ARINC 429 LAN Boards Setup and Data Encoding

Connect the board with a LAN cable to your local network. Connect a 5 V power supply to the board and it will power up.
By default the board will try to retrieve an IP address by DHCP. Check your router which IP it got or use an IP scanner to find it.
You may open that IP in your browser and change the network settings if you like, like setting up a static IP. If you need an username or password just ignore it / press enter. Or leave everything as it is.

Connect to the board with any application to port 10001 (TCP/IP). The board outputs or receives (depending on the specific board, this is a general manual) bytes which can be interpreted as ASCII characters.
The pattern of receiving and transmitting data is the same but the encoding is different:

The first char is a capital letter starting with 'A' for channel 1, 'B' for channel 2 and so on. If the board has for instance one receiver and one transmitter, both will have an 'A' because it is the first channel of its type.
The next eight chars are lowercases from 'a' to 'p' containing the ARINC 429 word. The encoding is depicted below. Each lowercase contains 4 bits of the original ARINC 429 word (4 bits and 8 chars are 32 bits in total).
The last and tenth char is a line feed '\n' and marks the end of data.

Example: You receive the string "Abbeilkib\n"

1. Reverse the order of the lowercases.

bbeilkib ⟶ bikliebb

2. Convert each lowercase into its ASCII decimal code and subtract 97. You will get 0 for an 'a' and 15 for a 'p'.

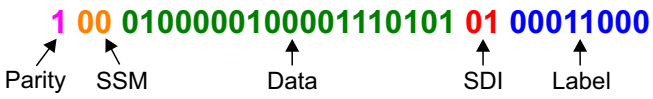
b	i	k	l	i	e	b	b
98	105	107	108	105	101	98	98
1	8	10	11	8	4	1	1

3. Convert each number into binary and if necessary add zeros on the left so that each number now has 4 digits in binary code.

0001 1000 1010 1011 1000 0100 0001 0001

4. Reverse the order of the digits.

10001000001000011101010100011000



Example: You want to send the word depicted above

1. Split the 32 bits into 8 groups each containing 4 bits.

1000 1000 0010 0001 1101 0101 0001 1000

2. Convert each group (binary) into a decimal number, add 97 and convert it to an ASCII character.

8	8	2	1	13	5	1	8
105	105	99	98	110	102	98	105
i	i	c	b	n	f	b	i

3. Your string to send is as follows:

Aiicbnfbi\n

Note that the RX and TX strings are different but depicting the same data.