802.3 Ethernet • IEEE 802.1n 300Mbit/s WIFI 4 • IEEE 802.1ac 867Mbit/s WIFI 5 • WEP, WPA, WPA2 Security • Wall- / Ceiling mounted	 



COUNTRY SPECIFIC SOLUTION FOR ITALY

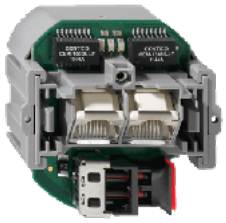
In Italy mainly an own flush-mounting system is mainly common for the electrical installation. Our partner Albrecht Jung GmbH & CO KG offers an adapter system which allows us to offer our products for the Italian market.

The products can be ordered from our partner. The necessary order information can be found in the following table below.

ADAPTER WALL FRAME - SOLUTION FOR ITALY	CENTER PLATE FOR ADAPTER FRAME - SOLUTION FOR ITALY	CENTER PLATE FOR ADAPTER FRAME - SOLUTION FOR ITALY
JUNG LSP981 AL-LIT	**JUNG LS 969-2**	**JUNG LS 969-1**
With the adapter wall frame the German wall outlets can be used in an Italian in wall installation. • dimensions: 115 x 119 x 10mm • weight: 70g • incl. Manual	Suitable for the adapter wall frame. • dimensions: 50 x 50 x 13mm • weight: 18g • 1x RJ45 interface (e.g. OMA 111 WLAN)	Suitable for the adapter wall frame • dimensions: 50 x 50 x 13mm • weight: 16g • 2x RJ45 interfaces (for OMS 121 UP, OMS 1021 UP-GIG)

INSTALLATION EXAMPLE FOR ITALY

STEP1: INSTALL ADAPTER FRAME	STEP 2: INSTALL GERMAN WALL-OUTLET	STEP3: INSTALL WALL FRAME AND CENTER PLATE
		



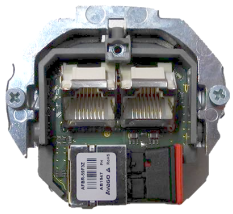
POF NETWORK SOCKET -
2X RJ45 FLUSH-MOUNTED
100 MBPS - FAST ETHERNET
SWISS VERSION

OMS 121 UP-CH

- 1x POF port with OPTOLOCK™ interface for 2.2mm POF (100Mbps)
- 2x RJ45 interface (100Mbps)
- inclusive intermediate frame CH and standard center plate UAE 8/8 rw

FUNCTIONS

- IEEE 802.3 Ethernet
- IEEE 802.3u Fast Ethernet
- suitable for standard flush-mounted sockets in Switzerland
- UAE cover plates available from multiple well-known manufacturers



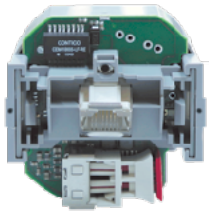
POF NETWORK SOCKET
2X RJ45 FLUSH-MOUNTED
1GBPS - GIGABIT ETHERNET
SWISS VERSION

OMS 1021 UP-CH

- 1x POF port connector less / Broadcom for 2.2mm POF (1Gbps)
- 2x RJ45 interface (1Gbps)
- inclusive intermediate frame CH and standard center plate UAE 8/8 rw

FUNCTIONS

- IEEE 802.3 Ethernet
- IEEE 802.3u Fast Ethernet
- IEEE 802.3ab Gigabit Ethernet
- suitable for standard flush-mounted sockets in Switzerland
- UAE cover plates available from multiple well-known manufacturers



POF WIFI ACCESS POINT
1X RJ45 FLUSH-MOUNTED
100MBPS - FAST ETHERNET
SWISS VERSION

OMA 111 WLAN-CH

- 1x POF port with OPTOLOCK™ interface for 2.2mm POF (100Mbps)
- 1x RJ45 interface (100Mbps)
- 1x Wifi antenna (150Mbps)
- inclusive intermediate frame CH and standard center plate UAE 8 rw

FUNCTIONS

- IEEE 802.3 Ethernet
- IEEE 802.3u Fast Ethernet
- IEEE 802.11n 150Mbps WiFi
- suitable for standard flush-mounted sockets
- UAE cover plates available from multiple well-known manufacturers

INSTALLATION EXAMPLES FOR SWITZERLAND

MOUNTED IN MAIN POWER SOCKET

IN SURFACE MOUNT FRAME

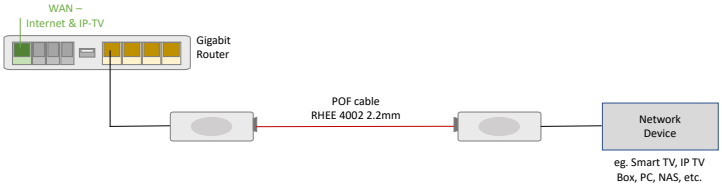
IN SURFACE CABLE CHANNEL

MEDIA CONVERTERS AND KITS

Media converters converts electrical signals into optical signals and vice versa. With the media converter it is possible to connect a single networking device to the POF network via the standard RJ45 interface.

Homefibre offers different variety of converters for different needs. Most popular are Desktop media converters are most popular and can also be powered via USB cable.

All our desktop media converters are available in sets to setup an easy point to point connection (e.g. between a computer and an internet access modem).



For home automatization or installation in combination with electrical installation the REG media converter can be used for DIN rail mounting.

POF DIN RAIL MOUNTED MEDIA CONVERTER 1OOMBPS - FAST ETHERNET	POF DIN RAIL MOUNTED MEDIA CONVERTER 1GBPS - GIGABIT ETHERNET	INSTALLATION EXAMPLE
OMC 100 REG • 1x POF port with OPTOLOCK™ interface for 2.2mm POF (100Mbps) • 1x RJ45 interface (100Mbps) **FUNCTIONS** • For DIN rail mounting • IEEE 802.3 Ethernet • IEEE 802.3u Fast Ethernet	**OMC 1000 REG-GIG** • 1x POF port connector less interface for 2.2mm POF (1Gbps) • 1x RJ45 interface (1Gbps) **FUNCTIONS** • For DIN rail mounting • IEEE 802.3 Ethernet • IEEE 802.3u Fast Ethernet • IEEE 802.3ab Gigabit Ethernet	

POF MEDIA CONVERTER 100MBPS - FAST ETHERNET	POF MEDIA CONVERTER KIT 100MBPS - FAST ETHERNET	EXAMPLE FOR USE
MCE 300T • 1x POF port with OPTOLOCK™ interface for 2.2mm POF (100Mbps) • 1x RJ45 interface (100Mbps) **FUNCTIONS** • can be powered by USB Cable • IEEE 802.3 Ethernet • IEEE 802.3u Fast Ethernet Includes: • 1x MCE 300T • 1x CAT5e patch cable • 1x Power Supply • 1x USB cable • 1x User manual	**MCE 300T - 30 SI** • incl. 30m RHEE cable bundle **SET INCL.** • 2x MCE 300T • 2x Power Supply • 2x USB cable • 1x RHEE 4002 POF cable bundle • 1x POF-Unicut • 2x CAT5e patch cable • 1x User manual	

POF MEDIA CONVERTER 1GBPS - GIGABIT ETHERNET	POF MEDIA CONVERTER KIT 1GBPS - GIGABIT ETHERNET	EXAMPLE FOR USE
OMC 1001 GIG • 1x POF port connector less / Broadcom for 2.2mm POF (1Gbps) • 1x RJ45 interface (1Gbps) **FUNCTIONS** • Can be powered by USB Cable • IEEE 802.3 Ethernet • IEEE 802.3u Fast Ethernet • IEEE 802.3ab Gigabit Ethernet Includes: • 1x OMC 1001 GIG • 1x CAT5e patch cable • 1x Power Supply • 1x USB cable • 1x User manual	**OMC 1001 GIG - 20 SI** (incl. 20m POF) **OMC 1001 GIG - 30 SI** (incl. 30m POF) **OMC 1001 GIG - 40 SI** (incl. 40m POF) **OMC 1001 GIG - 50 SI** (incl. 50m POF) **SET INCL.** • 2x OMC 1001 GIG • 2x Power Supply • 2x USB cable • 1x RHEE 4002 POF cable bundle • 1x POF-Unicut • 2x CAT5e patch cable • 1x User manual	

ACCESSORIES

The flush-mounted devices are manufactured regarding international standards and as a result frames and plates are available in the switch product ranges of leading manufactures.

Due our close cooperation with Rutenbeck it is possible to offer the standard frames and covers as listed below.

WALL PLATE	STANDARD CENTER PLATE WITH LABELING FIELD - 1X RJ45 PLUG	STANDARD CENTER PLATE WITH LABELING FIELD - 2X RJ45 PLUGS
AP RW ; 100 100 51 Color: similar RAL 9010; pure white Dimensions: 80 x 80 x 5mm Weight: 12g	**ZST UAE 8 RW ;** 130 100 52 Color: similar RAL 9010; pure white Dimensions: 50 x 50 x 13mm Weight: 6g 1x RJ45 interface (e.g. OMA 111 WLAN)	**ZST UAE 8/8 RW ;** 130 100 53 Color: similar RAL 9010; pure white Dimensions: 50 x 50 x 13mm Weight: 6g 2x RJ45 interfaces (for OMS 121 UP/ OMS 1021 UP-GIG)

SURFACE MOUNTED HOUSING	INTERMEDIATE FRAME CH	CENTER PLATE FOR KEYSTONE MOUNTING FRAME
UAE-6APG RW; 135 115 03 Color: similar RAL 9010; pure white Dimensions: 80 x 80 x 46mm Weight: 93g	**ADAPTER FRAME SWISS** Color: similar RAL 9010; pure white Dimension: 60 x 60mm Weight: 3g for Swiss modified Version	**ZST UM-MA 2 RW;** 139 100 03 Center plate for 2 modules, pure white Dimentions: 50 x 50mm Weight: 6g For Keystone

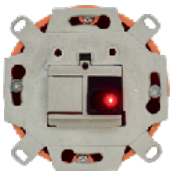
CONNECTORS AND ADAPTER

A passive POF interface (connector) offers a low cost optical interface. This kind of interface can be used to change a connected link e.g. in combination with a media converter. Often a mounting frame is also used so that the pre-installed cable can be easily spotted by the future tenant. If necessary, the mounting frame can be replaced by a flush-mounted switch or WiFi access point.

In case of damage of the cable, it is possible to cut the damaged part, and connect the ends with a connector. It is also possible to stretch out the length of the cable by using a connector. Beware that the use of connectors decreases the maximum transmission length.

MOUNTING FRAME FOR KEYSTONE MODULS

POF-MA 2UP ; 139 000 04
Mounting frame for 2 Keystone modules
Dimensions: 70 x 70 x 17mm



POF OL-SMI KEYSTONE - SMI INTERFACE MODULE

POF OL-SMI KS
Color: black

Connector with 1x Optolock interface and SMI Interface for POF cable 2.2mm
Attenuation: approx. 2.5dBm

POF SMI PATCHCABLE

POF SMI PC 1.5m
POF SMII Connector with 1.5m POF cable for connection between e.g Media Converter and optical data outlet

Core diameter: 1mm
Outside diameter: 2.2mm

POF CONNECTOR 2.2MM

POF-VB 2.2MM
Colr: grey

Connector-less connector for POF cabe 2.2mm
Attenuation: approx. 2.5dBm

POF CONNECTOR 1.5 / 2.2MM

POF-VB 1.5 / 2.2
Color: black

Connector-less connector for pof cable 1.5mm to 2.2mm
Attenuation: approx. 2.5dBm

POF OL-OL KEYSTONE - CONNECTOR MODULE

POF OLOL KS
Color: black

Connector with 2x Optolock interfaces for POF cable 2.2mm
Attenuation: approx. 2.5dBm

TOOLS

The thin POF cable can be installed in one conduit together with the electrical wiring, behind the skirting board or under the carpet. This method offers cost savings, less installation work and maximum safety and efficiency. A safe broadband port can thus be created at any mains plug socket in your home or office within a minimum of time.

To guarantee the best POF connection a clean and smooth cut of the cable ends is essential. Different cutting tools are available.

For optical quality and function control of POF links we offer optical measurement tools.

The tools described here simplify the installation and testing of the optical POF network.

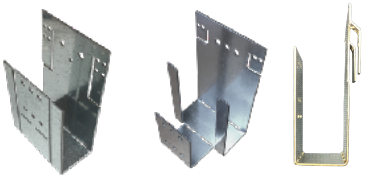
POF CUTTER	POF CONNECTING TOOL	POF OPTICAL POWER METER
POF-UNICUT Simple cutting tool for POF cable	**POF 600 004-2-3** tool with cutting system and stripping aid Length: 190mm Weight: 505g Material: Special tool steel	**OPM 650** Photodetector: 2.2mm POF interface Wavelength: 650nm Metering range: -35dBm up to +10dBm Operating temperature: -10° to +50°C Dimensions: 165 x 80 x 50mm
FUNCTIONS • Tool for cutting POF-cable in a clean and easy installation of the connector less Ports and POF-transceiver .	**FUNCTIONS** • with cutting system for cutting and stripping off 2.2mm POF cable • stripping free of damage, exact adjustment of cable • exact cut surface by special cutting system • no polishing of cut surface necessary, immediate subsequent treatment possible • bronzed with two-component handle bars	**FUNCTIONS** • relative optical power measurement • storage and uploading of up to 1000 measurements to the PC • evaluation software supports test reporting

UTILITIES

Our switches are made for placement on desks. With the utilities they can also be used in many different ways.

For example it is possible to install the POF 6+2 port switch in a 19“ rack or place them in the multimedia distribution chamber.

The Switch Mounting can be used for all kinds of smaller devices which should be installed on a hole plate in a multimedia distribution chamber or on DIN rail.



19“ RACK SHELF	SWITCH MOUNTING FOR MULTIMEDIA DISTRIBUTION CABINET	EXAMPLE FOR USE
19``RACK for up to 2x OMS 126 RR or 2x OMS 1026 RR-GIG Dimensions: 48,3 x 12 x 4,5cm (1U) Weight:472g Color: galvanized • rack Shelf for the installation of max. 2x POF 2+6 Port Switches in 19“ rack • incl. mounting screws	**HOS2** for up to 2x Optical Media Switches Dimensions: 22,5 x 7 x 0,1cm (raw) 11 x 7 x 6,5cm (bended) Weight: 90g Color: galvanized • mounting solution for optical media switches in an multimedia distribution cabinet • rail mounting possible • mounting on mounting plate possible	 

NOTICE

SPECIFICATION - OPTICAL CABLE

PARAMETER	RHEE 4002	GHV 4002
Fibre		
Core Material	Polymethyl-Metharcrylate Resin (PMMA)	
Cladding	Flourinated Polymer	
Core Refractive Index	1.49	
Refractive Index Profile	Step Index	
Numerical Aperture (NA)	0.5	
Core diameter in µm	Min. 920 / typ. 980 / Max. 1040	
Diameter with Cladding in µm	Min. 940 / typ. 1000 / Max. 1060	
Jacket		
Material	Polyethylene, double jacketing	Polyvinylchloride
Color	white	grey
Dimension in mm	Minor Achse - Min. 2.13 / typ. 2.2 / Max. 2.27 Major Achse - Min. 4.3 / typ. 4.4 / Max. 4.5	
Fibre identification	One fibre of the duplex cable has the following indication in pink: „ESKA OPTOHOME MITSUBISHI RAYON“	
Weight in g/m	approx. 7.5g/m	approx. 11g/m
Bundle Reel	20m, 30m, 40m, 50m, 70m, 100m 500m, 1000m	100m 500m
Characteristics	low cost, no light leakage on bendings	fire retardant, UL-VW1
Mechanics		
Operating temperature	-55 to +70°C (in dry climate) max. 60°C (up to 95% humidity)	-40 to +85°C (in dry climate) max. 75°C (up to 95% humidity)
Transmission losses	170dB/km (at 650nm)	
Bandwidth	Launch NA = 0.65; up to 100Mbps Fast Ethernet	
Minimum bend radius	Loss </= 0.5dB 25mm @100% transmission (quater bending)	
Tensile strength	Tensile force @ 5% elongation: 140N	
Compression (at 50kg weight)	0.4dB increasing of attenuation	
Standard	IEC 60793-2-40 Optical fibres -Part 2-40	

SPECIFICATION - FAST ETHERNET MEDIENKONVERTER

Device	MCE 300 T	OMC 100 REG
Standard	IEEE802.3, IEEE802.3u	IEEE802.3, IEEE802.3u
QoS		
Accreditation	FCC Part 15 Class B, EN 55022 Class B	FCC Part 15 Class B, EN 55022 Class B
Optical data interface	1x OPTOLOCK interface	1x OPTOLOCK interface
Information rate optical interface	100Mbps	100Mbps
Wave length	650nm	650nm
Optical Gigabit input sensitivity		
Optical Gigabit transmission distance		
Optical Gigabit transmission distance with adaptive bandwidth		
Backward compatibility		
Optical 100Mbps input sensitivity	-23dBm	-23dBm
Optical 100Mbps transmission distance	typ. 80m *	typ. 80m *
Electrical interface	1x RJ45	1x RJ45
Information rate electrical interface	100Mbps	100Mbps
Electrical interface transmission distance	100m	100m
Additional data interface		
Additional data interface transmission distance		
Information rate additional data interface		
Power supply	5V DC 0.4A Ext. power supply; 100-240V AC 50-60Hz	8-24V DC Ext power supply; Not included!
Power consumption typ.	0.9W	0.9W
Operation temperature	0 to +45°C	-5 to +45°C
Protecting Class DIN EN 60529	IP20	IP20
Protecting Class DIN EN 61140	II	II
Dimensions (WxHxD) in mm	30 x 40 x 80	70 x 90 x 18
Application	Home and Office networks	Include smart home devices, DIN rail mounting devices

* with recommended POF cable: SI faser, NA: 0,5; Cat. A4a.2
(z.B. Mitshubishi Optohome RHEE 4002, GHV 4002)

SPECIFICATION - GIGABIT MEDIENKONVERTER

Device	OMC 1001 GIG	OMC 1000 REG-GIG
Standard	IEEE802.3, IEEE802.3u, IEEE802.3ab	IEEE802.3, IEEE802.3u, IEEE802.3ab
QoS		
Accreditation	FCC Part 15 Class B, EN 55022 Class B	FCC Part 15 Class B, EN 55022 Class B
Optical data interface	1x POF connector less Broadcom	1x POF connector less Broadcom
Information rate optical interface	1Gbps	1Gbps
Wave length	650nm	650nm
Optical Gigabit input sensitivity	-16.5dBm	-16.5dBm
Optical Gigabit transmission distance	typ. 50m *	typ. 50m *
Optical Gigabit transmission distance with adaptive bandwidth	typ. 200Mbps at 80m *	typ. 200Mbps at 80m *
Backward compatibility	Yes	Yes
Optical 100Mbps input sensitivity	-23dBm	-23dBm
Optical 100Mbps transmission distance	typ. 80m *	typ. 80m *
Electrical interface	1x RJ45	1x RJ45
Information rate electrical interface	1Gbps	1Gbps
Electrical interface transmission distance	100m	100m
Additional data interface		
Additional data interface transmission distance		
Information rate additional data interface		
Power supply	5V DC 1.2A Ext. power supply; 100-240V AC 50-60Hz	8-52V DC Ext. power supply; Not included!
Power consumption typ.	1.3W	1.9W
Operation temperature	0 to +45°C	-5 to +45°C
Protecting Class DIN EN 60529	IP20	IP20
Protecting Class DIN EN 61140	II	II
Dimensions (WxHxD) in mm	35 x 90 x 18	70 x 90 x 18
Application	Home and Office networks	Include smart home devices, DIN rail mounting devices

* with recommended POF cable: SI faser, NA: 0,5; Cat. A4a.2
(z.B. Mitshubishi Optohome RHEE 4002, GHV 4002)

SPECIFICATION - FAST ETHERNET SWITCH

Device	OMS 113-FC	OMS 126 RR
Standard	IEEE802.3, IEEE802.3u	IEEE802.3, IEEE802.3u, IEEE802.3ab
QoS		Web Konfiguration
Accreditation	FCC Part 15 Class B, EN 55022 Class B	FCC Part 15 Class B, EN 55022 Class B
Optical data interface	3x OPTOLOCK interface	6x OPTOLOCK interface
Information rate optical interface	100Mbps	100Mbps
Wave length	650nm	650nm
Optical Gigabit input sensitivity		
Optical Gigabit transmission distance		
Optical Gigabit transmission distance with adaptive bandwidth		
Backward compatibility		
Optical 100Mbps input sensitivity	-23dBm	-23dBm
Optical 100Mbps transmission distance	typ. 80m *	typ. 80m *
Electrical interface	1x RJ45	2x RJ45
Information rate electrical interface	100Mbps	1Gbps
Electrical interface transmission distance	100m	100m
Additional data interface		
Additional data interface transmission distance		
Information rate additional data interface		
Power supply	5V DC 2A Ext. power supply; 100-240V AC 50-60Hz	5V DC 2A Ext. power supply; 100-240V AC 50-60Hz
Power consumption typ.		
Operation temperature	0 to +50°C	0 to +50°C
Protecting Class DIN EN 60529	IP20	IP20
Protecting Class DIN EN 61140	II	II
Dimensions (WxHxD) in mm		196 x 30 x 124
Application	Small home and office networks	Home and office networks

* with recommended POF cable: SI faser, NA: 0,5; Cat. A4a.2
(z.B. Mitshubishi Optohome RHEE 4002, GHV 4002)

SPECIFICATION - GIGABIT SWITCH

Device	OMS 1041 GIG	OMS 1026 RR-GIG	OMS 1412 RS-GIG
Standard	IEEE802.3, IEEE802.3u, IEEE802.3ab	IEEE802.3, IEEE802.3u, IEEE802.3ab	IEEE802.3, IEEE802.3u, IEEE802.3ab
QoS			Web Konfiguration, Konsole
Accreditation	FCC Part 15 Class B, EN 55022 Class B	FCC Part 15 Class B, EN 55022 Class B	FCC Part 15 Class B, EN 55022 Class B
Optical data interface	4x POF connector less Broadcom	6x POF connector less Broadcom	12x POF connector less Broadcom
Information rate optical interface	1Gbps	1Gbps	1Gbps
Wave length	650nm	650nm	650nm
Optical Gigabit input sensitivity	-16.5dBm	-16.5dBm	-16.5dBm
Optical Gigabit transmission distance	typ. 50m *	typ. 50m *	typ. 50m *
Optical Gigabit transmission distance with adaptive bandwidth	typ. 200Mbps at 80m *	typ. 200Mbps at 80m *	typ. 200Mbps at 80m *
Backward compatibility	Yes	Yes	Yes
Optical 100Mbps input sensitivity	-23dBm	-23dBm	-23dBm
Optical 100Mbps transmission distance	typ. 80m *	typ. 80m *	typ. 80m *
Electrical interface	1x RJ45	2x RJ45	2x RJ45
Information rate electrical interface	1Gbps	1Gbps	1Gbps
Electrical interface transmission distance	100m	100m	100m
Additional data interface			2x SFP
Additional data interface transmission distance			1Gbps / 10Gbps
Information rate additional data interface			100m / 1km
Power supply	5V DC 3A Ext. power supply; 100-240V AC 50-60Hz	5V DC 3A Ext. power supply; 100-240V AC 50-60Hz	12V DC 3A Ext. power suplly; 100-240V AC 50-60Hz
Power consumption typ.	10W	10W	10W
Operation temperature	0 to +42°C	0 to +42°C	0 to +42°C
Protecting Class DIN EN 60529	IP20	IP20	IP20
Protecting Class DIN EN 61140	II	II	II
Dimensions (WxHxD) in mm		196 x 30 x 124	440 x 45 x 210 (19" Switch, 1HE)
Application	Small Home and office networks	Home and office networks	Complexe networks

* with recommended POF cable: SI faser, NA: 0,5; Cat. A4a.2
(z.B. Mitshubishi Optohome RHEE 4002, GHV 4002)

SPECIFICATION - FLUSH-MOUNTED SWITCHES

Device	OMS 121 UP (CH)	OMS 1021 UP-GIG (CH)
Standard	IEEE802.3, IEEE802.3u	IEEE802.3, IEEE802.3u, IEEE802.3ab
QoS		
Accreditation	FCC Part 15 Class B, EN 55022 Class B	FCC Part 15 Class B, EN 55022 Class B
Optical data interface	1x OPTOLOCK interface	1x POF connector less Broadcom
Information rate optical interface	100Mbps	1Gbps
Wave length	650nm	650nm
Optical Gigabit input sensitivity		-16.5dBm
Optical Gigabit transmission distance		typ. 50m *
Optical Gigabit transmission distance with adaptive bandwidth		typ. 200Mbps at 80m *
Backward compatibility		Yes
Optical 100Mbps input sensitivity	-23dBm	-23dBm
Optical 100Mbps transmission distance	typ. 80m *	typ. 80m *
Electrical interface	2x RJ45	2x RJ45
Information rate electrical interface	100Mbps	1Gbps
Electrical interface transmission distance	100m	100m
Additional data interface		
Additional data interface transmission distance		
Information rate additional data interface		
Power supply	Integrated power supply; 100-240V AC 50-60Hz	Integrated power supply; 100-240V AC 50-60Hz
Power consumption typ.	0.9W	2.8W
Operation temperature	-5 to +45°C	0 to +45°C
Protecting Class DIN EN 60529	IP20	IP20
Protecting Class DIN EN 61140	II	II
Dimensions (WxHxD) in mm	fits to DIN Flush mounting boxes	fits to DIN Flush mounting boxes
Application	Home and office networks	Home, office and complex networks

* with recommended POF cable: SI faser, NA: 0,5; Cat. A4a.2
(z.B. Mitshubishi Optohome RHEE 4002, GHV 4002)

SPECIFICATION - WIFI ACCESS POINT

Device	OMA 111 WLAN (CH)	OMA 1201 WLAN-GIG
Standard	IEEE802.3, IEEE802.3u, IEEE802.11n	IEEE802.3, IEEE802.3u, IEEE802.11n, IEEE802.11ac
QoS	Web configuration	Web / App configuration
Accreditation	FCC Part 15 Class B, EN 55022 Class B	FCC Part 15 Class B, EN 55022 Class B
Optical data interface	1x OPTOLOCK interface	1x POF connector less Broadcom
Information rate optical interface	100Mbps	1Gbps
Wave length	650nm	650nm
Optical Gigabit input sensitivity		-16.5dBm
Optical Gigabit transmission distance		typ. 50m *
Optical Gigabit transmission distance with adaptive bandwidth		typ. 200Mbps at 80m *
Backward compatibility		Yes
Optical 100Mbps input sensitivity	-23dBm	-23dBm
Optical 100Mbps transmission distance	typ. 80m *	typ. 80m *
Electrical interface	1x RJ45	
Information rate electrical interface	100Mbps	
Electrical interface transmission distance	100m	100m
Additional data interface	1x Wifi antenna 2.4GHz	2x Wifi antennas 2.4GHz 2x Wifi antennas 5GHz
Additional data interface transmission distance	Very good: typ. 5-10m Accaptable: typ. 10-20m	Very good: typ. 10-15m Accaptable: typ. 15-30m
Information rate additional data interface	150Mbps (Wifi 4)	300Mbps (Wifi4) 867Mbps (Wifi5)
Power supply	Integrated Power Supply; 100-240V AC 50-60Hz	Integrated Power Supply; 100-240V AC 50-60Hz
Power consumption typ.	1.2-3W	3.6-7W
Operation temperature	-5 to +45°C	0 to +45°C
Protecting Class DIN EN 60529	IP20	IP20
Protecting Class DIN EN 61140	II	II
Dimensions (WxHxD) in mm	fits to DIN Flush mounting boxes	
Application	Home networks with small number of clients	Home- and Office networks with high amount of clients

* with recommended POF cable: SI faser, NA: 0,5; Cat. A4a.2
(z.B. Mitshubishi Optohome RHEE 4002, GHV 4002)

homefibre
THE OPTICAL
HOMENETWORK

homefibre digital network gmbh
Fratresstrasse 20
9800 Spittal /Drau
Austria

Contact us:
E-Mail: welcome@homefibre.at
Phone: +43 4762 35391
Fax: +43 4762 42780

More Information:

Web: www.homefibre.at

Webshop: www.homefibre24.at

Your local partner: