chargeGUARD™

BATTERY CHARGING & MONITORING SYSTEM

chargeX™

SOLID-STATE CHARGER

INSTALLATION GUIDE

Kisan ELECTRONICS

TECHNOLOGY *for* SAFETY

LIMITED WARRANTY

Kisan warrants this product to be free of manufacturing defects for a 1-year period after the original date of consumer purchase. A purchase receipt or other proof of original retail purchase will be required. This warranty does not include damage to the product resulting from accident, misuse, improper installation or operation or unauthorized repair or alteration. If the product should become defective within the warranty period, we will elect to repair or replace it free of charge at our option. Parts and/or replacement product supplied under the warranty may be new or rebuilt.

The consumer's sole remedy shall be such repair or replacement as is expressly provided above, and ***Kisan*** shall in no event be liable for any incidental or consequential damages arising out of the use of; or inability to use this product for any purpose whatsoever.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights. You may have other rights, which vary from state to state.

If you have to return the product for warranty service, please contact our service department to obtain a R.M.A. (Return Merchandise Authorization) number and instructions on how to pack and ship the product to us.

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print version:P070210

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CRADLE MOUNT

CG-25 Monitoring package includes everything you need for installation:

- Display with mounting cradle
- Current sensor for negative post
- Remote Temperature sensor

Does not require cutting any wires or any additional switches.

chargeX CX-10

CX-10 is 100% solid-state charger. It is transformer-less, which makes it very compact – about the size of a pack of gum. Yet it is powerful to put out 2.2 Amps.

It is mounted on-board so wherever you are, all you need is an AC outlet. No need to remember to pack and carry a battery charger for your next road trip.

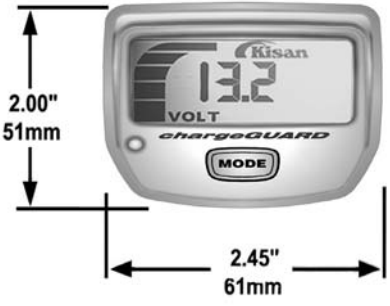
chargeX *-mini* CXM-20

CXM-20 is a wall-mount charger, which utilizes switch-mode technology for compact size. It has multi-step charging cycles to safely charge any 12V battery to its peak condition.

Included is a battery harness with an in-line fuse and a polarized connector for easy hook-up.

The EL panel has 5 bar graph segments to indicate the battery condition – *just one look and you know.*

chargeGUARD multi-function display can be flush mounted or attached to the handlebar.



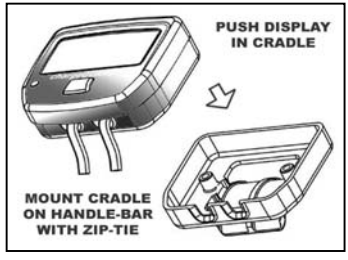
- Auto-start feature - any activity of the battery voltage will turn it on. You can also push the Mode button to turn it on manually.
- Auto-shutoff feature - two minutes of no activity of the battery voltage turns it off.
- For nighttime viewing, the built-in daylight sensor dims the backlight automatically.
- Bar graphs activated for Volt & Amp

- Temperature in Fahrenheit or Centigrade
- *ICE ALERT* feature - backlight changes color and triggers a dynamic warning to command your attention for slippery road conditions.
- Soft-set trim feature – allows Amp zero calibration and Temperature display trimming for +/- 5 degrees.

DISPLAY INSTALATION

- For best viewing, the Display should be vertical – not lay flat
- Display location depends on the cable length – to reach the battery

HANDLEBAR MOUNT



❶ Choose an appropriate location

❷ Determine how to route both input cables

❸ Hold the Mounting Cradle in place over the handlebar

❹ Use each 1/8" tie wrap supplied, and feed them over the half-round and the handlebar then pull it tight

❺ Make sure the cables have enough slack when you steer both ways.

FLUSH MOUNT

❶ Choose an appropriate location

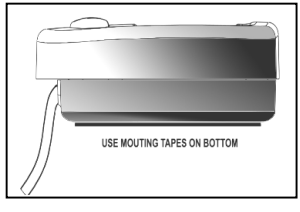
❷ Determine how to route input cables

❸ Clean the mounting surface thoroughly with an alcohol swab

❹ Use the mounting tapes supplied

❺ Apply pressure to hold it in place

❻ Allow 24 hours for the bond to cure



MODE SELECTIONS

chargeGUARD display has a single button scroll feature to allow easy mode change while you are riding - even with gloves on.

The default mode for each engine start is the Voltmeter function. After that, it will remain in whichever mode you select. Until you change it or restart the engine.

Push the Mode button to sequence the display functions:

VOLTMETER FUNCTION:
Displays battery voltage from 0 to 19.9 volts.
Bar-graph range is: 10 to 14 volts.

AMMETER FUNCTION:
Displays current flow at battery post, ± 99 Amps.
Bar-graph range is: 3 to 15 Amps.

TEMEPERATURE FUNCTION:
Displays ambient temperature in Fahrenheit.
The range is: -40º F to +120º F

TEMEPERATURE FUNCTION:
Displays ambient temperature in Centigrade.
The range is: -10º C to +75º C

If you have NOT INSTALLED the Current Sensor or the Temperature Sensor, or if they are disconnected, those functions will not be displayed.

DISPLAY FACEPLATE

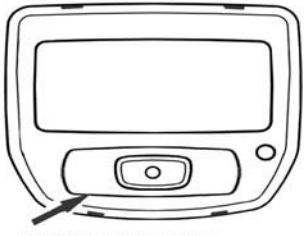
chargeGUARD Display has a detachable faceplate. It can be painted to match your dash color, or additional faceplates in optional colors can be ordered separately.

There are (4) latches, which hold the faceplate securely to Display housing. Insert a small jewelers screwdriver in each of the detents to release latch, one at a time.

Once the faceplate is loose, carefully lift it up and away from the Display housing, leaving the rubber keypad in place.

When reinstalling, first hook the lower (2) latches then pivot the faceplate toward the top (2) latches.

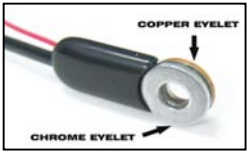
Once it is flush, push it in place until the detents hold the faceplate down securely.



KEYPAD SEALING

Note! If the keypad is disturbed from it's location, water barrier seal can be compromised.

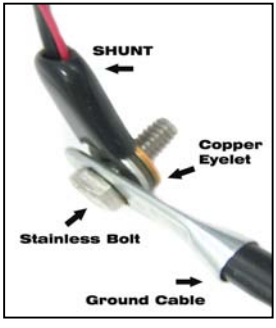
CURRENT SENSOR



This new version of the Current Sensor or Shunt is fully Integrated and mounts on the **NEGATIVE** (Ground) battery post.

■ Shunt is rated for 100 Amps MAX current

INSTALLING CURRENT SENSOR:

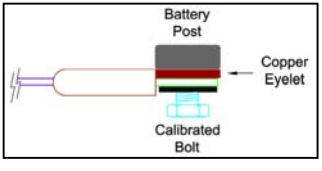


❶ Remove ALL cables from the **NEGATIVE** post of the battery.

❷ Align the eyelet of the Current Sensor with Copper-side facing the battery post as shown.

❸ Keep all cables so that they are they are on the other side of the eyelet of the shunt.

❹ Use the **CALIBRATED** stainless steel bolt supplied to reassemble,



In most cases, you can remove the GROUND cable bolt and slip the Current Sensor between the cables and the battery post.

■ Using non-calibrated bolt will result in inaccurate AMP display

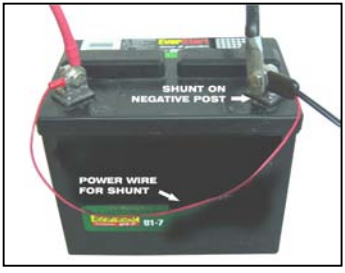
■ Improper orientation of Shunt will cause wrong current flow direction.

INSTALLATION

Shunt installed on the **NEGATIVE** (Ground) post of the battery.

■ COPPER EYLET towards the battery post

■ Power wire must be attached to the Positive post of the battery.



DO NOT BEND the Current Sensor. Keep it free by rotating it away from the ground cable as shown.

ZERO SET FEATURE

The Integrated Shunt has been calibrated for zero-set at the factory. The offset values are stored in permanent memory of the Display.

If you need to reset null point:

❶ **Turn everything Off –** no load on the battery

❷ Push the Mode button momentarily to show AMP screen

❸ If the AMP reading is not zero, **Push & Hold** the button

❹ Let the Display scroll through **twice & return** to AMP mode.

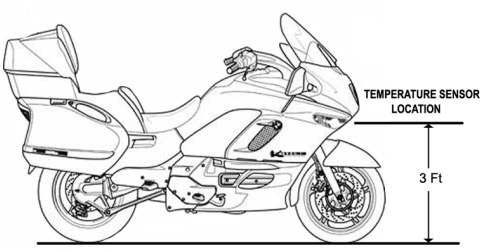
The Display backlight will go dark.

❺ AMP icon will begin flashing – now release the Mode button

The reading will be set to zero and the new offset values for the null point you have chosen will overwrite the factory setting.

TEMPERATURE SENSOR

Typical location of the temperature sensor should be close to the road surface.



Do not locate it near the exhaust or behind the radiator. Also, locating it just above the engine may cause it to read higher temperature due to the rising heat from the engine.

***ICE ALERT* FEATURE:**

If the ambient temperature drops to 32º F (0º C) or below, the Display will change to ***Ice Alert*** automatically for about 10 seconds.

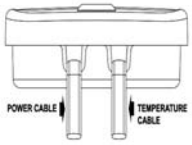
This warning is triggered only when the temperature drops below the freezing point, as a reminder to be cautious.

► ***Ice Alert*** is triggered only while in Volt or Amp mode.

► If the sensor is not plugged-in or is defective, the Ambient Temperature function will be disabled from the display mode selections**.**

INSTALLATION

This new version of the Temperature Sensor is molded on the end of the cable. It is not detachable.



Route the cable and make sure that the cable does not rub against any sharp edge or can pinch tightly between panels. Do not place it too close to the high voltage spark plug wires.

TRIM FEATURE

The Temperature Sensor has been calibrated at the factory. However, if you need to adjust the Temperature display:

❶ **Turn everything Off –** for at least 10 minutes

❷ Push the Mode button momentarily to show TEMP screen

❸ If TEMP reading needs trimming, **Push & Hold** the button

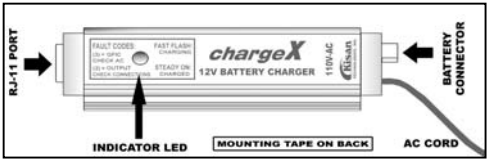
❹ Let the Display scroll through **twice & return** to TEMP mode

❺ TEMP icon will begin flashing – release the Mode button

❻ Push Mode button to set the value (+/- 7 °F) then release

The new reading will be shown and the offset values for the reading you have chosen will overwrite the factory setting. This feature can be activated in the °F or °C.

RJ22 port is used for programming and future use only.



chargeX is an onboard charger. It is designed for mounting on your motorcycle **permanently**. Choose a suitable mounting location:

- Near the terminal posts of the battery
- Away from any direct water spray
- Position it so that the Status LED is visible


Typical ***chargeX*** installation

Locate it such that there's ample room to connect the wiring harness to the battery posts. Make sure there's enough clearance to re-install any side panels you may have removed.

During the Fast Charge mode of operation, the ***chargeX*** unit can get **VERY HOT!** ($\geqslant 200°F$) Do not mount it on plastics, or near any gas lines, or let it get in contact with other wires.

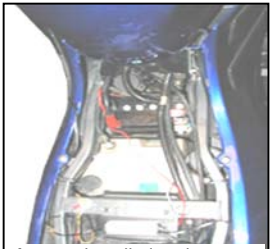
- Attach Red wire to the Positive post of battery
- Attach Black wire to the Negative post of the battery
- Plug the Molex connector in the socket near the AC cord

DANGER OF PERSONAL INJURY! Do not hold this appliance or touch it by hand, while it is charging.

INSTALLATION

For those motorcycles, where the battery is under the seat, and inside an enclosure, you may have to mount it along the rails or in a suitable location nearby.

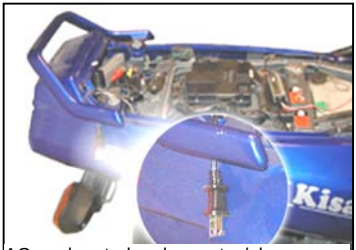
After you have chosen an appropriate location, clean it thoroughly. Then, peel the backing off the mounting tape and affix the ***chargeX*** unit in place. Apply pressure to hold it in place. Allow 24 hours for the bond to fully cure.



chargeX installed under seat

The 110V AC cord is 6 ft long, so you can route it for an easy access. Please note that the plug of the AC cord is polarized. It should be plugged in a properly wired AC outlet for safety.

Route the AC cord so that the plug is easily accessible for an extension cord. Make sure that the cord does not rub against any sharp edge or get pinched when reinstalling the seat.



AC cord routed under seat w/plug access

■ For best results, allow 12 hours of first time charge to enable ***chargeX*** to learn the best mode of operation.

DANGER OF ELECTROCUTION! The AC cord has UL approved PVC jacket. DO NOT allow it to be cut or pierced in any way.

LED STATUS INDICATOR

chargeX onboard charger LED indicator shows operating status as follows:

Continuous flashing – Fast for higher rate and slow for lower rate of charge. It's fully automatic.

Solid ON – Charging is completed and optimal battery voltage is maintained. It will restart as needed to keep optimal voltage.

2-Flashes – indicates a fault in the output connection. It may be a loose wire or a short-circuited connection. The charging function STOPS until the fault is corrected.

3-Flashes – indicates a fault in the AC input. Ungrounded AC outlets, condensation near the outlet or on the floor, or an overload from another appliance on the same outlet will cause *Ground Fault Interrupt* (GFI)

If you see a GFI fault – 3-flashes - ***chargeX*** unit must be unplugged from the AC outlet for a reset. Before you do that, for your own safety:

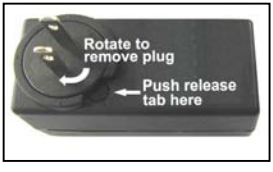
- Make sure that there's no excessive condensation near the outlet
- Make sure that the outlet is properly grounded and polarized
- Use a polarized extension cord, if not directly plugging into a wall outlet

DANGER OF ELECTROCUTION! Unplug this appliance from the outlet. DO NOT touch or step on to any wet surfaces.

chargeX -mini CXM-20

This wall-mount charger utilizes switch-mode technology for compact size. It has multi-step charging cycles to safely charge any 12V battery to its peak condition.

- Short-circuit protected output
- Reverse polarity protection
- Spark-free battery connections
- Size: 3.75” (95.6mm) x 1.75” (44.4mm) x 1.4” (35mm)
- 6 Ft long polarized cable with inline fuse for battery connection

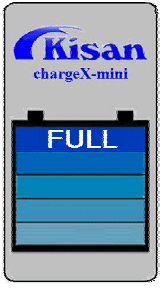


- Zero current drain on battery with AC off
- Universal AC input $100V_{AC}$ ~ $240V_{AC}$
- Adapters for US, Euro & UK wall sockets

This charger is suited for lead-acid, Gel-cell, AGM, VRLA and Maintenance-free batteries. After the voltage peak is detected, maintenance mode charge cycle holds a constant voltage -keeping the battery fully charged.

- For indoors use only.

DANGER OF ELECTROCUTION! This appliance should be plugged into a GFIC protected outlet. DO NOT expose to water.



AC Power – Kisan logo ON

Low battery – Bar graph segments flash

Charging – Segments light-up sequentially

Standby Mode	**0 Amp**	**0 Volts**
Constant Current Mode	**1.1 Amp**	**14.7 V**
Constant Voltage Mode	**0.2 Amp**	**14.1 V**
Floating Charge Mode	**≤ 0.05Amp**	**13.8 V**

Accessories included with each ***chargeX$_{mini}$***

Eyelet Connector

Mount the Red ring connector on the positive post, and the Black ring connector to the negative post of the battery. The polarized plug can be easily hooked-up for charging.

Alligator Connector

The Red alligator clips on the positive post and the Black alligator clips on the negative post. Do not ride with alligator clips attached, they are to be used as temporary hook-up only.

AC Plug Adapters

One of the plugs shown is included. Additional adapters can be purchased separately.

FAQs:

Q: I have installed the ***chargeX*** on my bike but the location is such that I cannot see the status LED. Can I extend the wires for the battery connection and relocate the ***chargeX***?

A: That is one option. An extended length (4ft) harness is available.

Q: My ***chargeX*** has been charging the battery (LED is flashing slowly) for the past 4 or 5 hours. Is there something wrong? Should I unplug it?

A: ***chargeX*** has built-in multiple charging programs stored in its memory. Once it is connected to the battery and plugged into AC outlet, it begins the process of determining the type of battery, state of battery charge and to check for any sulfate build-up on the battery plates - if plugged in long enough.

That's why it's best to keep the ***chargeX*** plugged in for at least 12 hours to let it execute all applicable program cycles and retain the best match in memory. Next time, only the optimum program cycles will be executed. This memory retention is valid for as long as the ***chargeX*** remains connected to the battery.

Q: I replaced my battery with the new Gel-cell type. Do I have to reprogram the ***chargeX***?

A: No, the ***chargeX*** will automatically detect the new battery type and adopt the most efficient charging program to execute.

Q: No matter what I do the ***chargeX*** keeps showing 2-flashes. I have checked the battery connection and it is proper. What's wrong?

A: ***chargeX*** is an on-board 12v charger. It's operating range is 6v – 14v Anything below 6v is interpreted as an open connection.

Q: I have noticed that the 3-flash GFIC warning is indicated by the ***chargeX*** every once in a while, even though my garage outlet is protected and does not trip.

A: The GFIC fault detection of ***chargeX*** is quite sensitive and quick acting. It will detect a short voltage drop, a brownout or a voltage spike well before typical mechanical wall outlet. Sometimes an inductive load of a garage door opener can also cause it. Try using a different outlet or check the polarity of the wall plug.

Q: I use an extension cord from the wall outlet to plug the ***chargeX***. Sometimes it shows a fast charge and sometimes it shows full charge. What's the problem?

A: If the extension cord is not polarized, the ground reference for the ***chargeX*** can be wrong depending on how the cord is plugged in. Always use a polarized extension cord.

Q: My temperature display has all of a sudden changed to 5° lower.

A: This is most typically due to water collecting at the RJ22 connector of the Temp Sensor. If you see water or corrosion there, you can clean it with alcohol on a Q-tip. Also check the AMP readings, if they are also lower then the RJ22 connector at the Shunt may need cleaning too.

Q: The AMP display while cruising stays mostly around 0 to 3 Amps, even at higher RPMs it does not change much. Is this normal?

A: Since the Current Sensor is monitoring the current flow at the battery only the energy input to the battery is shown. The amount needed to replenish what was used to crank the engine usually takes a few seconds. Thereafter the battery won't accept any more charge, so nominal values of Amp are what you see for a fully charged battery.