

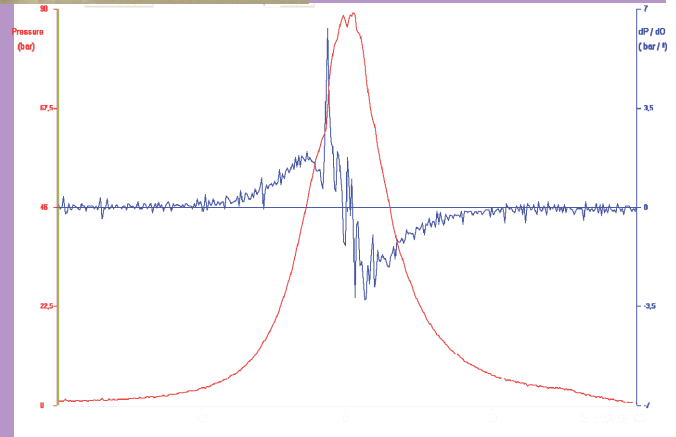
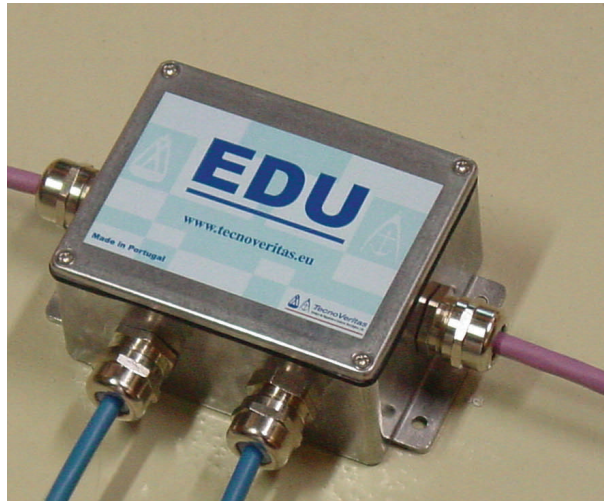
EDS - Engine Diagnosis System

**TecnoVeritas -
Services of
Engineering &
Systems
Technology Ltd.**

From the Engine
Specialist, a System to
Protect & Optimise
your Engine

N.E.M. - Pav. 36-A,
Av. Dr. Francisco Sá Carneiro,
2640-486 MFR
Portugal
EU

Tel: +351 261 819 819
Fax: +351 261 819 820
info@tecnoveritas.net



**EDS - Engine Diagnosis &
Monitoring System**

**To optimise and protect reciprocating
machinery.**

From the Engine Specialist, a System to Protect & Optimise your Engines

*TecnoVeritas -
Services of
Engineering & Systems
Technology Ltd.*

EDS is the result of combining TecnoVeritas' knowledge on internal combustion engines and electronics.

EDS is a permanently installed system developed for measurement of "cylinder pressure" and other variables on diesel and gas engines, like: "boost pressure", "scavenging back-pressure", "air manifold temperature" and others.

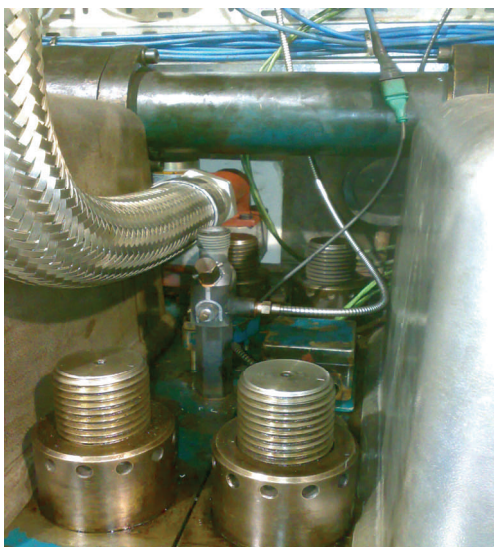
EDS can grow as much as your desire of monitoring your engines.

EDS is a distributed system installed around the engine, interfacing with a number of possible different transducers with current (4-20 mA), voltage (0-20 Volts) or digital outputs.

In its typical configuration, each cylinder is equipped with a pressure transducer attached to a specially made cylinder indicator valve (allowing the operation of the main gas exit, for cylinder purge purposes) and a small secondary valve (to protect the pressure transducer), being opened only for purposes of engine performance.

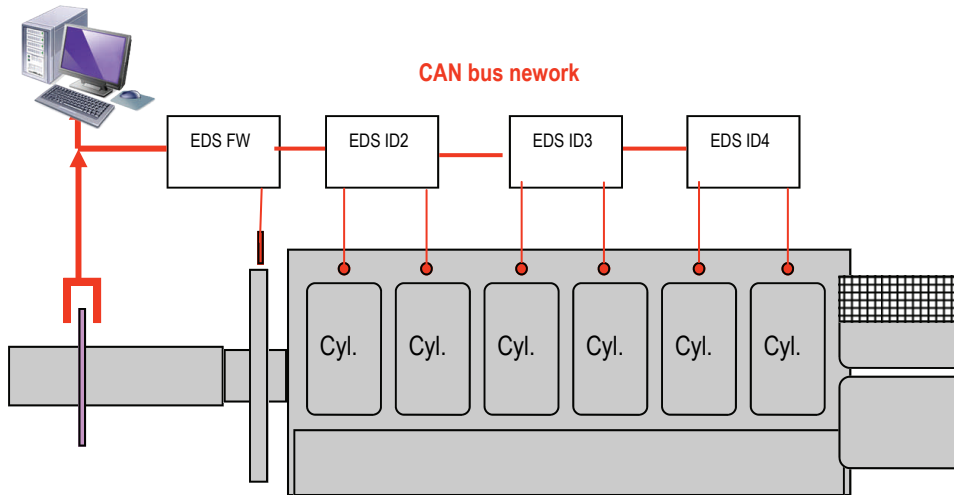
Using EDS, all cylinders pressures are taken at once, thus providing a measurement in the same condition.

The online information is immediately transferred to a central computer for analysis.



EDS pressure transducer and Special indicator valve with its pressure sensor





EDS system wiring diagram around the engine

In order to account for speed errors and improve data quality EDS has a high frequency data sampling, allowing sub degree crank angle measurements. For slow speed diesel engines an encoder can be included, to improve angle measurements.

Shaft power and fuel pump delivery pressure can simultaneously be measured in order to produce a most accurate plant diagnosis.



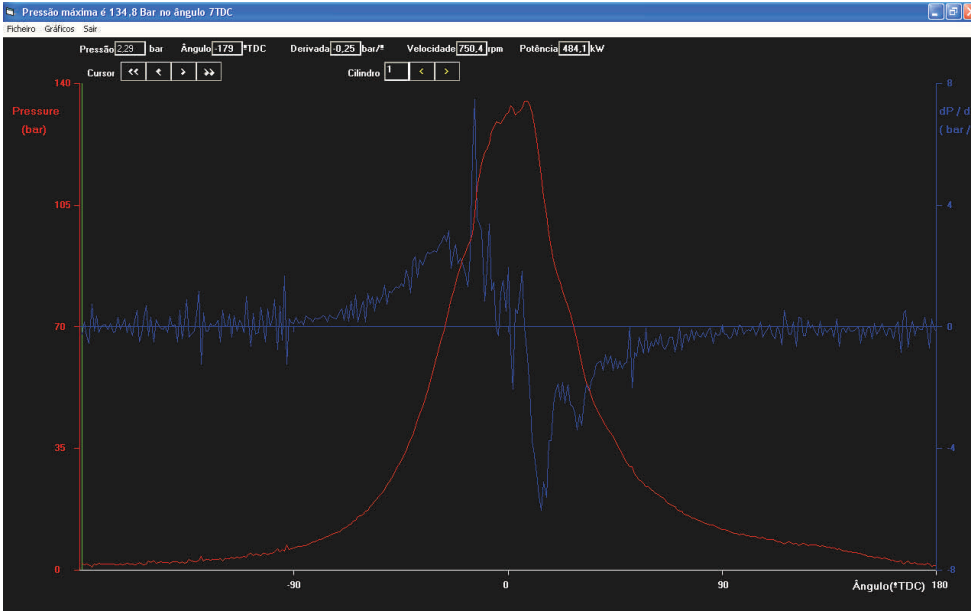
EDS network laying along the side of a Wartsila diesel engine

EDS technology

EDS System is the answer to the real world engine operation problems, covering a number of potential failures. EDS is not only an engine monitoring system, but also a protection system developed for harsh environments, offering economic advantages in terms of optimisation of engine combustion and exhaust emissions.



EDS, as a “real time system”, has been used to tune Otto and Dual Fuel engines, as the Rate of Pressure Rise (bar/°CA) is directly related with detonation. Also, EDS has been used as a warning / protection system, exchanging information with engine control and management systems, through CANbus communications.

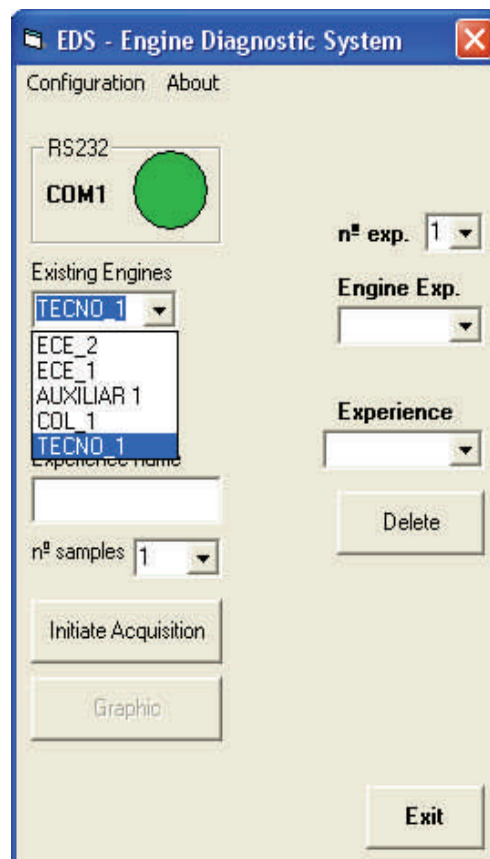


Open cylinder pressure diagram, and Rate of Pressure Rise diagram

EDS Software analysis tools

EDS software is easy to use and once configured for a number of engines there is no need to change it again. You only need to select the engine and strike the acquisition button. The data is filed in the engine database and immediately displayed on the screen.

Software packages are available, depending on the EDS signals to be acquired.

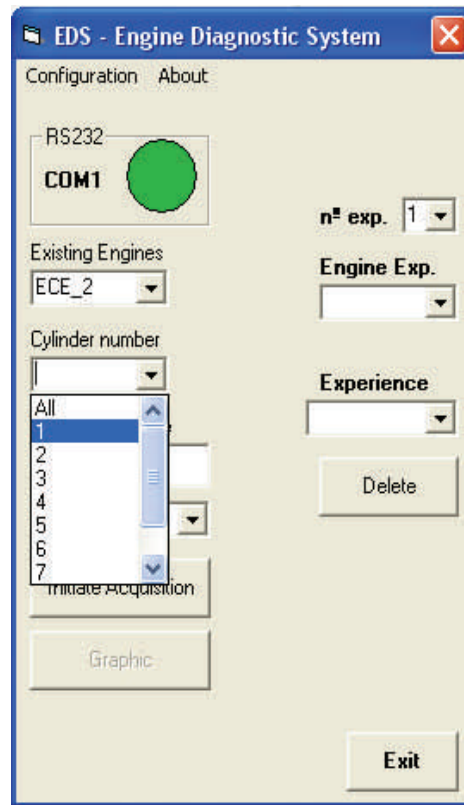


Menu for engine selection

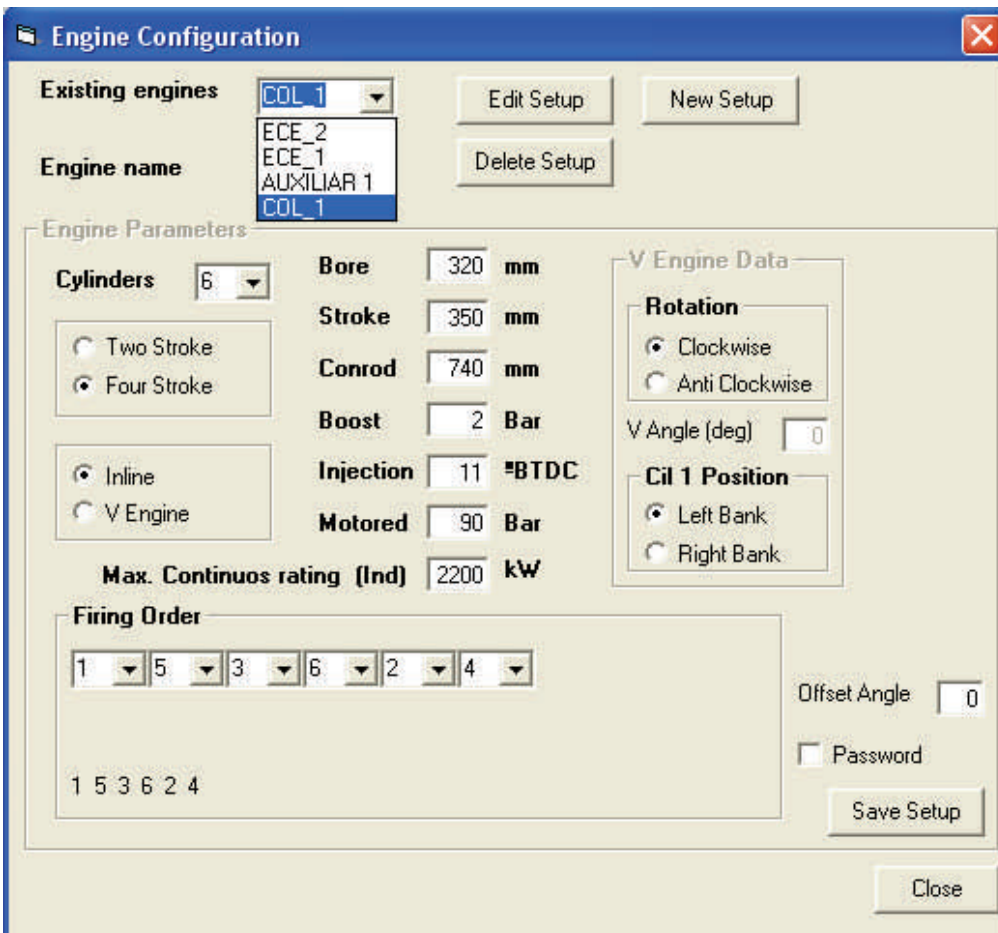


Various engines can be configured on the same system and a particular cylinder of a particular engine can be under continuous monitoring.

EDS allows also the correction of the engine parameters like: maximum combustion pressure, compression pressure, exhaust gas temperatures and scavenging pressures for different ambient conditions, identifying the deviations and performing diagnosis.



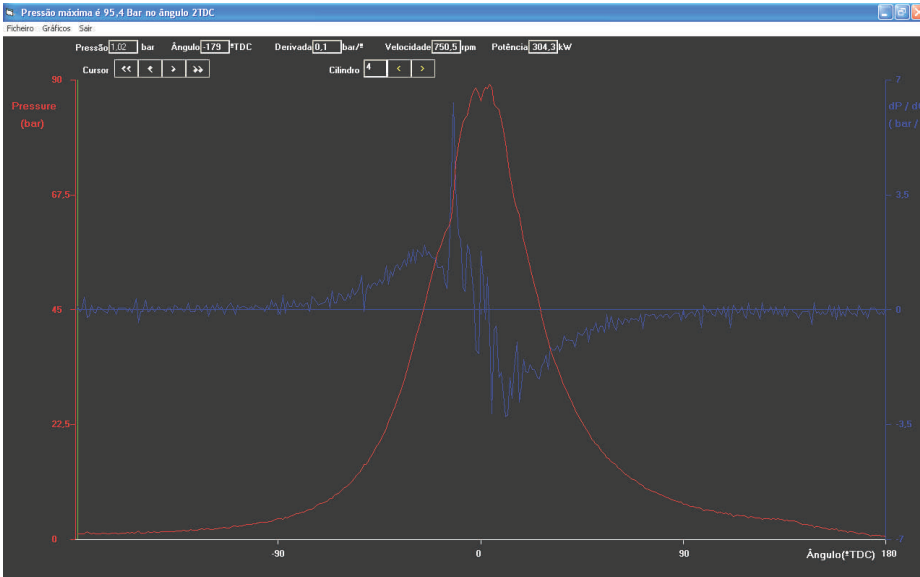
Menu for cylinder selection



Engine Configuration menu

Advanced engine diagnosis

Interfacing other vital engine operation sensors, EDS can provide expert diagnosis. This is the case of turbocharger performance or fuel injection pumps.



Cycle time basis signal and frequency spectra

EDS Advantages

- Efficient engine diagnosis & protection system;
- Efficient engine optimising system, based on improved data analysis;
- Increased thermodynamic efficiency through better use of fuel;
- Time based performance monitoring of cylinders;
- Expandable modular system that can grow with your needs;
- Turbo charger efficiency monitoring;
- Ambient reference conditions correction as a standard.

Technical info:

Power supply range	16VDC - 27VDC
Operation temperature	-40 ° C - + 85 °C
Operation humidity	Up to 100%
Dimensions (WxHxD), mm	140 x 89 x 56
Packaging	EMF screened box, IP 66 rated
Mounting	4 screws, fixing LxW:127x50 mm
Communication	CANbus / RS232
Analogue inputs	2 per box
Input range	0,5 - 5 V
Resolution	0.5 °- 1.0° degrees crank angle
Accuracy	0,1% FS
Digital Input	1 [synchronization, TDC cylinder 1]
Interfacing and circuit protection	Opto-isolator [disruption: 1,5KV]
Cycle	Two or Four Stroke engines
Reciprocating compressors	Single / Double acting
Speed	50 - 3000 RPM
Data content	Speed, Pressure, Temperature , degrees,

TecnoVeritas

Services of Engineering & Systems Technology Ltd.

N.E.M.— Pav. 36-A, Av. Dr. Francisco Sá Carneiro 2640-486 MFR
Portugal, EU

Tel: +351 261819819; Fax: +351 261819820; E-mail: info@tecnoveritas.net

TecnoVeritas -
Services of
Engineering & Systems
Technology Ltd.



TecnoVeritas
Serviços de Engenharia e Sistemas Tecnológicos, Lda.