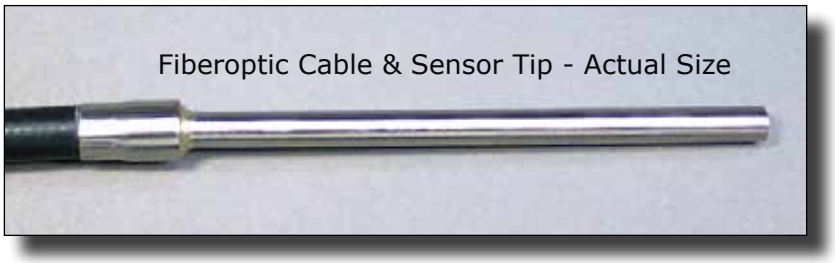
Fiberoptic Sensor - *Reflectance Dependent**

Model DMS-D171

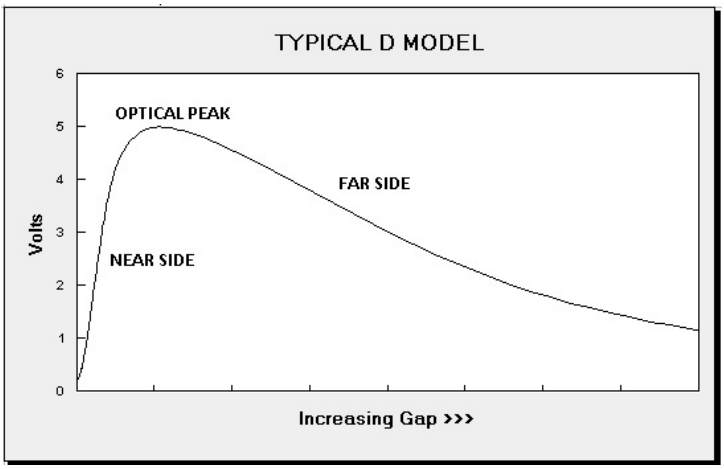


These sensors provide a linear distance output with RS232 or USB communication.

For The Measurement of Distance, Displacement and Vibration

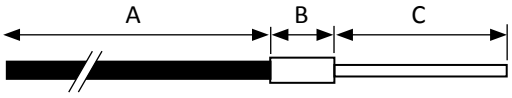
Features

- Reflectance Dependent Output with Dual Functions: Far Side/Near Side
- Ø 4.35 mm Target Spot Size (0.171 inch)
- 50 mm Total Operating Range (2 inch)



The typical analog input function for TYPE D sensors includes NEAR AND FAR SIDE regions. NEAR SIDE operation gives highest resolution with limited operating range. Operation on the FAR SIDE gives moderate resolution with much greater operating range.

Tip & Cable Dimensions



FEATURE	mm	inch
Tip Outer Diameter, Ø C	4.75	0.187
Fiberoptic Diameter	4.34	0.171
Tip Length, C	76.2	3
Collar Length, B	15.9	0.625
Collar Diameter, Ø B	7.92	0.312
Cable Length, A	914	36
Cable Diameter, Ø A	6.86	0.27
Cable Min. Bend Radius	25.4	1

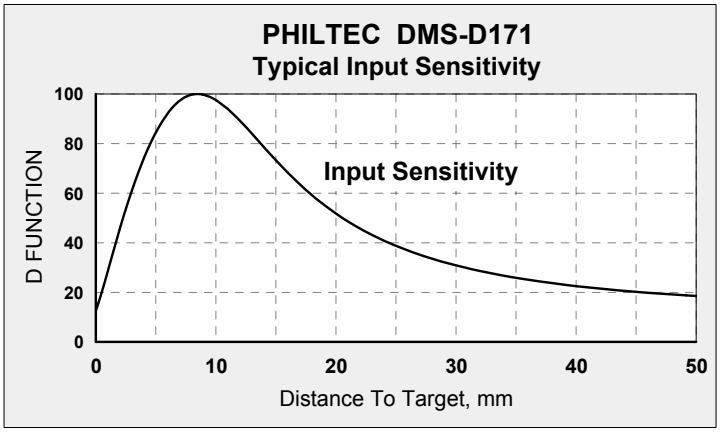
**These are reflective type transducers based upon detecting the intensity of reflected light. The output is proportional to:*

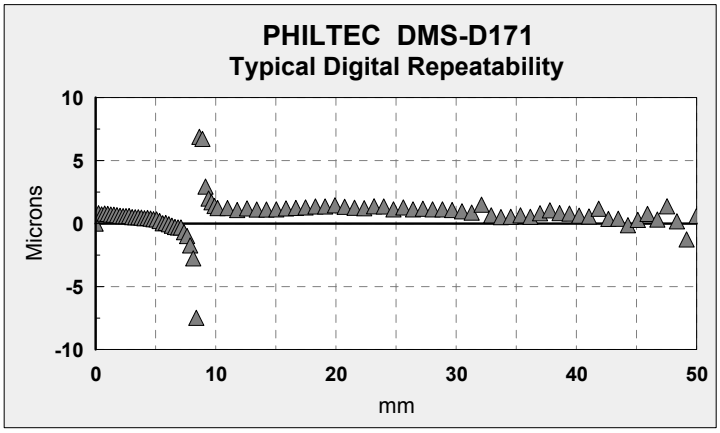
- *distance between the sensor tip and target; and,*
- *the reflectivity of the target surface.*

D models are commonly used in applications where the target reflectivity stays constant:

- *the target has a reciprocating or vibratory motion parallel to the axis of the sensor.*

AGT Absolute Gauge Technologies™
Presented by: Absolute Gauge Technologies
sales@absolutegauge.com; www.absolutegauge.com,
Toronto: 416 754 3168, Montreal: 514 695 5147, Toll Free: 1 888 754 7008





The fiberoptic probe generates an analog input signal that is compared to stored calibration data and digitized into a linear distance output. The sensor can be gapped for measurements anywhere within the sensor's total operating range. However, optimum performance is achieved where the D function has the steepest slope (input sensitivity).

Repeatability is a measure of sensor accuracy. The best repeatability is obtained with the data averaging filter set at 4096 (2.5 samples/sec).

Standard Specifications, Model DMS-D171

Electronics		Fiberoptics		USB or RS232	Near Side	Far Side
Light Source	880 nm	Light Beam Spread	25°	Total Range	10 mm	50 mm
Input Voltage	+12 VDC	Cable Sheathing	PVC / Steel Monocoil	Linear Range	10 mm	50 mm
Input Current	500 ma max	Tip Epoxy Outgas	0.3% @ 200°C 2.4% @ 300°C	Reflectance Resolution	0.5%	
Bandwidth	5 KHz	Tip Operating Pressure	10 bar	Temperature Resolution	0.06°C	
Iso-thermal Drift	0.05%	Tip Operating Temperature	-55 to 175°C continuous; to 350°C intermittent 1-2 hours	ADC AVG / Samples/Sec 2 / 5208 16 / 651 256 / 41 4096 / 2.5	Pk-Pk Resolution 1.5 µm 0.5 µm 0.3 µm 0.2 µm	Pk-Pk Resolution 3.0 µm 1.5 µm 0.75 µm 0.25 µm
Weight	1.1 kg	Fibers	Glass			

NOTES:

1. These specifications represent best case performance where:
   - the target is flat, smooth and highly reflective
   - the sensor is perpendicular to the target
   - the sensor is gapped to its range of highest sensitivity (~mid-range)
   - fiberoptic cable lengths are standard and the cables are not connectorized

2. DMS Control Software includes a data averaging filter for averaging data samples from: 2 samples (the fastest rate) to 4096 samples (highest resolution).

3. Internally, the sensor continuously reads target data at a clock rate of 10,416.75 Hz.

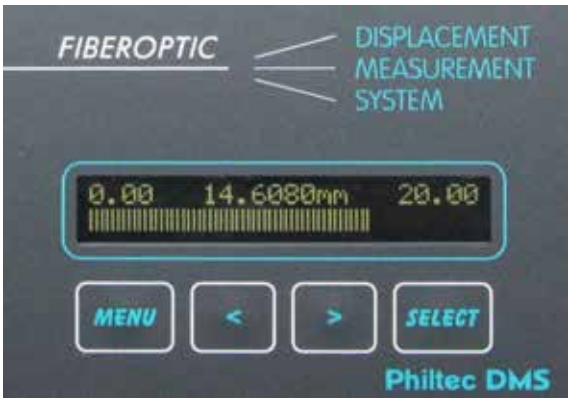
4. ADC AVG = the number of internal readings averaged before sending data out to the PC.

5. Samples/Sec for any ADC AVG setting can be calculated as follows: S/S = 10,416.75 / ADC AVG

Custom Hardware To Customer Specifications

Three Instruments To Choose From:

- ***Model DMS-D171 ...*** Full Size DMS with RS232 output and Keypad/LCD
- ***Model mDMS-D171*** ... miniDMS with RS232 output
- ***Model muDMS-D171*** ... miniDMS with USB output

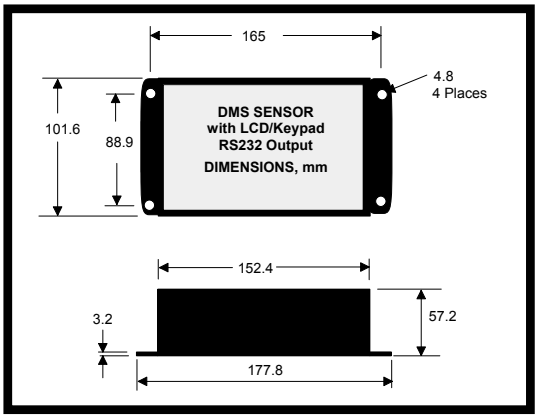


DMS-D171

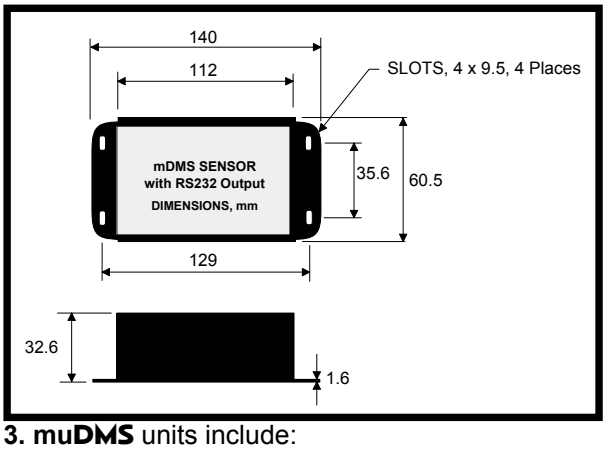
mDMS-D171

muDMS-D171

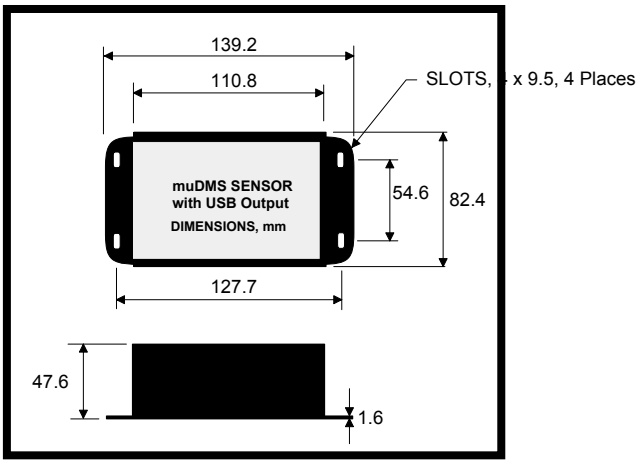
1. Standard DMS units include:
- Electronics with RS-232 communication
- Keypad/LCD for local operation

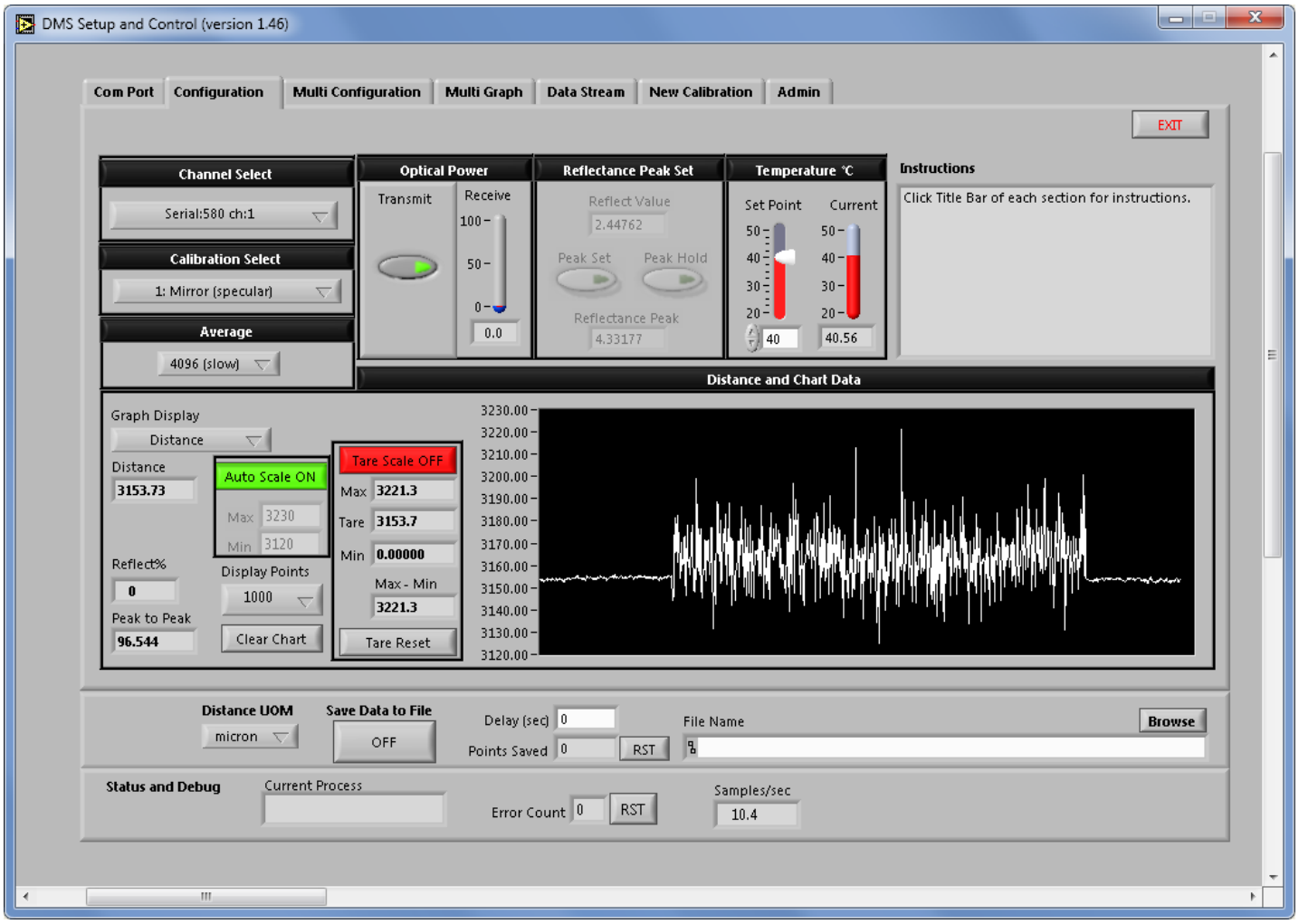


2. mDMS units include:
- Electronics with RS-232 communication



3. muDMS units include:
- Electronics with USB communication





DMS SETUP and CONTROL SOFTWARE

Philtec provides freeware with every digital sensor purchase. This powerful software is a very useful tool for controlling sensors, viewing live data, and for saving data to files.

Sensors have storage capacity for 25 calibration tables. Every new sensor is provided with calibrations to:

1. A front surface mirror
2. A diffuse aluminum target

The DMS software provides means for copying and pasting sensor calibration data, as well as for creating and storing new calibration tables.

SOFTWARE & FIRMWARE UPDATES

DMS sensors can be updated remotely at any PC. The most current edition of software and firmware is posted at http://www.philtec.com/firmware.htm. A short tutorial video link is also available there.