Bently Nevada 3500/77M 143737-01

01 Function and selected configuration

Product function

Bently Nevada 3500/77M 143737-01 preserves the connection between pressure transducers and their assigned compressor-monitor channels.

Selected configuration

The 143737-01 component provides external terminations for approved cylinder-pressure transducers in a 3500/77M measurement path. It is the I/O component rather than the monitor processor, and must remain paired with the configured monitor and external connection arrangement.

Functional path

Pressure transducers	Cylinder I/O	Configured pressure monitor	Variables / alarms

Input paths	1-4 pressure channels
Transducer signal	Approved positive-voltage pressure
Input impedance	50 kilohms

The pressure path uses each transducer calibration to relate its positive voltage to cylinder pressure. The five chamber variables are discharge, suction, maximum and minimum pressure plus compression ratio. Rod compression, rod tension and degree of rod reversal additionally require the configured mechanical parameters.

3500/77M 143737-01

02 Technical operating envelope

Input paths	1-4 pressure channels	Input impedance	50 kilohms
Transducer signal	Approved positive-voltage pressure	Termination	External

Calculated rod loads require configured mechanical inputs. Pressure accuracy and supply ratings describe the specified monitor arrangement and are not standalone I/O processor ratings.

Signal interpretation

The pressure path uses each transducer calibration to relate its positive voltage to cylinder pressure. The five chamber variables are discharge, suction, maximum and minimum pressure plus compression ratio. Rod compression, rod tension and degree of rod reversal additionally require the configured mechanical parameters.

Interface boundary

The system provides Alert setpoints for each active measured variable and Danger setpoints for two selected variables per channel. Diagnostic buffered outputs are inverted and offset by -2.265 VDC. These functions belong to the associated monitor; the external I/O board preserves the field connection and channel mapping.

Can a generic vibration sensor be connected to 3500/77M 143737-01 as a pressure source?

No. The 3500/77M pressure path requires approved positive-voltage pressure transducers with the corresponding pressure/voltage calibration.

Which wiring detail must be preserved when replacing 3500/77M 143737-01?

Retain external termination routing and the channel-to-cylinder/chamber assignment. An internal-termination I/O selection has a different connection arrangement.

3500/77M 143737-01

03 System integration and applications

Cylinder pressure supervision

Track suction, discharge, minimum and maximum chamber pressures.

Compression assessment

Use calibrated chamber measurements to establish compression ratio.

Rod-load evaluation

Combine pressure channels with the correct mechanical configuration.

Protection-path maintenance

Restore field mapping and prove the assigned pressure alarms after replacement.

System and supply context

3500/77M 143737-01 requires the matching monitor/I/O combination and approved pressure transducers. External termination hardware and sensors are separate unless itemized.

Application boundary

Pressure and rod-load functions apply to the configured reciprocating-compressor system. Correct sensor scales and mechanical parameters are part of the measurement boundary.

Does 3500/77M 143737-01 perform cylinder calculations without a monitor?

No. The I/O component forms the input connection path. The associated 3500/77M monitor performs conditioning, measured-variable calculations and alarm comparison.

3500/77M 143737-01

04 Engineering selection decisions

What termination arrangement identifies 3500/77M 143737-01?

143737-01 is the cylinder-pressure I/O module with external terminations for approved pressure transducers.

What input impedance applies to the cylinder-pressure I/O used in 3500/77M 143737-01?

The internal/external-termination cylinder-pressure I/O specification is 50 kilohms.

Why are two-point sensor calibration values important for 3500/77M 143737-01?

The monitor uses the pressure transducer voltage/pressure relationship. The physical I/O connection does not establish the correct scale factor by itself.

What confirms correct channel recovery through 3500/77M 143737-01?

Apply an approved pressure or voltage reference and verify the assigned monitor channel, configured scaling and alarm behavior. A sound connection alone does not establish correct cylinder mapping.

Restore the intended component	Use 143737-01 only for its external-termination I/O role and 176449-07 for the monitor role. Reconnect the correct field path without exchanging cylinder assignments.
Interpret buffered outputs correctly	Account for inversion and the -2.265 VDC offset when comparing diagnostic voltages. A direct raw-sensor comparison without that transformation is misleading.

3500/77M 143737-01

05 Configuration boundary and references

Lifecycle and support

The current manufacturing and factory-support phase of 3500/77M 143737-01 is not confirmed. Apter Power availability is assessed separately from manufacturer lifecycle status.

Replacement assessment

Match the monitor versus external-I/O role, full spare number, transducer calibration and chamber assignments. A similar 3500 front label does not establish the same field connection.

Document roles

Use the original manufacturer excerpt for its preserved technical tables and drawings. This product brief explains selection and system context. The separate installation guide covers preparation, connection, tests and handover; it does not replace manufacturer instructions.

Technical basis

Bently Nevada 3500/77M Recip Cylinder Pressure Monitor, 147485 Rev. Y.

Related product navigation

- Bently Nevada 3500/20 125768-01
- Bently Nevada 3500/32 125712-01

These are related references, not confirmed substitutes or an automatically approved assembly.

Product enquiries