



FIM5110

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**NITGEN®**

Stand-Alone Fingerprint Recognition Device (FIM5110-HV)

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# Change Report

(FIM5110 Version 1.21)

Version 1.21

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Serial Number:

Specifications can be changed without notice.

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## ■ Firmware Changes from V1.17 to V1.21

### **CMD\_GET\_TEMPLATE is modified**

For providing old device compatibility, FDA01 template (0x01, param1) is supported. This option is only available at FIM30 emulation mode.

According to the Param2, 180° rotated template can be obtained.

### **Unit of capture timeout in FIM30 emulation mode is fixed**

For compatibility of FIM30 series, Unit is modified from 100msec to 1sec.

The value of capture timeout is automatically converted if emulation mode is changed

Emulation Mode	Unit of Capture Timeout	Example: C-Timeout is 5 seconds
None	100msec	Configured value: 50
FIM20	100msec	Configured value: 50
FIM30	1sec	Configured value: 5

Caution) In earlier version than V1.18, Unit of Capture time is 100ms.

### **Extraction algorithm is updated**

Extraction algorithm is updated to improve the performance.

## ■ Firmware Changes from V1.15 to V1.17

### **Matching algorithm is updated**

Matching algorithm is updated to improve the performance.

### **The bug in timer is fixed**

Timer counting value is modified to improve timer accuracy.

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### Range of Latent option is modified

Touch inspection can be configured by Latent option.

## ■ Firmware Changes from V1.12 to V1.15

### The bug in CMD\_ADD\_FP is fixed

Certain template of user DB containing multiple-templates is not uploaded properly.

### CMD\_AUTO\_IDENTIFY\_RESULT is modified

Return FP index by using param2 if authentication is succeeded

### Enhance the algorithm's performance

New method is applied to improve algorithm's performance.

## ■ Firmware Changes from V1.10 to V1.12

### CMD\_AUTO\_IDENTIFY is modified

Various Auto-Identification modes are added

Normal Mode (0x01)	Automatically capture and identify when finger is placed on the sensor then send an identification result.
Finger Checking Mode (0x02) – newly added	Acknowledge packet will be sent immediately without capturing when finger is placed on the sensor.
Get Template Mode (0x03) – newly added	Template data (Nitgen format) will be sent when finger is placed on the sensor without authentication.
Get Template in Failure Mode (0x04) – newly added	Automatically capture and identify when finger is placed on the sensor then send an identification result if authentication is succeeded or send a template data (Nitgen format) if authentication is failed.

All of these modes will be operated as Auto-Identification.

## Configuration values of Programmable GPIOs are modified

Configuration	Old Value	Modified Value
Normal Input	0x00	0x00
External Interrupt (Enroll) - High Active	0x01	0x01
External Interrupt (Enroll) - Low Active	0x02	0x02
External Interrupt (Delete, Delete All) - High Active	0x03	0x03
External Interrupt (Delete, Delete All) - Low Active	0x04	0x04
External Interrupt (Identify) - High Active	0x05	0x05
External Interrupt (Identify) - Low Active	0x06	0x06
Normal Output	0x09	0x80
Success Result - High Active	0x0A	0x81
Success Result - Low Active	0x0B	0x82
Failure Result - High Active	0x0C	0x83
Failure Result - Low Active	0x0D	0x84
Sensor Capturing - High Active	0x0E	0x85
Disabled	0x11	0xFF

### The bug in multi-packet communication is fixed

Received data is not combined when separated data is sent.

### The bug in flash reclamation is fixed

## ■ Firmware Changes from V1.09 to V1.10

### The bug in Adaptive Capture is fixed

Module malfunctions when certain fingers are tried to be authenticated.

### The bug in Key Control is fixed

Key Control operations such as Register, Delete-All and Identify remain wrong command information in log.

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### The bug in programmable GPIOs is fixed

If GPIOs output configuration is duplicated such as Success-result and Fail-result, outputs are not operated at once.

## ■ Firmware Changes from V1.08 to V1.09

### Matching algorithm is updated

Matching algorithm is updated to improve the performance.

## ■ Firmware Changes from V1.06 to V1.08

### CMD\_DELETE\_ALL\_FP (0x23) command is modified.

The function '0x10 – Format FP area' is added in parameter1.

By using this parameter, you can initialize all FP data area.

### CMD\_CFG\_IO (0x69) command is added

This command is used to configure 8 programmable GPIOs (0~7) listed below.

The function of 8 programmable GPIOs such as normal IO, key function, result output, capturing status and so on can be selected or activated via this protocol.

Please refer Appendix F of FIM ComProtocol document V2.01 or above to get more information

Configuration (Parameter2)	Function	
	Input	Output
0x00	Normal Input	
0x01	External Interrupt (Enroll) High Active	
0x02	External Interrupt (Enroll) Low Active	
0x03	External Interrupt	



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	(Delete, Delete All) High Active	
0x04	External Interrupt (Delete, Delete All) Low Active	
0x05	External Interrupt (Identify) High Active	
0x06	External Interrupt (Identify) Low Active	
0x80		Normal Output
0x81		Success Result High Active
0x82		Success Result Low Active
0x83		Failure Result High Active
0x84		Failure Result Low Active
0x85		Sensor Capturing High Active

### **CMD\_CTL\_IO (0x67) command is added**

This command is used to control GPIO when selected GPIO is configured as 'Normal Input' or 'Normal Output'.

Also, old parameters of CMD\_CTL\_IO can be used in FIM20 emulation mode and FIM30 emulation mode.

### **New SI\_TYPE (SI\_MAX\_TEMPLATE, 0x54) is added.**

Maximum template capacity is returned by CMD\_GET\_SYSINFO (0x4D) command by using SI\_MAX\_TEMPLATE parameter.

### **Key control in DK set is activated.**

According to the configuration of programmable GPIO, external key control is

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enabled.

### **Enhance the accuracy of image quality**

New method is applied to get more stable image for improving algorithm's performance.

### **The bug in Adaptive Capture is fixed.**

Capture timeout is occurred in certain fingers when adaptive capture mode is applied.

### **The bug in CMD\_GET\_FP is fixed.**

Wrong acknowledge packet was sent in requesting nonexistent user. This is fixed.

### **Reduce current consumption.**

New method is applied to reduce current consumption.

### **Tighten up Latent Function.**

In order to improve fake fingerprint detection, Latent Function is strengthened.

## **■ Firmware Changes from V1.01 to V1.06**

### **Apply Real-Time Clock initialization.**

After power-on, time on the module will be configured as 2009(Y)/01(M)/01(D) - 00(H)/00(M)/00(S) for keeping undefined data from being stored.

### **Improve Auto-On function.**

Detect a finger by checking before and current status of the sensor.

### **Bug fixed.**

In processing Old FIM30 data structure, module has not operated properly.  
This problem is fixed.

## Appendix A. Support Information

A large, light blue circular graphic with a white border, centered on the page. Inside the circle, the company name and contact information are listed.

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