

4 Transmission via radio

4.1 Introduction

In addition to the familiar twisted pair line and the *EIB powerline* technology, in the future it will also be possible to use *EIB radio* (**EIB-RF** = radio frequency) as transmission medium. *EIB radio*

This does not require the laying of a separate bus line. Sensors and actuators and so on can work off a battery supply and do not therefore require any wiring. This high degree of mobility has advantages not only for the familiar technology, it also opens up many new fields of possibility for mobile operating devices. *Sensors and actuators with battery supply*

Radio transmission is especially suitable for modernisation and the extension of existent systems but equally for all types of new installations. Difficult installation situations, such as glass walls or large distances in the open air present no problems for radio transmission. The mobile operation of all points within a system becomes easily possible.

The *EIB radio* system is compliant with the valid European standards and regulations. Radio transmission is fully compatible with existent *EIB* systems and there are no restrictions even with regard to transmission speeds. This means that the planning and commissioning of such a system are no different from that of the already familiar *EIB-TP* systems. The functions of the HomeAssistant are fully supported.

4.2 Applications

The *EIB radio* system extends the application possibilities to those that are not possible with the bus line or those that would only be possible with extensive wiring. Even the existence of a 230 V power supply is not absolutely essential

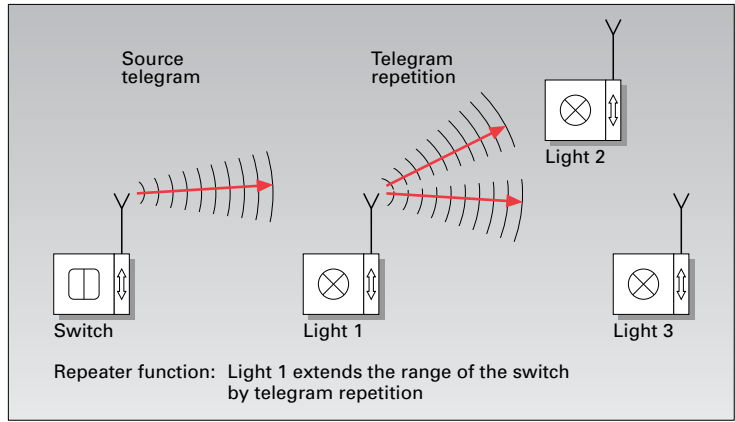


Fig. 4.2-1 Repeater function with EIB radio

for this transmission technology. The mobility really distinguishes the radio method and facilitates particularly flexible handling and operation. As with the *EIB-TP* network, only the actuators are connected to the 230/400 V supply. The transmission path in a free field lies at approx. 300 m. There are no functional restrictions for applications in

Free field

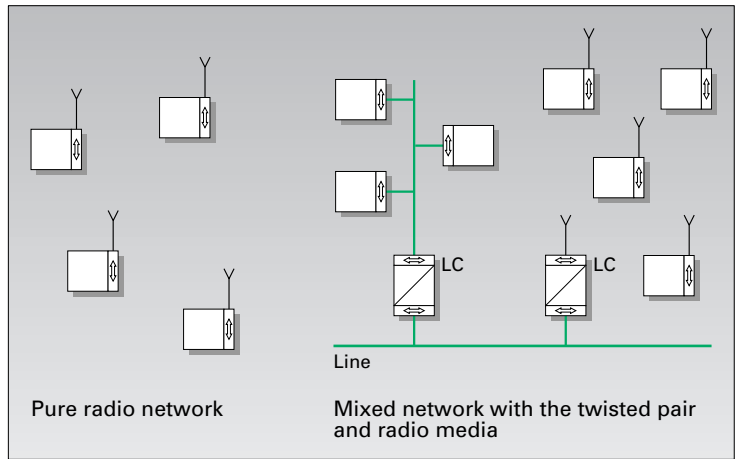


Fig. 4.2-2 Topology of EIB radio

buildings. The range in buildings depends on the structural conditions, but can be extended using repeaters so that the size of the building does not in effect impose any restrictions either. Repeaters automatically repeat telegrams (see Fig. 4.2-1).

Repeater

As the limits of the radio system cannot be exactly defined, a system code is used in the same way as for *EIB powerline* systems to provide a logical separation. This code is automatically assigned by the ETS 2 software and transmitted with every telegram.

System code

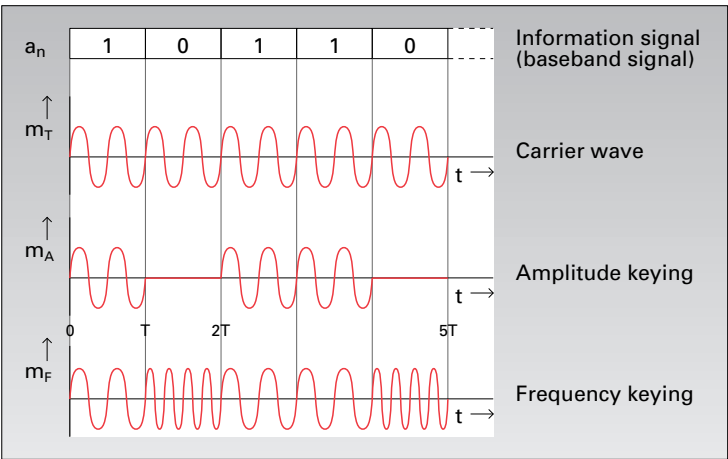
Typical applications are all types of switching, controlling, indicating and transmission of measurements as well as mobile operation.

An *EIB system* can consist of a pure radio network, or of a mixture of radio and another medium, such as for example *EIB-TP* (see Fig. 4.2-2).

4.3 The transmission method

With radio, the information to be transmitted is modulated by a carrier. This can either be achieved via the amplitude

Carrier
Amplitude
keying



Modulation
method

Fig. 4.3-1 Modulation method

Transmitter and receiver parts

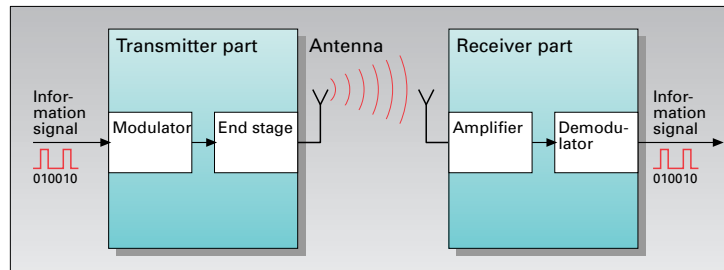


Fig. 4.3-2 Logic diagram representing radio transmission

Frequency keying Phase keying

(amplitude keying), the frequency (frequency keying) or the phase (phase keying). This modulated carrier is transmitted to the receiver. Here, the received signal is demodulated; i.e. the information is retrieved from the signal. To ensure that different *EIB radio* systems do not influence one another, the information being transmitted is assigned with a unique system code (see Fig. 4.3-1).

The principal layout of transmitter and receiver parts is represented in Fig. 4.3-2.

4.4 Project design and commissioning

The design and commissioning processes do not deviate from the familiar procedures and are supported by the ETS 2 software.

4.5 Product launch

The *EIB radio* products will probably be launched on the market in 1998. The first of these components will be battery operated sensors and switches in flush-mounted and surface-mounted designs as well as switching actuators in the form of DIN rail mounted units.

With this, the radio transmission medium will significantly increase the application possibilities of *EIB* and in particular it will revitalise the extension and renovation market.