FE141 Spirometer

Signal Conditioner Series

Description

The FE141 Spirometer is a precision differential pressure amplifier for measurements of respiratory flow rates with a respiratory flow head. The Spirometry Extension add-on software for LabChart and Chart allows flow, volume and forced expiratory measurements to be calculated. By selecting a suitably sized flow head, the Spirometer can be used with small animals such as mice or rat through to large animals and humans.

Compatibility

The Spirometer is compatible with PowerLab and MacLab models and requires the following ADInstruments software versions or later: LabChart v6, Chart v4 or Scope v4.

Visit www.adinstruments.com/downloads/ for Windows and Mac operating system compatibility. For more information please contact your ADInstruments representative.

The following are some respiratory flow heads suitable for use with the Spirometer:

MLT1000L	Respiratory Flow Head 1000 L
MLT300L	Respiratory Flow Head 300 L
MLT10L	Respiratory Flow Head 10 L
MLT1L	Respiratory Flow Head 1 L
MLT3813H	Heated Pneumotach

Features and Benefits

- Precision differential pressure input that can be used to determine flow rates by suitable flow head selection
- Provides additional amplification required to deal with a variety of flow rates, from fractions of a litre per minute (mice and rats) to a thousand litres per minute (adult humans during exercise)
- Additional programmable filtering to remove unwanted signal frequencies
- Software controlled zeroing for offset removal

Applications

Differential pressure measurements, airflow and breathing.

Specifications

Input

Connection type:	Two female Luer fittings to enable connection to flow head via male Luer fittings and suitable tubing.
Configuration:	Differential pressure input, +/- 1" 92.5 cm) H_2O
Input range:	±20 mV to ±500 mV full scale in 5 steps (combined PowerLab and Spirometer)

Volts	Inches H2O	Resolution
±500 mV	±1	15.6 µV
±200 mV	±0.4	6.25 µV
±100 mV	±0.2	3.125 µV
±50 mV	±0.1	1.56 µV
±20 mV	±0.04	0.625 µV

Max Input Pressure:	±28.1 Inches H_2O (7 kPa)
Temperature Drift:	0.05 % of full scale per °C
Max zero pressure offset:	< 1 % full scale, software removable
Response time:	1 ms (10-90 % full scale), at maximum bandwidth
Linearity:	±0.5 % full scale
Repeatability:	±0.25 % full scale
Long Term Stability:	±0.5 % full scale
Warm Up Time:	~ 2 minutes

Filters

Low-pass Filtering:	1, 10 and 100 Hz (software selectable) using fourth-order Bessel filter.

Control Port

I_2C port:	Provides control and power. Interface communications rate of ~50 Kbits/s.

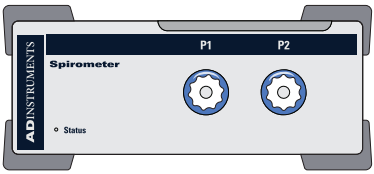
Physical Configuration

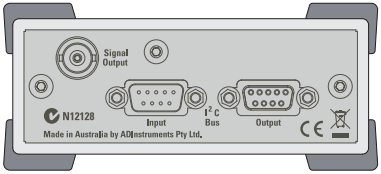
Dimensions (h × w × d):	55 mm × 120 mm × 260 mm
Weight:	1.2 kg
Power requirements:	1.5 W
Operating temperature range:	0 to 35 °C, 0 to 90% humidity (non-condensing)

Caution

Read “Statement of Intended Use” on our website or in “Getting Started with PowerLab” before use.

Front and Back Panels





Ordering Information

FE141 Spirometer

Includes:
I²C Cable (9-pin plug to 9-pin receptacle)
BNC to BNC Cable
Spirometer Owner’s Guide

For use with:

MLT1000L	Respiratory Flow Head 1000 L
MLT300L	Respiratory Flow Head 300 L
MLT10L	Respiratory Flow Head 10 L
MLT1L	Respiratory Flow Head 1 L
ML3813H	Heated Pneumotach

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