

Product name	Description	Version
RTK-M200	L1+L5 RTK Base Station	0.1



1. Introduction

The RTK-M200 is the category solution in the LOCOSYS RTK (Real Time Kinematics) product family. The RTK-M200 act as a reference station in a RTK setup. The system combine the centimeter level RTM dual band (L1+L5) GNSS module and 4G LTE modem module. A Mobile RTK correction signal is transmitted via cellular network. This provides repeatable accuracy even in hilly terrain or in scattered fields.

2. Features

- $\pm 0.01\text{m}$ Centimeter-level accuracy (RTK correction with the radius of 10km).
- 4G LTE modem (Qualcomm[®] MDM 9607 solution).
- Wide operating voltage range: 5Vdc to 12Vdc

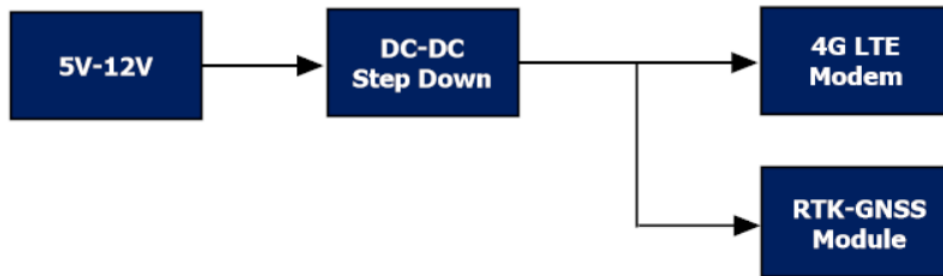
3. Requirements

- Cellular network provider.
- RTK correction data provider.
- Multi band GNSS active antenna^{*1,2}.
- 4G LTE antenna.

Note 1: The accuracy of the rover's position will depend on the accuracy of the base's location.

Note 2: Locate the antenna with a clear view of the sky.

4. Block Diagram



5. Operation Specifications

Parameter	Minimum	Typical	Maximum	Units
Input voltage	5		12	V
Input current@12Vdc ^{*1}		80 ^{*3}	150 ^{*3}	mA
Input current@5Vdc ^{*2}		170 ^{*3}	290 ^{*3}	mA
Operating Temperature	-20		+60	°C

Note 1: 12V/1A power supply is minimum requirement.

Note 2: 5V/2A power supply is minimum requirement.

Note 3: Depend on GNSS active antenna and 4G LTE operating bands.

6. 4G LTE Specifications

Parameter	Description	
Band	LTE-TDD	Quad-band, Band 38/39/40/41
	LTE-FDD	Tri-band, Band 1/3/8
	TD-SCDMA	Dual-band, Band 34/39
	UMTS	Dual-band, Band 1/8
	GSM	Dual-band, Band 3/8
Maximum TX Power	Class 4 (2 W) for GSM900 Class 1 (1 W) for GSM1800 Class E2 (0.5 W) for EDGE900 Class E2 (0.4 W) for EDGE1800 Class 3 (0.25 W) for TD-LTE/FDD-LTE/TD-SCDMA/UMTS	

7. GNSS Specifications

GNSS feature	Description	
GNSS	L1,L5 Dual-band and Multi-frequency GPS/GLONASS/Galileo/BeiDou receiver	
Update rate	1Hz	
Protocols	RTCM v3.3	1005,1074,1084,1094,1114,1124
	NTrip v2.0	

8. Front Panel



Item	Definition	Description
1	Power status LED	Red, On: power on.
2	RTCM status LED	Yellow, On: Communication with NTrip caster
3	4G status LED	Green On: System boot Slow flash(1Hz): try to find 4G mobile network Fast flash(3Hz): 4G-LTE communication
4	Power switch	The picture is shown On position

9. Rear Panel



Item	Definition	Description
1	4G LTE SMA receptacle	For 4G LTE antenna
2	GNSS SMA receptacle	For active GNSS antenna (with 3.3V DC output)
3	USB type-C receptacle	Base station accuracy position set port.
4	DC power jack	DC 5-12V power input

Document change list

Revision 0.1

- Draft release on April 28, 2021.