

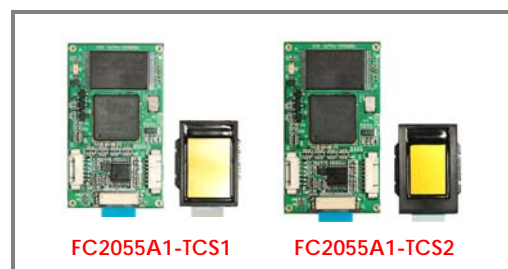
# FC2055A1-TCS1/TCS2

## FIMODULE Product Sheet



### KEY FEATURES

- Embedded Stand-alone Fingerprint Identification Module (FIModule)
- Verification (One-To-One) and Identification (One-To-Many)
- Onboard Template & Record Data Storage
- Simple Serial RS-232C/CMOS Interface
- Downloading/Uploading Template from/to Host
- Easy to integrate giving minimal Time-To-Market



### APPLICATION

- Fingerprint based access control systems & door-lock
- Time attendance system using fingerprint
- Fingerprint based weapon control system
- Bank employee and customer identification system using fingerprint (Possibly combined with IC card)
- Fingerprint personal identification system
- Fingerprint based machine control
- Fingerprint based car locks

### DESCRIPTION

IZZIX FingerENGINE in FIModule follows the commonly accepted fingerprint identification scheme, which uses a set of specific fingerprint feature points (minutiae). However, it contains many powerful algorithmic solutions, which enhance the system performance and reliability. Some of them are listed below:

- Quality Check of Fingerprint Image
- Fully Tolerant to Fingerprint Distortion and Rotation(360°)
- Classification Feature by Global Feature Vector
- Efficient Feature Extraction
- Fingerprint Enroll Mode with Feature Collection
- Suitable Algorithm to 1:1 and 1:N Mode

And, FIModule acts as a biometric subsystem with template & record data storage. FIModule can be used to any fingerprint application and be controlled by a host sending/receiving command via the standard serial interface. FIModule makes fingerprint templates and stores directly in flash memory. Templates can also be exported for external memory and be imported by external fingerprint device and IZZIX FingerENGINE algorithm.

IZZIX FingerENGINE algorithm supports the **calibration routine(supplied by UPEK)** for UPEK sensor(TCS1 and TCS2).

- detects and repairs bad columns and bad rows
- calculates the gain offset settings table
- Time needed ; < 5 seconds

### QUICK SPECIFICATION

		Enrolled Fingerprints		Matching OK			
Response Time(sec)	1:1 Mode			< 0.85			
	1:N Mode	500		< 1.2			
		1,000		< 1.6			
		2,000		< 2.4			
FAR(False Acceptance Rate)		< 0.0001 %					
FRR(False Rejection Rate)		< 0.1 %					
Matching Mode		Verification(1:1 Mode), Identification(1:N Mode)					
Times of Enrollment (E <sub>T</sub> )		Feature Collection Mode, FCMode		3 times ⇒ 1 feature data/1 user			
		Feature Exclusive Mode, FEMode		n times(normally n = 5) ⇒ n feature data/1 user			
Memory Size		2Mbytes FlashROM					
Number of Fingerprint & Record		FCMode		2,000			
		FEMode		400 (if E <sub>T</sub> = 5)			
User Data Size		512 Bytes (= 480 Bytes Template Data + 32 Bytes Header Data)					
Record Data Size		16 Bytes					
Start-up Time	Reset Time	440 msec		440 msec			
Digital Signal Processor		TI TMS320VC5502					
Fingerprint Board		FB2055A1-TCH1					
Fingerprint Sensor		TCS1/TCS2, TouchChip Area Fingerprint Sensor (UPEK)					
Active Area Size		TCS1 = 12.8 × 18 mm		TCS2 = 10.4 × 14.4 mm			
Array Size(Pixels) & Resolution		TCS1 = 256 × 360 & 508 DPI		TCS2 = 208 × 288 & 508 DPI			
Dimensions & Weight		FB2055A1-TCH1		51 × 30 × 8.5 mm			
		TCS1		< 11 gr			
		TCS2		27 × 20.4 × 3.5 mm			
				< 2 gr			
Operating Voltage		5VDC					
Power Consumption (5VDC)		Standby	85mA	Sensing	107mA	PowerDisable	<6uA
		PowerDown1	66mA	PowerDown2	60mA	PowerDown3	28mA
		Calibration	115mA				
Temperature/Humidity		0°C ~ 70°C / 15% ~ 80 %					
External Interface		7Pin Connector : RS232C Level UART					

This specification is subject to change without prior notice.

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**DIGENT - Advanced Fingerprint Security Solution**

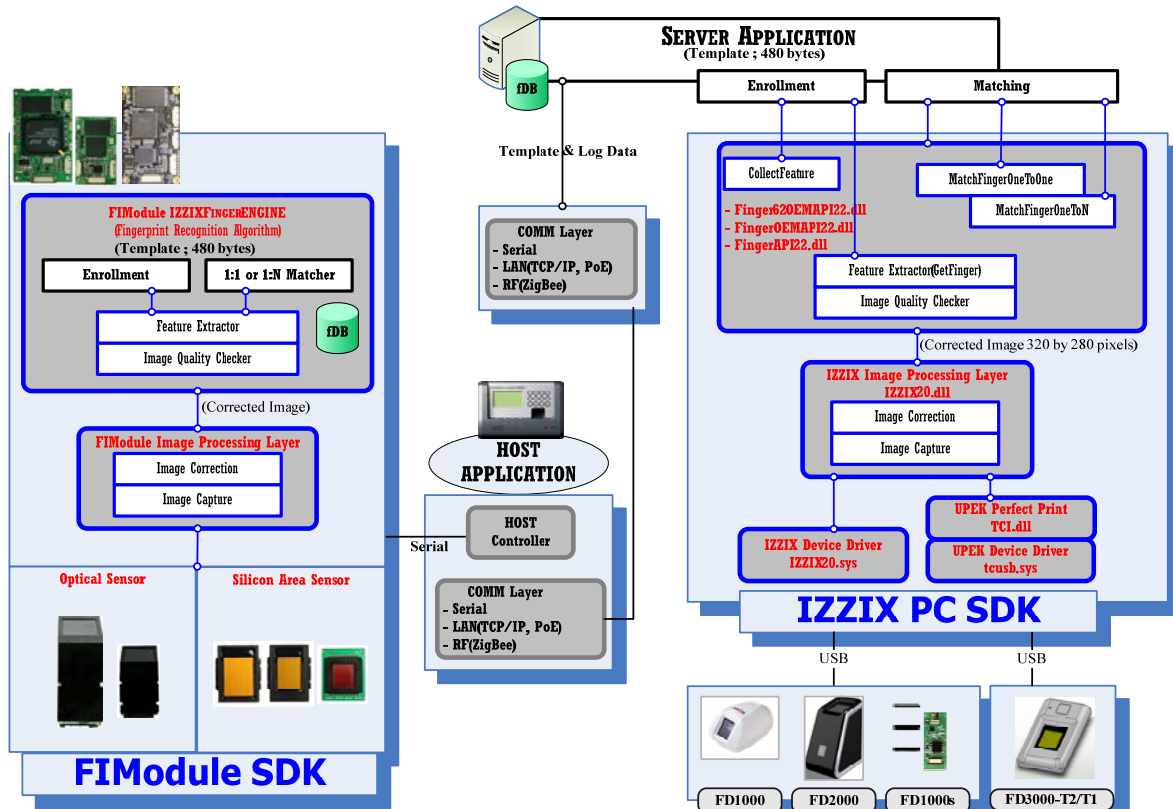
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Refer to Manual for details and usage specification.

# FC2055A1-TCS1/TCS2

## FIModule Product Sheet



### Ordering Information

#### •FC2055A1 Module Series

FC2055A1 – x1 – x2 x3 x4 x5

FC20	Algorithm Version V20 series	
55A1	DSP TMS320VC5502(BGA)	
① x1	TouchChip Area Fingerprint Sensor	TCS1/TCS2 by UPEK
② x2	Communication Interface (Hardware)	R : RS232C
③ x3	Flash Memory Capacity (Number of Fingerprints)	M2 : 2M Byte (2000 Fingerprints)
④ x4	Supply Voltage	V50 : 5.0 Volt
⑤ x5	Total Length(TL) and Insulation Length(IL) of FFC Cable : TL(IL) L160 / L120 / L80 -> 160(150) / 120(110) / 80(70)mm	

FIModule	Fingerprint Board
FC2055A1 – TCS1 – RM2V50L160(L120, L80) FC2055A1 – TCS2 – RM2V50L160(L120, L80)	FB2055A1 – TCH1

#### •FC2055A1 SDK

FC20 SDK-E2 (55A1-TCS1/TCS2)

