

# DVPPF01-S

## Instruction Sheet

### Profibus/DP Slave Adapter

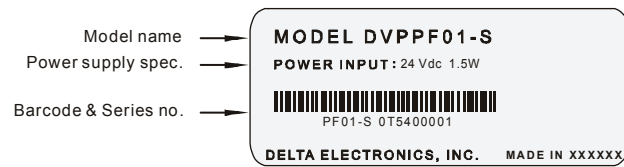
#### 1 WARNING

- ⚠ This Instruction Sheet only provides descriptions for electrical specifications, general specifications, installation and wiring.
- ⚠ This is an OPEN TYPE Controller. The DVPPF01-S should be kept in an enclosure away from airborne dust, humidity, electric shock risk and vibration. Also, it is equipped with protective methods such as some special tool or key to open the enclosure, so as to avoid the hazard to users or any damage to the module. Do NOT touch terminals when power on.

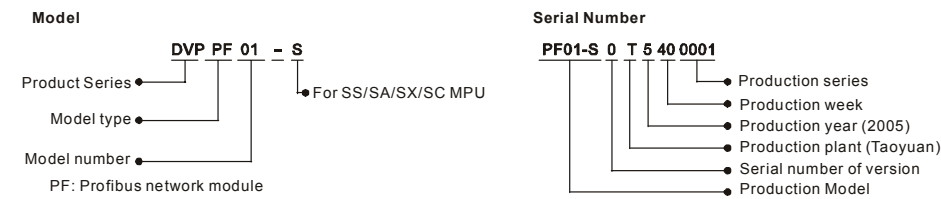
#### 2 PRODUCT INTRODUCTION

- Functions:
  - Cyclical data exchange process.
  - Support the SYNC and FREEZE for data synchronization between master and slaves.
  - Support Auto Baud rate detection.
  - Support 12MHz baud rate in DP network.
  - Cyclical data size is fixed to 4bytes input and 4bytes output.
  - Support GSD file configures by using configuration tools.

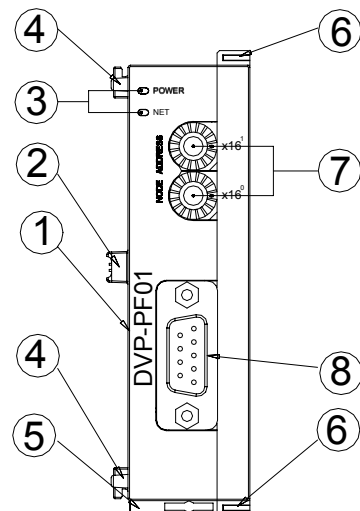
■ Nameplate Explanation:



■ Model Name and Serial Number Explanation:



■ Product Profile



1. Model name
2. Extension port
3. Power/NET LED
4. Extension hole for mounting unit or module
5. DIN rail clip
6. Extension clip
7. Address switch
8. Profibus connector

#### 3 SPECIFICATION

Item	Specification
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DP Connections	
Interface	DB9 9 pin connector
Transfer method	High speed RS485
Transfer cable	2-wire twisted shielded cable
Electrical isolation	500V DC

Communication	
Message types	DPV0, Cyclical data exchange process
Device ID	09B9 HEX
GSD file	EATN09B9.GSD
Model Name	DVPPF01-S
Baud rates (Auto detected)	9.6K bps
	19.2K bps
	93.75K bps
	187.5K bps
	500K bps
	1.5M bps
	3M bps
	6M bps
12M bps	

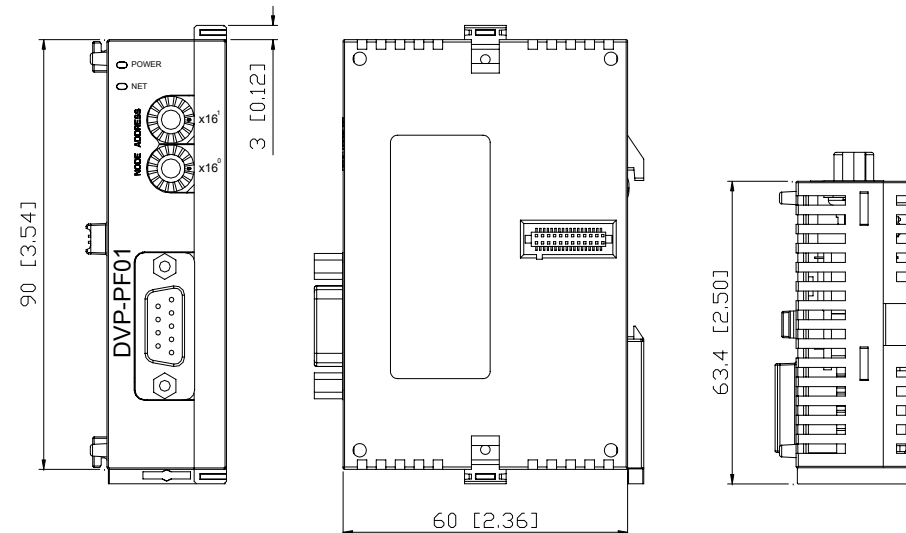
#### Environmental Specifications

Noise Immunity	ESD(IEC 61131-2, IEC 61000-4-2): 8KV Air Discharge EFT(IEC 61131-2, IEC 61000-4-4): Power Line: 2KV, Digital I/O: 1KV, Analog & Communication I/O: 1KV Damped-Oscillatory Wave: Power Line: 1KV, Digital I/O: 1KV RS(IEC 61131-2, IEC 61000-4-3): 26MHz~1GHz, 10V/m
Environment	Operation: 0°C~55°C (Temperature), 50~95% (Humidity), Pollution degree 2; Storage: -40°C~70°C (Temperature), 5~95% (Humidity)
Vibration / Shock Resistance	Standard: IEC1131-2, IEC 68-2-6 (TEST Fc) IEC1131-2 & IEC 68-2-27 (TEST Ea)
Approvals	CE, UL, US

#### 4 INSTALLATION AND CONFIGURATION

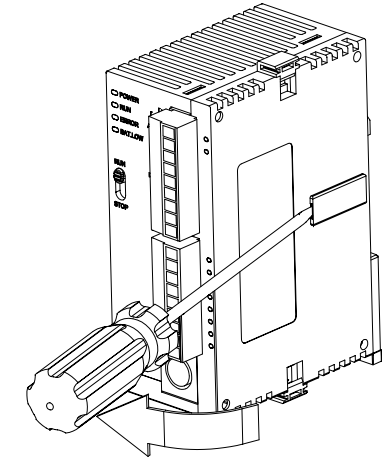
##### Dimensions

Dimensions are in millimeter and [inch]

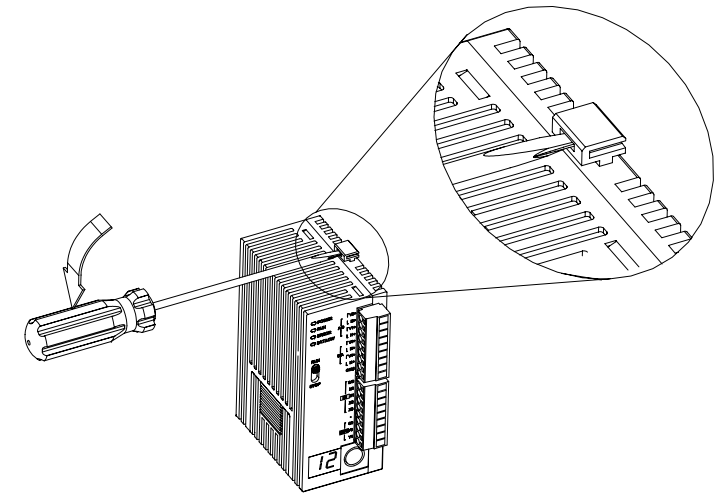


#### Installing the DVPPF01-S with the PLC controller

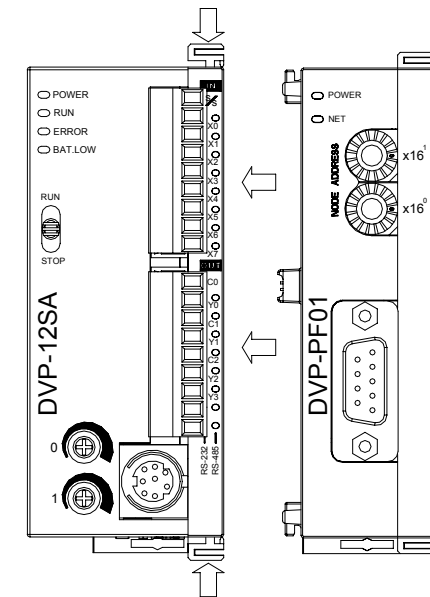
Open the extension cover with a screwdriver.



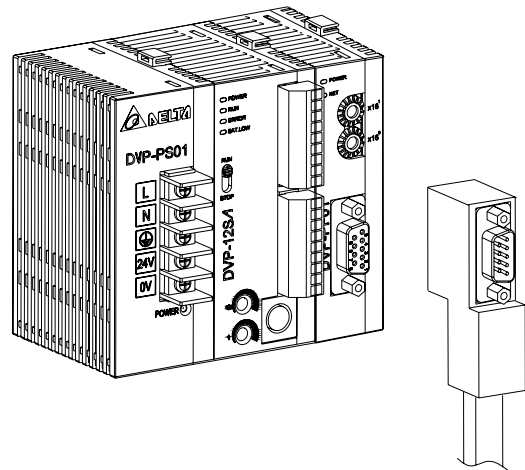
Use a screwdriver to lift and unfasten the fixing clip.



Connect the DVPPF01-S to extension port of PLC controller and fasten the fixing clip.



Plug the PROFIBUS connector to the socket of DVPPF01-S, and tighten screw to secure the connector.



### Cable length and Baud rate

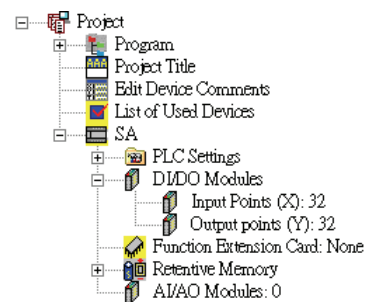
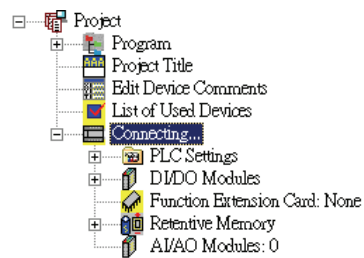
The Maximum cable length in a segment depends on the transmission speed. PROFIBUS-DP communicates at speeds from 9.6 Kbps to 12 Mbps over distances from 100 to 1,200 meters.

Baud rate (bps)	9.6K	19.2K	93.75K	187.5K	500K	1.5M	3M	6M	12M
Length (m)	1200	1200	1200	1000	400	200	100	100	100

Check the extension I/O by WPL software:

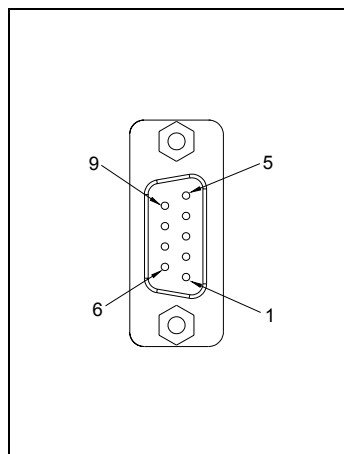
Connect to PLC MPU:

Once connection is successful, software will check if 32 inputs/outputs is detected:



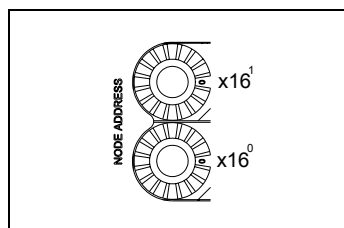
### PIN Definition of DP Connector

PIN	Definition	Content
1	--	N/C
2	--	N/C
3	RxD/TxD-P	Data receiving/sending P (B)
4	--	N/C
5	DGND	Data reference potential (C)
6	VP	Positive voltage
7	--	N/C
8	RxD/TxD-N	Data receiving/sending N (A)
9	--	N/C



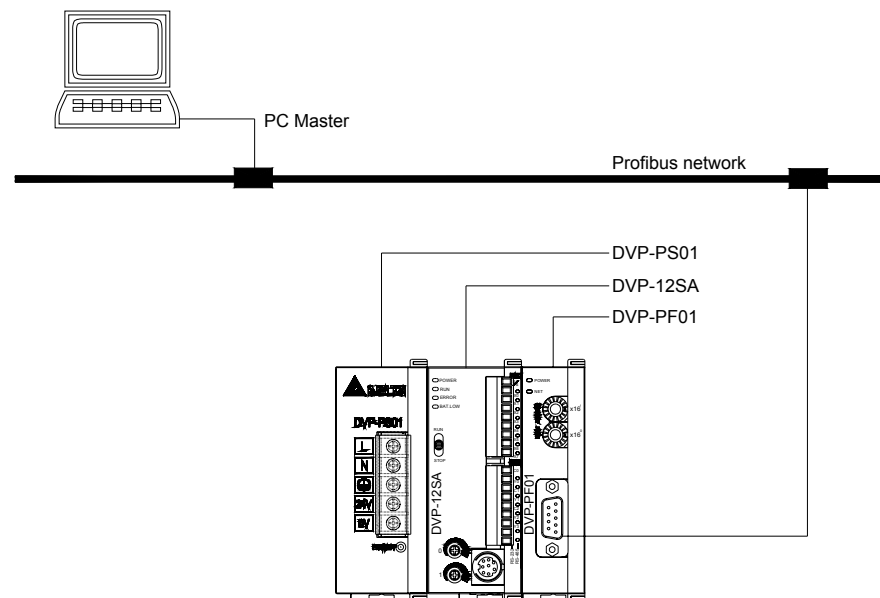
### MAC ID Setting

Address	Content
1 .. 0x7D	Valid PROFIBUS Address.
0 or 0x7E .. 0xFF	Invalid PROFIBUS Address. NET LED will rapidly blink with RED when node address is at 0, 0x7E~0xFF.



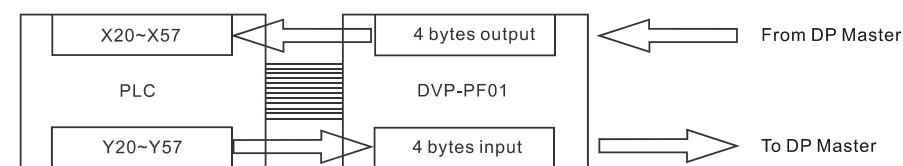
### Setting of DVPPF01-S connect to Profibus-DP

Connection Example:

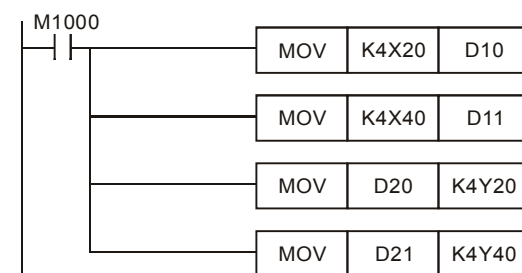


DVPPF01-S provides fixed 4bytes input data and 4bytes output data to user in Profibus-DP system. 4bytes input data are transmitted from DVPPF01-S module to Profibus-DP Master, it are mapping to Y20-Y57 in PLC controller when DVPPF01-S is the first extension unit of PLC. 4bytes output data are transmitted from Profibus-DP Master, and it are also mapping to X20-X57 in PLC controller.

### Data Mapping:



Following is a ladder program example:



This program example copies the 4 bytes data from X20-X57 that transmitted by DP master to D10 and D11 registers in PLC controller. And, PLC controller will write 4 bytes data in D20 and D21 registers to Y20-Y57, these 4 bytes data will send to DVPPF01-S, and DVPPF01-S will send these data to DP master.

## 5 TROUBLESHOOTING

### NET LED

LED Status	Indication	Corrective Actions
OFF	No power supply	Verify DVPPF01-S is powered on.
Red blinking (rapidly)	Invalid PROFIBUS address setting via switch	Check whether the switch setting is valid. Setting range of slave: 1-125. Set the valid value and re-power.
Red blinking	Communication link to PROFIBUS, and No cyclical data exchanged	No action.
Red ON	No connection to PROFIBUS	Verify that DP network installation is OK. Verify that PLC is working. Verify that switch address setting match with configuration in DP master.

LED Status	Indication	Corrective Actions
Green blinking	Reserved	No action.
Green ON	Cyclic data exchange in progress and OK	No action.

### Power LED

LED Status	Indication	Corrective Actions
Green ON	Power on	No action needed.
OFF	No power	Verify that ELC Controller is powered on.

## 6 APPENDIX – PROFIBUS-DP

### PROFIBUS

PROFIBUS is an international, vendor-independent, open filed bus standard for a wide range of applications in the fields of manufacturing, production, process and building automation, and other automation control field.

The PROFIBUS family comprises three types of protocol, PROFIBUS-DP, PROFIBUS-PA and PROFIBUS-FMS, each of them is used for different tasks:

**PROFIBUS-DP (Decentralized Periphery):** PROFIBUS-DP is a rapid and low cost communication connection mainly designed for high-speed modem. PROFIBUS-DP has widespread usage for such items as remote I/O systems, motor control centers, and variable speed drives. It is designed and optimized especially for communication between automation systems and decentralized peripheral devices.

**PROFIBUS-PA (Process Automation):** PROFIBUS-PA is the PROFIBUS solution for process automation, typically with MBP-IS transmission technology. Based upon PROFIBUS-DP, PROFIBUS-PA is an extension of the PROFIBUS-DP protocol for data transmission. It is designed to support intrinsically safe applications and can be used within hazardous areas, with high explosion risk using intrinsic safe MBP-IS interface. PROFIBUS-PA is used to connect sensor and controller to the bus.

**PROFIBUS-FMS (Fieldbus Message Specification):** PROFIBUS-FMS is multiple master communications designed for communication at the cell level. It is designed for acyclic or cyclic data transfers at medium speed between control equipment and cell-level controllers. FMS services open up a wide range of applications and offer a wide range of functionality and flexibility.