

## House cabling made the easy way - the trend towards structured cabling in residential buildings

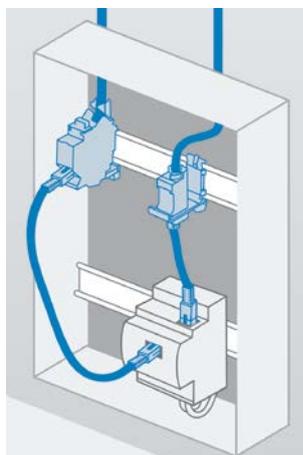
### **Part 10: Applications**

The energy-efficient, intelligent home has now become a reality. More and more applications in residential buildings are using the IP protocol and need a structured cabling.

In the previous articles in this series, the concept and structure of the cabling infrastructure as well as the necessary components were presented and the important standards and measuring specifications explained. This article deals with the applications that are possible with modern house cabling.

#### **Meter stations and very favourable rates**

The concept of structured house cabling was already defined in 2007 in the standard DIN EN 50173-4 "Information Technology – Application-neutral Communication Cable Systems – Part 4: Apartments". With the VDE application rule VDE-AR-N 4101 which came into force on the 1st of August 2011 and the minimum requirements for electrical engineering meter stations, the trend towards structured house cabling then really got moving. According to this regulation, an RJ45 socket must be provided in every meter station to record and pass on the data with intelligent electricity meters, so called Smart meters - regardless of whether or when such an electricity meter is installed. A communication module – the Multi Utility Communication Module, for short: MUC – passes the meter data on to the energy provider and end user. The electricity



RJ45 outlet in meter station

consumption can then be measured and charged exactly and up to date and saves a considerable amount of administration work for the energy providers. The advantages for the consumer: He is always informed about the current electricity consumption and can easily check whether there are any appliances with an unusually high electricity consumption being used in the house and can switch them off. Switching off rarely used appliances instead of letting them run on standby can already save a lot of electricity. The user can save even more when he operates appliances which do not need to run at a certain time at times when the energy provider offers particularly favourable rates. These include the frequently mentioned washing machine or dish washer which can run overnight in many cases. It

also includes electric vehicles whose batteries can be recharged particularly economically at night. The intelligent electricity meters switch over automatically to rates booked by the customer, a rate switching unit is no longer needed.

### Convenient measurement and remote maintenance



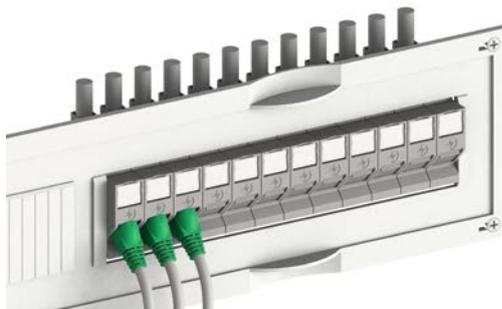
Mounting Rail Outlet  
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With its modular design, the Multi Utility Communication Module of the electricity meter station offers extension possibilities for connecting other meters for example for gas, water or district heating. Forgotten consumption notifications or missed meter reading appointments are then all in the past and the end user can call up the latest information both about the current consumption and the consumption over a longer period of time at any time and make savings accordingly.

Many heating system manufacturers are now offering burner systems with an IP connection. If there is a problem with the heating system, the service technician can quickly and easily log in remotely and check the system from the Service Center. In many cases he can find the error like this and adapt the system settings and thus save a lot of time and travel costs. If a repair should be necessary he can create a repair order with the required parts and make sure that the colleague on site has everything that he needs.

Networked thermostats can now be installed in the rooms for economic operation of the heating. The individual radiators can then be controlled much more flexibly than with the manual or battery-operated thermostats. Frequent changes can also be made quickly and easily.

### Building monitoring and control technology

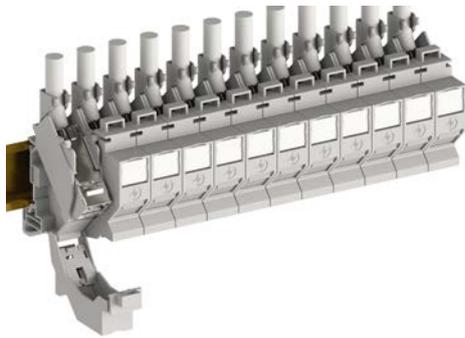


Bus technology showed us how to do it: Basically all systems and appliances can be programmed and controlled. But what is usually time-consuming and cost-intensive with the bus solutions, can be implemented relatively simply with IP solutions. Data can be called on a touch screen and appliances programmed and controlled.

The blinds control can be set much more conveniently according to individual wishes as can the ventilation. Air quality, air flow and humidity are monitored and can be adapted immediately at

any time. When you have a lot of guests, a much higher air exchange is necessary than when you are alone in the room.

But it is the lighting that is most often changed. Sometimes you like it brighter, sometimes dimmed; your reading lamp should not spoil your partner's TV enjoyment. And when it is still a little light outside, it is enough to have the lights down low, which again saves energy. Daylight harvesting has proven to be particularly economical and convenient. Here, the lights are dimmed automatically so that they only supplement the available daylight to the extent that the desired lighting intensity is reached. Fluctuations in brightness, for example when a cloud crosses the sun, are compensated in a split second. The user does not notice. Sophisticated light scenarios



which used to be complicated to program can now be created and altered in no time with intelligent technology. A touch screen, housed in a wall holder in a central place, and which can be taken out and carried anywhere depending on the version, ensures convenient operation of the whole installations. Many providers now use standard tablets. High performance Smart phones can also be used.

### **Security technology**

Single family houses and apartment blocks are being increasingly equipped with inconspicuous but high-performance security technology. Intercom systems with integrated cameras show you who is at the door. Biometric closing systems with fingerprint sensors let you into the house even when you've forgotten your key. Motion/presence detectors detect whether anyone is there and switch on the lights and the IP video camera (which also has an RJ45 connection).

IP cameras can also increase safety and comfort indoors, for example for monitoring small children. Parents can then watch their children without always having to be in their immediate vicinity.

### **Internet, entertainment and multimedia**

The times in which the telephone was in the hallway and the TV in the living room are over.

Nowadays, RJ45 connections of a link to the WLAN from every room are taken for granted. But

you should not forget that although the terminating equipment is connected wirelessly to the Internet, the WLAN access points which provide the wireless network need an RJ45 connection. Modern TV sets now also have an IP connection, either for TV programs via IP-TV or for a connection to the Internet for home-shopping or simultaneous surfing in the Internet, preferably in the commercial breaks. Multimedia via IP as so-called Tripe-Play (TV, telephone and Internet) over an RJ45 connection is now standard in many households.



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### Tantalising prospects

Even household appliances are gradually being delivered with an IP connection. The emphasis here is on economy and convenience. Operation at certain times at especially low rates saves money and the remote controlled preparation of meals is rather practical when you have to do unexpected overtime again and can switch on the hob or oven on the way home. And last but not least, morning grouches will appreciate the fresh coffee when the coffee maker turns on with the alarm clock.

Basically all devices, systems and procedures which can be switched or set can be managed via IP. New applications are being added every day but they all have one thing in common. They need an IP connection and that in turn needs an efficient cabling infrastructure.

You will find further information on the Telegärtner home page.