Decimal-Binary-Hexadecimal Conversion Chart

This chart shows all of the combinations of decimal, binary and hexadecimal from 0 to 255 decimal. When making a change in a CV this chart will show the conversion for different numbering systems. Some decoders split the CV into two parts. When you modify a CV you need to write back all 8 bits. This chart will help determine the correct bit value a CV.

Decimal	Binary	Hex	Decimal	Binary	Hex	Decimal	Binary	Hex	Decimal	Binary	Hex
Bit No.>	76543210			76543210			76543210			76543210	
0	00000000	0	64	01000000	40	128	10000000	80	192	11000000	C0
1	00000001	1	65	01000001	41	129	10000001	81	193	11000001	C1
2	00000010	2	66	01000010	42	130	10000010	82	194	11000010	C2
3	00000011	3	67	01000011	43	131	10000011	83	195	11000011	C3
4	00000100	4	68	01000100	44	132	10000100	84	196	11000100	C4
5	00000101	5	69	01000101	45	133	10000101	85	197	11000101	C5
6	00000110	6	70	01000110	46	134	10000110	86	198	11000110	C6
7	00000111	7	71	01000111	47	135	10000111	87	199	11000111	C7
8	00001000	8	72	01001000	48	136	10001000	88	200	11001000	C8
9	00001001	9	73	01001001	49	137	10001001	89	201	11001001	C9
10	00001010	A	74	01001010	4A	138	10001010	8A	202	11001010	CA
11	00001011	B	75	01001011	4B	139	10001011	8B	203	11001011	CB
12	00001100	C	76	01001100	4C	140	10001100	8C	204	11001100	CC
13	00001101	D	77	01001101	4D	141	10001101	8D	205	11001101	CD
14	00001110	E	78	01001110	4E	142	10001110	8E	206	11001110	CE
15	00001111	F	79	01001111	4F	143	10001111	8F	207	11001111	CF
16	00010000	10	80	01010000	50	144	10010000	90	208	11010000	D0
17	00010001	11	81	01010001	51	145	10010001	91	209	11010001	D1
18	00010010	12	82	01010010	52	146	10010010	92	210	11010010	D2
19	00010011	13	83	01010011	53	147	10010011	93	211	11010011	D3
20	00010100	14	84	01010100	54	148	10010100	94	212	11010100	D4
21	00010101	15	85	01010101	55	149	10010101	95	213	11010101	D5
22	00010110	16	86	01010110	56	150	10010110	96	214	11010110	D6
23	00010111	17	87	01010111	57	151	10010111	97	215	11010111	D7
24	00011000	18	88	01011000	58	152	10011000	98	216	11011000	D8
25	00011001	19	89	01011001	59	153	10011001	99	217	11011001	D9
26	00011010	1A	90	01011010	5A	154	10011010	9A	218	11011010	DA
27	00011011	1B	91	01011011	5B	155	10011011	9B	219	11011011	DB
28	00011100	1C	92	01011100	5C	156	10011100	9C	220	11011100	DC
29	00011101	1D	93	01011101	5D	157	10011101	9D	221	11011101	DD
30	00011110	1E	94	01011110	5E	158	10011110	9E	222	11011110	DE
31	00011111	1F	95	01011111	5F	159	10011111	9F	223	11011111	DF
32	00100000	20	96	01100000	60	160	10100000	A0	224	11100000	E0
33	00100001	21	97	01100001	61	161	10100001	A1	225	11100001	E1
34	00100010	22	98	01100010	62	162	10100010	A2	226	11100010	E2
35	00100011	23	99	01100011	63	163	10100011	A3	227	11100011	E3
36	00100100	24	100	01100100	64	164	10100100	A4	228	11100100	E4
37	00100101	25	101	01100101	65	165	10100101	A5	229	11100101	E5
38	00100110	26	102	01100110	66	166	10100110	A6	230	11100110	E6
39	00100111	27	103	01100111	67	167	10100111	A7	231	11100111	E7
40	00101000	28	104	01101000	68	168	10101000	A8	232	11101000	E8
41	00101001	29	105	01101001	69	169	10101001	A9	233	11101001	E9
42	00101010	2A	106	01101010	6A	170	10101010	AA	234	11101010	EA
43	00101011	2B	107	01101011	6B	171	10101011	AB	235	11101011	EB
44	00101100	2C	108	01101100	6C	172	10101100	AC	236	11101100	EC
45	00101101	2D	109	01101101	6D	173	10101101	AD	237	11101101	ED
46	00101110	2E	110	01101110	6E	174	10101110	AE	238	11101110	EE
47	00101111	2F	111	01101111	6F	175	10101111	AF	239	11101111	EF
48	00110000	30	112	01110000	70	176	10110000	B0	240	11110000	F0
49	00110001	31	113	01110001	71	177	10110001	B1	241	11110001	F1
50	00110010	32	114	01110010	72	178	10110010	B2	242	11110010	F2
51	00110011	33	115	01110011	73	179	10110011	B3	243	11110011	F3
52	00110100	34	116	01110100	74	180	10110100	B4	244	11110100	F4
53	00110101	35	117	01110101	75	181	10110101	B5	245	11110101	F5
54	00110110	36	118	01110110	76	182	10110110	B6	246	11110110	F6
55	00110111	37	119	01110111	77	183	10110111	B7	247	11110111	F7
56	00111000	38	120	01111000	78	184	10111000	B8	248	11111000	F8
57	00111001	39	121	01111001	79	185	10111001	B9	249	11111001	F9
58	00111010	3A	122	01111010	7A	186	10111010	BA	250	11111010	FA
59	00111011	3B	123	01111011	7B	187	10111011	BB	251	11111011	FB
60	00111100	3C	124	01111100	7C	188	10111100	BC	252	11111100	FC
61	00111101	3D	125	01111101	7D	189	10111101	BD	253	11111101	FD
62	00111110	3E	126	01111110	7E	190	10111110	BE	254	11111110	FE
63	00111111	3F	127	01111111	7F	191	10111111	BF	255	11111111	FF

Binary Number System for one byte

Bit Number	7	6	5	4	3	2	1	0
Bit Weight	128	64	32	16	8	4	2	1

Some Commonly used CVs

CV-1 Short Address
CV-2 Start Voltage
CV-3 Acceleration Rate
CV-4 Deceleration Rate
CV-5 Maximum Voltage
CV-6 Mid Point Voltage
CV-7 Ver Number
CV-8 Maker ID
CV-17/18 Long Address
CV-19 Consist Address

CV-21 Advance Consist function control
CV-22 Advance Consist headlight control
CV-23 Advance Consist acceleration rate
CV-24 Advance Consist deceleration rate

SEE YOUR DECODER MANUAL FOR ALL OF THE CVs IT USES AND THE RANGE OF VALUES.

CV-29 Configuration Register
Bit 0=Direction of travel
Bit 1=Speed step 28
Bit 2=d.c. enable
Bit 3= Advance acknowledgment
Bit 4= Alternate speed table
Bit 5= Long address.

CV-66 Forward Trim
CV-67 to 94 Speed Table
CV-95 Reverse Trim

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