

CTC AppNotes

A series of technical documents written by members of the CTC community

4-20mA Proximity Probe Drivers: For Radial, Axial and DC Gap applications

CTC's PRO line of proximity probes now includes a full selection of 4-20mA output drivers for radial, axial and overall vibration. In this edition of CTC's AppNotes we will discuss the differences between the three types of monitoring the different versions are designed for.

'-70' series—4-20 proportional to DC gap over full range—The DD100170(DX330170) series drivers are powered by a current loop from a PLC, DCS or similar system. In addition to the 200mV/mil DC

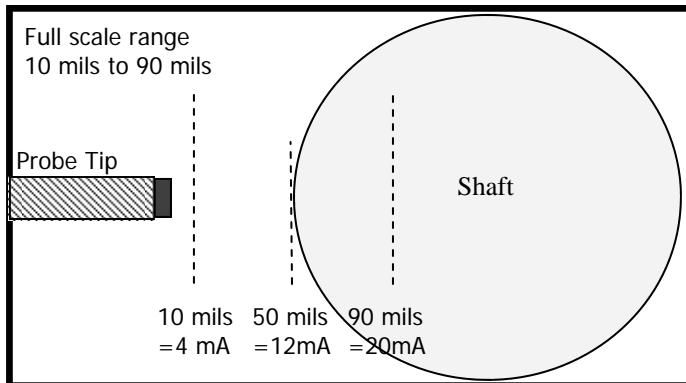


Figure 1— DD100170 Probe showing proportional output for the 4-20mA signals. With shaft surface at 50 mils, 4-20 output is 12 mA. If the gap increases to 70 mils 4-20 output will be 16 mA.

Gap output, available from the COM and V_{out} terminals, the powering current loop will indicate the DC gap as a 4-20mA output. The 4mA is equal to 10 mils DC gap and the 20mA is equal to 90 mils gap. These drivers can be used in either radial or axial applications.

'-90' series—4-20 proportional to radial shaft vibration—The DD100190(DX190) series drivers are also powered by the current loop from a monitoring system, however the 4-20 output for the '-90' series drivers is proportional to the overall shaft vibration in mils around the midpoint of the probe's dynamic range. The output can be proportional to either 0-4 mils or 0-5 mils peak-to-peak with 0 mils vibration equal to 4mA and 4 (or 5) mils peak to peak equal to 20 mA. These drivers are in-

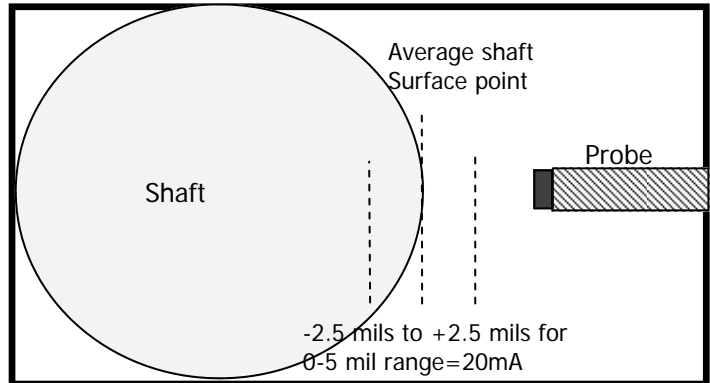


Figure 2— in radial applications the -90 series probe drivers select the average shaft surface distance and the 4-20 is proportional to the overall peak to peak vibration in mils around the average surface of the shaft.

tended for use in radial applications only.

'-91' series—4-20 proportional to DC gap for axial measurements—the DD100191(DX191) series drivers are used in the axial position to measure thrust. The

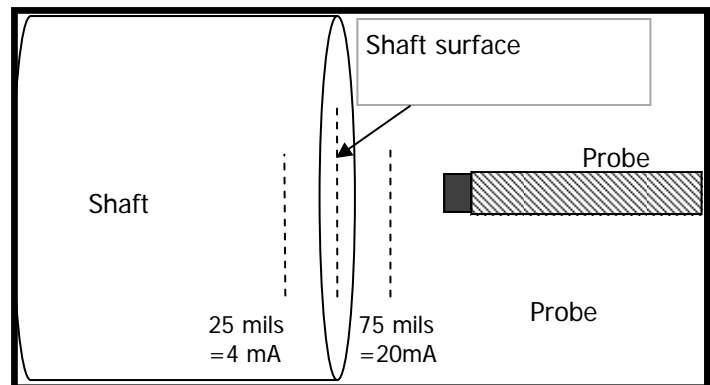


Figure 3— In the thrust position the -91 series probes auto range to the face of the shaft or thrust collar and the 4-20 is proportional to the positive or negative vibration away or toward the probe as shown.

auto-ranging full scale is proportional to positive and negative motion around the midpoint of the overall gap. For example, if the midpoint of the gap is at 50 mils(12 mA), then the 4-20 output would have a 4mA output at 25 mils and a 20mA output at 75 mils. These drivers are intended for use in axial applications only.

If you have any questions or for further information please contact us via email, techsupport@ctconline.com or call 1-800-999-5290 in the US and Canada or +1-585-924-5900 internationally.