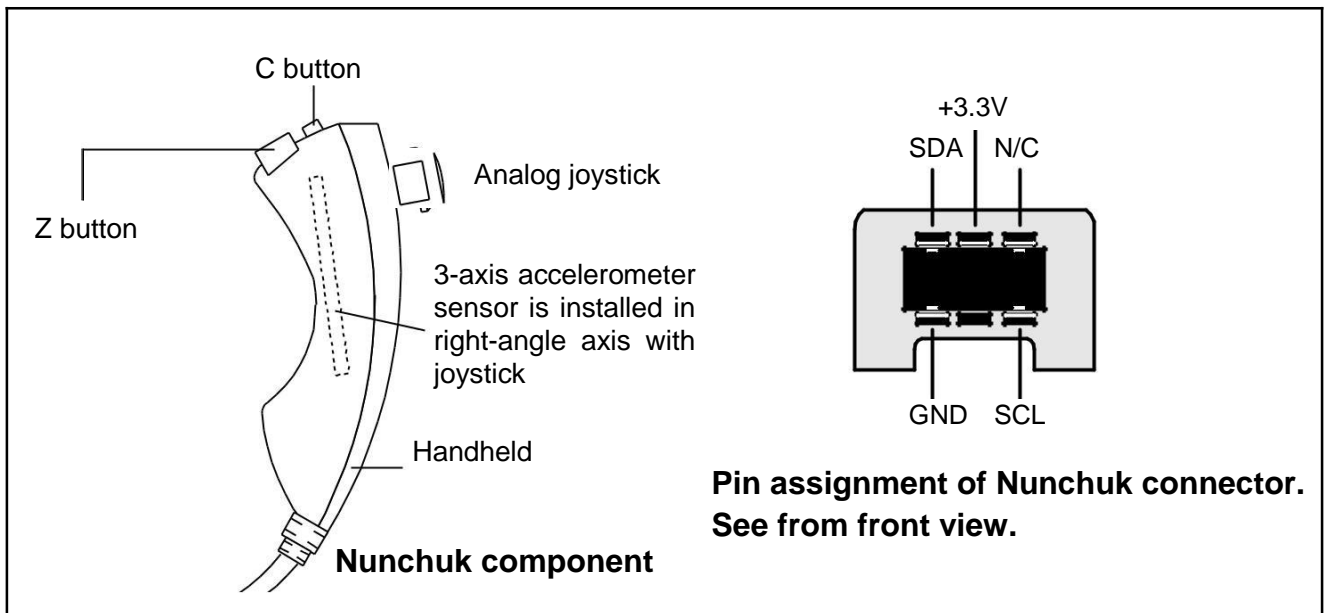


1. General information

There is 3-axis accelerometer sensor *LIS3L02AL* of ST Microelectronics inside the Wii-Nunchuk. It includes a 10-bit A/D converter, an analog joystick and 2-button switches. The figure 1 shows the components of Wii-Nunchuk and connectors pin assignment.



2. Accelerometers directions

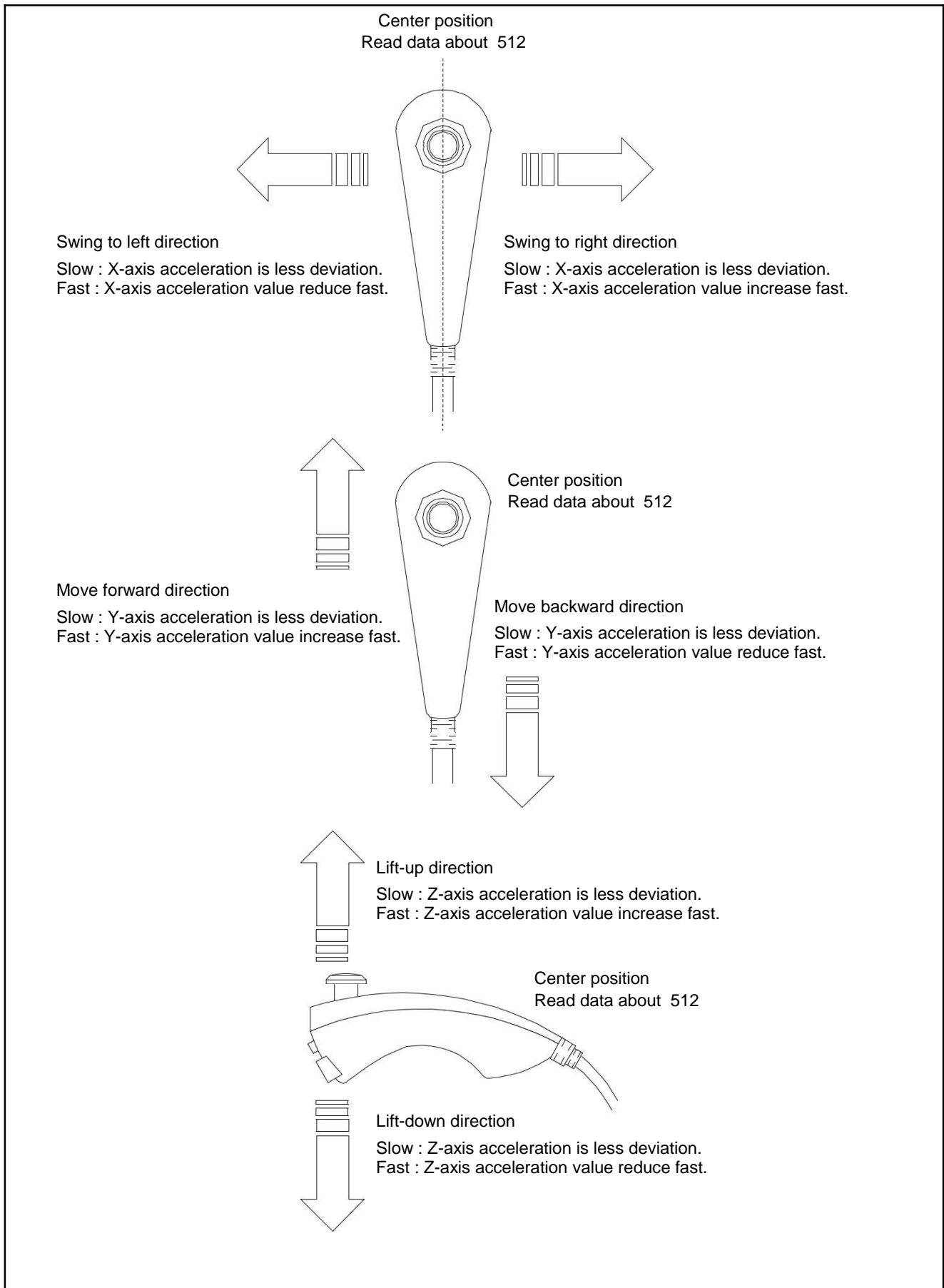
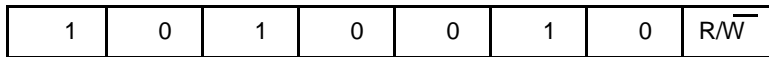


Figure 2 : Wii-Nunchuk physical operation

3. Protocol

Wii-Nunchuck is a slave I²C bus device. Its preprogrammed Id (Address) is 0x52.



The reading data of the Wii-Nunchuk consists of 6 bytes data. The summary of exact data after decoding can show as follows :

Data byte receive							Address	
Joystick X							0x00	
Joystick Y							0x01	
Accelerometer X (bit 9 to bit 2 for 10-bit resolution)							0x02	
Accelerometer Y (bit 9 to bit 2 for 10-bit resolution)							0x03	
Accelerometer Z (bit 9 to bit 2 for 10-bit resolution)							0x04	
Accel. Z bit 1	Accel. Z bit 0	Accel. Y bit 1	Accel. Y bit 0	Accel. X bit 1	Accel. X bit 0	C-button	Z-button	0x05

Byte 0x00 : X-axis data of the joystick

Byte 0x01 : Y-axis data of the joystick

Byte 0x02 : X-axis data of the accellerometer sensor

Byte 0x03 : Y-axis data of the accellerometer sensor

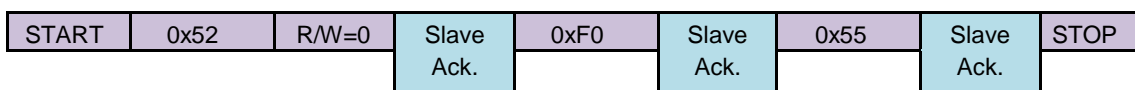
Byte 0x04 : Z-axis data of the accellerometer sensor

- Byte 0x05 :
- bit 0 as Z button status - 0 = pressed and 1 = release
 - bit 1 as C button status - 0 = pressed and 1 = release
 - bit 2 and 3 as 2 lower bit of X-axis data of the accelerometer sensor
 - bit 4 and 5 as 2 lower bit of Y-axis data of the accelerometer sensor
 - bit 6 and 7 as 2 lower bit of Z-axis data of the accelerometer sensor

4. Programming

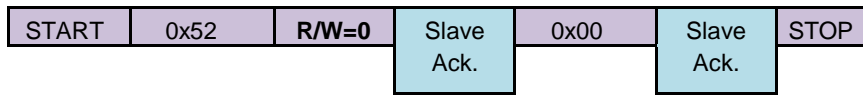
4.1 Initialize start Nunchuk command

Set the Nunchuk as ready after power-on. Write the command 0xF0 and 0x55 follows the slave ID byte 0x52 + R/W = 0 . Normally this command is written at once.



4.2 Conversion command (0x00)

Send this command to get all sensor data and store into the 6-byte register within Nunchuk controller. This must be executed before reading data from the Nunchuk.



4.3 Data read command

Send the slave ID for reading (0x52) and wait for the stream data 6-byte from the Nunchuk.

