

High Power Ignition Control

HT-LEF-200

Key Features

Ignition Module:

- Precise firing
- Flexible configuration of firing angles
- Support for one or two pick-up sensors
- Supports for up to 8 cylinders by single unit.
- Support for up to 16 cylinders by two units working in Master / Slave mode
- Configurable curves for automatic firing angle adjustment based on speed and / or analogue input signal.
- Configurable charge times / spark energy
- Automatic limitation of charge times for over current protection
- LEDs for indication of events and abnormal operating conditions
- RS485 / Modbus communications interface for configuration and system monitoring
- USB PnP communication interface for configuration and system monitoring
- IP67
- CAN communications interface for control by third party ECU

Configuration Software:

- Easy configuration and system monitoring
- Event log for recording operation history
- Logging of maintenance activities
- Monitor Engine Speed, Firing Angle, Charging Currents, Ignition Curves, etc.



Spark @ Max

The HT-LEF-200, an intelligent, digital ignition control unit, delivers precisely timed spark ignition with adjustable energy level to ensure that you get protected yet optimal performance out from your combustion engine right from the start. The output of the HT-LEF-200 charges the inductive ignition coils with energy, which will be released to the spark plugs to create the ignition.

HT-LEF-200 supports the usage of either one or two pickup sensors which must be mounted to pick up signal from the cam shaft and optionally from the crank shaft, if precise ignition timing is required. The signals from these sensors enable the HT-LEF-200 to determine the exact position and speed of the engine at any point of time. Based on the position and speed, the unit will charge the ignition coils in a timely manner to ensure that ignition happens at the right moment.

Configuration of the various features and settings of the HT-LEF-200 can be done simply through the intuitive PC application software to match the various available engine setups.

General Description

Pickup sensors

The HT-LEF-200 supports selected Huegli Tech pickup sensors, including an active and a Variable Reluctance type.

Depending on the engine setup and the requirement for ignition accuracy, one or two pickups sensors may be used.

If only one pickup sensor is used, the sensor must pick up its signal from a trigger disc mounted on the cam shaft. The trigger disc must match the number of cylinders. Tooth type and notch type discs are supported and so are both discs with leading and discs with lagging reset indicator.

If two sensors are used, one must be mounted on the cam shaft and the other on the crank shaft. In such a two-sensor setup, the pattern of the sensor signals depends on the triggering devices that the sensors pick up their signals from. Various signal patterns are supported. If for example the triggering device of the crank shaft is a flywheel, higher ignition precision can be achieved under unstable speed conditions.

Ignition Coil Outputs

The HT-LEF-200 has 8 ignition outputs, allowing for ignition control on engines with up to 8 cylinders per module. The coils are charged directly through the outputs of the unit. The unit can support peak charging current of up to 20 amps when the dwell time (charging time) does not exceed the point where the coil saturates and the charging current no longer rises linearly. Maximum charging current is a configurable setting whereby the dwell time is automatically reduced in case the charging current reaches the configured limit. HT-LEF-200 is optimized for use with HT-CL Series inductive ignition coils.

Master/Slave Operation

The HT-LEF-200 can be configured to run in Master/Slave mode. In this mode, two HT-LEF-200 units are inter-connected and will in cooperation control the ignition of an engine with up to 16 cylinders. The pickup sensor signal(s) are connected to the Master unit. The Master unit will then control its own ignition timing as well as that of the Slave unit.

Ignition Timing

At the time of installation, the firing angles (i.e. the angle before TDC at which each channel must fire) is to be configured. The firing angles may be configured symmetrically or, in the case of a V-type engine, asymmetrically.

Alternatively one or two firing angle curves may be configured. The curves define how the firing angle must depend on engine speed and/or an analogue input signal.

Communication Interfaces

The HT-LEF-200 is equipped with USB, RS485 and CAN communications interfaces.

The USB interface is used by the HT-LEF-200 PC software for initial system configuration and for operation monitoring.

The CAN interface can be used by third party controllers and ECUs for control and monitoring purposes.

The RS485 / Modbus interface may be used for all of the above.

HT-LEF-200 Configuration Software

The HT-LEF-200 Ignition System Configuration Software is used to configure and monitoring the system.

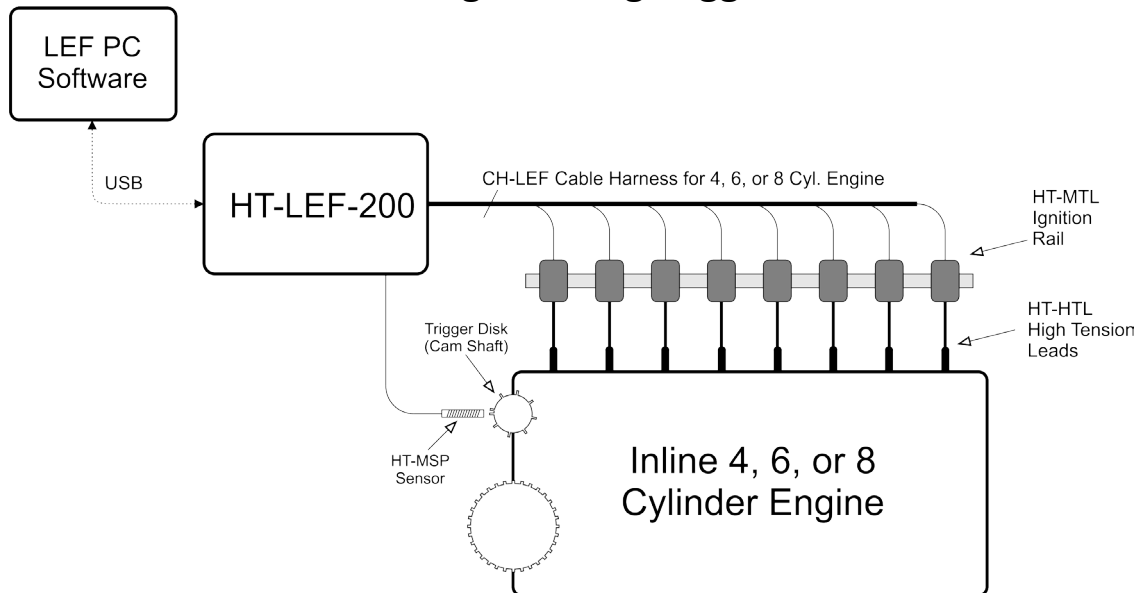
Configuration includes:

- Number of Cylinders
- Trigger Disc Type
- Offset Angle
- Number of Pickup Sensors / Triggering Device Type
- Dwell Time
- Firing Angle
- TDC Angles
- Maximum Speed
- Maximum Charging Current

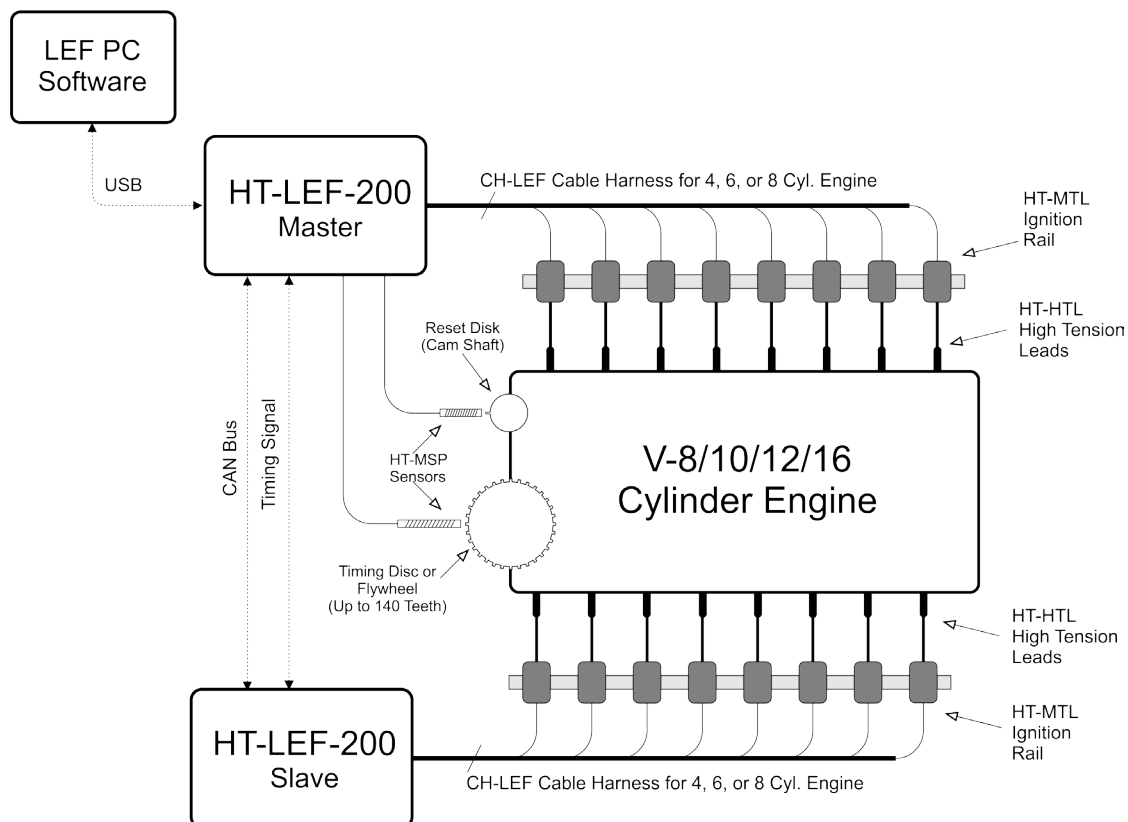
Monitoring includes:

- Engine Speed
- Firing Angle
- Charging Currents
- Ignition Coil Charging Current Curves
- Ignition Coil Firing Voltage Curves
- Event Log
- Maintenance Log

In-Line Engine Using Trigger Disc



"V" Engine Using Reset & Timing Discs, with Master / Slave Modules



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Specifications

Engine and Setup

Number of Channels	8
Number of Supported Cylinders	16 (8 + 8)
Pickup Sensor Types	Variable Reluctance, Active (Square Wave Output)
Crank Flywheel Teeth (when position sensing) ...	Any from 1 to 140

Ignition Timing

Firing Precision	+/- 0.5° Crankshaft Angle
Firing Angle	Any
Asymmetrical Firing (V-engine)	Yes
Firing Angle as a Function of Speed	Yes
Analogue Input for Firing Angle Control	0- 5 V

Electrical

Supply Voltage	12 or 24 VDC Battery, (7 VDC to 30 VDC)
Power consumption (Control Electronics only)	3 W max @ 25°
Ignition Coil Peak Current	20 Amps (max.)
Reverse Polarity Protection	Yes
Transient Voltage Project	60V

Communications

Ports	USB, RS485, CAN Bus
Configuration Protocol	Modbus (USB, RS485)
External ECU Interface	RS485 / Modbus, CAN Bus / J1939

Norms/Standards

Authorising office	CE and RoHS requirements
CE certificate	EN55011, EN50081-2, EN50082-2, EN61326-1

Reliability

Vibration.....	7G, 20-100 Hz
Shock	20G Peak
Production Test	100% functionality inspection

Dimensions and Weight

Dimensions	178 x 138 x 29 mm
Weight	0.8 kg
Installation	To be advised

Surroundings

Temperature Range	-40° to 85°C (-40 to +180°F)
Relative Humidity	up to 95%
Surface Finish	Fungus Proof and Corrosion Resistant

Configuration Software

Operating System	Microsoft Windows 7, 8, 10
Memory (RAM)	4 GB
Communications	USB 2.0 Minimum

Local Distributor / Partner:



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