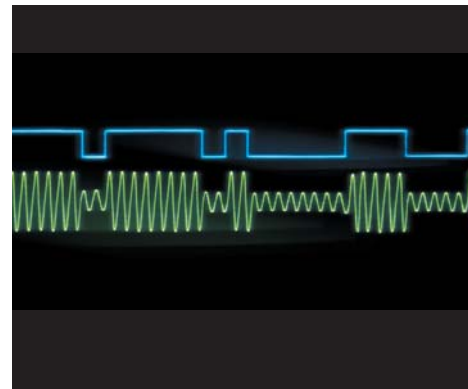# 8040C Output Configuration

The methodology of making precision fre-
quency measurements requires test equip-
ment to have a better local oscillator than
the unit under test. This point is well
known and is implemented using a variety
of frequency references. The frequency ref-
erence equipment used varies depending
on stability, accuracy and output signal
format. All of these parameters can lead to
a multitude of configurations, platforms
and products that can be expensive to
implement and maintain

Symmetricom has developed a new rubidi-
um frequency standard that solves this
problem by providing a stable and accurate
frequency reference with multiple output
signal formats. The 8040C has six outputs,
each of which can be user configured to
provide a 1, 5 or 10MHz sine or square
wave or 1PPS output. The standard config-
uration for the 8040C has three 10MHz,
one 5MHz, one 1MHz and one 1PPS out-
put.

We have provided room for optional config-
urations to the 8040C. A option card con-
taining 6 additional outputs can be ordered
at time of purchase or can be ordered at a
later date and user installed in the field.

Output Configuration

The 8040C uses a matrix of low noise video
multiplexers that selects one of seven out-
put options. The matrix has 8 input chan-
nels, enough to support sine or TTL signal
format, 1PPS and a spare channel for cus-
tom signal formats.

The RF outputs are all derived from the
X72's 10MHz output. This output is fed both
directly to the switch matrix and through a
divider circuit to generate 5MHz and 1MHz
signals. The 5MHz and 1MHz signals from
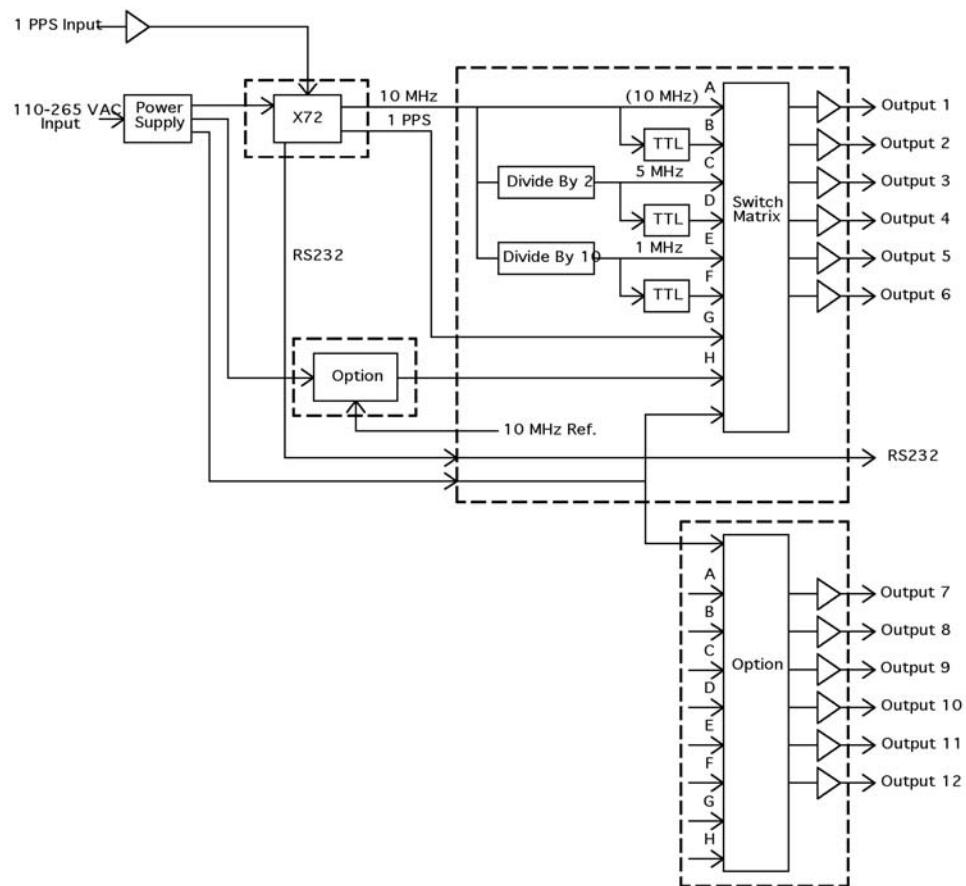the divide circuit are then fed into the
switch matrix for distribution.

FIGURE 1   Block diagram of the 8040C architecture

Each of the 10, 5, & 1MHz signal lines are
split and fed into a sine to TTL converter to
generate the 1, 5, & 10MHz TTL signals.
The 1PPS output is derived directly from
the internal X72 rubidium oscillator and
fed into the switch matrix. See figure 1 for
a block diagram of the 8040C architecture.

The video multiplexers do not degrade the
signals from the X72. All stability, harmon-
ic, spurious and phase noise specifications
are maintained. To select the output for-
mat, you simply change the settings on a
set of internal DIPswitches as shown in
figure 2.

1
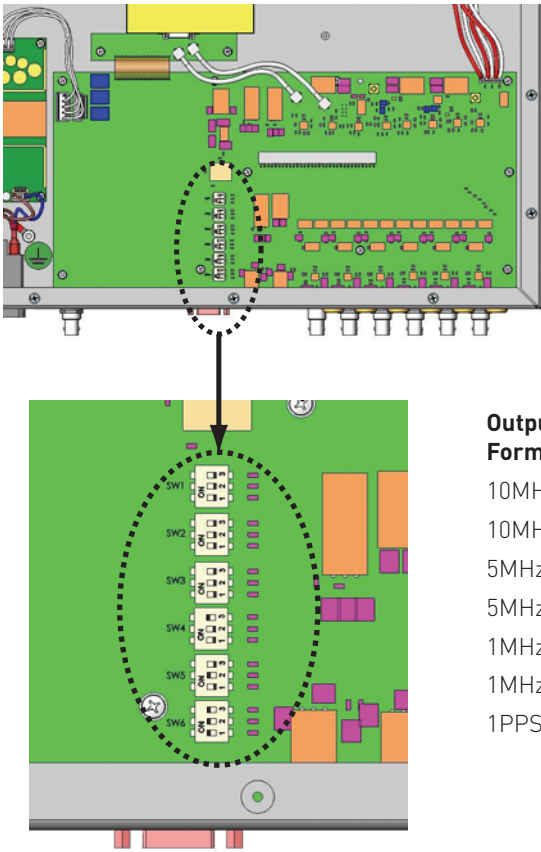
Output	Switch Position		
Format	1	2	3
10MHz Sine	Off	Off	Off
10MHz TTL	On	Off	Off
5MHz Sine	Off	Off	On
5MHz TTL	On	Off	On
1MHz Sine	Off	On	Off
1MHz TTL	On	On	Off
1PPS	On	On	On

FIGURE 2 Internal DIPswitches

The DIPswitches shown in the diagram reflect the output configuration for each output BNC on the rear panel of the 8040C. SW1 corresponds to BNC1, SW2 corresponds to BNC2, etc. The table indicates the switch positions required for the desired output configuration for each channel. For example if you choose to have channel 3 set for 5MHz TTL then you will set SW3 to be on,off,off. If you desire channel 1 to be 10MHz sine then you will set SW1 to be off, off, off. This process is repeated for each output channel.