

## ZigBee® PRO - ready development platform

ZigBee® PRO is a wireless network technology that enables long lifetime with low power consumption using dry batteries. The technology is well suited to a wide range of building automation, industrial automation, medical and residential control & monitoring applications. The development platform enables wireless communication via a physical (PHY) layer and media access (MAC) layer that comply with the IEEE 802.15.4 specifications. Optionally, with the ZigBee PRO SDK, available separately, the development platform enables wireless peer-to-peer mesh networking via ZigBee PRO protocol that complies with ZigBee PRO standard, allowing system developers and OEMs to easily develop ZigBee™ PRO prototypes and products.

### ■ Features

- ✓ Full line-up of 16 and 32 bit microcontrollers supports the ZigBee PRO network.
- ✓ 8 bit microcontrollers support the Simple Network.
- ✓ Compiler and debugger are included in the TK Boards and 78K0R UZ Stick.<sup>NOTE1</sup>
- ✓ ZigBee PRO - ready Stick for rapid prototyping.<sup>NOTE2</sup>
- ✓ The ZigBee PRO SDK and SimpleNET SDK are available separately.<sup>NOTE3</sup>



#### TK-850/SG2+UZ

- ZigBee-Ethernet Gateway with WEB server
- V850ES/SG2: 32 bit CPU, 384KB Flash, 32KB RAM
- Compiler (128KB max), Debugger, TCP/IP, HTTP, SMTP, POP3, and IEEE 802.15.4 MAC stack library are bundled



#### TK-78K0R/KG3+UZ

- ZigBee-ready evaluation board
- 78K0R/KG3: 16 bit CPU, 512KB Flash, 30KB RAM
- Compiler (64KB max), debugger, and IEEE 802.15.4 MAC stack are bundled



#### 78K0R UZ Stick

- 78K0R/KE3: 16 bit CPU, 256KB Flash, 12KB RAM



#### TK-78K0/KF2+UZ

- ZigBee-ready evaluation board
- 78K0/KF2: 8 bit CPU, 128KB Flash, 7KB RAM
- Compiler (32KB max), debugger, and IEEE 802.15.4 MAC stack are bundled



#### 78K0 UZ Stick

- 78K0/KE2: 8 bit CPU, 128KB Flash, 7KB RAM

NOTE1: Debugging on 78K0 UZ Stick is optionally supported by a connector for MINICUBE2. The MINICUBE emulator, QB-MINI2, and an adapter, SICA10I2P, have to be purchased.

NOTE2: Please comply with your local regulation of electro-magnetic emission.

NOTE3: ZigBee PRO SDK for 78K0R and V850 is available separately. ZigBee PRO SDK includes the ZigBee PRO stack lib. The ZigBee platform, which consists of the NECEL/Skyley ZigBee PRO stack, the 78K0R microcontroller and the UBEC radio chip, has been deemed as a ZigBee PRO Compliant Platform by the ZigBee Alliance. SimpleNET SDK for 78K0 is also available separately.

## ■ Specifications

	TK-850/SG2+UZ	TK-78K0R/KG3+UZ	78K0R UZ Stick	TK-78K0/KF2+UZ	78K0 UZ Stick
Micro-controller	32 bit V850ES/SG2 UPD70F3281YGC 384 KB Flash 32 KB RAM	16 bit 78K0R/KG3 UPD78F1168GC 512 KB Flash 30 KB RAM	16 bit 78K0R/KE3 UPD78F1146GB 256 KB Flash 12 KB RAM	8 bit 78K0/KF2 UPD78F0547DGK 128 KB Flash 7 KB RAM	8 bit 78K0/KE2 UPD78F0537DGA 128 KB Flash 7 KB RAM
CPU Clock	20 MHz	20 MHz	20 MHz	16 MHz	16 MHz
Power supply	4 x AA batteries, or USB power	006P battery, or USB power	006P battery, or USB power	006P battery, or USB power	006P battery, or USB power
Ethernet I/F	one channel	None	None	None	None
LED	1 each for Power, LAN, and LINK, and 4 for application	1 for Power, and 3 for application	1 for Power, and 3 for application	1 for Power, and 3 for application	1 for Power, and 3 for application
Tact switch	1 for Reset, and 2 for application	1 for Reset, and 3 for application	None	1 for Reset, and 3 for application	None
5-way switch	None	1	None	1	None
On board sensor	one temp sensor	one temp sensor	one temp sensor	one temp sensor	one temp sensor
Transceiver	UBEC UZ2400	UBEC UZ2400	UBEC UZ2400	UBEC UZ2400	UBEC UZ2400
Crystal for communication	eCera, 20 MHz +/-10 ppm	eCera, 20 MHz +/-10 ppm	eCera, 20 MHz +/-10 ppm	eCera, 20 MHz +/-10 ppm	eCera, 20 MHz +/-10 ppm
Antenna	gigaAnt Titanis	gigaAnt Titanis	gigaAnt Comata	gigaAnt Titanis	gigaAnt Comata
Balun	SMI Electronics Devices MC1608-HMC	SMI Electronics Devices MC1608-HMC	SMI Electronics Devices MC1608-HMC	SMI Electronics Devices MC1608-HMC	SMI Electronics Devices MC1608-HMC
Debug Interface	Mini USB	Mini USB	USB	Mini USB	Option: SICA2P20S for MINICUBE2
C-compiler	128 KB size-limited version is bundled	64 KB size-limited version is bundled	64 KB size-limited version is bundled	32 KB size-limited version is bundled	32 KB size-limited version is bundled
Debugger	bundled	bundled	bundled	bundled	Included in the MINICUBE2
Flash programmer	PG-FPL is bundled	ID78K0R is bundled	ID78K0R is bundled	PG-FPL3 is bundled	PG-FPL3 is bundled
802.15.4 MAC	Object library is bundled	Object library is bundled	Object library is bundled	Object library is bundled	Object library is bundled
Others	TCP/IP, HTTP, SMTP, POP3 are bundled Source code of a WEB server application is bundled	Source code of star network and text chat is bundled	Source code and object file for Flash programming of star network and text chat is bundled	Source code of star network and text chat is bundled	Source code and object file for Flash programming of star network and text chat is bundled
Kit	One board in one kit	Two boards in one kit	One stick in one kit	Two boards in one kit	One stick in one kit

### [How to purchase]

Please contact any Reprs or distributors of NEC Electronics.

Availability: All kinds of boards and sticks are available now.

[NEC Electronics ZigBee Web site]

<http://www.necel.com/micro/en/technology/zigbee/index.html>

Link to the enquiry sheet is available.