

ASSEMBLY INSTRUCTIONS FOR RMS-PB-00841 MODULE

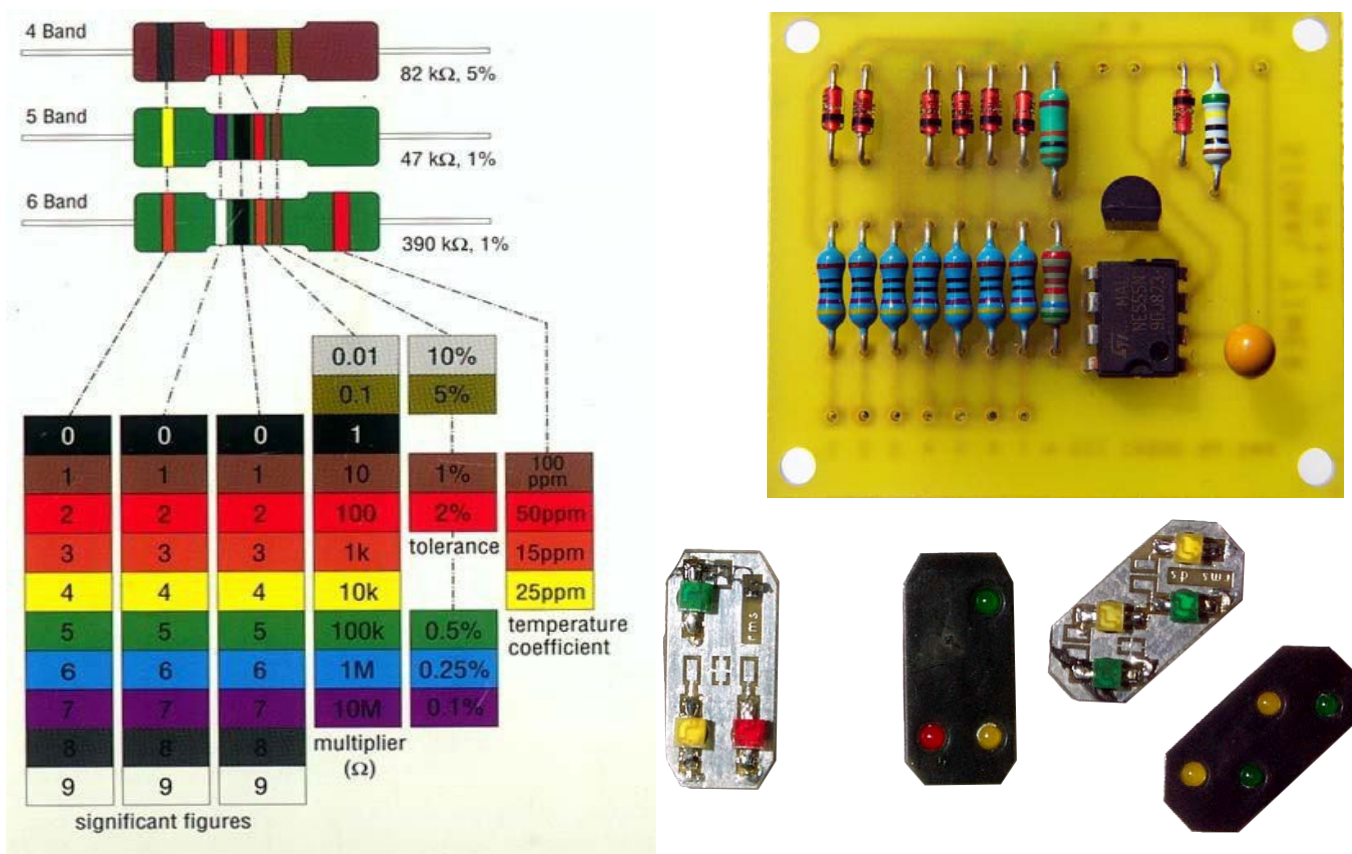
Date: 05-02-2008, New 16-01-2024

Timer MODULE And Home/Distant signals (HS/DS)

HINT 1. on using PDF files. If you wish to find a component while using Adobe Acrobat, just go to Edit ☐ Find on the menu or type (Ctrl+F). Type the component reference designator ie. “D1” Acrobat will highlight the first instance it finds you can then find the next instance by typing (Ctrl+G). Acrobat will take you to each instance across all pages.

HINT 2. Any text which has a coloured rectangle around it is a quick link to the item or place it refers to ie. D1

The signal timer PCB RMS-PB-00841 is a universal board which can be used to control a home and distant signal, a home signal only or a distant signal only, this is archived by assembling the PCB in different ways. The PCB fully assembled controls a home and distant signal. Don't assemble components R4-R7 and D4-D7 if you only want to control a home signal (HS) and don't assemble components R1-R3 and D2-D3 if you only want to control a distant signal (DS)



1. Place diodes D1-D7 (IN914) in positions shown by the component overlay. The black band is the (cathode) end and is shown as the pointed end on the overlay.
2. Solder these components and trim the excess leads off. Make sure you have made neat solder joints and haven't made any short circuits to any other tracks or pads.
3. Next place the resistors at the correct locations as shown on the overlay. If you are unable to read the colour codes you can get a chart at your local electronics store or you should measure each value with a multi-meter.
4. Solder resistors and trim leads.
5. Place C1 make sure you get the +/- as shown on the overlay with the component. Solder component and trim leads.

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6. Place T1(BC557), the component overlay indicates the orientation of the transistor ie. Make sure you have the flat side of the transistor matching the overlay. Solder component and trim leads.
7. **CAUTION: - use an anti-static mat and wrist strap to handle the IC's as they can be damaged by static. These can be obtained from most electronic supply stores.**
8. Now place the IC (NE555N), a dot or indent indicates pin 1 which is to the left of this mark and the rest of the pin numbers follow in a CCW rotation. ie pin 8 is opposite pin 1 on a 8 pin dip. Pin 1 is indicated on the overlay by a small square.
9. Hold the IC by the end between your fore finger and thumb and bend the legs of the IC in towards each row of pins so they IC will fit into the holes on the PCB.
10. Solder pin 1 then pin 8 of the IC, then solder the rest of the pins in any order.
Wire the home/distant signal to XT1-XT7 and the common of the signal to XT10
11. Take time now to inspect your solder joints and make sure you haven't made any solder bridges to tracks or pads which shouldn't be connected, when you are satisfied there are no short circuits and you have placed all the components in their correct position move to the next step.
12. The power requirements are 7.5VD, I used a plug-in power pack at the required voltage. Refer to the schematic, you will note that XT8 (green) and XT9 (red) are connected to a k84 relay contact. The common of the relay contact is supplied with +7.5VDC. XT10 and the common of the signals should be connected together and go to the 0VDC of the power pack.
13. The timing can be varied by exchanging component values for C1 and R8 (see timing chart on circuit diagram). When the k84 contact is switched the signal timer will switch from red to yellow/green then after the required time will change to green/green
14. **If your module doesn't work and you have no electronic knowledge seek help from an electronics expert.**
Most problems arise from poor solder joints, components in the wrong location, or too much solder which causes short circuits. To date, no one has failed to get this module working.

Assembly of the HS and DS Signal heads.

1. The signal heads are very small and require very good solder techniques. The type of SMD LEDs chosen means they fit through the holes on the PCB and the SMD leads have to be bent and cut to fit on the small solder pads provided. Refer to the diagram showing the location of the different coloured LEDs.
2. I chose coloured Kynar 0.25mm wire, cut to 250mm in length and soldered to the correct pad facing the direction that will flow down into the brass mast. The wires for the combined HS/DS signal (total=8) are a tight fit in the mast, so care must be taken not to twist the wires. The colours will help when you are under your layout trying to solder them to the signal timer.
3. Check your soldering for shorts and fix as required.
4. Test the wired signal heads using the Signal Timer before feeding the wires down the mast. Test the signal again after assembly before painting and detailing.

Refer to tip on making the signal mast and assembly of the signal heads to the mast in the article below [Making Your Own Signals. Link removed](#)

Happy building

Regards

Ross Stewart

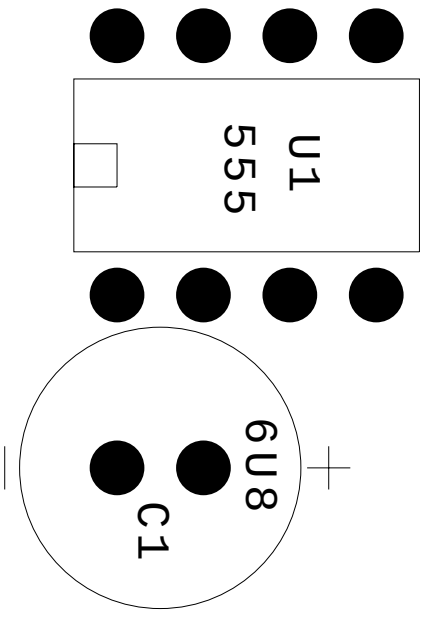
As always you can contact me by email.

WIRES TO
HS and DS SIGNALS

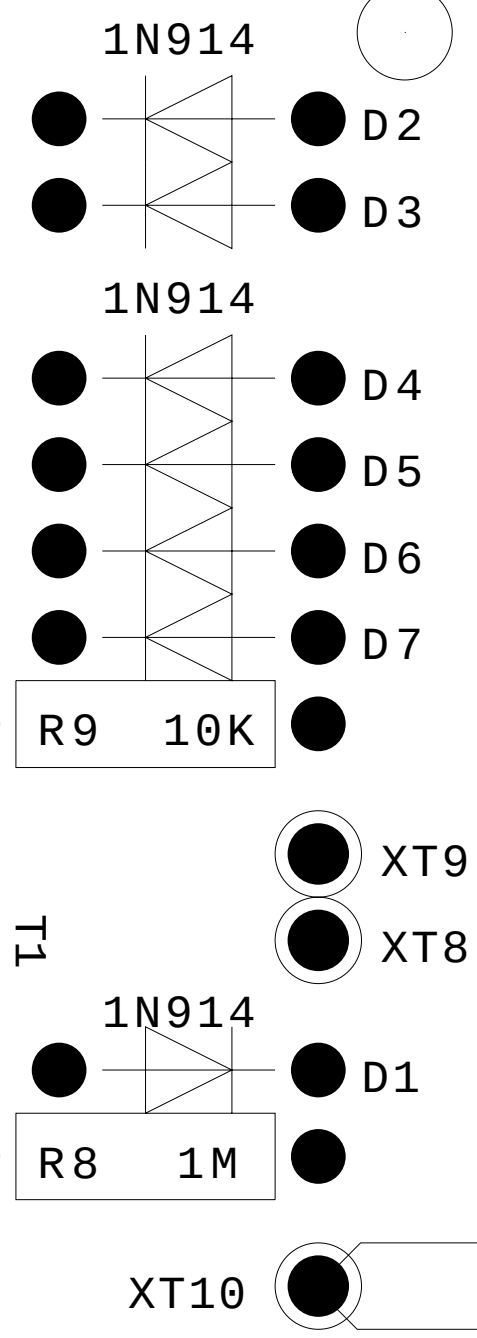
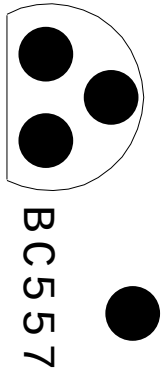
- GREEN XT1
- RED XT2
- YELLOW XT3
- WHITE XT4
- ORANGE XT5
- BLUE XT6
- VOILET XT7

RMS-AS-00841 ISS A

SIGNAL TIMER



- R1 470R
- R2 470R
- R3 470R
- R4 470R
- R5 470R
- R6 470R
- R7 470R
- R10 5K6



- RED
- GREEN
- 0V DC
- BLACK
- BLACK

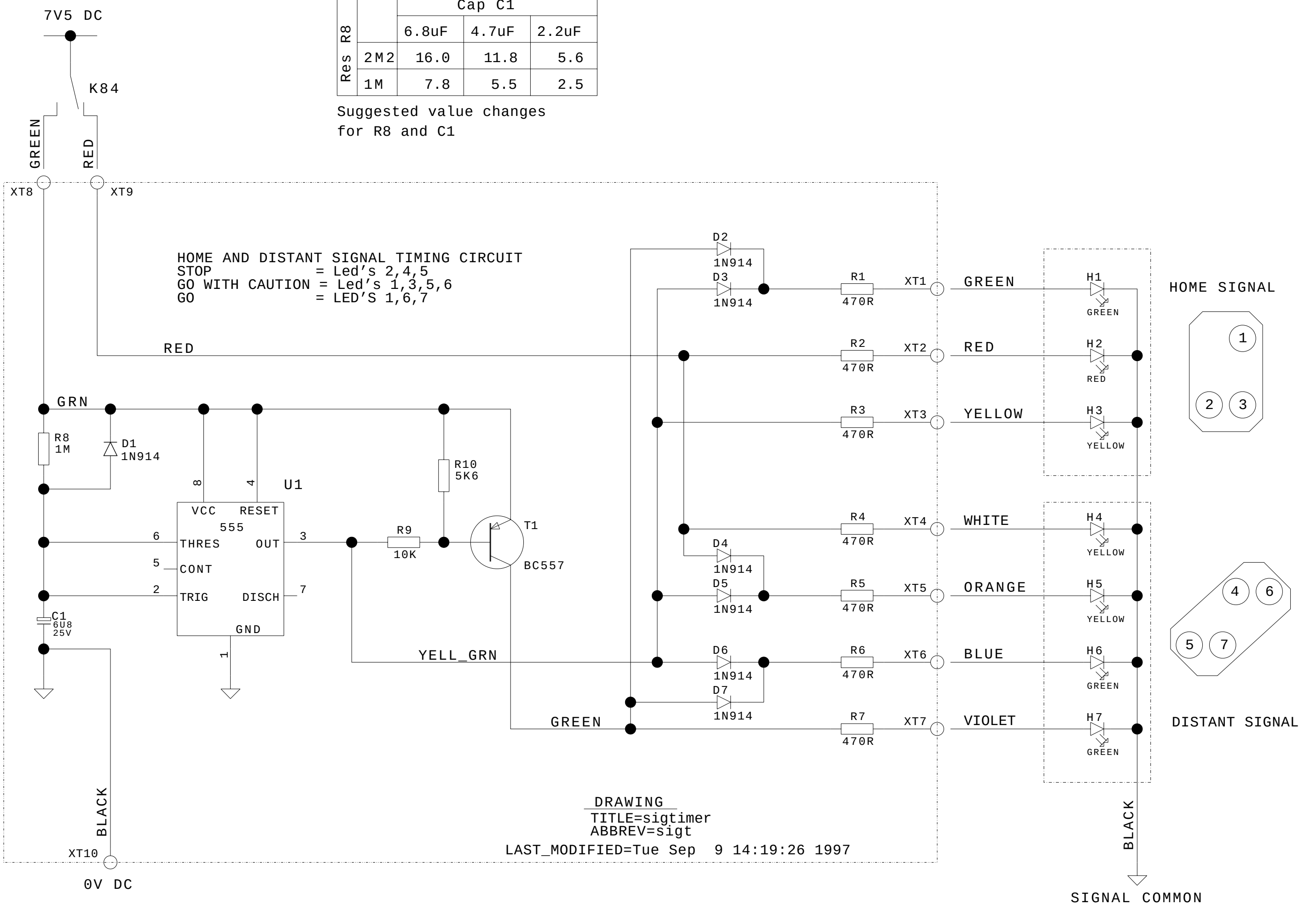
SIGNAL COMMON

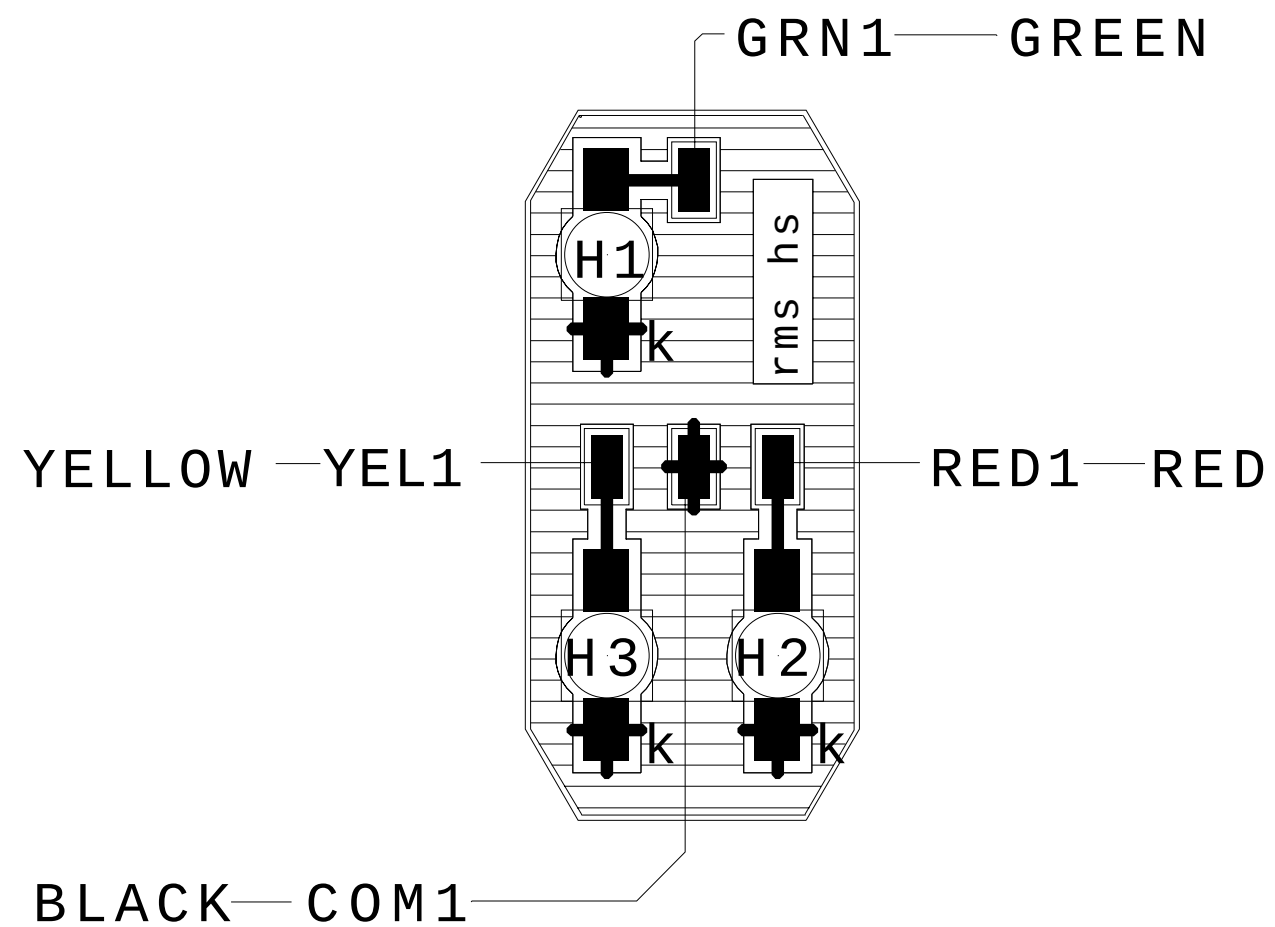
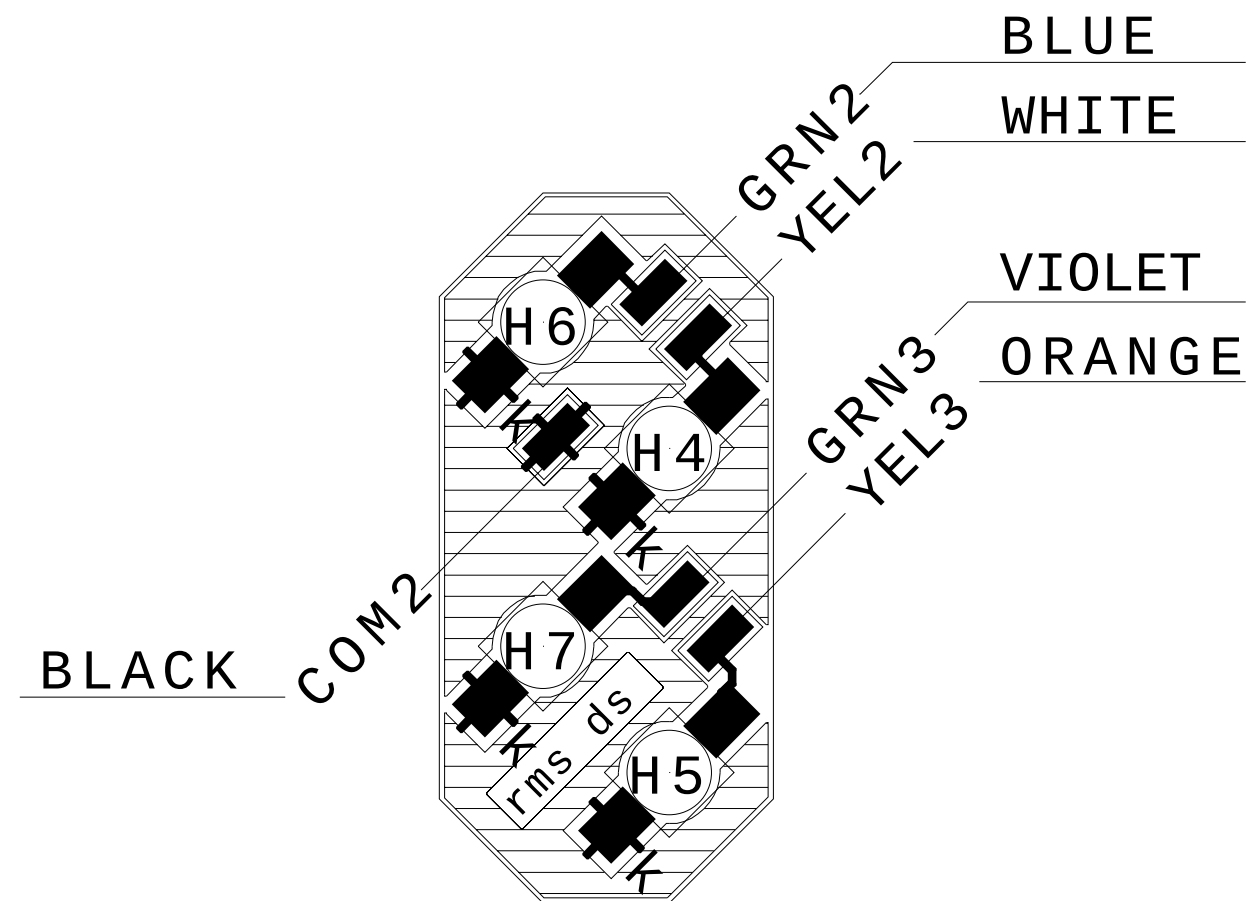
K84 CONTACTS

Time is in seconds

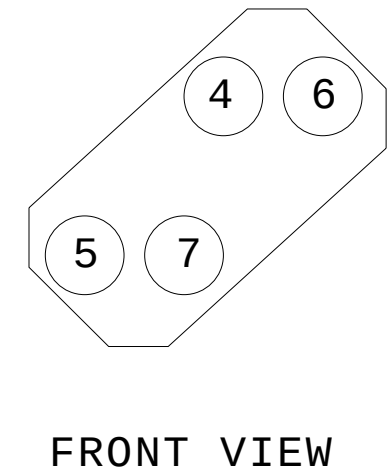
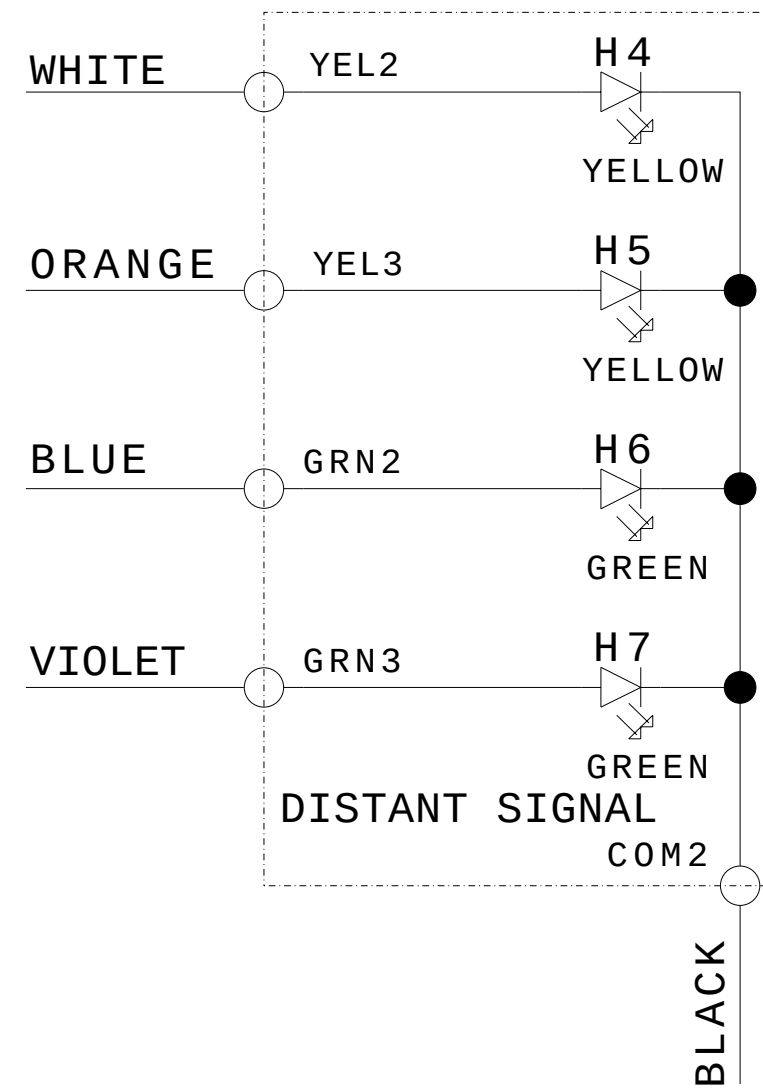
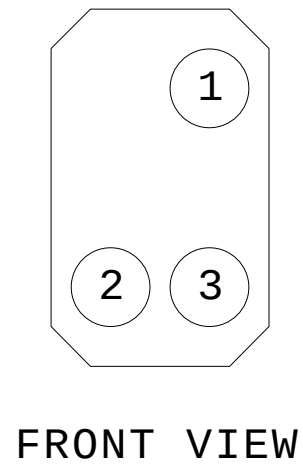
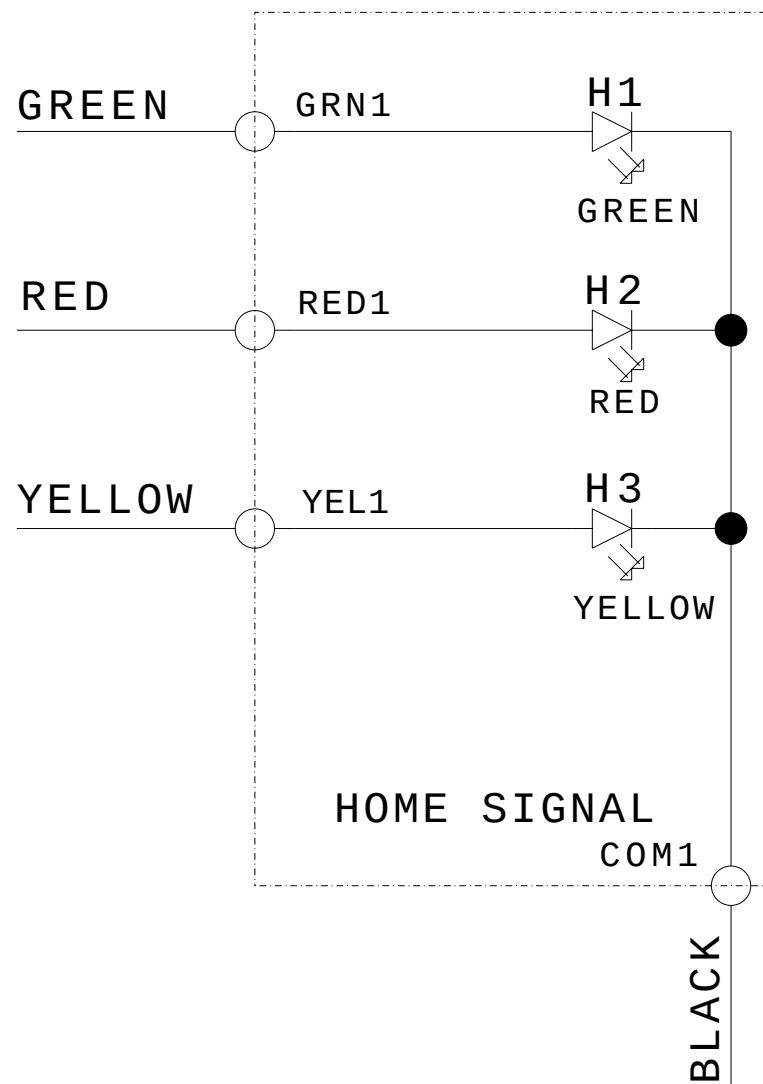
Res R8		Cap C1		
		6.8uF	4.7uF	2.2uF
2M2		16.0	11.8	5.6
1M		7.8	5.5	2.5

Suggested value changes
for R8 and C1





REAR VIEW



HOME AND DISTANT SIGNAL CIRCUITS
 STOP = Led's 2, 4, 5
 GO WITH CAUTION = Led's 1, 3, 5, 6
 GO = Led's 3, 6, 7

DRAWING
 TITLE=HSDS
 ABBREV=HSDS
 LAST_MODIFIED=Wed Sep 10 08:58:21 1997

Parts List for Signal Timer (rms-pb-00841) and HS/DS signals

06-02-2008

Farnell Part #	Symbol	Description	Value	Volt.	Ref Designator	Qty.
966-812	TAG	Electrolytic Tag	6u8	25V	C1	1
885-060 368-118	DIODE300	Signal Diode	1N914 or 1N4148		D1-D7	8
409-364	DIP8	IC NE555N Single Timer	555		IC1	1
543-305	RES400	RESISTOR MF25 1%	470R		R1-R7	7
543-561	RES400	RESISTOR MF25 1%	5k6		R10	1
543-627	RES400	RESISTOR MF25 1%	10k		R9	1
544-103	RES400	RESISTOR MF25 1%	1M		R8	1
357-157	TO92	Transistor PNP	BC557		T1	1
Optional Values Below						
333-098	RES400	RESISTOR SFR25 5%	2M2		R8 Optional	1
966-794	TAG	Electrolytic Tag	2u2	25V	C1 optional	1
966-800	TAG	Electrolytic Tag	4u7	25V	C1 optional	1
Subminiature Leds for HS/DS Signal						
322-052	LED1	HLMP-6300 HE Red	Red	5PIV	H2	1
322-064	LED1	HLMP-6400 Yellow	Yellow	5PIV	H3-H5	3
322-076	LED1	HLMP-6500 Green	Green	5PIV	H1,H6-H7	3
Signal Mast Wiring for HS/DS						
143-381		Kynar Wire 0.25mm /100m	Black			1
143-378		Kynar Wire 0.25mm /100m	Green			1
143-380		Kynar Wire 0.25mm /100m	Red			1
143-384		Kynar Wire 0.25mm /100m	Yellow			1

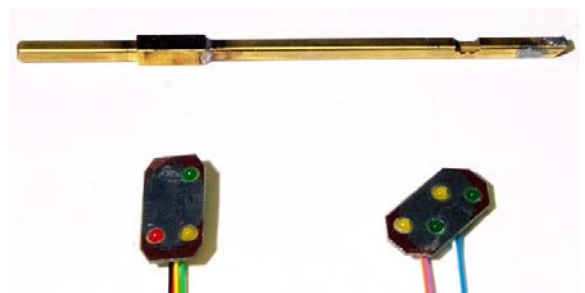
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143-382		Kynar Wire 0.25mm /100m	White			1
143-383		Kynar Wire 0.25mm /100m	Orange			1
143-379		Kynar Wire 0.25mm /100m	Blue			1
150-078		Kynar Wire 0.25mm /100m	Violet			1

Photos below from left to right show various signals under construction.

Combined Home/Distant Signal, Home Signal, and Distant Signal. Brass mast ready for completed signal heads to be fitted.



Still lots of detailing to do.