Monnit

Wireless Pulse Counter - 1 Input

Technical Overview

General Description

The wireless pulse counter can be integrated with a system (water meter, power meter, etc.) that provides an output pulse to count the number of actuations within a given frame.

Features

- Counts the number of pulses in given time frame, or aggregates pulses in an ongoing accumulation.
- 3 filter settings: No filter, 4 Hz filter, and 40 Hz filter.
- Capable of counting passive (open/closed switch) and active (Up to +15 VDC) pulses.
- Capable of counting the positive edge, negative edge, or both edges of a pulse.
- Free iMonnit basic online wireless sensor monitoring and notification system to configure sensors, view data and set alerts via SMS text and email.

Principle of Operation

The Monnit Wireless Pulse Counter is an electronic counter capable of counting passive (open/closed switch) or active (up to +15 VDC) pulses. The counter includes 3 software configurable filter settings (no filter, 4 Hz filter, or 40 Hz filter). Each filter is capable of filtering non periodic noise/bounce based on the pulse width. For example, the 4Hz filter will count a pulse if the pulse width is longer than 250 ms, if the pulse width is shorter than 250 ms it may be filtered and not counted (see the technical specification table for more information). The sensor can be set to send an alert through the iMonnit Online Sensor Monitoring and Notification System when a given number of pulses have been reached within a set time frame. Alerts from the iMonnit system are sent as they happen (in real time) via SMS text or email.

Power Options

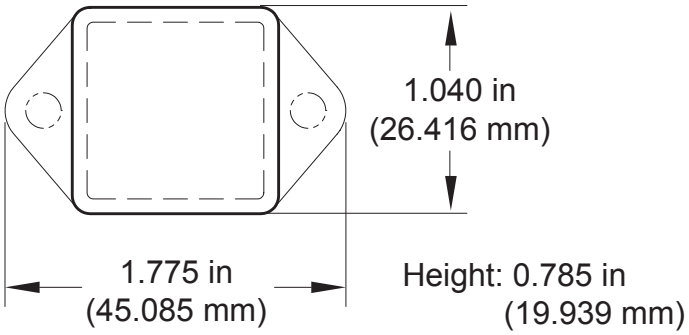
Sensors are powered by a replaceable 3.0 V coin cell battery. Optional AA battery powered sensors are available. The AA version of these sensors are larger in size (3” [L] x 2.1” [W] x 1.2” [H]) and include two long-life AA batteries.

It is recommended that unless you are using the AA battery solution, you set heartbeat to no faster than one hour to preserve battery life.

Monnit Sensor Core Specifications

- Power: Replaceable 3.0 V coin cell battery
- Communication: RF 900, 920, 868 and 433 MHz
- Dimensions: 1.775” x 1.040” x 0.785”
- Antenna: 4” wire antenna
- Operating Temperature: -7° to 60°C (20° to 140°F)
- Device Range: 250 - 300 ft. non-line-of-sight*
- Battery Life: At 1 hour heartbeat setting, coin cell battery will last ~ 1-2 years.**

* Actual range may vary depending on environment.
** Battery life is determined by sensor reporting frequency and other variables.



Example Applications

- Water, gas and air flow meters.
- Door access counter.
- Turn style counting.
- Forklift seat switches.
- Button or switch integration.
- Production line tracking.

Technical Specifications	
Supply Voltage	2.0 - 3.6 VDC *
Current Consumption	0.7 µA (sleep mode) 2 mA (radio idle/off mode) 2 mA (measurement mode) 25 mA (radio RX mode) 35 mA (radio TX mode)
Operating Temperature Range (Board Circuitry and Coin Cell)	-7°C to +60°C (20°F to +140°F)**
Optimal Battery Temperature Range (Coin Cell)	+10°C to +50°C (+50°F to +122°F)
Certifications:	900 MHz product; FCC ID: ZTL- RFSC1 and IC: 9794A-RFSC1. 920 MHz product; ARIB STD-T108 R210-103733. 868 and 433 MHz product tested and found to comply with: CISPR 22:2008-09 / EN 55022:2010 - Class B and ETSI EN 300 220-2 V2.4.1 (2012-05).

Pulse Counter Specifications			
Maximum Count	4294967296 (32 bit number)		
Input Voltage	0 to 15 Volts DC		
Detection Wires	High Impedance (2-Wire), 3 ft. length		
Counter Operation	Positive and / or Negative Edge Pulses		
Compatibility	Open Collector NPN Switches (Passive) Mechanical Switches (Passive) 0-15V Driven Source (Active)		
Max Input Pulse Rate / Min Pulse Width with Passive Input		(Positive Edge)	(Negative Edge)
	No Filter	~1.2 KHz / 800 us	~1.2 KHz / 800 us
	4 Hz Filter	~5 Hz / 200 ms	~34 Hz / 29 ms
	40 Hz Filter	~50 Hz / 20 ms	~280 Hz / 3.6 ms
Pulse Width With Active Input Positive Edge (active input only affects the positive edge). See figures 1 and 2 below.			

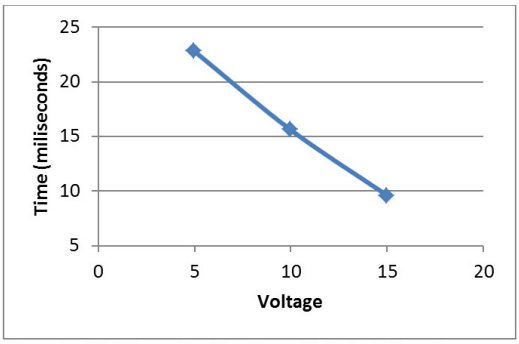


Figure 1 - 4 Hz Filter on Positive Edge with Active Voltage Input

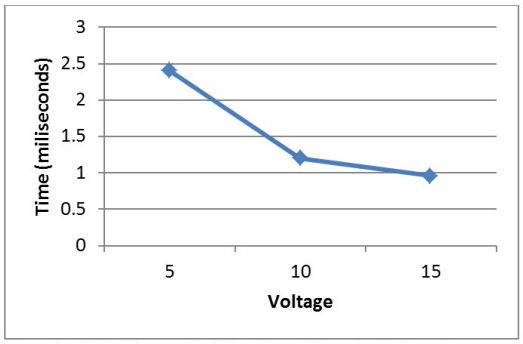


Figure 2 - 40 Hz Filter on Positive Edge with Active Voltage Input

* Hardware can not withstand negative voltage. Take care when connecting a power device.

** At temperatures above 100°C, it is possible for the board circuitry to lose programmed memory.

*** High pulse count rates can impact battery life. AA battery powered sensors are recommended if counting pulses faster than 1x per second.

Caution/Notice:

This product is designed for application in an ordinary environment (normal room temperature, humidity and atmospheric pressure). Do not use this sensor under the following conditions as these factors can deteriorate the product characteristics and cause failures and burn-out.; corrosive gas or deoxidizing gas - chlorine gas, hydrogen sulfide gas, ammonia gas, sulfuric acid gas, nitric oxides gas, etc.), volatile or flammable gas, dusty conditions, under low or high pressure, wet or excessively humid locations, places with salt water, oils chemical liquids or organic solvents, where there are excessively strong vibrations, other places where similar hazardous conditions exist.

Use this product within the specified temperature range. Higher temperature may cause deterioration of the characteristics or the material quality of this product.

For more information about our products or to place an order, please contact our sales department at 801-561-5555.

Visit us on the web at www.monnit.com.

Monnit Corporation
4403 South 500 West
Murray, UT 84123
801-561-5555
www.monnit.com