CDI 5200 (DN Series)

FLOWMETER FOR COMPRESSED-AIR SYSTEMS Rev 2.0

- **Easy to install**
- **No moving parts**
- **Digital display**
- **Milliamp and pulse outputs**
- **No calibration or setup required**
- **Complete flowmeter in one package**
- **Optional RS-485 output for networking**

The CDI 5200 clamps onto a pipe, with two flow-sensing probes projecting into the pipe through 4.75 mm drilled holes. It seals directly to the pipe; no cutting or welding is required for installation. Because each flowmeter is made and calibrated for a specific size of pipe, the digital display indicates flow directly, with no setup or adjustment.

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

AVAILABLE SIZES			
Nom Size[a]	Calibrated Range (Nm3/min)[b]	Model No. for Sch 40 Steel	Model No. for Type L Copper
DN 15	0.03 – 2.5	5200-05S	--
DN 20	0.03 – 3.4	5200-07S	5200-07C
DN 25	0.03 – 4.5	5200-10S	5200-10C
DN 32	0.06 – 4.2	5200-12S	5200-12C
DN 40	0.06 – 5.7	5200-15S	5200-15C
25 mm	0.03 – 2.3	25M for 22mm x 25 mm Aluminum	
40 mm	0.06 – 5.7	40M for 36mm x 40 mm Aluminum	

(a) CDI 5400 meters are available for DN 50 through DN 150 sizes.

(b) Accuracy will be reduced when flow is outside of specified range. Milliamp scale ranges differ; see label inside meter.

SPECIFICATIONS

Accuracy:
5 percent of reading plus one percent of full scale at air temperatures between 4 and 49 degrees Celsius

Fluids:
Compressed air and nitrogen

Operating pressure:
14 bar (200 psig) maximum on medium weight steel pipe; consult CDI for other materials.

Input power:
250 mA at 18 to 24 Vdc

Output resistance:
400 Ohms max.

Materials exposed to measured fluid:
Stainless steel, gold, thermal epoxy and Viton (seal)

Ring material:
Aluminum

Display:
Four-digit LED display

Response time:
One second to 63 percent of final value

US Patent 6,802,217

APPLICATION

The meter is designed for use with compressed air and nitrogen. If the meter will be used at pressures below 1 bar (15 psig), consult CDI about velocity limitations. 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. Each meter is calibrated for a specific size and type of pipe. If a meter will be used in a type or size of pipe that is not listed, consult CDI about a special calibration.

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 wet or hazardous locations.

INSTALLATION

Drilling the holes to install the meter will release some metal shavings into the pipe. When planning the installation, make sure that all downstream equipment is protected by filters, or take other precautions to ensure that shavings do not reach critical equipment or get blown out in a way that could cause injury.

For best accuracy, the meter should be installed with at least 20 diameters of straight pipe upstream and three diameters downstream. Avoid installing the meter downstream of any item that could distort or concentrate the flow, such as a partially-closed valve, a regulator, a filter or moisture separator, two closely-spaced elbows in different planes, a long-radius elbow or a curved hose. Allow at least 30 diameters of straight pipe between any such item and the meter. Select a location that meets these requirements and also provides good visibility from the plant floor. If this is not possible, consider using the remote display discussed below.

To install the meter, first shut off the supply of air to the pipe where the meter will be mounted and allow the pressure to bleed down. Clamp the drill guide firmly to the pipe, orienting it for best visibility of the meter. Drill the two holes and remove any resulting burrs from the outside of the pipe. Make sure the outside surface of the pipe is clean and smooth.

Once the pipe is prepared, remove the back halves of the rings, insert the probes into the holes in the pipe with the flow arrow pointing in the proper direction, and re-assemble the rings. Tighten the cap screws firmly and evenly so that the gaps between the halves of the rings are about equal on both sides of the pipe. If the display is upside down, remove the cover of the meter, rotate it 180 degrees, and re-install it.

MILLIAMP 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.

RANGES AND SCALING

Displays are available in scfm, Nm3/min and Nm3/hr. The published scale range of each meter is its calibrated range; the meter will continue to function, at reduced accuracy, at higher and lower flow rates. The milliamp output increases linearly from four milliamps at zero flow to 20 milliamps at a pre-determined flow rate that is displayed for a few seconds as the meter starts up. The pulse output produces five pulses for each standard cubic foot of air in all meter sizes.

POWER SUPPLY

Each meter is furnished with an 18-Volt, 300 mA 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 US, European and UK outlets are provided, as appropriate. The meter may alternatively be hard wired to a 24-Volt dc supply.

ACCESSORIES

Drill Guide

The drill guide facilitates drilling the holes required for mounting the meters; a 4.75 mm drill bit and Allen wrenches are included.

Summing Remote Display (CDI 5200-SRD)

The summing display can be programmed to operate in any of three modes: rate display (the same flow rate shown on the meter), cumulative usage, and usage during the previous day. It can be used either as a remote readout, for situations in which the meter is not readily visible, or as a way to monitor usage over time.

A three-conductor cable (not included) connects the terminal strip in the meter to the terminal strip in the remote display. The meter's plug-in power supply may be connected either at the meter itself or at the remote display.

LIMITED WARRANTY

CDI warrants solely to the buyer that the Model 5200 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.