Right choice for ultimate yield

LSIS strives to maximize customers' profit in gratitude of choosing us for your partner.

Pulse Encoder Interface

User Manual

⚠ Safety Instructions

- Read this manual carefully before installing, wiring, operating, servicing or inspecting this equipment.
- Keep this manual within easy reach for quick reference.

LS IS

Before using the product, thank you for using our **SV-iS7 Pulse Encoder Interface Option Module**.

Safety Instruction

- To prevent injury and danger in advance for safe and correct use of the product, be sure to follow the Safety Instructions.
- The instructions are divided as **'WARNING'** and **'CAUTION'** which mean as follow.

⚠	**WARNING**	**This symbol indicates the possibility of death or serious injury.**
⚠	**CAUTION**	**This symbol indicates the possibility of injury or damage to property.**

- The meaning of each symbol in this manual and on your equipment is as follows.

This is the safety alert symbol.
This is the dangerous voltage alert symbol.

- After reading the manual, keep it in the place that the user always can Contact easily.
- Before you proceed, be sure to read and become familiar with the safety precautions at the beginning of this manual. If you have any questions, seek expert advice before you proceed. Do not proceed if you are unsure of the safety precautions or any procedure.

⚠ WARNING

- **Be cautious about dealing with CMOS elements of option board.**
  It can cause malfunction by static electricity.
- **Connection changing like communication wire change must be done with power off.**
  It can cause communication faulty or malfunction.
- **Be sure to connect exactly between Inverter and option board.**
  It can cause communication faulty or malfunction.
- **Check parameter unit when setting parameter.**
  It can cause communication faulty.

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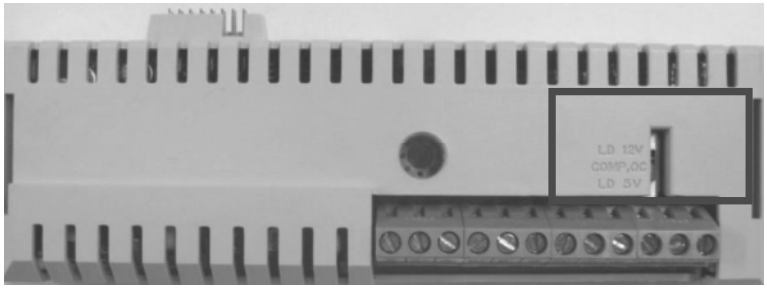
Chapter 1. Introduction

1.1 What This Product Contains

This option module is delivered in a package that also contains the following items:

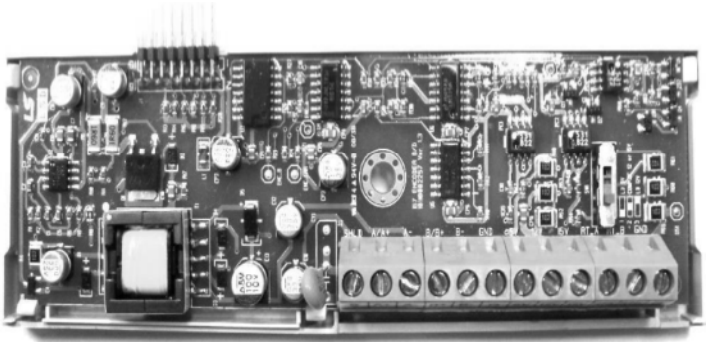
1) Pulse Encoder Interface Module : 1ea
2) User's Manual : 1ea
3) Screw (M3) : 1ea

1.2 Option Module



Encoder Type Selecting Switch

Pulse Encoder Interface Module

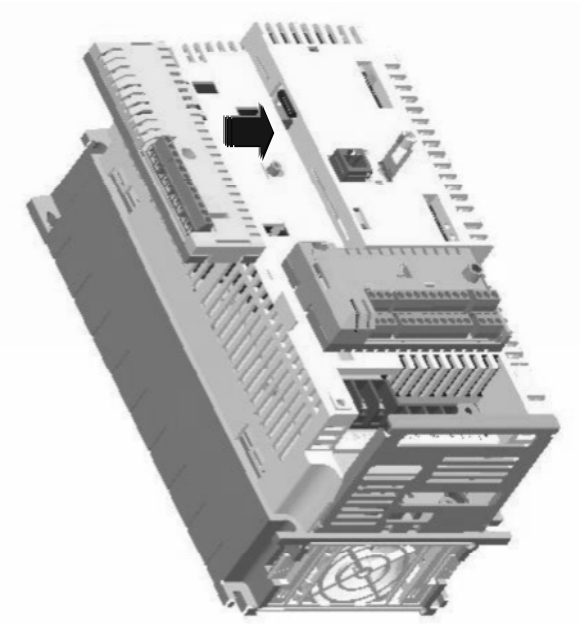


Inside of Pulse Encoder Interface Module

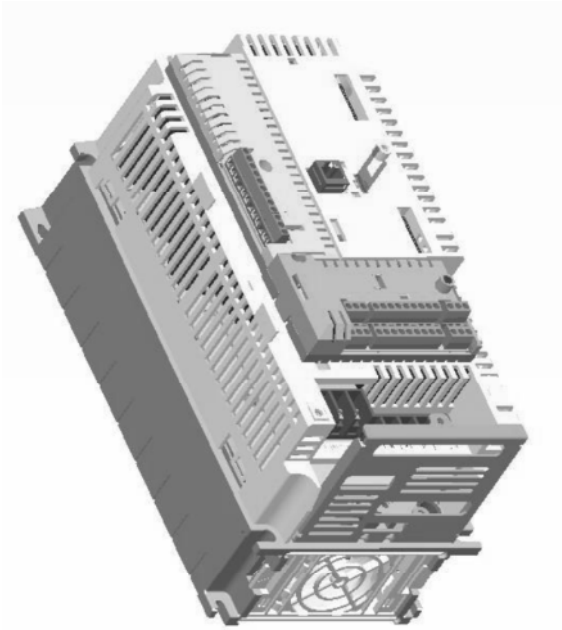
Terminal Block of Pulse Encoder Interface Module

1.3 Installment

The pictures describe the installation for pulse encoder interface option module on iS7 inverter body.



Before the installment of pulse encoder interface module on inverter body



After the installment of pulse encoder interface module on inverter body

Chapter 2. Terminal Block Specification

2.1 Name and Description

S	A+	A-	B+	B-	G	5V	12	15	RTA	RTB	G

Signal		Symbol	Name	Description
Encoder Signal	Input Power	5V	Encoder Power	+5V Encoder Line Drive power
		12V		+12V Encoder Line Drive/ Open Collector power
		15V		+15V Encoder Open Collector power
		G	Ground	Encoder power ground
		S	Shield	Connects the shielded wire of encoder signal cable
	Pulse Input	A+ / A-	Encoder A phase signal	Connects the A+/A- phase output signal of encoder
		B+ / B-	Encoder B phase signal	Connects the B+/B- phase output signal of encoder
	Pulse Output	RTA	Encoder A phase return signal	Return signal of encoder A phase
		RTB	Encoder B phase return signal	Return signal of encoder B phase
		G	Ground	Ground for Encoder return signal

2.2 Power Specification for Terminal Block

The measured voltage standard after connecting option module

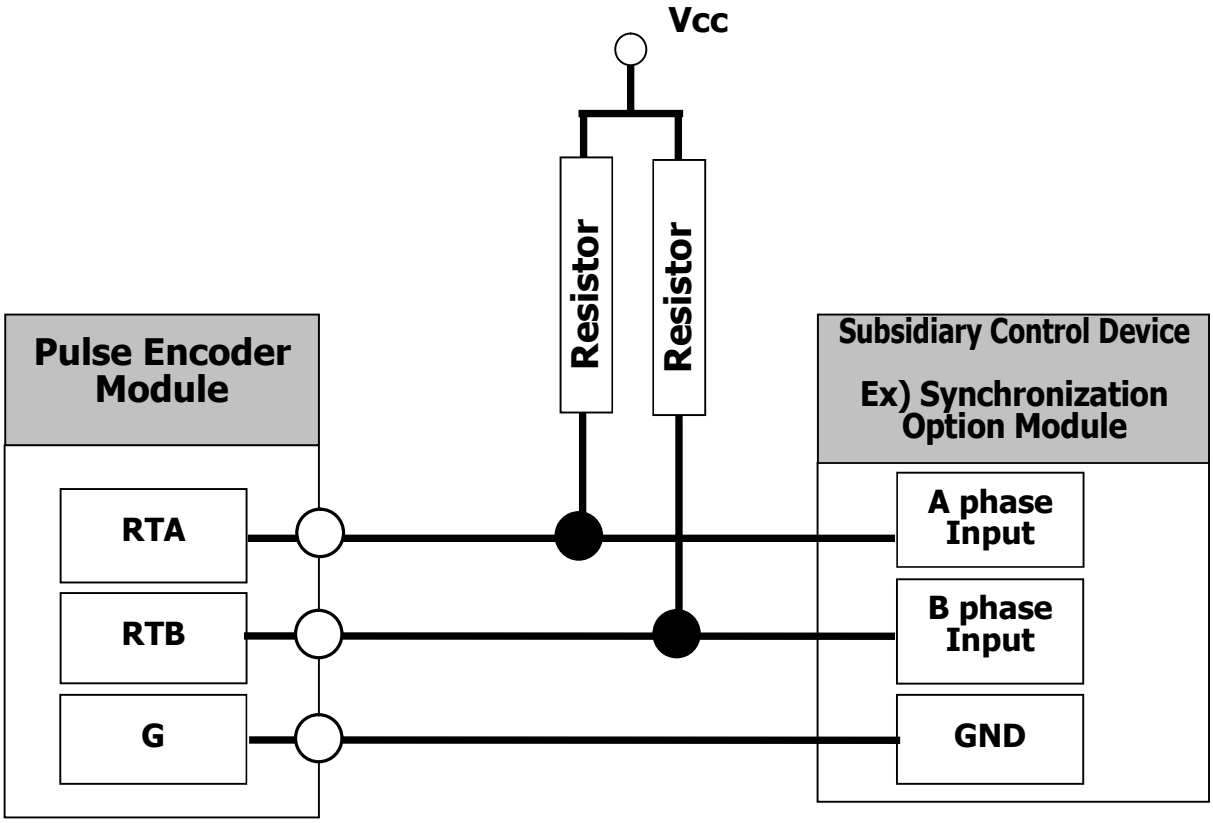
	Terminal Symbol	Vol. Range (V)	Max. Current (A)
Output Power	5V	4.5 ~ 5.5	0.2
	12V	11 ~ 13	0.07
	15V	14 ~ 16	0.07
Output Pulse	RTA	Below 17V	0.01
	RTB	Below 17V	0.01

2.3 The Wiring Example of Pulse Encoder Option Module

2.1.1 Using Pull Up/Down resistor

It is described the example that power and resistor are connected to RTA and RTB output of Pulse encoder interface option module.

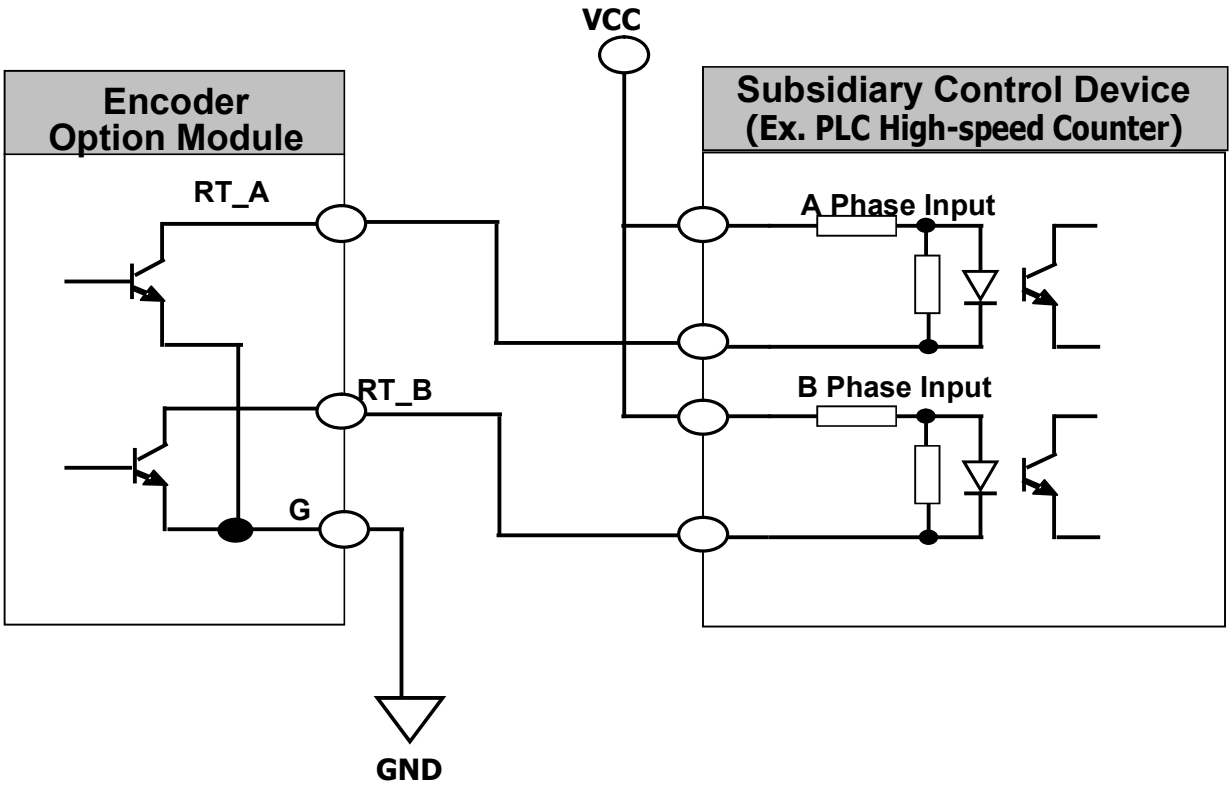
- Power : 24V, Resistor: 1/2W 4.7KΩ



2.1.2 Using PLC

Consider the input circuit before wiring since the output of option module is open collector output.

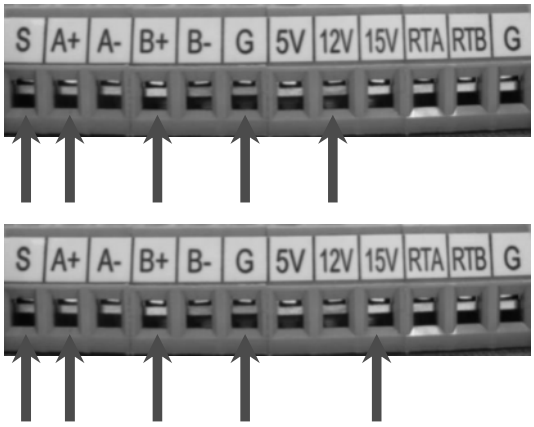
The wiring when signal is inputted from option module to High-speed counter of PLC (manufactured by LS Industrial Systems) is as shown below.

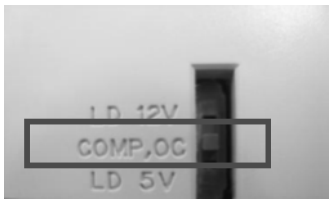


Chapter 3. Encoder Wiring and Switch Setting

3.1 +12/15V Complementary or Open Collector

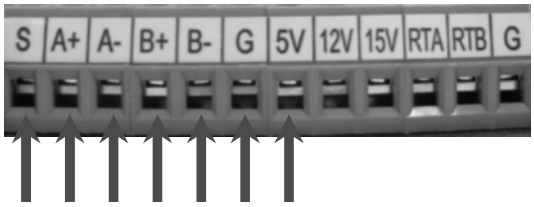
wire ←

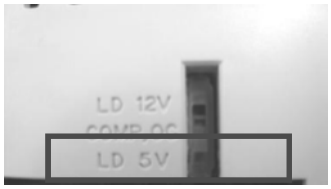




+12/15V Open Collector (OC)

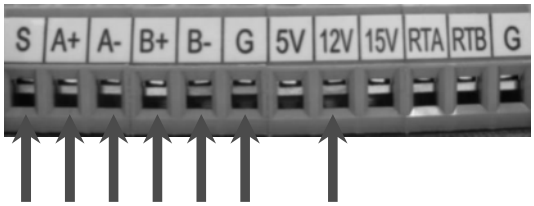
3.2 +5V Line Drive

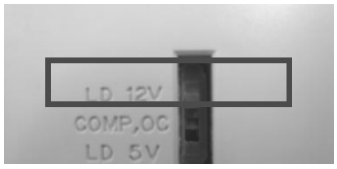




+5V Line Drive (LD)

3.3 +12V Line Drive





+12V Line Drive (LD)

Warning

Do not change the switch setting of encoder type in operation.
It can affect to the system since the trip is occurred by changing the setting.
Please set the switch setting correctly to encoder type and operate the inverter.

Chapter 4. Precaution when Encoder Wiring

4.1 Check the Axis Connection between the Motor and Encoder in Installment

① Encoder must be installed the place where the revolution speed is synchronized with the motor axis.

(Example) The axis of motor for load, The axis of motor at opposite side for traction machine

② Motor will be not operated or throbbed seriously when there is a slip between motor axis and encoder axis.

③ If connection status of axis is unstable (coupling angle, center of two axes etc..), the vibration synchronized with the number of revolution of motor will be occurred at constant speed operation since the torque ripple is occurred.

4.2 The Method of Wiring of Encoder Signal Cable

① Shielded cable must be connected after connection of shielded cable of twisted pair cable.

② Encoder signal cable has to be located as far as possible with power cable of inverter.

③ The output signal of encoder can be affected from noise.

Warranty

Maker	LS Industrial Systems Co., Ltd.		**Installation (Start-up) Date**	
Model No.	**SV-iS7**		**Warranty Period**	
Customer Information	Name			
	Address			
	Tel.			
Sales Office (Distributor)	Name			
	Address			
	Tel.			

Warranty period is 12 months after installation or 18 months after manufactured when the installation date is unidentified. However, the guarantee term may vary on the sales term.

IN-WARRANTY service information

If the defective part has been identified under normal and proper use within the guarantee term, contact your local authorized LS distributor or LS Service center.

OUT-OF WARRANTY service information

The guarantee will not apply in the following cases, even if the guarantee term has not expired.

- Damage was caused by misuse, negligence or accident.
- Damage was caused by abnormal voltage and peripheral devices' malfunction (failure).
- Damage was caused by improper repair or altering by other than LS authorized distributor or service center.
- Damage was caused by an earthquake, fire, flooding, lightning, or other natural calamities.
- When LS nameplate is not attached.
- When the warranty period has expired.

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