

DATA SET 202S
TRANSMITTER-RECEIVER
SUMMARIZING SPECIFICATION
DATA SYSTEMS

1. GENERAL

SCOPE

1.01 This specification, together with the supplementary information listed herein, summarizes for ordering purposes the product design requirements for the data set 202S type and its associated data mountings.

1.02 This specification is being reissued to:

- (a) Include new data set codes, lists 1A and 3A, replacing lists 1 and 3, respectively (rated Mfr Disc.); a new adapter, KS-19252, L5; and the reverse channel circuit pack, JY2, replacing JY1 (rated Mfr Disc.)
- (b) Include information on an improved telephone set arrangement for multiple control of six to eight data sets.
- (c) Include power strip information for stand-alone sets.
- (d) Add information on the new data set handle.

FEATURES, USE

1.03 Data set 202S type is designed for use on 2-wire switched network circuits only. It is a nonsynchronous, binary, FSK transceiver intended for half-duplex operation at up to 1200 b/s on the direct distance dialing (DDD) network. An optional reverse channel feature is available that allows a simultaneous signal at speeds up to 5 b/s in the opposite direction from the primary channel signal. The set is capable of manual or automatic answer and automatic calling unit operation. It has provisions for both local and remote testing. The local tests consist of a self-test and an analog loop-back test. The remote test

allows a data test center to access and test the data set.

1.04 Multiple arrangements of the data set 202S type are facilitated through the use of a KS-21253, L3 adapter or 40A1 data mountings. The KS-21253, L3 adapter is intended for plugging together up to five stand-alone data sets 202S-L1A/2 or L1A/2/3A that may be controlled by a common telephone. A common ringer indication is provided. The 40A1 data mountings are intended for cabinet or rack mounting data set 202S-L1A or L1A/3A in multiples of up to eight per mounting. They are used in conjunction with a 6-button telephone set, a 10-button telephone set and a KS-19252, L5 adapter, or THE CALL DIRECTOR® telephone and a 233A adapter to form a plug-together data station of up to 24 data sets. Features include the capabilities for testing on a separate service line for line hunting with individual set options for make busy.

1.05 Installer options are located on the stand-alone data set printed wiring board and are activated with miniature switches. These options include the following:

- (a) Transmit line signal levels 0 to -13 dBm (options ZK through ZW).
- (b) Soft turnoff and squelch intervals 8 or 24 ms and 9 or 156 ms (options Z through R).
- (c) Clear-to-send intervals 8, 30, 60, or 180 ms (options M through G).
- (d) Reverse channel in or out (options ZC and ZD).
- (e) Fast carrier detection in or out (options Q and N).

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- (f) Automatic answer in or out (options B and A).
- (g) Local copy on primary channel in or out (options ZA and ZB).
- (h) Local copy on reverse channel in or out (options ZE and ZF).
- (i) Condition DSR for AL test for data sets 202S, L1A (options YI and YJ).

A screw switch on the interface assembly allows the frame ground to be disconnected from the signal ground (options ZG and ZH). This is normally connected.

1.06 Installer options in the form of plugs and receptacles are on the 40A1 data mounting backplane for line hunting applications only. They include:

- (a) Service line in or out (option ZY or none).
- (b) Make busy via shunt or separate pair (option ZX or none).

A strapping option on the rear of the power supply permits the frame ground to be disconnected from the signal ground (options ZI and ZJ). This is normally connected.

1.07 The telephone sets intended to be used with the data set 202S type are the 565HK and 2565HK types for up to 5 data sets, the 830C or 2830C for up to 8 sets, or the 631DA or 2631DA types (THE CALL DIRECTOR phones) for up to 24 data sets. If the number of telephone sets exceeds five, but is less than nine, two telephone sets 565HK may be used with the 40A1 data mounting, although not recommended, provided key positions 4 and 5 of the second telephone set are blocked and their lamps removed. The ringer and/or buzzer of the second telephone set must also be disconnected. The 565HK telephone set may be used with or without a 233A adapter. When used without, the 565HK set plugs directly into J1 of the 40A1 mounting. When used with, the 565HK set plugs into J1 of the 233A adapter. The KS-19252, L5 adapter is required when the telephone set 830C is used. THE CALL DIRECTOR phone 631DA must use a 233A adapter or equivalent. A service line, when used with the 40A1 data mounting, appears as a pickup on the telephone

set 830C in position 10 or on THE CALL DIRECTOR phone 631DA to the right of the data key. It can be made to appear on the 565HK telephone set at the sacrifice of one data set pickup. A separate service line telephone set is recommended unless THE CALL DIRECTOR set 830C or 631DA is used. This separate telephone set must be connected to the service-line-out terminals on the 40A1 data mounting.

POWER

1.08 Low voltage ac power is supplied to the data set by a wall transformer, KS-21239, L1 (Mfr Disc.) or L4 for stand-alone applications. It is shipped loose with each data set 202S-L1A/2 or L1A/2/3A or with each 47A1 data mounting (202S housing assembly). The transformer must be plugged into a commercial source of power, 105 through 129 Vac at a frequency of 60 ± 3 Hz. A 3-wire U-blade ground pin ac receptacle is required. The power required per set is approximately 8 watts. Approximately 1.7 watts of this is dissipated in the wall transformer.

1.09 Power required for a 40A1 data mounting, fully equipped with data sets, is approximately 50 watts. A self-contained power supply replaces the wall transformer to supply the low voltage (24 Vac) to each data set. The supply is fused on the primary and secondary sides with 70A- and 70G-type fuses, respectively. Spare fuses are furnished with each 40A1 mounting.

DESCRIPTION

1.10 Data set 202S-L1A is the basic set, which is a single plug-in printed wiring board assembly. In addition to an assortment of component apparatus, the board assembly contains a faceplate that aids in the alignment of light-emitting diodes used as functions indicators, and test switches. A reverse channel circuit board assembly, JY2, may be plugged onto the basic set, in piggy-back fashion, to form the data set 202S-L1A/3A. Either of these basic assemblies may be plugged into one of two different enclosures: a 47A1 or a 40A1 data mounting. The 47A1 data mounting is the housing assembly required to form the stand-alone data set 202S-L1A/2 or 202S-L1A/2/3A. It consists of an aluminum extruded shell with card guides for the data set assembly, an interface assembly with connectors and power cord, snap-on plastic front and rear covers, a KS-21239 transformer, and M13F

line cord. The 40A1 data mounting consists of a black metal framework, an interconnection printed wiring backplane assembly, and a power supply. The data sets are inserted vertically through guides in the framework into 908-type connectors and held in place by a retaining bar designation strip assembly. Mounting brackets attached to each end of the framework allow the mounting to be attached to the tapped uprights in apparatus cabinets or open frameworks designed for 19- or 23-inch mounting plates. All connections to the data sets are made via connectors at the rear of the mountings.

CONNECTORS

1.11 The customer interface signals are Electronic Industries Association (EIA) bipolar voltages per RS232-C. The interface connector on the data mountings is the standard 25-pin, KS-19087-type that is designed to mate with the customer supplied Cinch or Cannon DB19604-432 plug equipped with a DB51226-1 hood or its equivalent KS-19088, L2 plug with a KS-19196, L2 hood that is also available from Cinch. KS-16672-type or KS-16690-type female 50-pin connectors are furnished on the 40A1 data mounting, the KS-21253, L3, KS-19252, L5, and 233A adapters, and on the M13F cord for plugging in the telephone sets. KS-16689-type 50-pin male plugs are furnished on the 40A1 data mounting and the KS-21253, L3 adapter for connection to the telephone lines via B25-type connector cables.

SIZE AND ENVIRONMENT

1.12 Data set 202S-L1A measures 5.55 inches wide, 10.4 inches long, and 1.5 inches high and weighs approximately 1.5 pounds. The addition of the reverse channel, JY2, does not add to the height but adds 0.25 pound. The 47A1 data mounting measures 5.75 inches wide, 11.0 inches long, and 2.22 inches high and weighs 3.2 pounds (with the KS-21239 transformer). The 40A1 data mounting measures 18.9 inches long, 13.5 inches deep, and 7.0 inches high and weighs 20.75 pounds. When fully equipped with data set 202S-L1A, it weighs 34.75 pounds. The following front-to-back dimensions are required by the 40A1 data mounting: forward of the mounting surface, 5.5 inches; aft of the mounting surface, 10 inches (including cable dress).

1.13 The data set 202S type operates in an ambient temperature between 40 and 120°F. Relative humidity limits are: 20 to 95 percent at 75°F; 20 to 40 percent at 120°F. Under no condition

shall there be condensation. The limits stated apply to the stand-alone sets and for the multiple arrangements using 40A1 data mountings mounted in KS-20018, L11A and L12A cabinets. The KS-20018, L7 cabinet may be substituted for the list 11A cabinet provided it is not required to see the light-emitting diode display of the data sets and provided the ambient temperature does not exceed 100°F. Higher anticipated temperatures will necessitate removing the rear cover of the list 7 cabinet. If more than three 40A1 data mountings are to be used in a single enclosure, forced air ventilation should be used.

SUBSTITUTION

1.14 The data set 202S-L1A is line signal compatible with all switched network data sets 202 type: 202C, 202D with DAS 804, 202E, and 202R (manual operation, no reverse channel). Because of the difference in the answering sequence of data sets 202S and 202C, the 202S may produce line hits on a 202C during, or immediately after, call setup. Except for the elimination of the contact interface arrangement, the 202S provides an interface to the data terminal that is identical to former 202-type sets.

2. SUPPLEMENTARY INFORMATION

592-000-000—Numerical Index—200 Series Data Sets and Associated Services
 590-002-101—Reference Guide—Data Set 202 Type
 590-010-201—Data Sets Multiple Installation Information
 590-102-131—40-Type Data Mounting Identification
 590-102-137—47-Type Data Mounting Identification
 592-028-100, -200, -300, -500—Data Set 202S
 592-860-100, -200, -300, -500—Data Station Using Data Set 202S
 668-102-519—Test Procedures—Data Set 202S
 X-17919—Manufacturing Testing Requirements for Data Set 202S and 40A1 Data Mounting
 KS-16672—Connector
 KS-16689—Plug
 KS-16690—Connector
 KS-19087—Connector
 KS-19088—Plug
 KS-19196—Hood
 KS-19252—Adapter
 KS-20018—Cabinets—DL Data Systems 107
 KS-21239—Transformer
 KS-21253—Adapter

3. DRAWINGS

SD-1D238-01—Data Set 202S Type and 40A1 Data Mounting

4. PRODUCTS

Data Set 202S Type

List 1A—Assembly, wiring, and common apparatus for one basic plug-in data set assembly per SD-1D238-01, Fig. 1.

List 2—A 47A1 data mounting consisting of a housing assembly for list 1, two cords, and a power transformer per SD-1D238-01, Fig. 3.

List 3A—A JY2 circuit pack assembly. It includes assembly, wiring, and common apparatus for the reverse channel function per SD-1D238-01, Fig. 2.

5.03 The 40A1 data mountings must be added to a 202S data station in top-to-bottom sequence. The 233A adapter plugs numbered 1 and 2 plug into connectors J1 and J2, respectively, of the first mounting. Plugs 3 and 4 plug into connectors J1 and J2, respectively, of the second mounting; plugs 5 and 6 plug into connectors J1 and J2, respectively, of the third mounting. Unused plugs need not be terminated but should have dust covers on them.

5.04 When more than one 40A1 data mounting is included in any 202S data station, the service-line-out screw terminals of each mounting (except the last one) must be wired to the service-line-in screw terminals of each succeeding 40A1 data mounting. Also, a wiring change must be made in the 233A adapter. The wires interconnecting terminals 1 and 2 in positions 19 and 20 must be removed when two 40A1 data mountings are used. The wires between terminals 1 and 2 of positions 18, 19, and 20 must be removed when three 40A1 data mountings are used. These connections should be pulled out and not cut so that they may be restored.

5.05 Automatic calling units, 801-type data auxiliary sets, can be connected to the KS-21253, L3 or 233A adapters.

5.06 A 233A adapter is available to allow a plug-together arrangement of THE CALL DIRECTOR set and up to three 40A1 data mountings. The adapter consists of seven connector cables cross-connected on an 88-type connecting block. Prewired connections appear on the block for adding 801-type data auxiliary sets (ACUs) to the first sixteen data set positions (two 40A1s). A 788F1 or F45772 insertion tool is required. An AT8662 C test cord is available for making an electrical connection to the 88-type connecting block.

5.07 A KS-19252, L5 adapter is available to allow a plug-together station arrangement of a 10-button telephone set (830C-type) and a single 40A1 data mounting containing eight data sets. A service line pickup is also provided. The adapter is physically identical to the KS-19252-type bridging adapters and may be used in conjunction with them when it is required to add 801-type data auxiliary sets (ACUs) to the station arrangement.

5.08 No. 79 backboards or equivalent must be mounted on the rear of the mounting uprights in the KS-20018 cabinets to which the 233A adapter

TABLE OF AUTHORIZED ORDERABLE CODE NUMBERS

DATA SET	RATING
202S-L1A	AT&TCo Std
202S-L1A/2	AT&TCo Std
202S-L1A/3A	AT&TCo Std
202S-L1A/2/3A	AT&TCo Std

Note: Ordering information for the above products should be listed in this form:

Set, Data, 202S-L1A

5. GENERAL NOTES

5.01 The 40A1 data mounting may be mounted in a 7-inch high by 19- or 23-inch mounting plate space. The right-hand mounting bracket is reversible to allow for both spacings.

5.02 Machine screws, 12-24, 1/2-inch long are shipped loose with each 40A1 data mounting for mounting to the uprights in KS-20018-type cabinets. Screws 12-24, 1-1/4 inches long, and wood screws are shipped with each 233A adapter for mounting the backboards and the adapter to the backboard.

is screw mounted. One will fit in the KS-20018, L12A cabinet whereas two will fit in the L11A cabinet. The second backboard may be used to mount a power outlet strip, Waber 602-15, or equivalent. When the KS-19252 adapter is used, it is mounted to the backboard with No. 8 screws.

5.09 Each of the seven connector cables of the 233A adapter is separately labeled: P1, P2, P3, P4, P5, P6, and J1-5. Cables P1 through P6 connect to the 40A1 data mountings as given in 5.03 and J1-5 connects to the telephone set. J1-5 is a single cable with five connector fingers. When a 565HK telephone set is used with the adapter, it should be plugged into the J1 position.

5.10 Each fuse on the secondary side of the power supply is common to one data set in the 40A1 mounting. Both sides of the center-tapped secondary of the supply connected to each data set are separately fused and labeled A and B. The A fuses and B fuses are in separate fuse blocks numbered with the corresponding data set position numbers they connect to in the mounting. For example, fuse 1A and fuse 1B are connected to AC1 and AC2 of the data set in position 1.

5.11 Each data set is assigned a position in the 40A1 mounting. These positions are numbered 1 through 8 beginning at the power supply end of the mounting. The telephone connections for sets in positions 1 through 5 are included in the 50-pin connector (KS-16672) labeled J1 on the backplane; the same connections for sets in positions 6 through 8 are included in the 50-pin connector J2. Each customer connector (KS-19087) has a number designation corresponding to its data set position (1 through 8).

5.12 A card puller, 841-571-284, is shipped loose with each 40A1 mounting to aid in the removal of the data set assembly 202S-L1. Later designed sets have a wire handle included as part of the faceplate to facilitate removal of the assembly.

5.13 A plastic retainer is furnished on each make-busy switch on the 40A1 mounting to prevent accidental operation of the switch. This must first be disengaged from the switch toggle to operate it. The retainers should not be discarded.

5.14 An ac power strip should be provided with the 5-data set stand-alone station arrangement

to accommodate the five KS-21239-type transformers. A Waber 602-15 will accommodate three transformers; a 1A2 power panel will accommodate six transformers.

List of Authorized Mfr Disc. Products

LIST OF AUTHORIZED MFR DISC. PRODUCTS

CODE NO.	REPLACED BY
202S-L1	202S-L1A
202S-L1/2	202S-L1A/2
202S-L1/3	202S-L1A/3A
202S-L1/2/3	202S-L1A/2/3A