

# CDI 5100

## IN-LINE FLOWMETER FOR COMPRESSED AIR AND NITROGEN

- Accurate measurement of small point-of-use flows
- Minimal pressure drop
- Weather resistant and surge protected
- Milliamp output
- Pulse output convertible to threshold output
- User-configurable scaling, filtering and units of measure
- Optional RS-485 output for networking

The CDI 5100 extends the capability of the CDI 5000 series to the low flow rates found in many point-of-use applications. It does this by concentrating the flow into a small area that is chosen to optimize the tradeoff between pressure drop and low-flow sensitivity. Used in its intended flow range and at a pressure of 100 psig, the 5100 will create a pressure drop no greater than one psi.

The meter measures flow by maintaining one probe warmer than the other. It determines the mass flow rate from the amount of heat required. The flow rate, in scfm or equivalent units, is shown on a large, four-digit display; a 4-20 mA output and a pulse output permit remote display, totalizing and data collection.

Thread size (NPT)	Range <sup>a</sup> (scfm)	Model No.
3/8	20	5100-03S-20
1/2	40	5100-05S-40

(a) Range of milliamp output and recommended maximum flow. Meters will function at somewhat higher flow rates but at reduced accuracy and with increased pressure drop.



### SPECIFICATIONS

#### Accuracy:

5 percent of reading plus 1 percent of the indicated range at a temperature of 68 degrees Fahrenheit and a pressure of 100 psig.

#### Fluids:

Compressed air and nitrogen

#### Operating pressure:

200 psig maximum

#### Input power:

250 mA at 24 Vdc

#### Output resistance:

600 Ohms max.

#### Materials exposed to measured fluid:

Anodized aluminum, aluminum, gold, stainless steel, thermal epoxy and Viton (seal)

#### Display:

Four-digit LED display

#### Response time:

One second to 63 percent of change in value at flows above 30 percent of range

## APPLICATION

The meter is designed for use with compressed air and nitrogen. The air must be free of oil, dirt that could foul the probes, and suspended water droplets. In a compressed-air application, the meter should be installed downstream of a dryer. The flow conditioning within the 5100 imposes a small pressure drop on the air. Please refer to Fig. 1.

The meter is not to be used in safety or life-support applications. It should not be used as a sole means of determining required capacity of air compressors and related equipment. The meter must not be used in hazardous locations.

## INSTALLATION

The meter is furnished with a six-inch length of threaded pipe that is carefully reamed to provide proper flow of air into the meter. For best accuracy, connect this pipe to the inlet of the meter. If using pipe dope, apply it to the male threads only. If using tape sealant, do not allow it to extend beyond the leading edge of the threads.

If necessary, the display of the meter can be rotated 180 degrees. To do this, remove the four screws holding the cover on the meter, lift off the cover and lift out the display circuit board, rotate both 180 degrees and re-install.

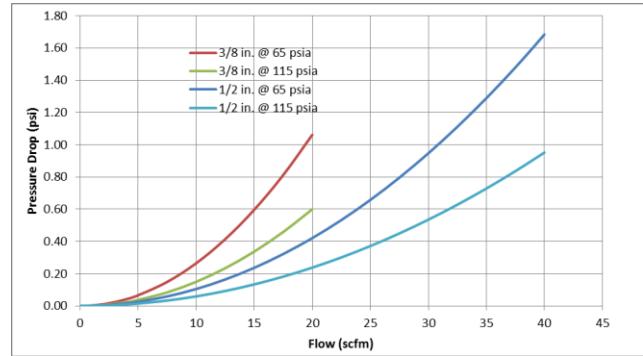
## MILLIAMPER AND PULSE OUTPUTS

The meter has an isolated, unpowered, milliamp output. The meter is shipped with a jumper in place to power the output from the instrument's dc supply. With the jumper in place, the meter will source a dc signal. The pulse output is an open collector, referenced to the instrument ground. For applications in which a contact-closure output is required, the isolated pulse output (CDI 5200-IPO) should be used. It installs inside the meter. The pulse output can be made into a threshold output by using the optional configuration cable.

## DISPLAY CONTROL AND CONFIGURATION

The display can be cycled through rate, daily usage and cumulative usage using a button indicated by a circle on the front of the meter. The same button can be used to select a default display option, reset totals and select units of measure.

Figure 1 – Pressure Drop versus Flow



## METER CONFIGURATION

Several parameters of the meter's configuration can be changed by the user using an optional configuration cable and software available from CDI. These parameters include milliamp scaling, pulse scaling, conversion from pulse output to threshold output, and filtering (smoothing) of the output. For most applications, none of these parameters need to be changed.

## POWER SUPPLY

Each meter is furnished with a wall-plug dc supply for 110 V to 230 Volt AC main with a 6-foot (1.5 M) cable plus a 14-foot (4.2 M) extension cable. Prongs for Australian, European, UK and US outlets are provided, as appropriate. The meter may alternatively be hard wired to a 24-Volt dc supply.

## LIMITED WARRANTY

CDI warrants solely to the buyer that the Model 5100 Flowmeter shall be free from defects in materials and workmanship, when given normal, proper and intended usage, for three years from the date of purchase. During the warranty period, CDI will repair or replace (at its option) any defective product at no cost to the buyer. The foregoing warranty is in lieu of any other warranty, express or implied, written or oral (including any warranty of merchantability or fitness for a particular purpose). CDI's liability arising out of the manufacture, sale or supplying of the flowmeter, whether based on warranty, contract, tort or otherwise, shall not exceed the actual purchase price paid by the buyer, and in no event shall CDI be liable to anyone for special, incidental or consequential damages.