

INSTRUCTION

FM Modulator 94184

APPLICATION

The FM modulator is used for converting audio signals into stereo radio programs on a frequency in the FM-band (87.5 – 108MHz).

MOUNTING

The audio input is connected to the desired supplier of audio signals (e.g. CD player). The output signal "RF OUT" is connected to the output combiner of the headend.

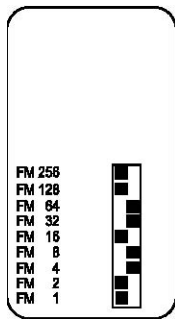


Fig. 1 DIP switch at the module front plate

SETTING

Setting the requested output frequencies is made with the front plate DIP-switches (fig.1). The frequency is held by the incorporated microprocessor controlled synthesis.

Selecting input coupling

The audio input may be unbalanced or balanced. The choice between these two options is made by the built-in jumpers J1 and J2. The FM modulator input is factory-set to being unbalanced. To obtain a balanced input the jumpers are placed as shown by fig.2.

Selecting output frequency

Output frequency setting appears from table 1. The code to be set for obtaining correct output frequency can be calculated as follows:
Deduct 87.5.MHz from the requested output frequency. This figure divided by 0.05MHz will give the decimal code(code in decimal numerals).

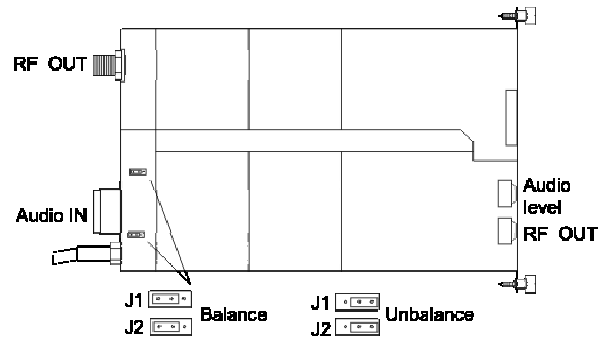


Fig. 2 Internal placement of jumpers

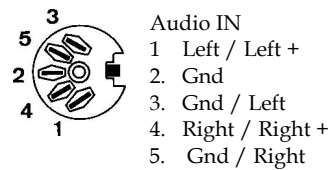


Fig. 3 Audio IN socket from modulator rear.

Now push switches **FM 1** to **FM 256** to the right until the figures when added gives the calculated decimal code.

Example:

If the output frequency 94.3 MHz is wanted the decimal code will be = $(94.387.5) / 0.05 = 136$. This means that **FM 128** and **FM 8** should be pushed to the right. All other switches should be set to the left.

The frequency for a given setting can be calculated on the basis of the following:

Output frequency in MHz = decimal code * 0.05 MHz + 87.5 MHz.

Example:

Output frequency for decimal code 216 = $216 * 0.05 \text{ MHz} + 87.5 \text{ MHz} = 98.3 \text{ MHz}$.

Frequency deviation and output level

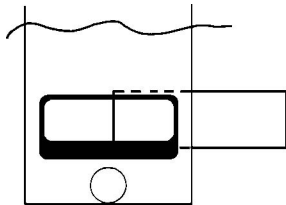
By control "audio level" the frequency deviation can be set to the correct deviation of $\pm 75 \text{ kHz}$.

By control "RF OUT" the output voltage can be set between 105 and 120 dBuV (measured direct at the output of the modulator).

INSTRUKTION

MAINDATA

Input level	775 mV
Adjustment	6 til 0 dB
Input impedance	600 ohm
Output frequency	87.5 til 108 MHz
Frequency step	50 kHz
Output level	105 til 120 dBuV
Power supply	+12 V, 200 mA
Temperature range	10 °C til +55°C



The information panel label is intended for text as required, e.g. programs designation.

The label can be inserted from either side of the unit and is removed by pushing either a second label

Label size:
30 x 10 x 0,1 mm (80 g/m²)

INSTRUCTION

Frequency table for FM Modulator 94184

Frequency MHz	FM								Decimal	Frequency MHz	FM								Decimal	Frequency MHz	FM								Decimal			
	256	128	64	32	16	8	4	2			1	256	128	64	32	16	8	4			2	1	256	128	64	32	16	8		4	2	1
87.50	0	0	0	0	0	0	0	0	0	91.50	0	0	1	0	1	0	0	0	0	80	95.50	0	1	0	1	0	0	0	0	0	160	
87.55	0	0	0	0	0	0	0	0	0	1	91.55	0	0	1	0	1	0	0	0	1	81	95.55	0	1	0	1	0	0	0	0	1	161
87.60	0	0	0	0	0	0	0	0	1	2	91.60	0	0	1	0	1	0	0	1	0	82	95.60	0	1	0	1	0	0	0	1	0	162
87.65	0	0	0	0	0	0	0	0	1	3	91.65	0	0	1	0	1	0	0	1	1	83	95.65	0	1	0	1	0	0	0	1	1	163
87.70	0	0	0	0	0	0	0	1	0	4	91.70	0	0	1	0	1	0	1	0	0	84	95.70	0	1	0	1	0	0	1	0	0	164
87.75	0	0	0	0	0	0	0	1	0	5	91.75	0	0	1	0	1	0	1	0	1	85	95.75	0	1	0	1	0	0	1	0	1	165
87.80	0	0	0	0	0	0	0	1	1	6	91.80	0	0	1	0	1	0	1	1	0	86	95.80	0	1	0	1	0	0	1	1	0	166
87.85	0	0	0	0	0	0	0	1	1	7	91.85	0	0	1	0	1	0	1	1	1	87	95.85	0	1	0	1	0	0	1	1	1	167
87.90	0	0	0	0	0	0	1	0	0	8	91.90	0	0	1	0	1	1	0	0	0	88	95.90	0	1	0	1	0	1	0	0	0	168
87.95	0	0	0	0	0	0	1	0	0	9	91.95	0	0	1	0	1	1	0	0	1	89	95.95	0	1	0	1	0	1	0	0	1	169
88.00	0	0	0	0	0	1	0	1	0	10	92.00	0	0	1	0	1	1	0	1	0	90	96.00	0	1	0	1	0	1	0	1	0	170
88.05	0	0	0	0	0	1	0	1	1	11	92.05	0	0	1	0	1	1	0	1	1	91	96.05	0	1	0	1	0	1	0	1	1	171
88.10	0	0	0	0	0	1	1	0	0	12	92.10	0	0	1	0	1	1	1	0	0	92	96.10	0	1	0	1	0	1	1	0	0	172
88.15	0	0	0	0	0	1	1	0	1	13	92.15	0	0	1	0	1	1	1	0	1	93	96.15	0	1	0	1	0	1	1	0	1	173
88.20	0	0	0	0	0	1	1	1	0	14	92.20	0	0	1	0	1	1	1	1	0	94	96.20	0	1	0	1	0	1	1	1	0	174
88.25	0	0	0	0	0	1	1	1	1	15	92.25	0	0	1	0	1	1	1	1	1	95	96.25	0	1	0	1	0	1	1	1	1	175
88.30	0	0	0	0	1	0	0	0	0	16	92.30	0	0	1	1	0	0	0	0	0	96	96.30	0	1	0	1	0	0	0	0	0	176
88.35	0	0	0	0	1	0	0	0	1	17	92.35	0	0	1	1	0	0	0	0	1	97	96.35	0	1	0	1	0	0	0	1	1	177
88.40	0	0	0	0	1	0	0	1	0	18	92.40	0	0	1	1	0	0	0	1	0	98	96.40	0	1	0	1	0	0	1	0	1	178
88.45	0	0	0	0	1	0	0	1	1	19	92.45	0	0	1	1	0	0	0	1	1	99	96.45	0	1	0	1	0	0	1	1	1	179
88.50	0	0	0	0	1	0	1	0	0	20	92.50	0	0	1	1	0	0	1	0	0	100	96.50	0	1	0	1	0	1	0	0	1	180
88.55	0	0	0	0	1	0	1	0	1	21	92.55	0	0	1	1	0	0	1	0	1	101	96.55	0	1	0	1	0	1	0	1	0	181
88.60	0	0	0	0	1	0	1	1	0	22	92.60	0	0	1	1	0	0	1	1	0	102	96.60	0	1	0	1	0	1	1	0	1	182
88.65	0	0	0	0	1	0	1	1	1	23	92.65	0	0	1	1	0	0	1	1	1	103	96.65	0	1	0	1	0	1	1	1	1	183
88.70	0	0	0	0	1	1	0	0	0	24	92.70	0	0	1	1	0	1	0	0	0	104	96.70	0	1	0	1	1	1	0	0	0	184
88.75	0	0	0	0	1	1	0	0	1	25	92.75	0	0	1	1	0	1	0	0	1	105	96.75	0	1	0	1	1	1	0	0	1	185
88.80	0	0	0	0	1	1	0	1	0	26	92.80	0	0	1	1	0	1	0	1	0	106	96.80	0	1	0	1	1	1	0	1	0	186
88.85	0	0	0	0	1	1	0	1	1	27	92.85	0	0	1	1	0	1	0	1	1	107	96.85	0	1	0	1	1	1	0	1	1	187
88.90	0	0	0	0	1	1	1	0	0	28	92.90	0	0	1	1	0	1	1	0	0	108	96.90	0	1	0	1	1	1	1	0	0	188
88.95	0	0	0	0	1	1	1	0	1	29	92.95	0	0	1	1	0	1	1	0	1	109	96.95	0	1	0	1	1	1	1	0	1	189
89.00	0	0	0	0	1	1	1	1	0	30	93.00	0	0	1	1	0	1	1	1	0	110	97.00	0	1	0	1	1	1	1	1	0	190
89.05	0	0	0	0	1	1	1	1	1	31	93.05	0	0	1	1	0	1	1	1	1	111	97.05	0	1	0	1	1	1	1	1	1	191
89.10	0	0	0	0	1	0	0	0	0	32	93.10	0	0	1	1	0	0	0	0	0	112	97.10	0	1	0	0	0	0	0	0	0	192
89.15	0	0	0	0	1	0	0	0	0	33	93.15	0	0	1	1	0	0	0	1	0	113	97.15	0	1	0	0	0	0	0	0	1	193
89.20	0	0	0	0	1	0	0	0	1	34	93.20	0	0	1	1	0	0	0	1	0	114	97.20	0	1	0	0	0	0	0	1	0	194
89.25	0	0	0	0	1	0	0	0	1	35	93.25	0	0	1	1	0	0	1	1	1	115	97.25	0	1	0	0	0	0	0	1	1	195
89.30	0	0	0	0	1	0	0	1	0	36	93.30	0	0	1	1	0	1	0	0	0	116	97.30	0	1	0	0	0	0	1	0	0	196
89.35	0	0	0	0	1	0	0	1	0	37	93.35	0	0	1	1	0	1	0	0	1	117	97.35	0	1	0	0	0	0	1	0	1	197
89.40	0	0	0	0	1	0	0	1	1	38	93.40	0	0	1	1	0	1	1	0	0	118	97.40	0	1	0	0	0	0	1	1	0	198
89.45	0	0	0	0	1	0	0	1	1	39	93.45	0	0	1	1	0	1	1	1	1	119	97.45	0	1	0	0	0	0	1	1	1	199
89.50	0	0	0	0	1	0	1	0	0	40	93.50	0	0	1	1	1	0	0	0	0	120	97.50	0	1	0	0	0	0	0	0	0	200
89.55	0	0	0	0	1	0	1	0	0	41	93.55	0	0	1	1	1	0	0	0	1	121	97.55	0	1	0	0	0	0	0	0	1	201
89.60	0	0	0	0	1	0	1	0	1	42	93.60	0	0	1	1	1	0	1	0	0	122	97.60	0	1	0	0	0	0	0	1	0	202
89.65	0	0	0	0	1	0	1	0	1	43	93.65	0	0	1	1	1	0	1	1	1	123	97.65	0	1	0	0	0	0	0	1	0	203
89.70	0	0	0	0	1	0	1	1	0	44	93.70	0	0	1	1	1	1	1	0	0	124	97.70	0	1	0	0	0	0	1	1	0	204
89.75	0	0	0	0	1	0	1	1	0	45	93.75	0	0	1	1	1	1	1	0	1	125	97.75	0	1	0	0	0	0	1	1	0	205
89.80	0	0	0	0	1	0	1	1	1	46	93.80	0	0	1	1	1	1	1	1	0	126	97.80	0	1	0	0	0	0	1	1	0	206
89.85	0	0	0	0	1	0	1	1	1	47	93.85	0	0	1	1	1	1	1	1	1	127	97.85	0	1	0	0	0	0	1	1	1	207
89.90	0	0	0	0	1	1	0	0	0	48	93.90	0	0	1	0	0	0	0	0	0	128	97.90	0	1	0	0	0	0	0	0	0	208
89.95	0	0	0	0	1	1	0	0	0	49	93.95	0	0	1	0	0	0	0	0	1	129	97.95	0	1	0	0	0	0	0	0	1	209
90.00	0	0	0	0	1	1	0	0	1	50	94.00	0	0	1	0	0	0	0	1	0	130	98.00	0	1	0	0	0	0	0	1	0	210
90.05	0	0	0	0	1	1	0	0	1	51	94.05	0	0	1	0	0	0	0	1	1	131	98.05	0	1	0	0	0	0	0	1	1	211
90.10	0	0	0	0	1	0	0	1	0	52	94.10	0	0	1	0	0	0	0	1	0	132	98.10	0	1	0	0	0	0	0	1	0	212
90.15	0	0	0	0	1	1	0	0	1	53	94.15	0	0	1	0	0	0	0	1	0	133	98.15	0	1	0	0	0	0	0	1	0	213
90.20	0	0	0	0	1	1	0	1	0	54																						

INSTRUCTION

Frequency table for FM Modulator 94184

Frequency MHz	FM								Decimal	Frequency MHz	FM								Decimal	Frequency MHz	FM								Decimal				
	256	128	64	32	16	8	4	2			1	256	128	64	32	16	8	4			2	1	256	128	64	32	16	8		4	2	1	
99.50	0	1	1	1	1	0	0	0	0	240	103.50	1	0	1	0	0	0	0	0	0	320	107.50	1	1	0	0	1	0	0	0	0	400	
99.55	0	1	1	1	1	0	0	0	1	241	103.55	1	0	1	0	0	0	0	0	1	321	107.55	1	1	0	0	1	0	0	0	1	401	
99.60	0	1	1	1	1	0	0	1	0	242	103.60	1	0	1	0	0	0	0	1	0	322	107.60	1	1	0	0	1	0	0	1	0	402	
99.65	0	1	1	1	1	0	0	1	1	243	103.65	1	0	1	0	0	0	0	1	1	323	107.65	1	1	0	0	1	0	0	1	1	403	
99.70	0	1	1	1	1	0	1	0	0	244	103.70	1	0	1	0	0	0	1	0	0	324	107.70	1	1	0	0	1	0	1	0	0	404	
99.75	0	1	1	1	1	0	1	0	1	245	103.75	1	0	1	0	0	0	1	0	1	325	107.75	1	1	0	0	1	0	1	0	1	405	
99.80	0	1	1	1	1	0	1	1	0	246	103.80	1	0	1	0	0	0	1	1	0	326	107.80	1	1	0	0	1	0	1	1	0	406	
99.85	0	1	1	1	1	0	1	1	1	247	103.85	1	0	1	0	0	0	1	1	1	327	107.85	1	1	0	0	1	1	1	1	1	407	
99.90	0	1	1	1	1	0	1	0	0	248	103.90	1	0	1	0	0	1	0	0	0	328	107.90	1	1	0	0	1	1	0	0	0	408	
99.95	0	1	1	1	1	1	0	0	1	249	103.95	1	0	1	0	0	1	0	0	1	329	107.95	1	1	0	0	1	1	0	0	1	409	
100.00	0	1	1	1	1	0	1	0	0	250	104.00	1	0	1	0	0	1	0	1	0	330	108.00	1	1	0	0	1	1	0	1	0	410	
100.05	0	1	1	1	1	0	1	1	1	251	104.05	1	0	1	0	0	1	0	1	1	331	108.00	1	1	x	x	1	1	x	1	x	>410	
100.10	0	1	1	1	1	1	0	0	0	252	104.10	1	0	1	0	0	1	1	0	0	332												
100.15	0	1	1	1	1	1	0	1	1	253	104.15	1	0	1	0	0	1	1	0	1	333												
100.20	0	1	1	1	1	1	1	1	0	254	104.20	1	0	1	0	0	1	1	1	0	334												
100.25	0	1	1	1	1	1	1	1	1	255	104.25	1	0	1	0	0	1	1	1	1	335												
100.30	1	0	0	0	0	0	0	0	0	256	104.30	1	0	1	0	1	0	0	0	0	336												
100.35	1	0	0	0	0	0	0	0	1	257	104.35	1	0	1	0	1	0	0	0	1	337												
100.40	1	0	0	0	0	0	0	1	0	258	104.40	1	0	1	0	1	0	0	1	0	338												
100.45	1	0	0	0	0	0	0	1	1	259	104.45	1	0	1	0	1	0	0	1	1	339												
100.50	1	0	0	0	0	0	1	0	0	260	104.50	1	0	1	0	1	0	1	0	0	340												
100.55	1	0	0	0	0	0	1	0	1	261	104.55	1	0	1	0	1	0	1	0	1	341												
100.60	1	0	0	0	0	0	1	1	0	262	104.60	1	0	1	0	1	0	1	1	0	342												
100.65	1	0	0	0	0	0	1	1	1	263	104.65	1	0	1	0	1	0	1	1	1	343												
100.70	1	0	0	0	0	1	0	0	0	264	104.70	1	0	1	0	1	1	0	0	0	344												
100.75	1	0	0	0	0	1	0	0	1	265	104.75	1	0	1	0	1	1	0	0	1	345												
100.80	1	0	0	0	0	1	0	1	0	266	104.80	1	0	1	0	1	1	0	1	0	346												
100.85	1	0	0	0	0	1	0	1	1	267	104.85	1	0	1	0	1	1	0	1	1	347												
100.90	1	0	0	0	0	1	1	0	0	268	104.90	1	0	1	0	1	1	1	0	0	348												
100.95	1	0	0	0	0	1	1	0	1	269	104.95	1	0	1	0	1	1	1	0	1	349												
101.00	1	0	0	0	0	1	1	1	0	270	105.00	1	0	1	0	1	1	1	1	0	350												
101.05	1	0	0	0	0	1	1	1	1	271	105.05	1	0	1	0	1	1	1	1	1	351												
101.10	1	0	0	0	1	0	0	0	0	272	105.10	1	0	1	1	0	0	0	0	0	352												
101.15	1	0	0	0	1	0	0	0	1	273	105.15	1	0	1	1	0	0	0	0	1	353												
101.20	1	0	0	0	1	0	0	1	0	274	105.20	1	0	1	1	0	0	0	1	0	354												
101.25	1	0	0	0	1	0	0	1	1	275	105.25	1	0	1	1	0	0	0	1	1	355												
101.30	1	0	0	0	1	0	1	0	0	276	105.30	1	0	1	1	0	0	1	0	0	356												
101.35	1	0	0	0	1	0	1	0	1	277	105.35	1	0	1	1	0	0	1	0	1	357												
101.40	1	0	0	0	1	0	1	1	0	278	105.40	1	0	1	1	0	0	1	1	0	358												
101.45	1	0	0	0	1	0	1	1	1	279	105.45	1	0	1	1	0	0	1	1	1	359												
101.50	1	0	0	0	1	1	0	0	0	280	105.50	1	0	1	1	0	1	0	0	0	360												
101.55	1	0	0	0	1	1	0	0	1	281	105.55	1	0	1	1	0	1	0	0	1	361												
101.60	1	0	0	0	1	1	0	1	0	282	105.60	1	0	1	1	0	1	0	1	0	362												
101.65	1	0	0	0	1	1	0	1	1	283	105.65	1	0	1	1	0	1	0	1	1	363												
101.70	1	0	0	0	1	1	1	0	0	284	105.70	1	0	1	1	0	1	1	0	0	364												
101.75	1	0	0	0	1	1	1	0	1	285	105.75	1	0	1	1	0	1	1	0	1	365												
101.80	1	0	0	0	1	1	1	1	0	286	105.80	1	0	1	1	0	1	1	1	0	366												
101.85	1	0	0	0	1	1	1	1	1	287	105.85	1	0	1	1	0	1	1	1	1	367												
101.90	1	0	0	1	0	0	0	0	0	288	105.90	1	0	1	1	1	0	0	0	0	368												
101.95	1	0	0	1	0	0	0	0	1	289	105.95	1	0	1	1	1	0	0	0	1	369												
102.00	1	0	0	1	0	0	0	1	0	290	106.00	1	0	1	1	1	0	0	1	0	370												
102.05	1	0	0	1	0	0	0	1	1	291	106.05	1	0	1	1	1	0	0	1	1	371												
102.10	1	0	0	1	0	0	1	0	0	292	106.10	1	0	1	1	1	0	1	0	0	372												
102.15	1	0	0	1	0	0	1	0	1	293	106.15	1	0	1	1	1	0	1	0	1	373												
102.20	1	0	0	1	0	0	1	1	0	294	106.20	1	0	1	1	1	0	1	1	0	374												
102.25	1	0	0	1	0	0	1	1	1	295	106.25	1	0	1	1	1	0	1	1	1	375												
102.30	1	0	0	1	0	1	0	0	0	296	106.30	1	0	1	1	1	1	0	0	0	376												
102.35	1	0	0	1	0	1	0	0	1	297	106.35	1	0	1	1	1	0	0	1	1	377												
102.40	1	0	0	1	0	1	0	1	0	298	106.40	1	0	1	1	1	1	0	1	0	378												