I2C Read:

- Slave address (7 bits)
- Address of register N (8 bits)
- Slave address (7 bits)
- Read data of register N (8 bits)

Start → R/W=0 → ACK → ACK → Stop
Repeat Start → R/W=1 → ACK → NACK → Stop

I2C Write:

- Slave address (7 bits)
- Address of register N (8 bits)
- Data written to register N (8 bits)

Start → R/W=0 → ACK → ACK → Stop
I2C Read:

Slave address (7 Bits)  Address of register N (8 Bits)  Slave address (7 Bits)  Read data of register N (8 Bits)

Start  A6 A5 A4 A3 A2 A1 A0 0 ACK  B7 B6 B5 B4 B3 B2 B1 B0 ACK  Stop
Repeat Start  R/W=0  ACK

Slave address (7 Bits)  Address of register N (8 Bits)  Data written to register N (8 Bits)

Start  A6 A5 A4 A3 A2 A1 A0 0 ACK  B7 B6 B5 B4 B3 B2 B1 B0 ACK  Stop
R/W=0  ACK  ACK  Stop
Timing diagram:

When SCL is high, the data on SDA must remain stable.

Data: 10101010(0xAAH)

Data: 10101101(0xADH)