

QCCAN SYN115, SYN480R

QCCAN 433MHz Wireless Transmitter and Receiver Module (SYN115/SYN480R) Instruction Manual

INTRODUCTION

This manual provides detailed instructions for the QCCAN 433MHz Wireless Transmitter (SYN115) and Receiver (SYN480R) modules. These modules are designed for various wireless communication applications requiring Amplitude Shift Keying (ASK) or On-Off Keying (OOK) modulation. Understanding the specifications and proper usage is crucial for optimal performance.

SAFETY INFORMATION

Caution: These modules contain small electronic components. Handle with care to avoid damage from electrostatic discharge. Keep away from children. Do not apply voltages exceeding the specified limits.

PRODUCT OVERVIEW

The QCCAN 433MHz wireless communication set includes a SYN115 transmitter module and a SYN480R receiver module. Both modules operate at 433MHz and are suitable for short-range wireless data transmission.

SYN115 Transmitter Module

The SYN115 is a single-chip ASK transmitter designed for 300-450MHz radio frequency remote control applications. It offers high performance and ease of use for ASK/OOK modulation.

- On-board single-chip ASK transmitter chip SYN115/F115.
- Supply voltage: 1.8V - 3.6V.
- Transmitting frequency: 433MHz.
- Output power: <10dBm.
- Transfer rate: <10kbps.

F115 wireless transmitter module

DAY pin ASK data input pin, VCC 1.8V-3.6V

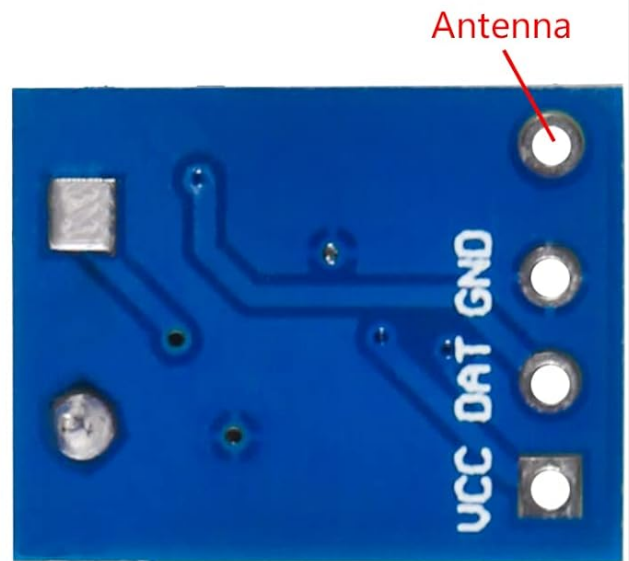
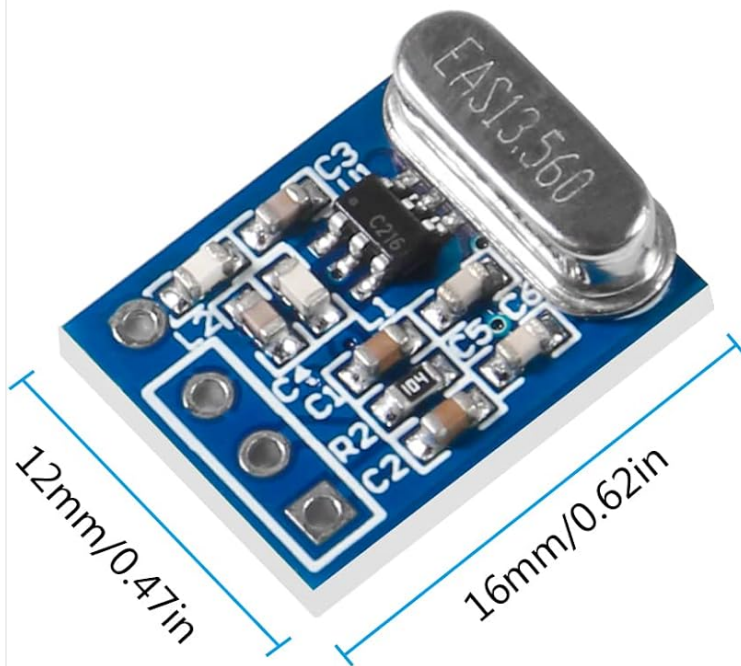


Image: SYN115 F115 Wireless Transmitter Module with its pinout (DAY pin for ASK data input, VCC 1.8V-3.6V, GND, and Antenna connection).

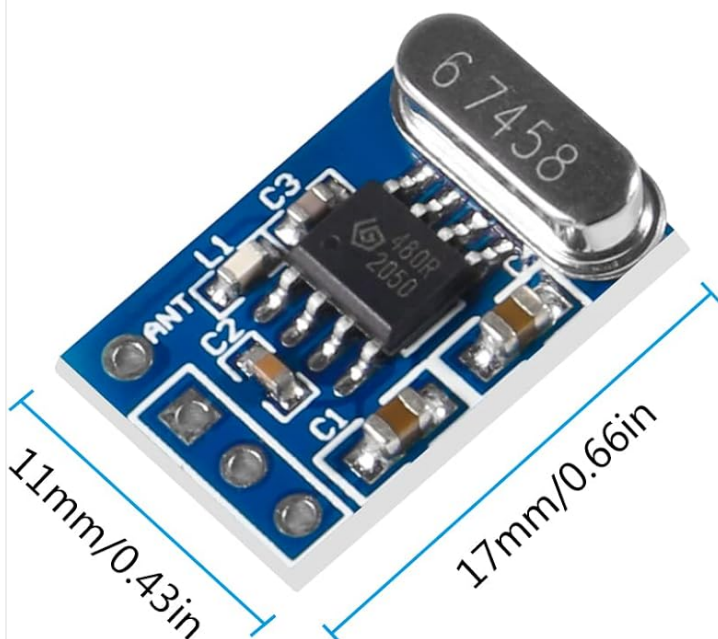
SYN480R Receiver Module

The SYN480R is a single-chip wireless ASK/OOK receiver primarily used in radio frequency remote control systems.

- On-board single-chip wireless SYN480R ASK/OOK receiver chip.
- Supply voltage: 3.3V - 5.5V.
- Receiving frequency: 433MHz.
- Receiver sensitivity: -107dBm.
- Transfer rate: 2.5kbps (SWP), 10kbps (FIXED).

SYN480R wireless receiver module

DAT pin Digital signal output pin, VCC 3.3-5.5V



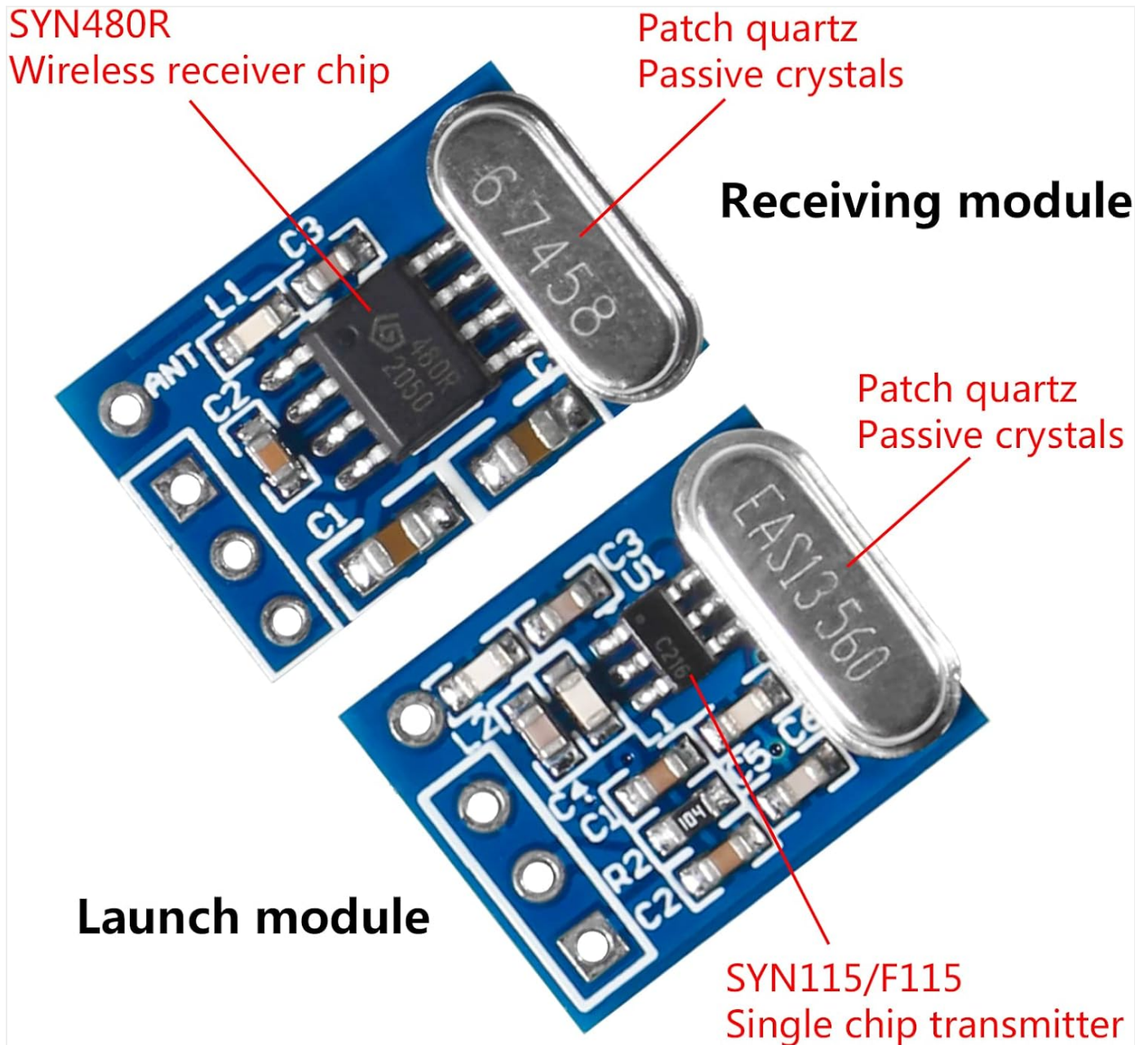


Image: Overview of the SYN480R receiving module and SYN115 launch module, highlighting key components like the SYN480R wireless receiver chip, SYN115/F115 single chip transmitter, and passive crystals.

SETUP

Proper setup is essential for reliable wireless communication. Ensure all connections are secure and power supplies are within the specified voltage ranges.

1. **Antenna Connection:** Solder a 17cm (approximately 1/4 wavelength for 433MHz) wire to the 'ANT' pad on both the transmitter and receiver modules. This antenna length is critical for optimal range and performance.
2. **Power Supply:**
 - For the SYN115 Transmitter: Connect VCC to a 1.8V-3.6V DC power source and GND to ground.
 - For the SYN480R Receiver: Connect VCC to a 3.3V-5.5V DC power source and GND to ground.
3. **Data Connection:**
 - For the SYN115 Transmitter: Connect your data input signal (e.g., from a microcontroller) to the 'DAY' pin. This

pin accepts the ASK data stream.

- For the SYN480R Receiver: The 'DAT' pin will output the received digital data signal. Connect this to your receiving device (e.g., a microcontroller's input pin).

4. **Integration:** Integrate the modules with your microcontroller or other digital logic circuits, ensuring proper signal levels and timing for data transmission and reception.

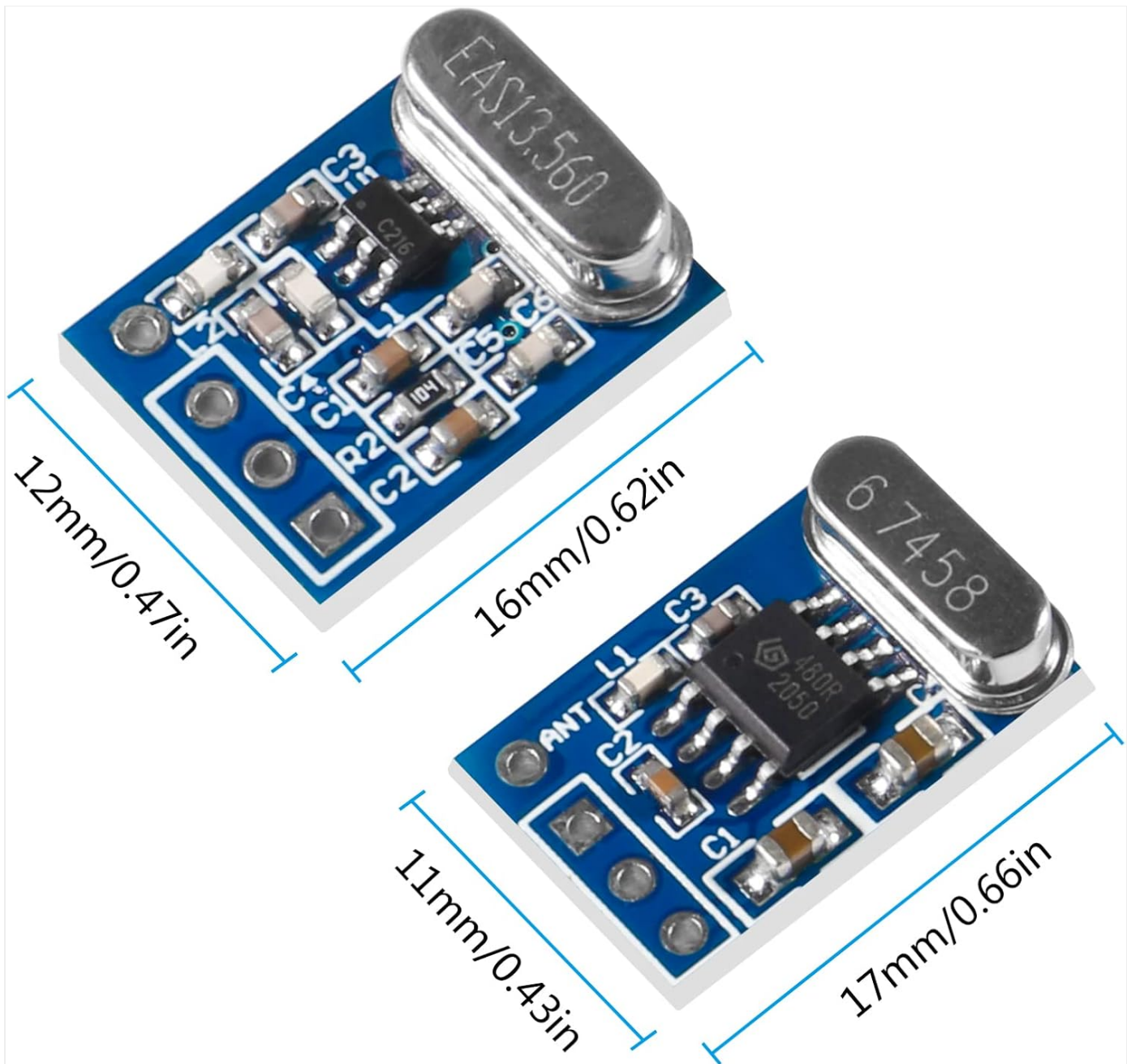


Image: Dimensions of the SYN115 transmitter module (12mm x 16mm) and SYN480R receiver module (11mm x 17mm), useful for PCB layout and enclosure design.

OPERATING PRINCIPLES

These modules utilize Amplitude Shift Keying (ASK) or On-Off Keying (OOK) modulation for wireless data transmission at 433MHz. In OOK, the carrier wave is simply turned on or off to represent binary 1s and 0s. ASK is a form of amplitude modulation where the amplitude of the carrier wave is varied to represent digital data.

- The transmitter module takes a digital data stream and modulates it onto the 433MHz carrier frequency.
- The receiver module detects the modulated 433MHz signal, demodulates it, and outputs the original digital data stream.

- Effective communication depends on clear line-of-sight, proper antenna tuning, and minimal interference from other 433MHz devices.

MAINTENANCE

These modules are designed for long-term operation with minimal maintenance. Follow these guidelines to ensure continued performance:

- **Environmental Conditions:** Operate the modules within their specified temperature and humidity ranges. Avoid exposure to extreme temperatures, moisture, or corrosive environments.
- **Cleaning:** If necessary, gently clean the module surfaces with a dry, soft cloth. Do not use liquid cleaners or solvents.
- **Connections:** Periodically inspect solder joints and wire connections for any signs of corrosion or loosening.
- **Antenna Integrity:** Ensure the antenna wire remains intact and properly connected. A damaged or improperly sized antenna can significantly reduce performance.

TROUBLESHOOTING

If you encounter issues with your wireless modules, consider the following troubleshooting steps:

- **No Communication:**
 - Verify power supply voltages are correct for both transmitter and receiver.
 - Check all wiring connections, especially data and antenna connections.
 - Ensure the antenna length is approximately 17cm for 433MHz.
 - Confirm that the data format and baud rate used by your microcontroller match the module's capabilities.
 - Test modules individually if possible (e.g., use a known working transmitter with your receiver, or vice versa).
- **Poor Range/Intermittent Data:**
 - Improve antenna placement; ensure it is straight and away from metal objects.
 - Reduce interference by moving away from other electronic devices or sources of electromagnetic noise.
 - Ensure power supplies are stable and free of ripple.
 - Consider adding decoupling capacitors near the VCC pins of the modules.
- **Software Compatibility:** If using with a microcontroller platform like Arduino, ensure you are using a compatible library (e.g., RadioHead RH_ASK library) and that your code correctly initializes and interacts with the module pins. Incorrect library usage or pin assignments can lead to communication failure.

SPECIFICATIONS

Feature	SYN115 Transmitter	SYN480R Receiver
Chip	SYN115/F115	SYN480R
Modulation Type	ASK/OOK	ASK/OOK
Operating Frequency	433MHz	433MHz
Supply Voltage (VCC)	1.8V - 3.6V	3.3V - 5.5V
Output Power	<10dBm	N/A

Feature	SYN115 Transmitter	SYN480R Receiver
Receiver Sensitivity	N/A	-107dBm
Transfer Rate	<10kbps	2.5kbps (SWP), 10kbps (FIXED)
Dimensions (approx.)	12mm x 16mm	11mm x 17mm
Connectivity Technology	Radio Frequency	
Item Weight	Approximately 0.01 Kilograms (for the set)	

WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the seller's policies on the platform where the product was purchased. Typically, electronic components come with a limited warranty against manufacturing defects. For specific technical inquiries or assistance with integration, consult online forums or communities dedicated to electronics and wireless communication, as detailed product-specific support may vary.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question