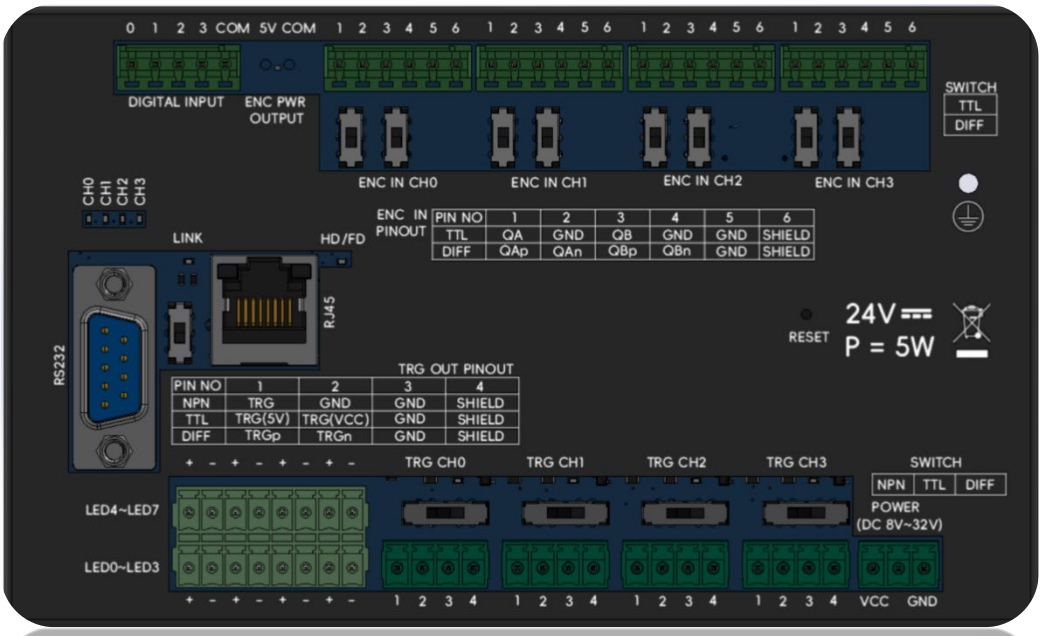
LTENC4448

Specification

V3.0



Suzhou LTTEK Electronic Technology Co.,Ltd

2025-12-12

Catelogue

1 INTRODUCTION

1.1 Product Information

Item	Content
Product Name	Trigger & LED Board
Maker	LTTEK
Model	LTENC4448
Application	Industrial vision, line scan camera, synchronous light source control

1.2 Operating System

Operating system requirements: Windows 10 or above

Operating system language: English, Simplified Chinese, Korean, etc

1.3 Scope and composition

This manual provides instructions for the use of LTENC4448 from Suzhou LTTEK Electronic Technology Co., Ltd.

① Composition of the manual:

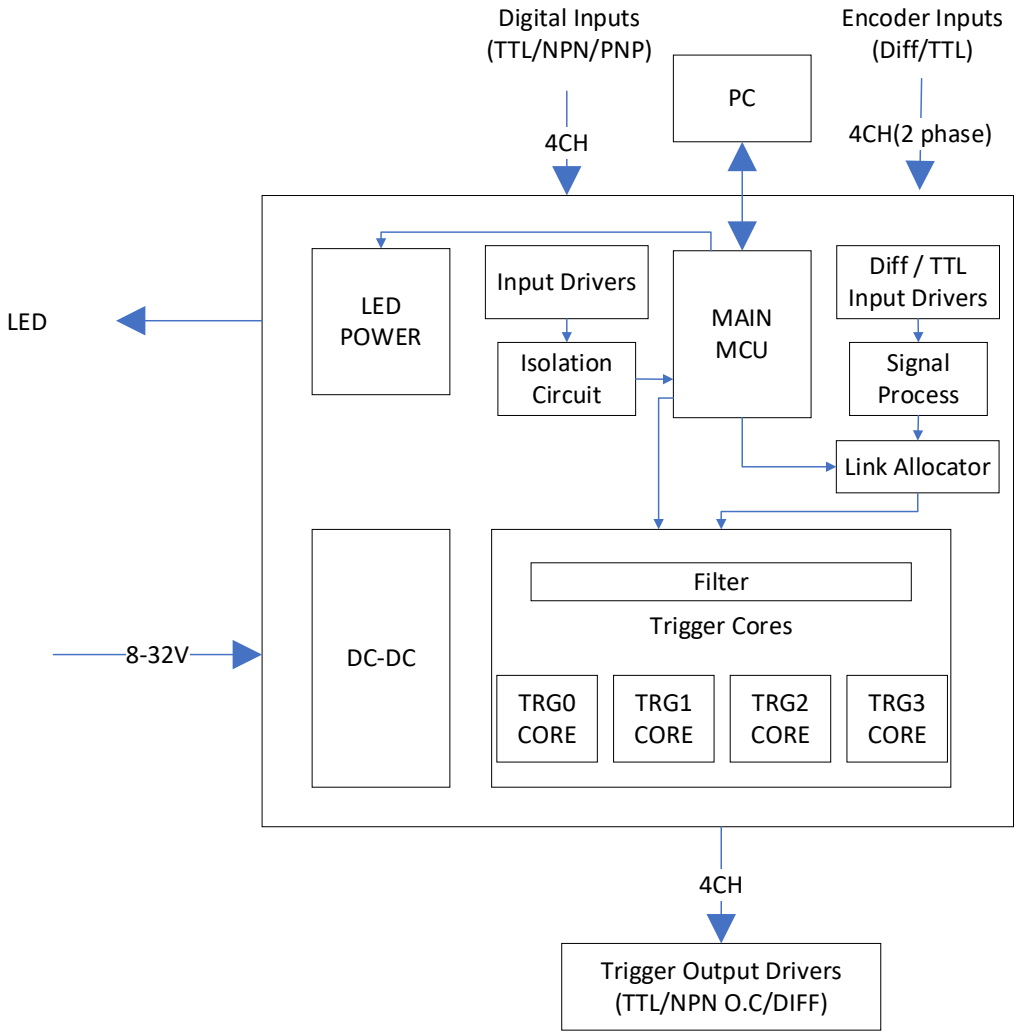
- Chapter 1 is the introduction.
- Chapter 2 provides instructions for hardware deployment before operating this software.

2 HARDWARE DEPLOYMENT

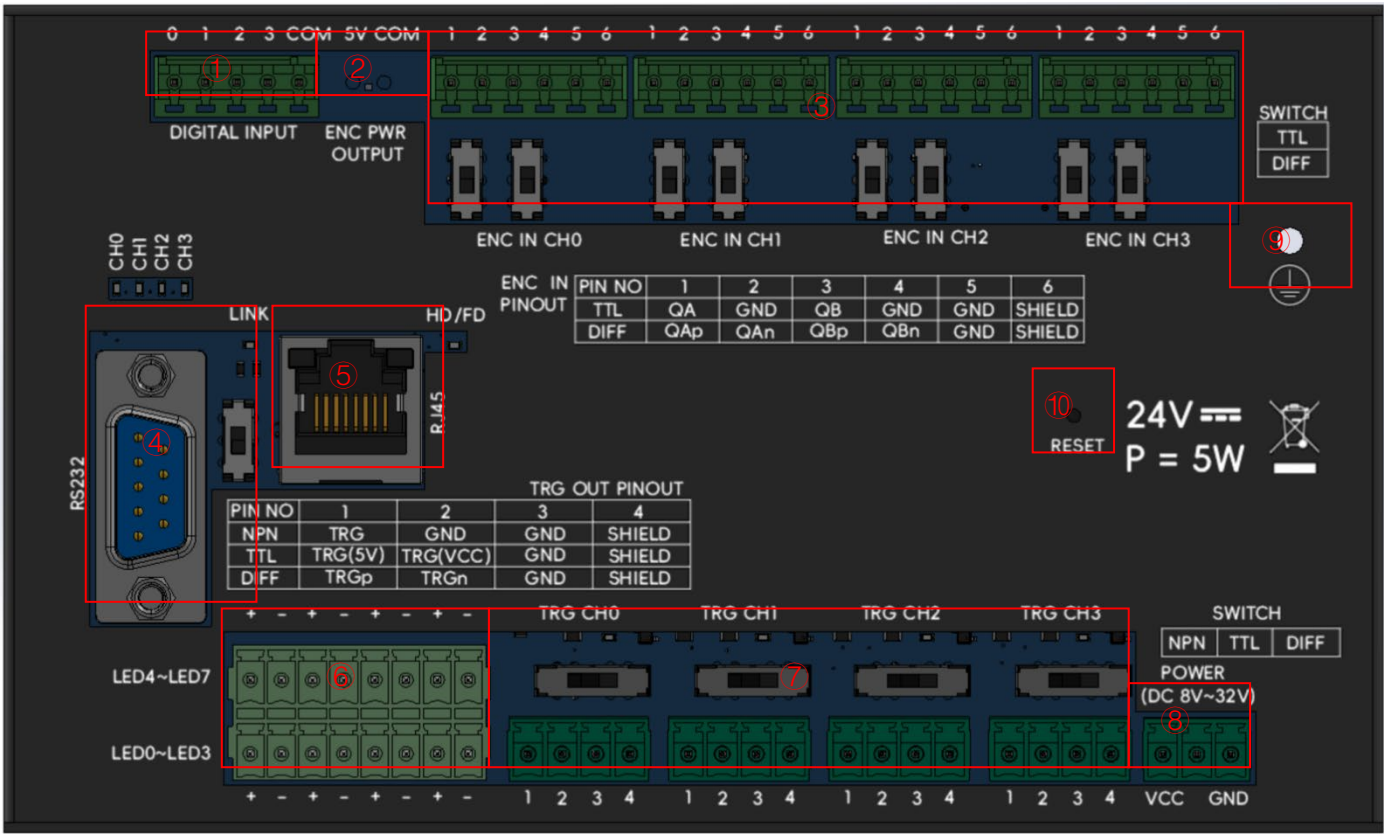
2.1 DataSheet

ITEM	CONTENT
DI Count	4 Channel
DI Type	NPN, PNP, Voltage signal, Dry contact signal
Encoder Count	4 Channel
Encoder Type	TTL, DIFF
Trigger Count	4 Channel
Trigger Type	NPN, TTL, DIFF
LED Count	8 Channel
Communication Type	RS232, Ethernet
Board Size(mm)	148 x 90 x 25.41
Total Size(mm)	155 x 103.6 x 40.33

2.2 System Block Diagram



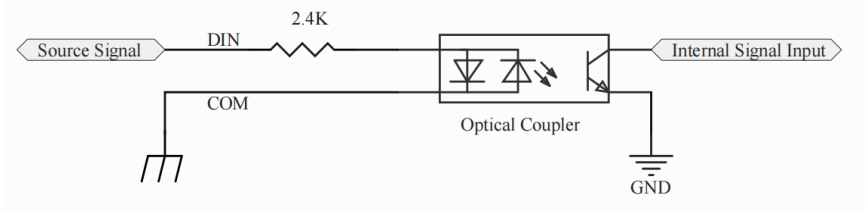
2.3 Hardware Introduction



① DIGITAL INPUT

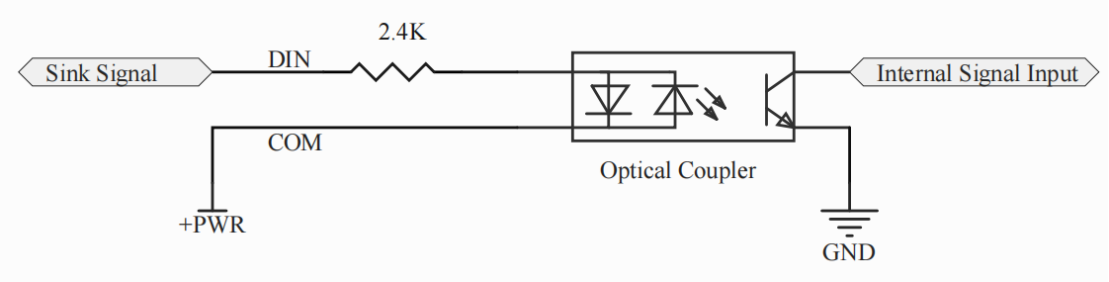
Digital input ports required for trigger output conditions and reset conditions functionality.

- PNP or Voltage signal



Connect to the input signal terminal (DI0-3) and connect GND (N_COM) to the "COM" terminal.

➢ NPN or Dry contact signal



Connect "Sink Signal" to the input signal terminal (DIO-3) and power (P_COM) to the "COM" terminal.

Power (P_COM) input range is DC12-24V.

② ENC PWR OUTPUT

Provides 5V 200mA (Max) power to the encoder.

★It is a 5V output port, so never supply 5V power to this port from the outside.

③ ENC IN CH0-3

The port to enter the encoder's signal terminal. TTL and DIFF are two types of signals. The type of input signal is determined by the switch settings. (Top: TTL, bottom: DIFF).

Input connectors 1, 2, 3, 4, 5, 6 change the meaning of each pin according to the settings of the switch.

★The input voltage range of TTL encoder signal is 5V-24V.

★The voltage input of the DIFF encoder signal is 5V.

★Be sure to disconnect the input connector and change the switch.

PIN No.	1	2	3	4	5	6
TTL	QA	GND	QB	GND	GND	SHIELD
DIFF	QAp	QAn	QBp	QBn	GND	SHIELD

- TTL
- For TTL encoder signal input, QA, GND, QB, GND, GND, SHIELD from the 1st.
- DIFF

DIFF 엔코드 신호 입력일 경우는 1 번부터 QAp, QAn, QBp, QBn, GND, SHIELD 입니다.

Parameter	Specification
Differential Voltage	±5 V
Common-Mode Voltage Range	0 - 2.5 V
Input Threshold Voltage	200 mV
Maximum Data Rate	10 Mbps
Bandwidth	50 MHz
Maximum Transmission	1219 m

Signal Propagation Delay	17 ns
Standard Compliance	TIA/EIA-422-A

➢ Signal Type

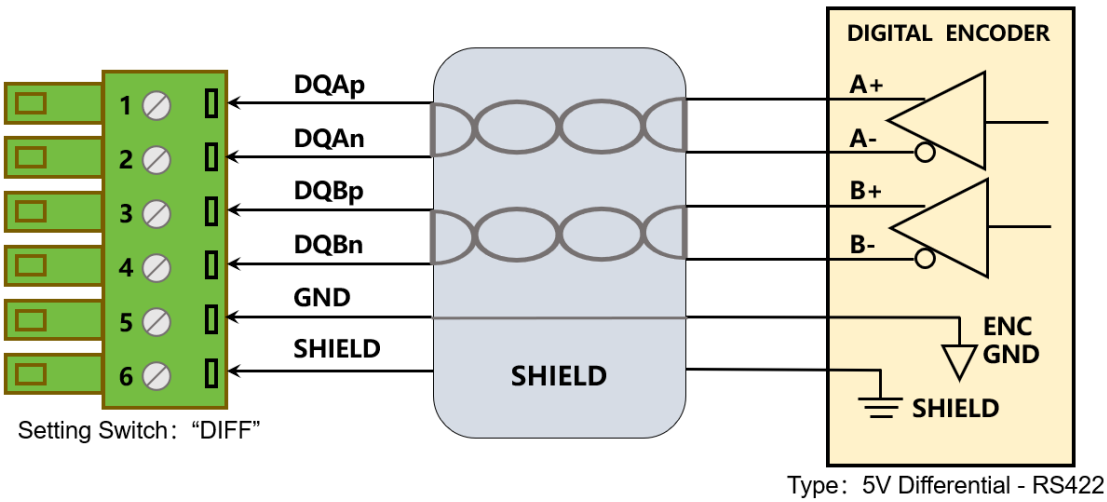
1. Differential(RS422 or TTL)

2. 24V Differential(D.HTL - Differential High Threshold Logic or HTL)

3. 5-24V Single Ended Voltage Signal (Totem-pole or Push-pull or PNP)

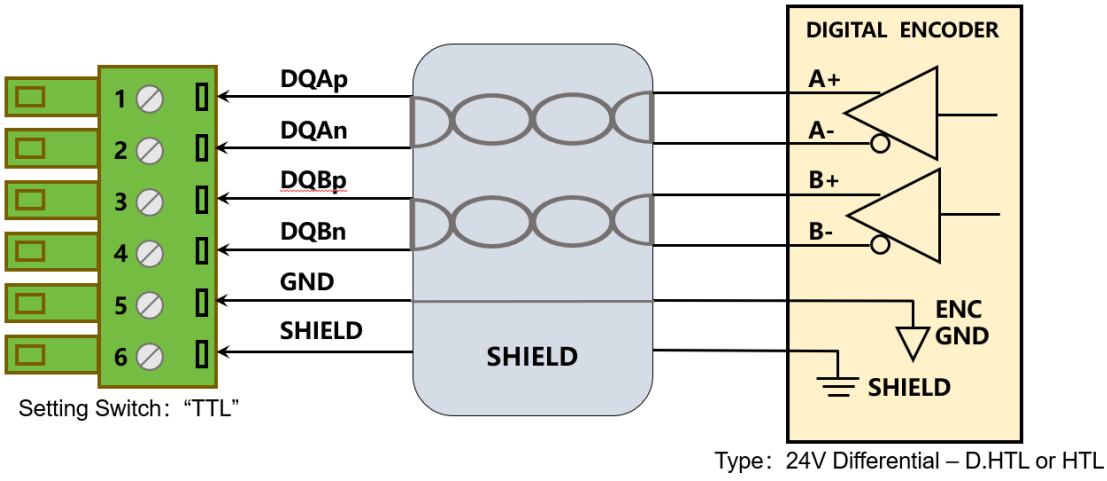
4. NPN Open Collector

➢ Differential(RS422 or TTL) Signal



Type: 5V Differential - RS422

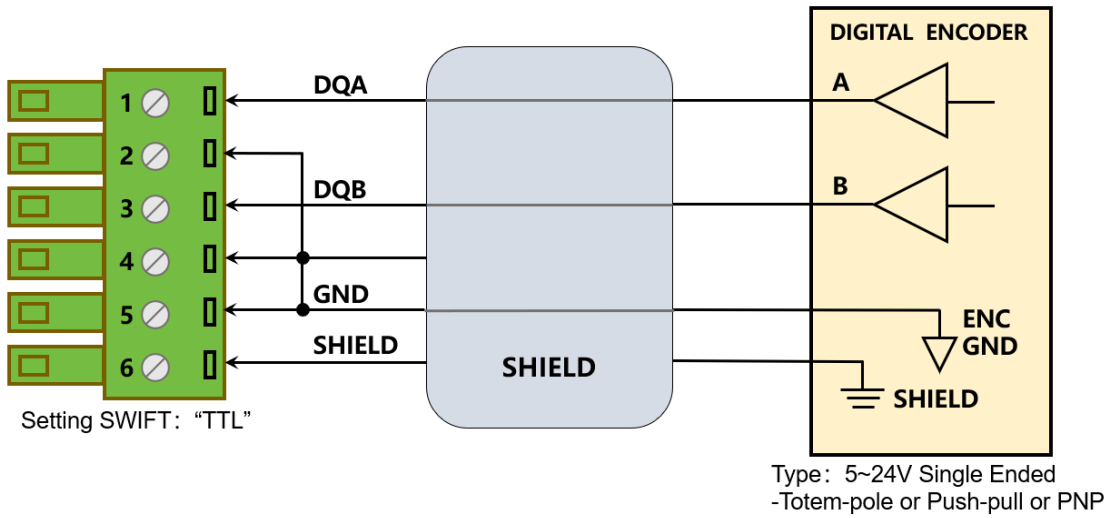
➢ 24V Differential(D.HTL - Differential High Threshold Logic or HTL) Signal



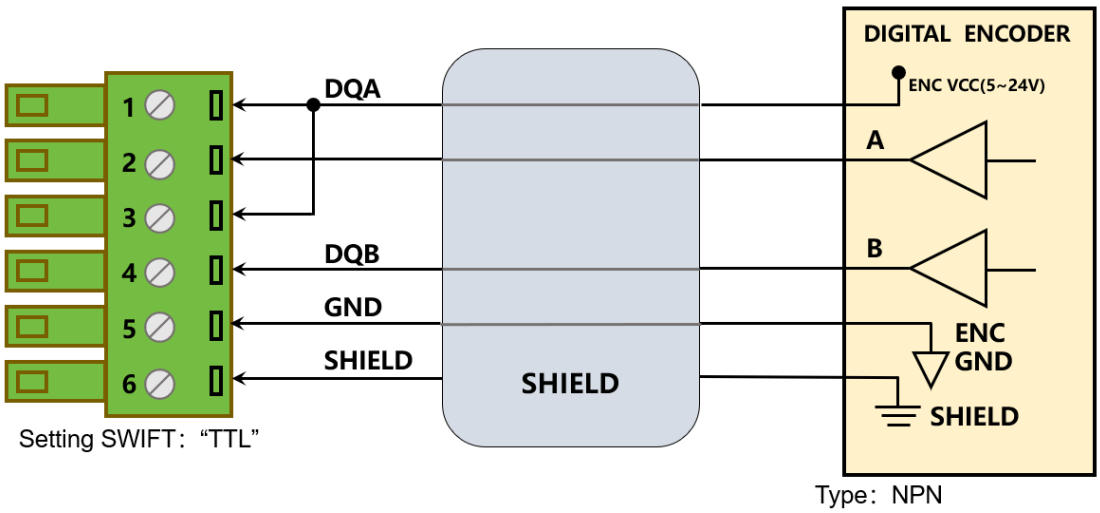
★For 24V differential signals, the switch must be set to "TTL".

★Please note that if you set it to "DIFF" and enter the 24V band code, the product will be damaged.

- 5-24V Single Ended Voltage Signal (Totem-pole or Push-pull or PNP) Signal



- NPN Open Collector Signal



④ RS232

RS232 is a serial port that communicates with a control PC or other control client. It depends on the switch. The direction above is direct and the direction below is cross.

⑤ RJ45

RJ45 is a rental port that communicates with a control PC or other control Client.

⑥ LED0-7

LED0-7 is the power of the lighting LED. The voltage is the voltage of the input power of the trigger board

and the maximum current is 1.5A. Long-term use current is recommended at 1A.

⑦ TRG CH0-3

The Trigger Output Port.

Depending on the switch settings above the trigger output port, the trigger output signal and the pin of the output are different. There are three types of NPN, TTL and DIFF.

★Be sure to disconnect the input connector and change the switch.

PIN No.	1	2	3	4
NPN	TRG	GND	GND	SHIELD
TTL	TRG	GND	GND	SHIELD
DIFF	TRGp	TRGn	GND	SHIELD

- NPN

  If the NPN signal is output, it is TRG, GND, GND, SHIELD from 1.

- TTL

  For TTL signal outputs, it is TRG, GND, GND, SHIELD from 1.

➢ DIFF

If it is a DIFF signal output, it is TRGp, TRGn, GND, SHIELD from the first.

➢ Switch Detail

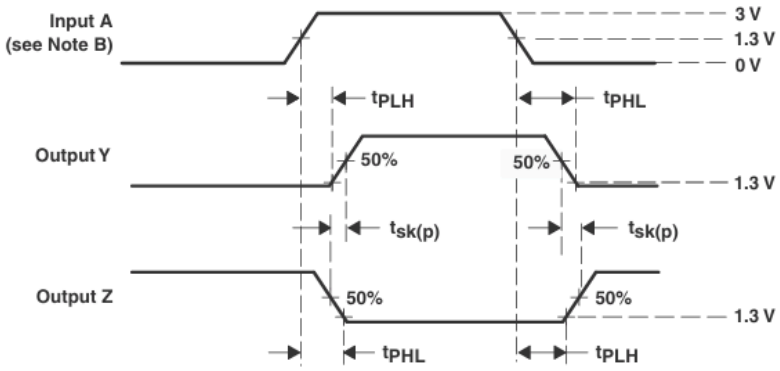
NPN	TTL	DIFF

LEFT:NPN Open Collector Output

MIDDLE:TTL 5V or 12/24V Output(12/24V Depends on Main Power)

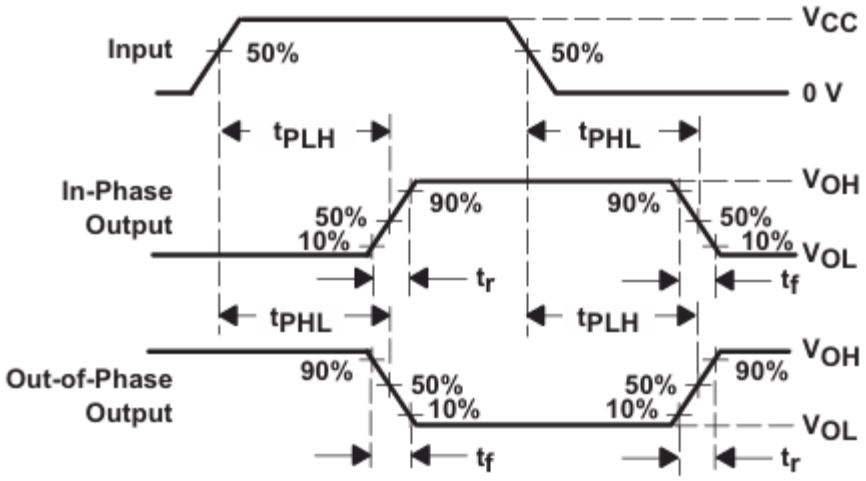
RIGHT: Differential Output

➢ Differential Trigger Output Specification



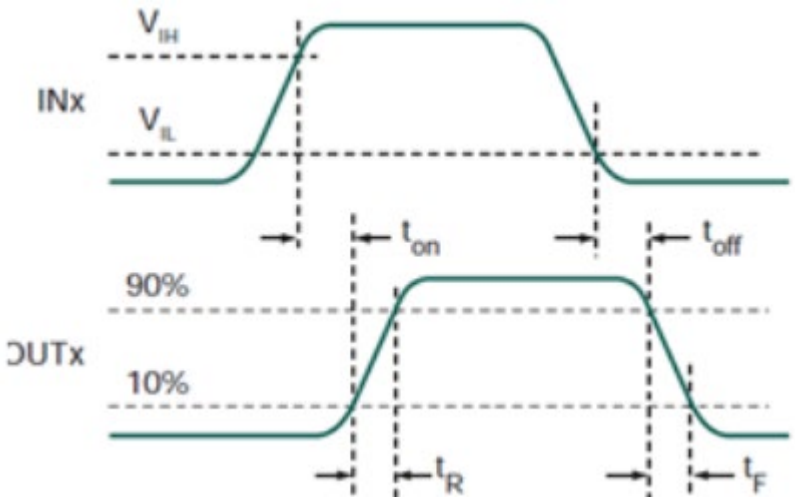
Sym	Parameter	Conditions	Min	Typ	Max	Unit
t_{PHL}	Propagation delay time, low-to-high-level output	$V_{cc} = 5V$ $R_L = 100\Omega$ $C_L = 60pF$ $Temp = 25℃$	3	7	12	ns
t_{PLH}	Propagation delay time, high-to-low-level output		3	7	12	
$t_{r(OD)}$	Differential output rise times			5	10	
$t_{f(OD)}$	Differential output fall times			5	10	

➢ 5V Trigger Output Specification



Sym	Parameter	Conditions	Min	Typ	Max	Unit
t_{PHL}	Propagation delay time, low-to-high-level output	$R_L = 1000\Omega$ $C_L = 50pF$			17	ns
t_{PLH}	Propagation delay time, high-to-low-level output				17	
t_r	Rise Times				6	
t_f	Fall Times				6	

➢ 12/24V Trigger Output Specification



Sym	Parameter	Conditions	Min	Typ	Max	Unit
t_{on}	On-Time Propagation Delay	$V_{cc} = 18V$ $C_L = 1000pF$			70	ns
t_{off}	Off-Time Propagation Delay				70	
t_R	Rise Time				30	
t_F	Fall Time				30	

⑧ POWER

The power of the trigger board. The range of input power is 8V-32V.

⑨ GND

The connection point to the GND of the trigger board. Use screws to connect to the GND of the equipment.

⑩ RESET

A button that resets the core of the communication role of the trigger board. Do not use under normal conditions.

2.4 Required hardware

- A Windows-based computer equipped with USB, serial port, or Ethernet/WIFI
- One reconfigurable intelligent PCB system device
- USB to serial port converter, serial port cable, or network cable.

2.5 Connection method

① USB to serial port communication

- Plug the USB-A end into the computer, and plug the serial port end into the reconfigurable intelligent PCB system device.

② Serial port cable communication

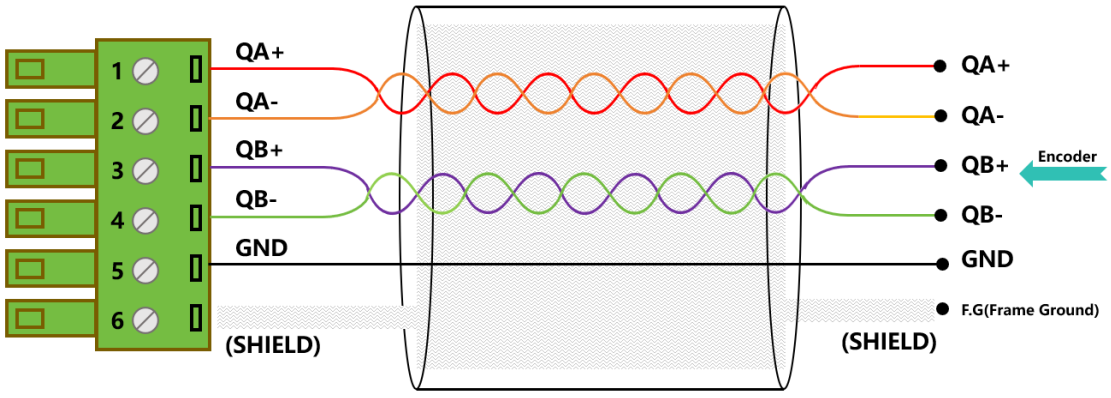
- Plug one end of the serial port cable into the computer and the other end into the reconfigurable intelligent PCB system device.

③ Ethernet communication

- Plug one end of the network cable into the computer and the other end into the reconfigurable intelligent PCB system device.

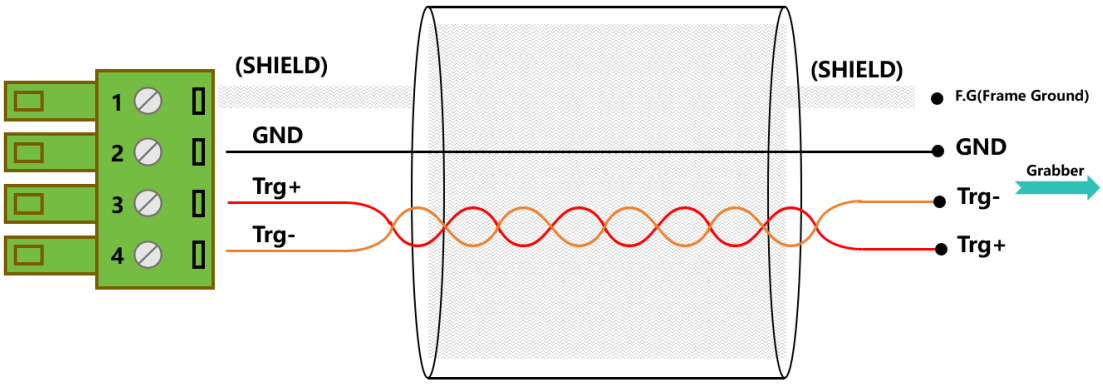
2.6 Connection cable

① Encoder Input Cable



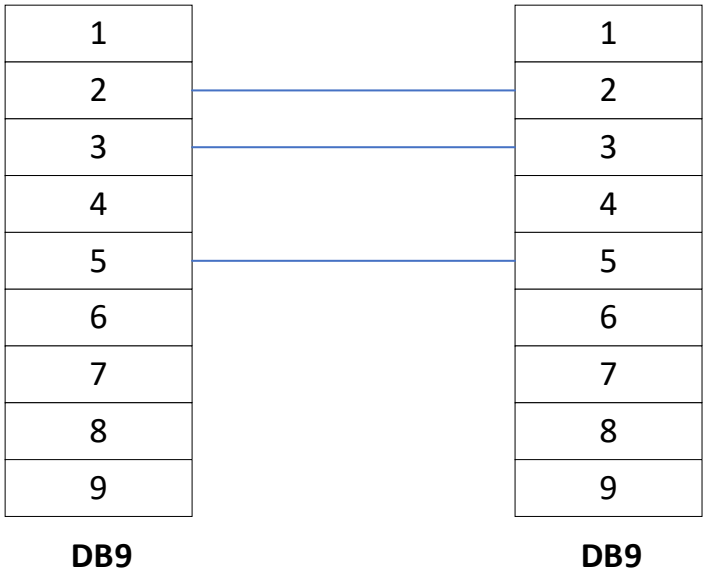
Cable distance:? m, Cable type: shielded twisted pair cable

② Trigger Output Cable



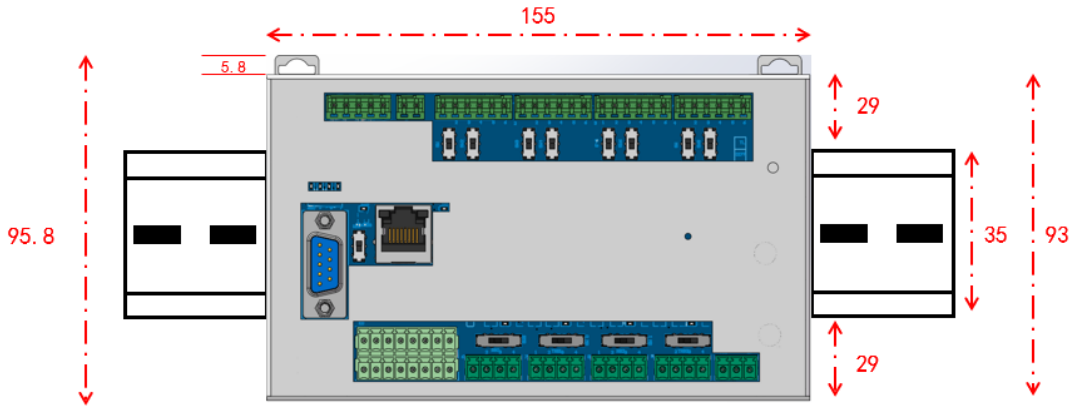
Cable distance:? m, Cable type: shielded twisted pair cable

③ RS232 Communication Cable

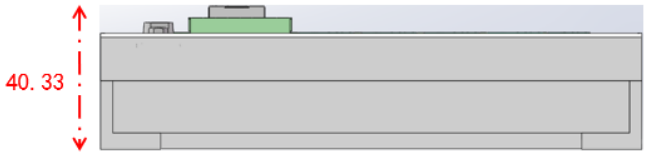


Cross or Direct Cable is possible - Select through switch

2.7 Setting Size



(Top View)



(Side View)

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