

6.2 Information Transmission

Classically in power utilities (analogue)

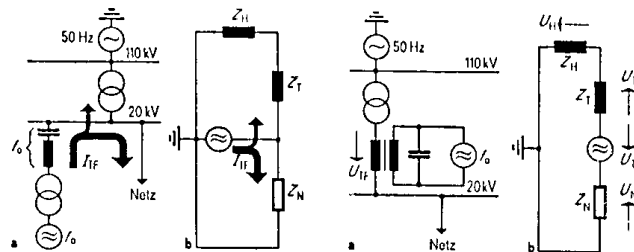
- telephone and data via own copper lines or public systems
- carrier circuits via OHL
- bi-directional radio links

Today utility own systems (digital)

- optic fibre and copper lines integrated in the earth wire of OHL
- optic fibre and copper lines in a network
- carrier circuits via OHL (rare)
- bi-directional radio links (digital)

Load control by ripple control systems (DSM)

- switching on & off electric heating devices in households
- switching on & off street lighting
- peak load limitation by load shedding
- special lighting programs for communities, housing areas, ...

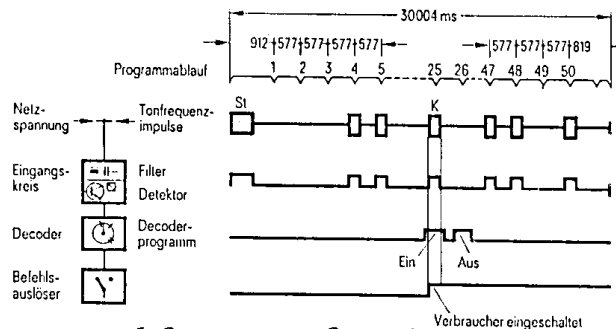


Capacitive coupling of an AF transmitter

Inductance coupling of an AF transmitter

a principal

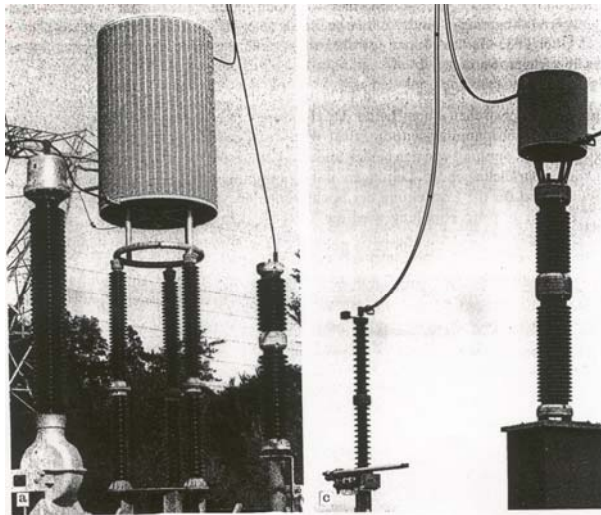
b equivalent circuit



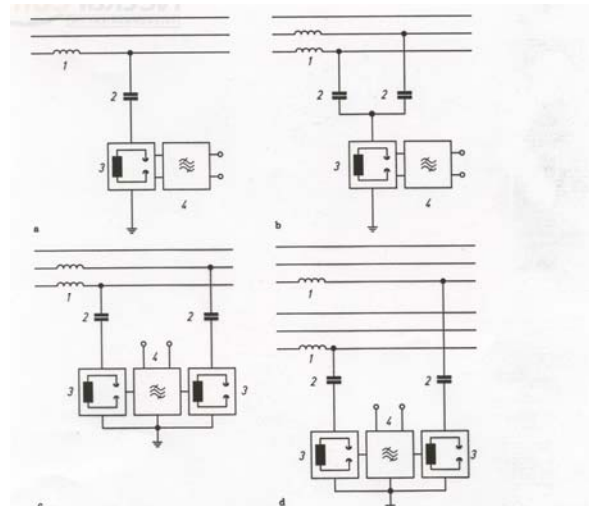
Principal function of an AF transmitter

St: starting impulse

K: command impulse



HF frequency blocking coil - HF coupling condenser



Different kinds of coupling: a) single conductor b) double conductor
c) two conductors d) two system
1 HF blocking inductance; coupling condenser; 3 protection devices; 4 coupling filter

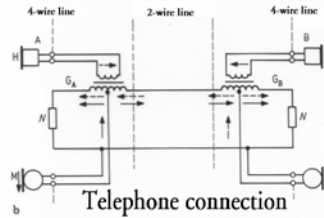
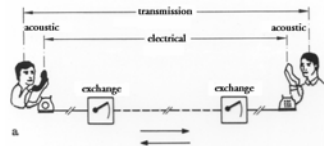
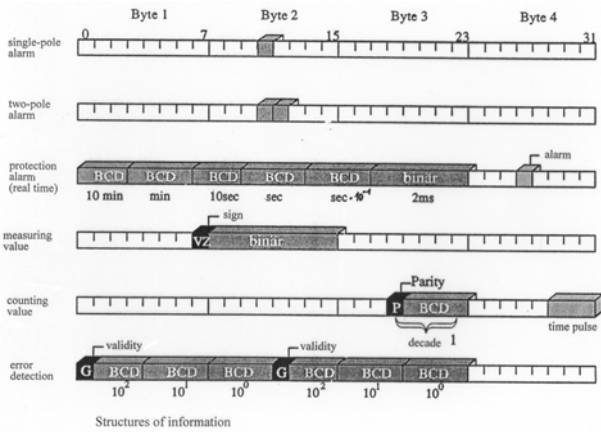
Supervising the process / network by telecontrol systems

- information from the substation to the SCC
- tele-commands from the SCC to the substations
- information exchange between SCC
- information from important customers stations to the SCC

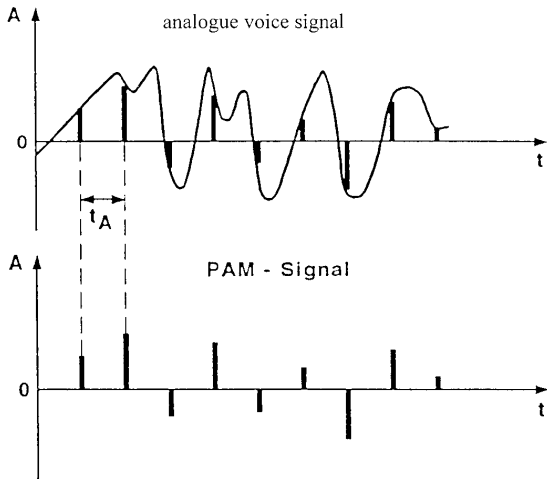
telecontrol protocol standardised IEC 60870 – x

beside the standardisation there are some degrees of freedom;
plug compatibility needs a selection of the variants

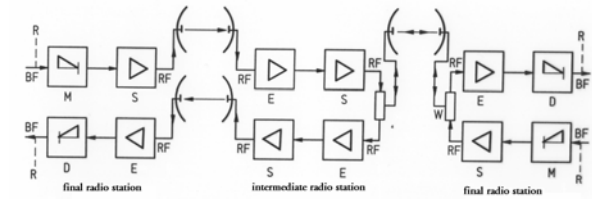
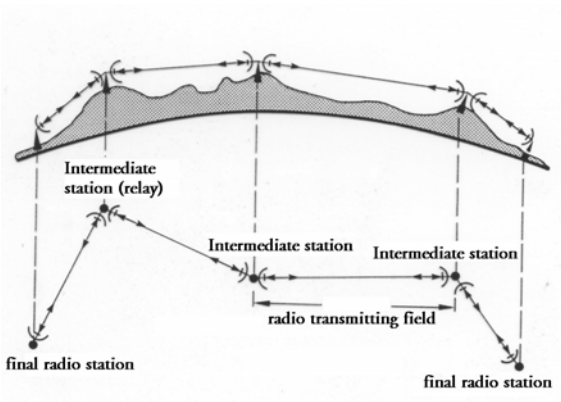
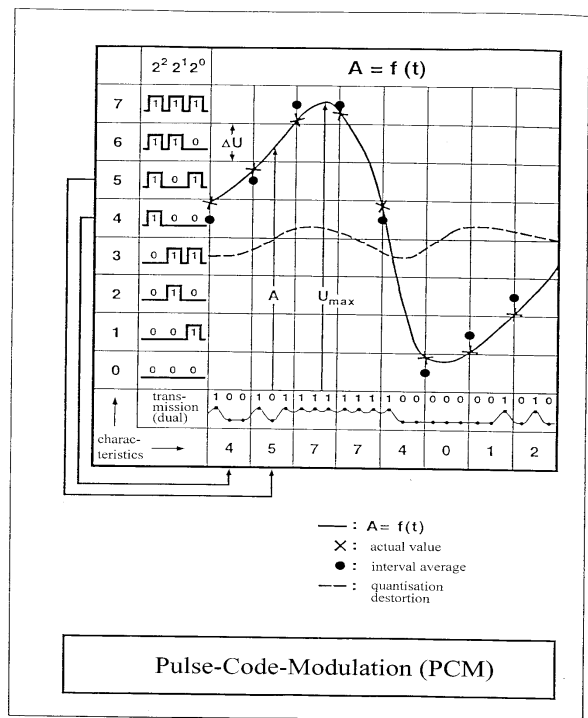
analogue -> conventional technique since 100 years in long distance transmission



M microphone; H telephone receiver; N artificial mains network



Pulse-Amplitude-Modulation (PAM)



Scheme of a directional radio link

M modulator; D demodulator; S transmitter; E receiver transmitter combining filter

