

ATI

Ignition Timing Meter

The ATI Ignition Timing Meter is a precision timing measurement instrument designed for engine development and testing where ignition timing and CAM timing measurement accuracy (steady-state and transient) is important. The IGTM-2000 provides an easy means for data acquisition systems to collect real-time measured ignition timing on spark ignited engines.

Engine Signal Interface

Ignition firing is detected by using an inductive spark plug wire sensor, connection to the ignition coil primary or connection to the ignition module coil trigger logic signal. Crankshaft reference position can be provided by a number of methods including user-installed and production engine position sensors. For most applications, installation may be simplified by connecting the IGTM-2000 in parallel to existing position sensors used by the production Engine Control Module (ECM).

Intelligent Signal Conditioning

Microprocessor controlled Intelligent Signal Conditioning dynamically adjust threshold and hysteresis levels when using VRS style magnetic sensors, to minimize interference under all operating conditions. Alternatively, all signal conditioning parameters may be manually preset by the operator. All parameter settings are retained in non-volatile memory.



Features

- Accurate Timing Measurement (+/- 0.05 degree) (Ignition, Camshaft and Injector Timing)
- Data Acquisition System Interface (Analog and RS-232)
- Microprocessor Controlled Intelligent Signal Conditioning
- Compatible and Adaptable with all Engine Ignition Systems
- Compact Enclosure for Mounting in Test Cell or Vehicle

Timing Patterns

Compatible with "patterned" (i.e. missing or extra tooth) crankshaft position signals. Popular automotive patterns are pre-programmed and additional custom patterns can be easily programmed by the operator. Maximum achievable transient timing measurement accuracy is always obtained for any given reference pattern.

Typical Sources for Input Signals

Reference

Existing patterned crankshaft position sensor, one pulse-per-rev sensor (requires Angle input), TDC signal from OEM Ignition Module (GM-REF, Ford-PIP) or an optical shaft encoder index signal.

Angle

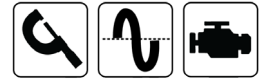
Optical shaft encoder angle signal or magnetic sensor detecting ring-gear teeth (requires a one pulse-per-rev or TDC signal).

Trigger

Low voltage event signal - OEM ignition module trigger signal (GM-EST, Ford-SPOUT, SAW)

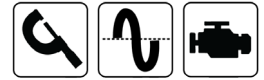
Spark

High voltage event signal - Inductive plug wire sensor or ignition coil negative terminal



Ignition Timing Meter Specifications

Signal Inputs	
Crankshaft Reference REF	Provides absolute timing reference Input voltage range +/-75 V Intelligent signal conditioning BNC connection
Crankshaft Angle ANG	Optional signal 36 to 3600 Pulse per rev signal Input voltage range +/-75 V Maximum frequency 500 kHz Intelligent signal conditioning BNC connection
Spark Event Trigger TRG	Low-level spark event signal Input voltage range +/-75 V Intelligent signal conditioning BNC connection
Spark Event Pulse SPK	High-level spark or injection event signal Inductive pickup or coil primary Programmable signal conditioning BNC connection
Signal Outputs	
Analog Ignition Timing ANO	Maximum output range -10.2 V to +10.2 V Programmable scaling, offset and range 12-bit D/A resolution (+/-0.005 V accuracy) BNC connection
Other Inputs/Outputs	
Power Supply	Requires 10 to 30 VDC @ 15 W maximum Internal regulated power supply Plug-in terminal strip connection
Communication Port	RS-232, 75 to 9600 Baud DB-9F (Industry Standard 9-pin) connection
Expansion Port	Out of range warning outputs (5 V logic) Sensor input monitor signals (5 V logic) Interface for Analog RPM Adapter accessory HDB-15F connection
General	
Display	(2) 4-digit, 0.56 in (14.2 mm) display indicators (4) Sensor input status LEDs (3) Operating mode LEDs (4) Pushbutton switches
Enclosure	Black aluminum, water and oil resistant Approximate dimensions: 180 x 105 x 43 mm/ 7.1 x 4.1 x 1.7 in Weight: 1.2 kg / 2.6 lbs



Ignition Timing Meter Order Information

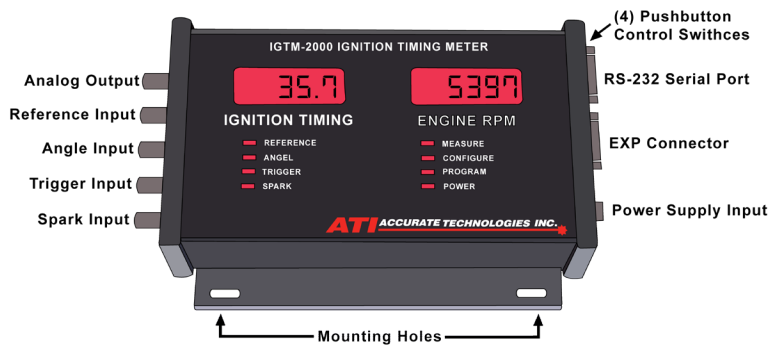
Product

Part Number	Description
100-0001	IGTM-2000

Accessories

Part Number	Description
Accessory	
100-0003	Analog RPM Adapter; produces an analog voltage output for RPM when connected to the IGTM-2000 Expansion port
100-0004	Differential Input Module; ensures that all production ECU sensor outputs will be "true Zero cross"
101-0002	1.8m/6ft Cable Analog RPM Adapter; Connects the Analog RPM Adapter to the Ignition Timing Meter; length: 6ft
100-0014	3.66m/12ft Inductive Spark Plug Wire Sensor: measures spark event (or engine speed) when clamped around a Secondary Ignition cable
Power	
102-0006	DC Power Plug, 2-pin open connector

IGTM-2000 Connections



Accurate Technologies Inc. is continually improving its products and reserves the right to alter the specifications of its products at any time without notice.

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