

265A Voice Signaling System

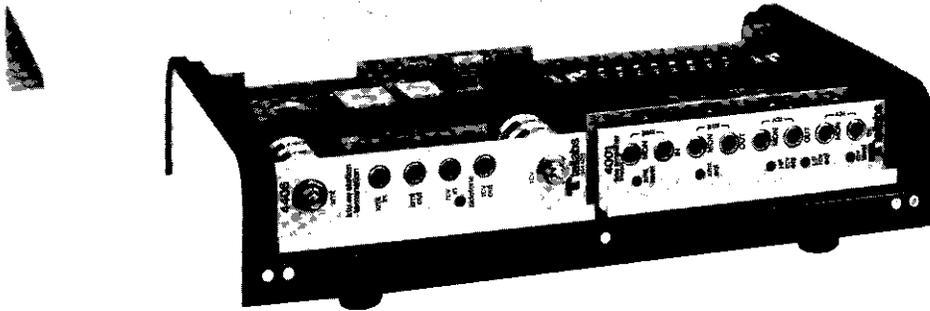


figure 1. 265A Voice Signaling System

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1. general description

1.01 The 265A Voice Signaling System provides a complete termination, exclusive of loudspeaker and telephone set, for a station in a 4wire voice paging network. In such a network, commonly referred to as a hoot 'n' holler, yell-down, or junkyard circuit, going off-hook at any station seizes the network for broadcasting a message through loudspeakers at all other network stations.

1.02 The 265A System consists of a 4406 KTU 4Wire Station Termination module and (in most applications) a 4001 Line Amplifier in a compact enclosure, the 265A Mounting Assembly. The Line Amplifier terminates the 4wire facility, while the 4406 module provides termination for the station.

1.03 In terminating the 4wire facility, the 4001 Line Amplifier provides impedance matching toward the facility, amplitude equalization, -3 to $+36$ dB of gain in the receive channel and -15 to $+36$ dB of gain in the transmit channel. The 4001 also features a full complement of front-panel jacks to facilitate testing.

1.04 Station-termination functions provided by the 4406 KTU 4Wire Station Termination module include completion of the 4wire path through a pickup relay whenever the station goes off-hook; level coordination via transmit and receive attenuators; impedance matching, circuit isolation, and balance through the use of a transformer at each station-side port; sidetone amplification; loudspeaker muting; and accommodation of manual push-to-

talk station instruments through incorporation of a push-to-talk relay.

Note: Upon occasion, a 265A System may be required with other than a 4001 Line Amplifier for the facility interface. Modules such as the 4422 Repeat Coil and 4003A or 4003B Line Amps with Loopback may be exchanged for the standard 4001. For additional information on the 4001, 4406 or other modules, refer to the Tellabs catalog sheet or practice on each.

1.05 The 265A Mounting Assembly is a 1913 Apparatus Case specially wired and prepared for use in the 265A Voice Signaling System. The Assembly consists of a metal chassis with a printed circuit board that provides interconnection between the 4406 module and the Line Amplifier and mounts components that rectify and regulate input power. Also integral to the 265A Assembly are terminal blocks for connection to the associated telephone set, loudspeaker, and power supply, and card guides and connectors for the two modules. All internal components are housed under an attractive metal cover.

1.06 Power is supplied to the two modules through the power/rectifier printed circuit board, which provides filtered nominal -24 Vdc power from -24 to -26 Vdc or 18 to 26Vac input.

1.07 The 265A Assembly is designed to be either placed on a desktop or mounted on a wall. The design of the 265A's cover allows an associated telephone set to be conveniently placed on top of the Assembly when located on a desktop. The Assembly is wall mounted by means of screws through four keyhole slots in its baseplate.

2. application

2.01 The 265A Assembly mounts and powers one 4406 KTU 4Wire Station Termination module and, in most applications, one 4001 Line Amplifier to

provide a complete termination (less loudspeaker and telephone set) for a 4-wire voice paging network.

2.02 The 265A System is normally located on the same premises as the associated telephone set and loudspeaker. Where it is necessary to locate the System at a distance from the telephone set and loudspeaker, the cable resistance of the leads connecting the telephone set to the 265A System must not exceed 75 ohms.

2.03 In all applications of the 265A System, a 4406 KTU 4Wire Station Termination module must be provided as a termination for the station.

2.04 Furthermore, **most** applications of the 265A System require that a Line Amplifier be used to terminate the facility. This is because gain and amplitude equalization, in addition to impedance matching toward the facility, must be provided. Where loopback capability is not required, the 4001 Line Amplifier should be used.

2.05 Where loopback capability is a requirement, either the 4003A or 4003B Line Amplifier may be used in place of the 4001 to provide tone- or dc-activated equal-level loopback. Both 4003A and 4003B provide -10 to $+35$ dB of gain in the receive channel and -15 to $+30$ dB of gain in the transmit channel. The two modules differ only in the method used to effect tone loopback release. The 4003B incorporates a timeout circuit that releases loopback automatically after 60 to 120 seconds; the 4003A requires a second tone burst to release loopback. Both modules initiate tone loopback upon cessation of a tone burst 1.4 seconds or greater in duration on the receive pair. (Activation of loopback upon **removal** of tone prohibits the unintentional looping of other than the desired point in a multipoint circuit.) DC loopback may be activated locally via key or switch.

2.06 For applications in which gain is not required in terminating the facility, the 4422 Dual Repeat Coil may be used instead of a Line Amplifier to provide the necessary impedance matching and transformer isolation.

Note: *Pinouts on the 4001, 4003A, 4003B, and 4422 are identical; thus, the modules may be interchanged within the 265A Assembly without the need for wiring changes. For additional information on the 4003A and 4003B Line Amplifiers and the 4422 Dual Repeat Coil, refer to the Tellabs catalog sheet or practice on each.*

2.07 The 265A System, by virtue of the 4406 module, accommodates any conventional 4-wire telephone set as the station instrument. This may be either a key telephone or a dedicated single-line telephone. The 265A Assembly is specifically designed so that, when it is located on a desktop, the associated telephone set may be conveniently placed atop it.

2.08 The loudspeaker required in the 265A System is a 106B-type loudspeaker (Tellabs 9791 or equivalent). The 4406 module mutes the loudspeaker whenever the associated telephone goes off-hook.

2.09 The 265A Assembly's integral rectifier and regulation circuitry provides filtered nominal -24 Vdc power to the two modules from -24 to -26 Vdc or 18 to 26Vac input. Thus, the System may be powered from the most convenient source available. A conventional 117Vac source (i.e., a wall outlet) may be used as the primary power source when the optional 1913 List 4 stepdown Transformer is used.

2.10 If more elaborate variations of this simple Voice Signaling System are required, these may be engineered through the use of other Tellabs modules. For example, alternate voice paging/data operation may be accommodated by the addition of a third module, the 9001 Relay Module. Mounting arrangements other than the 265A Assembly must, of course, be provided. Consult Tellabs' Application Engineering Department at (312) 969-8800 for details.

3. installation inspection

3.01 The 265A Voice Signaling System should be visually inspected upon arrival to find possible damage incurred during shipment. If damage is noted, a claim should immediately be filed with the carrier. If stored, the 265A should be visually inspected again prior to installation.

mounting

3.02 As stated previously, the 265A Assembly may be located on a desktop or wall mounted via four keyhole slots in its baseplate. If the 265A Assembly is to be wall mounted, four mounting screws (not supplied) of a type suitable for the material of the wall are required.

Note: *When wall mounted, the 265A Assembly must be oriented so that the modules' faceplates are not facing downward. Otherwise, the possibility exists of the modules' working loose from their connectors.*

module installation

3.03 The 4406 module mounts in connector *J2* and the 4001, 4003A, 4003B, or 4422 module mounts in connector *J1*. Simplified block diagrams of the 4406 and 4001 modules are affixed to the baseplate of the Assembly near the appropriate connectors.

telephone set connections

Note: *When making these and all other connections to the 265A Assembly, run all wiring through the grommeted access hole. Refer to the 265A wiring diagram (section 5) and the view of the 265A Assembly showing the terminal blocks (figure 2) for wiring details.*

3.04 Connections from the associated telephone set to the 265A Assembly are made to terminals 1 through 8 of terminal block *TB1*, the 12-terminal block on the Assembly's printed circuit board (see figure 2). *TB1* has wire-wrap terminals on one side of the printed circuit board and screw terminals

on the other; either may be used. The required connections are listed in Table 1.

loudspeaker connections

3.05 Two of the required connections from the associated loudspeaker to the 265A Assembly are made to TB1; these are listed in table 1. In addition, if the loudspeaker is to be powered from the 265A

Assembly's power supply, a lead must be connected from terminal 6 of TB4 to the loudspeaker. Finally, a loudspeaker ground lead must be connected to terminal GND or the positive (+) terminal of wire-wrap pin group TB3 or to chassis ground. Refer to figure 2 and the System wiring diagram (section 5) as necessary.

Note: Issue 2 265A Systems manufactured before March, 1979, do not contain terminal block TB4. Therefore, if the loudspeaker is to be powered from the 265A Assembly's power supply, a lead must be connected from pin 14 of connector J2 to the loudspeaker.

power connections

3.06 Either ungrounded 18 to 26Vac (60Hz) power or -24Vdc power may be connected to the 24VDC/18VAC power input terminals on TB1. With either ac or dc input power, the connections are made without regard for polarity and a ground lead must be connected to chassis ground.

3.07 If an optional 1913 List 4 Transformer is used to convert conventional 117Vac power to a nominal 26Vac input to the 265A Assembly, connections are made, without regard for polarity, between the power input terminals (11 and 12) of TB1 and terminals 3 and 1 of the 1913 List 4 Transformer. Connect terminal 4 of the 1913 List 4 Transformer to the GND or positive (+) terminal of TB3.

Note: Power should be applied to the 265A System only after wiring has been completed and after

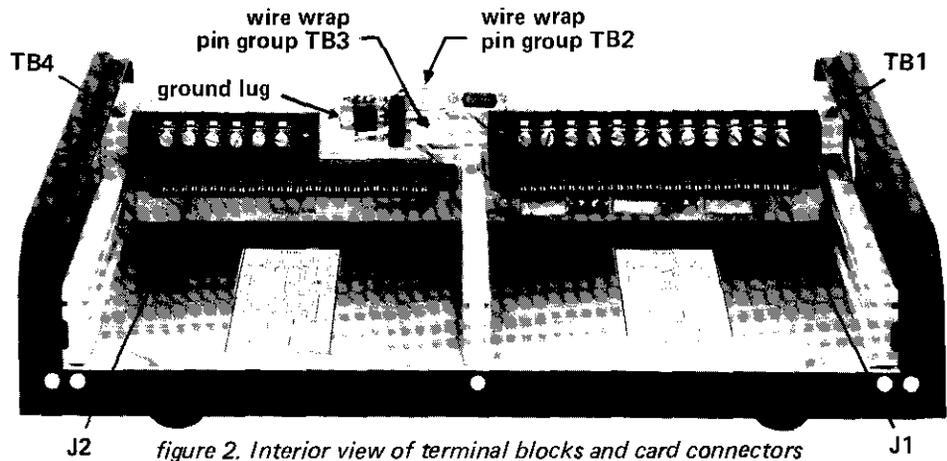


figure 2. Interior view of terminal blocks and card connectors

modules have been properly optioned and plugged into connectors J1 and J2.

facility connections

3.08 The 4wire facility is connected to terminal block TB4 as follows (see the System wiring diagram, section 5): RT (receive tip) to terminal 1, RR (receive ring) to terminal 2, TT (transmit tip) to terminal 3, and TR (transmit ring) to terminal 4.

Note: Issue 2 265A Systems manufactured before March, 1979, do not contain terminal block TB4. Therefore, the 4wire facility is connected to connector J1 as follows: RT (receive tip) to pin 7, RR (receive ring) to pin 13, TT (transmit tip) to pin 41, and TR (transmit ring) to pin 47.

4. circuit description

4.01 The 265A Mounting Assembly uses a bridge rectifier, three filter capacitors, and a transistorized voltage regulator to convert the input voltage (normally -24 to -26Vdc or 18 to 26Vac) to that used by the 4406 module and the 4001, 4003A, or 4003B module (normally -24Vdc). For circuit descriptions of the individual modules used in the 265A System, refer to the Tellabs practices on those modules.

6. specifications

Note: For specifications on the individual modules used in the 265A System, refer to the individual catalog sheets or practices on those modules.

power requirements

-24 to -26Vdc, 140mA maximum; 18 to 26Vac, 5VA maximum; or commercial 117Vac from conventional wall outlet when used with optional 1913 List 4 Transformer (26Vac, 6.14VA)

operating environment

20° to 130° F (-7° to 54° C), humidity to 95% (no condensation)

power supplied to modules

filtered nominal -24Vdc

dimensions

3.0 inches (7.52cm) high
8.75 inches (22.22cm) wide
12.75 inches (32.38cm) long

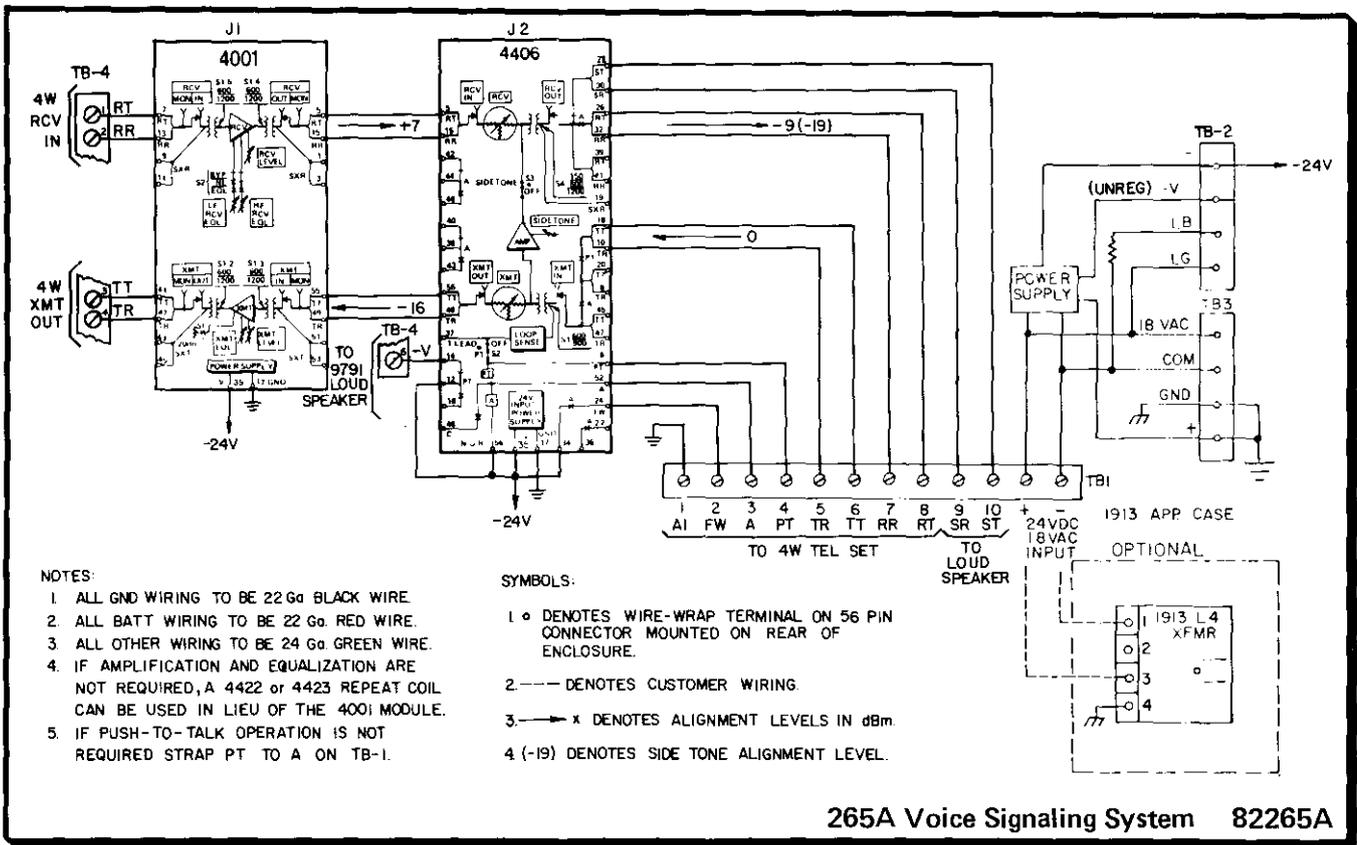
weight

2 pounds 12 ounces
(1.24kg) without modules

lead designation	TB1 terminal no.	
A1 (A1-lead)	1	to 4wire telephone set
FW (4wire pickup relay)	2	
A (A-lead)	3	
PT (push-to-talk relay)*	4	
TR (transmit ring)	5	
TT (transmit tip)	6	
RR (receive ring)	7	
RT (receive tip)	8	
SR (loudspeaker ring)	9	to loudspeaker
ST (loudspeaker tip)	10	
24VDC/	11	to external power supply
18VAC (+ and -)	12	

*If push-to-talk operation is not required, strap 3 to 4.

table 1. Connections to terminal block TB1



5. wiring diagram

mounting

desktop or wall (via four screws); provided with rubber feet for desktop

telephone set

any conventional 4wire tel set (key or single-line)

loudspeaker

106B-type (Tellabs 9791 or equivalent)

7. testing and troubleshooting

7.01 This Testing Guide may be used to assist in the installation, testing or troubleshooting of the 265A Mounting Assembly. No component-level testing should be attempted on the 265A Assembly. Unauthorized testing or repairs may void the 265A's warranty.

7.02 If a 265A is diagnosed as defective, the situation may be remedied by Tellabs' *replacement* or *repair and return* procedures.

7.03 If a situation arises that is not covered in the Testing Guide, contact Tellabs Customer Service at (312) 969-8800 for further assistance.

replacement

7.04 If a defective 265A Assembly is encountered, notify Tellabs via telephone [(312)969-8800], letter, or twx [910-695-3530]. Notification should include all relevant information, including the 8X265A part number (from which we can determine the issue of the Assembly in question). Upon notification, we shall ship a replacement Assembly to you.

repair and return

7.05 Return the defective 265A Assembly, shipment prepaid, to: Tellabs Incorporated
4951 Indiana Avenue
Lisle, Illinois 60532
Attn: repair and return dept.

Enclose an explanation of the Assembly's malfunction. Follow your company's standard procedure with respect to administrative paperwork. Tellabs will repair the Assembly and ship it back to you. If the Assembly is in warranty, no invoice will be issued.

testing guide checklist

test	procedure	normal result	if normal conditions are not met, verify:
power to Assembly	Using dc voltmeter, measure voltage across capacitor C1, C2, or C3.	Measured voltage is 35Vdc or higher <input type="checkbox"/> .	Broken wires or connector pins <input type="checkbox"/> Loose power connections to 24VDC/18VAC terminals on TB2 <input type="checkbox"/> Faulty transformer or external source <input type="checkbox"/> .

Note: For testing and troubleshooting information on the modules used in the 265A Assembly, refer to the practices on those modules. If trouble is encountered with modules mounted in the 265A Assembly, verify that all connections are correct and secure and that the modules are plugged completely into the **correct** positions.