

BS2 PHONE COMUNICATOR

The following device will Take the phone Off/On Hook. By placing Resistor R3 across the phone lines, an Off Hook condition will exist. When done taking R3 off the lines will initiate an On Hook condition. When Off Hook the Talk circuit is also engaged allowing you to use DTMFOUT to dial a phone number ect. Cannot find a simple DTMF decoder to process DTMF from a location IE a full fledged phone remote controller. As is, it makes a good security alarm that will call you at a phone number (Cell Phone)

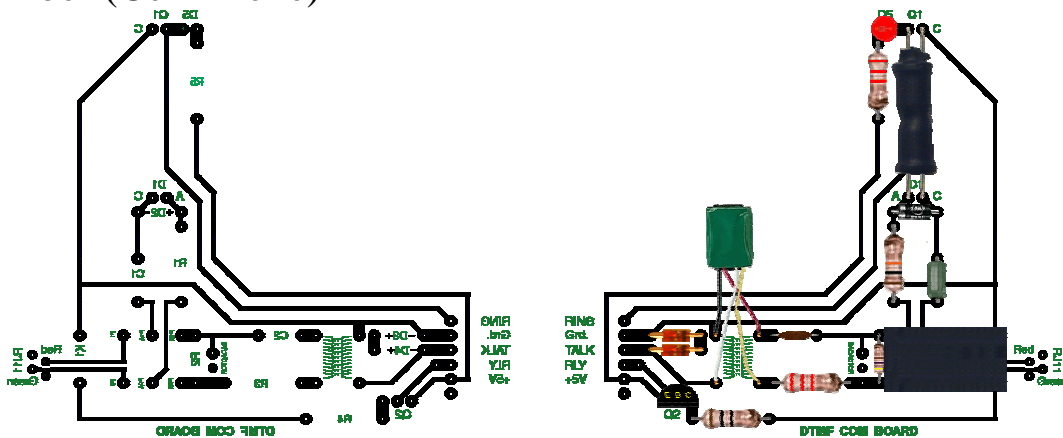


Fig: 1.1

Parts C1, D1, Q1, D2, D5, R1 and R5 form the ring detector. When a call comes in it will pulse The BS2 pin at 20hz.

An opto Isolator (D1 & Q1) must be made from heat shrink tubing and an emitter detector pair, or you may order it from jameco.com or digikey.com (Radioshack does not sell opto isolators).

Parts R3, C2, T1, D3, D4 and the Sadactor (Fuse) make up the communication interface to the phone line, allowing you to send DTMF tones ect.

Placing R2 across the phone lines initiates an OFF HOOK allowing you to dial a number using DTMF tones, similarly taking it off the Lines initiates an ON HOOK hanging up the phone.

Rly (Relay) allows you to switch between the Ringer circuit and the communications circuit.

Will be posting update when I install the DTMF decoder section.

The Sadactor and 5v Relay will have to be ordered from jameco.com or digikey.com

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' DTMFOUT.bs2
' This demo program is a rudimentary memory dialer. Since DTMF digits fit
' within a nibble (four bits), the program below packs two DTMF digits into
' each byte of three EEPROM data tables. The end of phone number is marked
' by the nibble $F, since this is not a valid phone-dialing digit.
' Conditional compilation sets the timing adjustment factor so that the
' output will sound the same on any BS2 model.

' {$STAMP BS2}
' {$PBASIC 2.5}

Variables
TmAdj    CON    $100    ' x 1.0 (time adjust)
Ring     CON    15      ' Ring indicator
Hook     CON    14      ' Hook Off/On
Spkr     CON    13      ' DTMF output on pin 13
Switch   VAR    Nib     ' Security switches
eeLoc    VAR    Byte    ' EEPROM address of stored number
eeByte   VAR    Byte    ' Byte containing two DTMF digits
dtDig    VAR    eeByte.NIB1 ' Digit to dial
phone    VAR    Nib     ' Pick a phone #
hiLo     VAR    Bit     ' Bit to select upper and lower nib
Number1  DATA  $00,$00,$00,$0F ' Phone: 1-000-000-0000
Number2  DATA  $00,$00,$00,$0F ' Phone: 1-000-000-0000
Number3  DATA  $00,$00,$00,$0F ' Phone: 1-000-000-0000
Number4  DATA  $00,$00,$00,$0F ' Phone: 1-000-000-0000
Number5  DATA  $00,$00,$00,$0F ' Phone: 1-000-000-0000
INPUT 0
INPUT 1
INPUT 2
INPUT 3
INPUT 4
INPUT 5
INPUT 6
INPUT 7
INPUT 15

Main:
' Check for open Security Switches (-)
' IF IN0 = 0 THEN Switch = 1: GOSUB MakeCall
' IF IN1 = 0 THEN Switch = 2: GOSUB MakeCall
' IF IN2 = 0 THEN Switch = 3: GOSUB MakeCall
' IF IN3 = 0 THEN Switch = 4: GOSUB MakeCall
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' IF IN4 = 0 THEN Switch = 5: GOSUB MakeCall
' IF IN5 = 0 THEN Switch = 6: GOSUB MakeCall
' IF IN6 = 0 THEN Switch = 7: GOSUB MakeCall
' IF IN7 = 0 THEN Switch = 8: GOSUB MakeCall
  IF IN15 = 0 THEN GOSUB PickUpCall

GOTO Main

MakeCall:
HIGH Hook 'Off Hook
PAUSE 2000 'pause 10 sec
FOR phone = 0 TO 0
  ' retrieve address
  LOOKUP phone, [James], eeLoc
  Dial_Number:
  DO
    READ eeLoc, eeByte          ' Retrieve byte from EEPROM
    eeLoc = eeLoc + 1          ' point to next pair of digits
    FOR hiLo = 0 TO 1          ' Dial upper and lower digits
      IF (dtDig = $F) THEN EXIT ' Hex $F is end-of-number flag
      DTMFOUT Spkr, 150 */ TmAdj, 25, [dtDig] ' dial digit 150 ms on, 25 ms off
    eeByte = eeByte << 4      ' Shift in next digit
  NEXT
  LOOP UNTIL (dtDig = $F)
  PAUSE 2000
  'Beep x times for switch
  PAUSE 48000 'pause 1 min
  LOW Hook 'On Hook
NEXT
RETURN

PickUpCall:
HIGH Hook 'Off Hook
PAUSE 1000 'pause 10 sec
FOR hilo = 1 TO 20
  DTMFOUT Spkr, 150 */ TmAdj, 25, [Switch]
NEXT
LOW Hook 'On Hook
RETURN

END

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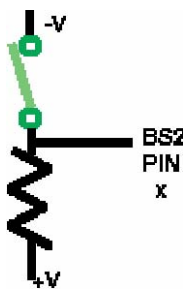


Fig: 2.1

Hook up switch going to doors and windows as in Fig 2.1

*NOTE: The part named SADACTOR is a type of fuse required by the phone company to protect the phone network

PARTS LIST

PART	Value	Radio Shack Part #
R1	10K ohm 1/2W 5%	271-1126
R2	470 ohm 1/2W 5%	271-1115
R3 & R5	2.2K ohm 1/2W 5%	271-1121
R4	10 ohm 1/2W 5%	271-1101
C1 & C2	0.1µF 50V	272-135
D1 & Q1 (Opto)	Infrared Emitter and Detector	276-142
D2	1N4001 Micro 1A Diodes	276-1101
D3 & D4	1N4733A 1W Zener Diode	276-565
D5 (LED)	Red 120 MCD intensity, T-1-3/4 (5mm)	276-330
Q1	2N3904 NPN Transistor	276-2016
Relay	5V DPDT	DIGIKEY
XFRM	1:1 Isolation Transformer	273-1374
SADACTOR		DIGIKEY