

DATA SET 401J-TYPE REFERENCE GUIDE



Data Set 401J-Type

1. GENERAL

1.01 Data Set 401J-type is a low-speed tone-modulated 3-out-of-14 multifrequency parallel operation alphanumeric receiver. It is intended for use on the switched telephone network or on 2-wire private lines. The 401J will receive any of

99 possible characters at any speed up to 20 characters per second.

1.02 This section is reissued to add new coding information, to incorporate additions to Table D, and to revise Table B. Since a general revision has been made, arrows generally used to indicate changes have been omitted.

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1.03 Data Set 401J-type is compatible with Automatic Calling Units (ACUs) 801A and 801C.

1.04 This data set provides answer-back (tone or voice). It may be used to receive TOUCH-TONE® signals, provided that "C" closures are ignored and the handset of the TOUCH-TONE telephone is excluded when data is transmitted.

1.05 Data Sets 401J6, 401J7, 401J8, and 401J9 have been coded as replacements for Data Sets 401J2, 401J3, 401J4, and 401J5, which are rated Manufactured Discontinued. Data Sets 401J6, 401J7, 401J8, and 401J9 are identical to the 401J2, 401J3, 401J4, and 401J5, respectively, with the exception that the later models have the 3A3 data unit instead of the 58A control unit. The 3A3 data unit provides compatibility for the data sets with ESS offices and Unigauge lines.

1.06 The Data Set 401J-type receiver can be used with 401A, 401E, 401H, and 401M transmitters. Data Set 401J6 has the tone answer-back feature, while Data Set 401J7 has voice and tone answer-back feature. The Data Sets 401J8 and 401J9 are TOUCH-TONE versions of the 401J6 and 401J7, respectively.

1.07 Data Set 401J-type is equipped for alternate voice communications. Remote test capability is also provided, as well as a pick-up and hold feature for as many as three voice telephone lines.

1.08 When used with an ACU, the 401J-type can act as an originating station when polling outlying stations for data-gathering purposes.

1.09 Data Set 401J-type is the recommended substitute for Data Sets 401B and 401F (DVS00), which have been rated MD.

1.10 Features of the various 401J sets are listed in Table A.

2. PHYSICAL AND ELECTRICAL CHARACTERISTICS

2.01 Data Set 401J-type requires 10 watts of 117-volt 60-Hz power supplied by the customer through a 3-wire receptacle.

2.02 The data set is 2-tone gray and measures 10-3/4 inches wide, 5-1/2 inches high, and 14-1/2 inches deep, and weighs 22 pounds.

3. OPERATION

Unattended Operation

3.01 The customer must prepare the receiving business machine for unattended operation, including grounding the data terminal ready (line control) interface lead.

3.02 The sequence of events for unattended operation is as follows:

- (a) Connection is established through the switched network to the receiving station, which causes ringing at the receiving station.
- (b) DATA lamp lights at receiving station.
- (c) After 1.1 seconds, a 2025-Hz tone is sent by the receiver to the transmitting station for about 3 seconds. Meanwhile, the business machine is signaled that the data set is ready to receive.
- (d) Data transmission begins at the end of the 2025-Hz tone.

TABLE A

FEATURES OF DATA SET 401J

MODEL	ANSWER-BACK	DIAL
401J6	Two audible tones	Rotary
401J7	Voice and two audible tones	Rotary
401J8	Two audible tones	TOUCH-TONE
401J9	Voice and two audible tones	TOUCH-TONE

Attended Operation

3.03 The sequence of events for attended operation is as follows:

- (a) Same as 3.02 (a).
- (b) Attendant at receiving station operates TALK key, lifts handset, and talks to attendant at transmitting station. After mutually agreeing to go to data mode, transmitting station attendant operates DATA key and counts slowly to five (5 seconds) before sending data.
- (c) Receiving station attendant operates DATA key and DATA lamp lights during 5-second pause at transmitting station.

4. SERVICE ORDER INFORMATION

4.01 Refer to the section entitled Reference Guide—Description of Data Set Features and Options (590-000-101) for a more detailed explanation of features and options common to most data sets. Service offerings, features, and customer options are outlined in Table B and Table C, respectively. The ITEM column provides a reference to descriptive information contained in Section 590-000-101.

4.02 The following paragraphs provide detailed information on customer options.

(a) **DECISION A—Attended or Unattended Answering:**

(1) **1. Attended (Option H):** With this option, an attendant must answer all incoming calls and manually place the data set in the data mode. If option W is also specified, a ringing indication is passed to the business machine.

(2) **2. Unattended (Option G):** With this option, the data set automatically answers all incoming calls and places itself off-hook in the data mode. If option W is also specified, a ringing indication is passed to the business machine. This option is normally used, especially for installations with high calling rates.

(b) **DECISION B—With or Without Automatic Calling Unit:**

(1) **3. With ACU (Option F):** This option equips spare No. 1 button to furnish momentary ground to the ring side of the line to signal the central office for dial tone if the ACU is disabled.

(2) **4. Without ACU (Remove Option F):** This removes the ground start feature from spare No. 1 button if an ACU is not required.

(c) **DECISION C—Ringing Indication to Customer or Out-of-Service Control by Customer:**

(1) **5. Ringing Indication (Option W):** With this option, an indication is given to the business machine that the line is being rung by a contact closure between ring indicator lead (pin 25) and signal ground in either the attended or the unattended mode.

(2) **6. Out-of-Service Control (Option X):** With this option, the customer can present an "out-of-service" or "make-busy" condition to incoming calls. It is useful when the business equipment must be removed from service to prevent "ring-no-answer" conditions, etc. The business machine presents a contact closure between the out-of-service interface lead (pin 25) and signal ground. This causes the data set to go off-hook and pass a "line-occupied" indication back to the serving central office.

Caution: *This option can be used only if the data set is on a "receive only" central office line equipped with a special line circuit. Coordination with the Engineering Department is required.*

4.03 Telephone company engineering options are listed in Table D.

4.04 Additional engineering information:

(a) The 401J1 is rated MD but may be substituted for a 401J2. Data Sets 401J2 and 401J4 can be converted to 401J3 and 401J5, respectively, by the addition of a CA3 circuit pack. Data Sets 401J2 through 401J5 are also rated MD

TABLE B

SERVICE OFFERINGS — CURRENT AND SUBSTITUTE MODELS

USOC	FEATURES	USEABLE SETS	ITEM	REMARKS
DPC	Rotary dial; tone answer-back	401J6	A4	Current Standard
		401J1		Previously coded J1D401J1 List 1 (see Note 1)
		401J2 Series 1		Notes 1 and 3
		401J2 Series 2 and above		Note 3
		401J3 Series 1		Notes 1, 2, and 3
		401J3 Series 2 and above		Notes 2 and 3
		401J7		Note 2
DPK	TOUCH-TONE; tone answer-back	401J8	A4	Current Standard
		401J4 Series 1		Notes 1 and 3
		401J5 Series 1		Notes 1, 2, and 3
		401J5 Series 2 and above		Notes 2 and 3
		401J9		Note 2
DMC	Rotary dial; tone and voice answer-back	401J7	A5	Current Standard
		401J3 Series 1		Notes 1 and 3
		401J3 Series 2 and above		Note 3
DME	TOUCH-TONE; tone and voice answer-back	401J9	A5	Current Standard
		401J5 Series 1		Notes 1 and 3
		401J5 Series 2 and above		Notes 1 and 3

Note 1: Directly reusable except where "A" lead control is required. ZC wiring (Field wiring change SD-1D064).

Note 2: Voice answer-back not used.

Note 3: Directly reusable except in cases where ESS offices and Unigauged lines are used.

TABLE C
CUSTOMER OPTION DECISION TABLE

DECISION	OPTION	DESIGNATION	ITEM
A	1. Attended operation	H*	
	2. Unattended operation	G	
B	3. Used with ACU	F	B1
	4. Used without ACU		
C	5. Ring indication to customer	W*	
	6. Out-of-service controlled by customer	X	

* Factory wired.

TABLE D
TELCO ENGINEERING OPTIONS

OPTION		DESIGNATION	ITEM
Terminal impedance	600 ohms	N	C1
	900 ohms	O*	
Answer-back tone level	-3 dBm†	0 dBm	C4
	-6 dBm†	-3 dBm	
	-9 dBm†	-6 dBm	
	-12 dBm†	-9 dBm	
6-dB pad	in	R	C10
	out	S*	
Mounting cord	10-Conductor (Note 1)	D	
	24-Conductor (Note 2)		
	30-Conductor (Note 3)		

* Factory wired.

† Effective on all Data Sets 401J6, 401J7, 401J8 and 401J9 and also 401J2, 401J3, 401J4, and 401J5 series 3 and above.

Note 1: Standard cord shipped with all Data Sets 401J. (Earlier sets were shipped with 6-conductor cord.)

Note 2: Required when Data Sets 401J2 through 401J9 are used with 801-type ACU. Order separately.

Note 3: Required when Data Set 401J1 is used with 801-type ACU. Order separately.

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and have been replaced by Data Sets 401J6 through 401J9, respectively.

(b) If the 401J is to receive data from TOUCH-TONE telephone sets, the following conditions apply:

- (1) All telephone sets must be equipped with an exclusion key to disable the telephone set transmitter during data transmission for "talk-off" protection.
- (2) The business machine must be programmed to ignore the "C" frequency group of contacts which are not used in TOUCH-TONE applications.
- (c) If the "out-of-service" option is to be used, proper central office line circuits per PEM 9197 are required.

5. SUBSTITUTE DATA SETS

5.01 The data sets listed in Table B may be substituted to supply the services previously

described in this section. Customer and Telco options listed previously do not necessarily apply to the substitute data sets.

6. REFERENCES

6.01 The following provide additional information on Data Set 401J-type and associated equipment:

- (a) Data Set 401J Interface Specification
- (b) PEL 7340, 7383
- (c) PEM 9197, 9992
- (d) EM 131
- (e) SD and CD-1D022-01 (J1D401J1)
- (f) SD and CD-1D064-01 (401J6 through J9)
- (g) BSP 594-018-100, -200, -300, and -500
- (h) BSRS 480.003, 480.061