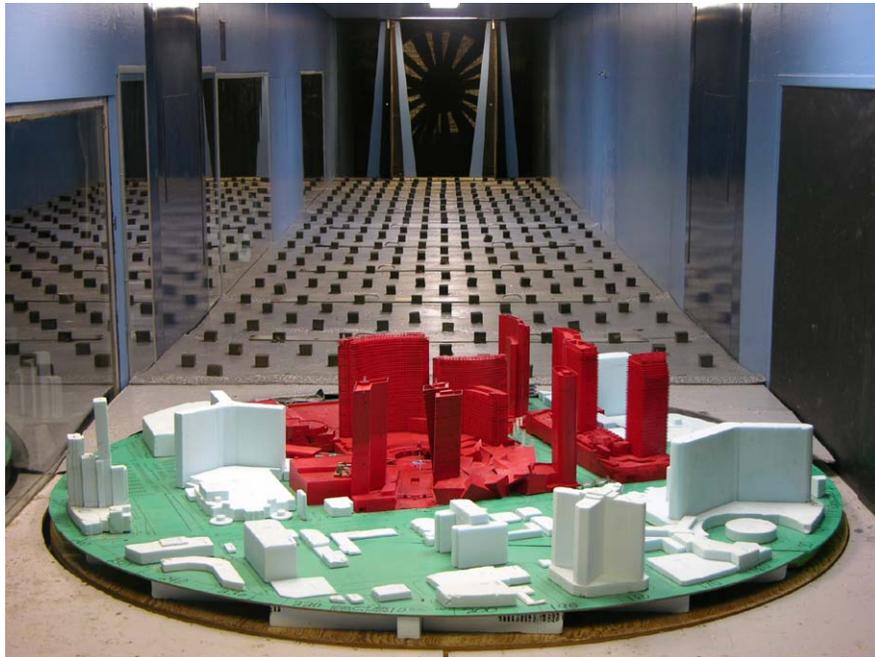


WIND ENGINEERING AND BLUFF BODY PRESSURE MEASURING SOLUTIONS

PRESSURE MEASUREMENT



Scanivalve

GENERAL DESCRIPTION

Typically before tall buildings, stadiums, fabric structures, long span roofs and long span bridges are built, wind tunnel simulations are performed on small scale models. These boundary layer wind tunnels operate at low speeds using a 360 degree turntable to simulate multi-directional wind forces. Ground effect boundary layers are also simulated in these tests. Of recent interest is the interaction of the wind from tornados and hurricanes on structures. The purpose of wind engineering is to determine the interaction of wind with buildings, structures, and terrain to enhance design, efficiency, and increase reliability.

PRESSURE MEASUREMENTS

Wind Tunnel testing determines wind load distribution on walls, roof systems, wind suction, pressures at doorways, impact on pedestrians, as well as fluctuating forces and torques on the structure system. Scanivalve's high sample rate pressure measuring instruments are ideal for measuring dynamic wind tunnel wall and model pressures. Our compact ZOC pressure scanners are available in 32, & 64 pressure input designs. These pressure scanners and an ERAD4000 can be placed inside the model to minimize tubing lengths and measure several hundred pressures (up to 512 channels) on a scale model. Measurements from 5 inches H₂O up to 50psi can be measured with the ZOC modules. Valveless options are also available, thereby reducing the installation complexity and cost per channel.

The MPS4264 miniature pressure scanner adds additional solutions to this type of testing. These miniature 64 channel pressure scanners handle all of the engineering unit conversion inside the model with an onboard A/D, eliminating the need for a DSM or ERAD4000. These miniature scanners can scan at rates up to 850Hz, and up to 2500Hz in Fast Mode at pressure ranges as low as 4 inches H₂O. When used in parallel with an ES4008 miniature Ethernet switch, up to 8 modules can be used to collect data within the model (up to 512 channels).

ZOC PRESSURE MEASUREMENT DATA SYSTEMS

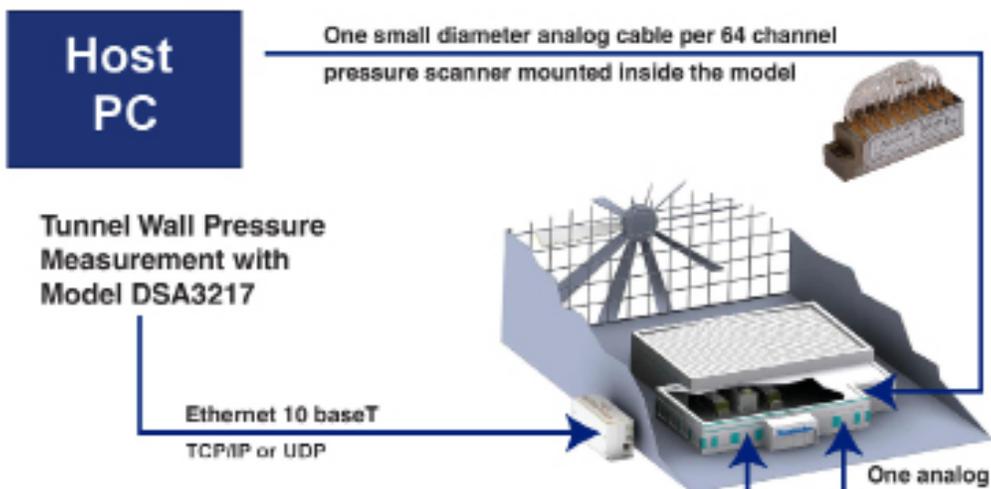
The front end ZOC pressure scanners noted above can be used with 3 different data systems:

1. The ZOC33 analog scanners can be integrated with the user's data acquisition system. There are also commercially available interface cards which can be used to read data from the ZOC modules. Maximum Sampling Speed is 625 Hz.

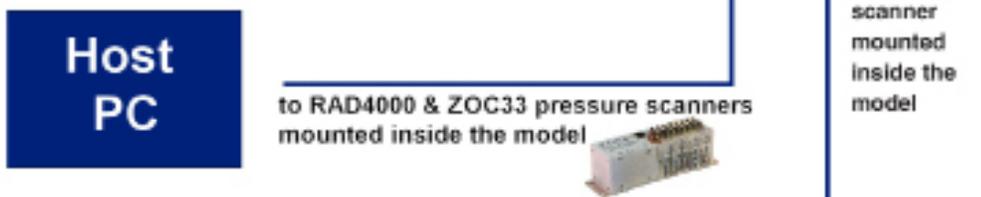
2. The ZOC33 analog scanners can be used with Scanivalve’s ERAD4000 Remote A/D with Ethernet communication to a host. All data is output in Engineering Units. Maximum Sampling Speed is 625 Hz. This digital approach of mounting the ERAD4000 inside the model with the ZOC pressure scanners, using an Ethernet cable (up to 100 meters long), eliminates many analog wires and signal conditioners as well as possible noise problems.

3. The ZOC33 analog scanners can be used with Scanivalve’s DSM4000 Digital Service Module that communicates via Ethernet TCP/IP or UDP. All data is output in Engineering Units. Maximum Sampling Speed is 625 Hz.

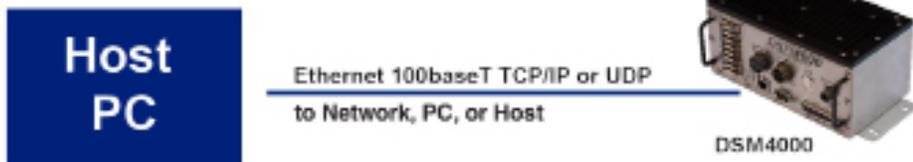
1. ZOC33 Analog Scanner



2. RAD4000/ZOC33 Complete System (up to 512 Px)



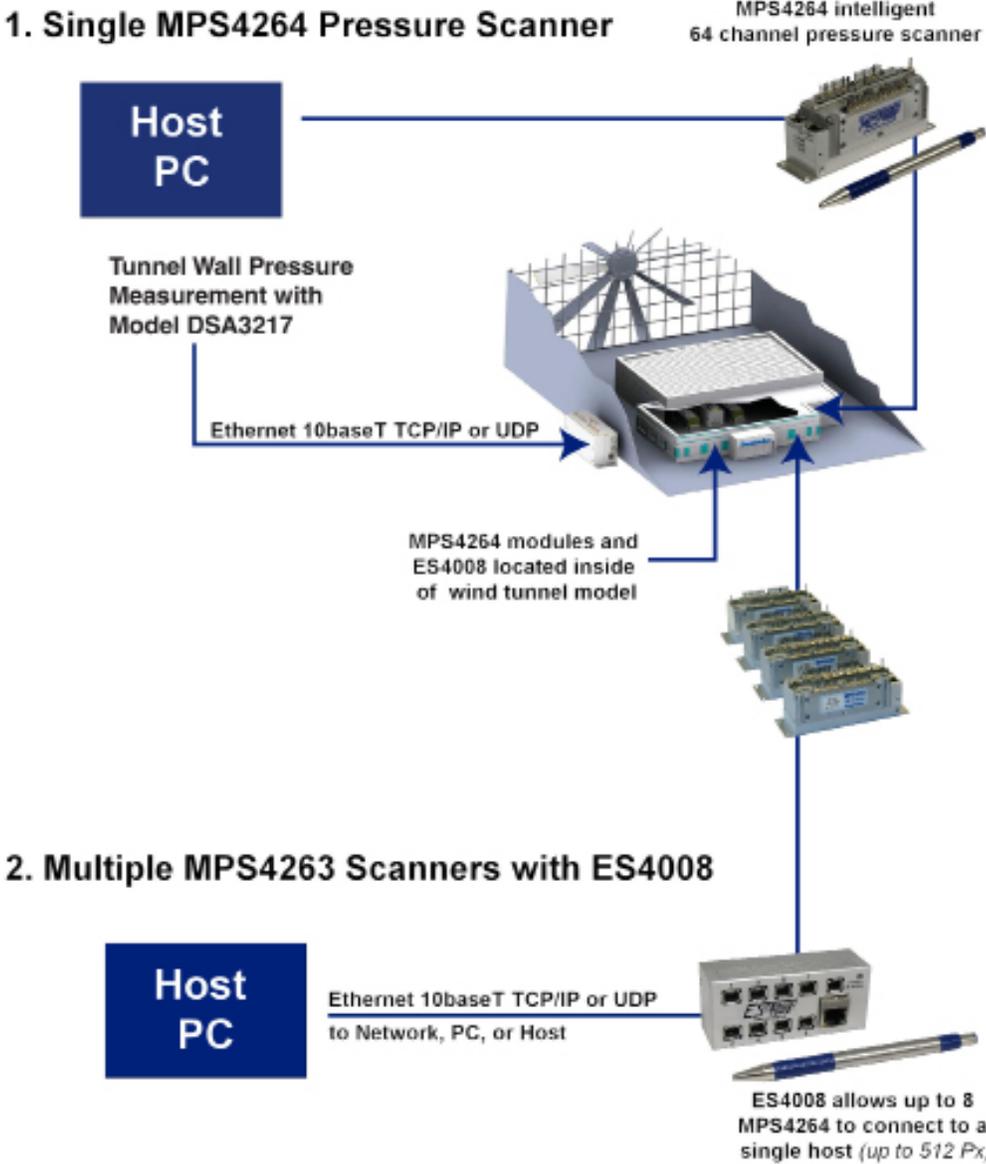
3. DSM4000/ZOC33 Complete System (up to 512 Px)



MPS PRESSURE MEASUREMENT DATA SYSTEMS

The MPS pressure scanners noted above can be used in multiple methods to collect data:

- 1. The MPS4264 pressure scanner can be used as a standalone option for collecting data. This module allows the user to collect 64 channels of pressure data at rates up to 850Hz, or 16 channels at 2500Hz. All communication is handled by Ethernet TCP/IP or UDP.
- 2. The MPS and ES4008 combination allows a user to connect to multiple MPS modules from a single host and collect data via Ethernet TCP/IP or UDP. Up to 8 MPS modules can be connected to a single ES4008, allowing for up to 512 channels of pressure data to be collected.



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