

General Information

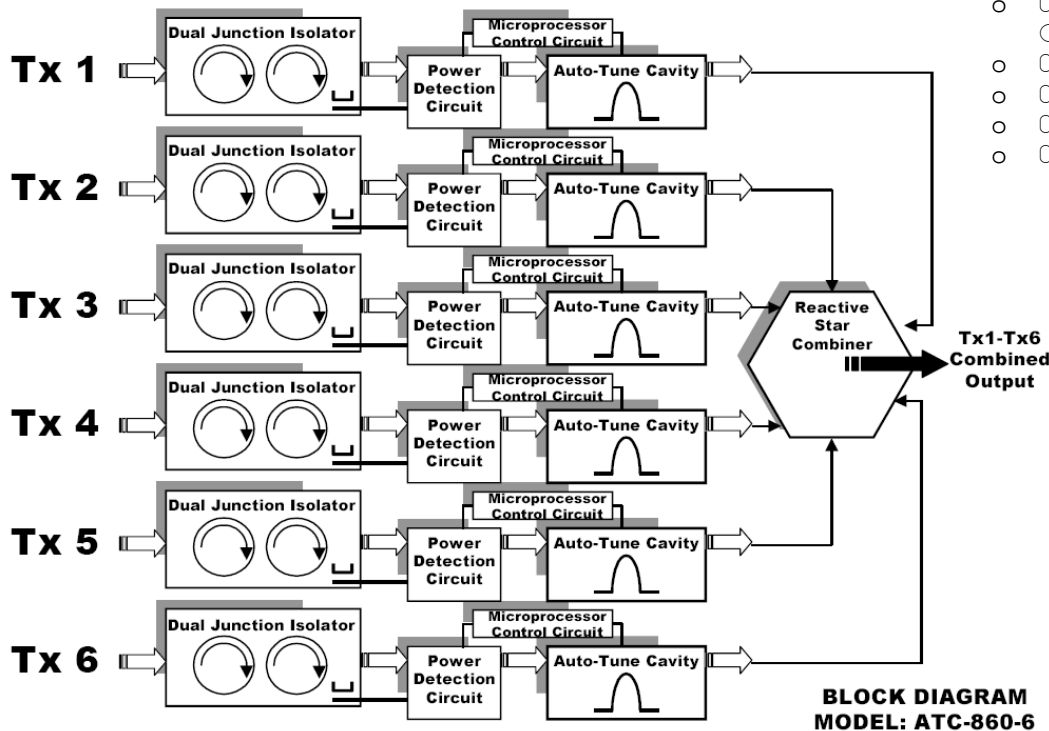


Communication Components, Inc. Auto-Tune Multi-Channel Combiner (ATC) system provides automatic low loss combining of up to eight transmit channels in a compact rack mount unit. Each of the eight cavities of the Auto-Tune Combiner monitors the change in operating frequency and power of the corresponding transmitters and automatically tunes each channel to the correct operating frequency. This feature permits dynamic frequency planning of the base-station with virtually unattended operation. Moreover, the Auto-Tune Combiners are factory optimized for operation at the site and require absolutely no tuning or adjustments in the field.

Technical Description

The ATC system consists of up to eight independent tunable cavities, each equipped with a dedicated microprocessor circuit which controls the frequency tuning mechanism the cavity filter. The cavities are constructed from a solid aluminum extrusion material and contain barium tetratitanate (BaTi4O9) dielectric resonators to achieve the optimum Q for low loss operation. A high precision linear actuator is used to position a tuning element within each cavity which adjusts the operating frequency of the cavity. Each transmitter input signal is fed through a double junction isolator providing in excess of 60 dB isolation from port to port. The forward and reflected power of each channel are then sampled and detected for input into an analog-to-digital (A/D) converter. The digitized information is fed to the dedicated microprocessor circuit for each cavity. A unique control algorithm is embedded in each microprocessor circuit which accurately tunes the cavity to the transmit frequency while rejecting all external interference. The operational status of each channel is independently indicated on the front panel LED's and external monitoring and alarm outputs are also provided.

Block Diagram



Options

- o 01: 7/16 DIN Output Connector
- o 02: Output VSWR Monitor
- o 03: 150 kHz Channel Spacing
- o 04: 250 kHz Channel Spacing
- o 05: 350 kHz Channel Spacing

PRODUCTS MANUFACTURED BY: Communication Components Inc., www.ccjproducts.com

Auto-tune Combiner Electrical Specification

Number of Channels	
Model ATC-860-4	4
Model ATC-860-5	5
Model ATC-860-6	6
Model ATC-860-7	7
Model ATC-860-8	8
Operating Frequency Range:	851-866 MHz
Maximum Input Power	100 Watts/ Channel
Input VSWR	1.25:1 Max.
Output VSWR	15.:1 Max
Channel to Channel Isolation:	65 dB Min.
Dynamic Range:	20 dB Min.
Tuning Time	
For a 1 MHz step:	250 ms typical
From "PARK" to any frequency	3 sec. typical
Minimum Channel Spacing: (option 04)	150 kHz (250 kHz Standard)
Insertion Loss	
350 kHz 3 dB Bandwidth	2.5 dB Max.
250 kHz 3 dB Bandwidth	3.0 dB Max.
150 kHz 3 dB Bandwidth	3.5 dB Max.
Maximum Reflected Power	100 Watts
Operating Temperature	-10 to +60 degrees Celsius
Input Voltage	-48 VDC
Monitoring & Alarms	
Visual Alarm:	Front Panel LED's for alarm indication of each Cavity
Monitoring Signal:	Dry form A contact closure alarm on rear of unit. Open contact indicates failure
Front Panel Indicator:	Front Panel LED's for status indication of each Cavity
Front Panel Switch:	Push-button switch to force re-tune of each Cavity

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