Ignition Timing Meter TRANSMIC.FR V1R5C0



Power on the Timing Meter. Splash screen appears during 5sec

To launch the SETUP mode, touch "ENTER" button, otherwise wait <u>3 seconds</u> until it goes in RUN mode:



SETUP MODE

In SETUP mode, touch "+" or "-" touchpad to select **Strokes** number:

2 strokes or 4 strokes with Wasted Spark, pickup on crankshaft so 1 spark every 360 degrees: choose "2"

4 strokes without Wasted Spark, pickup on camshaft so 1 spark every 720 degrees: choose "4"

Touch Enter when done.

Touch "+" or "-" to increase **Pickup Position** relative to TDC:

Can be adjusted from 0 to 90° BTDC. This value is used to directly display the advance in degrees <u>BTDC</u>.

(If you let Pkp Position to zero, then the time between pickup and spark will be display in microsecond and degrees. I.e.: "ADV: -19.5 deg" means: "Spark appends 19.5 degrees AFTER the first pulse of the pickup."

So you have to do the subtraction by yourself, say pickup is set at 50° BTDC then true advance is: 50 - 19.5 = 30.5 degrees BTDC)

Touch **Enter** when done.

Touch "+" or "-" to select **Pickup Type**:

Choices are:

NP: for VR pickup that gives a Negative pulse first then a Positive one or for Hall Effect Sensor.

PN: for VR pickup that gives a Positive pulse first then a Negative one.

AUTO: ITM tries to detect the type of pickup.

Touch **Enter** when done.



It's important to understand that calculation starts from the first pickup pulse.

Touch "+" or "-" to select Display Refresh Rate:

Results are displayed on the screen and on the USB output at 0 to 9 seconds interval.

Touch **Enter** when done.

Touch "+" or "-" to select Display Console Output:

USB: Results are available in .CSV mode on USB Serial port at 115.200 8.N.1. (You may need a driver)

or

Wifi: Results are shown on any web browser on any device connected to Transmic_ITM Access Point at http://192.168.4.1/console SSID password: nothing or "password"

Touch Enter when done.



Now ITM unit is waiting for pickup signal...

In AUTO mode, "*Start Engine*" is displayed until a valid signal has been received.

In AUTO mode, the type of detected Pickup is displayed once a valid pickup has been seen.



In NP or PN setting, "Start Engine" disappear after 2 seconds and ITM goes into RUN mode



RUN MODE



- **RPM**: Measured from PICKUP pulses
- DEL: Delay between pickup pulse and spark in microseconds
- ADV: This delay for this particular RPM = this Advance timing BTDC Positive number: Advance BTDC (before Top Dead Center) Negative number: Advance ATDC (After Top Dead Center = Retard)

Bottom: Advance bargraph

Led flashes each time a pickup is detected.



If you own an oscilloscope, use **P** or **N** test pads to visualize the signal detected by pickup input.

SENSITIVITY

An INDUCTIVE probe or just 3 to 6 turns around the sparkplug wire detects the spark.

Sensitivity is adjustable by the small trimmer:



and/or add or remove wires around the spark plug cable.

If you own an oscilloscope, use **TP3** test pad to visualize the signal detected by the clamp.



DAC OUTPUTS

Two optional 8 bits Analog outputs are available:



ADV:

- Max voltage is around +3.1v.
- Output: Degree = mv*2/100

(ie 3100mv*2/100 = 62°)

- Max output 62° BTDC
- Steps of 12mv *2/100 = 1mv ~ 0.25°

RPM:

- Max voltage is around +3.1v.
- Output: **RPM = mv*3225** (ie 3100mv*3225 = 10,000rpm)
- Max output 10,000 RPM
- Steps : 10,000/255 = 1mv ≈ 40 rpm

DRIVER

To communicate with the device through the USB connector, you will need a driver.

If you haven't it yet then install CH340G driver

Windows: Mac:	http://www.arduined.eu/tag/windows-7/ https://wiki.wemos.cc/_media/ch341ser_mac_1.5.zip
Chip Manufacturer driver	http://www.wch.cn/download/CH341SER_EXE.html
Restart the PC	

CONNECTION

Open "*Device Manager*" Scroll down, under "*Ports (COM&LPT)*" plug the USB connector to the CDI box, you should notice a new COM-port named "CH340"



Right click for *Properties > Driver* tab, if another Windows driver is in there, then "*Update driver*" find and install the one for CH340.

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Moniteurs Image: Ordinateur	Propriétés de : USB-SERIAL CH340 (COM18)
 Périphériques d'interface utilisateur Périphériques système Ports (COM et LPT) Port de communication (COM1) Port imprimante ECP (LPT1) USB-SERIAL CH340 (COM18) Processeurs Souris et autres périphériques de pointa 	Général Paramètres du port Pilote Détails
	USB-SERIAL CH340 (COM18)
	Foumisseur du pilote : wch.cn
	Date du pilote : 08/08/2014
	a Version du pilote : 3.4.2014.8
	Signataire numérique : Microsoft Windows Hardware Compatibility Publisher
	Détails du pilote
	Mettre à jour le pilote USB-SERIAL CH340 (COM18)
	Version précédente Fichiers du pilote :
	C:\Windows\System32\Drivers\CH341S64.SY
	Désactiver C:\Windows\system32\DRIVERS\serenum.sys

If Windows doesn't recognize the device because the driver is missing, the new Port will appear in "*Other devices*" folder.



TERMINAL CONSOLE

Launch a terminal on your PC (I recommend **CoolTerm** <u>http://freeware.the-meiers.org</u>) But <u>Putty</u> or <u>Kitty</u>, <u>Teraterm</u> are usable too...

Go to Options > Serial Port, Setup the terminal to 115200.N.8.1



Select the COM-port you have noted above.

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File Edit Co	nnection View Window Hel	p
New Open	Save Connect	Clear Data Options View Hex HEP
	Connection Options (Untitled_	.0)
	Serial Port Terminal Receive Transmit Miscellaneous	Serial Port Options Port: COM1 Baudrate: COM1 Data Bits: B Parity: none Flow Control: CTS DTR XON Software Supported Flow Control
		BIOCK RepairOREs while now is nated Initial Line States when Port opens: OTR On OTR Off RTS On RTS Off
Smart Switch	c	Re-Scan Serial Ports Cancel OK

Under **Options > Terminal** check *Line Mode, Enter Key Emulation, local Echo* and *Format TAB > OK*.

File Edit Connection View Window Help	
New Open Save	Clear Data Options HEX Image: Clear Data
New Open Save Connect Disconnect	View Hax View Hax
	Replace consecutive spaces with TAB Min. number of spaces: 2 Filter ASCII Escape Sequences Convert Non-printable Characters Handle BS and DEL Characters Handle Bell Character Handle Form Feed Character Ignore Line Feed Character Use UTF-8 to display plain text

Save this configuration

Connection

Click on "Connect" button



Other OS

-Android

– Use <u>Serial USB Terminal by Kai Morich</u> and a Male-Male USB type-C OTG connector to USB micro-B. (video) The phone must be <u>OTG compatible</u> with OTG turned on: settings——additional settings——enable/disable OTG.

Mac

- Shell commands: terminal ls /dev/*usbserial* screen /dev/cn.usbserial-xxxxxxx 115200 -L screen /dev/tty.usbserial-xxxxxxx 115200

Linux

- Use a Terminal Software as CoolTerm or Putty. - Use Shell commands to find the COM-port: tail -f /var/log/syslog | grep USB dmesg | egrep --color 'serial|ttyS' ls /dev/ttyUSB* Port Configuration: sudo su stty -a </dev/ttyUSB0 stty -F /dev/ttyUSB0 cs8 115200 time 10 Connection to the device: cat /dev/ttyUSB0 & cat > /dev/ttyUSB0