

405-TYPE DATA SYSTEM IDENTIFICATION

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1. GENERAL

1.01 This section provides information for identification of a 405-type data system. Information concerning any associated business machine, data terminal equipment, related customer service, or interface circuit is not furnished in this section.

1.02 This section is reissued to add information on D-specification kits (used for data set field conversion), 45-type data units (used as maintenance spares), and to update Part 4, References. Since this is a general revision of the section, change arrows ordinarily used to indicate changes have been omitted.

1.03 A basic 405-type system is comprised of data set 405A transmitter and data set 405B receiver. This system will monitor, transmit, and provide output indications of the binary state of from 1 to 32 parallel data inputs. Data is transmitted serially by frequency-shift keying at 700, 880, 1400, or 1760 bits per second over a private line voiceband channel.

2. PHYSICAL DESCRIPTION

2.01 Data sets 405A and 405B, shown in Fig. 1 and 2, respectively, are integrated modular hybrid units, utilizing solid state circuit packs and integrated circuits. These units are mounted in a wire frame which is adjustable to mount in either a 23- or 25-inch central office bay. A metal cover fits over the wire frame to provide protection for the circuit packs and substrates.

2.02 Six codes (three transmitter and three receiver) are available to accommodate inputs and outputs as shown in Table A. If an input/output expansion is required for the basic 8-bit data sets 405A-L1A and 405B-L1A, refer to Table B. Table B shows the appropriate D-specification kit to order for field conversion. The D-specification kit contains the data unit, necessary hardware, and instructions for conversion.

2.03 Table C shows the orderable codes for the 45-type data units. The data units are provided as maintenance spares for the List 2 and List 3 portions of data sets 405A-L1/2 or -L1/3 and 405B-L1/2 or -L1/3.

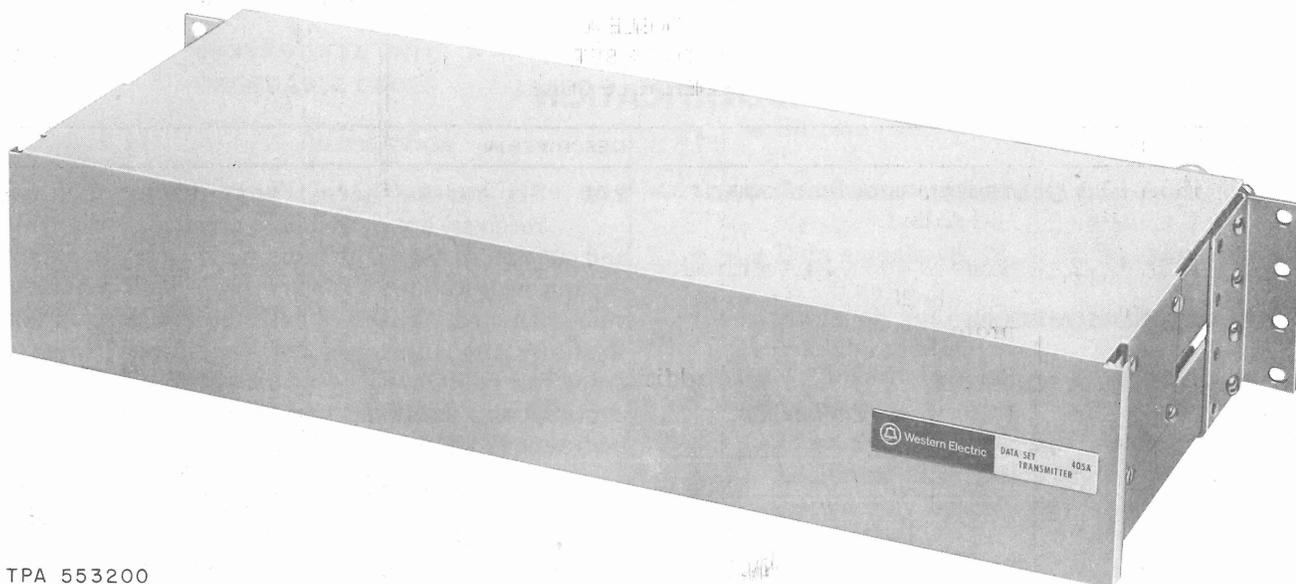
2.04 The basic 8-bit unit is 23 or 25 inches wide, 1.92 inches high, and 8.15 inches deep. The L1/2 and L1/3 data sets (20 and 32 input/output units) are approximately twice as high as the 8-bit unit measuring 23 or 25 inches wide, 3.92 inches high, and 8.15 inches deep.

2.05 The L1A unit is equipped with a KS-19088-L2 interface connector designated P1. L1/2 and L1/3 units have an additional interface connector (KS-19087-L2) designated J4. Interconnection between the L1A units and L1/2 (12-bit expansion) or L1/3 (24-bit expansion) units are made with a 6-inch M15F cord furnished with the L1/2 and L1/3 units or furnished as part of the D-specification kit for field expansion.

2.06 The data set will normally be connected through P1 to an interface unit designed for the particular application. This unit will provide terminals for making wire-wrapped connections of the data inputs and outputs as well as power and alarm connections.

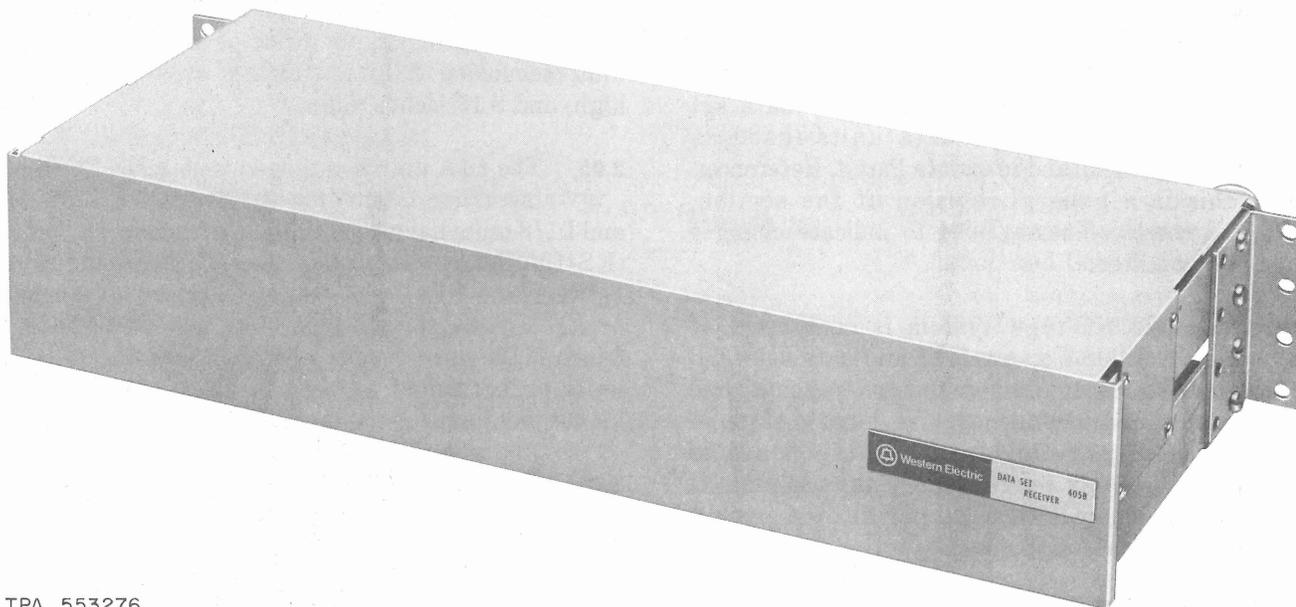
2.07 The power requirements for the 405-type system are supplied by the central office battery with the following current drains:

- 405A-L1A—140 mA
- 405A-L1/2 or with 45A1 data unit—180 mA



TPA 553200

Fig. 1—Data Set 405A-Type Transmitter



TPA 553276

Fig. 2—Data Set 405B-Type Receiver

- 405A-L1/3 or with 45C1 data unit—220 mA
- 405B-L1A—210 mA
- 405B-L1/2 or with 45B1 data unit—310 mA

- 405B-L1/3 or with 45D1 data unit—410 mA.

3. FUNCTIONAL DESCRIPTION

3.01 Data sets 405A and 405B are intended for operation over interoffice private line facilities.

TABLE A
DATA SET
ORDERABLE CODES

| CODE | DESCRIPTION |
|-----------|--|
| 405A-L1A | 8-Bit transmitter in wire frame with mounting brackets and protective cover (6-1/2 lbs). |
| 405A-L1/2 | Same as 405A-L1A with additional 12-bit input buffer and shift register to provide 20 input bits in wire frame with double size mounting brackets and protective cover (10-3/4 lbs). |
| 405A-L1/3 | Same as 405A-L1A with additional 24-bit input buffer and shift register to provide 32 input bits in wire frame with double size brackets and protective cover (11-1/2 lbs). |
| 405B-L1A | 8-Bit receiver in wire frame with mounting brackets and protective cover (6-3/4 lbs). |
| 405B-L1/2 | Same as 405B-L1A with additional 12-bit shift register with output buffers to provide 20 output bits in wire frame with double size mounting brackets and protective cover (11 lbs). |
| 405B-L1/3 | Same as 405B-L1A with additional 24-bit shift register with output buffers to provide 32 output bits in wire frame with double size mounting brackets and protective cover (11-3/4 lbs). |

TABLE B
ORDERABLE D-SPECIFICATION KIT INFORMATION
FOR FIELD CONVERSION OF DATA SET 405-TYPE

| SPECIFICATION | DATA UNIT | DATA SET CONVERSION | CONVERSION EXPANSION OF INPUT/OUTPUT |
|---------------|-----------|-----------------------------|--------------------------------------|
| D-180539 Kit | 45A1 | DS 405A-L1A to DS 405A-L1/2 | 8 inputs to 20 inputs |
| D-180540 Kit | 45C1 | DS 405A-L1A to DS 405A-L1/3 | 8 inputs to 32 inputs |
| D-180541 Kit | 45B1 | DS 405B-L1A to DS 405B-L1/2 | 8 outputs to 20 outputs |
| D-180542 Kit | 45D1 | DS 405B-L1A to DS 405B-L1/3 | 8 outputs to 32 outputs |

No voice or telephone signaling capability is required. Both transmitter and receiver are powered from the central office battery.

3.02 The system provides transmission and reception of 8, 20, or 32 parallel input information bits at rates of 700, 880, 1400, or 1760 bits per second. The system may be optionally arranged to operate either continuously or upon request from customer command.

3.03 The 405A transmitter accepts parallel information and converts it into a serial data word which is transmitted in the voice-frequency band using time division multiplexing (TDM) and frequency-shift keying (FSK) modulation.

3.04 The 405B receiver accepts this frequency-modulated data input and converts it into a parallel output signal capable of driving relays having a coil connected to a negative voltage not exceeding 48 volts nominal.

TABLE C
45-TYPE DATA UNIT
ORDERABLE CODES

| DATA UNIT | DESCRIPTION |
|-----------|--|
| 45A1 | The List 2 portion of data set 405A-L1/2 |
| 45C1 | The List 3 portion of data set 405A-L1/3 |
| 45B1 | The List 2 portion of data set 405B-L1/2 |
| 45D1 | The List 3 portion of data set 405B-L1/3 |

3.05 Features and options for the 405-type data system are summarized as follows:

Basic Features

- Time division multiplexing
- Frequency-shift keying (1300 and 2100 Hz)
- Crystal controlled oscillators
- Sync averaging to minimize sampling error
- Central office operation
- Powered by central office battery
- Alarm for:
 - Loss of carrier (more than 1 second)
 - Loss of power
 - Loss of sync (receiver only)
- Data word pattern check (receiver only option)

- Alarm retires in two seconds.

Options

- Bit rate—700, 880, 1400, or 1760 bps
- Continuous or start-stop scan mode
- Data signals—8, 20, or 32 input/outputs
- Mark or space hold at receiver during trouble condition.

4. REFERENCES

4.01 Additional information on the 405-type data system may be obtained from the following sources:

- CD- & SD-1D203-01 Data Set 405A-Type
- CD- & SD-1D204-01 Data Set 405B-Type

| SECTION | TITLE |
|-------------|---|
| 312-809-100 | 405-Type Data Systems—Description |
| 312-809-150 | 405-Type Data System—Supplementary Information |
| 312-809-200 | 405-Type Data System—Installation and Connections |
| 312-809-201 | 405-Type Data System and Interface Circuit for Message Register Remoting—Installation and Connections |
| 312-809-301 | 405-Type Data System and Interface Circuit for Message Register Remoting—Maintenance |
| 312-809-501 | 405-Type Data System and Interface for Message Register Remoting—Test Procedures. |