

Thank you for downloading “TM-901Pro”.

Software name:	TM-901Pro Communication software for Tesla meter TM-901
Version:	1.0A
Copyright owner:	Kanetec Co., Ltd.
Operating environment:	Operation confirmed on Windows XP/7/8/10/11 (32/64 bits), Excel 2007 and later version
Others:	USB cable (A male – C male) to be provided by the user

This software cannot be used with TM-801/701/601.

Connection of a Tesla meter to equipment other than a PC is not supported.

The number of Tesla meters that can be connected to one PC is one unit.

<Important: Usage Restrictions in Regions Where the Cyber Resilience Act (CRA) Applies>

In regions where the Cyber Resilience Act (CRA) applies, do not use the PC running this software while it is connected to the Internet, whether via a wired or wireless connection.

1.Features

- ①Data acquired by a Tesla meter can be sent to a PC and saved in the CSV format.
- ②Measured values can be judged OK or NG.
- ③Two modes; trigger measurement and automatic measurement are available.
- ④Since the Tesla meter is powered via the USB port of the PC, there is no need to worry about the battery.

2.Installation and Uninstallation

<Installation>

Log on by the administrator authority to start installation. Prior to starting installation, check to see if the USB driver and TM-901Pro have been installed. If so, uninstall them.

(1)Installation of the USB driver

(a)When a PC is connected to the Internet

- ①Connect the TM-901 to the PC.
- ②When Windows Update is run, “Silicon Laboratories Inc. -Ports - ○○” (USB driver version in ○○) will appear. Check this to run “Download and Install” .

(b)When a PC is not connected to the Internet

(Installation by Windows Update is not possible)

※Windows10/11

- ①Unzip “tm901pro_v100a.zip” in a suitable folder.
- ②Unzip “CP210x_Universal_Windows_Driver.zip” in the “tm901pro¥usb_driver¥win10” folder.
- ③Select the “silabser.inf” file in the “CP210x_Universal_Windows_Driver” folder by clicking the right mouse button and select “Install (I)” to install the USB driver.

※Windows7/8

- ①Unzip “tm901pro_v100a.zip” in a suitable folder.
- ②Unzip “CP210x_Windows_Drivers.zip” in the “tm901pro¥usb_driver¥win8” folder.
- ③Execute the following files in the “CP210x_Windows_Drivers” folder to install the USB driver:

CP210xVCPIInstaller_x64.exe (64-bit version)

CP210xVCPIInstaller_x86.exe (32-bit version)

(2)Installation of TM-901pro

- ①Unzip “tm901pro_v100a.zip” in a suitable folder.
- ②Execute “setup.exe” in the “tm901pro” folder and proceed with installation as guided.

<Uninstallation>

(1)Uninstallation of TM-901pro

Select “TM-901pro” in “Add or Remove Programs” (Programs and Features) to uninstall it.

(2)Uninstallation of the USB driver

- ①Connect the TM-901 to a PC.
- ②Start the device manager.
- ③By clicking the right mouse button, select “Silicon Labs CP210x USB to UART Bridge” shown when “Port (COM and LPT)” is expanded and select “Uninstall” to uninstall it.
- ④Disconnect the TM-901 from the PC.

3.Flow of Measurement

- ① Connect cable → ② Start software → ③ Power ON Tesla meter →
④ Set loading → ⑤ Start loading → ⑥ Stop loading →
⑦ Power OFF Tesla meter → ⑧ Shutdown software

- ①Power “OFF” the Tesla meter and connect the USB cable to the digital output USB port of the Tesla meter and the USB port of the PC.

Caution: It must be inserted fully. Otherwise, communications may be disabled.

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- ②Start the software.

Start TM-901pro from the start menu.

- ③Power ON the Tesla meter.

Press the [ON/OFF] switch on the Tesla meter or the [POWER] button to power it on.
During communication, the auto power off function is disabled. (“●” lights.)

- ④Set loading.

Load the value shown on the Tesla meter with the [TRIGGER] or [REC START] button. Set loading conditions in “REC Cycle”, “Trig Only” and “Judg.”.

- ⑤Start loading.

Click the [REC START] button.

- ⑥Stop loading.

When the [REC STOP] button is clicked, loading will be stopped and data will be saved in the CSV format. When the [Open Data] button is clicked, the saved CSV data will be opened in Excel.

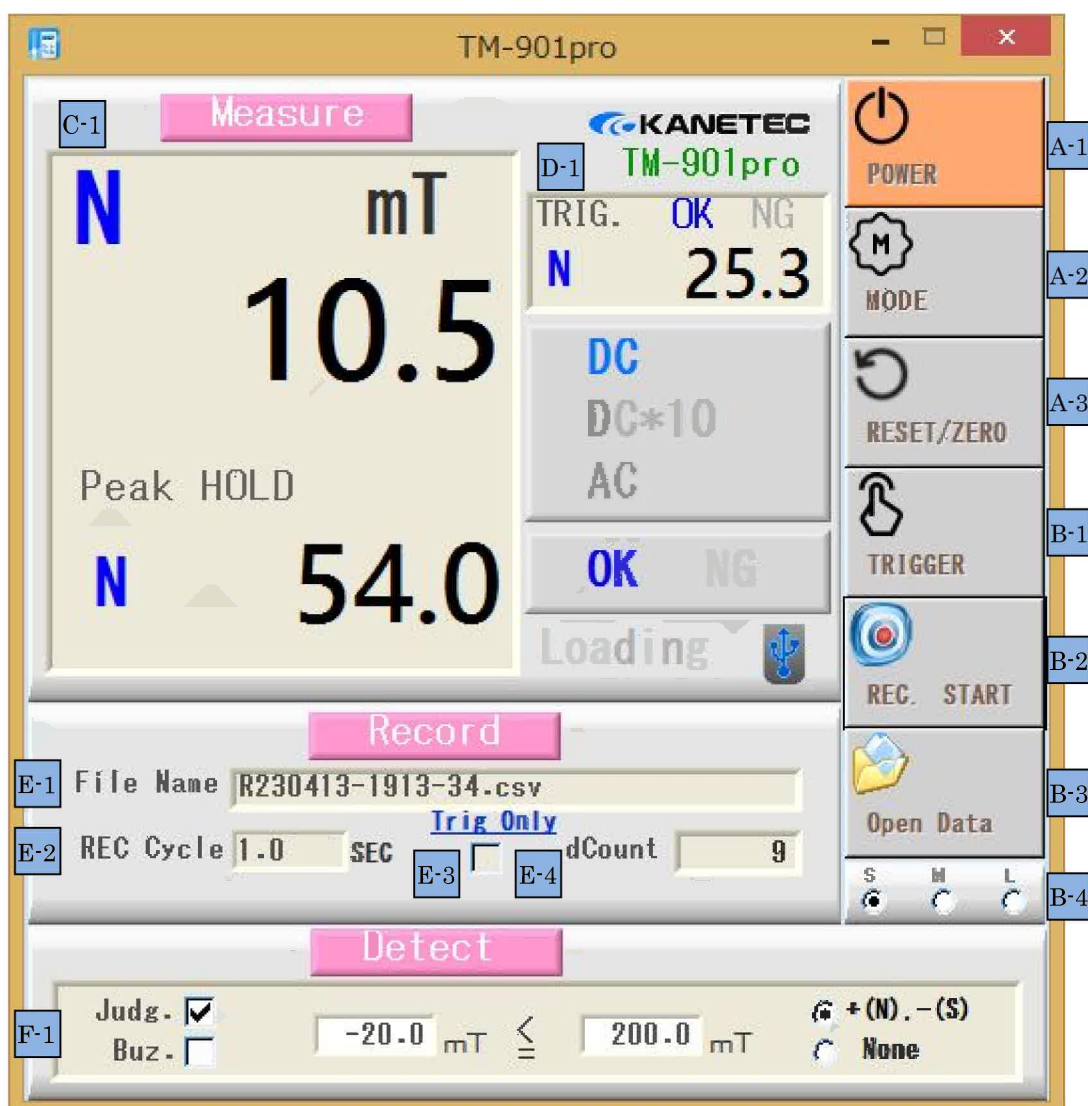
- ⑦Power OFF the Tesla meter.

To power off the Tesla meter, press the [ON/OFF] switch on the Tesla meter or the [POWER] button.

- ⑧Shut down the software.

To shut down the software, click the [×] button in the upper right corner of the screen.

4.Names and Functions



A-1: [POWER] button

Turns on and off the power of the Tesla meter.

A-2: [MODE] button

Same function as the [MODE/LIGHT] switch on the Tesla meter. The Tesla meter can be operated on the screen. For details, see the Tesla meter instruction manual.

A-3: [ZERO/RESET] button

Same function as the [ZERO/RESET] switch on the Tesla meter. The Tesla meter can be operated on the screen. For details, see the Tesla meter instruction manual.

B-1: [TRIGGER] button

A select button to perform trigger measurement. During trigger measurement, the button blinks. When the [TRIGGER] button is pressed again, the trigger measurement mode will be canceled.

A measured value is shown in the display field “TRIGGER” (D-1) on the screen only when the “right-side button of the mouse” is clicked once or the “right arrow” cursor key is pressed at any timing. This can be used for both recording and judgment. To use the “right-side button of the mouse”, be sure to move the mouse cursor to the TM-901pro window.

B-2: [REC START] button

A select button to perform recording of measured values. During recording, the color of the “Record” characters changes to red.

Measured values are recorded at the sampling interval set in “REC Cycle”.

When the [REC STOP] button is pressed, the recording mode will be canceled and the file save screen will appear. Save the CSV file (CSV data) containing measured values in any folder.

The file name of CSV data is the date and time when the data was saved, but it may be changed to any name.

This can be used for both trigger measurement and judgment setting.

Caution:

If during recording, the setting is changed or the power is turned on/off, the measured values may not be recorded successfully. To change the setting, be sure to stop recording in advance.

B-3: [Open Data] button

Opens the CSV data saved during automatic measurement in Excel.

B-4: S/M/L buttons

The display of TM-901pro can be changed to 3 sizes.

C-1: “Measure” display

A value measured by the Tesla meter is shown here. For details, see the Tesla meter instruction manual.

- The upper row shows the current measured value and the lower row shows the HOLD value.
- “N/S”: Show the polarity of a measured value.
- “DC/DC*10/AC”: Shows the setting of the measurement range of the Tesla meter.
- “OK/NG”: When judgment has been set in the trigger measurement mode and the measured value is within the judgment range, “OK” is shown in blue and when it is outside the judgment range, “NG” is shown in red.
- “Err1”: Shown when “Err1” is shown on the Tesla meter.
- “Err2”: Shown when “Err2” is shown on the Tesla meter.
- “—”: Shown when “overflow” is shown on the Tesla meter.

D-1: “TRIG.” display

This is shown only in the trigger measurement mode. A measured value is shown only when the “right-side button of the mouse” is clicked once or the “right arrow” cursor key is pressed at any timing.

- “N/S”: Show the polarity of a measured value.
- “OK/NG”: When judgment has been set in the trigger measurement mode and the measured value is within the judgment range, “OK” is shown in blue and when it is outside the judgment range, “NG” is shown in red.

E-1: “File Name” display

Shows the file name of data to be saved in the CSV format.

E-2: “REC Cycle” entry

Set cycle time to record data automatically.

The cycle time can be set in increments of 0.1 second in a range of 0.1 to 60 seconds.

E-3: “Trig Only” check

Check “Trig Only” when you want to record data only at the trigger timing in the trigger measurement mode. In this case, the cycle time set in “REC Cycle” is invalid.

E-4: “dCount” display

Shows the number of measured values recorded. If trigger measurement is performed during recording at the cycle time, the number of trigger measurements will also be added.

F-1: “Judg.” check

Check “Judg.” to make judgment of measured values.

Enter a range of OK within the setting values below:

“DC” mode: (-)3000.0 to 3000.0 “DC*10” mode: (-)300.00 to 300.00

To replace the N/S of measured values with the signs of plus/minus, click “+(N), -(S)”. To disregard the polarity, click “None”.

The same values may be entered. ($-0.50 \leq -0.50\text{mT} \rightarrow$ Judgment: Only “ -0.50mT ” is OK.) Overflow judgment results are NG. (See “Examples of judgment”.)

When “Buz.” is checked, beep sound is issued at the time of “OK”.

Reference: $0.1\text{mT} = 1\text{G}$, $3\text{T} = 3000.0\text{mT}$, $3000.0\text{mT} = 30000\text{G}$

Caution:

To assign the plus/minus signs to the N/S polarities of measured values, be sure to check “Judg.”

<Examples of judgment>

(mT)

+(N), -(S)				None			
Set value	Indicated value	Recorded value	Judgment	Set value	Indicated value	Recorded value	Judgment
$-20.0 \leq 200.0$	S300.0	- 300.0	NG	$20.0 \leq 200.0$	S300.0	300.0	NG
	S100.0	- 100.0	NG		S100.0	100.0	OK
	S15.0	- 15.0	OK		S15.0	15.0	NG
	0.0	0.0	OK		0.0	0.0	NG
	N15.0	15.0	OK		N15.0	15.0	NG
	N100.0	100.0	OK		N100.0	100.0	OK
	N300.0	300.0	NG		N300.0	300.0	NG
	- - -	- - -	NG		- - -	- - -	NG

Indicated value: Tesla meter indication Recorded value: CSV data value

- - -: Overflow

5.Measurement Method

①To check the Tesla meter display

The same data as that of the Tesla meter is shown in “Measure” on the screen.

②To check the Tesla meter display at desired timing

To make judgment of measured values, check “Judg.” and set judgment values and polarity. Click the [TRIGGER] button to set the trigger measurement mode. Click the “right-side button of the mouse” or press the right arrow key at desired timing. Then the measured value at that time will be shown in “TRIGGER”.

③To record the Tesla meter display at desired timing

To make judgment of measured values, check “Judg.” and set judgment values and polarity. The judgment result is recorded together with the measured value. Click the [TRIGGER] button to set the trigger measurement mode and check “Trig Only”. When ready, click the [REC START] button to start recording. Click the “right-side button of the mouse” or press the right arrow key at desired timing. Then the measured value at that time will be saved in the CSV format and also shown in “TRIGGER”. When the [REC STOP] button is clicked, recording will be stopped and the file save screen will appear. Save the CSV file (CSV data) containing measured values in any folder. The file name of CSV data is the date and time when the data was saved, but it may be changed to any name. Click the [Open Data] button to open the CSV data saved during measurement in Excel.

④To record the Tesla meter display at certain intervals

To make judgment of measured values, check “Judg.” and set judgment values and polarity. The judgment result is recorded together with the measured value. Enter the cycle time to automatically record data in “REC Cycle” in a range of 0.1 to 60 seconds. When ready, click the [REC START] button to start recording. The measured value at that time will be saved in the CSV format. When the [REC STOP] button is clicked, recording will be stopped and the file save screen will appear. Save the CSV file (CSV data) containing measured values in any folder. The file name of CSV data is the date and time when the data was saved, but it may be changed to any name. Click the [Open Data] button to open the CSV data saved during measurement in Excel.

6.USB Communication

①Communication system: Full-duplex asynchronous, serial communication,
binary form

②PC side setting: Transmission rate 19200 bps, 8 bits, 1 stop, no parity

③Silicon Laboratories Inc. CP2102 used

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Send (PC→TM)

STX	TxCMD	CSUM
0x02	0xC1 : POWER ON/OFF 0xC3 : ZERO/RESET 0xC4 : DC AC MODE 0xC6 : HOLD MODE	

Receive (TM→PC)

①Status

STX	rxCMD	rSTATE	0x00 : Normal 0x01 : Err.1 0x02 : Err.2 0x04 : Err.3	CSUM
0x02	0xA1			

rSTATE

7	6	5	4	3	2	1	0bit
00 : DC		AC HOLD*	Auto power	Over range	Initialize	0	POWER
01 : DC*10		1 : AC	off	1 : Occur	1: Startup		1 : ON
10 : AC		0 : AC*10	1 : Stop	0 : Normal	wait		0 : OFF
11 : AC*10			0 : Run		0 : None		

* : Measuring range of HOLD data in AC mode measurement.

②Data

STX	rxCMD	Measurement data	HOLD data	CSUM
0x02	0xA2	2-byte signed integer	2-byte signed integer	

“CSUM” is a sum of bytes of transmission data including STX.

0xFF is subjected to X-OR to “CSUM”. (“X-OR” is theoretical operation.)

Compared against the received CSUM and verified.

7. Precautions

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- ④ Please note that questions about software installation procedures or usage and requests for modification or improvement are not accepted.
- ⑤ The software may be updated without notice. Please note that program disclosure and on-site services are not supported.

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