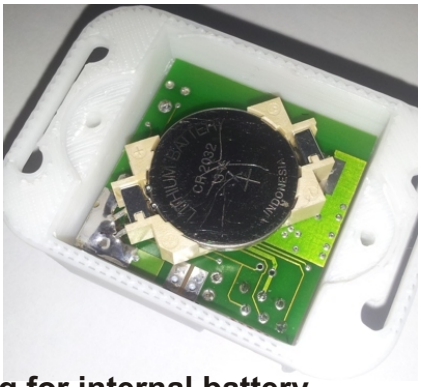
Easiest startup is to go and get a Br2032 or Cr2032 lithium coin type battery from your nearest hardware shop and plug it into the holder as shown on the left. Once the battery touches the holder contacts, with the positive side facing away from the holder, a blue LED inside the box should flash 3 times. After startup the tag goes into idle mode, in this mode a typical lithium battery should drive the transmitter for over a month. The Blue LED flashes every action cycle at 4-8 second intervals; by default ultrasound and rfid is emitted during the blue flash. If an hx19ms is in range with the hx19access program running, the ID of the tag should appear in the text window every 4-8 seconds.



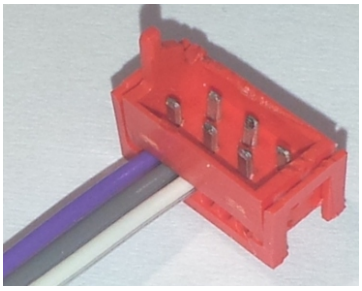
Set up an external power source or external charging for internal battery

The image on the right shows the lid that conceals the microMach connector. Of course it is easy just to remove the bottom and push out the lid. Otherwise use a screwdriver like shown in the image on the right and pry the wedge up. It will help if the screwdriver is twisted 10 degrees while prying up the wedge. Once the wedge is up use the screwdriver to push the lid out.

The plug on the right, matches the socket inside the tag on the left. Pin 1 next to the notched edge is connected to the blue ribbon connector. The ribbon cable has a 1.27mm pitch (AWG28).

Pin Configuration
1. Ground (Negative Reference) (blue)
2. Default Parameters (Gray) (see manual)
3. Power Input 3-4.5 Vdc (white)
4. Serial I/O Com pin (see manual)
5. Wake up (see manual)
6. Do not connect or use

The microMatch plug can only go in one way.



Inverse polarization can harm the device, and do not apply higher than 4.8Vdc to any pin

In case external cable is not used, a lid can conceal the socket opening. To fix the lid in place so it doesn't fall out, the wedge shown in the illustration on the right needs to pushed down until it is flush with the back cover.

Parts numbers are available from

www.farnell.com
Ribbon cable (example): part no 1207415
MicroMatch plug: part no 149068

www.mouser.com
Ribbon cable (example): part no 517-3302/9FT
MicroMatch plug: part no 571-215083-6

Using the Serial Output pin HX19R version 2.4 and above

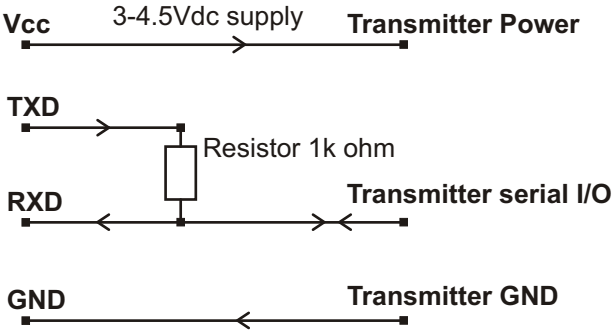
The following connection diagram shows how the transmitter can be wired for private communication using the serial I/O pin. This pin is fourth from the ground wire on the ribbon cable pressed into the micromatch plug. TTL232R devices can be selectively wired to provide either 3.2V or 5V output.

Please use hx19comPin.exe program rather than the hx19access to read and write to the tag. Make sure the TTL232R is assigned the same port number as is specified in the port.txt file that must reside in the hx19comPin.exe directory.

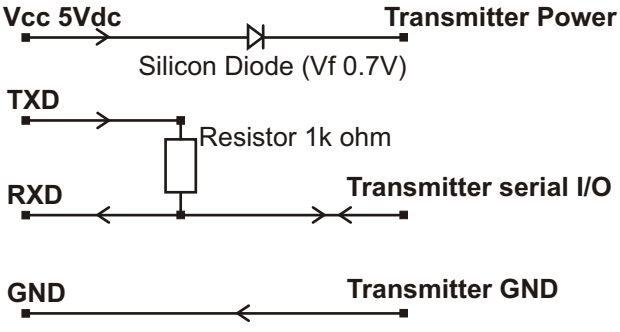
TTL-RS232R_PCB
Mouser part number: 895-TTL-232R-3V3-PCB or 895-TTL-232R-5V
Farnell part number: 1740366

TTL232R PCB PADS

TTL-232R-3V3 to Hx19t connection diagram



TTL-232R-5V to Hx19t connection diagram



ADDENDUM : Tag power consumption

The Hx19tx is a low power ultrasonic RFID tag. Maximum input voltage is 4.5Vdc and minimum input voltage is 2.5Vdc. At full operating speed of 16 emissions per second, the unit consumes about 6mA @ 3V. During deep sleep it consumes approximately 20 micro amps, and in standby approx. 0.1mA. The power consumption depends on the duration of the sleep stage. As a rule of thumb, the emission lasts 13mS, during this time the unit consumes approximately 20mA. Given that there are about 62.5mS between samples at 16 samples/second, ideally the overall current consumption is I = 13mS * 20mA / 63mS. The current consumption will be close to the calculated value.

Using a 300mAh cell the unit should run for approx. 60 hours at full speed 16s/s. If the user remembers to shut the device off with the command character [h] or [ht] while not using it, the battery life will be extended significantly. When the battery is installed, a blue LED inside the box will flash twice. Then it will immediately activate, and emit by default USID, RFID and flash the LED for the third time. After startup, the tag will emit and flash the LED at random 8 or 4 second intervals. Faint bat like clicks should be heard while the LED flashes if the sensor is brought close to an ear. This indicates the sensor is emitting a sonic signal.

HX19TX

Hx19t can accept variety of 3 v coin cell lithium batteries. These LIR2032, BR2032 and CR2032 will fit into the holder, LIR2032 is a lithium Ion rechargeable batter. The hx19t will perform well using BR2032 and CR2032, but it will perform better using LIR2032.