

# EN1501-EXT Pulse Counting Transmitter for Integration

Installation and Operation Manual - 06289C

## 1 Overview

The EN1501-EXT pulse counting transmitter for integration is a board-only transmitter with external header pins. It is designed for integration into a customer-designed meter or product. The EN1501-EXT is for use in Australia, New Zealand, and North America.

## 2 EN1501-EXT Pulse Counting Transmitter for Integration Components

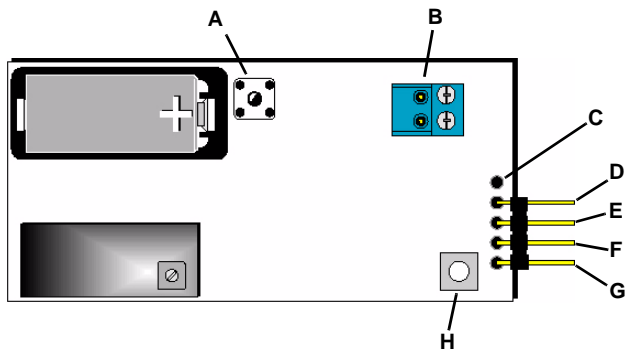


Figure 1 EN1501-EXT Pulse Counting Transmitter for Integration Components

- A Housing tamper switch    B Removable terminal block    C Reset input block  
 D Tamper input    E Count input    F Power output  
 G Ground    H Reset button

**Housing tamper switch** Sends an alert message when the housing is opened.  
**Removable terminal block** Allows connection to an external meter.  
**Reset input** Connects a reset input to send a reset message when prompted by the user-specific end-device.  
**Tamper input** Connects a tamper input to send a message when the user-specific end-device is tampered with.  
**Count input** Connects a count input to increment the meter count.  
**Power output** Allows for another device to share battery power.  
**Ground** Connects to the ground.

## 3 Pulse Counting Transmitter for Integration Dimensions

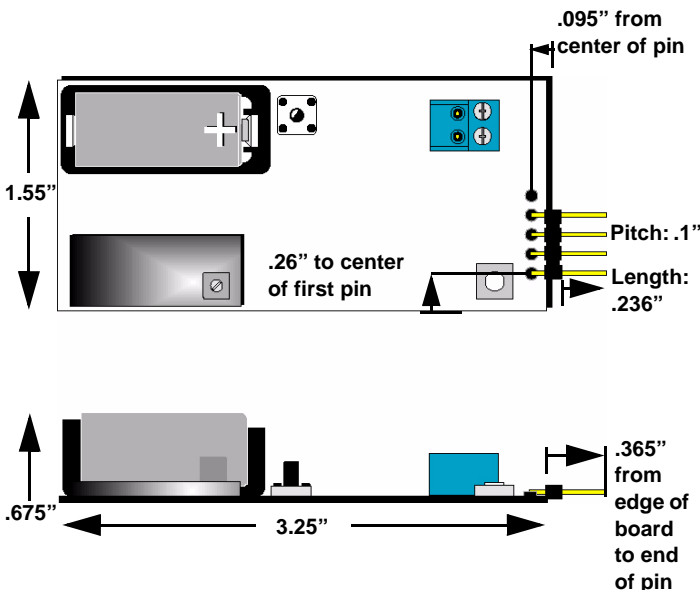


Figure 2 Pulse Counting Transmitter for Integration Dimensions

## 4 Installation

- A The EN1501-EXT must only be connected at the four pin header.
- B All cables and wires must be routed away from the component side of the EN1501-EXT.
- C The on-board antenna must not be tampered with; no connection to an alternate antenna is provided.
- D The meter or product must not include an integrated secondary collocated radio module.
- E The EN1501-EXT on-board antenna should be placed so that it is facing away, or otherwise isolated from, your device's ground plane.
- F Components that are sensitive to RF transmission, such as high gain circuits, should be isolated from the on-board antenna to prevent interference.
- G EN1501-EXTs should not be mounted on metal surfaces or inside metal enclosures. They should also not be mounted where sheet metal ductwork, wire mesh screens, etc. might block transmissions.

## 5 Pulse Counting Transmitter for Integration Requirements

### 5.1 Power

Power is supplied by the on-board 3v battery. The power pin allows for another device to use this power source, which can affect battery life. The low battery flag is set when the measured voltage is less than 2.4 v.

### 5.2 External Tamper Requirements

The housing tamper switch and tamper pin have the same specification. Connecting the tamper pin to ground initiates the tamper condition. Once a transition (tamper connected/disconnected from ground) is detected, no further transitions can be processed for a debounce time of 250 ms.

### 5.3 Count Requirements

The removable terminal block and count pin have the same specification. On the terminal block, the outer terminal is the negative terminal if polarity is present from the connected meter.

The count is incremented by connecting the count to ground or receiving a contact closure from a pulse-output meter via a wired connection. In general the contact closure should meet the following characteristics:

- a minimum switch output pulse width of 10 ms or longer.
- a maximum rate of one pulse every four seconds (slower is better).
- a closed impedance smaller than 1k ohm.
- an open impedance greater than 5 Mega ohms.
- hardware latched input transitions from the external device.

Once a latched input is detected, no further transitions will be processed for a debounce time of 350 ms.

The count totalizer corresponds to the number of totalizer input pulses. The counts accumulate until the number 9,999,999 is reached. The totalizer will then go to zero on the next count.

## 6 Compliance Requirements

### 6.1 FCC Requirements for the EN1501-EXT

The EN1501-EXT has received a Limited Modular Grant, requiring Inovonics to retain control of the final installation to ensure compliance to FCC/IC regulations. The integrator is responsible to test the final installation to verify compliance to FCC/IC regulation for unintentional emissions.

Prior to marketing the product, the integrator must complete and submit to Inovonics a compliance review form and documentation, and, if requested, a functional product sample for approval. If this is not possible, the integrator must perform the testing themselves and submit proof to Inovonics of compliance to Part 15 of the FCC Rules and Industry Canada ICES-003.

At the end of this guide is an Inovonics compliance review form to be filled out by the integrator.

The integrator is also responsible for properly labeling the product containing the EN1501-EXT. Labels must be placed on the outside of the product, and must include a statement indicating that the product contains the EN1501-EXT, along with the FCC and IC number.

**Example 1** "Contains EN1501-EXT Pulse Counting Transmitter

FCC ID: HCQ3B6OTPMTX; IC ID: 2309A - OTPMTX

**Example 2** "Contains FCC ID: HCQ3B6OTPMTX; IC ID: 2309A - OTPMTX

### 6.2 Television and Radio Interference

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

### 6.3 FCC Part 15 and Industry Canada Compliance

This device complies with part 15 of the FCC Rules and Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

## 7 Warranty and Disclaimer

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**Note:** Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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Inovonics Wireless Corporation ("Inovonics") warrants its EchoStream products ("Product" or "Products") to conform to its own specifications and to be free of defects in materials and workmanship under normal use for a period of thirty-six (36) months from the date of manufacture. Within the warranty period, Inovonics will repair or replace, at its option, all or any part of the warranted Product. Inovonics will not be responsible for dismantling and/or reinstallation charges. To exercise the warranty, the User ("User", "Installer" or "Consumer") must work directly through their authorized distributor who will be given a Return Material Authorization ("RMA") number by Inovonics. Details of shipment will be arranged directly through the authorized distributor.

This warranty is void in cases of improper installation, misuse, failure to follow installation and operating instructions, alteration, accident or tampering, and repair by anyone other than Inovonics.

This warranty is exclusive and expressly in lieu of all other warranties, obligations or liabilities, whether written, oral, express, or implied. There is no warranty by Inovonics that Inovonics product will be merchantable or fit for any particular purpose, nor is there any other warranty, expressed or implied, except as such is expressly set forth herein. In no event shall Inovonics be liable for an incidental, consequential, indirect, special, or exemplary damages, including but not limited to loss of profit, revenue, or contract, loss of use, cost of down time, or interruption of business, nor any claim made by distributor's customers or any other person or entity.

This warranty will not be modified or extended. Inovonics does not authorize any person to act on its behalf to modify or extend this warranty.

This warranty will apply only to Inovonics Products. Inovonics will not be liable for any direct, incidental, or consequential damage or loss whatsoever, caused by the malfunction of Product due to products, accessories, or attachments of other manufacturers, including batteries, used in conjunction with Inovonics Products.

# Inovonics Pulse Counting Transmitter for Integration Review Form

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Please provide the following information for review of final installation to ensure compliance with FCC/IC regulations:

## Required materials from integrator

The following must also be attached for review with this form:

- A description of the final installation, with attached photographs, as necessary
- The unintentional radiator test report indicating compliance

## Integrator information

First name:	Last name:
Phone number:	Email address:
Address:	
Declaration of conformity to Inovonics' installation instructions:	
Submitted materials:	
Authorized signature:	Submission date:

## Inovonics contact information

Inovonics  
ATTN: Product Management  
315 CTC Blvd.  
Louisville, CO 80027  
Phone: 303.939.9336  
Toll-Free: 800.782.2709  
Fax: 303.939.8977  
productmanagers@inovonics.com

## Required materials from Inovonics

- The record of product sample review and test, as necessary

## Inovonics approval

First name:	Last name:
Phone number:	Email address:
Approval status (pass, fail, samples required, compliance testing required, compliance test report required):	
Approval comments:	
Submitted materials:	
Returned materials:	
Authorized signature:	Approval date: