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Author : J. Carøe

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General Information

about

The Alpha-Numerical Display

RC 805

for 600-4800 b/s data transmission

Preliminary Information

Key: RC 805, Hardware Description, General Information

Abstract : Provisional information about the RC 805 Alpha-Numerical Display.

A/S REGNECENTRALEN

i, Falkoneralle

2000 Copenhagen F

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The RC 805 Alpha-Numerical Display is a peripheral input/output system designed for use as remote or local terminal for the RC 4000 Computer System.

The connection to RC 4000 is established through one medium-speed channel in the RC 4124 teletypewriter.

SPECIFICATIONS AND FUNCTIONAL DESCRIPTION

1

Description.

1.1

The basic display unit is a self-contained unit including its own power supply, the Cathode Ray Tube (CRT), the refresh memory, control-circuits, and a datatransmission interface.

The input/output data are presented on the screen of the CRT provided with space for 12 lines containing 80 positions each.

The total of 960 positions is contained in the refresh memory, and the total frame is refreshed 50 times a second.

The RC 805 is supplied with a self-contained keyboard, enabling the operator to compose, edit, store, and forward messages to the dataprocessing machine.

Function.

1.2

Data exchange between display and computer is performed by block. Data from keyboard are entered directly in the refresh store.

When the operator wants to transmit the composed text, he initiates a conversation by pressing the SEND-key. The datatransmission interface adds parity and control characters and secures error-free transmission. After a conversation new conversation can be initiated from either display or computer.

A special feature enables the computer to reserve any area of the screen wanted as-protected-area by means of the function character US (Unit Separator). The limits of the protected area(s) are indicated to the operator by bright rectangular fields on the screen. The foremost US character of a protected area and the text following it are not transmitted back to the computer during a SEND operation whereas the US character ending a protected area is transmitted as a separator.

Characteristics.

1.3

Display format :

Totally 960 characters arranged in 12 lines with 80 positions each.

Screen :

Phosphor type : GH, green or white colour
31 cm (12 inches) in diagonal.

Adjustable brightness of the characters.

Character size :

Nominal height : 4 mm

- width : 2 mm

Character generation :

Read only memory character generator giving a dot pattern of 5 x 7 dots.

Character set :

64 letters, numerals, and signs plus

2 special symbols are displayed.

Capital letters are shown with greater brightness.

Defined character set for the display is found in appendix A.

The special editing characters are not written in the store and do not change the contents in it :

HT : moves the cursor one position to the right

VT : moves the cursor one line down

FF : moves the cursor to the upper left corner.

The characters

US : is stored and displayed as a bright

rectangular field indicating beginning and end of the protected area to which data cannot be entered from the keyboard.

The data in the protected area are not transmitted from the display. Only the US at the end of a - locked-area is transmitted acting as a separator between the open-areas.

For data transmission input the lockings are not active.

NL : causes the cursor to move to the first position of the following line. The character is stored and displayed as . Write-positions to the right of the NL sign are filled with SPs and are not transmitted from the display.

CAN: causes all-open-areas to be filled with spaces (SP-characters). The CAN character is not stored.

NOTE :

When transmitted from the computer the CAN-character must be followed by a number of dummy characters (e.g. DEL or NUL) .

Number of dummies at,

600 b/s 1 character

1200 b/s 3 characters

2400 b/s 5 -

4800 b/s 10 -

Character code :

ISO 7-bit character set.

On request the Danish version of the ISO alphabet is supplied.

Keyboard :

A standard ISO encoded keyboard is used.

Refresh memory :

Full integrated memory holding one complete screen-full of information.

Refresh rate :

50 frames per second.

Indicators :

POWER ON indicates that both Display and the modem equipment are ready for use.

NEUTRAL indicates that the Display is ready for any operation wanted.

LOCAL CONTROL indicates the LOCAL mode where any incoming messages will not disturb the text just composed. The LOCAL mode is indicated to the computer as an answer to the message in question. If any attempt is made to deliver a message to the Display in LOCAL mode, the CALL lamp will indicate this situation. By pressing the LOC.CNTR. key the NEUTRAL mode is reselected and the computer is asked for a retransmission of the rejected message, but the text just composed will be disturbed. If the text just composed is of higher priority than an incoming message the operator finishes his text by pressing the SEND or ATT key, which selects the SEND mode,

SEND indicates that the information from the screen is transmitted to the RC 4000. When the block is verified by the computer the NEUTRAL mode is selected. During a SEND operation the screen looks dark, but the message is not cancelled.

RECEIVE is selected by an incoming block. During the receive mode the screen looks dark. Only verified blocks are presented to the operator. NEUTRAL mode is selected after the RECEIVE mode.

Control keys :

LOC.CNTR. is a bistable switch, which selects the NEUTRAL mode where the keyboard is locked and the unit ready to receive or the LOCAL mode in which the operator can compose his message

to the computer.

SEND locks the keyboard, selects the line, and transmits the message. The SEND mode is not released until the proper answer is received. ATT causes a SEND mode in which the message composed is preceded by a block, which calls the operating system or activates the program with which it communicates. This mode is not released until the proper answer is received.

Transfer Rates :

600, 1200, 2400 or 4800 b/s asynchronous transmission with 10 bits per char. or synchronous transmission with 8 bits per char.

Cable :

One cable connects the display to RC 4000 or the modem equipment. Maximum length should not exceed 150 meters.

The RC 805 display system can be in one of the following modes ,

LOCAL CONTROL MODE

is obtained by pressing the LOC.CNTR. button.

In this mode a flashing symbol, the cursor, is shown on the screen indicating the position where the next character is to be written.

Data input is allowed from the keyboard, and the operator can compose and edit his message. Incoming message will not interrupt the text composition, but the operator is informed by the CALL lamp if an attempt is made.

if he then presses the SEND button, the incoming message is ignored and the composed text transmitted to the processor.

If he, however, re-presses the LOC.CNTR. button, the NEUTRAL MODE is obtained, and the processor is asked to retransmit the rejected message.

NEUTRAL MODE

Data entry from the keyboard is blocked, and the system is ready to receive incoming messages or to transmit the composed message.

SEND MODE

This mode can be selected from the NEUTRAL MODE or directly from the LOCAL CONTROL MODE preventing any incoming message to disturb the message just composed.

The keyboard is locked until transmission has ended, and NEUTRAL MODE is reselected.

SEND lamp is lit during the transmission.

RECEIVE MODE

This mode is automatically selected if the display system was in NEUTRAL MODE and a message is received from the processor.

RECEIVE lamp is lit during the reception.

RC 805 600-4800 b/s Data Transmission Display System.

3.1

Maximum blocksize is 960 graphics (see appendix A for full character set).

The Control characters CAN, HT, VT, and FF are not stored. For data transmission controls the ISO Draft Recommendations 1732 and 1734, ISO Recommendation R 646, and CCITT Recommendations V3, V4, V22, V24, and V26 are applied where applicable. Neither of the transmission control characters are stored.

For further programming information see RCSL No. 55-D98 "Control sequences for transfer of data blocks by means of data transmission networks".

The display unit requires no operator intervention except for powering up and brightness adjustment when required.

Keyboard.

4.1

Besides the graphics the keyboard includes several editing keys and transmission control keys. See appendix E.

The editing keys are → (HT), ↓ (VT), ← (BS), ↖ (FF), ↑ (UP), NL, CAN, CLEAR, REPEAT, and a RED key, the last-mentioned used to secure against undesired operation of certain keys.

Keyfunctions are listed below,

→ (HT)	moves the cursor one position to the right
↓ (VT)	- - - line down
← (BS)	- - - position to the left
↖ (FF)	- - - to the upper left corner of the screen
↑ (UP)	- - - one line up
NL =	- - - to the first position of the next line. NL is identified with a = symbol on the screen and the (LF) character in the memory.

CAN fills all open areas with the SP character.

CLEAR is only active in conjunction with the RED KEY. See below.

REP repeats the last function or character written as long as the button is pressed.

Note.

The UP function must not be repeated by means of the REPEAT button. By doing so the cursor is moved forward along the line and the NUL character is written in these positions.

RED KEY is a control key preventing erroneous operation of the US and CLEAR keys.

RED KEY depressed, enables the establishment of protected areas by means of the US key and to write within these areas.

This feature is intended for test purposes only.

RED KEY and CLEAR depressed simultaneously, a general Master Reset of the logic is initiated, and the memory is filled with SP-characters.

Connection.

4.2

For data transmission purposes modem equipment and a dialed or a leased line may be required.

In such cases normal operation will be ,

- a. Powering up the display system.
- b. Powering up modems.
- c. For dialed lines connection is established.
- d. Conversation between the display system and the processor can take place.

See appendix B.

LOCAL CONNECTION

For connections without modems the RC cable No. 55 is used.

CON. 1 is connected to the Display

CON. 2 is connected to the RC 4000

The transfer rate is determined by strappings in both ends of the cable.

REMOTE CONNECTION

For connections including modems the RC cable No. 52 is used at the Display end of the line and RC cable No. 56 at the RC 4000 end.

The transfer rate is determined by the modems and strappings in both cables.

Check of DC Voltage Levels.

6.1

The only maintenance necessary of the display system except the filter cleaning is a check and a possible adjustment of the DC voltages performed every 6 months.

Check and adjustment are performed in the power supply unit. The cover is removed, and the +5 V, -5 V, +15 V, and -15 V voltages are measured. Adjustment is performed by the potentiometers on the PC boards.

Cleaning Instruction for Viledon Filters.

6.2

Abstract: Instructions for cleaning of air-filter.

Filter Types.

6.3

At present P 15/500 filters are used in all units.

Cleaning Frequency.

6.4

Clean the filters as often as the instruction for the unit indicates.

If not otherwise mentioned, clean every three months.

If the premises are particularly dusty, clean more often.

Cleaning Methods.

6.5

Any of these three methods will be satisfactory,

- a. Wash the filter in lukewarm water (up to 40° C), to which detergent may be added. Spray the filter with a tube. Do not press the end of the tube as the filter cannot stand a jet of water.
Do not wring the filter. Spray on the fine, smooth side of the filter.
After washing, hang the filter up to dry.
- b. Clean the filter with compressed air, blowing from the fine, smooth side.
- c. Vacuum-clean the filter from both sides.

Reinsertion.

6.6

Reinsert the filter so that air enters from the coarse, wooly side and leaves from the fine, smooth side of the filter.

Replacement.

6.7

Replace the filter after five cleanings.

RC 805

— Signal levels between the modem and the display or between the RC 4124 and the display meet the requirements of the CCITT V24 recommendations.

STANDARD ACCESSORIES

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See appendix B.

System	RC Cable No.	Length	No.
RC 805	52	15 m	1
	or 55	15 m	1

The cable must be ordered in conjunction with the type of connection wanted.

POWER REQUIREMENTS AND ENVIRONMENTAL CONDITIONS

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Mains Supply ,
220 V AC $\pm 10\%$, 50-60 Hz single phase.
Connection to other mains can be supplied.

Environments,
Temperature : 10-40° C
Relative Humidity : 30-70%

PHYSICAL CHARACTERISTICS

10

Width : 0.40 m
Depth : 0.57 m
Height : 0.37 m
Weight : approx. 30 kg.

							0	0	0	0	1	1	1	1	
							0	0	1	1	0	0	1	1	
							0	1	0	1	0	1	0	1	
b ₇	b ₆	b ₅	b ₄	b ₃	b ₂	b ₁	Col. Row	0	1	2	3	4	5	6	7
0	0	0	0	0	0	0	(NUL)	(DLE)	SP	0		P		P	
0	0	0	1	1	1	1	(SOH)	(DC1)	!	i	A	Q	A	Q	
0	0	1	0	2	2	2	(STX)	(DC2)	"	2	B	R	B	R	
0	0	1	1	3	3	3	(ETX)	(DC3)	#	3	C	S	C	S	
0	1	0	0	4	4	4			\$	4	D	T	D	T	
0	1	0	1	5	5	5	(ENQ)	(NAK)	%	5	E	U	E	U	
0	1	1	0	6	6	6	(ACK)	(SYN)	&	6	F	V	F	V	
0	1	1	1	7	7	7			'	7	G	W	G	W	
1	0	0	0	8	8	8	BS	CAN	(8	H	X	H	X	
1	0	0	1	9	9	9	HT)	9	I	Y	I	Y	
1	0	1	0	10	10	10	NL		*	:	J	Z	J	Z	
1	0	1	1	11	11	11	VT		+	;	K	*	K	*	
1	1	0	0	12	12	12	FF		,	<	L	*	L	*	
1	1	0	1	13	13	13			-	=	M	*	M	*	
1	1	1	0	14	14	14			.	>	N		N	-	
1	1	1	1	15	15	15		US	/	?	O		O	DEL	

Capital letters
are shown with
greater brightness.

In the DANISH version of the alphabet
the *marked positions contain the letters:

Row 11: Æ

Row 12: Ø

Row 13: Å

The () marked characters are only used
as transmission control characters.