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# **Advantech AE Technical Share Document**

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Category	■FAQ □ SOP	<b>Related OS</b>	N/A					
Abstract	How to control DO on WISE-4210 S250							
Keyword	Downlink mode, Digital Output, SUB-G							
Related	NUCE 4210 NUCE 6250							
Product	WISE-4210, WISE-8250							

## Problem Description:

WISE-4210 supports downlink mode after vA103B08. In this document, we will show you what downlink mode it is and how to configure the setting.

# ■ <u>Answer</u>:

# **Requirement:**

- ✓ WISE-4210 AP after vA103B08
- ✓ WISE-4210 Endnode after vA103B08
- ✓ WISE Studio after V1.01.00 B17

## What is the Downlink Mode:

Downlink mode is a new feature for WISE-4210. It allows user to control endnode's IO status by AP and also polling endnode's IO data which extend the flexibility for the customer. As you can see in Fig 1, WISE AP control and polling data from WISE endnode which is different from the push mode that only broadcast data to AP.



Figure 1. Topology of Downlink Mode

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There is also one important point to be noticed. In downlink mode, the WISE-4210 node will not enter into power saving mode. Because it needs to keep listening to the command from WISE-4210 AP.

### **Configuration of Downlink Mode:**

#### Step. 1 RF Configuration:

As the setting in push mode, the frequency, data rate and baseband of AP and endnode need to be matched. Next, the RF operation mode needs to be set to downlink mode. Both AP and node need to be set to downlink mode at the same time.

WISE-4210-AP	
Information	
₽ Configuration	🖋 Configuration
🛦 End Devices	Information Network Network App Time & Date
🕫 Advanced 👻	RF Module RS-485 Cloud Firmware Account
	RF Module
	RF Region NA (923MHz) *
	Data Rate (bps) 50kbps •
	<b>Tx Power (dBm)</b> -10 •
	Baseband (kHz) 922800 •

Figure 2. RF Configuration Page on WISE-4210 AP

## Step. 2 Add WISE-4210 Node into the Connection List of WISE-4210 AP:

Different from push mode, the device need to be added into the list of AP manually by user. By enter the last 12 digit MAC ID of end node, the user will be able to add the node into the list.



		🛔 Root ·
Information		
	List 16 • entries	
🕫 Advanced 👻	MAC Address Modbus ID RSSI Inactive Time Barlery Status Battery Level RTC Battery Status Power Source Device Status Manual Refresh	IO Configuration
	Showing 1 to 0 of 0 entries	Previous Next
	Add Device ×	

Figure3. Add Downlink Device into Connection List of WISE-4210 AP

### Step. 3 Configure the WISE-4210 AP Polling Interval for Downlink Mode:

WISE-4210 AP queries node's data periodically. The data polling interval setting could be found in the main page of WISE-4210 AP. For example: If data polling interval is 10s, WISE-4210 AP will query each node every 10s.

WISE-4210-AP	å Root ≠
<ol> <li>Information</li> </ol>	
	<i>▶</i> Configuration
	Information Network Network App Time & Date SNTP Modbus Control Data Update RF Module RS-485 Cloud Firmware Account
¢\$ Advanced ╺	Data Update
	Node Idle Time (Push Mode) 10 sec
	Data Polling Interval (Downlink Mode)     10     sec
	✓ Submit
	Version : A1.01B15 20200205, Copyright © 2019 By Advantech

Figure 4. Configuration of Polling Interval for Downlink Mode

Step. 4 Observer WISE-4210 Node Information on WISE-4210 AP:

If the setting above steps are corrected, you should able to see the device status change from connecting to connected. By clicking the IO configuration of node, you will be able to enter IO information page. In this page, you could observe the latest IO value and control the digital output. You could also control the DO via Modbus TCP.

VISE-4210-AP											& Root -
Configuration	End E	Device L	ist	7 Edit Mode	+ Add Device						
	List 16 +	entries									
	MAC Address	Modbus ID	RSSI	Inactive Time	Battery Status	Battery Level	RTC Battery Status	Power Source	Device Status	Manual Refresh	IO Configuration
	00D0C9FE92EF	1	-14	5	No Error	0.000 V	Low battery occurs	Line power	Connected	0	
		DI 0	o			K					
		DI	0				Status				
		Status									
		Chann	el			Mode		Status			
		0				DO		OFF			
		1				DO		OFF			

Figure 5. IO Configuration Page for Downlink Mode