

**INDEPENDENT POWER TRANSMISSION OPERATOR S.A.**

**TNPRD/ SUBSTATION SPECIFICATION & EQUIPMENT SECTION**

June 2017

**TECHNICAL DESCRIPTION TD- 87/4**

**BATTERY CHARGER FOR 110 V NICKEL-CADMIUM RECHARGEABLE BATTERIES, FOR 150/20 KV SUBSTATIONS, HAVING THE 20KV PRIMARY EQUIPMENT INSTALLED INSIDE THE CONTROL BUILDING (20 KV METAL CLAD PANELS)**

**ATTACHMENT "Α"**

**BATTERY CHARGER FOR 110 V NICKEL-CADMIUM RECHARGEABLE BATTERIES**

*All bidders must provide the following data. Failure to comply in full shall constitute sufficient reason for rejection of the offer.*

1. Type of charger (short description) :.................................................

………………………………...

………………………………..

2. Manufacturer :.................................................

3. Number of phases of input voltage supply :.................................................

4. Nominal input voltage :................................................

5. Input voltage tolerance :..................................................

6. Frequency of input :..............................................

7. Input frequency tolerance :..................................................

8. Nominal input current :................................................

9. Nominal output voltage :...............................................

10. Output voltage tolerance for the d.c. load  
(steady state, float charging mode,  
0-100% output to the d.c. load) :.................................................

11. Output voltage setting range for the battery  
(float charging) :................................................

12. Output voltage setting range for the battery  
(boost charging) :................................................

13. Total rated output current of charger

(battery and d.c. load) :..................................................

14. Output current variation :.................................................

15. Rated continuous output current   
of thyristors in 3-phase bridge :.................................................

16. Rated output current to the d.c. load :.................................................

17. Rated continuous current of  
voltage dropping diodes :.................................................

18. Current limit setting range to battery :.................................................

19. Voltage limit setting range   
for automatic battery disconnection,   
at the end of discharge :.................................................

20. Output voltage ripple of the charger,   
at 0-100% load :.................................................

21. Total input power factor :.................................................

22. Efficiency at rated output :.................................................

23. Noise level :.................................................

24. Charging method :.................................................

25. Allowed input voltage   
total harmonic distortion (THD) : ……………………………..

26. Input current   
total harmonic distortion (THD) : ……………………………..

27. Is the battery charger capable

of float charging? :.................................................

28. Is the battery charger capable

of boost charging automatically

and also manually? :.................................................

29. Is a controlled full thyristor bridge

included in the charger? : ...............................................

30. Type of the thyristor bridge

(6-pulse or 12-pulse) : ...............................................

31. Is the battery charger equipped

with DC filter for output voltage levelling? :.................................................

32. Is the battery charger equipped

with an isolation transformer? :.................................................

33. Is automatic battery disconnection

available at the end of discharge? :.................................................

34. Output voltage setting range

for automatic battery disconnection? :.................................................

35. Is an earthing terminal provided

for earthing all metal parts of

the battery charger? :.................................................

36. Is the battery charger equipped

with a microprocessor-based controller

and LCD display? :.................................................

37. Is accessibility to the battery

charger obtained through the front door? :.................................................

38. Is the battery charger cabinet

suitable for floor standing? :.................................................

39. Indicate the degree of protection as per IP

of the battery charger’s cabinet :.................................................

40. Is the cabinet equipped with

anti-condensation heaters

controlled by a thermostat? :.................................................

41. Cooling method of the battery

charger during float charging :.................................................

42. Cooling method of the battery

charger during boost charging :.................................................

43. Is the battery charger cabinet

equipped with air openings (louvers)

on the sides or on that top, for air ventilation? :.................................................

44. Is the cabinet equipped with air filters? :.................................................

45. Is the cabinet designed for

bottom cable entry or exit? :.................................................

46. Is the cabinet equipped with cable

glands for the cable entry or exit? :.................................................

.................................................

47. Method of painting of the

cabinet and type of color :.................................................

.................................................

48. With regard to the terminal blocks,

does the battery charger conform

to the requirements of paragraph X.7? :.................................................

49. With regard to control functions,

does the battery charger conform

to the requirements of paragraph XI.1? :.................................................

50. With regard to indicating functions,

does the battery charger conform

to the requirements of paragraph XI.2? :.................................................

51. With regard to measurement functions,

does the battery charger conform

to the requirements of paragraph XI.3? :.................................................

52. With regard to remote signalling functions,

does the battery charger conform

to the requirements of paragraph XI.4? :.................................................

53. Is the battery charger equipped with

three (3) automatic circuit breakers

as indicated in paragraph XII.1? :.................................................

a. Automatic circuit breaker in the input of

the battery charger before the isolating transformer

i. Rated Current :.................................................

ii. Breaking Current :.................................................

iii. Set overload current :.................................................

b. Automatic circuit breaker in the output

towards the load side

i. Rated Current :.................................................

ii. Breaking Current :.................................................

iii. Set overload current :.................................................

c. Automatic circuit breaker in the output

towards the battery side

i. Rated Current :.................................................

ii. Breaking Current :.................................................

iii. Set overload current :.................................................

54. Is the battery charger protected against:

a. Overloading? :.................................................

b. Short circuit? :.................................................

c. Out of limits input voltage?

(overvoltage / undervoltage) :.................................................

d. Out of limits output voltage?

(overvoltage / undervoltage) :.................................................

55. Is the charger equipped with   
DC earth fault monitoring? :.................................................

56. Type and manufacturer of the

controlled thyristor bridge :.................................................

57. Type and manufacturer of the

voltage dropping diodes :.................................................

58. Dimensions of the battery charger (LxWxH) :.................................................

59. Weight of the battery charger :.................................................

60. Will the package of the chargers

follow the requirements of par. XVIII

of this hereby specification? :.................................................