

RF-X1

MONITORING AND CONTROL NODE

The **RF-X1 unit** can operate, monitor, and manage multiple agricultural processes 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.



X1 DROPCONTROL TECHNOLOGY

- Collaborative wireless networks with 2 miles between nodes.
- 3G / LTE cellular connection to the cloud for synchronization.
- Solar-powered with low-power consumption
- Wide variety of sensors and compatible accessories.
- Patent Pending Irrigation Management.



X1 DEVICE FEATURES

- Multiple flexible 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 Compliant.

X1 APPLICATIONS

- Valve control and monitoring.
- Field monitoring: any sensor.
- Pump control.
- Fertigation control.
- PID control.
- Remote valve automation.

SPECIFICATIONS

Processor	<ul style="list-style-type: none"> MSP430F5438A, Microcontroller ultra low consumption 16bit
Local storage	<ul style="list-style-type: none"> 8GB microSD Card
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 are 20 seconds max
Power	<ul style="list-style-type: none"> 20mAh idle average power draw without sensors 10W, 5V solar panel (252x293mm) 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)

OPTIONAL/ADDITIONAL UNITS

5 expansion ports available for:

- 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.
- MOD-PUMP-RELAY** Pump Relay Module: 20 Relays, 10 Digital/Dry Contact.
- MOD-PUMP SWITCH** Pump Switch Module: 20 switch board + Hand/Off/Auto Select.

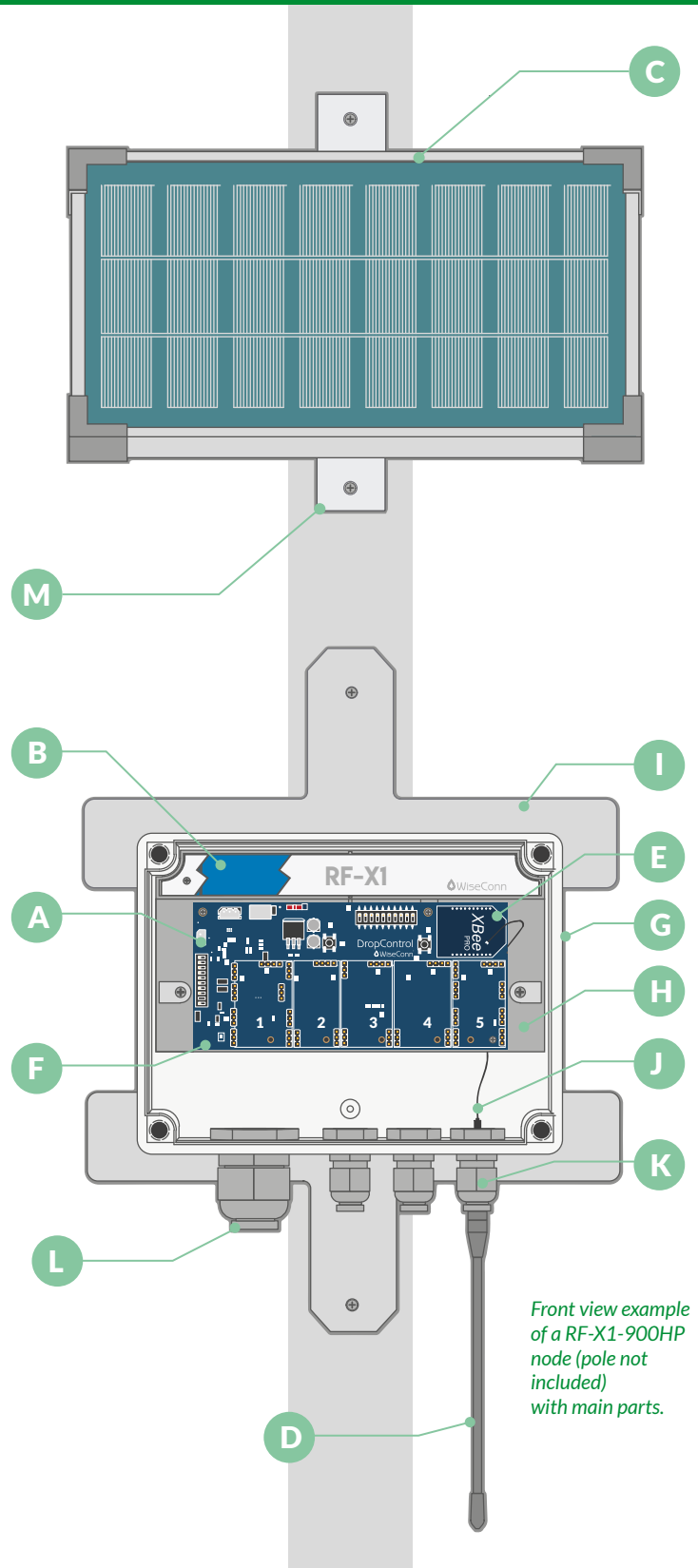
VERSIONS

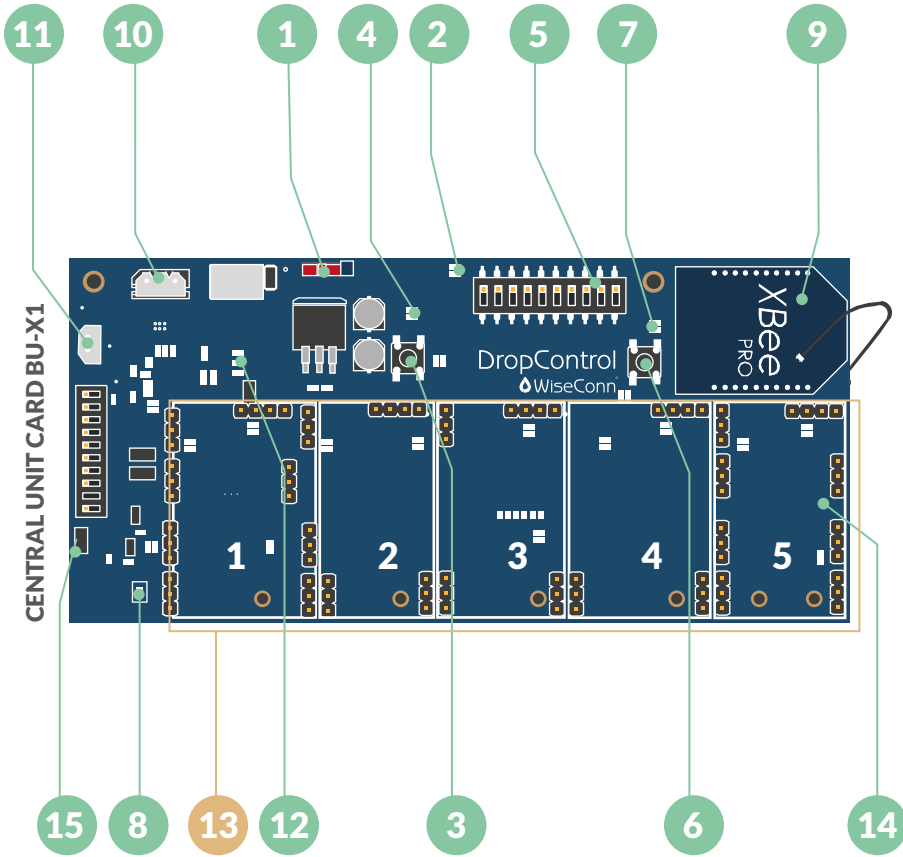
		Gateway	Gateway
	RF-X1-900HP	RF-X1-900HP-LTE-A	RF-X1-900HP-LTE-V
<ul style="list-style-type: none"> Digi XBee Pro Module - 900MHz - FHSS modulation - 250mW (+ 24dBm) Male connector for RP-SMA antenna 2dBi antenna included (1.2 miles range, and 2 miles with optional 6dBi antenna) 10 bit DIP switch channel selection Xbee Certifications: FCC, IC, RoHs, ANATEL, IFETEL, IDA 	✓	✓	✓
<ul style="list-style-type: none"> Modem XBee3 Cellular LTE Cat1 (with microSIM) Standard: LTE Cat1 Cellular Antenna for 700-2700Mhz 4G LTE 2dBi (Monopole) Modem Certifications: FCC, GCF, PTCRB, AT&T, CE 		✓	
<ul style="list-style-type: none"> Modem XBee3 Cellular LTE-M (with microSIM) Standard: LTE-M Cellular Antenna for 700-2700Mhz 4G LTE 2dBi (Monopole) Modem Certifications: FCC, GCF, PTCRB, Verizon, CE 			✓



PARTS

ID	DESCRIPTION	Q	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 8Gb	1	BU - X1 FLASH - 8
G	Polycarbonate box 5.9 x 7.9 x 3.9[in]	1	--
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	--
J	Pigtail UFL - SMA 6"	1	--
K	PG9 tow presses	5	--
L	PG21 tow presses	1	--
M	Solar Panel Bracket for mounting	1	--





TERMINAL LAYOUT

ID	DESCRIPTION
1	ON/OFF Switch
2	Status LED 1-2
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

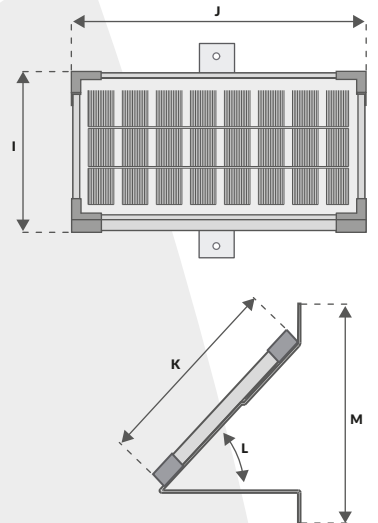
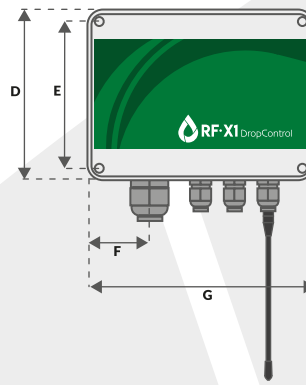
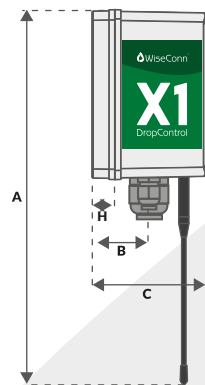
DIMENSIONS

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