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the magazine for TRS-80⁺ users

T.M.

How You Can Join The Network Nation

Assembling
The Complete
Data System



The Key Box

Basic Level II
Direct Couple Modem

Built with parts gathering dust in the basement.

Modem Auto-Answer

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My greatest brainstorm always happens late Saturday; Sunday finds me searching electronic stores for parts not yet invented. I decided my next project would use the parts gathering dust in the basement.

My new Radio Shack direct couple modem let me run up quite a large telephone bill calling bulletin boards. I decided to build an auto answering device for the Radio Shack direct couple modem. The parts are not critical: Use almost any relay, SCR, or bridge diode. The capacitor in the circuit detecting the ring must be rated high enough (100WV dc).

Answering

After playing with my meter on the phone line I discovered it had 50 V across the lines until it rang, when about 90 V came across. The computer answers the phone when a relay signals a voltage greater than 60 or 70 across the line. Since I wanted the current traveling in the same direction I put in a diode bridge (see Fig. 1). Bingo! Every time the phone rang, the relay latched on.

To connect the modem to the phone line I

latched another relay to the first circuit. I kept the modem on constantly. The circuit in Fig. 2 keeps the relay latched after the ringing stops by locking the SCR after a voltage is applied to its gate.

I found the perfect power pack in an old calculator. I attached this circuit across the contacts of the answering circuit's relay. I added a relay along the circuit to reset the SCR and hang up the phone. I used the cassette port on/off switch to control the last relay, wired to be in the closed position until the cassette port switch closed the circuit to the coil. This opened the circuit across the relay contacts. By sending "Out 255,4"

several times in a loop, the circuits reset themselves and hang up the phone. The computer is then ready for the next caller.

By examining the value at the modem status register the computer could determine if someone is on the line and if a carrier signal is coming over. That port is 0E8H(232). Use the interrupts to check this port frequently for carrier signals; if one is not found the computer will hang up the phone. I hope a talented reader will address this problem. In the meantime have your program check this address occasionally and take the proper action, or make sure that your friends log off by calling a pro-

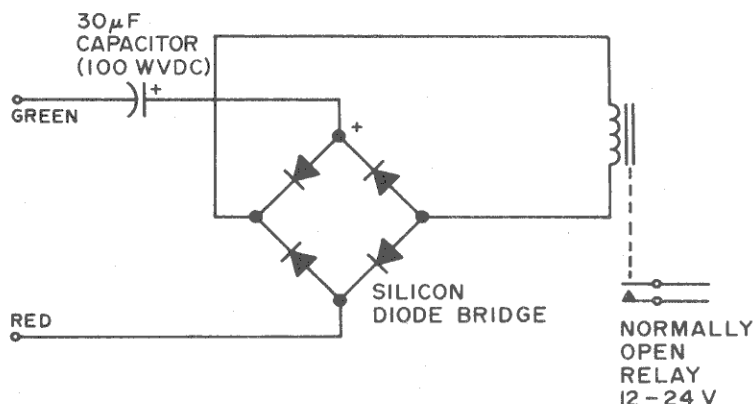


Fig. 1. Diode bridge answering circuit

Resistors:

R1 1000 Ohms
R2 380 Ohms

Capacitors:

C1 30 µf (100WV dc)

Diode Bridge:

100 PIV

Relays:

RY1 12-24V N.O.
RY2 12V N.O. DPST Reed relay. RS#275-229
RY3 9-12V N.C. relay

Switch:

SW1 N.C. push to open switch

Silicon Controlled Rectifier:

SCR 100 PIV RS#(276-1152)

Subminiature jack

9V power source

Modular telephone jack

Modular telephone plug if desired

Table 1. Parts List

0 SAMPLE INKEY\$ ROUTINE FOR CHECKING PORT (0E8H) FOR SIGNALS

```

1
2
3 10 a$ = inkey$:gosub 1000:ifa$ = ""then 10
4
5 1000if inp(232) = 191 then 1005 else return '191 = NO
   CARRIER
6 1005 c = 0 'set counter
7 1010 for T = 1 TO 30
8 1020 if inp(232) = 191 then c = c + 1 '191 is no carrier
9 1030 next
10 1040 if c > 10 then 1050 else return 'buffer out a glitch
11 1050 for t = 1 to 100
12 1060 out 255,4 'RESET ANSWER CIRCUIT
13 1070 next
14 1080 return
  
```

Program Listing

"Sunday finds me searching electronics stores for parts not yet invented."

gram or subroutine with the proper "Out 255,4" loop. I found it best to repeat this about 100 times in the loop.

Place the circuits on a small perfboard no bigger than a cassette. A modular phone jack plugs the modem right into the circuit.

A modular plug makes the answering device easy to place and remove from the phone jack. ■

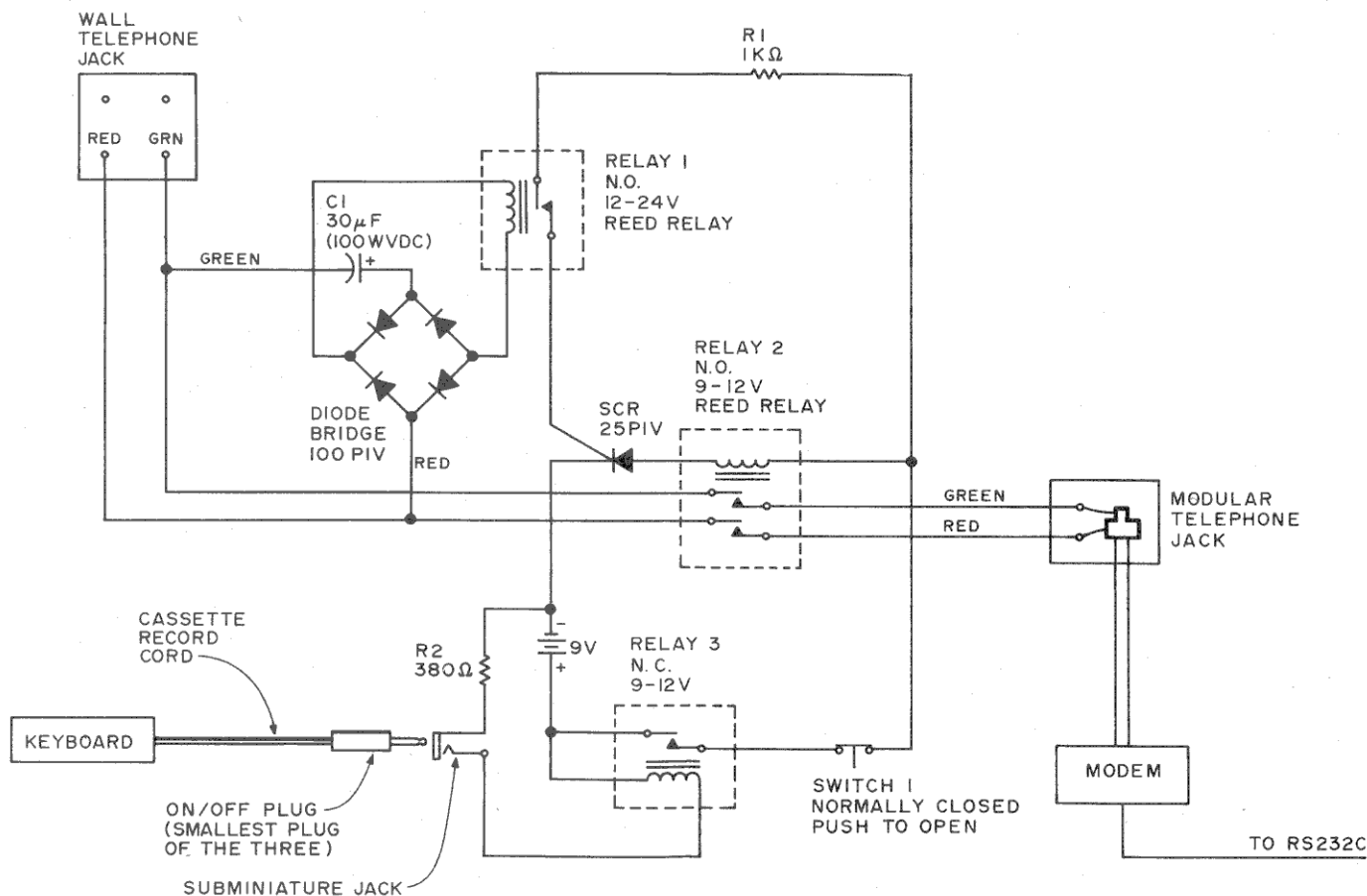


Fig. 2. Modem connect circuit

OMNITERM

What is OMNITERM?

OMNITERM is a professional communications package for the TRS-80 that allows you to easily communicate and transfer files or programs with almost any other computer. We've never found a computer that OMNITERM can't work with. It's a complete package because it includes not only the terminal program itself, but also conversion utilities, a text editor, special configuration files, serious documentation and serious support.

Why do I need it?

You need OMNITERM if you need to communicate efficiently with many different computers, or if you want to customize your TRS-80 for use with one particular computer. You need OMNITERM to SOLVE your communications problems once and for all.

What do I get?

The OMNITERM package includes the OMNITERM terminal program, four conversion utilities, a text editor, and setting files for use with popular computers such as CompuServe, the Source, and Dow Jones — just as samples of what you can

The ULTIMATE TRS-80 Terminal Package

do for the computer you want to work with. The package includes six programs, seven data files, and real documentation: a 76-page manual that has been called "the best in the industry." And OMNITERM comes with real user support. We can be reached via CompuServe, Source, phone, or mail to promptly answer your questions about using OMNITERM.

What do I need to use OMNITERM?

A Model I or Model III TRS-80, at least 32K of memory, one disk, and the RS-232 interface, or Microconnection modem. OMNITERM works with all ROMs and DOSes, and will work with your special keyboard drivers.

What will it do?

OMNITERM allows you to translate any character going to any device: printer, screen, disk, keyboard, or communications line, giving you complete control and allowing you to redefine the character sets of all devices. It will let you transfer data, and run your printer while connected for a record of everything that happens. OMNITERM can reformat your screen so that 80, 32, or 40 column lines are easy to read and look neat on your TRS-80 screen. It even lets you get on remote computers with just one keystroke! The program lets you send special characters, echo characters, count UART errors, configure your UART, send True Breaks and use lower case. It accepts VIDEOTEX codes, giving you full cursor control. It will even let you review text that has scrolled off the screen! Best of all, OMNITERM will save a special file with all your changes so you

can quickly use OMNITERM for any one of many different computers by loading the proper file. It's easy to use since it's menu driven, and gives you a full status display so you can examine and change everything.

"OMNITERM has my vote as the top TRS-80 terminal program available today" Kilobaud Microcomputing, June 1981, pages 16-19.

OMNITERM is \$95 (plus shipping if COD) Call for 24 hour shipment. Manual alone \$15, applied toward complete package. Visa, M/C, and COD accepted. MA residents add 5% tax. Dealer inquiries invited.

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Source: TCAR18 CompuServe: 70310.267 TRS-80 is a ™ of Tandy Corp

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