

Hybrid combiner with double isolator and multicoupler with preamplifier and preselector

Specifications :

Isolation between TX ports (typical)	80dB
Loss for TX path without duplexer (typical)	
2 channels	4,3dB
3/4 channels	6,9dB
Loss for TX path with duplexer (typical)	
2 channels	5,5dB
3/4 channels	8,1dB
Harmonics level (H2)	< -36dBm
IMD products level	< -36dBm
Isolation between RX ports (typical)	23dB
Overall gain in RX path including the duplexer (typical)	
2 channels	5dB
3/4 channels	2dB
Noise factor including the duplexer (typical)	
2 channels	2dB
3/4 channels	2,5dB
Current drain (12V supply)	60mA
Dimensions :	
2 channels : 2U 19", max.	43 x 37 x 9cm
3/4 channels : 3U 19", max.	43 x 37 x 13,5cm
Weight :	
2 channels	6,46Kg
3/4 channels	8,5Kg

Les spécifications et informations données dans ce document peuvent être modifiées sans préavis. La configuration du poste peut varier suivant les versions.

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IF-COUP L2V455

2 CHANNELS

IF-COUP L4V455

3/4 CHANNELS

Multiple duplex base stations... sharing a single antenna!

- ✓ New low cost coupling system designed to connect several repeaters to a single antenna.
- ✓ All constitutive elements of the combiner (TX) and multicoupler (RX) (isolator, filters, preamplifier, duplexer) are housed in a single 19" rack
- ✓ Two versions available:
 - The 2 channels version housed in a 2U rack
 - The 4 channels version housed in a 4U rack.



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• The product that fits most situations!

Hybrid coupling system

This technique allows combining several frequencies situated anywhere in the band. But the duplexer band pass will limit in practice the maximum spacing between the frequencies to about 1.5MHz.

Best solution to couple two 6.25 KHz carriers into a 12.5 KHz channel

Unlike cavity coupling systems, there is no limit regarding the minimum spacing. Hybrid coupling allows to couple two adjacent channels.

Low cost product and available off the shelf

The available frequency range allows having products ready to sell at a competitive cost.

Description of the various components of the system:

Double ferrite isolator

The TX signal coming out of the transmitters is first fed into a double ferrite isolator to prevent each other(s) transmitter(s) signals from mixing in the power amplifier stages of the transmitters. Those isolators will withstand more than the power of the transmitter allowing safe operation even in case of total antenna mismatch.

Low pass filter

In order to get rid of the second harmonic inherently generated by the ferrite isolators, a low pass filter has been added after the hybrid coupler. With this filter, the harmonics together with the intermodulation products stay below the ETSI specs.

Gasfet preamplifier

On the receiving side, in order to compensate for the splitting of the signal to several receivers and various losses, a preamplifier has been added. Its gain has been kept low (13dB typically) not to overload the receivers. Its very low noise factor (0.9dB max) allows to obtain a better sensitivity through the whole system (duplexer included) than with a bare receiver.

Preselector filter

To prevent strong out of band signals from de-sensitizing the receivers or creating intermodulation products, a 5 cavity band pass filter has been added in front of the preamplifier. This filter is pre-tuned and its band pass of 7MHz allows us to have all the necessary values – covering the whole 440-470MHz band -ready to be used according to the wished frequencies.

*The duplexer must be tuned on the mean frequency of the various frequencies to be combined. We strongly recommend that this operation is done at our factory unless you have the necessary equipment do it on your side. In that case, six holes allow tuning the duplexer without having to take it apart.

The hybrid coupling technique that splits the power between the output port and a resistive load inherently results in a 3dB loss for 2 channels and 6 dB loss for 4 channels. To these values must be added various losses in the filters, the connectors, the cables and the duplexer. As an example, with 2 x 25 Watts transmitters, the available output power will be around 2 x 7 Watts. And for export applications, 4 x 45 Watts transmitters will offer 4 x 6 Watts.

Nevertheless, in many cases the available power will be enough because PTT license often limits the power below the above values.

