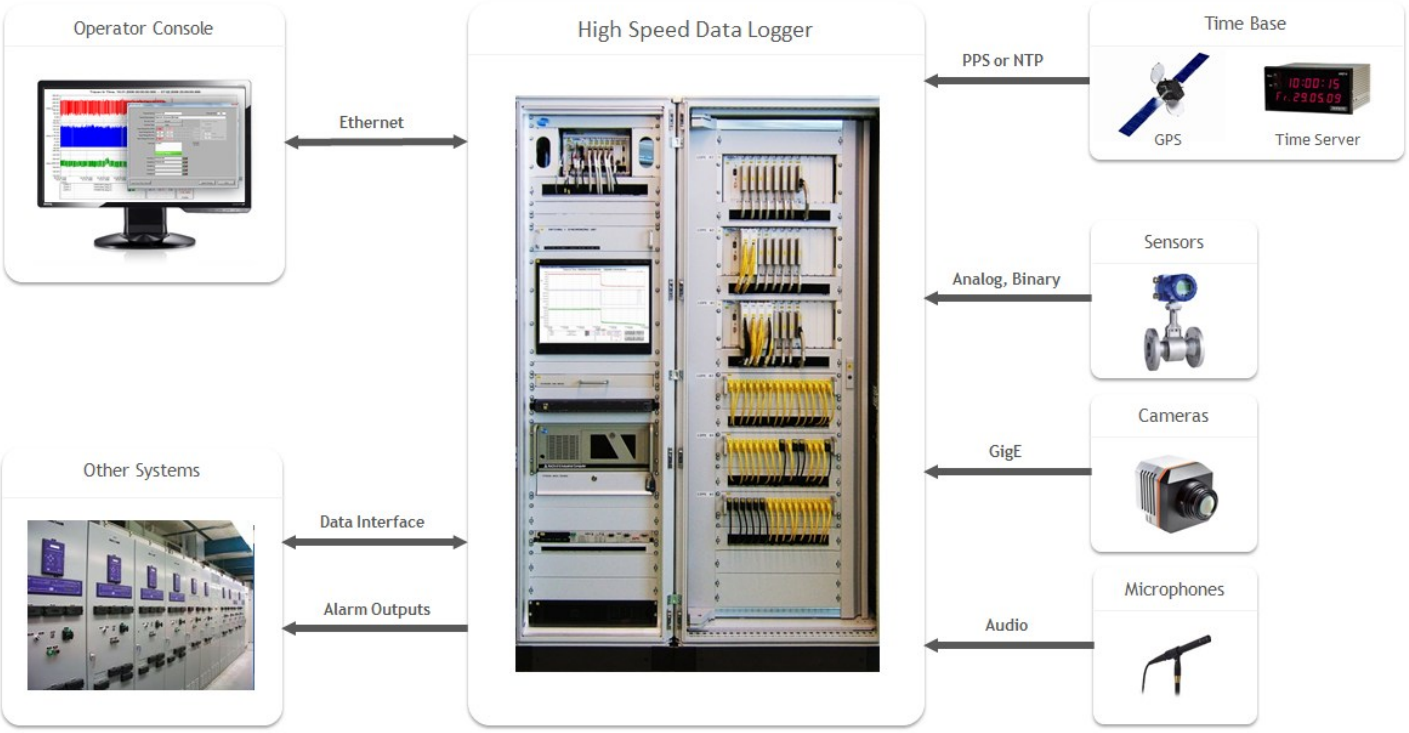
ELCOM

High Speed Data Loggers

Up-to 300 Channels Per Cabinet
Up-to 10 kHz Sampling Rate Per Channel
GPS/NTP Synchronized Time Stamping (No Cumulative Time Error)
Large Data Storage Space (Terabytes)
On-line Event Detection And Channel Math
Signal Graphs With Ultra-Deep Zoom



The High Speed Data Logger (HSDL) is a data recording device allowing users to continuously record their process data at high speed. The HSDL is built in a form of standard electrical cabinet or 19” rack, which can be built into a rugged portable 19” case used for sound engineering equipment. The internal components include signal conditioning, data acquisition hardware, data server and uninterruptible power supply. Additional signal conversion, surge protection and Ex protection barriers can be provided in a separate cabinet.

Hardware Specification

Input Channels		Precision
Analog Channel Types	Powered +/-10 V	< 1% FS
	+/-100 V	< 1% FS
	700 VAC	< 1% FS
	Powered 0-20 mA	< 1% FS
	Thermocouple (any type)	< 1% of thermocouple voltage
	RTD	< 1% FS
	Accelerometer (IEPE)	< 1% FS, dyn.
	Tensometer bridge	< 1% FS
Digital Channel Types	Powered PFC with 24 VDC logic	
Special Channel Types	Camera with GigE interface (may use decimated frame rate) Audio input (min. sample rate 8 kHz)	
Isolation	Up to ch-ch 1500 Vrms depending on channel type	
Protection	Lightning surge protection (optional) Ex protection (optional)	
Terminations	Screw terminals with knives, or plugs	
Channel Grouping	Typically 16 channels of the same analog input type Typically 32 channels of the same digital input type	
Input Channel Count	Typically 320 channels per rack	

Data Acquisition	
Sampling Frequency	100 Hz to 10 kHz per channel, all channels are sampled with the same sampling frequency (except for Camera and Audio channels)
Sampling Timebase	synchronized to NTP or GPS clock

Storage	
Hardware	Built-in RAID1 data server designed to hold weeks or months of data
Continuous Data	Uninterrupted storage, old data automatically overwritten
Events	Each event stored with pre- and post-trigger continuous data
Recovery	Configurations and disk images saved on RAID1 data server for fast recovery in case of data acquisition controller hard drive failure

Operator Controls	
Engineering Console	19“ LCD flat-panel with touch screen, keyboard, mouse
Operator Console	24“ LCD, keyboard, mouse

Physical	
Form Factor	Industrial cabinet with 19” rack or mounting plate for DIN rail components. Typical cabinet dimensions 800x800x2160 mm (WxDxH) Number of cabinets depends on channel count
Weight	Typically 300 kg per cabinet
Protection Class	Standard IP54

Environment	
Operating Temperature	10..40 °C
Relative Humidity	0 to 90% RH non-condensing

Software Modules

Recording Module

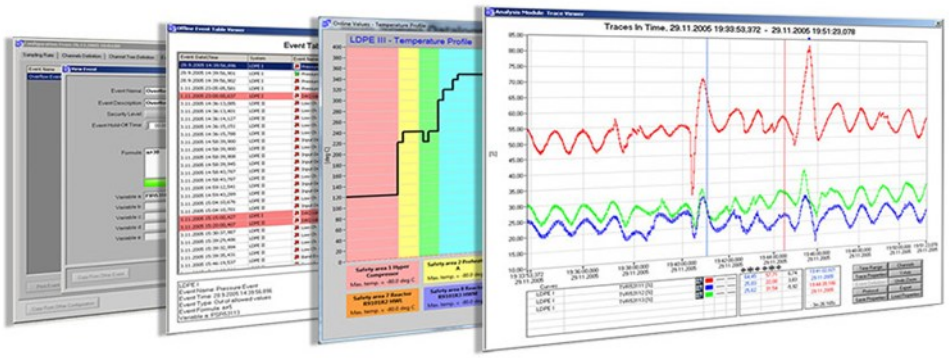
The HSDL Recording Module is a software module permanently run-ning on the HSDL internal server. It can be accessed on Engineering Console screen by engineer with sufficient access rights. The Recording Module provides the following functions:

- Configure input and math channels
- Configure event detection
- Configure Multi-Channel Profile
- Start and Stop data acquisition and recording
- Event Detection
- Viewing data acquisition system status
- Status signaling configuration and operation

Management Module

The HSDL Management Module can be accessed from on Engineering Console screen by the HSDL administrator. The purpose of the Management Module is to perform house-keeping tasks on the HSDL, track configurations and error as well as manage users. The complete list of functions is listed below:

- Manual deleting of old data
- Archiving data to external memory devices (memory sticks, hard drives)
- Viewing data acquisition configuration history
- Viewing system status
- Users Management
- Configure automatic deletion of old data



Operator interface screens of the High Speed Data Logger

Analysis Module

The HSDL Analysis Module is a software module that can be launched on Operator Console or other computers on the same Ethernet network. The purpose of the module is to display and provide data to the process engineer using the following functions:

- Configurable graph windows with ultra-deep zooming capability
- Viewing recorded signals as traces in configurable graph windows
- Selecting viewed data by time range and channels
- Viewing detected events and associated signal traces before and after event.
- Playing the recorded video in sync with channel data
- Printing signal trace graph and event protocols
- Exporting signal traces and event tables into text files for further processing in spreadsheet software (e.g. MS Excel)
- Saving and recalling viewing configurations

Operator Module

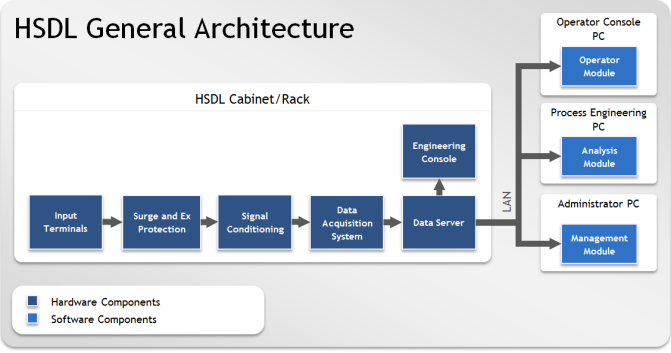
The HSDL Operator Module is a software module permanently running on the Operator Console PC and OS used by plant or process operator to monitor current status of the monitored process using the following functions:

- Viewing instantaneous data and multi-channel profile
- Pop-up windows in case of event detection

The entire software is developed in LabVIEW graphical development system from National Instruments.

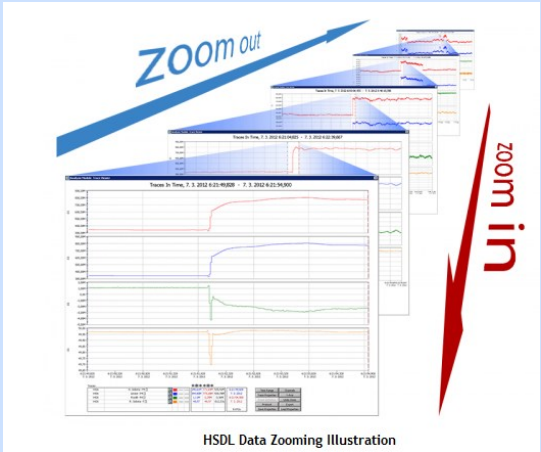
High-Speed Data Loggers Overview

The HSDL consists of the main HSDL cabinet or rack where the data recording takes place and client stations (PCs), which represent the user interfaces of HSDL. The components within the main HSDL cabinet or rack include signal terminals, signal conditioning, data acquisition hardware, data server and uninterruptible power supply. Users are con-nected the HSDL from remote client PCs connected to the same computer network. The client PCs are running HSDL client software applications in form of executable file. With these applications the user can configure the HSDL, view and manage data as well as configurations.



Why Is It Unique?

The High Speed Data Logger is having the capability of acquiring, processing and storing enormous amounts of data (in order of terabytes), which makes it quite a unique device. But where the HSDL really stands out is, when it comes to presenting the data in graph displays, specifically allowing users to zoom in and out across multiple orders of time resolution magnitude within the same graph with immediate response. This is achieved by special way of storing and retrieving the data to/ from HSDL hard drives.



HSDL Data Zooming Illustration

Typical Target Industries

Petrochemical	Energy
Paper Milling	Raw materials processing
Steel Rolling	Mining and Excavation
Rubber Milling	Aerospace and Defense

How To Order

The High Speed Data Loggers are built to order based on customer-specified configuration in our facility in Ostrava, Czech Republic. Most common configurations use a standardized architecture and are built from standard components from selected suppliers. The average delivery time, depending on configuration is 3 – 8 months from order.

Contact Information

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About Company

ELCOM, a. s., is a provider of premium highly specialized comprehensive services in the field of power electronics, measuring technology and industrial automation with an international scope.

We offer our customers tailor-made solutions to meet specific needs thanks to our own team of superior experts in electrical engineering, engineering and software development, as well as our complete understanding of the issues surrounding material engineering, electronics, data management and process engineering.