

KT-6160 EZ-Extender

User's Manual

Version 1.0, Aug. 2014



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Important Note

Radiation Exposure Statement

This equipment complies with CE/FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

FCC Information

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution:

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This product contains a radio transmitter with wireless technology which has been tested and found to be compliant with the applicable regulations governing a radio transmitter in the 2.400GHz to 2.483GHz frequency range.

The KT-6160 EZ-Extender

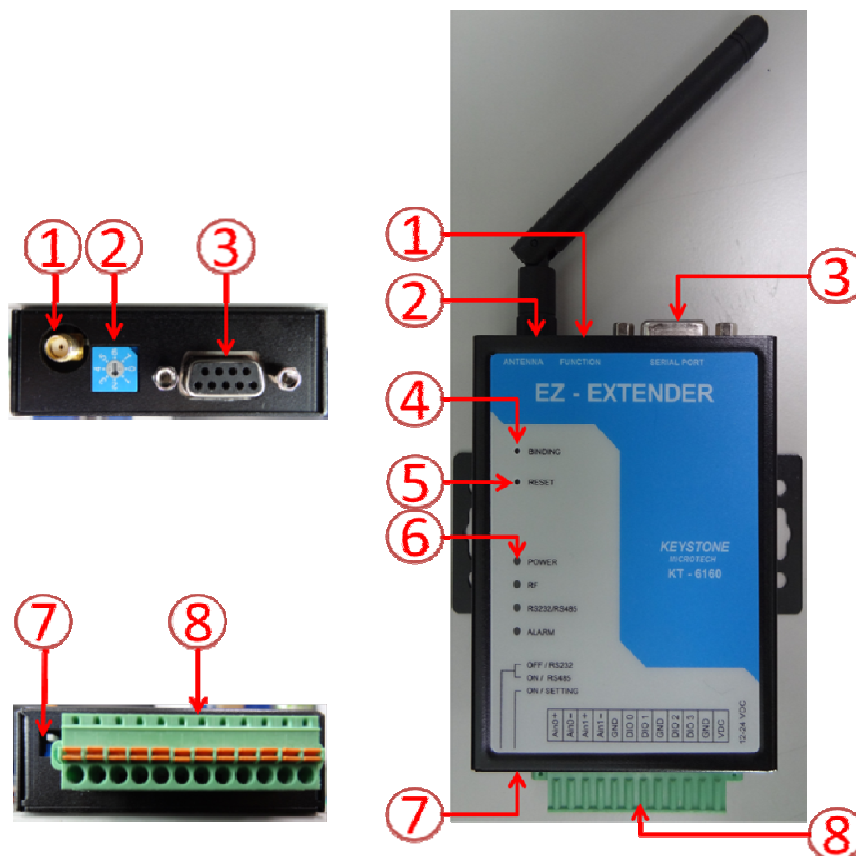
KT-6160 EZ-Extender is an IO extension unit for the KT-6101 Smart IO controller (SIO). However, in addition to the wired extension via the RS-232 serial port to the SIO, the EZ-Extender also supports a wireless extension based on 2.4GHz RF technology for remote I/O application.

This user's manual guides you through the following steps to understand the basic operation of the KT-6160 EZ-Extender:

- [Understand the hardware](#)
- [Product Specifications](#)
- [Install the hardware](#)
- [Use the device](#)

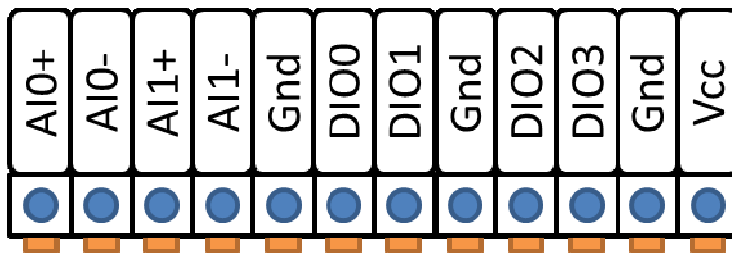
1. Understand the hardware

Hardware description:



- 1 : Device ID
- 2 : Antenna connector
- 3 : Serial port connector (D-SUB 9 Female)
- 4 : Wireless Binding button
- 5 : Reset button
- 6 : Status LEDs (Power 、 RF 、 RS232/RS485 、 Alarm)
- 7 : RS-232 / RS-485 mode switch
- 8 : I/O terminal block

I/O terminal block:



Port Description:

Port	Description	Specification
DIO 0 ~ DIO 3	Software Configurable Digital Input/Output Ports	Digital Input mode : +5Vdc ~ +30Vdc Digital Output mode: +5Vdc ~ +50Vdc @ 200mA/Channel
Ain0+/Ain0-	Analog Input port 0	Current mode : 0~20mA; 4~20mA Voltage mode : 0~5V; ±5V; 0~10V;
Ain1+/Ain1-	Analog Input port 1	

		±10V;
VS - / VS +	Power Input	DC +10V ~ +30V
GND	Ground	Isolation Gnd

2. Product Specifications:

Models	KT-6160
Analog Input (AI)	
Input Channels	2
Input Types	0~20mA, 4~20mA, -10~+10V, -5~+5V, 0~+10V, 0~+5V
Resolution	16-bits
Sampling Rate	60 samples/sec
Configurable Digital Input/Output (DIO)	
Output Channels	4
Type	Sink
Max Load current	200mA/channel
Load Voltage	+5V ~ 50VDC
Power Requirements	
Reverse Polarity Protection	Yes
Powered from Extension Port	Yes, 5Vdc

3. Install the hardware

- (3.1) KT-6160 EZ-extender can be connected to KT-6101 Smart IO controller as the extended IO. Use an D-Sub 9 cable to connect the two devices as following:

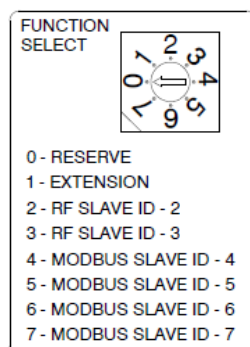


- (3.2) Connecting the power: DC +10 ~ +30V to VS+ and VS-

- (3.3) Grounding the unit

4. Use the device

- (4.1) By switching the Device ID, KT-6160 can be configured as one of the following modes:



1. **Extension mode:** as an I/O extension module for KT-6101; please select the Function Select switch ID to 1. (It can play as a RF master if further connected to the other RF-Slave mode EZ Extenders.)
 2. **RF slave mode:** as an wireless RF I/O extension module for KT-6101; please select the Function Select switch ID to 2 or 3. In this mode, KT-6160 plays as a RF slave in response to a RF master.
 3. **RS-485 Modbus slave mode:** the KT-6160 EZ-extender can play as a RS-485 Modbus slave devices. Please select the Funtion Select switch ID to 4. 5. 6 or 7. The ID is also the device id for the modbus protocol.
- (4.2) As the KT-6101(Smart IO controller) and the KT-6160 (EZ-Extender) can be connected as through wired-line and RF wireless. The maximum I/O ports used in the control block logic are show as followed.

I/O ports configuration for SIO and EZ-extender

Contact		Smart I/O KT - 6101					EZ Extended # 01 KT - 6160				Wireless EZ Extended # 02 KT 6160				Wireless EZ Extended # 03 KT 6160				
Name	APP CB Symbol	0	1	2	3	0	1	2	3	0	1	2	3	0	1	2	3		
Digital Input	X	0	1	2	3														
Configuring Analog Input	A	0	1																
Configuring Digital I/O	XY	0	1	2	3	4	5	0	1	2	3	0	1	2	3	0	1	2	3

Digital Input ■
Configuring Analog Input ■
Configuring Digital I/O ■



For the way to program the control block logic for EZ-Exteder, please refer to the user manula of KT-6101 Smart IO Controller.

Federal Communications Commission

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radiofrequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This device complies with part 15 of the FCC Rules.

Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Professional installed device must not be distributed through retail store.

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.