## BC-RTK_Rover-000                        2D RTK-GNSS Rover



## Introduction (2D RTK description)

RTK (Real Time Kinematic) is a method for correcting positional data received from GNSS (Global Navigation Satellite System) by usage of correction data provided by public or privately owned base stations.
Mobile 2D RTK rover(s) can be connected to RTK Link to receive correction data which is applied online in the module to the received GPS/GNSS signals to achieve a very high accuracy of down to ±1cm.

Even if no correction data is supplied to the 2D RTK Rovers (intentionally or if RTK Link fails), the units will continue to operate as normal GPS/GNSS receivers with general GPS/GNSS position accuracy.

## Key Features

➢ Positional accuracy **+/-1cm** in RTK fix mode

➢ 5 / 6.25 / 10 Hz GNSS sampling rate

➢ GPS, Galileo, GLONASS & Beidou are used concurrently

➢ Highly integrated, compact design of RTK Rover

➢ IP67 waterproof with all electrical ports covered

➢ RTCM correction data interface (RTK Link)

- o Input via built-in Wi-Fi hotspot or via radio frequency interface (433/688/2400 MHz)

- o Any internet connection through WiFi, Mobile HotSpot or Smartphone can be used.

- o Accepts data from any base stations

- o Full RTK infrastructure available for NTRIP access to public or private base station provided by 2D as a subscription service or on premises (OPT-002).

➢ CAN(-FD) output to send out corrected GNSS data to CAN for logging

➢ Standard RTK GNSS antenna with 5m cable included (length can be modified on customer request)

➢ 2nd RTK serial antenna (OPT-001) can be connected for on-the-fly differential measurement

## Example use case

- ➤ With **two** antennas on **one** vehicle (Rover with two antennas), the directional vector can be calculated, e.g. for side slip angle measurement.

- ➤ With **two** receivers on **two** vehicles (two Rovers), the directional vector between the two vehicles and the absolute distance between them can be calculated with 1 cm accuracy up to 300 km/h, due to 2D's online proprietary GPS position correction algorithm, e.g. for active cruise control validation.

- ➤ Offline post-processing toolchain for distance calculations

## Available Options

| | |
|---|---|
| OPT-001: | Additional RTK GNSS serial receiver for on-the-fly differential measurement between 2 moving rovers (Allows the calculation of the directional vector between the 2 antennas) |
| OPT-002: | NTRIP Online Broadcaster (SNIPE) hosted by 2D (subscription) for private base stations |

## Scope of delivery

- ➤ BC-RTK_Rover module

- ➤ GPS-antenna with 5 m cable (length can be modified on customer request) and integrated magnetic mounting option

## Electrical Characteristics

- ➤ Supply voltage: 6..18 V (switch mode internal power supply)

- ➤ Power consumption: <300 mA @ 6 V

## Mechanical Characteristics

- ➤ 50x70x13 mm Aluminum housing

- ➤ Weight: TBA

- ➤ CAN interface: Binder 712 5PM

- ➤ GPS/GNSS antenna connector (1st antenna): SMA female

- ➤ GPS/GNSS antenna connector (2nd antenna): Binder 719 5PF

## Ruggedness

- ➤ Protection class: IP67

- ➤ Ambient operating temperature range: -30 ... 75°C

- ➤ Humidity range: 5 ... 95%

- ➤ Shock resistance: 40 G for 10 ms

- ➤ Vibration resistance: 12 G at 1000 Hz

## Prerequisites

➢ Both, RTK-Rover and RTK Base Station have to be supplied with a WiFi internet connection, provided e.g. by the racetrack WLAN or a cellular mobile hotspot.

## Connector layout                                                                  Connector type
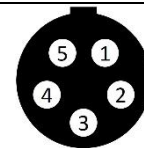
**CAN, Binder 712, 5PM**

| Pin | Name | Description |
|---|---|---|
| 1 | CAN 2 H | CAN 2 high |
| 2 | CAN 2 L | CAN 2 low |
| 3 | Gnd | Ground |
| 4 | KL15 | KL15/switched power |
| 5 | Vext / Supply | Power (6 to18V) |
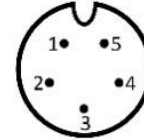
front view

**SIO, Binder 719, 5PF**

| Pin | Name | Description |
|---|---|---|
| 1 | TxD | Serial transmit |
| 2 | RxD | Serial receive |
| 3 | Gnd | Ground |
| 4 | | |
| 5 | | |

front view

## System overview