VSRT MEMO #005

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To: VSRT Group
From: Alan E.E. Rogers
Subject: Inexpensive Sun tracking hardware

While the VSRT will most likely be used for relatively brief demonstration sessions it may be useful to support extended observations. A relatively simple and inexpensive Sun tracking system can be built using a "horizon to horizon" satellite dish drive. These drives are available from stab (an Italian Company) or various sources in Taiwan. The least expensive unit the HH90 I have found so far costs $80. An industry standard communication protocol known as DiSeqc has been developed for these drives. While a satellite receiver can control the HH90 I found the least expensive approach with available hardware is to use a RS232 solid stat switch module to "push" the buttons on the inexpensive handheld Stab MP01 DiSeqc 1.2 control ($39).

The MP01 generates 3 DiSeqc 1.2 commands:

1] Move 1 step East

2] Move 1 step West

3] Go to zero position

The buttons can be "pushed" remotely by removing the module cover, drilling an access hole, and soldering wires to the switches as shown in Figure 1. These wires are then connected to the RS232 switch as shown in the block diagram of figure 2. At least 2 HH90s can be controlled in parallel and I expect this can be extended to 4 but this has not yet been tested.

I am currently upgrading the SRT java software to control the DiSeqc drives and USB video frame grabber. This way the same java package will be able to support the SRT (single dish) and VSRT (up to 4 dishes) interferometer.

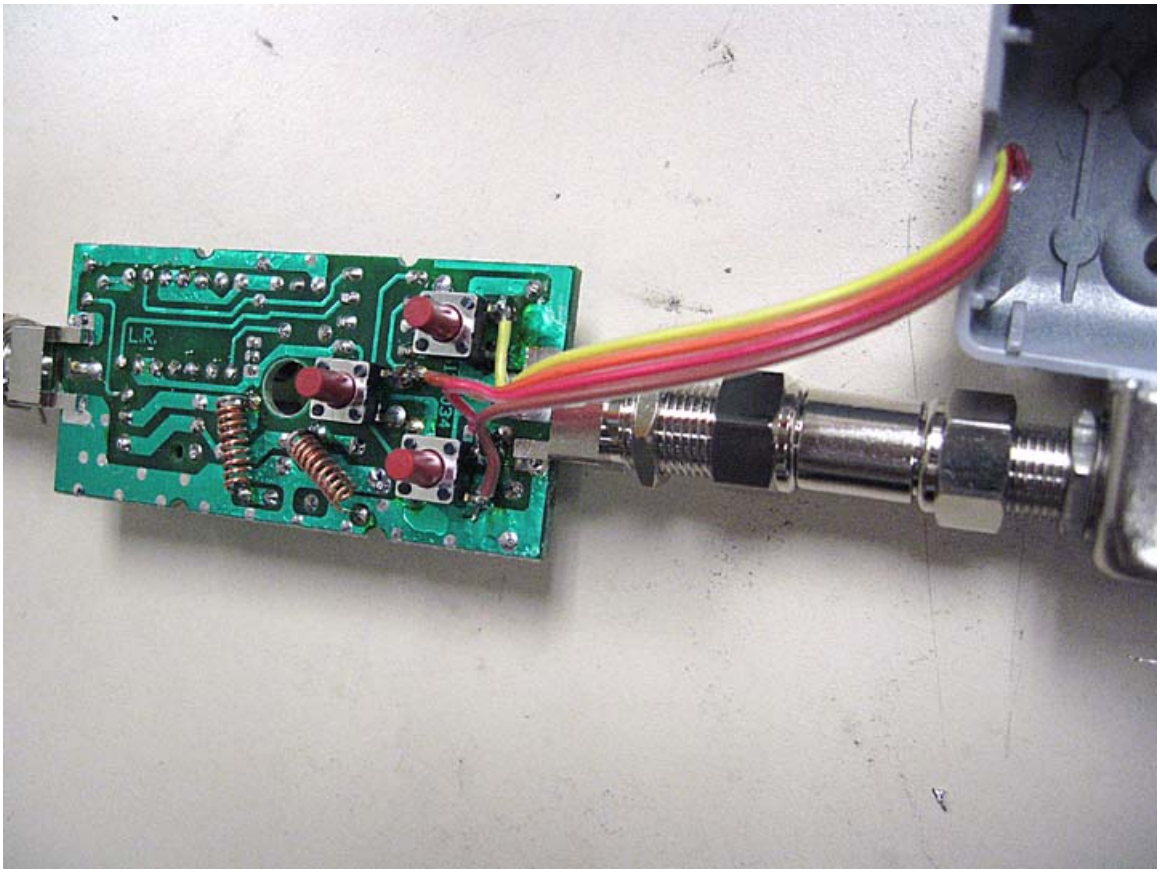

Fig. 1

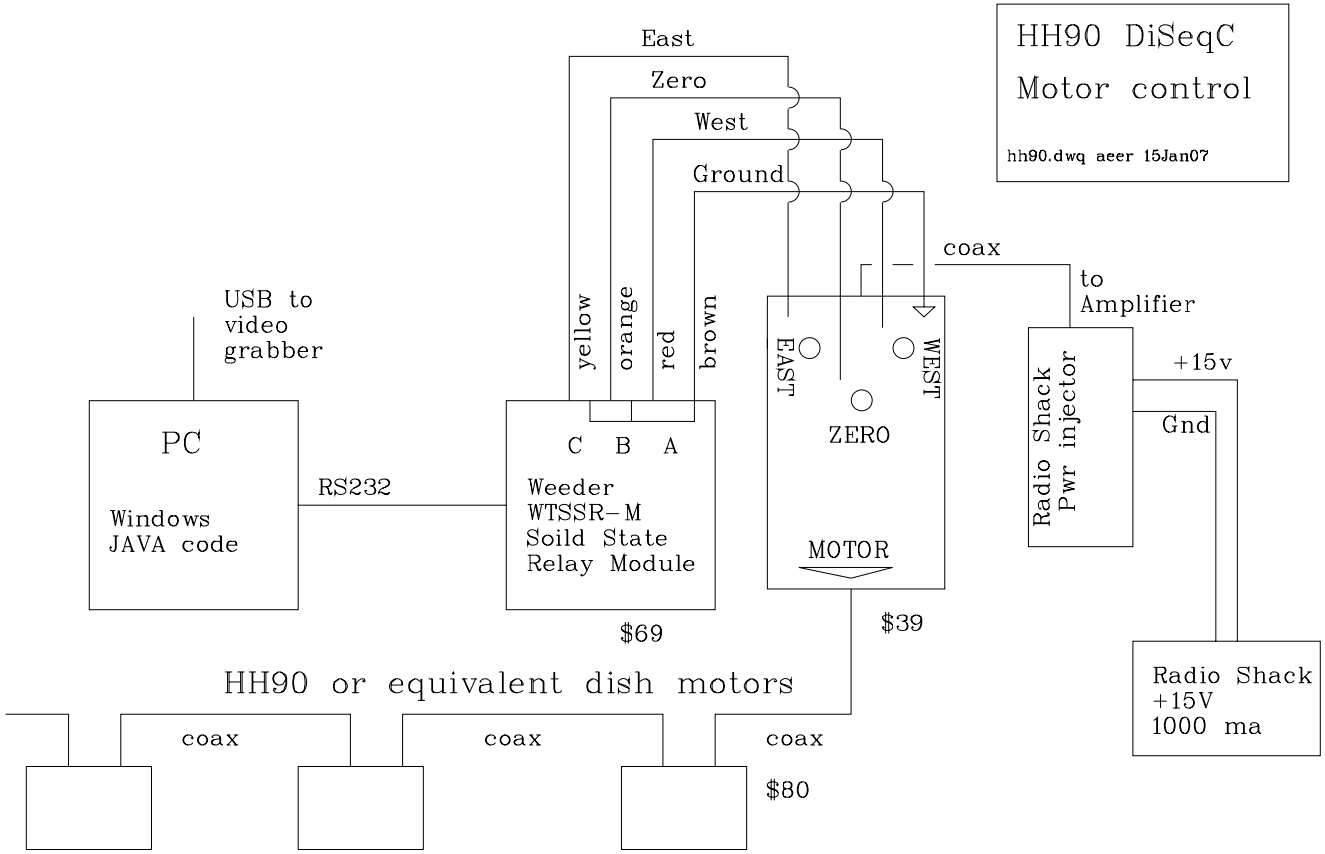
HH90 DiSeqC
Motor control
hh90.dwq aeer 15Jan07
East
Zero
West
Ground
yellow
orange
red
brown
coax
to
Amplifier
USB to
video
grabber
PC
Windows
JAVA code
RS232
C B A
Weeder
WTSSR-M
Soild State
Relay Module
$69
EAST
ZERO
WEST
MOTOR
$39
Radio Shack
Pwr injector
+15v
Gnd
Radio Shack
+15V
1000 ma
HH90 or equivalent dish motors
coax
coax
coax
$80

Fig. 2.