TM400

TECHNICAL DATA

Wireless Test and Measurement System

- **Converts any measurement microphone to wireless operation**
- **Digital Hybrid Wireless® technology (US Patent 7,225,135)**
- **Selectable 5, 15 and 48 volt phantom power**
- **24-bit, 88.2 kHz digital audio stream for compandor-free audio**
- **256 selectable UHF frequencies**
- **SmartTuning™ to quickly find a clear channel**
- **100 mW RF output power**

(microphone not included with system)

Wireless Freedom for Acoustic Analysis

The TM400 wireless system eliminates the cable between the microphone and computer/analyzer allowing more samples to be made in less time. The extended operating range enables measurements across a much broader range than cable allows. The result is accurate and thorough samples of any acoustic space from smaller theaters to large outdoor arenas.

Digital Hybrid Wireless® technology combines digital audio with analog RF to eliminate a compandor and its artifacts in the audio path and preserve the proven RF performance of the finest analog wireless system. With sampling at 88.2 kHz, the 24-bit digital audio stream offers an excellent signal to noise ratio and broad, flat frequency response needed for critical measurements. The RF link is an aggressively optimized FM system with DSP and microprocessor controlled algorithms to minimize dropouts and noise.

TM400 system includes a foam lined, hard shell carrying case

R400A Receiver

The overall system design provides 256 frequencies so a clear operating channel can be found in any location. As a convenience, the SmartTune™ utility in the firmware performs an RF site scan and automatically sets the receiver to a clear channel in a matter of seconds. The LCD then shows the switch settings for the transmitter to match the newly found channel. Setup is fast and easy. The receiver can be powered from an AC outlet or from external DC sources such as vehicles or batteries.

HM Transmitter

Any measurement microphone can be converted to wireless operation. Phantom power (5, 15 or 48 volt) is selected on the transmitter control panel allowing the transmitter to be used with any microphone, including high current condenser types. The unit is powered by a two 1.5 volt AA batteries, with a full 100 mW RF output over the life of the battery, extending the operating range for large outdoor areas.

The XLR input coupler is an ingenious design, spring loaded to maintain a secure, noise-free connection to the microphone. The antenna is formed between the microphone body and the housing of the transmitter. An insulator just below the input coupler separates the two antenna “halves” creating a highly efficient dipole design.

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Receiver Rear Panel Features

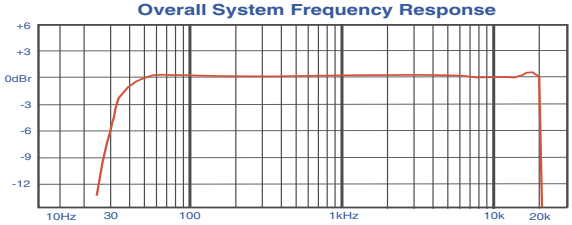
Standard XLR and 1/4 inch outputs are provided. The XLR output is balanced but not floating, so an unbalanced signal is available using pin 1 as ground and pin 2 as signal, leaving pin 3 open. The 1/4 inch jack is an unbalanced output. The levels can be adjusted independently with the front panel LCD.

Also featured are a locking power input jack that can accept 8-18 VDC (center pin positive). The power input is diode protected against reverse polarity.

The rear panel of the receiver includes a locking power supply input jack, balanced and unbalanced outputs and two standard 50 ohm BNC antenna jacks.

HM Transmitter

Frequency range:	256 frequencies in 100 kHz steps for one 25.5 MHz wide block
Channel Spacing:	100 kHz
Frequency selection:	Control panel mounted membrane switches
RF Power output:	100 mW (nominal)
Compatibility Modes (6)	Digital Hybrid Wireless™ (400 Series), 200 Series, 100 Series, Mode 3 (other analog), Mode 6, and IFB
Pilot tone:	25 to 32 kHz; 5 kHz deviation (in 400 Series Mode)
Frequency stability:	± 0.002%
Deviation:	± 75 kHz max. (in 400 Series Mode)
Spurious radiation:	60 dB below carrier
Equivalent input noise:	–125 dBV, A-weighted
Input level:	
If set for dynamic mic:	0.5 mV to 50 mV before limiting. Greater than 1 V with limiting.
If set for electret lavaliere mic:	1.7 uA to 170 uA before limiting. Greater than 5000 uA (5 mA) with limiting.
Line level input:	17 mV to 1.7 V before limiting. Greater than 50 V with limiting.
Input impedance:	300 Ohms
Input limiter:	Soft limiter, 30 dB range
Gain control range:	44 dB; panel mounted membrane switches
Modulation indicators:	Dual bicolor LEDs indicate modulation of –20, -10, 0, +10 dB referenced to full modulation.
Controls:	Control panel with LCD and four membrane switches.
Low frequency roll-off:	Selectable; -3dB at 35, 50 or 70 Hz.
Audio Frequency Response:	35 Hz to 20 kHz, +/-1 dB *(The low frequency roll-off is adjustable)*



Weight:	7.5 ozs. (211 grams) including lithium AA batteries
Dimensions:	4.18 x 1.65 x 1.58 inches

R400A Receiver

Operating Frequencies (MHz):

Block 21:	537.600 - 563.100	Block 25:	640.000 - 665.500
Block 22:	563.200 - 588.700	Block 26:	665.600 - 691.100
Block 23:	588.800 - 607.900	Block 27:	691.200 - 716.700
	614.100 - 614.300	Block 28:	716.800 - 742.300
Block 24:	614.400 - 639.900	Block 29:	742.400 - 767.900

Frequency Adjustment Range:	25.5 MHz in 100 kHz steps
Channel Separation:	100 kHz
Receiver Type:	Triple conversion, superheterodyne, 244 MHz , 10.7 MHz and 300 kHz
Frequency Stability:	±0.001 %
Front end bandwidth:	30 MHz @ -3 dB
Sensitivity:	
20 dB Sinad:	1 uV (-107 dBm), A weighted
60 dB Quieting:	1.5 uV (-104 dBm), A weighted
Squelch quieting:	Greater than 100dB
AM rejection:	Greater than 60 dB, 2 uV to 1 Volt (Undetectable after processing)
Modulation acceptance:	+/– 85 kHz
Image and spurious rejection:	85dB
Third order intercept:	0 dBm
Diversity method:	Phased antenna combining - SmartDiversity™
FM Detector:	Digital Pulse Counting Detector operating at 300 kHz
Antenna inputs:	Dual BNC female, 50 Ohm impedance
Audio outputs:	• Rear Panel XLR; -50dBu to +5dBu in 1dB steps. • Rear Panel 1/4 inch; -55 dBu to +0 dBu in 1dB steps.
Scanning mode:	Coarse and fine modes for RF spectrum site scanning.
Audio test tone:	1 kHz, -50 dBu to +5 dBu, < 1% THD (XLR output); 1 kHz, -55 dBu to 0 dBu, < 1% THD (1/4" output)
Transmitter battery type selection:	9V alkaline, 9V lithium, AA alkaline, AA lithium, TIMER
Smart NR (noise reduction):	OFF, NORMAL, FULL modes (Hybrid mode only)
Power, Ext DC:	Min 8 V, Max 18 V DC; 1.6 W, 200 mA max.
Weight:	13 oz.
Dimensions:	5.50" (14 cm) wide, 1.75" (4.5 cm) high, 6.25" (16 cm) deep

Audio Performance (overall system):

Frequency Response:	40 Hz to 20 kHz (+/- 1 dB); -3 dB at 35 Hz
THD:	0.2% (typical)
SNR at receiver output (dB):	107 dB (SmartNR set at NORMAL)

Specifications subject to change without notice

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