

EDMI

Delivering Smart Metering Solutions with MAX22445



EDMI is an international leader in smart metering, utilizing our best-of-class technologies and demonstrating a strong commitment to quality, reliability, and compliance. The company's electricity meters are tried and tested to meet and exceed customer expectations. Its wide range of products cover residential, commercial and industrial, transmission and distribution, and sub-metering markets. All of these metering product families meet general requirements prepared by International Electrotechnical Commission (IEC) technical committee 13 for electrical energy measurement and control.

EDMI is a global leader in smart metering technologies.

Challenge

- Needed reinforced isolator to meet IEC and local government and utility requirements

Solution

- **MAX22445**

Benefits

- Able to meet 10kV impulse and 4kV AC withstand voltage
- High EMI immunity (IEC 61000-4-3 Level X, 30V/m)

Challenges

There are two circuits in a meter: mains and non-mains. The mains circuit is conductively connected to and energized directly from the mains, while the non-mains circuit is not. EDM1 needed isolators to maintain communication between these two circuits with no degradation of signal integrity under interference. The company also required a solution that would be able to maintain the isolation reliably.

Optocouplers are relatively inexpensive, but their performance degrades over equipment lifetime, and most are not made to meet the most stringent impulse ratings.

Solution and Benefits

Digital isolators provide multichannel isolation signals with a smaller footprint compared to using a few optocouplers. For its digital isolation solution, EDM1 selected Maxim's **MAX22445** 4-channel, 5kV_{RMS} digital galvanic isolator. It transfers SPI digital signals with low power and high speed. With Maxim's proprietary process technology, the digital isolator provides high electromagnetic interference (EMI) immunity and stable temperature performance. Independent voltage supply on each side of the isolator makes the device suitable as a level translator.

"MAX22445 helped us pass meter type tests with more stringent requirements than IEC," said Joe Leong Kok Keen, staff design engineer, hardware, EDM1.

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