

# Zigbee 교육용 Kit

## Model : FZ800ED

지그비 전문기업이 만든 최고의 교육용 제품 !

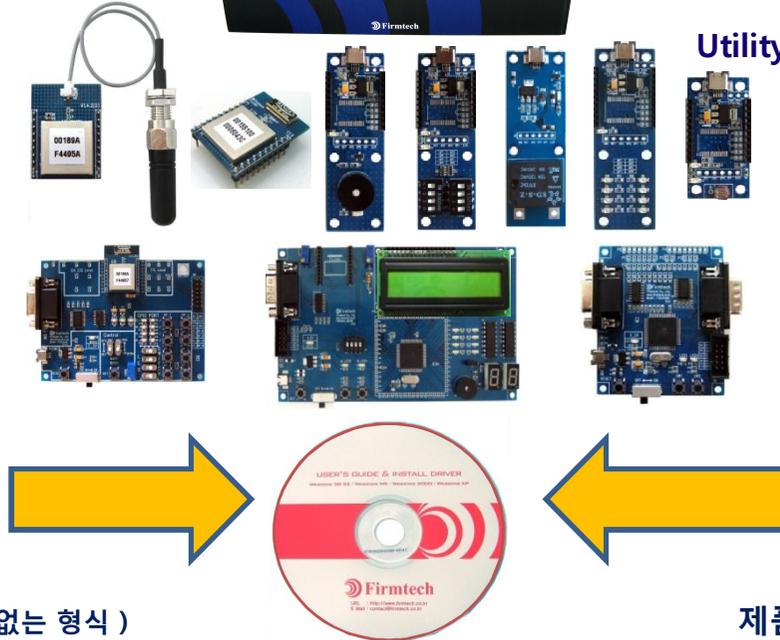


- 쉽고 , 재미있게 배우는 Zigbee 통신학습
- 어려웠던 무선통신 이젠 내 마음대로...!!
- 대학교재 , 연구소의 실습장비로 최적화된 제품
- 구성은 알차게 **High** 제품가격은 부담없게 **Low**

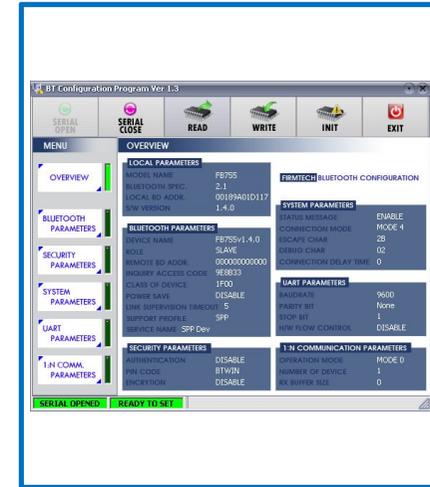
### 소프트웨어 개발소스

```
void USERS_OPERATION()
{
    if(execution_users_operation == EXECUTION_OK)
    {
        //-----
        if(execution_count < 5000)
        {
            LED_2_ON;
            BUZZ_ON();
        }
        else if(execution_count < 10000)
        {
            LED_2_OFF;
            BUZZ_OFF();
        }
        else if(execution_count < 15000)
        {
            LED_2_ON;
            BUZZ_ON();
        }
        else
        {
            LED_2_OFF;
            BUZZ_OFF();
            execution_count = 0;
            received_operation_count--;
            if(received_operation_count == 0)
            {

```



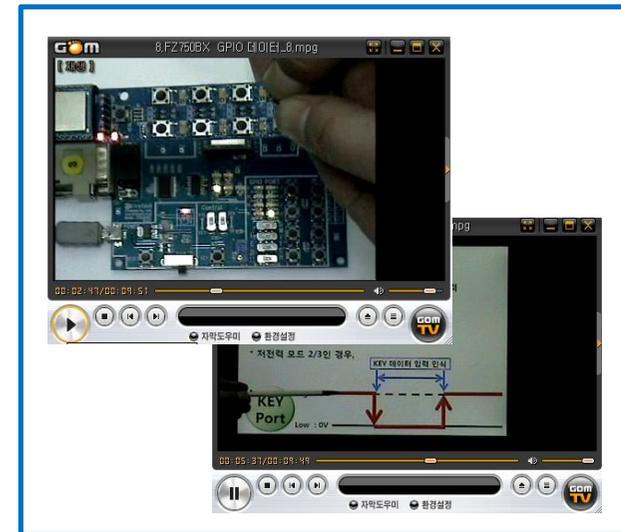
### Utility (GUI 설정 프로그램, 컴파일러, 프로그램 다운로더)



### 사용자 매뉴얼 (그림위주의 부담없는 형식)

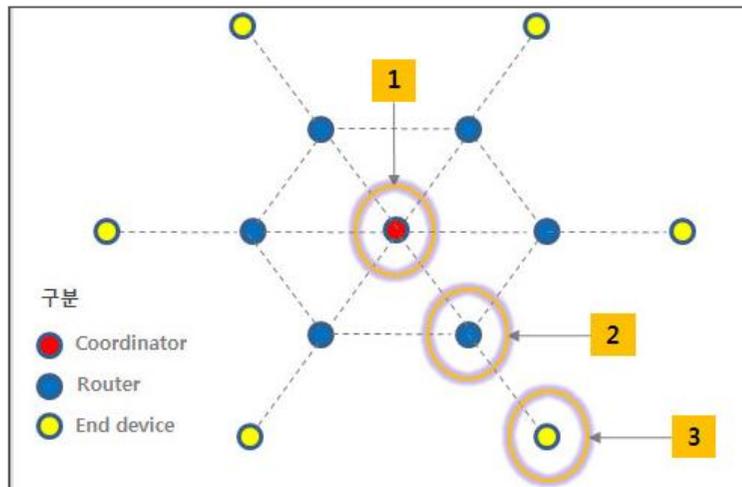


### 제품 사용관련 동영상강좌



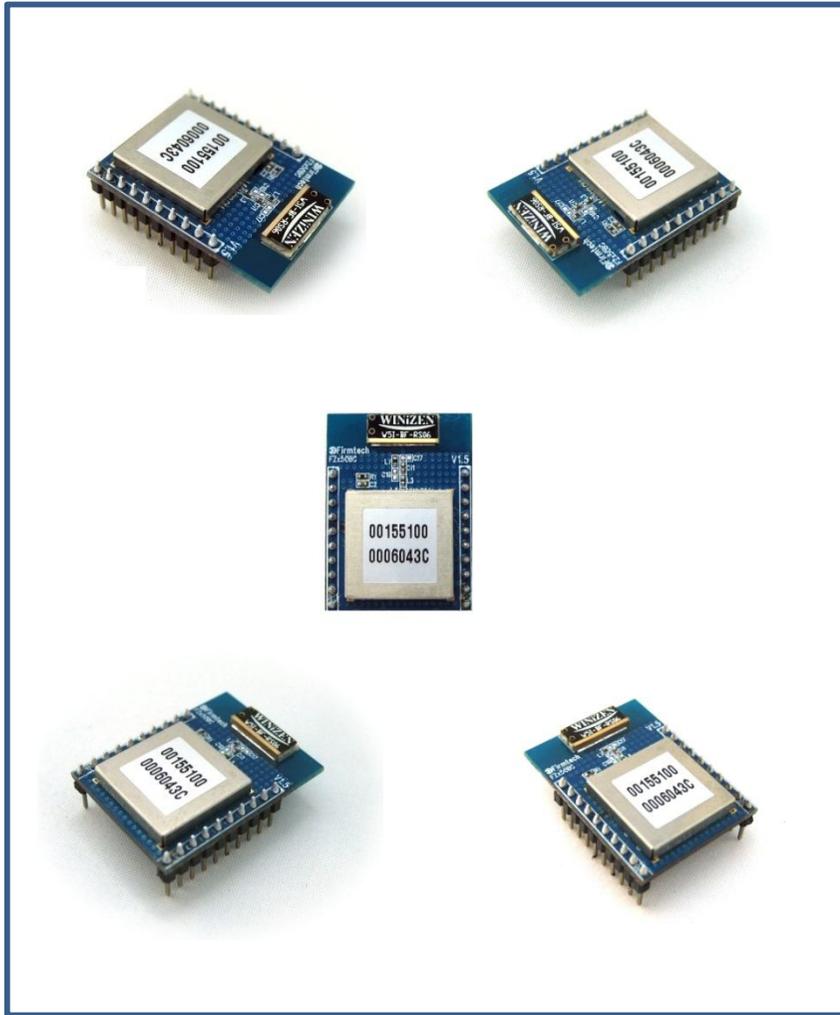
# Zigbee 가 뭔가요 ?

1. 저전력 / 저가격 무선통신을 목표로 하는 저속 근거리 무선통신 국제 표준 스펙 ( IEEE 802.15.4 )
2. 사용주파수 : 허가 없이 사용 할 수 있는 ISM(Industrial, Scientific, Medical) 대역 사용
3. 무선전송속도 : 250 kbps ( 2.400 ~ 2.485 Ghz 대역 사용시 )
4. 송출출력 : 1mW (0dBm) 에서 실내 30M, 실외 100M 전송 ( Power Amp 부착시 통신거리 확대 )
5. 소형화 : 핵심 칩셋의 경우 Onechip 화 추세
6. 네트워크 구성 : Star, Cluster-Tree, Mesh 네트워크 지원 ( 최대 65,536 노드 지원 )
7. 신뢰성 : - ACK Option 을 이용한 송신 데이터의 수신 여부 확인  
- 재전송을 이용한 지그비 네트워크 내의 데이터 송신 경로 재 설정



- Cordinator : Zigbee 네트워크 생성 및 루트역할
- Router : Zigbee 네트워크 확장 및 참여
- End device : Zigbee 네트워크 참여

# FZ800ED Kit 의 핵심 구성품인 FZ750BC, FZ750BS 의 외형사진

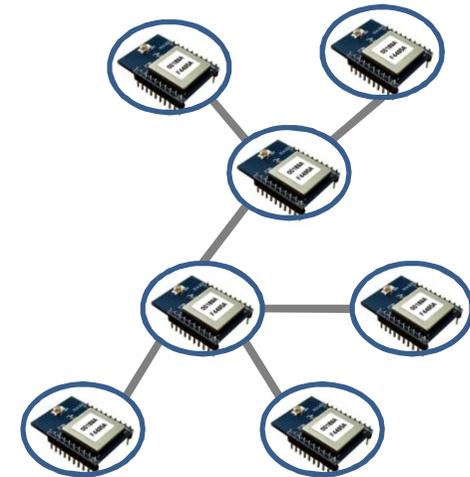
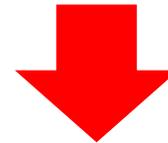
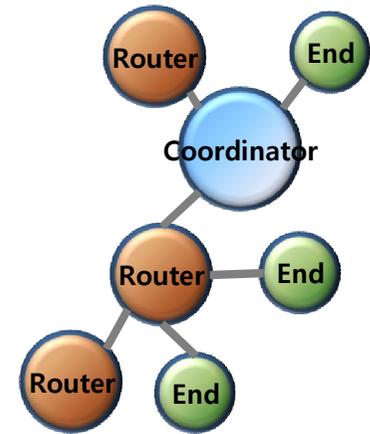
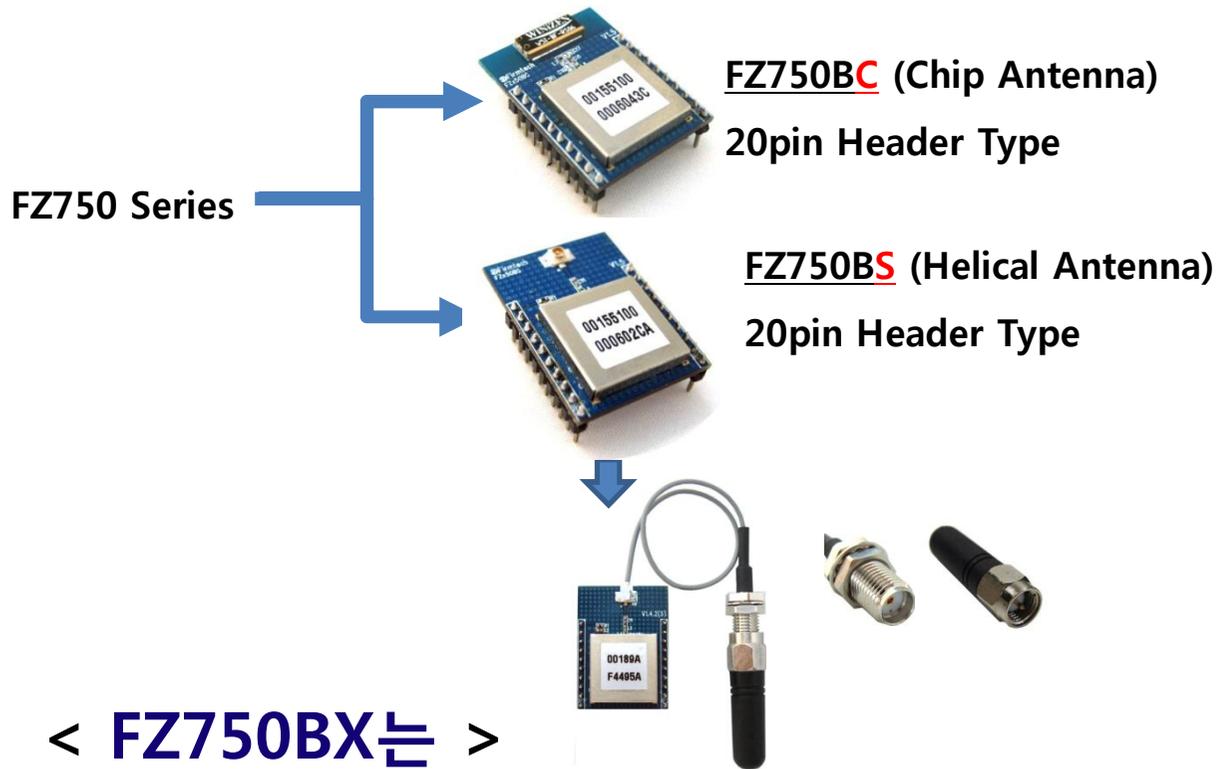


< FZ750BC >



< FZ750BS >

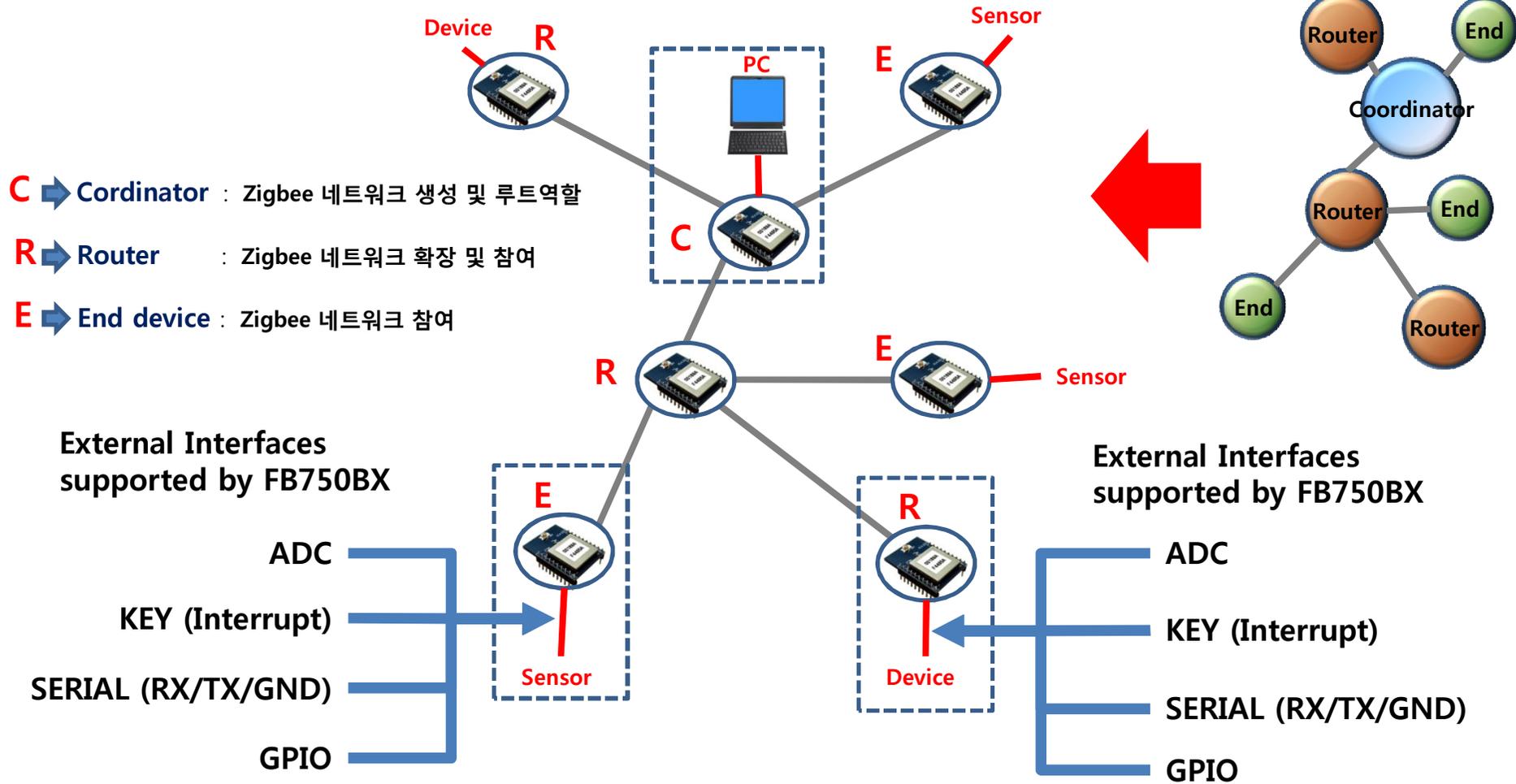
# FZ800ED Kit 의 핵심 구성품인 FZ750BC, FZ750BS 의 역할 요약



## < FZ750BX는 >

- Zigbee 2006 Stack 을 기반으로 구성되었습니다.
- 코디네이터/라우터/엔드디바이스 중 하나로 자유로이 설정하여 사용합니다.
- Mesh Network를 지원합니다.
- 20pin Header type으로 구성됩니다.
- UART, ADC, KEY, GPIO Interface를 지원합니다.
- AT 명령어를 사용하여 제어 가능합니다.
- 엔드디바이스의 경우 저전력 모드를 지원합니다.
- 데이터 재전송과 경로 재 설정 기능을 제공 합니다.

# FZ750BC, FZ750BS 를 통한 Zigbee 네트워크 구성예



# 1. 하드웨어 구성



FZ750BC



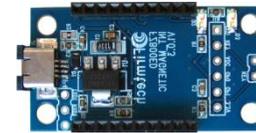
FB8000ED\_MICOM



FB800xED\_INT\_TACT\_SWITCH



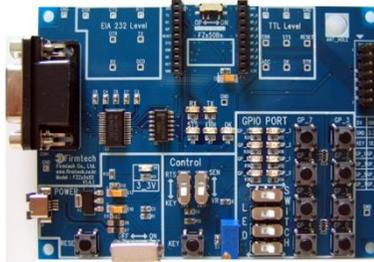
FB800xED\_ADC\_CDS/VR



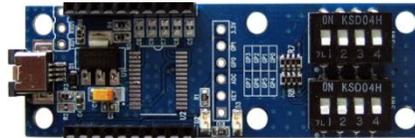
FB800xED\_INT\_MAGNETIC



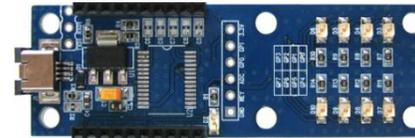
FB800xED\_CON\_2.54



FZZx5xXX ( Interface Board )



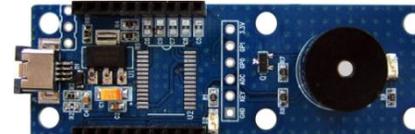
FB800xED\_GPIO\_DIP\_SWITCH



FB800xED\_GPIO\_LED



FB800xED\_DIY



FB800xED\_GPIO\_BUZZ



FB800xED\_GPIO\_RELAY



FZD5xMC ( Interface Board )



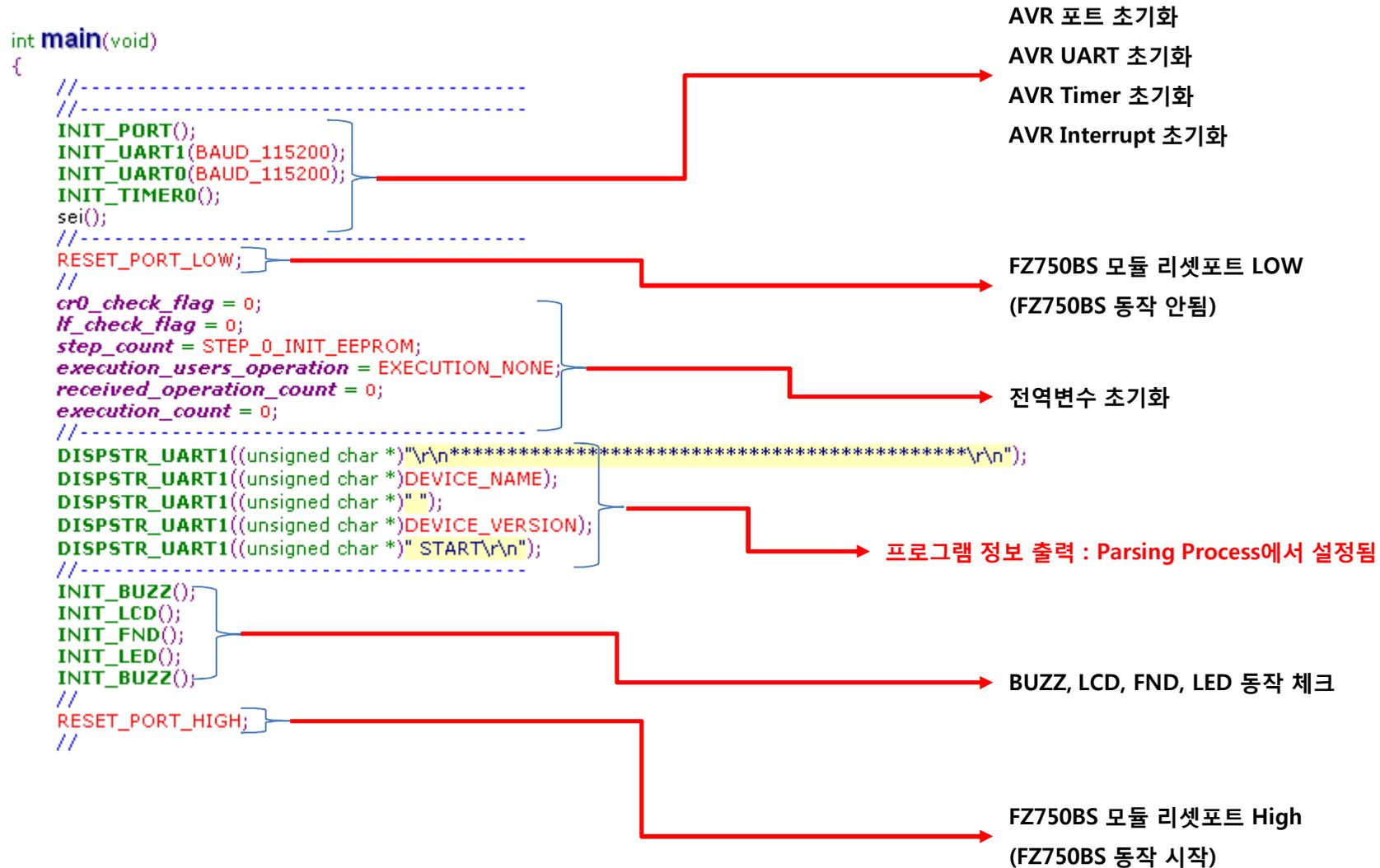
FB800xED\_GPIO\_TACT\_SWITCH



FB800xED\_GPIO\_FND

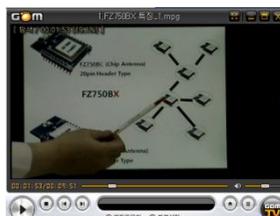
## 2. 소프트웨어 구성

- Atmega 128 기반 다양한 실습이 가능한 주석문이 포함된 Full source file ( c언어 )제공
- Atmega 128 기반 각각의 하드웨어별 구동 소프트웨어 Full source file ( c언어 )제공



# 3. 동영상 강좌 구성

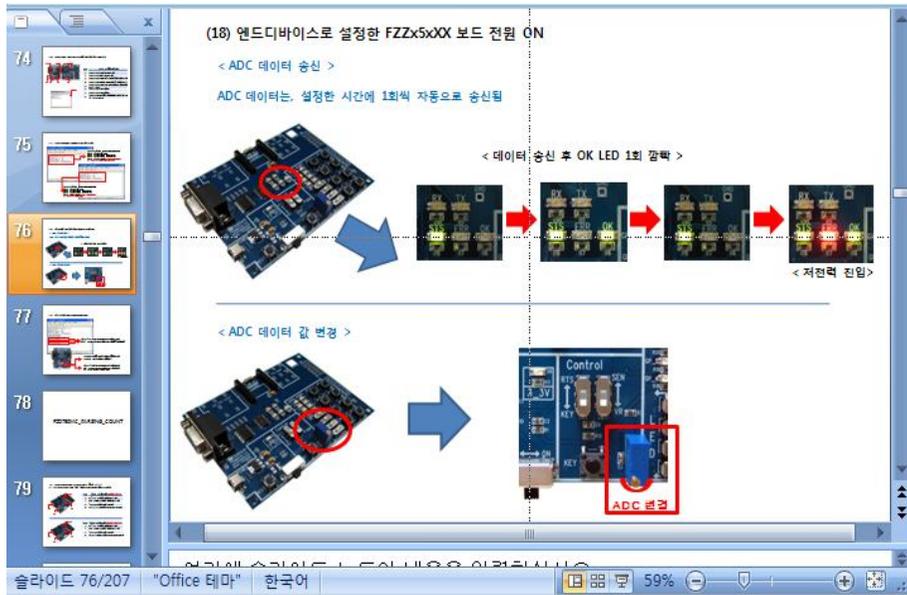
- 동영상 강좌를 통하여 제품사용법 및 특징과 응용방법 을 손쉽게 익힐수 있습니다



## 동영상 강좌 리스트 ( 총 11 편 )

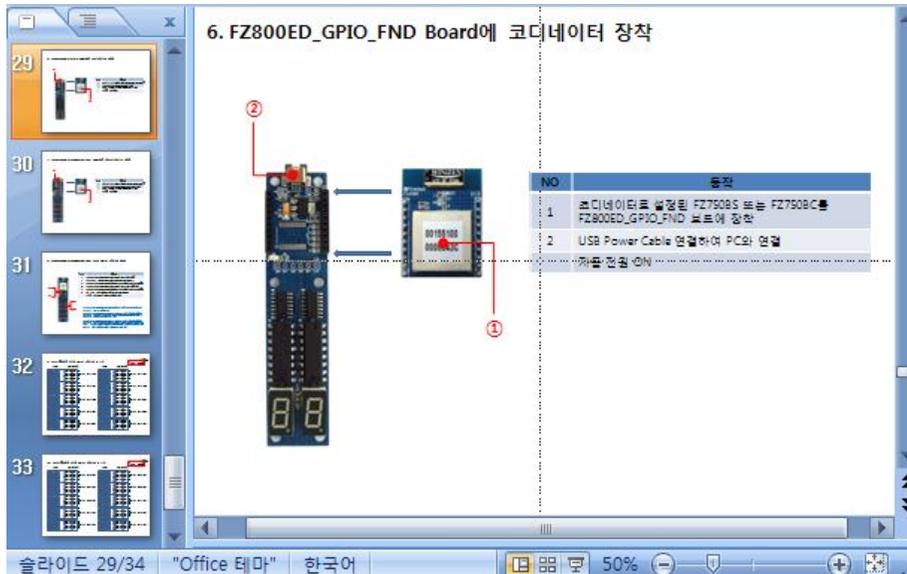
1.FZ750BX 특징_1	14,996KB
1.FZ750BX 특징_2	14,975KB
1.FZ750BX 특징_3	10,679KB
2.FZ750BX 인터페이스보드_1	15,096KB
2.FZ750BX 인터페이스보드_2	4,881KB
3.인터페이스보드를 이용한 동작_1	14,963KB
3.인터페이스보드를 이용한 동작_2	8,671KB
3.인터페이스보드를 이용한 동작_3	14,958KB
3.인터페이스보드를 이용한 동작_4	14,941KB
3.인터페이스보드를 이용한 동작_5	12,357KB
4.FZ750BX KEY 데이터_1	14,957KB
4.FZ750BX KEY 데이터_2	14,969KB
4.FZ750BX KEY 데이터_3	11,031KB
4.FZ750BX KEY 데이터_4	14,956KB
4.FZ750BX KEY 데이터_5	10,825KB
5.FZ750BX ADC 데이터_1	5,141KB
5.FZ750BX ADC 데이터_2	14,964KB
5.FZ750BX ADC 데이터_3	14,988KB
5.FZ750BX ADC 데이터_4	4,133KB
6.FZ750BX 시리얼 데이터_1	6,757KB
6.FZ750BX 시리얼 데이터_2	15,022KB
6.FZ750BX 시리얼 데이터_3	1,579KB
7.FZ750BX COUNT 데이터_1	4,837KB
7.FZ750BX COUNT 데이터_2	14,957KB
7.FZ750BX COUNT 데이터_3	9,464KB
8.FZ750BX GPIO 데이터_1	14,964KB
8.FZ750BX GPIO 데이터_2	1,681KB
8.FZ750BX GPIO 데이터_3	14,883KB
8.FZ750BX GPIO 데이터_4	14,966KB
8.FZ750BX GPIO 데이터_5	6,670KB
8.FZ750BX GPIO 데이터_6	14,956KB
8.FZ750BX GPIO 데이터_7	14,956KB
8.FZ750BX GPIO 데이터_8	14,989KB
8.FZ750BX GPIO 데이터_9	12,962KB
9.FZ800ED_MICOM_1	14,953KB
9.FZ800ED_MICOM_2	7,665KB
10.FZ750 설정 프로그램_1	11,384KB
11.인터페이스 보드를 이용한 설정 동작	8,258KB

# 4. 사용자 메뉴얼 구성 (그림위주의 부담없는 형식)

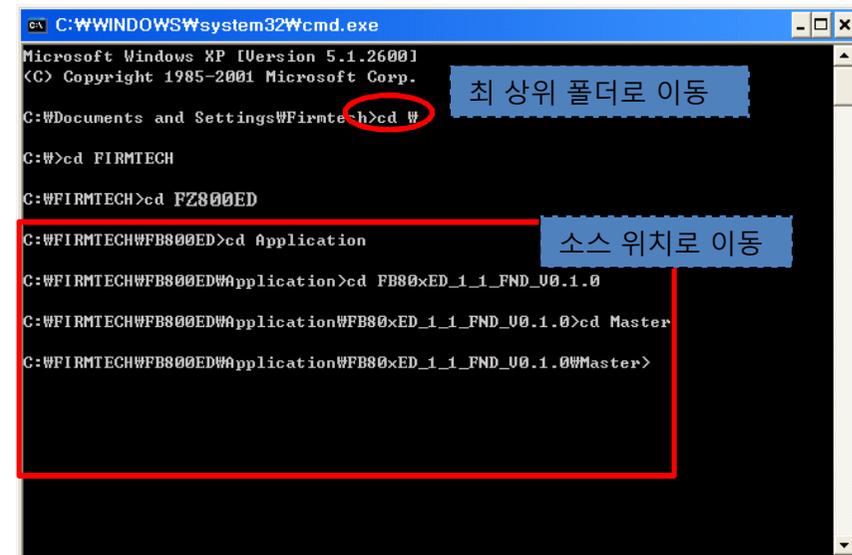
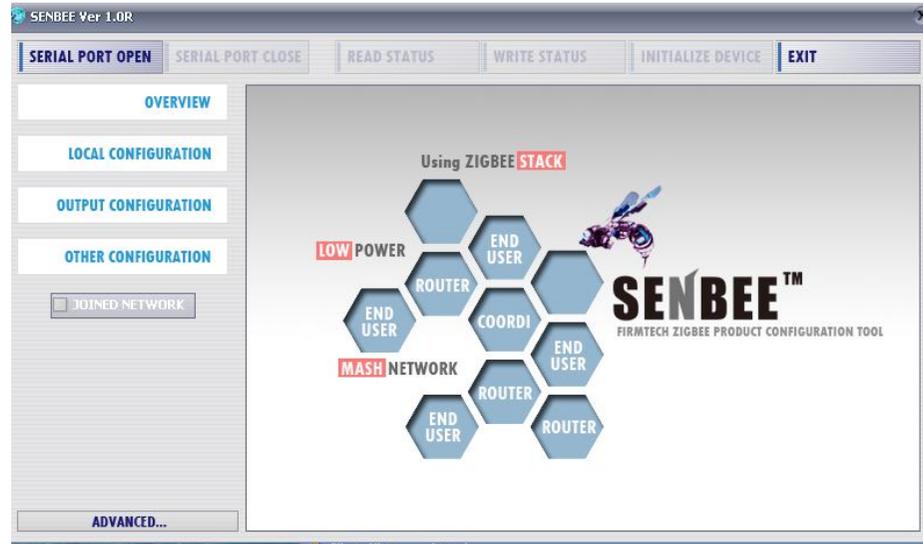


사용자 매뉴얼 리스트 ( 총 23편 )

00_FZ800ED_저작권 관련 사항	75KB
01_FZ800ED_시작하기 전에	88KB
02_about Zigbee	68KB
03_about FZ750BS_FZ750BC	358KB
04_about ATmega128	370KB
05_FZ800ED_Tools Guide	896KB
06_FZ800ED_Hardware_System Guide	12,000KB
07_FZZx5xXX	1,427KB
08_FZDx5xMC	5,474KB
09_FZ800ED_MICOM	4,338KB
10_FZ800ED_INT_TACT_SWITCH	3,638KB
11_FZ800ED_INT_MAGNETIC	3,648KB
12_FZ800ED_ADC_CDS_VR	3,653KB
13_FZ800ED_GPIO_DIP_SWITCH	3,802KB
14_FZ800ED_GPIO_TACT_SWITCH	4,270KB
15_FZ800ED_GPIO_RELAY	3,714KB
16_FZ800ED_GPIO_LED	3,329KB
17_FZ800ED_GPIO_FND	3,509KB
18_FZ800ED_GPIO_BUZZ	3,215KB
19_FZ800ED_DIY	2,445KB
20_FZ800ED_CON_2,54	633KB
21_FZ800ED_PARSING_COUNT	3,455KB
22_FZ800ED_PARSING_SERIAL	3,117KB
23_FZ800ED_PARSING_TOTAL	9,454KB



# 5. Utility 구성 ( 제품설정을 Window GUI ,컴파일러, 프로그램 Downloader 등 )





# FZ800ED Series Selection Guide

구성품		FB800ED	
		Pro	Lite
보드구성	FZ750BC	10 EA	4 EA
	FZ750BS	4 EA	
	FZZx5xXX	2 EA	2 EA
	FZDx5xMC	1 EA	1 EA
	FZ800ED_MICOM	1 EA	1 EA
	FZ800ED_INT_TACK_SWITCH	5 EA	1 EA
	FZ800ED_INT_TACK_MAGNETIC	1 EA	1 EA
	FZ800ED_ADC_CDS/VR	1 EA	1 EA
	FZ800ED_GPIO_DIP_SWITCH	1 EA	1 EA
	FZ800ED_GPIO_TACK_SWITCH	1 EA	1 EA
	FZ800ED_GPIO_DIP_FND	1 EA	1 EA
	FZ800ED_DIY	1 EA	1 EA
	FZ800ED_GPIO_RELAY	1 EA	
	FZ800ED_GPIO_LED	1 EA	
	FZ800ED_GPIO_BUZZ	1 EA	
	FZ800ED_CON_2.54	1 EA	
	확장 JIG 보드	2 EA	1 EA
	확장 JIG 보드 연결보드	2 EA	1 EA
	75 mil -> 100 mil 변환보드	2 EA	1 EA
	Acessory	AVR Loader	1 EA
5V DC Adaptor		2 EA	2 EA
USB cable ( 전원 공급용 )		14 EA	4 EA
건전지 홀더 (AAA Size)		14 EA	4 EA
RS232 연장케이블		2 EA	2 EA
MAX3238 ( Level 변환 칩)		14 EA	7 EA
Chip Capacitor ( 0.1UF )		56 EA	28 EA
2 Pin 커넥터 (수)		14 EA	4 EA
2 Pin 커넥터 (암)		14 EA	4 EA
Crimp 터미널		28 EA	8 EA
6Pin Cable		2 EA	2 EA
2.54 mm Header ( 100 mil ) 10 X 2		4 EA	4 EA
2.54 mm Header ( 100 mil ) 10 X 1		4 EA	4 EA
통합자료 CD		1 EA	1 EA

# Zigbee 교육용 Kit

**FZ800ED Pro**

( Zigbee Stack Version )



구성품사진	규격	갯수	구성품사진	규격	갯수
	FZ750BC	10		FZ800ED_ADC_CDS/VR	1
	FZ750BS	4		FZ800ED_GPIO_DIP_SWITCH	1
	FZ750BS용 안테나 및 케이블	4		FZ800ED_GPIO_TACT_SWITCH	1
	FZZx5xXX	2		FZ800ED_GPIO_DIP_FND	1
	FZDx5xMC	1		FZ800ED_DIY	1
	FZ800ED_MICOM	1		FZ800ED_GPIO_RELAY	1
	FZ800ED_INT_TACT_SWITCH	5		FZ800ED_GPIO_LED	1
	FZ800ED_INT_TACT_MAGMETIC	1		FZ800ED_GPIO_BUZZ	2

구성품사진	규격	갯수	구성품사진	규격	갯수
	FZ800ED_CON_2.54	1		MAX3238 ( Level 변환 칩 ) ( EIA232<->TTL )	14
	확장 Jig Board	2		Chip Capacitor ( 0.1UF ) ( 1608 Type )	56
	확장 Jig Board 연결보드	2		2 Pin 커넥터 (수) ( 100 mil )	14
	75 mil ->100 mil 변환보드	2		2 Pin 커넥터 (암) ( 100 mil )	14
	AVR Loader	1		Crimp 터미널	28
	DC 아답타 ( 5V DC 출력 )	2		6Pin Cable ( 100 mil )	2
	USB 케이블 ( 전원 공급용 )	14		2.54 mm Header ( 100 mil ) 10 X 2	4
	건전지 홀더 ( AAA Size )	14		2.54 mm Header (100 mil) 10 X 1	4
	RS232 연장케이블	2		통합자료 CD	1

# Zigbee 교육용 Kit

**FZ800ED Lite**

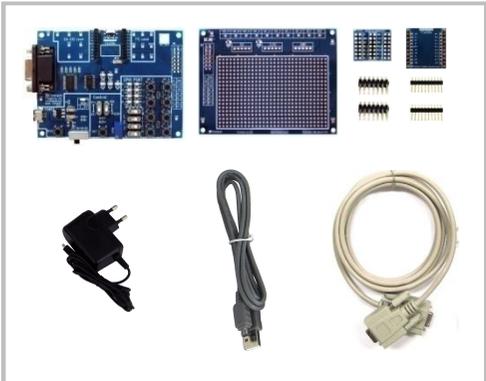
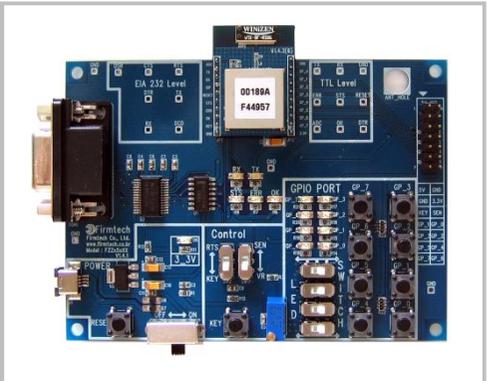
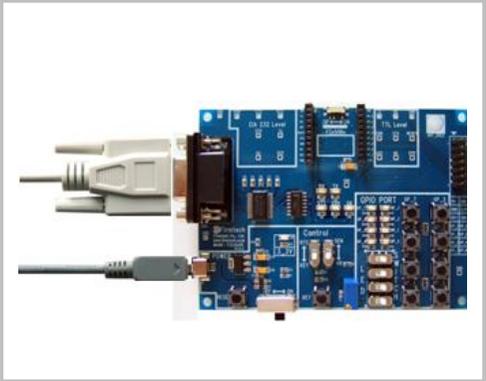
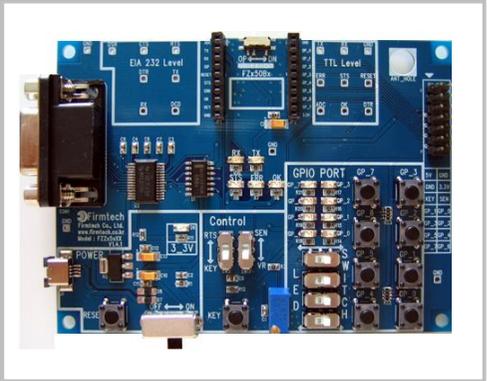
( Zigbee Stack Version )



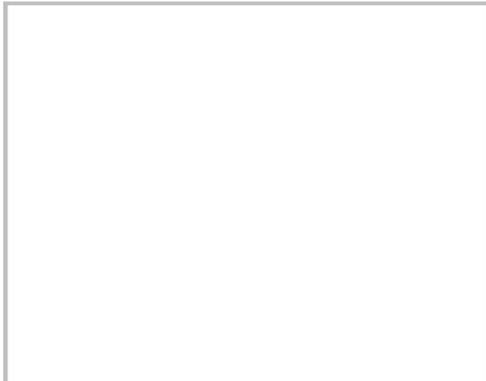
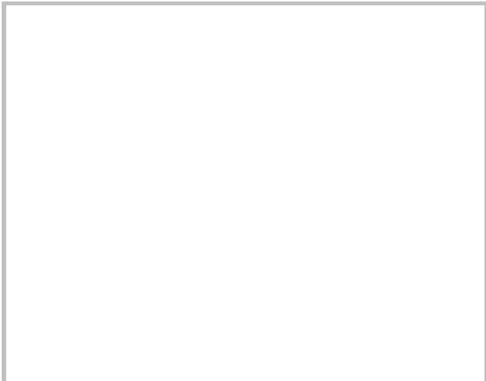
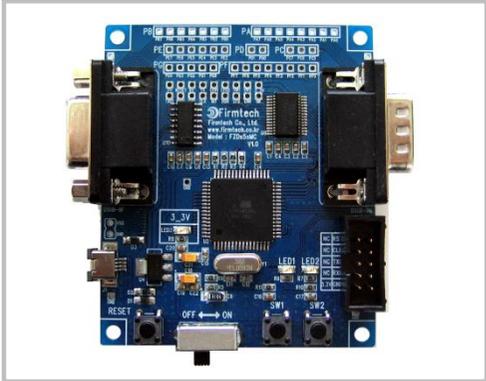
구성품사진	규격	갯수	구성품사진	규격	갯수
	FZ750BC	4		FZ800ED_GPIO_TACT_SWITCH	1
	FZZx5xXX	2		FZ800ED_GPIO_DIP_FND	1
	FZDx5xMC	1		FZ800ED_DIY	1
	FZ800ED_MICOM	1		확장 Jig Board	1
	FZ800ED_INT_TACT_SWITCH	1		확장 Jig Board 연결보드	1
	FZ800ED_INT_TACT_MAGMETIC	1		75 mil -> 100 mil 변환보드	1
	FZ800ED_ADC_CDS/VR	1		AVR Loader	1
	FZ800ED_GPIO_DIP_SWITCH	1		DC 아답타 ( 5V DC 출력 )	2

구성품사진	규격	갯수	구성품사진	규격	갯수
	USB 케이블 ( 전원 공급용 )	4		2.54 mm Header ( 100 mil ) 10 X 2	4
	건전지 홀더 ( AAA Size )	4		2.54 mm Header (100 mil) 10 X 1	4
	RS232 연장케이블	2		통합자료 CD	1
	MAX3238 ( Level 변환 칩 ) ( EIA232 <-> TTL )	7			
	Chip Capacitor ( 0.1UF ) ( 1608 Type )	28			
	2 Pin 커넥터 (수) ( 100 mil )	4			
	2 Pin 커넥터 (암) ( 100 mil )	4			
	Crimp 터미널	28			
	6Pin Cable ( 100 mil )	2			

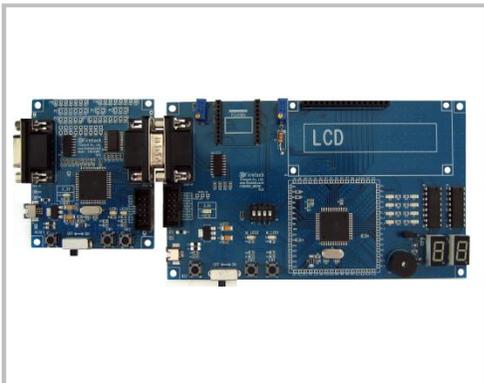
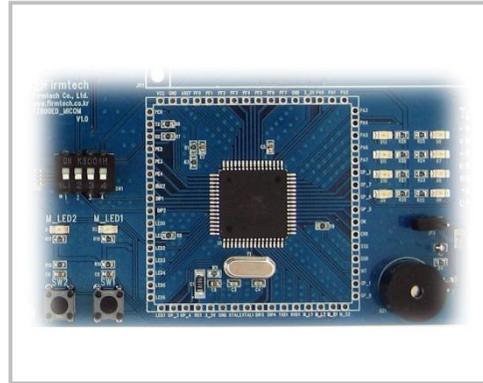
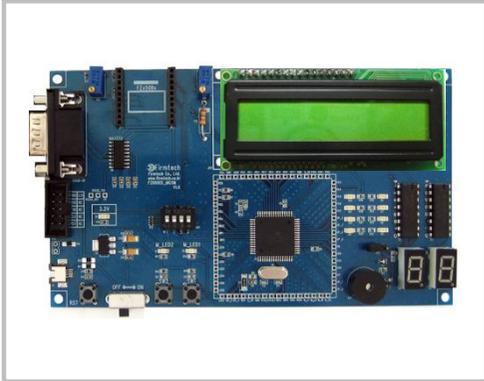
FZx5xXX ( Interface Board )



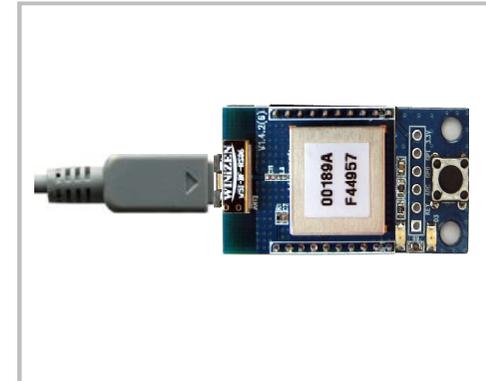
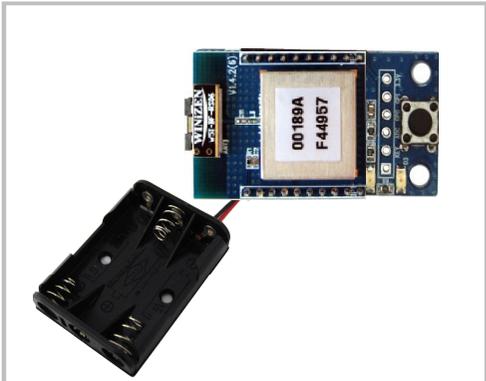
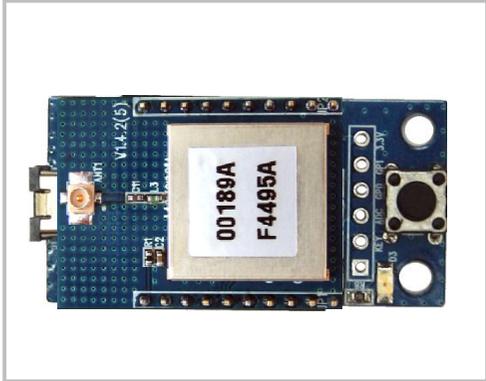
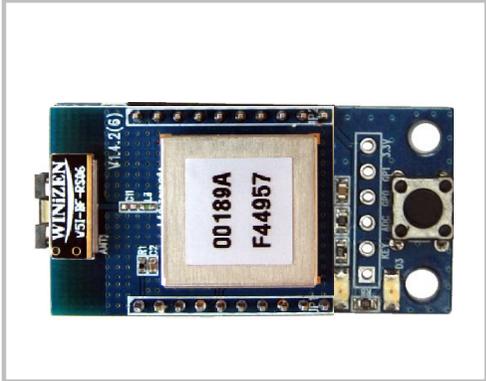
FZDx5xMC ( Interface Board )



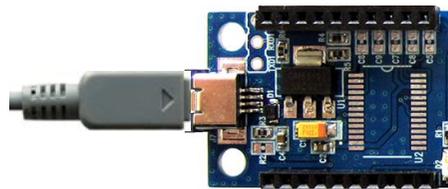
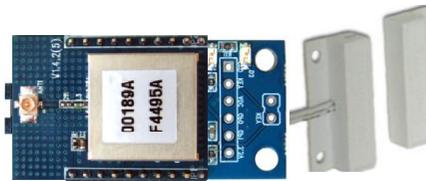
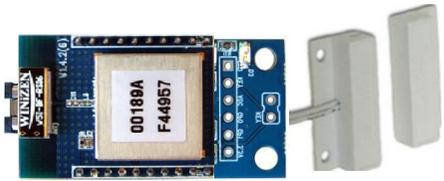
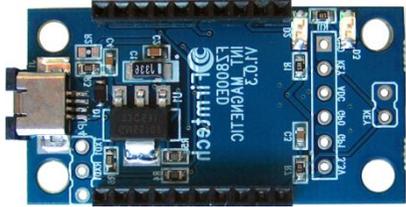
FZ800ED\_MICOM



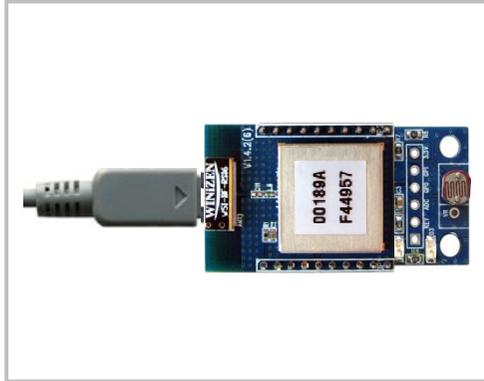
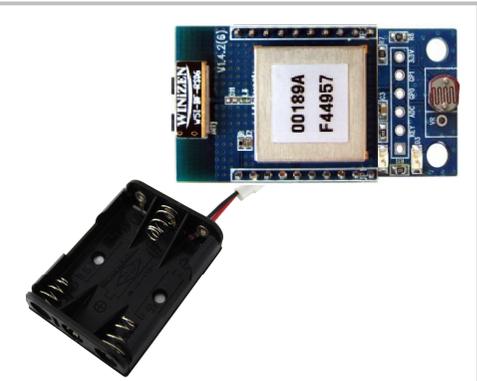
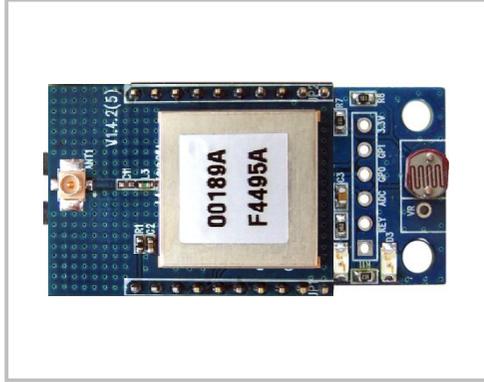
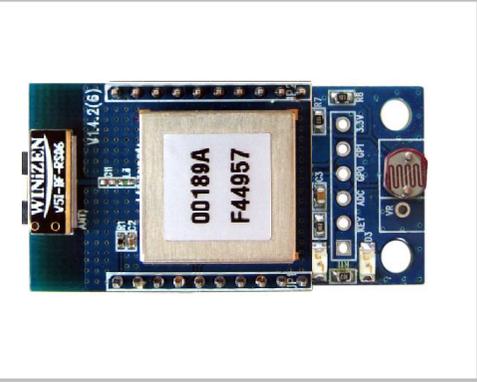
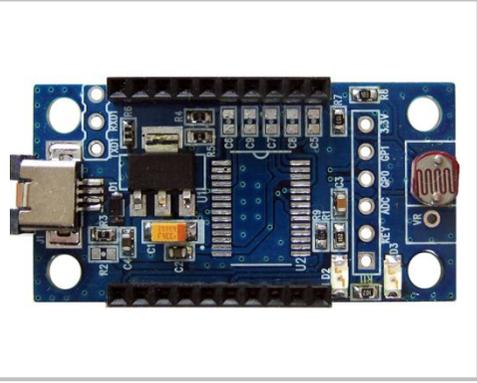
FZ800xED\_INT\_TACT\_SWITCH



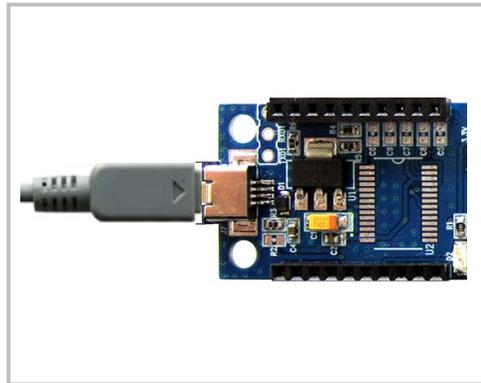
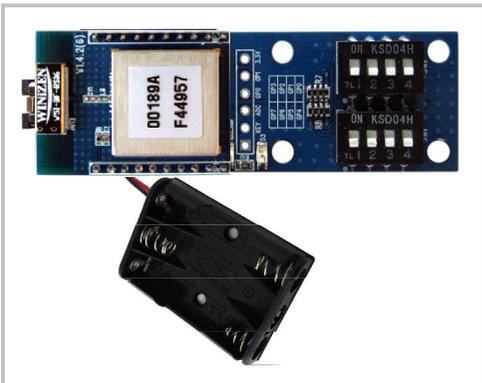
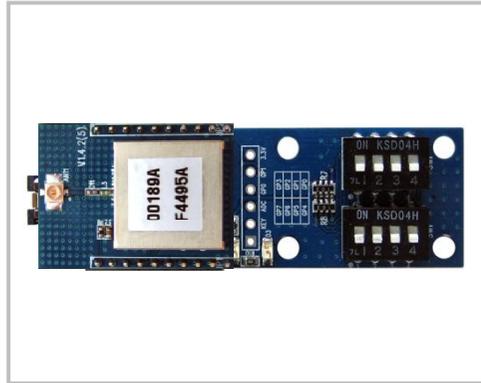
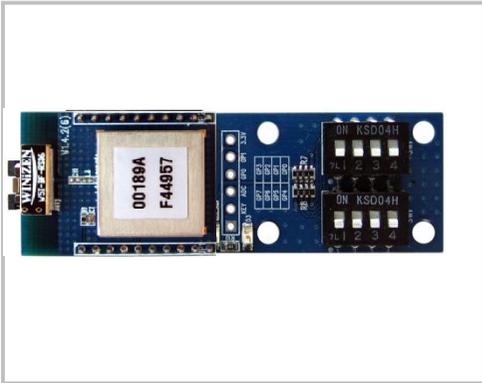
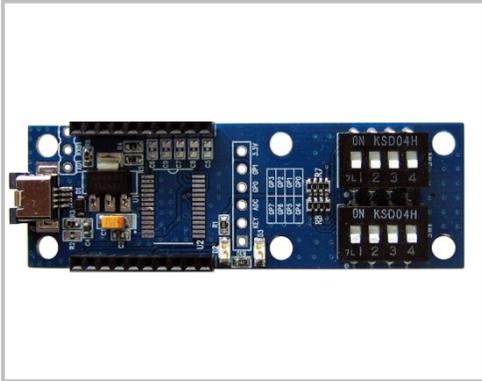
FB800xED\_INT\_MAGNETIE



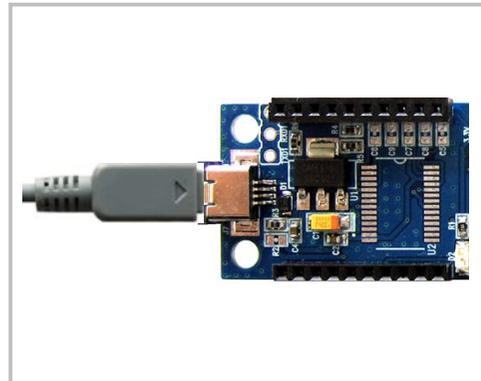
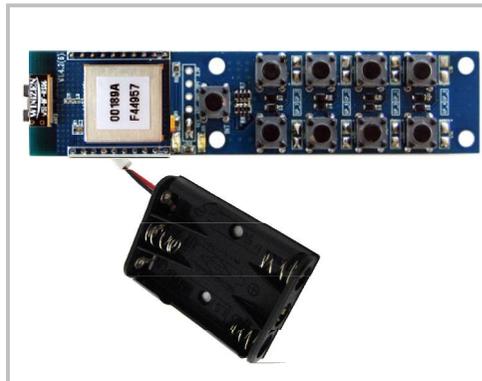
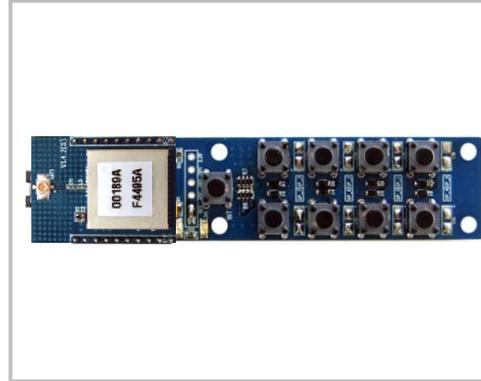
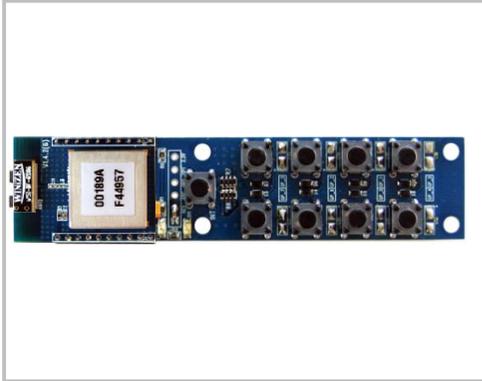
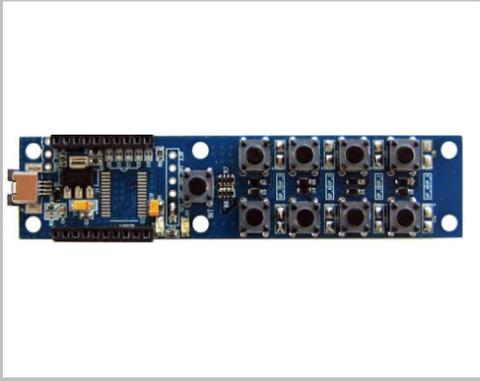
FZ800xED\_ADC\_CDS/VR



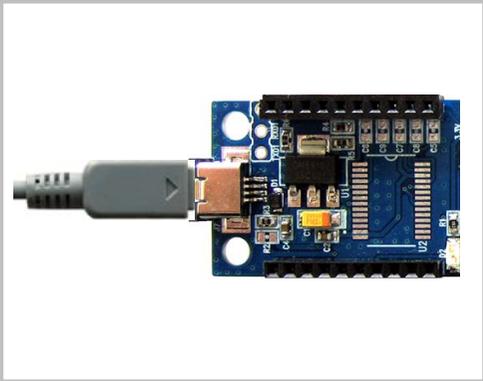
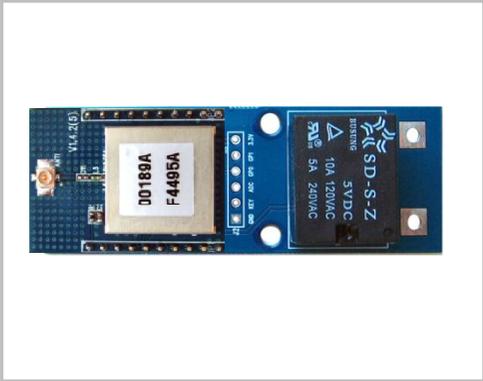
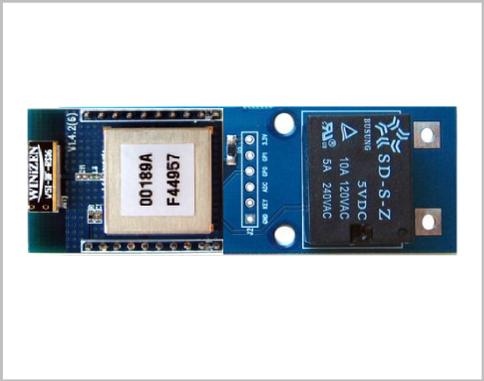
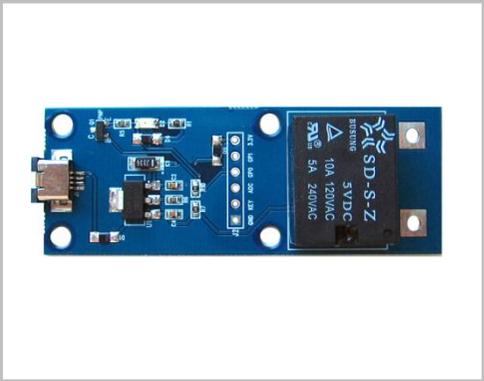
FB800xED\_GPIO\_DIP\_SWITCH



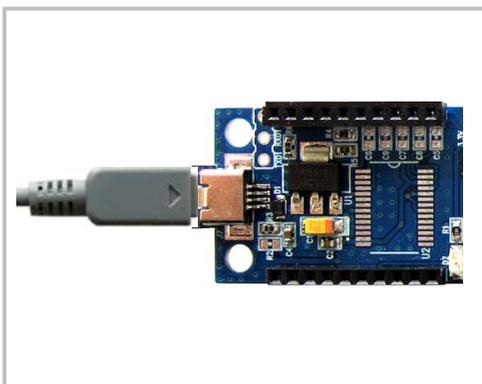
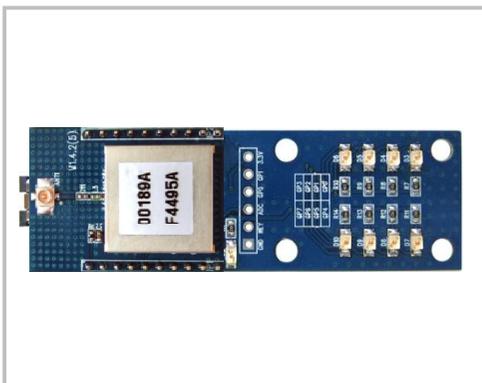
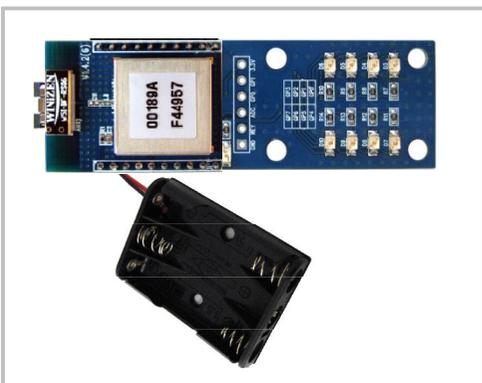
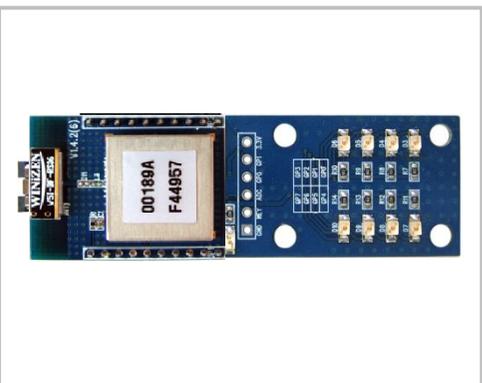
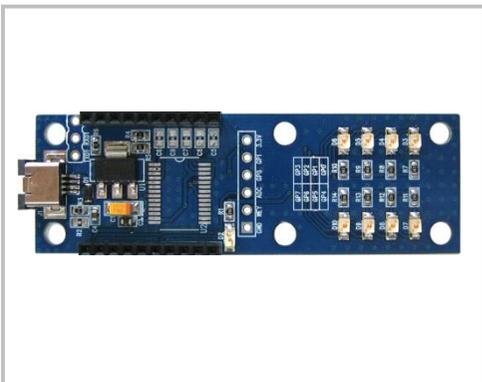
FB800xED\_GPIO\_TACT\_SWITCH



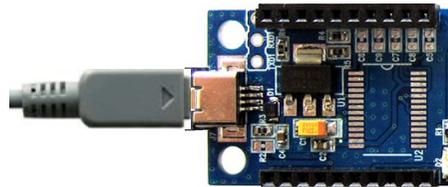
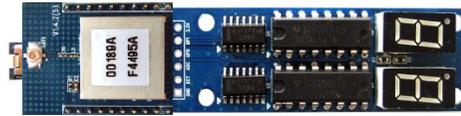
**FB800xED\_GPIO\_RELAY**



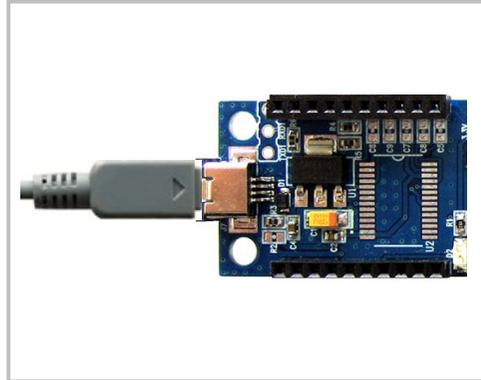
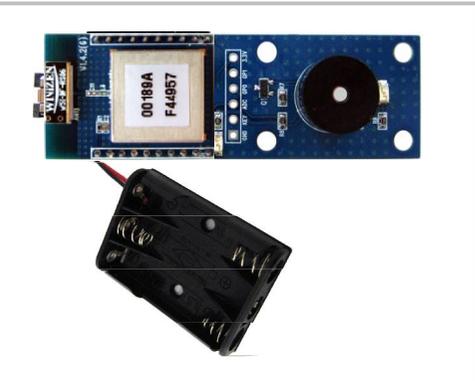
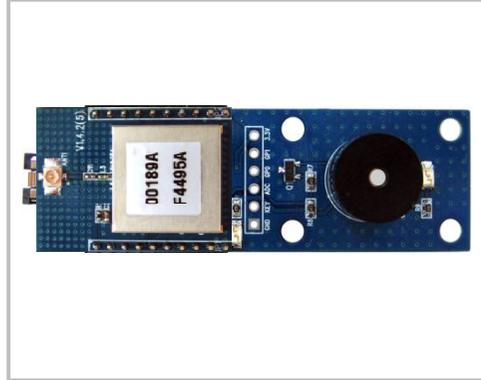
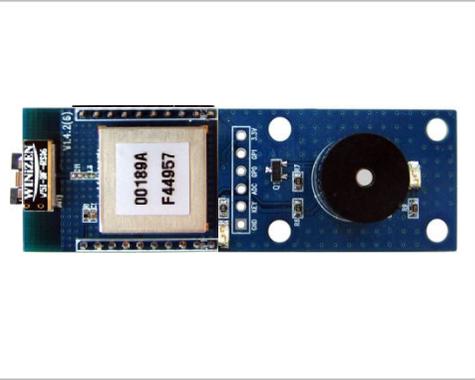
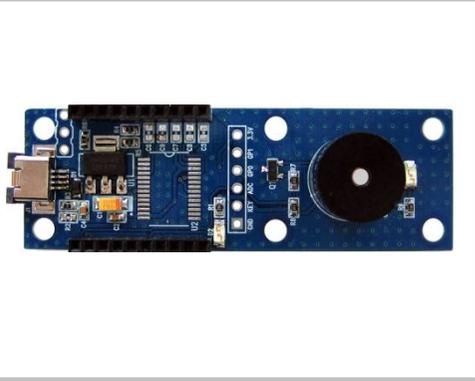
FB800xED\_GPIO\_LED



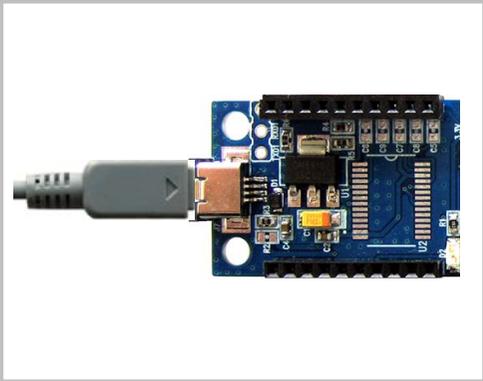
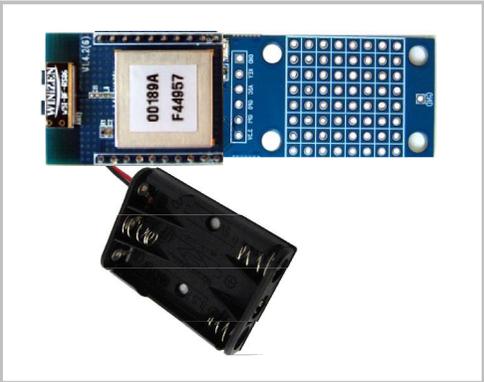
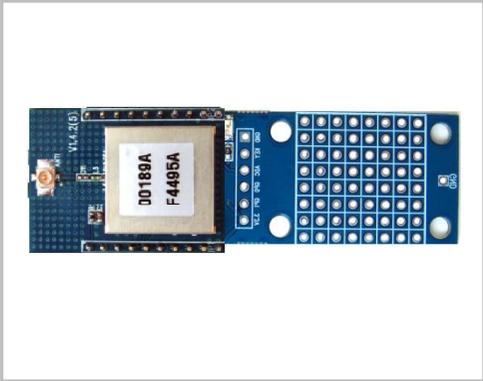
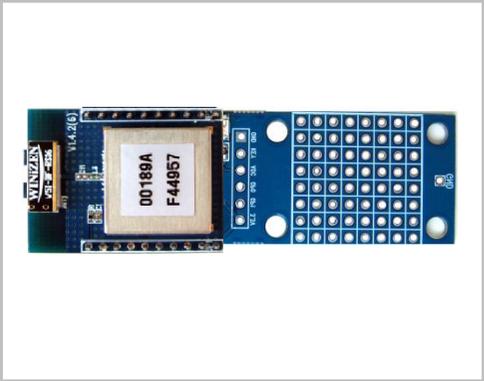
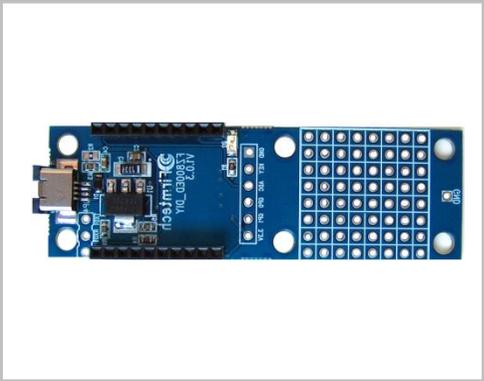
FB800xED\_GPIO\_FND



FB800xED\_GPIO\_BUZZ



FB800xED\_DIY



FB800xED\_CON\_2.54

