GE
Transportation

The AFTAC (Audio Frequency Train Activated Circuit) II is the second generation of FM audio overlay train detection systems from GE - Transportation. It may be applied with systems that control crossing warning devices at a highway/railroad grade crossing and in train control systems where overlay train detection is needed.

With increased noise immunity and improved selectivity between channels, the AFTAC II is particularly advantageous in locations where the channel spectrum is heavily saturated. This system is fully backward compatible with original FM AFTAC equipment.

This versatile, compact system can be configured four ways, using the same enclosure: single transmitter, single receiver, one transmitter and one receiver, or two receivers. Module requirements have been reduced: two for receiver and one for a single transmitter. Either receiver or transmitter can be operated over line with proper coupling. No insulated joints are required.

Power output is flexibly controlled via a three-position power level switch and a power range jumper with six power settings. Low power (maximum transmitter output of 0.5 VAC) is for short distances up to 2,500 feet depending on frequency and ballast conditions. Medium power (maximum transmitter output of 3.18 VAC) is designed for distances up to 4,500 feet.

AFTAC II

FM Audio Overlay Train Detection System

Specifications

Power Requirements
Input voltage: 10-14 VDC
Current draw
- Transceiver: 2.13 amps
- One transmitter: 1.7 amps
- Two receivers: 810 ma
- One receiver: 405 ma

Allowable ripple: 0.5 VAC pp

Receiver
Input impedance: 0.5 ohms at center frequency
Sensitivity: maximum 1.4 mVAC (-55db, adjustable)
Bandwidth
- Above 800 Hz: 3 db points 3% (fc) min, 30 db points 10% (fc) max
- Below 800 Hz: 3 db points 6% (fc) min, 30 db points 25% (fc) max

Relay drive: +12 VDC with 500-ohm relay
Subtone selectivity: >60 db down at adjacent channel
Ring-by: 10 ft max, less with .06-ohm shunt

Transmitter
Output impedance: 2 ohms at center frequency
Output power
- Low–selectable: 0.29 V (42 mw); 0.45 V (100 mw); 0.83 V (344 mw)
- High–selectable: 1.3 V (.85 w); 1.8 V (1.6w); 3.2 V (5 w)

Modulation: FM
Deviation ratio
- 0.4 kHz to 2.5 kHz—0.5:1
- 2.6 kHz to 3.7 kHz—0.75:1
- 3.8 kHz to 10.2 kHz—1.1

Subtone frequency stability: ±1%
Ring-by: 20 ft max, less with .06-ohm shunt

Operating Temperature
Minimum: -40°F (-40°C)
Maximum: +160°F (+71°C)

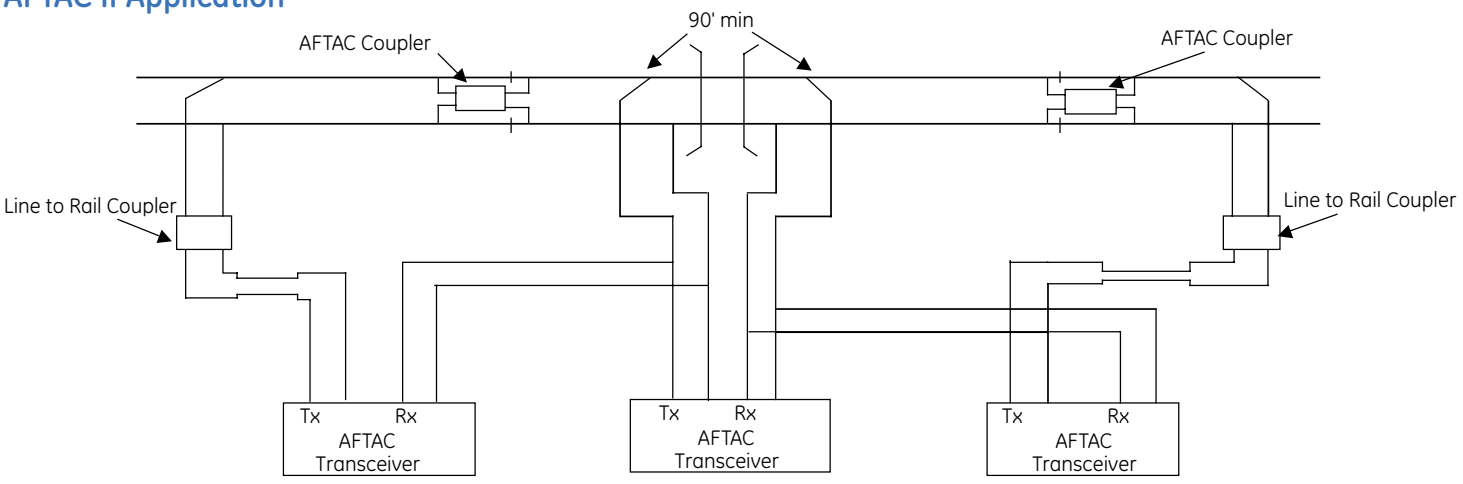
Dimensions
Height: 13.25 in (337 mm)
Depth: 10.5 in (267 mm)
Width: 11.25 in (286 mm)

Weight
13.69 pounds (6.16 kg)

23 Channels and 12 Subtones for Electrified or Non-electrified Territory

Channel	AFTAC II Frequency	Standard Subtone	Maximum Subtone
1	500 Hz	10 Hz	10 Hz
2	700 Hz	10 Hz	10 Hz
3	900 Hz	10 Hz	10 Hz
4	1.1 KHz	10 Hz	24 Hz
5	1.3 KHz	17 Hz	24 Hz
6	1.6 KHz	24 Hz	31 Hz
7	1.9 KHz	31 Hz	31 Hz
8	2.3 KHz	38 Hz	38 Hz
9	2.8 KHz	45 Hz	45 Hz
10	3.1 KHz	52 Hz	52 Hz
11	3.5 KHz	66 Hz	66 Hz
12	4.0 KHz	73 Hz	73 Hz
13	4.4 KHz	80 Hz	80 Hz
14	4.9 KHz	87 Hz	87 Hz
15	5.4 KHz	10 Hz	108 Hz
16	5.9 KHz	17 Hz	108 Hz
17	6.4 KHz	24 Hz	108 Hz
18	7.1 KHz	31 Hz	108 Hz
19	7.7 KHz	38 Hz	108 Hz
20	8.3 KHz	45 Hz	108 Hz
21	8.9 KHz	52 Hz	108 Hz
22	9.5 KHz	66 Hz	108 Hz
23	10.2 KHz	73 Hz	108 Hz

AFTAC II Application



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