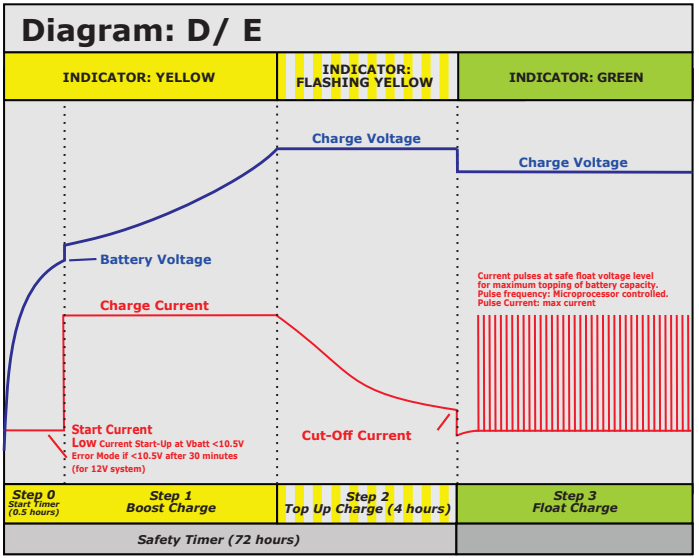
Charging method D

STEP 1 - BOOST CHARGE
LED-indicator: YELLOW
The charger is in constant current mode (CC), charging with the maximum current until battery voltage reach Top-Up level.

STEP 2 – TOP-UP CHARGE
The charger is in constant voltage mode. The LED-indication will be FLASHING YELLOW during Top-up charge. The charger stays in this mode until the charge current decreases to charge termination level or the Top-Up Charge Timer runs out. The battery is charged to its full capacity at the end of this step.

STEP 3 – FLOAT CHARGE
The LED-indication on the charger is GREEN and the battery is fully charged.
The charger is in standby mode. The charge voltage is at standby level and the charger may remain connected to the battery.
The charger will return to boost charge if the battery is used.

BATTERY NOT CONNECTED INDICATIONS
Battery not connected is indicated by FLASHING GREEN



Charging method E

STEP 1 - BOOST CHARGE
LED-indicator: YELLOW
The charger is in constant current mode (CC), charging with the maximum current until battery voltage reach Top-Up level.

STEP 2 – TOP-UP CHARGE
The charger is in constant voltage mode. The LED-indication will be FLASHING YELLOW during Top-up charge. The charger stays in this mode until the charge current decreases to charge termination level or the Top-Up Charge Timer runs out. The battery is charged to its full capacity at the end of this step.

STEP 3 – FLOAT CHARGE
The LED-indication on the charger is GREEN and the battery is fully charged.
The charger is in standby mode. The charge voltage is at standby level and the charger may remain connected to the battery.
The charger will return to boost charge if the battery is used.

BATTERY NOT CONNECTED INDICATIONS
Battery not connected is indicated by FLASHING GREEN.

In this mode charger will apply short pulses attempting to wake up deeply discharged batteries. ✱

ERROR INDICATIONS

- 2 red blinks: Battery is connected to charger with wrong polarity!
- 3 red blinks: Charger output is shorted. Check output cable connection! ✱
- 4 red blinks: Battery voltage is low. Check battery status or voltage.
- 5 red blinks: Safety timer has run out. Check battery status or capacity.
- 6 red blinks: Defect battery.
- LED off: Battery voltage is too high. Check battery voltage.

✱ NOT USED FOR 3540

SPECIFICATIONS FOR 3540 LA	12 V	24 V	48 V
Available versions	x	x	x
Input voltage: / Line frequency:	198 - 264VAC / 50Hz	198 - 264VAC / 50Hz	198 - 264VAC / 50Hz
Max output power:	294W	294W	294W
Step 0 < 30min (Yellow)	2.4A when battery voltage <10.5V.	1.4A, when battery voltage <21V	0.7A, when battery voltage <42V
Step 0 > 30min Red (error-mode)	0A	0A	0A
Step 1 Constant Current (Yellow)	20A +0/-0.3A, when battery voltage >10.5V (Step 1 until Vbat = 14.7V)	10A +0/-0.3A, when battery voltage >21V (Step 1 until Vbat = 29.4V)	5A +0.1/-0.3A, when battery voltage >42V (Step 1 until Vbat = 58.8V)
Step 2 Const Voltage (Flashing Yellow)	14.7V ± 0.1V and charge current is tapering. (Step 2 until I charge < 2.4A or > 4h)	29.4V ± 0.2V and charge current is tapering (Step 2 until I charge <1.4A or >4h)	58.8V ± 0.2V and charge current is tapering (Step 2 until I charge <0.7A or >4h)
Step 3 Charge Completed (Green)	13.7V ± 0.2V, supply current up to maximum 18A for possible parallel load. (Step 3 until I charge > 18A)	27.4V ± 0.1V, supply current up to maximum 10A for possible parallel load Step 3 (until I charge >8.5A)	54.8V ± 0.1V, supply current up to maximum 5A for possible parallel load (Step 3 until I charge >3.5A)
Charge timer (step 2):	4h	4h	4h
Safety timer:	72h	72h	72h
Restart charge current and voltage approx.:	>18A or <13V in 10 sec.	>8.5A or <26V in 10 sec.	>3.5A or <52V in 10 sec.
Formation Charge:	Low current start-up of deeply discharged battery.	Low current start-up of deeply discharged battery	Low current start-up of deeply discharged battery
Float charge:	20A pulses at safe float voltage level for maximum topping of battery capacity.	10A pulses at safe float voltage level for maximum topping of battery capacity	10A pulses at safe float voltage level for maximum topping of battery capacity
Indication when “Battery not connected”:	LED flashing Green (1s/1s)	Green “PULSE” LED flashing Green (1s/1s)	Green “PULSE” LED flashing Green (1s/1s)
Temperature compensation of charge voltage:	-3 to -4mV/’C pr. cell When delivered with temp. sensor.	-3 to -4mV/’C pr. cell When delivered with temp. sensor.	-3 to -4mV/’C pr. cell When delivered with temp. sensor.
Ripple:	< 100mVp-p	< 100mVp-p	< 100mVp-p
Efficiency (at 100% load, 230V) approx.:	>91 %	>92 %	>92 %
Switch frequency approx.:	65kHz	65kHz	65kHz
Leakage current from battery with mains switched off:	< 140 uA @ 12V	< 130 µA @ 24V	< 140 µA @ 48V
Protection:	Protected against reversed polarity. Error Indication: Red (2 blinks) Short circuit proof Thermal protection Prevents sparking Charge timer: 4h Safety timer: 72h. Error Indication: Red (5 blinks) Charging of wrong lower voltage battery pack (e.g. 6V) will be limited to 2.4A and terminated after 30min. Indication: Red (4 blinks) Defect battery: Error Indication: Red (6 blinks) - Battery does not accept pulse current in float mode, and battery voltage drops below 21V after opening output relay. Charging battery >16.0.0V terminated immediately. Error Indication: LED is off	Protected against reversed polarity. Error Indication: Red (2 blinks) Short circuit proof Thermal protection Prevents sparking Charge timer: 4h Safety timer: 72h. Error Indication: Red (5 blinks) Charging of wrong lower voltage battery pack (e.g. 12V) will be limited to 1.4A and terminated after 30min. Indication: Red (4 blinks) Defect battery: Error Indication: Red (6 blinks) - Battery does not accept pulse current in float mode, and battery voltage drops below 21V after opening output relay. Charging battery >32.0V terminated immediately. Error Indication: LED is off	Protected against reversed polarity. Error Indication: Red (2 blinks) Short circuit proof Thermal protection Prevents sparking Charge timer: 4h Safety timer: 72h. Error Indication: Red (5 blinks) Charging of wrong lower voltage battery pack (e.g. 36V) will be limited to 0.7A and terminated after 30min. Indication: Red (4 blinks) Defect battery: Error Indication: Red (6 blinks) - Battery does not accept pulse current in float mode, and battery voltage drops below 21V after opening output relay. Charging battery >63.5V terminated immediately. Error Indication: LED is off
Temperature range:	Operating: ÷25 to +40oC. Storage: ÷25 to +65oC	Operating: ÷25 to +40oC. Storage: ÷25 to +65oC	Operating: ÷25 to +40oC. Storage: ÷25 to +65oC
Derating:	Charge current automatically reduced to approx.15A at 40°C	Charge current automatically reduced to approx. 7.5A at 40oC	Charge current automatically reduced to approx. 3.5A at 40oC
Safety:	EN 60601-1	EN 60601-1	EN 60601-1
Insulation class:	Double insulated (Class II)	Double insulated (Class II)	Double insulated (Class II)
Insulation voltage: Primary – secondary:	4000VAC / 5700VDC	4000VAC / 5700VDC	4000VAC / 5700VDC
EMC standards:	EN 60601-1-2: 2015 (Edition 4)	EN 60601-1-2: 2015 (Edition 4)	EN 60601-1-2: 2015 (Edition 4)
Input terminal:	2 pin IEC60320 or mains cable	2 pin IEC60320 or mains cable	2 pin IEC60320 or mains cable
Output terminals:	Cord with Insulated battery clips and temp. sensor	Cord with Insulated battery clips and temp. sensor or XLR plug	Cord with Insulated battery clips and temp. sensor or XLR plug
Protection against ingress (IP-code):	IP44	IP44	IP44
Recommended battery capacity:	100 - 1000Ah.	50 - 500Ah	25 - 250Ah
Dimensions:	210 × 113 × 53 mm	210 × 113 × 53 mm	210 × 113 × 53 mm

Weight approx.:	With mains cable: 1500g. With IEC60320: 1300g	With mains cable 1400g. With IEC60320 1150g	With mains cable 1400g. With IEC60320 1150g