

3500/45 140072-04

Four-Channel Position Monitor

Bently Nevada 3500/45 140072-04 is a four-channel Position Monitor for the 3500 rack. It converts position-transducer inputs into machinery displacement values, recorder outputs and protection alarms.

PRODUCT SNAPSHOT

BRAND

Bently Nevada

FAMILY

3500 Machinery Protection System

PART

140072-04

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PRODUCT OVERVIEW

Bently Nevada 3500/45 140072-04 is a four-channel Position Monitor for the 3500 rack. It converts position-transducer inputs into machinery displacement values, recorder outputs and protection alarms.

1

Processes four channels of machine-position and displacement measurements

2

Supports thrust, differential-expansion, case-expansion and valve-position channel pairs

3

Conditions Proximitors, rotary-position-transducer and DC-LVDT signals

4

Compares measured position with configured Alert and Danger setpoints

SYSTEM COMPONENTS

3500 rack

135137-01 or approved Position I/O module

Proximitors, RPT or DC LVDT sensors

3500 Rack Configuration Software

RELATED PRODUCTS ON APTER POWER

MODEL	SYSTEM ROLE	APTER POWER PAGE
3500/20 125744-02	3500 rack interface module	Open product page
3500/60 163179-01	Six-channel temperature monitor	Open product page
3500/64M 140734-05	Four-channel dynamic-pressure monitor	Open product page
3500/40M 176449-01	Four-channel Proximitors monitor	Open product page
3500/32M 149986-02	Four-channel relay control module	Open product page

TECHNICAL DATA

PARAMETER	VALUE
Signal inputs	1 to 4
Supported transducers	Proximator; RPT; DC LVDT
Power consumption	7.7 W typical
Power with internal barriers	8.8 W typical
Proximator/RPT input impedance	10 kOhm
DC LVDT input impedance	1 MOhm
Proximator/RPT excitation	-24 Vdc
DC LVDT excitation	+15 Vdc
Recorder output	4-20 mA

PARAMETER	VALUE
Recorder update rate	100 ms or less
Thrust sensitivity	3.94 or 7.87 mV/um
Differential expansion sensitivity	0.394 or 0.787 mV/um
Direct-filter response	-3 dB at 1.2 Hz
Gap-filter response	-3 dB at 0.41 Hz
Measurement accuracy	+/-0.33% FS typical; +/-1% maximum
Alarm setpoint accuracy	Within 0.13% of desired value
Operating temperature	-30 to +65 degC
Storage temperature	-40 to +85 degC

TECHNICAL NOTE

Confirm channel-pair function, sensor excitation, scale, mechanical zero and travel direction; then prove recorder scaling and Alert/Danger action through the full controlled movement range.

APPLICATIONS & PRECAUTIONS

COMMON APPLICATIONS

Turbine thrust-position protection

Processes four channels of machine-position and displacement measurements

Differential-expansion monitoring

Supports thrust, differential-expansion, case-expansion and valve-position channel pairs

Case-expansion measurement

Conditions Proximitors, rotary-position-transducer and DC-LVDT signals

Steam-valve position supervision

Compares measured position with configured Alert and Danger setpoints

PRODUCT PRECAUTIONS

- 1 Confirm 140072-04 and the paired rear I/O execution before removing the monitor.
- 2 Isolate transducer excitation and recorder loops before disturbing rack connections.
- 3 Record every channel-pair function, scale, zero, polarity and alarm delay.
- 4 Do not interchange Proximitors, RPT and DC-LVDT excitation arrangements.
- 5 Use ESD controls and protect buffered-output connectors during handling.
- 6 Restore the approved position-monitor configuration for the exact machine train.
- 7 Move each sensor through a controlled range and verify direction plus scaling.
- 8 Prove Alert, Danger and recorder response before enabling shutdown logic.

ENGINEER FAQ

Q1 Which sensor families can be configured on 3500/45 140072-04?

Configure only the documented Proximitors, rotary-position-transducer or DC-LVDT interface supported by the installed rear I/O execution.

Q2 How are channel pairs used on 3500/45 140072-04?

Assign each pair to the approved thrust, differential-expansion, case-expansion or valve-position function and preserve its scale and polarity.

Q3 What should be checked before zeroing 3500/45 140072-04?

Verify sensor mounting, mechanical reference, excitation, travel direction and gap or position signal before changing electronic zero.

Q4 How is the recorder output from 3500/45 140072-04 verified?

Move the sensor through controlled positions and compare the monitor value with the connected recorder or control-system scaling.

Q5 Can a DC LVDT channel be exchanged with a Proximitors channel on 3500/45 140072-04?

Only after the approved I/O hardware, excitation, configuration and wiring are changed for the actual sensor; the circuits are not directly interchangeable.

Q6 What causes an incorrect travel direction on 3500/45 140072-04?

Review sensor polarity, mechanical linkage orientation, channel configuration and the recorded as-found direction before altering alarm logic.

Q7 How should alarms be tested after replacing 3500/45 140072-04?

Exercise each configured position channel with a controlled stimulus and prove Alert, Danger, delay and bypass behavior without defeating safeguards.

Q8 What replacement records are required for 3500/45 140072-04?

Retain sensor identity, channel pair, scale, zero, polarity, travel test, recorder response and final alarm-test results.