
RCSL No: 99 0 00784

Edition: NOVEMBER 1983

Author: Birgitte Nielsen
Erik Bak Kristensen

Title:

RC851 ECMA48 DISPLAY TERMINAL
REFERENCE MANUAL

FOREWORD

This manual describes the RC851 ECMA48 DISPLAY TERMINAL as seen from the operator and the host computer. The functions of the terminal are based on the standards ECMA48 and ISO/DIS 6429.2, therefore knowledge of these standards will be an advantage when reading this manual.

Appendix B contains a list of facilities which are not included in the actual implementation of the terminal. (Version 1).

The RC851 is based on the RC850 hardware and basic software described in the manuals listed below:

References:

RCSL No. 31-D672 RC850 Reference Manual

RCSL No. 44-RT2067 CRT505/507 CRT Controller Technical Manual

Draft International Standard ISO/DIS 6429.2

Standard ECMA48

TABLE OF CONTENTS

PAGE

1. TERMINOLOGY	1
2. GENERAL INFORMATION	3
3. BASIC TERMINAL CONCEPTS	4
3.1 The Received Data Stream	4
3.2 The Character Image Output	4
3.3 The Active Position	5
3.4 Format Effectors and Editor Functions	5
3.4.1 Format Effectors	6
3.4.2 Editor Functions	6
3.5 Editing Operations	7
3.5.1 Deletion	7
3.5.2 Insertion	7
3.5.3 Editing Modes and Insertion/Deletion	7
3.6 Selected and Qualified Areas	8
3.6.1 Selected Areas	8
3.6.2 Qualified Areas	8
3.6.3 Protected Area	9
3.6.4 Guarded Area	9
3.7 Auxiliary Output Devices	9
4. STANDARD TERMINAL MODES	10
4.1 Control Representation Mode	10
4.2 Editing Boundary Mode	10
4.3 Erasure Mode	11
4.4 Format Effector Action Mode	11
4.5 Format Effector Transfer Mode	11
4.6 Graphic Rendition Combination Mode	12
4.7 Guarded Area Transfer Mode	12
4.8 Horizontal Editing Mode	12
4.9 Insertion Replacement Mode	13
4.10 Keyboard Action Mode	13
4.11 Multiple Area Transfer Mode	13
4.12 Positioning Unit Mode	14
4.13 Selected Area Transfer Mode	14
4.14 Send/Receive Mode	14
4.15 Status Report Transfer Mode	14
4.16 Tabulation Stop Mode	15
4.17 Transfer Termination Mode	15
4.18 Vertical Editing Mode	15
5. ADDITIONAL MODE SWITCHES	16
5.1 Answer Back Switch	16
5.2 Command Stop Character	17
5.3 Beginning of Line Wrap Switch	17
5.4 Block Transmission Control Switch	17
5.5 CTS Timeout Switch	18
5.6 Cursor Blink	18
5.7 Cursor Baseline	18
5.8 Cursor Topline	18
5.9 Cursor Return Switch	19
5.10 DTR Handshake Switch	19
5.11 Echo Switch	19
5.12 End of Block	20
5.13 End of Command	20
5.14 End of Line Wrap Switch	20

TABLE OF CONTENTS (continued)

PAGE

6.2.30	EF - Erase in Field	40
6.2.31	EL - Erase in Line	41
6.2.32	EMI - Enable Manual Input	41
6.2.33	ENQ - Request Answer back Message	42
6.2.34	EPA - End of Protected Area	42
6.2.35	ESA - End of Selected Area	42
6.2.36	ESC - Escape	42
6.2.37	FNT - Font Selection	43
6.2.38	GSM - Graphic Size Modification	43
6.2.39	GSS - Graphic Size Selection	43
6.2.40	HPA - Horizontal Position Absolute	44
6.2.41	HPB - Horizontal Position Backward	44
6.2.42	HPR - Horizontal Position Relative	44
6.2.43	HT - Horizontal Tabulation	44
6.2.44	HTJ - Horizontal Tabulation with Justification	45
6.2.45	HTS - Horizontal Tabulation Set	45
6.2.46	HTSA - Horizontal Tabulation Set Absolute	45
6.2.47	HVP - Horizontal and Vertical Position	45
6.2.48	ICH - Insert Character	46
6.2.49	IDCS - Identify Device Control String	46
6.2.50	IL - Insert Line	46
6.2.51	IND - Index	47
6.2.52	INT - Interrupt	47
6.2.53	JFY - Justify	47
6.2.54	LF - Line Feed	48
6.2.55	MC - Media Copy	48
6.2.56	MW - Message Waiting	48
6.2.57	NEL - Next Line	49
6.2.58	NP - Next Page	49
6.2.59	OSC - Operating System Command	49
6.2.60	PLD - Partial Line Down.	50
6.2.61	PLU - Partial Line Up	50
6.2.62	PM - Privacy Message	50
6.2.63	PP - Preceding Page	50
6.2.64	PPA - Page Position Absolute	50
6.2.65	PPB - Page Position Backward	51
6.2.66	PPR - Page Position Relative	51
6.2.67	PU 1 - Private Use 1 (Clear SSA)	51
6.2.68	PU 2 - Private Use 2 (Clear ESA)	52
6.2.69	QUAD-QUAD	52
6.2.70	REP - Repeat	52
6.2.71	RI - Reverse Index	52
6.2.72	RIS - Reset to Initial State	53
6.2.73	RM - Reset Mode	53
6.2.74	SD - Scroll Down	53
6.2.75	SEE - Select Editing Extent	53
6.2.76	SGR - Select Graphic Rendition	54
6.2.77	SI - Shift In	55
6.2.78	SL - Scroll Left	55
6.2.79	SM - Set Mode	55
6.2.80	SO - Shift Out	57
6.2.81	SPA - Start of Protected Area	57
6.2.82	SPI - Spacing Increment	57
6.2.83	SR - Scroll Right	57
6.2.84	SS2 - Single Shift 2	58
6.2.85	SS3 - Single Shift 3	58
6.2.86	SSA - Start of Selected Area	58

1. TERMINOLOGY

1.

This section gives a summary of some important terms used in this specification.

Active position: The character position where the cursor is currently located.

Area: A set of adjacent character positions in a visual display that are not necessarily on the same line.

Auxiliary device: A device connected to a character-imaging device for the purpose of storing, retrieving, or imaging data.

Character-imaging device: A device that gives a visual representation of data in the form of graphic symbols using any technology, e.g. cathode ray tube or printer.

Character position: That portion of a visual display which is imaging or is capable of imaging a graphic symbol.

Control function: An action that affects the recording, processing, transmission, or interpretation of data.

C0-control character set: Control codes from <00> to <1F>. These are the same in both 7 and 8 bit representation.

C1-control character set: Control codes from <80> to <9F> of the ECMA 8-bit code standard. These are represented as ESC followed by a code from <40> to <5F> in 7 bit representation.

Default: A value or a state that is to be assumed when no value or state is explicitly specified.

Display: Information presented on the screen. A display consists of a series of lines composed of character positions.

ECMA: the European Computer Manufacturers Association.

Field: An area whose boundaries are specified by horizontal tabulation stops.

2. GENERAL INFORMATION

2.

RC851 is a "smart" terminal conforming to the ECMA standard for additional control codes. Editing may be performed within the page prior to transmission of data to the host computer.

A printer may be attached. The print speed, code parity, code length and number of stop bits are selectable.

The standard transmission protocol is asynchronous transmission on a character-by-character basis. Transmission rate, code length, code parity and the number of stop bits are selectable.

RC851 may display text in several different video modes such as low-intensity, underline, blinking, inverse video or several combinations of these.

Second, third and fourth character sets are available.

The terminal mode is factory preset, and normally all the operator has to do is turn power on by using the POWER ON switch located on the back side of the terminal.

Immediately after power-up, the terminal will perform a self-test to ensure proper operation.

All switches (printer and transmission switches inclusive) are under firmware control, and may be altered by the operator from the keyboard. The terminal will "remember" the switch settings in a so-called non-volatile memory from the last user session, even when power has been turned off. The switches are factory preset to a standard configuration.

Programmable keys (PUSH-keys) are implemented. These are also under firmware control in the same way as the switches, and may be altered by the operator.

3.3 The Active Position

3.3

At any time, there is a unique character position which is called the "active position".

The active position is the character position which is to image the graphic symbol representing the next graphic character of the received data stream or the next control function for which a graphic representation is required. The active position is also the reference position against which certain format effectors or editor functions are performed (see 3.4).

The line containing the active position is called the "active line".

Implicit Movement

If the active position is not the last character position of a line, it is moved to the following character position of the active line.

An implicit movement is performed when SPACE or a graphic character is received or a control function, for which a graphic representation is required, is executed.

Explicit Movement

The active position is moved to a specified character position.

An explicit movement is performed when a control function is executed which causes the active position to be moved to a specified position.

3.4 Format Effectors and Editor Functions

3.4

Two classes of control functions have an action on the layout of information on the terminal display. They are format effectors and editor functions. The principal difference between editor functions and format effectors is that the latter are sensitive to the format effector action mode, whereas the former are not.

3.5 Editing Operations

3.5

Editing operations (erasure, deletion and insertion) are performed either in execution of control functions in the received data stream, or under control of the keyboard.

3.5.1 Deletion

3.5.1

The data contained in one or more character positions are removed by shifting the contents of an adjacent string of character positions so that the data to be removed are overwritten. As a result a string of character positions, equal in length to the deleted string, is erased at the beginning or the end of the shifted part.

3.5.2 Insertion

3.5.2

One or more erased positions are inserted by shifting the contents of a string of character positions adjacent to the position where the insertion is to be made. As a result a string of data, equal in length to the inserted string, is removed at the beginning or the end of the shifted part.

3.5.3 Editing Modes and Insertion/Deletion

3.5.3

In case of a deletion or insertion, the string which is shifted either precedes or follows the position where the deletion or insertion is made, depending on the setting of the HORIZONTAL EDITING MODE and of the VERTICAL EDITING MODE.

area. The type of area qualification is specified by the parameter of DAQ. The end of a qualified area is established by the beginning of the following qualified area.

3.6.3 Protected Area

3.6.3

A protected area is a special case of a qualified area. It is a string of character positions, the contents of which are protected against manual alteration. A protected area may, in general, be either guarded or unguarded.

3.6.4 Guarded Area

3.6.4

A guarded area is a special case of a qualified area. It is a protected area which is to be excluded from transmission of a data stream and from transfer to an auxiliary input/output device.

An alternative way to establish the beginning and end of a guarded protected area is by means of START OF PROTECTED AREA (SPA) and END OF PROTECTED AREA (EPA).

3.7 Auxiliary Output Devices

3.7

Data transfer to an auxiliary output device is initiated either by the operation of an appropriate button on a keyboard or by the control function MEDIA COPY (MC) appearing in the received data stream.

If there are more than one auxiliary output devices, the relevant device is specified by the parameter of MC.

4.3 Erasure Mode

4.3

Protect: D

Only unprotected data are affected by an erasure control function.

All:

Protected as well as unprotected data are affected by an erasure control function.

4.4 Format Effector Action Mode

4.4

Execute: D

A format effector causes the specified action to be performed immediately.

Store:

A format effector is treated as a graphic.

This mode is significant only if the CONTROL REPRESENTATION MODE is set to CONTROL.

4.5 Format Effector Transfer Mode

4.5

Insert:

Format effectors are inserted in a transmitted data stream or in any data transferred to any auxiliary output device:

- the format effectors CARRIAGE RETURN (CR) and LINE FEED (LF), or NEXT LINE (NEL), are inserted in the data stream to separate successive lines;
- other format effectors may be inserted as appropriate, e.g. HORIZONTAL TABULATION (HT) to represent a string of erased character positions preceding a tabulation stop.

Exclude: D

No format effectors other than those received while the FORMAT EFFECTOR ACTION MODE is set to STORE are included in a transmitted data stream or in data transferred to any auxiliary input/output device.

4.9 Insertion Replacement Mode

4.9

Replace: D

The receipt of a graphic character or a control function for which a graphic representation is required causes the appropriate graphic symbol to replace the graphic symbol currently imaged at the active position.

Insert:

The receipt of a graphic character or a control function for which a graphic representation is required causes the appropriate graphic symbol to be inserted at the active position.

The operation of inserting a character is performed as described in 3.5.

4.10 Keyboard Action Mode

4.10

Enabled: D

The keyboard is enabled to be used.

Disabled:

The keyboard is disabled to be used.

The only exceptions are the shift, ctrl, lock, reset, break, and the menu keys.

4.11 Multiple Area Transfer Mode

4.11

Single: D

Only the selected area which contains the active position is eligible to be transmitted.

Multiple:

All selected areas are eligible to be transmitted.

This mode is significant only if the SELECTED AREA TRANSFER MODE is set to SELECT.

4.16 Tabulation Stop Mode

4.16

Multiple:

A horizontal tabulation stop applies to the corresponding character positions of all lines.

Single: D

A horizontal tabulation stop applies only to the line in which it is set.

4.17 Transfer Termination Mode

4.17

Cursor: D

Only data preceding the active position are eligible to be transmitted.

All:

Data preceding, following and at the active position are eligible to be transmitted.

4.18 Vertical Editing Mode

4.18

Following: D

A line insertion causes the contents of the active line and of following lines to be shifted down; a line deletion causes the contents of following lines to be shifted up.

Preceding:

A line insertion causes the contents of the active line and of preceding lines to be shifted up. A line deletion causes the contents of preceding lines to be shifted down.

5.2 Command Stop Character

5.2

On:

Any transmission (except on an STS) from the terminal to the host computer is terminated by an "end of command". See the description of the end of command switch.

Off: D.

No stop character is added to transmitted codes.

5.3 Beginning of Line Wrap Switch

5.3

Wrap: D.

A backward linear movement of the cursor beyond the beginning of a line makes the cursor wrap around to the preceding line. If the cursor is in the home position, it will remain there.

Stop:

A movement which would have extended beyond the beginning of the line has no effect.

5.4 Block Transmission Control Switch

5.4

Remote: D.

Block transmission from the terminal to the host computer is initiated by a STS received from the host computer. A "request STS" is sent to the host computer whenever a predefined "send activating character" is received from the keyboard (see section 6.3.3). At power up/soft reset of the terminal the "send activating character" is taken from the non-volatile memory and loaded into both of the two send keys.

Local:

Block transmission from the terminal to the host computer is initiated either by a STS received from the host computer or by a predefined "send activating character" received from the keyboard.

5.9 Cursor Return Switch

5.9

CR: D.

A CR received either from the keyboard or from the line is interpreted as a cursor return.

NEL:

A CR received is interpreted as the code NEL (Next Line) in the C1 set.

5.10 DTR Handshake Switch

5.10

On: D.

The terminal will handshake with the host computer via the modem lines.

The modem line DTR will be set to a logical low level when only four free bytes are left in the internal receive buffer, and set back to a logic high level when another input buffer is supplied.

Off:

No handshake is performed, and characters transmitted to the terminal may be lost.

Note:

This switch does not affect the CTS-timeout handling on transmission from the terminal to the host computer.

5.11 Echo Switch

5.11

Internal: D.

Graphic codes entered from the keyboard are echoed back by the terminal.

External:

The terminal does not perform echo.

TRANSMISSION CODE LENGTH SWITCH (if the latter is 7-bit the ISO 7-bit coded representation of the control functions are assumed).

5.16 Keyboard Lock Switch

5.16

Off: D.

The keyboard LOCK-key is set off after power on.

On:

The keyboard LOCK-key is set on after power on.

5.17 Lines Per Page Switch

5.17

25 lines: D.

The display is formatted as 25 data lines.

24 lines:

The display is formatted as 24 data lines.

5.18 Margin Bell Switch

5.18

On:

A bell is activated when the 72nd position of a line is entered by a forward movement of the cursor.

Off: D.

No bell.

5.19 Modified Area Transfer Mode

5.19

Modified:

Only modified areas are eligible to be transmitted. An area is regarded as modified if the contents of it has been changed from the keyboard.

All: D.

Both modified and unmodified areas are eligible to be transmitted.

2-bit: D
Two stop bits are added.

5.24 Printer Mode Switch

5.24

Local: D.
Printing initiated from the keyboard is sent to the local printer. The host computer is not informed.

Remote:
Activation of the print key causes a MEDIA COPY (MC) to be sent to the host computer.
Printouts initiated from the host computer by a MC are not affected by this switch.

5.25 Printer Speed Switch

5.25

110 bits/sec.
300 bits/sec.
600 bits/sec.
1200 bits/sec.
2400 bits/sec.
4800 bits/sec.
9600 bits/sec.

Default value: 4800 bits/sec.

5.26 Repeat Direction Switch

5.26

Horizontal: D
The repeat function REP works in horizontal direction.

Vertical:
The repeat function repeats characters in the vertical direction.

Note:
This switch is alterable by the host computer only.

5.31 Suppress Trailing Spaces Switch

5.31

Off: D.

Trailing spaces will not be suppressed.

On:

Trailing spaces of transmitted areas are not transmitted.

5.32 Terminal Type

5.32

Holds a decimal value for the terminal type. The value must be in the range 1..255.

Default value:

5.33 Timeout Switch

5.33

On: D.

After a period with no activity on the terminal the picture is turned off. The picture will immediately turn on if a character is received from the line or the keyboard.

Off:

The picture will stay on as long as the terminal is turned on.

5.34 Transmission Code Length Switch

5.34

7-bit:

The number of data bits in each transmitted or received character are seven.

8-bit: D

The number of data bits per character are eight, excluding start, stop and parity bits.

5.38 Unit Separator

5.38

Qualified/selected areas are separated by this code when transmitted to the host computer on an STS. The value of the code must be in the range 1..255.

Default value: 31.

host.

The length of a control string is max. 200 bytes.

6.2.2 BEL - Audible Alarm

6.2.2

Representation: <07>.

A BEL code sounds the audible alarm.

6.2.3 BS - Backspace

6.2.3

Representation: <08>

Moves the active position backward one character and erases the new active position. BS is identical to a CUB followed by an ECH.

6.2.4 CBT - Cursor Backward Tabulation

6.2.4

Representation: CSI p1 <5A>

Default value: 1.

The active position is moved to the character position corresponding to the p1-th preceding horizontal tabulation stop.

If p1 is larger than the number of preceding horizontal tabulation stops, the active position is moved (cyclic) from the first tabulation stop in page to the last one.

6.2.5 CCH - Cancel Character

6.2.5

Representation: <94> or ESC <54>

Ignored.

6.2.9 CPL - Cursor Preceding Line

6.2.9

Representation: CSI p1 <46>

Default value: 1.

The active position is moved to the first character position of the p1-th preceding line.
If the number of the active line minus p1 is less than or equal to zero, the active position is moved to the first character position of the first line.

6.2.10 CPR - Cursor Position Report

6.2.10

Representation: CSI p1;p2 <52>

Default values: 1 1.

Ignored.

6.2.11 CR - Cursor Return

6.2.11

Representation: <OD>

Moves the active position to the first position of the active line.

Affected by switches: Cursor return switch (see 5.4).
If the cursor return switch is in the NEL position, the CR action is followed by an LF action as described for LF.

6.2.12 CSI - Control Sequence Introducer

6.2.12

Representation: <9B> or ESC <5B>

CSI is the first character of a control sequence.

6.2.15 CUD - Cursor Down

6.2.15

Representation: CSI p1 <42>

Default value: 1.

The active position is moved to the corresponding character position of the p1-th following line. If the resulting active position is beyond the current page the action taken depends on the roll/page mode switch:

ROLL: A scroll up is performed such that the resulting active line will be the last shown data line on the display.

PAGE: The resulting active line is the last data line in the shown page.

Affected by switches: Roll/page mode.

6.2.16 CUF - Cursor Forward

6.2.16

Representation: CSI p1 <43>

Default value: 1.

The active position is moved to the p1-th following character position.

Affected by switches: End of line wrap.
Roll/page mode.

If the resulting active position is outside the active line, the action taken is dependent on the end of line wrap switch:

WRAP: The active position is allowed to be outside the current active line.

STOP: The resulting active position will be the last character position on the active line.

If the resulting active position is beyond the current page the action taken depends on the roll/page mode switch:

6.2.20 DA - Device Attributes

6.2.20

Representation: CSI pl <63>

Default value: 0.

The terminal will respond by sending a new DA back to the host computer giving the content of the terminal type, see section 6.4.

6.2.21 DAQ - Define Area Qualification

6.2.21

Representation: CSI pl;...;pn <6F>

Default value: 0

DAQ indicates that the active position is the first character position of a qualified area. The end of the qualified area is indicated by the beginning of the following area, or the SPA or EPA codes.

Several parameters may be given separated by semi-colon <3B>.

Parameter	Meaning
0	Unprotected
1	Guarded (implies protected)
2	Graphic character input
3	Numeric input
4	Alphabetic input
5	Input to be aligned to the right
6	Zerofill in area
7	Horizontal tabulation stop at start of area
8	Protected (unguarded)
9	Space fill in area
10	Input to be aligned to the left

Other parameters are ignored.

If conflicting parameter specifications are given, the last given parameter will override the first one.

AA, BB, CC, DD, ... are pairs of characters each giving one character to load into the push key. Each character in a pair must be in the range <30> to <39> and <41> to <46> or <61> to <66>.

S<53> AA BB

for loading the send activating character and the character sent at activation.

AA is the send activating character.

BB is the character sent at activation.

Each character in a pair must be in the range <30> to <39> and <41> to <46> (or <61> to <66>).

6.2.24 DL - Delete Line

6.2.24

Representation: CSI pl <4D>

Default value: 1.

The contents of the active line and pl preceding or following lines are removed, depending on the setting of the VERTICAL EDITING MODE. The contents of a number of preceding or following lines are shifted towards the active line. At the other end of the shifted part pl lines are erased. The extent of the data affected by the deletion depends on the setting of the EDITING BOUNDARY MODE.

Any occurrences of the start or end of a selected area, the start or end of a qualified area, or a tabulation stop in the shifted part are also shifted.

If the TABULATION STOP MODE is set to SINGLE, horizontal tabulation stops in the erased lines are cleared.

If the number of lines to be removed is larger than the existing candidates for removal, only the number of existing candidates are removed.

In page mode the function is ignored.

Affected by switches: Vertical editing mode.
Tabulation stop mode.
Editing boundary mode.
Roll/Page mode.

erased.

The extent of the string affected by the erasure depends on the setting of the EDITING BOUNDARY MODE. Whether protected areas are erased, or unprotected areas only, depends on the setting of the ERASURE MODE.

Only characters (i.e. not their graphic rendition) will be affected.

Affected by switches: Editing boundary mode
Erasure mode.

6.2.28 ECH - Erase Character

6.2.28

Representation: CSI pl <58>

Default value: 1.

The active position and the pl - 1 following character positions are erased. The extent of the string affected by the erasure depends on the setting of the EDITING BOUNDARY MODE.

Whether protected areas are erased, or unprotected areas only, depends on the setting of the ERASURE MODE.

Affected by switches: Editing boundary mode
Erasure mode

6.2.29 ED - Erase in Display

6.2.29

Representation: CSI pl <4A>

Default value: 0.

Some or all character positions of the active page, i.e. the page in which the active position resides, are erased, depending on the parameter value:

- 0 the active position and the character positions up to the end of the page are erased
- 1 the character positions from the beginning of the page up to and including the active position are

MODE.

Affected by switches: Editing boundary mode
Erasure mode.

6.2.31 EL - Erase in Line

6.2.31

Representation: CSI pl <4B>

Default value: 0.

Some or all character positions of the active line are erased, depending on the parameter value:

- 0 the active position and the character positions up to the end of the line are erased
- 1 the character positions from the beginning of the line up to and including the active positions are erased
- 2 all character positions of the line are erased.
- 10 field and area definitions at the active position up to the end of the line are removed. The graphic rendition of the positions are set to normal.
- 11 field and area definitions from the beginning of the line up to and including the active position are removed.
- 12 all field and area definitions are removed from the active line, and the graphic rendition are set to normal in the positions.

Whether protected areas are erased, or unprotected areas only, depends on the setting of the ERASURE MODE.

Affected by switches: Erasure mode.

6.2.32 EMI - Enable Manual Input

6.2.32

Representation: ESC <62>

Ignored.

The escape code must be followed by:

1. A code within the range <40> to <5F> as a terminator, when the ESC code is used to make a C1 code, see 6.3
2. A code within the range <60> to <63> as terminator in the accepted two byte ESC sequences, see 6.3.

If the code following the ESC code is illegal, the ESC code and the illegal code is ignored.

6.2.37 FNT - Font Selection

6.2.37

Representation: CSI p1;p2 <20><44>

Default values: 0

Ignored.

6.2.38 GSM - Graphic Size Modification

6.2.38

Representation: CSI p1;p2 <20><42>

Default values: 100

Ignored.

6.2.39 GSS - Graphic Size Selection

6.2.39

Representation: CSI p1 <20><43>

Default value: None

Ignored.

6.2.44 HTJ - Horizontal Tabulation with Justification

6.2.44

Representation: <89> or ESC <49>

Ignored.

6.2.45 HTS - Horizontal Tabulation Set

6.2.45

Representation: <88> or ESC <48>

HTS is a format effector which causes a horizontal tabulation stop to be set at the active position.

The number of lines affected depends on the setting of the TABULATION STOP MODE.

Affected by switch: Tabulation stop mode.

6.2.46 HTSA - Horizontal Tabulation Set Absolute

6.2.46

Representation: CSI pl;...;pn <20><4E>

Default value: None.

HTSA is a format effector which causes a horizontal tabulation stop to be set at each position corresponding to a parameter value.

All other horizontal tabulation stops in the affected line or lines are cleared. The active position is not affected.

Affected by switch: Tabulation stop mode.

6.2.47 HVP - Horizontal and Vertical Position

6.2.47

Representation: CSI pl;p2 <66>

Default value: 1.

HVP is a format effector which is stored (dependant on format effector action mode) or executed as a CUP.

Affected by switches: Format effector action mode

Any occurrences of the start or end of a selected area, the start or end of a qualified area, or a tabulation stop in the shifted part are also shifted.

Any occurrences of the start or end of selected areas, the start or end of qualified areas in the erased lines are removed and the graphic rendition of the erased position are set to normal. At the first position of the inserted lines an SSA is inserted, and an ESA is inserted in the last position.

If the TABULATION STOP MODE is set to SINGLE, horizontal tabulation stops in the erased lines are cleared.

In page mode this control sequence is ignored.

Affected by switches: Vertical editing mode
Editing boundary mode
Tabulation stop mode
Roll/page mode.

6.2.51 IND - Index

6.2.51

Representation: <84> or ESC <44>

IND is identical to a default CUD.

6.2.52 INT - Interrupt

6.2.52

Representation: ESC <61>

The terminal will restart, except that no test programs will be executed.

6.2.53 JFY - Justify

6.2.53

Representation: CSI pl;..pn <20><46>

Default value: 0

Ignored.

6.2.57 NEL - Next Line

6.2.57

Representation: <85> or ESC <45>

NEL is a format effector which is either stored (if format effector action mode is STORE) or executed as a default CNL.

Affected by switches: Format effector action mode.

6.2.58 NP - Next Page

6.2.58

Representation: CSI p1 <55>

Default value: 1.

The p1-th following page of a multiple-page buffer is displayed.

If the number of the current page plus p1 is larger than the actual number of pages, the last page will be displayed.

The cursor position is unchanged.

6.2.59 OSC - Operating System Command

6.2.59

representation: <9D> or ESC <5D>

OSC is the opening delimiter of a control string for privacy message use. The control string consists of maximum 80 characters, further characters until ST will be dropped.

Message characters outside the range <20> to <7E> are ignored.

Line 25 is saved and the control string is written on line 25.

If p1 is illegal, the PPA is ignored.

6.2.65 PPB - Page Position Backward

6.2.65

Representation: CSI p1 <20><52>

Default value: 1.

PPB is a format effector which causes the active position to be moved to the corresponding horizontal and vertical position on the p1-th preceding page.

If the number of the current page minus p1 is zero or less, the actual position will be moved to the first page.

6.2.66 PPR - Page Position Relative

6.2.66

Representation: CSI p1 <20><51>

Default value: 1.

PPR is a format effector which causes the active position to be moved to the corresponding horizontal and vertical position on the p1-th following page.

If the number of the current page plus p1 is larger than the number of pages, the actual position is moved to the last page.

6.2.67 PU 1 - Private Use 1 (Clear SSA)

6.2.67

Representation: <91> or ESC <51>

Character positions are scanned from the active position and backwards, and the first SSA-indicator met are removed.

6.2.72 RIS - Reset to Initial State

6.2.72

Representation: ESC <63>

This sequence will have the same effect as if the power were switched off and on again.

6.2.73 RM - Reset Mode

6.2.73

Representation: CSI pl; ...;pn <6C>

Default value: None.

RM resets (sets to default) one or more modes of the terminal. Each mode is specified by a parameter value, see SM.

6.2.74 SD - Scroll Down

6.2.74

representation: CSI pl <54>

Default value: 1.

The displayed portion of a multiple-page buffer is moved by pl lines such that the displayed data appear to move down.

Affected by switch: Roll/page mode.

SD is ignored, if the roll/page mode is set to PAGE.

6.2.75 SEE - Select Editing Extent

6.2.75

Representation: CSI pl <51>

Default value: 0.

SEE establishes the editing extent for character insertion or deletion, depending on the parameter value:

50 neutral (characters are written without affecting the existing graphic rendition.

All other parameter values are ignored.

6.2.77 SI - Shift In

6.2.77

Representation: <OF>

Characters subsequently received will be displayed from the standard character set.

6.2.78 SL - Scroll Left

6.2.78

Representation: CSI pl <20><40>

Default value: 1.

The displayed portion of a multiple-page buffer is moved by pl character positions such that the displayed data appear to move to the left.

The SL is dropped, if the roll/page mode switch is set to PAGE.

Affected by switch: Roll/page mode.

6.2.79 SM - Set Mode

6.2.79

Representation: CSI pl;...;pn <68>

Default value: None.

SM sets one or more mode switches in the terminal. Each mode switch is specified by a numeric value.

Parameter values:

1 Guarded area transfer mode

6.2.80 SO - Shift Out

6.2.80

Representation: <OE>

Characters subsequently received will be displayed from the semigraphic character set.

6.2.81 SPA - Start of Protected Area

6.2.81

Representation: <96> or ESC <56>

SPA indicates that the active position is the first of a string of character positions, the contents of which are protected against manual alteration and are guarded against transmission. The end of this string is indicated by END OF PROTECTED AREA (EPA) or a DAQ.

6.2.82 SPI - Spacing Increment

6.2.82

Representation: CSI p1,p2 <20><47>

Default value: None

Ignored.

6.2.83 SR - Scroll Right

6.2.83

Representation: CSI p1 <20><41>

Default value: 1.

The displayed portion of a multiple-page buffer is moved by p1 character positions such that the displayed data appear to move to the right.

The SR is ignored, if the roll/page mode switch is set to PAGE.

Affected by switch: Roll/page mode.

6.2.87 SSU - Select Size Unit

6.2.87

Representation: CSI pl;...;pn <20><49>

Default value: None

Ignored.

6.2.88 ST - String Terminator

6.2.88

Representation: <9C> or ESC <5C>

ST is the closing delimiter of a string opened by APPLICATION PROGRAM COMMAND (APC), DEVICE CONTROL STRING (DCS), OPERATING SYSTEM COMMAND (OSC), or PRIVACY MESSAGE (PM).

6.2.89 STS - Set Transmission State

6.2.89

Representation: <93> or ESC <53>

STS causes transmission of data from the terminal to the host computer. The amount of data is dependent on the given switches, for further details confer chapter 8.

Affected by switches:

- guarded area transfer mode
- multiple area transfer mode
- selected area transfer mode
- transfer termination mode
- suppress trailing spaces
- modified area transfer mode
- format effector transfer mode

6.2.90 SU - Scroll Up

6.2.90

Representation: CSI pl <53>

Default value: 1.

The displayed portion of a multiple-page buffer is moved by pl lines such that the displayed data appear to move up.

position to be moved to the corresponding horizontal position at vertical position pl.

If pl is zero the active position will be at the first data line.

If pl is greater than the number of the last data line, the active position will be at the last data line.

If format effector action mode is STORE the VPA is stored as a graphic.

Affected by switch: Format effector action mode.

6.2.94 VPB - Vertical Position Backward

6.2.94

Representation: CSI pl <6B>

Default value: 1.

VPB is a format effector which is stored (dependant on format effector action mode) or executed as a CUU.

Affected by switches: Format effector action mode.
Control representation mode.

6.2.95 VPR - Vertical Position Relative

6.2.95

Representation: CSI pl <65>

Default value: 1.

VPR is a format effector which is stored (dependant on format effector action mode) or executed as a CUD.

Affected by switches: Format effector action mode.
Control representation mode.

6.3 Summary of Received Code Sequences

6.3

Summary of accepted CO codes

Summary of accepted C1 codes

Summary of accepted CSI sequences without intermediates

*) Not defined in standard.

Summary of Accepted CSI Sequences with <20> as an
Intermediate

Summary of Escape F's Sequences

6.4 Transmitted Data and Code Sequences

6.4

Data characters and control codes transmitted from the terminal will be within the range <00> to <9F>. The codes from <00> to <7F> will be transmitted as they are, while the codes from <80> to <9F> are C1-codes that will be transmitted as follows:

- If the switch TCL (transmission code length) is set to 8bit, the C1-code will be transmitted as it is.
- If the switch TCL is set to 7bit, the C1-code will be transmitted as an escape sequence in the following way:
First the ESC <1B> code is transmitted, then the C1-code will be converted to a code from <40> to <5F>, (this is done by subtracting <40> from the C1-code) and transmitted.

6.4.1 Transmitted Data

6.4.1

All data transmitted from the display buffer will be in the range <20> to <7F>. Character codes outside this range are transformed into <20> before transmission.

6.4.2 Transmitted Code Sequences

6.4.2

APC Application program command.

Representation: <9F> or ESC <5F>

An existing program command string will be sent at any STS request as the first part of the transmitted data.

The command string is terminated with a ST command.

CPR Cursor position report.

Representation: CSI p1;p2 <52>

The code sequence is generated on a DSR (with

All transmission of data requested from the display buffer are terminated with an ETB.

INT Interrupt.

Representation: ESC <61>

INT indicates a break to the host computer.

MC Media copy.

Representation: CSI pl <69>

Activation of the PRINT key on the keyboard triggers a MC code sequence to the host computer, if the printer mode switch is set to REMOTE.

Parameter value: 0

Affected by switches: Printer mode.

OSC Operating system command.

Representation: <9D> or ESC <5D>

The operator may send off a OSC command to the host computer, see chapter 7.

The command or message will be preceded by the code OSC <9D> and terminated by the code ST <9C>.

The command or the message will consist of characters within the range <20 - 7E>, and it may be up to 80 characters long.

RIS Reset to initial state.

Representation: ESC <63>

A RIS is sent to the host computer at every power up/soft reset of the RC851.

ST String terminator.

Representation: <9C> or ESC <5C>

ST is the terminating delimiter of an APC-, OSC-command, or DCS-command.

US Unit separator.

7. OPERATORS GUIDE

7.

This section describes the RC851 keyboard, how to alter soft switches of the terminal, how to program the push-keys and the structure of the terminal status line.

7.1 Keyboard

7.1

The keyboard converts keystrokes into 8 bit codes for transmission to the terminal. These character codes are divided into four categories:

- control characters
- graphic characters
- edit characters
- special function characters

All keys on the keyboard have auto repeat, i.e. they cause repeated character code transmission when held down long enough.

Any character code may be entered from the keyboard by holding the ctrl key down while typing the wanted decimal code.

7.1.1 Control Character Codes

7.1.1

By pushing keys in typewriter area simultaneously with the CTRL key, all codes in the range <00>-<1F> may be generated.

NUL	<00>	CTRL ~, CTRL @	CTRL spacebar
SOH	<01>	CTRL A, CTRL a	
STX	<02>	CTRL B, CTRL b	
ETX	<03>	CTRL C, CTRL c	
EOT	<04>	CTRL D, CTRL d	
ENQ	<05>	CTRL E, CTRL e	
ACK	<06>	CTRL F, CTRL f	
BEL	<07>	CTRL G, CTRL g	
BS	<08>	CTRL H, CTRL h	
HT	<09>	CTRL I, CTRL i	
LF	<0A>	CTRL J, CTRL j	
VT	<0B>	CTRL K, CTRL k	
FF	<0C>	CTRL L, CTRL l	
CR	<0D>	CTRL M, CTRL m	
SO	<0E>	CTRL N, CTRL n	
SI	<0F>	CTRL O, CTRL o	
DLE	<10>	CTRL P, CTRL p	
DC1	<11>	CTRL Q, CTRL q	
DC2	<12>	CTRL R, CTRL r	
DC3	<13>	CTRL S, CTRL s	
DC4	<14>	CTRL T, CTRL t	
NAC	<15>	CTRL U, CTRL u	
SYN	<16>	CTRL V, CTRL v	
ETB	<17>	CTRL W, CTRL w	
CAN	<18>	CTRL X, CTRL x	
EM	<19>	CTRL Y, CTRL y	
SUB	<1A>	CTRL Z, CTRL z	
ESC	<1B>	CTRL Æ, CTRL æ	
FS	<1C>	CTRL Ø, CTRL ø	
GS	<1D>	CTRL Å, CTRL å	
RS	<1E>	CTRL , CTRL ,	
US	<1F>	CTRL _	

In simultaneous mode these codes are sent to the host computer, whereas they are executed in monitor mode.

7.1.3 Edit Character Codes

7.1.3

These codes are intended to provide (local) editing functions on the displayed amount of data. An edit key pressed while CTRL is held down is ignored.

IND:

The IND key lamp set indicates that the INSERTION/REPLACEMENT mode is INSERT, otherwise the mode is REPLACE. Each depression of the key will alter the mode between INSERT and REPLACE.

TEGN UD:

The key has the effect of a default DCH (6.2.22). Shift does not affect the key.

LINIE IND:

The key has the effect of a default IL (6.2.50).

LINIE IND (shifted):

Extends the selected area to which ap belongs, by one line. If the roll/page mode switch is PAGE the key is blind.

LINIE UD:

The key has the effect of a default DL (6.2.24), it is not affected by shift.

↑ (cursor up):

The key has the effect of a default CUU (6.2.18), it is not affected by shift.

← (cursor backward)

The key has the effect of a default CUB (6.2.14). Not affected by shift.

→ (cursor forward):

The key has the effect of a default CUF (6.2.16). Not affected by shift.

↓ (cursor down):

The key has the effect of a default CUD (6.2.15). Not affected by shift.

↖ (cursor home):

The key has the effect of a default CUP (6.2.17). Not affected by shift.

⤴ (cursor next line):

The key has the effect of a CR (6.2.11). Not affected by shift.

PRINT KEY LAMP:

The print key lamp is set whenever the keyboard is disabled.

SELECT:

The SELECT key lamp set indicates that the terminal is online otherwise the terminal is local. On power up the terminal goes online. First time the key is pressed the terminal goes in the local state and the key lamp is cleared. Next time the key is pressed the terminal goes online and so on. When the ONLINE switch is ONLINE the terminal stays online and the SELECT key is ignored. when the terminal is in the local state it will perform local echo, irrespective of the value of the echo switch.

REPEAT:

This key causes repetition of a key held down together with it. The repetition of the key is continued until another key is depressed or the repeat key is released. If the repeat key is depressed again within one second the repetition of the key code is continued.

The repeat key does not apply to the following keys:

shift, ctrl, lock, selct, usm, print, break,
osc, menu, reset, esc.

The repetition is stopped at activation of one of these characters.

RESET (ctrl):

This key only works in connection with the CTRL key. It causes a soft reset of the RC851 terminal. The Reset key depressed without CTRL has the effect of a SHIFT.

OSC (shift OSC/ST):

This key (shifted) is the opening delimiter of an operating system command. It causes the following action to be performed:

1. The cursor position is saved.
2. The contents of line 25 is saved.
3. The cursor is placed in the first position of line 25..

Now the terminal is ready to receive the operating system command. Only character codes in the interval <20> to <7E> are allowed, others are ignored. The

MENU (shifted):

This key causes a menu picture for altering of the standard mode switches to be set up. Meanwhile a copy of the original picture is saved. A further description of how to alter the soft switches is given in section 7.2.

MENU (ctrl):

This key combination causes the third menu picture, which contains soft switches with more than two values, to be set up.

MENU (ctrl + shift):

A depression of this key makes the terminal enter the special state for push-key programming.

SEND1, SEND2:

The two send keys are special PUSH-keys; they are both loaded with the predefined "send activating character" at power up or reset on terminal. Afterwards their contents may, like other PUSH-keys, be changed (temporary) by either the host computer or the operator. For further details on push-key programming confer section 7.3.

7.2 Soft Switch Setup

7.2

The soft switch setup mode is entered by typing SHIFT and MENU on the keyboard.

The first page of switch states is shown.

The setup of soft switches may be left in two ways:

- typing BREAK on the keyboard. The display picture existing before entering the soft switch setup mode is reestablished.
- typing CTRL + SHIFT and MENU or depressing a push-key, thereby entering the push-key programming mode.

7.2.2 Altering a Numeric Switch

7.2.2

Enter the value area for the wanted numeric switch by using the keys →, ←, ↓, ↑, ↵, →, or ←

Key in a numeric value in the range 1..255 in the open area, for temporary or permanent value.

To make it temporary, type T or t.

To make it permanent, type P or p.

If the number is in the range 1..255 it is transferred to area no. two/four and the value of the switch is changed.

7.2.3 Altering Other Switches

7.2.3

Enter the wanted text area for the wanted switch.

To make it temporary, type T or t.

To make it permanent, type P or p.

7.2.4 Resetting all Switches

7.2.4

All the existing switches may be reset to their default values. This is initiated by typing CTRL and RESET followed by one of the following characters:

P or p. The default values of all switches are saved in Non-Volatile memory.

T or t. The temporary values of all switches are set to their default values.

The first page of switches will be shown when the required action has been performed by the RC851.

7.3 Push Key Programming

7.3

The PUSH-keys give the user the ability to simulate a sequence of keystrokes by pushing a single key. The PUSH-keys may be used for text strings or control code sequences.

7.3.2 Layout of PUSH-key Menu

7.3.2

The PUSH-key menu will hold the status for one PUSH-key, which will be shown by activating the PUSH-key. The PUSH-key menu have the following format:

Nr.: xx key-name Type: NORMAL TRANSMIT LOCAL

TEMPORARY

Title: _____

Value: _____

Active Position Code

Nr. gives the number and the key top text of the PUSH-key. This field can not be changed by the operator.

Type gives the type of the PUSH-key:

- TRANSMIT
- LOCAL
- NORMAL

The type can be changed by the operator by typing T(or t) in the area containing the wanted type.

Title gives an explanation of the PUSH-key. The title can be changed by the operator. Only alphanumeric keys can be used.

Temporary value is the current temporary contents of the PUSH-key. The contents can be changed by the operator, see section 7.3.3.

Permanent value is the current permanent contents of the PUSH-key. The contents can be changed by the operator, see section 7.3.3.

Active position code gives the decimal code for the character at the cursor position.
The code can not be explicitly changed by the operator.

8. TRANSFER MODES

8.

This chapter concerns the modes affecting the transmitted data stream. When the host computer sends a SET TRANSMIT STATE (STS) to the terminal, the amount of actually transmitted data depends on the transfer modes.

The basic transfer modes are:

- guarded area transfer mode
- selected area transfer mode
- multiple area transfer mode
- transfer termination mode

Other modes affecting the transmitted data stream are:

- format effector transfer mode
- modified area transfer mode
- trailing spaces suppression

If the selected area transfer mode is SELECT only selected areas are considered for transmission; guarded/unguarded areas ignored.

If the selected area transfer mode is ALL only guarded areas are considered at transmission; and all occurrences of SSA and ESA are ignored.

A. PREDEFINED PUSH-KEYS

A.

Notation:

ECMA-48 control functions are enclosed in quotation marks, which are not part of the push-key value. When a number is in <>, it refers to a character code.

[illegible]

```

PAL (shift):          no.: 12
Title: OP blad
Value: "CHA59" _ _ <4>

```

```
PA2:                                no.: 3
Title: E fortsæt
Value: "CUP"fo<4>
```

```
PA2 (shift):          no.: 13
Title: E tilbage
Value: "CUP"tb<4>
```

```
PA3: no.: 4
Title: E ok
Value: "CUP"ok<4>
```

```
PA3 (shift):          no.: 14
Title: E frem
Value: "CUP"fr<4>
```

```
PA4:                                no.: 5
Title: E opdater
Value: "CUP"op<4>
```

```
PA5:                               no.: 6
Title: Send Page Until Cursor
Value: "SM17"<4>
```

```
PA5 (shift):          no.: 16
Title: Send Page
Value: "SM16;17;77"<4>
```

B. NEGATIVE LIST FOR RC851 ECMA48 DISPLAY TERMINAL

B.

The following list gives the facilities from the reference manual, which are not implemented in the first version of the ECMA-48 terminal.

- 3.2 The character image output
 - more pages
- 4.2 Editing boundary mode
 - Fixed = display
- 4.4 Format effector action mode
 - Fixed = execute
- 4.5 Format effector transfer mode
 - Fixed = exclude
- 4.15 Status report transfer mode
 - Fixed = normal
- 4.16 Tabulation stop mode
 - Fixed = single
- 5.17 Lines per page switch
 - Fixed = 25 lines
- 5.18 Margin bell switch
 - Fixed = off
- 5.33 Timeout switch
 - Fixed = on

C. CONTENTS OF THE RC851 CHARACTER GENERATOR

C.

Appendix A describes the contents of the RC851 character generator and the way, in which the host computer obtains access to the dot matrices given.

The characters are divided into four groups:

- control characters (C0)
fourth character set (G3)
- standard character set (G0)
- second character set (G1)
extension of the standard character set.
- third character set (G2)
semigraphic character set
- third character set (third)
extension of the standard character set.

For each character in the character generator,
its number in the character generator,
the group membership described above,
its code within the group,
and its 9*16 dot matrix is given.

0 (ctrl/0)										1 (ctrl/1)										2 (ctrl/2)									
1:										1:										1:									
2:	0									2:	0	0	0							2:	0	0	0						
3:	0									3:	0				0					3:	0				0				
4:	0	0								4:	0									4:	0								
5:	0		0							5:	0	0	0							5:	0	0	0						
6:	0			0						6:	0					0				6:	0				0				
7:	0				0					7:	0					0				7:	0				0				
8:	0					0				8:	0	0	0							8:	0	0	0						
9:							0			9:								0		9:							0		
10:										10:									0	10:							0		
11:										11:										11:					0		0		
12:										12:						0	0	0	0	12:						0			
13:										13:										13:						0		0	
14:										14:										14:							0		
15:					0	0	0	0	0	15:										15:							0		
16:										16:										16:									
	1	2	3	4	5	6	7	8	9		1	2	3	4	5	6	7	8	9		1	2	3	4	5	6	7	8	9

3 (ctrl/3)										4 (ctrl/4)										5 (ctrl/5)									
1:										1:										1:									
2:	0	0	0	0	0					2:	0	0	0	0	0					2:	0	0	0	0	0				
3:	0									3:	0									3:	0								
4:	0									4:	0									4:	0								
5:	0	0	0	0						5:	0	0	0	0						5:	0	0	0	0					
6:	0									6:	0									6:	0								
7:	0									7:	0									7:	0								
8:	0	0	0	0	0					8:	0	0	0	0	0					8:	0	0	0	0	0				
9:							0			9:						0	0	0	0	9:						0			
10:								0		10:										10:							0		
11:									0	11:										11:							0		
12:										12:										12:							0		
13:										13:										13:							0		
14:										14:										14:							0		
15:										15:										15:							0		
16:										16:										16:									
	1	2	3	4	5	6	7	8	9		1	2	3	4	5	6	7	8	9		1	2	3	4	5	6	7	8	9

6 (ctrl/6)										7 (ctrl/7)										8 (ctrl/8)									
1:										1:										1:									
2:	0	0	0							2:	0	0	0	0						2:	0	0	0	0					
3:	0									3:	0					0				3:	0					0			
4:	0									4:	0						0			4:	0					0			
5:	0	0	0	0	0					5:	0	0	0	0						5:	0	0	0	0					
6:	0									6:	0						0			6:	0					0			
7:	0									7:	0						0			7:	0					0			
8:	0									8:	0	0	0	0						8:	0	0	0	0					
9:								0		9:										9:						0	0	0	
10:									0	10:										10:							0		
11:										11:										11:							0		
12:										12:										12:							0		
13:										13:										13:							0		
14:										14:										14:							0		
15:										15:										15:							0		
16:										16:										16:									
	1	2	3	4	5	6	7	8	9		1	2	3	4	5	6	7	8	9		1	2	3	4	5	6	7	8	9

18 (ctrl/18)

1:									
2:	0	0	0	0					
3:	0				0				
4:	0				0				
5:	0				0				
6:	0				0				
7:	0				0				
8:	0	0	0	0					
9:					0	0	0		
10:				0				0	
11:								0	
12:								0	
13:								0	
14:					0				
15:				0	0	0	0	0	
16:									
	1	2	3	4	5	6	7	8	9

19 (ctrl/19)

1:									
2:	0	0	0	0					
3:	0				0				
4:	0				0				
5:	0				0				
6:	0				0				
7:	0				0				
8:	0	0	0	0					
9:					0	0	0		
10:				0				0	
11:								0	
12:								0	
13:								0	
14:					0			0	
15:					0	0	0		
16:									
	1	2	3	4	5	6	7	8	9

20 (ctrl/20)

1:									
2:	0	0	0	0					
3:	0				0				
4:	0				0				
5:	0				0				
6:	0				0				
7:	0				0				
8:	0	0	0	0					
9:								0	0
10:					0			0	
11:					0			0	
12:					0			0	
13:					0	0	0	0	0
14:								0	
15:								0	
16:									
	1	2	3	4	5	6	7	8	9

21 (ctrl/21)

1:									
2:	0				0				
3:	0				0				
4:	0	0			0				
5:	0		0		0				
6:	0			0	0				
7:	0				0				
8:	0				0				
9:					0	0	0		
10:					0			0	
11:					0				
12:					0				
13:					0				
14:					0			0	
15:					0	0	0		
16:									
	1	2	3	4	5	6	7	8	9

22 (ctrl/22)

1:									
2:	0	0	0						
3:	0				0				
4:	0								
5:	0	0	0						
6:	0				0				
7:	0				0				
8:	0	0	0						
9:					0			0	
10:					0			0	
11:					0	0		0	
12:					0		0	0	
13:					0		0	0	
14:					0			0	
15:					0			0	
16:									
	1	2	3	4	5	6	7	8	9

23 (ctrl/23)

1:									
2:	0	0	0	0	0				
3:	0								
4:	0								
5:	0	0	0	0					
6:	0								
7:	0								
8:	0	0	0	0	0				
9:					0	0	0	0	
10:					0			0	
11:					0			0	
12:					0	0	0	0	
13:					0			0	
14:					0			0	
15:					0	0	0	0	
16:									
	1	2	3	4	5	6	7	8	9

24 (ctrl/24)

1:									
2:	0	0	0						
3:	0				0				
4:	0								
5:	0								
6:	0								
7:	0				0				
8:	0	0	0	0					
9:					0			0	
10:					0			0	
11:					0	0		0	
12:					0		0	0	
13:					0		0	0	
14:					0			0	
15:					0			0	
16:									
	1	2	3	4	5	6	7	8	9

25 (ctrl/25)

1:									
2:	0	0	0	0	0				
3:	0								
4:	0								
5:	0	0	0	0					
6:	0								
7:	0								
8:	0	0	0	0	0				
9:					0			0	
10:					0	0		0	
11:					0		0	0	
12:					0		0	0	
13:					0			0	
14:					0			0	
15:					0			0	
16:									
	1	2	3	4	5	6	7	8	9

26 (ctrl/26)

1:									
2:	0	0	0						
3:	0				0				
4:	0								
5:	0	0	0						
6:	0				0				
7:	0				0				
8:	0	0	0						
9:					0	0	0	0	
10:					0			0	
11:					0			0	
12:					0	0	0	0	
13:					0			0	
14:					0			0	
15:					0	0	0	0	
16:									
	1	2	3	4	5	6	7	8	9

```

36 (std/36)
1:
2:
3:
4:
5:      0
6:    0 0 0 0 0
7:  0   0   0
8:    0 0 0 0 0
9:      0   0
10:   0   0   0
11:    0 0 0 0 0
12:      0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

37 (std/37)

Point	16 (std/16)	37 (std/37)
1	1	1
2	2	2
3	3	3
4	4	4
5	5	5
6	6	6
7	7	7
8	8	8
9	9	9
10	10	10
11	11	11
12	12	12
13	13	13
14	14	14
15	15	15
16	16	16

```

38 (std/38)
1:
2:
3:
4:
5:      0 0
6:    0 0 0
7:    0 0
8:      0 0
9:      0 0 0 0
10:   0 0 0 0 0
11:   0 0 0 0
12:     0 0 0 0 0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

```

39      (std/39)
1:
2:
3:
4:      0
5:      0
6:      0
7:      0
8:
9:
10:
11:
12:
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

[illegible]

41 (std/41)

A scatter plot showing the relationship between the variable '16 (std/16)' on the x-axis and '41 (std/41)' on the y-axis. The x-axis ranges from 1 to 9, and the y-axis ranges from 1 to 16. Data points are represented by open circles. The points are clustered in a U-shape, with a vertical line of points at x=6 (y=5 to 9), a diagonal line from (4,4) to (5,11), and a single point at (12,4).

16 (std/16)	41 (std/41)
4	4
5	5
5	6
5	7
5	8
5	9
6	5
6	6
6	7
6	8
6	9
5	11
4	12

42 (std/42)

1:									
2:									
3:									
4:									
5:									
6:			0				0		
7:				0		0			
8:	0	0	0	0	0	0	0	0	
9:				0		0			
10:			0				0		
11:									
12:									
13:									
14:									
15:									
16:									

1 2 3 4 5 6 7 8 9

```

43 (std/43)
1:
2:
3:
4:
5:
6:      0
7:      0
8:    0 0 0 0 0
9:      0
10:     0
11:
12:
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

```

44 (std/44)
1:
2:
3:
4:
5:
6:
7:
8:
9:
10:
11:      0 0
12:      0 0
13:      0
14:      0
15:
16:
1 2 3 4 5 6 7 8 9

```

54 (std/54)

1:	
2:	
3:	0 0 0
4:	0
5:	0
6:	0
7:	0 0 0 0
8:	0 0
9:	0
10:	0
11:	0
12:	0 0 0
13:	
14:	
15:	
16:	

1 2 3 4 5 6 7 8 9

55 (std/55)

1:	
2:	
3:	0 0 0 0 0 0 0
4:	0
5:	0
6:	0
7:	0
8:	0
9:	0
10:	0
11:	0
12:	0
13:	
14:	
15:	
16:	

1 2 3 4 5 6 7 8 9

56 (std/56)

1:	
2:	
3:	0 0 0
4:	0
5:	0
6:	0
7:	0 0 0
8:	0
9:	0
10:	0
11:	0
12:	0 0 0
13:	
14:	
15:	
16:	

1 2 3 4 5 6 7 8 9

57 (std/57)

1:	
2:	
3:	0 0 0
4:	0
5:	0
6:	0
7:	0
8:	0 0 0
9:	0
10:	0
11:	0
12:	0 0 0
13:	
14:	
15:	
16:	

1 2 3 4 5 6 7 8 9

58 (std/58)

1:	
2:	
3:	
4:	
5:	
6:	0 0
7:	0 0
8:	
9:	
10:	
11:	0 0
12:	0 0
13:	
14:	
15:	
16:	

1 2 3 4 5 6 7 8 9

59 (std/59)

1:	
2:	
3:	
4:	
5:	
6:	0 0
7:	0 0
8:	
9:	
10:	
11:	0 0
12:	0 0
13:	0
14:	0
15:	
16:	

1 2 3 4 5 6 7 8 9

60 (std/60)

1:	
2:	
3:	
4:	
5:	
6:	0 0
7:	0 0
8:	0 0
9:	0
10:	0 0
11:	0 0
12:	0 0
13:	
14:	
15:	
16:	

1 2 3 4 5 6 7 8 9

61 (std/61)

1:	
2:	
3:	
4:	
5:	
6:	
7:	
8:	0 0 0 0 0
9:	
10:	0 0 0 0 0
11:	
12:	
13:	
14:	
15:	
16:	

1 2 3 4 5 6 7 8 9

62 (std/62)

1:	
2:	
3:	
4:	
5:	
6:	0 0
7:	0 0
8:	0 0
9:	0
10:	0 0
11:	0 0
12:	0 0
13:	
14:	
15:	
16:	

1 2 3 4 5 6 7 8 9

	72 (std/72)								
1:									
2:									
3:									
4:	0							0	
5:	0							0	
6:	0							0	
7:	0							0	
8:	0	0	0	0	0	0	0	0	
9:	0							0	
10:	0							0	
11:	0							0	
12:	0							0	
13:									
14:									
15:									
16:									
	1	2	3	4	5	6	7	8	9

```

73 (std/73)
1:
2:
3:
4:   0 0 0 0 0
5:   0
6:   0
7:   0
8:   0
9:   0
10:  0
11:  0
12:  0 0 0 0 0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

```

74 (std/74)
1:
2:
3:
4:      0 0 0 0 0
5:              0
6:              0
7:              0
8:              0
9:              0
10:             0
11:      0       0
12:          0 0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

75 (std/75)

A scatter plot showing the relationship between the standard deviation of the first variable (1) and the standard deviation of the 75th variable (75). The x-axis is labeled '1 (std/75)' and ranges from 1 to 9. The y-axis is labeled '75 (std/75)' and ranges from 1 to 16. Data points are represented by open circles. The points show a positive correlation, starting from (1, 1) and ending at (9, 16). There are some points that deviate from the main diagonal, such as (4, 8) and (8, 4).

1 (std/75)	75 (std/75)
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9

	76	(std/76)
1:		
2:		
3:		
4:	Ø	
5:	Ø	
6:	Ø	
7:	Ø	
8:	Ø	
9:	Ø	
10:	Ø	
11:	Ø	
12:	Ø	Ø Ø Ø Ø Ø Ø Ø
13:		
14:		
15:		
16:		
	1	2 3 4 5 6 7 8 9

```

77 (std/77)
1:
2:
3:
4: 0 0
5: 0 0
6: 0 0
7: 0 0
8: 0 0
9: 0 0
10: 0 0
11: 0 0
12: 0 0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

```

      78      (std/78)
1:
2:
3:
4:      0      0
5:      0      0
6:      0 0      0
7:      0      0
8:      0      0
9:      0      0
10:     0      0
11:     0      0
12:     0      0
13:
14:
15:
16:
      1  2  3  4  5  6  7  8  9

```

79 (std/79)

1:									
2:									
3:									
4:									
5:									
6:									
7:									
8:									
9:									
10:									
11:									
12:									
13:									
14:									
15:									
16:									

1 2 3 4 5 6 7 8 9

```

      80  (std/80)
1:
2:
3:
4:  0  0  0  0  0  0
5:  0                                0
6:  0                                0
7:  0                                0
8:  0  0  0  0  0  0
9:  0
10: 0
11: 0
12: 0
13:
14:
15:
16:
      1  2  3  4  5  6  7  8  9

```

```

98      (std/98)
1:
2:
3:
4:      0
5:      0
6:      0
7:      0      0  0  0
8:      0  0      0
9:      0      0
10:     0      0
11:     0  0      0
12:     0      0  0  0
13:
14:
15:
16:
1      2      3      4      5      6      7      8      9

```

```

108 (std/108)
1:
2:
3:
4:      0
5:      0
6:      0
7:      0
8:      0
9:      0
10:     0
11:     0
12:          0 0 0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

```

109 (std/109)
1:
2:
3:
4:
5:
6:
7:      0      0      0
8:      0 0      0 0      0
9:      0      0      0
10:     0      0      0
11:     0      0      0
12:     0      0      0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

```

110 (std/110)
1:
2:
3:
4:
5:
6:
7:  0      0  0  0
8:  0  0      0
9:  0      0
10: 0      0
11: 0      0
12: 0      0
13:
14:
15:
16:
1  2  3  4  5  6  7  8  9

```

```

111 (std/111)
1:
2:
3:
4:
5:
6:
7:
8:  0  0  0  0
9:  0      0
10: 0      0
11: 0      0
12:  0  0  0  0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

```

112 (std/112)
1:
2:
3:
4:
5:
6:
7:  0 0 0 0
8:  0 0 0 0
9:  0 0 0 0
10: 0 0 0 0
11: 0 0 0 0
12: 0
13: 0
14: 0
15:
16:
1 2 3 4 5 6 7 8 9

```

```

113 (std/113)
1:
2:
3:
4:
5:
6:
7:      0  0  0      0
8:    0      0  0
9:    0      0
10:   0      0  0
11:      0  0  0      0
12:      0
13:      0
14:      0
15:
16:
1  2  3  4  5  6  7  8  9

```

```

114 (std/114)
1:
2:
3:
4:
5:
6:
7:      0      0 0 0
8:      0 0
9:      0
10:     0
11:     0
12:     0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

```

115 (std/115)
1:
2:
3:
4:
5:
6:
7:   0 0 0 0
8:  0      0
9:   0 0
10:      0 0
11:  0      0
12:   0 0 0 0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

```

116 (std/116)
1:
2:
3:
4:
5:      0
6:      0
7:    0 0 0 0 0
8:      0
9:      0
10:     0
11:     0
12:      0 0
13:
14:
15:
16:
    1 2 3 4 5 6 7 8 9

```

```

128 (sec/32)
1:
2:
3:      0      0
4:      0      0
5:
6:      0      0
7:      0      0
8:      0      0
9:      0      0
10:     0      0
11:     0      0
12:      0 0 0 0 0
13:
14:
15:
16:
1 2 3 4 5 6 7 8 9

```

```

      131    (sec/35)
1:
2:
3:
4:          o o o
5:        o         o
6:       o
7:      o
8:   o o o o o
9:     o
10:    o
11:   o o o o
12:  o o       o o
13:
14:
15:
16:
    1 2 3 4 5 6 7 8 9
```

```

134 (sec/38)
1:
2:
3:      0      0
4:      0      0
5:
6:      0  0  0
7:      0      0
8:  0  0      0  0
9:  0  0  0  0  0  0
10: 0  0      0
11: 0      0
12: 0      0
13:
14:
15:
16:
1  2  3  4  5  6  7  8  9

```

144 (sec/48) 1: 2: 3: 0 0 4: 0 0 5: 6: 7: 8: 9: 10: 11: 12: 13: 14: 15: 16: 1 2 3 4 5 6 7 8 9	145 (sec/49) 1: 2: 3: 4: 0 0 0 5: 0 0 6: 0 7: 0 0 8: 0 0 9: 0 0 10: 0 0 11: 0 0 12: 0 0 0 13: 0 14: 15: 16: 1 2 3 4 5 6 7 8 9	146 (sec/50) 1: 2: 3: 4: 0 0 0 0 5: 0 0 0 0 6: 7: 0 0 0 0 8: 0 0 0 0 9: 0 0 0 0 10: 0 0 0 0 11: 0 0 0 0 12: 0 0 0 0 13: 14: 15: 16: 1 2 3 4 5 6 7 8 9
147 (sec/51) 1: 2: 3: 0 0 0 4: 0 0 0 5: 0 0 6: 0 0 7: 0 0 8: 0 0 9: 0 0 10: 0 0 11: 0 0 12: 0 0 13: 0 0 14: 0 0 15: 16: 1 2 3 4 5 6 7 8 9	148 (sec/52) 1: 2: 3: 4: 0 5: 0 6: 0 7: 0 0 8: 0 0 9: 0 0 10: 0 0 11: 0 0 12: 0 0 13: 14: 15: 16: 1 2 3 4 5 6 7 8 9	149 (sec/53) 1: 2: 3: 4: 0 5: 0 6: 0 7: 0 0 0 8: 0 0 0 9: 0 0 0 10: 0 0 0 11: 0 0 0 12: 0 0 0 13: 14: 15: 16: 1 2 3 4 5 6 7 8 9
150 (sec/54) 1: 2: 3: 4: 5: 0 0 6: 7: 0 0 0 8: 0 0 0 9: 0 0 0 10: 0 0 0 11: 0 0 0 12: 0 0 0 13: 14: 15: 16: 1 2 3 4 5 6 7 8 9	151 (sec/55) 1: 2: 3: 4: 5: 0 0 6: 7: 0 0 0 8: 0 0 0 9: 0 0 0 10: 0 0 0 11: 0 0 0 12: 0 0 0 13: 14: 15: 16: 1 2 3 4 5 6 7 8 9	152 (sec/56) 1: 2: 3: 4: 5: 6: 7: 0 0 0 8: 0 0 0 9: 0 10: 0 11: 0 12: 0 0 0 13: 0 14: 0 15: 16: 1 2 3 4 5 6 7 8 9

162 (sec/66)										163 (sec/67)										164 (sec/68)									
1:										1:										1:									
2:										2:										2:									
3:										3:										3:									
4:										4:										4:									
5:										5:										5:									
6:										6:										6:									
7:										7:										7:									
8:										8:										8:									
9:										9:										9:									
10:										10:										10:									
11:										11:										11:									
12:										12:										12:									
13:										13:										13:									
14:										14:										14:									
15:										15:										15:									
16:										16:										16:									
	1	2	3	4	5	6	7	8	9		1	2	3	4	5	6	7	8	9		1	2	3	4	5	6	7	8	9
165 (sec/69)										166 (sec/70)										167 (sec/71)									
1:										1:										1:									
2:										2:										2:									
3:										3:										3:									
4:										4:										4:									
5:										5:										5:									
6:										6:										6:									
7:										7:										7:									
8:										8:										8:									
9:										9:										9:									
10:										10:										10:									
11:										11:										11:									
12:										12:										12:									
13:										13:										13:									
14:										14:										14:									
15:										15:										15:									
16:										16:										16:									
	1	2	3	4	5	6	7	8	9		1	2	3	4	5	6	7	8	9		1	2	3	4	5	6	7	8	9
168 (sec/72)										169 (sec/73)										170 (sec/74)									
1:										1:										1:									
2:										2:										2:									
3:										3:										3:									
4:										4:										4:									
5:										5:										5:									
6:										6:										6:									
7:										7:										7:									
8:										8:										8:									
9:										9:										9:									
10:										10:										10:									
11:										11:										11:									
12:										12:										12:									
13:										13:										13:									
14:										14:										14:									
15:										15:										15:									
16:										16:										16:									
	1	2	3	4	5	6	7	8	9		1	2	3	4	5	6	7	8	9		1	2	3	4	5	6	7	8	9

```

      188      (sec/92)
1:
2:
3:
4:
5:
6: 0 0 0 0 0 0 0 0 0 0
7: 0 0 0 0 0 0 0 0 0 0
8: 0 0 0 0 0 0 0 0 0 0
9: 0 0 0 0 0 0 0 0 0 0
10: 0 0 0 0 0 0 0 0 0 0
11: 0 0 0 0 0 0 0 0 0 0
12: 0 0 0 0
13: 0 0 0 0
14: 0 0 0 0
15: 0 0 0 0
16: 0 0 0 0
      1 2 3 4 5 6 7 8 9

```

```

      206  (third/46)
1:      0 0 0 0 0
2:      0 0 0 0 0
3:      0 0 0 0 0
4:      0 0 0 0 0
5:      0 0 0 0 0
6: 0 0 0 0 0 0 0 0 0
7: 0 0 0 0 0 0 0 0 0
8: 0 0 0 0 0 0 0 0 0
9: 0 0 0 0 0 0 0 0 0
10: 0 0 0 0 0 0 0 0 0
11: 0 0 0 0 0 0 0 0 0
12:      0 0 0 0 0
13:      0 0 0 0 0
14:      0 0 0 0 0
15:      0 0 0 0 0
16:      0 0 0 0 0
      1 2 3 4 5 6 7 8 9

```

```

216  (third/56)
1:
2:
3:
4:
5:
6:      0 0 0 0 0
7:      0 0 0 0 0
8:      0 0 0 0 0
9:      0 0 0 0 0
10:     0 0 0 0 0
11:     0 0 0 0 0
12:    0 0 0 0 0 0 0 0 0
13:    0 0 0 0 0 0 0 0 0
14:    0 0 0 0 0 0 0 0 0
15:    0 0 0 0 0 0 0 0 0
16:    0 0 0 0 0 0 0 0 0
      1 2 3 4 5 6 7 8 9

```

```

      217  (third/57)
1: 0 0 0 0
2: 0 0 0 0
3: 0 0 0 0
4: 0 0 0 0
5: 0 0 0 0
6:
7:      0 0 0 0 0
8:      0 0 0 0 0
9:      0 0 0 0 0
10:     0 0 0 0 0
11:     0 0 0 0 0
12: 0 0 0 0 0 0 0 0 0
13: 0 0 0 0 0 0 0 0 0
14: 0 0 0 0 0 0 0 0 0
15: 0 0 0 0 0 0 0 0 0
16: 0 0 0 0 0 0 0 0 0
    1 2 3 4 5 6 7 8 9

```

```

      218  (third/58)
1:      0 0 0 0 0
2:      0 0 0 0 0
3:      0 0 0 0 0
4:      0 0 0 0 0
5:      0 0 0 0 0
6:      0 0 0 0 0
7:      0 0 0 0 0
8:      0 0 0 0 0
9:      0 0 0 0 0
10:     0 0 0 0 0
11:     0 0 0 0 0
12:  0 0 0 0 0 0 0 0 0
13:  0 0 0 0 0 0 0 0 0
14:  0 0 0 0 0 0 0 0 0
15:  0 0 0 0 0 0 0 0 0
16:  0 0 0 0 0 0 0 0 0
      1 2 3 4 5 6 7 8 9

```

	219	(third/59)
1:	0 0 0 0 0 0 0 0 0	
2:	0 0 0 0 0 0 0 0 0	
3:	0 0 0 0 0 0 0 0 0	
4:	0 0 0 0 0 0 0 0 0	
5:	0 0 0 0 0 0 0 0 0	
6:		0 0 0 0 0 0
7:		0 0 0 0 0 0
8:		0 0 0 0 0 0
9:		0 0 0 0 0 0
10:		0 0 0 0 0 0
11:		0 0 0 0 0 0
12:	0 0 0 0	0 0 0 0 0 0
13:	0 0 0 0 0 0 0 0 0	
14:	0 0 0 0 0 0 0 0 0	
15:	0 0 0 0 0 0 0 0 0	
16:	0 0 0 0 0 0 0 0 0	
	1 2 3 4 5 6 7 8 9	

```

220      (third/60)
1:
2:
3:
4:
5:
6: 0 0 0 0 0 0 0 0 0 0
7: 0 0 0 0 0 0 0 0 0 0
8: 0 0 0 0 0 0 0 0 0 0
9: 0 0 0 0 0 0 0 0 0 0
10: 0 0 0 0 0 0 0 0 0 0
11: 0 0 0 0 0 0 0 0 0 0
12: 0 0 0 0 0 0 0 0 0 0
13: 0 0 0 0 0 0 0 0 0 0
14: 0 0 0 0 0 0 0 0 0 0
15: 0 0 0 0 0 0 0 0 0 0
16: 0 0 0 0 0 0 0 0 0 0
      1 2 3 4 5 6 7 8 9

```

```

      221  (third/61)
1: 0 0 0 0
2: 0 0 0 0
3: 0 0 0 0
4: 0 0 0 0
5: 0 0 0 0
6: 0 0 0 0 0 0 0 0 0 0
7: 0 0 0 0 0 0 0 0 0 0
8: 0 0 0 0 0 0 0 0 0 0
9: 0 0 0 0 0 0 0 0 0 0
10: 0 0 0 0 0 0 0 0 0 0
11: 0 0 0 0 0 0 0 0 0 0
12: 0 0 0 0 0 0 0 0 0 0
13: 0 0 0 0 0 0 0 0 0 0
14: 0 0 0 0 0 0 0 0 0 0
15: 0 0 0 0 0 0 0 0 0 0
16: 0 0 0 0 0 0 0 0 0 0
      1 2 3 4 5 6 7 8 9

```

```

222      (third/62)
1:      0 0 0 0 0
2:      0 0 0 0 0
3:      0 0 0 0 0
4:      0 0 0 0 0
5:      0 0 0 0 0
6: 0 0 0 0 0 0 0 0 0 0
7: 0 0 0 0 0 0 0 0 0
8: 0 0 0 0 0 0 0 0 0
9: 0 0 0 0 0 0 0 0 0
10: 0 0 0 0 0 0 0 0 0
11: 0 0 0 0 0 0 0 0 0
12: 0 0 0 0 0 0 0 0 0
13: 0 0 0 0 0 0 0 0 0
14: 0 0 0 0 0 0 0 0 0
15: 0 0 0 0 0 0 0 0 0
16: 0 0 0 0 0 0 0 0 0
      1 2 3 4 5 6 7 8 9

```

```

      223      (third/63)
1: 0 0 0 0 0 0 0 0 0
2: 0 0 0 0 0 0 0 0 0
3: 0 0 0 0 0 0 0 0 0
4: 0 0 0 0 0 0 0 0 0
5: 0 0 0 0 0 0 0 0 0
6: 0 0 0 0 0 0 0 0 0
7: 0 0 0 0 0 0 0 0 0
8: 0 0 0 0 0 0 0 0 0
9: 0 0 0 0 0 0 0 0 0
10: 0 0 0 0 0 0 0 0 0
11: 0 0 0 0 0 0 0 0 0
12: 0 0 0 0 0 0 0 0 0
13: 0 0 0 0 0 0 0 0 0
14: 0 0 0 0 0 0 0 0 0
15: 0 0 0 0 0 0 0 0 0
16: 0 0 0 0 0 0 0 0 0
      1 2 3 4 5 6 7 8 9

```

```

224  (third/64)
1:
2:
3:
4:
5:
6:
7:
8: 0 0 0 0 0 0 0 0 0
9:
10:
11:
12:
13:
14:
15:
16:
    1 2 3 4 5 6 7 8 9

```

234 (third/74) 1: 0 2: 0 3: 0 4: 0 5: 0 6: 0 7: 0 8: 0 9: 0 10: 0 11: 0 12: 0 13: 0 14: 0 15: 0 16: 0 1 2 3 4 5 6 7 8 9	235 (third/75) 1: 0 2: 0 3: 0 4: 0 5: 0 6: 0 7: 0 8: 0 9: 0 10: 0 11: 0 12: 0 13: 0 14: 0 15: 0 16: 0 1 2 3 4 5 6 7 8 9	236 (third/76) 1: 0 2: 0 3: 0 4: 0 5: 0 6: 0 7: 0 8: 0 9: 0 10: 0 11: 0 12: 0 13: 0 14: 0 15: 0 16: 0 1 2 3 4 5 6 7 8 9
237 (third/77) 1: 0 2: 0 3: 0 4: 0 5: 0 6: 0 7: 0 8: 0 0 0 9: 0 10: 0 11: 0 12: 0 13: 0 14: 0 15: 0 16: 0 1 2 3 4 5 6 7 8 9	238 (third/78) 1: 0 2: 0 3: 0 4: 0 5: 0 6: 0 7: 0 8: 0 0 0 0 0 0 0 0 9: 0 10: 0 11: 0 12: 0 13: 0 14: 0 15: 0 16: 0 1 2 3 4 5 6 7 8 9	239 (third/79) 1: 0 2: 0 3: 0 4: 0 5: 0 6: 0 7: 0 0 0 8: 0 0 0 0 0 0 0 0 9: 0 0 0 10: 0 11: 0 12: 0 13: 0 14: 0 15: 0 16: 0 1 2 3 4 5 6 7 8 9
240 (third/80) 1: 0 2: 0 3: 0 4: 0 5: 0 6: 0 7: 0 0 0 8: 0 0 0 0 0 0 0 0 9: 0 0 0 10: 0 11: 0 12: 0 13: 0 14: 0 15: 0 16: 0 1 2 3 4 5 6 7 8 9	241 (third/81) 1: 0 2: 0 3: 0 0 0 4: 0 0 0 0 0 5: 0 6: 0 7: 0 8: 0 9: 0 10: 0 11: 0 12: 0 13: 0 14: 0 15: 0 16: 0 1 2 3 4 5 6 7 8 9	242 (third/82) 1: 0 2: 0 3: 0 4: 0 5: 0 6: 0 7: 0 8: 0 9: 0 10: 0 11: 0 12: 0 13: 0 0 0 0 0 14: 0 0 0 15: 0 16: 0 1 2 3 4 5 6 7 8 9

252 (third/92)	253 (third/93)	254 (third/94)
1: 0 0 0 0 0 0 0 0 0	1: 0 0 0 0 0 0 0 0 0	1:
2: 0 0 0 0 0 0 0 0 0	2: 0 0 0 0 0 0 0 0 0	2:
3: 0 0 0 0 0 0 0 0 0	3: 0 0 0 0 0 0 0 0 0	3:
4: 0 0 0 0 0 0 0 0 0	4: 0 0 0 0 0 0 0 0 0	4:
5: 0 0 0 0 0 0 0 0 0	5: 0 0 0 0 0 0 0 0 0	5:
6: 0 0 0 0 0 0 0 0 0	6: 0 0 0 0 0 0 0 0 0	6:
7: 0 0 0 0 0 0 0 0 0	7: 0 0 0 0 0 0 0 0 0	7:
8: 0 0 0 0 0 0 0 0 0	8:	8: 0 0 0 0 0 0 0 0 0
9: 0 0 0 0 0 0 0 0 0	9:	9: 0 0 0 0 0 0 0 0 0
10: 0 0 0 0 0 0 0 0 0	10:	10: 0 0 0 0 0 0 0 0 0
11: 0 0 0 0 0 0 0 0 0	11:	11: 0 0 0 0 0 0 0 0 0
12: 0 0 0 0 0 0 0 0 0	12:	12: 0 0 0 0 0 0 0 0 0
13: 0 0 0 0 0 0 0 0 0	13:	13: 0 0 0 0 0 0 0 0 0
14: 0 0 0 0 0 0 0 0 0	14:	14: 0 0 0 0 0 0 0 0 0
15: 0 0 0 0 0 0 0 0 0	15:	15: 0 0 0 0 0 0 0 0 0
16: 0 0 0 0 0 0 0 0 0	16:	16: 0 0 0 0 0 0 0 0 0
1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9	1 2 3 4 5 6 7 8 9
255 (third/95)		
1:		
2:		
3:		
4:		
5:		
6:		
7:		
8:		
9:		
10:		
11:		
12:		
13:		
14:		
15:		
16:		
1 2 3 4 5 6 7 8 9		

RETURN LETTER

Title: RC851 ECMA48 DISPLAY TERMINAL
REFERENCE MANUAL

RCSL No.: 99 0 00784

A/S Regnecentralen af 1979/RC Computer A/S maintains a continual effort to improve the quality and usefulness of its publications. To do this effectively we need user feedback, your critical evaluation of this manual.

Please comment on this manual's completeness, accuracy, organization, usability, and readability:

Do you find errors in this manual? If so, specify by page.

How can this manual be improved?

Other comments?

Name: _____ Title: _____

Company: _____

Address: _____

Date: _____

Thank you