

Intelligent Driving Test System (ERTS-5000)

User Manual

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Neo Information Systems Co., Ltd.

1. Summary and feature

ERTS-5000 is to be used as control panel for the road test and gathers all data of various vehicle signals such as sensor data, GPS, sign pad and etc... and then sends the signals to Tablet PC as wire (USB) or wireless (Bluetooth).

2. Specification

Model : ERTS-5000			
Item	Name	Specification	Remark
Processor	S3C3410X	ARM7TDMI CORE	
		16/32-bit RISC Microprocessor	
		Operating Voltage 3.3Volt	
Memory	S29AL008J	8Megabit Flash Memory	
	K4S641632N	64Megabit N-die SDRAM	
	STK14C88-3NF35	256Kbit NVRAM	
Supporting device	MD-5XRAH33	Bluetooth(A2DP , SPP)	
	Digital IN	Car Sensor Data	
	SC28L92A1B	Dual Universal Asynchronous Receiver/Transmitter (Debug, GPS, Acceleration, Sign pad, USB, Rev)	
Environment	Operating temp.	-10℃ ~ 50℃	
	Storage temp.	-30℃ ~ 80℃	
Power	Input voltage	DC 12 V	
	Output voltage	Input voltage , DC 5 V	
Size	W x H x D	187.5 x 127 x 31 (mm)	

3. BLUETOOTH specification and explanation

Bluetooth is to send all data such as sensor data of vehicle, sign pad, GPS, and etc...) to Tablet PC as wireless.

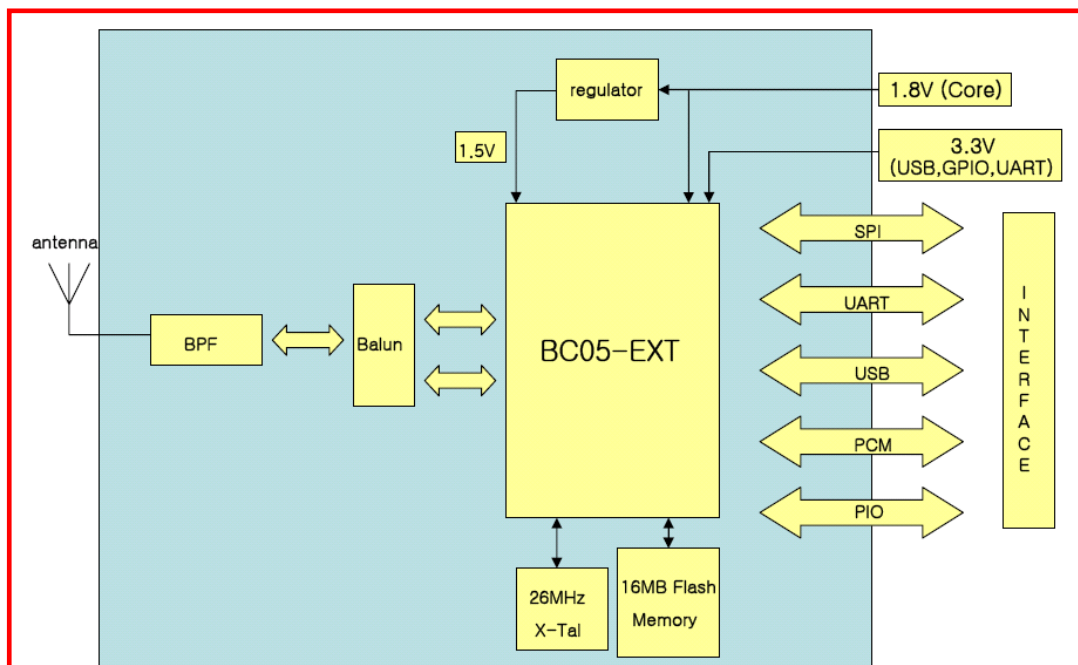
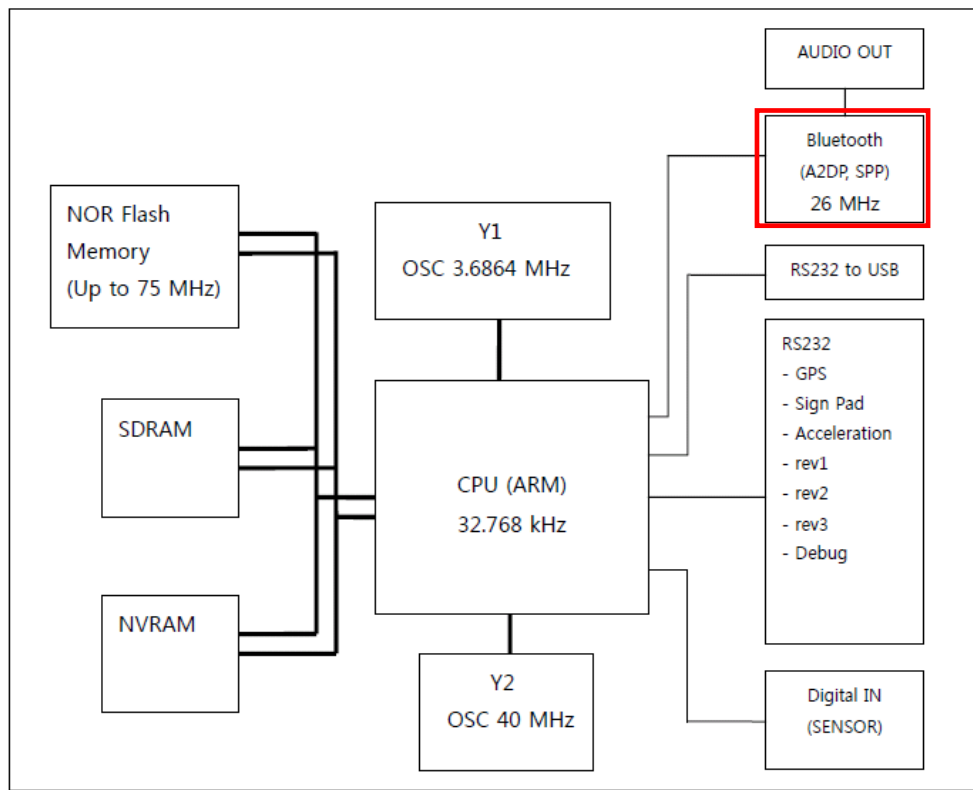
In addition, receive the sound of Tablet PC to output the sound by speaker.

Support A2DP(profile for wireless communication of stereo sound<audio data streaming among devices>) , SPP(Bluetooth profile to replace RS-232 serial communication with Bluetooth communication) LED and then check the connection by LED status.

We can set device name and pin code to connect to Bluetooth.

1. Bluetooth v1.2
2. Class 2 Level Output Power Available.
3. Support of all Bluetooth packet type(voice and data).
4. Built-in Reference Clock : 26MHz
5. 16Mbits Flash Memory.
6. Enhanced Audibility and Noise Cancellation.
7. Core Supply Voltage : 1.7 ~ 1.95(V).
8. Other Supply Voltage : 3.0 ~ 3.6(V).
9. Size : 12.0 x 20.0 x 2.3(mm)
10. Operation Temperature : -10 ~ 50℃
11. Transmission output : Less than 0 dBm

4. Block diagram



5. Photo



6. Names of each parts of the device

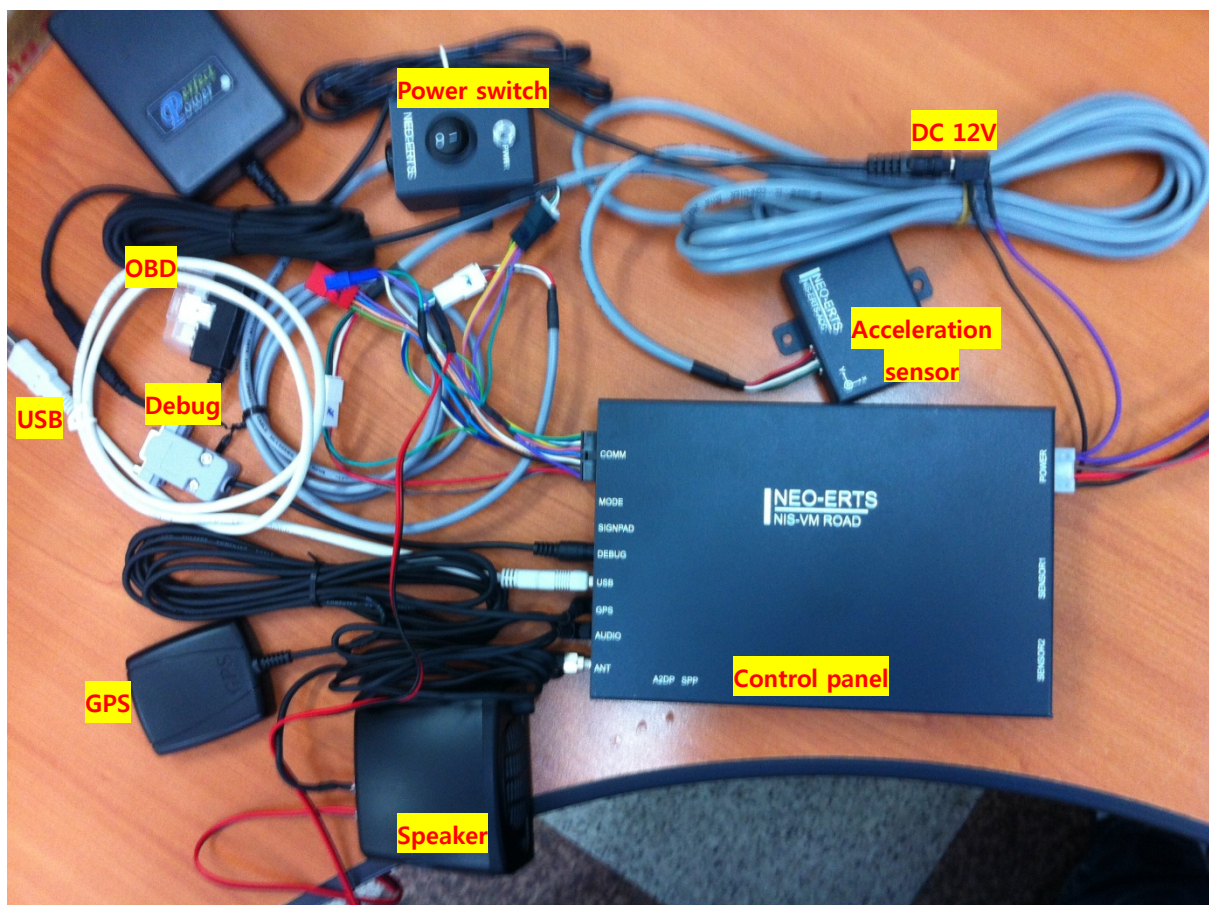
No.	Name	Explanation
1	COMM	OBD , LDWS , REV , ACCEL , PTR-Switch
2	MODE	Mode setting switch
3	SIGNPAD	SIGNPAD Communication USB Port
4	DEBUG	DEBUG Port
5	USB	USB communication Port
6	GPS	GPS module connection terminal
7	AUDIO	AUDIO connection terminal
8	ANT	External antenna
9	POWER	Power connection terminal
10	SENSOR1	Sensor data input terminal
11	SENSOR2	Sensor data input terminal
12	A2DP , SPP	Bluetooth connection LED

7. Explanation of each part of the device

- COMM : Communicate with the control panel in a way of RS232 connected to OBD module an acceleration sensor. PTR-Switch is ON/OFF switch of the control panel and LDWS and REV terminal are for spares.
- MODE : It is a spare switch to recognize if not used, or under special environments.
- SIGNPAD : It is a terminal to connect to sign pad and communicate with the control panel by RS232 type.
- DEBUG : It a port to be used to download a program and communicates with RS232 type to the control panel.
- USB : It is a USB port with wire communication to the control panel.
- GPS : It is a terminal to connect to GPS and transmits with GPS data to the control panel.
- AUDIO : It is a terminal to connect to a speaker.
- ANT : It is an external antenna for Bluetooth communication.
- POWER : It is a power output/input terminal, consisted of power input terminal, and output terminal and GND terminal.
- SENSOR1 : It is an input terminal to receive various sensor data(seatbelt, engine, etc...) from the vehicles.
- SENSOR2 : It is a spare input terminal regarding additional sensor data.
- A2DP , SPP : Bluetooth connection LED.

8. Operation guide.

1. Connect to all cables before cabling with DC 12V power.
2. Input DC 12V power at the power terminal.
3. Turn ON the power on the power switch.
4. Transmit it to the control panel on the base of acceleration of gravity(G) value as 100ms interval.
5. OBD uses constant power supply and transmits the data of RPM, speed, and etc.. to the control panel.
6. DEBUG is used as connecting the cables of PC and serial and download the program of the control panel and also used as debugging for troubleshooting.
7. USB is used when Bluetooth communication is disconnected between control panel and Table PC.
8. Transmit GPS data to the control panel.
9. Speaker outputs sound data received by Bluetooth communication.



8. Warning

FCC RF INTERFERENCE STATEMENT

NOTE :

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures.

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio, TV technical for help.
- Only shielded interface cable should be used.

Finally, any changes or modifications to the equipment by the user not expressly approved by the grantee or manufacturer could void the users authority to operate such equipment