INSTALLATION INSTRUCTIONS

MSD Circle Track LS Ignition Control
PN 6014CT

ONLINE PRODUCT REGISTRATION: Register your MSD product online. Registering your product will help if there is ever a warranty issue with your product and helps the MSD R&D team create new products that you ask for! Go to www.msdperformance.com/registration.

Parts Included:

1 – Ignition Control, PN 6014CT
1 – Main Wiring Harness
1 – Sub Harness
1 – Crank/Cam Pigtail 24x/1x
1 – Crank/Cam Pigtail 58x/4x
1 – USB Cable
1 – Mounting Kit
1 – MSDView USB Flash Drive

WARNING: During installation, disconnect the battery cables. When disconnecting, always remove the negative cable first and install it last.

Note: Solid core spark plug wires cannot be used with an MSD Ignition Control.

OPERATION

The MSD 6014CT LS Ignition controller works with 24x/1x, 58x/4x and 58x/1x crank/cam configurations. It auto detects the correct configuration based on the crankshaft reluctor wheel pattern, so there is no need to select one. It provides a customizable timing plot that can be programmed via MSDView.

Note: It is recommended, that you install and run MSDView software while connected to the unit to perform the base settings. The unit can be powered via the USB cable, so this can be done from a desktop or laptop and does not require an external power source.

WIRING FEATURES		
RED	Ignition 12V supply. From battery (via relay) or dedicated fused 30A switch.	
BLACK	Battery Negative	
CAM/CRANK SENSOR - 10 PIN		
ORANGE/YELLOW	Pin-1	Crank Signal
BROWN/WHITE	Pin-2	Cam Signal
ORANGE	Pin-3	5-volt supply
PINK	Pin-4	12-volt supply
BROWN	Pin-6	Sensor Ground
GRAY	Tach	Provides a 12-volt square wave signal.
COIL CONNECTOR - EVEN CYLINDERS		
BLACK	Pin-A	Engine Ground
RED/GREEN	Pin-B	Coil 2
BROWN/GREEN	Pin-C	Coil 4
	Pin-D	Not Used
BROWN	Pin-E	Sensor Ground
WHITE/BLUE	Pin-F	Coil 6
VIOLET/BLUE	Pin-G	Coil 8
PINK	Pin-H	12-volt supply for even cylinder coils
COIL CONNECTOR - ODD CYLINDERS		
BLACK	Pin-A	Engine Ground
RED	Pin-B	Coil 7
GREEN	Pin-C	Coil 5
	Pin-D	Not Used
BROWN	Pin-E	Sensor Ground
BLUE	Pin-F	Coil 3
VIOLET	Pin-G	Coil 1
PINK	Pin-H	12-volt supply for odd cylinder coils

	PIN	FUNCTION	COLOR	
16-Pin Connector	A	NOT USED		
	B	Sensor Ground	BROWN	Connect to Passenger's side coil connector. (Coils 2-4-6-8)
	C	Coil 2	RED/GREEN	
	D	Coil 4	BROWN/GREEN	
	E	Coil 6	WHITE/BLUE	
	F	Coil 8	VIOLET/BLUE	
	G	12V Supply	PINK	
	H	Main 12V Supply	RED	Connect to Relay or dedicated fused 30A switch.
	J	Ground	BLACK	Connect to a ground source.
	K	12V Supply	PINK	Connect to Driver's side coil connector. (Coils 1-3-5-7)
	L	Coil 7	RED	
	M	Coil 5	GREEN	
	N	Coil 3	BLUE	
	P	Coil 1	VIOLET	
	R	Sensor Ground	BROWN	
	S	NOT USED		

	PIN	FUNCTION	COLOR	
10-Pin Connector	A	12V Sensor Power	PINK	
	B	Ground	BROWN	Connect to Cam/Crank pigtail.
	C	Cam	BROWN/WHITE	
	D	Crank	ORANGE/YELLOW	
	E	5V Sensor Power	ORANGE	
	F	Factory Use	BLACK	
	G	NOT USED		
	H	NOT USED		
	J	NOT USED		
	K	Tach	GRAY	Tach output

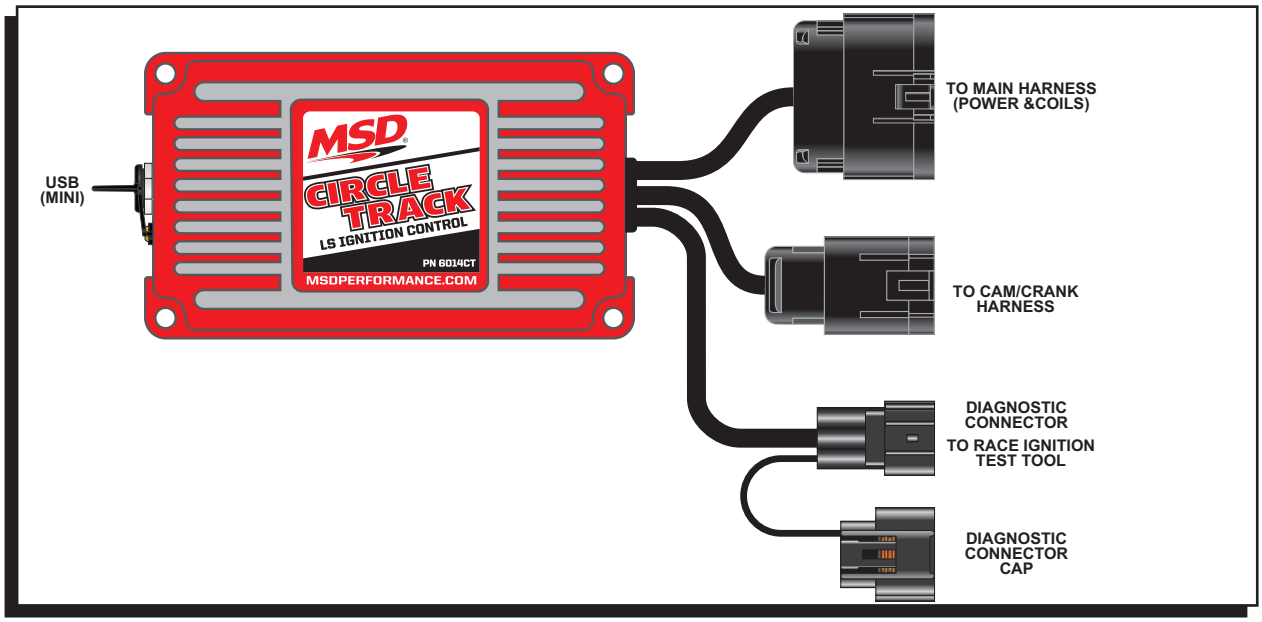


Figure 1 LS Ignition Controller, PN 6014CT

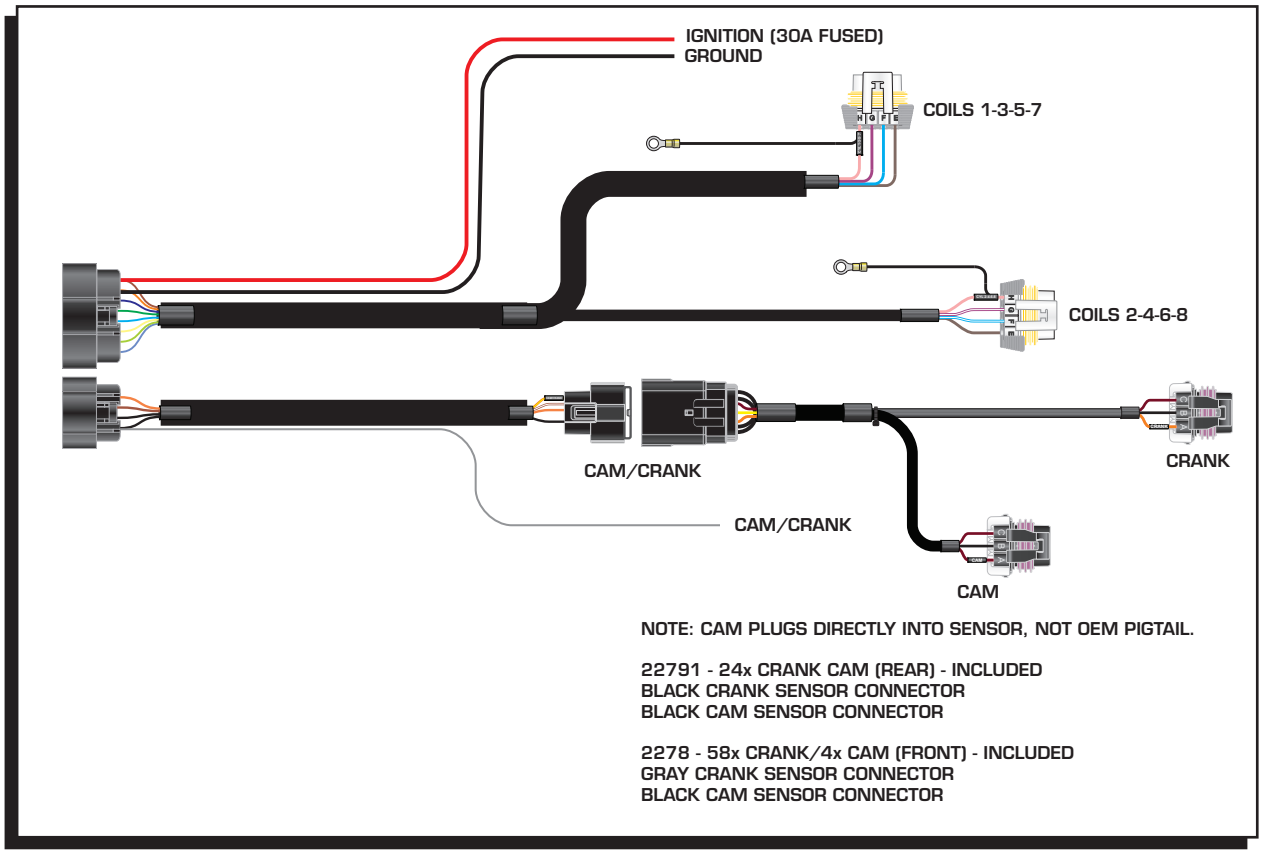


Figure 2 LS Ignition Controller Harnesses, PN 6014CT

Note: The PN 6014CT LS Ignition Controller requires a 30 Amp fused power source. Do not power the unit directly through the ignition key switch.

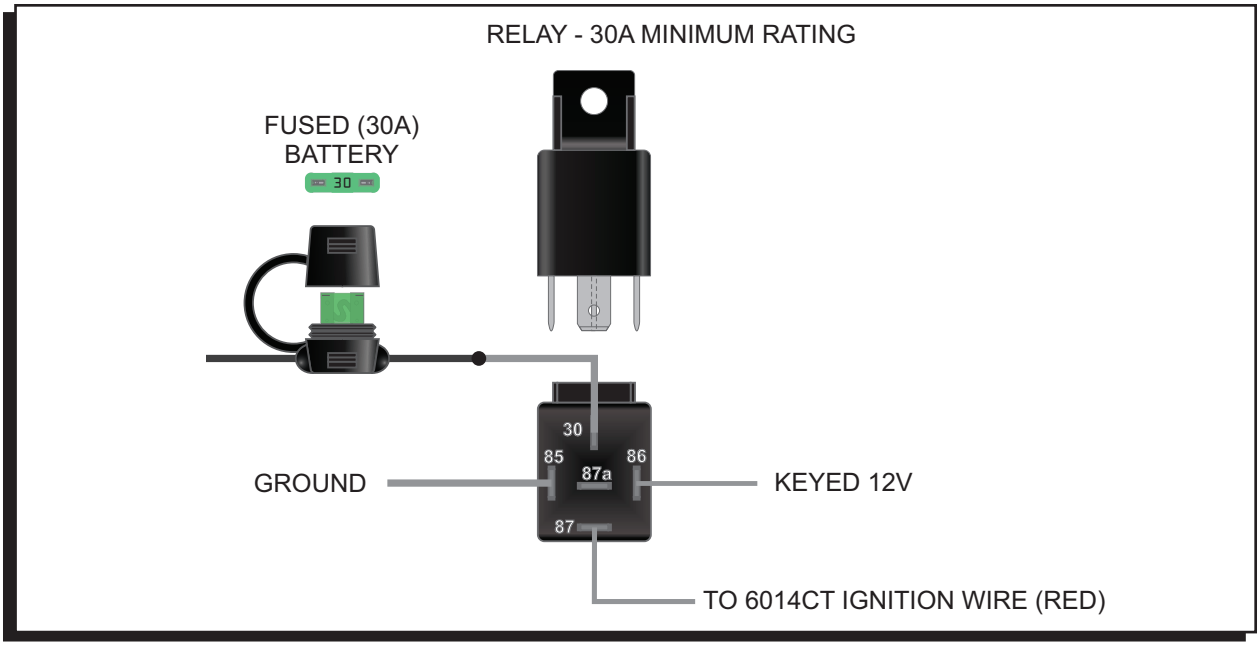


Figure 3 Recommended Relay Set-Up for supplying MaiN 12V Power

RACE IGNITION TOOL

The MSD Racing Ignition Test Tool, (PN 89973) was developed to help sanctioning bodies verify the compliance/configuration of MSD products. The Test Tool communicates with MSD products via the Diagnostic Connector.

MSD products that are compatible with the Test Tool will have a dedicated tab in the MSDView software named "REGULATED". Any unit can be configured as a MASTER unit, The Test Tool can then be connected to the MASTER unit and the REGULATED parameters synced to the MASTER configuration in the tool, The Test Tool with the MASTER configuration can then be used to verify the compliance of units in the field.



Figure 4 PN 89973 Race Ignition Test Tool

MOUNTING

PN 6014 CT LS Ignition Controller must be mounted in a sturdy, dry location and not exposed to extreme heat. It should be mounted using the included rubber isolators to protect it from excessive vibration. The unit is fully potted, but should not be immersed or subjected to direct spray from a power washer.

MSDVIEW

The MSDView software allows calibration of control parameters such as ignition timing, rev limiter and also live monitoring of engine. The following information gives a brief explanation of each function or feature in the system and the settings that control them. While using the software, you can mouse over each item for a brief on-screen explanation.

Note: Make sure MSDView is installed on the PC prior to connecting the Circle Track LS Ignition Controller.

INSTALLATION OF THE MSDVIEW SOFTWARE

1. Insert the installation Flash Drive into an available USB port.
2. Locate the 'autorun.exe' file on the Flash Drive.
3. Click on "Install MSD View Software." Click 'Yes' when asked 'Do you want the following program to make changes to this computer?'.
4. Click 'Next' in the 'Setup - MSD View' window.
Accept the License Agreement and click 'Next'.
Choose to accept the desktop icon then click 'Install'.
Click 'Finish' to run the application.
5. Connect the LS Controller via USB and wait for it to be listed in the product window.
It will be listed in the product window. Select the LS Controller by highlighting the line or checking the box and clicking the 'View/Hide' button.
Note: The first time the unit is connected, it may prompt for updates to be installed.

SAVES AND TRANSFERS

Changes made to the Circle Track LS Ignition Controller via MSDView are in real time. You can create and save numerous different files to your PC and load them back into the unit for different applications. The following will go through a general description of the software for the Circle Track LS Ignition Controller.

PROGRAMMABLE FEATURES AND SETTINGS

These are basic settings that should be configured the first time the unit is used, but it is not required. A basic setup can be performed on the bench with just the USB cable connected to the device. No external power is required.

Maximum Rev Limiter: This is the maximum RPM that the engine can reach before the Rev limiter becomes active.

Coil Type: This selects the dwell or charge time of the coils. Choose "AUTO" if unsure.
- Auto – The controller will automatically match the coil dwell to the crankshaft reluctor wheel used.
- LS1 – This sets the dwell time of the LS1/6 coils.
- LS2/3/7 – This sets the dwell time of the LS2/3/7 coils.
- Truck – This sets the dwell time of the early truck coils.

TIMING

Under this tab, you will find the timing plot used to control the spark output. The ignition spark timing is a function of the Engine Speed. The user can modify the plot points, add additional points or remove unnecessary points.

REGULATED

Under this tab, you will find the settings that can be regulated by sanctioning bodies. When a particular setting is predetermined by a sanctioning body, the appropriate setting should be checked in the REGULATED tab. These settings should also match the predetermined values as prescribed by the sanctioning body. This feature allows the use of the Test Tool to verify compliance.

When the Test Tool is connected via the Diagnostic Connector it will read the regulated parameters from the unit and compare them to the specified values. A match in of all the REGULATED parameters indicates compliance, while a mismatch indicates noncompliance. Normally, it is the responsibility of the racer to enter the REGULATED parameters in accordance with sanctioning body rules.

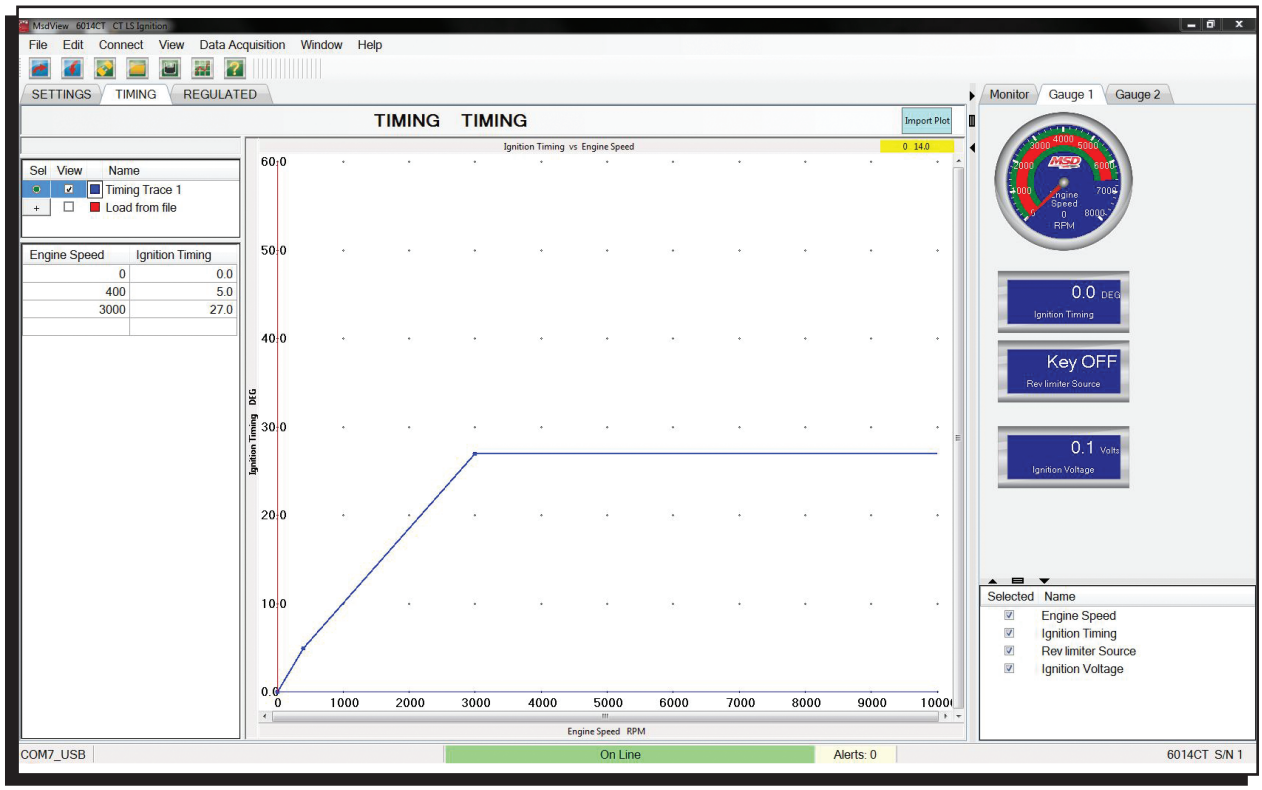


Figure 5 Custom Timing Table 1

MONITORS

MONITORS	Description
ENGINE SPEED	Engine speed in RPM
IGNITION TIMING	Ignition timing referenced to Top Dead Center (TDC)
IGNITION VOLTAGE	This is the voltage being supplied to the unit. This is also the voltage being supplied to the coils - so it is important that it remains over 12V to ensure optimum engine performance.
REV LIMITER SOURCE	Indicates which source will be limiting the motor. It will be "Key Off" when connected via USB, or "Maximum" any other time.

ALERTS

FAULTS	Description/Cause
BATTERY	Activates if voltage drops below 9V or goes above 18V
CAM FAULT	RPM is detected, but no cam sensor signal is present
CRANK FAULT	Camshaft sensor signal is present, but no engine speed is detected via the crankshaft sensor.
EEPROM READ ERROR	EEPROM data corrupted
EEPROM WRITE ERROR	Error writing to EEPROM

INSTALLATION INSTRUCTIONS

TECH NOTES

Service

In case of malfunction, this MSD component will be repaired free of charge according to the terms of the warranty. When returning MSD components for warranty service, **Proof of Purchase** must be supplied for verification. After the warranty period has expired, repair service is based on a minimum and maximum fee.

All returns must have a Return Material Authorization (RMA) number issued to them before being returned. To obtain an RMA number please contact MSD Customer Service at 1 (888) MSD-7859 or visit our website at www.msdperformance.com/rma to automatically obtain a number and shipping information.

When returning the unit for repair, leave all wires at the length in which you have them installed. Be sure to include a detailed account of any problems experienced, and what components and accessories are installed on the vehicle. The repaired unit will be returned as soon as possible using Ground shipping methods (ground shipping is covered by warranty). For more information, call MSD at (915) 855-7123. MSD technicians are available from 7:00 a.m. to 5:00 p.m. Monday - Friday (mountain time).

Limited Warranty

MSD warrants this product to be free from defects in material and workmanship under its intended normal use*, when properly installed and purchased from an authorized MSD dealer, for a period of one year from the date of the original purchase. This warranty is void for any products purchased through auction websites. If found to be defective as mentioned above, it will be repaired or replaced at the option of MSD. Any item that is covered under this warranty will be returned free of charge using Ground shipping methods.

This shall constitute the sole remedy of the purchaser and the sole liability of MSD. To the extent permitted by law, the foregoing is exclusive and in lieu of all other warranties or representation whether expressed or implied, including any implied warranty of merchantability or fitness. In no event shall MSD or its suppliers be liable for special or consequential damages.

*Intended normal use means that this item is being used as was originally intended and for the original application as sold by MSD. Any modifications to this item or if it is used on an application other than what MSD markets the product, the warranty will be void. It is the sole responsibility of the customer to determine that this item will work for the application they are intending. MSD will accept no liability for custom applications.

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