

# RN00185

PN716x Firmware Release Notes v12.50.11

Rev. 3.0 — 7 January 2026

Release notes

## Document information

| Information | Content  |
|-------------|--|
| Keywords    | PN7160, PN7161, ECP, NCI 2.0, NFC Frontend controller                            |
| Abstract    | Contains information about a specific release product and component information. |



## 1 Document purpose

This document describes the tested functionality and limitations of the PN716x FW.

It also covers the release summary, release history, known issues, work-arounds, limitations, and recommendations.

The functionality and limitations of the hardware and product support material (for example, customer development board and support software) are described in separate documents.

[Table 1](#) shows the FW version data for the latest release.

**Table 1. FW version corresponding to this release note**

| Parameter    | Details                                      |
|--------------|--|
| FW Version   | 12.50.11                                     |
| Antenna Type | Eval1_SLALM_CFG2_EFM_40x20                   |
| IC           | PN7160 (HW Id: 0x61)<br>PN7161 (HW Id: 0x71) |
| ROM code     | 12   |
| Flash code   | 50.11  |

**Note:** *This firmware shall also be used for PN7160 and PN7161.*

## 2 Features supported in this release

### 2.1 RF features

Table 2. RF feature List

| Mode           | Protocol   | Technology | NFCEE     | Details                                     | Validation Status   |                     |
|----------------|------------|------------|-----------|---|---------------------|---------------------|
| Card Emulation | ISODEP     |            | DH        | ISO-DEP RF IF 106 kB/s                      | Functional verified |                     |
|                |            |            |           | ISO-DEP RF IF 212, 424, 848 kB/s            | Functional verified |                     |
|                | T4T NDEF   |            |           | NDEF read/write from DH, read/write from RF | Functional verified |                     |
| Read/write     | ISODEP     | NFC-A      | DH        | Frame RF IF 106 kB/s                        | Functional verified |                     |
|                |            |            |           | ISO-DEP RF IF 106 kB/s                      | Functional verified |                     |
|                |            |            |           | ISO-DEP RF IF 212, 424, 848 kB/s            | Functional verified |                     |
|                |            | NFC-B      | DH        | Frame RF IF 106 kB/s                        | Functional verified |                     |
|                |            |            |           | ISO-DEP RF IF 106 kB/s                      | Functional verified |                     |
|                |            |            |           | ISO-DEP RF IF 212, 424, 848 kB/s            | Functional verified |                     |
|                | MIFARE CI  | NFC-A      | DH        | Frame RF IF 106 kB/s                        | Functional verified |                     |
|                |            |            |           | TAG-CMD IF 106 kB/s                         | Functional verified |                     |
|                | T1T        | NFC-A      | DH        | Frame RF IF 106 kB/s                        | Functional verified |                     |
|                |            |            |           | TAG-CMD IF 106 kB/s                         | Functional verified |                     |
|                | T2T        | NFC-A      | DH        | Frame RF IF 106 kB/s                        | Functional verified |                     |
|                |            |            |           | TAG-CMD IF 106 kB/s                         | Functional verified |                     |
|                | Felica/T3T | NFC-F      | DH        | Frame RF IF 212, 424 kB/s                   | Functional verified |                     |
|                | ISO 15693  |            | ISO 15693 | DH  | Frame RF IF 26 kB/s | Functional verified |

### 2.2 Other system features

Table 3. Other system features

| Feature   | System SW | Validation status   |
|---|-----------|---------------------|
| FW download                                       | Available | Functional verified |
| Antenna self-test                                 | Available | Functional verified |
| PRBS (HW on Type-A, Type-B, Type-F, and ISO15693) | Available | Functional verified |
| PRBS (SW on Type-A, Type-B)                       | Available | Functional verified |
| EMVCo profile PCD                                 | Available | Functional verified |
| Clock management (PLL/XTAL)                       | Available | Functional verified |
| Dynamic LMA                                       | Available | Functional verified |
| Dynamic Power Control (DPC)                       | Available | Functional verified |
| External DC-DC support ("Cfg 2")                  | Available | Functional verified |
| LPCD - Tag detector                               | Available | Functional verified |
| Standby mode                                      | Available | Functional verified |
| SL-ALM Antenna support                            | Available | Functional verified |

## 2.3 Certification runs (in-house)

Table 4. Compliance

| Feature                             | Validation Status                                    |
|-------------------------------------|--|
| NFC Forum CR11 (analog)             | Compliance run on FW v12.50.05.                      |
| NFC Forum CR12 (Digital Test Cases) | Compliance run on FW v12.50.0B internally qualified. |
| NFC Forum CR13 (Digital Test Cases) | Compliance run on FW v12.50.0E internally qualified. |

### 3 PN7160 FW Version history

The below table provides the firmware version history including feature updates and issues fixes.

**Table 5. Firmware updates from v12.50.10 to v12.50.11**

| SI No. | Function/feature update  |
|--------|--|
| 1      | <ul style="list-style-type: none"> <li>Added the functionality to provide higher voltage level during XTAL startup kick with CLOCK_SEL_CFG API (0xA0 0x03) bit b4.</li> <li>Added a configuration API (0xA0 0x6F) to enable/disable the NTF is sent with 0xE9 indicating that XTAL startup kick is retried.</li> <li>Robust behaviour when wake-up from standby in all dynamic ECP and static ECP conditions.</li> </ul> |

**Table 6. Firmware updates from v12.50.0E to v12.50.10**

| SI No. | Function/feature update  |
|--------|--|
| 1      | <ul style="list-style-type: none"> <li>Added the functionality to provide higher voltage level during XTAL startup kick with CLOCK_SEL_CFG API (0xA0 0x03) bit b4.</li> <li>Added a configuration API (0xA0 0x6F) to enable/disable the NTF is sent with 0xE9 indicating that XTAL startup kick is retried.</li> </ul> |

**Table 7. Firmware updates from v12.50.0D to v12.50.0E**

| SI No. | Function/feature update  |
|--------|--|
| 1      | <ul style="list-style-type: none"> <li>Fixed stability issues during handling of RF_DEACTIVATE_CMD (to IDLE) and RF_DEACTIVATE_RSP.</li> </ul> |

**Table 8. Firmware updates from v12.50.0C to v12.50.0D**

| SI No. | Function/feature update  |
|--------|--|
| 1      | <ul style="list-style-type: none"> <li>Added support for custom cards with specific SAK value. API added is: 0xA0 0x6E.</li> </ul> |

**Table 9. Firmware updates from v12.50.0B to v12.50.0C**

| SI No. | Function/feature update  |
|--------|--|
| 1      | <ul style="list-style-type: none"> <li>Added support for dynamic ECP configuration.</li> </ul> |

**Table 10. Firmware updates from v12.50.0A to v12.50.0B**

| SI No. | Function/feature update   |
|--------|---|
| 1      | <p>Optimized the flash contents to remove not required features for longer serviceability of PN7160 (for future issue fixes/feature addons).</p> <ul style="list-style-type: none"> <li>Type-F card mode support removed</li> <li>Support for P2P not claimed.</li> </ul> |

Table 11. Firmware updates from v12.50.09 to v12.50.0A

| SI No. | Function/feature update   |
|--------|---|
| 1      | <ul style="list-style-type: none"><li>T4T Card emulation (NFCEE_NDEF). (allowing NDEF WRITE from RF side, now working with Tag Writer application on Android)</li></ul> |

Table 12. Firmware updates from v12.50.08 to v12.50.09

| SI No. | Function/feature update   |
|--------|---|
| 1      | <ul style="list-style-type: none"><li>Resolved an issue with IC is hung with RF ON when typeB card is placed during discovery process when ECP is enabled for NFC Forum profile</li></ul> |

Table 13. Firmware updates from v12.50.07 to v12.50.08

| SI No. | Function/feature update   |
|--------|---|
| 1      | <ul style="list-style-type: none"><li>EMVCo card removal procedure implemented for NFC Forum profile for TypeA and TypeB cards.</li><li>PRBS (HW - PRBS9, PRBS15) supported for ISO15693.</li></ul> |

Table 14. Firmware updates from v12.50.06 to v12.50.07

| SI No. | Function/feature update   |
|--------|---|
| 1      | <ul style="list-style-type: none"><li>ECP is supported in the EMVCo profile</li></ul> |

Table 15. Firmware updates from v12.50.05 to v12.50.06

| SI No. | Function/feature update  |
|--------|--|
| 1      | <ul style="list-style-type: none"><li>Support added for DPC helper command.</li><li>Support added for NFC Forum CR12 specific changes.</li><li>Updated the configuration of PMU_CFG (@A00E) to disable them (byte 0 = 0x11 instead of 0x31 and byte 1 = 0x00 instead of 0x01).</li></ul> |

Table 16. Firmware updates in v12.50.05

| SI No. | Function/feature update   |
|--------|---|
| 1      | <ul style="list-style-type: none"><li>First public release for PN7160/PN7161 FW. All factory-produced ICs contain this version of FW.</li></ul> |

## 4 Known limitations and recommendations

Table 17. Known limitations and pre-cautions, recommendations

| Release Version | Limitation  | Recommendation   |
|-----------------|---|--|
| FW v12.50.10    | <p>If RF_DISCOVER_CMD is sent immediately (faster than 25ms) after receiving RF_DEACTIVATE_RSP (to a RF_DEACTIVATE_CMD(TO_IDLE)), there is a risk of:</p> <ul style="list-style-type: none"><li>• RF is continuously switched ON if standby is disabled, polling not executed</li><li>• RF is switched OFF if standby is enabled, polling is not executed</li></ul> | <p>The host must wait for a minimum of 25 ms to send the next RF_DISCOVER_CMD after receiving RF_DEACTIVATE_RSP.</p> |

## 5 Revision history

Table 18. Revision history

| Document ID   | Release date      | Description  |
|---------------|-------------------|--|
| RN00185 v.3.0 | 7 January 2026    | Document title updated for v12.50.11 <ul style="list-style-type: none"><li>• <a href="#">Section 3 "PN7160 FW Version history": Table "Firmware updates from v12.50.10 to v12.50.11"</a> and <a href="#">Table "Firmware updates from v12.50.0E to v12.50.10"</a> added.</li><li>• <a href="#">Section 4 "Known limitations and recommendations"</a>: added.</li></ul> |
| RN00185 v.2.0 | 05 September 2024 | Document title updated for v12.50.0E<br>Document security status changed to <b>public</b> .<br><a href="#">Section 3 "PN7160 FW Version history": Table "Firmware updates from v12.50.0D to v12.50.0E"</a> added.  |
| RN00185 v.1.0 | 14 February 2024  | Initial version. Internal use only.  |

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