EN

Build manual for breakout board

RFLink Pro V1.1

The kit for the breakout board type RFLink includes all the parts needed to build a RFLink breakout board.

Build manual:

This kit is very easy to assemble; with a little soldering experience everybody can assemble this kit!

For some soldering tips and tricks take a look at this page:

http://www.aaroncake.net/electronics/solder.htm

Tools required:

- Soldering iron (with fine tip)
- Solder for electronics (so no solder, solder paste S39 used by e.g. plumbers!)
- Wire cutters

Components:

The kit consists of the following components:

- RFLink Pro PCB, already equipped with a range of SMD components
- Aurel transceiver
- ESP32-C3 Super Mini (optional)
- SMA connector
- 16 x 2 pin female header
- 3 x 2 pin female header

You will need an Arduino Mega Pro 2560 board (available from our shop) to use this kit.

This should be fully assembled with male headers.

RFLink Pro Assembly:

The Assembly of this kit is described step by step so no parts are forgotten.
Advice: read the entire guide before you assemble the kit.

4 x 2 pin female header:

Place the 4 pin female header on the top of the PCB.
Keep the female header in place with your finger, turn over the PCB and solder the 8 pins.

SMA connector:

Place the SMA antenna connector (gold colored) in the correct position on the top of the print. Keep with a finger the connector in place and turn the print over. Now solder the center pin of the SMA connector. Check the position and solder the remaining 4 pins of the SMA connector. It takes a while before the connector and the print (GND plane) are hot enough for the solder to flow

Aurel Transceiver (combined transmitter/receiver):

The transceiver is a sensitive and fragile component, so be very careful with it. Place the transceiver in the position as shown on the print, it will fit only in one way. Make sure the transceiver is in the upright position and solder the pins on the bottom and cut the remaining part. Because the transceiver is a very heat sensitive don't keep the soldering iron to long in one place. Let the PCB cool a bit in between the soldering of the transceiver pins. To ensure that the shielding works well, it is important that the transceiver makes good contact with the PCB.

Female headers:

Insert the headers onto the Arduino Mega Pro male headers as shown in the picture on the first page. The short end up ready for the RFLink Pro.

The RFLink Pro should now be installed on top of the headers. If it won't fit make sure the headers are on the correct pins on the Arduino Mega Pro.

Solder the pins in place on the RFLink Pro. We suggest you start by soldering two pins, one at each end, then check the header is still flat and parallel to the board before soldering the other pins.

Firmware:

For questions about the hardware you can contact the Nodo-shop:

https://www.nodo-shop.nl/nl/contact-us

For questions about firmware and using the RFLink, see:
http://www.letscontrolit.com/
http://www.nemcon.nl/blog2/
https://www.domoticz.com/forum/
http://www.esp8266.nu/forum/

CE declaration of conformity:

The kit comes with a CE mark.
The CE mark will be void if the end user makes modifications to the breakout board type RFLink.

If the breakout board type RFLink is used in combination, for example, with an Arduino Mega 2560 (or compatible) board then the regulatory compliance for CE marking depends on the build quality, this is the end user's own responsibility.

Electrical Safety:
The Power supply for the breakout board type RFLink should be 5V DC. If the breakout board type RFLink is used in combination, for example, with an Arduino Mega 2560 (or compatible) board, then the board will automatically be provided with the required 5V DC.
Always use a power supply labeled with the CE mark.

EMC:
The end user is solely responsible for the applicable EMC standards as the product comes without any shielding. The user will have to accept that if the composite product is used without shielding, then influencing signals can occur. (insufficient immunity)
If the composite product causes interference its use should be discontinued immediately, and the supplier should be contacted.
Electromagnetic compatibility depends mainly on the used housing and the way it is built into the housing.

(07) Declaration of Conformity

Declaration of Conformity

We, the undersigned,

Company	*Wijbenga Automatisering*
Address, City	*Hendrik Hoogersstraat 14, 6524 AB Nijmegen*
Country	*Netherlands*
Phone number	*+31 (0) 24 388 00 94*
Fax number	

certify and declare under our sole responsibility that the following equipment:

Product description / Intended use:	
Manufacturer	*Wijbenga Automatisering*
Brand	*Wijbenga Automatisering*
Type	*Assembly kit breakout board type RFLink V1.1.x*
EU / EFTA member states intended for use	**EU**: all countries **EFTA**: all countries
Member states with restrictive use	*none*

Presumption of compliance has been achieved based on the following ***List of R&TTE Harmonised Standards:***

R&TTE Harmonised Standard	**Description**
EN 60950 : 2006	Safety of information technology equipment, includine electrical business equipment.
EN 301 489-1 V1.9.2 EN 301 489-3 V1.6.1	Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic compatibility (EMC) standard for radio equipment and services; Part3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 40 GHz.
EN 300 220-2 V2.4.1	Electromagnetic compatibility and Radio spectrum Matters (ERM); Short-Range Devices (SRD); Radio equipment to be used in the 25 MHz to 1000 MHz frequency range with power levels ranging up to 500 mW; Part 2: Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive.

and therefore complies with the essential requirements and provisions of the **Directive 1999/5/EC** of the European Parliament and of the council of March 9, 1999 on Radio equipment and Telecommunications Terminal Equipment and the mutual recognition of their conformity and with the provisions of Annex IV (Conformity Assessment procedure referred to in article 10).
The following Notified Body has been consulted in the Conformity Assessment procedure:

Notified Body number	Name and address
1856	TÜV Rheinland Nederland B.V., PO Box 37, 9350 AA Leek, The Netherlands

The technical documentation as required by the Conformity Assessment procedure is kept at the following address:

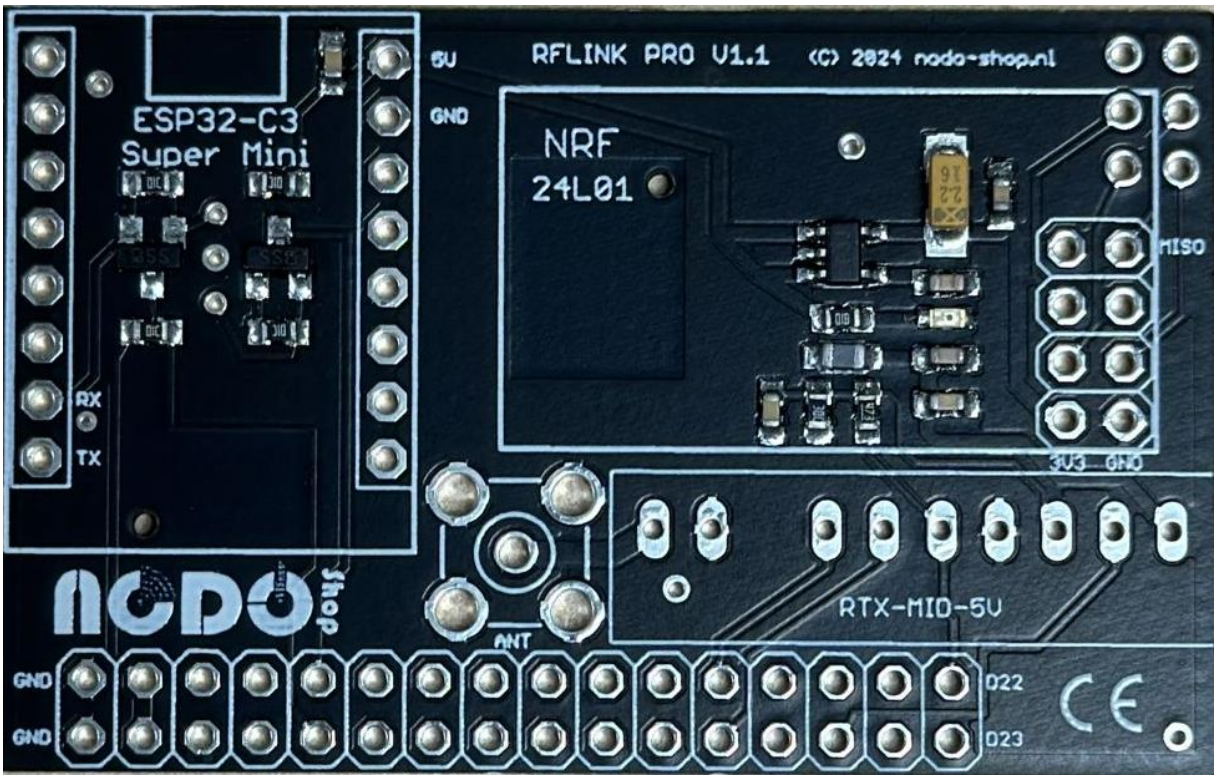
Company	*Wijbenga Automatisering*
Address, City	*Hendrik Hoogersstraat 14, 6524 AB Nijmegen*
Country	*Netherlands*
Phone number	*+31 (0) 24 388 00 94*
Fax number	

CE

TCF/TF reference nr.	*WACE001*
Drawn up in	*Nijmegen Netherlands*
Date	*11-11-2015*
	
Name and position	*R. Wijbenga*

NL

Bouwhandleiding voor RFLink V1.1



Het bouwpakket voor de breakout board type RFLink bevat alle benodigde onderdelen om de RFLink breakout board te bouwen.

Bouwhandleiding:

Solderen:
De print is ook door een niet ervaren “solderist” in elkaar te zetten, voor degene die nog nooit gesoldeerd hebben, of weinig ervaring hebben met het solderen van elektronica, verwijzen we graag naar:
http://www.budgetronics.eu/data/mediablocks/budgetronics%20handleiding%20solderen.pdf
Op deze site vind je een gratis ebook dat je leert hoe te solderen.

Benodigd gereedschap:
- Soldeerbout (bij voorkeur met dunne stift)
- Soldeer voor elektronica (dus geen soldeer, S39 soldeerpasta e.d., dat gebruikt wordt door b.v. loodgieters !)
- Kniptangetje

Componenten:
De set bestaat uit de volgende componenten:
- RF-link pcb, al voorzien van diverse SMD componenten
- Aurel transceiver (optioneel)
- SMA connector
- 8 x 1 polige female header
- 16 x 2 polige female header

Om deze kit te gebruiken, heb je een Arduino Mega Pro-bord nodig (verkrijgbaar in onze winkel).

Deze moet volledig worden gemonteerd met vrouwelijke headers.

Montage:

De montage is stapsgewijs beschreven zodat niets vergeten kan worden.
Advies: lees eerst het item door voordat je het component monteert.

SMA connector:
Plaats de SMA antenne connector (goud kleurig) in de juiste positie op de bovenkant van de print. Houd met een vinger de connector op z’n plaats en draai de print om. Soldeer nu de middelste pin van de connector vast. Hierna kun je de 4 hoekpunten van de connector vastsolderen. Het duurt even voordat de connector en de print (GND vlak) warm genoeg zijn om het soldeer goed te laten vloeien (veel massa). Pas op dat je de print niet beschadigd door hem te laten verbranden!

Transceiver (gecombineerde zender / ontvanger):
De transceiver is een gevoelig en teer component, dus wees daar ook voorzichtig mee. Plaats de transceiver op de positie zoals aangegeven op de print, deze past maar op een manier. Zorg dat de transceiver netjes rechtop staat en soldeer de pinnen aan de onderkant vast en knip deze af. Omdat de transceiver erg gevoelig is moet je dus niet te lang de soldeerbout op 1 plaats houden.

Om er zeker van te zijn dat de afscherming goed werkt is het belangrijk dat de transceiver goed contact maakt met de massa van de print, dit gebeurt al bij het solderen van de pinnen aan de onderkant, maar het is ook verstandig om de massa pinnen aan de bovenkant vast te solderen. Hiervoor kun je het beste de print zodanig neer te leggen dat de transceiver met de achterkant (zijde zonder componenten) naar je toe wijst. Soldeer, van links naar rechts gezien, pin4 en 8 (beide massa) en pin 9 (antenne) vast. Je mag natuurlijk ook alle pinnen doen.

Female headers:

Plaats de male headers in de Arduino Mega Pro 2560 zoals weergegeven in de afbeelding op de eerste pagina. Het lange uiteinde van de pinnen gaat in de vrouwelijke headers, het korte uiteinde is klaar voor de RFLink Pro.

De RFLink Pro zou nu bovenop de headers moeten worden geïnstalleerd. Als het niet past, zorg er dan voor dat de headers in de juiste gaten op de Arduino Mega Pro zitten.

Soldeer de pinnen op hun plaats op de RFLink Pro. We raden u aan om te beginnen met het solderen van twee pinnen, één aan elk uiteinde, en vervolgens te controleren of de header nog steeds plat en evenwijdig aan het bord is voordat u de andere pinnen soldeert.

Soft- / Firmware:

De Nodo-shop c.q. Wijbenga Automatisering levert geen soft- c.q. firmware voor het gebruik van de RFLink breakout board.

Voor vragen over de montage kun je terecht bij de Nodo-shop:
https://www.nodo-shop.nl/nl/contact-us

Voor vragen over het gebruik van de RF-link kun je terecht op:
http://www.letscontrolit.com/
http://www.nemcon.nl/blog2/
https://www.domoticz.com/forum/
http://www.esp8266.nu/forum/

CE-conformiteitsverklaring:

Het bouwpakket is voorzien van een CE markering.

De CE-markering vervalt indien de gebruiker zelf modificaties aanbrengt aan de RFLink breakout board.

Indien de RFLink breakout board gebruikt wordt i.c.m. b.v. een Arduino Mega 2560 (of compatible) dan hangt de conformiteit met de regelgeving voor CE markering van de (in)bouwkwaliteit af, de gebruiker is hier zelf verantwoordelijk voor.

Elektrische veiligheid:
De voeding voor de RFLink breakbout board moet 5V DC zijn. Indien de breakout board gebruikt wordt i.c.m. b.v. een Arduino Mega 2560 (of compatible) dan is het board automatisch voorzien van de benodigde 5V.
Gebruik altijd een voeding voorzien van het CE keurmerk.

EMC:
De gebruiker is zelf verantwoordelijk voor de geldende EMC normen.
Elektromagnetische straling hangt vooral af van de gebruikte behuizing en inbouwkwaliteit.

(07) Declaration of Conformity

Declaration of Conformity

We, the undersigned,

Company	*Wijbenga Automatisering*
Address, City	*Hendrik Hoogersstraat 14, 6524 AB Nijmegen*
Country	*Netherlands*
Phone number	*+31 (0) 24 388 00 94*
Fax number	

certify and declare under our sole responsibility that the following equipment:

Product description / Intended use:	
Manufacturer	*Wijbenga Automatisering*
Brand	*Wijbenga Automatisering*
Type	*Assembly kit breakout board type RFLink V1.1.x*
EU / EFTA member states intended for use	**EU**: all countries **EFTA**: all countries
Member states with restrictive use	*none*

Presumption of compliance has been achieved based on the following ***List of R&TTE Harmonised Standards:***

R&TTE Harmonised Standard	**Description**
EN 60950 : 2006	Safety of information technology equipment, includine electrical business equipment.
EN 301 489-1 V1.9.2 EN 301 489-3 V1.6.1	Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic compatibility (EMC) standard for radio equipment and services; Part3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 40 GHz.
EN 300 220-2 V2.4.1	Electromagnetic compatibility and Radio spectrum Matters (ERM); Short-Range Devices (SRD); Radio equipment to be used in the 25 MHz to 1000 MHz frequency range with power levels ranging up to 500 mW; Part 2: Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive.

and therefore complies with the essential requirements and provisions of the **Directive 1999/5/EC** of the European Parliament and of the council of March 9, 1999 on Radio equipment and Telecommunications Terminal Equipment and the mutual recognition of their conformity and with the provisions of Annex IV (Conformity Assessment procedure referred to in article 10).
The following Notified Body has been consulted in the Conformity Assessment procedure:

Notified Body number	Name and address
1856	TÜV Rheinland Nederland B.V., PO Box 37, 9350 AA Leek, The Netherlands

The technical documentation as required by the Conformity Assessment procedure is kept at the following address:

Company	*Wijbenga Automatisering*
Address, City	*Hendrik Hoogersstraat 14, 6524 AB Nijmegen*
Country	*Netherlands*
Phone number	*+31 (0) 24 388 00 94*
Fax number	

CE

TCF/TF reference nr.	*WACE001*
Drawn up in	*Nijmegen Netherlands*
Date	*11-11-2015*
	
Name and position	*R. Wijbenga*

AUR°EL

DICHIARAZIONE DI CONFORMITÀ - EC DECLARATION OF CONFORMITY

Il sottoscritto rappresentante il seguente costruttore / *The undersigned, representing the following* **manufacturer.**

Costruttore (o suo Rappresentante Autorizzato) : *Manufacturer (or his authorized Representative) :*	**AUR°EL S.p.A.**
Indirizzo : *Address :*	**Via Foro dei Tigli, 4 – 47015 Modigliana (FC) - ITALY**

dichiara qui di seguito che il prodotto / *herewith declares that the product*

Identificazione del prodotto : **RTX MID 5V**
Product identification :

risulta in conformità a quanto previsto dalla seguente direttiva comunitaria *(comprese tutte le modifiche applicabili)* / ***is in conformity with the provisions of the following EC directive(s) (including all applicable amendments)***

Rif. n° / *Ref. n°*	Titolo / *Title* :
99/5/CE	Direttiva riguardante le apparecchiature radio e le apparecchiature terminali di telecomunicazione e il reciproco riconoscimento della loro conformità ***Directive on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity***

e che sono state applicate tutte le norme tecniche sottoindicate / ***and that the standards referenced here below:***

Norme armonizzate *Harmonized std.*	Titolo : *Title :*
EN 301 489-3: (2002-08)	Compatibilità elettromagnetica e questioni relative allo spettro delle radiofrequenze (ERM); norma di compatibilità elettromagnetica (EMC) per apparecchiature e servizi radio. Parte 3: Condizioni specifiche per dispositivi a breve portata (SRD) operanti su frequenze tra 9 kHz e 40 GHz. ***Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic compatibility (EMC) standard for radio equipment and services; Part3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 40 GHz.***
EN 300 220-2: (2012-05)	Compatibilità elettromagnetica e spettro radio (ERM); apparecchiature per comunicazioni a corto raggio (SRD); apparati radio operanti nella banda di frequenza da 25 MHz a 1000 MHz con livelli di potenza fino a 500 mW. Parte 2: Norma europea armonizzata relativa ai requisiti essenziali di cui all'articolo 3.2 della direttiva R&TTE. ***Electromagnetic compatibility and Radio spectrum Matters (ERM); Short-Range Devices (SRD); Radio equipment to be used in the 25 MHz to 1000 MHz frequency range with power levels ranging up to 500 mW; Part 2: Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive.***
EN 60950 : 2006	Sicurezza delle apparecchiature per la tecnologia dell'informazione comprese le apparecchiature elettriche per ufficio. ***Safety of information technology equipment, includine electrical business equipment.***

È conforme alla serie di prove radio essenziali e specifiche della categoria delle apparecchiature radio individuate dalle Norme armonizzate applicate.
Is in conformity with all essential and specific radio test suites for that radio equipment category identified by the above referenced harmonized standards.

Modigliana (luogo / *place*), _____*28-09-2012*_____ (data / ***date***)

Dott. Franco Perugini – Technical Manager _____ (firma / ***signature***)

Nome e funzione della persona incaricata di firmare per conto del costruttore o suo rappresentante autorizzato
Name and function of the signatory empowered to bind the manufacturer or his authorized representative

AUREL S.p.A. • Via Foro dei Tigli, 4 • I 47015 Modigliana (FC) Italy • Phone : +39-0546941124 • Fax : +39-0546941660 • http://www.aurel.it