

Application Note:

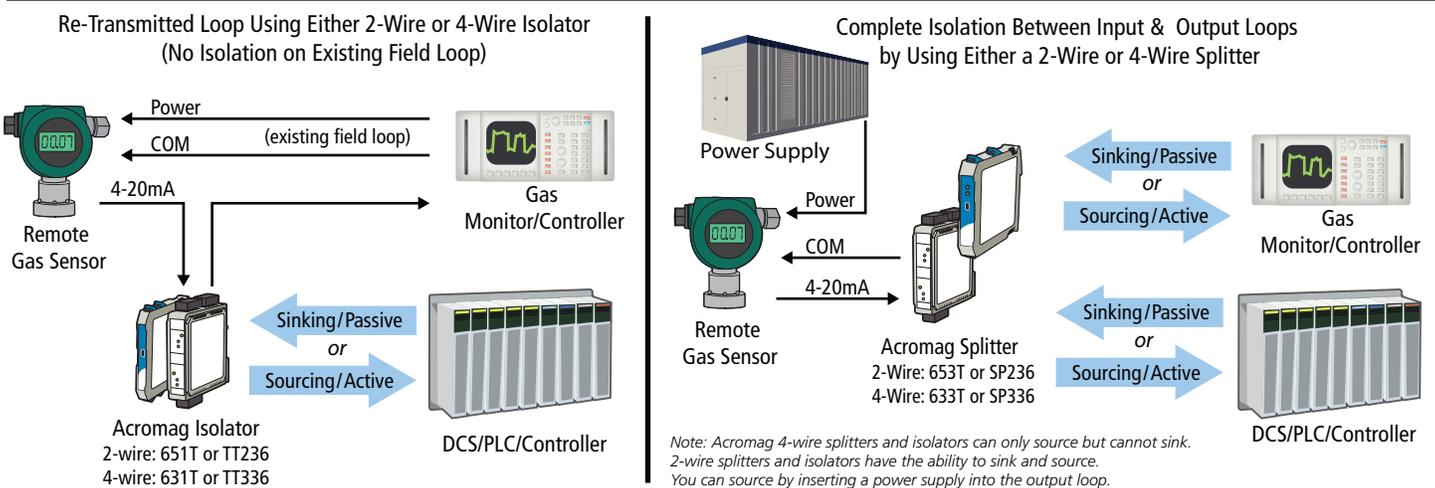
Retransmitting and Isolating 4-20mA Signals from Remotely-Mounted 3-Wire Gas Detection Sensors

Defining the Problem:

Typically, signals from 3-wire remote sensors monitoring combustible and toxic gases are transmitted directly to the remote gas monitor or controller. However, there are cases when it is desirable to send the signal to more than one destination. This can either be accomplished by retransmitting the existing signal to additional locations or by completely isolating the signal and then sending it to multiple locations.

System Requirements:

A 3-wire remotely-mounted gas detection sensor which transmits a 4-20mA signal. It is important to note that a 3-wire loop is where the sensor and receiver share a ground connection with power, and the sensor uses a third wire to connect to power outside the current loop. You can use either 2-wire (or 4-wire) isolators to retransmit the loop to a 2-wire (or 4-wire) splitter for complete isolation of the output(s).



Implementing the Solution:

1. Acromag's signal isolators will take a 4-20mA field input and provide isolated 4-20mA output signals. Each channel (splitter units) operates independently and is isolated from the others to prevent interaction between channels.
2. 600T Series isolators and splitters are field adjustable with zero and span trim pots located on the front of the units. TT Series isolators are factory calibrated for 4-20mA in-out. However, re-calibration can be performed using either our windows software or the Acromag Agility™ mobile application for Android®.
3. Follow the proper wiring practices as detailed in the user manual. Connect earth ground as indicated.

Featured Products:

2-wire Acromag Isolators:
[651T-0600](#), [TT236-0600](#)

4-wire Acromag Isolators:
[631T-0500](#) (DC Power), [631T-0100](#) (AC Power), [TT336-0700](#)

2-wire Acromag Splitters:
[653T-0600](#), [SP236-0600](#)

4-wire Acromag Splitters:
[633T-0500](#) (DC Power), [633T-0100](#) (AC Power), [SP336-0700](#)

Notes:

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Why Acromag:

Gas detectors are usually installed in hazardous areas. All of these isolators and splitters are designed for UL/cUL Class 1 Division 2 safety rating for that type of environment. All of these transmitters default configuration is for 4 to 20 mA input and output so installation is simple and with up to 1500V of isolation the protection is excellent.