GY-25 tilt Module Manual V1.0

Pinout:
- Pin 1 VCC Power + (3v-5v)
- Pin 2 RX Receiving data from serial
- Pin 3 TX Serial data transmission
- Pin 4 GND Power Ground
- Pin 5 RST Internal use, no connection, vacant
- Pin 6 B0 Internal use, no connection, vacant
- Pin 7 SCL I2C clock
- Pin 8 SDA I2C data

Facts:
- Measuring range: -180 ° 1 °
- Resolution: 0.01 °
- Measurement accuracy: 1
- Repeatability: 1
- Frequency response: 100 HZ (115200bps)
- Operating Voltage: 35 V
- Working current: 15mA
- Operating temperature: -20 ° 8 °
- Storage temperature: -40 ° 1 °
- Size: 11.5mm × 15.5mm

Communication protocol:
- UART
  - Baud rate: 115200 bps Parity bit: N Data bits: 8 Stop bits: 1 (DEFAULT)
  - Baud rate: 9600 bps Parity bit: N Data bits: 8 Stop bits: 1

Note: The baud rate selection is operated by solder jumper, see below.
Output format:
each frame contains 8 bytes (hex):
①.Byte0: 0xAA  Preamble Flags
②.Byte1: 0x00-0xFF  HIGH heading high
③.Byte2: 0x00-0xFF  LOW heading lower
④.Byte3: 0x00-0xFF HIGH pitch angle
⑤.Byte4: 0x00-0xFF  LOW pitch angle
⑥.Byte5: 0x00-0xFF  HIGH roll angle
⑦.Byte6: 0x00-0xFF  LOW roll angle
⑧.Byte7: 0x55  Frame end flag

Calculation method:
Angle = ( (HIGH << 8) | LOW ) / 100;

Example:
Given the following data [0xAA, 0x00, 0x64, 0x03, 0xE8, 0x27, 0x10, 0x55]
heading angle = 1.00 °
Pitch angle = 10.00 °
Roll Angle = 100.00 °

COMMANDS:
①. 0xA5 + 0x51: query mode, return directly to the angle value, to be sent each read
2. 0xA5 + 0x52: Automatic mode, send a direct return angle, only initialization
3. 0xA5 + 0x53: Automatic mode, ASCII code output, serial port for direct computer assistant View
4. 0xA5 + 0x54: correction mode, the pitch correction roll angle of 0 degrees, need to stay level when sending
5. 0xA5 + 0x55: correction mode, 0 degree course correction, heading cleared at any angle

(1), due to self-correction at power up the module must be held in a stationary position for at least 3000ms, hand-held of this module is not recommended
(2), module heading will drift after a while without magnetometer.
(3), due to the angle of the Euler angles universal lock problem, roll, pitch, have an impact on each other at 90 degrees.
(4), The module IOs are 5.0V tolerant, the module can be used with 5.0 and 3.3V system and serial adapters without any risk.