NarinGPS_F9P

Manual

1. GPS Basic Parameters

Main Processor	• STM32F412CEU6
On-board sensors	• Ublox F9P [GPS, GLONASS, Galileo, BeiDou] • Moving Base for Heading • Accelerometer/Gyroscope: Invensense ICM-42688P • Magnetometer: Bosch BMM150 • Barometer: Bosch BMP390
Interfaces	• CAN x 2 (4Pin JST GH) • LED Indicators • Safety switch
Power System	• Power 5V
Weight	• 106g

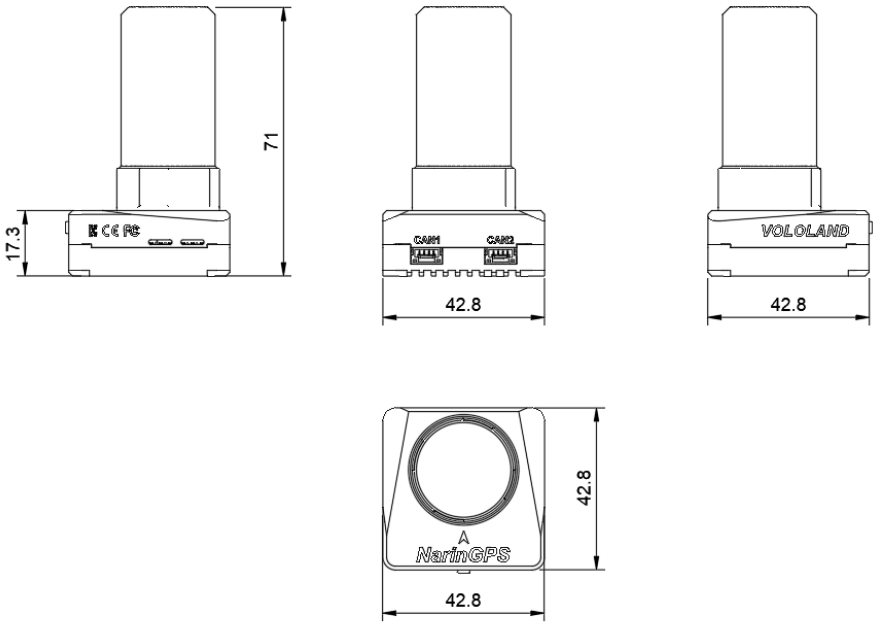
[Parameter 1]

2. Antenna Basic Parameters

Model	• AS-ANT2B-HEL-L1L2-SMA-00
Supported positioning band	• GPS: L1, L2 • GLONASS: G1, G2 • BeiDou: B1, B2 • Galileo: L1, L2 • QZSS: L1, L2
Polarization	• RHCP
Peak gain	• 2dBi
Average LNA gain	• 33dB
Horizontal coverage angle	• 360°
Weight	• 18g

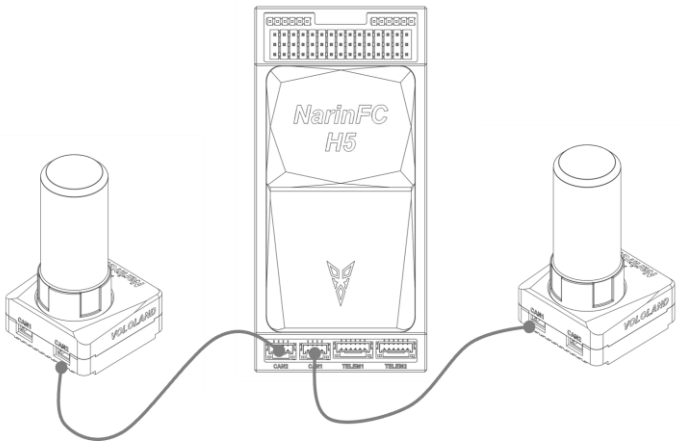
[Parameter 2]

3. Outline Dimensions

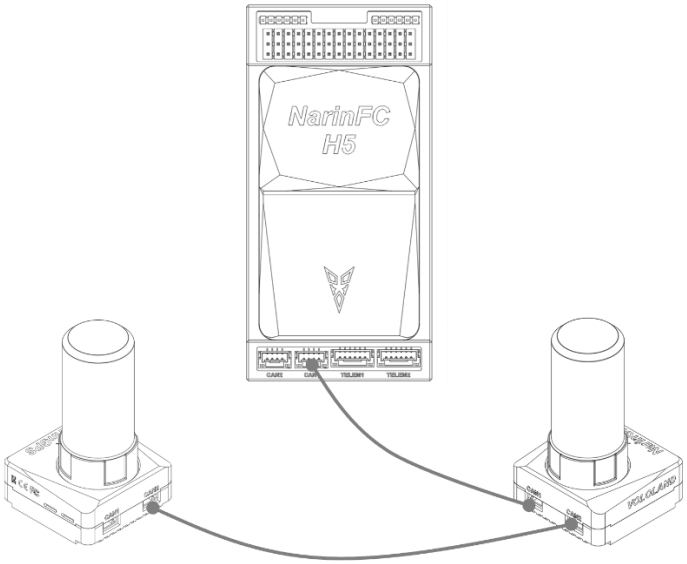


[Outline Dimensions]

4. Wire Diagram

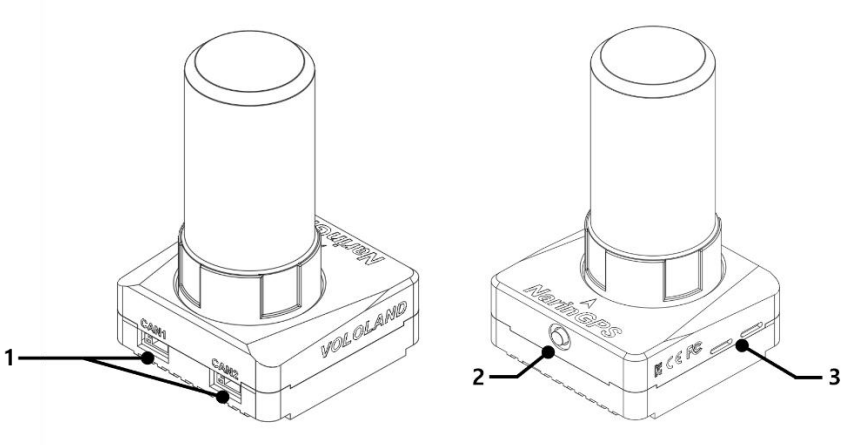


[Dual GPS]



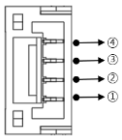
[Moving BASE RTK GPS]

5. Port Diagram & Pin outs



[Port Diagram]

4.1 CAN1, CAN2 Port (JST GH 4P Connector)



①	5VDC Input
②	CAN_H
③	CAN_L
④	GND

[TELEM Pinout]

4.2 Safety Switch

- Motor Safety switch

4.3 LED Indicators

- TBD

6. Drone CAN Configuration (Ardupilot)

5.1 CAN Driver setup

CAN_P1_DRIVER	1	0:Disabled 1:First driver 2:Second driver	Enabling this option enables use of CAN buses.
CAN_P2_DRIVER	1	0:Disabled 1:First driver 2:Second driver	Enabling this option enables use of CAN buses.

5.2 Configuration of CAN interfaces

CAN_P1_BITRATE	1000000	10000 1000000	Bit rate can be set up to from 10000 to 1000000
CAN_P1_DEBUG	2	0:Disabled 1:Major messages 2:All messages	Enabling this option will provide debug messages
CAN_P1_DRIVER	1	0:Disabled 1:First driver 2:Second driver	Enabling this option enables use of CAN buses.
CAN_P2_BITRATE	1000000	10000 1000000	Bit rate can be set up to from 10000 to 1000000
CAN_P2_DEBUG	2	0:Disabled 1:Major messages 2:All messages	Enabling this option will provide debug messages
CAN_P2_DRIVER	1	0:Disabled 1:First driver 2:Second driver	Enabling this option enables use of CAN buses.

5.3 GPS configuration settings

GPS_TYPE	9	0:None 1:AUTO 2:uBlox 3:MTK 4:MTK19 5:NMEA 6:SiRF 7:HIL 8:SwiftNav 9:UAVCAN...	GPS type
GPS_TYPE2	9	0:None 1:AUTO 2:uBlox 3:MTK 4:MTK19 5:NMEA 6:SiRF 7:HIL 8:SwiftNav 9:UAVCAN...	GPS type of 2nd GPS

7. Moving BASE Configuration (Ardupilot)

6.1. Common Parameter setup

- AHRS_EKF_TYPE = 3
- EK2_ENABLE = 0
- EK3_ENABLE = 1
- EK3_MAG_CAL (“0” for Plane, “3” for Copter, “2” for Rover)
- EK3_SRC1_YAW = “2”(GPS) or “3”(GPS with Compass Fallback)

6.2. Dual DroneCAN F9P GPS

- GPS1_TYPE = “22” (DroneCAN moving baseline base)
- GPS2_TYPE = “23” (DroneCAN moving baseline rover)
- GPS_AUTO_CONFIG = “2” (Autoconfig DroneCAN)
- GPS_AUTO_SWITCH = “1”

8. Moving BASE Configuration (PX4)

7.1. DroneCAN & GPS Yaw fusion Enable

- UAVCAN_ENBLE = "2"
- EKF2_GPS_CTRL = "3"
- SENS_GPS_MASK = "7"
- UAVCAN_SUB_GPS, UAV_SUB_MAG, UAVCAN_SUB_BARO Set "Enable"

7.2. Rover setup

- The connected GPS should be indicated as COMPONENT ##
- The GPS for the Rover setup should be configured as follows.
- GPS_UBX_MODE= "3"
- CANNODE_PUB_MBD = "1"

7.3. Base setup

- GPS_UBX_MODE = "4"
- CANNODE_PUB_MBD = "1"