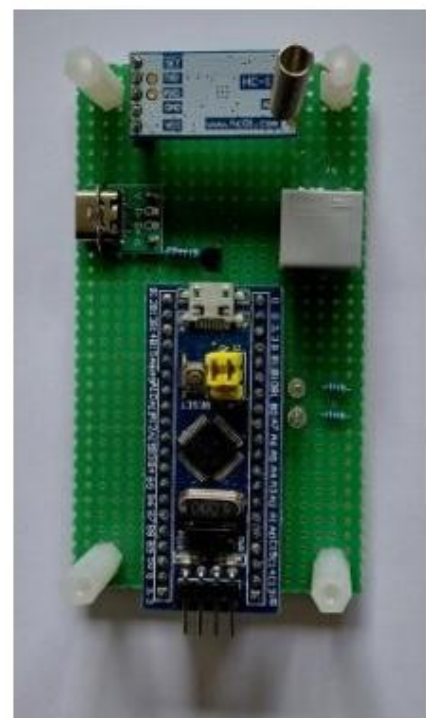
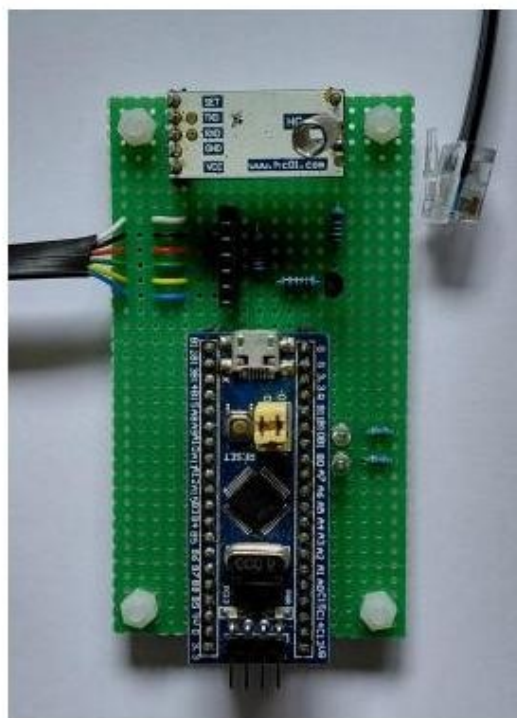


Slimme meter draadloze P1 poort extender splitter



Eenvoudig te bouwen draadloze P1 poort extender / splitter

CRC16 controle van de verzonden en ontvangen data

Volledig telegram slimme meter wordt doorgestuurd

Eenvoudig te gebruiken als splitter, 1 zender kan meerdere ontvangers aansturen.

Geen elektrische verbinding tussen de verschillende modules.

Voor als de afstand tot de slimme meter (te) groot is, geen extra kabels.

Verbinding P1 poort >> zender	115200 baud
-------------------------------	-------------

Verbinding zender >> ontvanger	9600 baud
--------------------------------	-----------

Snelheid uitgangssignaal ontvanger	115200 baud
------------------------------------	-------------

Met deze configuratie rijkweidte in huis +/- 10 meter, zonder CRC fouten

Uitgang ontvanger is volledig compatibel met uitgang P1 poort

Zie Github

<https://github.com/thieu-b55/Slimme-meter-draadloze-P1-poort-extender-splitter>

Opmerking

Data overdracht is **niet** versleuteld

Data overdracht niet elke seconde zoals P1 poort maar om de 3 seconden

Zender

Componenten

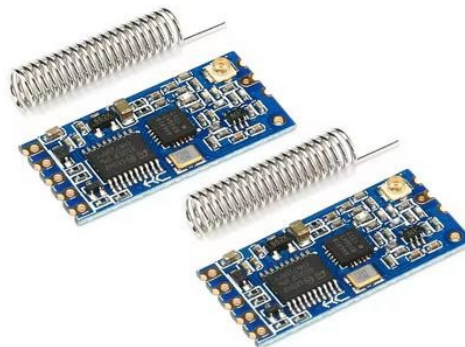
1 x STM32F103C8 (Blue pill)

https://nl.aliexpress.com/item/1005007038075949.html?spm=a2g0o.productlist.main.1.7655uuW4uuW4jB&algo_pvid=7e482b87-cb27-4ed9-b6e6-155786b9d74c&algo_exp_id=7e482b87-cb27-4ed9-b6e6-155786b9d74c-6&pdp_ext_f=%7B%22order%22%3A%225044%22%2C%22eval%22%3A%221%22%2C%22orig_sl_item_id%22%3A%221005007038075949%22%2C%22orig_item_id%22%3A%221005008843849127%22%7D&pdp_npi=4%40dis%21EUR%214.48%212.15%21%21%2136.23%2117.39%21%40211b619a17500114821651843e6910%212000039180125350%21sea%21BE%210%21ABX&curPageLogUid=O4Tu1liK9FpB&utparam-url=scene%3Asearch%7Cquery_from%3A



1 x HC-12 draadloze seriële poort

https://nl.aliexpress.com/item/1005001697795335.html?spm=a2g0o.productlist.main.1.2641222dNyF07h&algo_pvid=5d920f52-a0b2-48ae-af1a-96b74a46ce99&algo_exp_id=5d920f52-a0b2-48ae-af1a-96b74a46ce99-0&pdp_ext_f=%7B%22order%22%3A%22103%22%2C%22eval%22%3A%221%22%7D&pdp_npi=4%40dis%21EUR%215.05%214.09%21%21%215.70%214.62%21%402103894417500116947887458eac03%2112000038923507280%21sea%21BE%210%21ABX&curPageLogUid=A1wumWJ0nArt&utparam-url=scene%3Asearch%7Cquery_from%3A



1 x BC547

1 x R 2K2

1 x R 1K

3 x R 10K

1 x kabel met plug RJ12

1 x LED groen

1 x LED rood

Verbindingen

STM32F103C8

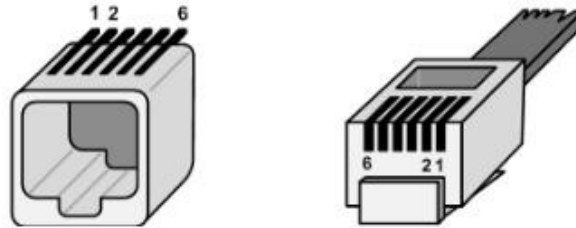
5V	<<	pin 1 RJ12
GND	<<	pin 3 RJ12 pin 6 RJ12
3.3V	>>	R 10K collector BC547
PA3 (RX2)	<<	collector BC547
PA10 (RX1)	<<	TX HC-12
PA9 (TX1)	>>	RX HC-12
PB1	>>	kathode LED rood CRC ERROR
PA7	>>	kathode LED groen CRC OK

PC13 onboard LED wisselt status telkens er een telegram gelezen wordt

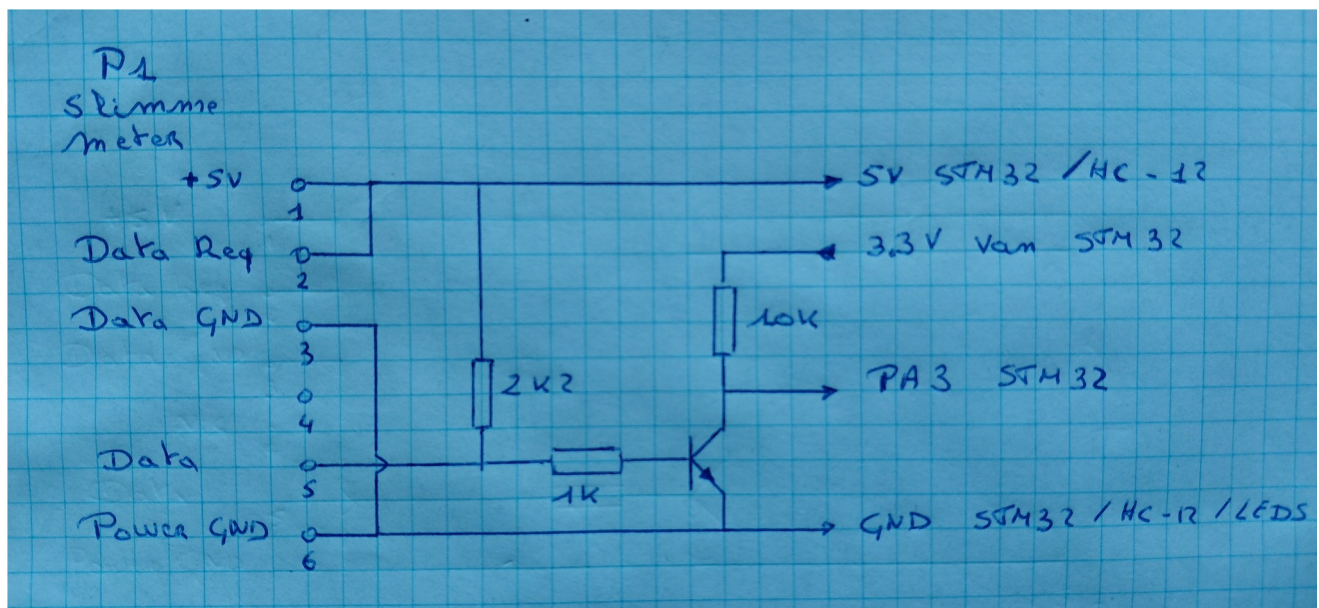
HC-12

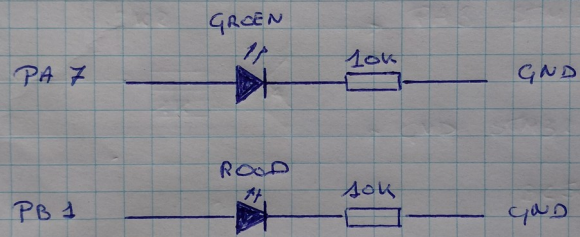
VCC	<<	pin 1 RJ12
GND	<< <<	pin 3 RJ12 pin 6 RJ12
RX	<<	PA9 STM32F103C8
TX	>>	PA10 STM32F103C8

RJ-12 plug



Pin #	Signal name	Description	Remark
1	+5V	+5V power supply	Power supply line
2	Data Request	Data Request	Input
3	Data GND	Data ground	
4	n.c.	Not connected	
5	Data	Data line	Output. Open collector
6	Power GND	Power ground	Power supply line





Ontvanger

Componenten

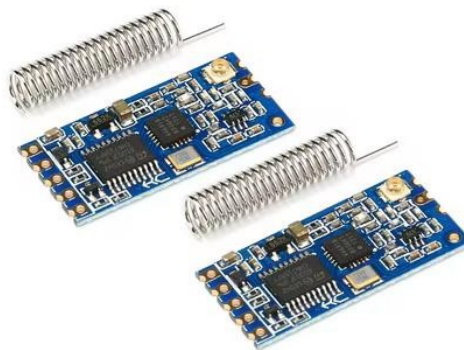
1 x STM32F103C8 (Blue pill)

https://nl.aliexpress.com/item/1005007038075949.html?spm=a2g0o.productlist.main.1.7655uuW4uuW4jB&algo_pvid=7e482b87-cb27-4ed9-b6e6-155786b9d74c&algo_exp_id=7e482b87-cb27-4ed9-b6e6-155786b9d74c-6&pdp_ext_f=%7B%22order%22%3A%225044%22%2C%22eval%22%3A%221%22%2C%22orig_sl_item_id%22%3A%221005007038075949%22%2C%22orig_item_id%22%3A%221005008843849127%22%7D&pdp_npi=4%40dis%21EUR%214.48%212.15%21%21%2136.23%2117.39%21%40211b619a17500114821651843e6910%2112000039180125350%21sea%21BE%210%21ABX&curPageLogUid=O4Tu1liK9FpB&utparam-url=scene%3Asearch%7Cquery_from%3A



1 x HC-12 draadloze seriële poort

https://nl.aliexpress.com/item/1005001697795335.html?spm=a2g0o.productlist.main.1.2641222dNyF07h&algo_pvid=5d920f52-a0b2-48ae-af1a-96b74a46ce99&algo_exp_id=5d920f52-a0b2-48ae-af1a-96b74a46ce99-0&pdp_ext_f=%7B%22order%22%3A%22103%22%2C%22eval%22%3A%221%22%7D&pdp_npi=4%40dis%21EUR%215.05%214.09%21%21%215.70%214.62%21%402103894417500116947887458eac03%2112000038923507280%21sea%21BE%210%21ABX&curPageLogUid=A1wumWJ0nArt&utparam-url=scene%3Asearch%7Cquery_from%3A



1 x BC547

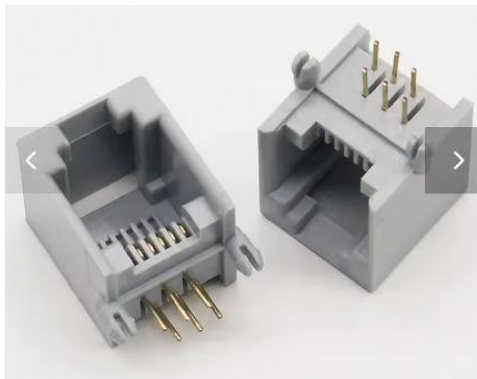
1 x R 1K

2 x R 10K

1 x RJ12 vrouwelijke connector

[https://nl.aliexpress.com/item/32874855770.html?](https://nl.aliexpress.com/item/32874855770.html?spm=a2g0o.productlist.main.2.4dec5b41yd6pxQ&algo_pvid=c8d6f336-c9b6-4051-a93c-745a55000f66&algo_exp_id=c8d6f336-c9b6-4051-a93c-745a55000f66-1&pdp_ext_f=%7B%22order%22%3A%22151%22%2C%22eval%22%3A%221%22%7D&pdp_npi=4%40dis%21EUR%211.75%211.31%21%21%211.97%211.47%21%402103890117500124398205257ee683%2165526330517%21sea%21BE%210%21ABX&curPageLogUid=z4ltoW1dR9MK&utparam-url=scene%3Asearch%7Cquery_from%3A)

[spm=a2g0o.productlist.main.2.4dec5b41yd6pxQ&algo_pvid=c8d6f336-c9b6-4051-a93c-745a55000f66&algo_exp_id=c8d6f336-c9b6-4051-a93c-745a55000f66-1&pdp_ext_f=%7B%22order%22%3A%22151%22%2C%22eval%22%3A%221%22%7D&pdp_npi=4%40dis%21EUR%211.75%211.31%21%21%211.97%211.47%21%402103890117500124398205257ee683%2165526330517%21sea%21BE%210%21ABX&curPageLogUid=z4ltoW1dR9MK&utparam-url=scene%3Asearch%7Cquery_from%3A](https://nl.aliexpress.com/item/32874855770.html?spm=a2g0o.productlist.main.2.4dec5b41yd6pxQ&algo_pvid=c8d6f336-c9b6-4051-a93c-745a55000f66&algo_exp_id=c8d6f336-c9b6-4051-a93c-745a55000f66-1&pdp_ext_f=%7B%22order%22%3A%22151%22%2C%22eval%22%3A%221%22%7D&pdp_npi=4%40dis%21EUR%211.75%211.31%21%21%211.97%211.47%21%402103890117500124398205257ee683%2165526330517%21sea%21BE%210%21ABX&curPageLogUid=z4ltoW1dR9MK&utparam-url=scene%3Asearch%7Cquery_from%3A)



1 x LED groen

1 x LED rood

1 x 5V Power Supply

Verbindingen

STM32F103C8

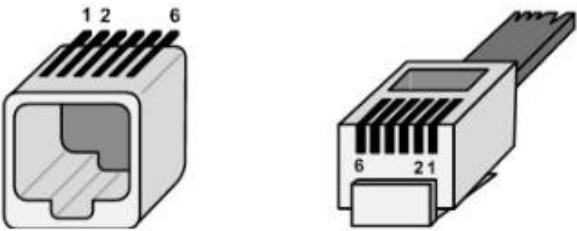
5V	<<	5Volt Power supply
GND	<<	GND Power supplu
PA9	>>	RX HC-12
PA10	>>	TX HC-12
PB12	>>	pin 2 RJ12 connector
PB10	>>	R 1K basis BC547
PB1	>>	kathode LED rood CRC ERROR
PA7	>>	kathode LED groen CRC OK

PC13 onboard LED wisselt status telkens er een telegram gelezen wordt

HC-12

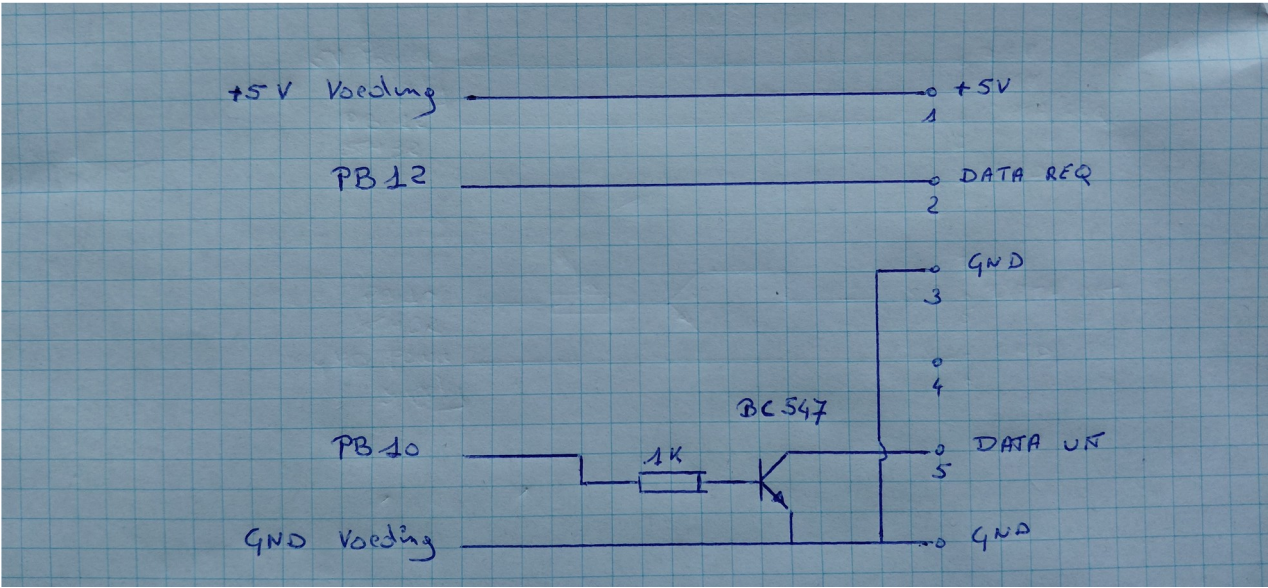
VCC	<<	5V Power supply
GND	<<	GND Power Supply
TXD	<<	PA10 STM32F103C8
RXD	<<	PA9 STM32F103C8

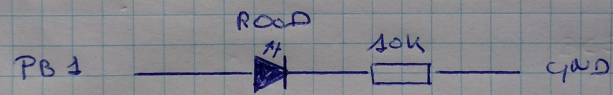
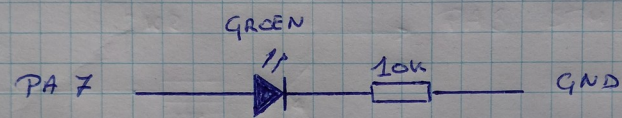
RJ-12



Pin #	Signal name	Description	Remark
1	+5V	+5V power supply	Power supply line
2	Data Request	Data Request	Input
3	Data GND	Data ground	
4	n.c.	Not connected	
5	Data	Data line	Output. Open collector
6	Power GND	Power ground	Power supply line

RJ-12 uitgang





Programmeren STM32F103C8

1 x ST-LINK V2

[https://nl.aliexpress.com/item/1005007038075949.html?
spm=a2g0o.productlist.main.1.7655uuW4uuW4jB&algo_pvid=7e482b87-cb27-4ed9-b6e6-
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%22order%22%3A%225044%22%2C%22eval%22%3A%221%22%2C%22orig_sl_item_id
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%214.48%212.15%21%21%2136.23%2117.39%21%40211b619a17500114821651843e6910%211
2000039180125350%21sea%21BE%210%21ABX&curPageLogUid=O4Tu1liK9FpB&utparam-
url=scene%3Asearch%7Cquery_from%3A](https://nl.aliexpress.com/item/1005007038075949.html?spm=a2g0o.productlist.main.1.7655uuW4uuW4jB&algo_pvid=7e482b87-cb27-4ed9-b6e6-155786b9d74c&algo_exp_id=7e482b87-cb27-4ed9-b6e6-155786b9d74c-6&pdp_ext_f=%7B%22order%22%3A%225044%22%2C%22eval%22%3A%221%22%2C%22orig_sl_item_id%22%3A%221005007038075949%22%2C%22orig_item_id%22%3A%221005008843849127%22%7D&pdp_npi=4%40dis%21EUR%214.48%212.15%21%21%2136.23%2117.39%21%40211b619a17500114821651843e6910%2112000039180125350%21sea%21BE%210%21ABX&curPageLogUid=O4Tu1liK9FpB&utparam-url=scene%3Asearch%7Cquery_from%3A)



HC-12

Settings

Baudrate 9600

AT+B9600

Kanaal > kies een kanaal van 0 t.e.m 100
ingeven in 3 cijfers

AT+C025

Mode FU1

AT+FU1


Power zelf uitproberen welk het meest geschikt is

Hier maximum

AT+P8

Opvragen ingestelde waarden

AT+RX



OK+B9600
OK+RC025
OK+RP: +20dBm
OK+FU1

Alles over de HC-12 module vind je hier

<https://github.com/robert-rozee/HC-12-user-manual---reformatted/blob/master/HC-12%20v2.3C.pdf>

De programma's

P1_HC12 Ontvanger.ino

P1_HC12 Zender.ino

zijn geschreven met behulp van de Arduino IDE

Bij gebruik Arduino IDE 1.8.19 is het uploaden van de programma's naar de STM32F103C8 met behulp van de Arduino IDE niet mogelijk.

Voor meer uitleg

<https://forum.arduino.cc/t/ide1-8-19-st-link-stm32f103c8-cant-upload/1308454>

Bij Linux Mint vind je de

P1_HC12 Ontvanger.ino.bin

P1_HC12 Zender.ino.bin

files in de folder /tmp/arduino_build_XXXXXX

je kan ook de .bin files in de bin folder gebruiken.

Deze files kan je met behulp van de STM32CubeProgrammer en de ST-LINK naar de STM32 uploaden.

<https://www.st.com/en/development-tools/stm32cubeprog.html>

Veel succes en groeten,

thieu-b55

juni 2025