

Application:

The antenna coupler is intended for use with 4 transceivers plus two additional receivers together with one (or two) common antennas. It is possible to transmit or receive on all channels at the same time. The transmit insertion loss depends on the number of active transmitters. A low noise amplifier is used in the receive path.

When used with two antennas simultaneous transmission and reception is possible. With only one antenna all reception will be disabled when one or more transmitters are active.

It is possible to give priority to one transmitter.

For fail-safe operation one transmitter is connected directly to the antenna in case of power failure.

See reverse page for a closer functional description.

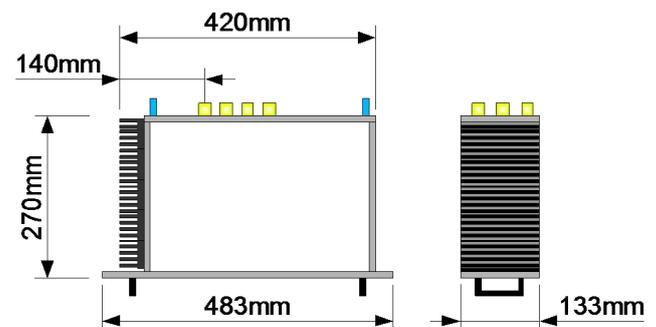


Electrical specifications:

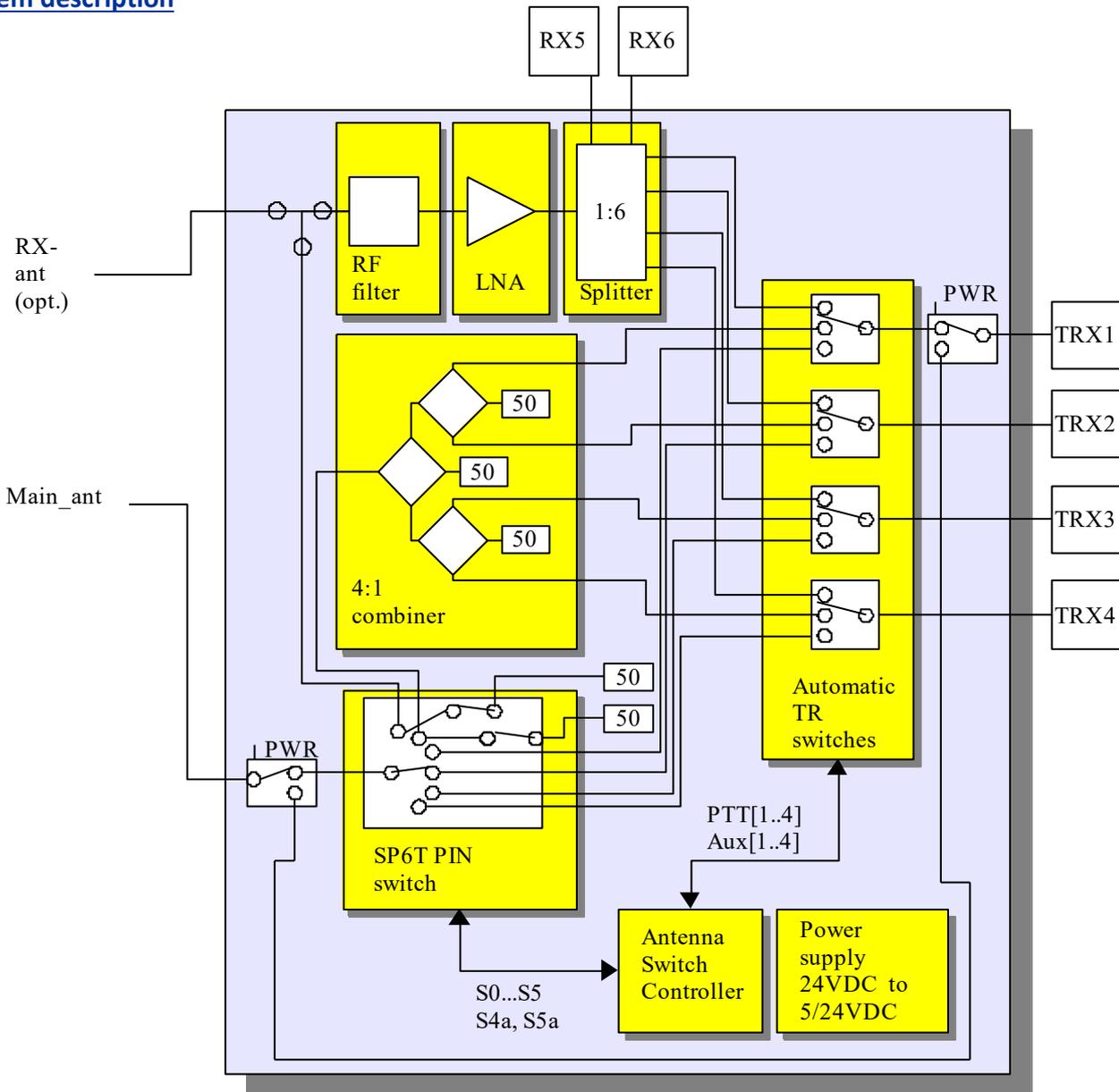
Frequency range	30-512 MHz
Nominal impedance	50 ohm
TX signal path	
Power rating	100W , each transmitter
Loss	<2dB (one transmitter), or <8dB
Phase integrity	<10° (<20mm)
Switching speed	<100μs
RX signal path	
Gain	0..4 dB
P -1dB, out	>14dBm
IP3, out	>30dBm
Noise figure	<4dB
Isolation, out	>20dB
Max. inp. power	30dBm continuous
Power supply	18-32V @ <1A, galvanic isolation
Connectors	
RF	N female standard, others on request
Power	Amphenol 62GB series, others on request

Mechanical specifications:

Size	3U, 19", 270mm depth (ex. handles and connectors)
Temperature range	
Operational	-25°C.. +55°C
Storage	-40°C.. +70°C



System description



During reception, the transceivers (TRX1 .. 4) receive their signals from the LNA via the Automatic TR switches. The LNA may be connected to a separate RX antenna for duplex operation, or to a common TX/RX antenna via the SP6T PIN switch (simplex only). Two additional RX ports are available.

A transceiver in TX mode is detected by the Automatic TR switch that issue signals (PTT) to the Control Logic to enable a direct signal path to the antenna.

If more than one transceiver is in TX mode, the control logic will make the SP6T connect the antenna to the 4:1 combiner and issue signals (Aux) to the Automatic TR switch to connect to the 4:1 combiner by using the Auxiliary TX output.

By nature this action will introduce a loss of 6dB for each of the signals in the internal 50ohm terminations.

One of the transceivers may be configured for priority in TX mode. The TX signal is routed to the antenna, independent of the mode any other transceiver. These are instead connected to the 50ohm dummy load through the 4:1 combiner and the SP6T.

The switches are implemented using PIN diode technology for fast switching speed and low insertion loss.

Relays on one input and the antenna port implements the fail-safe function.

A power supply provides galvanic isolation.