

**LOW-SPEED SIGNALING SYSTEM
USING
DATA SET 115A
SUMMARIZING SPECIFICATION
DATA SYSTEMS**

1. GENERAL

SCOPE

1.01 This specification, together with supplementary information listed herein, summarizes the design requirements and information to be used for the application and ordering of data set 115A, a 43A1 data mounting, an interface driver panel, and a key and lamp test field for use on low-speed (under 30 baud) dc signaling or alarm systems.

1.02 This specification is being reissued to incorporate new design concepts prior to manufacture.

CAPACITY

1.03 Data set 115A detects low-speed dc signaling or alarm pulses. Loop resistance and resistance to ground determine whether the set indicates a closure, open, ground, or open ground condition.

1.04 Circuit pack CK2, an alarm timer used in conjunction with data set 115A, provides a contact closure for indicating an alarm condition when a fault in excess of 8 seconds is detected. In addition, it contains a voltage monitor that indicates when the output of the +5 volt dc to dc converter falls below +4 volts.

1.05 The 43A1 data mounting provides a nesting arrangement for up to 14 data sets 115A, one CK2 circuit pack, a -48 to +5 volt dc to dc converter, and terminal strips for cross-connection to other apparatus.

1.06 Circuit pack AE45 eliminates false double-ground indications, provides buffer relays for isolation,

and provides visual displays of N, G, or fault conditions.

1.07 The 233C mounting plate is punched to accept up to 18 AE45 circuit packs and 4 D5A terminal strips.

DESCRIPTION

1.08 Data set 115A is a plug-in circuit pack consisting of two modules mounted together by snap-on spacer/bushings. CM1 contains a loop detector, a floating power supply, a ground detector, and four interface drivers. CM2 contains signal combining logic, fault timers, and transient filters. The data set measures 5.3 inches by 3.5 inches by 1.34 inches, and weighs 7 ounces. It operates within a temperature range of -20 to +140°F in a relative humidity of 5 to 95 percent. Features of the data set 115A are:

- (a) Operates from central office -48 volt battery, requiring a maximum current drain of 105 mA, and up to 70 mA from +5 volts via a dc to dc converter.
- (b) Interprets a loop resistance of less than 10,000 ohms as a closure.
- (c) Interprets a loop resistance of greater than 30,000 ohms as an open.
- (d) Interprets a ground return resistance (exclusive of metallic) of less than 8000 ohms as a ground connection.
- (e) Interprets a ground return resistance of greater than 65,000 ohms as an open ground.

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- (f) Has green and red light-emitting diodes in its faceplate that indicate a ground or not normal (loop open) condition, respectively.
- (g) Has a lamp driver circuit to power an incandescent bulb that follows both signals.
- (h) Has an alarm lead that is cross-connected to an alarm timer.

1.09 Circuit pack CK2 measures 1.7 inches by 4.05 inches by 1.26 inches, weighs 3 ounces, and operates over a temperature range of -20 to $+140^{\circ}\text{F}$ in a relative humidity of 5 to 95 percent. Features of circuit pack CK2 are:

- (a) Operates from central office -48 volt battery.
- (b) Monitors alarm leads from all data sets in a mounting.
- (c) Produces an alarm signal when a fault condition in excess of 8 seconds is detected (may be cross-connected to central office alarm if desired).
- (d) Monitors the $+5$ volt battery from the dc to dc converter.
- (e) Produces an alarm signal if the $+5$ volts drops below $+4$ volts or if the -48 volt battery is lost (may be cross-connected to the central alarm if desired).

1.10 The 43A1 data mounting measures 5.9 inches by 23 inches by 6.7 inches and weighs 9 pounds. Features of the 43A1 data mounting are:

- (a) Accepts up to fourteen data sets 115A in a slotted nest arrangement.
- (b) Mounts in a 23-inch relay rack frame.
- (c) Has wire-wrap terminal strips for ease of cross-connection to other central office apparatus.
- (d) Contains a CK2 circuit pack alarm timer and voltage monitor.
- (e) Contains a -48 to $+5$ volt dc to dc connection that supplies power to the integrated circuit logic in data set 115A.

1.11 Circuit pack AE45 is a printed wire board and components attached to a 4.92- by 3.73-inch faceplate-frame assembly. It is attached to the 233C mounting plate by two screws. It operates within a temperature range of -20 to $+140^{\circ}\text{F}$ in a relative humidity of 5 to 95 percent. It weighs 7 ounces. Features of the circuit pack AE45 are:

- (a) Operates from the -48 volt central office battery, requiring a maximum of 50 mA.
- (b) Uses wire-wrap terminals for connection.
- (c) Indicates operating conditions with three light-emitting diodes on its faceplate.

1.12 The 233C mounting plate measures 4 by 23 inches. It is punched to accept up to 18 AE45 circuit packs and 4 D5A terminal strips.

2. SUPPLEMENTARY INFORMATION

880-350-110—Low-Speed Signaling System Using Data Set 115A—General Engineering Considerations
312-812-100—Low-Speed Signaling System Using Data Set 115A—Description
312-812-200—Low-Speed Signaling System Using Data Set 115A—Installation and Connections
312-812-300—Low-Speed Signaling System Using Data Set 115A—Maintenance
312-812-500—Low-Speed Signaling System Using Data Set 115A—Test Procedures
500-610-158—Packaged Electronic Products—Wiring, Cabling, Numbering, and Lettering
590-001-111—Data Set 115A—Reference Guide
590-102-138—43A1 Data Mounting—Identification
591-038-100—Data Set 115A—Identification
800-610-159—Printed Wiring Assemblies—General Equipment Requirements

3. DRAWINGS

SD-73104-01—Data Set 115A, 43A1 Data Mounting, AE45 Circuit Pack, Interface Driver Panel, Lamp and Key Test Field

4. PRODUCT

Data Set 115A (Detector)

Plug-in circuit pack per SD-73104-01, App Fig. J1. Detects low-speed dc signaling or alarm pulses. Provides alarm indications under certain conditions.

CK2 Circuit Pack

Alarm timer and voltage monitor per SD-73104-01, App Fig. J2.

43A1 Data Mounting

Assembly, wiring, and common apparatus for up to 14 data sets 115A per SD-73104-01, App Fig. 1.

AE45 Circuit Pack

Interface driver per SD-73104-01, App Fig. J3.

233C Mounting Plate

Punched 4- by 23-inch plate for 18 AE45 circuit packs and 4 terminal strips per SD-73104-01, App Fig. 2.

5. GENERAL NOTES

5.01 The auxiliary test field, to be optionally installed by the telephone companies, consists of:

- (a) 248A jack mounting.
- (b) 100D designation strip.
- (c) 547B keys.
- (d) 47B lamp sockets.
- (e) 2Y lamps.
- (f) 2AY lamp caps.
- (g) 39B apparatus blanks.

TABLE OF AUTHORIZED ORDERABLE CODE NUMBERS

| CODE | RATING |
|---------------------|------------|
| Data Set 115A | AT&TCo Std |
| CK2 Circuit Pack | AT&TCo Std |
| 43A1 Data Mounting | AT&TCo Std |
| AE45 Circuit Pack | AT&TCo Std |
| 233C Mounting Plate | AT&TCo Std |

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

- Set, Data, 115A
- Pack, Circuit, CK2
- Mounting, Data, 43A1
- Pack, Circuit, AE45
- Plate, Mounting, 233C