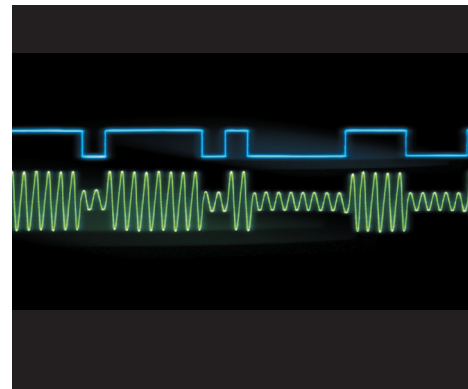


8040C Output Configuration



APPLICATION NOTE

The methodology of making precision frequency measurements requires test equipment 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 reference 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

Symmetricon has developed a new rubidium 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 configuration for the 8040C has three 10MHz, one 5MHz, one 1MHz and one 1PPS output.

We have provided room for optional configurations to the 8040C. A option card containing 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 output options. The matrix has 8 input channels, enough to support sine or TTL signal format, 1PPS and a spare channel for custom 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.

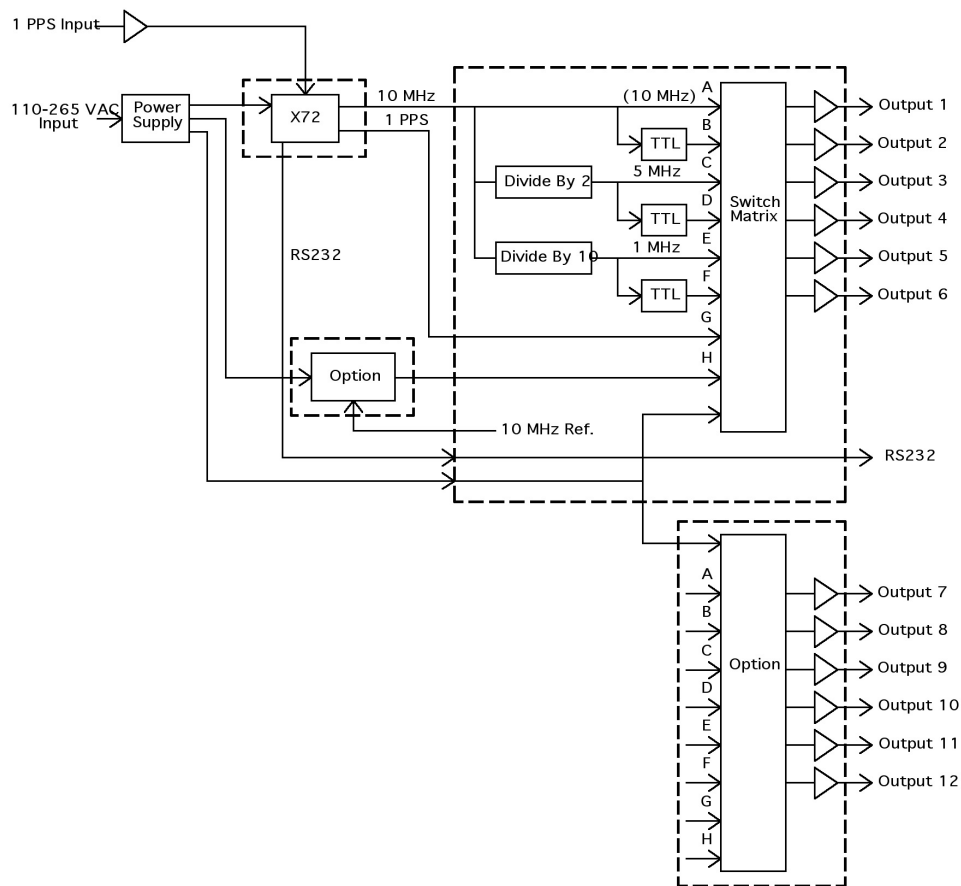
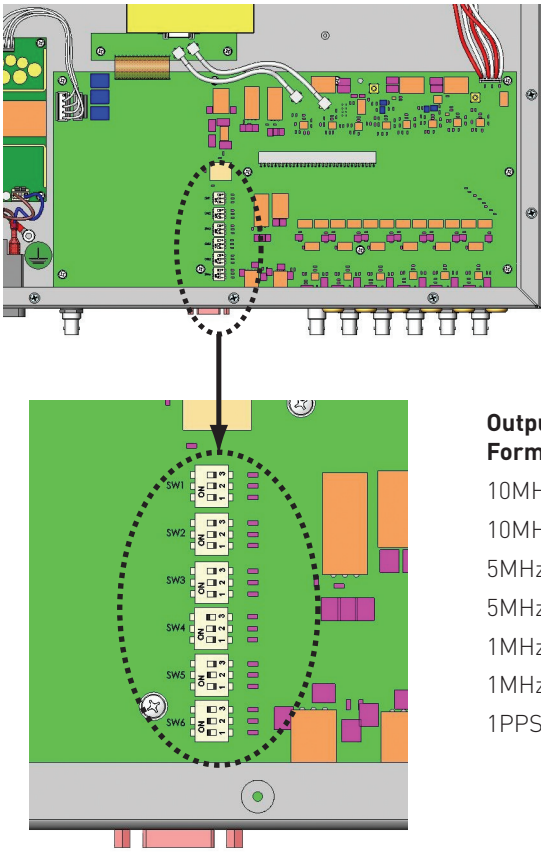


FIGURE 1 Block diagram of the 8040C architecture

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 format, you simply change the settings on a set of internal DIPswitches as shown in figure 2.



Output Format	Switch Position		
	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, on. 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.



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