

TECHNICAL SPECIFICATION

8-Channel Industrial LVDT Data Acquisition System

Note:- We can customize the complete product as per your requirements

The proposed system supports simultaneous acquisition from up to 8 industrial LVDT sensors. Each LVDT channel is designed for conditioned 0-10 V output sensors, enabling reliable multi-point linear displacement measurement through a common Ethernet-connected data acquisition platform.

1. System Configuration

Parameter	Technical Specification
Total LVDT channels	8 independent LVDT measurement channels.
Supported sensor type	Industrial LVDT with integrated signal conditioning and 0-10 VDC output.
Measurement mode	Simultaneous multi-channel displacement acquisition.
Channel configuration	Each channel independently configurable for zero, span, scaling and engineering units.
PC communication	Ethernet communication with acquisition software.

2. LVDT Sensor Specification

Parameter	Technical Specification
Stroke measurement range	±50 mm per LVDT.
Total displacement span	100 mm total stroke per sensor.
Signal output	0-10 VDC.
Supply voltage	14-24 VDC, unregulated.
Operating temperature	-30 °C to +85 °C standard.
Environmental sealing	IP65 standard; IP68 optional.
Connecting cable	2 metre screened PVC cable per LVDT.

3. LVDT Input Channels

Parameter	Technical Specification
Number of channels	8 dedicated LVDT voltage-input channels.
Input range	0-10 VDC nominal.
Input type	Differential or protected single-ended industrial analog input, depending on final connector architecture.
Resolution	18-bit minimum conversion resolution.
Sampling rate	Selectable up to 1 kHz per LVDT channel.
Input protection	Over-voltage, transient and ESD protection.
Filtering	Software-selectable digital low-pass filtering for displacement measurements.
Scaling	Independent conversion from voltage to displacement in mm for each channel.

4. Sensor Power Distribution

Parameter	Technical Specification
LVDT supply support	Central protected 14-24 VDC auxiliary supply distribution for up to 8 LVDTs.
Channel supply output	Individual fused/protected sensor supply feed can be provided per channel.
Grounding	Common or isolated sensor-return architecture to be finalized according to sensor wiring and installation conditions.
Shield connection	Dedicated cable-shield termination to chassis/analog ground as appropriate.

5. Data Acquisition and Software Functions

Parameter	Technical Specification
Real-time display	Simultaneous display of displacement from all 8 LVDT channels.
Engineering units	Direct displacement display in mm; alternative user-defined units can be configured.
Zero function	Individual channel zero/reference setting.
Span calibration	User-configurable two-point or multi-point scaling.
Logging	Continuous or test-based recording with timestamp.
Graphing	Real-time displacement-versus-time plot for individual or multiple channels.
Statistics	Minimum, maximum, mean, peak-to-peak and travel/stroke calculations.
Export	CSV and spreadsheet-compatible data export.

6. Communication, Memory and Power

Parameter	Technical Specification
Communication	Ethernet communication with PC.
Internal memory	128 MB minimum onboard acquisition/buffer memory.
System supply	9-36 VDC input; AC mains adaptor included.
LVDT auxiliary supply	14-24 VDC sensor supply distribution provided from internal/auxiliary regulated power stage.
Operating temperature	-40 °C to +85 °C DAQ electronics design target.

7. Mechanical and Connector Arrangement

Parameter	Technical Specification
Input connectors	8 clearly identified LVDT input connectors, one per sensor.
Channel identification	LVDT CH-1 to LVDT CH-8.
Enclosure	Industrial metal enclosure with grounding and EMI shielding.
Cable support	Screened LVDT cabling with secure industrial connector termination.
Mounting	Bench-top or panel/rack-compatible implementation depending on final enclosure.

8. Deliverables

Parameter	Technical Specification
LVDT DAQ unit	1 set, 8-channel LVDT Data Acquisition System.
LVDT sensors	Up to 8 industrial ±50 mm LVDTs, depending on supply scope.
Cables	2 m screened PVC cable per LVDT.
Power adaptor	AC-to-DC adaptor for DAQ system.
Communication cable	Ethernet cable.
Software	PC-based acquisition, configuration and logging software.
Documentation	User manual, wiring diagram, connector pin-out and technical datasheet.
Calibration	Channel and sensor zero/span verification prior to dispatch.

9. Acceptance Criteria

Parameter	Technical Specification
Channel count	All 8 LVDT channels shall operate simultaneously.
Sensor interface	Each channel shall accept a 0-10 V conditioned LVDT signal.
Stroke display	Software shall display displacement corresponding to the configured ±50 mm range.
Logging	All 8 channels shall be recorded simultaneously with synchronized timestamps.
Communication	Live data shall be transferred to PC through Ethernet also with serial COM port
Calibration	Independent zero/span calibration shall be demonstrated for each LVDT channel.