

## Hanback USN Equipment (HBE Zigbex 2)


-Ubiquitous Sensor Network(USN) is a field competed by all countries of the world to secure National Competitiveness for communication environment which transcends time and space by using Ultra Low Power.

-Ubiquitous Sensor Network is being expanded to overall industries such as Intelligent Home Network, Building Management, Environment Monitoring, Disaster Prevention and Healthcare and recently the used range of this is being expanded to the fields for interworking with existing Infrass of Electronic Payment, Information Delivery, Voice Communication, P2P and Data Sharing.




-Ubiquitous Sensor Network is a technology which is a base of IT convergence technology and Growth Engine, big new things in recent years, and also this is considered to the heart of strategic positioning for major industries of Automobile, Shipbuilding, Construction and Medical Service.

-HBE-ZigbeX II executes Porting of the latest TinyOS 2.x, Nano Qplus to HBEZigbeX leading the education marketplace of domestic Ubiquitous Sensor Network. Also, HBE-ZigbeX II adds various Educational Themes of Healthcare and Environment Monitoring sensor to improve the Industrial Validity of educational institutions.

## Features

Name	Composition	Picture
Sink Mote (Gateway)	<p><b>Processor</b> :ATmega128L</p> <p><b>Memory</b>: 128KB Program FLASH,4KB RAM</p> <p><b>RF Device</b>: cc2420(IEEE802.15.4 compliant)</p> <p><b>Data Rate</b> Max.250 kbps</p> <p><b>Base Sensor</b>: Temperature,Humidity,intensity of illumination, infrared rays a sensor,RTC</p> <p><b>Size(W*D*H)</b> : 60mm*50mm*30mm</p>	
Motes		
RFID Tags	Card type, 13.56MHz RFID tag	

<p>RFID Reader</p>	<p>13.56MHz RFID reader  Tag Data Storage 16*64Byte  Card ID:1 Byte  Key :16 Byte  Data :1007Byte</p>	 <p>RFID Reader</p>
<p>Battery Charger</p>		
<p>USB cable (PC-USN-ISP)</p>	<p>USB Extension Cable</p>	
<p>USB Mini Cable(Mote-USN-ISP)</p>		
<p>USN-ISP</p>		
<p>Location detection module (GPS)</p>	<p>GPS receiver</p> <p>1. Features</p> <ul style="list-style-type: none"> <li>* Patch Antenna</li> <li>* Size : 35(w)mm X 35(d)mm X 3(h)mm</li> <li>* Size : 39.0(w)mm X 35.5(d)mm X 8.0(h)mm</li> <li>* Weight : 21 grams</li> </ul> <p>2. Receiving Unit Specifications</p> <ul style="list-style-type: none"> <li>* Receiver type : L1 frequency, C/A Code, 20-channel</li> <li>* Max up-date rate : 1 sec</li> <li>* Accuracy (SA off) : Position &lt; 10m 3DRMS</li> <li>* 3D Tracking Sensitivity : -156dBm at the receiver input(typical)</li> <li>* Operational Limits : Altitude &lt; 18,000m (60,000ft)</li> <li>* Velocity &lt; 515m/s (1,000knots)</li> </ul> <p>3. Protocol: NMEA 0183</p>	 <p>GPS(outdoor position recognition)</p>

<p>3-Axis Acceleration Module</p>	<p>X, Y, Z 3-axis acceleration sensor</p> <ul style="list-style-type: none"> <li>* XYZ 3-axis sensing capabilities</li> <li>* Selectable sensitivity(1.5g/2g/4g/6g)</li> <li>* Low current consumption : 500uA</li> <li>* Low voltage operation : 2.2V-3.6V</li> <li>* High sensitivity (800mV/g at 1.5g)</li> <li>* Maximum acceleration(g_max) : <math>\pm 2000g</math></li> <li>* Supply voltage(VDD) : -0.3 ~ 3.6V</li> <li>* Sensitivity</li> <li>1.5g : 800mV/g</li> <li>2g : 600mV/g</li> <li>4g : 300mV/g</li> <li>6g : 200mV/g</li> <li>* Bandwidth response</li> <li>X, Y : 350Hz, Z : 150Hz</li> </ul>	 <p style="text-align: center;">Triaxiality Acceleration Measurement</p>
<p>ZibeX 2-Relay Module</p>	<p>On/Off Control using 2ch Relay</p>	 <p style="text-align: center;">On/Off Control using 2ch Relay</p>
<p>ZibeX 2-Serial Interface</p>		
<p>Weather Sensor Module Temp./ humi., Light, Acceleration and pressure of atmosphere.</p>	<p>Can collect a variety of meteorological sensor module</p> <ol style="list-style-type: none"> <li>1. Temp &amp; Humidity Sensor : Temperature and humidity measurement <ul style="list-style-type: none"> <li>* Sensor : Sensirion SHT11</li> <li>* Channels : Humidity / Temperature</li> <li>* Range : 0~100%(H) / -40~+80 °C(T)</li> <li>* Accuracy : <math>\pm 3.5\%</math> RH (H) / <math>\pm 2^\circ\text{C}</math> (T)</li> <li>* Operation Volt : 2.4~3.6 V</li> <li>* Output : Digital Output</li> </ul> </li> <li>2. Press Sensor : Atmospheric pressure measurement <ul style="list-style-type: none"> <li>* Sensor : Intersima MS5534B</li> <li>* Channels : Absolute pressure / Temperature</li> <li>* Range : 10~1100 mbar(A) / -40~+125 °C(T)</li> </ul> </li> </ol>	 <p style="text-align: center;">Air Pressure, Light, Acceleration</p>

	<ul style="list-style-type: none"><li>* Accuracy : <math>\pm 3.5\%</math> RH (H) / <math>\pm 2^{\circ}\text{C}</math> (T)</li><li>* Operation Volt : 0.3~4 V</li><li>* Output : Digital Output</li></ul> <p>3. Ambient Light Sensor : Light intensity measurement</p> <ul style="list-style-type: none"><li>* Sensor : TAOS TSL2550</li><li>* Channels : Compensate for the effect infrared component of ambient light / infrared component of ambient light</li><li>* Range : 50~300Lux</li><li>* Operation Volt : 2.7 to 5.5 V</li><li>* Output : Digital Output</li></ul> <p>4. Accelometer : Vibration Measurement</p> <ul style="list-style-type: none"><li>* Sensor : Analog Device 2Axis ADXL202</li><li>* Channels : Axis X / Axis Y</li><li>* Range : -2G~+2G</li><li>* Accuracy : 2mg Resolution at 60Hz</li><li>* Operation Volt : 3V to 5.25 V</li><li>* Output : Analog Output</li></ul>	
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