NightShade Electronics

Single Button – PTS645 – Trēo™ Module

Module Features

- C&K PTS645
- RoHS Compliant
- Software Library
- NightShade Trēo™ Compatible
- Breakout Headers

PTS645 Features

(from C&K)

- 100,000 Cycle Life Expectancy
- 160g Actuation Force

Applications

- Control Panel
- Mobile Device

Trēo™ Compatibility

Electrical

Communication	GPIO
Max Current, 3.3V	1mA
Max Current, 5V	0mA

Mechanical

- 25mm x 25mm Outline
- 20mm x 20mm Hole Pattern
- M2.5 Mounting Holes

Description

The PTS645 Trēo™ Module is a Single Button module that features C&K's PTS645 tactile button switch. This module is a part of the NightShade Treo system, patent pending.

Table of Contents

1 Summary

This module is operated using the NightShade_Treo_DigitalInput library. The input is monitored with the read() method.

2 What is Trēo™?

NightShade Trēo is a system of electronic modules that have standardized mechanical, electrical, and software interfaces. It provides you with a way to quickly develop electronic systems around microprocessor development boards. The grid attachment system, common connector/cabling, and extensive cross-platform software library allow you more time to focus on your application. Trēo is supported with detailed documentation and CAD models for each device.

Learn more about Trēo here.

# 3 Electrical Characteristics

	Minimum	Nominal	Maximum
Voltages			
$V_{i/o}$ (GPIO)	-0.3V	-	3.6V
$V_{3.3V}$	3.1V	3.3V	3.5V
Operating Temperature	-20°C	-	+85°C

NightShade Electronics

4   Electrical Schematic

Buttons

+3V3

R1
100k

GPIO0

S1

P:PTS645SM43SMTR92 LFS

GND

Breakout Headers

Buttons

+3V3

B1

GPIO0

GND

B2

Buttons

+3V3

GPIO0

trēo

GPIO

1	–
2	–
3	GPIO0
4	GPIO1
5	INT
6	3.3V
7	GND
8	5V

P:CON-1012-8

GND
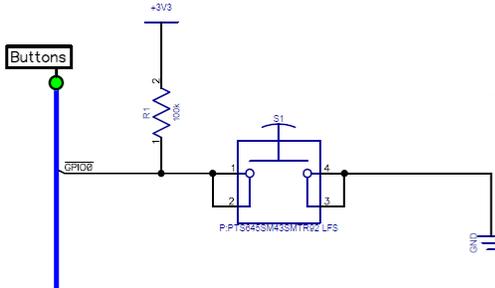
5   Mechanical Outline
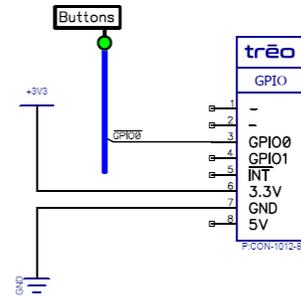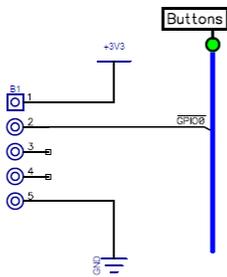
NightShade Electronics
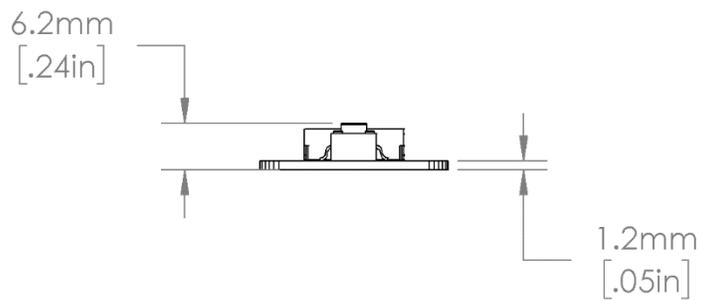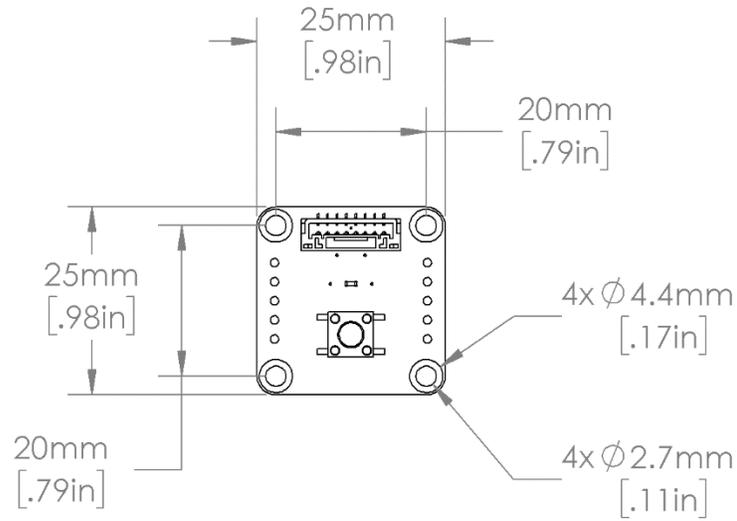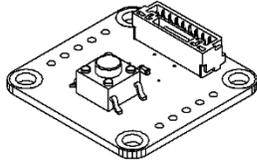
6 Example Arduino Program

```
/*********************************************************
  DigitalInput - NightShade_Treo by NightShade Electronics

  This sketch demonstrates the functionality of the
  NightShade Trēo digital input modules like buttons and
  switches. It prints any chance in state to Serial at
  115200 baudrate.

  Created by Aaron D. Liebold
  on February 15, 2021

  Links:
  NightShade Trēo System: https://nightshade.net/treo

  Distributed under the MIT license
  Copyright (C) 2021 NightShade Electronics
  https://opensource.org/licenses/MIT
*********************************************************/

// Include NightShade Treo Library
#include <NightShade_Treo.h>

// Declare Objects (Dual Input Device - GPIO0: D5, GPIO1: D4)
NightShade_Treo_DigitalInput input0(5);
NightShade_Treo_DigitalInput input1(4);

void setup() {
  Serial.begin(115200); // Initialize Serial at 115200 baud
}

void loop() {
  if (input0.read()) {
    Serial.println("Input0 Activated!");
    while (input0.read()); // Wait until input is released
    Serial.println("Input0 Deactivated!\n");
  }
  if (input1.read()) {
    Serial.println("Input1 Activated!");
    while (input1.read()); // Wait until input is released
    Serial.println("Input1 Deactivated!\n");
  }
}
```

7 Library Overview (C++ & Python)

C++ Class

NightShade_Treo_DigitalInput <classObject>();

Python Module

<classObject> = NightShade_Treo.DigitalInput()

7.1 Constructors

NightShade_Treo_DigitalInput(int gpioPin)

Creates a DigitalInput object.

Arguments:
gpioPin   Integer of the GPIO pin

Returns:
Nothing

7.2 Methods

read()

Reads the input value. This method debounces the input by waiting for three consecutive reads of the same value. The reads are taken at 50us intervals.

Arguments:
None

Returns:
Input value (int)   on (true)/off (false)