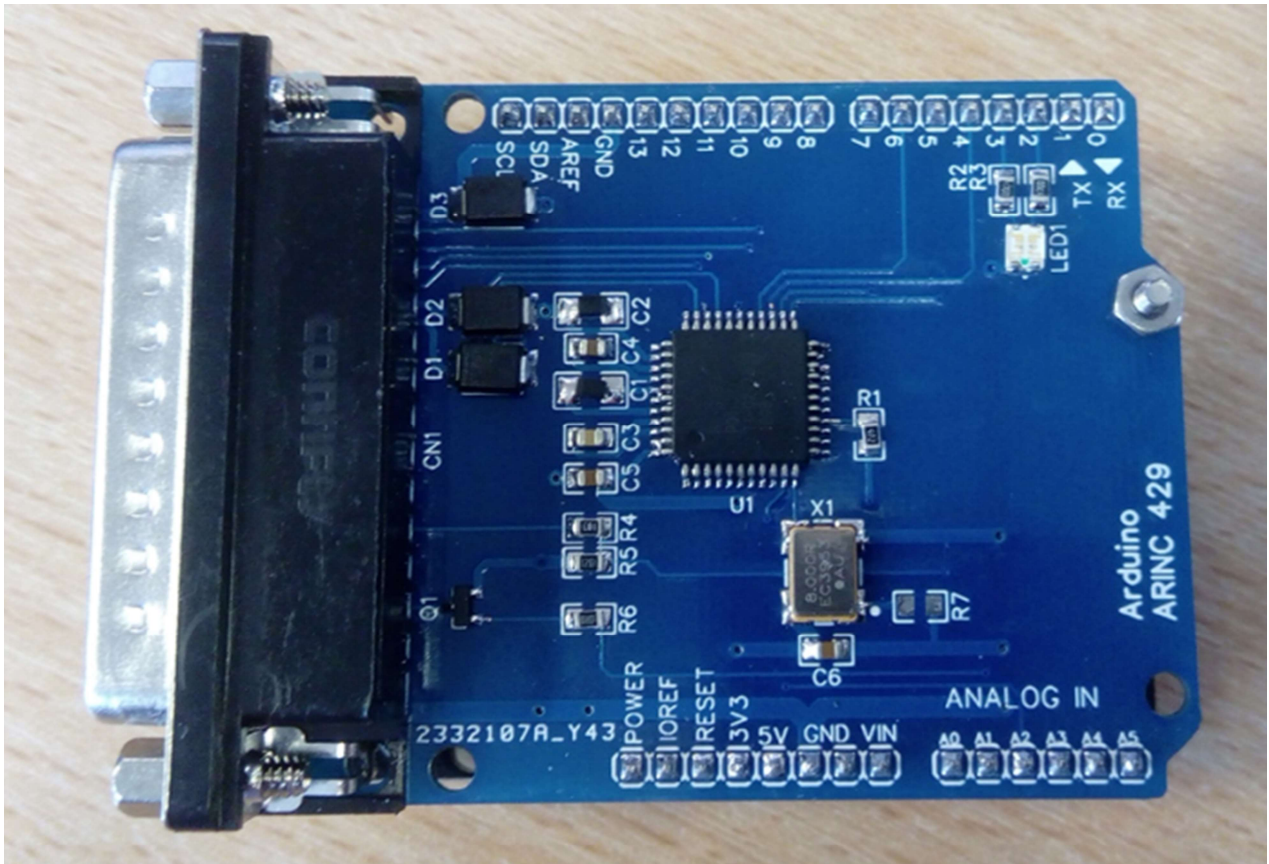


Arduino ARINC 429 Shield



Introduction

The Arduino ARINC 429 shield is based on the HOLT Hi-3595 ARINC driver IC and the Arduino Uno R3 board. The HOLT IC is driven through the SPI bus of the Arduino and transmits and receives ARINC 429 words which are passed from and to the Arduino USB serial port. A status LED is provided to give indication as to the operation of the ARINC 429 shield. Connections to the UUT are made through a 25 pin male D connector on the board.

Power Up

After applying power to the Arduino ARINC429 board an internal loopback test is performed.

The ARINC word sent is 40030201 in loopback mode R1 receives the word as transmitted while R2 receives a complement of the word transmitted. Both words added together should equal FFFFFFFF if this test passed the LED will illuminate green, should the test fail the LED will illuminate red and the test will keep trying, resetting the Hi3595 IC on each pass.

Serial Port

The Arduino USB serial port is configured as 115200, N, 8, 1

Sending Data

Whilst the Arduino ARINC429 is idle, the LED will be illuminated green. The LED will illuminate red for each ARINC word transmission.

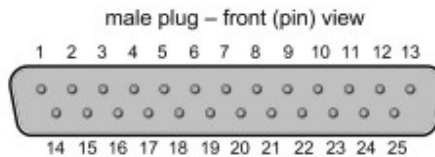
ARINC words are sent via the Arduino USB serial port. The data should be presented as a hexadecimal string terminated with a new line character, i.e. 40A1B2C2\n

Receiving Data

Data can be received on R1 or R2 channels. Data is presented to the serial port as a hexadecimal string terminated with a new line character, i.e. 1A2B3C4D\n

Connector

A standard 25 pin male D type connector is fitted to the Arduino ARINC429 shield. Not all pins are used.



Pin	Function	Pin	Function
1	Ground	-	-
2	RIN2A (Ch 2 +)	14	RIN2B (Ch2 -)
3	RIN1A (Ch 1 +)	15	RIN1B (Ch2 -)
4	TXAOUT (Tx +)	16	TXBOUT (Tx -)
22	EXT-TRIG (Trigger)	24	SYNC-OUT (Sync)

Table 1 – Connector Pin Assignments

External Trigger

The external trigger holds off transmitting the ARINC word until a falling edge on the EXT-TRIG pin. To use the trigger, ensure the trigger pin is pulled high (28V DC max) and then load the ARINC word to be sent via the serial port. As soon as the EXT-TRIG is taken low the ARINC word will be transmitted onto the bus.

Sync Out

The sync out pin is open drain, it is pulled low whenever a received ARINC word is read from the buffer.