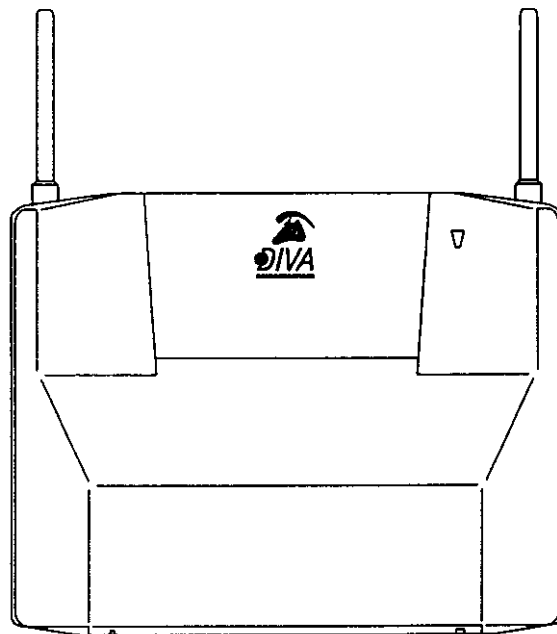




Model SU-200
Single-Line Subscriber Unit



USER GUIDE



COPYRIGHT

Copyright © 1997 by Diva Communications, Inc. All rights reserved. Printed in the USA.

The information contained in this document is believed to be reliable, but Diva Communications makes no warranties as to its accuracy or completeness.

Diva Communications reserves the right to change product specifications without prior notice.

TRADEMARKS

DIVA-2000 is a trademark of Diva Communications, Inc. All other products, names, and services are trademarks or registered trademarks of their respective companies.

RF INTERFERENCE

The equipment described in this document generates, uses, and can radiate radio frequency energy. Operation of this equipment in a residential area is likely to cause radio interference, in which case the user, at the user's own expense, may be required to take whatever measures necessary to correct the interference.

SOFTWARE RELEASE

This documentation applies to DIVA-2000 equipment employing Release 1.1 or later of the DIVA-2000 Wireless Local Loop software. Later releases are intended to be backward compatible but may introduce new functionality not treated in this documentation. Please consult with Diva Communications or its authorized representatives to ensure compatibility.

Diva Communications, Inc.
1999 Harrison Street, Suite 1500
Oakland, CA 94612 USA

telephone +1 (510) 986-6400
facsimile +1 (510) 986-6500



Important Safety Instructions

When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and injury, including the following:

-  1. Read and understand all instructions before installing or using the product.
-  2. Follow all warnings and instructions marked on the product.
-  3. Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
-  4. Do not use this product near water; for example, near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement, or near a swimming pool.
-  5. Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
-  6. This product should be installed with at least 20 cm clearance on all exposed sides. This product should never be placed over a radiator or heat register. Do not place this product in a built-in installation unless proper ventilation is provided.
-  7. This product should be used only with the type of power source indicated on the product label. If you are not sure of the type of power supply you use, consult your dealer or local power company.
-  8. If this product is provided with a grounded attachment plug —
This product is equipped with a three wire plug which has a third pin to provide a safety ground. This plug will fit only into a grounded type power outlet. This is a safety feature. If you are unable to insert the plug into the outlet, contact your electrician to replace your existing outlet. It is unsafe to plug this unit into any other power outlet.

If this product is provided with a polarized attachment plug —
This product is equipped with a polarized line plug, which has one blade wider than the other. This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug still does not fit, contact your electrician to replace your existing outlet. It is unsafe to plug this unit into any other power outlet.

- ⚠ 9. Do not allow anything to rest on the power cord. Do not install this product where people will walk on the power cord. Do not twist, kink, bend, or permit the power cord to be twisted, kinked or bent.
- ⚠ 10. Do not overload wall outlets and extension cords as this can result in the risk of fire or electric shock.
- ⚠ 11. Never spill liquid of any kind on the product.
- ⚠ 12. To reduce the risk of electric shock, do not disassemble this product. Take it to a qualified service provider if service or repair work is required. Opening or removing covers may expose you to dangerous voltage or other risks. Incorrect reassembly can cause electric shock when the product is subsequently used.
- ⚠ 13. **IMPORTANT SAFETY NOTE:** unplug this product from the wall outlet or any source of power and immediately have it serviced by a qualified service center or person if:
- the power supply cord or plug is damaged or frayed.
 - liquid has been spilled into the product.
 - the product has been exposed to rain or water.
 - the product has been dropped or the cabinet has been damaged.
 - the product exhibits a distinct change in performance.
- ⚠ 14. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a risk of electric shock from lightning.
- ⚠ 15. Do not use the telephone to report a gas leak in the vicinity of the leak.



- ⚠ 16. Do not drop the Subscriber Unit.
- ⚠ 17. Do not attempt to open, repair, or adjust the Subscriber Unit.
- ⚠ 18. Use the Subscriber Unit only with the AC adapter provided. If your Subscriber Unit does not have one or if the one that came with it does not work properly, contact your telephone service provider.
- ⚠ 19. Use of this product may interfere with radio or television transmissions.
- ⚠ 20. Do not place this product around machinery or equipment generating an electrical field.
- ⚠ 21. Do not install the Subscriber Unit outdoors.
- ⚠ 22. The Subscriber Unit uses a rechargeable, sealed lead-acid battery to provide a backup in the event of power outage. Do not attempt to remove, recharge, or use the battery in any way other than as installed in the Subscriber Unit. After approximately two years, contact your telephone service provider to replace the Subscriber Unit's backup battery.
- ⚠ 23. If this product exhibits any unexpected, unusual, or unsafe conditions such as emitting smoke, acid, fumes, liquids, or other substances:
- stop using it immediately
 - disconnect it from all power sources
 - remove the telephone line from the RJ-11C telephone jack
 - turn the power switch OFF
 - contact your telephone service provider





The Model SU-200 Single-Line Subscriber Unit

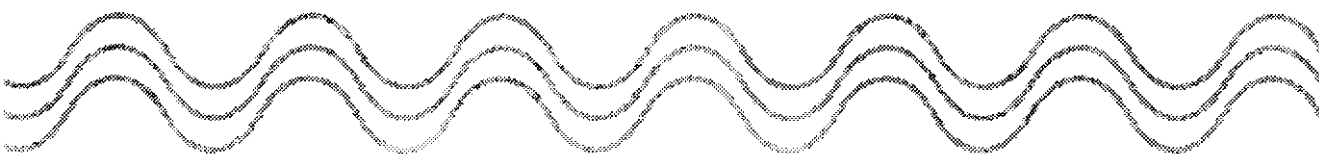
The DIVA-2000 Model SU-200 Single-Line Subscriber Unit is designed to provide you with telephone service via radio. This User Guide will help you install and operate the Subscriber Unit. After it is installed, you can connect and use any standard telephone with the Subscriber Unit. Proper operation of the Subscriber Unit, however, requires that service to your Subscriber Unit has been authorized and activated by your telephone service provider.

Confirm Subscriber Unit Components

Verify that you have all of the following items:

- A. Model SU-200 Single-Line Subscriber Unit
- B. mounting bracket
- C. one (1) thumb screw to secure the Subscriber Unit to the mounting bracket
- D. three (3) screws to secure the mounting bracket to a wall
- E. AC adapter
- F. power cord
- G. this User Guide

If the Subscriber Unit appears damaged or if any item is missing, do not attempt to install or use it. Return the Subscriber Unit, its packaging, and all the package contents to your telephone service provider for replacement.

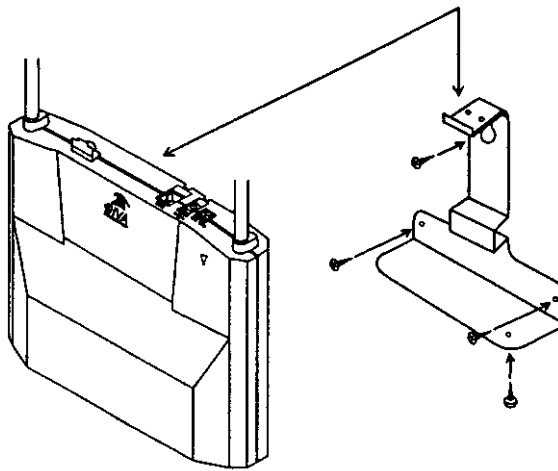


MOUNTING SLOT

The mounting slot on the rear of the Subscriber Unit allows you to attach the Subscriber Unit to the mounting bracket.

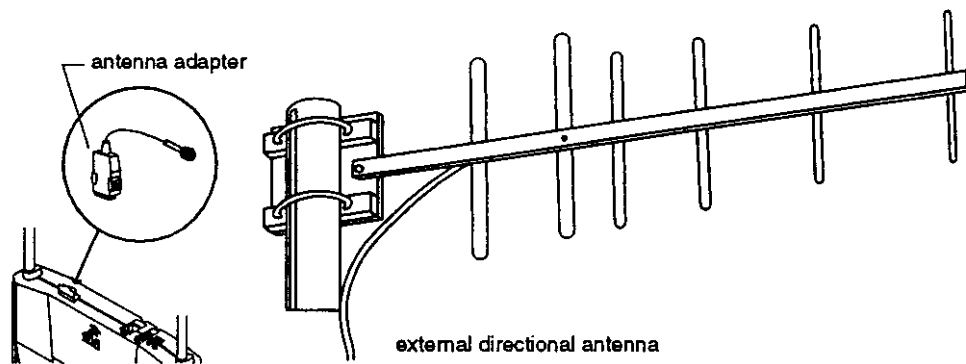
MOUNTING BRACKET

A mounting bracket and three (3) mounting screws allow the Subscriber Unit to be mounted to a wall. A thumb screw secures the Subscriber Unit to the mounting bracket through the screw hole in the bottom of the Subscriber Unit.



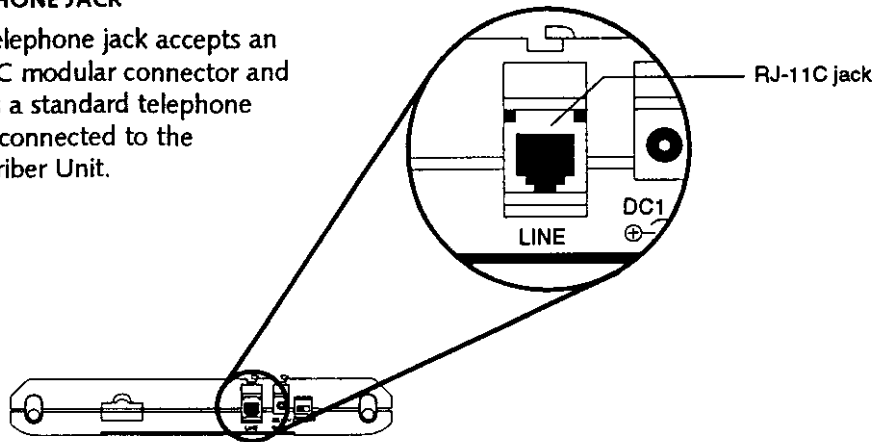
EXTERNAL DIRECTIONAL ANTENNA AND ANTENNA ADAPTER

An external directional antenna and antenna adapter may be provided to you by your telephone service provider. The antenna adapter connects an external directional antenna to the Subscriber Unit. The external directional antenna, such as in the example shown below, is intended to be mounted outdoors to improve radio signal quality.



TELEPHONE JACK

The telephone jack accepts an RJ-11C modular connector and allows a standard telephone to be connected to the Subscriber Unit.

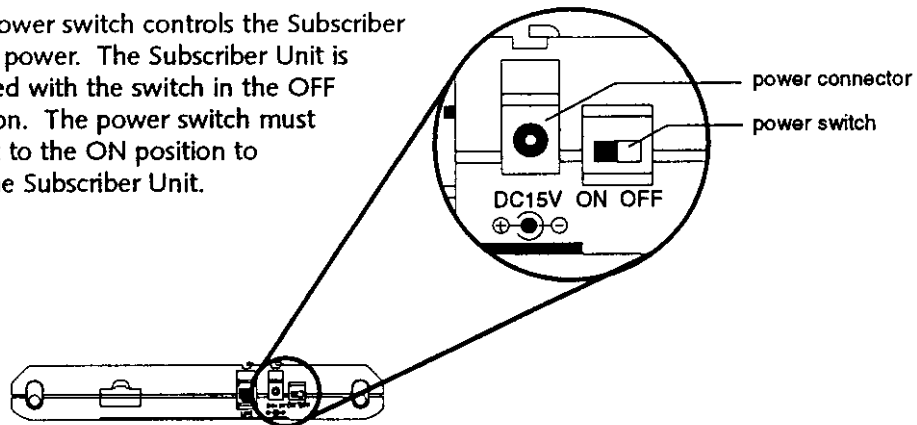


POWER CONNECTOR

Power is provided to the Subscriber Unit by connecting the barrel plug of the AC adapter to the power connector. Use only the AC adapter supplied with the Subscriber Unit.

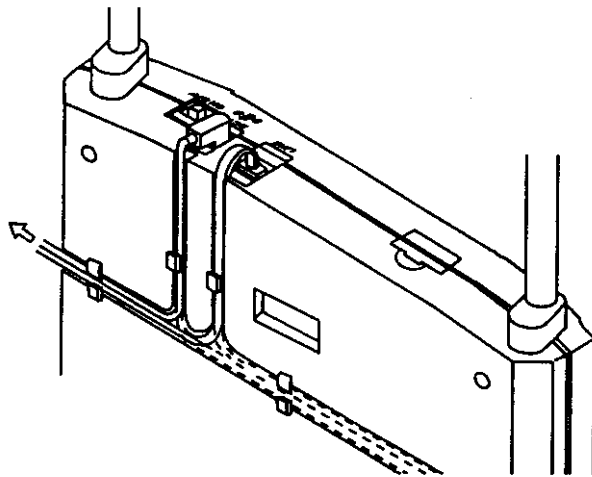
POWER SWITCH

The power switch controls the Subscriber Unit's power. The Subscriber Unit is shipped with the switch in the OFF position. The power switch must be set to the ON position to use the Subscriber Unit.



- Ensure that the power and telephone lines are routed and secured so that the connectors cannot be pulled from the Subscriber Unit once it is in its final position. This step is especially important if the Subscriber Unit is not wall-mounted. Use the channels on the back of the Subscriber Unit to secure the lines.
- The phone and power lines may be routed through either of the two channels on the back of the Subscriber Unit. For the best results and clearest sound quality, however, route the telephone line to follow the channel out from the left side of the back of the Subscriber Unit, as shown in the figure below.

You can connect more than one telephone to the Subscriber Unit to use as extensions. You must connect all telephones through the RJ-11C telephone jack on top of the Subscriber Unit. Use the appropriate telephone connectors if you use more than one telephone. The number of extensions and the total length of telephone line that can be connected to the Subscriber Unit are limited. Typically, as many as five telephone extensions can be supported. If all telephones do not ring or if the voice volume is too low, the number of extensions should be reduced or the total length of telephone line should be decreased.



Equipment Required to Install the Subscriber Unit

The following items are required to install and use the Subscriber Unit:

- An AC power outlet: check to see that the outlet will accept the plug of the power cord provided with your Subscriber Unit. If the plug is not compatible, contact your telephone service provider.
- One or more telephones: the Subscriber Unit may be used with any standard telephone employing either pulse or tone dialing. Connecting more than one telephone extension to the Subscriber Unit will require additional equipment not supplied with the Subscriber Unit.
- Telephone line: the telephone(s) must be connected to the Subscriber Unit using a line equipped with an RJ-11C modular connector. This line is not supplied with the Subscriber Unit.
- Phillips screwdriver: a screwdriver will be needed to secure the mounting bracket to a wall or other structure.

Step 1 *Select a Location* —

Select a suitable location for installing the Subscriber Unit.
Choose a location that is:

- indoors
- as high as possible
- near a window
- out of direct sunlight
- not exposed to extremes of heat and cold
- with at least 20 cm clearance on all exposed sides of the Subscriber Unit
- near an AC power outlet

You can position the Subscriber Unit on a shelf or table or use the mounting bracket to mount it to a wall. Be prepared to select an alternative location if the received radio signal is not strong enough. The Subscriber Unit must always be located so that it can transmit and receive radio signals to the telephone service provider.



Troubleshooting, continued

INDICATOR MODE	DIAGNOSIS	RECOMMENDED ACTION
steady or blinking orange light	Subscriber Unit is receiving a strong radio signal but is not communicating with the telephone network	contact your telephone service provider to activate your service
blinking red light	Subscriber Unit is operating on its internal battery and power is low	• keep telephone conversations short to avoid possible interruption of conversation • when AC adapter is connected and power is available, battery will recharge (a full recharge may require 12 hours or longer)
steady red light	internal fault in Subscriber Unit	contact your telephone service provider



Install the External Directional Antenna

If your telephone service provider has issued you an external directional antenna and antenna adapter to use with the Subscriber Unit, follow these steps:

- Carefully mount the external directional antenna according to the instructions that accompany it.
- Point the external directional antenna in the direction specified by your telephone service provider.
- Carefully screw the antenna cable to the antenna adapter.
- Open the antenna connector cover and plug the antenna adapter into the antenna connector on top of the Subscriber Unit. Please note that you can only connect the antenna adapter by correctly lining it up.

Step 3 *Check the Radio Signal* —

Make sure that the Subscriber Unit is receiving a strong radio signal. Use the indicator lamp to determine if the received signal is sufficient. If the received signal is strong, the indicator lamp will display an orange or green light. The light will either be on continuously or blink off slowly. If the received signal is weak, the light will blink faster.

- If you are not using an external directional antenna, position the Subscriber Unit so that the indicator lamp is on continuously or blinks as slowly as possible. You may need to move the Subscriber Unit to a different location so that you achieve the best reception.
- If you are using a directional antenna, adjust the antenna in the direction specified by your telephone service provider so that the indicator lamp is on continuously or blinks off as slowly as possible.

Step 4 *Connect the Telephone* —

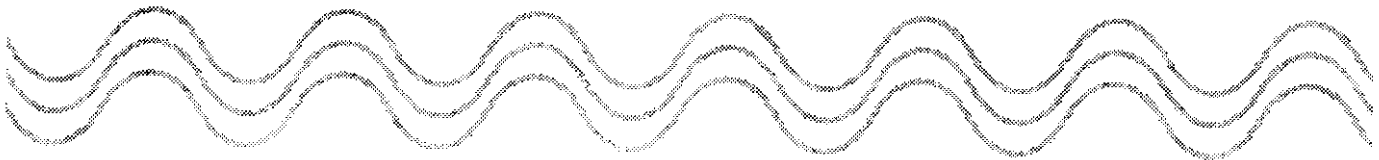
Once the best possible location for radio reception has been determined, the Subscriber Unit must be connected to your telephone and secured into its position.

- Connect the telephone line to the RJ-11C telephone jack on the top of the Subscriber Unit.
- Check that the telephone and AC adapter connectors are fully inserted into the Subscriber Unit.



Performance Problems, continued

SYMPTOM	DIAGNOSIS	RECOMMENDED ACTION
all connected telephones do not ring	too many telephones connected to Subscriber Unit (greater than 5 REN)	reduce the number of telephones connected to the Subscriber Unit
after 12 hours of charging, the Subscriber Unit does not operate with AC power disconnected	backup battery is not providing power	• check that the power switch on top of the Subscriber Unit is ON • contact your telephone service provider
line goes dead during a call	telephone is disconnected from Subscriber Unit	• check telephone line connections at Subscriber Unit and at telephone • check telephone line between Subscriber Unit and telephone for breaks
	Subscriber Unit has lost power	• check AC power connection • check that the power switch on top of the Subscriber Unit is ON
	external directional antenna is disconnected	check external directional antenna and its connection to the Subscriber Unit
	problem at telephone service provider	wait at least 24 hours to determine if service will resume, then contact your telephone service provider



Step 5 *Mount the Subscriber Unit to a Wall* —

To mount the Subscriber Unit to a wall, follow these steps:

- Using a Phillips screwdriver, screw the top mounting screw into the wall, leaving enough clearance for the mounting bracket to hang on the screw. Depending on the construction of the wall, drilling or reinforcement may be required.
- Hang the mounting bracket from the screw by its top keyhole-shaped hole.
- Screw the two remaining screws into the wall through the two screwholes on the bottom of the bracket.
- Hang the Subscriber Unit from the mounting bracket by inserting the top of the bracket into the mounting slot on the rear of the Subscriber Unit.
- Secure the Subscriber Unit to the bracket by inserting the thumb screw into the hole in the bottom of the bracket and screwing it tightly into the Subscriber Unit.

After the Subscriber Unit is Installed

Initially, you will hear the pre-dial tone (a low-volume clicking sound), followed quickly by the dial tone (a constant tone), indicating that you may now dial a number.

Once you hear the dial tone, you may make a call by dialing the number. After dialing, you will either hear a ringing tone, or, if the other party is using his or her telephone, you will hear a busy tone.

When you have finished your call or when the telephone is not in use, hang up the telephone by returning the handset to its cradle. If the telephone is not hung up, you will hear a loud fast repeating tone.

The following table describes the tones that you may hear and explains their meanings.





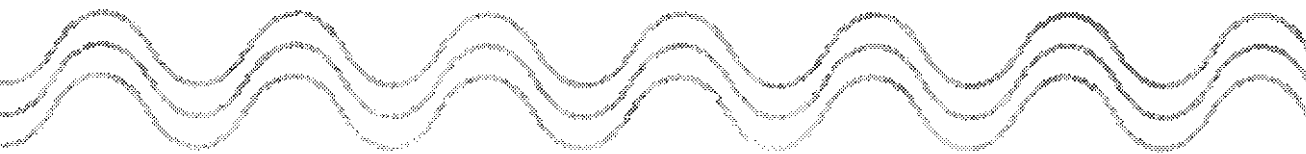
Part Number: 610-00120-01-A

Troubleshooting

In the event that you are not able to use your telephone and Subscriber Unit as expected, the Subscriber Unit has an indicator lamp on its front panel to assist in troubleshooting as shown in the following table.

INDICATOR MODE	DIAGNOSIS	RECOMMENDED ACTION
steady green light	Subscriber Unit is receiving a strong signal (normal condition)	no action required
blinking green light	Subscriber Unit is receiving a weak radio signal	- the following actions are required only if voice quality is poor or if calls cannot be made dependably: - reposition the Subscriber Unit to obtain a stronger radio signal - contact your telephone service provider to obtain an external directional antenna and antenna adapter if you cannot improve reception - if the Subscriber Unit is using an external directional antenna and voice quality is poor or calls cannot be made dependably: - make sure it is pointed in the direction specified by your telephone service provider without any nearby obstructions in the straight-line path from the antenna - to avoid line-of-sight obstructions, you may need to change the antenna's mounting location - contact your telephone service provider if all attempts to improve reception fail





Performance Problems

Potential performance problems that you may encounter are summarized in the following table.

SYMPTOM	DIAGNOSIS	RECOMMENDED ACTION
voice quality is poor or calls cannot be made dependably	Subscriber Unit is receiving a weak radio signal or signal is obstructed (radio signal quality may change at any time for a variety of reasons; for example, the change of seasons may introduce vegetation that can affect signal quality)	• if the Subscriber Unit is using its own built-in antennas: – reposition the Subscriber Unit to obtain a stronger radio signal – contact your telephone service provider to obtain an external directional antenna and antenna adapter if you cannot improve reception • if the Subscriber Unit is using an external directional antenna: – make sure it is pointed in the direction specified by your telephone service provider without any nearby obstructions in the straight-line path from the antenna – to avoid line-of-sight obstructions, you may need to change the antenna's mounting location • contact your telephone service provider if all attempts to improve reception fail
voice level (volume) is low	telephone line from the Subscriber Unit is too long (total loop resistance greater than 600 Ohms)	reduce the length of telephone line used from the Subscriber Unit or use a heavier gauge wire
noise is noticeable on the telephone line	telephone line is not routed correctly on the Subscriber Unit	• check that the telephone line is routed in the cabling channel • ensure that the Subscriber Unit and the telephone line are not close to sources of electrical noise (machines, other communications devices, etc.)