

VIGOR VS系列PLC擴充卡簡介

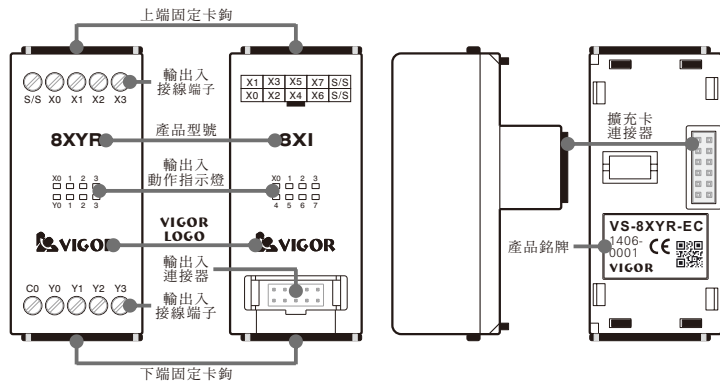
前言

VS系列PLC主機上方的擴充卡插槽提供彈性擴充功能。可安裝小點數數位輸出(DIO)擴充卡，補足小量的控制點數需求，避免浪費。也可安裝通訊埠(CP)擴充卡，擴充通訊功能，完成需與外界週邊設備連結的通訊控制需求。更可安裝特殊功能(SF)擴充卡，滿足需要位置偵測、速度控制、溫度控制等各種特殊應用的控制需求，完成較複雜高階的控制系統。

本文僅針對數位輸出入擴充卡進行說明，關於通訊擴充卡及特殊功能擴充卡會有個別的文件說明。

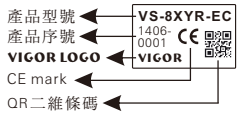
VS系列PLC提供4點至8點多樣的數位輸出入擴充卡供選擇使用。有繼電器及NPN電晶體輸出供驅動不同負載選用。有端子台接線及IDC連接器接線型式供選擇。

各部位名稱



機型編碼

產品銘牌說明

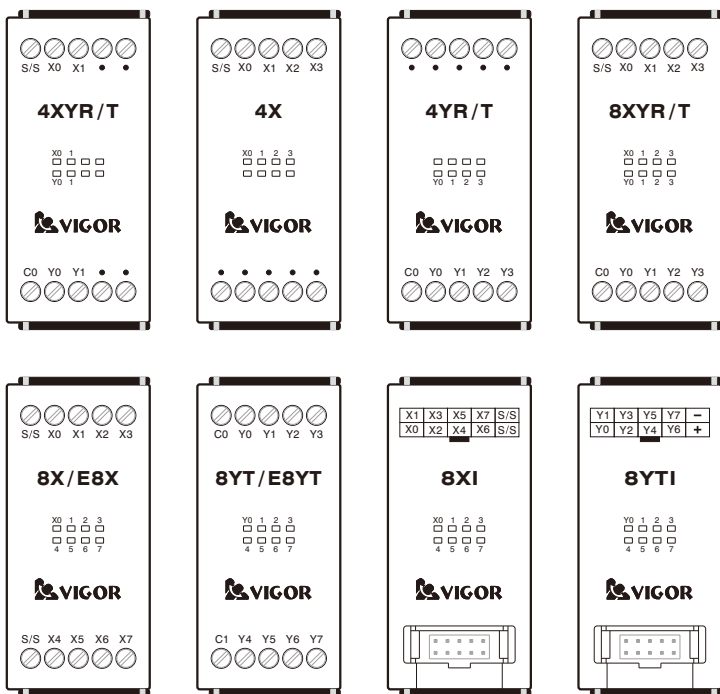


DIO擴充卡機型編碼



系列名稱	表示擴充卡
4XYR	2點DC24V輸入，2點2A繼電器輸出
4XYT	2點DC24V輸入，2點0.3A NPN電晶體輸出
4X	4點DC24V輸入
4YR	4點2A繼電器輸出
4YT	4點0.3A NPN電晶體輸出
8XYR	4點DC24V輸入，4點2A繼電器輸出
8XYT	4點DC24V輸入，4點0.3A NPN電晶體輸出
8X	8點DC24V輸入
8YT	8點0.3A NPN電晶體輸出
8XI	8點DC24V輸入
8YTI	8點0.1A NPN電晶體輸出
E8X	8點DC24V輸入
E8YT	8點0.3A NPN電晶體輸出

端子排列



規格

基本規格

型號	規格
VS-4XYR-EC	2點Sink/Source可選擇DC24V輸入，2點2A繼電器輸出，接線採用端子台
VS-4XYT-EC	2點Sink/Source可選擇DC24V輸入，2點0.3A NPN電晶體輸出，接線採用端子台
VS-4X-EC	4點Sink/Source可選擇DC24V輸入，接線採用端子台
VS-4YR-EC	4點2A繼電器輸出，接線採用端子台
VS-4YT-EC	4點0.3A NPN電晶體輸出，接線採用端子台
VS-8XYR-EC	4點Sink/Source可選擇DC24V輸入，4點2A繼電器輸出，接線採用端子台
VS-8XYT-EC	4點Sink/Source可選擇DC24V輸入，4點0.3A NPN電晶體輸出，接線採用端子台
VS-8X-EC	兩組4點Sink/Source可選擇DC24V輸入，共8點輸入，接線採用端子台
VS-8YT-EC	兩組4點0.3A NPN電晶體輸出，共8點輸出，接線採用端子台
VS-8XI-EC	8點Sink/Source可選擇DC24V輸入，接線採用10P簡易IDC連接器
VS-8YTI-EC	8點0.1A NPN電晶體輸出，接線採用10P簡易IDC連接器
VS-E8X-EC	兩組4點Sink/Source可選擇DC24V輸入，共8點輸入，接線採用端子台
VS-E8YT-EC	兩組4點0.3A NPN電晶體輸出，共8點輸出，接線採用端子台

※VS-E8X-EC及VS-E8YT-EC為擴充模組專用擴充卡，僅可安裝於VS-32XYR及VS-32XYT擴充模組上。

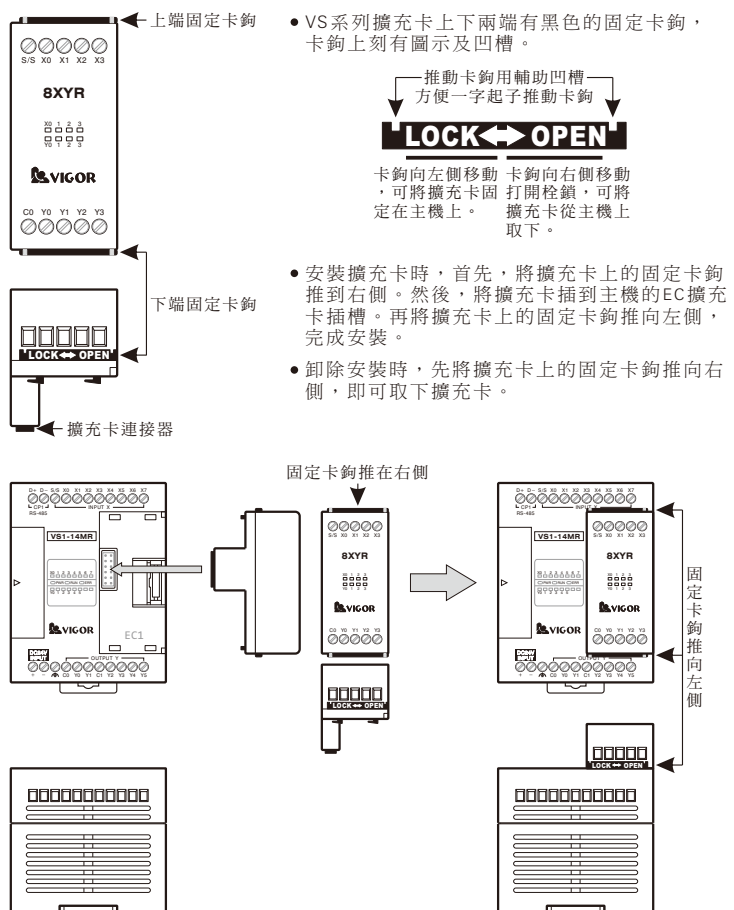
輸入規格

項目	規格
輸入形式	Sink/Source可選擇
外部提供電源	DC24V ± 15%
輸入信號電流	5.3mA/DC24V (EN61131-2, type3)
輸入ON電流	3.5mA以上 (EN61131-2, type3)
輸入OFF電流	1.5mA以下 (EN61131-2, type3)
輸入阻抗	約4.3KΩ
輸入反應時間	約10mS
輸入信號形式	無電壓接點或NPN開集極電晶體或PNP開集極電晶體
隔離方式	光耦合器隔離
輸入動作指示	當輸入光耦合器被驅動時，面板上的LED指示燈ON

輸出規格

項目	規格			
	端子台接線機型		IDC連接器機型	
輸出形式	繼電器輸出	NPN電晶體輸出	NPN電晶體輸出	
負載電源	AC250V/DC30V以下	DC5V~30V	DC5V~30V	
最大負載	電阻性負載	2A/1點 8A/4點共COM	0.3A/1點 0.8A/8點共COM	
	電感性負載	80VA	7.2W/DC24V	2.4W/DC24V
	燈負載	100W	1W/DC24V	—
開路漏電流	—	0.1mA以下/DC30V	0.1mA以下/DC30V	
反應時間	OFF→ON: 約10mS	OFF→ON: 100μs以下	OFF→ON: 100μs以下	
	ON→OFF: 約10mS	ON→OFF: 100μs以下	ON→OFF: 100μs以下	
隔離方式	機械性隔離	光耦合器隔離	光耦合器隔離	
輸出動作指示	當輸出元件被驅動時，面板上的LED指示燈ON			

擴充卡安裝方法



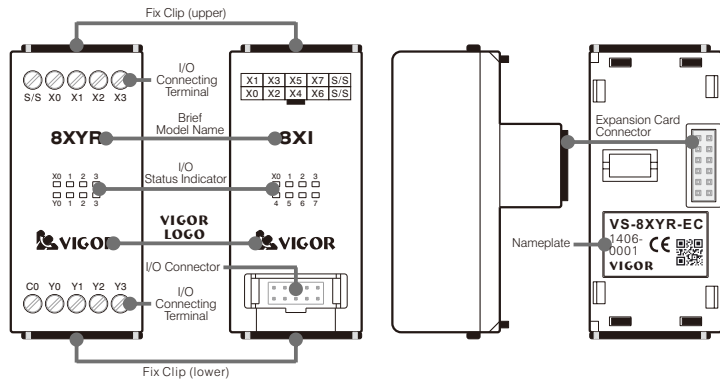
Forward

The Expansion Card Socket, on the upper side of VS Series PLC, is ready for flexible expansion. It is available to install small-point DIO expansion card to fill the needs of a small number of control points in a cost effective way. If the communication port (CP) expansion card is installed, could expand communication capabilities to control external accessories by the data transfer. In addition, the special function (SF) expansion card is capable to perform various special controls, such as position measurement speed control, and temperature control, to present a complicated, high-level control system.

This document is to describe the DIO Expansion card of the VS series. More description about the Communication Expansion or Special Function Card, please refer to the card's particular document.

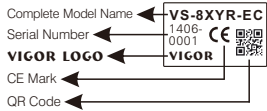
The VS Series PLC has various DIO Expansion Cards for a small 4 to 8 points I/O expansion. That output offers the relay or NPN transistor type to meet the driving characteristics of the load. Also, the wiring type can choose either the terminal block or IDC connector.

Component Designation

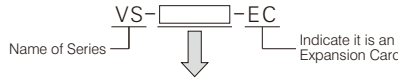


Method of Product Named

Description of the Nameplate

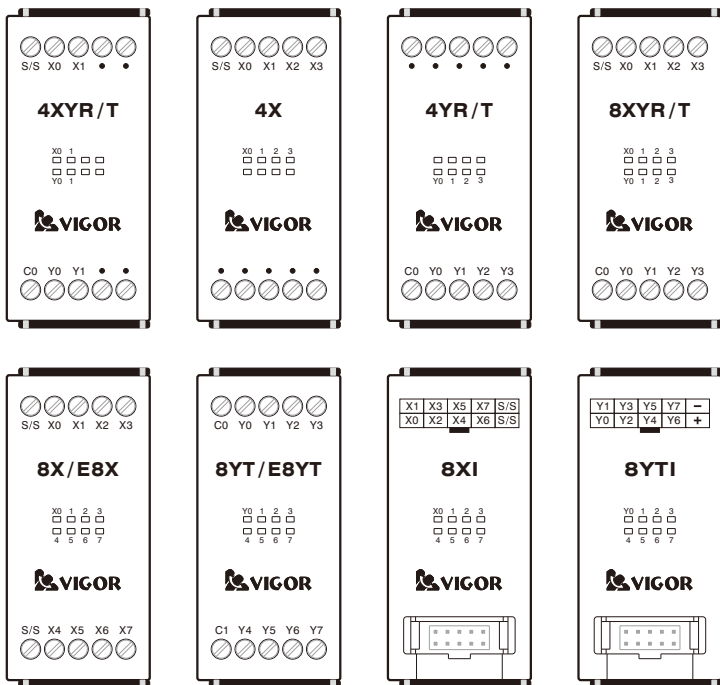


Complete Model Name About a Digital I/O Expansion Card



4XYR	2 points DC24V input, 2 points 2A relay output
4XYT	2 points DC24V input, 2 points 0.3A NPN transistor output
4X	4 points DC24V input
4YR	4 points 2A relay output
4YT	4 points 0.3A NPN transistor output
8XYR	4 points DC24V input, 4 points 2A relay output
8XYT	4 points DC24V input, 4 points 0.3A NPN transistor output
8X	8 points DC24V input
8YT	8 points 0.3A NPN transistor output
8XI	8 points DC24V input
8YTI	8 points 0.1A NPN transistor output
E8X	8 points DC24V input
E8YT	8 points 0.3A NPN transistor output

Terminal Layout



Specification

Basic Specification

Model Name	Basic Specification
VS-4YR-EC	2 inputs (DC 24V trigger, Sink / Source selectable); 2 relay (2A) outputs; I/O by screw-clamp terminal
VS-4XYT-EC	2 inputs (DC 24V trigger, Sink / Source selectable); 2 NPN transistor (0.3A) outputs; I/O by screw-clamp terminal
VS-4X-EC	4 inputs (DC 24V trigger, Sink / Source selectable); input by screw-clamp terminal
VS-4YR-EC	4 relay (2A) outputs; output by screw-clamp terminal
VS-4YT-EC	4 NPN transistor (0.3A) outputs; output by screw-clamp terminal
VS-8XYR-EC	4 inputs (DC 24V trigger, Sink / Source selectable); 4 relay (2A) outputs; I/O by screw-clamp terminal
VS-8XYT-EC	4 inputs (DC 24V trigger, Sink / Source selectable); 4 NPN transistor (0.3A) outputs; I/O by screw-clamp terminal
VS-8X-EC	8 inputs (by 2 groups × 4 points, DC 24V trigger, Sink / Source selectable); input by screw-clamp terminal
VS-8YT-EC	8 NPN transistor (by 2 groups × 4 points, DC 24V trigger, Sink / Source selectable); output by screw-clamp terminal
VS-8XI-EC	8 inputs (DC 24V trigger, Sink / Source selectable); input by 10P brief IDC connector
VS-8YTI-EC	8 NPN transistor (0.1A) outputs; output by 10P brief IDC connector
VS-E8X-EC	8 inputs (by 2 groups × 4 points, DC 24V trigger, Sink / Source selectable); input by screw-clamp terminal ※
VS-E8YT-EC	8 NPN transistor (by 2 groups × 4 points, 0.3A each) outputs; output by screw-clamp terminal ※

※ The VS-E8X-EC and VS-E8YT-EC are specifically designed for the VS-32XYR or VS-32XYT Expansion Module, other cards are not. On the other hand, the Main Unit can not use the VS-E8X-EC or VS-E8YT-EC directly.

Input Specification

Item	Input Specification
Input Type	Sink / Source selectable
Input Activating Voltage	DC24V ± 15%
Input Signal Current	5.3mA / DC24V
Input ON Definition	Above 3.5mA
Input OFF Definition	Below 1.5mA
Input Resistance	4.3kΩ Approx.
Input Response Time	10ms Approx.
Input Signal Type	Dry contact or NPN / PNP transistor
Isolation Method	Photocoupler isolation
Input Indicator	When a photocoupler's input is activated, the related input indicator will display ON

Output Specification

Item	Output Specification		
	Screw-Clamp Terminal Block Type	Terminal Block Type	IDC Connector Type
Type of Output	Relay output	NPN transistor output	NPN transistor output
Switch Voltage	AC: < 250V; DC: < 30V	DC5V-30V	DC5V-30V
Rated Current	Resistive Load	2A / point, 8A / 4 points / COM	0.3A / point, 0.5A / 8 points / COM
	Inductive Load	80VA / AC230V	7.2W / DC24V
	Lamp Load	100W / AC230V	1W / DC24V
Open Circuit Leakage	—	< 0.1mA / DC30V	< 0.1mA / DC30V
Response Time	OFF → ON: 10ms Approx. ON → OFF: 10ms Approx.	OFF → ON: 100µs Max. ON → OFF: 100µs Max.	OFF → ON: 100µs Max. ON → OFF: 100µs Max.
Isolation Method	Machinery isolation	Photocoupler isolation	Photocoupler isolation
Output Indicator	When the actual output point is activated, the related output indicator will display ON		

*The IDC output connector is required a DC 24V -15--+20% power input.

Expansion Card Installation Guide

Every VS Series Expansion Card has 2 black fix clips (upper & lower), those have symbols and grooves.

