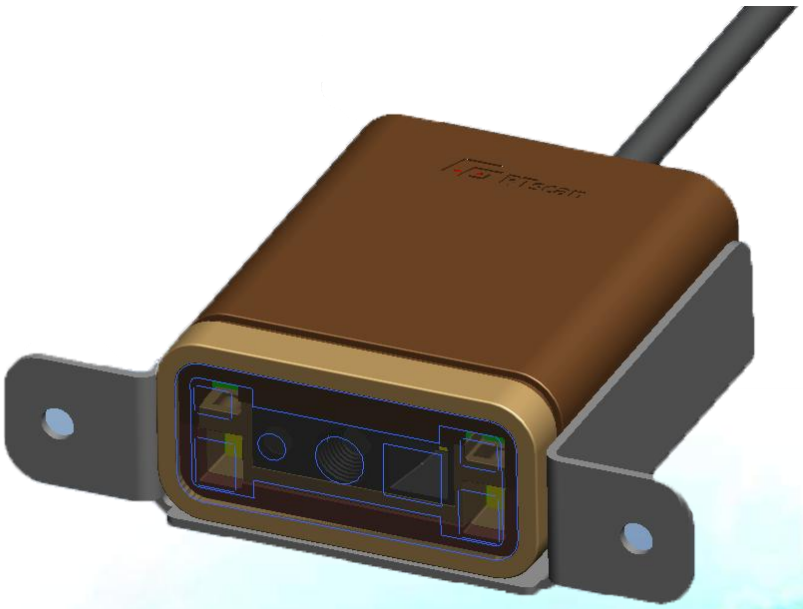
RTscan

RT240 Integration guide

（version 1.0 2021）



Chapter 1 Introduction

1.1 Product Overview

The RT240 decoder ingeniously blends an advanced chip design & manufacturing, which significantly simplifies application design and delivers superior performance and solid reliability with low power consumption.

The RT240 support all mainstream 1D and standard 2D barcode symbologies (e.g UPC/EAN, UPC/EAN with supplementals, Bookland EAN, ISSN, UCC Coupon Extended Code, Code128, GS1-128, ISBT 128, Code 39)as well as (PDF417, Data Matrix, QR Code, Micro QR).

1.2 Illumination

The RT240 equipped with enhanced illumination, with 3 bright LEDs (5600K). This makes it can compliant with most of circumstances: near or far, dark or bright environment.

Chapter 2 Installation

2.1 General Requirements

2.1.1 ESD

ESD protection has been taken into account when designing the RT240 and the engine is shipped in ESD safe packaging. Be sure grounding wrist straps and properly grounded work areas are used.

2.1.2 Dust and Dirt

The RT240 with enclosed design which protect itself from dust and dirt. We suggest to fixed it behind a window, this can prevent dust and dirt come into the kiosk machine.

2.1.3 Ambient Environment

The following environmental requirements should be met to ensure good performance of the RT240:

WorkingTemperature	-20℃to 60℃
StorageTemperature	-40℃to 70℃
Humidity	5% ~95% (non-condensing)

2.1.4 Thermal Considerations

Electronic components in the RT240 generate heat during the course of their operation. Operating the RT240 in continuous mode for an extended period may result in an increase in temperature by 20°C inside the engine. The following precautions should be taken when integrating the RT240:

Reserve sufficient space for good air circulation during design.

Avoid wrapping the RT240 with thermal insulation materials such as rubber.

2.2 Optics

2.2.1 Window Placement

The window should be positioned properly to let the illumination and aiming beams pass through as much as possible and no reflections back into the engine (reflections can degrade the reading performance).

The window should be mounted close to the front of the scanner (parallel). The maximum distance is measured from the front of the engine cover to the farthest surface of the window. Avoid unwanted reflections and use thin material for window so as to reach better reading performance. The distance from the front of the scanner to the furthest surface of the window less than 0.5mm is better.

If the window is required to be in a tilted position, the tilt angle should ensure no reflections back into the lens.

2.2.2 Window Material and Color

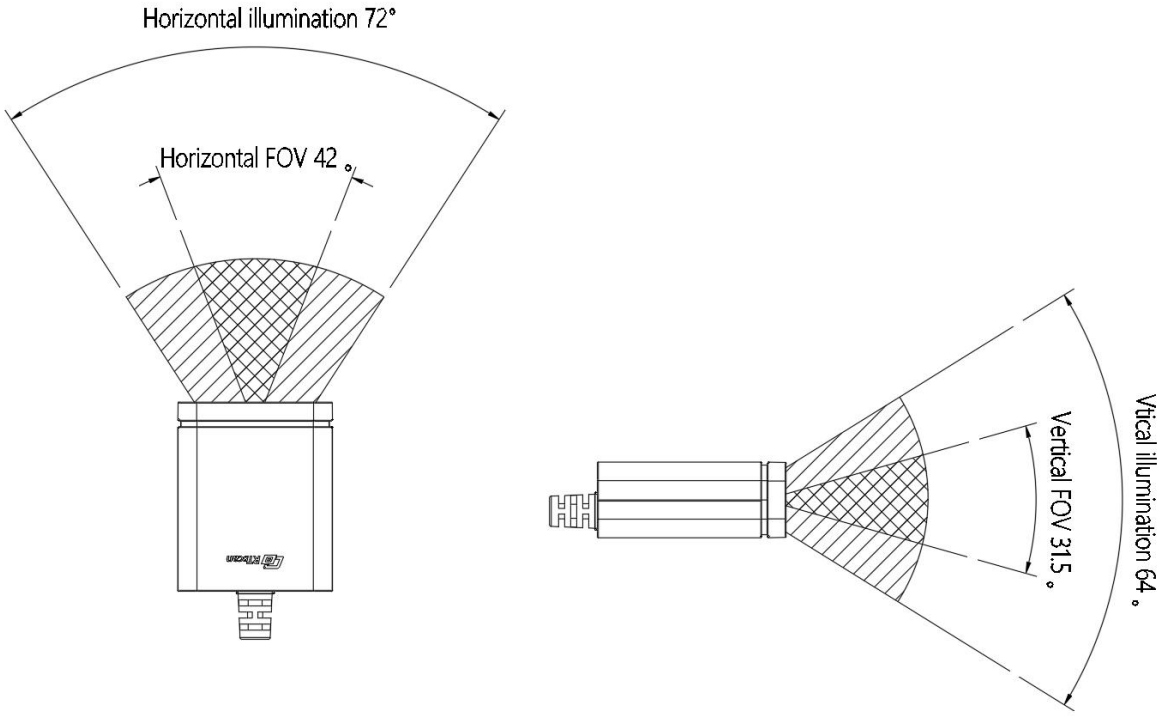
Wavelengths of illumination and aiming beams should be taken into consideration when choosing window material and color, to achieve the possible highest spectral transmission and lowest blurriness. It is suggested PMMA or optical glass with spectral transmittance over 90% and blurriness less than 1%. Whether to use an anti-reflection coating or not depends on the material and application needs.

2.2.3 Scratch Resistance and Coating

Scratch on the window can greatly reduce the performance of the RT240. It is suggested to use abrasion resistant window material or coating.

2.2.4 Window Size

The window must not block the field of view and should be sized to accommodate the aiming and illumination envelopes shown below.



2.2.5 Ambient Light

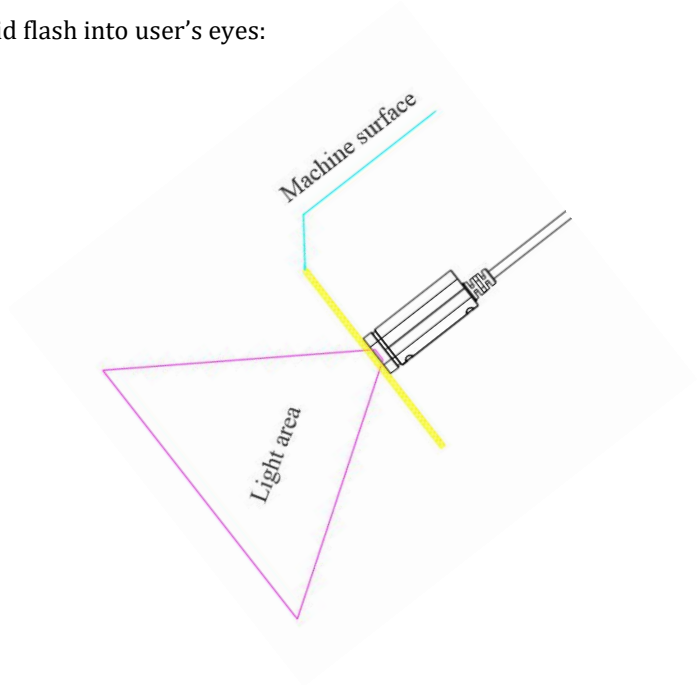
The RT240 may show better performance with ambient light. However, high-frequency pulsed light can result in performance degradation.

2.2.6 Eye Safety

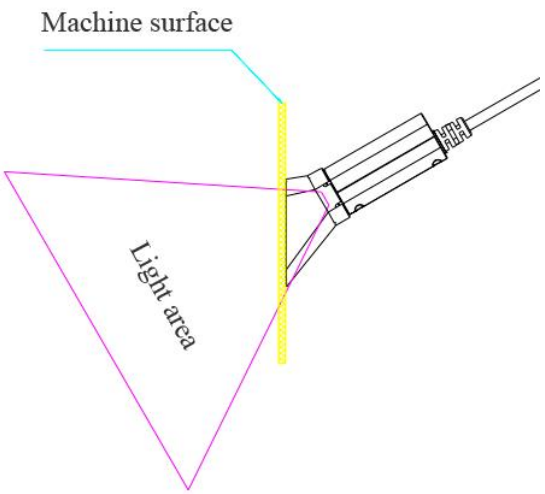
The RT240 has LEDs what create the aiming and illumination beams. These LEDs are bright, but testing has been done to demonstrate that the scanner is safe for its intended application under normal usage conditions. However, the user should avoid looking into the beam.

For high safety consideration, we suggest to mount the scanner as below:

1. Design an inclined slot, and fix the scanner face down to avoid flash into user's eyes:

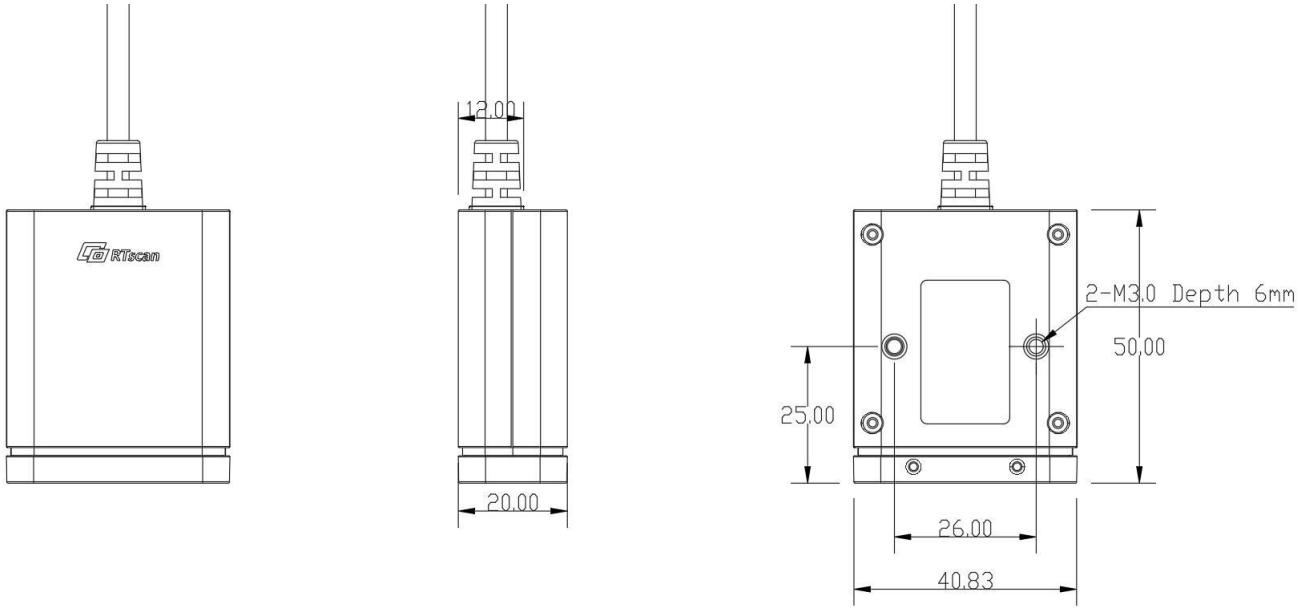


2. For vertical surface, use the **cover that specially designed for RT240**, which can protect user's eyes from LED flashing:

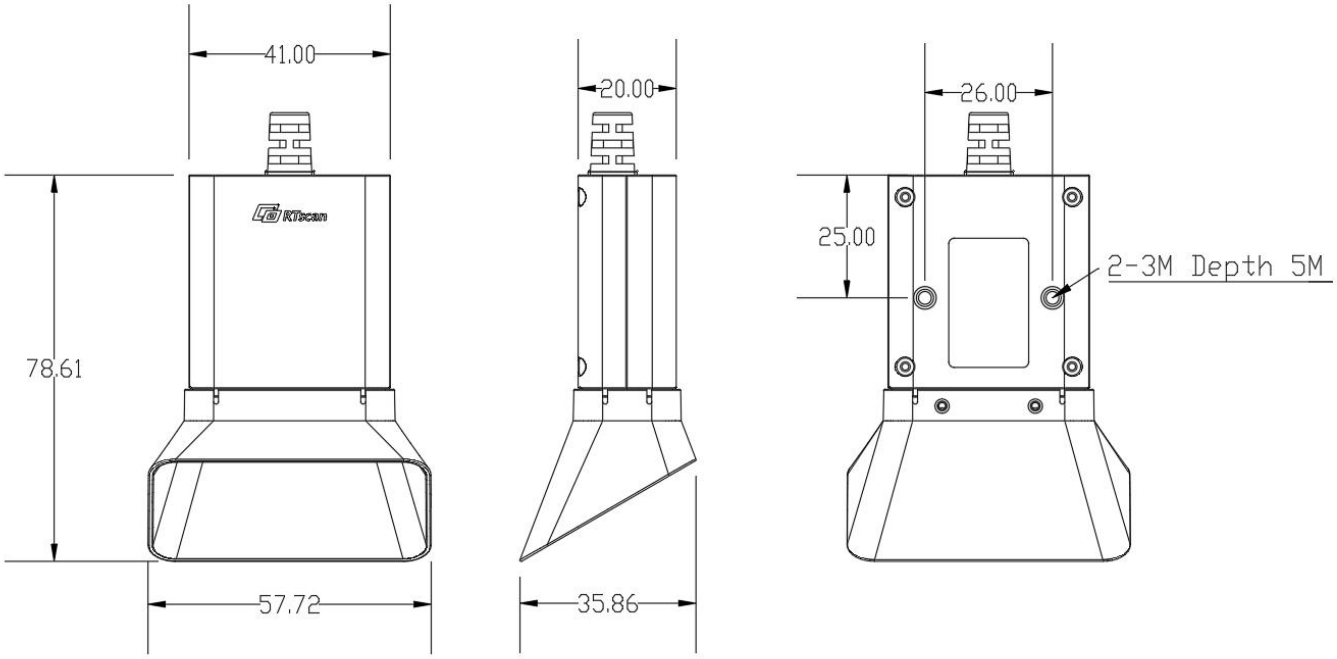


2.2.7 Mounting

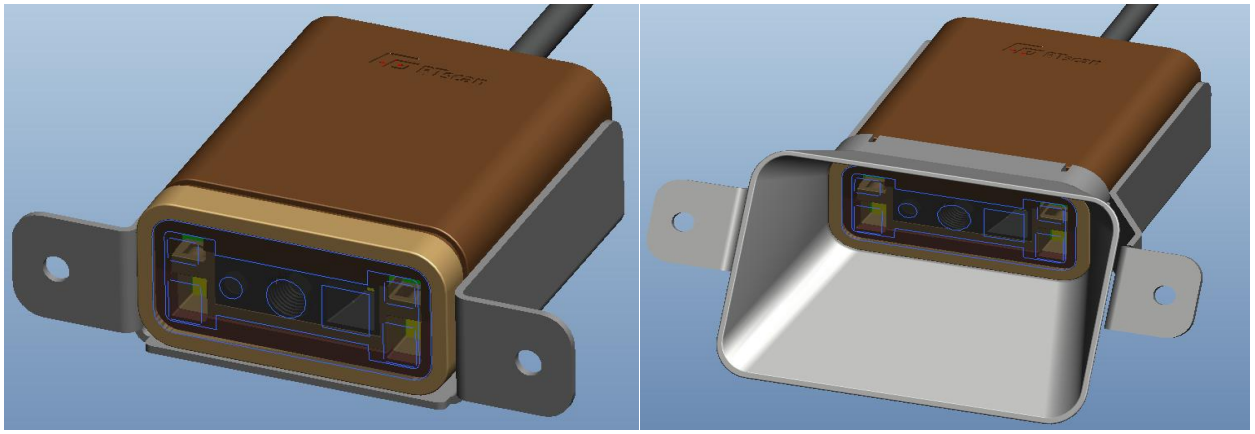
The illustrations below show the mechanical mounting dimensions for the RT240. The structural design should leave some space between components .



(unit:mm)

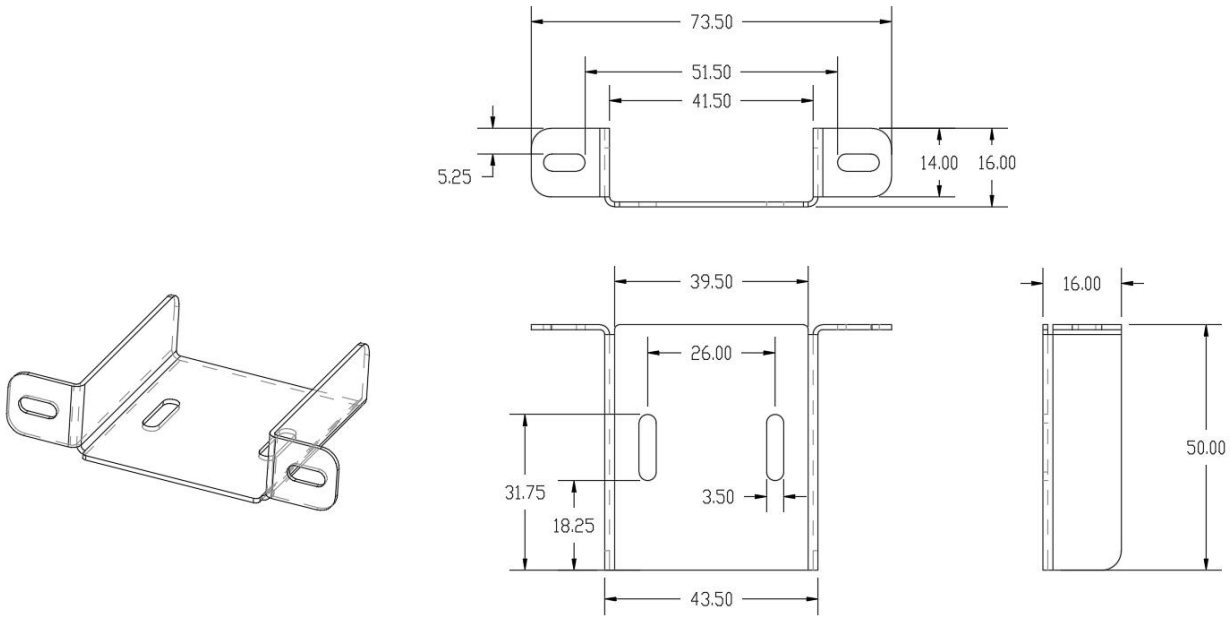


Mounting bracket:

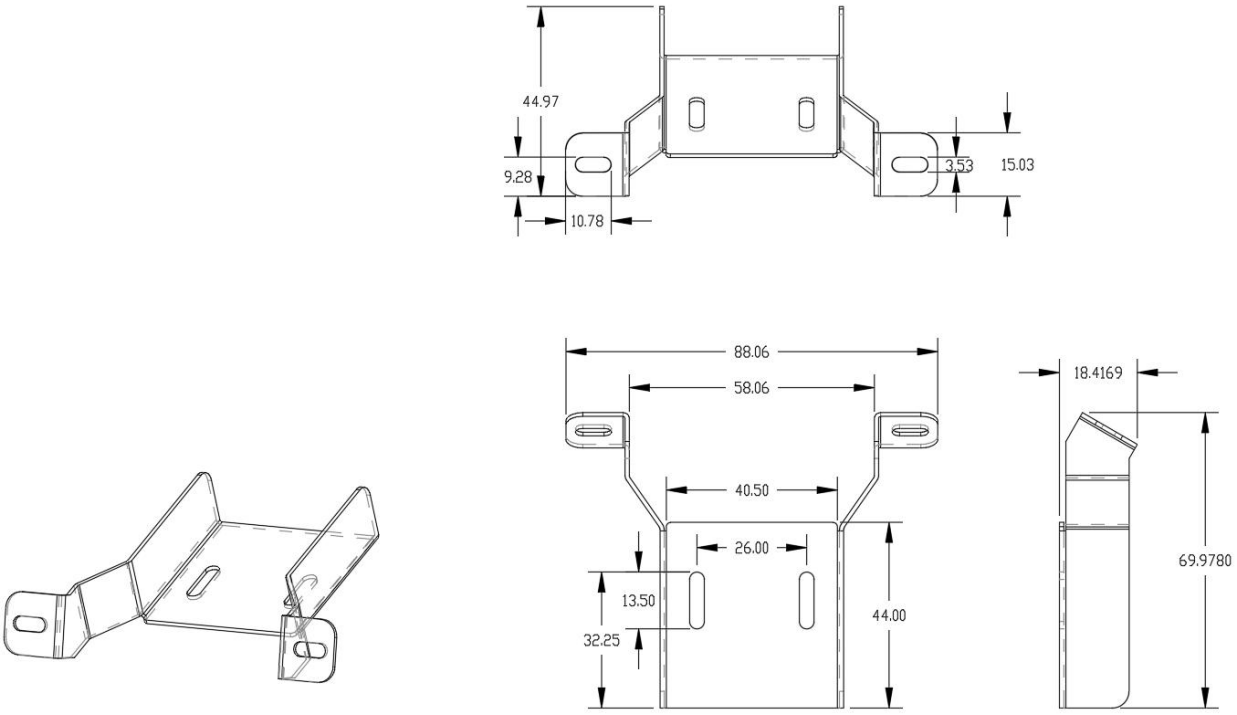


Type A Type B

Type A drawing:



Type B drawing:



Chapter 3 Electrical Specifications

3.1 Power Supply

Unstable power supply or sharp voltage drops may lead to unstable performance of the engine. Do not resupply the power immediately after cutting it off. The interval must be greater than 3 seconds.

3.2 DC Characteristics

Ta = 25℃:

	MIN	Tpy	MAX	
V_{CC}	4.5	5	5.5	V

Ta=25℃, VCC=5V

Parameter	Average	Maximum	Unit
I_{OP}	170	303	mA
$I_{Standby}$	90	-	mA

If need any technical support, please feel free to contact at:
Support@rtscan.net