

# TP Series Text Panel



## TP04G-AL2 TP04G-AL-C

- 4.1" STN LCD
- User-defined function keys available
- Supports RS-232/RS-422/RS-485 communication ports (TP04G-AL2)
- User-defined boot screen available
- Supports Modbus Slave mode

Dimensions	4.1" (101.8 x 35.24mm)
Resolution	192 x 64
Display color	Monochrome
Flash Memory	256k bytes
SRAM	16k/10k bytes
Function keys	10 function keys
Password	Available
Recipe function	Not available
Real-time clock	Available
Serial COM port	RS-232 & RS-422/485
Editing software	TPEditor

## TP02G-AS1 TP04G-AS2

- STN LCD size: 72 x 22mm (TP02 series), 3" (TP04 series)
- Resolution: 160 x 32 dots (TP02 series), 128 x 64 dots (TP04 series)
- TP02 series provides 16 user-defined function keys  
TP04 series provides 12 user-defined function keys
- TP02 series supports RS-232 and RS-485 COM ports  
TP04 series supports RS-232 and RS-485/RS-422 COM ports

Dimensions	72 x 22 mm / 3" ( 67mm x 32 mm)
Resolution	160 x 32 / 128 x 64
Display color	Monochrome
Flash Memory	256k bytes
SRAM	32k bytes
Function keys	16 / 12 function keys
Password	Available
Recipe function	Not available
Real-time clock	Available
Serial COM port	RS-232 & RS-422/485
Editing software	TPEditor

## TP04G-BL-C

- 4.1" STN LCD
- 0-9 numeric keys and user-defined function keys available
- Built-in RS-232 Modbus ASCII/RTU mode
- User-defined boot screen available
- Supports Modbus slave mode

Dimensions	4.1" (101.8 x 35.24mm)
Resolution	192 x 64
Display color	Monochrome
Flash Memory	256k bytes
SRAM	10k bytes
Function keys	17 function keys
Password	Available
Recipe function	Not available
Real-time clock	Available
Serial COM port	RS-232
Editing software	TPEditor

## TP08G-BT2

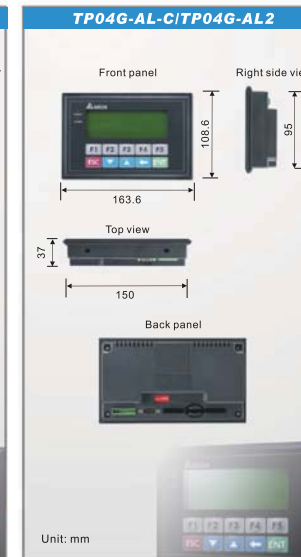
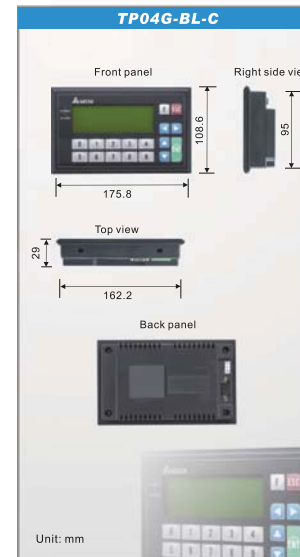
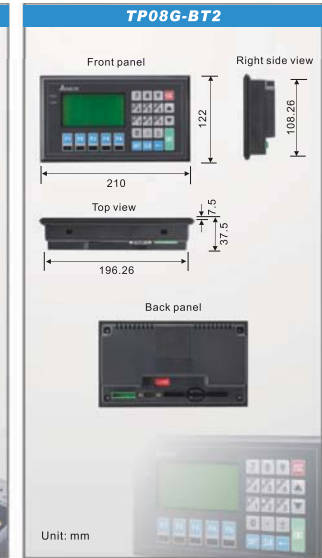
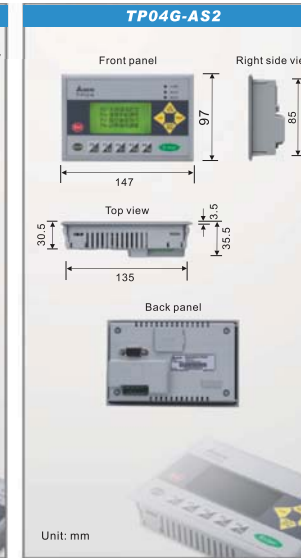
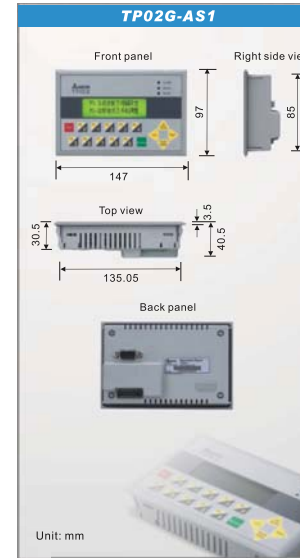
- 3.8" STN LCD
- Resolution: 240 x 128 dots
- Built-in 1,024kB flash memory
- 24 user-defined function keys available
- Built-in RS-232 and RS-485/RS-422 COM ports
- Supports recipe and macro functions
- Supports Modbus slave mode

Dimensions	3.6" ( 83mm x 41 mm)
Resolution	160 x 80/240 x 128
Display color	Monochrome
Flash Memory	1M bytes
SRAM	64k bytes
Function keys	24 function keys
Password	Available
Recipe function	Available
Real-time clock	Available
Serial COM port	RS-232 & RS-422/485
Editing software	TPEditor

## Hardware Specifications

## Product Outline & Dimensions

Model name		TP02G-AS1	TP04G-AS2	TP08G-BT2	TP04G-AL-C	TP04G-AL2	TP04G-BL-C
Display specifications	Screen type	STN LCD					
	Display color	Monochrome					
	Resolution	160 x 32	128 x 64	240 x 128	192 x 64		
	Backlight	Life span of backlight is about 50,000 hours at 25 °C					
	Display range	72 x 22mm	3"(67 x 32mm)	3.8" (83 x 41mm)	4.1" (101.8 x 35.24mm)		
Flash memory	256k byte		1M byte		256k byte		
Program download port	COM1(RS-232)						
Serial COM port	COM1	RS-232	RS-232/422		RS-232	RS-232/422	RS-232
	COM2	RS-485		-	RS-485	-	
Extension interface	The slot for program copy card						
Real-time clock	-	Built-in					
Auxiliary keys	System keys	6	7	12	5	7	
	Function keys	10	5	12	5	10	
Operating voltage	DC +24V (-10% ~ +20%)						
Backup battery	3V lithium battery CR2032 x 1 / battery life: 5 years						
Buzzer	85dB						
Cooling method	Natural air circulation						
Operating temperature	0°C~50°C						
Storage temperature	-20°C~+60°C						
Operating humidity	10% ~ 90% RH (0~40°C)						
Vibration	IEC61131-2, IEC 68-2-6 (TEST Fc) 5Hz ≤ f < 8.4Hz Continuous: 3.5mm 8.4Hz ≤ f ≤ 150Hz Continuous: 1.0g						
Shock	IEC61131-2, IEC 68-2-27 (TEST Ea) 15g peak, 11ms duration, half-sine, three shocks in each direction per axis, on 3 mutually perpendicular axes (total of 18 shocks)						
Radiated emission	CISPR11, Class A Frequency: 30~230MHz, Limits: 40dB uV/m; Frequency: 230MHz~1GHz, Limits: 47dB uV/m						
Radiated electromagnetic field	EN61000-4-3, Frequency: 80~2000MHz, Limits: 10V/m						
Electrostatic discharge	EN61000-4-2, Air Discharge: 8KV, Contact Discharge: 4KV						
Fast transient burst	EN61000-4-4, Power Line: 1KV, Communication I/O: 500V						
Dimensions (Width (W) x Height (H) x Depth (D))	147 x 97 x 35.5		210 x 122 x 45		163.6 x 108.6 x 37		
Panel cutout	136 x 85		196 x 108		151 x 96		163 x 96
Weight	240g		430g		268g		270g
Safety approvals (Waterproof class of front panel)	IP65/NEMA4 & CE, UL Type 4 indoor				IP65/NEMA4 & CE		



# Extension Modules

## DVP-EH2

**Small PLC with the Strongest Operation Efficiency!**



- Max. 512 I/O points
- 200kHz high-speed pulse output
- Brand-new high-speed extension modules
- Supports linear/arc interpolation
- -L type supports left-side extension

### Function Cards

- Convert RS-485 into RS-232/422 for COM2  
DVP-F232    DVP-F422
- Add additional 3<sup>rd</sup> COM port  
DVP-F232S    DVP-F485S
- Analog I/O  
DVP-F2DA    DVP-F2AD
- Digital Input Point Extension  
DVP-F4IP
- Transistor Output  
DVP-F2OT
- Analog Input  
DVP-F6VR
- DIP Switch Input  
DVP-F8ID
- Frequency Measurement Card  
DVP-F2FR

### Accessories

- Data Backup Card  
DVP-256FM (for special purpose)    DVP-PCC01 (for general purpose)
- Data Transmission Cable  
DVP-PACAB2A30
- Handheld Programming Panel  
DVP-HPP
- Digital Display Panel  
DVP-DU01
- Extension Cable Connector for EH/PM Series  
DVP-PAEXT01-H
- Connector for MPU & Extension Module  
DVP-PACAB4A09(0.9m)    DVP-PACAB4A18(1.8m)

Model name	Spec.
DVP16EH00R2	—AC— 6 8 R—
DVP16EH00T2	—AC— 6 8 T—
DVP20EH00R2	—AC— 12 8 R—
DVP20EH00T2	—AC— 12 8 T— 2-axes of 200kHz (each axis) pulse output; supports 1 group of linear/arc interpolation.
DVP32EH00R2	—AC— 16 16 R—
DVP32EH00T2	—AC— 16 16 T— 2-axes of 200kHz (each axis) pulse output; supports 1 group of linear/arc interpolation.
DVP32EH00M2	—AC— 16 16 M— 2-axes of 200kHz (each axis) pulse output.
DVP32EH00R2-L*	—AC— 16 16 R—
DVP32EH00T2-L*	—AC— 16 16 T— 2-axes of 200kHz (each axis) pulse output; supports 1 group of linear/arc interpolation.
DVP40EH00R2	—AC— 24 16 R—
DVP40EH00T2	—AC— 24 16 T— 4-axes of 200kHz (each axis) pulse input/output; supports 2 groups of linear/arc interpolation.
DVP48EH00R2	—AC— 24 24 R—
DVP48EH00T2	—AC— 24 24 T—
DVP64EH00R2	—AC— 32 32 R—
DVP64EH00T2	—AC— 32 32 T—
DVP80EH00R2	—AC— 40 40 R—
DVP80EH00T2	—AC— 40 40 T—

—AC—:AC power supply    6:Input points    8:Output points    R:Relay output    T:Transistor output    M: Differential output  
\*Supports left-side high-speed extension.

### Digital I/O Modules

- Input Point Extension  
DVP08HM11N    DVP16HM11N
- Output Point Extension  
DVP08HN11R/T    DVP32HN00R/T
- Input/Output Point Extension  
DVP08HP11R/T    DVP16HP11R/T    DVP32HP00R/T    DVP48HP00R/T

### Analog I/O Modules

- Analog Function Extension
  - Analog Input  
DVP04AD-H2  
V: 14-bit  
I: 13-bit
  - Analog Output  
DVP04DA-H2  
V: 12-bit  
I: 12-bit
  - Analog Input/Output  
DVP06XA-H2  
Input 4CH / Output 2CH  
V: 12-bit    V: 12-bit  
I: 11-bit    I: 12-bit
- Temperature Measurement
  - Sensor: Pt100  
DVP04PT-H2
  - Sensor: J, K, R, S, T type thermocouple
  - DVP32EH00R2-L & DVP32EH00T2-L are also compatible with left-side high-speed extension modules for DVP-SV series.
- Motion Control
  - Single-Axis Positioning  
DVP01PU-H2
  - High-Speed Counter  
DVP01HC-H2



# Extension Modules



**The Most Cost-Effective Solution to Sequential Control!**

## DVP-ES2/EX2

- 256 / 238 points
- 100kHz pulse output
- Analog input/output



reddot design award winner 2010



Model name	Spec.
DVP16ES200R	Ⓢ Ⓜ 8 Ⓡ
DVP16ES200T	Ⓢ Ⓜ 8 Ⓣ
DVP24ES200R	Ⓢ Ⓜ 8 Ⓡ
DVP24ES200T	Ⓢ Ⓜ 8 Ⓣ
DVP32ES200R	Ⓢ Ⓜ 16 Ⓡ
DVP32ES200T	Ⓢ Ⓜ 16 Ⓣ
DVP32ES211T	Ⓢ Ⓜ 16 Ⓣ
DVP40ES200R	Ⓢ Ⓜ 16 Ⓡ
DVP40ES200T	Ⓢ Ⓜ 16 Ⓣ
DVP60ES200R	Ⓢ Ⓜ 24 Ⓡ
DVP60ES200T	Ⓢ Ⓜ 24 Ⓣ

Model name	Spec.
DVP20EX200R	Ⓢ Ⓜ 6 4AI/2AO Ⓡ
DVP20EX200T	Ⓢ Ⓜ 6 4AI/2AO Ⓣ

- Ⓢ : AC power supply
- Ⓜ : Input points
- Ⓡ : Output points
- Ⓣ : DC power supply
- Ⓣ : Transistor output
- Ⓡ : Relay output

### Digital I/O Modules

- Input Point Extension  
DVP08XM211N  
DVP16XM211N
- Output Point Extension  
DVP08XN211R/T  
DVP16XN211R/T  
DVP24XN200R/T
- Input/Output Point Extension  
DVP08XP211R/T  
DVP16XP211R/T  
DVP24XP200R/T  
DVP32XP200R/T



### Analog I/O Modules

- Input Point Extension  
DVP04AD-E2
- Output Point Extension  
DVP04DA-E2  
DVP02DA-E2
- Input/Output Point Extension  
DVP06XA-E2



### Temperature Measurement Modules

- DVP04PT-E2
- DVP04TC-E2



## DVP-SS2



### 2<sup>nd</sup>-Generation Slim Standard MPU

Model name	Spec.
DVP14SS211R	Ⓢ Ⓜ 6 Ⓡ
DVP14SS211T	Ⓢ Ⓜ 6 Ⓣ

- Ⓡ : Relay output
- Ⓢ : DC power supply
- Ⓜ : Input points
- Ⓡ : Output points
- Ⓣ : Transistor output

## DVP-SX2



### 2<sup>nd</sup>-Generation Slim Analog I/O MPU

Model name	Spec.
DVP20SX211R	Ⓢ Ⓜ 6 4AI/2AO Ⓡ
DVP20SX211T	Ⓢ Ⓜ 6 4AI/2AO Ⓣ
DVP20SX211S	Ⓢ Ⓜ 6 4AI/2AO Ⓢ

- Ⓡ : Relay output
- Ⓢ : DC power supply
- Ⓜ : Input points
- Ⓡ : Output points
- Ⓣ : Transistor output
- Ⓢ : Transistor output (PNP)

## DVP-SA2



### 2<sup>nd</sup>-Generation Slim Advanced MPU

Model name	Spec.
DVP12SA211R	Ⓢ Ⓜ 4 Ⓡ
DVP12SA211T	Ⓢ Ⓜ 4 Ⓣ

- Ⓡ : Relay output
- Ⓢ : DC power supply
- Ⓜ : Input points
- Ⓡ : Output points
- Ⓣ : Transistor output

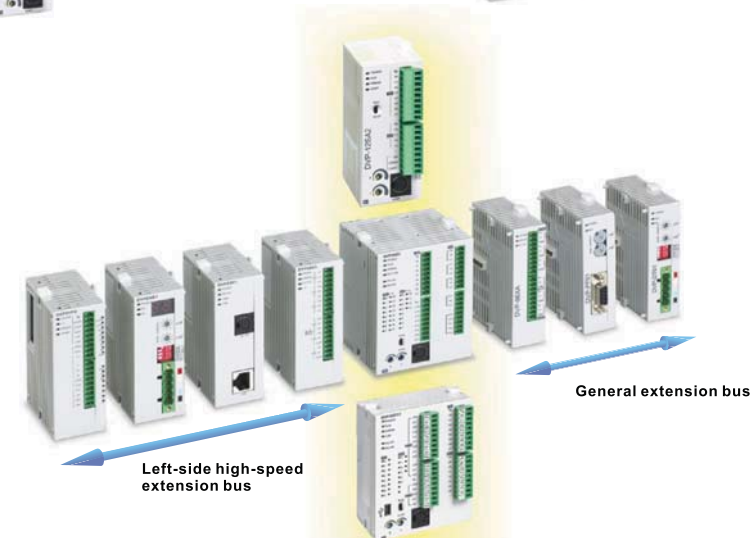
## DVP-SV



### Functional Slim Type MPU

Model name	Spec.
DVP28SV11R	Ⓢ Ⓜ 12 Ⓡ
DVP28SV11T	Ⓢ Ⓜ 12 Ⓣ

- Ⓡ : Relay output
- Ⓢ : DC power supply
- Ⓜ : Input points
- Ⓡ : Output points
- Ⓣ : Transistor output





## Left-Side High-Speed Extension Modules

### Communication Modules

■ **DeviceNet Master**  
DVPDNET-SL

■ **Ethernet**  
DVPEN01-SL

■ **CANopen Master**  
DVP COPM-SL

### Analog Function Extension

■ **Analog Input**  
DVP04AD-SL

■ **Analog Output**  
DVP04DA-SL

■ **DVP02LC-SL\***  
Load Cell Module

## General Extension Modules

### I/O Point Extension

■ **Input Point Extension**  
DVP08SM11N  
DVP16SM11N

■ **Output Point Extension**  
DVP06SN11R  
DVP08SN11R/T

■ **Input/Output Point Extension**  
DVP08SP11R/T  
DVP16SP11R/T  
DVP16SP11TS(PNP)

■ **Pin Header Input**  
DVP32SM11N

■ **Pin Header Output**  
DVP32SN11TN

■ **Digital Switch**  
DVP08ST11N

### Analog Function Extension

■ **Analog Input**  
DVP04AD-S  
DVP06AD-S

■ **Analog Output**  
DVP04DA-S  
DVP02DA-S

■ **Analog Input/Output**  
DVP06XA-S

### Temperature Measurement

■ **Sensor: Pt100**  
DVP04PT-S

■ **Sensor: J, K, R, S, T type thermocouple**  
DVP04TC-S

### Motion Control

■ **Single-Axis Positioning**  
DVP01PU-S

### Communication Modules

■ **PROFIBUS Slave**  
DVP PF01-S

■ **DeviceNet Slave**  
DVP DT01-S

### Power Supply Modules

DVP PS01  
DVP PS02

## Electrical Specifications

	AC	DC
Power supply voltage	100 ~ 240VAC (-15% ~ 10%), 50/60Hz ± 5%	24VDC (-15% ~ 20%)
Fuse capacity	2A/250VAC	ES:2A/250VAC;SV:2.5A/30VDC
Spike voltage durability	1,500VAC (Primary-secondary); 1,500VAC (Primary-PE); 500VAC (Secondary-PE)	
Insulation impedance	>5MΩ (all I/O point-to-ground: 500VDC)	
Noise immunity	ESD: 8KV Air Discharge EFT: Power Line · 2kV Digital I/O : 1kV Analog & Communication I/O : 1kV RS: 26MHz ~ 1GHz · 10V/m	
Earth	The diameter of grounding wire shall not be shorter than that of the power supply cable. (When many PLCs are in use at the same time, please make sure every PLC is properly grounded.)	
Storage / operation	Storage: -25°C ~ 70°C (temperature); 5% ~ 95% (humidity) Operation: 0°C ~ 55°C (temperature); 50% ~ 95% (humidity); pollution degree 2	

### Input Point Specification\*1

Max. Input frequency	10kHz	20kHz	100kHz	200kHz
Input signal type	SINK / SOURCE			
Input signal voltage	24VDC ± 10% (5mA)			
Response time*2	EH2/SV/PM	OFF→ON: 20μs ON→OFF: 50μs	ES/EX/SS/SA/SX/SC SS2/SX2 OFF→ON: 3.5μs ON→OFF: 20μs	SC/ES2/EX2/SA2/SX2 OFF→ON: 2.5μs ON→OFF: 5μs
	ES2/EX2			
	ES/EX			
	SS/SA/SX/SC			
	SS2			
SA2/SX2	EH2/SV/PM OFF→ON: 0.15μs ON→OFF: 3μs			

\*1. For more detailed specifications, see "Specification" section in the instruction sheet of each model.

\*2. When the input point on MPU conducts only general input functions, use D1020 or D1021 to adjust the response time. (Default: 10ms)

### Output Point Specification\*1

	Transistor-T	Relay-R		
		General speed	High speed	
Max. exchange (working) frequency	1Hz*2	10kHz	100kHz	200kHz
Current spec.	EH2/SV/PM	0.3A/point@40°C	SA2/SX2/ES2/EX2 Resistive: 0.5A/point (4A/COM) Conductive: 12W (24VDC) Light bulb: 2W (24VDC) SC <1kHz, 0.3A/point@40°C ≧1kHz, 30mA/point@40°C	EH2/SV/PM Resistive: 0.5A/point (4A/COM) Conductive: 12W (24VDC) Light bulb: 2W (24VDC)
	ES2/EX2			
	ES/EX			
	SS/SA/SX/SC			
	SS2/SX2			
Voltage spec.	250VAC/30VDC	30VDC		
Response time	10ms	OFF→ON: 20μs ON→OFF: 30μs	OFF→ON: 2μs ON→OFF: 3μs	OFF→ON: 0.5μs ON→OFF: 2.5μs

\*1. For more detailed specifications, see "Specification" section in the instruction sheet of each model.

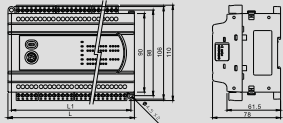
\*2. Relay life: Resistive load -> more than 200,000 times; conductive load -> more than 80,000 times.

\*1. Contact your sales representative for the official launch date of the left-side high-speed extension modules.  
\*2. DVP32EH00R2-L & DVP32EH00T2-L are also compatible with the left-side high-speed extension modules.



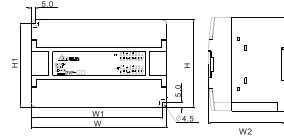
## ES2/EX2 Series MPU

Model name (mm)	L	L1
DVP18ES200R/T	105	97
DVP24ES200R/T	125	117
DVP32ES200R/T	145	137
DVP32ES211T	145	137
DVP40ES200R/T	165	157
DVP60ES200R/T	225	217
DVP20EX200R/T	145	137



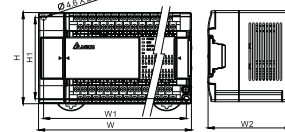
## ES/EX Series MPU

Model name (mm)	H	H1	W	W1	W2
DVP14ES00R2/T2	100	95	104	99	82
DVP24ES00R1/R2/T2	100	95	155	150	82
DVP30ES00R2/T2	100	95	155	150	82
DVP32ES00R2/T2	100	95	155	150	82
DVP40ES00R2/T2	100	95	155	150	82
DVP60ES00R2/T2	100	85.5	185	180.5	89.6
DVP20EX00R1/R2/T2	100	95	155	150	82



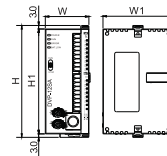
## EH2 Series MPU

Model name (mm)	H	H1	W	W1	W2
DVP16EH00R2/T2	90	80	113	103	82
DVP20EH00R2/T2	90	80	113	103	82
DVP32EH00M2	90	80	143.5	133.5	82
DVP32EH00R2/T2	90	80	143.5	133.5	82
DVP32EH00R2-L	90	80	143.5	133.5	82
DVP32EH00T2-L	90	80	143.5	133.5	82
DVP40EH00R2/T2	90	80	158.8	153.8	82
DVP48EH00R2/T2	90	80	174	164	82
DVP64EH00R2/T2	90	80	212	202	82
DVP80EH00R2/T2	90	80	276	266	82



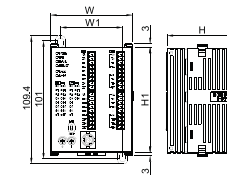
## SS/SA/SX/SC/SS2/SA2 Series MPU

Model name (mm)	H	H1	W	W1
DVP14SS11R2/T2	96	90	25.2	60
DVP14SS211R/T	96	90	25.2	60
DVP12SA11R/T	96	90	37.4	60
DVP12SA211R/T	96	90	37.4	60
DVP10SX11R/T	96	90	37.4	60
DVP12SC11T	96	90	37.4	60



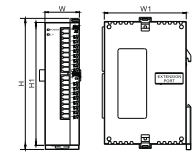
## SV/SX2 Series MPU

Model name (mm)	H	H1	W	W1
DVP28SV11R/T	60	90	70	53.2
DVP28SX211R/T/S	60	90	70	53.2



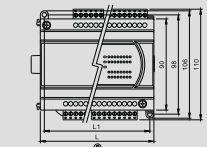
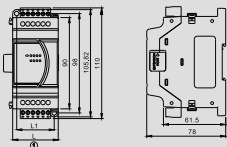
## S Series Extension Modules

Model name (mm)	H	H1	W	W1
DVP08SM11N	96	90	25.2	60
DVP06SN11R	96	90	25.2	60
DVP08SN11R/T	96	90	25.2	60
DVP08SP11R/T	96	90	25.2	60
DVP16SP11R/T	96	90	25.2	60
DVP04AD-S	96	90	25.2	60
DVP06AD-S	96	90	25.2	60
DVP02DA-S	96	90	25.2	60
DVP04DA-S	96	90	25.2	60
DVP06XA-S	96	90	25.2	60
DVP04PT-S	96	90	25.2	60
DVP04TC-S	96	90	25.2	60
DVP01PU-S	96	90	25.2	60
DVPPF01-S	96	90	25.2	60
DVPDT01-S	96	90	25.2	60



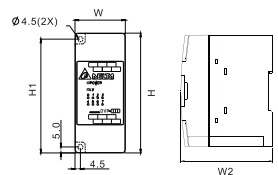
## ES2/EX2 Series Extension Modules

Model name (mm)	L	L1	Type
DVP08XM211N	45	37	○
DVP08XP211R/T	45	37	○
DVP08XN211R/T	45	37	○
DVP16XM211N	70	62	○
DVP16XP211R/T	70	62	○
DVP16XN211R/T	70	62	○
DVP24XP200R/T	145	137	○
DVP24XN200R/T	145	137	○
DVP32XP200R/T	145	137	○
DVP04AD-E2	70	62	○
DVP02DA-E2	70	62	○
DVP04DA-E2	70	62	○
DVP06XA-E2	70	62	○
DVP04PT-E2	70	62	○
DVP04TC-E2	70	62	○



## ES/EX Series Extension Modules

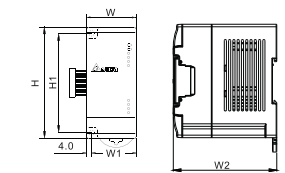
Model name (mm)	H	H1	W	W1	W2
DVP08XM11N	100	95	42	37.5	82
DVP16XM11N	100	95	104	99	82
DVP08XN11R/T	100	95	42	37.5	82
DVP16XN11R/T	100	95	155	150	82
DVP24XN11R/T	100	95	155	150	82
DVP24XN00R/T	100	95	155	150	82
DVP08XP11R/T	100	95	42	37.5	82
DVP24XP11R/T	100	95	155	150	82
DVP24XP00R/T	100	95	155	150	82
DVP32XP00R/T	100	95	155	150	82



## EH2 Series Extension Modules

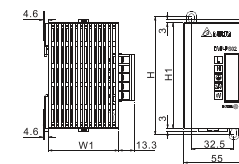
Model name (mm)	H	H1	W	W1	W2
DVP08HM11N	90	80	40	36	82
DVP16HM11N	90	80	55	51	82
DVP08HN11R/T	90	80	40	36	82
DVP32HN00R/T	90	80	143.5	133.5	82.2
DVP08HP11R/T	90	80	40	36	82
DVP16HP11R/T	90	80	55	51	82
DVP32HP00R/T	90	80	143.5	133.5	82.2
DVP48HP00R/T	90	80	174	164	82.2

Model name (mm)	H	H1	W	W1	W2
DVP04AD-H2	90	80	60	56	82
DVP04DA-H2	90	80	60	56	82
DVP06XA-H2	90	80	60	56	82
DVP04PT-H2	90	80	60	56	82
DVP04TC-H2	90	80	60	56	82
DVP01PU-H2	90	80	60	56	82
DVPDT02-H2	90	80	40	46	82
DVPCP02-H2	90	80	40	46	82
DVPPF02-H2	90	80	40	46	82



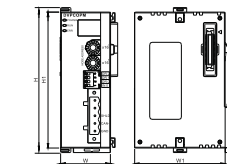
## PS01/02 Power Supply Modules

Model name (mm)	H	H1	W	W1
DVPPS01	100	90	38.5	60
DVPPS02	100	90	55	60



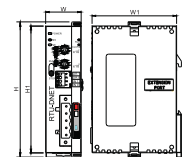
## Left-Side High-Speed Extension Modules

Model name (mm)	H	H1	W	W1
DVPE01-SL	96	90	33.1	60
DVPCOPM-SL	96	90	33.1	60
DVPDNET-SL	96	90	33.1	60
DVP04AD-SL	96	90	33.1	60
DVP04DA-SL	96	90	33.1	60
DVP02LC-SL	96	90	33.1	60



## Remote I/O Modules

Model name (mm)	H	H1	W	W1
RTU-DNET	96	90	25.2	60
RTU-485	96	90	25.2	60
RTU-EN01	96	90	25.2	60
RTU-PT01	96	90	25.2	60



## PIN Definition of DVPACAB2A30

