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M2M I/O Module: ADAM 2000 Series



Model	AD-ADAM-2510Z	AD-ADAM-2520Z	AD-ADAM-2031Z	AD-ADAM-2017PZ	AD-ADAM-2051Z	AD-ADAM-2051PZ	
Description	Wireless Router	Wireless Modbus RTU Gateway	Wireless Temperature & Humidity Sensor Node	Wireless 6-ch Analog Input Node with Power Amplifier	Wireless 8-ch Digital Input Node	Wireless 8-ch Digital Input Node with Power Amplifier	
Wireless Network	IEEE Standard	IEEE 802.15.4					
	Modulation Type	DSSS (OQPSK)					
	Frequency Band	ISM 2.4 GHz (2.4 GHz ~ 2.4835 GHz)					
	Channels	11 - 26					
	Topology	Star / Tree / Mesh					
	Transmit Power	19 ± 1 dBm	19 ± 1 dBm	3 ± 1 dBm	15 ± 1 dBm	3 ± 1 dBm	19 ± 1 dBm
	Receiver Sensitivity	-97 dBm					
	Outdoor Range *	1000 m (with 2 dBi Antenna)		110 m	1000 m	110 m	1000 m
	RF Data Rate	250 Kbps			250 Kbps		
	Function	Router	Coordinator	End Device	End Device		
Network	Interface	-	RS-485/USB	-	-	-	
	Communication Protocol	-	Modbus RTU	-	-	-	
Analog Input	Resolution	-	-	-	16-bit	-	
	Channels	-	-	-	6 Non-Isolation (Differential)	-	
	Sampling Rate	-	-	-	12 samples/second (total)	-	
	Voltage Input	-	-	-	±150mV,±500mV ±1V,±5V,±10V	-	
	Current Input	-	-	-	±20mA,0-20mA,4-20 mA	-	
Thermocouple Type	-	-	-	-	-	-	
Digital Input and Output	Input Channels	-	-	-	8	8	
	Output Channels	-	-	-	-	-	
Sensor Input	Temperature	-	-	-20°C ~ 70°C	-	-	
	Humidity	-	-	0 ~ 100% RH	-	-	
	CO2	-	-	-	-	-	
LED Indicator	External PWR/Error/Status/Level Index						
Power Requirement	Power Input: Unregulated 10 ~ 30 VDC Battery Input: 2 x AA Alkaline 3 VDC						
Operating Temperature	External Power	-20°C ~ 70°C					
	Battery Power	0°C ~ 50°C					
Power Consumption	Power Supply	0.8 W @ 24 VDC	0.3 W @ 24 VDC	0.5 W @ 24 VDC	0.3 W @ 24 VDC		
	USB	-	0.5 W @ 5 VDC	-	-	-	
	Battery AA * 2	0.3 W @ 3 VDC	420 uW @ 3 VDC (1 minute Tx Interval) 240 uW @ 3 VDC (2 minute Tx Interval) 150 uW @ 3 VDC (5 minute Tx Interval)	380 uW @ 3 VDC (1 minute Tx Interval) 220 uW @ 3 VDC (2 minute Tx Interval) 130 uW @ 3 VDC (5 minute Tx Interval)			
Storage Temperature	-40°C~ 85°C						
Operating Humidity	20-95% RH						
Storage Humidity	0-95% RH						

* Outdoor Range is estimated with line of sight, and please perform site survey to determine the set up range of wireless network.

** ADAM-2017PZ's power consumption will be higher than other end devices to shorten the battery life, therefore, we suggest providing external power for its main power and batteries for power backup.

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Ethernet I/O Modules: ADAM 6000 Series



Spec.	Model	AD-ADAM-6015	AD-ADAM-6017	AD-ADAM-6018	AD-ADAM-6022	AD-ADAM-6024
Interface		10/100 Mbps Ethernet				
Peer-to-Peer ¹			Yes		No	Receiver Only ²
GCL ¹			Yes		No	Receiver Only ²
Resolution			16 bit		16 bit for AI 12 bit for AO	16 bit for AI 12 bit for AO
Analog Input	Channels	7	8	8	6	6
	Sampling Rate			10 S/s		
	Voltage Input	-	±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V	-	±10 V	±10 V
	Current Input	-	0 ~ 20 mA 4 ~ 20 mA	-	0 ~ 20 mA 4 ~ 20 mA	0 ~ 20 mA 4 ~ 20 mA
	Direct Sensor Input	Pt, Balco and Ni R TD	-	J, K, T, E, R, S, B Thermocouple	-	-
	Burn-out Detection	Yes	-	Yes	-	-
	Math. Functions	Max. Min. Avg.	Max. Min. Avg.	Max. Min. Avg.	-	-
Analog Output	Channels	-	-	-	2	2
	Current Output	-	-	-	0 ~ 20 mA, 4 ~ 20 mA with 15 VDC	0 ~ 20 mA, 4 ~ 20 mA with 15 VDC
	Voltage Output	-	-	-	0 ~ 10 V DC with 30 mA	0 ~ 10 V DC with 30 mA
Digital Input/Output	Input Channels	-	-	-	2	2
	Output Channels	-	2 (Sink)	8 (Sink)	2 (Sink)	2 (Sink)
	Extra Counter Channels	-	-	-	-	-
	Counter Input	-	-	-	-	-
	Frequency Input	-	-	-	-	-
	Pulse Output	-	-	-	-	-
High/Low Alarm Settings	Yes	Yes	Yes	-	-	
Isolation Protection		2,000 VDC			2,000 VDC ³	2,000 VDC ³
Remark					Built-in Dual Loop PID Control Algorithm	



Spec.	Model	AD-ADAM-6050	AD-ADAM-6051	AD-ADAM-6052	AD-ADAM-6060	AD-ADAM-6066
Interface		10/100 Mbps Ethernet				
Peer-to-Peer ¹				Yes		
GCL ¹				Yes		
Digital Input/Output	Input Channels	12	12	8	6	6
	Output Channels	6 (Sink)	2 (Sink)	8 (Source)	6-channel relay	6-channel power relay
	Extra Counter Channels	-	2	-	-	-
	Counter Input	3 kHz	4.5 kHz	3 kHz	3 kHz	3 kHz
	Frequency Input	3 kHz	4.5 kHz	3 kHz	3 kHz	3 kHz
	Pulse Output	-	-	Yes	-	-
	High/Low Alarm Settings	-	-	-	-	-
Isolation Protection		2,000 V DC				

Note 1: Peer-to-Peer and GCL cannot run simultaneously, only one feature is enabled at one time.

Note 2: ADAM-6024 can only act as a receiver and generate analog output when using Peer-to-Peer or GCL.

Note 3: Only for analog input and analog output channels.

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Class I, Division 2 Certified Analog Input



Model	AD-ADAM-4011	AD-ADAM-4012	AD-ADAM-4013	AD-ADAM-4016	AD-ADAM-4017	AD-ADAM-4018	AD-ADAM-4021	
Resolution	16 bit						12 bit	
Analog Input	Channels	1 differential	1 differential	1 differential	1 differential	6 differential 2 single-ended	6 differential 2 single-ended	-
	Sampling Rate	10 Hz						-
	Voltage Input	±15 mV ±50 mV ±100 mV ±500 mV ±1 V ±2.5 V	±150 mV ±500 mV ±1 V ±5 V ±10 V	-	±15 mV ±50 mV ±100 mV ±500 mV	±150 mV ±500 mV ±1 V ±5 V ±10 V	±15 mV ±50 mV ±100 mV ±500 mV ±1 V ±2.5 V	-
	Current Input	±20 mA	±20 mA	-	±20 mA	±20 mA	±20 mA	-
	Direct Sensor Input	J, K, T, E, R, S, B Thermocouple	-	RTD	-	-	J, K, T, E, R, S, B Thermocouple	-
	Burn-out Detection	Yes	-	-	-	-	Yes	-
	Channel Independent Configuration	-	-	-	-	-	-	-
Analog Output	Channels	-	-	-	1	-	-	1
	Voltage Output	-	-	-	0 ~ 10 V	-	-	0 ~ 10 V
	Current Output	-	-	-	-	-	-	0 ~ 20 mA 4 ~ 20 mA
Digital Input and Output	Input Channels	1	1	-	-	-	-	-
	Output Channels	2	2	-	4	-	-	-
	Alarm Settings	Yes	Yes	-	-	-	-	-
Counter (32-bit)	Channels	-	-	-	-	-	-	-
	Input Frequency	-	-	-	-	-	-	-
Isolation Voltage	3,000 V DC							
Watchdog Timer	Yes (System)	Yes (System)	Yes (System)	Yes (System)	Yes (System)	Yes (System)	Yes (System)	
Safety Setting	-	-	-	-	-	-	-	
Modbus Support *	-	-	-	-	-	-	-	

* All ADAM-4000 I/O Modules support ASCII Commands

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Class I, Division 2 Certified Digital Input/Output, Relay Output and Counter



Model		AD-ADAM-4050	AD-ADAM-4052	AD-ADAM-4053	AD-ADAM-4060	AD-ADAM-4080
Digital Input and Output	Input Channels	7	8	16	-	-
	Output Channels	8	-	-	4-ch relay	2
Counter (32-bit)	Channels	-	-	-	-	2
	Input Frequency	-	-	-	-	50 kHz
Isolation Voltage		-	5,000 VRMS	-	-	2,500 VRMS
Digital LED Indicator		-	-	-	-	-
Watchdog Timer		Yes (System)	Yes (System)	Yes (System)	Yes (System)	Yes (System)
Safety Setting		-	-	-	Yes	-
Modbus Support *		-	-	-	-	-
Power Requirement		10 ~ 30 VDC			10 ~ 30 VDC	10 ~ 30 VDC
Operating Temperature		-10 ~ 70°C (14 ~ 158°F)			-10 ~ 70°C (14 ~ 158°F)	-10 ~ 70°C (14 ~ 158°F)
Humidity		5 ~ 95% RH				
Power Consumption		0.4 W @ 24 VDC	0.4 W @ 24 VDC	1 W @ 24 VDC	0.8 W @ 24 VDC	2 W @ 24 VDC



Model	AD-ADAM-4510	AD-ADAM-4520	AD-ADAM-4521	AD-ADAM-4541
Network	RS-422/485 Repeater	Isolated RS-232 to RS-422/485 Converter	Isolated RS-232 to RS-422/485 Converter	Multi-mode Fiber Optic to RS-232/422/485 Converter
Communication Speed (bps)	Serial: From 1,200 to 115.2 k			
Communication Distance	Serial: 1.2 km			2.5 km
Interface Connectors	RS-422/485: plug-in screw terminal	RS-232: female DB9 RS-422/485: plug-in screw terminal	RS-232: female DB9 RS-422/485: plug-in screw terminal	RS-232/422/485: plug-in screw terminal Fiber: ST connector
Digital LED Indicators	Communication & Power			-
Data Flow Control	Yes		Yes	-
Isolation Voltage	-	3,000 VDC	1,000 VDC	-
Power Requirement	10 ~ 30 VDC			
Operating Temperature	-10 ~ 70°C (14 ~ 158°F)			
Humidity	5 ~ 95% RH			
Power Consumption	1.4 W @ 24 VDC	1.2 W @ 24 VDC	1 W @ 24 VDC	1.5 W @ 24 VDC

* All ADAM-4000 I/O Modules support ASCII Commands

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IoT Wireless I/O Module



Model		AD-WISE-4012E	AD-WISE-4012	AD-WISE-4050	AD-WISE-4060
Description		6-ch Input/Output IoT Wireless I/O Module for IoT Developer	4-ch Universal Input and 2-ch Digital Output IoT Wireless I/O Module	4-ch Digital Input and 4-ch Digital Output IoT Wireless I/O Module	4-ch Digital Input and 4-ch Relay Output IoT Wireless I/O Module
Wireless Network	IEEE Standard	IEEE 802.11b/g/n	IEEE 802.11b/g/n	IEEE 802.11b/g/n	IEEE 802.11b/g/n
	Frequency Band	2.4GHz	2.4GHz	2.4GHz	2.4GHz
	Network Mode	Limited AP, Infrastructure	Limited AP, Infrastructure	Limited AP, Infrastructure	Limited AP, Infrastructure
	Wireless Security	WPA2 Personal/ Enterprise	WPA2 Personal/ Enterprise	WPA2 Personal/ Enterprise	WPA2 Personal/ Enterprise
	Antenna Connector	Reverse SMA	Reverse SMA	Reverse SMA	Reverse SMA
	Outdoor Range	100m	100m	100m	100m
Analog I/O	Channels	2	4	-	-
	Resolution	12-bit	16-bit	-	-
	Accuracy	1% of FSR	1% of FSR	-	-
	Sampling Rate	10Hz/ Total	10Hz/ Total	-	-
	Voltage Input	0 ~10V	0-5V, 0-10V, ±5V, ±10V	-	-
	Current Input	-	0 ~ 20mA, 4 ~ 20mA	-	-
	Digital Input	-	Dry Contact	-	-
Digital I/O	Input Channel	2 (Dry Contact)	-	4	4
	Output Channel	2 (Form A Relay)	2	4	4 (Form A Power Relay)
	Counter Input	-	-	3k Hz	3k Hz
	Frequency Input	-	-	3k Hz	3k Hz
	Pulse Output	-	1kHz	1kHz	1 Hz
Isolation Protection		No	3,000V rms	3,000V rms	3,000V rms
LED Indicator		Status,Comm,Mode,Wireless Signal	Status,Comm,Mode,Wireless Signal	Status,Comm,Mode,Wireless Signal	Status,Comm,Mode,Wireless Signal
Power Requirement		5Vdc Micro-S USB	10~30Vdc (24Vdc Standard)	10~30Vdc (24Vdc Standard)	10~30Vdc (24Vdc Standard)
Power Consumption		1.5W @ 5Vdc	2.5W @ 24Vdc	2.2W @ 24Vdc	2.5W @ 24Vdc
Operating Temperature		-25 ~ 70°C	-25 ~ 70°C	-25 ~ 70°C	-25 ~ 70°C
Storage Temperature		-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C	-40 ~ 85°C
Operating Humidity		20 ~ 95% RH (Non-condensing)	20 ~ 95% RH (Non-condensing)	20 ~ 95% RH (Non-condensing)	20 ~ 95% RH (Non-condensing)
IStorage Humidity		0 ~ 95% RH (Non-condensing)	0 ~ 95% RH (Non-condensing)	0 ~ 95% RH (Non-condensing)	0 ~ 95% RH (Non-condensing)



Better Compatibility

- Universal Input Channel: Voltage, Current, and Digital Input



Superior Specification

- Isolation Protection
- Higher Accuracy
- 10 - 30 VDC Power Input



Smarter Data Collection

- Data Scaling
- Auto push data to private server or drop box



WISE-4012E IoT Developer Kit

- WISE-4012E Module
- Extension Board
- USB Power Cable
- Screwdriver
- WebAccess/SCADA Software