

# RA-2001 Center-Averaging Flow Probe Kit

## Description

The RA-2001 Center-Averaging Flow Probe Kit was developed to satisfy the requirement for an accurate center-averaging flow probe for use in spiral duct applications. The RA-2001 probe installs in a cut slot in the existing duct. The DMPR-RA001 Pressure Transducer with LCD screen and field-selectable ranges ships with the device. All necessary mounting hardware and gasket material is included.

Refer to the *RA-2001 Center-Averaging Flow Probe Kit Product Bulletin (LIT-1900802)* for important product information.

## Features and Benefits

- Multipoint center averaging provides accurate flow readings.
- Insertion mounting allows easy installation.
- Factory-piped differential pressure transducer with display provides convenient visual reading for flow and allows easy installation.

## Application

The airflow measuring probes were developed to meet the market need for an air measuring station that is easily installed in an existing duct.

Each fully factory-assembled probe unit contains everything needed to install an air measuring station.

The standard 0 to 10 Volt transducer output signal is proportional to Cubic Feet per Minute (CFM) and may be routed to any Building Automation System (BAS) for continuous monitoring of the airflow. The transducer output signal may also be configured for 0-5 V or 4-20 mA.

All products are perfect for measuring airflow in existing ducts and install in minutes.

## Sample Specification

Install, at all locations indicated on plans and in accordance with schedules, a center-averaging differential pressure flow probe assembly.

Device shall be cross shaped, multi-point, center-averaging. Device shall be made of high-impact ABS material.

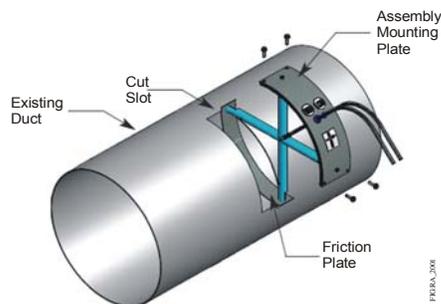
Flow probe shall output an amplified differential pressure signal that is at least 1.5 times the equivalent velocity pressure signal obtained from a conventional pitot tube and be capable of measuring air volume to ±5% accuracy.

The complete assembly shall be equipped with a gasketed mounting plate and all necessary hardware.

Flow probe shall be assembled in an ISO9001-certified facility.

Accuracy shall be supported by testing done in accordance with AMCA test standards.

## Selection



RA-2001 Dimensions



RA-2001 Center-Averaging Flow Probe Kit

## Dimensions

Item	Dimension
Assembly Mounting Plate	3 in. wide
Friction Plate	1-1/2 in. wide
Diameter (Distance Between the Plates at the Center of the Curve)	(as ordered)

## Ordering Matrix<sup>1</sup>

Code Number	R	A	A	x	x	N
R = Round Damper						
A = Air-Measuring						
A = Galvanized Steel Frame and Plastic Cross-Flow Probes						
x x = Diameter, (6 to 16 in.)						
N = No Actuator						

1. The DMPR-RA001 transducer comes with the product (shipped loose).

## Flow Calculations (CFM)

$$CFM = (Area \times Ka) \times \sqrt{PAMS}$$

$$Area = \pi R^2 / 144$$

$$PAMS = \text{Velocity Pressure Inches Water Gage}$$

## Flow Calculation (CFM)

### Ka Factors by Inlet Size

Inlet Size, in. (mm)	Ka
6 (152)	2,282
7 (178)	2,496
8 (203)	2,590
9 (229)	2,642
10 (254)	2,633
12 (305)	2,408
14 (356)	2,820
16 (406)	2,749

## RA-2001 Center-Averaging Flow Probe Kit (Continued)

### Repair Information

If the RA-2001 Center-Averaging Flow Probe Kit fails to operate within its specifications, replace the unit. For a replacement RA-2001 Center-Averaging Flow Probe Kit, contact the nearest Johnson Controls® representative.

All Johnson Controls® RA-2001 Center-Averaging Flow Probe Kits are built to order and cannot be returned due to ordering errors. All RA-2001 Center-Averaging Flow Probe Kits are backed by a 3-year warranty, which covers defects in materials or workmanship. Refer to terms and conditions of sale for specifics.

### Technical Specifications

RA-2001 Center-Averaging Flow Probe Kit	
Frame	20 gauge galvanized steel
Probe Material	High-impact ABS plastic
Seal Material	3/16 in. (5 mm) thick polyurethane foam
Pressure Transducer	DMPR-RA001 Pressure Transducer
Accuracy	±5% of flow
Velocity Range	400 to 5,000 fpm (2.03 to 25.4 mps)
Operating Temperature	20° to 120°F (-6.7° to 48.9°C)
Minimum Size	6 in. (152 mm) diameter
Maximum Size	16 in. (406 mm) diameter