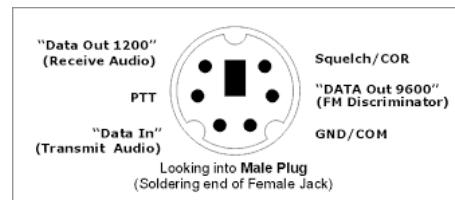




DLS4CCONNECT

ECHOLINK Interface

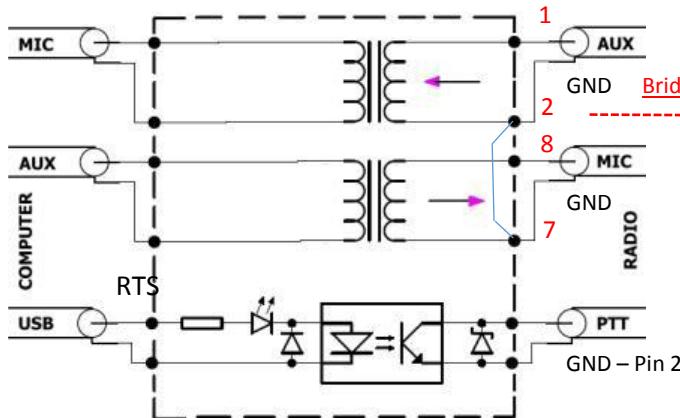
Total control on Mini DIN 6



ON4DL – ON4LS

STUDY ON THE Kenwood TM-V71 – SIGNALS ANALYSIS

Principle AR Interface



TM-V71 – Mini-DIN 6

Black	Pin 5	RX LF
Orange	Pin 2	GND
Brown	Pin 1	TX LF
Green – Shield		
Blue	Pin 3	PTT

The PTT control uses the RTS line in the virtual COM port, created after installing the driver.

The PTT line provides a VDC voltage, thanks to a corresponding voltage stabilizer, implemented in the USB circuit through a "Serial Bridge Controller".

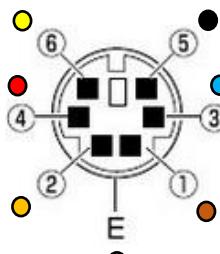
Levels measurements: Data OUT : TM-V71 "Signals at the Data connector"

	Rest	TX	X-ray	
CTS	- 8V	- 8V	+8V	
RTS	- 8V	+8V	- 8V	
DTR	- 8V	+8V	- 8V	Not used

Raspberry to Trscvr	Trscvr to Raspberry
------------------------	------------------------



TM-V71 Plug Cable to Interface (Wire Colors) Link [HERE](#) - (Colors to be checked according to each model).



No.	Name	I/O	Function	
①	PKD	Input	Audio signal for packet transmission	← Brown
②	DE	—	PKD terminal ground	--- Orange
③	PKS	Input	'L' is transmitted and the microphone is muted	PTT Blue
④	PR9	Output	9600 (bps) repeat signal	Not Used
⑤	PR1	Output	1200 (bps) repeat signal	→ Black
⑥	SQC	Output	Squelch control signal; Closed: 'L', Open: 'H' (The default settings can be changed in Menu 520)	+ 5V
	E	—	Common ground	--- Green

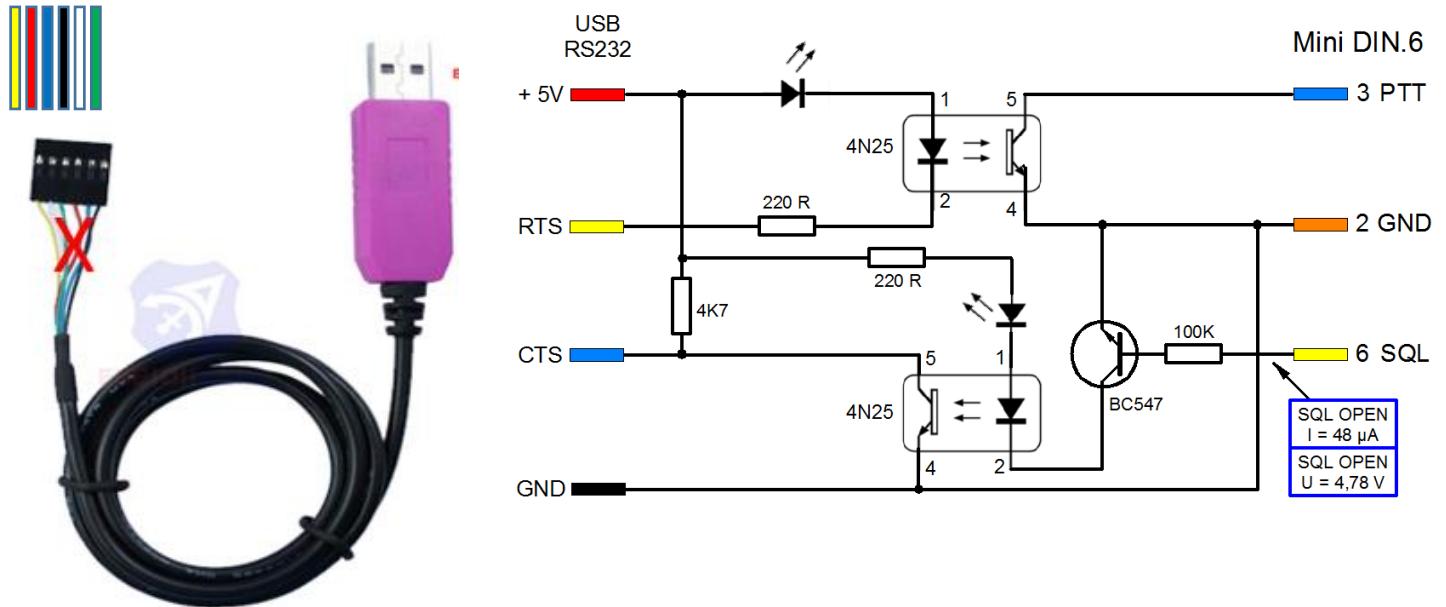
Pin 6 of the Mini DIN is connected to one of the optocoupler LEDs;

By this means, you send the Squelch OPEN information, and then apply 0V to the CTS of the RS-232 interface.

The CTS on 0V via the transistor of the optocoupler “opens” the audio input channel of the sound card, and therefore, towards the Internet network and the EchoLink server.

The order of the wires must be changed at the connector.

↓↓↓



**See the component side of the PCB to match the colors of the RS-232 connector.

- Information SQL Open >> LED Opto >> via transistor gives 0V on CTS >> Open Audio RX to EchoLink.

GND Transceiver & USB are shared. The +5V USB is the reference potential for the Optocouplers.

The BC547 transistor mounted in switching converts the SQL Open +5V-TTL information to 0V for the Opto RX.

PROLIFIC PL2303 Cable, 6 Pins - available from AliExpress > [HERE](#)



AUDIO IN/OUT PARTS

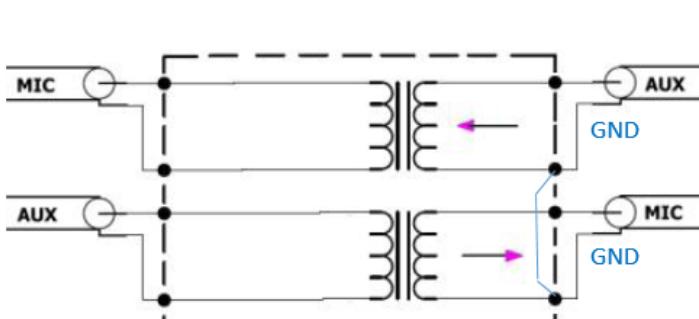
600:600



AUDIO To USB Sound Card > [HERE](#)



600/600 audio transformers link > [HERE](#)



TM-V71 – Mini DIN 6

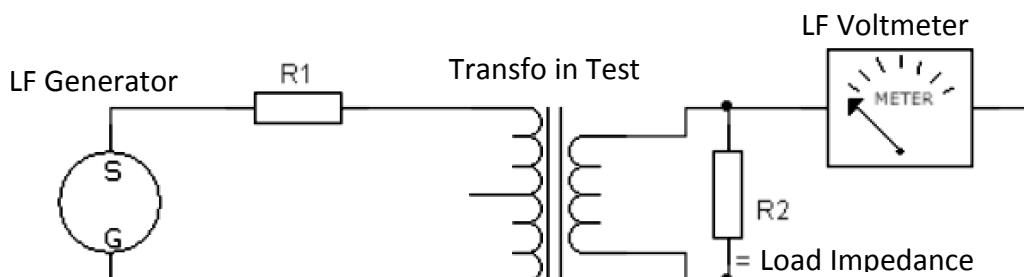
- ← Black ----- Pin 5 RX LF
- Orange - GND Terminal Ground
- → Brown ----- Pin 1 TX LF
- Green - GND Shield

Transformers are devices that consist of two or more coils of wire that are wound on a common magnetically conductive material (the core). When an AC signal is applied to the input coil (primary winding), current flows through the coil and creates a magnetic flux which passes through the core and induces the other coil(s) in which it magnetically induces a voltage having the same signal pattern as that applied to the input coil.

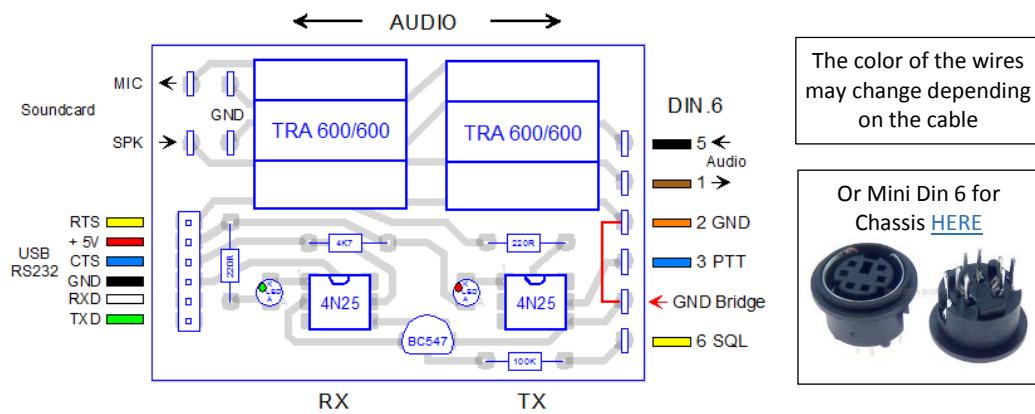
Measure the impedance of a Transformer.

1 - Using an **impedance meter set at 1000 Hz**, by looping its secondary on a resistance of **600 Ω**.

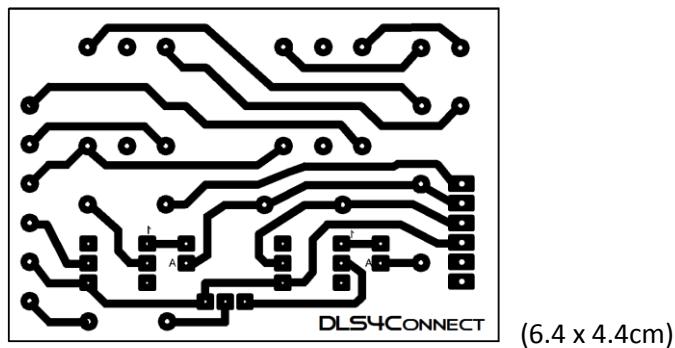
2 - With a **sinusoidal LF generator set to 775 mV (0dB)**, in series with the primary via a **600 Ω** resistance, and with its secondary closed on a resistance of **600 Ω**. Then measure the voltage supplied by the secondary; it must approach the value of that which is injected into the primary.



Assembly of the components of the "DLS4Connect" Interface

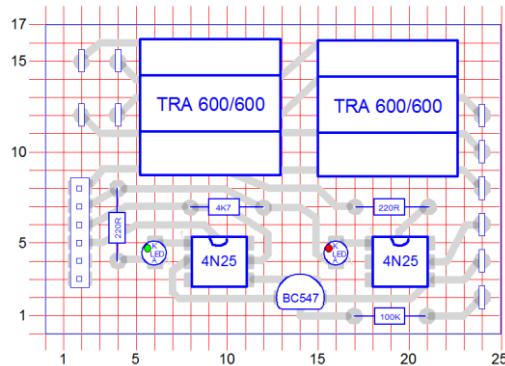


PCB - layout

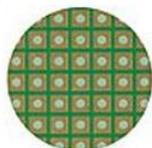


Mounting on “Veroboard” breadboard:

Components implantation on caed, scale 1:1



[Velleman: ECS1/2](#) - Test plate with a pitch of 2.54 mm / 0.1 inch (square pads).



Veroboard map [HERE](#)

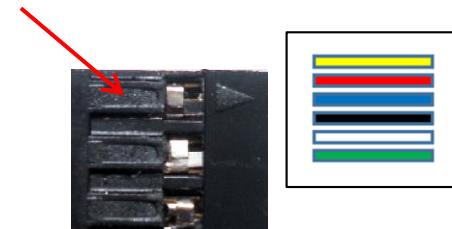
Retex ABS case HARE70202 [HERE](#)

Remarks :

- Crossing the USB <=> RS-232 wires, if it was supplied with a 6-pin comb:

1 – Push the wire and lug assembly forward;

2 – Take the tip of a needle, and slightly lift the lug cover;



3 – Remove each wire, insert the cable into its grommet, and then replace them in the correct order;

4 – First, put a little downward pressure on the plastic slats;

5 – Replace and push back each wire fully until the anti-return spigot clicks.

TRANSCEIVERS:

Compatible devices : Kenwood – Yeasu – ICOM which have the “Packet” connector (see Plug TM-V71). It is mandatory that these sets are equipped with CTCSS. Squelch can then be set to an optimum level.

THANKS :

Alain Valentour - [ON4DL](#) : Design, production and development of the "DLS4Connect" interface.

Jean-Luc Collard - [ON4LS](#) : Studies, programming, adaptation of software and hardware tests.

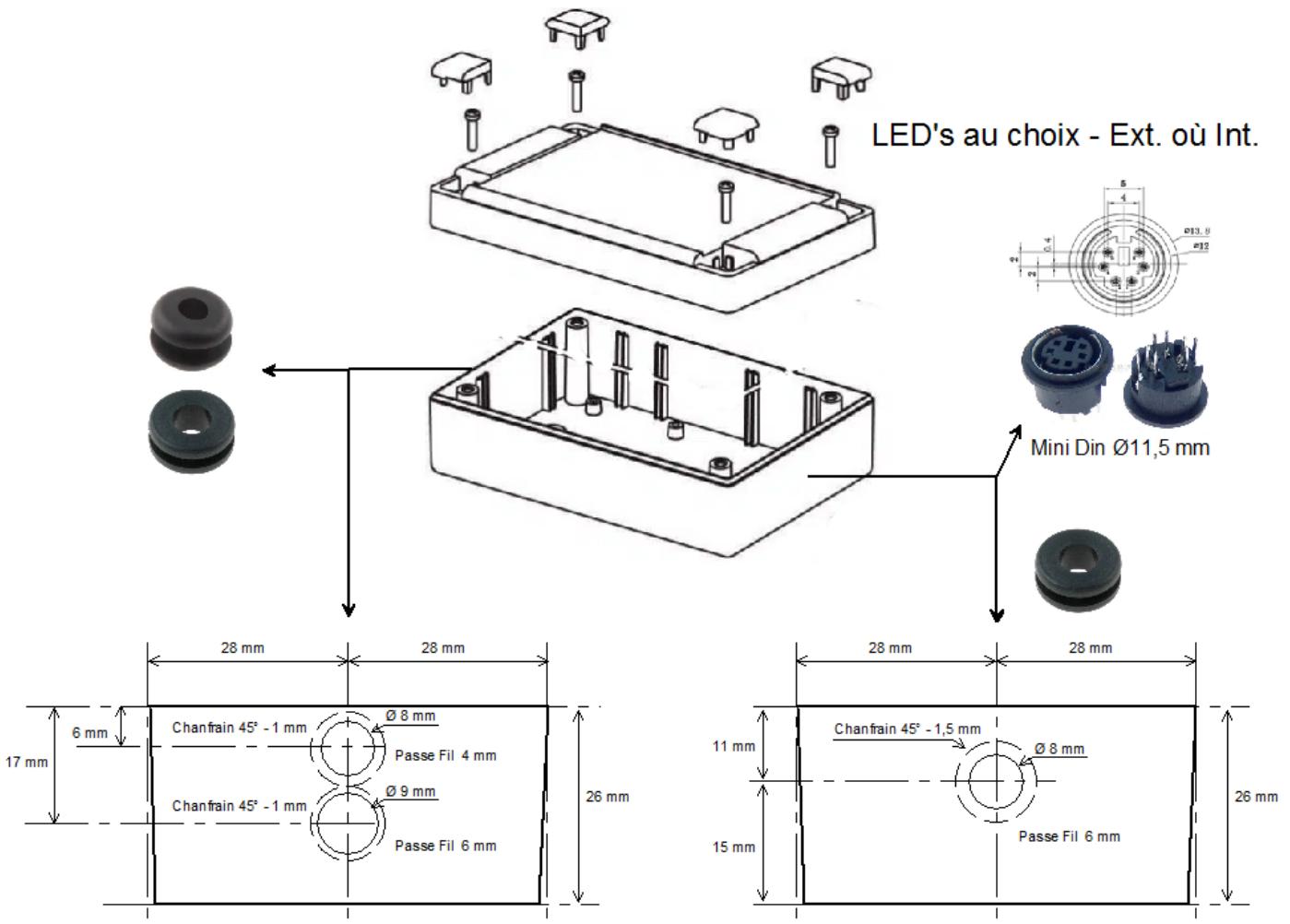
DLS4CONNECT



ANNEXE :

DLS4CONNECT

PLAN DE FORAGE BOITIER RETEX SERIE 70 - 90X55X40mm



RS232 :

The voltages delivered by the serial port may vary between computers. It's +/-3V to +/-15V Depending on the PCs. However be careful: it is the logical 0 which is at +3/15V – the logical 1 is at -3/15V. >> (TTL +5V & 0V).

The RS232 protocol has the particularity of operating in negative logic. For this case, RTS (TX) and CTS (RX) are used.

