

The logo for Ultima, featuring a stylized green 'U' followed by the word 'ltima' in white.

Industrial automatics

**E**ngine

**D**iagnostic

**I**nstrument

**EDI**  
**Semi-Online**  
**System**

Stationary engine  
diagnostic system



# Description of the EDI Semi-Online System

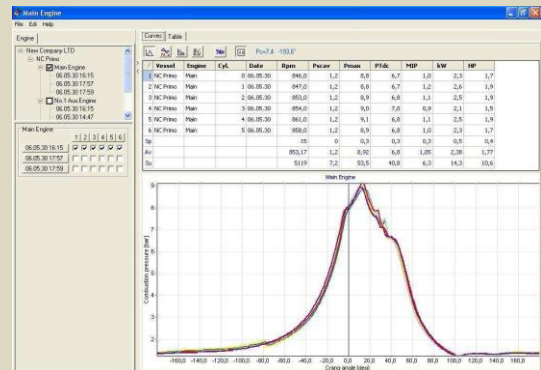
## Engine Diagnostic Instrument Semi-Online System

### What is the EDI Semi-Online

**EDI Semi-Online System** (Engine Diagnostic Instrument) is a portable diagnostic device system, designed for measurement and logging of compression pressure and fuel injection pressure in engines equipped with indicator cocks. Thanks to this, characteristics of the pressure present in the system can be extracted to a crank angle function. The use of that characteristic allows for diagnostic of the current state of the engine. The system includes algorithms for calculating the indicated engine power, maximum pressure ( $P_{max}$ ), and the rotational speed and position of the shaft. Logging of pressure in 8 18-cylinder engines is possible. The logged data can be easily transferred to a PC and further analyzed with the **EdiSoft** application.

The system is mostly dedicated for stationary usage, for example: power plants utilizing engines or vessels that need continuous engine monitoring. It can be also used in laboratories or research facilities.

The measurement is performed cylinder by cylinder. Measurements can be performed with one pressure sensor, or with every cylinder equipped with its own pressure sensor.



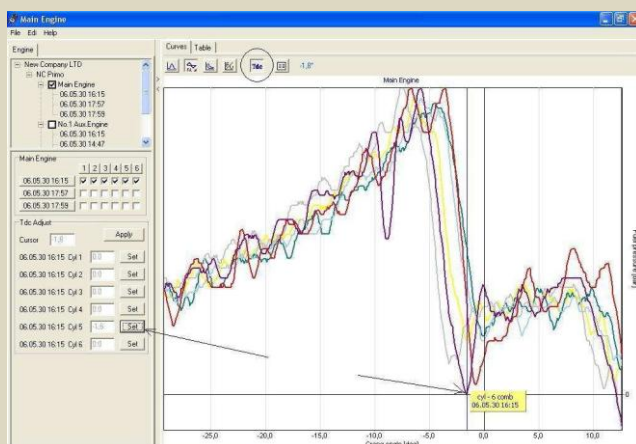
Cylinder pressure characteristic, when using the crank angle function.

### Why use the EDI Semi-Online?

Thanks to periodical diagnostics and precise engine adjustments when using the **EDI** system, you save time, money and help the natural environment. The capabilities that the **EDI** system possesses, allow for precise indication of the elements that should be fixed, without the need for a complete overhaul.

The main advantages when using the **EDI** system are:

- Fuel consumption reduction (even by 20%)
- Engine maintenance cost reduction
- Engine efficiency increase
- Failure detectability increase
- Engine components life extension
- Service stop cost losses decrease
- Engine operational safety increase
- Exhaust gas emission decrease
- Engine characteristics shown on a built-in graphic display ( thanks to which, connecting to a PC is not needed)
- An easy way to create engine work documentation
- Possibility of measuring a large number of engine cylinders during one measurement cycle
- Continuous engine monitoring
- An easy way to create engine work documentation



Characteristics analysis in the **EdiSoft** application.

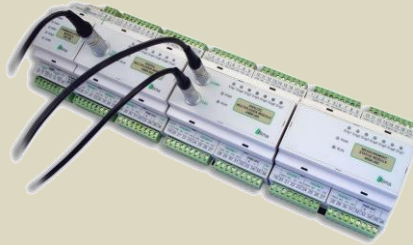
# Elements of the EDI Semi-Online System

## Elements of the EDI Semi-Online System



### EDI-Panel

The central unit that performs, logs and processes the measurements. The device is equipped with a TFT 5.7" graphic display, thanks to which you can observe the obtained characteristics without the need for a PC connection. The unit has a clear and legible menu. The panel casing is assembled for good. The device requires a 24V DC power supply. Computer communication is established by a RS232 connection.



### EDI Multiplexer

A module kit, that makes engine diagnostics in stationary installations convenient. The kit is connected to the central unit (**EDI-Panel** or **EDI-Portable**), which controls its operations. The kit is connected to the sensors of particular cylinders and to the unit taking measurements. One kit services up to 7 engine cylinders. It's possible to multiply the number of cylinders measured, when more kits are used. The devices require a 24V DC power supply. The kit is rigged to a DIN bus.



### Pressure measurement sensors

Fuel pressure and combustion chamber measurement sensors. **EDI** devices are adapted for use with sensors manufactured by the Kistler company, especially: 7613C, 6613CA, 6729A. It is possible for the system to work with pressure sensors manufactured by other companies, as long as the specified technical parameters are suitable.



### Rotational speed and shaft position sensors

Depending on the method of measurement, we use inductive or optical sensors, with the M18 or M12 thread. We only use sensors designed by world-known manufacturers.



### Thompson adapter

The Thompson adapter is used to simplify the installation of the pressure sensor on the engine's indicator cock. The device is efficient in prolonging the sensor's vitality, by lowering its work temperature. Depending on the type of the pressure sensor selected, a suiting adapter is chosen as well.



### Junction box

A set of boxes fitted permanently, next to the engine - used for automatic and manual measurement modes. It's an integral part of the **EDI Semi-Online** system. Usage of the Junction Box improves the efficiency of measurements.

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1B51B5-P-X Cable  
2B62B6-P-X Cable

The 1B51B5 and 2B62B6 cables are used to connect the **EDI Multiplexer** kit with the **EDI-Panel** or **EDI-Portable** device. They have Lemo 1B5 or Lemo 2B6 connector tips. The 1B51B5 cable is used to connect FUEL and / or COMB signals. The 2B62B6 cable is used to connect the TDC/TEETH signal.



F1B5-S-X Cable

The F1B5-S-X cable is used to connect the pressure sensor to the **EDI-Panel** and **EDI-Portable** devices. It has Fisher 103 and Lemo 1B5 connector tips. Silicone insulation of the cable assures its elasticity and resistance to high temperatures. The cable is characterized by excellent technical parameters.

M12P2B6-P-XX Cable



The M12P2B6-P-XX cable is used to connect the rotational speed sensor or the shaft position sensor to an **EDI-Panel** or **EDI-Portable** device. Simultaneous TDC/TEETH measurement is possible with use of a **M12M12-P-3** type signal splitter. The M12P2B6-P-XX cable has a M12 and a Lemo 2B6 connector tips. By default we offer following cable lengths: 10m and 33m.

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### TECHNICAL SUPPORT

Training in operating **EDI** systems can be provided by us or our commercial partners.

### FREE SOFTWARE

Users of the **EDI** systems are entitled to free-of-charge **EdiSoft** application updates and firmware updates of those systems.

### EASE OF USE

For an person trained in the use of the **EDI** system, a measurement of a standard engine takes no more than 15 minutes.

  
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