

OPERATION MANUAL

CMCP-LVDT-51A DC Linear Variable Differential Transformer

REV. A 5-26-2009

Model Description:

The **CMCP-LVDT-51A** is typically used in a pair to measure case (or shell) expansion. This provides information on the position of both of the sliding feet on the machine case, allowing comparison of readings to prevent damage should one foot become obstructed or jammed. Case expansion measurements allow determination of where the expected thermal growth differentials are being exceeded on the machine. This is primarily a start up parameter allowing the machine casing and rotor growth to increase at a similar rate. Thermal growth at different rates can cause internal running between rotating and stationary parts of the machine. As the machine case grows, the rod moves inside of the **CMCP-LVDT-51A**. The change in position of the rod causes a change in the output signal of the LVDT. This signal is conditioned electronically and is outputted to a monitor for display and alarms.

Power:

The **CMCP-LVDT-51A** requires the use of an external 24 volt DC power supply. A minimum of 30mA is required for each LVDT.

See Wiring Diagram on Page 4

Output:

The **CMCP-LVDT-51A** outputs a voltage of 1-6VDC directly corresponding to the two inch overall range of the LVDT. A **CMCP548** transmitter or monitor can be used to change the signal to a 4-20mA output to connect to a PLC or DCS.

Accessories:

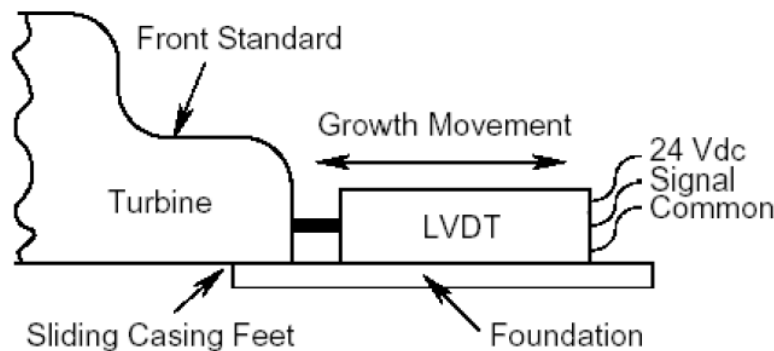
The **CMCP548 (A) Case Expansion Monitor and Transmitters** are compatible with any LVDT input. They provide a 4-20mA output proportional to the overall measurement. Each unit provides power for the associated transducer, processes the signal, and outputs a 4-20 mA dc current that is proportional to a user specified range such as 0-2 inches. Combining monitors with an existing PLC or DCS system results in a high density, low cost monitoring system. With the alarm feature, the unit functions as a complete single channel monitor that includes alert and danger alarms, and output relays.

** Visit www.stiweb.com for more information. **

Installation:

The CMCP-LVDT-51A must be mounted to a stable mounting surface on the turbine foundation at the unpinned end of the turbine casing; close enough for the extension rod to reach the casing. Insert the core shaft (the shorter of the two (2) shafts provided) into the transducer, with the end marked with blue paint away from the connector. Adjust the mounting block to achieve the desired position, and then tighten the clamp screws and secure the shaft to the turbine case.

Final positioning of the core must be performed when the turbine is at ambient temperature. With the turbine at ambient temperature, apply power to the LVDT. As the core is moved from one end of the LVDT cylinder to the other, the output voltage will go from maximum (6 VDC), to minimum (1 VDC). It is recommended that the core position be set just within the maximum limit at the end away from the direction the core will move as the turbine expands to make the LVDT's entire range available for monitoring as the turbine expands. To set the core's position, loosen set screw, adjust the connecting rod by the inner rod until the desired output voltage is obtained, and tighten set screw.



See Assembly and Mounting Dimensions on Page 4

