

RF-X1

MONITORING AND CONTROL NODE

The RF-X1 unit can operate, monitor, and manage multiple modules in the field such as pump stations, fertigation, valve control, and field monitoring. Its 5 expansion ports can manage multiple combinations of inputs and outputs. The mesh network technology links the nodes in the field with each other and one can be a Gateway unit to the Cloud.



DROPCONTROL TECHNOLOGY

- Collaborative wireless networks with 2 miles (3.2km) between nodes.
- Cellular connection to the Cloud for synchronization.
- Solar-powered with low-power consumption.
- Wide variety of sensors and compatible accessories.
- Patented Irrigation Management.



DEVICE FEATURES

- Multiple inputs and/or outputs. 5 Expansion ports.
- RF mesh networks + cellular communication.
- IP65 Enclosed outdoor protection .
- Self-powered w/solar panel + battery.
- Cloud-based scheduling, local control.
- Cloud software upgrades, internet configurations, and support.
- Compatible with other WiseConn RF units.
- FCC, AS/NZS, CE, RoHS compliant.

APPLICATIONS

- Wireless valve control and monitoring.
- Field sensor monitoring.
- Pump / well monitoring and control.
- Fertigation control.
- PID control.

DESCRIPTION

Processor	<ul style="list-style-type: none"> MSP430F5438A, Microcontroller ultra low consumption 16bit
Local storage	<ul style="list-style-type: none"> 1GB Industrial grade microSD card (SLC)
Dimensions	<ul style="list-style-type: none"> 7x8x4 in (180x200x100mm)
Weight	<ul style="list-style-type: none"> 2.4 Lbs (1090gm)
Enclosure	<ul style="list-style-type: none"> IP65 outdoor rugged UV resistant polycarbonate enclosure
Synchronization	<ul style="list-style-type: none"> Local RF sync time: .2 seconds Sending data to the cloud every 15 minutes (can be) as low as 1 minute) Lag time for alarms and actions: max 20 seconds
Power	<ul style="list-style-type: none"> 20mAh idle average power draw without sensors or modem 10W, 5V solar panel (252x293mm) 20W, 5V solar panel for Cellular Modem 13,000mAh Lithium (Li-ion) batteries
Input Output options	<p>5 Expansion Slots:</p> <ul style="list-style-type: none"> 4 regular 1 dual regular/modem (for Gateway)

X1 DROPCONTROL TECHNOLOGY

- **EXP-3AI** 3x 0-3VDC Analog Inputs.
- **EXP-420** 3x 4..20mA Analog Inputs.
- **EXP-2DI** 2x Digital/Dry contact Inputs.
- **EXP-RELAY** 1x Relay Output up to 1A with 1x Digital/Dry contact Input.
- **EXP-LATCH** 1x Solenoid Latch Output with 1x Digital/Dry contact Input.
- **EXP-4LATCH** 4x Solenoid Latch Outputs with 1x Digital/Dry contact input (2 slots).
- **EXP-SDI12** 1x SDI12, RS232 or RS485 Communication Protocols.

RF-X1	Radio Module	Cellular Modem	Region
RF-X1-900HP	Xbee 900 HP	-	LATAM, US
RF-X1-900HP-LTE	Xbee 900 HP	Xbee LTE-M	US
RF-X1-900HP-3G	Xbee 900 HP	Nimbelink 3G	LATAM
RF-X1-868SX	Xbee 868 SX	-	EU
RF-X1-868SX-LTE	Xbee 868 SX	-	EU
RF-X1-900AU	Xbee 900 AU	Xbee LTE-M	AUS & NZ
RF-X1-900AU-LTE	Xbee 900 AU	Xbee LTE-M	AUS & NZ

Options:	Details
- WG	Node with glands
- WOG	Node without glands

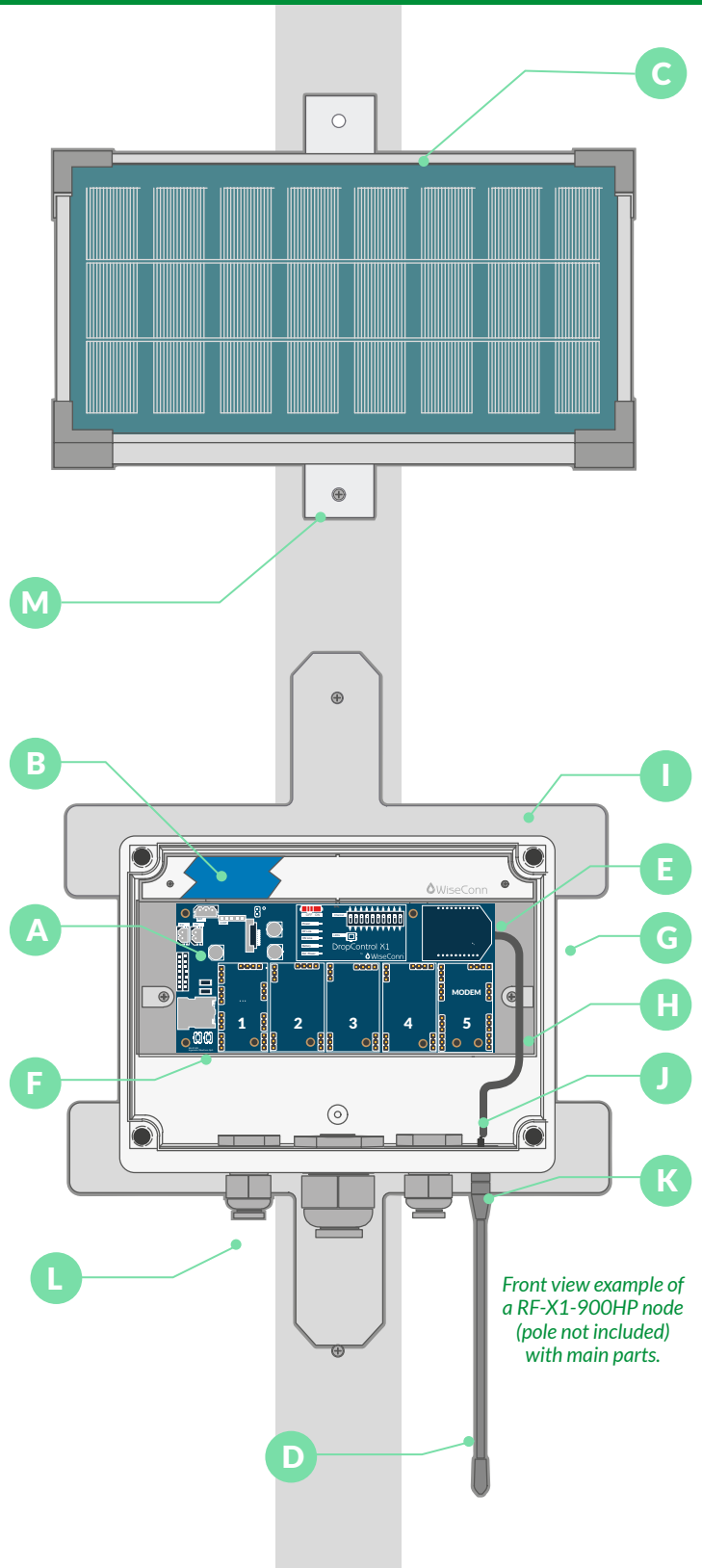


Cloud Services: C1 nodes include a free connection license to the WOS platform, simple configuration and visualization for one user. They require subscription to the Premium DropControl plans to function connected to the mobile applications and have multiple user access to the DropControl functionalities.

Radio / Cellular	Description
Xbee LTE-M	Digi XBee 3 Cellular LTE-M/NB-IoT modem Standard: LTE-M Cellular Antenna for 700-2700Mhz 4G LTE 2dBi (Monopole) Modem Certifications: FCC, GCF, PTCRB, Verizon, CE
Nimbelink 3G	Modem Nimbelink SkywireR Embedded 3G GSM (microSIM) Standard: HSPA+/GSM + GPS Cellular Antenna for 700-2700Mhz 4G LTE 2dBi (Monopole) Modem Certifications: FCC, GCF, PTCRB, AT&T, CE
Xbee 900 HP	Xbee-PRO 900HP (S3B) DigiMesh, 900 MHz, 250 mW Up to 2 km (1.2mi) w/ included 2.1 dBi antenna (Line of Sight) Optional: Up to 3.2km (2mi) w/ 6dBi antenna
Xbee 868 SX	Digi Xbee SX 868, 32 mW, DigiMesh, Europe Up to 2 km (1.2mi) w/ included 2.1 dBi antenna (Line of Sight) Optional: Up to 3.2km (2mi) w/ 6dBi antenna
Xbee 900 AU	Xbee-PRO 900HP (S3B) DigiMesh, 920 MHz (Australia), 250 mW Up to 2 km (1.2mi) w/ included 2.1 dBi antenna (Line of Sight) Optional: Up to 3.2km (2mi) w/ 6dBi antenna

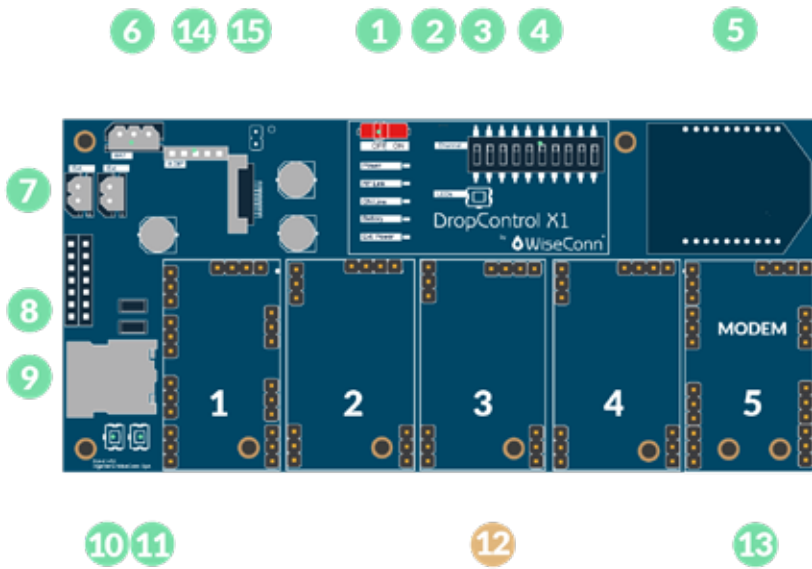
PARTS

ID	DESCRIPTION	ID	CODE
A	X1 Central Unit	1	PCB-BU-X1
B	Ion Lithium Battery 3.7 [VDC] - 13 [Ah]	1	ACC-ENERGY BATT - 4 - 13
C	Solar panel 10[W] - 5[VDC] with basic support	1	ACC - ENERGY SOLAR - 10
D	Omnidirectional antenna 2[dBi] SMA straight	1	ACC - ANT 900 - OM2
E	Xbee Pro Digimesh 900HP	1	BU - X1 - RF - DIGI 900 - HP
F	Flash Card uSD 1Gb	1	BU - X1 FLASH - 1
G	Polycarbonate box 5.9 x 7.9 x 3.9[in]	1	ACC-ENC-X1- 5.9x7.9
H	Mounting chassis, case-fixing screws and supports for BU - X1 with plate and its screws	-	-
I	Metal part type T for basic exterior mounting	2	ACC-MOUNT- NODE-T
J	Pigtail UFL - SMA 8"	1	ACC-ANT-EXT- CELL-UFL
K	PG9 Cable Glands	5	ACC-ENC-PG9- CGLAND
L	PG21 Cable Glands	1	ACC-ENC-PG21- CGLAND
M	Solar Panel Bracket for mounting	1	ACC-MOUNT- SOLAR



Front view example of a RF-X1-900HP node (pole not included) with main parts.

CENTRAL UNIT CARD BU-X1



TERMINAL LAYOUT

ID	DESCRIPTION
1	ON/OFF Switch
2	Status LEDs
3	Check Link button
4	Check Link LEDs
5	Dip switches (for channel config)
6	O/C button
7	Sync LED
8	Factory reset button
9	Xbee Radio 900Mhz
10	Battery connector
11	Solar panel connector
12	Power management LEDs
13	Expansion card ports
14	Port 5: EXP-GW or EXP-3G
15	Service micro USB port

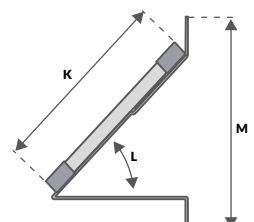
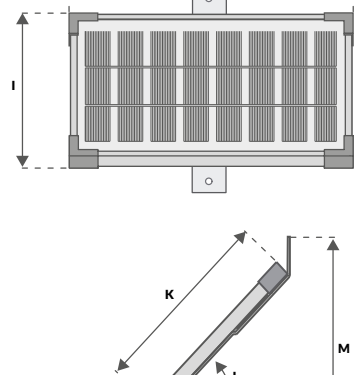
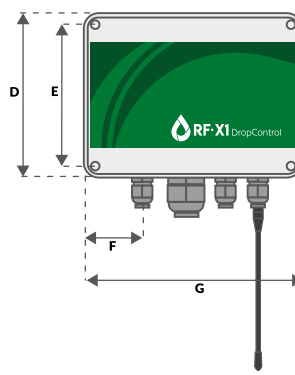
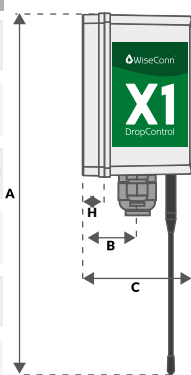
DIMENSIONS

ID	MEASURE	ID	MEASURE
A	13 in (330 mm)	H	0.8 in (20 mm)
B	1.2 in (30 mm)	I	6.9 in (175 mm)
C	3.9 in (100 mm)	J	13.6 in (346 mm)
D	5.9 in (150 mm)	K	9.7 in (247 mm)
E	5.2 in (132 mm)	L	45°
F	2.2 in (55 mm)	M	2.5 in (266 mm)
G	7.9 in (200 mm)		

Side View Node

Front View Node

Front View Panel



Side View Panel