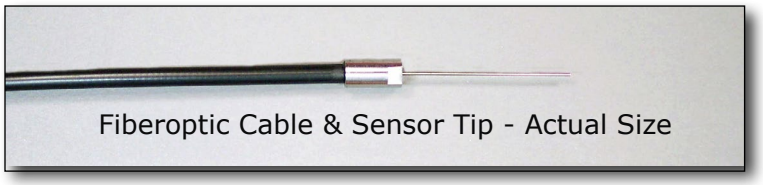
Fiberoptic Displacement Sensor

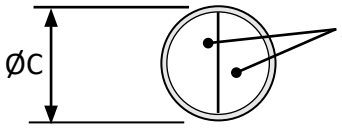
Model DMS-RC20


Fiberoptic Cable & Sensor Tip - Actual Size

For The Measurement of Distance, Displacement and Vibration of Small Targets >Ø 0.5 mm

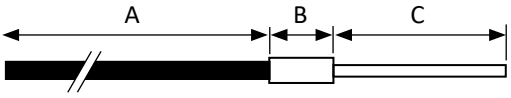
Features

- 1.5 mm Operating Range
- Ø 0.5 mm Fiber Bundle (Spot Size)
- Reflectance Compensated Output*



Side-by-Side Fiberoptics In Sensor Tip

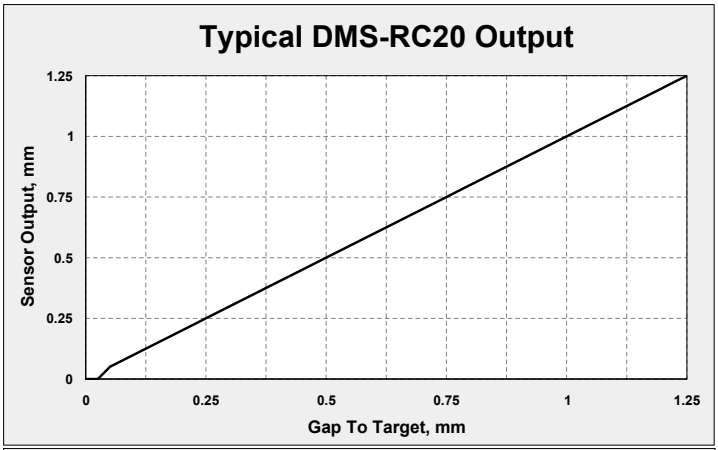
Tip & Cable Dimensions

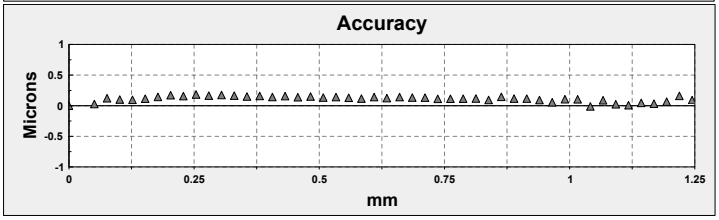


FEATURE	mm	inch
Tip Outer Diameter, Ø C	0.83	0.032
Fiberoptic Diameter	0.5	0.020
Tip Length, C	38.1	1.5
Collar Length, B	12.7	0.500
Collar Diameter, Ø B	6.35	0.250
Cable Length, A	915	36
Cable Diameter, Ø A	5.2	0.205
Cable Min. Bend Radius	12.7	0.5

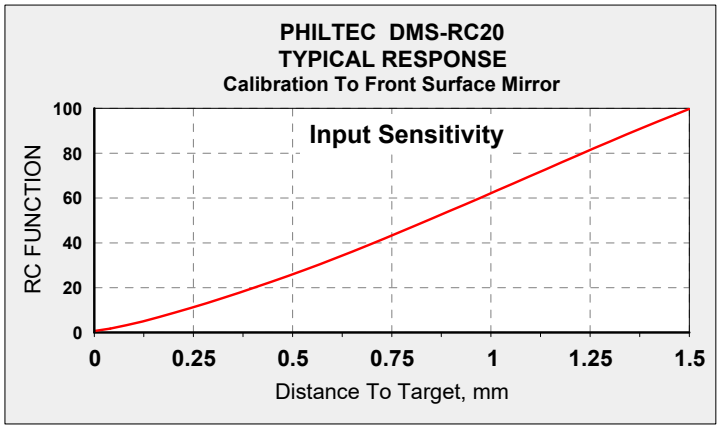
OPERATING PRINCIPLE. These are reflective type transducers based upon detecting the intensity of reflected light. RC Model sensors have a pair of fiberoptic detectors in the sensor tip. Light reflected off a target follows two separate paths back to the electronics where a ratiometric calculation provides the distance measurement which is independent of varying surface reflectance; i.e., ***reflectance compensated***.

*These sensors provide a linearized distance output with RS232 or USB communication. Dynamic light signals reflected from target surfaces are converted to distances by comparing the sensor signals to gap calibration tables stored on-board the sensor.





Sensor Accuracy is measured at 2.5 samples/sec.



The analog signal input to the sensor's microprocessor (shown above) is converted to a linearized distance output by comparing the input signals to gap calibration tables stored on-board the sensor. The sensor can be gapped for measurements anywhere within the sensor's total operating range.

Standard Specifications - DMS-RC20

Electronics		Fiberoptics		USB or RS232	
Light Source	850 nm	Light Beam Spread	30°	Total Range	1.5 mm
Input Voltage	+12 VDC	Cable Sheathing	PVC over Steel Monocoil	Linear Range	0 - 1.5 mm
Input Current	500 ma max	Tip Epoxy Outgas	0.3% @ 200°C 2.4% @ 300°C	Reflectance Resolution	0.5%
Bandwidth	5 KHz max	Tip Operating Pressure	15 bar	Temperature Resolution	0.06°C
Iso-thermal Drift	0.05%	Tip Operating Temperature	-55 to 200°C continuous; to 300°C intermittent 1-2 hours	Resolution*	** samples/sec — pk-pk
				ADC AVG = 2	5208 — 80 nm
				ADC AVG = 16	651 — 30 nm
				ADC AVG = 256	41 — 10 nm
				ADC AVG = 4096	2.5 — 5 nm
Weight	1.1 kg - 2.4 lbs.	Fibers	Glass		

NOTES:
*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

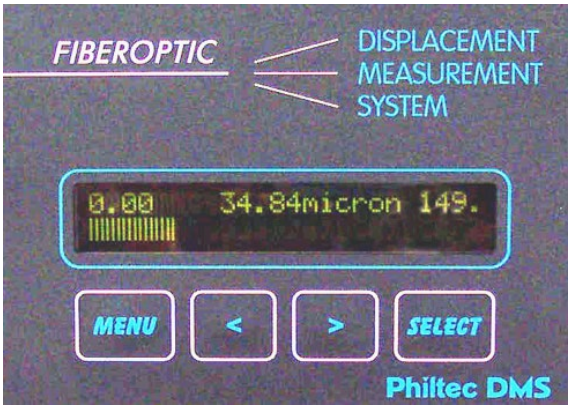
**DMS Control Software includes a data averaging filter for averaging data samples from:
2 samples (the fastest rate) to 4096 samples (best resolution).

Internally, the sensor continuously reads target data at a clock rate of 10416.75 Hz.
ADC AVG = the number of internal readings averaged before sending data out to the PC.

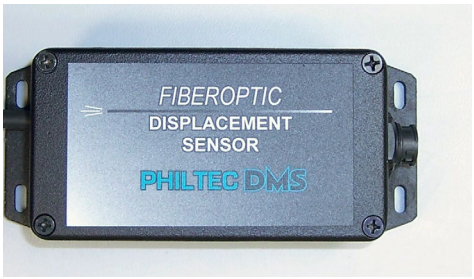
Samples/Sec for any ADC AVG setting can be calculated as follows:
- S/S = 10,416.75 / ADC AVG

Three Instruments To Choose From:

- ***Model DMS-RC20 ...*** Full Size DMS with RS232 output and Keypad/LCD
- ***Model mDMS-RC20*** ... miniDMS with RS232 output
- ***Model muDMS-RC20*** ... miniDMS with USB output



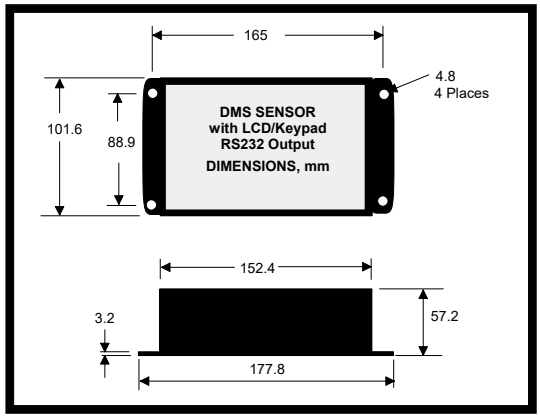
DMS-RC20



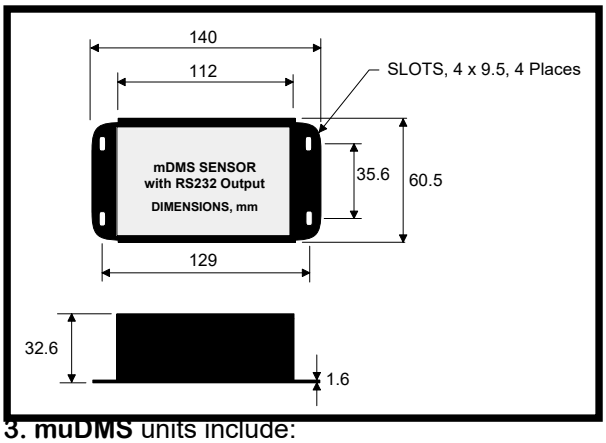
mDMS-RC20

muDMS-RC20

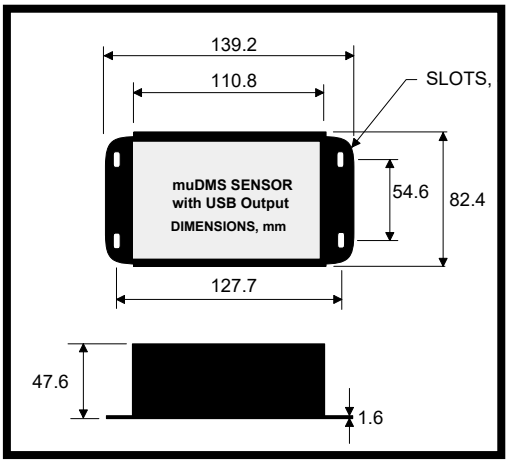
1. Standard DMS units include:
- Electronics with RS-232 communication
- Keypad/LCD for local operation



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



3. muDMS units include:
- Electronics with USB communication



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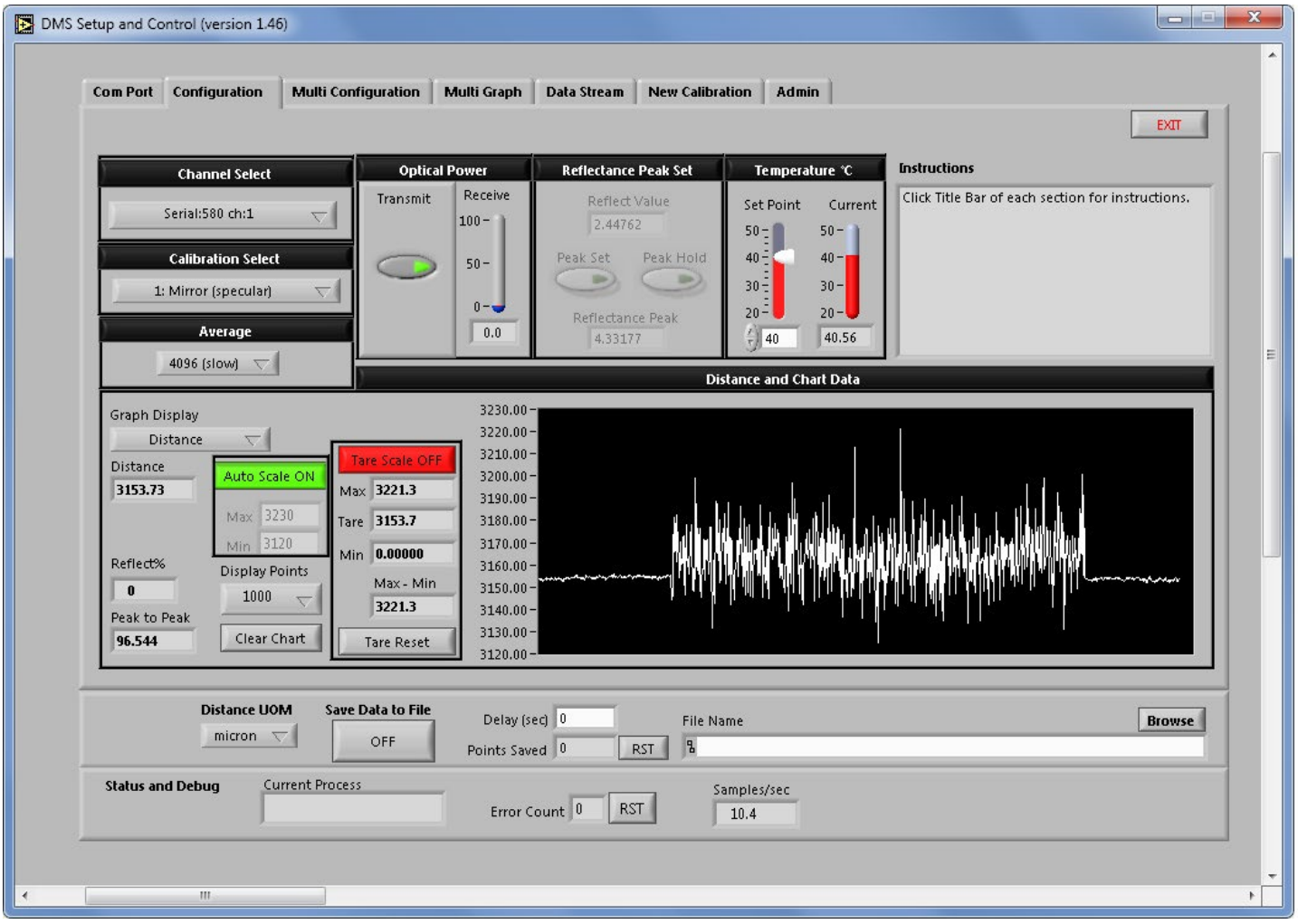
800-453-6242 e-mail sensors@philtec.com



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://philtec.com/downloadssupport/firmware.html.. A short tutorial video link is also available there.