

Sterling Check List

Performance features

Digital software control	Yes ✓
3 isolated outputs	Yes ✓
Automatic 110/230 volt selector	Yes ✓
Power pack mode	Yes ✓
Multiple input frequency from 40 – 400Hz	Yes ✓
Thermostatically controlled fan cooling	Yes ✓
4 step constant current charging curves	Yes
4 battery type charging curve selector	Yes ✓
Automatic battery bank size and state sensing	Yes ✓
Automatic High charger time calculated every time	Yes ✓
Automatic 7 day de-sulphation cycle	Yes ✓
3 stage R.F.I .filter	Yes ✓
Auto power reduction in event of high temperature	Yes ✓
7 led output display information panel	Yes ✓
24 kt gold plated output terminal post	Yes ✓
Remote control socket	Yes ✓
Sturdy construction	Yes ✓
Small footprint, low profile	Yes ✓

Safety features

High ambient temperature rated	Yes ✓
Battery temperature sensing and compensation	Yes ✓
High battery voltage trip	Yes ✓
High battery temperature trip	Yes ✓
High heat sink temperature trip	Yes ✓
Negative fused externally (ABYC Requirement)	Yes ✓
Reverse polarity protected	Yes ✓
Over load protected	Yes ✓
Short circuit protected	Yes ✓

Extra performance features offered with the remote optional, an optional extra with the medium chargers and standard with the large

Remote switch on/off	Yes ✓
Manual power reduction selector	Yes ✓
Auto memory power lock on setting	Yes ✓
Delay start up to enable power setting change	Yes ✓
2 line 16 bit L.C.D. display screen	Yes ✓
High charge rate timer countdown	Yes ✓
Auto cycle all information with manual screen lock	Yes ✓
Displays all alarm functions	Yes ✓
Display, volts amps temperatures etc	Yes ✓
Surface mounted or recessed box	Yes ✓
Safety time out circuit	Yes ✓

Digital software control

There are 2 ways to control electronic processing, Analogue (hardware control) and Digital (software control). Hardware control is where the voltage sensing and processing are all done via transistors and electronic hardware. This is fine as long as the information to be processed is kept simple. However an Advanced Regulator may look simple (and most of them are) but when all the different battery types, bank sizes and safety parameters are installed, the unit would become almost impossible to make and set up. Sterling leads the field in this type of controller but has found that when upgrading from our previous model, it required so many extra features to keep up with new battery types and alternator types etc, a hardware version became impossible to make.

Digital control (software): this uses computer lines of code, digitally burned into a memory processor in the Advanced Regulator. This means that very complex information and mathematical processes can be processed, which would be impossible for the hardware system to do. It is the next generation of control and more and more you will see the term digital control appearing on different products. Digital control offers so many extra features at no extra cost (see below) and accuracy beyond the ability of the analogue version.

3 isolated outputs

The charger has 3 outputs enabling 3 different battery banks to be monitored and charged at the same time.

Automatic 110/230 volt selector

The in-built system enables the charger to be automatically used on a wide voltage range from 80 – 300 volts AC. This covers all the possibilities encountered on any marine in the world.

Multiple input frequencies from 40 – 400 Hz

Self-explanatory, the unit is able to work on all worldwide A/C input frequencies.

Thermostatically controlled fan cooling

The digital software monitors the unit temperature and controls the fans; this reduces any unnecessary fan noise from the charger and prolongs the fans life for many years.

High ambient temperature rated

Many boat builders expect the chargers to work at full power continuously at 40C ambient, few chargers in the world meet this specification – we do.

4 battery type charging curve selector

There is more than one battery type; most chargers do not offer different programs for different battery types. Failure to offer an option will result in either overcharging some battery types and sulphating others. The Sterling version offers charging curves for open lead acid batteries, traction batteries, sealed batteries, gel batteries and AGM batteries.

Automatic battery bank size and state

No need to program in the battery bank size as the digital software can work that out itself.

Automatic High Charge timer calculated every time

Most chargers have a fixed high charger timer, which works regardless of battery size and state or even load on the boat. The digital processor is able to discern the battery bank size, what state it is in and even take into consideration the power used by the boat. It then calculates the ideal equalizing charger time; this will be different every time and will be from 1 – 6 hrs.

Automatic 7 day de-sulphation cycle

The good thing about a constant current charger is that it de-sulphates the battery plates ensuring maximum life from the batteries. However, this only works if the charger is switched on/off regularly (i.e. every time you disconnect and reconnect the charger the plates are subjected to a de-sulphation cycle). The problem is some boats or standby equipment may be rarely used, for example: a boat could be moored all year and never leave the pontoon, or a stand-by generator with the charger on all the time. In these cases the de-sulphation cycle would only happen once and the batteries would eventually sulphate causing premature destruction. However the Sterling software has a 7 day timer which in the event of inactivity will automatically run a de-sulphation cycle keeping your plates clean.

3 stage R.F.I filter

In order to meet C.E. requirements for Radio Frequency Interference a three-stage filter is used to ensure that not only is the standard reached but also that we fall well above the standard legally required.

Battery temperature sensing and compensation

The Sterling Digital comes complete with a battery temperature sensor, which is automatically set to one of the temperature compensation set by your battery type selector switch.

3 battery temperature sensors

The larger battery charger range comes complete with 3 temperature sensors, which monitor and display and react to the 3 different battery banks, including 3 high temp trips.

Independent unlimited high battery temp trip circuit

This unit has a trip circuit which can be connected to any trip device such as temperature trips or any trip which results in an open circuit. The problem is that a charger could be attached to 10 batteries but only monitoring 3, however if you wish you can put a standard temperature trip on every battery and link them together into a common trip circuit, if any of these batteries exceed a pre determined value the charger will switch off.

High battery voltage trip

Things do go wrong no matter how hard we try so in the event of the regulator control failing, then any voltage above what the software is expecting will shut the battery charger down and display the fault.

High battery temperature trip

It always amazes me how many companies sense battery temperature and compensate the charger voltage against temperature, but in the extreme event of total battery failure and the battery is going to boil the battery charger will not switch off the charger. The Sterling processor not only senses the temperature but will shut down the charger in event of total failure and display the fault condition.

High heat sink temp trip

In the event of extreme temperature or cooling fan failure the battery charger will switch off at 70C

Auto Power reduction in event of high temperature

Because it is best to get as much power as possible at high temperature, in extreme high temperature or cooling fan failure, if the heat sink reaches 65C then the output current of the unit will be systematically reduced to prevent the high temperature trip being activated at 70C, its better getting something than nothing.

7 led output display information panel

High charger rate, timer activated, battery type (3 colours), Float mode, high battery temp trip, over voltage trip,

24kt gold plated output terminal posts

Over a period of time brass corrodes in salt air making poor connectors, we have all seen the green paste that forms around battery terminals etc. All Sterling connection posts are solid brass and are 24kt gold plated to eliminate this for life.

Negative Fused externally (A.B.Y.C requirement)

Because the largest market for our products is in the USA, it is important to conform to European and USA standards. This is a requirement for the USA A.B.Y.C boat building code of practice, as a result some electricians were receiving electric shocks because they thought they were on the DC negative system when they were on the 110V AC system (guaranteed to wake you up first thing in the morning). As a result international regulation bodies are attempting to change the colour of the DC negative cables (which have been black) to yellow, this is already the case in the USA for ABYC and is under review in the UK. The negative cable in the new digital range comes as yellow and a gold fuse is supplied.

Reverse polarity protected

The supplied fuse blocks offer a good reverse polarity protection system.

Overload protected

As stated the unit cannot be overloaded.

Short circuit protected

As stated the unit can be short-circuited with no adverse results.

Remote control socket

The unit has the ability to be connected to a digital L.C.D. information and control panel.

Sturdy construction

The unit is made from extruded aluminium and extremely sturdy, with extra thick 2.4 mm printed circuit board.

Small Footprint (mm)

A modern requirement even on the largest boats is the requirement for a small footprint size, check our size out.

Extra features when connected to the Digital remote control

Remote switch on/off

Self-explanatory (I hope).

Manual power reduction selector

Some marinas offer only limited shore power; as a result high power battery chargers will not work. It therefore becomes necessary to reduce the output power of the charger to enable it to operate from the shore power. This remote offers the ability to select 100%, 50% or 25% power to deal with the lowest shore power supplies. It's best to have some power than none, this feature is also good if an onboard generator is used, i.e. you may want say a 100 amp charger for the onboard generator to charge the batteries fast but the local berth cannot support such a large charger. In this case the charger could be reduced to 25 amps when returned to the marina berth.

Auto memory power lock on setting

If reduced power is selected the software remembers the setting so in the event of removing the shore power the charger will start up on the reduced setting next time.

Delay start up to enable power setting change

In the event of a boat entering a marina and only a low power supply is available, if the last time the charger was used then the charger would start up on high power and trip the shore supply. To overcome this problem when the charger is started, the software counts down 30 seconds before automatically starting the charger on the last setting. This gives the operator ample time to reduce the power if required on the remote control.

2 line 16 bit L.C.D. display screen

As described above a large information screen is use which as an on/off switch for the background light.

Auto cycle all information with manual screen lock

Due to the large amount of information being displayed, it is not possible to fit it all on the screen. As a result the screen automatically scrolls through the screens. However you may wish to monitor one screen in particular, in this case simply push the lock button to lock that screen on.

Impressive information displayed

The L.C.D. display and control gives the following information: charger amps, charger volts, time remaining on equalizing charger, battery type selected, battery temperature, charger temperature, plus all alarm and other control functions.

Surface mount or recess box

The remote control design means the box can either be surface mounted, bulkhead or flush mounted.

Safety time out circuit

In the event of defective batteries and the charger is unable to complete its charger cycle, the unit will drop to a low float voltage after 10 hours to reduce the effect of damaged batteries.