

Miscellaneous Technical

Range: 2300–23FF

This file contains an excerpt from the character code tables and list of character names for the Unicode Standard, last updated for
The Unicode Standard, Version 4.0.

This file may be updated as necessary to reflect errata without notice. For an up-to-date list of errata, see <http://www.unicode.org/errata/>

Disclaimer

These charts are provided as the on-line reference to the character contents of the Unicode Standard, Version 4.0 but do not provide all the information needed to fully support individual scripts using the Unicode Standard. For a complete understanding of the use of the characters contained in this excerpt file, please consult the appropriate sections of The Unicode Standard, Version 4.0 (ISBN 0-321-18578-1), as well as Unicode Standard Annexes #9, #11, #14, #15, #24 and #29, the other Unicode Technical Reports and the Unicode Character Database, which are available on-line.

See <http://www.unicode.org/Public/UNIDATA/UCD.html> and <http://www.unicode.org/reports/>

A thorough understanding of the information contained in these additional sources is required for a successful implementation.

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



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See <http://www.unicode.org/pending/pending.html> and <http://www.unicode.org/alloc/Pipeline.html>.

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	230	231	232	233	234	235	236	237	238	239	23A	23B	23C	23D	23E	23F
0	 2300	 2310	 2320	 2330	 2340	 2350	 2360	 2370	 2380	 2390	 23A0	 23B0	 23C0	 23D0		
1	 2301	 2311	 2321	 2331	 2341	 2351	 2361	 2371	 2381	 2391	 23A1	 23B1	 23C1			
2	 2302	 2312	 2322	 2332	 2342	 2352	 2362	 2372	 2382	 2392	 23A2	 23B2	 23C2			
3	 2303	 2313	 2323	 2333	 2343	 2353	 2363	 2373	 2383	 2393	 23A3	 23B3	 23C3			
4	 2304	 2314	 2324	 2334	 2344	 2354	 2364	 2374	 2384	 2394	 23A4	 23B4	 23C4			
5	 2305	 2315	 2325	 2335	 2345	 2355	 2365	 2375	 2385	 2395	 23A5	 23B5	 23C5			
6	 2306	 2316	 2326	 2336	 2346	 2356	 2366	 2376	 2386	 2396	 23A6	 23B6	 23C6			
7	 2307	 2317	 2327	 2337	 2347	 2357	 2367	 2377	 2387	 2397	 23A7	 23B7	 23C7			
8	 2308	 2318	 2328	 2338	 2348	 2358	 2368	 2378	 2388	 2398	 23A8	 23B8	 23C8			
9	 2309	 2319	 2329	 2339	 2349	 2359	 2369	 2379	 2389	 2399	 23A9	 23B9	 23C9			
A	 230A	 231A	 232A	 233A	 234A	 235A	 236A	 237A	 238A	 239A	 23AA	 23BA	 23CA			
B	 230B	 231B	 232B	 233B	 234B	 235B	 236B	 237B	 238B	 239B	 23AB	 23BB	 23CB			
C	 230C	 231C	 232C	 233C	 234C	 235C	 236C	 237C	 238C	 239C	 23AC	 23BC	 23CC			
D	 230D	 231D	 232D	 233D	 234D	 235D	 236D	 237D	 238D	 239D	 23AD	 23BD	 23CD			
E	 230E	 231E	 232E	 233E	 234E	 235E	 236E	 237E	 238E	 239E	 23AE	 23BE	 23CE			
F	 230F	 231F	 232F	 233F	 234F	 235F	 236F	 237F	 238F	 239F	 23AF	 23BF	 23CF			

Miscellaneous technical

- 2300 ∅ DIAMETER SIGN
→ 2205 ∅ empty set
- 2301 ↘ ELECTRIC ARROW
• from ISO 2047
• symbol for End of Transmission
- 2302 ☐ HOUSE
- 2303 ^ UP ARROWHEAD
→ 005E ^ circumflex accent
→ 02C4 ^ modifier letter up arrowhead
→ 2038 ^ caret
→ 2227 ^ logical and
- 2304 ∨ DOWN ARROWHEAD
→ 02C5 ∨ modifier letter down arrowhead
→ 2228 ∨ logical or
→ 2335 ∨ countersink
- 2305 ⊞ PROJECTIVE
→ 22BC ⊞ nand
- 2306 ≙ PERSPECTIVE
- 2307 ∽ WAVY LINE
→ 3030 ∽ wavy dash

Corner brackets

The ceiling and floor characters are recommended for general-purpose corner brackets, rather than the CJK corner brackets, which are wide quotation marks.

- 2308 ⌈ LEFT CEILING
= APL upstile
→ 300C ⌈ left corner bracket
- 2309 ⌋ RIGHT CEILING
→ 20E7 ⌋ combining annuity symbol
- 230A ⌊ LEFT FLOOR
= APL downstile
- 230B ⌋ RIGHT FLOOR
→ 300D ⌋ right corner bracket

Crops

- 230C ⌞ BOTTOM RIGHT CROP
• set of four “crop” corners, arranged facing outward
- 230D ⌟ BOTTOM LEFT CROP
- 230E ⌠ TOP RIGHT CROP
- 230F ⌡ TOP LEFT CROP

Miscellaneous technical

- 2310 ⇐ REVERSED NOT SIGN
= beginning of line
→ 00AC ⇐ not sign
- 2311 ◼ SQUARE LOZENGE
= Kissen (pillow)
• used as a command delimiter in some very old computers
- 2312 ⤿ ARC
→ 25E0 ⤿ upper half circle
- 2313 ◐ SEGMENT
- 2314 ◑ SECTOR
- 2315 ☎ TELEPHONE RECORDER

- 2316 ⚡ POSITION INDICATOR
- 2317 ≡ VIEWDATA SQUARE
→ 22D5 ≡ equal and parallel to
- 2318 ⌘ PLACE OF INTEREST SIGN
= COMMAND KEY
- 2319 ⊣ TURNED NOT SIGN
= line marker

GUI icons

- 231A ⌚ WATCH
- 231B ⌚ HOURGLASS

Quine corners

- 231C ⌞ TOP LEFT CORNER
• set of four “quine” corners, for quincuncial arrangement
- 231D ⌟ TOP RIGHT CORNER
- 231E ⌠ BOTTOM LEFT CORNER
- 231F ⌡ BOTTOM RIGHT CORNER

Integral pieces

- 2320 ∫ TOP HALF INTEGRAL
→ 23AE ∫ integral extension
- 2321 ∫ BOTTOM HALF INTEGRAL

Frown and smile

- 2322 ☹ FROWN
→ 2040 ☹ character tie
- 2323 ☺ SMILE
→ 203F ☺ undertie

Keyboard symbols

- 2324 ⤴ UP ARROWHEAD BETWEEN TWO HORIZONTAL BARS
= ENTER KEY
- 2325 ⤵ OPTION KEY
- 2326 ✖ ERASE TO THE RIGHT
= DELETE TO THE RIGHT KEY
- 2327 ☒ X IN A RECTANGLE BOX
= CLEAR KEY
- 2328 ⌨ KEYBOARD

Angle brackets

These are discouraged for mathematical use because of their canonical equivalence to CJK punctuation.

- 2329 ⏪ LEFT-POINTING ANGLE BRACKET
→ 003C < less-than sign
→ 2039 < single left-pointing angle quotation mark
→ 27E8 ⏪ mathematical left angle bracket
≡ 3008 ⏪ left angle bracket
- 232A ⏩ RIGHT-POINTING ANGLE BRACKET
→ 003E > greater-than sign
→ 203A > single right-pointing angle quotation mark
→ 27E9 ⏩ mathematical right angle bracket
≡ 3009 ⏩ right angle bracket

Keyboard symbol

232B ☒ ERASE TO THE LEFT
= DELETE TO THE LEFT KEY

Chemistry symbol

232C ⬡ BENZENE RING

Drafting symbols

232D ⌢ CYLINDRICITY
232E ⌢ ALL AROUND-PROFILE
232F ⌢ SYMMETRY
2330 ⌢ TOTAL RUNOUT
2331 ⌢ DIMENSION ORIGIN
2332 ▷ CONICAL TAPER
2333 ▷ SLOPE
→ 25FA ▽ lower left triangle
2334 □ COUNTERBORE
→ 2423 □ open box
2335 √ COUNTERSINK
→ 2304 √ down arrowhead

APL

2336 ⊥ APL FUNCTIONAL SYMBOL I-BEAM
2337 □ APL FUNCTIONAL SYMBOL SQUISH QUAD
→ 2395 □ apl functional symbol quad
→ 25AF □ white vertical rectangle
→ 2AFF □ n-ary white vertical bar
2338 ⊞ APL FUNCTIONAL SYMBOL QUAD EQUAL
2339 ⊞ APL FUNCTIONAL SYMBOL QUAD DIVIDE
233A ⊞ APL FUNCTIONAL SYMBOL QUAD DIAMOND
233B ⊞ APL FUNCTIONAL SYMBOL QUAD JOT
→ 29C7 ⊞ squared small circle
233C ⊞ APL FUNCTIONAL SYMBOL QUAD CIRCLE
233D ⊞ APL FUNCTIONAL SYMBOL CIRCLE STILE
233E ⊞ APL FUNCTIONAL SYMBOL CIRCLE JOT
→ 229A ⊞ circled ring operator
→ 29BE ⊞ circled white bullet
233F ≠ APL FUNCTIONAL SYMBOL SLASH BAR
2340 ≠ APL FUNCTIONAL SYMBOL BACKSLASH BAR
2341 ⊞ APL FUNCTIONAL SYMBOL QUAD SLASH
→ 29C4 ⊞ squared rising diagonal slash
2342 ⊞ APL FUNCTIONAL SYMBOL QUAD BACKSLASH
→ 29C5 ⊞ squared falling diagonal slash
2343 ⊞ APL FUNCTIONAL SYMBOL QUAD LESS-THAN

2344 ⊞ APL FUNCTIONAL SYMBOL QUAD GREATER-THAN
2345 + APL FUNCTIONAL SYMBOL LEFTWARDS VANE
2346 + APL FUNCTIONAL SYMBOL RIGHTWARDS VANE
2347 ⊞ APL FUNCTIONAL SYMBOL QUAD LEFTWARDS ARROW
2348 ⊞ APL FUNCTIONAL SYMBOL QUAD RIGHTWARDS ARROW
2349 ⊞ APL FUNCTIONAL SYMBOL CIRCLE BACKSLASH
→ 29B0 ⊞ reversed empty set
234A ⊥ APL FUNCTIONAL SYMBOL DOWN TACK UNDERBAR
= up tack underbar
• preferred naming for APL tack symbols now follows the London Convention in ISO/IEC 13751:2000 (APL Extended)
→ 22A5 ⊥ up tack
234B ⬆ APL FUNCTIONAL SYMBOL DELTA STILE
234C ⊞ APL FUNCTIONAL SYMBOL QUAD DOWN CARET
234D ⊞ APL FUNCTIONAL SYMBOL QUAD DELTA
234E ⊥ APL FUNCTIONAL SYMBOL DOWN TACK JOT
= up tack jot
→ 22A5 ⊥ up tack
234F + APL FUNCTIONAL SYMBOL UPWARDS VANE
2350 ⊞ APL FUNCTIONAL SYMBOL QUAD UPWARDS ARROW
2351 ⊞ APL FUNCTIONAL SYMBOL UP TACK OVERBAR
= down tack overbar
→ 22A4 ⊞ down tack
→ 3012 ⊞ postal mark
2352 ∇ APL FUNCTIONAL SYMBOL DEL STILE
2353 ⊞ APL FUNCTIONAL SYMBOL QUAD UP CARET
2354 ⊞ APL FUNCTIONAL SYMBOL QUAD DEL
2355 ⊞ APL FUNCTIONAL SYMBOL UP TACK JOT
= down tack jot
→ 22A4 ⊞ down tack
2356 + APL FUNCTIONAL SYMBOL DOWNWARDS VANE
2357 ⊞ APL FUNCTIONAL SYMBOL QUAD DOWNWARDS ARROW
2358 ⊞ APL FUNCTIONAL SYMBOL QUOTE UNDERBAR
2359 Δ APL FUNCTIONAL SYMBOL DELTA UNDERBAR
235A ⊞ APL FUNCTIONAL SYMBOL DIAMOND UNDERBAR

235B	◌	APL FUNCTIONAL SYMBOL JOT UNDERBAR
235C	◌	APL FUNCTIONAL SYMBOL CIRCLE UNDERBAR
235D	◌	APL FUNCTIONAL SYMBOL UP SHOE JOT → 2A40 ◌ intersection with dot
235E	◌	APL FUNCTIONAL SYMBOL QUOTE QUAD
235F	⊛	APL FUNCTIONAL SYMBOL CIRCLE STAR → 229B ⊛ circled asterisk operator
2360	◌	APL FUNCTIONAL SYMBOL QUAD COLON
2361	‡	APL FUNCTIONAL SYMBOL UP TACK DIAERESIS = down tack diaeresis → 22A4 ‡ down tack
2362	◌	APL FUNCTIONAL SYMBOL DEL DIAERESIS
2363	*	APL FUNCTIONAL SYMBOL STAR DIAERESIS
2364	◌	APL FUNCTIONAL SYMBOL JOT DIAERESIS = hoot
2365	◌	APL FUNCTIONAL SYMBOL CIRCLE DIAERESIS = holler
2366	◌	APL FUNCTIONAL SYMBOL DOWN SHOE STILE
2367	◌	APL FUNCTIONAL SYMBOL LEFT SHOE STILE
2368	◌	APL FUNCTIONAL SYMBOL TILDE DIAERESIS = smirk
2369	◌	APL FUNCTIONAL SYMBOL GREATER-THAN DIAERESIS
236A	◌	APL FUNCTIONAL SYMBOL COMMA BAR
236B	◌	APL FUNCTIONAL SYMBOL DEL TILDE
236C	◌	APL FUNCTIONAL SYMBOL ZILDE
236D	◌	APL FUNCTIONAL SYMBOL STILE TILDE
236E	◌	APL FUNCTIONAL SYMBOL SEMICOLON UNDERBAR
236F	◌	APL FUNCTIONAL SYMBOL QUAD NOT EQUAL
2370	◌	APL FUNCTIONAL SYMBOL QUAD QUESTION
2371	◌	APL FUNCTIONAL SYMBOL DOWN CARET TILDE
2372	◌	APL FUNCTIONAL SYMBOL UP CARET TILDE
2373	◌	APL FUNCTIONAL SYMBOL IOTA
2374	◌	APL FUNCTIONAL SYMBOL RHO
2375	◌	APL FUNCTIONAL SYMBOL OMEGA
2376	◌	APL FUNCTIONAL SYMBOL ALPHA UNDERBAR

2377	◌	APL FUNCTIONAL SYMBOL EPSILON UNDERBAR
2378	◌	APL FUNCTIONAL SYMBOL IOTA UNDERBAR
2379	◌	APL FUNCTIONAL SYMBOL OMEGA UNDERBAR
237A	◌	APL FUNCTIONAL SYMBOL ALPHA

Graphics for control codes

237B	✓	NOT CHECK MARK • from ISO 2047 • symbol for Negative Acknowledge
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Miscellaneous technical

237C	⌞	RIGHT ANGLE WITH DOWNWARDS ZIGZAG ARROW
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Graphics for control codes

237D	⌞	SHOULDERED OPEN BOX • from ISO 9995-7 • keyboard symbol for No Break Space → 2423 ⌞ open box
237E	🔔	BELL SYMBOL • from ISO 2047
237F	⋮	VERTICAL LINE WITH MIDDLE DOT • from ISO 2047 • symbol for End of Medium

Keyboard symbols from ISO 9995-7

2380	↵	INSERTION SYMBOL
2381	≡	CONTINUOUS UNDERLINE SYMBOL
2382	≡	DISCONTINUOUS UNDERLINE SYMBOL
2383	≡	EMPHASIS SYMBOL
2384	⌘	COMPOSITION SYMBOL
2385	⌘	WHITE SQUARE WITH CENTRE VERTICAL LINE
2386	↵	ENTER SYMBOL
2387	↵	ALTERNATIVE KEY SYMBOL
2388	⚙	HELM SYMBOL = control → 2638 ⚙ wheel of dharma
2389	◌	CIRCLED HORIZONTAL BAR WITH NOTCH
238A	◌	CIRCLED TRIANGLE DOWN
238B	◌	BROKEN CIRCLE WITH NORTHWEST ARROW
238C	↵	UNDO SYMBOL

Electrotechnical symbols from IR 181

238D	⌚	MONOSTABLE SYMBOL
238E	⌚	HYSTERESIS SYMBOL
238F	◌	OPEN-CIRCUIT-OUTPUT H-TYPE SYMBOL
2390	◌	OPEN-CIRCUIT-OUTPUT L-TYPE SYMBOL
2391	◌	PASSIVE-PULL-DOWN-OUTPUT SYMBOL

- 2392 \boxminus PASSIVE-PULL-UP-OUTPUT SYMBOL
 2393 \equiv DIRECT CURRENT SYMBOL FORM TWO
 2394 \circ SOFTWARE-FUNCTION SYMBOL

APL

- 2395 \square APL FUNCTIONAL SYMBOL QUAD
 → 2337 \square apl functional symbol squish quad
 → 25AF \square white vertical rectangle

Keyboard symbols from ISO 9995-7

- 2396 r DECIMAL SEPARATOR KEY SYMBOL
 2397 p PREVIOUS PAGE
 2398 n NEXT PAGE
 2399 u PRINT SCREEN SYMBOL
 239A c CLEAR SCREEN SYMBOL
 → 20E2 c combining enclosing screen

Bracket pieces

- 239B $\{$ LEFT PARENTHESIS UPPER HOOK
 239C $|$ LEFT PARENTHESIS EXTENSION
 239D $\}$ LEFT PARENTHESIS LOWER HOOK
 239E $\}$ RIGHT PARENTHESIS UPPER HOOK
 239F $|$ RIGHT PARENTHESIS EXTENSION
 23A0 $}$ RIGHT PARENTHESIS LOWER HOOK
 23A1 \lceil LEFT SQUARE BRACKET UPPER CORNER
 23A2 $|$ LEFT SQUARE BRACKET EXTENSION
 23A3 \lfloor LEFT SQUARE BRACKET LOWER CORNER
 23A4 \rceil RIGHT SQUARE BRACKET UPPER CORNER
 23A5 $|$ RIGHT SQUARE BRACKET EXTENSION
 23A6 \rfloor RIGHT SQUARE BRACKET LOWER CORNER
 23A7 $\{$ LEFT CURLY BRACKET UPPER HOOK
 23A8 $\}$ LEFT CURLY BRACKET MIDDLE PIECE
 23A9 $\}$ LEFT CURLY BRACKET LOWER HOOK
 23AA $|$ CURLY BRACKET EXTENSION
 23AB $\}$ RIGHT CURLY BRACKET UPPER HOOK
 23AC $\}$ RIGHT CURLY BRACKET MIDDLE PIECE
 23AD $\}$ RIGHT CURLY BRACKET LOWER HOOK

Special character extensions

- 23AE $|$ INTEGRAL EXTENSION
 → 2320 r top half integral
 → 2321 J bottom half integral
 23AF $-$ HORIZONTAL LINE EXTENSION
 • used for extension of arrows
 → 23D0 $|$ vertical line extension

Bracket pieces

- 23B0 $|$ UPPER LEFT OR LOWER RIGHT CURLY BRACKET SECTION
 = left moustache
 23B1 $|$ UPPER RIGHT OR LOWER LEFT CURLY BRACKET SECTION
 = right moustache

Summation sign parts

- 23B2 \sum SUMMATION TOP
 23B3 \sum SUMMATION BOTTOM

Vertical brackets

- 23B4 \sqcap TOP SQUARE BRACKET
 → FE47 \sqcap presentation form for vertical left square bracket
 23B5 \sqcup BOTTOM SQUARE BRACKET
 → FE48 \sqcup presentation form for vertical right square bracket
 23B6 \equiv BOTTOM SQUARE BRACKET OVER TOP SQUARE BRACKET

Terminal graphic characters

- 23B7 \downarrow RADICAL SYMBOL BOTTOM
 23B8 $|$ LEFT VERTICAL BOX LINE
 23B9 $|$ RIGHT VERTICAL BOX LINE

Scan lines for terminal graphics

The scan line numbers here refer to old, low-resolution technology for terminals, with only 9 scan lines per fixed-size character glyph. Even-numbered scan lines are unified with box-drawing graphics.

- 23BA $-$ HORIZONTAL SCAN LINE-1
 23BB $-$ HORIZONTAL SCAN LINE-3
 23BC $-$ HORIZONTAL SCAN LINE-7
 23BD $-$ HORIZONTAL SCAN LINE-9

Dentistry notation symbols

- 23BE \lceil DENTISTRY SYMBOL LIGHT VERTICAL AND TOP RIGHT
 → 2308 \lceil left ceiling
 23BF \lfloor DENTISTRY SYMBOL LIGHT VERTICAL AND BOTTOM RIGHT
 → 230A \lfloor left floor
 23C0 ϕ DENTISTRY SYMBOL LIGHT VERTICAL WITH CIRCLE
 23C1 D DENTISTRY SYMBOL LIGHT DOWN AND HORIZONTAL WITH CIRCLE
 23C2 D DENTISTRY SYMBOL LIGHT UP AND HORIZONTAL WITH CIRCLE
 23C3 \triangle DENTISTRY SYMBOL LIGHT VERTICAL WITH TRIANGLE
 23C4 D DENTISTRY SYMBOL LIGHT DOWN AND HORIZONTAL WITH TRIANGLE
 23C5 \triangle DENTISTRY SYMBOL LIGHT UP AND HORIZONTAL WITH TRIANGLE
 23C6 + DENTISTRY SYMBOL LIGHT VERTICAL AND WAVE

- 23C7 ⇄ DENTISTRY SYMBOL LIGHT DOWN
AND HORIZONTAL WITH WAVE
- 23C8 ± DENTISTRY SYMBOL LIGHT UP AND
HORIZONTAL WITH WAVE
- 23C9 ⊥ DENTISTRY SYMBOL LIGHT DOWN
AND HORIZONTAL
→ 22A4 ⊥ down tack
→ 252C ⊥ box drawings light down and
horizontal
- 23CA ⊥ DENTISTRY SYMBOL LIGHT UP AND
HORIZONTAL
→ 22A5 ⊥ up tack
→ 2534 ⊥ box drawings light up and
horizontal
- 23CB ⊥ DENTISTRY SYMBOL LIGHT
VERTICAL AND TOP LEFT
→ 2309 ⊥ right ceiling
- 23CC ⊥ DENTISTRY SYMBOL LIGHT
VERTICAL AND BOTTOM LEFT
→ 230B ⊥ right floor

Miscellaneous technical symbol

- 23CD □ SQUARE FOOT

Keyboard and UI symbols

- 23CE ↵ RETURN SYMBOL
• may be shown with either hollow or filled
glyph
→ 21B5 ↵ downwards arrow with corner
leftwards
- 23CF ▲ EJECT SYMBOL
• UI symbol to eject media

Special character extension

- 23D0 | VERTICAL LINE EXTENSION
• used for extension of arrows
→ 23AF — horizontal line extension