SONIFEX

Reference Monitor Meters

Catalogue 2016

Reference Monitor Meters

The Reference Monitor Meters are a range of freestanding and 1U rack-mount precision meters offering accurate, high resolution metering of between 1 and 4 stereo audio sources.

Each stereo source is auto-switching between either analogue or digital AES/EBU format with sample rates up to 192kHz accepted.

The level of each stereo source is displayed on a pair of bright, multi-coloured bargraph meters, with a large choice of accurately modelled scales/responses to suit different applications and local preferences. Separate 5 LED phase meters indicate channel correlation or phase error conditions, and additional LEDs show digital input lock and audio level alarm status.
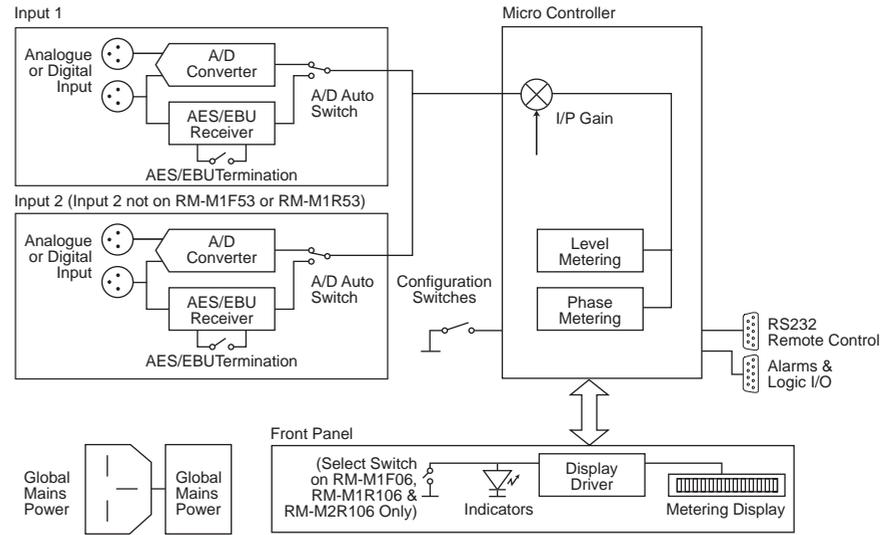
On the rear panel, open-collector alarm outputs provide hardware indication of audio under-level or silence, audio over-level, sustained phase errors above 90 degrees and digital source lock.

Status monitoring and unit ID functions, plus firmware updates to add extra functionality, are all accessible remotely via a RS232 connection in conjunction with Sonifex SCi software.

All Reference Monitor Meters operate from global mains voltages (85-264V AC, 47-63Hz) without adjustment.

There are eight Reference Monitor Meters:

- RM-M1F53 1 Stereo 53-Segment Meter, Free-Standing
- RM-M1R53 1 Stereo 53-Segment Meter, Rack-Mount
- RM-M2F53 2 Stereo 53-Segment Meters, Free-Standing
- RM-M2R53 2 Stereo 53-Segment Meters, Rack-Mount
- RM-M4R53 4 Stereo 53-Segment Meters, Rack-Mount
- RM-M1F106 1 Stereo 106-Segment Meter, Free-Standing
- RM-M1R106 1 Stereo 106-Segment Meter, Rack-Mount
- RM-M2R106 2 Stereo 106-Segment Meters, Rack-Mount

Reference Monitor Meters Block Diagram.

RM-M1F53 1 Stereo 53-Segment Meter, Free-Standing

Category: Reference Monitor Meters.

Product Function: Visual monitoring of analogue and digital audio inputs.

Typical Applications: Radio station engineering racks-room for monitoring news feeds and audio sources.

Features:

- Bright, accurate precision LED meters.
- Auto-switching analogue or digital audio inputs.
- 9 meter scales and ballistics types
- Phase meter.
- Alarm GPOs for under/over level.
- RS232 connection for PC updates and control.
- Desktop or rack-mount formats.

The RM-M1F53 is a free-standing, single stereo channel meter with bright, multi-coloured 53-segment bargraph meters and all the features listed in the summary.
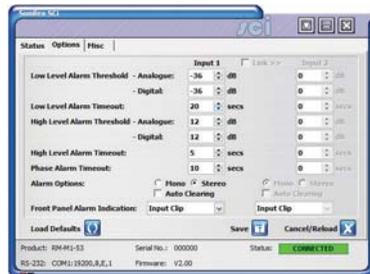

RM-M1R53 1 Stereo 53-Segment Meter, Rack-Mount

The RM-M1R53 is a 1U rack-mount version of the RM-M1F53.

Available Scales/Ballistics For All Meters

There are nine scales available with accurately modelled ballistics. Each stereo meter pair can have a different scale, set via a DIPswitch on the rear panel. A complete set of overlays are provided per stereo meter so that you can define the scale(s) that you need:

1. Dual BBC PPM + standard VU
2. BBC PPM   IEC60268-10 11a
3. EBU PPM   IEC60268-10 11b
4. Nordic PPM   IEC60268-10 1
5. AES/EBU   IEC60268-18 digital PPM
6. DIN PPM   DIN45406
7. Standard VU   IEC60268-17
8. Extended VU   IEC60268-17
9. German PPM

SCi Software Screen for RM-M1F53 .

RM-M2F53 2 Stereo 53-Segment Meters, Free-Standing

The RM-M2F53 is a free-standing, twin stereo channel meter with bright, multi-coloured 53-segment bargraph meters and all the features listed in the summary.

RM-M2R53 2 Stereo 53-Segment Meters, Rack-Mount

The RM-M2R53 is a 1U rack-mount version of the RM-M2F53.

RM-M4R53 4 Stereo 53-Segment Meters, Rack-Mount

The RM-M4R53 is a 1U rack-mount which combines 2 x RM-M2R53 units, providing 4 stereo channel monitoring.

RM-M1F106 1 Stereo 106-Segment Meter, Free-Standing

Category: Reference Monitor Meters.
Product Function: Visual monitoring of analogue and digital audio inputs.
Typical Applications: Radio station engineering racks-room for monitoring news feeds and audio sources.
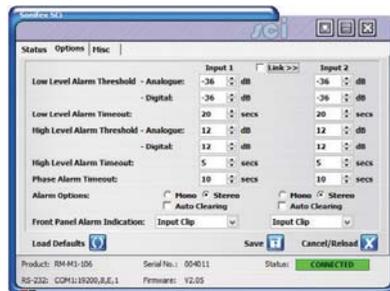**Features:** As per 53 segment meters with the addition of a stereo source select button.

The RM-M1F106 is a single stereo channel free-standing meter but with 2 stereo inputs and a front panel source selector.

This unit has a pair of multi-coloured 106-segment bargraph meters for greater display accuracy. A front panel mounted push-button selects the input source to be monitored, from either of the 2 auto-switching analogue or digital AES/EBU stereo inputs, or from a mono mix of each channel, with channel 1 shown on the left meter and channel 2 shown on the right meter. All other functionality is listed in the summary.

RM-M1R106 1 Stereo 106-Segment Meter, Rack-Mount

The RM-M1R106 is a 1U rack-mount version of the RM-M1F106.

SCi Software Screen for RM-M1F106.

RM-M2R106 2 Stereo 106-Segment Meters, Rack-Mount

A dual rack mount version, the RM-M2R106, combines 2 x RM-M1R106 units, giving 4 stereo channel monitoring.

Connectors

Audio Inputs:	(All balanced, but may be wired unbal) 2 x XLR 3-pin female (RM-M1F53 & RM-M1R53) 4 x XLR 3-pin female (RM-M2F53, RM-M2R53, RM-M1F106 & RM-M1R106) 8 x XLR 3-pin female (RM-M4R53 & RM-M2R106)
Serial:	D-sub 9-pin female
Remote I/O:	D-sub 15-pin female
Mains Input:	Filtered 3-pin IEC male, continuously rated 85 – 264VAC, 47 – 63Hz, fused 1A, 30W peak, 15W average

Equipment Type

RM-M1F53	1 stereo 53-segment meter, free-standing
RM-M1R53	1 stereo 53-segment meter, rack-mount
RM-M2F53	2 stereo 53-segment meters, free-standing
RM-M2R53	2 stereo 53-segment meters, rack-mount
RM-M4R53	4 stereo 53-segment meters, rack-mount
RM-M1F106	1 stereo 106-segment meter, free-standing
RM-M1R106	1 stereo 106-segment meter, rack-mount
RM-M2R106	2 stereo 106-segment meters, rack-mount

Technical Specification For Reference Monitor Meters

Audio Specification

Inputs

Audio Inputs:	1 x stereo analogue or AES/EBU digital (auto-selecting) (RM-M1F53 & RM-M1R53) 2 x stereo analogue or AES/EBU digital (auto-selecting) (RM-M2F53, RM-M2R53, RM-M1F106 & RM-M1R106) 4 x stereo analogue or AES/EBU digital (auto-selecting) (RM-M4R53 & RM-M2R106)
Max Level (0dB Input Gain):	+18dBu (analogue)/0dBFS digital
CMRR:	>60dB typical
Input Impedance:	20kΩ (analogue) 110Ω (digital with termination switchable via DIPswitch)
AES/EBU Sample Rate:	32 to 192kHz, converted internally to 48kHz
Input Gain:	0, +6, +12 or +18dB digital gain (switchable via DIPswitch)
Selection:	Front panel illuminated push switch button (RM-M1F106, RM-M1R106 & RM-M2R106)

Level Metering

Number:	1 x 53-segment tri-colour LED bargraphs (RM-M1F53 & RM-M1R53) 2 x 53-segment tri-colour LED bargraphs (RM-M2F53, RM-M2R53) 4 x 53-segment tri-colour LED bargraphs (RM-M4R53) 1 x 106-segment tri-colour LED bargraphs (RM-M1F106, RM-M1R106) 2 x 106-segment tri-colour LED bargraphs (RM-M2R106)	
Characteristics:	Selectable by DIPswitch from:	
1.	Dual BBC PPM + standard VU	
2.	BBC PPM	IEC60268-10 11a
3.	EBU PPM	IEC60268-10 11b
4.	Nordic PPM	IEC60268-10 1
5.	AES/EBU digital PPM	IEC60268-18
6.	DIN PPM	DIN45406
7.	Standard VU	IEC60268-17
8.	Extended VU	IEC60268-17
9.	German	
Ballistics:	According to selected characteristic	
Line-Up Level:	According to selected characteristic	

Phase Metering

Type:	5-segment, indication at 0, 45, 90, 135 and 180 degrees, 1 per stereo meter

Remote Control

Serial:	RS232, 19200 baud, 3-wire connection
Alarm Outputs:	(1-4 single input units, 1-8 twin units)
1.	Audio input 1 under-level/fail (latching)
2.	Audio input 1 over-level (latching)
3.	Audio input 1 sustained phase error above 90 degrees (latching)
4.	AES/EBU input 1 unlock (non-latching)
5.	Audio input 2 under-level/fail (latching)
6.	Audio input 2 over-level (latching)
7.	Audio input 2 sustained phase error above 90 degrees (latching)
8.	AES/EBU input 2 unlock (non-latching) Open-collector outputs rated at 30V, 50mA maximum Output low/conducting in normal condition (no alarm)
Control Inputs:	(1 single input units, 2 twin units)
1.	Input 1 Alarm reset
2.	Input 2 Alarm reset Pull-to-ground to activate inputs

Status Indicators

AES Lock:	Indicates lock achieved on digital input
Level Alarm:	Indicates audio over-level

Physical Specification

Dimensions (Raw):	RM-M1F53, RM-M2F53 & RM-M1F106 21.8cm (W) x 14.8cm (D) x 4.4cm (H) 8.6" (W) x 5.8" (D) x 1.73" (H)
Dimensions (Boxed):	34.5cm (W) x 27cm (D) x 7cm (H) 13.6" (W) x 10.6" (D) x 2.75" (H)
Dimensions (Raw):	RM-M1R53, RM-M2R53, RM-M4R53 & RM-M1R106 & RM-M2R106 48cm (W) x 14.8cm (D) x 4.4cm (H) 19" (W) x 5.8" (D) x 1.73" (H)
(Boxed):	59cm (W) x 27cm (D) x 7cm (H) 21" (W) x 10.6" (D) x 2.75" (H)
Weight:	RM-M1F53 & RM-M1R53 Nett: 1.3kg Gross: 2.0kg Nett: 2.9lb Gross: 4.4lb
Weight:	RM-M2F53 & RM-M1F106 Nett: 1.4kg Gross: 2.1kg Nett: 3.1lb Gross: 4.6lb
Weight:	RM-M2R53 & RM-M1R106 Nett: 1.45kg Gross: 2.15kg Nett: 3.2lb Gross: 4.7lb
Weight:	RM-M4R53 & RM-M2R106 Nett: 2.8kg Gross: 3.5kg Nett: 6.2lb Gross: 7.7lb

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