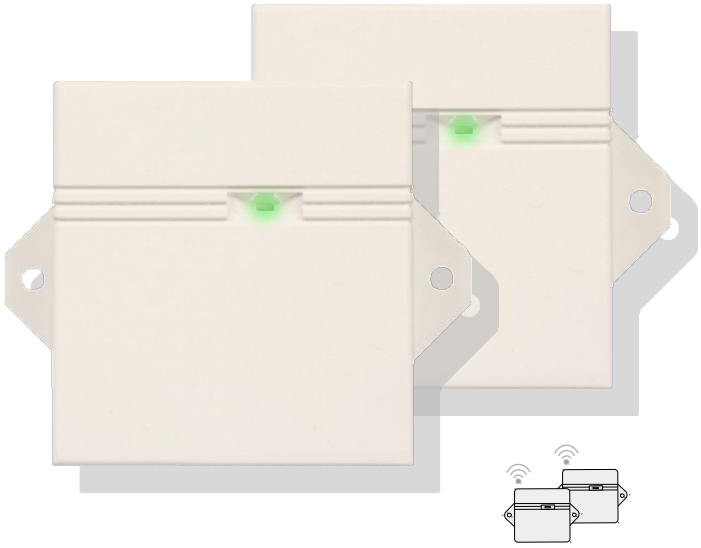
WC-21PP Pulse Counter/Replicator

Specification Sheet



Description:

The WC-21PP Pulse Counter/Replicator Radio Set is specifically designed to wirelessly bridge Pulse Meter output to BAS/Data Logger/SCADA. The simplistic design requires minimum configuration so that amount of cabling and integration time and cost can be reduced. Exceptional signal reliability makes WC-21PP ideal for both indoor and outdoor Pulse counting applications.

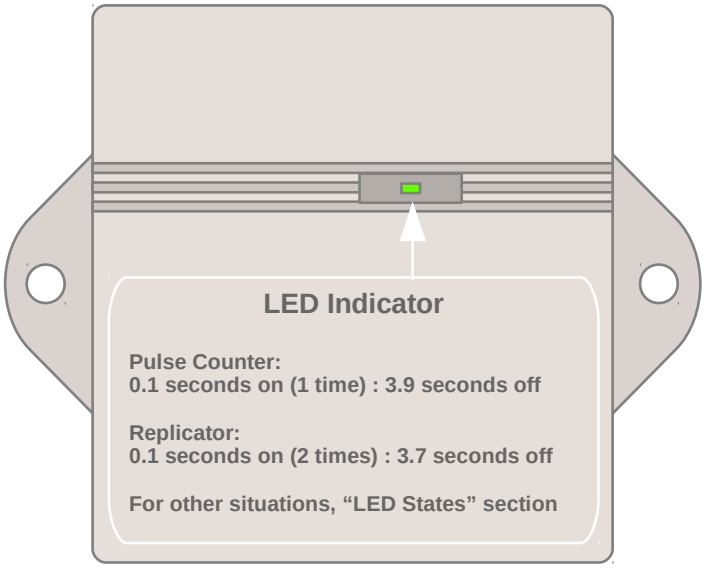
Application:

The WC-21PP is a Set of (2) Wireless I/O Modules, that are dedicated Point to Point transmission of Pulse generated contact closures from Pulse Meter to BAS or Data Acquisition Input termination point. The Pulse Counter (Pulse Meter Input Module) accepts 1 Pulse Input and the Replicator (Receiver Module) has 2 Outputs, one for the Replicated Pulse and one for alarm condition, loss of RF Link and/or Low Battery condition on the Pulse Counter. The units come pre-configured and accept Pulse Frequency up to 10 Hz.

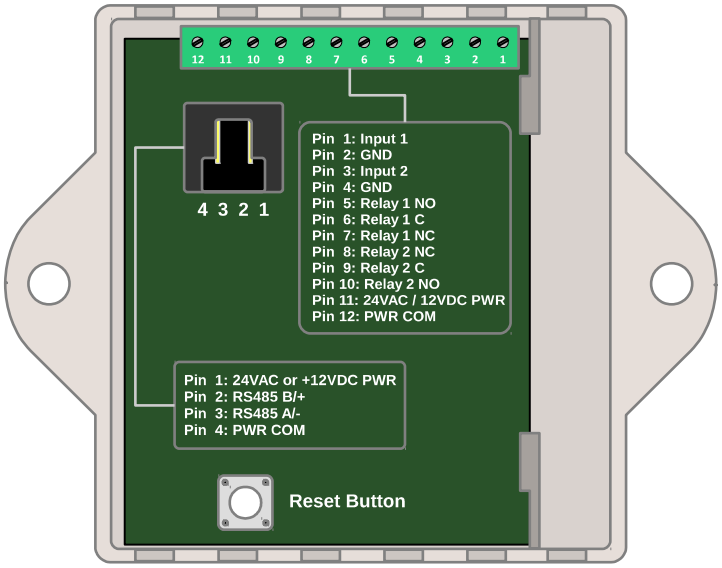
For outdoor locations without power accessibility, the Pulse counter can be used with solar panel and battery to help with the situation.

RF Specifications	
RF Classification	802.15.4 ISM Band Device
	(Instrument /Scientific / Medical)
Frequency	2.4 GHz 15 Channels
Network Architecture	Point to Point
Transmit Power	12 dBm Typical
Receive Sensitivity	-99 dBm
Device Classification	Point to Point Device
Line of Sight Range	Up to 1,400 Feet / 425 Meters
Pulse Input Configurations	
Pulse Frequency Resolution	10 Hz (10 Pulses Per Second) max
Period	100 Milliseconds min
Pulse Width	30 Milliseconds min
Hardware Specifications	
Power Requirements	Operates on 24 VAC 50/60 Hz or 12 VDC
Inputs (Two Separate)	Dry Contact-Pulse Active on Pulse Counter Not Active on Replicator
Outputs (Two Separate)	Form C Relays (Com/NC/NO) Active on Replicator Not Active on Pulse Counter
Transmission Interval	Automatic
LED Status Indicator	Replicator Indicates Link OK
Mechanical Specifications	
Dimensions	Height (H): 2.97 in. (75.4 mm) Width (W): 2.77 in. (70.4 mm) Depth (D): 1.38 in. (35.2 mm)
Mounting Holes	0.2 in. (5.0 mm) apart 3.31 in. (84 mm)
Environmental	
Enclosure	ABS-VO Plastic
Operating Temperature	-20°F to 145°F / -28°C to 63°C
Storage Temperature	-40°F to 176°F / -40°C to 80°C
Operating RH	5-95% Non-Condensing
Storage RH	5-95% Non-Condensing
Other notes	
Outdoor application	Power the Pulse Counter with One 12VDC 8AH SLA battery and Solar Powered Assembly in NEMA 4X Plastic Enclosure

Product front view



Product back view

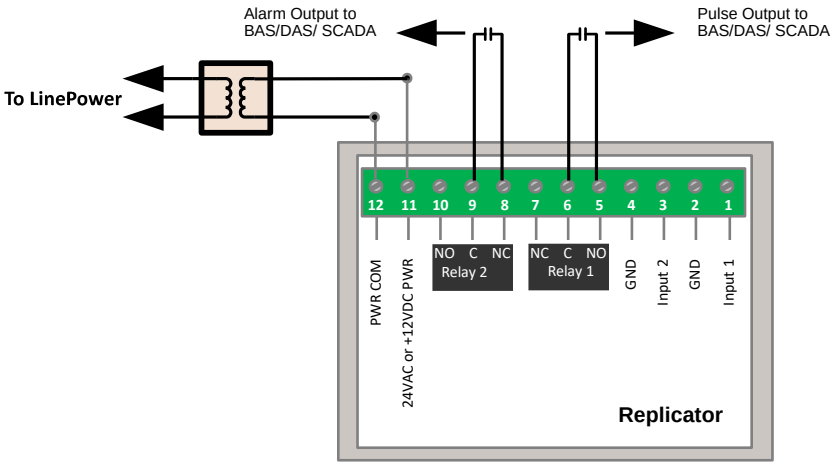


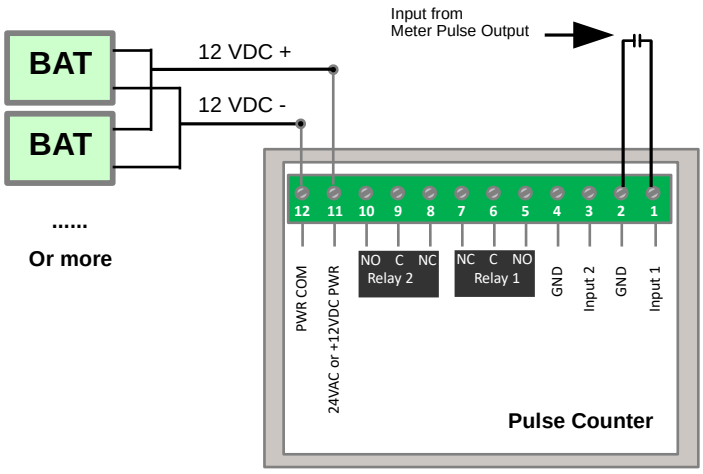
Application Example

In the example Output 1 from the WC-21PP Replicator Module is connected to the Input of the Customer BAS/DAS/SCADA, and the Pulse Output from the Meter is connected to Input 1 of the WC-21PP Pulse Counter. Pulse Counts accumulated at the Meter Module are replicated automatically at the Replicator Module.

Both Modules can be powered by either 24VAC or 12VDC according to field accessibility. In the example, Replicator Module is powered by 24VAC and Pulse Counter Module is powered by 12VDC batteries as an example of common application that there is no line power at the location of Pulse Meter.

When 12VDC applies, it is important to make sure 12VDC- is connected to terminal 12.





Determining Signal Strength:

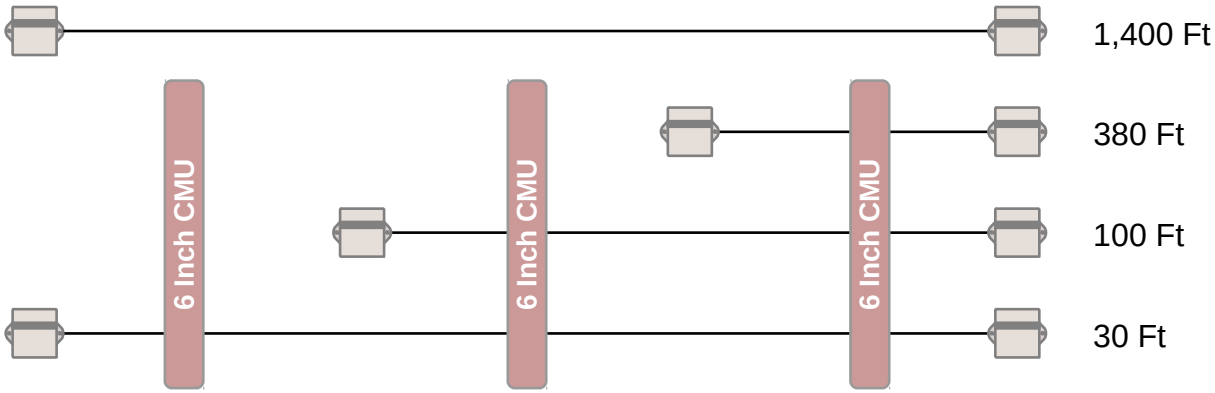
At any time, you can determine the signal strength from a device to the next device towards the coordinator, by pressing and releasing the Reset button, and the LED will flash anywhere from 1 to 9 times. 1 means weak signal and 9 means the strongest signal.

The second relay on all the devices signals whether the communication link status is operational or not. Closed if link is OK.

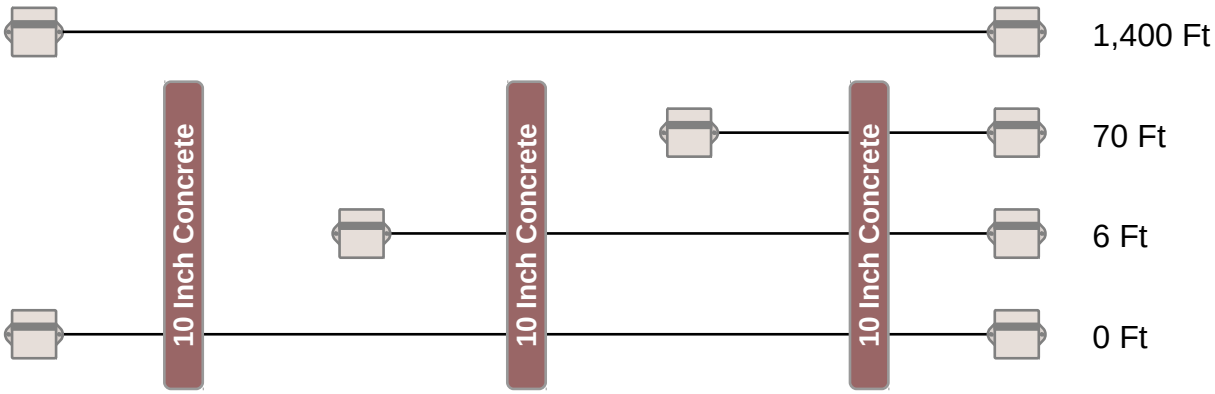
The system can accept up to **10 pulses per second (10 Hz)**.

Range Metrics:

Effective range between the Pulse Counter Module and the Replicator Module is dependent on individual site conditions. The example below indicates common signal degradation with 3,2,1 and 0 , 6 Inch Cinder Block partitions separating the 2 Modules.



The example below indicates common signal degradation with 3,2,1 and 0 , 10 Inch Concrete partitions separating the 2 Modules.



Configuration:

The WC-21PP product set comes with two identical radios pre-configured and identified as Pulse Counter and Pulse Replicator radios so no field configuration is necessary. The set configuration can be changed in the field by a button push sequence outlined below.

Before re-configuration, make sure both radio are forced back to factory default. To force a unit a unit to become cleared (factory default), press and hold the reset (configure) button, then apply the power to the unit, then when the LED is constantly on, then release the button. This is the only timing a unit can be reconfigured when it has previously been configured.

To configure, make sure the unit is in cleared mode, or force it to be cleared, then with the unit already on, press and release the configure button. This first unit will start blinking the LED fast, then after a while, it will slow blink. It is now the Replicator and can accept being configured with a Pulse Counter for up to 1 minute. Press and release the configure button on the second device, this will blink fast, then blink .1 seconds on (2 times) and 3.7 seconds off, it is now configured as an Pulse Counter that talks to the Replicator.

Once bound, the Replicator will pulse it's relay the same number of times as the Pulse Counter sees pulses into it's input. If there is a communication loss, the Pulse Counter will buffer the pulses, then when communications is re-established, the coordinator will generate the buffered pulses.

Fore advance users, there is another configuration, other than Replicator and Pulse Counter, called Repeater. A Repeater is a radio relaying signals between Pulse Counter and Replicator in order to extend transmission range. Please contact us for more information and instruction.

LED States:

Cleared and sleeping: 40 msec on : 5 seconds off
Clearing with button pressed: Continuous on

Binding failed (3 seconds): 40 m/seconds on : 40 m/seconds off (very fast blink)
Binding and in Joining phase: 250 msec on : 250 msec off
Binding and join succeeded as Pulse Counter: .1 seconds on (2 times) : 3.7 seconds off
Binding and in Replicator phase: .5 seconds on : 1.5 seconds off

Replicator mode scanning channels: .1 seconds on (1 time) : .9 seconds off
Replicator mode ready: .1 seconds on (1 time) : 3.9 seconds off

Pulse Counter mode looking for network: .1 seconds on (2 times) : .7 seconds off
Pulse Counter mode joined and ready: .1 seconds on (2 times) : 3.7 seconds off

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