

Heterodyne Processors

CAP Series



○ Features & Benefits

- Fully Compatible With BTSC Encoded Stereo Audio
- Front Panel Accessible Level Controls for Easy Set-Up and Adjustments
- Rack Mountable - 1 EIA (1.75") Rack Space
- Dual SAW Filtering for Adjacent Channel Systems

Headend

The CAP Series are professional quality, channelized heterodyne processors. These units convert any single SUB, VHF, or UHF channel to any single channel in the 5 to 890 MHz frequency range. The unit is ideally suited to convert any off-air channel (VHF or UHF) to any unused channel in the system.

The CAP Series takes a single channel in the 5 to 36 MHz (SUB), 54 to 552 MHz (VHF/CATV), or 470 to 806 MHz (UHF) frequency range and converts it to a channel in the 54 to 860 MHz frequency range. All models feature phase locked loop synthesized frequency control with accurate, no-drift output as well as high adjacent channel rejection (60 dB) and a very low noise figure and distortion output. A dual-detection IF with a true peak response AGC circuit that is delayed at the input stage automatically compensates for input signal variations and maintains a low noise figure even under weak signal conditions.

○ Specifications

RF

Input Frequency Range
 CAP-60-ON: 54-88 & 174-216 MHz
 CAP-60-U/V: 470-806 MHz
 CAP-60-V/V: 54-427 MHz
 CAP-60-S/V: 5-36 MHz

Output Frequency Range (MHz): 54-860 MHz

Channels
 Input: SUB, CATV, VHF, UHF
 Output: CATV, VHF, UHF

FCC Offset (kHz): 0, +12.5 or +25

Input Level Range - Min: -15 to +33 dBmV

AGC Stiffness: ±0.5 dB

AGC Indicator Range
 LED ON: -1.5 dB
 LED OFF: +1.5 dB

Output Level - Min
 CAP-60: +60 dBmV

Output Level Adjust: 15 dB

Noise Figure
 VHF: 7.0 dB
 UHF: 9.0 dB

Aural/Visual Carrier Ratio: 0 to -11 dB

Visual Carrier Frequency Tolerance
 CAP-60-ON: same as input channel
 All Others (Standard Channels): ±5 kHz
 All Others (Aeronautical Channels): ±3 kHz

Channel Selectivity:
 Adjacent Aural and Below: -60 dB
 Adjacent Picture and Above: -60 dB

Spurious Outputs: -60 dBc

Intermod Distortion: 64 dB

Broadband Noise: -110 dBc

Image Rejection
 VHF: 70 dB
 UHF: 60 dB

Input/Output Impedance: 75 Ohm
 Input Return Loss: 14 dB
 Output Return Loss: 16 dB

IF

Aural Frequency: 41.25 MHz
 Visual Frequency: 45.75 MHz
 Composite IF Loop Output
 Visual Carrier Level: +29 dBmV

Output/Input Impedance: 75 Ohm
 Output Return Loss: 18 dB
 Input Return Loss: 16 dB

General

Power Requirements
 Voltage: 117, ±10% VAC
 Frequency: 60 Hz
 Power: 22 W

Fuse: 3/8 A
 Temperature Range: 0 to +50 °C

Mechanical

Dimensions (WxHxD):
 19.0 x 1.75 x 15.0 in.
 483 x 44 x 36 mm

Weight: 10 lbs. (4.54 kg)

Connectors (Rear Panel)

RF Input: "F" Type, Female
 IF Output: "F" Type, Female
 IF Input: "F" Type, Female
 Alternate IF Input: "F" Type, Female
 RF Output: "F" Type, Female

Controls (Front Panel)

Aural Carrier Level: Control
 RF Output Level: Control

Indicators (Front Panel)

Power ON: LED, Green
 Low Input Level: LED, Red

Refer to product instruction manual for additional specification measurements and notes.

○ Ordering Information

Model	Stock No.	Description
CAP-60-ON ✂	5894A	Channelized Agile Output Heterodyne Processor +60 dBmV, 54-216 MHz (VHF IN), 54-216 MHz (VHF OUT)
CAP-60-S/V ✂	S5894A 300	Channelized Agile Output Heterodyne Processor +60 dBmV, 5-37 MHz (SUB IN), 54-300 MHz (VHF OUT)
CAP-60-S/V ✂	S5894A 756	Channelized Agile Output Heterodyne Processor +60 dBmV, 5-37 MHz (SUB IN), 300-756 MHz (VHF OUT)
CAP-60-S/V ✂	S5894A 860	Channelized Agile Output Heterodyne Processor +60 dBmV, 5-37 MHz (SUB IN), 756-860 MHz (VHF OUT)
CAP-60-U/V ✂	U5894A 300	Channelized Agile Output Heterodyne Processor +60 dBmV, 470-806 MHz (UHF IN), 54-300 MHz (VHF OUT)
CAP-60-U/V ✂	U5894A 756	Channelized Agile Output Heterodyne Processor +60 dBmV, 470-806 MHz (UHF IN), 300-756 MHz (VHF OUT)
CAP-60-U/V ✂	U5894A 860	Channelized Agile Output Heterodyne Processor +60 dBmV, 470-806 MHz (UHF IN), 756-860 MHz (VHF OUT)
CAP-60-V/V ✂	V5894A 300	Channelized Agile Output Heterodyne Processor +60 dBmV, 54-550 MHz (VHF IN), 54-300 MHz (VHF OUT)
CAP-60-V/V ✂	V5894A 756	Channelized Agile Output Heterodyne Processor +60 dBmV, 54-550 MHz (VHF IN), 300-756 MHz (VHF OUT)
CAP-60-V/V ✂	V5894A 860	Channelized Agile Output Heterodyne Processor +60 dBmV, 54-550 MHz (VHF IN), 756-860 MHz (VHF OUT)

Heterodyne Processors

AP Series



○ Features & Benefits

- EAS/ALT IF Ready Via Manual or Automatic Mode
- Superior Broadband Noise Performance (-76 dB)
- Front Panel Accessible Level Controls for Easy Set-Up and Adjustments
- Rack Mountable - 1 EIA (1.75") Rack Space

The AP Series are professional quality, agile heterodyne processors equipped with the Emergency Alert System (EAS) feature, which can also be used as an alternate IF input. These units convert any channel in the 50 to 806 MHz (7 to 43 MHz with Option 17) frequency range to any channel in the 50 to 550/750 MHz (7 to 550/750 MHz with Option 04) frequency range.

The AP Series is ideal for moving an off-air channel (VHF or UHF) or any single channel source to any unused channel (broadcast or CATV, including HRC and IRC assignments) in the system. Agile channel selection permits on-the-fly channel changes and reduces the need for large inventories of channelized products. Channel selection is accomplished with the use of simple to use front panel accessible dip switches. These processors have wide range of standard and optional features that make them very suitable for advanced CATV systems. Four models are available with different output level and frequency ranges and a variety of options.

All models feature rock solid, synthesized frequency control, with a tuning increment of 250 kHz. True vestigial sideband SAW filtering guarantees superior broadcast picture quality. Two SAW filters are used to ensure proper adjacent channel rejection. Delayed AGC circuitry automatically compensates for input signal variations. These processors have an external IF loop, which allows interfacing with video all-call and signal scrambling systems. The AP Series utilizes a standby carrier oscillator to provide a blank picture when the input level drops below usable level. This prevents a snowy picture from being delivered to the distribution network in the event of signal degradation or complete loss of picture. The EAS/ALT IF feature allows the customer to choose between manual and automatic selection of EAS/ALT IF input signal.

These processors provide extremely clean output signals with distortion products (-60 dB or better). An exceptionally low broadband noise floor (-76 dBc or better) makes the AP Series ideal for large, multiple channel headends without the need for additional filtering.

Specifications and Ordering Information are located on the following pages.

Heterodyne Processors

AP Series

Headend

○ Specifications

RF

Input Frequency Range
Standard: 54-88 & 108-806 MHz
Option 17 - Sub-band Input: 7-49 MHz

Input Channels: SUB, VHF, UHF, CATV (STD,HRC)

Output Frequency Range
AP-40-550 & AP-60-550: 50-550 MHz
AP-40-750 & AP-60-750: 50-750 MHz

Option 04: AP-40-550 & AP-60-550: 7-550 MHz

Output Channels: SUB, CATV (STD,HRC,IRC)

Tuning Increment: 250 kHz

FCC Offset: 0, +12.5, or +25 kHz

Input Level Range: -18 to +30 dBmV

AGC Stiffness: 1.0 dB

Output Level - Min
AP-40-550 & AP-40-750: +40 dBmV
AP-60-550 & AP-60-750: +60 dBmV

Output Level Adjust: 10 dB

Noise Figure
VHF: 8 dB
UHF: 10 dB

Aural/Visual Carrier Ratio: 0 to -10 dB

Visual Carrier Frequency Tolerance
Standard Channels: ±10 kHz
FCC Aeronautical Channels: ±3 kHz

Channel Selectivity:
Adjacent Aural and Below: -65 dB
Adjacent Picture and Above: -65 dB

Spurious Outputs: -60 dBc

Intermod Distortion: -64 dB

Broadband Noise: -76 dBc

Image Rejection: 65 dB

Bandpass Flatness f_v to $f_v+4.5$ MHz: ±1.0 dB

Input/Output Impedance: 75 Ohm

Input Return Loss: 12 dB

Output Return Loss: 14 dB

IF

Aural Frequency: 41.25 MHz

Visual Frequency: 45.75 MHz

Composite IF Loop Output
Aural Carrier Level: +13 dBmV
Visual Carrier Level: +28 dBmV

Output/Input Impedance: 75 Ohm

Output Return Loss: 12 dB

Input Return Loss: 12 dB

EAS/ALT IF Input Level: 28 dBmV @ 45.75 MHz

EAS/ALT IF Switch Isolation: >60 dB

General

Power Requirements
Voltage: 117, ±10% VAC
Frequency: 60 Hz
Power - AP-40-450 & AP-40-550: 20 W
Power - AP-60-450 & AP-60-550: 24W

Fuse: 3/8 A

Temperature Range: 0 to +50 °C

Mechanical

Dimensions (WxHxD)
19.0 x 1.75 x 14.25 in.
483 x 44 x 362 mm

Weight
9 lbs. (4.09 kg)

Connectors (Rear Panel)

RF Input
Standard - VHF/UHF: "F" Type, Female
Option 17: Sub-band Input: "F" Type, Female

IF Output: "F" Type, Female

IF Input: "F" Type, Female

RF Output: "F" Type, Female

Serial Data Input & Output Option 20: Serial

Input: RJ-12, Female

EAS/ALT IF: "F" Type, Female

Controls (Front Panel)

Frequency Selection
Input: DIP Switches
Output: DIP Switches

Frequency Response Adjust: Controls

Aural Carrier Level: Control

Frequency Fine Tune: Control

FCC Offset Selection Option 12: ABOC:
DIP Switches

RF Output Level: Control

Controls (Top Cover & Rear Panel)

Standby Oscillator Threshold Adjust: Control

Sub-band Input Channels Option 17:
Slide Switch

EAS/ALT IF: 3 Position, Terminal Strip

Indicators (Front Panel)

Power ON: LED, Green
EAS/ALT IF: LED, Green

Refer to product instruction manual for additional specification measurements and notes.

○ Ordering Information

Model	Stock No.	Description
AP-40-550B	59802	Agile Heterodyne Processor with EAS +40 dBmV, 54-88/108-806 MHz Input, 50-550 MHz Output
AP-40-750B	59803	Agile Heterodyne Processor with EAS +40 dBmV, 54-88/108-806 MHz Input, 50-750 MHz Output
AP-60-550B	59817	Agile Heterodyne Processor with EAS +60 dBmV, 54-88/108-806 MHz Input, 50-550 MHz Output
AP-60-750B	59818	Agile Heterodyne Processor with EAS +60 dBmV, 54-88/108-806 MHz Input, 50-750 MHz Output
Accessories		
Model	Stock No.	Description
AP-OPT 04	59804	AP Series Option: Sub-Band Output
AP-OPT 12	59122	AP Series Option: Automatic Broadcast Offset Correction
AP-OPT 14	59144	AP Series Option: On Channel-lock
AP-OPT 17	59177	AP Series Option: Sub-Band Input, 7-49 MHz

Heterodyne Processors

SAIP Series



○ Features & Benefits

- EAS/ALT IF Ready Via Manual or Automatic Mode
- Front Panel Accessible Level Controls for Easy Set-Up and Adjustments
- Rack Mountable - 1 EIA (1.75") Rack Space
- Works in Conjunction with High Performance Channelized Output Filter Modules (OFM)
- Excellent Broadband Noise Performance of -95 dBc

The SAIP Series are professional quality, agile input and channelized agile output heterodyne processors. These units convert any channel in the 54 to 806 MHz frequency range to any channel in the 5 to 860 MHz frequency range. The SAIP Series is ideal for moving an off-air channel (VHF or UHF) or any single channel source to any unused channel (broadcast or CATV, including HRC and IRC assignments) in the system. For "on-channel" applications (CH2 IN, CH2 OUT), we recommend AP Series with Option 14 or the "CAP-ON" processors.

○ Specifications

RF

Input Frequency Range:
54-88 MHz
108-806 MHz

Output Frequency Range: 54-860 MHz

Channels: VHF, CATV (STD,HRC,IRC), UHF

Tuning Increment
Input Channels: 250 kHz
Output Channels: 12.5 kHz

FCC Offset: 0, +12.5, or +25 kHz

Output Level - Min: +60 dBmV

Output Level Adjust: 15 dB

Noise Figure
VHF: 8 dB
UHF: 10 dB

Aural/Visual Carrier Ratio: 0 to -10 dB

Visual Carrier Frequency Tolerance
Standard Channels: ± 5 kHz
FCC Aeronautical Channels: ± 3 kHz

Channel Selectivity:
Adjacent Aural and Below: -65 dB
Adjacent Picture and Above: -65 dB

Spurious Outputs: -60 dBc

Intermod Distortion: -64 dB

Broadband Noise: -95 dBc

Image Rejection: 60 dB

Input/Output Impedance: 75 Ohm

Input Return Loss: 12 dB

Output Return Loss: 14 dB

IF

Aural Frequency: 41.25 MHz

Visual Frequency: 45.75 MHz

Composite IF Loop Output
Aural Carrier Level: +13 dBmV
Visual Carrier Level: +28 dBmV

Output/Input Impedance: 75 Ohm

Output Return Loss: 12 dB

Input Return Loss: 10 dB

General

Power Requirements
Voltage: 117, $\pm 10\%$ VAC
Frequency: 60 Hz
Power - SAIP-60-860: 18 W

Fuse: 3/8 A

Temperature Range: 0 to +50 °C

Mechanical

Dimensions (WxHxD):
19.0 x 1.75 x 9.5 in.
483 x 44 x 241 mm

Weight: 6 lbs, 2.73 kg

Connectors (Rear Panel)

RF Input: "F" Type, Female

IF Output: "F" Type, Female

IF Input: "F" Type, Female

RF Output: "F" Type, Female

Controls (Front Panel)

Frequency Selection
Input: DIP Switches
Output: DIP Switches

Aural Carrier Level: Control

RF Output Level: Control

Indicators (Front Panel)

Power ON: LED, Green

Refer to product instruction manual for additional specification measurements and notes.

○ Ordering Information

Model	Stock No.	Description
SAIP-60-860	5876B 300	Agile Input, Channelized Agile Output Processor +60 dBmV, 54-300 MHz
SAIP-60-860	5876B 756	Agile Input, Channelized Agile Output Processor +60 dBmV, 300-756 MHz
SAIP-60-860	5876B 860	Agile Input, Channelized Agile UHF Output Processor +60 dBmV, 756-860 MHz
SAIP 60-860 MF	5885B	Agile Input, Channelized Agile Output Processor 860 MHz, Mainframe