

## Release note

**Topic** u-connectXpress software version 3.0.0 for NINA-B2  
UBX- 20036444 C1-Public  
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## Contents

|          |   |          |
|----------|---|----------|
| <b>1</b> | <b>Software</b>                                   | <b>1</b> |
| 1.1      | General Information                               | 1        |
| 1.1.1    | Scope   | 1        |
| 1.1.2    | Related documentation                             | 2        |
| 1.1.3    | Released software image                           | 2        |
| 1.1.4    | Hardware and software compatibility               | 2        |
| 1.2      | Released software tools                           | 2        |
| <b>2</b> | <b>Features and improvements</b>                  | <b>2</b> |
| 2.1      | Bluetooth LE secure connections                   | 2        |
| 2.2      | Multiple Bluetooth connections to remote centrals | 2        |
| 2.3      | SPI host interface                                | 3        |
| 2.4      | Information about Bluetooth connections           | 3        |
| 2.5      | Set Bluetooth mode                                | 3        |
| 2.6      | System time                                       | 3        |
| 2.7      | Stop mode   | 3        |
| 2.8      | Sleep mode  | 3        |
| 2.9      | Standby mode                                      | 3        |
| <b>3</b> | <b>Solved issues</b>                              | <b>3</b> |
| <b>4</b> | <b>Known limitations</b>                          | <b>4</b> |
| <b>5</b> | <b>Changed behavior</b>                           | <b>4</b> |

## 1 Software

### 1.1 General Information

#### 1.1.1 Scope

This release note describes the u-connectXpress software v3.0.0 for NINA-B2 and the updates from version 2.1.0.

### 1.1.2 Related documentation

| Document  | UBX number                   | Audience | Updates                                     |
|---|------------------------------|----------|---|
| AT commands manual                              | <a href="#">UBX-14044127</a> | Public   | Updated with NINA-B2 u-connectXpress v3.0.0 |
| NINA-B2 product summary                         | <a href="#">UBX-17062096</a> | Public   | Updated with new features                   |
| NINA-B2 data sheet                              | <a href="#">UBX-18006649</a> | Public   | Updated with new features                   |
| u-connectXpress user guide                      | <a href="#">UBX-16024251</a> | Public   | Updated with new examples                   |
| Communicating with a u-blox module over SPI bus | <a href="#">UBX-20028725</a> | Public   | New document                                |

### 1.1.3 Released software image

The software image is available on the NINA-B2 series page at [u-blox.com](http://u-blox.com). The table below lists the binary and configuration files included in the package.

| File                       | Description   |
|----------------------------|---|
| NINA-B22X-SW-3.0.0-010.bin | Software binary   |
| NINA-B22X-CF-1.0.json      | Manifest that defines the memory addresses for the binary |
| NINA-B22X-SI-3.0.0-010.txt | u-connectXpress software signature                        |

### 1.1.4 Hardware and software compatibility

u-connectXpress version 3.0.0 for NINA-B2 can be flashed on any released NINA-B2 product version. The NINA-B221-02B and NINA-B222-02B module order codes are pre-flashed with this software version but are not backwards compatible with older versions.

| Order code    | Pre-flashed software | Supported SW versions |
|---------------|----------------------|-----------------------|
| NINA-B221-00B | 1.0.1                | 1.0.0, 2.1.0, 3.0.0   |
| NINA-B221-02B | 3.0.0                | 3.0.0                 |
| NINA-B222-00B | 1.0.1                | 1.0.0, 2.1.0, 3.0.0   |
| NINA-B222-02B | 3.0.0                | 3.0.0                 |

## 1.2 Released software tools

s-center version 5.1.0 has been released and is published on [u-blox.com](http://u-blox.com).

## 2 Features and improvements

### 2.1 Bluetooth LE secure connections

NINA-B2 now supports the enhanced security mode called Bluetooth LE Secure Connections for protection against man-in-the-middle attacks and increased encryption using the Elliptic Curve Diffie Hellman (ECDH) algorithm.

### 2.2 Multiple Bluetooth connections to remote centrals

Support of for connection to multiple central connections has been added. In total, four central and four peripheral connections can be managed simultaneously.

## 2.3 SPI host interface

Support for using SPI as host interface for AT commands and data has been included as an alternative to UART. NINA-B2 acts as SPI slave.

## 2.4 Information about Bluetooth connections

The AT commands `AT+UBTLESTAT` and `+UBTLELIST` are implemented to list all active Bluetooth connections and provide information about these.

## 2.5 Set Bluetooth mode

`AT+UBTMODE` added to set Bluetooth mode.

## 2.6 System time

Support to set system time with `AT+UMSTS` added.

## 2.7 Stop mode

Stop mode is a setting where the module enters a very low power mode without memory retention using the MCUs deep sleep mode. The host can set the module to wake-up again either after a given time or by toggling the DTR pin or a GPIO pin.

## 2.8 Sleep mode

Sleep mode is a setting where the module enters a low power mode while retaining memory content. In this mode, the UART is disabled but Bluetooth connection is kept.

The sleep mode feature is not fully tested in all use cases and is provided in experimental form for evaluation only. Sleep mode is enabled with `AT&D3`.

## 2.9 Standby mode

The NINA-B2 standby mode has been improved to provide reduced current consumption using Automatic Frequency Adaption (AFA) of the MCU. AFA is enabled using `AT+UPWRMNG`. In standby mode all connections are kept.

## 3 Solved issues

| Area      | Description   | Reference   |
|-----------|---|-------------|
| Bluetooth | When running data pumps over SPS with connection interval 6 (7.5 ms), data errors could occur.  | UCS_DEV-55  |
| Bluetooth | Master-Slave role switch request from the remote device may in some cases be ignored by NINA-B2.  | UCS_DEV-68  |
| Bluetooth | Lost data when running continuous data stream using connection interval 6,6   | UCS_DEV-288 |
| Bluetooth | When bonding between two units in security mode 4 (Display Yes/no), <code>+UUBTUPD</code> events were erroneously generated, which had to be responded to with <code>AT+UBTUPE</code> command.  | UCS_DEV-676 |
| Bluetooth | When module is in Display or Display Yes/No security mode the passkey display event <code>+UUBTUPD</code> does not always show 6 digits. Some devices e.g. Android phones will fail to pair if not 6 digits are entered including leading 0's in case of passkeys less than 6 digit length. | UCS_DEV-814 |

| Area        | Description   | Reference    |
|-------------|---|--------------|
| Bluetooth   | For AT+UBTUPE, the user passkey cannot start with zeros   | UCS_DEV-815  |
| Bluetooth   | Increased idle mode current consumption when disabling Bluetooth connectability and discoverability. Performing the commands listed below could occasionally increase Bluetooth idle mode current consumption with about 100 mA.<br>AT+UBTCM=1 // Connectability off<br>AT+UBTDM=1 // Discoverability off | UCS_DEV-868  |
| Application | After upgrade to this version of u-connectXpress, downgrading to a version older than 2.1.0 using s-center prior to version 5.10 will cause the module to assert immediately after startup.   | UCS_DEV-908  |
| Bluetooth   | Bonding is required even if security mode is disabled.  | UCS_DEV-986  |
| Bluetooth   | AT+UBTGSMV with attribute handle values above 256 is not functional.  | UCS_DEV-1042 |
| Application | AT+UDSF not working after restart   | UCS_DEV-1091 |
| Bluetooth   | Too many bytes sent in the Bluetooth LE characteristic when an indication event is sent (AT+UBTGSCI).   | UCS_DEV-1097 |
| Bluetooth   | Un-bonding a device with random address not functional  | UCS_DEV-1120 |
| Bluetooth   | Enabling more services (for example, SPP, SPS, ATP) than supported could brick the module.  | UCS_DEV-1160 |
| Bluetooth   | When connecting to a remote service that does not support Secure Simple Pairing, using Bluetooth Classic a requested encrypted connection is not requested.   | UCS_DEV-1175 |

## 4 Known limitations

| Area        | Description  | Reference    |
|-------------|--|--------------|
| Bluetooth   | It is not possible to switch to EDM after establishing a Bluetooth Low Energy connection in AT mode. No data can be transferred.   | UCS_DEV-175  |
| Application | UART baud rate higher than 115200 is not supported when Automatic Frequency Adaption is enabled.   | UCS_DEV-196  |
| Bluetooth   | Setting max Bluetooth BR/EDR links with +UBTCFG does not work.   | UCS_DEV-644  |
| Bluetooth   | Receiving advertisement messages where data type flag is not at offset 2 in the packet will result in NINA-B2 interpreting the type wrong when doing a discovery with LIMITED or GENERAL discovery | UCS_DEV-675  |
| Application | AT+UDCFG=3, < DSR activation bit mask. > is not functional. Only bit 1 (active DSR on peer connected) is implemented.  | UCS_DEV-1122 |
| Bluetooth   | If a peripheral is set to connectable but non-discoverable, it makes advertisements without the GENERAL or LIMITED flag set.   | UCS_DEV-1246 |
| Bluetooth   | After receiving several incoming SPP connections and doing a Bluetooth inquiry, the module could occasionally restart.   | UCS_DEV-1457 |
| Bluetooth   | In response to AT+UDLP?, when the own address is a random address, the local BLE MAC address is LSB first rather than MSB first.   | UCS_DEV-1463 |

## 5 Changed behavior

Maximum number of SPP connections is reduced from seven to six supported peers.