What sensors is the CLM100 compatible to work with?

Current Loop Sensors are extremely popular for monitoring and control systems around the world. Current loop style sensors can output a stable "4-20mA" current range thus providing a predictable result when measuring an application to interpret data. Having a two wire solution helps reduce the point of failure for sensors installed over long distances away from the CLM100. The current loop circuit terminology sometime can be confusing during sensor selection. The Maretron CLM100 is a transmitter/receiver that provides power to the circuit loop, sometimes the circuit can be called “active” or “sourcing”.

The CLM100 by design is primarily used with a current loop sensor that has a “passive” or “sinking” characteristic. The CLM100 connection type is referred to by ANSI/ISA standard 50.00.01 as a “Type IV 2-Wire Circuit”.

There are two major **sensor requirements** you need to know about a sensor before connecting to the CLM100:

- The sensor must not provide power to the current loop.
- Both current loop terminals of the sensor must be isolated from ground (or any other connection).

For two-wire loop-powered sensors, both of the requirements mentioned above must be met. Always check the sensor specification prior to a connection with the CLM100.

Some three-wire or four-wire sensors may not meet either or both of the CLM100 sensor requirements. If you want to use a three-wire or four-wire sensor with the CLM100, or if you want to retrofit the CLM100 into an existing current loop sensor, you will need to use a loop-powered or current

loop isolator. The isolator device will provide a current loop interface to the CLM100 that meets the two requirements detailed in the sensor requirements note.

The next thing to consider is the excitation voltage provided to the sensor. The CLM100 supplies a maximum of 15VDC open circuit to the current loop, which can drop to 12.5VDC at 20mA of current. The elected sensor will need to have a minimum excitation voltage at or below 12.5VDC only if the sensor is connected directly to the CLM100.

If you must extend the connection from Maretron's CLM100 to the selected sensor, the extension wire will introduce additional resistance in the current loop causing a reduction in the voltage available at the sensor for excitation, always calculate the voltage drop to ensure for proper operation for both the CLM100 and selected sensor.