MSB Design

Specification For The MSB Design Cadence Generator CG-1

Introduction

Test signals applied to telecommunications apparatus often need to be cadeneced, for example the cadenced ringing voltage, or perhaps supervisory tones like the busy signal. Test equipment like the MSB Design Ringing Test Generators have selectable cadences built-in, but when custom cadences are required the Cadence Generator CG-1 solves the problem.

The Cadence Generator CG-1 enables the user to program up to 10 custom cadence patterns, which can then be called up to drive the gate input of the ringing generators.

For use with generators which do not have a gate input, or for generating cadenced supervisory tones, relay contacts are provided which open and close in sympathy with the cadence.

Features

The Cadence Generator CG-1 provides for the storage of up to 10 custom cadence patterns, and this storage is battery backed to retain data after switch-off.

The cadence patterns are of the form 'on', 'off', 'on', 'off' and each of these four periods can last from 0.01 seconds to 9.99 seconds.

If the pattern required does not use two pairs of different periods, but consists of one 'on' and one 'off' period, then this is programmed by repeating the pattern for the second pair.

For example, if the PSTN cadence was required, then the first period would be set to 0.40 seconds, the second period to 0.20 seconds, the third period to 0.40 seconds, and finally the fourth period to 2.00 seconds.

If the cadence required was of the PABX form of 1 second on and 2 seconds off, then the first period would be set to 1.00 seconds, the second period to 2.00 seconds, the third period to 1.00 seconds and the fourth period to 2.00 seconds.

Optionally, if it causes no problems the third and fourth periods could be set to their minimum period of 0.01 seconds. Please note that setting the period to 0.00 seconds does not give a zero time, but just confuses the unit. A circuit quirk I'm afraid !

Programming

Programming itself is simple :-

Firstly select the program number required, by rotating the knob marked 'program'. Then select the first period by rotating the knob marked 'select' to position '1'.

Use the 'count' switch, pressed in either the + or - direction, to count up or down respectively. A single press of the switch will count 0.01 second steps, or if held will count rapidly. Hold the switch until the period required is roughly reached, as indicated in the display, and then step the counter with single presses of the switch until the required period is reached.

This will have programmed the first 'on' period. Repeat the process by rotating the 'select' knob through positions '2' to '4', and setting the count to the required period, until the pattern has been set. Note that whenever the 'select' switch is rotated to a new position, on pressing the 'count' switch the counter starts from the last entered period. To program another pattern, rotate the 'program' knob and start again.

Running the cadence is simply a matter of rotating the 'select' switch to 'run' and off it goes. If you require to have a single train of cadence pulses that end after the fourth period, then rotate the 'select' switch to '1-S' and when it has stopped its cadence, and you are ready, just press the 'one-shot' button, and it will go through the cadence train one time.

The output pulse appears at the red and black terminals, output and 0v respectively. The unit is floating with respect to earth, except the chassis which of course is earthed, and so the 0v refers to the units 0v and can be connected to a ringing generators 0v.

The output pulse is +5v, and goes high during the cadence 'on' period. For use with ringing generators without the benefit of a gate input, a pair of relay contacts are connected to the white terminals, and close during the cadence 'on' period.

Finally, the cadence periods appear in the display window as the periods are counted, and the cadence LED flashes in sympathy with the 'on' periods.

Uses

The uses that the unit can be put to will of course depend on the requirements of the user, but its main purpose is to enable custom ringing patterns to be provided from a ringing generator. Of course the unit can be used with a signal generator to provide cadenced signals such as supervisory tones. Another area where the unit will be useful is deriving timed loop-breaks and other dc related functions.

When used with the Ringing Test Generator RTG-1, the generators variable voltage and frequency plus the CG-1's variable cadence means that most ringing signals met can be reproduced.

Specification

Cadence Periods	2 'on', 2 'off'
Max. period length (each period)	9.99 seconds
Period Resolution	0.01 seconds
Display	3 digit LED display LED cadence 'on'
Stored Cadences	up to 10 programs
Cadence Output	+5v 'on' pulse relay closure when 'on'
Select Switch	program cadences single-shot cadence run cadence

The unit is housed in a steel / aluminium enclosure, with all switches and connectors on the front and rear panels. It is mains powered, via an IEC connector on the rear panel. Enclosure dimensions are 220mm x 220mm x 70mm.