Eaton Leonard’s Vector 1 tube data center continues to be the hallmark of accurate tube measurement, inspection and bending machine programming. Fast, reliable, user-friendly operation, combined with unique features, makes this the ideal solution for maintaining high quality standards across a wide variety of tube, wire and pipe bending applications. Two models are available, including the Vector 1 Series 5 XP and Laservision Optima XP.

Measurement is made by scanning each straight section (vector) of the tube with Eaton Leonard’s patented laser probe. This scanning operation takes several data points on each straight section for superior accuracy and repeatability. A powerful PC-based computer calculates this scanned data to determine intersection points and incremental bend data. Windows-based software offers easy programming, operation and networking versatility.

Based on Windows XP-Pro, this software provides unique features for tube measurement, inspection, bend communications and data processing. Software advancements include network connectivity, ability to read and manipulate Excel files for special reports and 3-D graphic imaging of the part shape.

Vector series tube data centers are extremely effective when interfaced to tube bending machines to produce a closed loop inspection and correction system. Springback, radial growth, material elongation and other variations are automatically compensated with the corrected bend program. Using this method, production proceeds sooner, while the number of scrap parts is reduced.
Shared Features: Mechanical and Hardware

- Compact laser probe with non-contact scanning measurement for superior accuracy
- Full range of laser probes to measure tube diameters from 1.25 mm (.050") through 150 mm (6.0")
- Visible spectrum laser projects a red beam on the tube for visual location feedback
- Super rigid arm with precision mast joints and tapered roller bearings provide excellent stability and increased accuracy
- Direct-drive, high accuracy, high-resolution encoders and optimized counterbalance mechanism enhance accuracy
- Cursor control by arm movement speeds operation
- Powerful, state-of-the-art PC provides quick data acquisition and processing
- High capacity hard disk stores over 100,000 part shapes
- Commercially available ink-jet color printer hard copy printout. Ability to use different printers for added versatility
- Optional accuracy verification option confirms probe and mast accuracy
- Flat screen monitor (touch operation on Laservision XP model)

Software

- LASERVISION menu-driven Windows-based software
- Capable of plant network communications via Windows XP Pro environment
- 3-D graphic rendering of the part shape which can be manipulated manually to any viewpoint
- Ability to utilize Excel format for data, statistics, and SPC reports
- Software enables operation by bend kerf number for multiple operations. The system recalls the last operation for each user, instead of each operator remembering their last task
- Exclusive feature enables the measurement of tubes with shallow, deep and multi-radius bends
- Ability to measure bend to determine centerline radius
- Error-free software allows the operator to miss or forget a straight length and still obtain satisfactory inspection of the tube
- Audible prompting provides measurement feedback without having to look at the monitor
- Bidirectional communications with Eaton Leonard automatic tube benders reduces set-up time and creates a programmable, closed-loop system with self-correcting capabilities
- Capable of internet communications for downloading of special software and drivers

Laservision Optima XP Features:

Laservision Optima XP is a special version of the Vector 1, built under particularly stringent quality control standards to deliver the highest possible levels of measurement precision and accuracy. In addition to all standard Laservision advantages described earlier, Laservision Optima incorporates ultra high resolution encoders, rigid tolerance and calibration specifications, plus a special Coordinate Measuring Machine (CMM) package.

- Automatic temperature compensation in the arm ensures consistent measuring accuracy and repeatability throughout a wide range of ambient temperatures
- Flat screen, touch operation LCD monitor with swivel rotary pedestal mount is easily positioned for convenient viewing
- Air-conditioned electronics enclosure option
- CMM (Coordinate Measuring Machine) package
- Capable of measuring tube fixtures

Windows XP Retrofit Package

Older Eaton Leonard Vector tube data centers can be retrofitted with new Windows-based hardware and software.

Retrofit packages update your existing tube data center with the software features listed above and typically include the following:

- Latest generation computer with Windows XP software
- New flat screen monitor and support
- New encoder and communications boards
- New color ink-jet printer
- Electrical modifications and mast wiring
- New electrical cabinets and packaging
- Recalibration of the mast assembly
- Installation and training

Main Menu This screen depicts the main menu screens for the Vector. All setup, operation, and diagnostics are accessed from this screen.

Communications This menu enables bi-directional communications with Eaton Leonard CNC tube benders. Using this screen, the operator can view the program, send corrections to the bend program and store for future access.

3D A 3D view of the part shape is depicted on this screen. The part can be rotated or zoomed for alternate viewing. A go/no go feature shows 3D views of the measured data compared to the actual data.