# High Precision Products

## Evaluation Kit (EVK)

# Revision History

| Version | Revision History | Date |
|---------|------------------|------|
| R1.0 | First release | Mar., 2023 |
| R1.1 | Add a note to RS232 to USB cable<br>Add Appendix | Dec., 2023 |

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# Foreword

This document provides information about the HPL EVK5.0 CD-Kit from Unicore.

**Target Readers**

This document applies to technicians who possess the expertise on GNSS receivers.

# Contents

# 1  Overview

The HPL EVK5.0 CD-Kit is mainly used to evaluate the function and performance of Nebulas modules[1]  and boards from Unicore for the convenience of users.

Figure 1-1 shows the items in the package box.
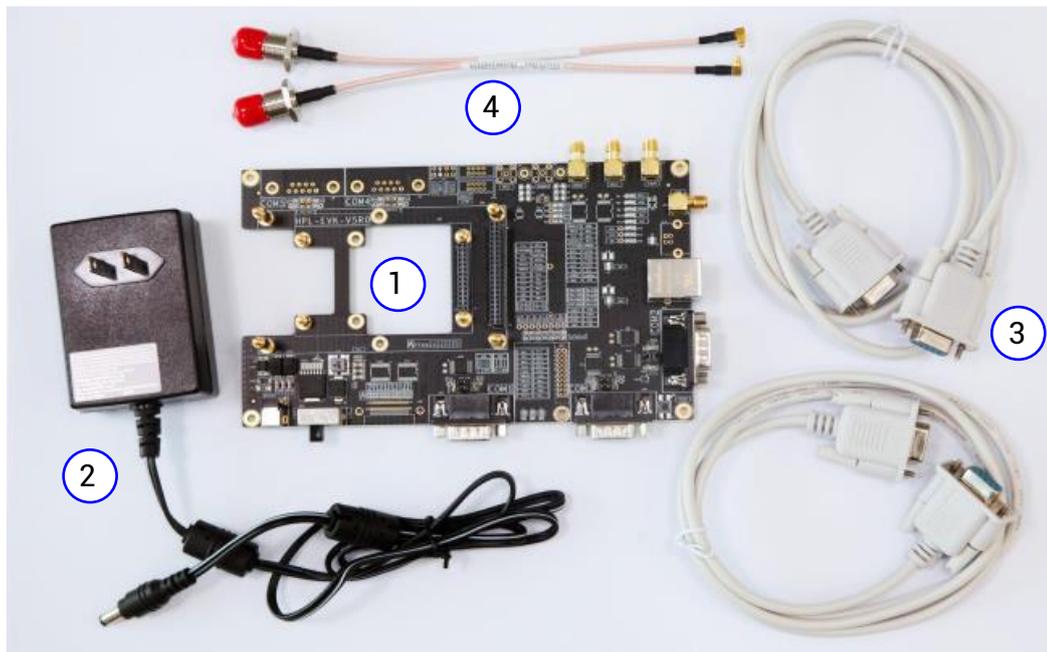


Figure 1-1    Package List

(1) EVK          (2) Power Adapter          (3) Serial Port Cable          (4) RF Cable

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[1]  To test the module, an adapter or an evaluation board should be installed on the EVK.

# 2 Interface
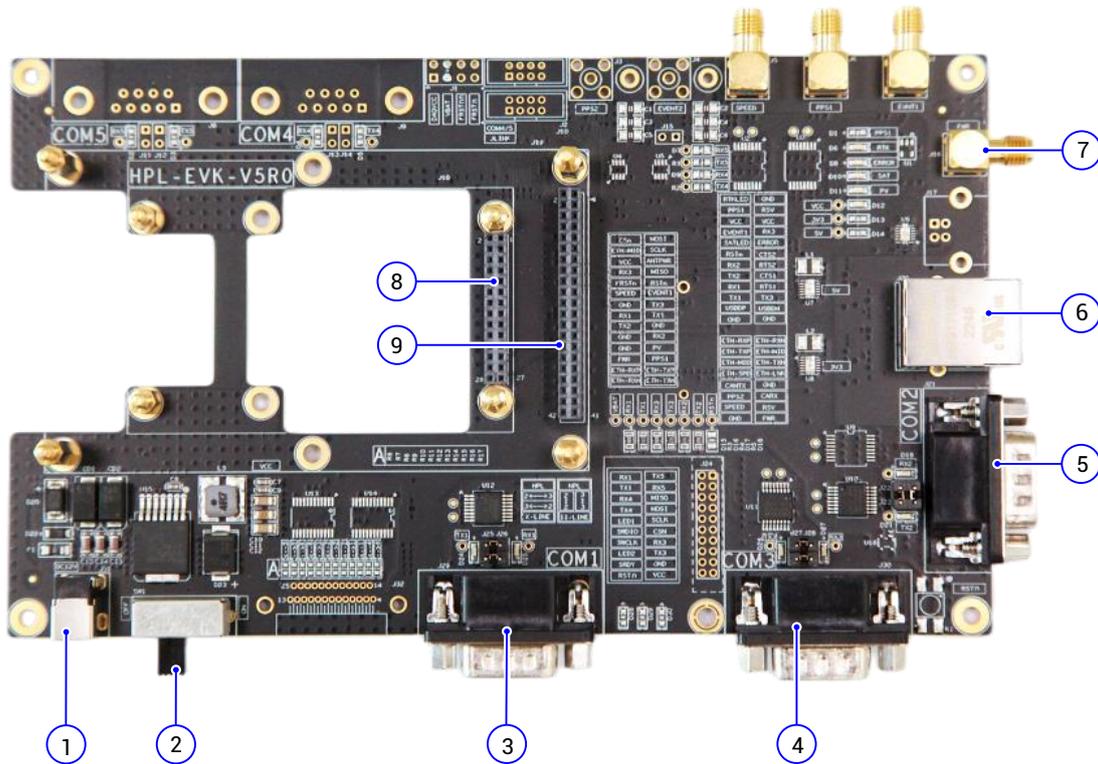


Figure 2-1 Appearance of EVK

The main interfaces and buttons of the EVK are shown in Figure 2-1. See Table 2-1 for the detailed descriptions.

Table 2-1 Interface/Button Description

| Interface | Function | Description |
|---|---|---|
| 1 | EVK power supply interface | 12 V power supply |
| 2 | EVK power supply switch | Turn to the right to supply power |
| 3 | COM1 | Connect to COM1 of the board to be tested |
| 4 | COM3 | Connect to COM3 of the board to be tested |
| 5 | COM2 | Connect to COM2 of the board to be tested |
| 6 | RJ45 | Ethernet interface[2] |
| 7 | SMA | The four SMA interfaces are: FWR, EVENT1, PPS1, SPEED |
| 8 | 28-pin board interface | 28-pin connector to connect Unicore products |
| 9 | 42-pin board interface | 42-pin connector to connect Unicore products |

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[2] Refer to the related user manuals of the boards/modules to be tested to confirm whether this function is supported.

☞ COM1 to COM3 can be set up as a straight-through or crossover connection through a jumper cap near the DB9 interface. The jumper cap is installed parallel to DB9 as a crossover and perpendicular to DB9 as a straight-through connection.

☞ If the board to be tested needs a backup power, weld a 0 Ω resistor R118.

# 3 Connection

This section takes UM980 as an example to give an introduction of how to evaluate the modules or boards using the EVK.

⚠ ● Electrostatic discharge (ESD) may cause damage to the device. All operations mentioned in this chapter should be carried out on an antistatic workbench using an antistatic wrist strap and conductive foam pad. If there is no antistatic workbench, wear an antistatic wrist strap and connect the other end of the strap to the metal frame to avoid electrostatic damage.

● Hold the edge of the evaluation board, and do NOT touch the components directly.

Carefully check the EVK to make sure that there is no apparent loose or damaged components. If you have any questions, please contact Unicore or the local distributors.

Do the following steps to evaluate.

1. Ensure adequate antistatic measures, such as wearing a grounded antistatic wrist strap, using a grounded workbench, etc.

2. Connect the RF cable to the ANT interface on UM980eb.
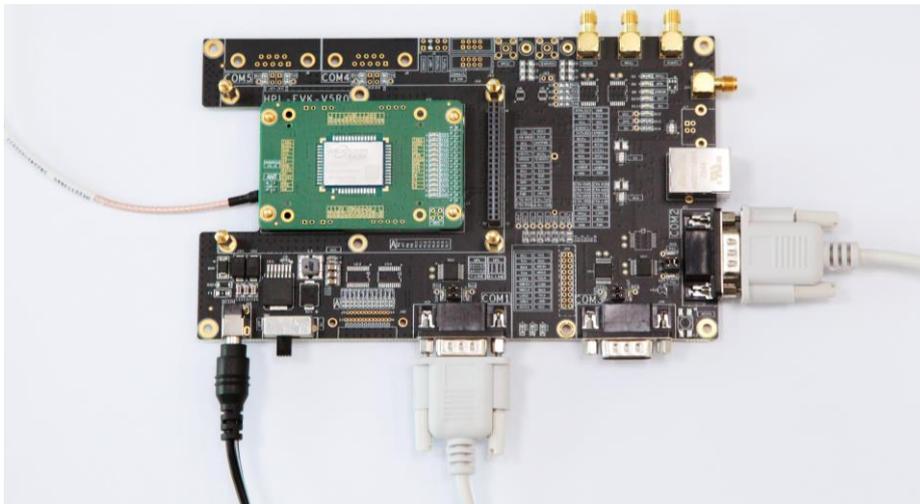


Figure 3-1　Connection

3. Install the UM980eb on the EVK by aligning the dual-row pins to the pinholes.

4. Connect one end of the serial port cable to the COM1 on the EVK, and connect the other end of the cable to the computer if your computer has RS232 ports; otherwise, you need a RS232 to USB cable to connect to the computer.

☞ It is recommended to use the Z-TEK RS232 to USB cable.

5. Do step 4 again to connect the COM2 with the computer.

6. If necessary, connect the PPS and EVENT interfaces.

7. Connect the power adapter to the power supply interface on the EVK and plug it into the electrical socket.

8. Select the GNSS antenna with appropriate gain (the system frequency supported by the antenna should be consistent with the module), fix it in a non-occluded area, and connect the antenna to the other end of the RF cable.

9. Turn the power supply switch to the right to initialize the UM980.

10. Start the UPrecise on the PC. Select the serial port and baud rate to connect the receiver, then UPrecise shows the constellation, message, receiver status, etc. UPrecise also supports firmware upgrade. Refer to *UPrecise User Manual* for more details.

☞ To evaluate a GNSS and INS integrated product, you can connect the speed signals and direction signals from the odometer to the SPEED and FWD interfaces on the EVK.

# Appendix: Dimensions

See below for the dimensions of the EVK (Unit:mm).

107.95

100.33

3.81

HPL EVK5.0 CD-Kit

180.34

172.72

3.81

⌀ 3.30 X 4
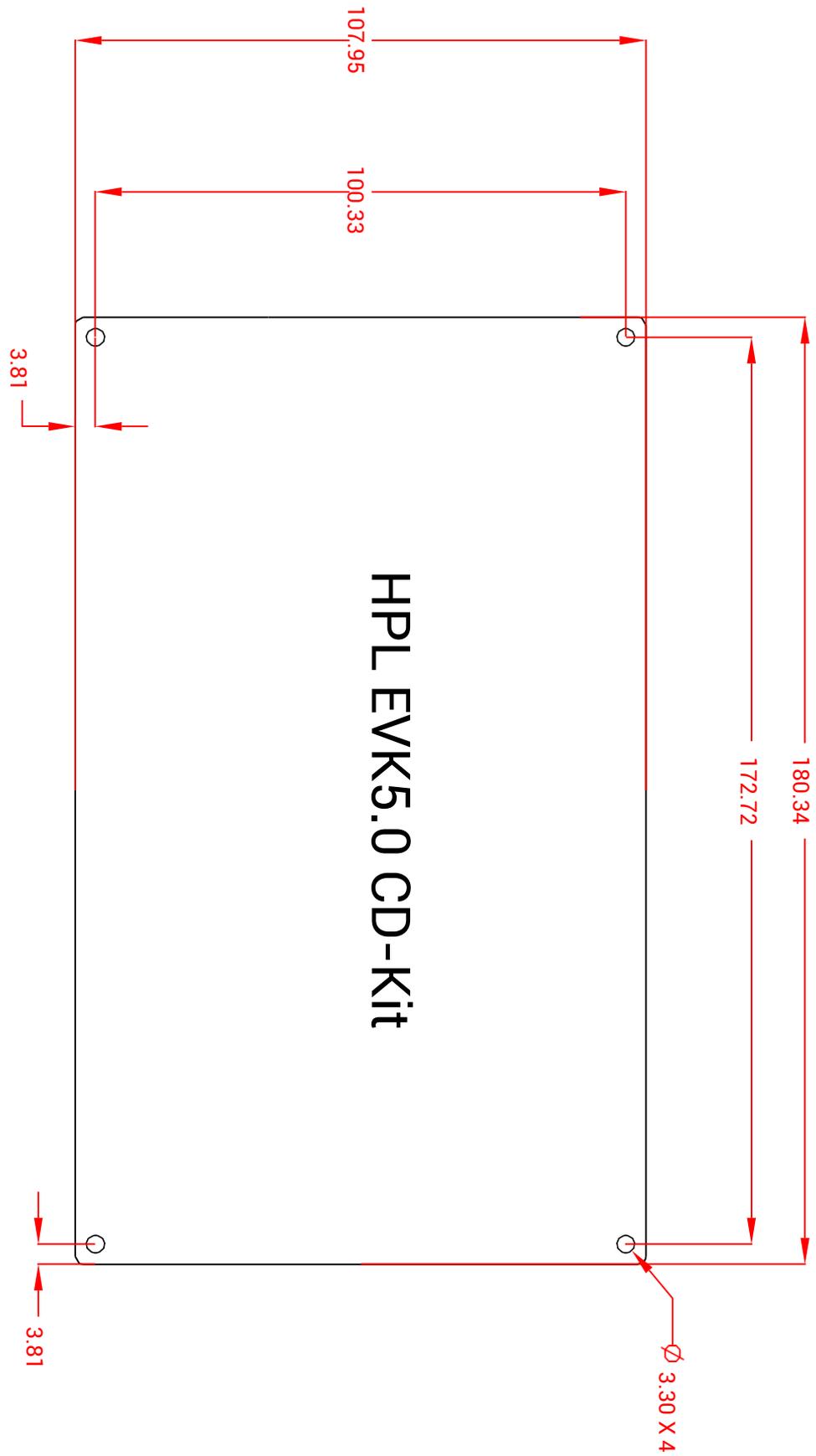
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