



司南导航

Product Specification / 产品规范

M10 MINI GNSS Receiver

M10 MINI 接收机

2021-8-1

REVISION HISTORY / 修订历史

REVISION / 版本	MODIFICATION / 更改	DATE / 日期
1.0	New Release / 新发	2021-8-1

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I. INTRODUCTION / 简介

M10 mini receiver is a new generation of portable high-precision GNSS receiver independently developed by ComNav Technology Ltd. for personnel safety positioning applications. It supports BDS, GPS, GLONASS and other mainstream global navigation satellite systems, and can quickly achieve cm-level positioning. Support one - click call and remote location monitoring, for your personal safety escort. Fast APP access is supported to get rid of cumbersome configuration. Support 4G position return, can provide real-time high-precision position and speed information, built-in 3000mAH lithium ion battery, endurance up to 6h. Compact structure design, can meet the needs of personnel portability.

M10 mini 接收机是上海司南卫星导航技术股份有限公司针对人员安全定位应用自主研发的新一代便携式高精度 GNSS 接收机，支持 BDS、GPS、GLONASS 等主流全球卫星导航系统，可快速实现厘米级定位。支持一键呼救和远程位置监控，为您的人身安全保驾护航。支持 APP 快速接入，摆脱繁琐配置。支持 4G 位置回传，可实时提供高精度的位置和速度信息，内置 3000mAH 锂离子电池，续航高达 6h。小巧的结构设计，能够满足人员便携需求。

II. SPECIFICATION OF M10 MINI /M10 MINI 技术规范

Following table presents the detailed specification of ComNav M10 MINI GNSS Receiver.

下表中为司南 M10 MINI 的详细规范。

Table 1. M10 MINI Receiver Specification

M10 MINI RECEIVER SPECIFICATION/ M10 MINI 接收机规范		
GNSS Signals GNSS 信号	Positioning 定位	BDS B1, B2
		GPS L1, L2
		GLONASS L1, L2
Time to First Fix 首次定位时间	Cold Start 冷启动	< 50s
	Hot Start 热启动	< 15s
Reacquisition 信号重捕		< 2s
Accuracy	Pseudorange Precision	BDS: B1=10cm (1 σ), B2=10cm (1 σ)

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M10 MINI RECEIVER SPECIFICATION/ M10 MINI 接收机规范		
精度	伪距精度	GPS: L1=10cm (1 σ), L2=10cm (1 σ) GLONASS: L1=10cm (1 σ), L2=10cm (1 σ)
	SPP Accuracy 标准单点定位精度	H \leq 1.5m, V \leq 3m (1 σ , PDOP \leq 4)
	RTK Accuracy RTK 精度	H: $\pm(8+1\times 10^{-6}\times D)$ mm V: $\pm(15+1\times 10^{-6}\times D)$ mm
	RTK Initiation time RTK 初始化时间	< 10s (baseline<10km, 基线长小于 10km)
	Initiation Reliability 初始化置信度	> 99.9%
Data Rates 数据速率	Measurements & Position 测量&定位	10s, 3s, 1Hz, 2Hz, 5Hz, 10Hz
Data Formats 输出数据格式	NMEA-0183	GPGGA/GPYBM/GPZDA 等
	Navigation Cloud Protocol 导航云协议	ComNav Self-Defined 司南自定义
Wireless Communication 无线通讯	4G	4G 全网络
	Bluetooth 蓝牙	Bluetooth Low Energy BLE 低功耗蓝牙
	Configuration 配置方式	Master of Navigation and Personnel Security Platform 导航大师 APP 和人员安防平台
Communication Protocol 通讯协议	Network 网络	TCP/IP、Ntrip、FTP
	USB	USB2.0
Electrical 电气特性	Data and power interface 数据及电源接口	A Type-C interface 1 个 Type-C 接口
	SIM Card Slot	1 Nano SIM Card Slot

M10 MINI RECEIVER SPECIFICATION/ M10 MINI 接收机规范		
	SIM 卡槽	1 个 Nano SIM 卡槽
	Charging Voltage 充电电压	5V 1.5A
	The Charging Time 充电时长	2h
	Battery Capacity 电池容量	3000mAh
	The Battery Life 电池续航	6h
	Power Consumption 功耗	<2W
	Indicator Light 指示灯	1*Power light, 1*Satellite light, 1*Differential lights 1*电源灯, 1*卫星灯, 1*差分灯
	Button 按钮	1*Power button, 1*SOS button 1*电源键, 1*SOS 键
Physical 物理参数	Antenna 卫星天线	Built-in Satellite Antenna 内置卫星天线
	Material 外壳材质	PC
	Size 整机尺寸	64mm×130mm×25.8mm
	Weight 整机重量	175g
Environmental 环境要求	Operating Temperature 工作温度	-20℃ — +60℃
	Storage Temperature 储存温度	-40℃ — +70℃
	Working Humidity 工作湿度	Relative humidity 100% 相对湿度 100%无冷凝
	Impact 冲击	符合 GJB 150.18A-2009 要求, 接收机经过正弦振动参数、平稳随机振动参数条件下的测试后, 能正常工作, 结构完好。
	Vibration 振动	符合 GJB 150.16A-2009 要求, 接收机经过正弦振动参数、平稳随机振动参数条件下的测试后, 能正常工作, 结构完好。
	Drop 跌落	Resistance to 1 meters free fall 抗 1 米自由跌落
	Protection Level 防护等级	IP67

III. DIMENSION / 尺寸

In this section, the base views and the dimension of M10 MINI are provided for customers' further hardware design and installation.

本节提供了 M10 MINI 的底座及整机的视图和对应的物理尺寸，便于用户的进一步系统硬件设计和安装。



Figure 1. M10 MINI Real Figure

图 1. M10 MINI 实物图

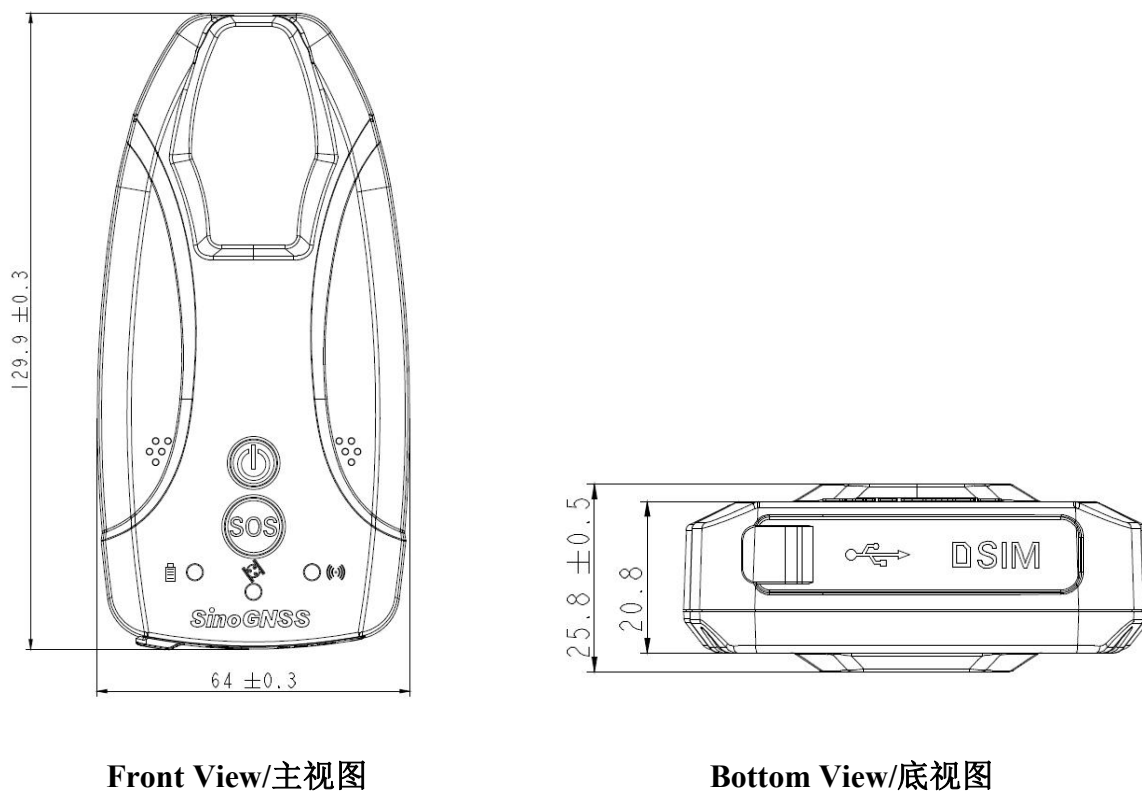


Figure 2. M10 MINI View

图 2. M10 MINI 视图

IV. PHYSICAL INTERFACE DEFINITION / 硬件接口定义

Physical Interface definitions of M10 MINI are listed in following tables and figures.

本部分的各图表详细定义了 M10 MINI 的硬件接口。

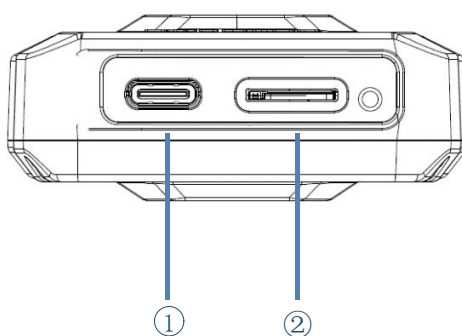


Figure 3. M10 MINI Interface

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图 3. M10 MINI 接口

Table 2. Physical Interface Definition of M10 MINI

NO	NAME	TYPE	DESCRIPTION	
1	USB		USB interface	USB 接口
2	SIM		Nano SIM	Nano SIM 卡槽

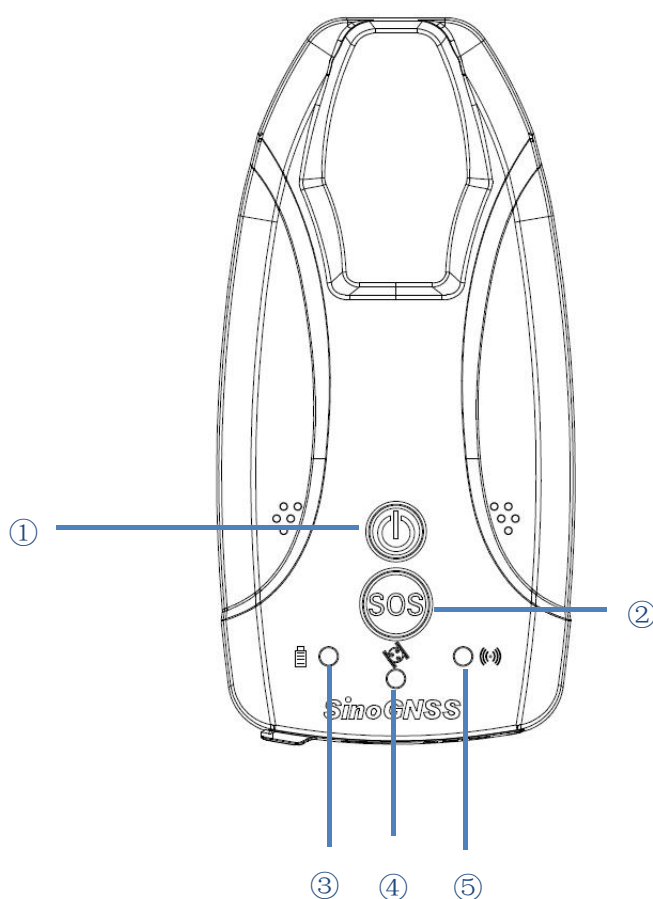


Figure 4. Button and Indicator light of M10 MINI

图 4. M10 MINI 按钮和指示灯

Table 3. Indicator light and button

NO	NAME	TYPE	DESCRIPTION	
1	PWR		Power Button	电源按钮
2	SOS		SOS Button	紧急求救按钮
3	PWR		Power LED (Red)	电源灯 (红色)
4	SAT		Satellite LED (Yellow)	搜星灯 (黄色)
5	RTK		RTK LED (Blue)	差分灯 (蓝色)

V. APPLICATION CONNECTION EXAMPLE / 应用连接示例

In this section, two application connection examples of M10 MINI Receiver are presented in following diagrams. Per the instruction of these diagrams, you could easily build communication connections between receivers and other terminals such as PC, GNSS antenna or radio antenna, and so on.

本部分提供了 M10 MINI 接收机的应用连接示例。参照下面的图示，您可以很快速建立接收机和其他终端（如 PC，传感器和服务器等）之间的通讯连接。

