

The Thing Network

Kurz: Open Source IoT Netzwerk auf **868Mhz / 433Mhz**

Kickstarter: <https://www.kickstarter.com/projects/419277966/the-things-network/description>

Webseite: <http://thethingsnetwork.org/>

Forum: <http://forum.thethingsnetwork.org>

Wie baut man einen Node?

Auf Basis eines

- Arduino Nano
- RFM95 / RFM95W
- Sensor

Anleitungen:

- Verkabeln: <https://things4u.github.io/HardwareGuide/Arduino/Mini-Sensor-HTU21/mini-lowpower.html>
- Code: <https://github.com/things4u/LoRa-Thing>
- Code / Anleitung für TTN Setup: https://github.com/lukastheiler/ttn_moteino
- <http://staging.thethingsnetwork.org/wiki/Backend/ttnctl/QuickStart>

Wie baut man einen Single Channel Gateway?

Ein Single Channel Gateway kann nur 1 Channel von 8 Channel benutzen.

Ein Single Channel Gateway kann keine Daten an die Nodes schicken.

Auf Basis von:

- Pi B / Pi Zero
- Alternativ: Esp8266 (NodeMCU / Wemos)
- RFM95 / RFM95W
- Lan / Wlan

Anleitung:

- Pi: <http://things4u.github.io/HardwareGuide/Single-Channel-Gway/index.html>
- Pi: Code und Verkabelung: https://github.com/tftelkamp/single_chan_pkt_fwd
- Pi Zero PCB: https://oshpark.com/shared_projects/36EsiJqR
- Esp Anleitung: <http://things4u.github.io/HardwareGuide/Single-Channel-Gway/ESP-Gateway.html>
- TTN Forum: <http://forum.thethingsnetwork.org/t/single-channel-gateway/798>

TheThingsNetwork Node/Sensor Workshop

Materialliste

| Artikel | Menge | Preis | Link |
|----------------------------|-------|--------------|---|
| Arduino 328 Nano Micro USB | 10x | ~1,88/St. | http://www.aliexpress.com/item/Nano-CH340-ATmega328P-MicroUSB-Compatible-for-Arduino-Nano-V3/32572612009.html |
| RFM95/RFM95W | 10x | ~16,00/2St. | http://www.aliexpress.com/item/RFM95W-RFM98W-100mW-433-868-915Mhz-High-sensitivity-sx1278-sx1276-Lora-module-ultra-long-range-RF/32626274785.html |
| Sensor | 10x | ~11,95/37St. | http://www.aliexpress.com/item/37-IN-1-SENSOR-KITS-FOR-ARDUINO-HIGH-QUALITY-FREE-SHIPPING-Works-with-Official-for-Arduino/32542655411.html |
| Kabel | 100x | ~2,60/120St. | http://de.aliexpress.com/item/DuPont-line-120pcs-20cm-male-to-male-male-to-female-and-female-to-female-jumper-wire/32551814663.html |
| Adapter PCB | 10x | ~2,58/10St. | http://nl.aliexpress.com/store/product/10pcs-lot-ESP8266-serial-WIFI-module-connecting-plate-applicable-to-ESP-07-the-ESP-08-ESP/403088_32262406988.html?storeId=403088 |

Optional:

| Artikel | Menge | Preis | Link |
|-------------|-------|-------------|---|
| Antenne SMA | 10x | ~1,70/St. | |
| | 10x | ~1,95/10St. | http://de.aliexpress.com/item/10pcs-SMA-Female-Jack-Solder-Edge-PCB-Mount-Straight-RF-Connector/32429747943.html |

ToDo

- Materialliste prüfen!
- Passt die SMA Buchse?

TheThingsNetwork Gateway Workshop

Materialliste

| Artikel | Menge | Preis | Link |
|--------------|-------|-------------|---|
| Pi | 10x | ~20,00/St. | bring ur own |
| RFM95/RFM95W | 10x | ~16,00/2St. | http://www.aliexpress.com/item/RFM95W-RFM98W-100mW-433-868-915Mhz-High-sensitivity-sx1278-sx1276-Lora-module-ultra-long-range-RF/32626274785.html |
| PCB | 10x | ~23,80/10St | https://oshpark.com/shared_projects/36EsijqR |

oder

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|--------------|-------|-------------|---|
| Pi | 10x | ~20,00/St. | bring ur own |
| RFM95/RFM95W | 10x | ~16,00/2St. | http://www.aliexpress.com/item/RFM95W-RFM98W-100mW-433-868-915Mhz-High-sensitivity-sx1278-sx1276-Lora-module-ultra-long-range-RF/32626274785.html |
| ugly PCB | 10x | ~2,58/10St | http://nl.aliexpress.com/store/product/10pcs-lot-ESP8266-serial-WIFI-module-connecting-plate-applicable-to-ESP-07-the-ESP-08-ESP/403088_3262406988.html?storeId=403088 |
| Kabel | 100x | ~2,60/120St | http://de.aliexpress.com/item/Dupont-line-120pcs-20cm-male-to-male-male-to-female-and-female-to-female-jumper-wire/32551814663.html |

oder

| Artikel | Menge | Preis | Link |
|--------------|-------|-------------|---|
| Wemos | 10x | ~2,60/St. | http://de.aliexpress.com/item/Smart-Electronics-D1-mini-Mini-NodeMcu-4M-bytes-Lua-WIFI-Internet-of-Things-development-board-based/32630067955.html |
| RFM95/RFM95W | 10x | ~16,00/2St. | http://www.aliexpress.com/item/RFM95W-RFM98W-100mW-433-868-915Mhz-High-sensitivity-sx1278-sx1276-Lora-module-ultra-long-range-RF/32626274785.html |
| ugly PCB | 10x | ~2,58/10St | http://nl.aliexpress.com/store/product/10pcs-lot-ESP8266-serial-WIFI-module-connecting-plate-applicable-to-ESP-07-the-ESP-08-ESP/403088_3262406988.html?storeId=403088 |
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Optional:

| Artikel | Menge | Preis | Link |
|---------|-------|-------------|---|
| Antenne | 10x | ~1,70/St. | |
| SMA | 10x | ~1,95/10St. | http://de.aliexpress.com/item/10pcs-SMA-Female-Jack-Solder-Edge-PCB-Mount-Straight-RF-Connector/32429747943.html |

ToDo

- Materialliste prüfen!
- Oder wäre eine Dual Channel Gateway Workshop besser?
 - https://store.uptronics.com/index.php?route=product/product&product_id=68
 - https://github.com/bokse001/dual_chan_pkt_fwd
- Sind 20cm Kabel zu lang?
- Wie wäre ein <https://github.com/hallard/WeMos-Lora> ?

Dauerhafter Link zu diesem Dokument:

<https://wiki.technikkultur-erfurt.de/projekte:thethingnetwork?rev=1466694879>

Dokument zuletzt bearbeitet am: **23.06.2016 15:14**

Verein zur Förderung von Technikkultur in Erfurt e.V

<https://wiki.technikkultur-erfurt.de/>

