



Multi-Bay Smart Charging System Instructions for use

The Inspired Energy Multi-Bay smart charging systems work with all Inspired Energy® brand smart standard packs and hybrids irrespective of size, shape, voltage, cell chemistry or capacity.

What's in the box?

1. One multi-bay smart charging unit:
 - CH5555 = Four smart charger / calibrator bays
 - CH5444 = Two smart charger/calibrator bays + two smart charger bays
 - CH4444 = Four smart charger bays
 - CH6555 = Six smart charger / calibrator bays
 - CH6544 = Two smart charger/calibrator bays + four smart charger bays
 - CH6444 = Six smart charger bays
2. Three plastic spacers to modify the battery bay to suit your battery size
3. One mains cable
 - N. American units ("A" part number suffix) are packed with a US 3-pin mains cord
 - European units ("E" part number suffix) have a European 2-pin + ground recess mains cord
 - UK chargers ("U" part number suffix) are packed with a UK 3-pin mains cord
 - Units with s "X" part number suffix are not packed with a mains cord

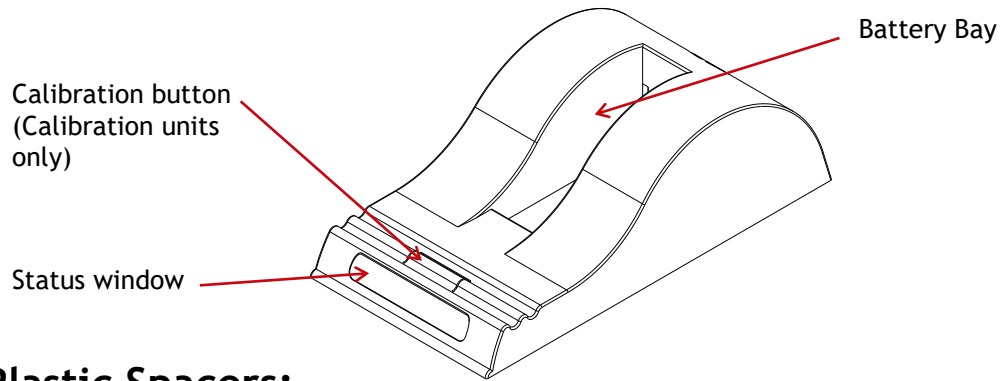
Safety:

1. Do not expose the charger or power supply to water or liquids; the case is not sealed.
2. Do not open the charger or power supply case, no user serviceable parts are inside.
3. Do not cover the air vent or obstruct the airflow, this will cause overheating.
4. Place the charger in a cool spot, away from external heat sources.
5. Caution - during recalibration the charger may become warm.



Using your Charger:

Place the charger on a flat, level surface away from sources of heat and moisture. Connect the power supply to the mains AC supply using the cable supplied. (The LEDs will flash on powering up the unit.) Each charge bay operates independently providing simultaneous charge for up to four or six battery packs. A typical charge + calibration bay is shown below. Bays without calibration function have the calibration button disabled.



Using the Plastic Spacers:

Plastic spacers are supplied to assist in the correct insertion of all of the different sizes of smart standard packs. To insert a spacer, place the bottom of the spacer in the rear corner of the battery bay. Place a thumb on the top of the spacer and push it firmly towards the back of the charger. Correct insertion should be accompanied by a click as the guides lock into place. The cross reference of spacers to batteries is given below:

Thick “L” shaped spacer:	NC2560, NI1030 & ND2017 Style
Thin “L” shaped spacer:	NJ1020 & NI2020 Style
Flat spacer:	NL2020 & NL2024

No spacer is required for the 203x, 204x or 205x ranges of batteries.

Charging:

Place the battery into the battery bay ensuring that the 5-way connector is fully seated. The LEDs in the status window will provide status information and the charger will automatically begin charging.

LED Indication:

The status of the battery is indicated by the LEDs visible in the status window:

Charge Bay indications:

✱ Green flashing:	Battery charging
● Green solid:	Battery fully charged
● Red solid:	Error

Charge + Calibration Bay indications:

✱ Green flashing:	Battery charging
● Green solid:	Battery fully charged
✱ Blue flashing:	Battery in calibration mode
● Blue solid:	Battery fuel gauge calibrated
✱ Red flashing:	Battery fuel gauge in need of recalibration
● Red solid:	Error

Recharge Time:

Different battery packs will require differing recharge times. The times given below are for a full charge from 0% to 100% state of charge. They are valid for all variants and custom hybrids of each battery model. (For example, the NJ1020HP has the same recharge time as the NJ1020.)

Battery Chemistry	Battery Model	Recharge Time (hours)	Recalibration Time (hours)
NiMH	NI1030, NJ1020	1.5	5 - 7
Li Ion	NC2040, NC2560, ND2054, ND2034	3.5	17 - 20
	ND2053	3.5	44 - 49
	NF2030, NF2040, NH2054	3.5	20 - 23
	NF2047, NH2057	4 - 6	33 - 40
	NB2037, ND2017	6	25 - 31
	ND2057, ND2037, NI2020, NI2040, NL2020, NL2050	3.5	23 - 26
	NL2024, NL2044, NL2054	3	19 - 22

Battery Fuel Gauge Recalibration *(Units with calibration features only)*

If the battery is in need of fuel gauge recalibration, the red LED on the charge bay will flash. The user has the option to calibrate the fuel gauge and charge the battery, or to only charge the battery.

To recalibrate the fuel gauge, press the calibrate button in front of the battery bay. Calibration is initiated each time the button is pressed, so it is not recommended to press the recalibration button part way through the recalibration cycle. The blue calibration LED will flash to indicate that the battery is undergoing the recalibration cycle. The built-in fan will turn on only during a discharge of the battery. When calibration is complete the blue LED will stay constant.

Recalibration Time

Recalibration consists of a calibration charge, followed by a calibration discharge. Finally, the battery is given a regular charge. A calibration cycle will be faster if the battery is fully charged to begin with. Recalibration time is governed by the battery voltage and capacity. Larger batteries, and lower voltage batteries will take longer to recalibrate.

What are the SMBus and the SBS?

The Smart Battery System defines the parameters that are stored by a compliant battery. These parameters include full battery status and fuel gauging information. The System Management Bus is the language by which these parameters are communicated between the battery, the charger and the host device. For full details of the SBS information available from your battery please refer to the battery specification sheet available at www.inspired-energy.com.

How does the charger know what charge to deliver?

Each charger unit is capable of sensing and delivering an appropriate charge to all Inspired Energy NiMH and Li-ion standard battery packs. Upon inserting the battery into the charger, the battery communicates to the charger over the SMBus data link, telling the charger what type of cell chemistry it is and what charge regime it needs. The charger then configures its output to provide the charge regime requested by the battery. If no SMBus communications are issued from the battery, the charger interrogates the thermistor/resistor I.D. pin on the battery terminal and delivers an appropriate charge.

Compatibility:

The system is fully compatible with all Inspired Energy® brand standard battery packs and their custom hybrids. For optimum results we recommend using only Inspired Energy® brand smart batteries. For a full list of all compatible Inspired Energy batteries, please visit:

www.inspired-energy.com

Multi-Bay Charge System Specification Summary (4-Bay & 6-Bay versions)

Weight:	4-Bay: 3.1kg / 6.9lb, 6-Bay: 3.3kg / 7.2lb
Height:	127mm / 5"
Length:	400mm / 16"
Width:	203mm / 8"
Mating Connector:	5-blade standard battery connector
Communications Compliances:	System Management Bus Rev 1.0, Smart Battery Data Specification Rev 1.0 and Smart Battery Charger Specification Rev 1.0 compliant
Charger Units:	24V DC, FCC & CE Compliant, RoHS Compliant
Power Supply:	110-250VAC, 50-60Hz, UL listed, FCC & CE Compliant, RoHS Compliant
Mains Cord:	"A" part number suffix - 110V N. American 3-pin connector "E" part number suffix - 220V European 2-pin connector with ground recess "U" part number suffix - 240V UK 3-pin connector "X" part number suffix - No AC power cord supplied

