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## KEYPLUS™ 20 Feature Unit KEYPLUS™ 20S Feature Unit Installer's Guide (CIB 3133, Issue 1; Comcode 106401136)

The KEYPLUS™ 20 and the KEYPLUS™ 20S feature units connect to the customer's 1A2 Key set in the same manner. The recommended sequence of steps for installation is:

- 1 Review component checklist
- 2 Review pre-installation requirements
- 3 Mount the feature unit
- 4 Connect the feature unit to the 1A2 Key telephone set
- 5 Connect the feature unit to the power outlet
- 6 Activate the built-in diagnostic program
- 7 Set pulse or tone dialing
- 8 Clear memory
- 9 Program Recall timing interval if necessary (KEYPLUS 20S only)
- 10 Program for use behind switch (PBX) if necessary
- 11 Test the feature unit

**CAUTION:** The KEYPLUS 20 and KEYPLUS 20S feature units must be installed by an AT&T-authorized technician.

### Step 1 Review Component Checklist

Before installing a KEYPLUS feature unit, make sure you have the following items:

- KEYPLUS 20 or KEYPLUS 20S feature unit (with clear plastic cover attached)
- Button label sheet
- Wall transformer
- 1 modular cord (D8AB)
- 2 wire ties
- Mounting screws (not provided) and paper template for wall mounting (included in this document.)

### Ordering Information

Missing parts can be ordered using the following Comcodes:

KEYPLUS Component	Comcode
KEYPLUS 20 feature unit	106308315
KEYPLUS 20S feature unit	106308323
Wall transformer	406364224
D8AB modular cord	102921996
Button label sheet	846548451
Clear plastic cover (faceplate)	846548428
User's Guide	106401114
Installer's Guide	106401136

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## Step 2 Review Pre-Installation Requirements

- 1 Installation requires a grounded 115V AC power outlet not controlled by a switch and within reach of the KEYPLUS feature unit. The wall transformer is supplied with a 14-foot cord.
- 2 The ringer equivalence number (REN) of the KEYPLUS unit and any associated Tip/Ring device must be added to the REN of the 1A2 Key telephone set. The REN of the KEYPLUS feature unit is 0.7B. For any CO line, make sure that the combined REN does not exceed 5.0.

## Step 3 Mount the Feature Unit

The KEYPLUS feature unit can be desk or wall mounted. For desk mounting, place the unit on a flat sturdy horizontal surface within 14 feet of an AC outlet and no more than 7 feet from the 1A2 Key set. For wall mounting, follow the procedures below:

- 1 On the paper template provided with these instructions, punch out the holes representing the mounting holes of the unit.
- 2 With the paper model as a guide, use a pencil to mark the center of the unit's mounting holes on the wall.
- 3 Prepare the wall to accept mounting screws.
- 4 Install mounting screws (not provided).  
**Note:** Be sure to leave 3/16-inch to 1/4-inch of space between the bottom of the screw head and the walls.
- 5 Align the slotted mounting holes on the back of the unit with the mounting screws and slide the unit down until it is held securely in place.

## Step 4 Connect the KEYPLUS Feature Unit to the 1A2 Key Telephone Set

- 1 Determine the model number of the 1A2 Key set. Refer to Table 1 - D8AB Wire Connections on page 5 for a list of supported models (left-most column).  
**Note:** Be sure to read any notes in Table 1 which refer to the 1A2 set you are working on. Certain sets will require additional modifications.
- 2 Using a screwdriver, remove the cover from the telephone.
- 3 The D8AB cord contains 8 spade-tipped wires which connect to screw terminals within the 1A2 Key set. You will need to connect between 5 and 7 these wires depending on the 1A2 model.  
**Note:** The D8AB cord should enter the 1A2 Key set through the same opening as the mounting cord. As a strain relief, the D8AB cord should be fastened to the mounting cord inside the set with a wire tie. Leave enough slack so that the wires can reach the farthest screw terminal in the set.
- 4 Using Table 1, locate the appropriate 1A2 Key model number. Wire colors are listed in the top row. Where each wire-color column meets the row containing your model, you will find the screw terminal label.
- 5 Connect all wires to the appropriate screw terminals. Insulate and store wires labeled "no conn".  
**Note:** Screw terminals are grouped by function: line or network. All network screw terminals are identified by a plus (+) sign in Table 1. Individual screw terminal locations vary from model to model. Screw terminal labels (e.g., N, 4, PSB-9) are marked on the 1A2 set next to each terminal.
- 6 Replace the cover on the telephone.
- 7 Connect the modular end of the D8AB cord to the jack labeled "TEL SET" on the KEYPLUS feature unit.

### Step 5 Connect the KEYPLUS Feature Unit to the Power Outlet

Install the wall transformer by plugging one end into the jack labeled "POWER" on the KEYPLUS unit and the other into the AC outlet.

- Power LED should light within 6 seconds

### Step 6 Activate the Built-in Diagnostic Program

Press **TEST** to test the feature unit's LEDs, speaker connection, and central processor.

- After 3 or 4 seconds you should hear a confirmation tone (3 beeps). You will need to replace the unit if either of the following occurs:
  - You do not hear a confirmation tone or an error tone (10 beeps.)
  - One or more LEDs fails to light.
- If you hear an error tone (10 beeps), perform the following steps:
  - 1 Unplug the transformer from the AC outlet
  - 2 Check wiring of key set and D8AB cord
  - 3 Unplug D8AB cord from unit, check leads on cord and unit
  - 4 Plug D8AB cord into KEYPLUS
  - 5 Plug transformer into AC outlet
  - 6 Press **TEST**
  - 7 If error tone is heard (10 beeps), replace unit

### Step 7 Set Pulse or Tone Dialing

Set the Tone/Pulse Dialing Switch on the back of the KEYPLUS feature unit to the appropriate setting.

### Step 8 Clear the Memory

To clear any random numbers which may be in memory:

- 1 Remove the cover plate and button label sheet
- 2 Press **PROG**
- 3 Press **LAST #**
- 4 Press **\*\***
- 5 Press **99**
  - You should hear a confirmation tone (3 beeps)
  - If you hear an error tone (10 beeps), go to step 3 and repeat the process
  - If you hear an error tone again, you will need to replace the unit
- 6 Press **PROG** to exit programming mode

### Step 9 Program the Recall Timing Interval (KEYPLUS 20S only)

The KEYPLUS 20S is equipped with a Recall button. If the customer is using KEYPLUS 20S and is located in a CO exchange area where the default value (450 msec) is not compatible, you will have to change the Recall timing interval.

- 1 Remove the clear plastic cover and the bottom label sheet from the KEYPLUS feature unit.
- 2 Press **PROG** to enter programming mode.
- 3 Press **RECALL** repeatedly until you reach the correct setting. Settings are indicated by beeps:
  - 1 beep = 350 msec
  - 2 beeps = 450 msec
  - 3 beeps = 600 msec
- 4 Press **PROG** to exit programming mode.

## Step 10 Program the KEYPLUS Feature Unit for Use Behind Switch (PBX)

If the customer's 1A2 Key system is being used behind a switch, the Last Number Dialed and Busy Number Redial features will not work unless the following procedure is performed:

- 1 Determine the number of digits (0-9) the customer dials to obtain dial tone from the Central Office. (Example: If the customer dials 9, the number of digits is 1.)
- 2 Press **PROG**
- 3 Press **LAST #**
- 4 Press **\*\*98**
- 5 Enter the number of digits in the customer's access code by pressing the Personal Speed Dial button that corresponds to the appropriate number (**0-9**)
  - You should hear a confirmation tone (3 beeps)
  - If you hear an error tone (10 beeps), go to step 3 and repeat the process
  - If you hear an error tone again, you will need to replace the unit
- 6 Press **PROG** to exit programming mode

## Step 11 Test the KEYPLUS Feature Unit

### Verifying the Dial Tone

- 1 Select an outside line by pressing a line button on the 1A2 Key set.
- 2 Press **SPKR** on the KEYPLUS feature unit to verify that you are receiving dial tone.
  - If no dial tone is returned, replace the KEYPLUS feature unit and repeat steps 1 and 2.
  - If still no dial tone is returned, the problem may be in the 1A2 Key set or in the wiring.

### Circuit Testing Procedure

**Note:** Before performing this test, be sure that at least one Personal Speed Dial button has been properly programmed with a telephone number.

- 1 Press an outside line button on the 1A2 Key set.
- 2 Press **SPKR** and listen for dial tone.
  - The telephone line button and speaker light should light
- 3 Place a call and listen for the dial pulses or tones
- 4 Once the call is connected, pick up the handset
  - The Speaker LED should turn off
- 5 Hang up the handset
- 6 Press **LAST #**.
  - You should receive dial tone
  - The call should be completed

## FCC WARRANTY

This equipment is registered with the FCC in accordance with Part 68 of its rules. In compliance of these rules, you are advised of the following:

- Means of Connection: Connection to the telephone network shall be through a 1A2 Telephone set. Accessories may be connected to the network through a standard interface jack USOC RJ11C, located on the unit. By asking AT&T to install the KEYPLUS unit, the customer approves the connection of the unit to the 1A Key system as required by the FCC.
- Notification to the Telephone Companies: Before connecting this equipment, the customer or the equipment supplier must notify the local telephone company's business office of the following:
  - the telephone number(s) that the customer will be using with this equipment
  - the appropriate registration number and ringer equivalence number (REN), which can be found on the unit

The local telephone company must also be notified if and when this equipment is permanently disconnected from the line(s).

**Table 1 - D8AB WIRE CONNECTIONS**

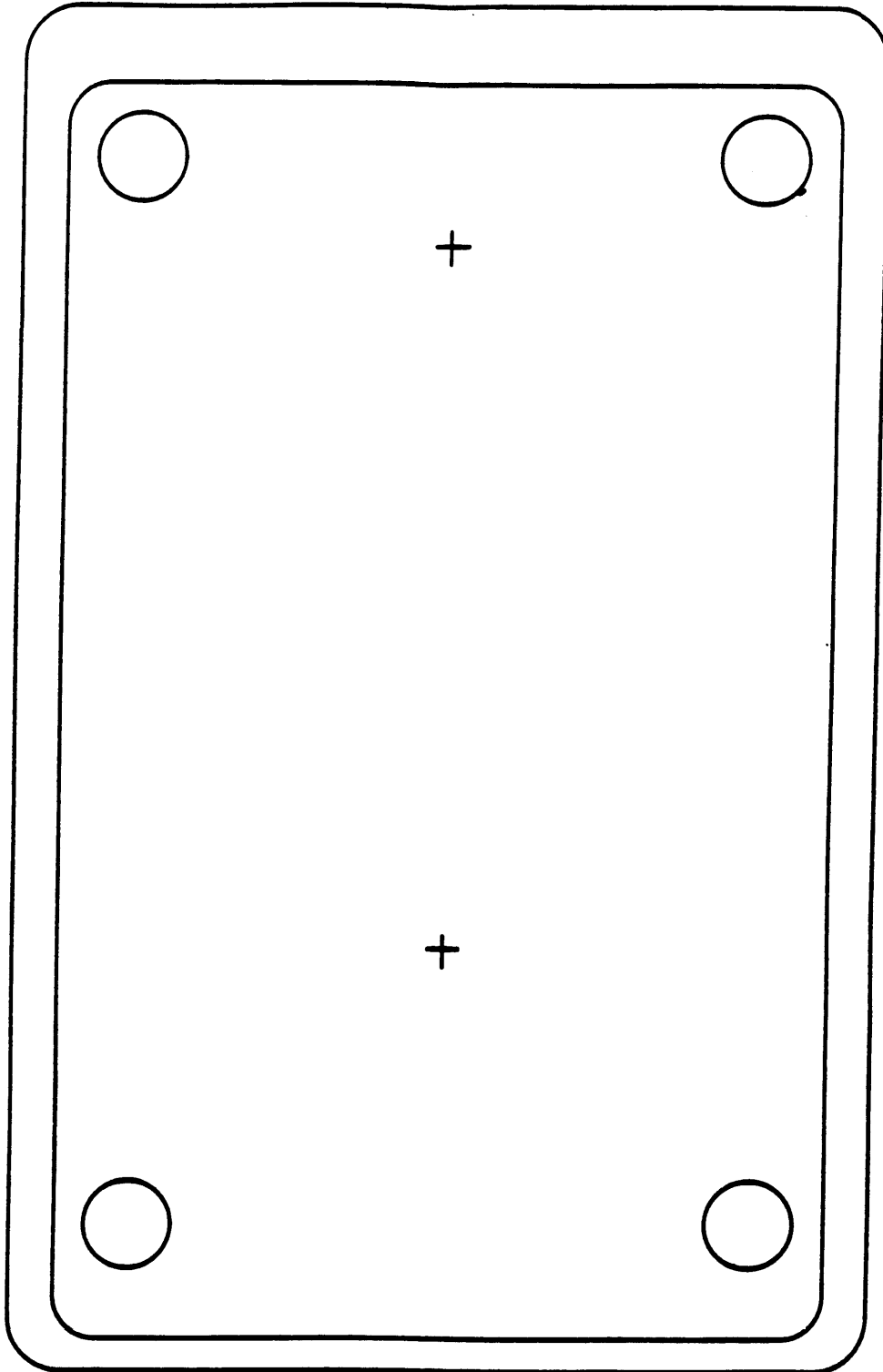
1A2KEY SET MODEL	RED	GREEN	GRAY	BLUE	YELLOW	BLACK	ORANGE	BROWN
500 S, SM	3	RR +(18)	6(19)	C	5	E1	RR +	no conn.
2500 S, SM	2	1	no conn.	C	4	3	L2 +	L1 +
565 HDR	R	RR +	ON1(1)	C +	N	1B	RR +	no conn.
565 GK, GKM, GKMS	N	RR +(3)	8(2)	C +	M	1B	RR +	no conn.
565 HK, HKM, HKMS, LK LKM, LKMS	9	RR +(4)	8(2)	C +	N	1B	RR +	no conn.
2565 GK, GKM, GKMS	N	L2+(5)	no conn.	C +	M	1B	G +	7
2565 HK, HKM, HKMS, LK, LKM, LKMS	9	L2+(5)	no conn.	C +	N	1B	G +	7
630, 631, DA, DAM, DAMS1	13	RR +(7)	9(6)	C +	7	8	RR +	no conn.
634, 635, A, B, C, D (EARLY)	2	RR +	11(8)	C +	G +	4	RR +	no conn.
634, 635, A, B, C, D (CURRENT)	2	RR +	11(8)	C +	G5	1	RR +	no conn.
634, 635, DA, DAM, DAMS	13	RR +(9)	9(6)	C +	56	10	RR +	no conn.
2630 D, 2631 D, 2634 D	2	4	no conn.	C +	5	1	10	11
2630, 2631, DA, DAM, DAMS1	13	12(10)	no conn.	C +	7	8	9	14
2634, 2535, DA, DAM, DAMS1	13	4(11)	no conn.	C +	56	10	9	14
851 B, BM, BT, CM	13	RR +(13)	15(12)	C +	3	4	RR +	no conn.
2851 B, BM, BT, CM	13	20(13)	no conn.	C +	3	4	G +	17
872 A1M	PSB-9	PSB-2	PBS-3(15)	TB2-1	TB1-1	TB1-12	PSB-2	no conn.
2872 A1M, A2M	PSB-12	PSB-13(14)	no conn.	PSB-5	TB1-1	TB1-12	PSB-2	no conn.
830, 831 A1M, B1M, C, CM, CT, DM, FM	6	RR +(17)	30(16)	C +	22	10	RR +	no conn.
2830, 2831 A1M, B1M, C, CM, CT, DM, FM	6	RR+(17)	no conn.	C +	22	10	25	24

**NOTES:** + indicates a network terminal

- (1) If equipped with 8RA dialer (identified by four wires, two blue and two white), replace with a 8CA dialer (identified by two additional yellow wires). Connect one yellow wire to terminal ON1 and the other yellow wire to terminal RR +. If the set is equipped with a 8CA dialer, move the yellow dialer wire from terminal ON to terminal RR +.
- (2) If equipped with 8RA dialer (identified by four wires, two blue and two white), replace with a 8CA dialer (identified by two additional yellow wires). Connect one yellow wire to terminal 8 and the other yellow wire to terminal RR +. If the set is equipped with a 8CA dialer, move the yellow dialer wire from terminal 7 to terminal RR +.
- (3) Move blue dialer wire from terminal 1 to terminal RR +.
- (4) On HKMS and LKMS sets, move green set wire from terminal 1 to terminal F +.
- (5) On GKMS, HKMS and LKMS sets, move green set wire from terminal L2 + to terminal F + and connect green D8AB wire to F +.
- (6) If equipped with 8RA dialer (identified by four wires, two blue and two white), replace with a 8CA dialer (identified by two additional yellow wires). Connect one yellow wire to terminal 9 and the other yellow wire to terminal RR +. If the set is equipped with a 8CA dialer, move the yellow dialer wire from terminal 14 to terminal RR +.
- (7) On 630 and 631 DAMS1 sets, move two green set wires from terminal G + to terminal F +.
- (8) If equipped with 8RA dialer (identified by four wires, two blue and two white), replace with a 8CA dialer (identified by two additional yellow wires). Connect one yellow wire to terminal 11 and the other yellow wire to terminal RR +. If the set is equipped with a 8CA dialer, move the yellow dialer wire from terminal 12 to terminal RR +.
- (9) On 634 and 635 DAMS sets, move W-BL wire from G + to F +.
- (10) On 2630 and 2631 DAMS1 sets, move two green wires from terminal 1 to terminal 12.
- (11) On 2634 and 2635 DAMS1 sets, move W-BL wire from terminal 1 to terminal L2 +.
- (12) If equipped with 8RA dialer (identified by four wires, two blue and two white), replace with a 8CA dialer (identified by two additional yellow wires). Connect one yellow wire to terminal 15 and the other yellow wire to terminal RR +. If the set is equipped with a 8CA dialer, move the yellow dialer wire from terminal 17 to terminal RR +.
- (13) On 851 CM set, move green set wire from terminal 2 to terminal F +. On 2851 CM sets, move green set wire from terminal 2 to terminal F + and connect green D8AB wire to terminal F +.
- (14) Move black set wire from TB2-2 to TB2-1.
- (15) Connect a jumper wire between PSB-6 and PSB-2.
- (16) If equipped with 8RA dialer (identified by four wires, two blue and two white), replace with a 8CA dialer (identified by two additional yellow wires). Connect one yellow wire to terminal 30 and the other yellow wire to terminal RR +. If the set is equipped with a 8CA dialer, move the yellow dialer wire from terminal 24 to terminal RR +.
- (17) On 830 CM and 831 CM (manufactured before 2-77), with new line switch installed (identified by two additional blue wires), move green set wire (830 CM) to two green set wires (831 CM) from terminal 16 of set terminal board to terminal F +. On 830 CM and 831 CM (manufactured after 2-77), DM, or FM, 2830 CM and 2831 CM (with new line switch installed), DM, or FM, move green set wire from terminal 16 of set terminal board to terminal 8 of set terminal board.
- (18) Move blue dialer wire from terminal E2 to terminal RR +.
- (19) Move yellow dialer wire from terminal 1 to terminal RR +.

Mounting Template for the KEYPLUS Feature Unit

(TOP)



(BOTTOM)