SOFTEL

INTRODUCTION

The AH-802B is a commercial grade, SAW filtered, and frequency agile modulator. Setup and tuning are easy and straightforward taking advantage of the front panel access to all level controls and indicators. The AH-802B agile modulator provides system operators the engineering ease and flexibility associated with new headend deployments, upgrades and system maintenance.

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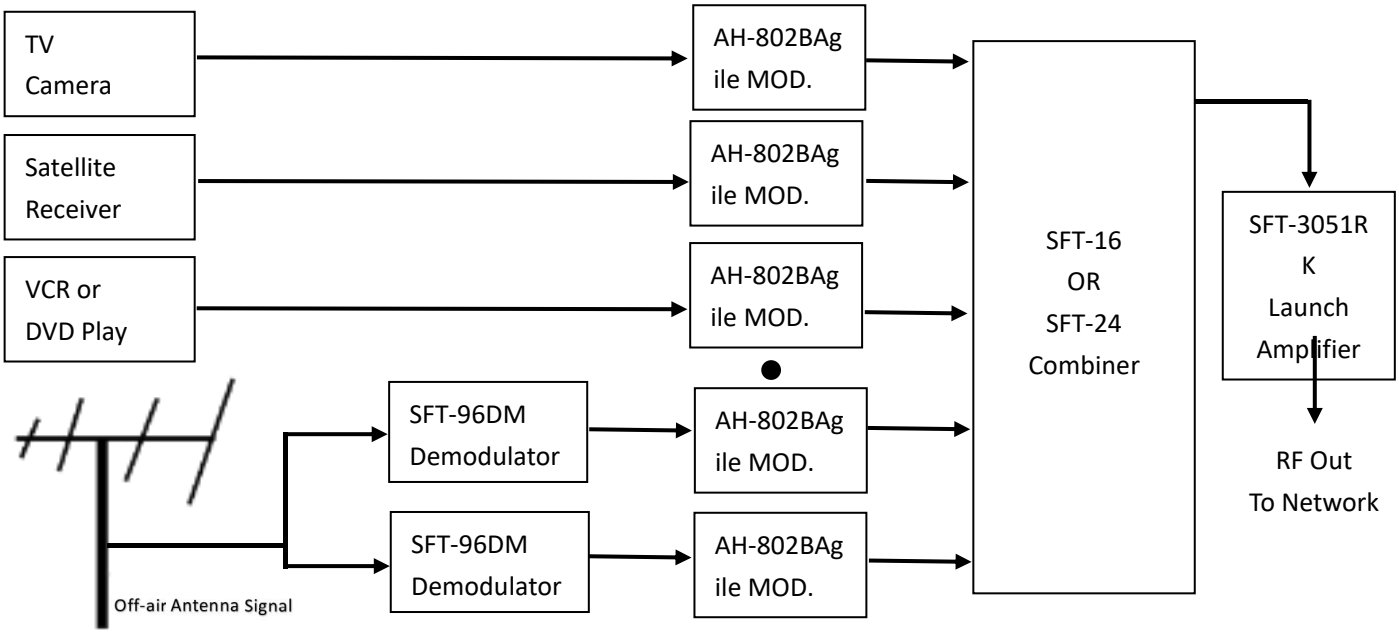
FEATURES

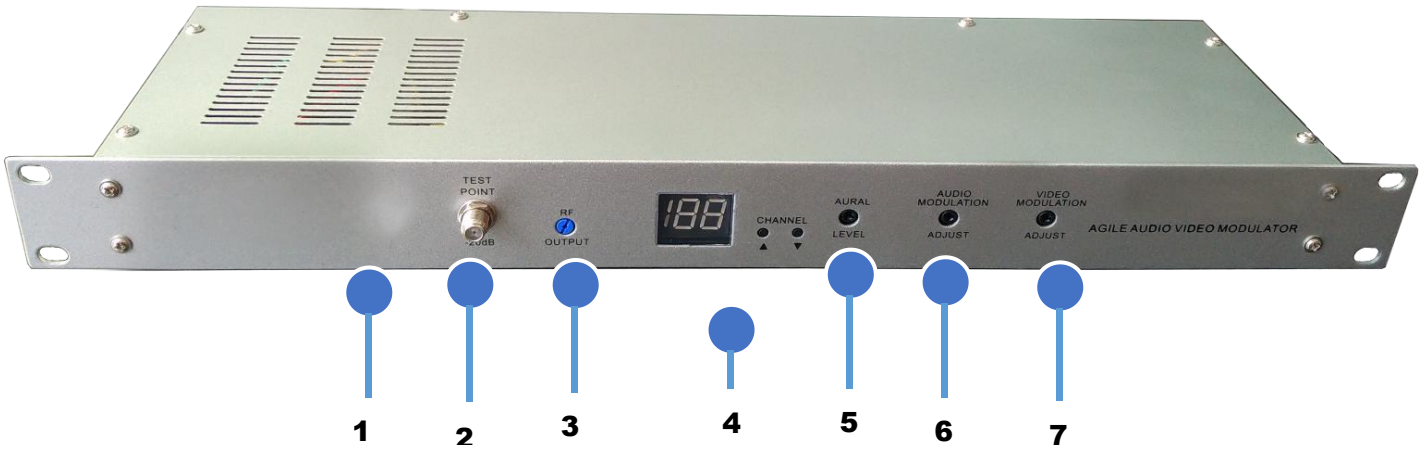
1. SAW filtered for maintenance free adjacent channel configuration
2. 55dBmV RF output level
3. Phase lock loop frequency control
4. None-volatile memory maintains channel selection in event of power loss
5. Three-digit blue LED display and controls for convenient monitoring and operation
6. Switching power supply for installation flexibility and precise voltage regulation
7. Available in NTSC or PAL BG/DK configurations

SPECIFICATIONS

RF	Output Frequency	45~860MHz any channel
	Output Connector	F Connector
	Output Level	115 dBμV (Adj.)
	Test Point	-20 dB ±3dB
	A / V Ratio	-11 ~ -18 dB (Adj.)
	Frequency Stability	±10KHz
	Output Impedance	75 Ohms
VIDEO	Video Input Level	0.6-1.5Vp-p (87.5% Modulation)
	Input Connector	Yellow RCA Jack
	Video C/N	60dB
AUDIO	Input Level	0.8Vp-p(25KHz Peak Deviation)
	Input Connector	White RCA Jack
GENERAL	Voltage	AC 110 ~ 220V
	Power Consumption	10W
	Dimension	19” x 1.75” x 6.6”



FRONT PANEL CONTROLS



1. **Test Point**
   Output level read at this point will be down 20dB from the actual output
2. **RF Level**
   Adjustment for output level. The control is adjustable over a 17dB range. Turn clockwise to increase the level.
3. **LED Channel Display**
   Two-digit LED display for channel. See Appendix for more information.
4. **Up & Down Select Button**
   For selecting the channel
5. **AV ADJ.**
   Adjust the audio and video ratio over 18dB range. Please don't change since it's perfectly set in factory.
6. **A ADJ.**
   Used to adjust the deviation for audio modulation. Turn clockwise to increase deviation.
7. **V ADJ.**
   This control adjusts the video modulation index which is set to 87.5%. Turn clockwise to increase the brightness.

REAR PANEL CONTROL

1. **Video & Audio Input**
   Feed the video and audio signal into the modulator
2. **RF Output**
   110 dBµV maximum output is provided at this port
3. **Auxiliary AC Outlet**
   For power loop
4. **Power Cord**
   110V or 220V power source

UNPACKING AND HANDLING

A full unit **AH-802B** is shipped with all equipment assembled, wired, factory tested, and then packed in an appropriate shipping container. Ensure that all accessories are removed from the container and packing material before they are discarded.

INSPECTION

Inspect the front and rear of the equipment for shipping damage. Make sure the equipment is clean, and no wire, cables, or connectors are broken, damaged or loose.

DAMAGE IN SHIPMENT

Should any damage be discovered after unpacking the unit, immediately file a claim with the carrier.
A full report of the damage shall be made and a copy forwarded to vendor.

PRECAUTIONS

PRECAUTIONS	REQUIREMENTS
Avoid heat buildup	Allow rack space (1'')between powered headend product in the equipment
Ensure easy access to rack wiring	Allow a minimum of 18inches behind the equipment rack
Facilitate servicing and maintenance	Allow a minimum of 36'' of clearance in front of the equipment rack
Avoid direct heating or air conditioning	If unavoidable, use deflector plates
AC power source outlets	Locate equipment near sufficient outlets to provide power for test equipment and power tools
Rack support	Make certain rack supports are sufficiently rigid to support racks
Building leakage	Beware of dripping water onto equipment from leaky roofs, waveguide roof entries, and cold water pipe condensations

QUICK INSTALLAION

The **AH-802B** is designed for indoor 19'' rack. Make sure a space is left between modulators for air circulation. To prevent electric shock, never remove the ground pin. Insure that electrical input cables entering the building be connected to the building ground as close to the entry point as possible.

1. Feed in the Audio and Video connectors before turn on the power
2. Warm up the modulator and check the picture and audio
3. Set up the channels you want if the factory setting is not what you want

ADJUSTMENT

All SOFTEL modulators are heat cycled at the factory and final adjustment are made with the units hot. Thus, allow a 20 minutes warmup before attempting any adjustments. You will need a signal level meter and a TV set.

1. Connect the video and audio cable from your source to the respective connector on the modulator. If you have several AH-802B, please connect the RF OUTPUT to the proper combiner. Levels can be read at the test point output in the front panel.
2. The AV ADJ. should always be between -15dB to -17dB below the VIDEO ADJ.. Once this ratio is set it will

track with the VIDEO ADJ. (All are proper set at the factory.)

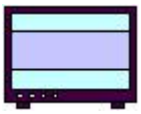
3. AUDIO and VIDEO modulation levels are set at the factory for plus or minus 25KHz deviation and 87.5% depth of modulation respectively. Although proper test equipment should be used, minor adjustment can be made utilizing a TV set.
4. 3.1 Connect the TV set to the final output test point so that its signal level input from the modulator is about +69dBμV. If the colors look bright and there is sufficient sound without audio buzz, leave the modulation adjustment alone. If there is occasional audio buzz, turn modulation control down slowly counter-clockwise until the audio is clean.
5. 3.2 If the modulator picture is dark, raise the V ADJ. control slowly until the picture just becomes over bright and begins to distort. Lower the control about 1/8 turn from this point.
6. 3.3 If the modulator audio is low, try and set TV audio level utilizing an off air signal. Subjectively match this level utilizing the A ADJ. control. Check that all audio levels are about the same when switching channels.

COMMON TROUBLESHOOTING

1. Herringbone in TV

Disconnect modulator from local channels and check modulated channel. If there is programming move the modulated channel. If the picture is snowy, use a low pass filter to block noise or data coming in from cable.

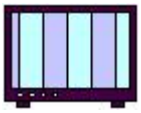
2. Horizontal Bars Rolling Through TV Picture



Check for a component of the system that is introducing DC power into the system. Disconnect that component and check TV. If the hum bars stop, use a DC blocker down stream from that component to block the power from getting to the TVs.

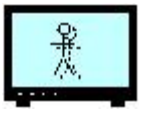
If the rolling is only on the modulated channels, check for impedance mismatch by adjusting the video level adjustment pot.

3. **Vertical Bars Rolling Through TV Picture**



Check for AC power getting on the line. Use a ground breaker in line.

4. **Ghost on the Picture**



Check for low quality combiner/ splitter in system. Replace with high isolation combiner/splitter.

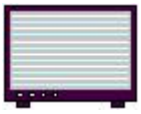
Check the type of coax used in system. Inadequate shielding in coax will cause ghosting.

5. **Snowy Picture**

Verify the modulator is set up for the proper TV channel band.

Verify the TV is set up on the proper TV channel band.

6. **Black and White Lines on one Local Channel**



Move modulated channel up to a new channel. If problem persists and all of the inputs of a multiple input modulator are not being used, check default channels on modulator to see if default channel is set to the same channel that the problem channel is.

7. **Modulated Picture is Too Bright or Washed out**

   Adjust video level adjustment potentiometer on the modulator front panel or rear panel of chassis.

   If using a camera, check positioning of the lens to be sure it's not aimed at the sun or a reflection.

   Adjust camera lens.

8. **Modulated Picture is Too Dark**

   If the baseband video is being split, you might require a amplifier

   Try to adjust video level potentiometer on the front panel of modulator or rear panel of chassis

   If the video source is not being split, check input source directly into a TV

   Adjust the video level adjustment pot on the chassis of the set top units to the proper brightness.

9. **Noise on the Audio**

   Insert grounding block in line and ground coax cable before it enters the TV

   Use professional grade audio/video interconnect between the components and the modulator

10. **Audio is Too Low**

    Use a Y connector to combiner the left and right audio before entering the modulator

WARRANTY (1 YEAR)

SOFTEL Electronics equipment has been thoroughly tested and found to be in proper operating condition when shipped from the factory and is warranted to be free from defects in materials or workmanship that may develop within one year of the date of purchase. SFT agrees to remedy such or furnish a new part, or at its option an entire unit, or any part of a unit that disclosed such defect, provided that the unit or part is returned to SFT or SFT authorized service facility according to the terms listed below.

Prior authorization with a return authorization number issued by SFT or its representative is required for all returns. The purchaser shall be responsible for all freight charges on shipment to SFT unless otherwise authorized. Charges to return a unit or part to purchaser will be paid by SFT. Claim for damage in shipment to the purchaser must be filed by the purchaser with the carrier in accordance with the carrier's regulations.

SFT shall not be responsible for the shipping charge if the returned unit turns out to be flawless.

A Return Material Authorization (RMA) Number is required on all products returned to SFT. Regardless if the product is being returned for repair or credit. Before returning product, please contact the SFT sale who you contact with.

Buyer :		RMA Number:
Mode Number	Products ID Number	Problem

If there's not enough space in this form, please attach a separate sheet of paper.

Thanks for using our products.
For more products, please visit our website:
http://www.SOFTELcatv.com

APPENDIX I

PAL B/G Channel and Frequency Table

Audio Carrier 5.5MHz

NO.	Channel	Video Freq.	NO.	Channel	Video Freq.	NO.	Channel	Video Freq.
1	E2	48.25	37	S21	303.25	73	E36	591.25
2	E3	55.25	38	S22	311.25	74	E37	599.25
3	E4	62.25	39	S23	319.25	75	E38	607.25
4	X	69.25	40	S24	327.25	76	E39	615.25
5	Y	76.25	41	S25	335.25	77	E40	623.25
6	Z	83.25	42	S26	343.25	78	E41	631.25
7	Z1	90.25	43	S27	351.25	79	E42	639.25
8	Z2	97.25	44	S28	359.25	80	E43	647.25
9	S1	105.25	45	S29	367.25	81	E44	655.25
10	S2	112.25	46	S30	375.25	82	E45	663.25
11	S3	119.25	47	S31	383.25	83	E46	671.25
12	S4	126.25	48	S32	391.25	84	E47	679.25
13	S5	133.25	49	S33	399.25	85	E48	687.25
14	S6	140.25	50	S34	407.25	86	E49	695.25
15	S7	147.25	51	S35	415.25	87	E50	703.25
16	S8	154.25	52	S36	423.25	88	E51	711.25
17	S9	161.25	53	S37	431.25	89	E52	719.25
18	S10	168.25	54	S38	439.25	90	E53	727.25
19	E5	175.25	55	S39	447.25	91	E54	735.25
20	E6	182.25	56	S40	455.25	92	E55	743.25
21	E7	189.25	57	S41	463.25	93	E56	751.25
22	E8	196.25	58	E21	471.25	94	E57	759.25
23	E9	203.25	59	E22	479.25	95	E58	767.25
24	E10	210.25	60	E23	487.25	96	E59	775.25
25	E11	217.25	61	E24	495.25	97	E60	783.25
26	E12	224.25	62	E25	503.25	98	E61	791.25
27	S11	231.25	63	E26	511.25	99	E62	799.25
28	S12	238.25	64	E27	519.25	100	E63	807.25

29	S13	245.25	65	E28	527.25	101	E64	815.25
30	S14	252.25	66	E29	535.25	102	E65	823.25
31	S15	259.25	67	E30	543.25	103	E66	831.25
32	S16	266.25	68	E31	551.25	104	E67	839.25
33	S17	273.25	69	E32	559.25	105	E68	847.25
34	S18	280.25	70	E33	567.25	106	E69	855.25
35	S19	287.25	71	E34	575.25	107	E70	863.25
36	S20	294.25	72	E35	583.25	108	E71	871.25

APPENDIX II

NTSC Channel and Frequency Table

Audio Carrier 4.5MHz

NO.	**CH.**	Video Freq.	NO.	**CH.**	Video Freq.	NO.	**CH.**	Video Freq.	NO.	**CH.**	Video Freq.
1	2	55.25	35	31	265.25	69	65	469.25	103	104	673.25
2	3	61.25	36	32	271.25	70	66	475.25	104	105	679.25
3	4	67.25	37	33	277.25	71	67	481.25	105	106	685.25
4	5	77.25	38	34	283.25	72	68	487.25	106	107	691.25
5	6	83.25	39	35	289.25	73	69	493.25	107	108	697.25
6	95	91.25	40	36	295.25	74	70	499.25	108	109	703.25
7	96	97.25	41	37	301.25	75	71	505.25	109	110	709.25
8	97	103.25	42	38	307.25	76	72	511.25	110	111	715.25
9	98	109.25	43	39	313.25	77	73	517.25	111	112	721.25
10	99	115.25	44	40	319.25	78	74	523.25	112	113	727.25
11	14	121.25	45	41	325.25	79	75	529.25	113	114	733.25
12	15	127.25	46	42	331.25	80	76	535.25	114	115	739.25
13	16	133.25	47	43	337.25	81	77	541.25	115	116	745.25
14	17	139.25	48	44	343.25	82	78	547.25	116	117	751.25
15	18	145.25	49	45	349.25	83	79	553.25	117	118	757.25
16	19	151.25	50	46	355.25	84	80	559.25	118	119	763.25
17	20	157.25	51	47	361.25	85	81	565.25	119	120	769.25
18	21	163.25	52	48	367.25	86	82	571.25	120	121	775.25
19	22	169.25	53	49	373.25	87	83	577.25	121	122	781.25
20	7	175.25	54	50	379.25	88	84	583.25	122	123	787.25
21	8	181.25	55	51	385.25	89	85	589.25	123	124	793.25
22	9	187.25	56	52	391.25	90	86	595.25	124	125	799.25
23	10	193.25	57	53	397.25	91	87	601.25	125	126	805.25
24	11	199.25	58	54	403.25	92	88	607.25	126	127	811.25
25	12	205.25	59	55	409.25	93	89	613.25	127	128	817.25
26	13	211.25	60	56	415.25	94	90	619.25	128	129	823.25
27	23	217.25	61	57	421.25	95	91	625.25	129	130	829.25
28	24	223.25	62	58	427.25	96	92	631.25	130	131	835.25

29	25	229.25	63	59	433.25	97	93	637.25	131	132	841.25
30	26	235.25	64	60	439.25	98	94	643.25	132	133	847.25
31	27	241.25	65	61	445.25	99	100	649.25	133	134	853.25
32	28	247.25	66	62	451.25	100	101	655.25	134	135	859.25
33	29	253.25	67	63	457.25	101	102	661.25			
34	30	259.25	68	64	463.25	102	103	667.25			

LED DISPLAY

NTSC Channel LED Display

NO.	**CH.**	DIS	NO.	**CH.**	DIS	NO.	**CH.**	DIS	NO.	**CH.**	DIS
1	2	02	21	8	8	41	37	37	61	57	57
2	3	03	22	9	9	42	38	38	62	58	58
3	4	04	23	10	10	43	39	39	63	59	59
4	5	05	24	11	11	44	40	40	64	60	60
5	6	06	25	12	12	45	41	41	65	61	61
6	95	95	26	13	13	46	42	42	66	62	62
7	96	96	27	23	23	47	43	43	67	63	63
8	97	97	28	24	24	48	44	44	68	64	64

9	98	98	29	25	25	49	45	45	69	65	65
10	99	99	30	26	26	50	46	46	70	66	66
11	14	14	31	27	27	51	47	47	71	67	67
12	15	15	32	28	28	52	48	48	72	68	68
13	16	16	33	29	29	53	49	49	73	69	69
14	17	17	34	30	30	54	50	50	74	70	70
15	18	18	35	31	31	55	51	51	75	71	71
16	19	19	36	32	32	56	52	52	76	72	72
17	20	20	37	33	33	57	53	53	77	73	73
18	21	21	38	34	34	58	54	54	78	74	74
19	22	22	39	35	35	59	55	55	79	75	75
20	7	7	40	36	36	60	56	56	80	76	76

NTSC Channel LED Display

NO.	**CH.**	DIS	NO.	**CH.**	DIS	NO.	**CH.**	DIS	NO.	**CH.**	DIS
81	77	77	95	91	91	109	110	110	123	124	124
82	78	78	96	92	92	110	111	111	124	125	125

83	79	79
84	80	80
85	81	81
86	82	82
87	83	83
88	84	84
89	85	85
90	86	86
91	87	87
92	88	88
93	89	89
94	90	90

97	93	93
98	94	94
99	100	100
100	101	101
101	102	102
102	103	103
103	104	104
104	105	105
105	106	106
106	107	107
107	108	108
108	109	109

111	112	112
112	113	113
113	114	114
114	115	115
115	116	116
116	117	117
117	118	118
118	119	119
119	120	120
120	121	121
121	122	122
122	123	123

125	126	126
126	127	127
127	128	128
128	129	129
129	130	130
130	131	131
131	132	132
132	133	133
133	134	134
134	135	135

Full Display

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