



Cadex Electronics Inc.
22000 Fraserwood Way, Richmond, BC Canada V6W 1J6
Tel: 604 231-7777 Fax: 604 231-7755
Toll-Free: 1 800 565-5228 (USA & Canada)
E-mail: service@cadex.com Web: www.cadex.com

C-CODE TABLES FOR CADEX BATTERY ANALYZERS

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This document interprets Configuration Codes (C-codes) used in battery catalogs.

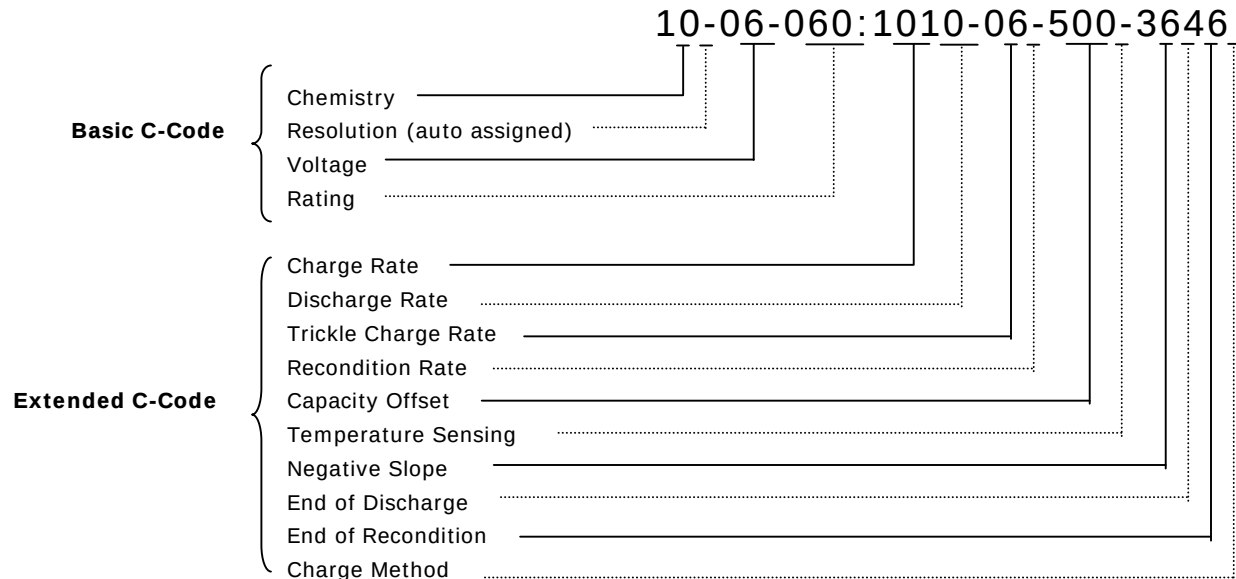
The following exceptions should be made when using this table.

- The C4000 does not have the capability to service Li-Ion batteries or for DC Charge (use the Rev Load 0% instead).
- Disable all temperature sensing; use '0' as the temperature sensing value (C4000).
- Li-Ph is ONLY on C7x00-C series analyzers.
- Not compatible with C8000 (C8000 uses a different Chemistry Code).

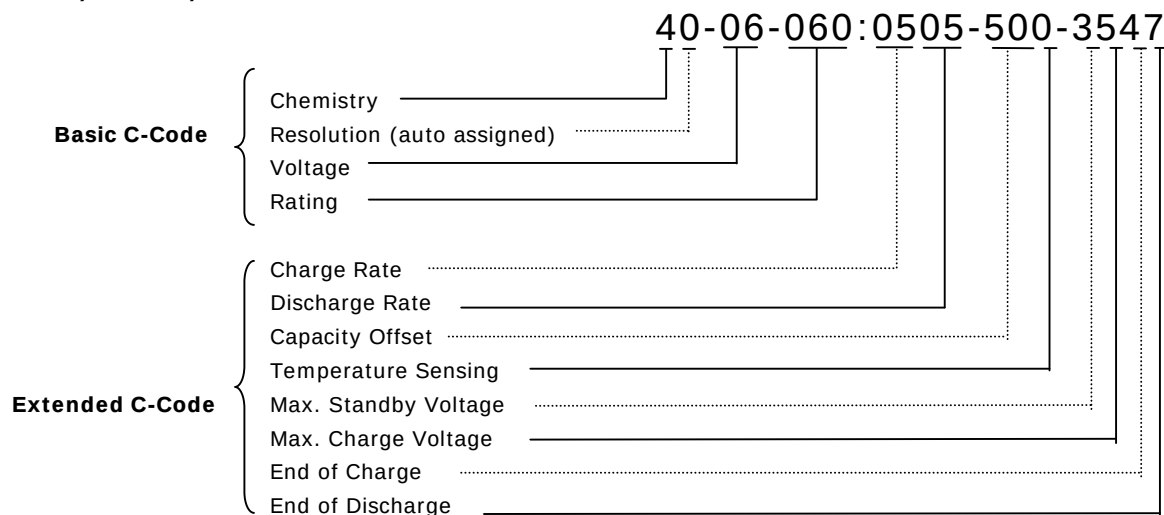
Format

There are two C-Code formats depending on the chemistry:

A. NiCd & NiMH Format



B. SLA, Li-Ion, & Li-Ph Format



BASIC C-Code

1. Chemistry

CODE	BATTERY TYPE
1	Nickel Cadmium (NiCd)
2	Nickel Metal Hydride (NiMH)
3	Sealed Lead Acid (SLA)
4	Lithium Ion (Li-Ion)
5	Lithium Phosphate (Li-Ph)

2. Resolution: this value is automatically set.

CODE	RESOLUTION
0	Standard
1	Fine

3. Voltage

CODE	# of Cells	NiCd & NiMH	SLA	Li-Ion	Li-Ph
01	1 Cell	1.2V	2.00V	3.6V	3.3V
02	2 Cells	2.4V	4.00V	7.2V	6.6V
03	3 Cells	3.6V	6.00V	10.8V	9.9V
04	4 Cells	4.8V	8.00V	14.4V ❶	13.2V❸
05	5 Cells	6.0V	10.00V	18.0V	16.5V
06	6 Cells	7.2V	12.00V	21.6V	19.8V
07	7 Cells	8.4V	14.00V	25.2V	23.1V
08	8 Cells	9.6V	16.00V ❶	28.8V ❷	26.4V
09	9 Cells	10.8V	18.00V	32.4V	29.7V
10	10 Cells	12.0V	20.00V	36.0V❹	33.0V❹
11	11 Cells	13.2V	22.00V	N/A	N/A
12	12 Cells	14.4V ❶	24.00V	N/A	N/A
13	13 Cells	15.6V	26.00V	N/A	N/A
14	14 Cells	16.8V	28.00V ❷	N/A	N/A
15	15 Cells	18.0V	N/A	N/A	N/A
...	...	...	N/A	N/A	N/A
18	18 Cells	21.6V	36.00V❹	N/A	N/A
...	...	...	N/A	N/A	N/A
23	23 cells	27.6V	N/A	N/A	N/A
24	24 cells	28.8V ❷	N/A	N/A	N/A

❶ Maximum value for C7000, C7200, C7200-C, C7400, and C7400-C.

❷ Maximum value for C7000ER.

❸ Maximum value for C7200-C and C7400-C only.

❹ Maximum value for C7400ER (non Li-Ph) and C7400ER-C

4. Rating /Capacity: Multiply the 3-digit code by 25 to obtain the battery rating

CODE	Rating
001	25mAh
002	50mAh
003	75mAh
004	100mAh
...	...
998	24950mAh
999	25975mAh

EXTENDED C-Code

The Extended C-code is not displayed if all its values are default.

5. Charge and Discharge C-Rate

Standard C-Rate (for Chemistry and Resolution Codes 10, 20, 30,40)

Code	C-Rate	Code	C-Rate
01	0.1C ❶	21	2.1C
02	0.2C	22	2.2C
03	0.3C ❷	23	2.3C
04	0.4C	24	2.4C
05	0.5C	25	2.5C
06	0.6C	26	2.6C
07	0.7C	27	2.7C
08	0.8C	28	2.8C
09	0.9C	29	2.9C
10	1.0C ❸	30	3.0C
11	1.1C	31	3.1C
12	1.2C	32	3.2C
13	1.3C	33	3.3C
14	1.4C	34	3.4C
15	1.5C	35	3.5C
16	1.6C	36	3.6C
17	1.7C	37	3.7C
18	1.8C	38	3.8C
19	1.9C	39	3.9C
20	2.0C		

Default Values

❶ CH & DCH for NiCd, NiMH, Li-Ion and Li-Ph

❷ CH for SLA

❸ DCH for SLA

Fine C-Rate (For Chemistry and Resolution Codes 11, 21, 31,41)

Code	C-Rate	Code	C-Rate	Code	C-Rate	Code	C-Rate	Code	C-Rate
01	0.01C	21	0.21C	41	0.41C	61	0.61C	81	0.81C
02	0.02C	22	0.22C	42	0.42C	62	0.62C	82	0.82C
03	0.03C	23	0.23C	43	0.43C	63	0.63C	83	0.83C
04	0.04C	24	0.24C	44	0.44C	64	0.64C	84	0.84C
05	0.05C	25	0.25C	45	0.45C	65	0.65C	85	0.85C
06	0.06C	26	0.26C	46	0.46C	66	0.66C	86	0.86C
07	0.07C	27	0.27C	47	0.47C	67	0.67C	87	0.87C
08	0.08C	28	0.28C	48	0.48C	68	0.68C	88	0.88C
09	0.09C	29	0.29C	49	0.49C	69	0.69C	89	0.89C
10	0.10C	30	0.30C	50	0.50C	70	0.70C	90	0.90C
11	0.11C	31	0.31C	51	0.51C	71	0.71C	91	0.91C
12	0.12C	32	0.32C	52	0.52C	72	0.72C	92	0.92C
13	0.13C	33	0.33C	53	0.53C	73	0.73C	93	0.93C
14	0.14C	34	0.34C	54	0.54C	74	0.74C	94	0.94C
15	0.15C	35	0.35C	55	0.55C	75	0.75C	95	0.95C
16	0.16C	36	0.36C	56	0.56C	76	0.76C	96	0.96C
17	0.17C	37	0.37C	57	0.57C	77	0.77C	97	0.97C
18	0.18C	38	0.38C	58	0.58C	78	0.78C	98	0.98C
19	0.19C	39	0.39C	59	0.59C	79	0.79C	99	0.99C
20	0.20C	40	0.40C	60	0.60C	80	0.80C	00	1.00C

6. Trickle Charge (NiCd, NiMH only)

CODE	TRICKLE CHARGE
1	1%
2	2% ❷
3	3%
4	4%
5	5% ❶
6	6%
7	7%
8	8%
9	9%
0	10%

❶ Default NiCd

❷ Default NiMH

7. Recondition Discharge (NiCd, NiMH only)

CODE	RECON DISCHARGE
1	2%
2	4%
3	6%
4	8%
5	10%
6	12% ❶
7	14%
8	16%
9	18%
0	20%

❶ Default for NiCd & NiMH

8. Capacity Offset

Code	Offset		Code	Offset		Code	Offset		Code	Offset		Code	Offset
50	0% ❶		60	+10%		70	+20%		80	+30%		90	+40%
51	+1%		61	+11%		71	+21%		81	+31%		91	+41%
52	+2%		62	+12%		72	+22%		82	+32%		92	+42%
53	+3%		63	+13%		73	+23%		83	+33%		93	+43%
54	+4%		64	+14%		74	+24%		84	+34%		94	+44%
55	+5%		65	+15%		75	+25%		85	+35%		95	+45%
56	+6%		66	+16%		76	+26%		86	+36%		96	+46%
57	+7%		67	+17%		77	+27%		87	+37%		97	+47%
58	+8%		68	+18%		78	+28%		88	+38%		98	+48%
59	+9%		69	+19%		79	+29%		89	+39%		99	+49%

50	0% ❶		40	-10%		30	-20%		20	-30%		10	-40%
49	-1%		39	-11%		29	-21%		19	-31%		09	-41%
48	-2%		38	-12%		28	-22%		18	-32%		08	-42%
47	-3%		37	-13%		27	-23%		17	-33%		07	-43%
46	-4%		36	-14%		26	-24%		16	-34%		06	-44%
45	-5%		35	-15%		25	-25%		15	-35%		05	-45%
44	-6%		34	-16%		24	-26%		14	-36%		04	-46%
43	-7%		33	-17%		23	-27%		13	-37%		03	-47%
42	-8%		32	-18%		22	-28%		12	-38%		02	-48%
41	-9%		31	-19%		21	-29%		11	-39%		01	-49%

❶ Default for all chemistries

9. Temperature Sensing

Code	Temp Sensing
0	Disabled ❶
1	0-40 °C
2	0-45 °C ❷
3	0-50 °C
4	5-40°C
5	5-45°C
6	5-50°C

❶ For C4000 only

❷ Default for all chemistries and if adapter has temperature sensing.

10. Negative Slope (for NiCd, NiMH only)

CODE	Negative Slope
1	16mV/cell ❶
2	24mV/cell
3	32mV/cell ❷
4	40mV/cell
5	48mV/cell
6	56mV/cell
7	64mV/cell

❶ Default NiMH and NiCd (C7x00 and C7x00-C)

❷ Default NiCd (C7000 only)

11. End Of Discharge

CODE	NiCd, NiMH	CODE	Lead Acid	CODE	Li-Ion	CODE	Li-Ph
0	0.76V/cell	0	1.36V/cell	0	2.30V/cell	0	1.90V/cell
1	0.80V/cell	1	1.43V/cell	1	2.40V/cell	1	1.95V/cell
2	0.84V/cell	2	1.49V/cell	2	2.50V/cell ❶	2	2.00V/cell ❷
3	0.88V/cell	3	1.56V/cell	3	2.60V/cell	3	2.05V/cell
4	0.92V/cell	4	1.62V/cell ❸	4	2.70V/cell	4	2.10V/cell
5	0.96V/cell	5	1.68V/cell	5	2.80V/cell	5	2.15V/cell
6	1.00V/cell ❹	6	1.75V/cell ❺	6	2.90V/cell	6	2.20V/cell
7	1.04V/cell	7	1.81V/cell	7	3.00V/cell ❻	7	2.25V/cell
8	1.08V/cell	8	1.88V/cell	8	3.10V/cell	8	2.30V/cell
9	1.12V/cell	9	1.94V/cell	9	3.20V/cell	9	2.35V/cell

❶ NiCd, NiMH Default

❷ SLA Default for C7000 (Gel setting), C7x00, and C7x00-C units

❸ SLA Default for C7000 (Hawker setting)

❹ Li-Ion Default for C7000 (Graphite setting), C7x00, and C7x00-C units

❺ Li-Ion Default for C7000 (Coke setting)

❻ Li-Ph Default for C7x00-C.

12. End of Recondition (for NiCd, NiMH only)

CODE	End of Recond.
4	0.4V/cell ❶
5	0.5V/cell
6	0.6V/cell
7	0.7V/cell
8	0.8V/cell
9	Disabled

❶ Default for NiCd and NiMH

13. Charge Method (for NiCd, NiMH only)

Code	Charge Method
0	DC Charge
1	Rev. Load 0%
2	Rev. Load 0%
3	Rev. Load 6%
4	Rev. Load 7%
5	Rev. Load 8%
6	Rev. Load 9% ❶
7	Rev. Load 10%
8	Rev. Load 11%
9	Rev. Load 12%

❶ Default for NiCd and NiMH

14. Maximum Standby Voltage (for SLA, Li-Ion, and Li-Ph only)

CODE	SLA
8	2.15V/cell
9	2.20V/cell
0	2.25V/cell ❶
1	2.30V/cell
2	2.35V/cell ❷
3	2.40V/cell
4	2.45V/cell
-	-
-	-
-	-

CODE	Li-Ion
0	3.90V/cell
1	3.95V/cell
2	4.00 V/cell
3	4.05V/cell ❸
4	4.10V/cell
5	4.15V/cell ❹
6	4.20V/cell
7	4.25V/cell
8	4.30V/cell
9	4.35V/cell

CODE	Li-Ph
0	3.20V/cell
1	3.25V/cell
2	3.30 V/cell
3	3.35V/cell
4	3.40V/cell
5	3.45V/cell ❺
6	3.50V/cell
7	3.55V/cell
8	3.60V/cell
9	3.65V/cell

- ❶ SLA Default for C7000 (Gel setting), C7x00, and C7x00-C units
- ❷ SLA Default for C7000 (Hawker setting)
- ❸ Li-Ion Default for C7000 (Graphite setting), C7x00, and C7x00-C units
- ❹ Li-Ion Default for C7000 (Coke setting)
- ❺ Li-Ph Default for C7x00-C

15. Maximum Charge Voltage (for SLA, Li-Ion, and Li-Ph only)

CODE	SLA
0	2.55 V/cell
1	2.60 V/cell ❷
2	2.65 V/cell
3	2.20V/cell
4	2.25V/cell
5	2.30V/cell
6	2.35V/cell
7	2.40V/cell ❶
8	2.45V/cell
9	2.50V/cell

CODE	Li-Ion
0	3.90 V/cell
1	3.95 V/cell
2	4.00 V/cell
3	4.05 V/cell
4	4.10V/cell ❸
5	4.15 V/cell
6	4.20V/cell ❹
7	4.25 V/cell
8	4.30 V/cell
9	4.35 V/cell

CODE	Li-Ph
0	3.40 V/cell
1	3.45 V/cell
2	3.50V/cell
3	3.55 V/cell
4	3.60V/cell ❺
5	3.65 V/cell
6	3.70 V/cell
7	3.75 V/cell
8	3.80 V/cell
9	3.85 V/cell

- ❶ SLA Default for C7000 (Gel setting), C7x00, and C7x00-C units
- ❷ SLA Default for C7000 (Hawker setting)
- ❸ Li-Ion Default for C7000 (Graphite setting), C7x00, and C7x00-C units
- ❹ Li-Ion Default for C7000 (Coke setting)
- ❺ Li-Ph Default for C7x00-C

16. End of Charge (for SLA, Li-Ion, and Li-Ph only)

Code	End of Charge
0	0.10C
1	0.01C
2	0.02C
3	0.03C ❷
4	0.04C
5	0.05C ❶
6	0.06C
7	0.07C
8	0.08C
9	0.09C

- ❶ Default for SLA and Li-Ion
❷ Default for Li-Ph (C7x00-C Only)

- END -