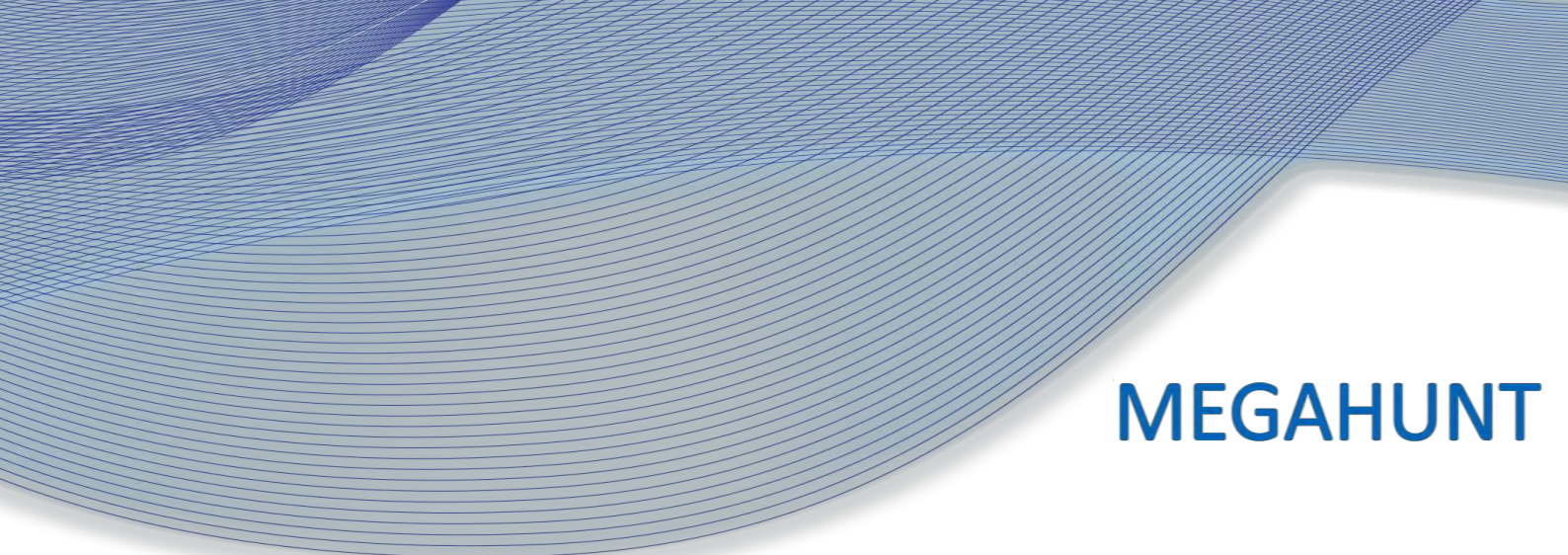




MEGAHUNT

QL1605H Specification

Video 2D bar code imaging module

Version: 1.0

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Megahunt Technologies Inc.

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Chapter 1 Module Settings



- ☞ The QL1605H is a highly integrated, high-performance, video 2D bar code imaging module
- ☞ The QL1605H module is compact in size, making it flexible for a wide range of devices.
- ☞ With advanced image recognition algorithms, the QL1605H can easily scan all types of 1D bar code and 2D bar code.
- ☞ The QL1605H has strong reading ability and is adaptable to a variety of demanding and complex environments. For example, in a variety of illumination environments, it performs excellently in reading code within the large temperature and humidity range.

Chapter 2 Module Parameters

Scanning Code	Image	640 (Horizontal) X 480 (Vertical) CMOS		
	Sensor			
	Light Source	White light		
	Horizontal View	37°		
	Angle			
	Symbologies	2D	QR	
			Code,PDF417,DataMatrix(ECC200),Channel	
			Code, Micro QR, Micro PDF417, Code	
		16K,Maxi Code,Aztec		
		1D	EAN13,EAN8,UPC-A,UPC-E0,UPC-E1,Code	
	128,Code39,Code93,CodeBar ,Interleaved 2			
	of 5,Industrial 25,Matrix 2 of 5,Code11, MSI			
	Plessey ,RSS-14, RSS-Limited,			
	RSS-Expanded, Standard 2 of 5, Plessey,			
	ChinaPost 25			
Depth of Field	EAN-13	4.0~20.0cm （13mil）		
	Code128	4.5 ~ 25.0cm （15mil ）		
	QR Code	4.0 ~ 18cm （15mil）		
Scan Angle	Roll:360° , Pitch:±60° , Skew:±60°			
Resolution	1D	≥5mil		
	2D	≥ 10mil		
Symbol	≥20%			
Contrast				
Physical parameters	Weight	< 7g		
	Dimensions	26.15mm x 12.09mm x 13.85mm		
	Interface	TTL-232 / USB 2.0 Full Speed		

	Voltage		DC +3.3V±5%
	Current	Operating	170mA
	@DC 3.3V	Sleep	800 μ A
	Operating Temperature		-20°C ~ 60°C
	Storage Temperature		-40°C ~ 70°C
Environmental parameters	Working Humidity		5% RH~95% RH (Non-condensing)
	Anti-mechanical shock	Shock	5~200Hz, 10Grms, 3axes, 1.5Hr
		Fall	It can withstand falling from as high as 1.2 meters to the concrete floor.
	Heat Shock Resistance	Lowest Temperature	-20 °C (-4 °F)
		Maximum Temperature	60 °C (140 °F)
		Cycles	High Temperature: 30 minutes Low Temperature: 30 minutes
		Period	24h

Module Size Chart

(unit: mm)

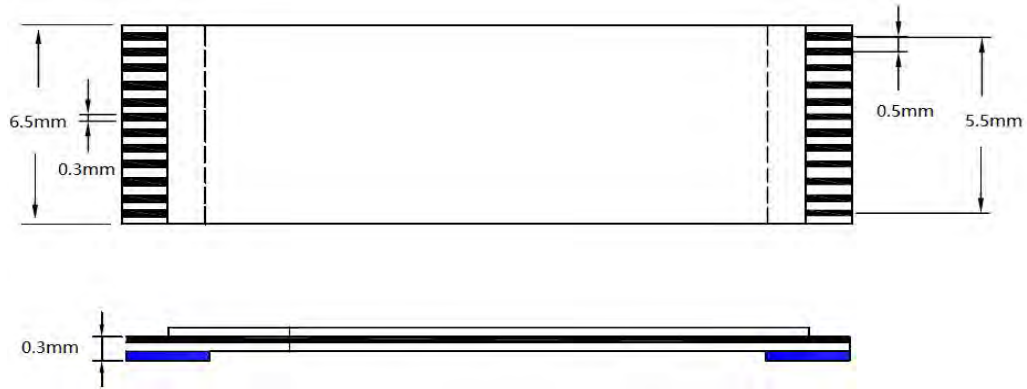


Chapter 3 Interface Description

The 12PIN interface definitions and signal descriptions for the QL1605H are listed as follows.

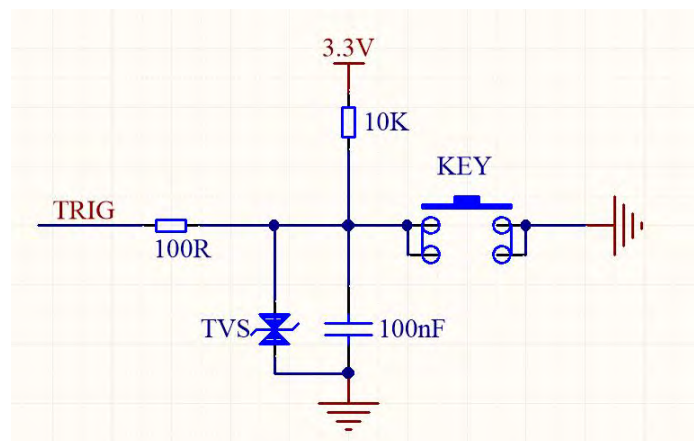
PIN	Input/Output	Definition	Description
PIN1	-	TEST1	Internal test pin Not Connect
PIN2	Power Supply	VCC	Input +3.3V
PIN3	Ground	GND	-
PIN4	Input	RX	TTL level 232 send receive data
PIN5	Output	TX	TTL level 232 send data
PIN6	Input	D-	USB DN signal
PIN7	Output	D+	USB DP signal
PIN8	Ground	GND	-
PIN9	Output	BEEP	PWM controlled AC signal used to drive an external magnetic beeper Idle Low
PIN10	Output	DLED	Prompt light for successful decoding Idle Low
PIN11	-	TEST2	Internal Test Pin Not Connect.
PIN12	Input	TRIG	The signal to Trigger the module Active low

The QL1605H requires a 12-pin FFC cable to be connected to the peripherals.

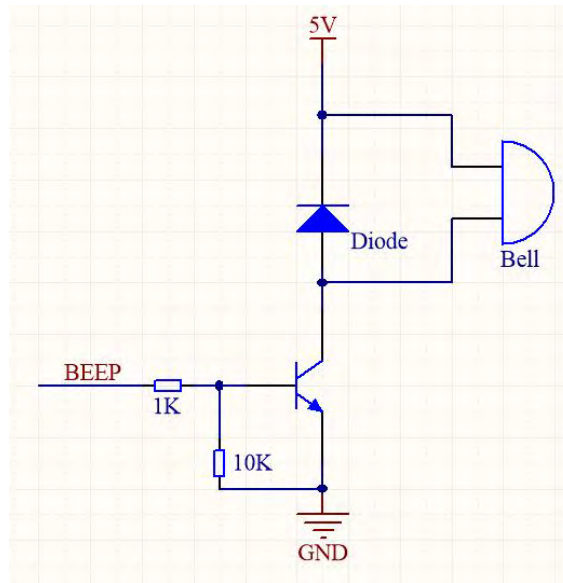


The power supply, TTL level, USB and other pins of the QL1605H module are directly connected to external circuits. The trigger pin and buzzer pin require a drive circuit. Please refer to the following circuit design:

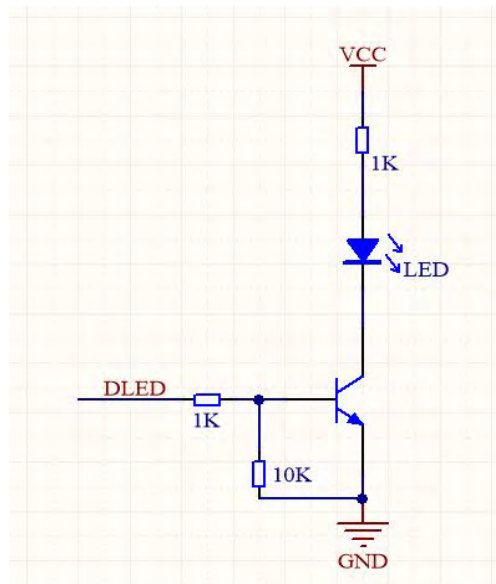
☞ Drive Circuit of Trigger Pin (TRIG):



☞ Drive Circuit of Passive Buzzer:



☞ Drive Circuit of DLED Pin:



The BEEP and DLED pins will give out a high pulse after successful decoding.

Note: When a good read occurs, the Beep pin produces a high level output for about 60ms and the DLED pin produces a high level output for about 100ms

Chapter 4 Requirements for Use

Environmental requirements

Working Temperature		-20℃ ~ 60℃
Storage Temperature		-40℃ ~ 70℃
Working Humidity		5%RH~95%RH (Not Coagulated)

ESD

Always exercise care when handling the engine outside its package. Be sure grounding wrist straps and properly grounded work areas are used.

Thermal Considerations

Electronic components in the QL1605H will generate heat during the course of their operation. Operating the QL1605H continuously for an extended period may cause temperatures to rise.

The following precautions should be taken into consideration when integrating the QL1605H.

- ☞ Reserve sufficient space for good air circulation in the design.
- ☞ Avoid wrapping the QL1605H with thermal insulation materials such as rubber.

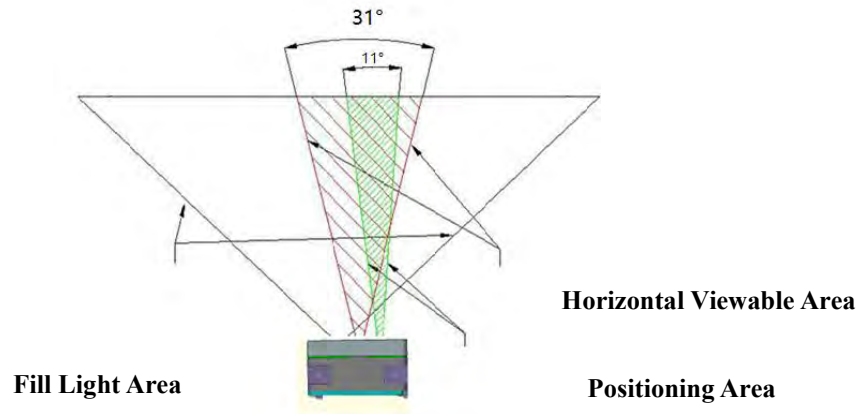
Ripple Noise

Image sensor and decoder chip are directly fed by the input power of QL1605H. To ensure the image quality, a power supply with low ripple noise is needed..

Acceptable ripple range (peak-to-peak) : ≤50mV.

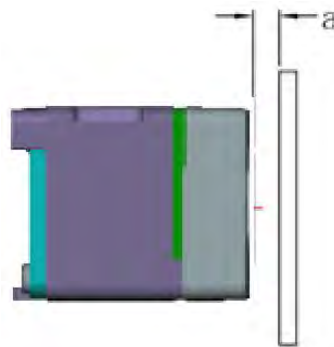
Optics

- ☞ Distribution of Reading Area



☞ Window placement

The window should be positioned properly and mounted close to the front of the engine (parallel) 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). In order to reach better reading performance, the distance from the front of the engine housing to the nearest surface of the window should not exceed a ($a = 0.6\text{mm}$) and the thickness of window should not exceed 2mm. The gap between the front of the module and the near end of the window is for protecting the module and window from external impact if falling.



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

☞ Scratch Resistance and Coating

Since the module uses image acquisition to recognize, the window material and color selection should prefer index material of high light transmittance, low blur, and uniform refraction. At the same time, the scratches on the window will reduce the recognizing performance. It is suggested to use abrasion resistant window material or coating.

Chapter 5 Development Tools

The QL1605H has development tools to support application development to meet rapid assessment and development needs.

DECODE_EVB

The DECODE_EVB is provided to help users to test and evaluate the QL1605H, which contains beeper & beeper driver circuit, LED & LED driver circuit, TTL-232 to RS-232 converter, trigger & reset button, etc. The module can be connected to the DECODE_EVB via a 12-pin FFC cable type 1 (contacts on the same side). And USB connection or RS-232 connection can be used when connecting the DECODE_EVB to a host device.