

Application Note: Minimizing Costs When Transmitting Data Over Cellular Networks

Defining the Problem:

Acromag has a [peer-to-peer technology](#) called i2o. It allows 2 or more modules to talk to each other and no network master or special software is required. I2o operates over any standard Ethernet media; Cat 5 or 6 copper, Fiber Optics, Radios or via Cellular. When operating over a cellular network, it is important to minimize the connection time and amount of data since cellular service providers charge by the amount of data being transmitted.

System Requirements:

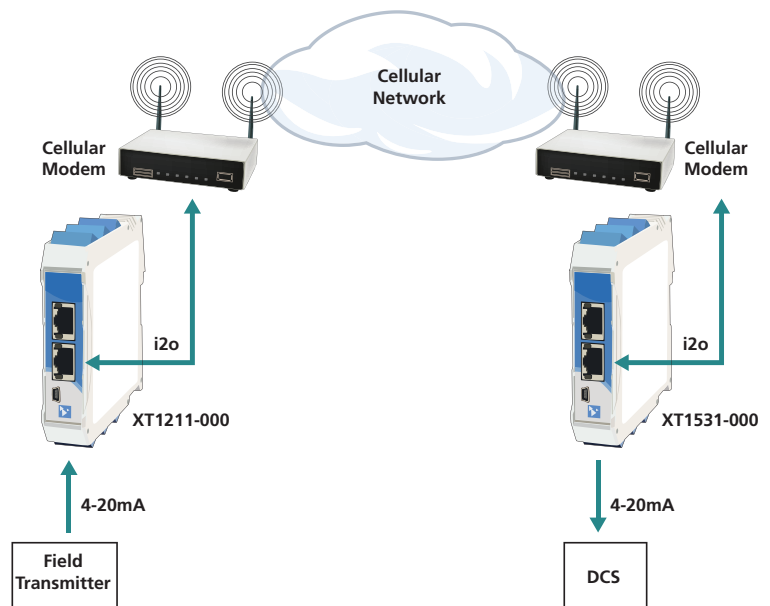
The application below shows an XT1211-000 module with 8 differential current inputs sampling a 4-20mA signal from a field transmitter and sending the data using i2o to an XT1531-000 with 4 current outputs. The cellular modems at each end are transparent to the Acromag I/O and transmit the data over the network.

Implementing the Solution:

On the i2o mapping page, the XT1211 input module is configured for each input channel. A target IP Address and a Modbus Register (output channel) is selected.

There are 3 important features in the XT's that allow i2o to be utilized over cellular networks to reduce costs.

1. Update Time – it can be any setting from 5 to 65535 seconds. This is a periodic transmission to update the output status based on the input to output scaling.
2. Keep Target Sockets Open – if this box is not checked, then during the i2o messaging, a socket will be opened, data is exchanged, then the socket closes.
3. Percentage Change – this is the difference in input span between the present input measurement and its last measurement when an i2o message was sent. If the input changes by the percentage change threshold or greater, an i2o message will be sent immediately.



Featured Products:

[XT1211-000](#): 8-channel differential analog current input module

[XT1531-000](#): 4-channel analog current output, 4-channel digital I/O module, Modbus/TCP and i2o protocol.

Notes:

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Why Acromag:

Decades of reliable service and proven technologies offers high confidence in selecting Acromag for general purpose to critical applications. With Acromag's Busworks XT products, a versatile family supports a variety of network protocols such as Modbus TCP/IP, Ethernet/IP, Profinet and peer-to-peer i2o.