Wzzard[™] Starter Kits HVAC Monitoring Bundle SETUP MANUAL





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HVAC MONITORING BUNDLE

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HVAC MONITORING STARTER KIT

Kit Model BB-WSK-HAC-1

The Wzzard[™] HVAC Monitoring Application makes it simple to see the real time and historical electrical consumption of any individual machine or panel. Data can be exported to Dropbox for further analysis. Email or text message alerts can be sent when user-configured high or low limits are exceeded in critical applications.

Installation costs are kept low using the Wzzard wireless sensing platform. The platform creates a self-forming, self-healing wireless mesh network that eliminates the need for wires and requires no special skills to install. Each Wzzard sensor node is powered by long life batteries.

Using Node-RED[™], a simple, browser based application preinstalled on the gateway, you can monitor current draw from any web browser on your network.

The contents of the kit include:

WSD2CJA	2 analog-in + 2 J-Type thermocouple inputs Wzzard Node
JC10F50-V	50A clamp on current sensor
BB-WTJ-10-36-TT	J-Type thermocouple, #10 mounting hole, ungrounded
SG3000525-41	SmartSwarm 341™ Ethernet Gateway, with Dust
	JC10F50-V BB-WTJ-10-36-TT

WZZARD NETWORK SETUP

The Wzzard node and gateway in this kit are preconfigured. If this is the only Wzzard device in your vicinity, it will need no further configuration. If other Wzzard gateways are nearby, you will need to change the network ID on both the gateway and the node. See respective node and gateway manuals for instructions.

DOWNLOADING THE HVAC MONITOR NODE RED FLOW TO THE GATEWAY

Note: router must be in operational and online state in order to add the HVAC application (ie Eth1 must be plugged in).

- 1. Follow the instructions in the Gateway Quick Start Guide to claim your gateway.
- 2. Select View Devices from the dropdown menu on the SmartWorx Hub Home Screen:

Powered by ADI-ANTECH	Home	Help Log off Hello, knelson@advantech-bb.com
Dashboard		
Devices 👻		
Claim/Release Device		
Users -		
Technology Providers		
Configuration Profiles		
Password -		
Contact		

3. Select your device from the list of available devices:

B+B SM Powered by	ARTWORX	View De	evices				Hello, kr	nelson@adva	Help Log off antech-bb.com
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	<u>203-01-</u> 6500058	B+B Ottawa (Kevin_N)	SmartSwarm 341- Non Cell		Kevin Test		Operational	î	
	Privacy Policy					© Advante	ch B+B SmartWorx ;	2017 v1.2.1.26	



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- 4. Select Add/Upgrade Apps:

Dashboard	Devices -	Users 👻	Technology Provide	s Configuration F	Profiles F	Password 👻	Contact	
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5. Check the box next to HVAC. A list of components to be updated will appear:

		assword - Contact	Configuration Profiles	Technology Providers	Users *	Devices -	Dashboard
				Applications	Device > Select	> Devices > Manage	Dashboard
					Cancel	grade Selected	Add/U
	Version	Туре		Tag		lame	
	1.0.7	Application				NodeRED	•
	1.0.10	Application				Vzzard	0
	1.1.1	Component				Components-341	
0	1.9.0	Package				Energy-Monitor	8
D	1.0.0	Package				IVAC	Ο
Ð	1.0.0	Package				Restore	



6. Click OK to accept the download:

	board Devices +	Requirements				× antact	
	VUpgrade Selected	Wzzard HVAC Application				Version	
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	Components-341	NodeRED	1.0.7	00.01	0	9.55.0	
	Energy-Manitor	Wzzard	1.0.10	00.35	C	1.29.0	
	1000	node-red-contrib-input-split	0.1.0	N/A	0		
ž	HVAC	node-red-node-dropbox	0.1.2	N/A	0	1.日後	
	Restore	node-red-node-ping	0.0.13	N/A	•	1.0.0	
		BB.png		00.01	•	•	

7. Click Add/Upgrade Selected to start the download:

	Applications	Mapage Device > Select	and > Devices > Mapage	Dashbo
	Abuse and an		/Upgrade Selected	
Type Version	Tag		Name	
Application 1.0.7		1	NodeRED	۲
Application 1.0.10			Wzzard	
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Package 1.9.0 🧃		onitor	Energy-Monitor	
Package 1.0.0 👔			HVAC	
Package 1.0.0 (1	[Restore	



8. The download could take several minutes. To monitor the progress, Select History from the Manage Devices screen:

B+B SMAR	TWORX	iviana	age Device				Help Log off
	Devices +	Users -	Technology Providers	Configuration Profiles	Password +	Contact	advantech-bb.com
Dashboard > Dev	ices > Manage I	Device			- Contradiction -		
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Name		wa (Kevin_N					
Status	Operatio	nal	•	•	0	SMARTSWARM 300 Servers	
Firmware	0.000				NETH		
Filliwale	1.1.8		▼ Push				
DeviceType	SG300005	20-41					
MAC Address	s 00:0A:14:8	35:0D:76					
Online	î						
Settings	Select		•				
Save Ca	nce Histo	ory Add/U	pgrade Apps				
		1					

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9. As each component is updated, it will be marked with a \checkmark check mark:

Note: "AddNode" commands will show an **X** if they have already been installed.

Dashboard De	vices -	Users -	Technolog	y Providers	Configuration	Profiles	Password -	Contact			
ashboard > Devices > M	anage Device	e > History									
Device Name		B+B Ottawa	(Kevin N #2)								
Device ID		203-01-650)246								
Registered On		08/06/2017	15:01:35								
Last Check In		16/06/2017	21:46:26								
how 10		• en	tries								
Command	Created	d by	Name	Queued	Completed	Success	Response				
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GetBinaryFile	knelson bb.com	@advantech-		16/06/2017 21:46:37	6/16/2017 10:01:59 PM	*					
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howing 1 to 10 of 4	9 entries						← Previou	s 1 2	3 4	5	Next →

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POWER UP WZZARD EDGE NODE

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- 1. Loosen the (4) black screws that hold the top of the node in place.
- 2. Install your batteries.
- 3. Note: Use (2) 3.6V 2400 mAH Lithium Thionyl Chloride AA batteries.
- 4. Install the battery clip.
- 5. Replace the cover. Tighten the (4) top screws to maintain IP67 rating. Torque each screw to 5 to 8 in-lb (0.6 to 0.9 Nm). This is equivalent to 1/4 to 1/2 turn after screw makes contact.
- 6. Check LED.

After you have installed the batteries, the LED will begin to blink. This indicates that the Node is attempting to establish a network connection. The LED will cease blinking when a connection is made.

	LED Indicator	Status
	Solid ON	Module startup initialization (approx. 10 seconds)
	Slow Blink	Attempting to establish connection with SmartMesh IP network.
Data	(1 per second)	
Dala	Fast Blink	Firmware update in progress.
	(10 per second)	
	OFF	Unit is connected to wireless network.

1. Attach the External Antenna.



Note: The best way to remove the clip is to insert a small flathead screwdriver between the batteries and the clip, parallel to the batteries, and give the screwdriver a gentle twist. This will remove the clip without damage.

ACCESS Node-RED UI IN THE GATEWAY

- 1. Attach the antenna to the Wzzard[™] antenna port on the gateway.
- 2. Attach the Ethernet cable to the ETH0 port on the gateway and the other end to your PC. You will use an Ethernet connection to configure the gateway and to communicate with it.
- 3. Attach the supplied power supply and plug it in.
- 4. Open a browser on your computer and open the Node-RED[™] configuration page. The default address is: **192.168.1.1:1880/ui.** (Chrome or Firefox recommended.)

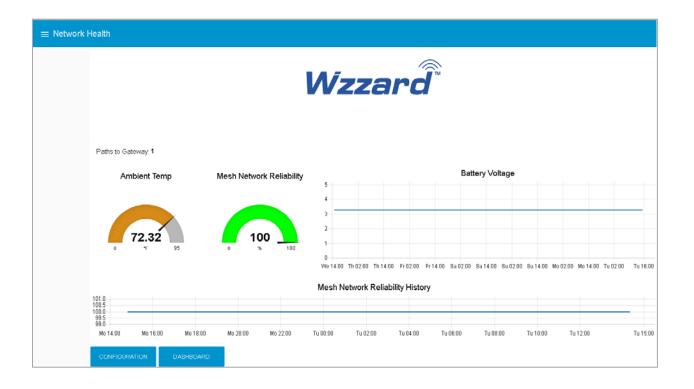
≡ Con	≡ Configuration								
	Wzzard Node Info								
	BTLE ID: MESH ID 0013430F22D5 00170 Serial No : BB0338167015 Firmware : 1.6.3		58D63B 🗘	The software will automati	cally use the IDs of the device.				
			Hardware Version : 6		Model Type : WSD2CJA				
			Battery Install Date : 2017-06	-08	Manufacture Date : 2017-05-05				
	Select Cellular Carrier Info for Text a	ınd Email alerts							
	Select Carrier: Select an Option	 Enable Text A 	Alerts: × Enter Phone #	(no dashes) Enable Email	Alerts: X Enter an Email Address				
	Enable Alerts for Air Temp In:	×	Air Temp In Upper Alert		Air Temp In Lower Alert				
	Enable Alerts for Air Temp Out:	×	Air Temp Out Upper Alert		Air Temp Out Lower Alert				
	Enable Alerts for Compressor Current:		Compressor Current Upper A	lert	Compressor Current Lower Alert				
	Enable Alerts for Fan Current:	×	Fan Current Upper Alert		Fan Current Lower Alert				
	Enable Absolute Temp Differential Aler	: ×	Absolute Temperature Differe	ntial Under					
	NETWORK HEALTH DASHBOARD								

- 5. The Wzzard Node information values will populate when the node joins the network.
- 6. You can set up a phone number to receive text messages and/or an e-mail address for receiving alerts on this page. For text messaging, you will need to select the cell carrier of the receiving phone. If the carrier is not on the list, select custom, and add the URL of the carrier to the phone number (ie: <u>1-123-2345@txt.abcphone.com</u>). See Appendix A for carrier text addresses. If your carrier is not listed, contact your carrier for the address of their SMS gateway.
- 7. You can enable or disable alerts as well as setting the trigger values on this page also.



NETWORK HEALTH PAGE

1. Click the "Network Health" button on the lower left corner of the Configuration page. The page below appears. This page shows the status of the network.

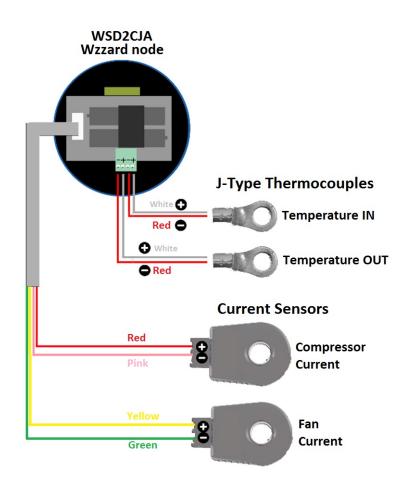


ATTACHING THE SENSORS ON THE INTELLIGENT EDGE NODES

1. Wire Your Sensors to the Edge Node.

The Wzzard[™] HVAC monitoring kit comes with two AC current sensors and two J-Type Thermocouples.

Sensor	Wzzard Industrial Node with S&T cable	Connection
Compressor	Sensor (+) to Stripped & Tinned Cable	RED
Current	Sensor (-) to Stripped & Tinned Cable	PINK
Fan	Sensor (+) to Stripped & Tinned Cable	YELLOW
Current	Sensor (-) to Stripped & Tinned Cable	GREEN
Tomp In	Sensor (+) to Internal Terminal Block	1
Temp In	Sensor (-) to Internal Terminal Block	2
Temp Out	Sensor (+) to Internal Terminal Block	3
	Sensor (-) to Internal Terminal Block	4



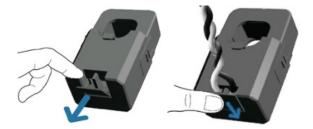
Current Sensors

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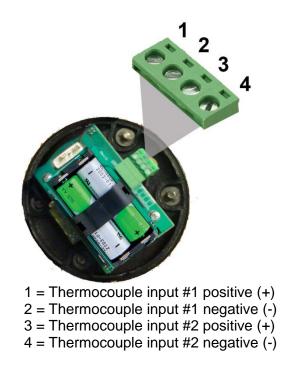
- Open the wire protector clamp by pushing it away from the sensor body.
- Attach your wires.
- Close the wire protector clamp.





Temperature Sensors

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2. Mount Your Sensors.

Current Sensors

The sensor can be mounted in any position.

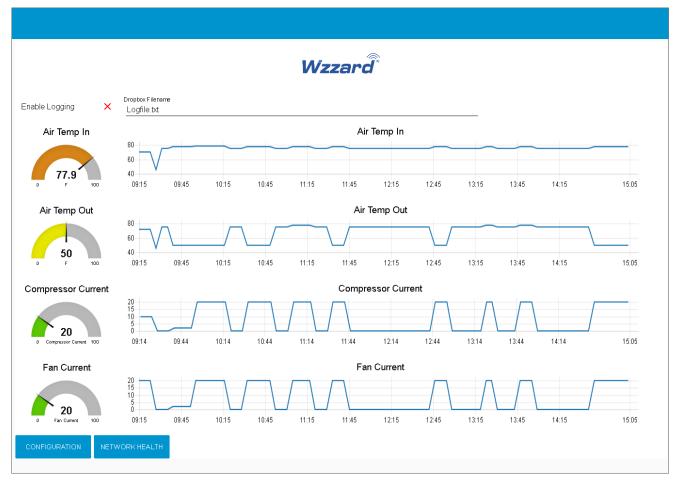
Open the clamp release by pushing it away from the sensor body. Run the wire you are monitoring through the opening in the sensor.



Close the sensor firmly around your wire and ensure that the clamp release has snapped back into place.

ACCESSING THE DASHBOARD

- 1. Open a browser on your computer and open the Node-RED[™] configuration page. The default address is: **192.168.1.1:1880/ui**
- 2. Click on the "Dashboard" button on the lower left corner of the configuration page.
- 3. The dashboard should look like the following screen.

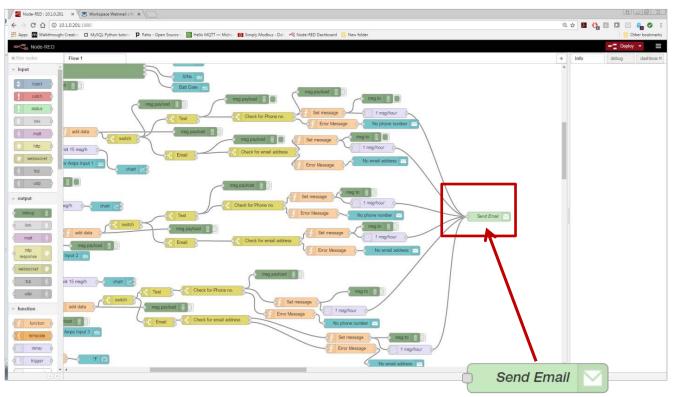


4. You can switch to the Configuration page or Network Health page by clicking on their respective buttons on the lower left.



SETTING UP AN E-MAIL ACCOUNT

1. From your browser, open the Node-RED[™] flow at **192.168.1.1:1880**.



2. Locate "Energy Page", then scroll right and locate the green "Send Email" node; double click on it.



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3. Enter your UserID and Password for your e-mail server in the appropriate boxes. (Leave the "To" field blank.)

Note: If you are using a G-Mail account, you will need to enable "Less Secure Apps" in the Google security settings. See below.

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						Saved passwords You have no synced passwords.
ifications Ites						LEARN MORE
cy activity						Allow less secure apps: ON Some apps and devices use less secure sign-in technology, which could leave your account vulnerable. You can turn off access for these apps (which we recommend) or choose to use them despite the risks.
ols orage						

4. Click "Done". Then Click the "Deploy" button in the upper right corner of the page.

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SETTING UP YOUR DROPBOX FOR LOGGING

- 1. Log in to your Dropbox account or sign up for a new one.
- 2. Once signed up or logged in:
 - Go to https://www.dropbox.com/developers
 - Click 'Create your app' box in the center of the screen.
 - Select 'Dropbox API app'.
 - Choose an appropriate answer as to whether your node should be limited to its own folder or given full access. (TIP: This can be changed later, so choose 'Yes' to restrict the application while testing might be a good idea.)
 - Choose an app name.
 - Click 'Create app'.

The subsequent app page will contain the App Key, App Secret and a 'Generate' button to produce a suitable 'access token'. Save these strings so you can enter them into the application later.

Node-RED : 10.1.0.201	× 🛋	
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) udp		
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3. From your browser, open the Node-RED[™] flow at **192.168.1.1:1880**.

4. Locate "Log data to file", then scroll right and locate the blue 'Write Remote File' node; double click on it.



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5. Then click on the pencil icon next to the Dropbox text window.

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- 6. Fill in the App Key, App Secret, and Access Token you got from Dropbox in their respective fields. (See yellow box for more information.)
- 7. Click Updated; then Done again to close both windows.
- 8. Click the "Deploy" button in the upper right corner of the page.
- 9. Enable logging on the Dashboard web page.

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APPENDIX A. CARRIER TEXT MESSAGING URL ADDRESSES

U.S.A Carriers	
Alltel	[10-digit phone number]@message.alltel.com Example: 1234567890@message.alltel.com
AT&T (formerly Cingular)	[10-digit phone number]@txt.att.net [10-digit phone number]@cingularme.com Example: 1234567890@txt.att.net
Boost Mobile	[10-digit phone number]@myboostmobile.com Example: 1234567890@myboostmobile.com
Nextel (now Sprint Nextel)	[10-digit telephone number]@messaging.nextel.com Example: 1234567890@messaging.nextel.com
Sprint PCS (now Sprint Nextel)	[10-digit phone number]@messaging.sprintpcs.com Example: 1234567890@messaging.sprintpcs.com
T-Mobile	[10-digit phone number]@tmomail.net Example: 1234567890@tmomail.net
US Cellular	[10-digit phone number]email.uscc.net (SMS) Example: 1234567890@email.uscc.net
Verizon	[10-digit phone number]@vtext.com Example: 1234567890@vtext.com
Virgin Mobile USA	[10-digit phone number]@vmobl.com Example: 1234567890@vmobl.com

International Carriers	Email to SMS Gateway
7-11 Speakout (USA GSM)	number@cingularme.com
Airtel (Karnataka, India)	number@airtelkk.com
Airtel Wireless (Montana, USA)	number@sms.airtelmontana.com
Alaska Communications Systems	number@msg.acsalaska.com
Aql	number@text.aql.com
AT&T Enterprise Paging	number@page.att.net
BigRedGiant Mobile Solutions	number@tachyonsms.co.uk
Bell Mobility & Solo Mobile (Canada)	number@txt.bell.ca
BPL Mobile (Mumbai, India)	number@bplmobile.com
Cellular One (Dobson)	number@mobile.celloneusa.com
Cingular (Postpaid)	number@cingularme.com
Centennial Wireless	number@cwemail.com
Cingular (GoPhone prepaid)	number@cingularme.com (SMS)
Claro (Brasil)	number@clarotorpedo.com.br
Claro (Nicaragua)	number@ideasclaro-ca.com
Comcel	number@comcel.com.co
Cricket	number@sms.mycricket.com (SMS)
СТІ	number@sms.ctimovil.com.ar
Emtel (Mauritius)	number@emtelworld.net
Fido (Canada)	number@fido.ca
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Helio	number@messaging.sprintpcs.com
Illinois Valley Cellular	number@ivctext.com
Iridium (satellite)	number@msg.iridium.com
lusacell	number@rek2.com.mx
i wireless	number.iws@iwspcs.net
Koodo Mobile (Canada)	number@msg.koodomobile.com
LMT (Latvia)	number@sms.lmt.lv
Meteor (Ireland)	number@sms.mymeteor.ie
Mero Mobile (Nepal)	977number@sms.spicenepal.com
MetroPCS	number@mymetropcs.com
Movicom (Argentina)	number@sms.movistar.net.ar
Mobitel (Sri Lanka)	number@sms.mobitel.lk
Movistar (Colombia)	number@movistar.com.co
MTN (South Africa)	number@sms.co.za
MTS (Canada)	number@text.mtsmobility.com
Nextel (United States)	number@messaging.nextel.com
Nextel (Argentina)	TwoWay.11number@nextel.net.ar
Orange Polska (Poland)	9digit@orange.pl
Personal (Argentina)	number@alertas.personal.com.ar
Plus GSM (Poland)	+48number@text.plusgsm.pl
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Qwest	number@qwestmp.com
Rogers (Canada)	number@pcs.rogers.com
SL Interactive (Australia)	number@slinteractive.com.au
Sasktel (Canada)	number@sms.sasktel.com
Setar Mobile email (Aruba)	297+number@mas.aw
Suncom	number@tms.suncom.com
T-Mobile (Austria)	number@sms.t-mobile.at
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