

Let's refresh power ...

High Efficiency
Low Maintenance



**Automatic Traction Battery Charger
FT, FS series**



THE DIAMOND QUALITY

The PETCH Traction Battery Charger FT -FS Series is one of the best efficient and trustful for today industries.

The PETCH experience in motive power technical support confirms that battery charger efficiency is essential for the correct battery operation. For this reason these new generation of chargers are designed to meet the modernized requirements, built to last with a working technology that enhances even the most sophisticated of today's battery electric power systems. The self-diagnostic ability and microprocessor control of the PETCH FT-FS Series make battery charging so much more efficient and maximize battery life and performances.



The PETCH Automatic Traction Battery Charger give you the best success with...

Maximize Power Performances !

Maximize Charger Efficiency !

Maximize Battery Life !

Maximize Safe & Easy to Use !

Maximize Economical !

Maximize Intelligence & Up to Date Technology !

Maximize Reliability with Minimize Maintenance !

OUTLINE

This range of automatic battery charger has been designed for using in a rugged industrial environment for the recharging of traction batteries used in a wide range of motive vehicles.

This range includes : forklift trucks, mining-type locomotives, stacker, pallet Truck, AGV, floor sweepers, milk Floats and other on-highway electric vehicles.

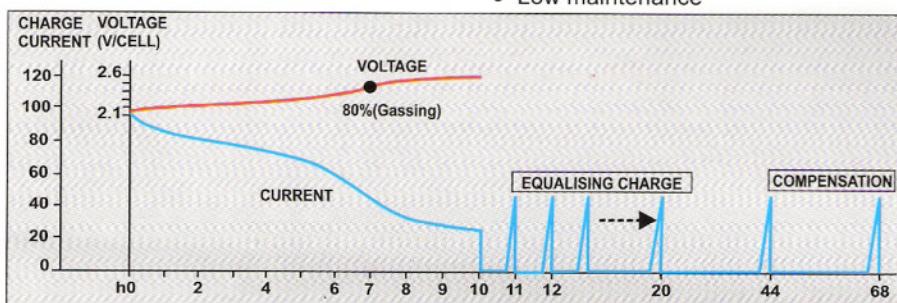


TECHNICAL FEATURES

- Power supply for FS-Series :-
220 V. Single-phase; 50-60 Hz.
(Adjustable to mains 210-220-230-240 V.)
- Power supply for FT-Series :-
380 V. Three Phase; 50-60 Hz.
(Adjustable to mains 360-380-400-415 V.)
- Micro processor control and monitoring of all charging phases
- Auto start after 3 seconds
- Semi-Constant Voltage Charging
- Equalization program
10 min. charge with 50 pause/cycle
- Safety timer set at 14 hours
- Final charge timer set at 3 hours
- Last status memory
- Display:- Main LED (Power supply)
 - "E" LED (Charging)
 - 50% LED
 - 80% LED
 - FULL LED
 - EQ LED
 - Charging current meter
- Protection :- Input circuit breaker
- Output fuse
- Buzzer sound indicated when finish charging process and alerting sound when false, fail, or wrong connection
- Standard Input Specification :-
210-240 Volts, Single-phase 50 cycles
360-415 Volts, Three-phase 50 cycles
Others input are available as required

THE SEMI-CONSTANT VOLTAGE CHARGING

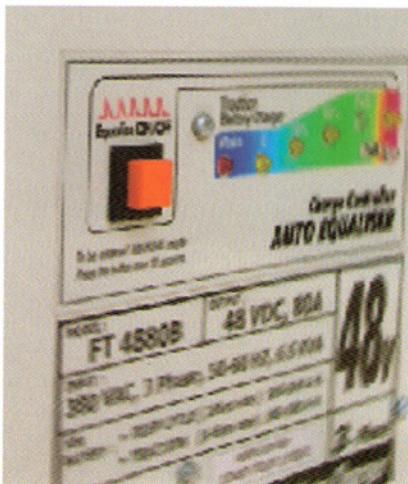
In the initial charging stage, where the electrolyte temperature stay low, the charging current is high. As the charging proceeds, the current automatically decreases at the end of charging meanwhile the electrolyte temperature rise. During the charging cycle, when the battery reaches 80% (Gassing) of charging attained, the timer is actuated. When the preset time is elapsed, the charger switches to the Full position.



FLEXIBLE OPERATION AUTO OR MANUAL CHARGING

The charging can be selected in Auto mode or Manual mode depend on the status of battery and user's need.

Normally, the operation will be going in Auto mode as the default, just connect the battery and flick a switch, following the internal self diagnostic, the battery will be charged automatically from the beginning until full under the procedure of micro-control programming with the simply colourful LED display charging status. However, we realize that the Manual mode is necessary for some cases such as, dead battery, empty battery or sulphate battery.



THE BEST POWER PERFORMANCE FROM THE BEST TRANSFORMER

The power transformer is one of the most essential part of the charger. Making the best performance of transformer is our responsible, focussing on the design and the best materials, you can rely on our products, assuring you with:-

- High efficiency
- High safety factor
- High durability
- High consistency
- High economy of power consumption
- High cooling ability
- Low noise
- Low maintenance

MAINS CONNECTIONS

The size of input cables should be base on the maximum input current which can be calculated from the formula:-

$$\text{Size of cable}(\text{mm}^2) = \text{Input current} \times 0.17$$

In the case where the wiring length exceed 20 m. use a cable of larger size than the calculation at least 5% for every 20 m.

(*The input current values : see tabulation data on the back cover page)

CALCULATION THE CHARGER RATING

For Traction Battery (5-6 Hours rate)

$$I = \frac{C (\text{Ah})}{6} \quad 10 \text{ Hours charging}$$

$$I = \frac{C (\text{Ah})}{4.5} \quad 8 \text{ Hours charging}$$

For Deep Cycle Battery (20 Hours rate)

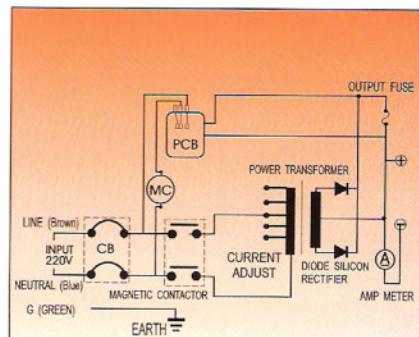
$$I = \frac{C (\text{Ah})}{8} \quad 10 \text{ Hours charging}$$

$$I = \frac{C (\text{Ah})}{6} \quad 8 \text{ Hours charging}$$

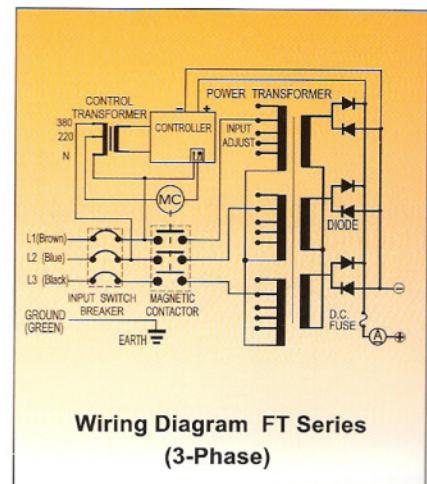
I = Initial charge current

C = Battery capacity
in Ampere-Hour (Ah)

WIRING DIAGRAMS



Wiring Diagram FS Series
(Single Phase)



Wiring Diagram FT Series
(3-Phase)



Automatic Traction Battery Charger FT-FS series

Diamond Quality

V. Batt	Capacity ranges(AH) (8-10 hrs recharge)		Model Three-phase (FT Series)	Output Current (DC A)	Power (KVA)	Input Current / Phase (Amp)	Input Cable Size (Sq.mm.)	Cable lenght (Metre)	Case	Weight (Kgs.)	Model Single-phase (FS Series)	Output Current (DC A)	Power (KVA)	Input Current / Phase (Amp)	Input Cable Size (Sq.mm.)	Cable lenght (Metre)	Case	Weight (Kgs.)		
	Deep cycle	Traction (20 hrs rate)																		
		(5-6 hrs rate)																		
12v	120-160	95-125	—	—	—	—	—	—	—	—	FS1220B	20	0.3	1.4	0.50	1.5	3.5	A3	15	
	150-200	118-153	—	—	—	—	—	—	—	—	FS1225B	25	0.4	1.8	0.50	1.5	3.5	A3	18	
	180-240	140-180	FT1230B	30	0.5	0.8	0.50	3.5	3.5	A4	25	FS1230B	30	0.5	2.3	0.50	1.5	3.5	A3	20
	240-320	190-250	FT1240B	40	0.9	1.4	0.50	3.5	3.5	A4	30	FS1240B	40	0.9	4.1	0.75	3.5	3.5	A3	28
	360-480	280-360	FT1260B	60	1.3	2.0	0.50	3.5	3.5	A4	35	FS1260B	60	1.2	5.9	1.00	3.5	3.5	A4	29
	480-640	380-500	FT1280B	80	1.6	2.4	0.50	3.5	3.5	B1	40	FS1280B	80	1.5	7.3	1.50	3.5	3.5	B1	29
	600-800	460-600	FT12100B	100	2.1	3.2	0.75	3.5	3.5	B1	57	FS12100B	100	2.0	9.5	1.50	3.5	3.5	B1	50
	720-960	560-720	—	—	—	—	—	—	—	—	FS12120B	120	2.5	11.8	2.50	3.5	3.5	B1	57	
24v	120-160	95-125	FT2420B	20	0.7	1.1	0.50	3.5	3.5	A4	30	FS2420B	20	0.7	3.2	0.75	1.5	3.5	A3	20
	150-200	118-153	—	—	—	—	—	—	—	—	FS2425B	25	0.8	3.6	0.75	1.5	3.5	A3	22	
	180-240	140-180	FT2430B	30	1.0	1.5	0.50	3.5	3.5	A4	35	FS2430B	30	1.0	4.5	1.00	3.5	3.5	A3	24
	240-320	190-250	FT2440B	40	1.3	2.0	0.50	3.5	3.5	A4	40	FS2440B	40	1.2	5.9	1.00	3.5	3.5	A4	33
	360-480	280-360	FT2460B	60	2.6	4.0	1.00	3.5	3.5	B1	57	FS2460B	60	2.5	11.8	2.50	3.5	3.5	B1	57
	480-640	380-500	FT2480B	80	3.3	5.0	1.00	3.5	3.5	B1	66	FS2480B	80	3.1	15.0	2.50	3.5	3.5	B1	64
	600-800	460-600	FT24100B	100	4.3	6.5	1.50	3.5	3.5	B1	75	FS24100B	100	4.1	19.5	4.00	3.5	3.5	B1	73
	720-960	560-720	FT24120B	120	5.4	8.2	1.50	3.5	3.5	B1	85	FS24120B	120	5.1	24.5	4.00	3.5	3.5	B1	81
36v	840-1120	650-840	FT24140B	140	6.0	9.1	2.50	3.5	3.5	B2	95	FS24140B	140	5.7	27.3	6.00	3.5	3.5	B2	92
	960-1280	760-1000	FT24160B	160	6.9	10.5	2.50	3.5	3.5	B2	105	FS24160B	160	6.6	31.4	6.00	3.5	3.5	B2	100
	1080-1440	840-1100	FT24180B	180	7.8	11.9	2.50	3.5	3.5	B3	125	—	—	—	—	—	—	—	—	
	1200-1600	920-1200	FT24200B	200	8.6	13.1	2.50	3.5	3.5	B3	150	—	—	—	—	—	—	—	—	
	120-160	95-125	FT3620B	20	0.9	1.4	0.50	3.5	3.5	A4	33	FS3620B	20	0.9	4.1	0.75	3.5	3.5	A3	24
	150-200	118-153	—	—	—	—	—	—	—	—	FS3625B	25	1.1	5.5	1.00	3.5	3.5	A3	26	
	180-240	140-180	FT3630B	30	1.4	2.1	0.50	3.5	3.5	A4	38	FS3630B	30	1.3	6.4	1.50	3.5	3.5	A3	28
	240-320	190-250	FT3640B	40	2.6	4.0	0.75	3.5	3.5	B1	45	FS3640B	40	2.5	11.8	2.50	3.5	3.5	B1	42
48v	360-480	280-360	FT3660B	60	3.8	5.8	1.00	3.5	3.5	B1	62	FS3660B	60	3.6	17.3	4.00	3.5	3.5	B1	60
	480-640	380-500	FT3680B	80	4.8	7.3	1.50	3.5	3.5	B1	74	FS3680B	80	4.6	21.8	4.00	3.5	3.5	B1	70
	600-800	460-600	FT36100B	100	6.4	9.7	1.50	3.5	3.5	B2	92	FS36100B	100	6.1	29.1	6.00	3.5	3.5	B2	90
	720-960	560-720	FT36120B	120	7.6	11.5	2.50	3.5	3.5	B2	108	FS36120B	120	7.2	34.5	6.00	3.5	3.5	B2	105
	840-1120	650-840	FT36140B	140	9.0	13.7	2.50	3.5	3.5	B3	114	FS36140B	140	8.6	40.9	10.00	3.5	3.5	B3	120
	960-1280	760-1000	FT36160B	160	10.4	15.8	2.50	3.5	3.5	B3	125	FS36160B	160	9.9	47.3	10.00	3.5	3.5	B3	135
	1080-1440	840-1100	FT36180B	180	11.6	17.6	4.00	3.5	3.5	B4	142	—	—	—	—	—	—	—	—	
	1200-1600	920-1200	FT36200B	200	13.0	19.8	4.00	3.5	3.5	B4	165	—	—	—	—	—	—	—	—	
72v	120-160	95-125	FT4820B	20	1.3	2.0	0.50	3.5	3.5	A4	36	FS4820B	20	1.2	5.9	1.50	3.5	3.5	A3	28
	150-200	118-153	—	—	—	—	—	—	—	—	FS4825B	25	1.5	7.3	1.50	3.5	3.5	A3	32	
	180-240	140-180	FT4830B	30	2.0	3.0	0.75	3.5	3.5	A4	43	FS4830B	30	1.9	9.1	1.50	3.5	3.5	A4	38
	240-320	190-250	FT4840B	40	3.4	5.2	1.00	3.5	3.5	B1	59	FS4840B	40	3.2	15.5	2.50	3.5	3.5	B1	56
	360-480	280-360	FT4860B	60	5.2	7.9	1.50	3.5	3.5	B1	75	FS4860B	60	4.9	23.6	4.00	3.5	3.5	B1	73
	480-640	380-500	FT4880B	80	6.5	9.9	1.50	3.5	3.5	B1	82	FS4880B	80	6.2	29.5	6.00	3.5	3.5	B1	93
	600-800	460-600	FT48100B	100	8.5	12.9	2.50	3.5	3.5	B2	104	FS48100B	100	8.1	38.6	6.00	3.5	3.5	B2	107
	720-960	560-720	FT48120B	120	10.2	15.5	2.50	3.5	3.5	B2	125	FS48120B	120	9.7	46.4	10.00	3.5	3.5	B2	125
80v	840-1120	650-840	FT48140B	140	12.0	18.2	4.00	3.5	3.5	B3	150	—	—	—	—	—	—	—	—	
	960-1280	760-1000	FT48160B	160	13.8	21.0	4.00	3.5	3.5	B3	170	—	—	—	—	—	—	—	—	
	1080-1440	840-1100	FT48180B	180	15.5	23.6	4.00	3.5	3.5	B4	185	—	—	—	—	—	—	—	—	
	1200-1600	920-1200	FT48200B	200	17.3	26.3	4.00	3.5	3.5	B4	200	—	—	—	—	—	—	—	—	
	360-480	280-360	FT7260B	60	7.8	11.9	2.50	3.5	3.5	B2	105	—	—	—	—	—	—	—	—	
	480-640	380-500	FT7280B	80	9.8	14.9	2.50	3.5	3.5	B2	123	—	—	—	—	—	—	—	—	
	600-800	460-600	FT72100B	100	12.8	19.4	4.00	3.5	3.5	B3	144	—	—	—	—	—	—	—	—	
	720-960	560-720	FT72120B	120	15.3	23.2	4.00	3.5	3.5	B3	165	—	—	—	—	—	—	—	—	
96v	840-1120	650-840	FT72140B	140	18.0	27.3	6.00	3.5	3.5	B3	215	—	—	—	—	—	—	—	—	
	960-1280	760-1000	FT72160B	160	20.7	31.5	6.00	3.5	3.5	B4	230	—	—	—	—	—	—	—	—	
	360-480	280-360	FT8060B	60	8.7	13.2	2.50	3.5	3.5	B2	115	—	—	—	—	—	—	—	—	
	480-640	380-500	FT8080B	80	10.8	16.4	4.00	3.5	3.5	B3	135	—	—	—	—	—	—	—	—	
	600-800	460-600	FT80100B	100	14.2	21.6	4.00	3.5	3.5	B3	155	—	—	—	—	—	—	—	—	
	720-960	560-720	FT80120B	120	17.0	25.8	4.00	3.5	3.5	B3	165	—	—	—	—	—	—	—	—	
	840-1120	650-840	FT80140B	140	20.0	30.4	6.00	3.5	3.5	B4	225	—	—	—	—	—	—	—	—	
	960-1280	760-1000	FT80160B																	