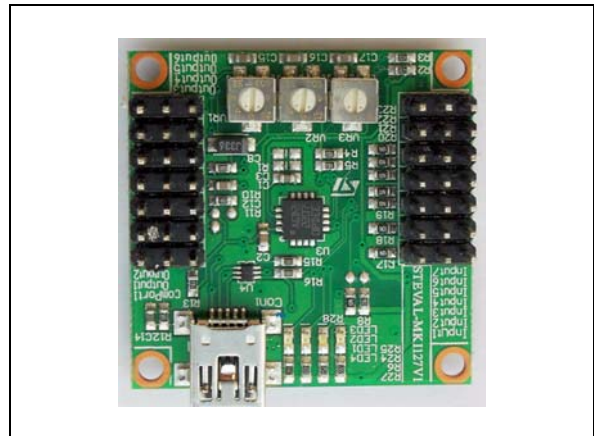




### Features

- USB / PC connection for setup and upgrade (USB and/or UART connection)
- Ultra stable over temperature and time
- Operational temperature: -30 °C to +85 °C
- ST L3GD20 MEMS rate sensor
- ARM Cortex-M3 processor for control and I/O
- UART connection for system developers
- Filters:
  - Low pass
  - High pass (programmable)
  - Kalman (programmable)
  - Rolling average (programmable)
- Control algorithm:
  - PID (proportional, integrative, differential)
  - All gain parameters programmable (+3 external pots)
- Input Tx/Rx matching:
  - Matching to any RC transmitter
  - Allows a low cost system with high end features
- Curves (input stick curves):
  - Many standard and also x4 use programmable
  - Good for aircraft control at low cost
- Mixing functions / trim:
  - Pitch into roll for “Wing” aircraft
  - Power in and out (for curve transformation)
  - Trim and range adjustments for fine tuning
- 3 PWM inputs and 6 outputs for control signals:
  - Pitch
  - Roll
  - Yaw
- 1 x UART for 16-bit raw X, Y, Z rate and 8-bit temperature digital data out and PC connection



- Highly programmable for multiple applications
- Variable input voltage (20 V to 5 V, or down to 3.3 V)
- LED displays to show gyro operation
- Factory calibrated
- Size, power and weight
  - 35 x 35 mm PCB
  - 45 mA during normal operation
  - Weight: 8.5 g
- RoHS compliant

### Application

- RC (radio controlled) airplane stabilization
- Multi-copter / UAV stabilization
- General robotics

# 1 Description

The STEVAL-MKI127V1 demonstration board represents an ultra stable 3-axis gyroscope application based on MEMS technology, offering high quality and performance at a low price. Utilizing ST's L3GD20 low-power 3-axis angular rate sensor and ARM Cortex-M3 processor, it offers users an unprecedented level of fine tuning/programming to meet the needs of professionals and hobbyists alike. It is ideal for any number of UAV, conventional aircraft, platform stabilization (such as camera mounts), or general robotics projects, as well as providing optimal performance for competitive RC airplane and recreational flying.

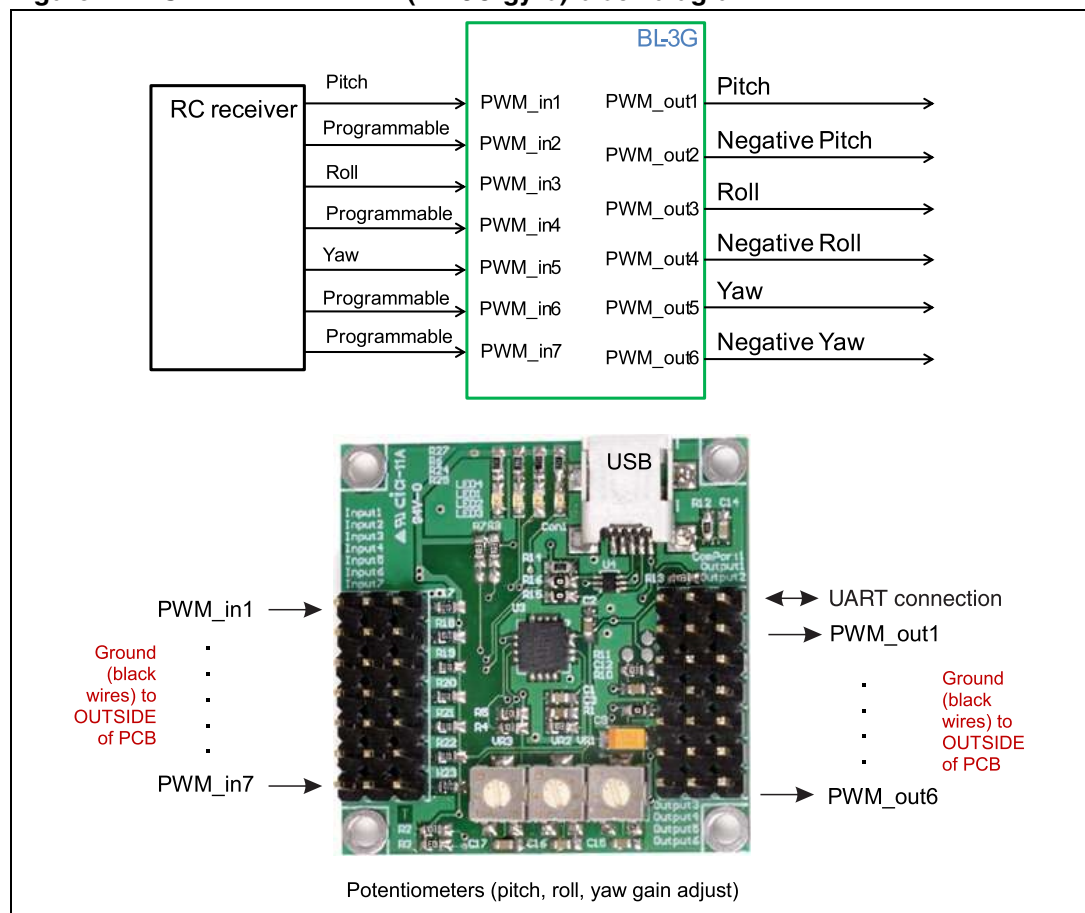
The STEVAL-MKI127V1 was designed by Bluelight Technologies Co. Ltd.

For the complete user manual and PC tools (intuitive, easy-to-use software for detailed user programming and graphical real-time data monitoring), download from:

<http://www.bluelight-tech.com/BL-3GMod.htm>

# 2 Block diagram

Figure 1. STEVAL-MKI127V1 (BL-3G gyro) block diagram



### 3 Revision history

**Table 1. Document revision history**

Date	Revision	Changes
03-Oct-2012	1	Initial release.

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