

DATA SET 401L-TYPE

REFERENCE GUIDE



Data Set 401L-Type

1. GENERAL

1.01 Data Set 401L-type is a one-number automatic calling unit and a 3-out-of-14 multifrequency parallel transmitter designed for speeds up to 20 characters per second over the switched message network. The data set converts contact closures from the terminal equipment to audio frequencies occupying the voice-frequency spectrum from 600 to 2250 Hz and transmits these frequencies to a Data Set 401J-, 403D-, or 403E-type at the receiving station. The data sets are automatic data reporting sets and are used, for example, to report alarm conditions from remote locations.

1.02 Data Set 401L2 differs from Data Set 401L1 in that it has reverse data capabilities through the separate detection of three tones (1017, 1785, and 2025 Hz). Data Set 401J-type generates supervision answer-back tones of 1017 and 1785 Hz, while Data Set 403D- or 403E-type generates tones of 1017, 1785, and 2025 Hz.

1.03 A 558F-51 telephone set is required for Data Set 401L-type but is not provided and must be ordered separately.

1.04 Data Set 401L-type is furnished with a D6AA-61 cord. Data Set 401L2 is provided with a KS-16886 L2 transformer. A 25-pin connector, external to the data set cover, is provided for connection to the terminal equipment through a customer-provided cord which should not exceed 5-1/2 feet in length.

1.05 Remote test capability allows Data Set 401L-type to be remotely tested from a data test center.

2. PHYSICAL AND ELECTRICAL CHARACTERISTICS

2.01 The data set, which is 19 inches long, 11.5 inches wide, and 4.25 inches high, is enclosed in a gray integrated housing and is designed to be wall mounted. Data Set 401L1 weighs 10 pounds; Data Set 401L2 weighs 12 pounds.

2.02 Data Sets 401L1 and 401L2 are powered from the central office. However, Data Set 401L2 requires 117-volt 60-Hz power to power the electrical answer-back receiver. If 117-volt 60-Hz power fails, Data Set 401L2 will operate as Data Set 401L1, still allowing call origination and forward data transmission.

2.03 Data Set 401L-type is designed to operate within an ambient temperature range of -20 to +150°F with a relative humidity range of 10 to 100 percent with light condensation. The data set should be housed inside a building or enclosure which will protect it from the weather.

3. OPERATION

3.01 Data Set 401L-type is an automatic data reporting set and does not require operation by an attendant. All tests, except for installation tests, may be accomplished without having anyone at the station.

3.02 The 558F-51 telephone set connected across the line at the data station may be used in the normal telephone manner. However, since

operation of the telephone interferes with data set operation, the telephone should be used only when the data set is not in operation. Dial tone is obtained by pressing the ground start button on the front of the telephone. Improved telephone communications are available by operation of the exclusion key.

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 general explanation of features and options common to most data sets. Service offerings and customer options are outlined in Table A and Table B, respectively.

4.02 The following paragraphs provide detailed information on customer options.

(a) **DECISION A—Call Termination by Answer Tone Detection or by Interface Lead Control:**

(1) **1. Call Termination by Answer Tone Detection:** This option controls the duration of the data portion of the call by use of an internal timer which is activated by the reception of the 2025-Hz answer tone.

(2) **2. Call Termination by Interface Lead Control:** This option controls the duration of the data portion of the call by allowing the customer to place a contact closure on the TCL lead.

(b) **DECISION B—Data Set Terminates Call 10 or 70 Seconds After Reception of 2025-Hz Answer Tone:**

(1) **3. Data Set Terminates Call 10 Seconds After Receiving 2025-Hz Answer Tone:** This option allows the data set to control the

duration of the data portion of the call by setting the internal timer to time out 10 seconds after the data set receives the 2025-Hz answer tone from its remote receiving station.

(2) **4. Data Set Terminates Call 70 Seconds After Receiving 2025-Hz Answer Tone:**

This option allows the data set to control the duration of the data portion of the call by setting the internal timer to time out 70 seconds after the data set receives the 2025-Hz answer tone from its remote receiving station.

TABLE A

SERVICE OFFERINGS—CURRENT STANDARD MODELS

MODEL	FEATURE	USOC
401L1	One number automatic calling. Transmits 20 characters per second over DDD. Entirely line powered.	DBK++
401L2	One number automatic calling. Transmits 20 characters per second over DDD. Three-tone electrical answer-back receiver. Line power plus commercial power.	DBN++

TABLE B

CUSTOMER OPTION DECISION TABLE

DECISION	OPTION
A*	1. Answer tone termination 2. Interface termination
B	3. Data set terminates call 10 seconds after reception of 2025-Hz answer tone. 4. Data set terminates call 70 seconds after reception of 2025-Hz answer tone.

* If Decision A is 2, disregard Decision B and refer to 4.03 for additional customer option information.

Additional Customer Option Information

4.03 If Decision A of Table B is 2 and call termination by interface lead control is desired, a decision must be made as to which of the following options is to be installed.

- (1) **Terminal equipment controls termination of the call after a minimum of 10 seconds in the data mode by a contact closure on the TCL lead:** This option allows the terminal equipment to terminate the call by placing a contact closure on the TCL lead at any time. The call will be terminated only after the data set has been in the data mode for at least 10 seconds.
- (2) **Terminal equipment controls termination of the call at any time with a contact closure on the TCL lead:** This option allows call termination by the terminal equipment placing a contact closure on the TCL lead at any time. The call will be terminated immediately.

If Decision A of Table B is 2, Decision B should be disregarded, and the option chosen should be placed in the REMARKS section of the service order.

4.04 Telephone company engineering options are listed in Table C and are described in the following paragraphs. Strapping information, to compensate for loop loss, is contained in the section entitled Data Set 401L-Type—Installation and Connections (594-027-200).

- (a) **Answer tone Detector Detects Beginning or End of Answer Tone:**
 - (1) **Beginning of Answer Tone:** With this option, the data set answer tone detector detects the beginning of the 2025-Hz answer tone. This option should be used in systems where the answer tone signal does not interfere with the forward transmission of data. This option should not be installed in Data Set 401L-type if it transmits to Data Set receivers of the 401J-type.

- (2) **End of Answer Tone:** With this option, the data set answer tone detector detects the end of the 2025-Hz answer tone. This option should be used if the answer tone interferes with forward data transmission such as it would if transmitting to Data Set receivers of the 401J-type.

- (b) **EON Circuit Operates 1 Second or Immediately After Dialing Ceases:**

- (1) **EON Circuit Operates 1 Second After Dialing Ceases:** This option allows the EON circuit to operate 1 second after dialing ceases and **must** be used in #1 and #5 crossbar exchanges.
- (2) **EON Circuit Operates Immediately After Dialing Ceases:** This option allows the EON circuit to operate immediately after dialing ceases and **must** be used in exchanges other than #1 and #5 crossbar exchanges.

TABLE C

TELCO ENGINEERING OPTIONS

OPTION
Answer tone detector detects beginning of answer tone. Answer tone detector detects end of answer tone.
End of Number (EON) circuit operates 1 second after dialing ceases. EON circuit operates immediately after dialing ceases.
*Data Set 401L1 remote test capability
*Data Set 401L2 remote test capability

* Remote test options should be installed unless the customer objects to the conditions of the remote test.

SECTION 590-004-107

5. SUBSTITUTE DATA SETS

5.01 Data Set 401L2 may be substituted for Data Set 401L1 to provide the services described in this section for Data Set 401L1.

6. REFERENCES

6.01 The following circuit descriptions (CDs), schematic drawings (SDs), and other references provide additional information on Data Set 401L-type:

- (a) BSPs 594-027-Series
- (b) CD- & SD-1D089-01
- (c) CD- & SD-1D090-01
- (d) EL 241
- (e) Interface Specification, April 1969