

VIGOR VSM-Mini可程式控制器

前言

VS系列可程式控制器是本公司累積多年經驗，因應市場需求，而全新研製的新一代PLC。功能更強大，執行更快速，組合更多元，更具競爭力。

VS系列家族包含VS1基本型，VS2通用型，VSM運動控制型及VS3高功能型控制器。提供從基本控制到高功能應用完整產品線，取得兼顧價格及功能的最佳組合。透過「最適產品」的設計理念，提高產品競爭力。

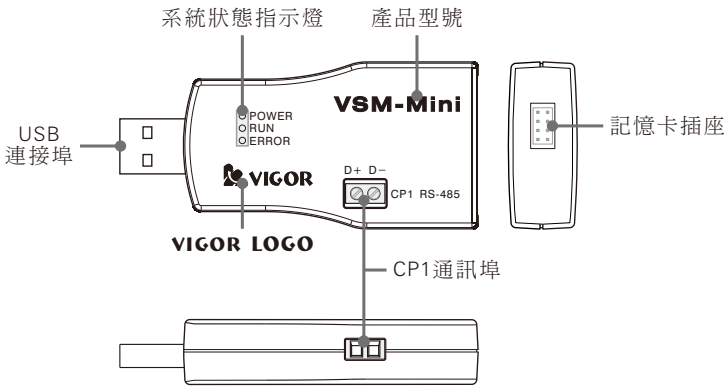
VSM-Mini為VS系列PLC中特殊的一員。VSM-Mini具備VSM系列PLC的所有功能，可以做為工程師發展PLC程式的便利工具，也是認識及學習VS系列PLC最方便最有效的裝置。

本文件僅簡單介紹VSM-Mini及VS系列控制器。關於控制器的詳細規格、安裝說明請參閱「VS系列PLC產品說明書」。關於程式編寫，請參閱「VS系列PLC程式編輯說明書」。

產品特性

- VSM-Mini具備輕薄短小可隨身攜帶的特性，提供工程師隨時隨地編程、測試的方便性。
- VSM-Mini PLC直接插在電腦的USB插座上，不需額外供給電源。
- 內建CP1 RS-485通訊界面，提供與通訊週邊連結的能力。
- 具備記憶卡插槽，可安裝VS-MC/VSM-MCR記憶卡執行相關功能。
- VSM-Mini控制器內部已經將Y0~Y7輸出信號短接到X0~X7輸入端，方便工程師進行許多高速輸出功能的測試及驗證。
- VSM-Mini是教育單位認識及學習VS系列PLC最方便的工具。

各部位名稱



銘牌說明

銘牌說明 (銘牌貼於VSM-Mini控制器的底部)



VS系列系統構成

程式編輯工具	編程插槽	主機	DIO擴充模組
PC軟體 Ladder Master S	USB	VS1-10M★-D VS1-14M★-D VS1-20M★-D VS1-24M★-D VS1-28M★-D VS1-32M★-D VS1-32MT-DI	VS-8XY★ VS-8X VS-8Y★ VS-16XY★ VS-16X VS-16Y★ VS-28XYR VS-32XY★ VS-16XYT-I VS-16X-I VS-16YT-I VS-32XYT-I VS-PSD
	記憶卡槽	VS2-24M★-D VS2-32M★-D VS2-32MT-DI	VS-32XY專用擴充卡 VS-E8X-EC VS-E8YT-EC
VS-MC VS-MCR	MC	VSM-14MT-D VSM-24MT-D VSM-32MT-D VSM-28ML-D VSM-32MT-DI	特殊模組 VS-4AD VS-2DA VS-3A VS-6A VS-4TC VS-8TC VS-2PT VS-4PT VS-2PG VS-4PG VS-1LC VS-2LC
	擴充卡槽	VS3-32M★-D VS3-32MT-DI	週邊產品 VSPC-200A VSEC-050/100 VB-T8M/16M VB-T8R/RS VB-T16TB VB-HT214 VBIDC-050/100/150 VBIDC-200/250/300 VBIV-050/100/200/300 VBIDC-FC100/FC250 VBIDC-HD20/HD100
	通訊擴充卡		
	特殊擴充卡		

★表示輸出之形式
R : 2A繼電器輸出
T : 0.5A PNP 電晶體輸出
P : 0.5A PNP 電晶體輸出
外型尺寸: W×H×D(mm)
10/14M主機: 70×90×65
20/24M主機: 100×90×65
28/32M主機: 130×90×65

※ VS1系列除 VS-3AV-EC卡以外，僅可再安裝1個特殊卡

VS系列功能規格表

項目	VS1系列	VS2系列	VSM系列	VS3系列
控制方式/輸入控制方式	程式儲存，循序掃描方式/總處理方式			
程式語言	(階梯圖+SFC順序功能圖)或(階梯圖+步進階梯圖)			
執行速度	基本指令/應用指令 0.17 μS/數μS ~ 數百μS	29個/188個	29個/188個	0.15 μS/同左
基本指令數目/應用指令數目	29個/186個	29個/188個	29個/188個	29個/226個
專案記憶容量(Flash ROM)	16K Words	32K Words	32K Words	64K Words
最大輸出入點數	128點+擴充卡24點	256點+擴充卡24點	256點+擴充卡24點	512點+擴充卡24點
輸出入繼電器	輸入繼電器(X) 64點 X0~X77	128點 X0~X177	128點 X0~X177	256點 X0~X377
	輸出繼電器(Y) 64點 Y0~Y77	128點 Y0~Y177	128點 Y0~Y177	256點 Y0~Y377
內部繼電器	輔助繼電器(M)	一般用途 6192點 M0~M1999, M4000~M8191 停電保持 2000點 M2000~M3999 特殊用途 512點 M9000~M9511		
	步進繼電器(S)	一般用途 3086點 S10~S499, S1500~S4095 停電保持 900點 S500~S899, S1000~S1499 警示用 100點 S900~S999 (停電保持)		
	計時器(T)	100mS/10mS/1mS 200點T0~T199/46點T200~T245/256點T256~T511 1mS/100mS(積算型) 4點T246~T249/6點T250~T255		
計數器(C)	16位元上數	一般用途 100點 C0~C99 (計數範圍0~32,767) 停電保持 100點 C100~C199 (計數範圍0~32,767)		
	32位元上下數	一般用途 20點 C200~C219 (計數範圍-2,147,483,648~2,147,483,647) 停電保持 15點 C220~C234 (計數範圍-2,147,483,648~2,147,483,647)		
軟體高速計數器	32位元上下數	單相計數 11點 C235~C245 (計數範圍-2,147,483,648~2,147,483,647) 雙相計數 5點 C246~C250 (計數範圍-2,147,483,648~2,147,483,647) AB相 5點 C251~C255 (計數範圍-2,147,483,648~2,147,483,647)		
	硬電路AB相高速計數器	2點 HHSC1~HHSC2 (計數範圍-2,147,483,648~2,147,483,647)		
暫存器	一般用途(D)	7000點 D0~D6999 停電保持(D) 2000點 D7000~D8999 特殊用途(D) 512點 D9000~D9511		
	索引暫存器(V·Z)	擴充暫存器(R) 10000點 R0~R9999		24000點 R0~Z3999
指標	程式指標/分枝指標	7000點 D0~D6999 2000點 D7000~D8999 512點 D9000~D9511	程式指標由8個中文字或16個英文數字組成/分枝指標P0~P1023, 共1024點 表格名稱由8個中文字或16個英文數字組成/表格指標O0~O31, 共32點	24000點 R0~Z3999
	中斷指標(I)	21點 外部中斷8點, 定時中斷3點, 高速計數器中斷10點 8點 N0~N7		
數值系統				
通訊功能	主機內建通訊埠		USB高速通訊埠, 通訊速率高達12Mbps (Mini USB插座) CP1 (RS-485) 具備電纜連結, MODBUS, CPU Link及Non Protocol等多功能通訊	
	擴充多功能通訊埠	CP2~3(EC1裝通訊卡), VS1軟體版本V1.6以上開始支援CP3		CP2~5(裝通訊卡)
多功能高速輸入			具備外部中斷, 硬電路高速計數, 脈波抓取, 脈波量測及電子手輪等功能 8點10KHz, 8點50KHz, 4點200KHz+4點50KHz*	
	高速脈波輸出(MT機型)	4點50KHz, 4點50KHz, 4點200KHz*		4點200KHz
萬年曆(選購配組)			安裝VS-MCR多功能記憶卡, 可表示年、月、日、時、分、秒、週	
記憶卡(VS-MC, VS-MCR)			16Mb免電池停電記憶體, 可存放專案並具備655,360個words資料儲存空間	
擴充卡(EC1~EC3)			DIO卡、通訊卡、特殊功能卡(類比輸出、溫度輸入、變頻器控速等)	
可安裝特殊模組數/特殊卡數	0個/1個	8個/3個	8個/3個	16個/3個

* VS-28ML機型之多功能高速輸入為(4點1MHz+4點50KHz), 高速脈波輸出為(4點1MHz)。

VS系列機型一覽表

品名	型號	規格	價格
VS1系列主機	VS1-10/14M★-D	6/8點DC24V輸入, 4/6點輸出, 可擴充1個擴充卡	16K Words專案記憶體
	VS1-20/24M★-D	12/14點DC24V輸入, 8/10點輸出, 可擴充2個擴充卡	8點10KHz高速輸入 MT機型4點50KHz高速輸出 接線採用端子台
	VS1-28/32M★-D	16/20點DC24V輸入, 12點輸出, 可擴充DIO模組及3個擴充卡	
	VS1-32MT-DI	16點DC24V輸入, 16點100mA NPN電晶體輸出, 功能同VS1-32M, 接線採用IDC連接器	
VS2系列主機	VS2-24M★-D	12點DC24V輸入, 12點輸出, 可擴充DIO模組、8個特殊模組及2個擴充卡	32K Words專案記憶體 8點50KHz高速輸入 MT機型4點50KHz高速輸出 接線採用端子台
	VS2-32M★-D	16點DC24V輸入, 16點輸出, 可擴充DIO模組、8個特殊模組及3個擴充卡	
	VS2-32MT-DI	16點DC24V輸入, 16點100mA NPN電晶體輸出, 功能同VS2-32M, 接線採用IDC連接器	
	VSM-14MT-D	8點DC24V輸入, 6點0.5A NPN電晶體輸出, 1個擴充卡	32K Words專案記憶體 (4點200KHz+4點50KHz) 高速輸入 4點200KHz高速輸出 接線採用端子台
VSM系列主機	VSM-24MT-D	12點DC24V輸入, 12點0.5A NPN電晶體輸出, 可擴充DIO模組、8個特殊模組及2個擴充卡	
	VSM-32MT-D	16點DC24V輸入, 16點0.5A NPN電晶體輸出, 可擴充DIO模組、8個特殊模組及3個擴充卡	
	VSM-28ML-D	32K Words專案記憶體, 4點差動輸入(1MHz), 12點DC24V輸入(4點50KHz), 8點線驅動輸出(4點1MHz), 4點0.5A NPN電晶體輸出, 可擴充DIO模組、8個特殊模組及3個擴充卡	
	VSM-32MT-DI	16點DC24V輸入, 16點100mA NPN電晶體輸出, 功能同VSM-32M, 接線採用IDC連接器	
VS3系列主機	VS3-32M★-D	64K Words專案記憶體, 16點DC24V輸入(4點200KHz+4點50KHz), 16點輸出(MT機型4點200KHz), 可擴充DIO模組、16個特殊模組及3個擴充卡, 接線採用IDC連接器	
	VS3-32MT-DI	16點DC24V輸入, 16點100mA NPN電晶體輸出, 功能同VS3-32M, 接線採用IDC連接器	
DIO擴充卡	VS-8X/16X	DIO模組, 8/16點DC24V輸入, 接線採用端子台	
	VS-8Y★/16Y★	DIO模組, 8/16點輸出, 接線採用端子台	
	VS-8XY★/16XY★	DIO模組, 4/8點DC24V輸入, 4/8點輸出, 接線採用端子台	
	VS-28XYR	DIO模組, 16點DC24V輸入, 12點繼電器輸出, 接線採用端子台	
	VS-32XY★	DIO模組, 16點DC24V輸入, 16點輸出, 接線採用端子台	
	VS-16X/16YT-I	DIO模組, 16點DC24V輸入/16點100mA NPN電晶體輸出, 接線採用IDC連接器	
	VS-16XYT/32XYT-I	DIO模組, 8/16點DC24V輸入, 8/16點100mA NPN電晶體輸出, 接線採用IDC連接器	
	VS-PSD	電源中繼模組, 電源輸出DC24V, 電源輸出DC5V 500mA及DC12V 800mA	
	VS-4AD	類比輸入輸出模組, 4點16bits輸出, 可任意選擇電壓或電流形式	
特殊模組	VS-2DA	類比輸出輸出模組, 2點16bits輸出, 可任意選擇電壓或電流形式	
	VS-3A/6A	類比輸入輸出模組, 2/4點16bits輸出, 1/2點16bits輸出, 可任意選擇電壓或電流形式	
	VS-4TC/8TC	溫度輸入輸出模組, 4/8點Thermo Couple輸入, 解析度0.1°C	
	VS-2PT/4PT	溫度輸入輸出模組, 2/4點3線式PT100輸入, 解析度0.1°C	
	VS-2PG/4PG	脈波輸出定位模組, 2/4點定位控制, 輸出脈波頻率200KHz	
	VS-1LC/2LC	重量量測模組, 1/2點6線式Load Cell信號輸出	
	VS-4X/8X-EC	DIO擴充卡, 4/8點DC24V輸入, 接線採用端子台	
	VS-4YR/T-EC	DIO擴充卡, 4點2A繼電器/0.3A NPN電晶體輸出, 接線採用端子台	
	VS-8YT-EC	DIO擴充卡, 8點0.3A NPN電晶體輸出, 接線採用端子台	
	VS-4XYR/T-EC	DIO擴充卡, 2點DC24V輸入, 2點2A繼電器/0.3A NPN電晶體輸出, 接線採用端子台	
	VS-8XT/8YT-EC	DIO擴充卡, 4點DC24V輸入, 4點2A繼電器/0.3A NPN電晶體輸出, 接線採用端子台	
	VS-8YR-EC	DIO擴充卡, 8點DC24V輸入/8點100mA NPN電晶體輸出, 接線採用IDC連接器	
	VS-32XY 模組專用擴充卡	8點DC24V輸入, 接線採用端子台	
DIO擴充卡	VS-8YR-EC	VS-32XY 模組專用擴充卡, 8點DC24V輸入, 接線採用端子台	
	VS-E8Y-EC	VS-32XY 模組專用擴充卡, 8點0.3A NPN電晶體輸出, 接線採用端子台	
	VS-4XYR/T-EC	DIO擴充卡, 2點DC24V輸入, 2點2A繼電器/0.3A NPN電晶體輸出, 接線採用端子台	
	VS-8XYR/T-EC	DIO擴充卡, 4點DC24V輸入, 4點2A繼電器/0.3A NPN電晶體輸出, 接線採用端子台	
	VS-8XT/8YT-EC	DIO擴充卡, 8點DC24V輸入/8點100mA NPN電晶體輸出, 接線採用IDC連接器	
	VS-8Y-EC	DIO擴充卡, 8點0.3A NPN電晶體輸出, 接線採用端子台	
	VS-E8Y-EC	VS-32XY 模組專用擴充卡, 8點0.3A NPN電晶體輸出, 接線採用端子台	
通訊擴充卡	VS-4B5/D4B5-EC	通訊擴充卡, 一組/兩組非隔離式RS-485通訊界面, 具備通訊指示燈, 通訊距離50公尺	
	VS-4B5A/D4B5A-EC	通訊擴充卡, 一組/兩組隔離式RS-485通訊界面, 具備通訊指示燈, 通訊距離1000公尺	
	VS-232/D232-EC	通訊擴充卡, 一組/兩組非隔離式RS-232C通訊界面, 具備通訊指示燈, 接線採用端子台	
	VS-D52A-EC	通訊擴充卡, 一組隔離式RS-485及一組非隔離式RS-232C通訊界面, 具備通訊指示燈	
	VS-E NET2-EC	通訊擴充卡, 一組Ethernet附帶非隔離式RS-485界面, 及一組非隔離式RS-485界面	
	VS-3AV-EC	簡易類比擴充卡, 非隔離, 2點12bits輸出, 1點10bits(0~10V)輸出	
	VS-4AD-EC	類比輸入擴充卡, 非隔離, 4點12bits輸出, 可任意選擇電壓或電流形式	
特殊擴充卡	VS-2DA-EC	類比輸出擴充卡, 非隔離, 2點12bits輸出, 可任意選擇電壓或電流形式	
	VS-3A-EC	類比輸入輸出擴充卡, 非隔離, 2點12bits輸出, 2點12bits輸出, 可選擇電壓或電流形式	
	VS-31SC-EC	變頻器控速擴充卡, 3組完全隔離之變頻器速度控制回路, 解析度0.1%	
	VS-2TC/4TC-EC	溫度輸入擴充卡, 非隔離, 2/4點Thermo Couple輸入, 解析度0.2~0.3°C	
	VS-1PT/2PT-EC	溫度輸入擴充卡, 非隔離, 1/2點3線式PT100輸入, 解析度0.1°C	
	VS-MC/MCR	記憶卡, 16Mb免電池停電記憶體, 具備專案及大量資料儲存功能, MCR具備RTC功能	

★表示輸出之形式 R: 2A繼電器輸出 T: 0.5A NPN電晶體輸出 P: 0.5A PNP電晶體輸出



VSM-Mini Programmable Controller

Brief Introduction

Forward

The VS series is based on decades of experience and the demand of the automation market to create the brand new PLC. It is More Effective, More Fast, More Diverse and More Competitive Advantage.

The VS Family includes the VS1 (General), VS2 (Advanced), VSM (Motion Control) and VS3 (High Performance) PLCs. Because of the all-inclusive product line, the usable coverage is from simple to complex control. Furthermore, by the concept of "The Most Suitable Product" to get superb cost-effective product combination.

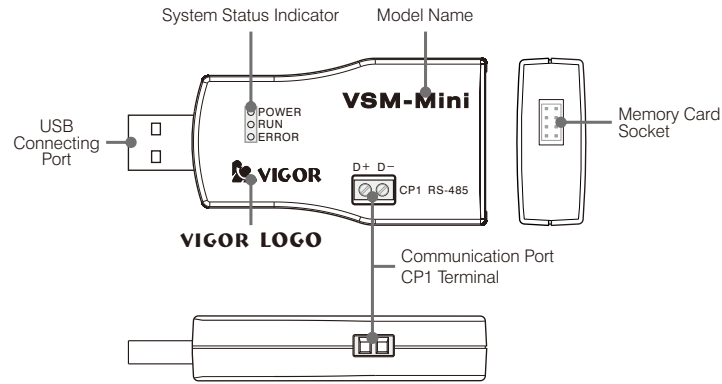
The VSM-Mini is a unique member of the VS Series PLC, it can simulate all the function of the VSM PLC. It is not only a convenient tool for engineers to develop a PLC program, but also it is the most useful and appropriate device to learn and understand the VS series PLC.

This document provides a brief introduce about the VSM-Mini and VS series controller. For more description about the specification and installation, please refer to the "VS Series PLC Product Manual"; about the programming, please refer to the "VS Series PLC Programming Manual".

Product Characteristic

- The VSM-Mini is extremely compact and easy to carry, could provide engineers to edit and test a PLC program without location constraints.
- The VSM-Mini is directly connected to a computer's USB port, unnecessary to supply a power externally.
- Built-in a RS-485 port to connect with peripheral equipment by communication.
- With a Memory Card Socket of the VS series, could install a VS-MC or VS-MCR memory card to execute the related functions.
- At the inner circuit of the VSM-Mini that is already connected its own outputs Y0~Y7 to inputs X0~X7. The purpose is to help engineers test and verify various high speed pulse generation functions.
- The VSM-Mini is an effective training tool for learning and understanding the VS series PLC.

Component Designation



Nameplate Description

Nameplate Description (it is located on the bottom of the VSM-Mini controller)



VS Series System Composition

Programming Tool Software: Ladder Master S	Prog. Port (Mini USB)	Main Unit VS1-10M★-D VS1-14M★-D VS1-20M★-D VS1-24M★-D VS1-28M★-D VS1-32M★-D VS1-32MT-DI	DIO Expansion Module VS-8XY★ VS-8X VS-8Y★ VS-16XY★ VS-16X VS-16Y★ VS-28XYR VS-32XY★ VS-16XYT-I VS-16X-I VS-16YT-I VS-32XYT-I VS-PSD
Memory Card VS-MC VS-MCR	Memory Card Socket	VS2-24M★-D VS2-32M★-D VS2-32MT-DI	DIO Exp. Card for the VS-32XY★ VS-E8X-EC VS-E8YT-EC
DIO Expansion Card VS-4XYR-EC VS-4XYT-EC VS-4X-EC VS-4YR-EC VS-4YT-EC VS-8XYR-EC VS-8XYT-EC VS-8X-EC VS-8YT-EC VS-8XI-EC VS-8YT-EC	Expansion Card Socket EC1~EC3	VSM-14MT-D VSM-24MT-D VSM-32MT-D VSM-28ML-D VSM-32MT-DI	Special Module VS-4AD VS-2DA VS-3A VS-6A VS-4TC VS-8TC VS-2PT VS-4PT VS-2PG VS-4PG VS-1LC VS-2LC
Communication Expansion Card VS-485-EC VS-D485-EC VS-485A-EC VS-D485A-EC VS-232-EC VS-D232-EC VS-D52A-EC VS-ENET2-EC		VS3-32M★-D VS3-32MT-DI	Peripheral Product VSPC-200A VSEC-050/100 VB-T8M/16M VB-T8R/RS VB-T16TB VB-HT214 VBIDC-050/100/150 VBIDC-200/250/300 VBWI-050/100/200/300 VBIDC-FC100/FC250 VBIDC-HD20/HD100
Special Function Card VS-3AV-EC VS-4AD-EC VS-2DA-EC VS-4A-EC VS-3IS-EC VS-2TC-EC VS-4TC-EC VS-1PT-EC VS-2PT-EC		★ Type of Output R : 2A relay output T : 0.5A NPN transistor output P : 0.5A PNP transistor output	

Product Dimension: W×H×D(mm)
 10/14M Main Unit: 70×90×65
 20/24M Main Unit: 100×90×65
 28/32M Main Unit: 130×90×65

Δ The VS1 Series accepts only one Special Function Card in addition to the VS-3AV-EC card.

Performance Specification

Item	VS1 Series	VS2 Series	VSM Series	VS3 Series
Operation / DIO Control Method	Cyclic Operation by Stored Program / Batch Processing			
Programming Language	Ladder Diagram + Sequential Function Chart (SFC) or Ladder Diagram + Step Ladder (STL)			
Process Time	Basic Instruction Application Instruction	0.17 µs A few µs – Hundreds of µs		0.15 µs
Basic Ins. No. / Application Ins. No.	29 / 186	29 / 188	29 / 188	29 / 226
Project Memory Capacity (Flash ROM)	16K Words	32K Words	32K Words	64K Words
Max. Input / Output Points	128 + 24 (at EC card)	256 + 24 (at EC card)	256 + 24 (at EC card)	512 + 24 (at EC card)
Max. Digital Input / Output	External Input (X) External Output (Y)	64 points: X0 – X77 128 points: Y0 – Y77	128 points: X0 – X177 128 points: Y0 – Y177	256 points: X0 – X377 256 points: Y0 – Y377
Internal Relay	Auxiliary Relay (M)	General	6192 points: M0 – M1999, M4000 – M8191	
		Latched	2000 points: M2000 – M3999	
		Special	512 points: M9000 – M9511	
	Step Relay (S)	Initial	10 points: S0 – S9	
		General	3086 points: S10 – S499, S1500 – S4095	
Latched		900 points: S500 – S899, S1000 – S1499		
Annunciator	100 points: S900 – S999 (Latched)			
Timer (T)	100ms / 10ms / 1ms	20 pt. T0 – T199 (3276.7s Max.) / 46 pt. T200 – T245 (327.67s Max.) / 256 pt. T256 – T511 (32,767s Max.)		
	1ms / 100ms (Retentive)	4 pt. T246 – T249 (32,767s Max.) / 6 pt. T250 – T255 (3276.7s Max.)		
Counter (C)	16-bit Up	General	100 points: C0 – C99 (Range: 0 – 32,767)	
		Latched	100 points: C100 – C199 (Range: 0 – 32,767)	
	32-bit Up / Down	General	20 points: C200 – C219 (Range: -2,147,483,648 – 2,147,483,647)	
		Latched	15 points: C220 – C234 (Range: -2,147,483,648 – 2,147,483,647)	
Software High Speed Counter (C)	32-bit Up / Down, Latched	1-Phase	11 points: C235 – C245 (Range: -2,147,483,648 – 2,147,483,647)	
		2-Phase	5 points: C246 – C250 (Range: -2,147,483,648 – 2,147,483,647)	
		A/B Phase	5 points: C251 – C255 (Range: -2,147,483,648 – 2,147,483,647)	
Hardware High Speed Counter	2 points: HHSC1 – HHSC2 (Range: -2,147,483,648 – 2,147,483,647)			
Data Register	General (D)	7000 points: D0 – D6999		
	Latched (D)	2000 points: D7000 – D8999		
	Special (SD)	512 points: D9000 – D9511		
	Index Register (V / Z)	16 points: V0 – V7, Z0 – Z7		
	Extension Register (R)	10000 points: R0 – R9999		
Pointer	Mark / Branch Pointer (P)	1024 points: Each pointer can be named by P0 – P1023 or 16 characters		
	Table Nickname / Code (Q)	32 points: Each table can be named by Q0 – Q31 or 16 characters		
	Interrupt Pointer (I)	21 points: 8 for external interrupt, 3 for timing interrupt and 10 for High Speed Counter interrupt		
	Nest Pointer (N)	8 points: N0 – N7		
Numerical System of Constant	Decimal (K), Hexadecimal (H) or Real number (E)			
Comm. Function	Main Unit Built-in Comm. Port	Programming	12Mbps high-speed Mini USB port	
	Expanded Multi-Func. Port	Multi-Function	CP1 (RS-485) provides Computer Link, MODBUS, CPU Link, Non-protocol and so on	
			CP2, CP3 at the EC1	
			CP2 – 5 at EC1 & EC3	
Multi-Function High Speed Input	External Interruption, Hardware / Software High Speed Counter, Pulse Capture, Pulse Meas., HandWheel ...			
4 Axes Pulse Output (NPN model only)	10 kHz × 8 points	50 kHz × 8 points	200 kHz × 4 points + 50 kHz × 4 points ☆	200 kHz × 4 points ☆
Real Time Clock (Optional)	By VS-MCR Multi-Func. Memory Card to indicate the year, month, date, hour, min., sec. & day of week			
Expanded Memory (VS-MC / VS-MCR)	No battery required 16Mb Flash ROM for user project and data-bank (655,360 words) storage			
Type of Expansion Card (EC1 – EC3)	DI / DO, communication or function card (AI, AO, temperature input, inverter speed control, etc.)			
No. of Special Module / Special Card	0 / 1	8 / 3	8 / 3	16 / 3

☆ In the VSM-28ML : 1 MHz × 4 (for HHSC1 & HHSC2) + 50 kHz × 4 Multi-Function High Speed Inputs and 1 MHz × 4 Pulse Outputs.

Product List

Item	Model Name	Main Specification
VS1 Series Main Unit	VS1-10M / 14M ★-D	6 / 8 DI (DC 24V); 4 / 6 DO; 1 EC socket
	VS1-20M / 24M ★-D	12 / 14 DI (DC 24V); 8 / 10 DO; 2 EC socket
	VS1-28M / 32M ★-D	16 / 20 DI (DC 24V); 12 / 10 DO; 3 EC socket; DIO Module expandable
	VS1-32MT-DI	16 DI (DC 24V); 16 DO (100mA NPN); I/O by IDC connector; other specifications are equal to the VS1-32M
VS2 Series Main Unit	VS2-24M ★-D	12 DI (DC 24V); 12 DO; 2 EC socket; DIO & 8 Special Module expandable
	VS2-32M ★-D	16 DI (DC 24V); 16 DO; 3 EC socket; DIO & 8 Special Module expandable
	VS2-32MT-DI	16 DI (DC 24V); 16 DO (100mA NPN); I/O by IDC connector; other specifications are equal to the VS2-32M
VSM Series Main Unit	VSM-14MT-D	8 DI (DC 24V); 6 DO (0.5A NPN transistor); 1 EC socket
	VSM-24MT-D	12 DI (DC 24V); 12 DO (0.5A NPN transistor); 2 EC socket; DIO & 8 Special Module expandable
	VSM-32MT-D	16 DI (DC 24V); 16 DO (0.5A NPN transistor); 3 EC socket; DIO & 8 Special Module expandable
	VSM-28ML-D	4 Line Driver DI (for 2 HHSC up to 1 Mhz); + 12 DI (DC 24V, 4×50 kHz & 8 normal); 32k words project memory; 3 EC socket; DIO & 8 Special Module expandable; I/O by screw-clamp terminal
	VSM-32MT-DI	16 DI (DC 24V); 16 DO (100mA NPN); I/O by IDC connector; other specifications are equal to the VSM-32M
VS3 Series Main Unit	VS3-32M ★-D	16 DI (DC 24V, 4×200 kHz & 4×50 kHz); 16 DO (NPN transistor model has 4×200 kHz high speed output); 64K words project memory; 3 EC socket; DIO & 16 Special Module expandable; I/O by screw-clamp terminal
	VS3-32MT-DI	16 DI (DC 24V); 16 DO (100mA NPN); I/O by IDC connector; other specifications are equal to the VS3-32M
	VS-8X / 16X	DI Expansion Module: 8 / 16 DI (DC 24V); input by screw-clamp terminal
DIO Expansion Module	VS-8Y★ / 16Y★	DO Expansion Module: 8 / 16 DO; output by screw-clamp terminal
	VS-8XY★ / 16XY★	DIO Expansion Module: 4 / 8 DI (DC 24V); 4 / 8 DO; I/O by screw-clamp terminal
	VS-2BXYR	DIO Expansion Module: 16 DI (DC 24V); 12 DO (2A Relay); I/O by screw-clamp terminal
	VS-32XY★	DIO Expansion Module: 16 DI (DC 24V); 16 DO; I/O by screw-clamp terminal
	VS-16X / 16YT-I	DI / DO Expansion Module: 16 DI (DC 24V) / 16 DO (100mA NPN transistor); input / output by IDC connector
	VS-16XYT / 32XYT-I	DIO Expansion Module: 8 / 16 DI (DC 24V); 8 / 16 DO (100mA NPN transistor); I/O by IDC connector
	VS-PSD	Power Repeater Module: DC 24V input converts to DC 5V 500mA + DC 12V 800mA outputs for after inner use
	VS-4AD	Analog Input Module: 4 Ch. inputs (16-bit, can use voltage or current); isolated; with accurate DC 10V output
	VS-2DA	Analog Output Module: 2 Ch. outputs (16-bit, can use voltage or current); isolated
	VS-3A / 6A	Analog I/O Module: 2 / 4 AI + 1 / 2 AO Ch. (16-bit, can use voltage or current); isolated; with accurate DC 10V
	VS-4TC / 8TC	Thermocouple Temperature Input Module: 4 / 8 Ch. (thermocouple inputs, 0.1°C / 0.1°F resolution; isolated
	VS-2PT / 4PT	PT-100 Temperature Input Module: 2 / 4 Ch. (3-wire PT-100) inputs, 0.1°C / 0.1°F resolution; isolated
VS-2PG / 4PG	Pulse Generator Module: 2 / 4 sets of 200 kHz high speed pulse outputs for 2/4 axes position control.	
VS-1LC / 2LC	Weight Measurement Input Module: 1 / 2 Ch. load cell (6-wire) signal inputs; isolated	
DIO Expansion Card	VS-4X / 8X-EC	DI Expansion Card: 4 / 8 DI (DC 24V); input by screw-clamp terminal
	VS-4YR / TEC	DO Expansion Card: 4 DO (2A relay / 0.3A NPN transistor); output by screw-clamp terminal
	VS-8YT-EC	DO Expansion Card: 8 DO (2A relay / 0.3A NPN transistor); output by screw-clamp terminal
	VS-4XYR / TEC	DIO Expansion Card: 2 DI (DC 24V); 2 DO (2A relay / 0.3A NPN transistor); I/O by screw-clamp terminal
	VS-8XYR / TEC	DIO Expansion Card: 4 DI (DC 24V); 4 DO (2A relay / 0.3A NPN transistor); I/O by screw-clamp terminal
	VS-8XI / 8YTI-EC	DI / DO Expansion Card: 8 DI (DC 24V) / 8 DO (100mA NPN transistor); input / output by IDC connector
	VS-E8X-EC	DI Expansion Card for VS-32XY Module only: 8 DI (DC 24V); input by screw-clamp terminal
	VS-E8YT-EC	DO Expansion Card for VS-32XY Module only: 8 DO (0.3mA NPN transistor); output by screw-clamp terminal
Comm. Expansion Card	VS-485 / D485-EC	Communication Expansion Card: 1 / 2 non-isolated RS-485 port with TX / RX indicators; dist. 50m Max.
	VS-485A / D485A-EC	Communication Expansion Card: 1 / 2 isolated RS-485 port with TX / RX indicators; dist. 1000m Max.
	VS-232 / D232-EC	Communication Expansion Card: 1 / 2 non-isolated RS-232C port with indicators; dist. 15m; wiring by terminals
	VS-D52A-EC	Communication Expansion Card: 1 isolated RS-485 (1000m) & 1 non-isolated RS-232C (15m) ports, with indicators
	VS-ENET2-EC	Communication Expansion Card: 2 Ethernet ports (by one RJ-45 jack) with TX / RX indicators; providing 2 non-isolated RS-485 interfaces; dist. 50m Max.
Special Function Card	VS-3AV-EC	Brief Voltage I/O Card: 2 Ch. (0–10V, 12-bit) VI + 1 Ch. (0–10V, 10-bit) VO; with accurate 10V output; non-isolated
	VS-4AD-EC	Analog Input Card: 4 Ch. inputs (12-bit, can use voltage or current); non-isolated
	VS-2DA-EC	Analog Output Card: 2 Ch. outputs (12-bit, can use voltage or current); non-isolated
	VS-4A-EC	Analog I/O Card: 2 AI + 2 AO Ch. (12-bit, can use voltage or current); non-isolated
	VS-3IS-EC	Inverter Speed Control Card: 3 channel (0.1% resolution) voltage outputs; totally isolated for each channel
	VS-2TC / 4TC-EC	Thermocouple Temperature Input Card: 2 / 4 Ch. (thermocouple) inputs, 0.2 – 0.3°C resolution; non-isolated
	VS-1PT / 2PT-EC	PT-100 Temperature Input Card: 1 / 2 Ch. (3-wire PT-100) inputs, 0.1°C resolution; non-isolated
Memory Card	VS-MC / MCR	Memory Card: 16Mb Flash ROM for users' project and data-bank (655,360 words) storage; MCR with the RTC

★ Selectable output: R = 2A Relay; T = 0.5A NPN transistor; P = 0.5A PNP transistor.
 All Main Unit, Special Function Module, VS-PSD & IDC's output are required DC 24V -15% +20% power input.