

The concept

The Master Link Gateway is an interface between the Bang & Olufsen A/V setup on the one side and a dedicated Home Automation system on the other side. It enables smooth control and operation in both directions. It gives our customers full control of their home no matter where they are.

The concept of home automation/smarthouse or the intelligent home has spread rapidly to many of Bang & Olufsen's core customers, to whom simplicity and ease-of-operation really matters. Besides experiencing the fantastic integration and control you have in a Master Link system with only one remote control, we have decided to offer more benefits to our prime customer by providing a solution that integrates more seamlessly with other electronic equipment in the home as well.

Seamless integration and operation

With the Master Link Gateway and Beo5 we embark on a journey to fulfil our ambition to ensure that the control or user interface of any third party products is taken to another level. To achieve this we have decided to take a new, customer-oriented approach. This means that Bang & Olufsen customers will buy into customised experiences which are truly inventive and relevant to the individual customer, and which are credible in their performance.

The basic idea of the Bang & Olufsen solution with Beo5 is that we want to offer our customers full control combined with extreme flexibility - from the nearest operation panel or via the Beo5 remote control.

We are going for a Bang & Olufsen platform where you will experience coexistence between AV products and other third party products with no perceived barriers where the integration with environment control, e.g. intelligent control systems, should be a founding conceptual element as well and based on a user-friendly identifiable Bang & Olufsen platform.

This "extended" functionality should be experienced as a fully integrated part of the product when relevant to the customer, but the physical integration can have different forms/expressions.

Background

For many years Bang & Olufsen has offered some integration of non-A/V products such as e.g. light control, curtain control, projectors and home automation

systems, which all have been handled on an individual basis according to customer needs, as an add-on feature to existing A/V products.

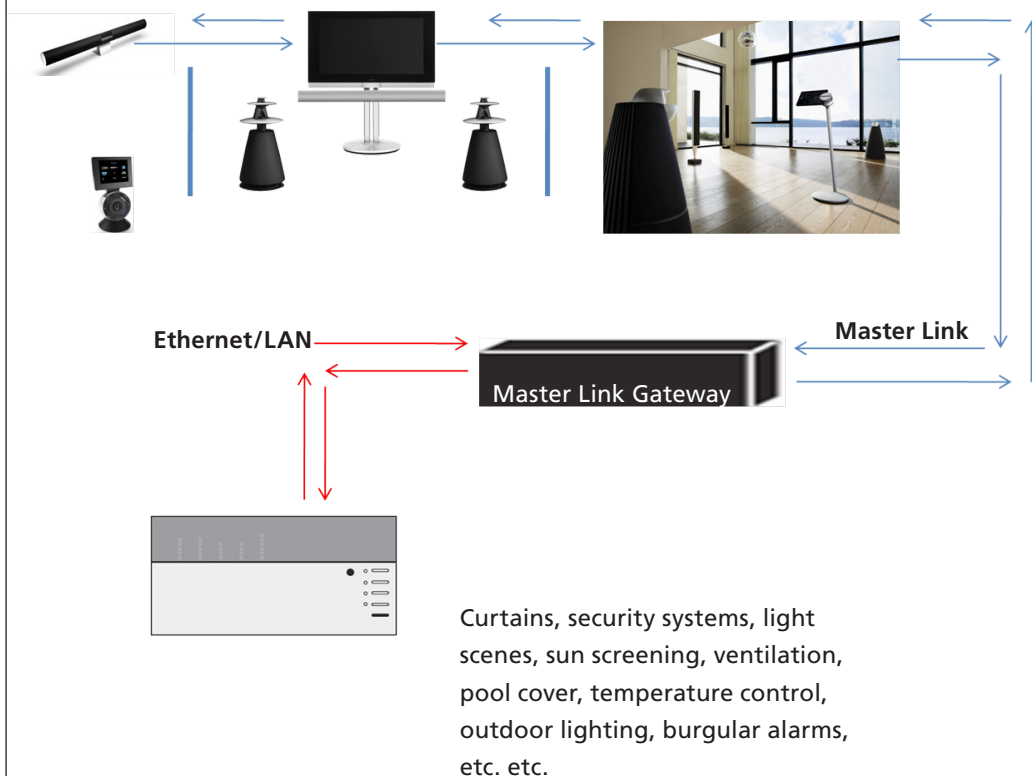
This has meant that the integration of the products has been done on ad hoc basis and not as a natural part of the product concept causing the customer experience to be somewhat less flexible and less integrated than had it been part of the product concept from the start.

Visual identity

The Master Link Gateway is a simple control interface (black box) that contains the following system connections :

Master Link
Ethernet
RS232 data
Power plug

Master Link plug
RJ 45 plug for connecting to LAN
For connection to third party Control System
Internal power supply



The Master Link Gateway translates the Bang & Olufsen Master Link commands into RS232 or LAN (ethernet) commands that Home Automation can understand and vice versa. The connection varies according to the specifications of the third party product:

- Ethernet (LAN) for ip based systems
- RS 232 and RS 485 cover non-ip based systems

The control flow in the Master Link Gateway is based on two data tables, one table handling events coming from the Master Link side, and another table handling events coming from the third party control system side.

There is also a setup function in the Master Link Gateway for identifying the different Master Link master products in the setup. The different master products in the rooms must be named, as known from the Beo5 setup.

Via the Master Link Gateway, you can now control and operate all your Home Automation equipment from your Beo5 all over the house. You can combine actions involving both home automation equipment and your AV equipment - e.g. switch on the light and turning on your favourite TV channel in the kitchen, or set different light scenes inside and outside, and designate and name a button on your Beo5 to carry out the operation sequence. You can also choose to control your A/V system from e.g. a button on your Home Automation panel, if that makes more sense.

The operation is completely flexible as the Master Link Gateway allows you to have as much as 2 x 65 commands per room. The commands can be a combination of local commands, covering e.g. closing the curtains in one room, and or global commands, such as switching off the lights in the entire house.

Functionality for the Master Link Gateway:

- One to one or one to more command relations both ways
- Master Link commands:
 - Send IR simulated commands over Master Link to a Master Link master product.
 - Receive IR simulated commands from Master Link master products
 - Receive different status information from the Master Link products.

There are different reasons why we embark in this new setup with the Master Link Gateway. Having a Master Link system, which works as efficient as it does and with the extensive experience we have in system control it is easy for us to see a number of additional benefits we could easily offer our customers, if integration is handled in a professional way with our third party partners.

This type of customers are living with high expectations for convenience and flexibility in their homes. They are looking for convenience and ease-of-use and we're able to extend their control of the environment quite dramatically with the Master Link Gateway.

The Master Link Gateway is a serious contributor to the top-end Bang & Olufsen customer who is looking for an increased experience within

- Comfort
- Efficiency
- Security
- Ease-of-use
- Flexibility
- and last but not least, fun, ambience, and atmosphere

One concept with regional differences

The expectations and wishes of our customers will differ very much from one region to the next. Cultural differences, climate and ways of living affect the choices our customers make so we have to be able to provide a multitude of solutions that match the world wide audience we're covering with this solution.

Together with strategic home automation third party partners such as Busch Jaeger (building on the KNX standard - which means they give us access to up to more than 120 other partners of Home Automation systems), LK Schneider, Lutron, Conson etc. we can reach a sufficient integration level in Home Automation with Beo5 to make sure it is the only remote control found at the coffee table in the Bang and Olufsen customer's home.

In North America the conceptual idea is to support big ticket customers, where we since 2002 decided to accept Crestron control systems to the top-top segment of high-end residential custom electronic systems. Here the Master Link Gateway is a replacement of an earlier concept specially designed for the US

As the development of home automation systems started earlier in the US than in Europe we can benefit from our experience in the US to create in a high quality solution to high-end residential custom electronic systems. In UK we are facing competition from Crestron and AMX right now. We need the Master Link gateway together with third party partners to keep our position with Beo5 in this top segment. This means we will have a major competitive advantage both in private homes and in major residential installations worldwide.

Partners

To get to this level we have entered into strategic partnerships with some third party suppliers allowing full integration with their products. We have selected these partners because they are major contributors of high quality home automation equipment. With them we're aiming at achieving a Bang & Olufsen identity when it comes to the user interface, so that there is a certain amount of recognition regardless of the applications connected.

So far the Master Link Gateway works with:

- Lauritz Knudsen, IHC/Schneider, LexControl
- Lutron HomeWorks Interactive
- Lutron Graphic Eye
- Lutron Graphic QS
- Lutron Radio RA
- Busch-Jaeger KNX
- Conson XP

Questions & Answers

Does the system offer multi-source A/V functionality?

Master Link Gateway does not change anything in the concept of distributing A/V around the house. It's main purpose is to extend the benefits of having one remote control by establishing a communication between the Master Link system and the Home Automation system.

Is Master Link Gateway CAT 5 compatible?

Yes, Master Link Gateway connects to Home Automation systems via CAT 5 or RS232.

Will Master Link Gateway replace the Peripheral Unit Controller?

Master Link Gateway does not replace PUC, as PUC is used to control video sources while Master Link Gateway enables operability connected to the customers' home automation system.

Can Master Link Gateway be accessed externally via the Internet?

Given the correct set-up of the customers' home network and router the Master Link Gateway can be accessed from an external location.

Can set-ups be copied from house to house?

This is not possible unless the houses are exactly the same have the exact same set-up installed in their Home Automation system.

How will Bang & Olufsen identify the relevant Home Automation systems?

Relevant Home Automation systems will be identified locally by the National sales organisations during 09/10 and be evaluated individually via a business case. Depending on the business case, we expect to add approx. three brands per year.

What will be the support to installers when it comes to the Master Link Gateway?

CASS is already trained in Master Link Gateway and BeoCare will be fully capable of supporting the Master Link Gateway.

What do we need to know about programming Beo5 for use in a Master Link Gateway situation?

The Beo5 configuration tool does not need to be updated to programme Beo5 used together with Master Link Gateway. More icons will, however, be added to the Beo5 configuration tool as new Home Automation partners are added to the compatibility list.

Will there be any support material to introduce this new feature to our customers?

Yes, some marketing tools will be provided to target both end-customers and business partners.

How long will the programming of the Master Link Gateway take?

It depends on the size of the house, but a typical programming of a main room is expected to be something like two hours. In addition you should add approx. ½ hour per link room provided that the Beo5 is already programmed and the Home Automation system is up and running. If Beo5 is already programmed, the home's Bang & Olufsen configuration can be downloaded from the tool so the time for the main room programming can be significantly reduced.

How will we present the Master Link Gateway in the shop?

It is very difficult to make a proper demonstration in the shops, so most likely it will be done by showing the customers a video clip presenting the functionality and elements demonstrating the convenience offered by the Master Link Gateway.

Can the Master Link Gateway be integrated in an existing setup at the customer's home?

Yes, the Master Link Gateway can be connected to a pre-installed Home Automation system.

How many Master Link Gateways do I have to install to control a house?

You will only need one Master Link Gateway per Master Link setup, which allows you to connect 15 Bang & Olufsen products plus the Master Link Gateway. If you have more than one Master Link setup you will need more Master Link Gateways.

How many Master Link cables can be physically connected to the Master Link Gateway box?

You connect only one Master Link cable to the Master Link Gateway.

How many RJ 45 can be physically connected to the Master Link Gateway?

There is one RJ 45 socket in the Master Link Gateway. You simply connect to the router where you have your Home Automation system connected as well.

It is compulsory to have an Internet connection to install a Master Link Gateway system?

It is not necessary to have an Internet connection to use Master Link Gateway.

Does Master Link Gateway work with Beo4 as well?

Yes, Beo4 can be used, but we recommend Beo5 as it can handle more commands and display icons that make the operation more intuitive and self-explanatory.

Is it possible for an existing BeoLiving customer to install a Master Link Gateway?

Yes this is possible, but probably not relevant as this kind of sales is typically initiated, when you build new houses, apartments etc.

How much IT knowledge does the installation of Master Link Gateway require?

After a few hours of technical training with our technical trainers, everybody can programme the Master Link Gateway. It is important however, that the A/V installer/programmer has an in-depth understanding of Bang & Olufsen commands and link structure.