



DVP – PLC Programmable Logic Controllers

DVP-PLC Series

Functionality



SS/SA/SX series

Dual Com. Port, abundant instructions,
8K Program capacity (MPU Module)
High-speed Pulse input/output & abundant extension module
Built-in numeric display and analog module (SX series)
Cost effective



EH series

CPU+ASIC design, Dual Com. port, abundant instructions,
16K Program capacity (MPU Module)
High-speed Pulse input/output (200KHz)
Abundant peripherals and extension unit
Built-in convenient instructions for PLC LINK, position control,
communication control, etc.

ES/EX series

Dual Com. port, abundant instructions,
4K Program capacity (MPU Module)
High-speed Pulse input/output
Cost effective



256

256

512

Points

Model	Spec.	AC input	DC input	Potentiometer Input point	RUN/STOP switch	MPU built-in analog I/O point	Built-in high speed I/O unit	File register (words)	PLC LINK	Removable terminal	Built-in Display screen	backup memory card	Real time clock	Memory type	Program Capacity (Steps)	Digital I/O Module (DI/DO)	Analog I/O Module (AI/AO)	Pulse I/O Module (PI/PO)	Numeric I/O Module (NI/NO)
ES		○	○	—	—	—	○	—	—	—	—	—	—	EEPROM	4K	○	—	—	—
EX		○	○	—	—	○	○	—	—	—	—	—	—			○	—	—	—
SS		—	○	—	○	—	○	—	—	○	—	—	—			○	○	—	—
SA		—	○	○	○	—	○	1600	○	○	—	—	○	SRAM+ Battery	8K	○	○	—	—
SX		—	○	—	○	○	○	1600	○	○	○	—	○		8K	○	○	—	—
EH		○	—	○	○	Optional	○	10,000	○	○	—	Optional	○		16K	○	○	○	○

※ There is RUN/STOP switch and removal terminal for 60 points MPU of ES series.

System Integration

ES/EX Series



DVP32ES00R2

DI/DO Extension Module

Handheld programming panel/
Operation interface panel series/
COM1 Digital setup display



COM2

RS-485 Master/Slave Devices



System Integration

SS/SA/SX Series



DVP12SA11R

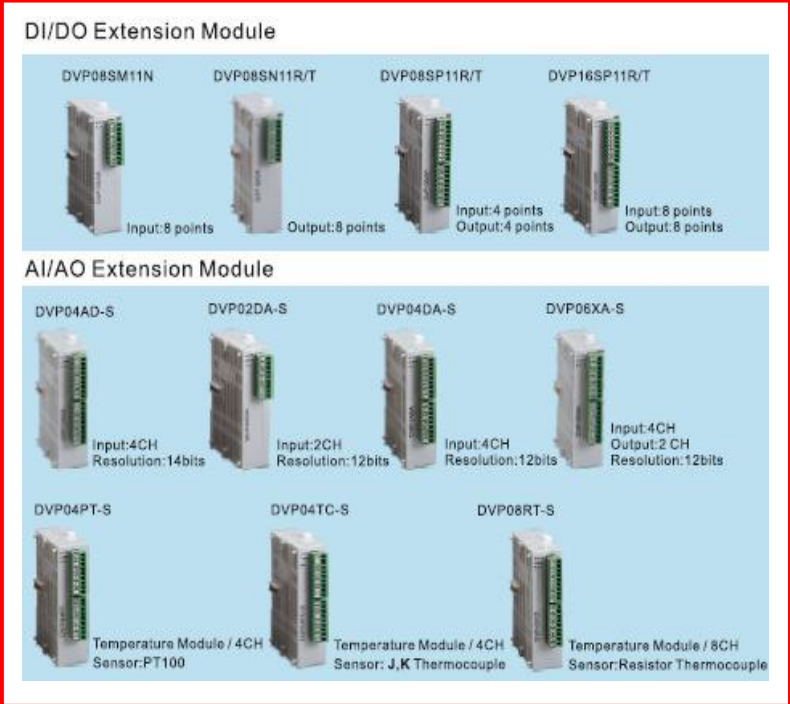
DI/DO & AI/AO Extension Module

Handheld programming panel/
Operation interface panel series/
COM1 Digital setup display



COM2

RS-485 Master/Slave Devices



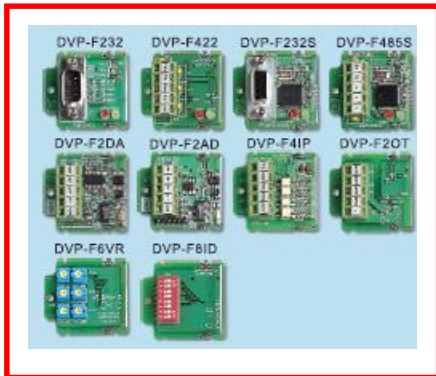
DVP32EH00R

Extension Module list



Data backup memory card DVP-256FM

Function card



COM1 Handheld programming panel



COM1 Operation interface panel



COM2 RS-485 Master/Slave Devices



<p>DVP08HM11N</p> <p>Input: 8 points</p>	<p>DVP08HN11R/T</p> <p>Output: 8 points</p>	<p>DVP08HP11R/T</p> <p>Input: 4 points Output: 4 points</p>
<p>DVP48HP00R/T</p> <p>Input: 24 points Output: 24 points</p>		
<p>DVP04AD-H</p> <p>Input: 4CH Resolution: 14bits</p>	<p>DVP04DA-H</p> <p>Input: 4CH Resolution: 12bits</p>	<p>DVP04PT-H</p> <p>Temperature module / 4CH Sensor: PT100</p>
<p>DVP04TC-H</p> <p>Temperature module / 4CH Sensor: J/K Thermocouple</p>	<p>DVP06XA-H</p> <p>Input: 4CH Output: 2CH Resolution: 12bits</p>	
<p>DVP01HC-H</p> <p>High-speed Counter / 1CH 200KHz/CH</p>	<p>DVP02HC-H</p> <p>High-speed Counter / 2CH 200KHz/CH</p>	<p>DVP01PU-H</p> <p>1-axis Position Module 200KPPS</p>
<p>DVP08KY-H</p> <p>8*8matrix keypad Scan Module</p>	<p>DVP08BD-H</p> <p>DIP switch (8 digitals) Scan Module</p>	

DVP-PLC Series

■ ASIC design structure High-speed Calculation

EH series

- Adopt dual processors with CPU+ASIC and distribution calculation.
- Speed of basic instructions is up to 0.24us.
- High-speed pulse output is up to 200Khz and built-in smooth function for acceleration and deceleration.
- High-speed counter frequency could reach 200KHz/set (MAX 4 sets).
- Independent I/O refresh function for saving scantime.
- Built-in external interrupt functions.



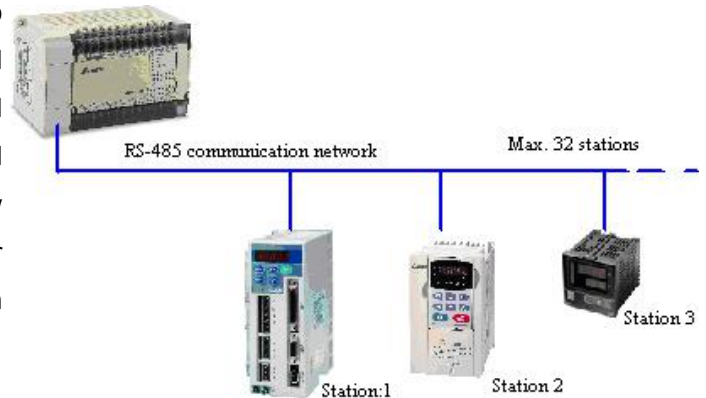
■ Built-in dual communication ports

DVP-PLC is built-in two communication ports. It can connect to PC and HMI simultaneously and also have variety communication instructions to simplify traditional programming process. Following is functional specification for each series communication port.

COM Spec.		PLC Type		ES/EX/SS		SA/SX		EH	
COM 1	COM. Port	RS-232		RS-232		RS-232		RS-232	
	Working Mode	Slave		Slave		Slave		Slave	
	Protocol	Modbus ASCII mode		Modbus ASCII/RTU mode		Modbus ASCII/RTU mode		Modbus ASCII/RTU mode	
	Baud Rate(bps)	9600		9600 to 115200		9600 to 115200		9600 to 115200	
	Connection Device	PC/HMI		PC/HMI		PC/HMI		PC/HMI	
COM 2	COM. Port	RS-485		RS-485		RS-485		RS-485/it can be changed to RS-232 or RS-422	
	Working Mode	Master	Slave	Master	Slave	Master	Slave	Master	Slave
	Protocol	Modbus instructions & User defined format	Same as COM1	Modbus instructions & User defined format	Same as COM1	Modbus instructions & User defined format	Same as COM1	Modbus instructions & User defined format	Same as COM1
	Baud Rate(bps)	9600/19200	9600	9600 to 115200		9600 to 115200		9600 to 115200	
	Connection Device	PLC/Inverter	Same as COM1	PLC/ Inverter	Same as COM1	PLC/ Inverter /MODEM...	Same as COM1	PLC/ Inverter /MODEM...	Same as COM1
COM 3	COM. Port	N/A		N/A		RS-485, RS-232		RS-485, RS-232	
	Working Mode					Slave/Modbus		Slave/Modbus	
	Baud Rate(bps)					9600/19200/38400		9600/19200/38400	
	Connection Device					PC/HMI		PC/HMI	

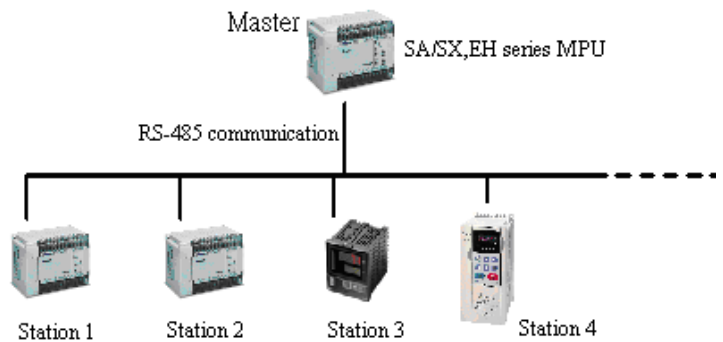
■ Supports ModbusSerial Instructions (For all series)

DVP-PLC is not only built-in RS-485 serial communication port but also provides variety Modbus instructions with two modes(ASCII and RTU).The user only needs to fill device's ID,parameter's address and data for read/write into instruction without understanding protocol format and writing checksum program.Besides,it also provides many state flags,including communication time-out,transmission data error and transmitted data is receiving.Each state in communication is in your hand and makes you finish communication program easily.



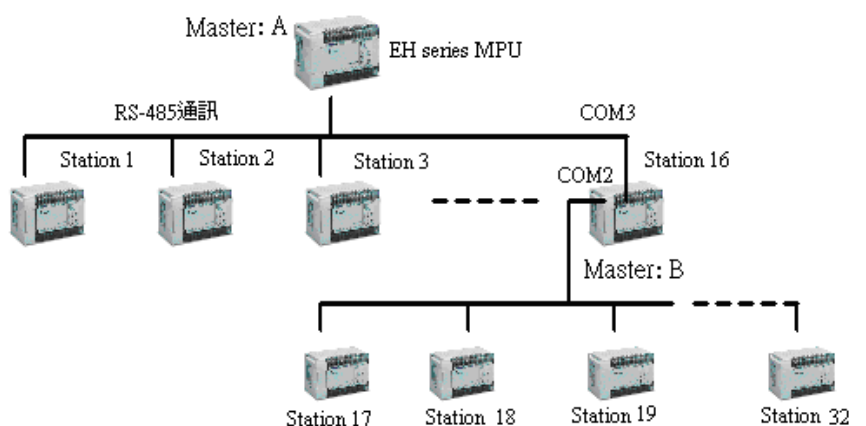
■ PLC Easy Link (1:N) Function (For EH/SA/Sx series)

DVP-PLC provides EASY LINK function. At the right figure,you only need to write parameter address and length into special register without program.The master PLC will auto exchange data between every device(16 words for read/write).The connecting station Max. 16. (Not only for DVP-PLC, but also other DELTA electrical and mechanical products that has serial communication port,such as AC servo and motor drive,temperature,etc.)



■ PLC PLC Easy Link (N:N) Function (For EH series)

Using PLC LINK function, Max.N for each level is 16 devices. If you need more than 16 devices,you need to adopt multi-level(N:N) network.You need to choose one device be master from the first level (such as Master B at the right figure),and using the COM 3 to connect to the first level and using the COM 2 to connect to the new level.The master A and B could be exchange data in the whole network.



High-speed Counter

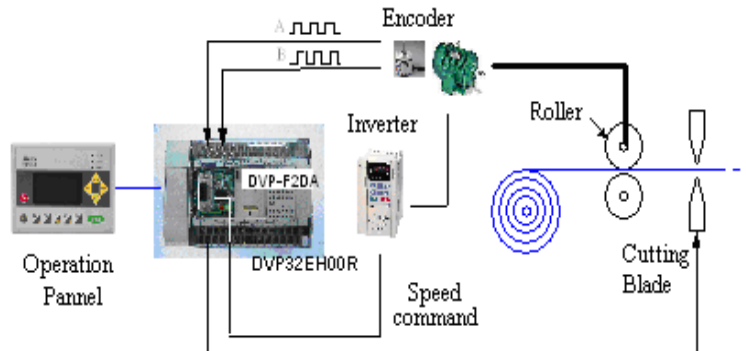
There are 4~6 points high-speed counter in all DVP-PLC series.

The cutting machine application

And the features as following:

1. Settings for counter value reached could be up to 4~8 sets.
2. Could set interrupt number when counter value reached setting.
3. Could set contact Y to active immediately (ON/OFF) by counter value reached setting.
4. Could reset high-speed counter value immediately by counter value reached setting.
5. Provide double frequency (1~4 times) counting mode.

(Start/stop control by external input)



Model \ Spec.	1 phase 1 input		1 phase 2 input		2 phase 2 input	
	Points	Bandwidth	Points	Bandwidth	Points	Bandwidth
ES/EX/SS	7	30KHz	3	30KHz	3	7KHz
SA/SX	9	30KHz	3	30KHz	3	7KHz

Note : Bandwidth means total of input and output frequency. When counting 1 point by 1 phase 1 input high-speed counter, max. count frequency could be up to 30KHz.

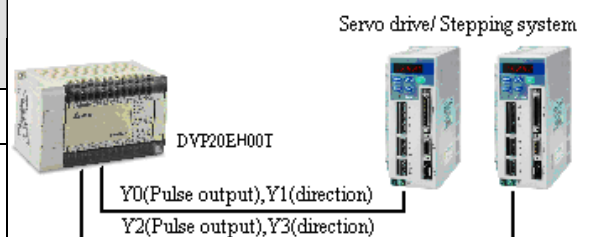
Model \ Spec.	General		Hardware high-speed counter					
	1 phase 1 input		1 phase 1 input		1 phase 2 input		2 phase 2 input	
	Points	Bandwidth	Points	Count frequency	Points	Count frequency	Points	Count frequency
EH	6	20KHz	4(2/2)	200KHz/30KHz	4(2/2)	200KHz/30KHz	4(2/2)	100KHz/30KHz

Note: There are 4 groups of hardware high-speed counters for EH series. The count frequency of two points could reach 200 KHz per point and 30KHz per the other two points.

Pulse Output

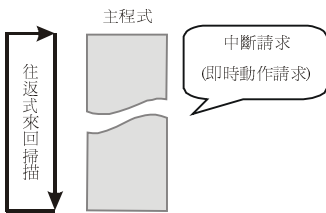
There is 2-point high-speed pulse output for each DVP-PLC series. For EH series, each output channel could reach to 200KHz individually with acceleration/deceleration instruction to finish smooth and precision multi-segment position control easily. It could be close loop control with hardware high-speed counter. Refer to following table for pulse output comparison of each series :

Model \ Spec.	Output points		Max. output frequency		Function feature
	Points	Y output	Y0	Y1 (Y2)	
ES/EX/SS	2	Y0, Y1	10KHz	10KHz	acceleration/deceleration control
SA/SX	2	Y0, Y1	50KHz	10KHz	Smooth acceleration/deceleration control
EH	2	Y0, Y2	200KHz	200KHz	Smooth acceleration/deceleration control

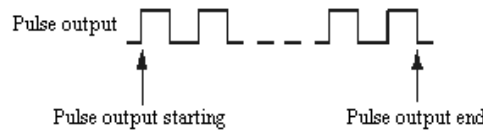


■ Variety Interrupt Source Requirement

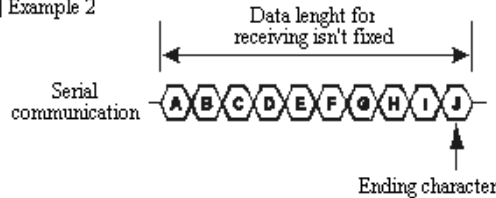
1. Provide 6 External interrupt points.
2. Timer interrupt.
3. High-speed counter reached interrupt.
4. Pulse output start or finish interrupt.
5. Specific communication receiving word interrupt.



■ Example 1



■ Example 2



☞ When received data length is not fixed, using specific character to show completed receive.

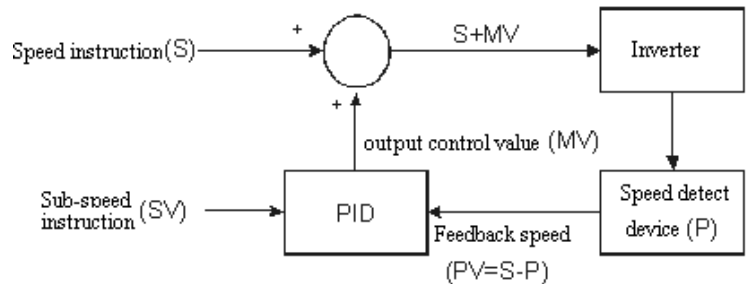
■ There is correspondent interrupt number to execute relative action without effecting by scantime when high-speed pulse output start or end.

■ In the communication application, received data length is not fixed. You can use specific character to be the end character and produce correspondent interrupt number to execute relative action.

■ PID Control Instructions

DVP-PLC provide PID control instruction for close loop control application and it could be used repeat in program. Take the right figure for example, Read the feedback speed from analog input module and sub-speed instruction(SV) and do PID calculation with user-defined P,I and D to get the suitable output control value (MV),To combine MV and main-speed to control output frequency of the AC drive bt analog output to make motor speed in the setting range of user expectation.

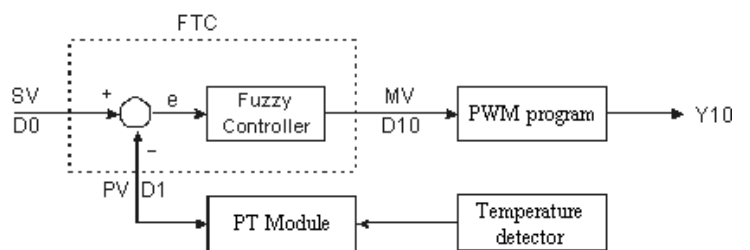
■ Block diagram when using PIDinstruction to control speed



■ Fuzzy Temperature Control (For EH/SA/SX series)



User only needs to set (taeget value DO (SV)) and presentvalue D1 (PV) to get an output instruction D10 (MV) after calculating by fuzzy logic algorithm to be the parameter for PWM program to do On/Off control to Y10.No need to set other control parameters.

■ Example for FTC instruction



■ Extension cards for EH series

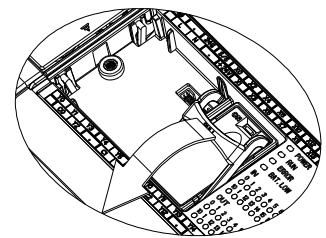
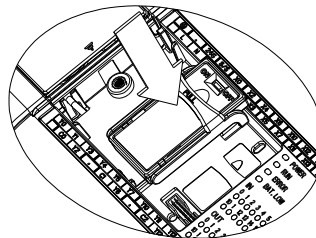
When designing system by PLC, following condition may occur. To avoid buying whole module for application, following extension card are provided for EH series.

The occasion and requirement in application	Solution for correspond to extension card	Installation
When you don't have enough digital points for using. For example: You need 1~2 output points with transistor type or 1~4 input points more.	DVP-F4IP	<p>■ Example:DVP-F232S</p>  <p style="text-align: center;">↓</p> 
	DVP-F2OT	
You need 1~2 analog output points to control AC drive speed.	DVP-F2DA	
You need 1~2 analog input points to accept the analog signal.	DVP-F2AD	
You need more RS-232 communication port	DVP-F232S	
You need more RS-485 communication port	DVP-F485S	
When parameter setting need to by DIP switch without any input points.	DVP-F8ID	
You need change COM2 RS485 to RS-232 communication port	DVP-F232	
You need change COM2 RS485 to RS-422 communication port	DVP-F422	
If there are 3~8 variable needed to modify by requirement very often.	DVP-F6VR	

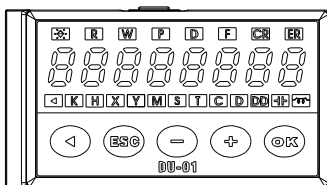
■ PLC Program copy card

EH series (MPU with 32 points and more) with data backup memory card(optional)

- Data backup for portability
- Quickly download data from PLC
- Large capacity and variety data
- Password protection



■ Detachable Optional Display (DVPDU01)

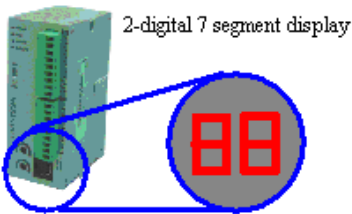


- DU-01 can be inserted into extension slot of EH series. There are user defined start-up screen, screen saving and monitor specific device functions. The specific device including real time clock, bit device(X, Y, M, S)、word device(T, C, D) and CR device of extension module could read or write from this unit.
- It could read/write to PLC internal program P、data register D and file register F. It also could be used to copy or transmit program data and support PLC password protection and for all DVP series.

■ Force ON/OFF setting by MPU input point X

SA/SX/EH MPU provides input points to force On/Off setting. When user tests program by WPLSoft in office or factory, user can simulate the action of input point X to meet application requirement without connecting the input point circuit or switch.

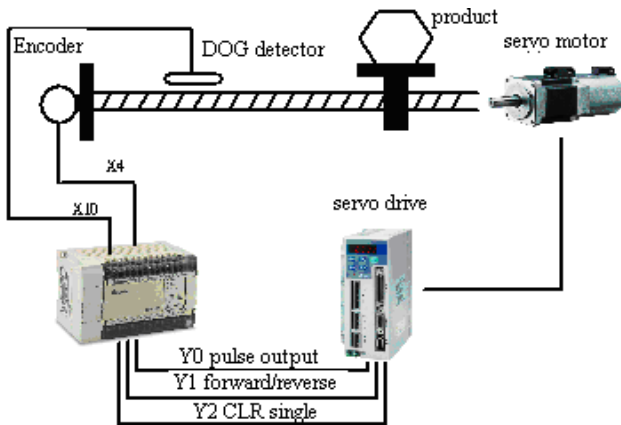
■ SX MUP Built-in A/D,D/A and 2-digital 7-segment Display Module



- SX MUP is built-in 2CH A/D and 2CH D/A with 12-bit resolution and bi-polar input/output. It provides economic solution and read/write special D to get digital value of A/D conversion and specific analog voltage output without using FROM/TO instructions.
- Built-in 2 digitals 7-segment display and its content corresponds to special D for user display anything, such as error code or ID when using PLC LINK function for network. System maintenance is fast and easy.

■ Position Control Instruction (For EH series)

■ Example for simply position control application



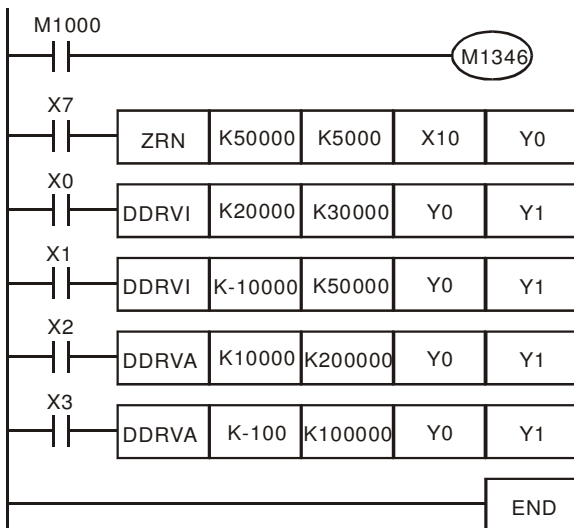
For EH series, there are following simply position instruction, including zero return, acceleration/deceleration pulse output and position control instruction of relative/absolute position.

API	Instruction		Function
	16-bit	32-bit	
155	ABSR	DABSR	Read ABS position
156	ZRN	DZRN	zero return
157	PLSV	DPLSV	Pulse output
158	DRVI	DDRVI	Relative position
159	DRVA	DDRVA	Absolute position

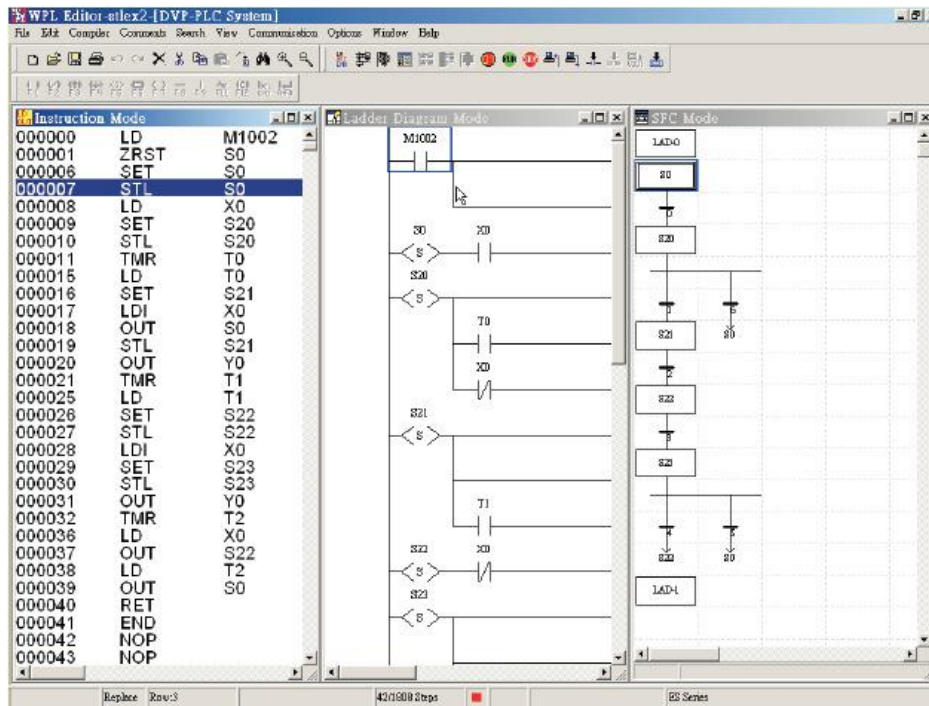
DOG input : X10 · zero return start : X7 Relativeposition (+) start : Explanation :

X0 · Relative position (-) start : X1 Absolution position (+) start :
 X2 · Absolution position (-) start : X3, Y0 : pulse output · Y1 : forward/reverse · Y2 : clear signal

- ◆ When X7=On, the action of zero return will start and will start to output pulse from Y0 with 50KHz. When reaching (DOG) X10=On, it will output pulse from Y0 by JOG with 5KHz and stop when X10=Off, When M1346=On (Clear signal flag), the action of zero return will end and output Y2 clear signal to servo drive.
- ◆ When X0=On, it will output 20,000 pulse (relative position) from Y0 with 30KHz, Y1=On means forward.
- ◆ When X1=On, it will output -20,000 pulse (relative position) from Y0 with 50KHz, Y1=Off means reverse.
- ◆ When X2=On, it will output -10,000 pulse (absolute position) from Y0 with 200KHz, Y1=On means forward.
- ◆ When X3=On, it will output -2100 pulse (absolute position) from Y0 with 100KHz, Y1=Off means reverse



DVP-PLC Programming Software

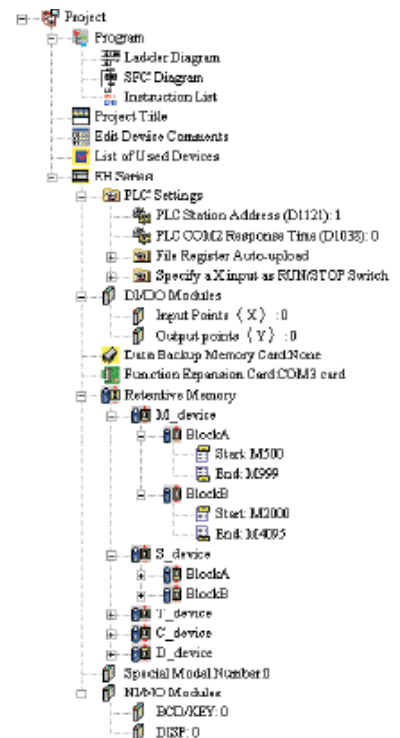


- Features

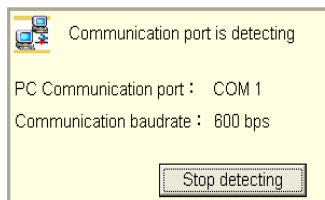
1. Windows based software: it is easy to learn and use. You could use all functions with the help file provide by WPLsoft.
2. Complete comments: Including device comment, segment and row comment, to have great convenience to read ladder diagram program. Besides, device comment could be copied to Excel data for use. At the same time, you could also copy Excel data to comment area for programming easily.

3. Project concept: Use hierarchical method to display PLC internal system information (including system parameters, connected peripheral, program area and settings) visually to make all PLC information clearly. it is a great convenience to program development and maintenance.

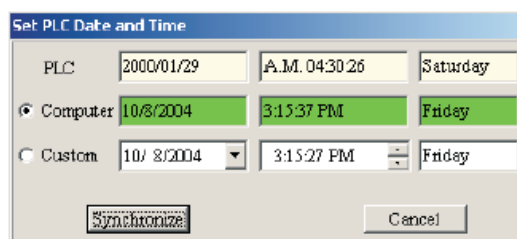
- Project management



4. Communication response time setting: For user to set time-out and retry times to monitor without disconnection by interference of working environment. It also could detect communication baud rate of scan time for auto connection rapidly.



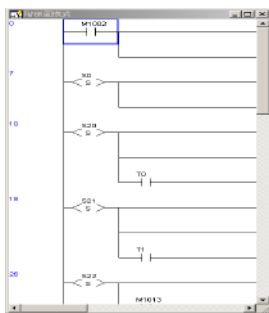
5. Real time clock setting: For user-defined time or computer time setting.



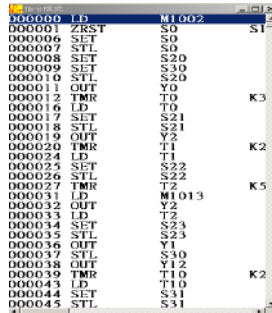
6. Variety connections: It provides two connection method: direct connection and Modem connection. The common use-direct connection provides different baud rate setting and could up to 115200 bps to shorten program upload/download time. It also provides real-time monitor function and on-line programming function to execute on-line update instruction immediately after compiling without stopping PLC/downloading program/running PLC again to shorten program development time and modified time.

7. Provide 3 kinds of language: Instruction (IL), Ladder (LAD) and sequential function chart (SFC). These three languages could convert to one other. Editor interface is the same as general editor and easy to learn and use. It could also input and save without successful compiler at any time.

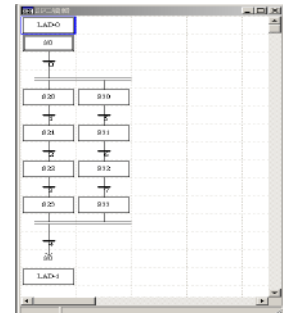
● Ladder diagram editor mode



● Instruction diagram editor mode



● SFC diagram editor mode



8. Built-in variety PLC device editors: Including devices M, S, T, C, D and file register. The context of device can be saved or downloaded to PLC or upload to provide great convenience for program development or maintenance.

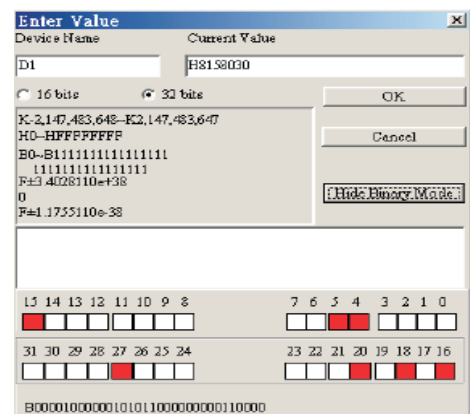
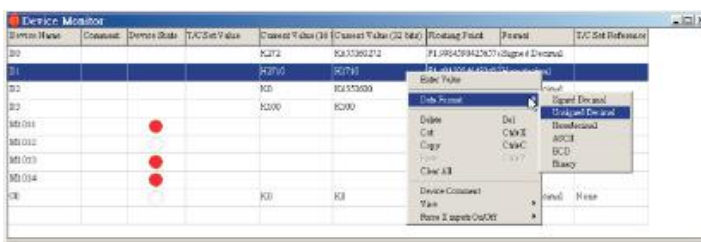
9. On-line auxiliary function:

- RS-485 Protocol setting - you should set communication protocol control register D1120 before setting serial communication. Using this software, you can get the correspondent value that should set in D1120 easily.
- LRC/CRC Generator – When designing Modbus serial communication, master must calculate checksum value of serial data. At development beginning, development schedule may be delay due to communication error that cause by error calculation checksum. Using this software, you can get checksum value easily.
- Duplicate PLC service – It provides program package concept. And you can read PLC internal important information (system auto setting) and save to a file 9it is called program package, including program and all important system parameters) or copy to other PLC after finishing reading.
- Special instruction wizard – provides setting of various special instructions, including PID control, high-speed I/O. user can finish program structure easily by filling table. For beginner, that is an easy and complete learning method. For programmer, that is easy method to set without miscellaneous setting of query and memory.

10. Variety number systems for monitor:

- 16/32 of binary, decimal and hexadecimal number input/display with integers and floating points.
- ASCII, binary, decimal, hexadecimal number and BCD display.

☞ Variety number systems interface



Item		Function		Remarks	
Control method1u		Stored program, cyclic scan system			
I/O processing Method		Batch processing, I/O refresh instruction is available			
Execution Speed	Basic instruction		(Several us)		
	Application instruction		(10 ~ hundreds us)		
Program language		Instruction + ladder + SFC		Including step instruction	
Program capacity		3792 STEPS		Built-in EEPROM	
Instructions		32 Basic instructions (including the step instructions)		107 Application instructions	
X	External input relay		X0~X177 in octal · 128 points	Correspond to external input /output point	
Y	External output relay		Y0~Y177 in octal · 128 points		
M	Auxiliary relays	General		Total is 1280 points	
		Latched			
		Special			
S	Step points	Initial step points (latched)		Total is 128 points	
		Zero return (latched)			
		Latched			
T	Timer	100ms		Total is 128 points	
		10ms (M1028=On)			
		1ms			
C	Counter	16 bits count up (General)		Total is 128 points	
		16 bits count up (Latched)			
		32 bits count high-speed up/down (Latched)	1phase 1 input	C235~C238, C241, C242, C244 · 7 points	Total is 13 points
			1phase 2 input	C246, C247, C249 · 3 points	
			2 phase 2 input	C251, C252, C254 · 3 points	
D	Data register	General		Total is 600 points	
		Latched			
		Special		Total is 312 points	
		Index register			
N	For master control nested loop		N0~N7 · 8 points	Control point of master control nested loop	
P	For CJ · CALL instructions		P0~P63 · 64 points	The location point of CJ · CALL	
I	For interrupt	External interrupt		The location point of interrupt subroutine	
		Timer interrupt			
		Communication interrupt			
K	Decimal number system		K-32,768 ~ K32,767 (16 bit operation) K-2,147,483,648 ~ K2,147,483,647 (32 bit operation)		
H	Hexadecimal number system		H0000 ~ HFFFF(16-bit operation) : H00000000 ~ HFFFFFFF(32-bit operation)		
Serial communication port (Program read/write)		COM1 : RS-232, COM2 : RS-485(can be master or slave) · that could used simultaneously			
DI/DO, AI/AO Extension Module		ES/EX series have DI/DO extension unit (8~32 points) SS series has complete DI/DO and AI/AO module (AD, DA, PT, TC, XA, RT) Note : 8 AI/AO modules and it doesn't occupy digital I/O points			

Item		SA/SX series	EH series	
Control method		Stored program, cyclic scan system		
I/O processing Method		Batch processing, I/O refresh instruction is available		
Execution Speed	Basic instruction	(Several us)	Basic instruction (0.24 us Min.)	
	Application instruction	(10 ~ hundreds us)	(10 ~ hundreds us)	
Program language		Instruction + ladder + SFC		
Program capacity		7920 STEPS (SRAM+Battery)	15872 STEPS (SRAM+ Battery)	
Instructions		32 Basic instructions (including the step instructions)		
		168 Application instructions		
X	External input relay	X0~X177 in octal · 128 points	X0~X377 in octal · 256 points	
Y	External output relay	Y0~Y177 in octal · 128 points	Y0~Y377 in octal · 256 points	
M	Auxiliary relays	general	M0~M511, 512 points	M0~M499, 500 points
		latched	M512~M999, 488 points	M500~M999, 500 points
			M2000~M4095, 2096 points	M2000~M4095, 2096 points
		speciall	M1000~M1999, 1000 points (some are latched)	M1000~M1999, 1000 points (some are latched)
S	Step points	Initial step points	S0~S9, 10 points	S0~S9, 10 points
		Zero return	S10~S19, 10 points (use with IST instruction)	S10~S19, 10 points(use with IST instruction)
		general	S20~S511, 492 points	S20~S499, 480 points
		latched	S512~S895, 384 points	S500~S899, 400 points
		Alarm	S896~S1023, 128 points	S900~S1023, 124 points
T	Timer	100ms	T0~T199, 200 points, T192~T199 for subroutine	T0~T199, 200 points, T192~T199 for subroutine
			T250~T255, 6 points accumulative type	T250~T255, 6 points accumulative type
		10ms	T200~T239, 40 points	T200~T239, 40 points
			T240~T245, 6 points accumulative type	T240~T245, 6 points accumulative type
		1ms	T246~T249, 4 points accumulative type	T246~T249, 4 points accumulative type
C	Counter	16 bits count up	C0~C95, 96 points	C0~C99, 100 points
			C96~C199, 104 points (latched)	C100~C199, 100 points (latched)
		32 bits count up/down	C200~C215, 16 points	C200~C219, 20 points
			C216~C234, 19 points	C220~C234, 15 points (latched)
		32 bits count High-speed up/down	C235~C242, , 1phase1 input, 9 points	C235~C244, 1phase1 input, 10 points (latched)
			C246~C249, , 1phase2 input, 3 points	C246~C249, 1phase2 input 4 points (latched)
			C251~C254, , 2phase2 input, 3 points	C251~C254, 2phase2 input, 4 points (latched)
D	Data register	General	D0~D199, 200 points	D0~D199, 200 points
		Latched	D200~D999, 800 points	D200~D999, 800 points
			D2000~D4999, 3000 points	D2000~D9999, 8000 points
		Special	D1000~D1999, 1000 points (some are latched)	D1000~D1999, 1000 points (some are latched)
	Index register	E0~E3, F0~F3, 8 points	E0~E7, F0~F7, 16 points	
File register (for saving data)		0~1599 (1600 points)	0~9999 (10000 points)	
N	For master control nested loop	N0~N7, 8 points		
P	For CJ · CALL instructions	P0~P255, 256points		

Item		SA/SX series	EH series
I	For interrupt	External interrupt	I00□(X0) · I10□(X1) · I20□(X2) · I30□(X3) · I40□(X4) · I50□(X5) · 6 points (all are rising-edge trigger)
		Timer interrupt	I6□□(1ms) · I7□□(1ms) · (□□ = 1~99ms)
		High-speed counter interrupt	I010、I020、I030、I040、I050、I060 · 6 points
		Pulse output interrupt	—
		Communication interrupt	I150 · 1 points
K	Decimal number system	K-32,768 ~ K32,767 (16 bit operation) K-2,147,483,648 ~ K2,147,483,647 (32 bit operation)	
H	Hexadecimal number system	H0000 ~ HFFFF(16-bit operation) : H00000000 ~ HFFFFFFF(32-bit operation)	
Serial communication port (Program read/write)		COM1 : RS-232, COM2 : RS-485(can be master or slave) · that could used simultaneously	
Potentionmeter		MPU built-in 2 points (with instruction to read setting)	
Real time clock (RTC)		MPU built-in RTC (With instruction to read time and time reach comparison instruction)	
High-speed pulse output (for EHseries)		Max.output frequency is 200KHz (DVP20EH00T/DVP32EH00T)	
Extension card (for EH series)	Optional	RS-232, RS-422 card, Potentionmeter/DIP card, Transistor Output(2DO) card, 2AD card, 2DA card, COM3 card(RS-485), COM3 card(RS-232),Digital input card(4DI)	
Program memory card (for EH series)		Allow to backup PLC program and data or copy PLC, program can be burned via HPP02 or WPLSoft	
Special extension module		Share modules AD, DA, PT, TC, XA, RT with SS series (Max. 8 extension units,not occupy digital I/O points)	AD · DA · PT · TC · XA · HC · PU (Max. 8 extension units, not occupy digital I/O points)

■ DVP series PLC Special function/specification comparison

Model	Spec.	Latched data register	Data backup memory card	MPU built-in analog I/O	High-speed pulse I/O	
					High-speed counter (PI unit)	Pulse generator (PO unit)
ES		192	—	—	Single phase(2 sets-X0/X1, 30KHz Max.)	2CH (10KHz Max.) Acceleration /deceleration control
EX		192	—	4CH IN (Resoultion:10-bit, bipoar input) 2CH OUT (Resoultion:8-bit,unibipoar output)	Single phase (2 sets-X2/X3, 10KHz Max.) AB phase (1 set, 7KHz Max.)	
SS		192	—	—	Total bandwidth of PI/PO is 30KHz	
SA		3800	—	—	Single phase(2 sets-X0/X1, 30KHz Max.)	1CH (50KHz Max.) Smooth acceleration /deceleration control
SX		3800	—	2CH IN (Resoultion:12-bit, bipoar input) 2CH OUT (Resoultion:12-bit,bipoar output)	Single phase (2 sets-X2~X5, 10KHz Max.) AB phase (4 set, 7KHz Max.) Total bandwidth of PI/PO is 30KHz	
EH		8800	Copy PLC rapidly (option)	Optional (use either 2CH IN or 1CH OUT at one time) 2CH IN (Resoultion:12-bit,unibipoar input) 2CH OUT (Resoultion:12-bit,unibipoar output)	Low speed: Single phase(6 sets, 20KHz Max.) High speed: Single phase(4 sets, 200KHz Max.) AB phase (4 set, 100KHz Max.)	2CH (200KHz Max.) Smooth acceleration /deceleration control & Position instruction

● MPU

DVP □ □ ○ ○ □ □ □ ⋮

series ① ② ③ ④ ⑤

- Total points(output/input)
- Model series
 - ES : ES MPU
 - EX : EX MPU
 - SS : SSMPU
 - SA : SAMPU
 - SX : SXMPU
 - EP : EPMPU
 - EH : EHMPU
- Input power
 - 00 : Ac power input
 - 01 : DC power input(L Type)
 - 11 : DCpower input(H Type)
- Output type
 - R : Relay
 - T : Transistor
- Upgrade version code
(only for ES/EX/SS MPU)
 - None : For others MPU
 - 2 : Upgrade version for ES/EX/SS MPU

● DI/DO Extension Unit

DVP □ □ ○ ○ □ □ □ ⋮

series ① ② ③ ④ ⑤

- Total points(output/input)
- Model series
 - X : ES/EX MPU
 - S : SS/SX/SA MPU
 - P : EP MPU
 - H : EH MPU
- I/O type
 - M : input
 - N : output
 - P : input/output
- Input power
 - 00 : AC power input
 - 01 : DCpower input(L Type)
 - 11 : DCpower input(H Type)
- Output type
 - R : Relay
 - T : Transistor

※ There are 2 types (L-Type and H-Type)in DC power input type sorted by shape for ES/EX series

● AI/AO Extension Unit

DVP □ □ ○ ○ - □

series ① ② ③

- Total channels(output/input)
- Model series
 - AD : Analog to digital module
 - DA : Digital to analog Module
 - PT : Temperature Module - PT100
 - TC : Temperature Module - thermocouple
 - RT : Temperature Module - thermocouple
 - XA : AD and DA Module
- Applicable Model
 - S : SS/SA/SX MPU
 - P : EPMPU
 - H : EH MPU

● PI/PO Extension Unit

DVP □ □ ○ ○ - H

series ① ② ③

- Total points(output/input)
- Model series
 - HC : High-speed counter Module
 - PU : Single-axis position Module
- Applicable Model
 - H : EH MPU

● NI/NO Extension Unit

DVP □ □ ○ ○ - H

series ① ② ③

- Number
- Model series
 - BD : BCD DIP switch Module
 - KY : Matrix keypad Module
- Applicable Model
 - H : EH MPU

● Peripheral Equipment

DVP □ □ □ ○ ○

series ① ②

- Equipment name
 - HPP : Handheld programming pannel
 - DU : Digital setup display
- Type/function
 - 01 : Type 01
 - 02 : Type 02

● Accessory — cable

DVP A CAB □ □ □

series ① ② ③ ④

- Accessories
- Type
 - CAB : Cable
- Connected type:
 - 1, 2, 3, 4,...
- Lenght
 - 15 : 1.5m
 - 30 : 3.0m

● Accessory — Others

DVP A BT □ □

series ① ② ③

- Accessories
- Type
 - BT : Battery
- Battery type
 - 01, 02 ...

● Function card

DVP - F ○ ○ ○

series ① ② ③

- Function card
- Type
 - 232 : RS-232 card
 - 422 : RS-422 card
 - 20T : 2DOcard, Transistor output type
- connected function
(special definition by function card)
 - S : Slave model(only for COM3)

■ ES Standard MPU

Spec. Model	Input/output specification					Dimension
	Power	Input unit		Output unit		
		point	Type	point	Type	
DVP14ES00R2	100~240VAC +10% -15%	8	DC24V/5mA Sink or Source	6	Relay AC250V/DC30V 2A/1point Transistor DC5~30V 0.3A/1 point@40°C	Fig.1
DVP14ES00T2		8		6		
DVP24ES00R2		16		8		
DVP24ES00T2		16		8		Fig.2
DVP32ES00R2		16		16		
DVP32ES00T2		16		16		
DVP60ES00R2		36		24		Fig.3
DVP60ES00T2		36		24		

■ EX Special function MPU

Spec. Model	Input/output specification								Dimension	
	Power	Input unit				Output unit				
		point		Type		point		Type		
		DI	AI	DI	AI	DO	AO	DO		AO
DVP20EX00R2	100~240VAC +10% -15%	8	4	DC24V/5mA Sink or Source	-20~20mA or -10~+10V	6	2	Relay	0~20mA or 0~10V	Fig. 1
DVP20EX00T2		8	4			6	2	Transistor		
DVP20EX11R2	DC24V	8	4			6	2	Relay		

■ Digital I/O Extension unit for ES/EX series

Spec. Model	Input/output specification					Dimension	
	Power	Input unit		Output unit			
		point	Type	point	Type		
DVP08XM11N	DC24V +20% -15%	8	DC24V/5mA Sink or Source	0	none	Fig.4	
DVP16XM11N		16		0		Fig.1	
DVP08XN11R		0		Relay AC250V/DC30V 2A/1point	8	Fig.2	
DVP08XN11T		0			8		
DVP16XN11R		0			16		
DVP16XN11T		0			16		
DVP24XN11R		0			24		
DVP24XN11T		0			24		
DVP08XP11R		4			4		Fig.4
DVP08XP11T		4			4		
DVP24XP11R		16		8	Fig.2		
DVP24XP11T		16		8			
DVP32XP11R		16		16			
DVP32XP11T		16		16			

Summary of DVP-PLC

■ Digital I/O Extension unit for ES/EX series

Spec. Model	Input/output specification					Dimension
	Power	Input unit		Output unit		
		point	Type	point	Type	
DVP24XN00R	100~240VAC +10% -15%	0	DC24V/5mA Sink or Source	24	Relay AC250V/DC30V 2A/1point Transistor DC5~30V 0.3A/1point@40°C	Fig.2
DVP24XN00T		0		24		
DVP24XP00R		16		8		
DVP32XP00R		16		16		
DVP32XP00T		16		16		

■ ES Standard MPU (L type)

Spec. Model	Input/output specification					Dimension
	Power	Input unit		Output unit		
		point	Type	point	Type	
DVP14ES01R2	DC24V +20% -15%	8	DC24V/5mA Sink or Source	6	Relay AC250V/DC30V 2A/1point Transistor DC5~30V 0.3A/1point@40°C	Fig.5
DVP14ES01T2		8		6		
DVP24ES01R2		16		8		Fig.6
DVP24ES01T2		16		8		
DVP32ES01R2		16		16		
DVP32ES01T2		16		16		

■ Digital I/O Extension unit for ES/EX series(L type)

Spec. Model	Input/output specification					Dimension
	Power	Input unit		Output unit		
		point	Type	point	Type	
DVP16XM01N	DC24V +20% -15%	16	DC24V/5mA Sink or Source	0	none	Fig.5
DVP16XN01R		0		16	Relay AC250V/DC30V 2A/1point Transistor DC5~30V 0.3A/1point@40°C	Fig.6
DVP16XN01T		0		16		
DVP24XN01R		0		24		
DVP24XN01T		0		24		
DVP24XP01R		16		8		
DVP24XP01T		16		8		
DVP32XP01R		16		16		
DVP32XP01T		16		16		

Summary of DVP-PLC

■ SS Standard MPU(Module type)

Spec. Model	Input/output specification					Dimension
	Power	Input unit		Output unit		
		point	Type	point	Type	
DVP14SS11R2	DC24V +20% -15%	8	DC24V/5mA Sink or Source	6	Relay	Refer to Dimension page
DVP14SS11T2		8		6	Transistor	

■ SA Standard MPU

Spec. Model	Input/output specification					Dimension
	Power	Input unit		Output unit		
		point	Type	point	Type	
DVP12SA11R	DC24V +20% -15%	8	DC24V/5mA Sink or Source	4	Relay	Refer to Dimension page
DVP12SA11T		8		4	Transistor	

■ SX Special function MPU

Spec. Model	Input/output specification								Dimension	
	Power	Input unit				Output unit				
		point		Type		point		Type		
		DI	AI	DI	AI	DO	AO	DO		AO
DVP10SX11R	DC24V +20% -15%	4	2	DC24V/5mA Sink or Source	-20~20mA or -10~+10V	2	2	Relay	-20~20mA or -10~+10V	Refer to Dimension page
DVP10SX11T		4	2			2	2	Transistor		

■ Digital I/O Extension unit for SS/SA/SX series

Spec. Model	Input/output specification						Dimension	
	Power	Input unit			Output unit			
		point	Type		point	Type		
DVP08SM11N	DC24V +20% -15%	8	DC24V/5mA Sink or Source		0	None		Refer to Dimension page
DVP08SN11R		0			8	Relay		
DVP08SN11T		0			8	AC250V/DC30V		
DVP08SP11R		4			4	1.5A/1 point		
DVP08SP11T		4			4	Transistor		
DVP16SP11R		8			8	DC5~30V		
DVP16SP11T		8			8	0.3A/1point@40°C		

■ Analog I/O Extension unit for SS/SA/SX series

Spec. Model	Input/output specification					Dimension
	Power	Input unit		Output unit		
		Channel	Type	Channel	Type	
DVP04AD-S	DC24V +20% -15%	4	±10V or ±20 mA / 14-bit	0	—	Refer to Dimension page
DVP04DA-S		0	—	4	0~10V or 0~20 mA / 12-bit	
DVP02DA-S		0	—	2	0~10V or 0~20 mA / 12-bit	
DVP06XA-S		4	±10V or ±20 mA / 12-bit	2	0~10V or 0~20 mA / 12-bit	
DVP04PT-S		4	-200°C~600°C / 14 bits(0.1°C)	0	—	
DVP04TC-S		4	-100°C~1000°C / 14 bits(0.1°C)	0	—	
DVP08RT-S		8	-20°C~150°C / 12 bits(0.1°C)	0	—	

■ EH Standard MPU

Spec. Model	Input/output specification					Dimension
	Power	Input unit		Output unit		
		point	Type	point	Type	
DVP16EH00R	100~240VAC +10% -15%	8	DC24V/5mA Sink or Source	8	Relay AC250V/DC30V 1.5A/1 point Transistor DC5~30V 0.3A/1point@40°C	Refer to Dimension page
DVP16EH00T		8		8		
DVP20EH00R		12		8		
DVP20EH00T		12		8		
DVP32EH00R		16		16		
DVP32EH00T		16		16		
DVP48EH00R		24		24		
DVP48EH00T		24		24		
DVP64EH00R		32		32		
DVP64EH00T		32		32		
DVP80EH00R		40		40		
DVP80EH00T		40		40		

Note : For DVP20EH00T and DVP32EH00T, there are high-speed pulse output points Y0 and Y2

■ Digital I/O extension unit for EH series

Spec. Model	Input/output specification					Dimension	
	Power	Input unit		Output unit			
		point	Type	point	Type		
DVP08HM11N	DC24V +20% -15%	8	DC24V/5mA Sink or Source	0	Relay AC250V/DC30V 1.5A/1 point Transistor DC5~30V 0.3A/1point@40°C	Refer to Dimension page	
DVP16HM11N		16		0			
DVP08HN11R		0		8			
DVP08HN11T		0		8			
DVP08HP11R		4		4			
DVP08HP11T		4		4			
DVP32HP11R		16		16			
DVP32HP11T		16		16			
DVP48HP00R		100~240VAC -15%~+10%		24			24
DVP48HP00T				24			24

■ Analog I/O extension unit for EH series

Spec. Model	Input/output specification					Dimension
	Power	Input unit		Output unit		
		Channel	Type	Channel	Type	
DVP04AD-H	DC24V +20% -15%	4	$\pm 10V$ or ± 20 mA / 14-bit	0	—	Refer to Dimension page
DVP04DA-H		0	—	4	0~10V or 0~20 mA / 12-bit	
DVP04PT-H		4	-200°C~600°C / 14 bits(0.1°C)	0	—	
DVP04TC-H		4	-100°C~1000°C / 14 bits(0.1°C)	0	—	
DVP06XA-H		4	$\pm 10V$ or ± 20 mA / 12-bit	2	0~10V or 0~20 mA / 12-bit	

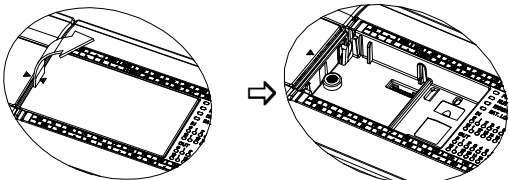
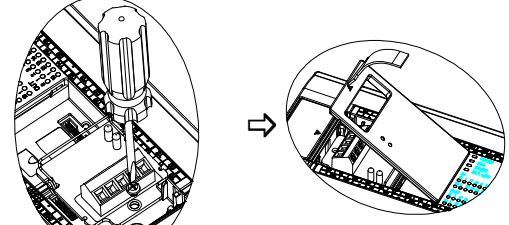
■ Special function extension unit for EH series

Spec. Model	Input/output specification			Dimension
	Power	Input unit	Output unit	
DVP01PU-H	DC24V +20% -15%	—	200KHz / Line output/1CH	Refer to Dimension page
DVP01HC-H		200KHz · +5V/+12V/+24 V Input level/1CH	—	
DVP02HC-H		200KHz · +24V Input level/2CH	—	
DVP08BD-H	DC24V (Supply from MPU)	8 bit DIP switch module	—	
DVP08KY-H		Martix keypad input module (Max. is 8*8)	—	



■ Power supply Module

Spec. Model	Input/output specification		Dimension
	Input unit	Output unit	
DVPPS01	100~240VAC, -15%~+10%	Output voltage : 24VDC, Max. is 1A	Refer to Dimension page
DVPPS02	100~240VAC, -15%~+10%	Output voltage : 24VDC, Max. is 2A	

■ Extension card and data backup memory (only for EH series)

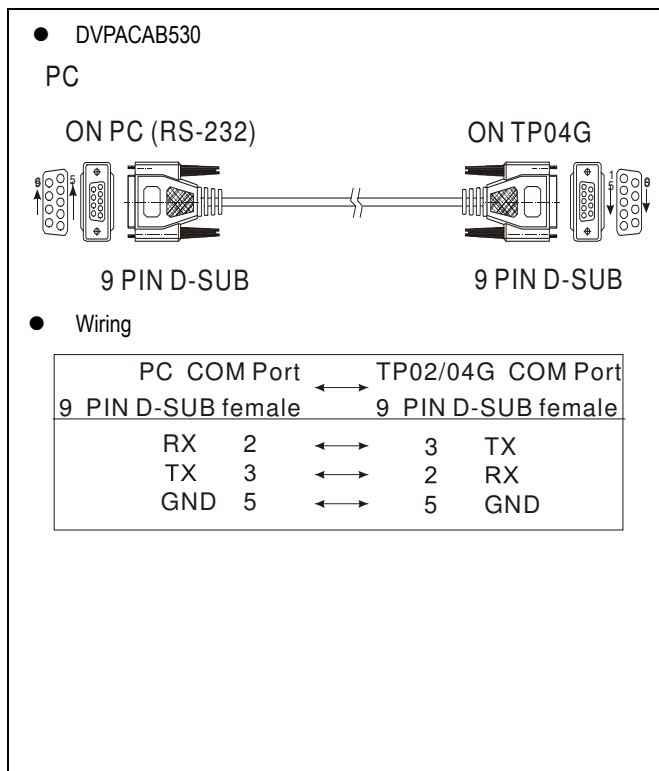
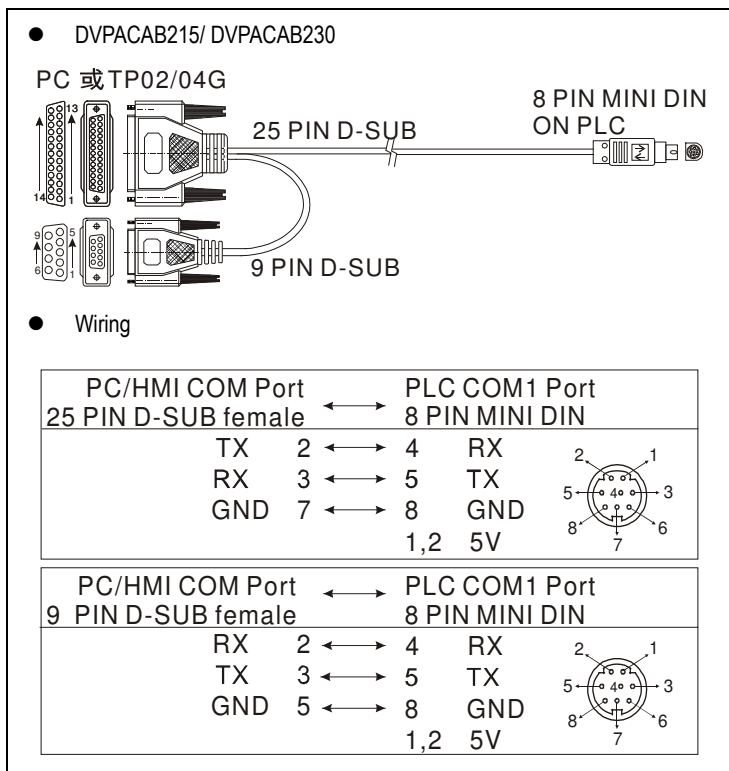
Modele No.	function	Connector	Installation
DVP-F232	Modify COM2 to RS-232	DB9 male	
DVP-F422	Modify COM2 to RS-422)	5 PIN G type terminal	
DVP-F8ID	8-input DIP switch (binary input)	—	
DVP-F4IP	Additional 4-digital input points (without photocouper isolation)	5 PIN G type terminal	
DVP-F6VR	Additional 6-point input potentiometer value	—	
DVP-F2AD	Additional analog input (2 points, resolution 12-bit)	5 PIN G type terminal	
DVP-F2DA	Additional analog output (2 points, resolution 12-bit)	5 PIN G type terminal	
DVP-F485S	Additional COM port(COM3) type : RS-485	5 PIN G type terminal	
DVP-F232S	Additional COM port(COM3) type : RS-232	DB9 female	
DVP-F2OT	Additional 2 digital output points (output type:transistor)	5 PIN G type terminal	
DVP-256FM	Data backup memory card	—	

■ Peripheral Equipment

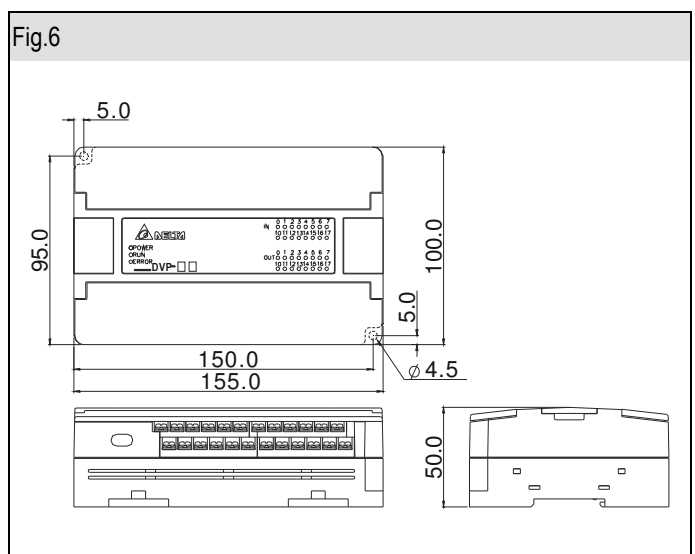
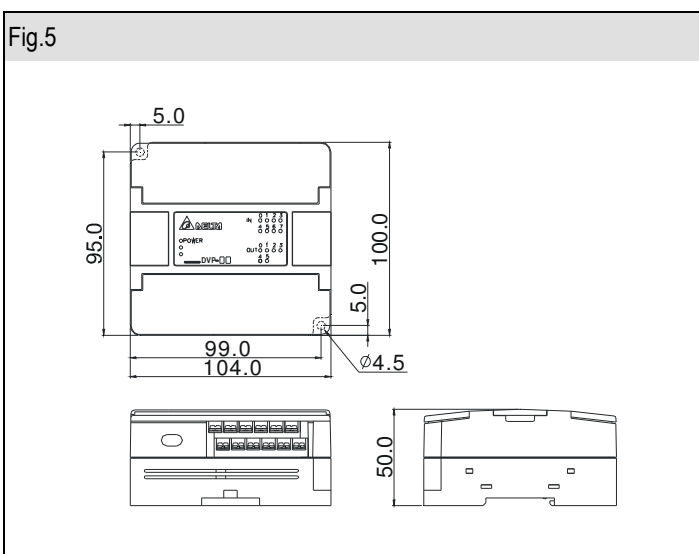
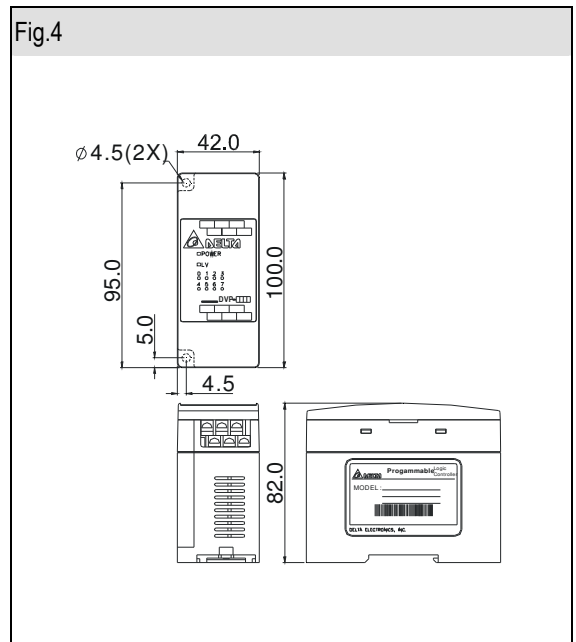
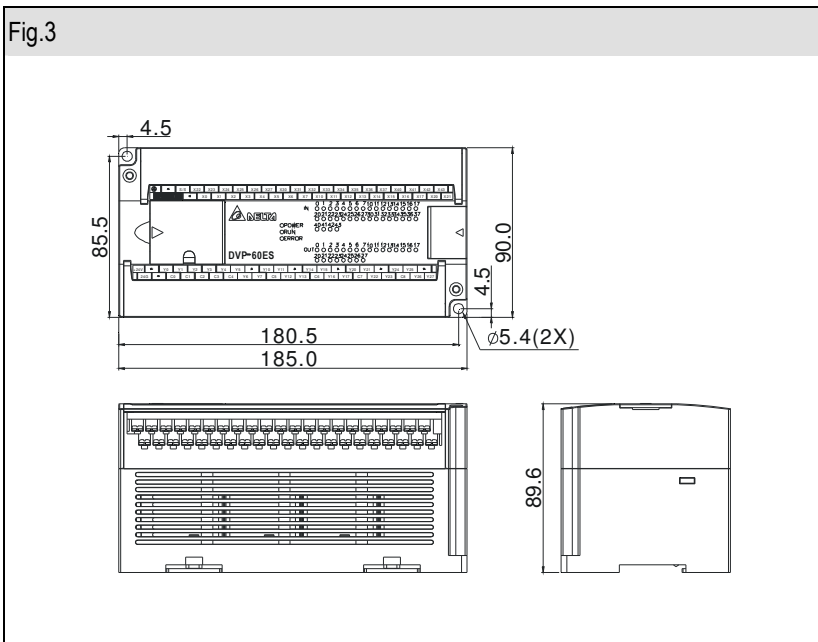
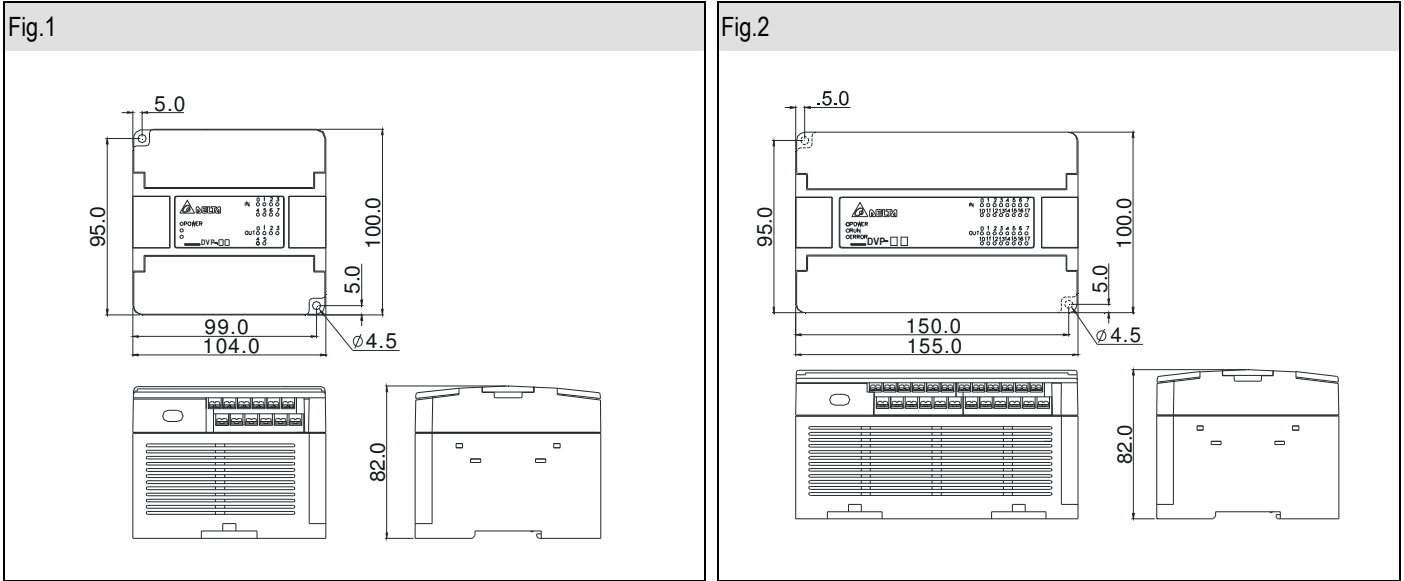
Model No.		Equipment	Function
	DVPHPP02	Handheld Programming panel	1.Support program read/write and editor for all DVP-PLC series 2. Monitor and set all PLC internal devices 3. Built-in retentive memory,once it connects to MPU more than 5 minutes,internal program will maintain for 3~7 days. 4. Built-in data backup memory card.It can save data permanently and also exchange data with others
	DVPDU01	Digital setup display	1. Detachable design:could insert into extension slot of EH MPU(32 points amd more) 2. Connect to RS-232(COM1) of all DVP-PLC series MPU with accessory cable. 3. Monitor and set PLC device;copy program(for all series)
Program editor	WPLSoft	DVP-PLC program editor software	

■ Accessories

Model	Type	Function	Remark
DVPACAB115	cable	HPP02 ⇔ PLC / 1.5m	This cable is packaged with DVPHPP02
DVPACAB215	cable	PC (9 PIN & 25 PIN D-SUB) ⇔ PLC / 1.5m	Could be connector for PLC to connect TP series or other HMI. User also can use following wiring to make cable with suitable length
DVPACAB2A30	cable	PC (9 PIN D-SUB) ⇔ PLC / 3m	
DVPACAB230	cable	PC (9 PIN & 25 PIN D-SUB) ⇔ PLC / 3m	
DVPACAB315	cable	HPP02 ⇔ PC / 1.5m	Use HPP02 connect to PC
DVPACAB403	cable	I/O signal extension line · 30 cm	MPU⇔extension unit or extension unit⇔extension unit (For ES/EX series)
DVPACAB530	cable	TP02/04G⇔ PC/ 3m	For TP02/04G programming
DVPABT01	battery	3.6V Li-battery	For EH/EP/SA/SX MPU
DVPABT02	battery	3.6V Li-battery	For TP04Gfunctionrem

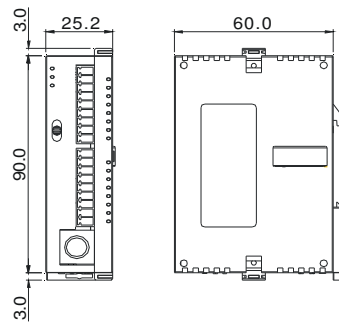


● ES/EX series MPU & Extension Unit(refer to hardware specification)



- Install with /without 35mm DIN rail
- Besides fig.3, they are all fixed terminal. fig. 3 is removal terminal for DVP60ES00R2/T2

● SS series MPU



Model No.	Weight(g)
DVP14SS11R2	104
DVP14SS11T2	98

- Install with 35mm DIN rail
- Removal terminal

● SA/SX series MPU

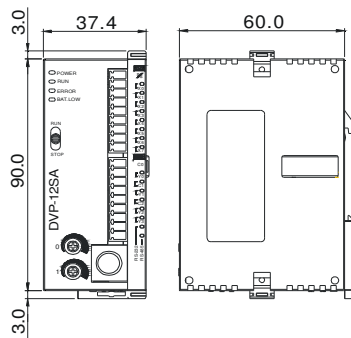


Fig.A

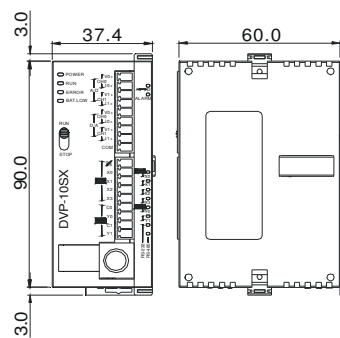


Fig.B

Model No.	Fig	Weight(g)
DVP12SA11R	A	140
DVP12SA11T	A	130
DVP10SX11R	B	138
DVP10SX11T	B	133

- Install with 35mm DIN rail
- Removal terminal

● SS/SA/SX series DI/DO & special extension unit

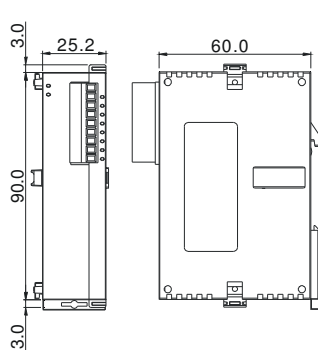


Fig.A

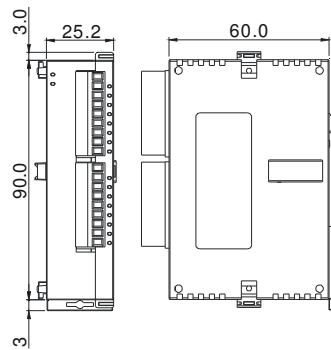


Fig.B

Model No.	Fig	Weight(g)
DVP08SM11N	A	64
DVP08SN11R/T	A	88 / 68
DVP08SP11R/T	B	80 / 70
DVP16SP11R/T	B	96 / 76
DVP04AD-S	B	98
DVP04DA-S	B	96
DVP02DA-S	B	90
DVP06XA-S	B	88
DVP04PT-S	B	98
DVP08RT-S	B	88
DVP04TC-S	B	98

- Install with 35mm DIN rail
- Removal terminal

● Power supply

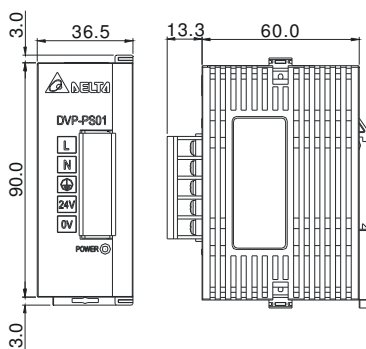


Fig.A

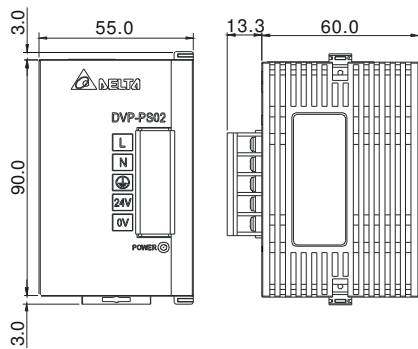
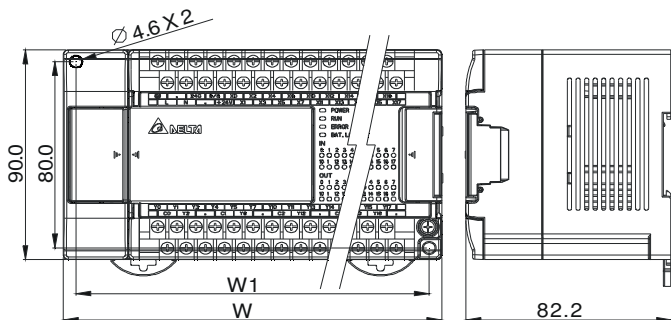


Fig.B

Model No.	Fig	Weight(g)
DVPPS01	A	158
DVPPS02	B	250

- Install with 35mm DIN rail
- Removal terminal

● EH series MPU



Model No.	W(mm)	W1(mm)	Weight(g)
DVP16EH00R/T	113	103	500 / 480
DVP20EH00R/T	113	103	520 / 500
DVP32EH00R/T	143.5	133.5	652 / 612
DVP48EH00R/T	174	164	748 / 688
DVP64EH00R/T	212	202	836 / 756
DVP80EH00R/T	276	266	948 / 848

- Install with 35mm DIN rail
- Removal terminal

● EH series DI/DO & NI/NO extension unit

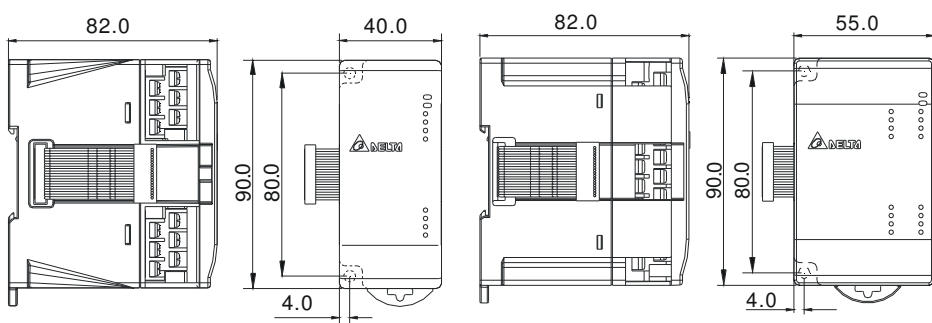
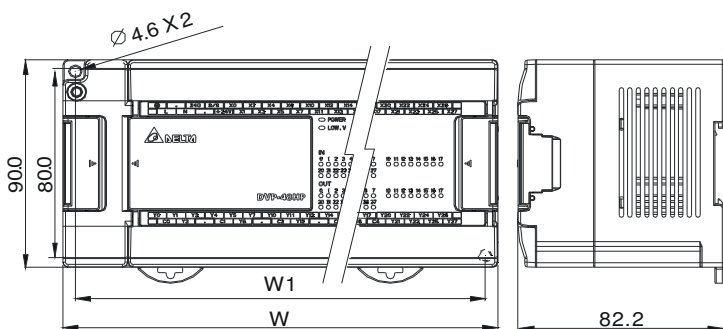


Fig. A

Fig. B

Model No.	Fig.	Weight(g)
DVP08HM11N	A	124
DVP16HM11N	B	126
DVP08HN11R/T	A	130 / 120
DVP08HP11R/T	A	136 / 116
DVP08KY-H	A	98
DVP08BD-H	A	100

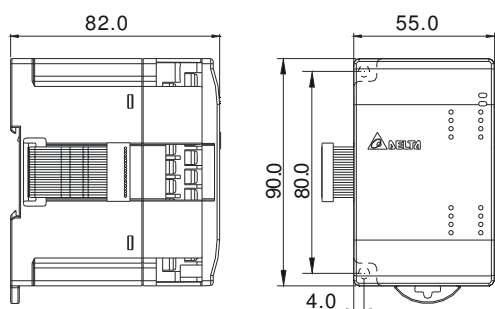
- Install with 35mm DIN rail
- Removal terminal
- DVP16HM11N :Removal terminal



Model No.	W(mm)	W1(mm)	Weight(g)
DVP32HP11R/T	143.5	133.5	438 / 398
DVP48HP00R/T	174	164	616 / 576

- Install with 35mm DIN rail
- Removal terminal

● EH series special extension unit



Model No.	Weight(g)
DVP04AD-H	200
DVP04DA-H	228
DVP04PT-H	226
DVP04TC-H	198
DVP06XA-H	198
DVP01HC-H	196
DVP02HC-H	198
DVP01PU-H	216

- Install with 35mm DIN rail
- Removal terminal