



ISO 9001: 2015

ARTIFICIAL LIMBS MANUFACTURING CORPORATION OF INDIA
(A GOVERNMENT OF INDIA UNDERTAKING MINIRATNA COMPANY)
UNDER MINISTRY OF SOCIAL JUSTICE & EMPOWERMENT
AN ISO 9001:2015 COMPANY, G T ROAD, KANPUR - 209217
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NOTICE

As per instruction of competent authority, Technical specification for of Rechargeable Lithium Ion Battery (25.6 V, 24Ah) and Charger has been prepared and draft specifications are appended herewith to this notice.

Suggestions/Comments on the above specification, if any, are invited from all the concerned within 7 days from the date of hosting of this Notice on our website for consideration by Corporation.

The observation/objections, if any, may be sent to email: manager_dd@alimco.in latest by 15/02/2020 up to 17.30 Hrs.

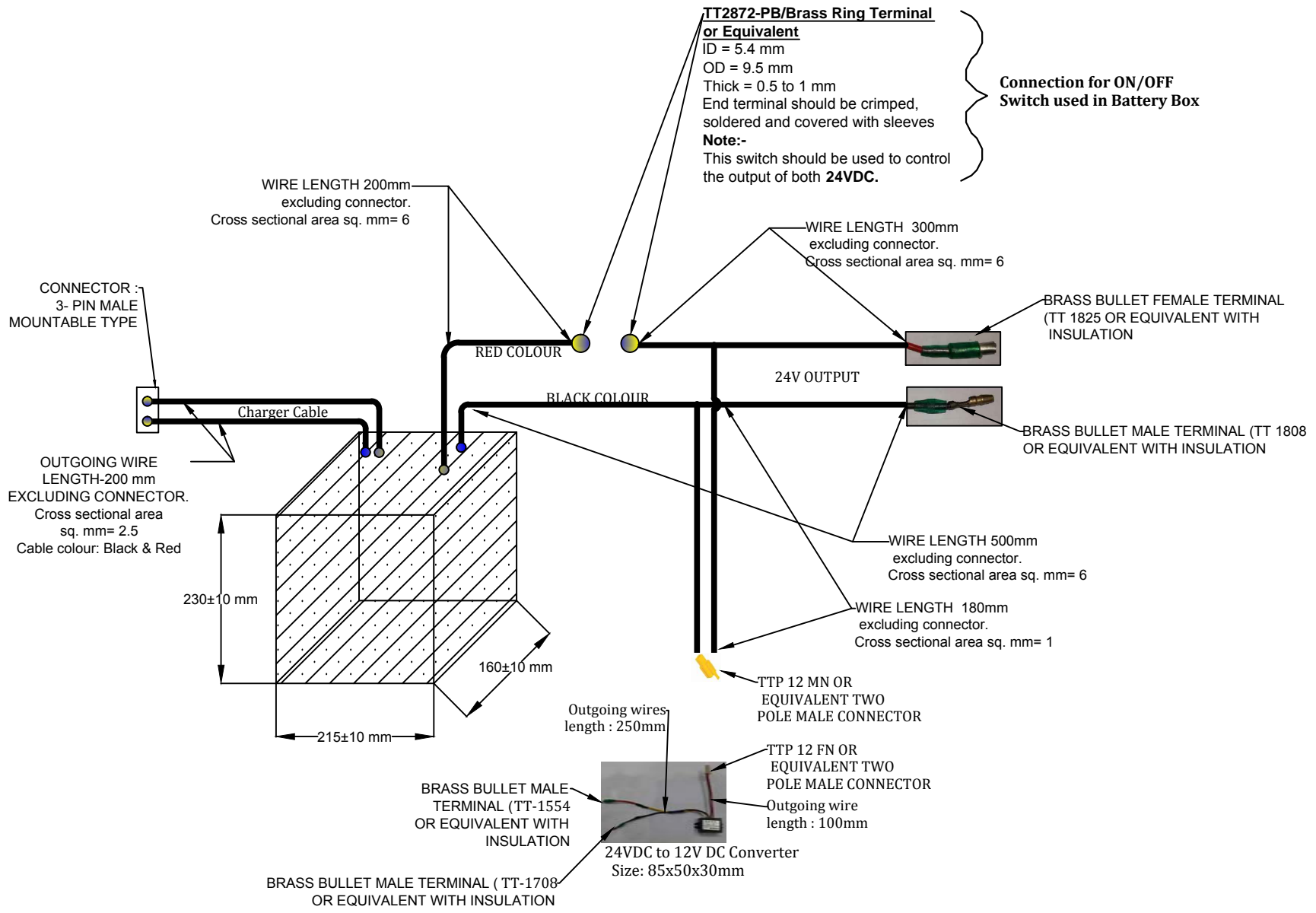
MANAGER (DD), ALIM CO, KANPUR

Rechargeable Lithium Ion Battery 25.6V, 24Ah Technical Specification

Sr. No	Description	Details	Sr. No	Description	Details
1	Application – Type / Category of vehicle	Category L (Battery Operated Tricycle) Over all Dimensions(mm): Lx W X H (1724 x 725 x 925) Rider weight : 90 Kg Approx.	14	Operating Voltage Range of controller of Vehicle	20 Volt to 30 Volt DC
2	Vehicle Weight without Battery	50 Kgs	15	Operating life / Life Cycles projected	2500 Cycles @ 25°C
3	Max Speed of Vehicle	22 Km/Hrs	16	Motor Rated power	250 Watt
4	Tyre Size of vehicle (only Drive Train axle)	ø 26” x 2.125”	17	Average current of Motor	12 Amp Approx.
5	Location of battery installation with drawing / sketch.	Below the user seat	18	Peak current of Motor	20 Amp
6	Time duration of peak discharge current in each acceleration from 0-max speed	0 to 30 Second, and if vehicle is riding on slope like fly over etc., then continuous discharge current may be around 12 to 15Amp.	19	Expected Range per charge	At least 50 Kms.
7	Available space for battery in Vehicle	215 x165 x 240 (L x W x H)	20	No of vehicle operating days/year	Every day of year
8	Chemistry /type of cell / battery pack	Lithium Iron Phosphate (LiFePo4)	21	IP level	IP 65
9	Specific type of cell required if any	BIS Approved	22	Operating Temperature range	-10°C to 60°C
10	Nominal Voltage of Battery pack	25.6 Volt DC	23	Storage Temperature range	0°C to 50°C
11	Low Voltage cut off	≈ 20 Volt DC	24	Charging time	Approx. 4 Hrs. Full Charge
12	High Voltage cut off	≈ 29 Volt DC	25	Protection feature of Battery	<ul style="list-style-type: none"> ➤ Over / Under Voltage ➤ Over Current ➤ Short Circuit ➤ Shock and Bumps assuming Indian Road conditions of Rural areas
13	Capacity of Battery pack in Ah (Nominal)	24 Ah	26	Details of charging connector	Battery will be provided with Three Pin Male type charging socket with provision of mounting it on Battery Box (Refer Annexure A for details)

27	Details of power output connector	<p>Two wires</p> <p>i. Brass Bullet Female Terminal (TT1825 or Equivalent) for Red Colour wire. This wire shall be supplied in split form, refer Annexure A for details.</p> <p>ii. Brass Bullet Male Terminal (TT1808 or Equivalent) for Black Colour wire refer Annexure A for details.</p>				
28	Dual Voltage Provision (12V auxiliary supply):	<p>24VDC to 12VDC converter, 60 Watt shall be additionally supplied for 12 VDC (for up to a peak of 5 Amperes current) for supplying to auxiliary load like lights, horn etc. (Refer Annexure A for details of converter)</p>				
29	Battery Discharge level indication (User friendly feature)	<ul style="list-style-type: none"> ➤ if the battery discharges to a capacity of 60%, it will generate Beep of 1 sec ON & 2 sec OFF. ➤ Once the discharge level reaches 75%, the beep generated will be of 1 sec ON & 1 Sec OFF. ➤ Once the battery reaches 85% discharge level the pack will continue to beep. ➤ The beep will be in mid frequency audible range for appropriate alerts. 				
30	Battery Enclosure:	Galvanized Sheet metal with appropriate thermal management for tropical countries.				
31	Relative Humidity	95%.Non-condensing Humidity				
32	Weight of Battery	8 Kg Max.				
33	Certificate requirements	ICAT Certificate as per AIS 048 (Battery Operated Vehicle –Safety Requirements of Traction Batteries)				
34	Warranty Requirement	3 Years				

ANNEXURE "A"



NOTE:-
 1- All the joint between wire and connectors shall be soldered properly and covered with sleeves

NOMENCLATURE

SMPS Battery Charger for 24V 24Ah Lithium Iron Phosphate (LiFePo4)

A		INPUT SPECIFICATION:-
1	NOMINAL VOLTAGE	230V AC, 1 PHASE 50Hz
2	OPERATING VOLTAGE RANGE	140 To 275V AC, 1 PHASE 50HZ & CHARGER SHOULD BE ABLE TO SUSTAIN CONTINUOUS VARIATION IN INPUT VOLTAGE FROM 140 V TO 275 V AC
3	FREQUENCY	50±3Hz
4	EFFICIENCY	> 80%
5	ISOLATION	I/P To O/P : 1.5 KV DC FOR ONE MINUTE I/P To EARTH : 1.5 KV DC FOR ONE MINUTE
6	INPUT PROTECTION	i)- FUSE PROTECTION (Optional) ii)- VARIATION IN INPUT VOLTAGE: - BELOW 140V & ABOVE 275 (UP TO 280 V AC)
7	TRANSIENT SURGE PROTECTION	YES (VARIESTOR) OR ANY OTHER COMPONENT
B		OUTPUT SPECIFICATION:-
1	PURPOSE	SUITABLE FOR CHARGING OF RECHARGEABLE LITHIUM ION 25.6V, 24AH BATTERY WITH PROBABLE CHARGING PROFILE: CC-CV CHARGING FOR EXTENDED LIFE
2	CHARGING VOLTAGE	29 V DC
3	OUTPUT CURRENT	7 AMP DC
4	RIPPLE	< 3% PK - PK MAXIMUM OUTPUT VOLTAGE
5	LINE REGULATION	< +/- 1.2 %
6	LOAD REGULATION	< +/- 5 %
7	PROTECTION	I - OVER LOAD (120% of Rated 7 Amp) II - SHORT CIRCUIT III - BATTERY BLOCKING IV - BATTERY REVERSE
8	INDICATION	I- BATTERY CHARGING II- BATTERY FULL CHARGE
C		ENVIRONMENTAL SPECIFICATIONS:
1	OPERATING AMBIENT TEMPERATURE RANGE	-10 to 55 °C Duration min 6 Hrs as per following standards: i. IS: 9000 (Part II)-1977 (reaffirmed on 2016) ii. IS: 9000 (Part III)-1977 (reaffirmed on 2016)
2	OPERATING RELATIVE HUMIDITY REQUIREMENT	At least 90% RH (Non condensing) At 25°C, Duration 12 Hrs As per following standard: IS: 9000 (Part IV)-1979 (reaffirmed on 2016)
3	COOLING	NATURAL / FORCED AIR COOLING

D	MECHANICAL TEST REQUIREMENT	
1	MECHANICAL SHOCK AND VIBRATION TEST	Up to 2G as per following standard i. IS : 9000(Part VIII)-1981 ii. IS : 9000 (Part 7/Sec1):2006
E		
CABLE AND CONNECTOR SPECIFICATION		
1	INPUT SIDE	3 - PIN MALE PLUG TOP OF AT LEAST 6 AMP RATING WITH 3 CORE 0.75 SQ.mm COPPER CABLE, LENGTH AT LEAST 2 METER.
2	OUTPUT SIDE	2- PIN FEMALE CONNECTOR OF AT LEAST 10 AMP CURRENT RATING WITH AT LEAST 1 METER LENGTH CABLE (EXCLUDING CONNECTOR) POWER CORD: 2 CORE, 2.5 SQ. MM WIRE
F		
GENERAL REQUIREMENT		
I- CURRENT & VOLTAGE RATING SAFETY FACTOR SHALL BE AT LEAST 1.5 TIMES FOR POWER SEMICONDUCTOR DEVICES.		
II-MANUFACTURER SHOULD INCLUDE CYCLE BY CYCLE PRIMARY CURRENT PROTECTION TO PREVENT POTENTIAL DAMAGE.		
III- COMPLETE COVER SHALL BE GOOD QUALITY NON CONDUCTING / NON CONDUCTING COATED AND NON-BREAKABLE MATERIAL AND ALL THE LIVE PART SHALL BE COVERED TO PROVIDE PROTECTION AGAINST ELECTRIC SHOCK.		
IV- BILINGUAL (HINDI & ENGLISH) OPERATION MANUAL WITH EACH BATTERY CHARGER		
V- PACKING SHALL BE INDIVIDUAL AND ABLE TO WITHSTAND/ SUSTAIN DURING TRANSPORTATION WITHOUT ANY DAMAGE TO CHARGER (PREFERABLE IN CORRUGATED BOX WITH THERMOCOL SIDE SUPPORT OR ANY BETTER MATERIAL SIDE SUPPORT TO AVOID DAMAGES)		
VI- MANUFACTURER SHALL PROVIDE THEIR OWN DETAIL ON THE TOP OR BOTTOM OF PRODUCT FOR IDENTIFICATION PURPOSE INCLUDING SERIAL No., DATE, MONTH AND YEAR OF MANUFACTURING.		
G		
WARRANTY: -		
WARRANTY OF 12 MONTHS FROM DATE OF RECEIPT OF MATERIAL SHALL BE PROVIDED BY MANUFACTURER.		

REVISIONS			
ARTIFICIAL LIMBS MANUFACTURING CORPORATION OF INDIA KANPUR			
DGN		NOM	INDICATED
DRN		MTL	_____
CHD		HEAT TREATMENT	_____
DIM	IN mm	SURFACE TREATMENT	_____
SCALE	NTS		
APP		DRG No:-	INDICATED
DATE		REV	SHEET 1 OF 1