3500/45 Position Monitor

Datasheet

Cordant™

141537 Rev. T



Description

The Bently Nevada™ 3500/45 Position Monitor is a 4-channel instrument that accepts input from proximity transducers, Rotary Position Transducers (RPTs), DC Linear Variable Differential Transformers (DC LVDTs), AC Linear Variable Differential Transformers (AC LVDTs), and rotary potentiometers. The monitor conditions the input and compares the conditioned signals with user-programmable alarms.

> The type of measurement and transducer input determine which I/O modules are required (see Transducer Types for Position Measurements on page 12; see Figures and Graphs on page 15; and see I/O Modules for AC LVDTs on page 17.)

You can program each channel using the 3500 Rack Configuration Software to perform the following functions:

- Axial (thrust) Position
- Differential Expansion
- Standard Single Ramp Differential Expansion
- Non-standard Single Ramp Differential Expansion
- Dual Ramp Differential Expansion
- Complementary Differential Expansion
- Case Expansion
- Valve Position

Baker Hughes



The monitor channels are programmed in pairs and can perform up to two of these functions at a time. For example, Channels 1 and 2 can perform one function while channels 3 and 4 may perform the same or a different function.

The primary purpose of the 3500/45 Position Monitor is to provide the following:

- Machinery protection by continuously comparing monitored parameters against configured alarm setpoints to drive alarms
- Essential machine information for operations and maintenance personnel

Each channel, depending on configuration, typically conditions its input signal to generate various parameters called **measured variables**. You can establish **alert setpoints** for each active measured variable and **danger setpoints** for any two of the active measured variables.

Specifications

Inputs

Signal	Accepts from 1 to 4 signal inputs
Power consumption	7.7 Watts, typical, using Position I/O, **or** 8.5 Watts typical, using AC LVDT I/O **or** 5.6 Watts typical, using Rotary Potentiometer I/O
Input Impedance	1 MΩ (DC LVDT inputs) 10 kΩ (Proximitor or RPT inputs) 137 kΩ (AC LVDT inputs) 200 kΩ (Rotary Potentiometer inputs)

Sensitivity

Thrust	3.94 mV/µm (100 mV/mil) or 7.87 mV/µm (200 mV/mil)
Differential Expansion	0.394 mV/µm (10 mV/mil) or 0.787 mV/µm (20 mV/mil)
Ramp Differential Expansion	0.394 V/mm (10 mV/mil), 0.787 V/mm (20 mV/mil), 3.937 V/mm (100 mV/mil), or 7.874 V/mm (200 mV/mil)
Complementary Input Differential Expansion	0.394 V/mm (10 mV/mil), 0.787 V/mm (20 mV/mil), or 3.937 V/mm (100 mV/mil)
DC LVDT Case Expansion	0.05 V/mm (1.25 V/in), 0.08 V/mm (1.90 V/in), 0.10 V/mm (2.50 V/in), 0.18 V/mm (4.50 V/in), 0.20 V/mm (5.00 V/in), or 0.22 V/mm (5.70 V/in)
AC LVDT Case Expansion	28.74 mV/V/mm (0.73 mV/V/mil), 15.35 mV/V/mm (0.39 mV/V/mil), or 9.45 mV/V/mm (0.24 mV/V/mil)
AC LVDT Valve Position	28.74 mV/V/mm (0.73 mV/V/mil) 15.35 mV/V/mm (0.39 mV/V/mil), 9.45 mV/V/mm (0.24 mV/V/mil), 10.24 mV/V/mm (0.26 mV/V/mil), 7.48 mV/V/mm (0.19 mV/V/mil), 5.51 mV/V/mm (0.14 mV/V/mil), 3.94 mV/V/mm (0.10 mV/V/mil), or 3.15 mV/V/mm (0.08 mV/V/mil)
Rotary Potentiometer Valve Position	41 mV/degree rotation
Rotary Position Transducer (RPT) Valve Position	140 mV/deg rotation, 70 mV/deg rotation, or 50 mV/deg rotation

Outputs

Front Panel LEDs	
OK LED	Indicates when the 3500/45 Position Monitor is operating properly.
TX/RX LED	Indicates when the 3500/45 Position Monitor is communicating with other modules in the 3500 rack.

Cables

3500 Transducer (XDCR) to External Termination (ET) Block Cable 129525-AAAA-BB

A: I/O Cable Length	
0005	5 feet (1.5 meters)
0007	7 feet (2.1 meters)
0010	10 feet (3.0 meters)
0025	25 feet (7.6 meters)
0050	50 feet (15.2 meters)
0100	100 feet (30.5 meters)
B: Assembly Instructions	
01	Not assembled
02	Assembled

3500 Recorder Output to External Termination (ET) Block Cable 129529-AAAA-BB

A: I/O Cable Length	
0005	5 feet (1.5 meters)
0007	7 feet (2.1 meters)
0010	10 feet (3.0 meters)
0025	25 feet (7.6 meters)
0050	50 feet (15.2 meters)
0100	100 feet (30.5 meters)
B: Assembly Instructions	
01	Not assembled
02	Assembled

Spares

176449-04	3500/45 Position Monitor
135137-01	Position I/O Module with Internal Terminations for use with Proximitors, RPTs or DC LVDTs
135145-01	Position I/O Module with External Terminations for use with Proximitors, RPTs or DC LVDTs
139554-01	AC LVDT Position I/O Module with Internal Terminations for use with AC LVDTs
139567-01	AC LVDT Position I/O Module with External Terminations for use with AC LVDTs
125808-06	Position-Prox/DC LVDT-Euro
141208-01	Position-Prox/AC LVDT-Euro
128702-01	Recorder ET Block-Euro
128015-06	Position External Termination Block (Terminal Strip connectors) for Proximitor, RPT and DC LVDT inputs
128710-01	Recorder External Termination Block (Terminal Strip connectors)
166M4363	Connector Header Push-in-Spring Type (Alternative for PN 00580441)