SHARI

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Overview

SHARI (**S**A818 **H**am **A**llstar **R**adio **I**nterface) is a ham construction project designed by N8AR that implements a Raspberry Pi hosted Allstar node using a NiceRF SA818 embedded UHF (420 – 450 MHz) or VHF (144-148 MHz) radio module. SHARI is designed as a kit for construction and use in the amateur radio service by licensed amateur radio operators who can assure that their assembled SHARI kit meets FCC Part 97 requirements including RF frequency, deviation and required power levels at the fundamental and harmonic frequencies.

In order to create an Allstar node, SHARI plugs into two USB jacks on a Raspberry Pi2, Pi3 or Pi4 for power, the Allstar interface and radio programming (a short M/F USB extender cable can be used if desired).

Four front panel LEDs indicate the status of SHARI – [POWER (green), CONNECTION STATUS (blinking green), COS (yellow) and PTT (red)] . SHARI RF output power is about 400 milliwatts.

SHARI is available in four models –

Pi3U – 70 cm for the Pi3 (420-450 MHz)
Pi3V – 2 meters for the Pi3 (144-148 MHz)
Pi4U – 70 cm for the Pi4 (420-450 MHz)
Pi4V – 2 meters for the Pi4 (144-148 MHz)

Note that the two male USB plug locations are switched between the Pi3 and Pi4 models of SHARI so that access to the Ethernet jack on the Raspberry Pi is not blocked.

Features

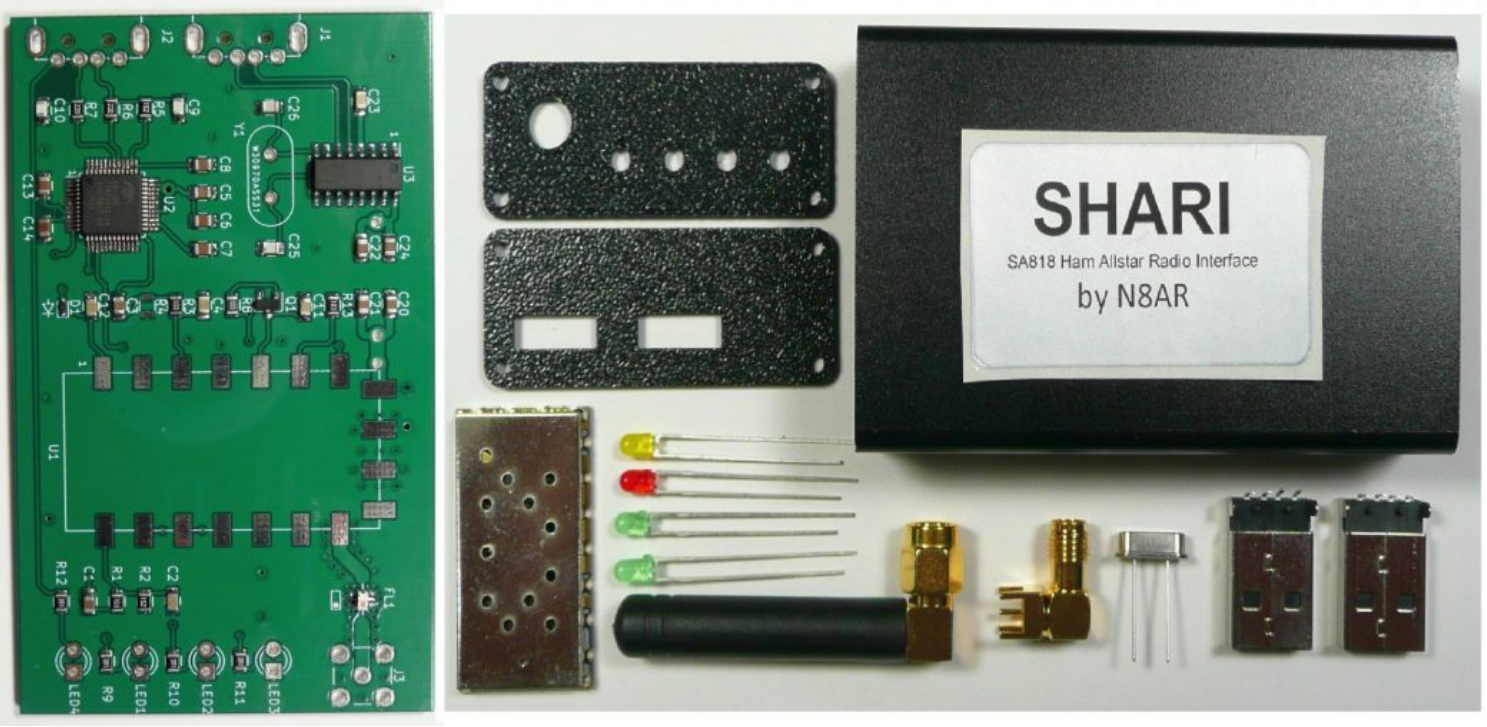
Works with a Pi3 or Pi4 (USB connector positions swapped)
Uses the Cmedia CM119B or CM108B USB audio IC
Uses a NiceRF SA818 UHF or VHF embedded radio module
about 400 – 500 milliwatts RF output power
Small, portable with self contained radio and antenna
Kit includes PCB with all surface mount parts installed
Kit builder installs 8 through-hole parts, the radio module and completes final mechanical assembly
Rugged RFI-resistant metal enclosure

3D printed plastic end caps with all required holes provided

Radio settings changed using a program running on the Raspberry Pi

Construction

All parts necessary to build a SHARI are provided in the SHARI kit. The kit is supplied with all of the small surface mount parts installed on the PC board. The kit builder installs the 8 surface mount parts, the SA818 radio module and completes final mechanical assembly. Plastic 3D printed end caps are provided with the kit to simplify mechanical construction.



SHARI Kit Parts (Pi3U shown)

Fully Assembled SHARI Pi3U PC Board

The SHARI kit contains all of the parts required to build the device. The kit is supplied with all of the small surface mount parts installed on the PC board. The kit builder installs the 8 surface mount parts, the SA818 radio module and completes final mechanical assembly. Plastic 3D printed end caps are provided with the kit to simplify mechanical construction.

Construction Manual

A comprehensive step-by-step construction/assembly manual is supplied as a download from our SHARI group on groups.io. It can be downloaded from the Files section of our SHARI group at SHARI Construction Manual_v1.07.pdf

Allstar Node Setup and Configuration

A basic Allstar Node setup and configuration guide for SHARI is supplied as a download from our SHARI group on groups.io. It can be downloaded from the Files section of our SHARI group at SHARI Allstar Node Setup Procedure-Version 1.4.pdf

Ordering Information

SHARI is designed as a kit for construction and use in the amateur radio service by licensed amateur radio operators who can assure that the SHARI kit they are using meets FCC Part 97 requirements including frequency, bandwidth and required power levels at the fundamental and harmonic frequencies. There are four SHARI models:

Pi3U – UHF (420-450 MHz) radio for the Raspberry Pi3
Pi3V – VHF (144-148 MHz) radio for the Raspberry Pi3
Pi4U – UHF (420-450 MHz) radio for the Raspberry Pi4
Pi4V – VHF (144-148 MHz) radio for the Raspberry Pi4

Electrically, the models are similar. They differ in frequency of operation (UHF or VHF) and the location of the two type A male USB connectors (to accommodate the USB connector location change between the Pi3 and the Pi4)

SHARI is available as a simple parts kit (install 8 through-hole parts, the radio module and complete final assembly) for $65 (UHF and VHF). We will install the

SA818 radio module for you for an additional $5.

A fully assembled and tested SHARI is $90 (UHF and VHF). We build and test your kit for you. You are still responsible for proper operation in the amateur radio service.

Shipping to US destinations is $9 via USPS Priority Mail as long as your order fits in a USPS Priority Mail Small Flat Rate Box . Payment via Paypal is preferred.

Send an email including your amateur radio call indicating the model(s) and type (kit or assembled) you would like to purchase to kitsforhams@gmail.com for ordering and delivery information. We will send you a customized Paypal invoice to pay.

Support

Support of SHARI is provided via the SHARI group at http://www.groups.io/g/shari

The purpose of the SHARI group is to serve as the main hardware support source and discussion group for hams building and using the SHARI Allstar Node. Support of the Allstar distribution you install in your Raspberry Pi and use in conjunction with SHARI is best obtained from the source of the Allstar distribution (i.e. allstarlink.org or hamvoip.org).