

# HI-FI FM TRANSMITTER

**MS-100**

## INSTRUCTION MANUAL

### **CANADA**

“ Operation of this device is subject to the following two conditions:  
(1) this device may not cause interference and (2) this device must accept any interference, including interference that may cause undesired operation of the device.”

### **USA**

This device complies with Part 15 of the FCC rules. Operation of this device is subject to the following two conditions: (1) this device may not cause harmful interference; and (2) this device must accept any interference received, including interference that may cause undesired operation.”

# DECADE

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**Supplement**

- MS-100 technical specifications

**SECTION 1**  
**GENERAL INFORMATIONS**

A) **Introduction**

Thank you for purchasing one of the fine products made by **DECADE** Transmitters. Before using it, please read this manual carefully in order to obtain the best possible results from your transmitter. The manual contains installation, operation and adjustment procedures for **DECADE MS-100** Transmitter.

B) **Description**

**MS-100** transmitter include a crystal controlled VCO and an RF power amplifier. The **MS-100** accepts audio signals via the front panel, RCA jacks.

Input level can be adjusted from the **INPUT LEVEL** control on the front panel, in order to get the optimum modulation level. This useful feature makes **DECADE** transmitters very versatile, allowing them to accept audio signals from many sources: CD players, tape decks, mixing boards, cinema projectors, etc. **Please refer to section 3-c .**

C) **Warranty**

**MS-100** transmitters come with a one (1) year warranty that covers parts replacement and labor required to repair any defects resulting from the manufacturing process. All claims must be authorized by **DECADE** prior to shipment of a faulty unit for repairs, and a copy of the invoice must be included in the shipment. Shipping fees are assumed by the client and **DECADE** will pay for the return of the repaired unit.

D) **Warning**

**DECADE** transmitters operate on the 88.1 MHz - 107.5 MHz commercial FM broadcast band, so signals transmitted can be

received on any standard FM receiver. Thus, some care should be taken in the use made out of these transmitters.

**DECADE transmitters inc.** is not responsible for any financial loss or violation of local laws during the utilisation of their transmitters.

The **FCC** (Federal Communications Commission) and the **DOC** (Department Of Communications,Canada) legislate the use of FM transmitters operating in the commercial FM band. No license is required for the use of these transmitters,in the exception of; if the unit

is setted to comply with RSS-123 regulation (Applicable in Canada only).This regulation stipulate that the user has to advise the nearest local Industry Canada district about the use of such FM transmitter.

E) **Technical specifications**

Refer to supplement, Technical specifications of MS-100

***SECTION 2  
INSTALLATION***

A) **Introduction**

Installation of a **DECADE** FM transmitter includes the following steps:  
1) receiving inspection; 2) mounting on a shelf; 3) connecting the audio source.

B) **Receiving inspection**

Check the transmitter packaging for any damage that could have occurred during shipping. If you find any damage to the transmitter, keep the packaging for claims purposes with the freight company. Any damage should be noted on the receiving slip at the time of delivery and the freight company advised within 5 working days following the delivery of damaged units.

C) **Connections**

After installation of the transmitter on a shelf, plug the AC wall adaptor in the AC wall receptacle. An RCA to RCA audio cable is furnished for linking your audio source to the **MS-100** audio inputs.

D) **Location of the transmitter**

**DECADE** transmitters are designed for indoor or outdoor use in a dry environment, in temperatures ranging from -4 to 122°F (50°C). **In order to obtain optimum performances, it is recommended to place them far from any electromagnetic noise source (transformers, motors, etc.).**

Transmitters should be located as close to the center of the hall or coverage area as possible, and at a sufficient height to give the transmitted signal an unobstructed path to every seat or receiving point. Transmitted signal paths will be weakened by concrete walls or steel beams or sheets placed around them. On the other hand, windows are very permeable to radio waves, so avoid locating the transmitter near them if you wish to restrain the coverage to the interior of a building.

***SECTION 3  
OPERATION***

A) **Controls and indicators**

Input level is controlled by a potentiometer located on the front panel. A power indicator and over modulation LEDs are also located on the front panel.

B) **Input and output connectors**

The MS-100 transmitter comes with one set of inputs: RCA type line level input. The RF output is permanently linked to a telescopic antenna.

C) **Optimal input level (VERY IMPORTANT)**

Optimal input level is reached when the audio level at the receiver end is equal to the level of a standard FM broadcast station. To obtain this result it is mandatory to compress the audio input signal (between your audio source output and the inputs of the MS-100). The over modulation LED on the front panel shall never or rarely lite up. The level has to be adjusted in a maner to avoid over modulation.

#### **SECTION 4 MAINTENANCE AND ALIGNMENT**

##### **A) Maintenance**

No maintenance is required to keep the transmitter in top operating condition. If an external cleaning appears necessary, use a soft, damp cloth and mild soap only.

##### **B) Frequency selection**

The transmitting frequency is user programmable via a 10 bit dip switch on the rear panel. If a change of frequency is required, follow this simple step.

- 1) from the «bits switch» codes table, on the next pages, select the appropriate «bits switch» code for your chosen frequency and set the «bit switches» accordingly.

**NOTES:** 1) The frequency range of the **MS-100** is 88.1 to 107.5mhz.  
2) If your application requires more than one **MS-100**, it is mandatory to leave some space between the two chosen frequencies in a maner to avoid channel scrambling or intermodulation products. Ex; If the first chosen is **88.5mhz**, then the second chosen frequency shall be **89.1mhz**. The chosen frequencies shall not interfere with local FM broadcast stations. If you intend to use more than two **MS-100** in the same restricted area, Decade company offers a free assistance service that will guide you thru the steps of multiple frequencies setup. **Please call our service dept at: 1-819-563-4323.** Hours are 8.30 AM to 5.00 PM, eastern time.

C)

Bit switch codes table

Freq MHz	1	2	3	4	5	6	7	8	9	10
88.1	ON	ON	ON	OFF	OFF	OFF	ON	OFF	OFF	ON
88.3	OFF	ON	ON	OFF	OFF	OFF	ON	OFF	OFF	ON
88.5	ON	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	ON
88.7	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	ON
88.9	ON	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON
89.1	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON
89.3	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON
89.5	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	ON
89.7	ON	ON	ON	ON	ON	ON	OFF	OFF	OFF	ON
89.9	OFF	ON	ON	ON	ON	ON	OFF	OFF	OFF	ON
90.1	ON	OFF	ON	ON	ON	ON	OFF	OFF	OFF	ON
90.3	OFF	OFF	ON	ON	ON	ON	OFF	OFF	OFF	ON
90.5	ON	ON	OFF	ON	ON	ON	OFF	OFF	OFF	ON
90.7	OFF	ON	OFF	ON	ON	ON	OFF	OFF	OFF	ON
90.9	ON	OFF	OFF	ON	ON	ON	OFF	OFF	OFF	ON
91.1	OFF	OFF	OFF	ON	ON	ON	OFF	OFF	OFF	ON
91.3	ON	ON	ON	OFF	ON	ON	OFF	OFF	OFF	ON
91.5	OFF	ON	ON	OFF	ON	ON	OFF	OFF	OFF	ON
91.7	ON	OFF	ON	OFF	ON	ON	OFF	OFF	OFF	ON
91.9	OFF	OFF	ON	OFF	ON	ON	OFF	OFF	OFF	ON
92.1	ON	ON	OFF	OFF	ON	ON	OFF	OFF	OFF	ON
92.3	OFF	ON	OFF	OFF	ON	ON	OFF	OFF	OFF	ON
92.5	ON	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF	ON
92.7	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF	ON
92.9	ON	ON	ON	ON	OFF	ON	OFF	OFF	OFF	ON
93.1	OFF	ON	ON	ON	OFF	ON	OFF	OFF	OFF	ON
93.3	ON	OFF	ON	ON	OFF	ON	OFF	OFF	OFF	ON
93.5	OFF	OFF	ON	ON	OFF	ON	OFF	OFF	OFF	ON
93.7	ON	ON	OFF	ON	OFF	ON	OFF	OFF	OFF	ON
93.9	OFF	ON	OFF	ON	OFF	ON	OFF	OFF	OFF	ON
94.1	ON	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF	ON
94.3	OFF	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF	ON
94.5	ON	ON	ON	OFF	OFF	ON	OFF	OFF	OFF	ON
94.7	OFF	ON	ON	OFF	OFF	ON	OFF	OFF	OFF	ON
94.9	ON	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	ON
95.1	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	ON
95.3	ON	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON
95.5	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON
95.7	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON
95.9	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON
96.1	ON	ON	ON	ON	ON	OFF	OFF	OFF	OFF	ON
96.3	OFF	ON	ON	ON	ON	OFF	OFF	OFF	OFF	ON
96.5	ON	OFF	ON	ON	ON	OFF	OFF	OFF	OFF	ON
96.7	OFF	OFF	ON	ON	ON	OFF	OFF	OFF	OFF	ON
96.9	ON	ON	OFF	ON	ON	OFF	OFF	OFF	OFF	ON
97.1	OFF	ON	OFF	ON	ON	OFF	OFF	OFF	OFF	ON
97.3	ON	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF	ON
97.5	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF	ON
97.7	ON	ON	ON	OFF	ON	OFF	OFF	OFF	OFF	ON
Freq MHz	1	2	3	4	5	6	7	8	9	10

Freq MHz	1	2	3	4	5	6	7	8	9	10
97.9	OFF	ON	ON	OFF	ON	OFF	OFF	OFF	OFF	ON
98.1	ON	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF	ON
98.3	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF	ON
98.5	ON	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON
98.7	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON
98.9	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON
99.1	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON
99.3	ON	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	ON
99.5	OFF	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	ON
99.7	ON	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF	ON
99.9	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF	ON
100.1	ON	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON
100.3	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON
100.5	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON
100.7	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON
100.9	ON	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON
101.1	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON
101.3	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON
101.5	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON
101.7	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON
101.9	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON
102.1	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON
102.3	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON
102.5	ON	ON	ON	ON	ON	ON	ON	ON	ON	OFF
102.7	OFF	ON	ON	ON	ON	ON	ON	ON	ON	OFF
102.9	ON	OFF	ON	ON	ON	ON	ON	ON	ON	OFF
103.1	OFF	OFF	ON	ON	ON	ON	ON	ON	ON	OFF
103.3	ON	ON	OFF	ON	ON	ON	ON	ON	ON	OFF
103.5	OFF	ON	OFF	ON	ON	ON	ON	ON	ON	OFF
103.7	ON	OFF	OFF	ON	ON	ON	ON	ON	ON	OFF
103.9	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON	OFF
104.1	ON	ON	ON	OFF	ON	ON	ON	ON	ON	OFF
104.3	OFF	ON	ON	OFF	ON	ON	ON	ON	ON	OFF
104.5	ON	OFF	ON	OFF	ON	ON	ON	ON	ON	OFF
104.7	OFF	OFF	ON	OFF	ON	ON	ON	ON	ON	OFF
104.9	ON	ON	OFF	OFF	ON	ON	ON	ON	ON	OFF
105.1	OFF	ON	OFF	OFF	ON	ON	ON	ON	ON	OFF
105.3	ON	OFF	OFF	OFF	ON	ON	ON	ON	ON	OFF
105.5	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	OFF
105.7	ON	ON	ON	ON	OFF	ON	ON	ON	ON	OFF
105.9	OFF	ON	ON	ON	OFF	ON	ON	ON	ON	OFF
106.1	ON	OFF	ON	ON	OFF	ON	ON	ON	ON	OFF
106.3	OFF	OFF	ON	ON	OFF	ON	ON	ON	ON	OFF
106.5	ON	ON	OFF	ON	OFF	ON	ON	ON	ON	OFF
106.7	OFF	ON	OFF	ON	OFF	ON	ON	ON	ON	OFF
106.9	ON	OFF	OFF	ON	OFF	ON	ON	ON	ON	OFF
107.1	OFF	OFF	OFF	ON	OFF	ON	ON	ON	ON	OFF
107.3	ON	ON	ON	OFF	OFF	ON	ON	ON	ON	OFF
107.5	OFF	ON	ON	OFF	OFF	ON	ON	ON	ON	OFF

## **SECTION 5 APPLICATIONS**

Applications for **DECADE** transmitters are almost unlimited, but here are a few very popular ones. With **DECADE** transmitters, a whole new world opens up for hearing impaired people, and most of all for people demanding the best sound reproduction possible, regardless of the environment.

**CHURCHES:** Connected to the church sound system, the transmitter broadcasts the oral and musical content of the celebrations to the attendants, using a standard FM Walkman (hearing impaired or not).

**THEATRES:** With one microphone installed on the stage and fed to the transmitter through a mixing board, you will have the sensation of being seated right next to the actors, even if you are actually sitting in the last row. The receiver is again an FM Walkman.

**CONFERENCE HALLS:** Many transmitters can be used as part of a simultaneous translation scheme, where attendants can listen to the conference in the language of their choice. A single transmitter can also be used as an aid for hearing impaired persons.

**FITNESS CENTRES:** Hooked to any sound sources like TV sets and VCRs, club members will enjoy listening with a standard FM walkman while they workout.

## TECHNICAL SPECIFICATIONS

### ***MS-100***

#### ***RF SECTION***

**MODULATION:** FM, 75kHz deviation  
**FREQUENCY SELECTION:** 88.1 to 107.5 MHz  
**FREQUENCY PRECISION:** .005%  
**MAXIMUM POWER:** 250 $\mu$ V/m @ 3 m (FCC Part 15 compliance)(RSS-210)  
: 1.5 miliWatts (DOC RSS-123)(Canada only).  
**SPURIOUS REJECTION:** 45 dB min.  
**FREQUENCY STABILISATION DELAY:** 4 SECONDS @ 88.1mhz

#### ***AUDIO SECTION***

**FREQUENCY RESPONSE:** 20 - 20,000 Hz  
**HARMONIC DISTORTION:** 0.05% max.  
**SIGNAL TO NOISE RATIO:** 70 dB min.  
**DYNAMIC RANGE:** 80 dB min.  
**INDICATORS:** Power status, over modulation status.  
**CONTROLS:** Modulation volume, frequency selection(10 bit dip switch).

#### ***MISC***

**POWER SUPPLY:** 115/16vAC @ 300Ma.  
**DIMENSIONS:** 9.8" X 6.3" X 1.6"

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