



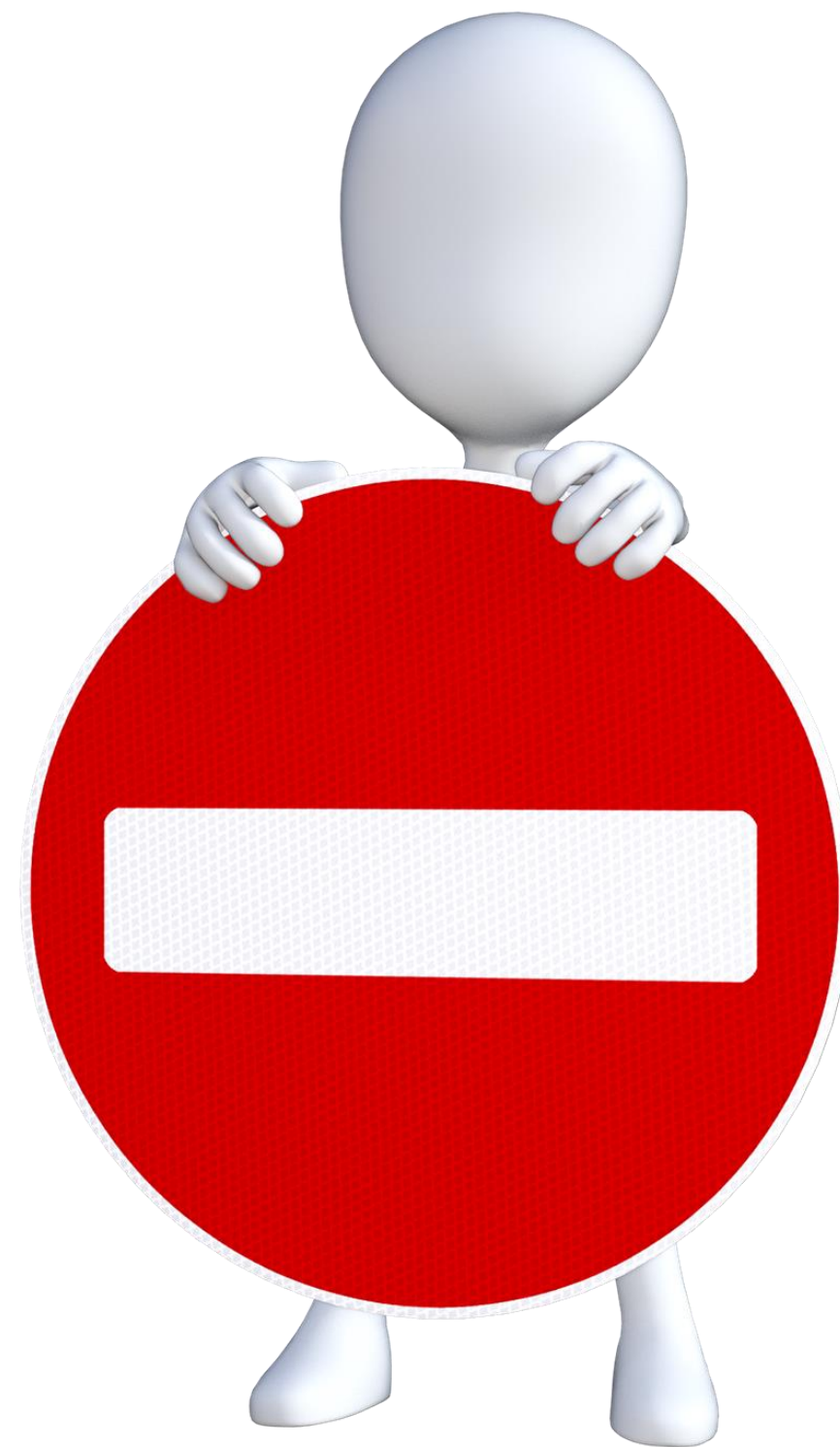
Redundancy: how an initial choice can solve lots of problems

Building a new FM station or renewing an existing one is often a complex challenge: we need to find a compromise between our desires and the available budget.

The main idea is always to install the most powerful transmitter to grant a wider coverage for our FM transmission! Reliability and redundancy planning is a fundamental part of an FM station.



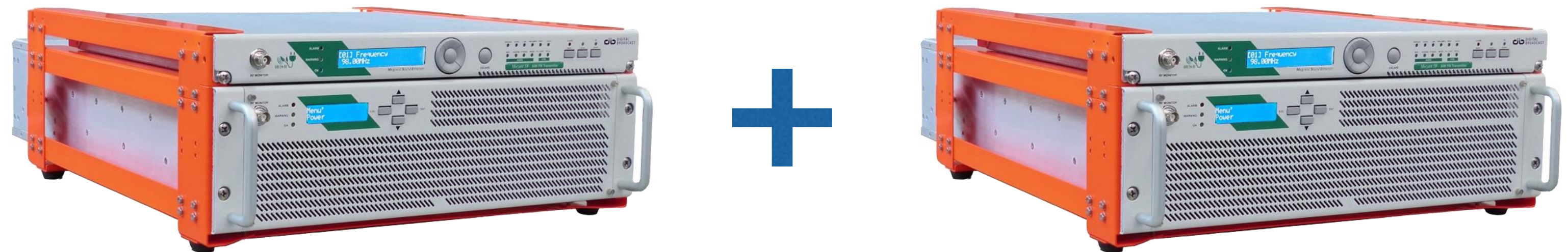
It is important to remember that even the most reliable transmitter can go off- air sometimes.



The traditional way to have a fully redundant station...



...is to have two of them!

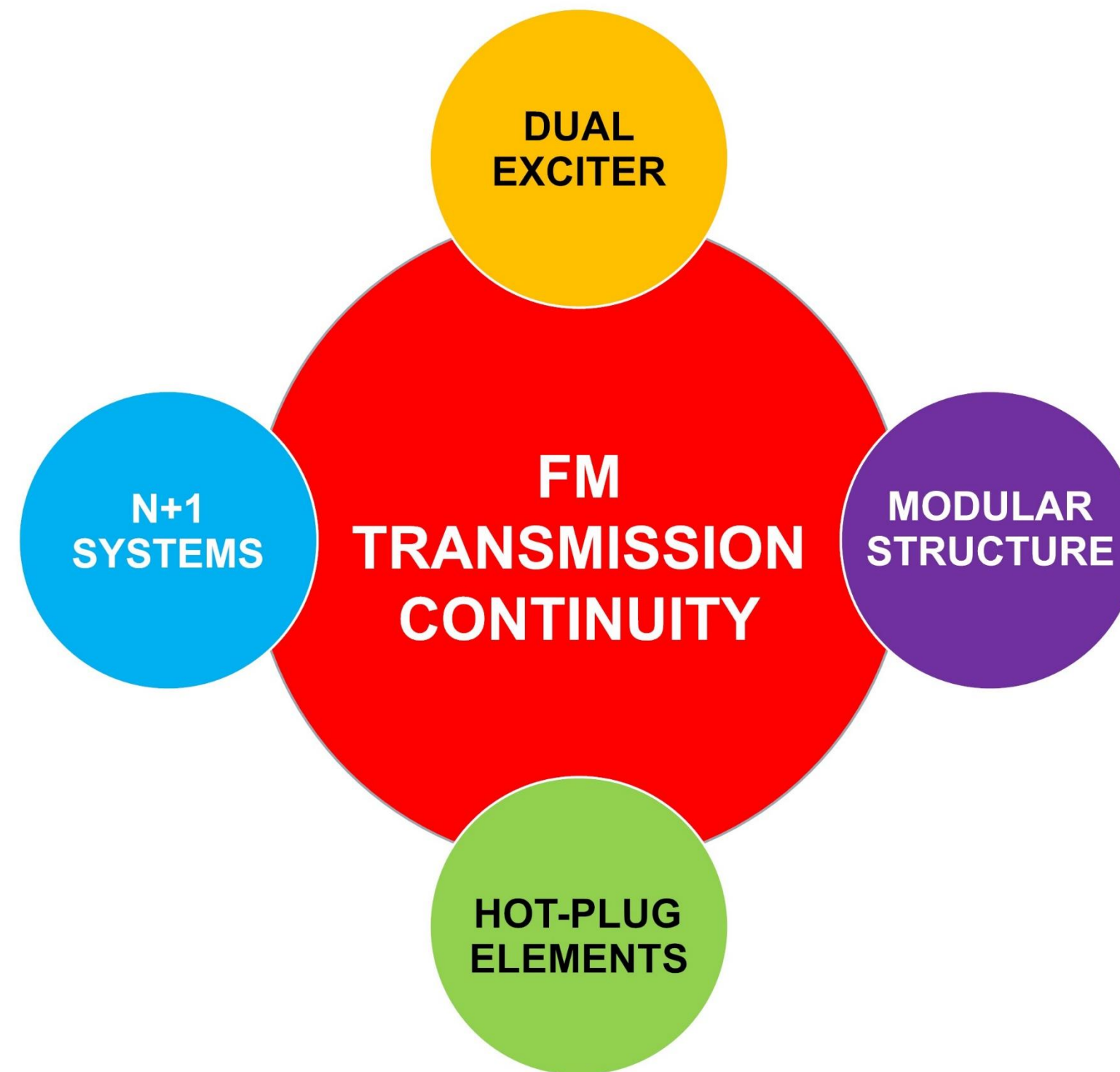


But that's not very efficient:

- Double cost of the equipments;
- Too much space required;
- Missing synchronization between the transmitters input;
- If the backup transmitter is “hot stand-by” then it must be powered on and so add in extra power AC costs;
- Sometimes the time needed to connect the backup transmitter to antenna is the same necessary to repair the main one.



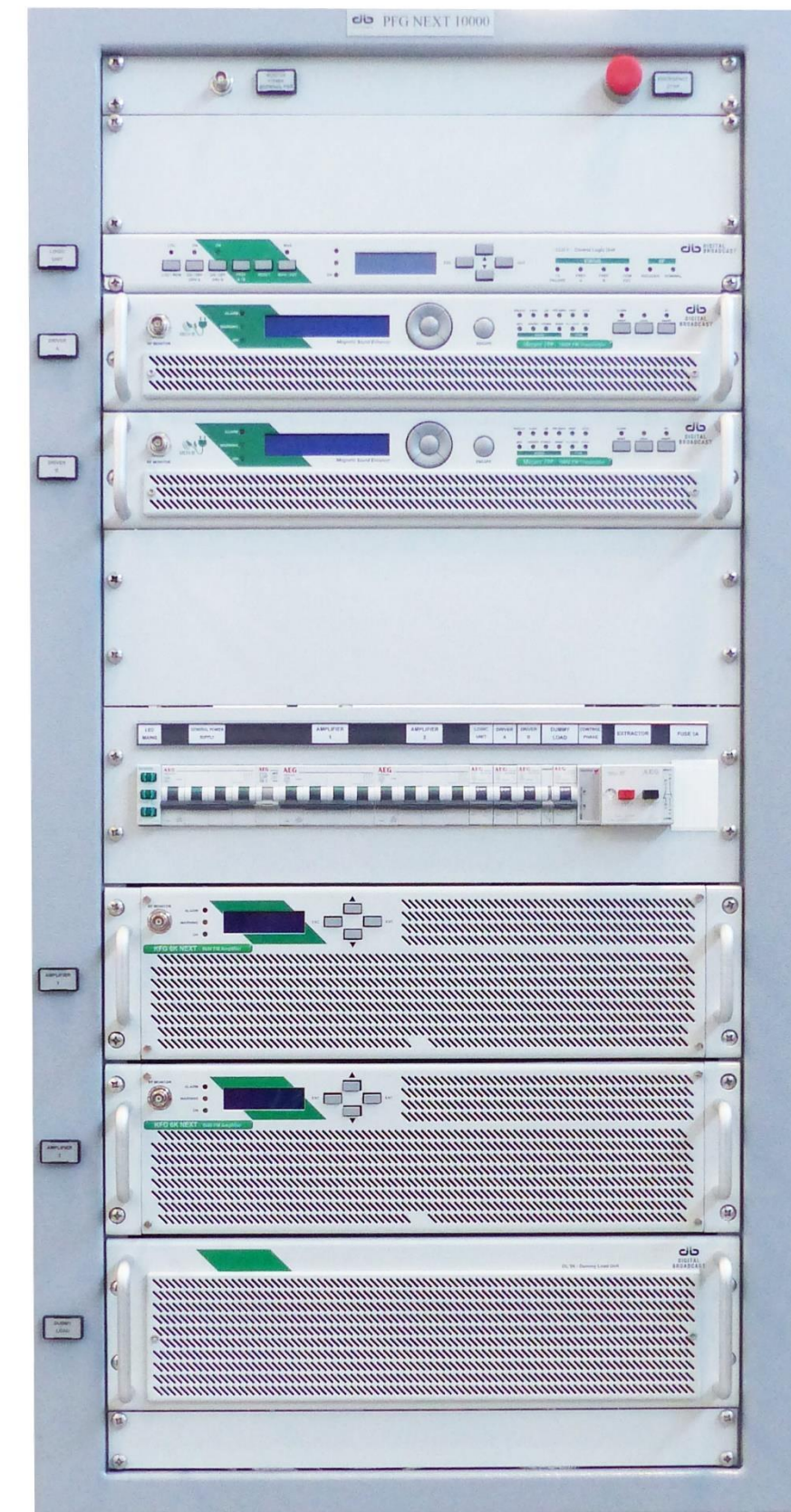
If the transmitter is properly architected then the redundancy can be implemented in the initial structure to reduce the risk of stop.



DUAL EXCITER

The transmitter is composed of:

- 2 Exciters
- 1 Automatic Changeover Unit
- RF Amplifier



The Automatic Changeover Unit allows the automatic exchange between the main and the reserve exciter one in case of failure of the main one.



The exchange is done when the output power of the exciter becomes less than -3dB respect to the level needed to pilot the RF part.

The exchange can be done manually from front panel in case of need (i.e. maintenance purposes) or automatically.

After the exchange is done, an indication of EXCITER COMMUTATION is present on front panel (led + message on the display).

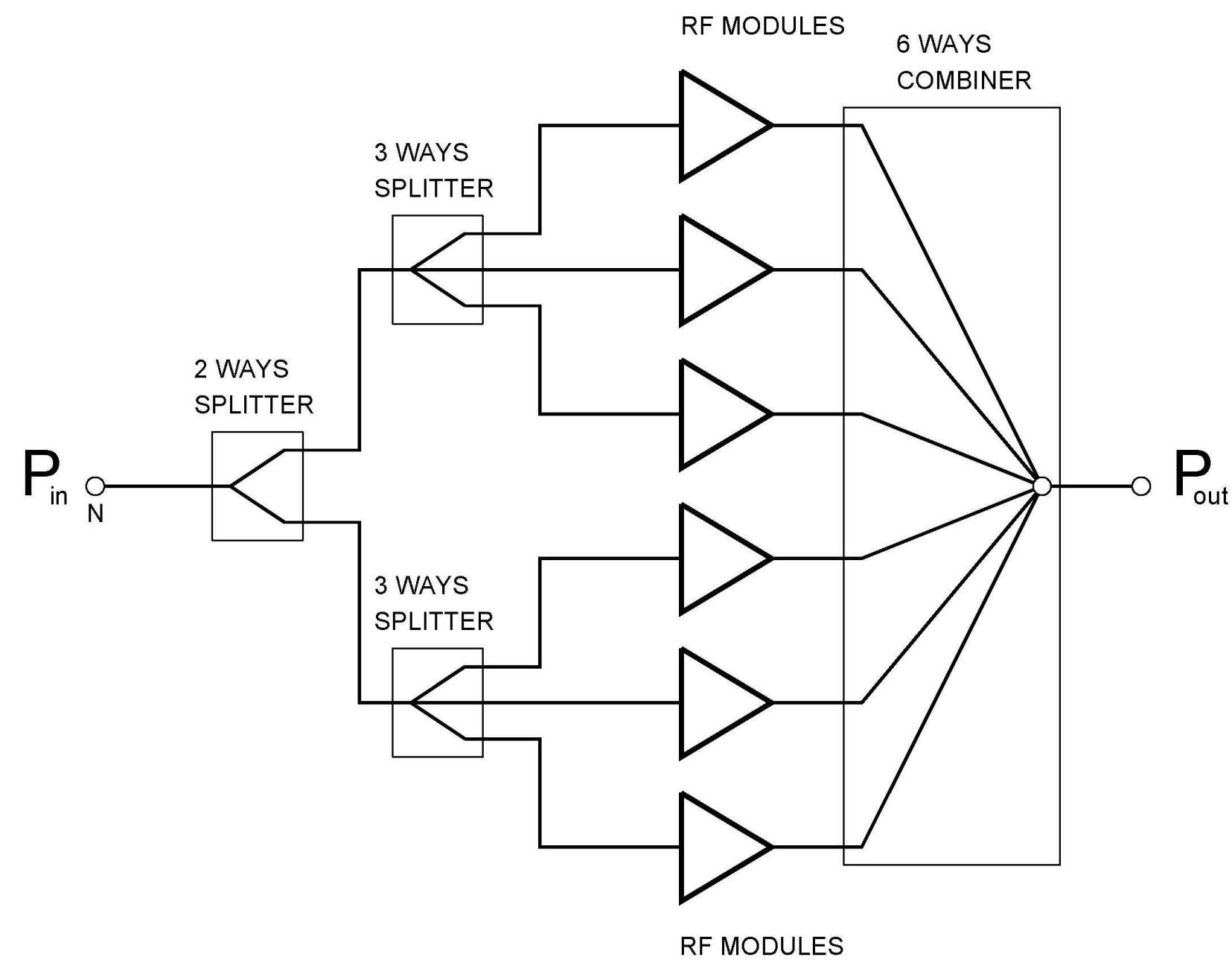


MODULAR STRUCTURE

The transmitter is composed of an RF Amplifier where the internal structure is modular and/or there are more RF Amplifiers combined together.

Modular internal structure:

- More RF modules combined together
- More AC/DC power supplies



In case one of them fails the other ones continue to work: never interrupted transmissions.

HOT-PLUG ELEMENTS

Higher is the output power and higher is the time needed to restore the transmitter in case of failure.

It is really important to have elements easy to be changed and quickly removable to reduce to the minimum the off-air time!

- Hot-swappable fans
- Hot-swappable power supplies
- Hot-plug RF Amplifiers



N+1 SYSTEMS

Complex systems require to broadcast multiple programs from a single site: N+1 solutions are suitable to this kind of transmission but require also to have a backup unit in case of failure.

N+1 Control Logic Units allow to reduce the need to have multiple backup transmitters granting an automatic switch-over in case of failure and the automatic upload of the failed transmitter configuration on the reserve one for an always full power system.



HIGH REDUNDANCY, LOW OFF-AIR TIME

SAVE COSTS, TIME AND ENERGY



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