```cpp
#define TM1637_I2C_COMM1    0x40
#define TM1637_I2C_COMM2    0xC0
#define TM1637_I2C_COMM3    0x80

void TM1637Display::setBrightness(uint8_t brightness, bool on)
{
    m_brightness = (brightness & 0x7) | (on? 0x08 : 0x00);
}

void TM1637Display::setSegments(const uint8_t segments[], uint8_t length, uint8_t pos)
{
    // Write COMM1
    start();
    writeByte(TM1637_I2C_COMM1);
    stop();

    // Write COMM2 + first digit address
    start();
    writeByte(TM1637_I2C_COMM2 + (pos & 0x03));

    // Write the data bytes
    for (uint8_t k=0; k < length; k++)
      writeByte(segments[k]);

    stop();

    // Write COMM3 + brightness
    start();
    writeByte(TM1637_I2C_COMM3 + (m_brightness & 0x0f));
    stop();
}

bool TM1637Display::writeByte(uint8_t b)
{
  uint8_t data = b;

  // 8 Data Bits
  for(uint8_t i = 0; i < 8; i++) {
    // CLK low
    pinMode(m_pinClk, OUTPUT);
    bitDelay();

    // Set data bit
    if (data & 0x01)
      pinMode(m_pinDIO, INPUT);
    else
      pinMode(m_pinDIO, OUTPUT);

    bitDelay();

    // CLK high
    pinMode(m_pinClk, INPUT);
    bitDelay();
    data = data >> 1;
  }

  // Wait for acknowledge
  // CLK to zero
  pinMode(m_pinClk, OUTPUT);
  pinMode(m_pinDIO, INPUT);
  bitDelay();

  // CLK to high
  pinMode(m_pinClk, INPUT);
  bitDelay();
  uint8_t ack = digitalRead(m_pinDIO);
  if (ack == 0)
    pinMode(m_pinDIO, OUTPUT);
```

```cpp
   bitDelay();
   pinMode(m_pinClk, OUTPUT);
   bitDelay();

   return ack;
}

void TM1637Display::start()
{
   pinMode(m_pinDIO, OUTPUT);
   bitDelay();
}

void TM1637Display::stop()
{
    pinMode(m_pinDIO, OUTPUT);
    bitDelay();
    pinMode(m_pinClk, INPUT);
    bitDelay();
    pinMode(m_pinDIO, INPUT);
    bitDelay();
}
```