

*Getac*

FlexiConn™ Design Guide  
for PS336

**Rugged Mobile Computing Solutions**

# Revision History

| Revision | Revision History                                            | Date       |
|----------|-------------------------------------------------------------|------------|
| R01      | Initial release of the FlexiConn™<br>Design Guide for PS336 | 2013-07-09 |
|          |                                                             |            |

# Context

## **Executive Summary ..... 4**

|                                  |   |
|----------------------------------|---|
| Introduction to FlexiConn™ ..... | 4 |
| What is FlexiConn™ .....         | 4 |
| Why FlexiConn™ .....             | 4 |
| How FlexiConn™ Benefit You ..... | 5 |

## **Implementation ..... 6**

|                    |    |
|--------------------|----|
| Architecture ..... | 6  |
| Mechanical.....    | 7  |
| Hardware.....      | 8  |
| Software.....      | 11 |

## **FlexiConn™ Modules ..... 12**

|                            |    |
|----------------------------|----|
| 1D Barcode Reader .....    | 13 |
| Long Range Bluetooth ..... | 14 |
| HF RFID Reader .....       | 15 |
| UHF RFID Reader .....      | 16 |

# Executive Summary

For evolutionary and various outdoor applications, in addition to robustness and reliability on nature, most of handheld devices may not fully satisfy with the specific needs and expectations on the business operations now and in the near future. Many enterprise and professional users only can change their internal processes or have no choice to select the “most similar product”. It also means they have to sacrifice some efficiency on their daily works.

To liberate all features of the enterprise and professional applications, Getac create an innovative model, called PS236 Extend, as one branch of the PS236 family. The PS236 Extend not only retains the robust and reliable design but also enables various add-on values via FlexiConn™, one special connector with multiple hardware interfaces, for fulfilling all kinds of special needs of all the end users. PS336, a renew model of PS236, also keeps FlexiConn™ as one feature to increase users’ operational efficiency with one multi-functional device.

## Introduction to FlexiConn™

### What is FlexiConn™

Getac always listens to our customers and understands what the end users need on products which can improve the productivity. That’s why Getac proposes this innovative design, FlexiConn™. An integrated multi-interface, FlexiConn™, allows you to expand specific feature(s) via the paired peripherals, not only from Getac, but also from the partners.

### Why FlexiConn™

Through FlexiConn™, the end users can plug in the peripherals to provide additional features and functions for their business needs. FlexiConn™ reserves

some specific hardware interfaces, including UART, I<sup>2</sup>C, and SPI.

FlexiConn™ enables a whole new approach to the product and business opportunity development. The major concept is the Collaboration between all stakeholders from end users, designers, and manufacturers. The requirement or specification can be directly defined by end user, developed by designer and produced by manufacturer. All communication is 100% transparent and surrounded how to ensure FlexiConn™ 100% to satisfy the needs.

## **How FlexiConn™ Benefit You**

FlexiConn™ will bring you the following benefits:

- **Expandable and Cost-Effective for Today and Tomorrow**

You can meet the demands on your current business operation, and you don't have to worry about throw your existing devices away just for upcoming needs in the future. With FlexiConn™, you can just purchase the PS336 device to fulfill your expectations for various daily tasks.

- **Become Unique and Competitiveness**

With FlexiConn™, you are able to implement your own solutions, not only via software but also via hardware, alone with Getac platforms to provide unique and competitive solutions for yourselves or your customers. FlexiConn™ provides a friendly, innovative, collaborative approach to the ECO System.

- **Liberate Development Thresholds & Time-to-Market**

With FlexiConn™ multiple interfaces, you can choose the most suitable way to implement your own solutions according to your development capabilities and resources. With comprehensive integration materials of FlexiConn™, you don't have to wait for a long customization cycle or whole new generation devices any more. You can have your solutions to meet your or customers' needs just right now.

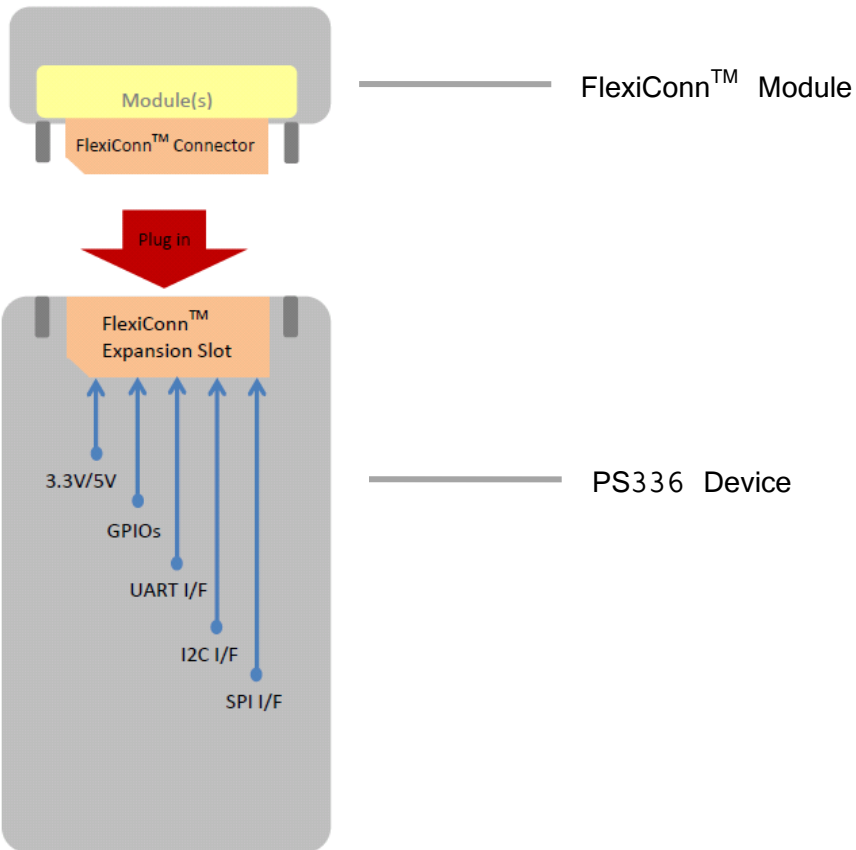
- **Prevent Damages from Your Works**

The most important is you can keep your units still rugged and adaptable for tough and harsh environments.

# Implementation

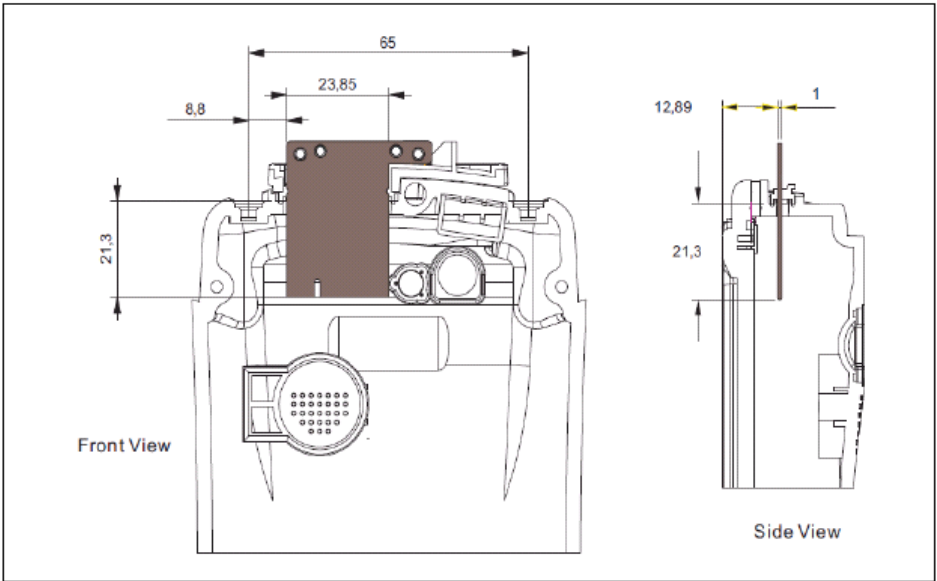
To achieve flexible and still one-piece design uncompromisingly, FlexiConn™ of PS336 provides the integration guide with the following contents, including mechanical design guide, hardware design guide, and software development kits.

## Architecture



# Mechanical

FlexiConn™ presents as a proprietary connector with multiple interfaces which is able to be fully integrated with Getac platforms. For reference design, you can leverage the 3D drawing file in this Developing Kits or contact your Getac account manager for further assistance.



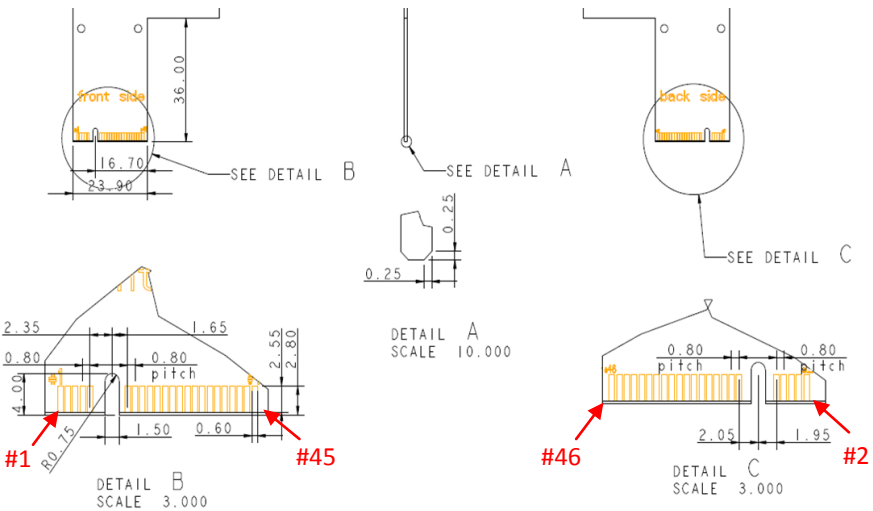
# Hardware

For FlexiConn™ hardware design, you can refer to the following description for electronic and schematic of your own design.

## Power Supply Rating

| Power supply   | Voltage     | Current     | Comment               |
|----------------|-------------|-------------|-----------------------|
| +5VS_EXT       | +5V         | max. 500mA  |                       |
| +3.3VS_EXT     | +3.3V       | max. 800mA  | WiFi, BT & Camera off |
| +MAIN_BATT_EXT | +3.0V~+4.2V | max. 2500mA | WiFi, BT, Phone off   |

## Mechanical Dimensions





## Pin Assignment

| Pin number | Description    | Pin number | Description     |
|------------|----------------|------------|-----------------|
| 1          | I2C3_SCL(1.8V) | 2          | GND             |
| 3          | I2C3_SDA(1.8V) | 4          | SPI1_CS#(1.8V)  |
| 5          | NC(Keep float) | 6          | SPI1_MOSI(1.8V) |
| 7          | NC(Keep float) | 8          | SPI1_MISO(1.8V) |
| 9          | SPI1_CLK(1.8V) | 10         | GND             |
| 11         | NC(Keep float) | 12         | +3.3VS_EXT      |
| 13         | NC(Keep float) | 14         |                 |
| 15         | FF_RXD         | 16         | +5VS_EXT        |
| 17         | FF_TXD         | 18         |                 |
| 19         | FF_CTS         | 20         | +MAIN_BATT_EXT  |
| 21         | FF_RTS         | 22         |                 |
| 23         | GND            | 24         |                 |
| 25         | GND            | 26         |                 |
| 27         | GND            | 28         | GND             |
| 29         | GND            | 30         | +1.8VS          |
| 31         | NC(Keep float) | 32         | NC(Keep float)  |
| 33         | NC(Keep float) | 34         | PLUG_IN#        |
| 35         | NC(Keep float) | 36         | GPIO_1          |
| 37         | NC(Keep float) | 38         | GPIO_2          |
| 39         | NC(Keep float) | 40         | GND             |

|    |                |    |                |
|----|----------------|----|----------------|
| 41 | NC(Keep float) | 42 | GND            |
| 43 | NC(Keep float) | 44 | NC(Keep float) |
| 45 | NC(Keep float) | 46 | GND            |

## Signal Description

| Function | Pin number | Signal name     | I/O         | Description                      | Comment        |
|----------|------------|-----------------|-------------|----------------------------------|----------------|
| I2C I/F  | 1          | I2C3_SCL(1.8V)  | Bidirection | I2C-bus Clock                    |                |
|          | 3          | I2C3_SDA(1.8V)  | Bidirection | I2C-bus data input/output        |                |
| UART I/F | 15         | FF_RXD          | Input       | UART data input, active high     |                |
|          | 17         | FF_TXD          | Output      | UART data output, active high    |                |
|          | 19         | FF_CTS          | Input       | UART clear to send, active low   |                |
|          | 21         | FF_RTS          | Output      | UART request to send, active low |                |
| SPI I/F  | 4          | SPI1_CS#(1.8V)  | Output      | SPI Chip select                  |                |
|          | 6          | SPI1_MOSI(1.8V) | Output      | SPI data output                  |                |
|          | 8          | SPI1_MISO(1.8V) | Input       | SPI data input                   |                |
|          | 9          | SPI1_CLK(1.8V)  | Output      | SPI Clock output                 |                |
|          | 34         | PLUG_IN#        | Input       | External Device detection        | Connect to GND |
|          | 36         | GPIO_1          | I/O         | Reserve GPIO from CPU            |                |

|  |             |                |              |                       |                      |
|--|-------------|----------------|--------------|-----------------------|----------------------|
|  | 38          | GPIO_2         | I/O          | Reserve GPIO from CPU |                      |
|  | 30          | +1.8V          | Power Supply | max. 100mA            |                      |
|  | 12,14       | +3.3VS_EXT     | Power Supply | max. 800mA            | WiFi,BT & Camera off |
|  | 16,18       | +5VS_EXT       | Power Supply | max. 500mA            |                      |
|  | 20,22,24,26 | +MAIN_BATT_EXT | Power Supply | max. 2500mA           | 3G off               |

## Software

### Software Development Kits

In Getac SDK, we provide APIs, run-time libraries; sample application, sample codes, and integration guide. With these materials, you can implement your own application to align with the specific needs on your works.

You may download SDK from our partner portal or contact your Getac account manager for further assistance.

# FlexiConn™ Modules

Getac already provides several FlexiConn™ modules supporting to the PS336 devices, you may refer to the introduction to this modules ready for your PS336 devices as below.



# 1D Barcode Reader



|                     |                            |
|---------------------|----------------------------|
| <b>Light source</b> | 650 nm visible laser diode |
| <b>Scan method</b>  | Bi-directional scanning    |
| <b>Scan rate</b>    | 100 scans/sec              |

## Barcode scanner Optics

Reading pitch angle:  $-35$  to  $0^\circ$ ,  $0$  to  $+35^\circ$

Reading skew angle:  $-50$  to  $-8^\circ$ ,  $+8$  to  $+50^\circ$

Reading tilt angle:  $-20$  to  $0^\circ$ ,  $0$  to  $+20^\circ$

Curvature:  $R > 15$  mm (EAN8),  $R > 20$  mm (EAN13)

Min. resolution at PCS 0.9:  $0.127$  mm / 5 mil

Min. PCS value: 0.45

## Depth of field

At PCS 0.9 Code 39

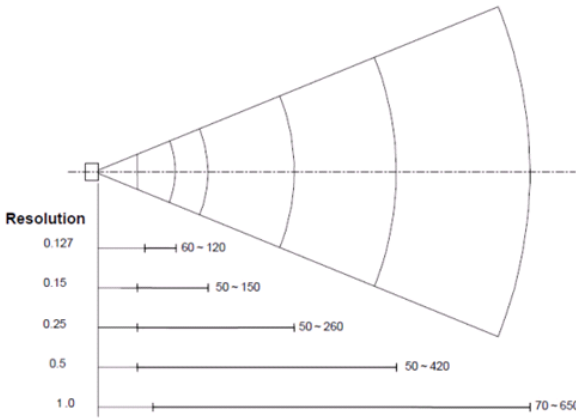
70 - 650 mm / 2.76 - 25.59 in (1.0 mm / 39 mil),

50 - 420 mm / 1.97 - 16.54 in (0.5 mm / 20 mil),

50 - 260 mm / 1.97 - 10.24 in (0.25 mm / 10 mil),

50 - 150 mm / 1.97 - 5.91 in (0.15 mm / 6 mil),

60- 120 mm / 2.36 - 4.72 in (0.127 mm / 5 mil)



### Supported Symbologies

Barcode (1D): JAN/UPC/EAN incl. add on, Codabar/NW-7, Code 11, Code 39, Code 93, Code 128, GS1-128 (EAN-128), GS1 DataBar (RSS), IATA, Industrial 2of5, Interleaved 2of5, ISBN-ISMN-ISSN, Matrix 2of5, MSI/Plessey, S-Code, Telepen, Tri-Optic, UK/Plessey Postal code, Chinese Post, Korean Postal Authority code

Barcode (2D): Composite codes, MicroPDF417, PDF417

## Long Range Bluetooth



**Standard**

Bluetooth 2.1+ EDR

|                                      |                                                         |
|--------------------------------------|---------------------------------------------------------|
| <b>Frequency</b>                     | 2.4 GHz                                                 |
| <b>Supported Profiles</b>            | SPP and HID                                             |
| <b>Communication Distance</b>        | 600m (between two LRBT modules)                         |
| <b>Exceptional Radio Performance</b> | Transmit power : +20dBm<br>Receiver sensitivity: -90dBm |
| <b>Temperature Range</b>             | -30°C to +60°C                                          |

## HF RFID Reader



|                          |                                                                                                                |
|--------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>Protocol</b>          | <b>Read</b><br>-ISO 15693 -ISO 14443A<br>-ISO 14443B -Mifare S50/S70<br><b>Write</b><br>-ISO 15693 -ISO 14443A |
| <b>Frequency</b>         | 13.56 MHz                                                                                                      |
| <b>Active/ Passive</b>   | Passive                                                                                                        |
| <b>Power Consumption</b> | 200 mW maximum output power                                                                                    |
| <b>Reading Distance</b>  | ISO 15693: ≥4cm<br>ISO 14443A/B: ≥2 cm                                                                         |
| <b>Reading Area</b>      | On the top of cap                                                                                              |

# UHF RFID Reader



|                          |                                                                 |
|--------------------------|-----------------------------------------------------------------|
| <b>Protocol</b>          | Compliant with EPC global Class1 Gen2 (ISO18000-6C)             |
| <b>Frequency</b>         | 840~960 MHz<br>(Default 920-924.5 MHz)                          |
| <b>Power Consumption</b> | 100 mA AVG @ Standby Mode<br>250 mA AVG @ 24dBm RF Power Output |
| <b>Reading Distance</b>  | 1.5~2.0 m                                                       |
| <b>Reading Area</b>      | The antenna is in the back of expansion cap                     |