

NSB 110FT *Red Battery*[®]

Long float life at elevated temperatures



Red Star Technology[®] uses pure lead plates to deliver **exceptionally long float life even at elevated temperatures.**

- Pure lead AGM technology delivers long float life for telecom applications even at elevated temperatures
- 15 year float life at 20°C (68°F)
- EUROBAT design life definition: Long Life (12+ years)
- High energy density
- Operating temperature range: -40°C to +65°C (-40°F to 149°F)
- State-of-the-art automated manufacturing ensures consistency and reliability
- Advanced 3 stage terminal design to ensure leak-free operation - female M8 brass terminals provide maximum performance
- 2 year shelf life at 25°C (77°F)
- High modulus Polyphenylene Oxide (PPO) plastic materials designed to withstand extended elevated operating temperatures and maintain high battery compression essential for reliable operation
 - Non-halogenated, thermally sealed plastic casing
 - Flame retardant (UL 94 VO) and LOI of at least 28%
- Integral handles and front access terminals ensure ease of installation and maintenance
- Approved as non-hazardous cargo for ground, sea, and air transport - DOT 49CFR173.159(d), (i) and (ii)



NSB 110FT Red Battery®

Nominal Technical Specifications



Electrical

	International Standard 20°C (68°F)	North American Standard 25°C (77°F)
8 hour capacity to 1.75 VPC	107 Ah	109 Ah
10 hour capacity to 1.80 VPC	109 Ah	110 Ah
Float Voltage	2.29 +/- 0.02 VPC	2.27 +/- 0.02 VPC
Nominal Voltage	12 V	
Impedance (1kHz)	2.6 mΩ @ 25°C (77°F)	
Conductance	1,841 S	
Short Circuit Current	3,800 A	

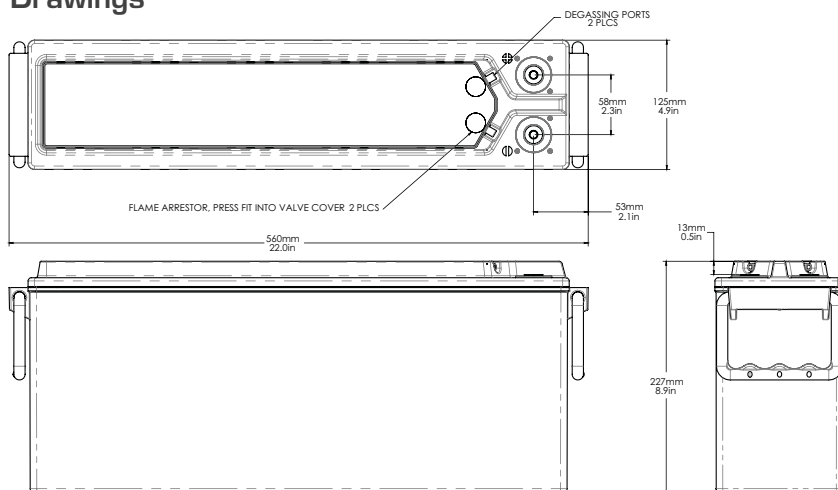
Dimensions

Height	227 mm (8.9 in)	Weight	39 kg (86 lbs)
Width	125 mm (4.9 in)	Terminal	Female M8 x 1.25
Depth	560 mm (22.0 in)	Terminal Torque	8.0 Nm (71 in-lbs)

Ah Capacity Ratings @ 25°C (77°F)

Capacity Discharge / hours	1	2	4	8	10
Capacity @ 25°C / Ah	85	94	102	109	110
End of Discharge / VPC	1.70	1.75	1.75	1.75	1.80

Drawings



Northstar 110FT Red Battery™



Discharge Tables - 20°C (68°F)

Current / A

Duration		End of Discharge Voltage								
Mins	Hours	1.85	1.80	1.75	1.70	1.67	1.65	1.60	1.55	1.50
2	0.03	352.9	423.0	495.1	565.9	606.2	631.6	688.4	732.7	761.6
5	0.08	299.4	337.3	373.9	407.9	426.5	437.9	462.7	481.0	492.1
10	0.17	231.2	250.8	269.1	285.5	294.2	299.5	310.7	318.6	323.1
15	0.25	189.6	202.0	213.3	223.2	228.5	231.6	238.1	242.7	245.1
20	0.33	161.6	170.2	178.0	184.7	188.2	190.3	194.7	197.6	199.2
30	0.50	125.9	130.8	135.1	138.8	140.7	141.9	144.2	145.7	146.4
45	0.75	95.5	98.1	100.4	102.3	103.3	103.9	105.0	105.8	106.1
60	1	77.4	79.0	80.4	81.6	82.2	82.5	83.2	83.6	83.8
120	2	44.8	45.2	45.6	45.9	46.1	46.2	46.4	46.5	46.5
180	3	31.7	32.0	32.2	32.4	32.4	32.5	32.6	32.6	32.7
240	4	24.7	24.8	25.0	25.1	25.2	25.2	25.3	25.3	25.4
300	5	20.2	20.4	20.5	20.6	20.7	20.7	20.8	20.8	20.8
480	8	13.2	13.3	13.4	13.5	13.6	13.6	13.7	13.7	13.8
600	10	10.7	10.8	11.0	11.1	11.1	11.2	11.2	11.3	11.3
1200	20	5.6	5.7	5.9	6.0	6.0	6.1	6.1	6.2	6.2

Capacity / Ah

Duration		End of Discharge Voltage								
Mins	Hours	1.85	1.80	1.75	1.70	1.67	1.65	1.60	1.55	1.50
2	0.03	11.8	14.1	16.5	18.9	20.2	21.1	22.9	24.4	25.4
5	0.08	24.9	28.1	31.2	34.0	35.5	36.5	38.6	40.1	41.0
10	0.17	38.5	41.8	44.9	47.6	49.0	49.9	51.8	53.1	53.9
15	0.25	47.4	50.5	53.3	55.8	57.1	57.9	59.5	60.7	61.3
20	0.33	53.9	56.7	59.3	61.6	62.7	63.4	64.9	65.9	66.4
30	0.50	62.9	65.4	67.6	69.4	70.4	70.9	72.1	72.9	73.2
45	0.75	71.6	73.6	75.3	76.7	77.5	77.9	78.8	79.3	79.6
60	1	77.4	79.0	80.4	81.6	82.2	82.5	83.2	83.6	83.8
120	2	89.5	90.4	91.2	91.9	92.2	92.4	92.7	92.9	93.0
180	3	95.2	96.0	96.6	97.1	97.3	97.5	97.7	97.9	98.0
240	4	98.7	99.4	100.0	100.5	100.7	100.9	101.2	101.4	101.5
300	5	101.1	101.8	102.5	103.0	103.3	103.5	103.8	104.1	104.2
480	8	105.3	106.5	107.4	108.3	108.7	109.0	109.5	109.9	110.2
600	10	107.1	108.5	109.7	110.8	111.4	111.7	112.4	112.9	113.3
1200	20	111.9	114.8	117.4	119.6	120.8	121.5	122.9	124.0	124.7

Power / W per cell

Duration		End of Discharge Voltage								
Mins	Hours	1.85	1.80	1.75	1.70	1.67	1.65	1.60	1.55	1.50
2	0.03	691.5	801.7	909.4	1009.2	1063.0	1095.7	1163.9	1209.6	1229.8
5	0.08	569.7	630.5	687.6	738.8	765.8	782.0	815.5	837.9	848.1
10	0.17	438.8	471.2	500.8	526.7	540.2	548.2	564.8	575.8	580.9
15	0.25	361.4	382.1	400.7	416.9	425.3	430.2	440.4	447.1	450.3
20	0.33	309.5	324.0	337.0	348.1	353.8	357.2	364.2	368.8	370.9
30	0.50	243.2	251.5	258.8	265.0	268.2	270.0	273.9	276.4	277.6
45	0.75	186.4	190.8	194.6	197.8	199.4	200.3	202.3	203.6	204.2
60	1	152.2	154.8	157.1	159.0	159.9	160.5	161.6	162.4	162.7
120	2	89.5	90.1	90.6	91.0	91.2	91.4	91.6	91.8	91.9
180	3	63.9	64.2	64.4	64.6	64.7	64.7	64.8	64.9	64.9
240	4	49.8	50.0	50.2	50.3	50.4	50.4	50.5	50.5	50.6
300	5	40.9	41.1	41.2	41.3	41.4	41.4	41.5	41.6	41.6
480	8	26.6	26.8	27.0	27.1	27.2	27.3	27.4	27.4	27.5
600	10	21.5	21.8	22.0	22.2	22.3	22.3	22.4	22.5	22.6
1200	20	11.0	11.3	11.6	11.8	11.9	12.0	12.1	12.2	12.3

Northstar 110FT Red Battery™



Discharge Tables - 25°C (77°F)

Current / A

Duration		End of Discharge Voltage								
Mins	Hours	1.85	1.80	1.75	1.70	1.67	1.65	1.60	1.55	1.50
2	0.03	391.6	469.4	549.4	627.9	672.7	700.9	763.9	813.1	845.2
5	0.08	326.0	367.2	407.1	444.1	464.3	476.8	503.7	523.7	535.8
10	0.17	248.4	269.5	289.2	306.8	316.1	321.8	333.8	342.4	347.2
15	0.25	202.2	215.4	227.5	238.1	243.7	247.0	254.0	258.9	261.5
20	0.33	171.5	180.6	188.9	196.1	199.8	202.0	206.6	209.7	211.4
30	0.50	132.7	137.9	142.4	146.4	148.4	149.6	152.0	153.6	154.4
45	0.75	100.1	102.8	105.2	107.2	108.2	108.8	110.0	110.8	111.2
60	1	80.7	82.4	83.9	85.1	85.7	86.1	86.8	87.2	87.4
120	2	46.2	46.7	47.1	47.4	47.6	47.7	47.9	48.0	48.0
180	3	32.6	32.9	33.1	33.2	33.3	33.4	33.5	33.5	33.6
240	4	25.3	25.4	25.6	25.7	25.8	25.8	25.9	26.0	26.0
300	5	20.7	20.8	20.9	21.0	21.1	21.1	21.2	21.3	21.3
480	8	13.4	13.5	13.6	13.8	13.8	13.8	13.9	14.0	14.0
600	10	10.9	11.0	11.1	11.2	11.3	11.3	11.4	11.5	11.5
1200	20	5.6	5.8	5.9	6.0	6.1	6.1	6.2	6.2	6.3

Capacity / Ah

Duration		End of Discharge Voltage								
Mins	Hours	1.85	1.80	1.75	1.70	1.67	1.65	1.60	1.55	1.50
2	0.03	13.1	15.6	18.3	20.9	22.4	23.4	25.5	27.1	28.2
5	0.08	27.2	30.6	33.9	37.0	38.7	39.7	42.0	43.6	44.6
10	0.17	41.4	44.9	48.2	51.1	52.7	53.6	55.6	57.1	57.9
15	0.25	50.6	53.9	56.9	59.5	60.9	61.8	63.5	64.7	65.4
20	0.33	57.2	60.2	63.0	65.4	66.6	67.3	68.9	69.9	70.5
30	0.50	66.3	68.9	71.2	73.2	74.2	74.8	76.0	76.8	77.2
45	0.75	75.0	77.1	78.9	80.4	81.2	81.6	82.5	83.1	83.4
60	1	80.7	82.4	83.9	85.1	85.7	86.1	86.8	87.2	87.4
120	2	92.5	93.4	94.2	94.9	95.2	95.4	95.8	96.0	96.1
180	3	97.9	98.6	99.2	99.7	100.0	100.2	100.4	100.6	100.7
240	4	101.1	101.8	102.4	102.9	103.2	103.3	103.6	103.8	103.9
300	5	103.3	104.0	104.7	105.2	105.5	105.7	106.0	106.3	106.4
480	8	107.0	108.2	109.2	110.0	110.5	110.7	111.3	111.7	112.0
600	10	108.6	110.0	111.3	112.4	112.9	113.3	114.0	114.5	114.9
1200	20	112.7	115.6	118.2	120.5	121.7	122.4	123.9	124.9	125.6

Power / W per cell

Duration		End of Discharge Voltage								
Mins	Hours	1.85	1.80	1.75	1.70	1.67	1.65	1.60	1.55	1.50
2	0.03	767.4	889.7	1009.2	1119.9	1179.7	1215.9	1291.6	1342.3	1364.8
5	0.08	620.2	686.5	748.7	804.3	833.7	851.4	887.9	912.3	923.4
10	0.17	471.4	506.2	538.0	565.9	580.4	589.0	606.8	618.6	624.1
15	0.25	385.4	407.5	427.4	444.7	453.6	458.9	469.7	476.9	480.3
20	0.33	328.5	343.9	357.6	369.5	375.5	379.1	386.5	391.4	393.7
30	0.50	256.4	265.1	272.8	279.4	282.7	284.7	288.7	291.4	292.7
45	0.75	195.3	199.8	203.8	207.2	208.9	209.9	211.9	213.3	213.9
60	1	158.8	161.5	163.8	165.8	166.8	167.4	168.6	169.4	169.7
120	2	92.4	93.0	93.6	94.0	94.2	94.4	94.6	94.8	94.9
180	3	65.7	65.9	66.2	66.4	66.4	66.5	66.6	66.7	66.7
240	4	51.0	51.2	51.4	51.5	51.6	51.6	51.7	51.8	51.8
300	5	41.8	41.9	42.1	42.2	42.3	42.3	42.4	42.4	42.5
480	8	27.0	27.2	27.4	27.6	27.7	27.7	27.8	27.9	27.9
600	10	21.8	22.1	22.3	22.5	22.6	22.6	22.7	22.8	22.9
1200	20	11.1	11.4	11.7	11.9	12.0	12.1	12.2	12.3	12.4