



U 920A

PDM 信号调理器

产品规格书

PDM Signal Conditioner

Products Introduction

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产品简介

概述

U 920A 双通道采用独立的解调芯片，本底低噪更低以及硬件响应更快；支持电压调节与时钟调节（串口程控）；输出采用 BNC 接口，信号为模拟信号，方便搭配采集卡使用。

功能特点

- 支持1.2V~3.3V电压调节（4种）
- 支持768K~3.25M时钟调节（8种）
- 支持USB 5V或者外部触发
- 支持通道的同步/异步

应用场合

- 语音助手与智能家居
- 主动降噪系统（ANC）
- 麦克风阵列

产品参数

产品参数	
PDM调理通道数	2路
输入接口	EDGRM-3.81-8P
输出接口	BNC
输出模式	单端输出
输入输出转换比例	1%FS=5mVrms、10%FS=50mVrms、20%FS=100mVrms、50%FS=250mVrms、100%FS=500mVrms
支持的麦克风供电 (DC)	1.2V、1.5V、1.8V、3.3V
支持的麦克风时钟 (Hz)	768K、800K、812.5K、1.2M、1.536M、2.4M、3.072M、3.25M
产品尺寸(mm)	140*96*33
净重量 (kg)	0.35
包装尺寸 (mm)	250*165*65
包装重量 (kg)	0.52
工作温度	-20℃~50℃
工作电压	DC 5V(USB-B)
典型功耗	1W
满载功耗	3W
通讯方式	串口通讯

PDM 解调通道特性参数与指标

PDM解调通道特性参数	
采样率范围	12kHz~50.78kHz
采样率插值	x64

通道异步模式单点指标：

空闲通道噪声(uVrms)	
采样率	$f_s=48\text{kHz}$
典型值	≤ 14
最大值	15
测试条件： [1]输出源：APx525-PDM模块，采集端：APx525-AI模块（UNBAL） [2]U 920A电压设置3.3V；时钟设置3.072MHz；异步模式 [3]输出源信号输出：0%FS，采集端滤波设置：无计权，无EQ，10Hz高通滤波器	

总谐波失真 THD (dB)	
采样率	$f_s=48\text{kHz}$
典型值	≤ -79
最大值	-78
测试条件： [1]输出源：APx525-PDM模块，采集端：APx525-AI模块（UNBAL） [2]U 920A电压设置3.3V；时钟设置3.072MHz；异步模式 [3]输出源信号输出：20%FS 1kHz，采集端滤波设置：无计权，无EQ，10Hz高通滤波器	

总谐波失真加噪声 THD+N (dB)	
采样率	$f_s=48\text{kHz}$
典型值	≤ -78
最大值	-77
测试条件： [1]输出源：APx525-PDM模块，采集端：APx525-AI模块（UNBAL） [2]U 920A电压设置3.3V；时钟设置3.072MHz；异步模式 [3]输出源信号输出：-10dBFS 1kHz，采集端滤波设置：无计权，无EQ，10Hz高通滤波器	

信噪比 SNR (dB)	
采样率	$f_s=48\text{kHz}$
典型值	≥ 94
最小值	93
测试条件： [1]输出源：APx525-PDM模块，采集端：APx525-AI模块（UNBAL） [2]U 920A电压设置3.3V；时钟设置3.072MHz；异步模式 [3]输出源信号输出：100%FS 1kHz，采集端滤波设置：无计权，无EQ，10Hz高通滤波器	

通道同步模式单点指标：

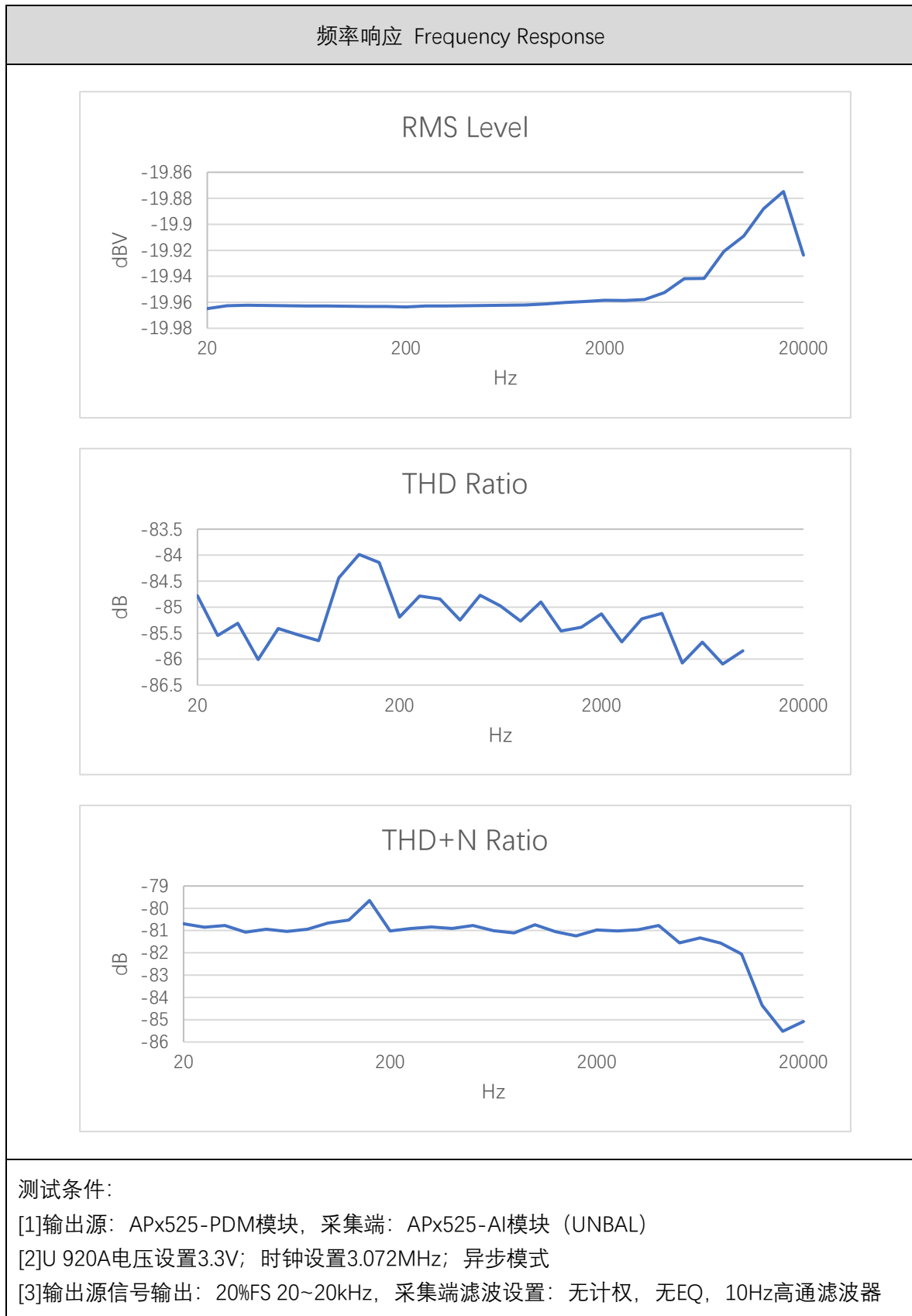
空闲通道噪声(uVrms)	
采样率	$f_s=48\text{KS/s}$
典型值	≤ 14
最大值	15
测试条件：	
[1]输出源：APx525-PDM模块，采集端：APx525-AI模块（UNBAL）	
[2]U 920A电压设置3.3V；时钟设置3.072MHz；异步模式	
[3]输出源信号输出：0%FS，采集端滤波设置：无计权，无EQ，10Hz高通滤波器	

总谐波失真 THD (dB)	
采样率	$f_s=48\text{KS/s}$
典型值	≤ -78
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[1]输出源：APx525-PDM模块，采集端：APx525-AI模块（UNBAL）	
[2]U 920A电压设置3.3V；时钟设置3.072MHz；异步模式	
[3]输出源信号输出：20%FS 1kHz，采集端滤波设置：无计权，无EQ，10Hz高通滤波器	

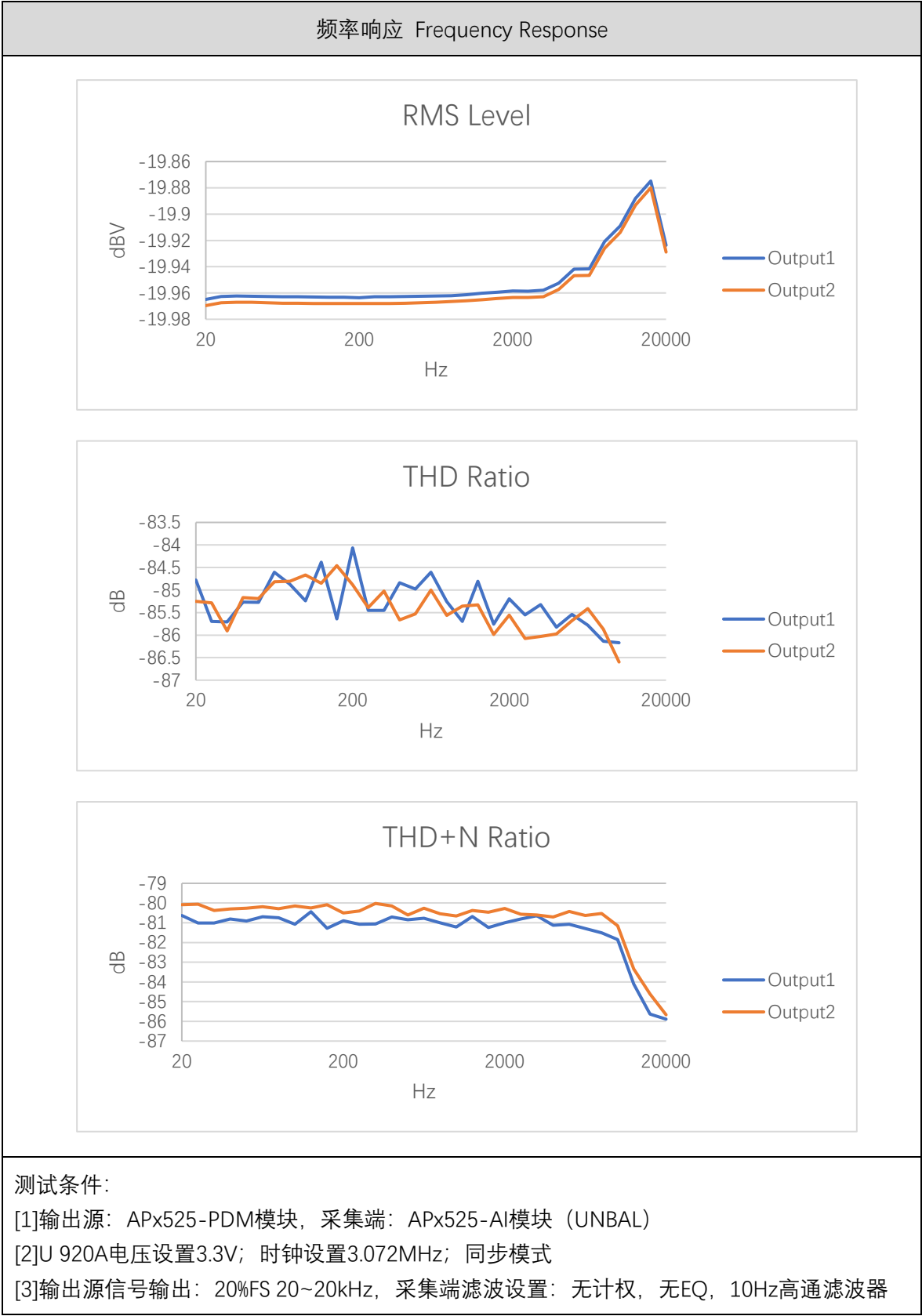
总谐波失真加噪声 THD+N (dB)	
采样率	$f_s=48\text{KS/s}$
典型值	≤ -77
最大值	-76
测试条件：	
[1]输出源：APx525-PDM模块，采集端：APx525-AI模块（UNBAL）	
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信噪比 SNR (dB)	
采样率	$f_s=48\text{KS/s}$
典型值	≥ 94
最小值	93
测试条件：	
[1]输出源：APx525-PDM模块，采集端：APx525-AI模块（UNBAL）	
[2]U 920A电压设置3.3V；时钟设置3.072MHz；异步模式	
[3]输出源信号输出：100%FS 1kHz，采集端滤波设置：无计权，无EQ，10Hz高通滤波器	

通道异步模式扫频指标：

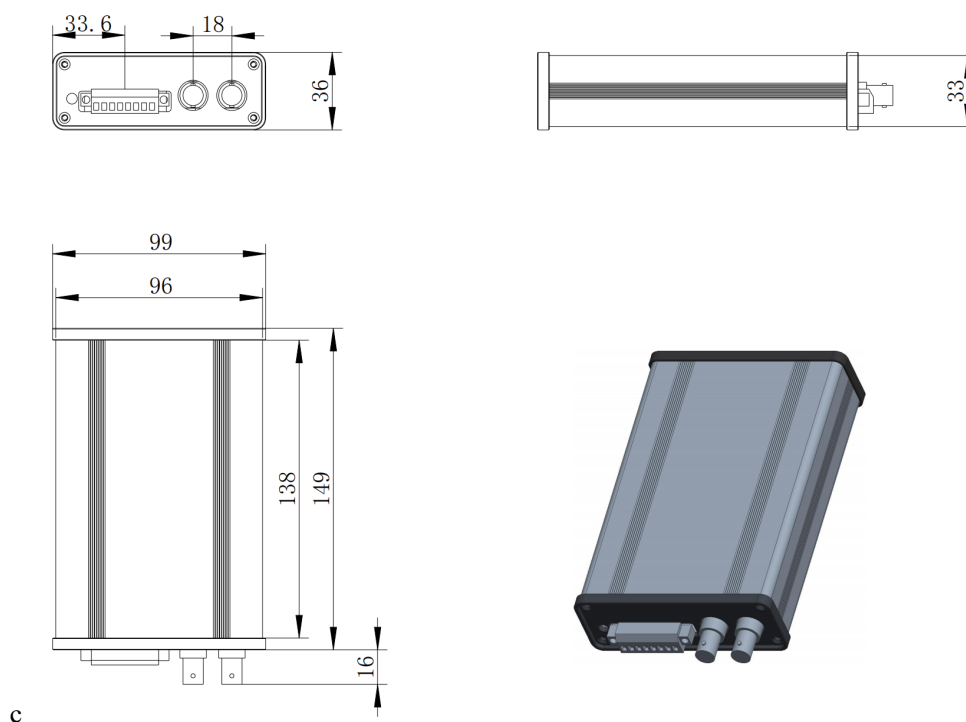


通道同步模式扫频指标：



产品外观

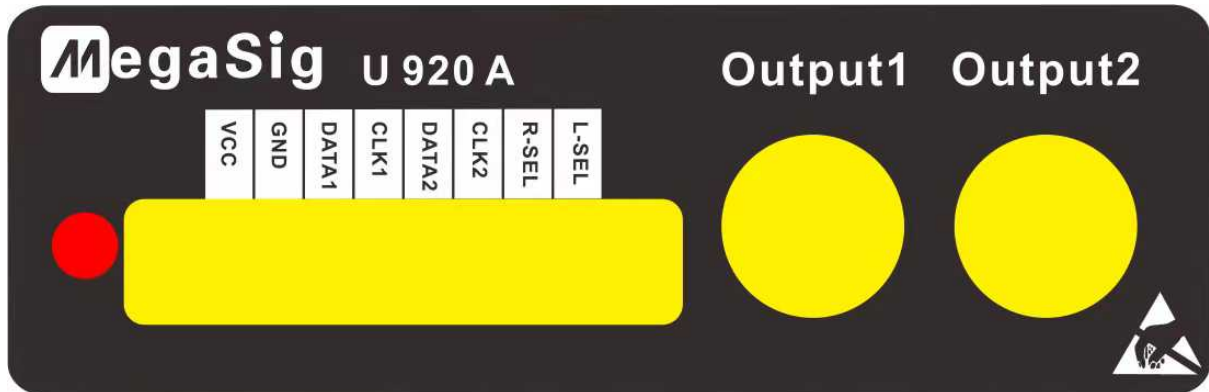
产品尺寸图 (mm)



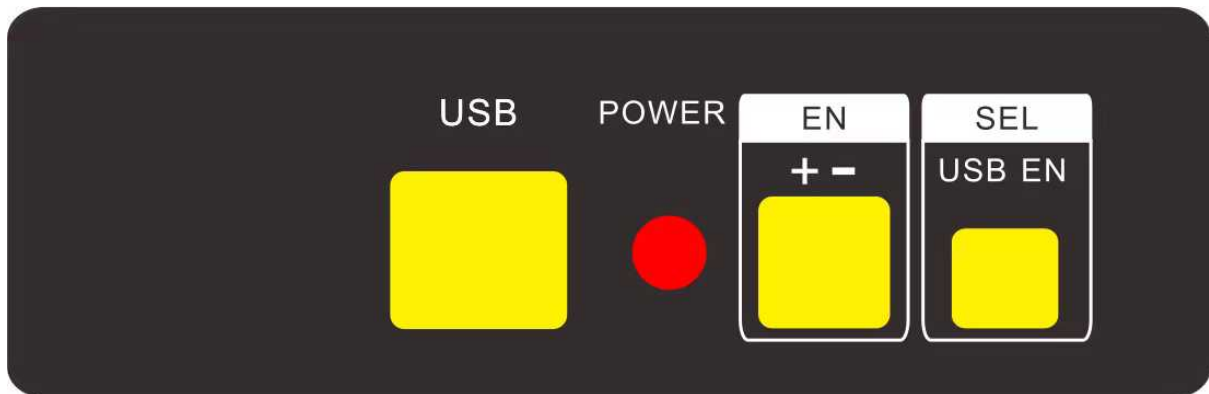
整机外观



前面板



后面板



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Product Introduction

Overview

The U 920A dual-channel model uses independent demodulation chips, offering lower background noise and faster hardware response. It supports voltage and clock adjustment (via serial port control). The output uses BNC connectors with analog signals, making it convenient for use with data acquisition cards.

Features

- Supports voltage regulation from 1.2V to 3.3V (4 types)
- Supports clock adjustment from 768K to 3.25M (8 types)
- Supports USB 5V or external triggering
- Supports synchronous/asynchronous channels

Application

- Voice assistants and smart home devices
- Active noise cancellation (ANC) systems
- Microphone arrays

Product Parameter

Product Parameter	
PDM conditioning channels	2
Input interface	EDGRM-3.81-8P
Output interface	BNC
Output mode	Single-ended output
Input-output conversion ratio	1%FS=5mVrms、10%FS=50mVrms、 20%FS=100mVrms、50%FS=250mVrms、 100%FS=500mVrms
Supported microphone power supply (DC)	1.2V、1.5V、1.8V、3.3V
Supported microphone clock (Hz)	768K、800K、812.5K、1.2M、1.536M、2.4M、 3.072M、3.25M
Product dimensions (mm)	140*96*33
Net weight(kg)	0.35
Packaging dimension (mm)	250*165*65
Packed weight (kg)	0.52
Operating temperature	-20°C~50°C
Operating voltage	DC 5V(USB-B)
Typical power consumption	1W
Full-load power consumption	3W
Communication mode	Serial communication

PDM Demodulation Channel

PDM Demodulation Channel	
Sampling rate range	12kHz - 50.78kHz
Sampling rate interpolation	x64

Channel Asynchronous Mode Single-Point Metric:

Idle Channel Noise (uVrms)	
Sampling rate	fs=48kS/s
Typical value	≤ 14
Maximum	15
Test condition: [1]Output source: APx525-PDM module, DAQ unit: APx525-AI module (UNBAL) [2]U 920A voltage setting:3.3V; clock setting:3.072mhz; asynchronous mode [3]Output source signal: 0%FS, acquisition end filter settings: no weighting, no EQ, 10 Hz high-pass filter	

THD (dB)	
Sampling rate	fs=48kS/s
Typical value	≤ -79
Maximum	-78
Test condition: [1] Output source: APx525-PDM module, DAQ Unit: APx525-AI module (UNBAL) [2]U 920A voltage setting :3.3V; clock setting :3.072MHz; asynchronous mode [3] Output source signa: 20%FS 1kHz, acquisition end filter settings: no weighting, no EQ, 10Hz high-pass filter	

THD+N (dB)	
Sampling rate	fs=48kS/s
Typical value	≤ -78
Maximum	-77
Test condition : [1]Output source: APx525-PDM module, DAQ Unit: APx525-AI module (UNBAL) [2]U 920A voltage setting :3.3V; clock setting :3.072MHz; asynchronous mode [3]Output source signal: -10dBFS 1kHz, acquisition end filter settings: no weighting, no EQ, 10Hz high-pass filter	

SNR (dB)	
Sampling rate	fs=48kS/s
Typical value	≥94
Minimum	93
Test condition: [1]Output source: APx525-PDM module, DAQ unit: APx525-AI module (UNBAL) [2]U 920A voltage setting 3.3V; clock setting 3.072MHz; asynchronous mode [3]Output source signal: 100%FS 1kHz, acquisition end filter settings: no weighting, no EQ, 10Hz high-pass filter	

Channel Synchronous Mode Single-Point Metric

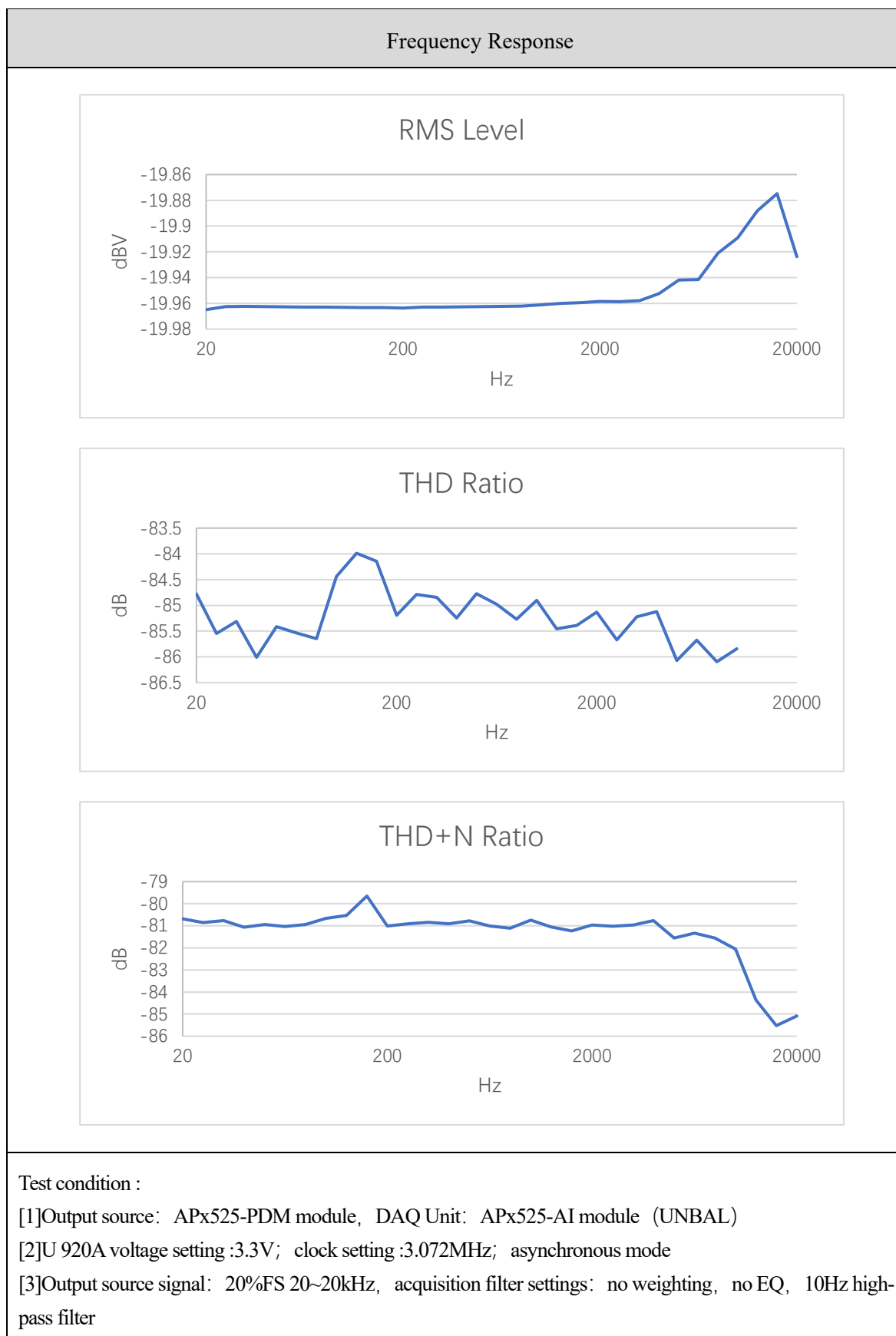
Idle channel noise (uVrms)	
Sampling rate	fs=48kS/s
Typical value	≤ 14
Maximum	15
Test condition:	
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[3]Output source signal: 0%FS, acquisition end filter settings: no weighting, no EQ, 10Hz high-pass filter	

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[2]U 920A voltage setting 3.3V; clock setting 3.072MHz; asynchronous mode	
[3]Output source signal: 20%FS 1kHz, acquisition end filter settings: no weighting, no EQ, 10Hz high-pass filter	

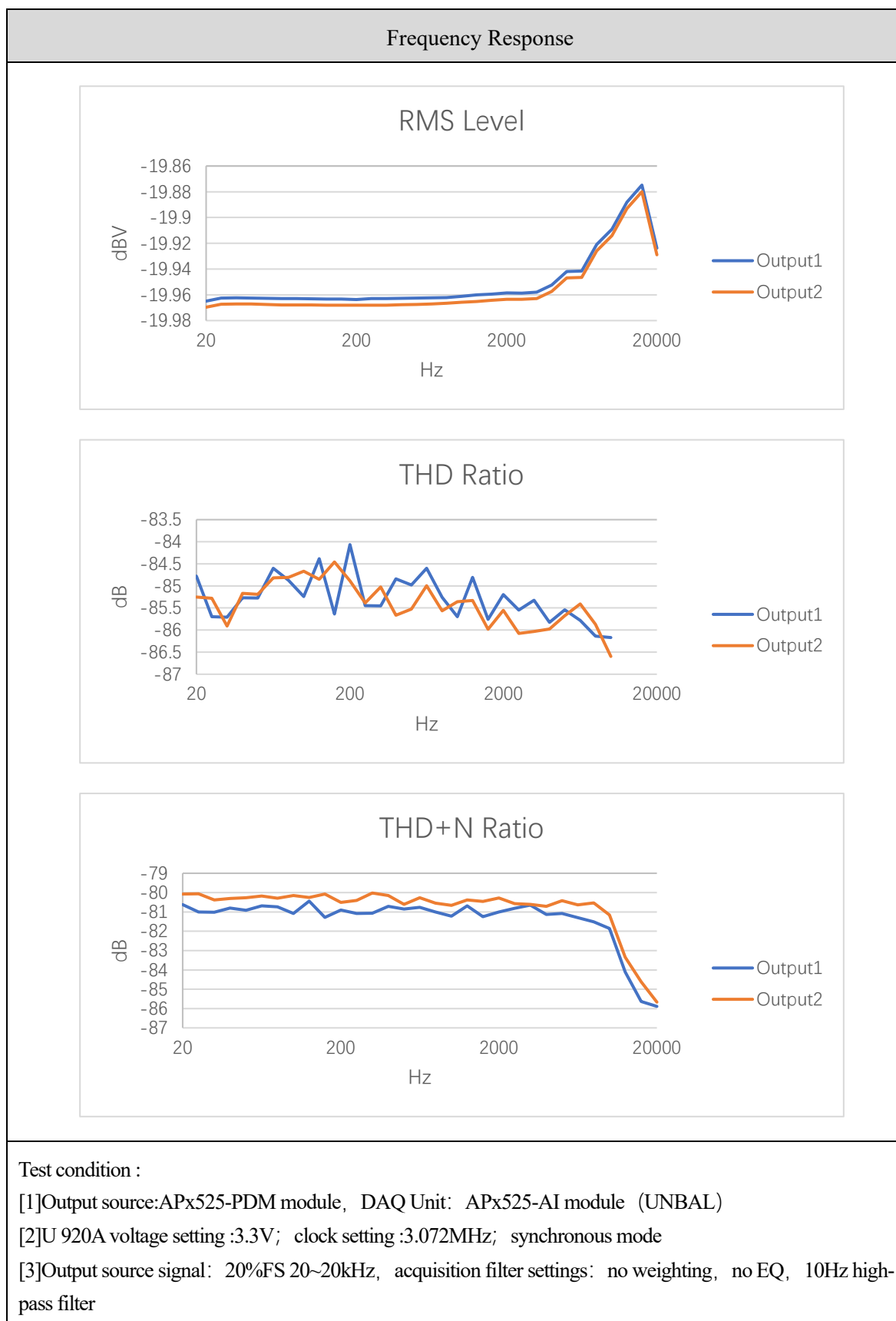
THD+N (dB)	
Sampling rate	fs=48kS/s
Typical value	≤ -77
Maximum	-76
Test condition:	
[1] Output source: APx525-PDM module, DAQ Unit: APx525-AI module (UNBAL)	
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SNR (dB)	
Sampling rate	fs=48kS/s
Typical value	≥94
Minimum	93
Test Condition:	
[1] Output source: APx525-PDM module, DAQ Unit: APx525-AI module (UNBAL)	
[2]U 920A voltage setting 3.3V; clock setting 3.072MHz; asynchronous mode	
[3] Output source signal: 100%FS 1kHz, acquisition filter settings: no weighting, no EQ, 10Hz high-pass filter	

Channel Asynchronous Mode Sweep Metrics:

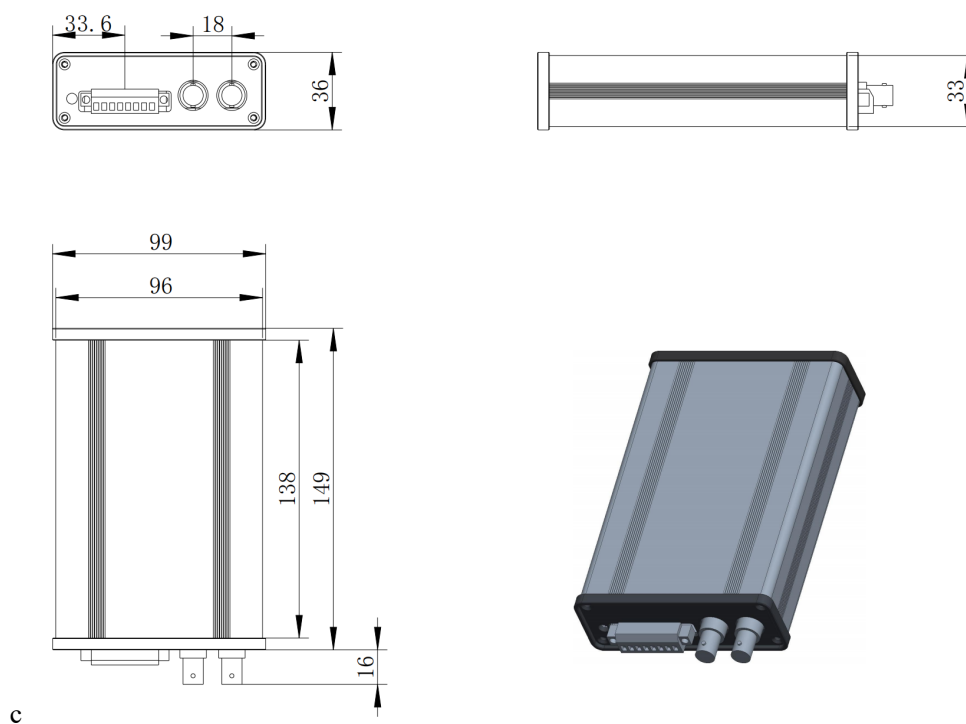


Channel Synchronous Mode Sweep Metrics:



Product Appearance

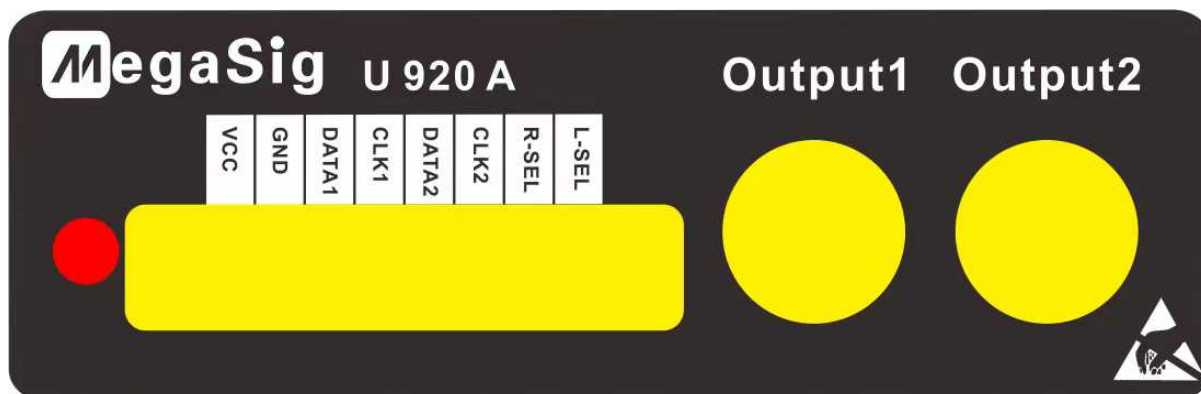
Product Dimension Diagram(mm)



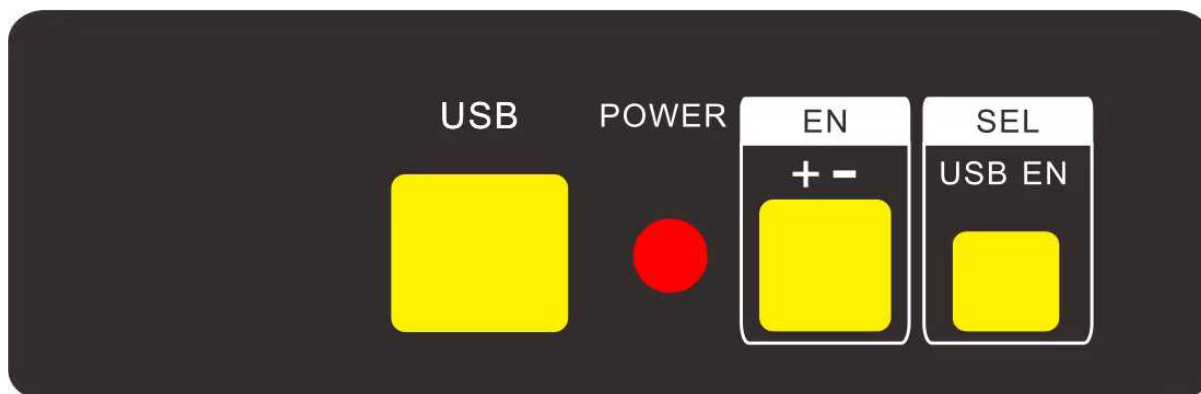
Overall Appearance



Front Panel



Rear Panel



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