

DATA AUXILIARY SET 830C-TYPE

DESCRIPTION, INSTALLATION, AND TEST PROCEDURE

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1. GENERAL

1.01 Data auxiliary set (DAS) 830C (Fig. 1) interconnects a DAS 830A or 820D to a customer-provided terminal (CPT) or Bell System-provided teletypewriter (TTY).

1.02 Whenever this section is reissued, the reason for reissue will be listed in this paragraph.

1.03 DAS 830C is used to convert the standard EIA voltages of DAS 830A or 820D, equipped with a data set (DS) 108- or 109-type, to a 20 mA current interface for CPTs or Bell System TTY terminals requiring current interface. The 20 mA interface is either 3- or 4-wires and conforms to 30-, 45-, 55-, and 75-baud Private Line Channels Interface Specifications. Operation of the DAS 830C up to 150 baud is satisfactory; this permits its use with the Bell System general purpose 35 TTY in private line service. For speeds up to 75 baud, the voltage interface conforms to the EIA specification RS-232-C for 37-type TTYs and CPTs.

2. PHYSICAL DESCRIPTION

2.01 DAS 830C (Fig. 2) consists of a printed circuit board mounted on a 168D-49 backboard equipped with a 101A-49 cover. The circuit board

provides option jacks and screw terminals for connections to a CPT or TTY.

2.02 DAS 830C is equipped with a 6-foot cord. One end of the cord is connected to the DAS 830C and the other end is equipped with a male 25-pin EIA interface plug for connection to either DAS 830A or 820D. Leads used in the EIA cord are as indicated below:

- Pin 2—Transmitted data (BA)
- Pin 3—Received data (BB)
- Pin 7—Signal ground (AB)
- Pin 8—CF (not connected on 830C—lead taped and stored. Lead can be used for local engineering to provide a carrier detector indication)
- Pin 9—plus 24 volts (+P)
- Pin 10—minus 24 volts (−P).

2.03 The overall dimensions of the DAS 830C are: 1.2 inches high, 3.9 inches wide, and 2 inches deep. It weighs approximately 6 ounces.

POWER REQUIREMENTS

2.04 DAS 830C requires approximately 3/4 watt of filtered +24 ±2 volts and 3/4 watt of filtered −24 ±2 volts which are supplied by the associated DAS 830A and 820D.

3. CONNECTING ARRANGEMENTS

3.01 The connecting arrangements using DAS 830A or 820D-type (with AR17 circuit pack [CP]) are shown by Fig. 3. The DAS 830C is used in conjunction with a DAS 830A to provide a 3- or 4-wire 20 mA interface.

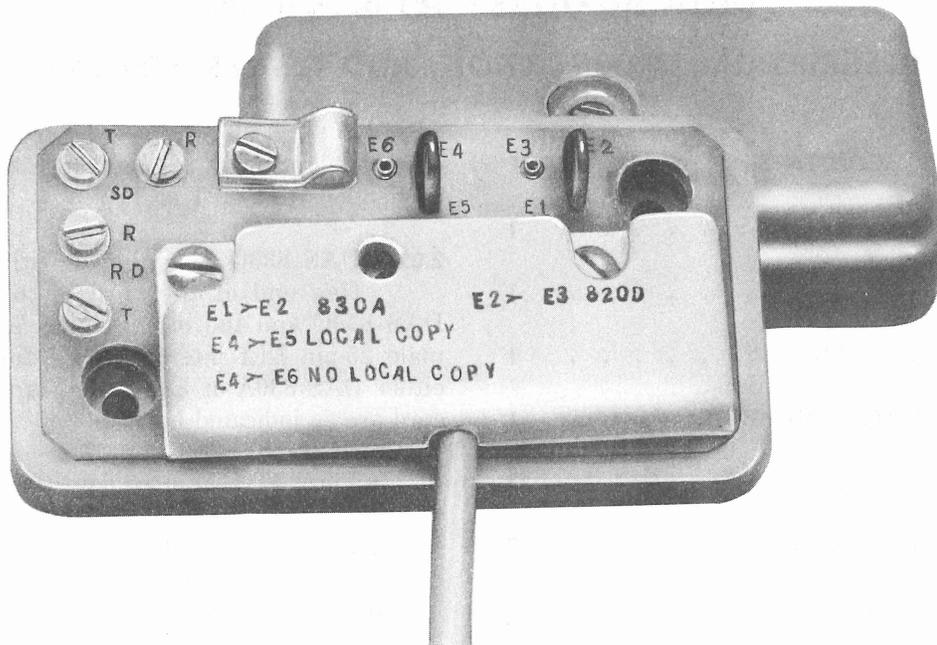


Fig. 1—Data Auxiliary Set 830C

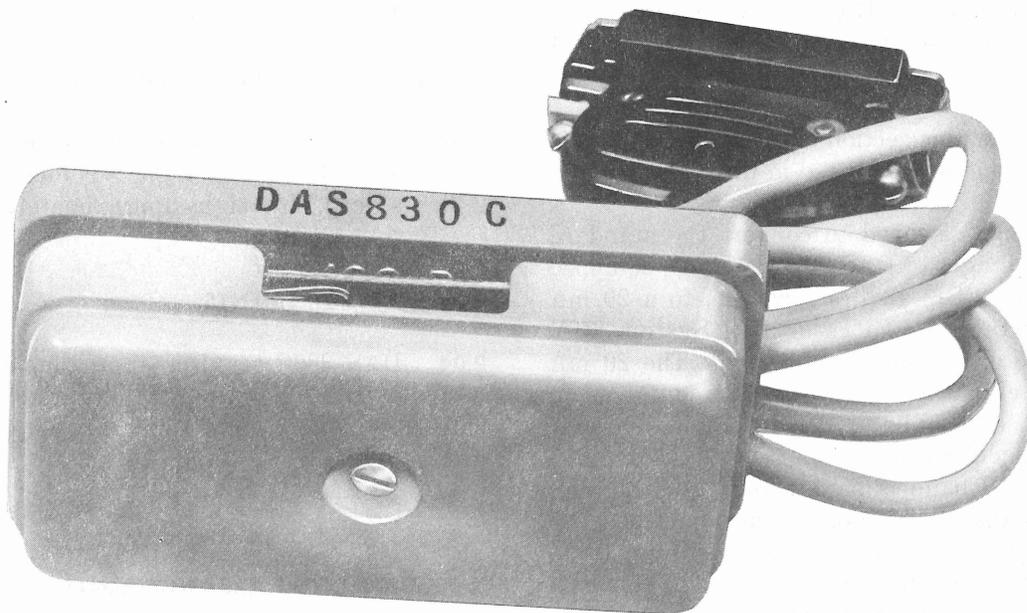


Fig. 2—Data Auxiliary Set 830C Terminal Board

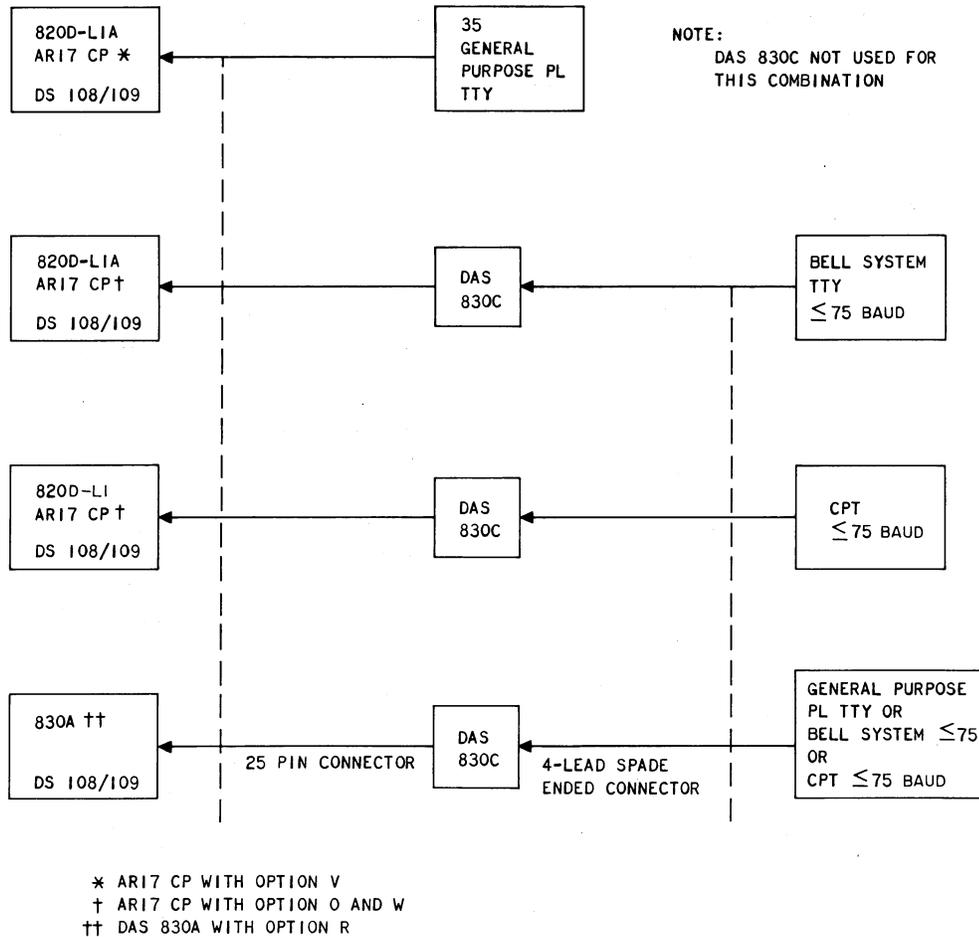


Fig. 3—Connecting Arrangements Using Data Auxiliary Set 820D or 830A

4. OPTIONS

4.01 DAS 830C provides installer options shown in Table A.

TABLE A
DAS 830C OPTIONS

FEATURE	OPTION	LINK POSITION	FACTORY EQUIPPED
Local Copy	Z	E4 to E5	
No Local Copy	Y	E4 to E6	✓
With DAS 830A	X	E1 to E2	
With DAS 830D	W	E2 to E3	✓

4.02 The following options are required when providing the arrangements listed below:

- DAS 820D-L1A and DS 108 or 109, used with a 35 private line TTY, require option V in AR17 CP.
- DAS 820D-L1 or -L1A, DS 108 or 109, and DAS 830C, used for either a CPT or Bell System TTY, require options Q and W in AR17 CP.
- DAS 830A, DS 108 or 109, and DAS 830C, used with either a CPT or Bell System TTY, require option R in DAS 830A.

5. INTERFACE WITH TERMINAL

5.01 The 4-screws located on the DAS 830C terminal board (Fig. 2) will interface with the CPT or TTY as follows:

- 20 \pm 1 mA neutral signal.
- Open circuit voltage is about +24V with respect to ground on the send leads and below -24V on the receive leads.
- Ring is positive with respect to the tip.
- For speeds up to 75 bauds, the input circuit of the CPT or TTY connected to the receive data leads has a resistance of less than 150 ohms and an inductance of less than 0.5 henrys.
- For speeds up to 75 bauds, the output circuit of the CPT or TTY connected to the send data leads is capable of repeatedly making and breaking 20 mA at 24 Vdc and has fixed resistance of less than 150 ohms and an inductance of less than 0.5 henrys.
- For higher speeds (up to 150 bauds), the terminations have a resistance of less than 150 ohms.

5.02 The terminal connections of the DAS 830C (Fig. 2) for both 3- or 4-wire circuits are shown by Table B.

TABLE B
TERMINAL CONNECTIONS

TERMINATION	SEND LEAD (SD)	RECEIVE LEAD (RD)
4-Wire Circuit	+ to SD-R - to SD-T	+ to RD-R - to RD-T
3-Wire Circuit	+ to SD-R Common to SD-T	- to RD-T

5.03 Perform the following test after installation of DAS 830C. A Bell System TTY can be tested as follows or local copy feature can be used. (Install option to check local copy feature, if necessary). CPT must be tested as follows:

STEP	PROCEDURE
1	Place a shorting pin between E4 and E6 (no local copy-option Y) and between E2 and E3 (820D—option W).
2	Connect one end of a 3.3 kilohm \pm 5 percent resistor and the positive lead of voltmeter 1 to J1, pin 2, and connect the other end of the 3.3 kilohm resistor and the negative lead of the dc voltmeter to J1, pin 7.
3	Connect a 7.5 kilohm \pm 5 percent resistor between pin 3 and pin 10 of connector J1.
4	Connect the positive lead of the dc milliammeter 1 to screw terminal SD-R and connect the negative lead of the dc milliammeter to screw terminal SD-T.
5	Connect the positive lead of the dc milliammeter 2 to screw terminal RD-R and the negative lead of the dc milliammeter 2 to screw terminal RD-T.
6	Apply power to the DAS 830C.
	Requirement: Voltmeter 1 indicates -5.0 \pm 1.5V Milliammeter 1 indicates 20 \pm 1.5 mA Milliammeter 2 indicates 20 \pm 1.5 mA.

STEP**PROCEDURE**

- 7 Remove the 7.5 kilohm resistor from pin 10 of J1 and reconnect it to pin 9 of J1.
Requirement: Milliammeter 2 indicates 0 mA.
- 8 Remove the 7.5 kilohm resistor from pin 9 of J1, reconnect it to pin 10 of J1, and disconnect the positive lead of the milliammeter 1 from screw terminal SD-R.
Requirement: Voltmeter 1 indicates $+10.4 \pm 1V$.
- 9 Connect a jumper from screw terminal SD-R to screw terminal SD-T.
- 10 Remove the shorting pin from between E5 and E6 and insert it between E4 and E5.
Requirement: Milliammeter 2 indicates 20 ± 1.5 mA.
- 11 Remove the jumper from screw terminal SD-R.
Requirement: Voltmeter 1 indicates $+8.5 \pm 1V$ and the milliammeter 2 indicates 0 mA.
- 12 Remove the shorting pin from between E4 and E5 and reinsert it between E5 and E6.

6. REFERENCES

- 6.01** SD and CD-1D250-01 provide additional information on DAS 830C.