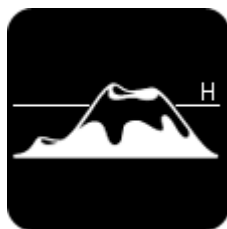


# Mini GPS CP

## Instruction Manual



## TABLE OF CONTENTS

Introduction.....	3
Unique Features.....	3
Before Using.....	3
Package Contents .....	4
Hardware Description.....	5
Mounting .....	6
Mini GPS CP Controls .....	7
Power Mode Switch.....	7
Control Switch.....	7
Self-Calibration Button.....	7
GPS Status LED.....	8
Connecting Mini GPS CP .....	9
Camera GPS ICON Modes .....	9
Indoor GPS Signal Autolock Function .....	10
Magnetic Declination .....	11
What is Magnetic Declination.....	11
Magnetic Declination Adjustment.....	12
Azimuth for Nikon DSLRs.....	12
Calibrate Declination.....	13
Interference Field Calibration .....	14
What is an Interference Field Calibration? .....	14
Why You Should Perform an Interference Field Calibration? .....	14
Interference Field Calibration.....	14
Remote Control Socket .....	15
Software .....	16
Charging.....	16
Specifications .....	17
Precautions .....	18

## Introduction

Mini GPS CP is an all-in-one, cost-effective GPS solution which is specially designed for Nikon DSLRs cameras. Based on the SiRF Star III chipset, it offers accurate real time position (latitude, longitude, altitude, and direction) and the precise time UTM time) information to your DSLR camera.

Mini GPS CP allows you to save your present location data to your digital image file instantaneously when you take a picture. Its State-Of-The-Art technology provides extremely fast TTFF (Time-To-First-Fix), unrivaled high sensitive and superior performance in virtually any outdoor environments. Mini GPS CP can work in a place where GPS was not possible before, in the woods, under very heavy foliage, canyons, terrain obstructions, in cities with densely populated high-rise buildings and even inside a train or a car, with no external antenna required.

MINI GPS CP is designed to meet the rigorous demands of today's digital photographers.

## Unique Features



- 20 Channel SiRF Star III Chipset for Precise Positioning in Real-time
- Altitude Recording
- GPS Time Recording
- Indoor GPS Signal Auto-lock
- Built-in self-calibrating Compass<sup>1</sup>
- Built-in Rechargeable Li-ion Battery
- Accepts Camera Power in case the built-in Battery Requires Recharging
- Supports Nikon D3, D300, D2Xs, D2X, D2Hs, D200 and Fujifilm S5 Pro

## Before Using

Before using Mini GPS CP, it is recommended that you should read the following instructions and become familiar with Mini GPS CP.

Before taking pictures, make sure to connect Mini GPS CP correctly with the camera.

**NOTE:** We are not responsible for any economic loss caused by the improper usage.

**Nikon D3, D300, D2HS, D2X, D2XS and D200 are registered trademarks of NIKON CORPORATION in the United States and/or other countries. Fujifilm and S5 Pro are registered trademarks of FUJIFILM U.S.A., Inc. in the United States and/or other countries.**

---

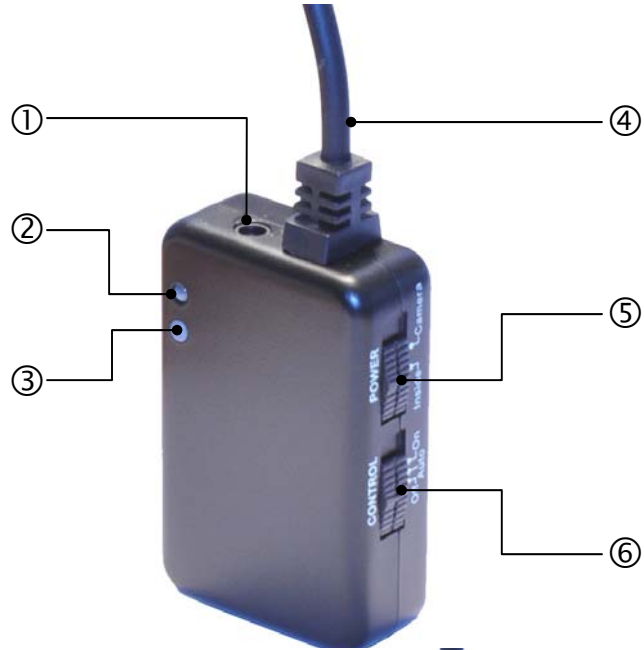
<sup>1</sup> Currently only supported by Nikon D3, D300, D2Xs, D2X and D2Hs with latest firmware.

## Package Contents

1. One Mini GPS CP Receiver
2. One Protection Bag
3. One AC Adapter
4. One USB Charging Cable
5. One Camera Belt Fastener
6. One CD (instruction manual, GPS software tips)
7. One Calibration Pen
8. One Remote Controller
9. One Cable Tightening Clip

# Hardware Description

- 1 – Remote Control Socket
- 2 – Status LED
- 3 – Self-calibration Button
- 4 – DSLR Connection Cable
- 5 – Power Switch
- 6 – Control Switch



- 7 – Charging socket



- 8 – Flash Accessory Shoe
- 9 – Camera Belt Fastener



## Mounting

The Mini GPS CP receiver provides two mounting methods: it can be mounted on the flash accessory shoe or attached to the camera belt.



Mounted on the flash accessory shoe



Attached to the camera belt



# Mini GPS CP Controls

## POWER SWITCH

POSITION	FUNCTION
Inside	Mini GPS CP uses power from its internal. <b>Note:</b> Mini GPS CP can work continuously for 10 hours if the internal battery is fully charged.
Camera	Mini GPS CP uses power from the camera (55mA).

## CONTROL SWITCH

POSITION	FUNCTION
Off	Turns Mini GPS CP Off. <b>NOTE:</b> The delivered remote control will still work if plugged into the GPS unit. <b>NOTE:</b> It will take a few seconds to obtain the first position fix when the unit is turned back On; depends upon unit visibility of the satellites.
Auto	Mini GPS CP will turn On when the camera is turned On and will turn Off when the camera is turned Off. <b>NOTE:</b> If the GPS unit is turned Off by the camera and then the camera is turned On, it may take a few seconds to a few minutes to have the first position fixed; depends upon unit visibility of the satellites.
On	Mini GPS CP is On and will continue to receive and track all satellites and provide instant location information to the camera whether the camera is turned On or Off.

## SELF-CALIBRATION BUTTON

Press the Self-Calibration Button with the delivered pen for 2 seconds to start the self-calibration of the compass. Read why on **page 11**.

### Remark:

Nikon added a new GPS function to the D3 and D300. The new option in the camera menu allows the user to set the metering system to stay On at all times or auto Off (recommended) when GPS signals are received to reduce the power consumption. The Nikon D200 doesn't have this function.<sup>2</sup>

### System Recovery:

System recovery is used in case the compass is not accurate after the self calibration.

Press and hold the self calibration button for eight seconds to restore the factory set-up. During this process you will see after two seconds the orange light turns on, after four seconds the orange light turns off and at the eighth seconds the orange light turns on again. The button can be released now. The compass info in the memory has been cleared.

---

<sup>2</sup> Make sure to visit the Nikon website regularly to check for latest firmware updates for your camera



## Status LED

Mini GPS CP has a multi-color LED that changes color to indicate different operating conditions.




LED COLOR	LED INICATION	MEANING
GREEN	Flashing twice a second	CP is searching for GPS satellite signals.
	Flashing once every two seconds	CP is locked onto GPS satellites and receiving GPS signals. In this mode, Mini GPS CP can supply location information to the camera.
RED	Flashing and Mini GPS CP <u>not</u> connected to charger	Low battery warning. CP requires charging. <b>NOTE:</b> If connected to camera, you can slide Power Switch to 'Camera,' to keep CP powered and operating. However, this will reduce camera's battery power.
GREEN and RED	LED alternately flashing Green and Red	CP is in 'True North Calibration' mode. Refer to True North Calibration in this manual for further information.
ORANGE	Flashing	CP is in 'Interference Field Calibration' mode. Refer to 'Interference Field Calibration' in this manual for further information.

**Note:** If Mini GPS CP is in Off position, the receiver doesn't light up. There is a light in the charger to indicate the status of charging. If the green light is on, it means charging; if the light is off, it means in fully charged.

## Connecting Mini GPS CP

1. Make sure the camera is turned Off. **Never connect or disconnect Mini GPS CP to the camera while the camera is turned On.**
2. Install Mini GPS CP to the flash shoe or attach to the camera strap.
3. Remove the Cap from the 10-pin connector on the camera body.
4. Store the Cap in a safe place.
5. Connect Mini GPS CP to the camera's 10-pin connector. Tighten the locking nut on the 10-pin connector. **Do not use any extension cord. The 10-pin connector must be aligned with the mark on the camera body.**
6. Slide the power mode to "Inside" or "Camera" position.
7. Slide the control switch to "On" or "Auto" position.
8. Turn the camera On.
9. If Mini GPS CP is properly connected, the camera will display a blinking  icon in the camera's top LCD control panel as the GPS receiver is searching for a signal. The icon will stop blinking when a signal has been established and Mini GPS CP is ready to supply the current position.
10. If there is no blinking  icon, check the connection, and make sure the switch is in the correct position.

## Camera Display GPS Indication

 no icon	Mini GPS CP not connected with the camera or switched off
 icon flashing	signal searching
 icon displayed	GPS signal fixed

Mini GPS CP requires a longer time to obtain a position fix when first started up. This startup initialization period is normal after Mini GPS CP has been manually turned Off and takes up to approximately 42 seconds to acquire a fix on the GPS satellites. An open sky, outdoor environment will enable faster acquisition process.

Mini GPS CP will take a longer period of time to acquire a fix on the GPS satellites if there is a weak signal environment.

If Mini GPS CP is in Auto mode and has been turned Off by the camera, it will require a shorter startup time.

## NOTES

- Mini GPS CP cannot be turned On when the camera is not connected.
- Slide the power switch to “Inside” to avoid consuming the camera’s power when there is power remaining in Mini GPS CP’s internal battery.
- If Mini GPS CP’s internal battery requires charging, you can safely switch power modes by sliding the power switch to the ‘Camera’ position. In this position, Mini GPS CP will be powered by the camera’s battery.
- Refer to User Manual of your DSLR for more information on taking photographs with a GPS unit.

## PRECAUTIONS

- **Make sure to turn off your camera before connecting and/or disconnecting Mini GPS CP. Connecting or disconnecting Mini GPS CP from the camera with the camera turned On, may cause damage to the camera.**
- **Do not carry the camera by Mini GPS CP or the cord. Failure to observe this precaution could result in physical damage of Mini GPS CP, camera, or cord.**
- **Replace the cap on the camera’s 10-pin connector when the connector is not in use.**

## Indoor GPS Signal Auto-lock Function



One of the main features of Mini GPS CP is its unique auto-lock GPS signal fixing function. This feature allows Mini GPS CP to continue to supply the last available location information to the camera when signals from the GPS satellites are blocked. If you should enter a location, such as a building, where the roof blocks the signals from the GPS satellites, Mini GPS CP memorizes the last location and sends this location to the camera for each photograph taken until GPS signals are again received from the satellites.

The accuracy of the location information sent to the camera under these circumstances will usually be within 10 meters (33 feet). Once you leave the covered area, Mini GPS CP will automatically reacquire the GPS satellites to obtain the new exact location.

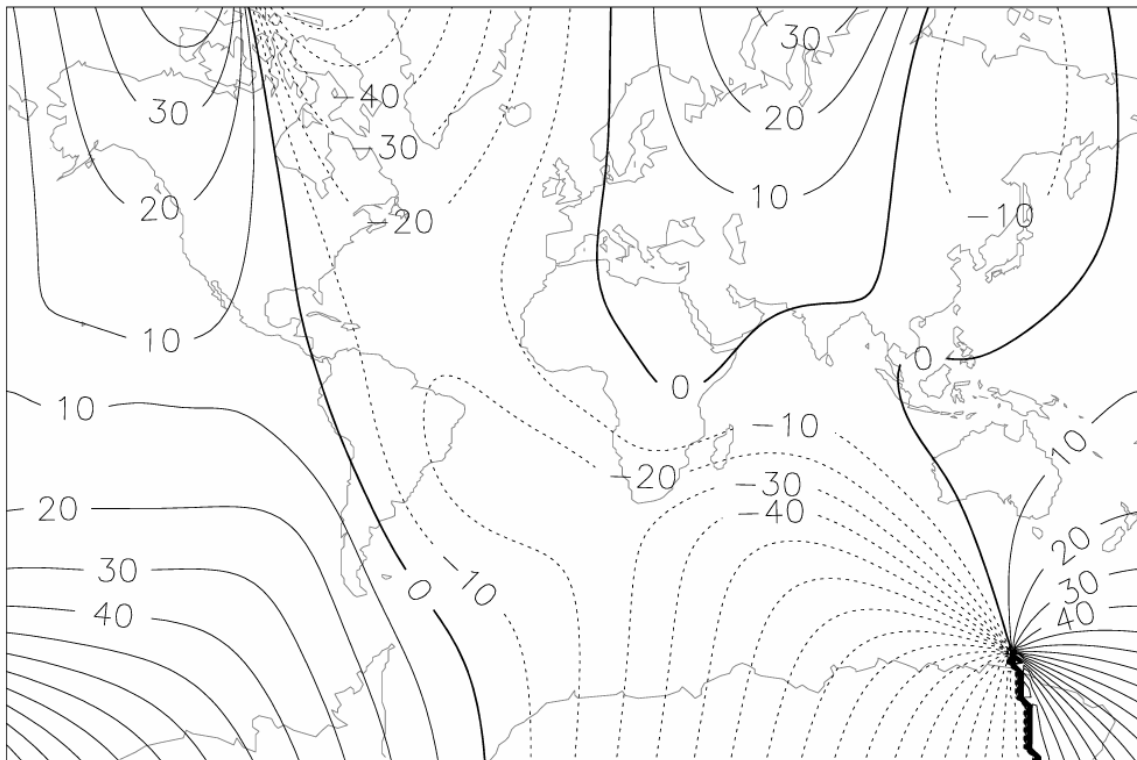
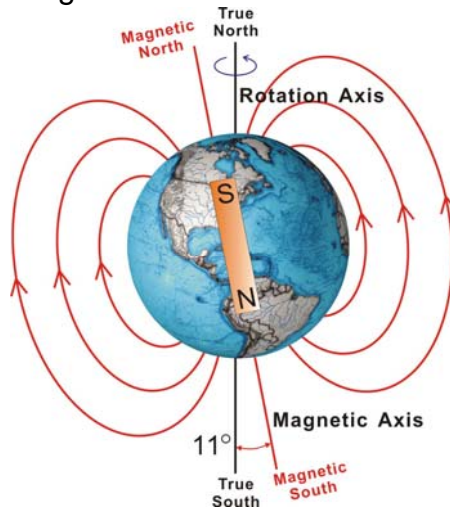
If the green LED is flashing twice every second but the **GPS** icon remains displayed continuously in the camera display, then the Auto-lock function is activated.

If you are shooting indoors and do not want the last received signal to be recorded in your photos, you can simply switch Mini GPS CP Off.

# Magnetic Declination

## What is Magnetic Declination?

Magnetic declination is the angle between the local magnetic field and geographic true north. A magnetic compass will attempt to align with the local magnetic fields, which is different from true (geographic) North. Magnetic declination varies across the Earth and will also vary over a period of time. The magnetic declination is considered negative when the magnetic North is West of the true North (as shown in the following illustration) and is considered positive when the magnetic North is East of true North.



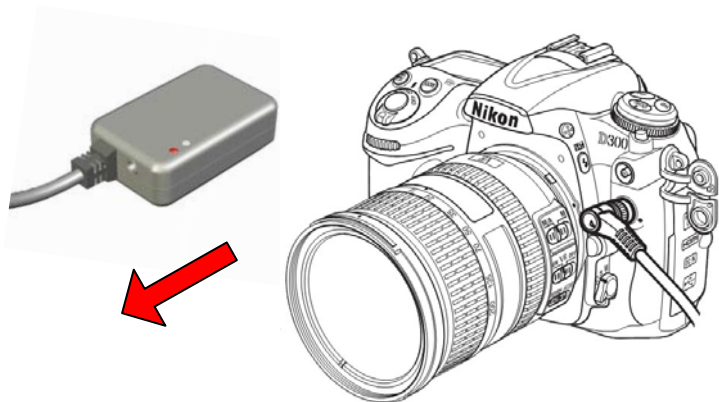
Due to magnetic declination, an electronic compass requires adjustment in order to reflect the correct direction. Therefore, Mini GPS CP requires an adjustment before using the first time.

## **Magnetic Declination Adjustment**

To perform accurate navigation and record accurate bearings, the electronic compass must be adjusted to compensate for magnetic declination. The users should calibrate Mini GPS CP before using the first time and/or if the user travels farther than 20 degrees from the last adjustment.



## **Azimuth for Nikon**



- 0° - North Pole**
- 90° - East**
- 180° - South Pole**
- 270° - West**

#### NOTES:

- The 0° angle of Mini GPS CP is toward the cord, and if correctly mounted on the camera, toward the front of the camera. (Refer to above illustration.)
- Mini GPS CP needs to stay in a horizontal position when measuring the azimuth, otherwise there will be some deviation.
- The magnetic field will be influenced by the nearby environment or magnetic objects. So there may be some deviation. For precise direction measurement, use professional devices.

#### ***Calibrate Declination***



1. With Mini GPS CP not connected to the camera, slide the Control Switch to the On position.
2. Press the Self Calibration Button for 3 seconds until the LED turns Orange; then release the Self Calibration Button. The LED will now flash alternately from Red to Green.
3. Point Mini GPS CP to the north and keep it horizontal to the ground.
4. Continue to hold Mini GPS CP pointing north and in approximately 20 seconds the LED will stop flashing. The magnetic declination has been calibrated for Mini GPS CP.

# Interference Field Calibration

## ***What is an Interference Field Calibration?***

In most cases, magnetic sensors are sensitive to nearby magnetic objects that could cause measuring error. To compensate for this error it is sometime necessary to perform an Interference Field Calibration.

## ***Why You Should Perform an Interference Field Calibration?***

Mini GPS CP has been factory calibrated in South-China before being shipped. But as the environment varies, there might be some deviation when you get your CP. So for a more accurate measurement, you may want to perform an Interference Field Calibration on Mini GPS CP. The calibration depends on your nearby environment. For example inside a vehicle, quite a few magnetic objects could affect the internal compass of Mini GPS CP. The accuracy of the declination before and after the calibration is between 2-10%. Usually you need to do the calibration just once.

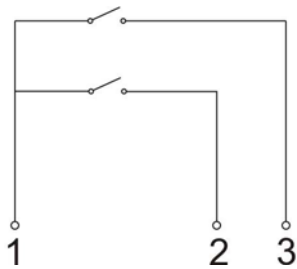
## ***Interference Field Calibration***

1. With Mini GPS CP mounted on the hot shoe of your camera, slide the Control Switch to the On position. **IMPORTANT: DO NOT connect the cord to the 10-pin connector of the camera.**
2. Press the Self-Calibration Button for 5 seconds until the Orange LED turns Off. **NOTE:** When you first press the Self-Calibration Button the Orange LED will illuminate.
3. When the LED turns Off, release the Self-Calibration Button and the LED will start to quickly flash Orange.
2. While holding Mini GPS CP horizontal to the ground, slowly turn Mini GPS CP clockwise for one complete circle.
3. Press the Self-Calibration Button again after the complete circle. Mini GPS CP has now been calibrated.

## Remote Control Socket

The delivered remote controller or a modified NIKON MC-30 remote control unit can be connected to the remote control socket of CP for remote shutter release. The remote control socket works with Mini GPS CP in the On, Auto, or Off position.

### Remote Control Wiring Diagram



1: Ground  
2: Auto Focus  
3: Shutter Release



## Software

There are many ways for you to upload or show your photos positions to Google Earth or Google Maps. For example, Adobe Photoshop Lightroom users will see the GPS data in the metadata column. Besides it appears a small arrow. When clicking on the arrow, your internet browser will open and automatically show the photo position in Google Maps.

## Charging

1. Turn the camera Off, and disconnect Mini GPS CP from the camera.
2. Plug the AC Adapter into the charging socket on Mini GPS CP.
3. Plug the AC adapter into an AC outlet.
4. If the switch is in 'off' or 'auto' position, the light does not light up when charging. The light in the charger will turn green when charging and turn off when in full charge.
5. The Red LED will start flashing to signify that Mini GPS CP's internal battery is charging. It will take about two and half hours' to fully charge Mini GPS CP's internal battery.
6. When the Red LED stops flashing, Mini GPS CP's internal battery is fully charged.
7. Disconnect the AC adapter from the AC outlet.
8. Disconnect the AC adapter from Mini GPS CP.

**Mini GPS CP can be charged via USB cable at any PC or laptop USB interface.**

**Informations in this document are subject to change without prior notice. UNIDECH reserves the right to change/enhance their products and to make changes in the content of this manual without obligation to notify any person or organization of such changes or improvements.**

# Specifications

<b>ELECTRICAL CHARACTERISTICS</b>	
GPS Chipset	SiRF Star III
Frequency	L1, 1575.42 MHz
C/A Code	1.023 MHz chip rate
Channels	20 channel all-in-view tracking
Tracking sensitivity	-159dBm
<b>ACCURACY</b>	
Position Horizontal	10 meters, 2D RMS 1-5 meters 2D RMS, SBAS corrected (WASS, EGNOS, MSAS)
Velocity	0.1m/sec.
Time	1 micro-second synchronized to GPS time
<b>DATUM</b>	
Datum	WGS-84
<b>PROTOCOL</b>	
GPS Protocol	NMEA 0138 ASCII
Baud Rate	4,800 bps
<b>ACQUISITION RATE</b>	
Hot start	1 sec., average
Warm start	38 sec., average
Cold start	42 sec., average
Reacquisition	0.1 sec., average
<b>DYNAMIC CONDITION</b>	
Acceleration Limit	Less than 4G
Altitude Limit	18,000 meters (60,000 feet) max.
Velocity Limit	515 meters/sec. (1,000 knots) max.
Jerk Limit	20 m/sec*3
<b>ELECTRONIC COMPASS</b>	
Magnetic Measuring scope	50A/m
Azimuth Range	0-359°
Accuracy	±5°
Resolution	3°
<b>POWER SUPPLY</b>	
Battery	Built-in 650mAh Li-ion (or from camera's battery)
Operation Current	55mA
Charging Current	300mA
<b>TEMPERATURE</b>	
Operating	-10°C—50°C(-2°F ~ 122°F)
Humidity	Operational up to 95% non-condensing
<b>DEVICE SIZE AND WEIGHT</b>	
Dimension	56mm (L) X 36mm (W) X 17mm (H) (2.2" [L] x 1.4" [W] x 0.7" [H])
Weight	50g (1.8 oz)
<b>INTERFACE</b>	
10 pin connector direct connect to Nikon D2X, D2XS, D2HS, D200, D3, D300 and Fuji film S5 Pro DSLR camera	

## Precautions

- Do not open, disassemble, or repair the product by yourself under any circumstances.
- Do not expose the product to extremely high temperatures, which can cause permanent damage. (For example, leaving the device in a closed vehicle under the sun or in other areas subject to extremely high temperatures.)
- Do not handle with wet hands, immerse in, or expose to water or rain. Failure to observe this precaution could result in fire or electric shock.
- Keep away from fire or flammable gas.
- Keep out of reach of children.
- Turn Off immediately in the event of malfunction. Should you notice smoke or an unusual smell coming from this product, remove the 10-pin connector immediately.

## UNIDECH GPS Solutions

Wanpan 5, Nanshan District, Shenzhen, P.R. China

Tel: +86 755 82957124

Fax: +86 755 26627092

eMail: [support@unidech.com](mailto:support@unidech.com) | Web: [www.unidech.com](http://www.unidech.com)