

Demo Circuit (DC) 192A Quick Start Guide

Description

The DC192 is a collection of subcircuits to support the LT1684 in ring signal generation. This board contains the hardware to facilitate demonstration of the LT1684 in several different system modes of operation. For ease of use the DC192A is designed to operate from a single 5V input supply. It utilizes the popular Microchip PIC16C73 microcontroller for the generation of the ring signals, cadence, zero crossing output, connect output, and various other specialized features detailed further in the Step by

Setup 1 Generic mode

Perhaps the most generic setup for the DC192A is the 20Hz 3 REN Cadenced ring. This is the setup the Demo Circuit is shipped with.

In the generic mode the board is configured to demonstrate its ability to ring a phone.

1. Insure that the jumpers configure the board as setup 1.
2. Connect +5V and Gnd to the board via J2 (center+) or TP3 +5V and TP5 Gnd.
3. Plug phone into J1 or attach Tip to TP2 and Ring to TP1. Or
4. Attach oscilloscope ground lead to TP1 and the probe to TP2.
5. Power up the board; observe that LED1 and LED4 are illuminated.
6. Depress SW1 and observe the results:
 - A. A cadenced ring signal appears at the output to be seen and/or heard.
 - B. LED2 illuminates to indicate the connect condition while TP13 (RELAY) is pulled to ground. (Remember this board is isolated so the scope ground on TP1 is not connected to the input ground on TP5, the RELAY signal is pulled to the TP5 ground.)
 - C. A short pulse appears on TP14 (ZERO) a few milliseconds prior to each zero crossing.
 - D. LED4 twinkles as the duty factor of its drive is modulated with the 20Hz ring signal.

The effect of holding SW1 down continuously can be obtained by emplacing jumper 14 to short its terminals, or by shorting TP4 (CADENCE) to ground (TP5).

Other Setups

At present other setups are best described in the jumpers file (appended to the end of this document). As other modes of operation are incorporated this document, and the firmware will be updated to implement, and document the new modes.

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JUMPER CONFIG      OCT 7 99

JP10 IS CW/CADENCED SELECT IN = CW OUT = CADENCED
WHEN IN:
    IF      1)      JP14 IS IN OR
           2)      SW1 IS DEPRESSED OR
           3)      CADENCE IN IS PULLED LOW

    THEN    CONTINOUS SINEWAVE IS OUTPUT.
    ELSE    CONTINOUS ZERO IS OUTPUT

WHEN OUT:
    IF      1)      JP14 IS IN OR
           2)      SW1 IS DEPRESSED OR
           3)      CADENCE IN IS PULLED LOW

    THEN    CADENCED SINEWAVE IS OUTPUT
    ELSE    CONTINOUS ZERO IS OUTPUT
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JP12 IS CONNECT RELAY MODE IN = TEST OUT = NORMAL

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WHEN  JP12 IS IN AND
      JP10 IS IN AND

IF    1)    JP14 IS IN OR
      2)    SW1 IS DEPRESSED OR
      3)    CADENCE IN IS PULLED LOW

THEN  CONTINUOUS SINEWAVE IS OUTPUT.
      THE CONNECT RELAY (TP13) IS ENERGIZED EVERY EIGHTH CYCLE

ELSE  CONTINUOUS ZERO IS OUTPUT
      THE CONNECT RELAY (TP13) IS DE-ENERGIZED CONTINUOUSLY

WHEN  JP12 IS IN AND
      JP10 IS OUT AND

IF    1)    JP14 IS IN OR
      2)    SW1 IS DEPRESSED OR
      3)    CADENCE IN IS PULLED LOW

THEN  CADENCED SINEWAVE IS OUTPUT.
      THE CONNECT RELAY (TP13) IS ENERGIZED EVERY EIGHTH CADENCE

ELSE  CONTINUOUS ZERO IS OUTPUT
      THE CONNECT RELAY (TP13) IS DE-ENERGIZED CONTINUOUSLY


WHEN  JP12 IS OUT AND
      JP10 IS IN AND

IF    1)    JP14 IS IN OR
      2)    SW1 IS DEPRESSED OR
      3)    CADENCE IN IS PULLED LOW

THEN  CONTINUOUS SINEWAVE IS OUTPUT.
      THE CONNECT RELAY (TP13) IS ENERGIZED CONTINUOUSLY

ELSE  CONTINUOUS ZERO IS OUTPUT
      THE CONNECT RELAY (TP13) IS DE-ENERGIZED CONTINUOUSLY

WHEN  JP12 IS OUT AND
      JP10 IS OUT AND

IF    1)    JP14 IS IN OR
      2)    SW1 IS DEPRESSED OR
      3)    CADENCE IN IS PULLED LOW

THEN  CADENCED SINEWAVE IS OUTPUT.
      THE CONNECT RELAY (TP13) IS ENERGIZED EVERY CADENCED CYCLE

ELSE  CONTINUOUS ZERO IS OUTPUT
      THE CONNECT RELAY (TP13) IS DE-ENERGIZED CONTINUOUSLY
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JUMPER 6: SOFTSTART AND UNDERVOLTAGE LOCKOUT DISABLE

WHEN	JP6 IS IN	THERE IS NO SOFTSTART OR UNDERVOLTAGE LOCKOUT\
	JP6 IS OUT	SOFTSTART STARTS @ 4.75V AND UNDERVOLTAGE LOCKOUT SHUTS DOWN AT 4.5V

JUMPERS 4 & 5 HIGH OUTPUT CURRENT / LOW OUTPUT CURRENT

WHEN	JP4&5 ARE IN	THE OUTPUT CAPACITY OF THE DEMO BOARD IS 10 REN
	JP4&5 ARE OUT	THE OUTPUT CAPACITY IS 1 REN

PATH CONFIGURATION JUMPERS:

JUMPER 15 PWM SOURCE SELECTOR

WHEN	JP15 IS BRIDGING 1&2	INTERNAL PWM IS SELECTED
	JP15 IS BRIDGING 2&3	EXTERNAL PWM IS SELECTED VIA TP8

JUMPERS 1&2&3 REFERENCE MODE JUMPERS

THE ORIGINAL SOFTWARE 10/11/99 DOES NOT SUPPORT VARIABLE
REFERENCE MODE

SO THE JUMPERS MUST BE PLACED AS FOLLOWS:

JP1 MUST BRIDGE PINS 2&3
JP2 MUST BRIDGE PINS 2&3
JP3 MUST BRIDGE PINS 1&2

UNUSED JUMPERS:

JP7
JP8
JP9
JP11
JP13

UNUSED I/O PORTS:

BNC	ANALOG IN
J4	RS232 IN
TP10,11,12	SMBUSS

FOR TEST SET JUMPERS AS FOLLOWS

JP1	BRIDGE PINS 2&3
JP2	BRIDGE PINS 2&3
JP3	BRIDGE PINS 1&2
JP4	INSTALLED
JP5	INSTALLED
JP6	OPEN
JP7	OMIT
JP8	OMIT
JP9	OMIT
JP10	OPEN

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JP11 OMIT
JP12 OPEN
JP13 OMIT
JP14 INSTALLED
JP15 BRIDGE PINS 1&2

APPLY 5V BY J2 (+ IN CENTER)
LOOK AT THE LEDS TWINKLE