

Accessories for data transmission

on power line and cable shield



- Carrier frequency traps
- Line filters
- Coupling transmitters for cable shields
- Coupling transmitters for connecting different line systems

Accessories for Telecontrols

Carrier frequency traps for power line transmission

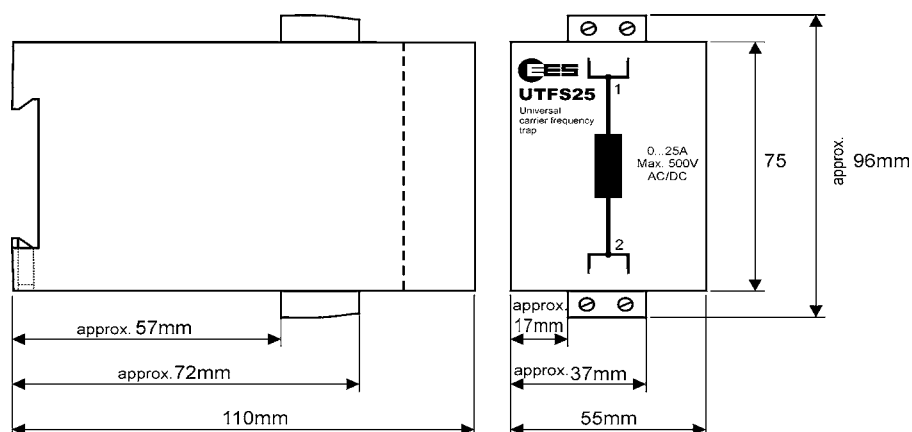
The carrier frequency traps UTFS 25 and UTFS 101 are switched in the phase of a single phase or a three phase current cable line and prevent a leakage of the carrier frequency. Especially capacitors and resonant earthed system plants are representing a short circuit for the high frequent carrier frequency and obstruct the transmission. To achieve a possibly safe transmission, the used lines for power line transmission should be equipped with carrier frequency traps on all sides. If there are additional line branches, they should be even equipped with carrier frequency traps. The bus connection of the power line modules can be done either between two lines (e.g. L1 and L2) or between a line and zero level.

Technical data

| | | |
|------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| |  |  |
| Type | UTFS 25 | UTFS 101 |
| Item number | 98UTFS025A | 98UTFS101A |
| Connection voltage | maximal 500 V AC/DC | maximal 500 V AC/DC |
| Maximum nominal current | 25 A AC/DC * | 100 A AC/DC * |
| Nominal frequency | 0 ... 60 Hz | 0 ... 60 Hz |
| Notch- and effective frequency | 50 ... 150 kHz | 90 ... 150 kHz |
| Operating- and ambient temperature | -20 ... +60 °C | -20 ... +60 °C |
| Weight | approx. 0,7 kg | approx. 3,8 kg |
| Terminals | Clamps up to 4 mm ² | 30 cm long connection wires with molded wire sleeves Ø ca. 10 mm |

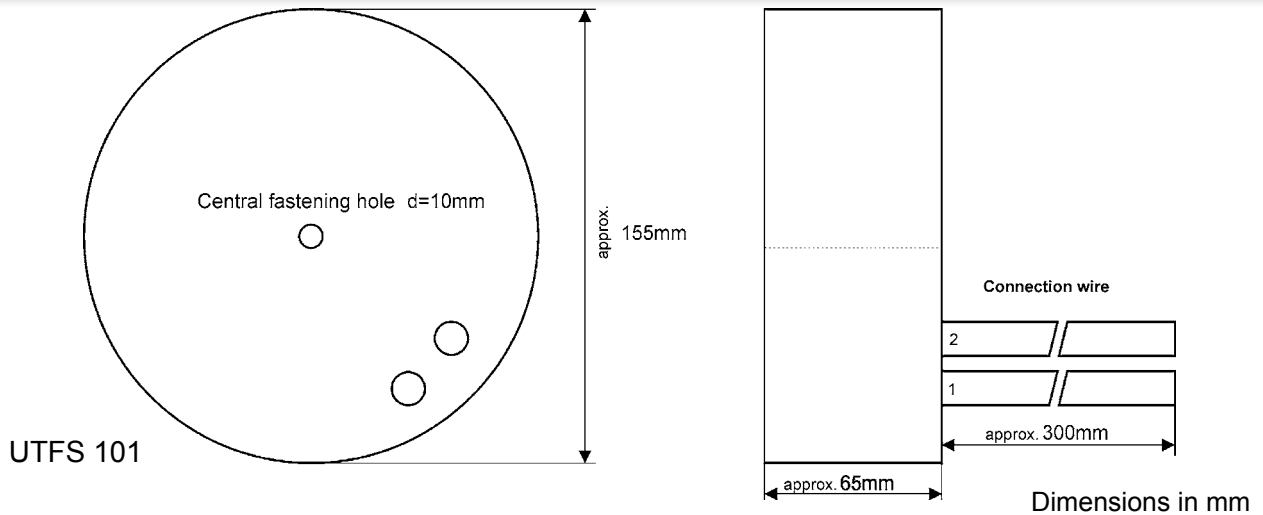
* For higher currents carrier frequency traps can be switched in parallel.
(2 x UTFS 25 for 50 A; 2 x UTFS 101 for 200 A).

Dimensional drawing

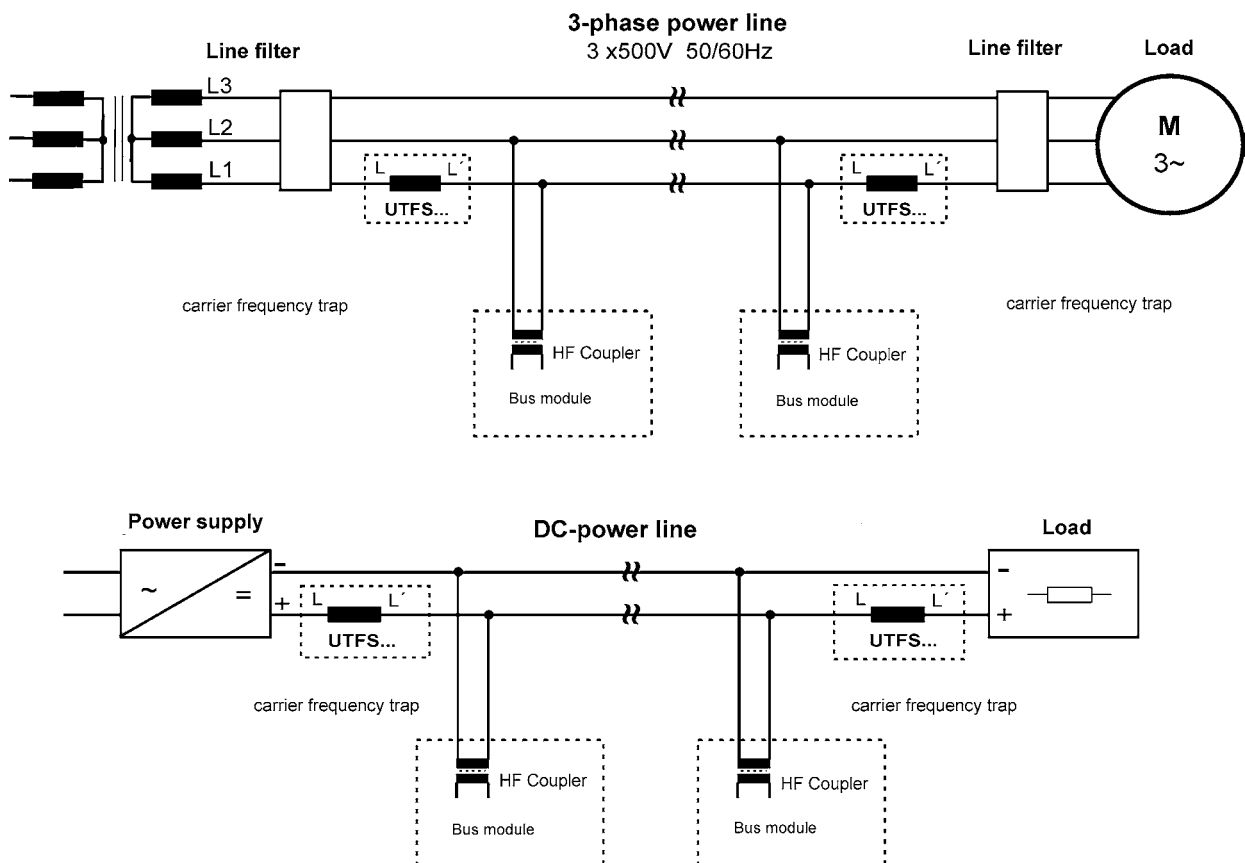


UTFS 25

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Connection diagram



⚠ Bigger power transformers are representing a HF short circuit for the carrier frequency signal and have to be avoided by the coupling transmitter KUE 110. Please read section: „coupling of different line types“

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Line filters for power line transmission

Especially variable frequency inverters are often producing broadband interferences, which have a strong affection on a safe operation of telecontrol systems using powerlines. Because of that line filters have to be installed in the three-phase current line used for transmission at the disturbance source. The source can be either the feeding- or the load side.

EES To proof the interference voltages on the power line EES is providing coupling transmitters. With the aid of a oscillograph they can decouple the high frequency interfering voltages from the 50/60 Hz mains frequency and therefore make them visibly very well.

Technical data

| | | |
|-----------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| |  |  |
| Type | NF 32 | NF 100 |
| Item-Nummer | 98NF0320000 | 98NF1000000 |
| Max. operating voltage | 3 x 600 V 50/60 Hz | |
| Max. transit current | 32 A | 100 A |
| Max. fusing | 40 A | 125 A |
| Operating and ambient temperature | - 20 ... +50 °C | |
| Weight | approx. 3 kg | approx. 3,5 kg |

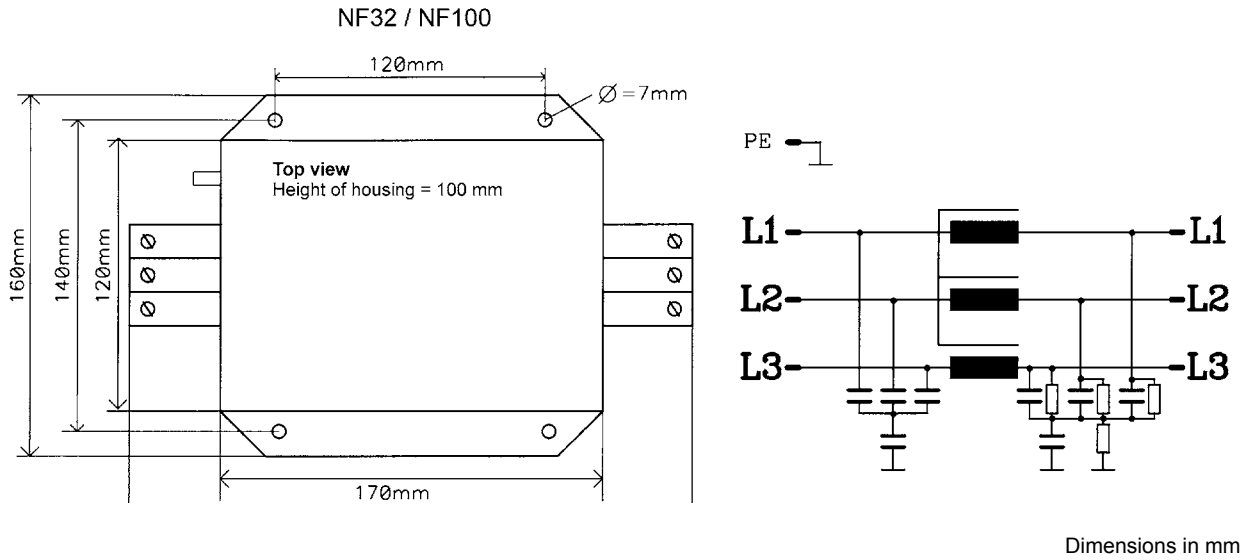
Insertion loss measured on 50 Ω

| | | | | | |
|---------------------------------|----|----|----|-----|-----|
| At interfering frequency in kHz | 10 | 20 | 50 | 110 | 200 |
| Insertion loss measured on 50 Ω | | | | | |
| symmetrical in db | 2 | 3 | 15 | 50 | 60 |
| asymmetrical in db | 20 | 25 | 50 | 65 | 70 |

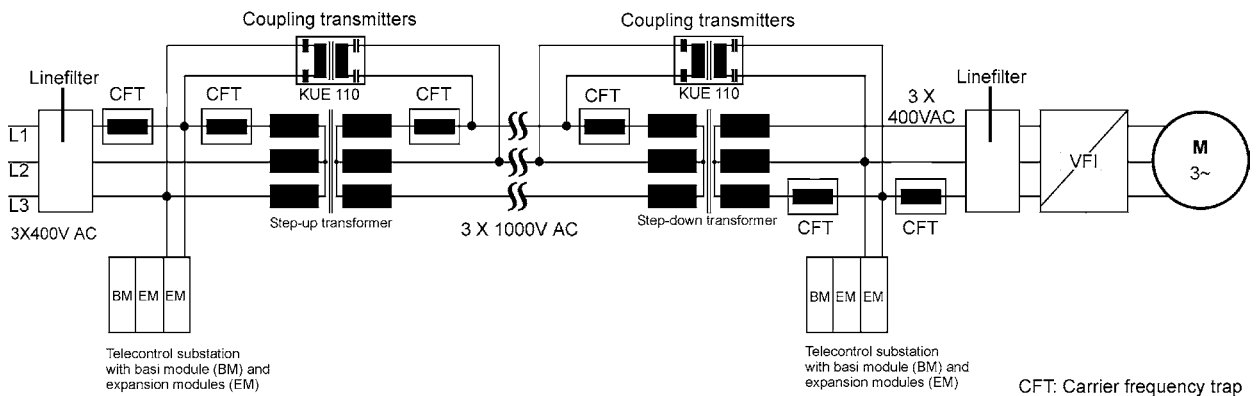
Please take the connection diagram on the previous and the next page into account .

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Dimensional drawing and terminal assignment



Example: Schematic diagram for avoiding an step-up transformer



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Coupling transmitter for data transmission on cable shields of medium voltage lines



With the coupling transmitter **TR 110** cable shields of medium voltage lines are suitable for data transmission with the MFW power line system. Also already existing plants can be expanded by this way, e.g. if there is a gap between two control cable lines or 3 x 500 V three-phase current cables and can only be bridged by a medium voltage cable shield. Only 2 coupling transmitters TR 110 are needed, used for adapting these totally different transmission cables. These 25 mm² strong primary connection lines are easily inserted into the earthing terminal of the cable shield. The purely passive working transmitters are able to leak either fault currents and short circuit currents on 50 Hz-level completely against earth, as well as coupling into the carrier frequency for data transmission at the same time with very low loss.

For universal use of the transmitter there are 2 connection terminals provided for connecting:

- potential-free lines (bus-cables), as well as
- 3 x 500 V - three-phase current lines (over coupling capacitors)

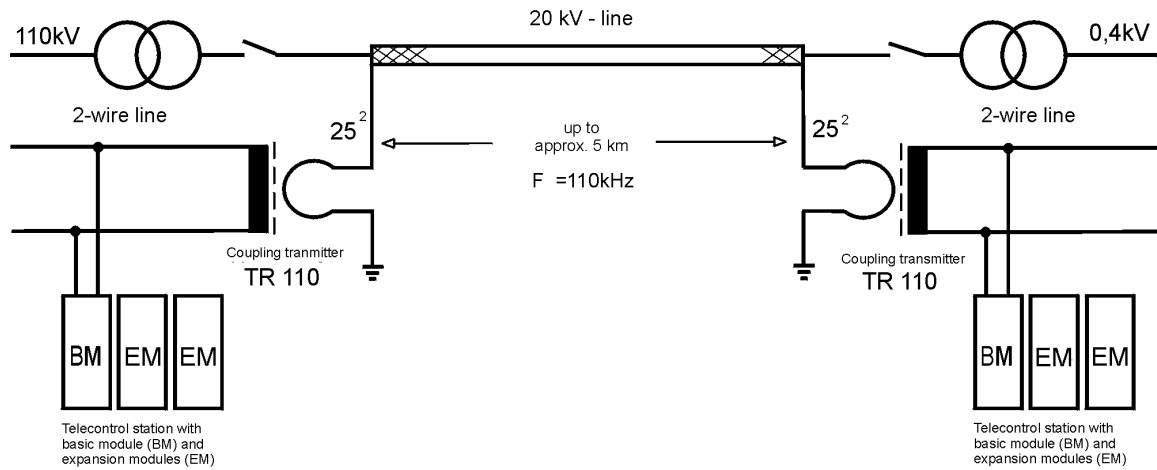
Requirements for medium voltage lines

- No sleeves in contact with earth
- Loop resistance shield and earth < 10 Ω
- Leakage resistance shield/earth > 1 kΩ

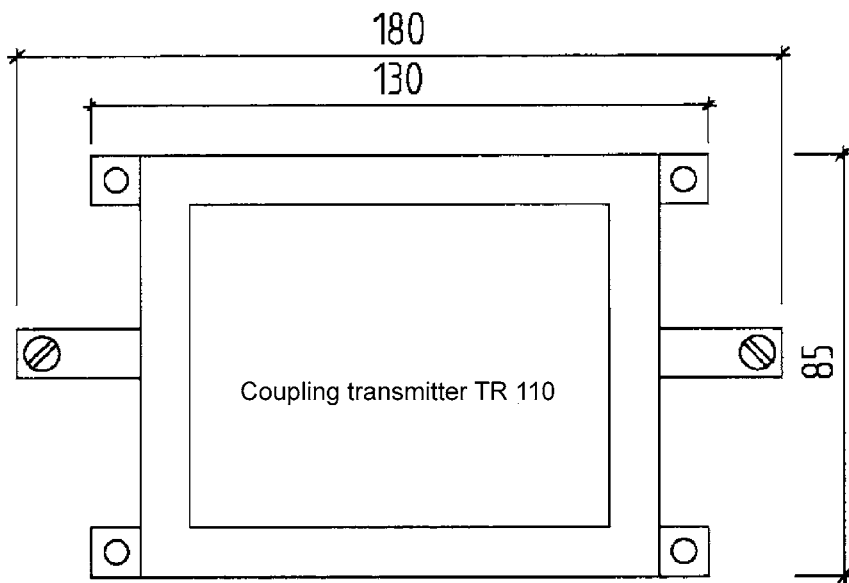
The transmission is not only be able between shield and earth, but also on single wires between shield L1 and shield L2. This offers one's services on poor conductive earth (e.g. dry sandy soil). The transmission on high voltage cable shields is also possible.

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The following sketch shows the layout of a cable shield transmission in principle.



Dimensional drawing

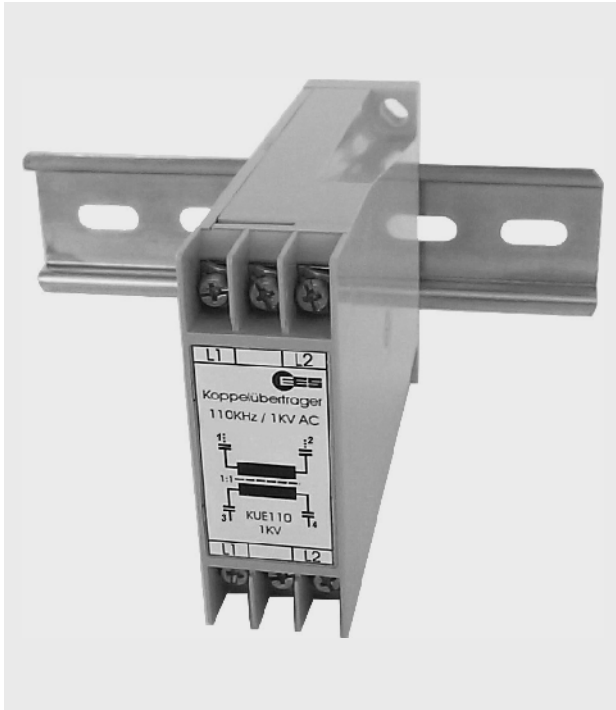


Depth 85 mm

Dimensions in mm

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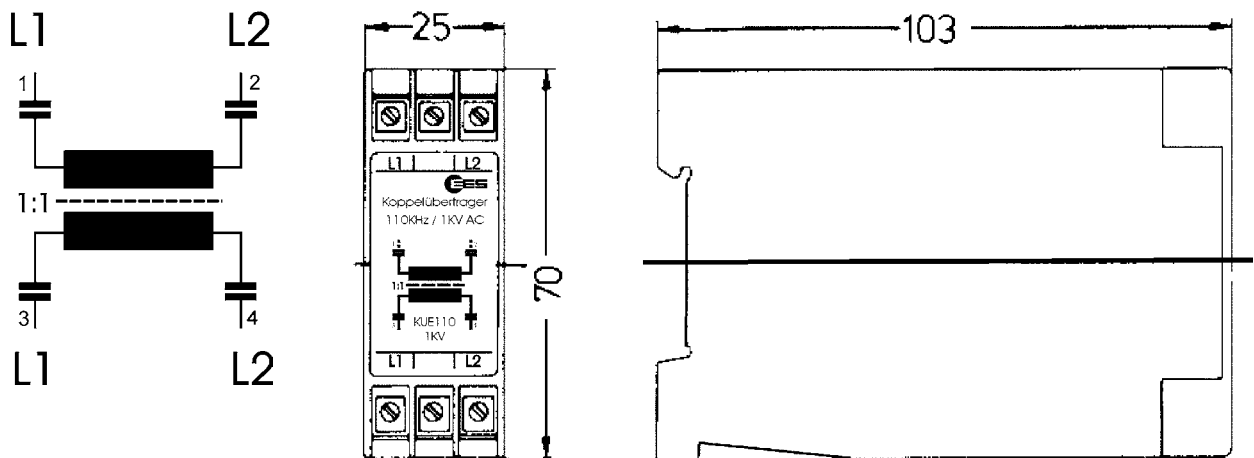
Coupling transmitters for interconnecting different line systems



The coupling transmitter **KUE 110** enables the bidirectional transmission of the carrier frequency signal from one line system to another. Therefore a potential separation of 6 kV is ensured. It doesn't matter if one system is alive and the other one not. Therefore all cable types up to 1000 V AC $16 \frac{2}{3}$ Hz, 50 Hz, 60 Hz or direct voltages can be interlinked with low coupling loss for transmission.

The coupling transmitter KUE 110 works purely passive (without auxiliary voltage supply) and is connected directly to the two transmission wires on both sides, without considerable loading these line systems. Please be aware of applying a touch-guard at the terminals having nominal side voltages over 500 V, provided that VBG 4 has to be fulfilled.

Terminal assignment and dimensional drawing



Dimensions in mm

Subject to changes without prior notice



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