



Application Note - Character Conversion

Track 1 Character Set

Character	Card Data							ASCII			
	P	B ₆	B ₅	B ₄	B ₃	B ₂	B ₁	P0	P1	EP	OP
Space	1	0	0	0	0	0	0	20	A0	A0	20
! (ND)	0	0	0	0	0	0	1	21	A1	21	A1
" (ND)	0	0	0	0	0	1	0	22	A2	22	A2
# (OG)	1	0	0	0	0	1	1	23	A3	A3	23
\$	0	0	0	0	1	0	0	24	A4	24	A4
% (SS)	1	0	0	0	1	0	1	25	A5	A5	25
& (ND)	1	0	0	0	1	1	0	26	A6	A6	26
' (ND)	0	0	0	0	1	1	1	27	A7	27	A7
(	0	0	0	1	0	0	0	28	A8	28	A8
)	1	0	0	1	0	0	1	29	A9	A9	29
* (ND)	1	0	0	1	0	1	0	2A	AA	AA	2A
+ (ND)	0	0	0	1	0	1	1	2B	AB	2B	AB
, (ND)	1	0	0	1	1	0	0	2C	AC	AC	2C
-	0	0	0	1	1	0	1	2D	AD	2D	AD
.	0	0	0	1	1	1	0	2E	AE	2E	AE
/	1	0	0	1	1	1	1	2F	AF	AF	2F
0	0	0	1	0	0	0	0	30	B0	30	B0
1	1	0	1	0	0	0	1	31	B1	B1	31
2	1	0	1	0	0	1	0	32	B2	B2	32
3	0	0	1	0	0	1	1	33	B3	B3	B3
4	1	0	1	0	1	0	0	34	B4	B4	34
5	0	0	1	0	1	0	1	35	B5	B5	B5
6	0	0	1	0	1	1	0	36	B6	B6	B6
7	1	0	1	0	1	1	1	37	B7	B7	37
8	1	0	1	1	0	0	0	38	B8	B8	38
9	0	0	1	1	0	0	1	39	B9	39	B9
: (ND)	0	0	1	1	0	1	0	3A	BA	3A	BA
; (ND)	1	0	1	1	0	1	1	3B	BB	BB	3B
< (ND)	0	0	1	1	1	0	0	3C	BC	3C	BC
= (ND)	1	0	1	1	1	0	1	3D	BD	BD	3D
> (ND)	1	0	1	1	1	1	0	3E	BE	BE	3E
? (ES)	0	0	1	1	1	1	1	3F	BF	3F	BF

Character	Card Data							ASCII			
	P	B ₆	B ₅	B ₄	B ₃	B ₂	B ₁	P0	P1	EP	OP
@ (ND)	0	1	0	0	0	0	0	40	C0	C0	40
A	1	1	0	0	0	0	1	41	C1	41	C1
B	1	1	0	0	0	1	0	42	C2	42	C2
C	0	1	0	0	0	1	1	43	C3	C3	43
D	1	1	0	0	1	0	0	44	C4	44	C4
E	0	1	0	0	1	0	1	45	C5	C5	45
F	0	1	0	0	1	1	0	46	C6	C6	46
G	1	1	0	0	1	1	1	47	C7	47	C7
H	1	1	0	1	0	0	0	48	C8	48	C8
I	0	1	0	1	0	0	1	49	C9	C9	49
J	0	1	0	1	0	1	0	4A	CA	CA	4A
K	1	1	0	1	0	1	1	4B	CB	4B	CB
L	0	1	0	1	1	0	0	4C	CC	CC	4C
M	1	1	0	1	1	0	1	4D	CD	4D	CD
N	1	1	0	1	1	1	0	4E	CE	4E	CE
O	0	1	0	1	1	1	1	4F	CF	CF	4F
P	1	1	1	0	0	0	0	50	D0	50	D0
Q	0	1	1	0	0	0	1	51	D1	D1	51
R	0	1	1	0	0	1	0	52	D2	D2	52
S	1	1	1	0	0	1	1	53	D3	53	D3
T	0	1	1	0	1	0	0	54	D4	D4	54
U	1	1	1	0	1	0	1	55	D5	55	D5
V	1	1	1	0	1	1	0	56	D6	56	D6
W	0	1	1	0	1	1	1	57	D7	D7	57
X	0	1	1	1	0	0	0	58	D8	D8	58
Y	1	1	1	1	0	0	1	59	D9	59	D9
Z	1	1	1	1	0	1	0	5A	DA	5A	DA
[(ND)	0	1	1	1	0	1	1	5B	DB	DB	5B
\ (ND)	1	1	1	1	1	0	0	5C	DC	5C	DC
] (ND)	0	1	1	1	1	0	1	5D	DD	DD	5D
^ (FS)	0	1	1	1	1	1	0	5E	DE	DE	5E
_ (ND)	1	1	1	1	1	1	1	5F	DF	5F	DF

Track 2 and 3 Character Set

Character	Card Data					ASCII			
	P	B ₄	B ₃	B ₂	B ₁	P0	P1	EP	OP
0	1	0	0	0	0	30	B0	30	B0
1	0	0	0	0	1	31	B1	B1	31
2	0	0	0	1	0	32	B2	B2	32
3	1	0	0	1	1	33	B3	B3	B3
4	0	0	1	0	0	34	B4	B4	34
5	1	0	1	0	1	35	B5	B5	B5
6	1	0	1	1	0	36	B6	B6	B6
7	0	0	1	1	1	37	B7	B7	37

Character	Card Data					ASCII				Hex Character
	P	B ₄	B ₃	B ₂	B ₁	P0	P1	EP	OP	
8	0	1	0	0	0	38	B8	B8	38	
9	1	1	0	0	1	39	B9	39	B9	
: (AS)	1	1	0	1	0	3A	BA	3A	BA	A
; (SS)	0	1	0	1	1	3B	BB	BB	3B	B
< (ND)	1	1	1	0	0	3C	BC	3C	BC	C
= (FS)	0	1	1	0	1	3D	BD	BD	3D	D
> (ND)	0	1	1	1	0	3E	BE	BE	3E	E
? (ES)	1	1	1	1	1	3F	BF	3F	BF	F

P = Parity
 EP = Even Parity
 OP = Odd Parity
 P0 = Parity bit set to 0
 P1 = Parity bit set to 1
 SS = Start Sentinel
 ES = End Sentinel
 FS = Field Separator

AS = Account Separator (Track 3 only)
 ND = Character Not Defined by Credit Card Standards
 OG = Optional Graphic



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