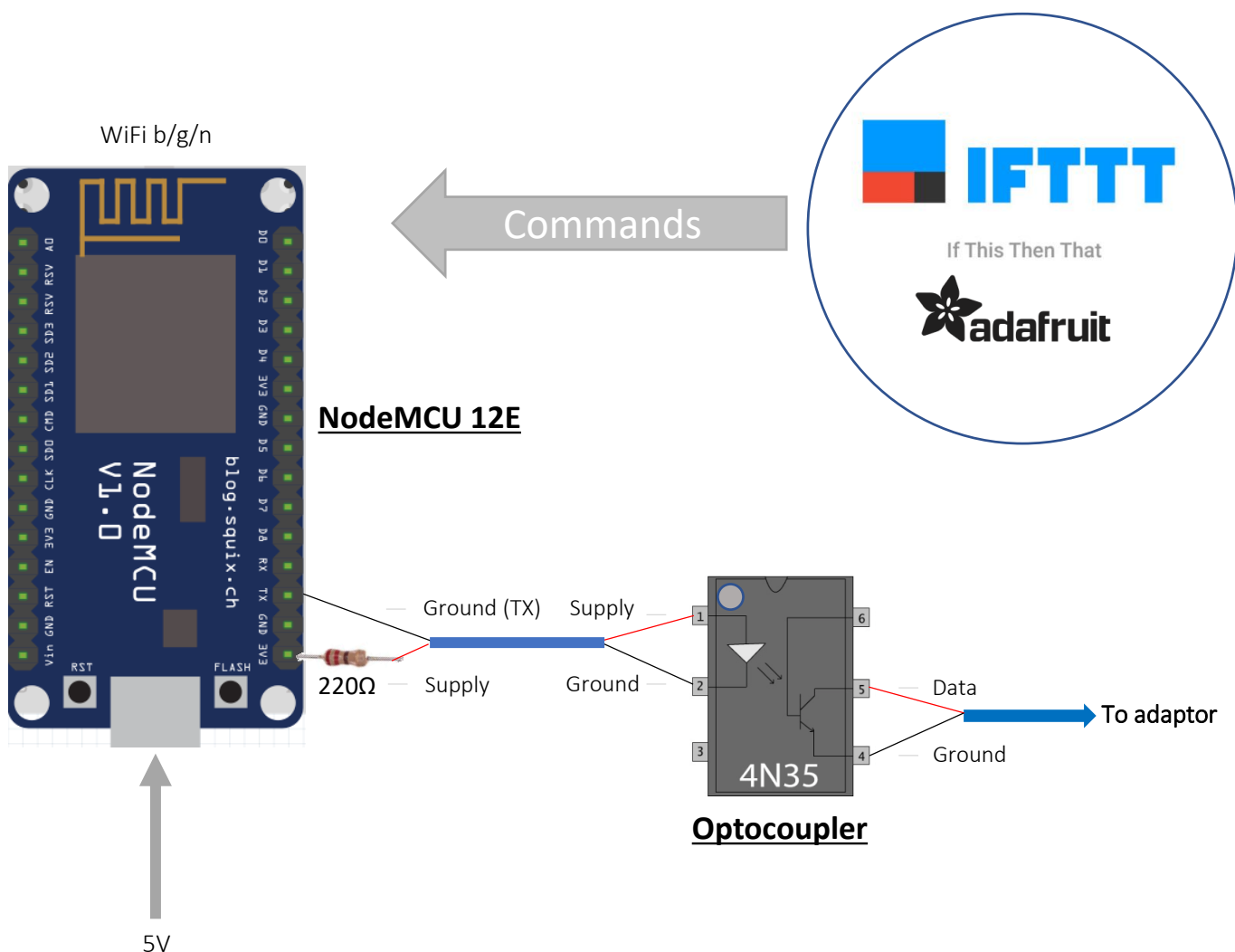# HOW TO VOICE CONTROL A BANG & OLUFSEN TURNTABLE

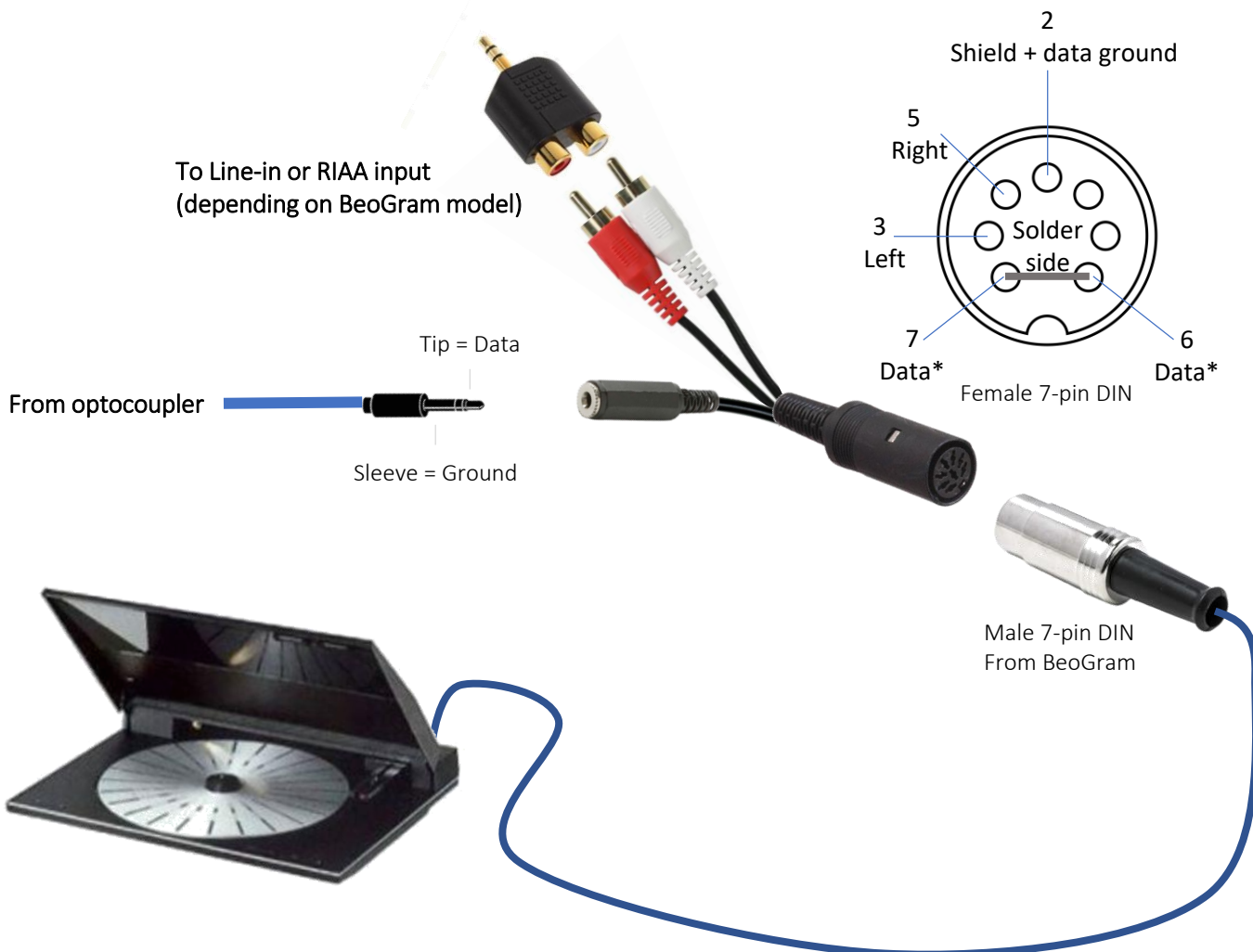*DATALINK-COMPATIBLE BEOGRAM

CONTROL

The NodeMCU is connected to the local WiFi network. We use an optocoupler, but we need to limit the current, which is why we need the 220Ω resistor.

The idea here is that we use the online service Adafruit.io as a kind of gateway, which we can then link to IFTTT in order to communicate with our voice assistant.

WiFi b/g/n

Commands

If This Then That

NodeMCU 12E

Ground (TX)   Supply

220Ω   Supply   Ground

Data

To adaptor

4N35

Ground

Optocoupler

5V

ADAPTOR

- In order to connect the BeoGram to Line-in on a product, we need an adaptor.
  - Be aware that not all BeoGram turntables have built-in RIAA pre-amplifier.

- On top of that we also want to 'inject' some data in the BeoGram in order to control it, so we need to connect the 2 wires from the output of the optocoupler to pin 6/7 and pin 2, as shown below.
  - The reason why we shortcircuit pin 6 and 7 is that the data-pin is different from each player, depending on whether it was born with a built-in RIAA or not. By shortcircuiting the 2 pins we make sure that the adaptor works in both scenarios.
  - * No matter whether pin 6 or 7 is used for data in your player, you can be sure that the other pin is not connected, which is why we have no worries about just connecting them together.
  - ** On non-RIAA versions you might need an extra an extra ground-wire connected to the outer shield of the DIN plug. This is usually connected to the external RIAA.

To Line-in or RIAA input
(depending on BeoGram model)

From optocoupler

Tip = Data

Sleeve = Ground

2
Shield + data ground

5
Right

3
Left

Solder
side

7
Data*

6
Data*

Female 7-pin DIN

Male 7-pin DIN
From BeoGram

CODES

Data to send to Adafruit from IFTTT to activate functions:

Value	BeoGram function
1	From standby: Turn on While playing: Lower pickup (if raised)
2	Next (Raise pickup, move the needle 5mm to the left, lower pickup)
3	Previous (Raise pickup, move the needle 5mm to the right, lower pickup)
4	Stop (Raise the pickup)
5	Standby

IFTTT MACRO EXAMPLE (TURN ON):

IF THIS,

Say a simple phrase

This trigger fires when you say "Ok Google" to the Google Assistant followed by a phrase you choose. For example, say "Ok Google, I'm running late" to text a family member that you're on your way home.

What do you want to say?

Turntable on

What's another way to say it? (optional)

And another way? (optional)

What do you want the Assistant to say in response?

Turning on the turntable

Language

English

THEN THAT

Send data to Adafruit IO

This Action will send data to a feed in your Adafruit IO account.

Feed name

bgcmd

The name of the feed to save data to.

Data to save

1

The data to be saved to your feed.

Add ingredient

ALTERNATIVE: HTTP COMMANDS

HTTP commands, from e.g. a BeoLink Gateway:

Value	BeoGram function
http://<device-ip>/bg65/phono	From standby: Turn on While playing: Lower pickup (if raised)
http://<device-ip>/bg65/next	Next (Raise pickup, move the needle 5mm to the left, lower pickup)
http://<device-ip>/bg65/prev	Previous (Raise pickup, move the needle 5mm to the right, lower pickup)
http://<device-ip>/bg65/stop	Stop (Raise the pickup)
http://<device-ip>/bg65/stby	Standby