

1A DATA STATION
SINGLE CHANNEL ARRANGEMENTS
SUMMARIZING SPECIFICATION
DATA SYSTEMS

1. GENERAL

Scope

1.01 This specification, together with the supplementary information listed herein, summarizes the design requirements, ordering, and application of the apparatus comprising the 1A data station, single channel arrangements (SCA).

Description

1.02 The 1A data station, SCA, provides a single channel of the frequency multiplexed 1A data station, multichannel arrangements (MCA), for use with teletypewriters or customer provided terminals. It is identical to the 1A data station, MCA, in regard to transmission speeds (75 and 150 baud), channel frequencies and bandwidths, transmission characteristics, and interface arrangements. In particular, the 1A data station, SCA:

- (a) Is transmission compatible end to end with the 43B1 VF Carrier Data System; also with the 43A1 VF Carrier Telegraph System (including the 130 Subscriber Set), except for the two lowest double width channels.
- (b) Operates in either binary (two level) or ternary (two level plus supervision) transmission mode.
- (c) Has option of the following baseband interfaces:
 - (1) Voltage, per EIA standard RS-232B (binary or ternary)
 - (2) Current, 20 mA neutral (binary only)

1.03 The 1A data station, SCA, differs from the 1A data station, MCA, in that certain maintenance aids are not provided.

1.04 One single channel arrangement is designed to mount inside Bell System teletypewriter stations; another as a self-enclosed tabletop mounted unit for use with customer provided terminals. They can be employed in most arrangements that presently use the 130-type teletypewriter subscriber set, provided the data terminal is equipped with either a 20-mA neutral or EIA RS-232B interface.

1.05 The 1A data station is generically defined as any combination of channels and/or systems. The designation "1A Data Station, Single Channel Arrangements" represents an identification code only and cannot be used to order or specify any of the component apparatus constituting the 1A data station.

Capacity

1.06 Several 1A data stations, SCA, may be combined from separate locations by bridging prior to long haul transmission over a voice frequency grade line. There may be as many as 17 single width (SW, 75 baud) channels or eight double width (DW, 150 baud) channels and one single width channel on a suitably conditioned single 4-wire voice facility. For a 2-wire facility, a maximum of eight single width or four double width channels may be multiplexed. A total of 25 center frequencies are available as listed in Part 4.

Power Requirements

1.07 Each 1A data station, SCA, may require as much as 3.6 watts of +24 and -24 volt power. This is supplied by the 18A power unit, an ac-operated supply capable of providing 200 mA at both +24 and -24 volts. The current for the 1A data station, SCA, depends upon its baseband interface and transmission mode; current requirements are given in Table A.

TABLE A
CURRENT DRAIN IN MILLIAMPERES

SINGLE CHANNEL TERMINAL (Four Circuit Pack Total)	CARRIER PRESENT		NO CARRIER	
	+24 Volts	-24 Volts	+24 Volts	-24 Volts
BINARY MODE E/W				
DP66 Circuit Pack (Line— (DP60) EIA Interface)	115	75	125	105
DP61 Circuit Pack (Line— Current Interface)	106	130	110	150
TERNARY MODE E/W				
DP66 Circuit Pack (DP60)	135	80	140	115

2. SUPPLEMENTARY INFORMATION

- RS-232B—EIA Standard Interface Between Data Processing Terminal Equipment and Data Communications Equipment
- X-17578—Manufacturing Testing Requirements for 1A Data Station, Multichannel Arrangements
- X-17596—Manufacturing Testing Requirements for 1A Data Station, Single Channel Arrangements
- X-77746—Manufacturing Testing Requirements for 43B1 Voice Frequency Carrier Data Systems
- 590-102-127—31A2 (31A1) Data Mounting — Identification
- 590-102-129—37A1 Data Mounting — Identification
- 591-813-100—Description and Operation — 1A Data Station, Multichannel Arrangements
- 591-813-101—Description and Operation — 1A Data Station, Single Channel Arrangements
- 591-813-180—Summarizing Specification — 1A Data Station, Multichannel Arrangements
- 591-813-201—Installation and Connections — 1A Data Station, Single Channel Arrangements
- 591-813-301—Maintenance — 1A Data Station, Single Channel Arrangements
- 591-813-501—Test Procedures—1A Data Station, Single Channel Arrangements
- 807-170-161—43B1 VF Carrier and Associated Equipment

- AB27.350, Addendum 4—Voice Bandwidth Circuit for Private Line Data Use—2000 Series and 3002 Channels—General Information
- 43B1 VF Carrier Data System and 1A Data Station—Engineering Considerations:
- AB83.048.01—Transmission
 - AB83.048.02—Line Connection Circuits
 - AB83.048.04—Line Facilities
 - AB83.048.1—Transmission Losses

3. DRAWINGS

Circuit Schematics

- SD-1D148-01—1A Data Station — Multichannel Arrangements
- SD-1D184-01—1A Data Station—Single Channel Arrangements
- SD-70958-01—43B1 Voice Frequency Carrier Data System

Applications and Interconnections

- ED-1D159-01—1A Data Station, Multi- and Single Channel Arrangements, Teletypewriter and Customer Provided Terminal Applications (Provides detailed ordering, mounting, and termination information).

4. PRODUCT

- 31A2 Data Mounting—Wired assembly per SD-1D184-01, App Fig. 1, for mounting a single channel (four DP type circuit packs, *ordered separately*) and equipped with one 18A

- power unit, terminal strip, and 25-pin connector. Furnished with ac power cord (equipped with spade tips) for connection to power strip in teletypewriter. Used with appropriate bracket (see below) for mounting in base of M28, 33, 35, or 37 teletypewriter. Replaces 31A1 data mounting which is rated Mfr Disc. Overall dimensions are 12.5 inches wide by 6 inches deep by 12 inches high; weight is approximately 12 pounds.
- 37A1 Data Mounting**—A self-contained wired assembly for mounting a single channel, designed for tabletop or shelf mounting, and housed in a KS-20018,L6 cabinet. Equipped with 73A apparatus mounting to accept a single channel (four DP type circuit packs, *ordered separately*), an 18A power unit, terminal strip, and 25-pin connector. Furnished with a 15-foot ac power cord for plugging into a wall outlet as well as a D4BD-49 cord (25 feet) for connection to a voice facility. Unit has two locking keys, TEST and VBLA (voice band loop-around), and a carrier fail lamp. Intended for use with customer provided terminals (CPT) and teletypewriters. Overall dimensions are 13 inches wide by 9 inches high by 12 inches deep; weight is approximately 23 pounds.
- 100A Bracket**—Consists of a pair of bracket assemblies for mounting the 31A2 data mounting in base of the M33 teletypewriter. Furnished with mounting hardware.
- 101A Bracket**—Bracket assembly for mounting the 31A2 data mounting in base of M35 teletypewriter. Furnished with mounting hardware.
- 104A Bracket**—Bracket assembly for mounting the 31A2 data mounting in base of M37 teletypewriter. Furnished with mounting hardware.
- 105A Bracket**—Consists of a pair of bracket assemblies for mounting the 31A2 data mounting in base of M28 teletypewriter. Furnished with mounting hardware.
- D4BD-49 Cord**—A 4-conductor cord for connecting terminal strip on 31A2 and 37A1 data mountings to voice facility. Available in lengths of 5-1/2 feet (standard) or 9, 13, and 25 feet when specified.
- D6AD-61 Cord**—A 6-conductor cord for connecting terminal strip on 31A2 data mounting to key unit on teletypewriter. Available in lengths of 5-1/2 feet (standard) or 9, 13, and 25 feet when specified.
- KS-14532,L16 Cord**—A 15-foot, 3-conductor ac power cord for plugging into ac outlet. One required for each M37 teletypewriter.
- 635F2 Key**—Illuminated key unit to provide test and alarm features for the 1A data station, SCA, when used with M37 teletypewriters. Additional hardware required and mounting information are provided in ED-1D159-01.
- 6041H-51 Key**—Separately mounted illuminated key unit to provide test and alarm features for the 1A data station, SCA, when used with M28 teletypewriters. It is available in a green housing for mounting on the side of an appropriately modified, green M28 teletypewriter. Additional hardware required and mounting information are provided in ED-1D159-01.
- 6041H-61 Key**—Same as 6041H-51 key except that it is light gray in color to match a gray M28 teletypewriter.
- 52A Lamp**—Standard 24-volt lamp for all key units associated with 1A data station, SCA; replaces 51A lamps furnished with keys, per ED-1D159-01.

CIRCUIT PACKS — Channel Terminal

- DP1-DP25 (Transmitter)**—One required from this group except for stations arranged for Receive Only, per SD-70958-01; frequency assignments are shown in Table B.
- DP26-DP50 (Demodulator)**—One required from this group except for stations arranged for Transmit Only, per SD-70958-01; frequency assignments are shown in Table B.
- DP51 (Receive Interface)**—One required for each binary channel except for stations arranged for Transmit Only, per SD-70958-01.
- DP57 (Ternary Receive Interface)**—One required for each ternary channel (used in place of DP51 circuit pack), per SD-1D148-01.
- DP60 (Line—EIA Interface)**—One required for each channel for connecting to EIA data ter-

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minal equipment, per SD-1D184-01. To be rated Mfr Disc. and replaced by DP66 circuit pack. DP60 is identical to DP66 in the binary mode and where simultaneous data transmission in one direction and supervision in the other are not required, as in DATREX* service.

DP61 (Line—Current Interface)—One required for each binary channel for connecting to a 3-wire 20-mA interface such as a teletypewriter, per SD-1D184-01.

DP66 (Line—EIA Interface)—One required for each channel for connecting to EIA data terminal equipment, per SD-1D184-01. DP66 will replace DP60 circuit pack. Permits simultaneous transmission in one direction and supervision in the other.

* Service mark of the Bell System.

TABLE B
CIRCUIT PACK FREQUENCIES

TRANSMITTER	DEMODULATOR	CENTER FREQUENCY	BANDWIDTH
DP1	DP26	425 Hz	Single ↓
DP2	DP27	595 Hz	
DP3	DP28	765 Hz	
DP4	DP29	935 Hz	
DP5	DP30	1105 Hz	
DP6	DP31	1275 Hz	
DP7	DP32	1445 Hz	
DP8	DP33	1615 Hz	
DP9	DP34	1785 Hz	
DP10	DP35	1955 Hz	
DP11	DP36	2125 Hz	
DP12	DP37	2295 Hz	
DP13	DP38	2465 Hz	
DP14	DP39	2635 Hz	
DP15	DP40	2805 Hz	
DP16	DP41	2975 Hz	
DP17	DP42	3145 Hz	
DP18	DP43	680 Hz	Double ↓
DP19	DP44	1020 Hz	
DP20	DP45	1360 Hz	
DP21	DP46	1700 Hz	
DP22	DP47	2040 Hz	
DP23	DP48	2380 Hz	
DP24	DP49	2720 Hz	
DP25	DP50	3060 Hz	

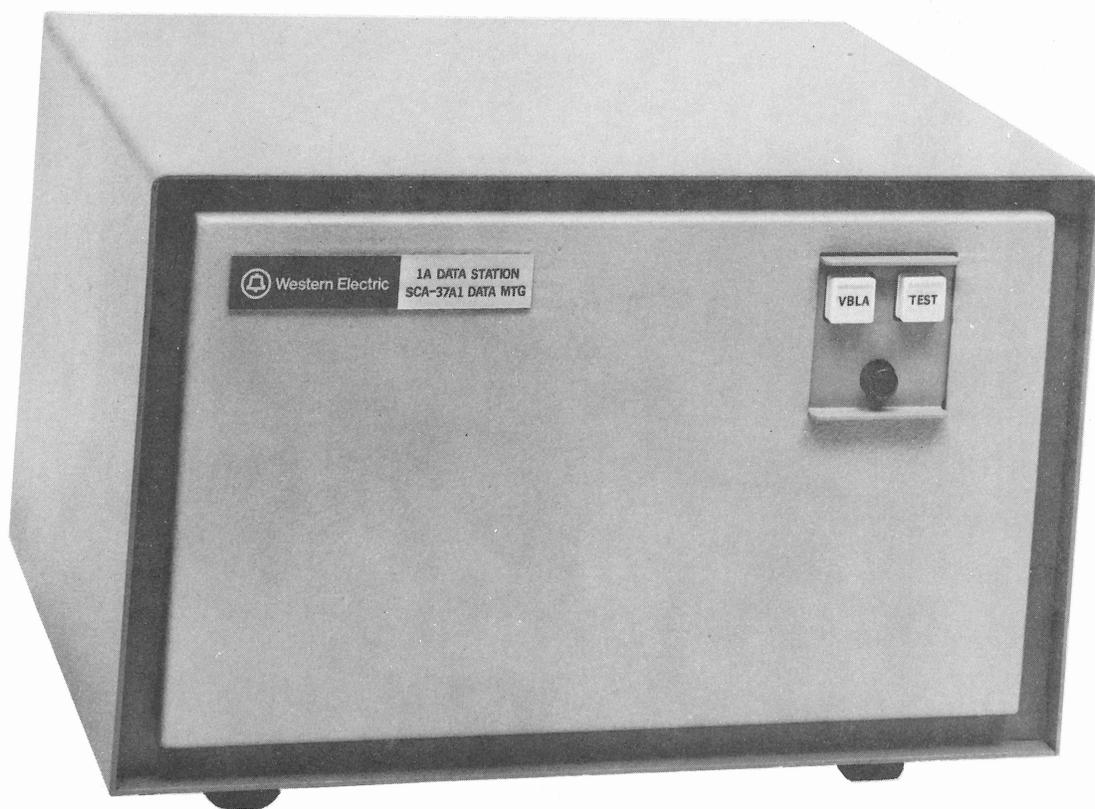


Fig. 1 — 37A1 Data Mounting



Fig. 2 — 1A Data Station Mounted in M33 Teletypewriter by Means of 100A Bracket, Pivoted Out for Easy Access (Laboratory Model; 31A1 Data Mounting Shown)



Fig. 3 — 1A Data Station Mounted in M37 Teletypewriter by Means of 104A Bracket (Laboratory Model; 31A1 Data Mounting Shown)

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