cdimeters

CDI 5100 Flowmeter

Installation and Operating Instructions

Limitations and Cautions

CDI 5100 flowmeters are not for use in hazardous areas or with gasses other than air or Nitrogen or at pressures greater than 250 psig. They are not for use in control or safety applications. The maximum operating temperature is 150°F (66°C); best accuracy will be achieved at temperatures of 40° to 80°F.

Locating the Meter

Each CDI 5100 meter is shipped with a six-inch length of pipe that has been carefully reamed to provide proper flow into the meter. For best accuracy, this pipe should be threaded into the inlet of the meter; piping further upstream will have little effect on accuracy. If you are sealing the joint between the pipe and the meter with tape, be sure the tape does not intrude on the opening at the end of the pipe. For accurate and reliable readings in compressed-air applications, the meter must be installed downstream of a dryer.

If possible, locate and orient the meter for good visibility from the plant floor.

The meters may, when necessary, be installed outdoors. For best visibility, avoid direct sunlight.

Orienting the Display

The meter must be installed with flow in the direction indicated by the flow arrow. If doing so will cause the display to be upside-down, remove the cover of the meter, lift out the display, rotate both 180° and re-install.

Wiring the Meter

Wiring must be in accordance with applicable codes and standards. In areas where electrical interference may be present, signal wiring should be shielded with the shield grounded remote from the meter. Signal cables must not be run in conduit or cable trays shared with power wiring. The main terminal block inside the meter is accessed by removing the cover and lifting out the display circuit board.

POWER

Either use the dc wall-plug supply furnished with the meter, or connect the terminals marked "24V dc" to a distributed dc power supply and seal the unused power opening with the plastic plug provided. The meter will draw a maximum of 250 mA. Unlike earlier 5200 and 5400 meters, the Rev. 3 meters do not connect the dc- terminal to the pipe on which they are mounted. Please note that 18 Volt dc supplies furnished with some earlier CDI flowmeters do not provide the voltage required for Rev. 3 meters.
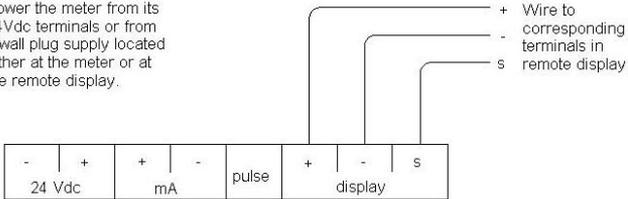
REMOTE DISPLAY

If you are using the summing remote display (SRD), connect the three terminals marked "display" to the corresponding terminals in the remote display. The meter may be powered from the remote display if the cable is 22 gauge or heavier and the distance is no greater than 200 feet. CDI 5100 flowmeters require summing remote displays with Rev. 24 or later firmware.

MILLIAMP OUTPUT

The 4 - 20 milliamp output is optically isolated within the meter and it is provided with a factory-installed jumper which allows it to source a milliamp signal powered from the meter. The resistance of the loop connected to the output should not exceed 600 Ohms.

Power the meter from its 24Vdc terminals or from a wall plug supply located either at the meter or at the remote display.

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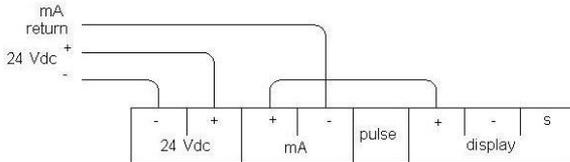- corresponding terminals in
s remote display.

CONNECTING TO A REMOTE DISPLAY

Power meter from its wall plug supply or its 24 Vdc terminals.
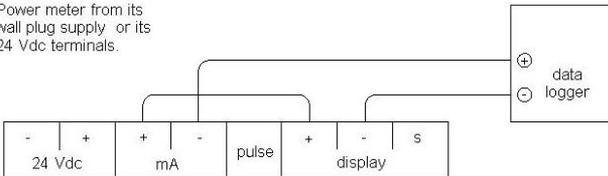
CONNECTING TO A DATA LOGGER

CONNECTING METER AS A THREE-WIRE TRANSMITTER

PULSE OUTPUT

The pulse output is open-collector, that is, a transistor switch to the meter's negative supply. To use it, connect it to the input of the receiving device; also connect that input through a 10K Ohm resistor to a suitable positive supply and connect the negative supply of the receiving device to the negative supply of the meter. If an isolated relay contact is required, install the CDI 5200-IPO isolated pulse output and wire it to the receiving device.

SERIAL COMMUNICATION OPTION

The RS-485 signal used with the Serial Communication option is wired to the special Serial Communication display board. The two threaded openings in the meter enclosure permit the signal to be wired from meter to meter without external splices. Please refer to the data sheet for the Serial Communication option.

Using the Outputs

The milliamp output is scaled so that four milliamps corresponds to zero flow and 20 milliamps corresponds to the range of the meter indicated on the data sheet. The meter will display the milliamp full-scale value for a few seconds on startup. It will also display it if the button on the main (lower) circuit board is pressed twice.

The pulse output generates a square wave signal, sending one pulse for each cubic foot of air that passes through the meter. The LED blinks with the pulse output. At zero flow it may be on or off. The pulse output can be configured as a threshold output, and the scaling of both the pulse output and the milliamp output can be changed, using the optional configuration cable.

Using the Display

Pressing a button indicated by a circle on the front of the meter cycles the display through four display options: rate, daily usage, cumulative usage and units of measure, the last indicated by a digit: (0) for scfm, (1) for m^3/min and (2) for m^3/hr. The cumulative values are indicated in thousands of cubic feet or cubic meters. Holding the button pressed in either of the cumulative modes (daily usage or cumulative usage) will reset that value to zero. The display normally defaults to the rate display, but this can be changed, as can the units of measure and the decimal point location in the cumulative modes. Please refer to information on configuring the display.

Maintenance

If oil or dirt accumulates on the probes, the meter will read low. For this reason, we recommend cleaning the probes from time to time. To clean the probes, wipe them with a cloth dampened with alcohol or a similar degreaser. It may be found that the system is clean enough that cleaning is not needed.