





# DVPDT01-S

## Instruction Sheet

### DeviceNet-Network Adapter

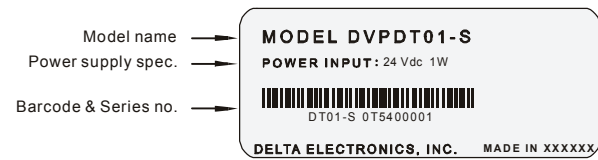
#### 1 WARNING

-  This Instruction Sheet only provides descriptions for electrical specifications, general specifications, installation and wiring.
-  This is an OPEN TYPE Controller. The DVPTD01-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.

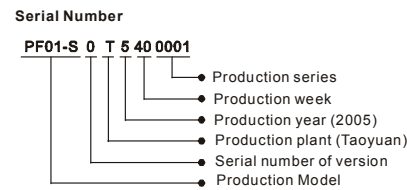
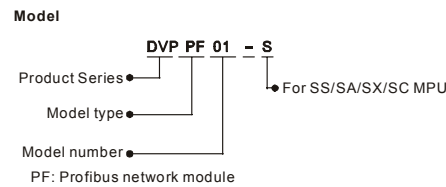
#### 2 PRODUCT INTRODUCTION

- Functions:
  - Support Group 2 only servers.
  - Support explicit connection via Predefined Master/Slave Connection Set. (Explicit message)
  - Support Polling connection.
  - Connection size is fixed to 4bytes input and 4bytes output.
  - Support EDS file configure in DeviceNet configuration tools.

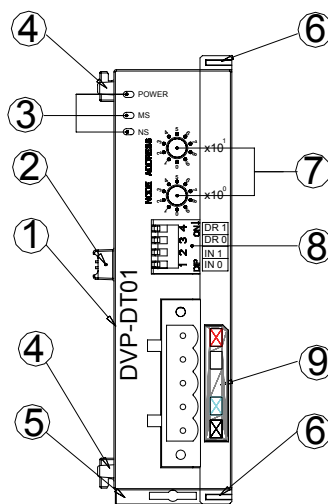
#### Nameplate Explanation:



#### Model Name and Serial Number Explanations:



#### Product Profile:



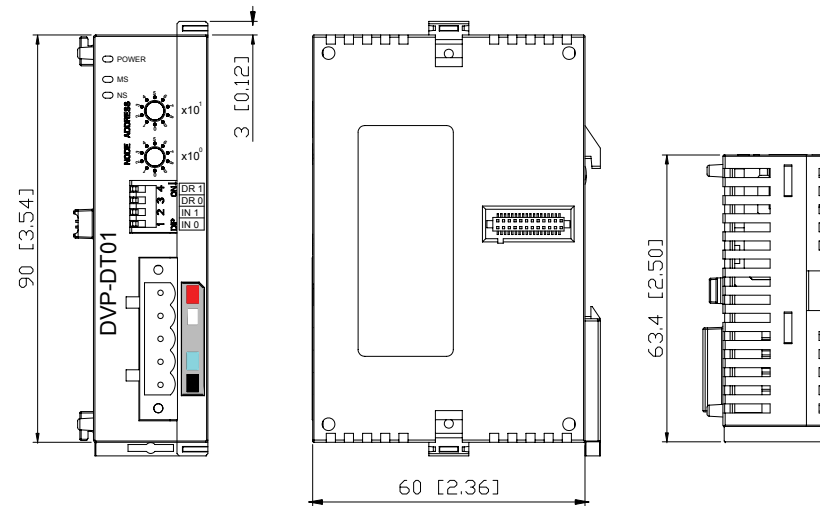
- Model name
- Extension port
- Power, MS, NS LED
- Extension hole for mounting unit or module
- DIN rail clip
- Extension clip
- Address switch
- Manual switch
- DeviceNet connection port

#### 3 SPECIFICATION

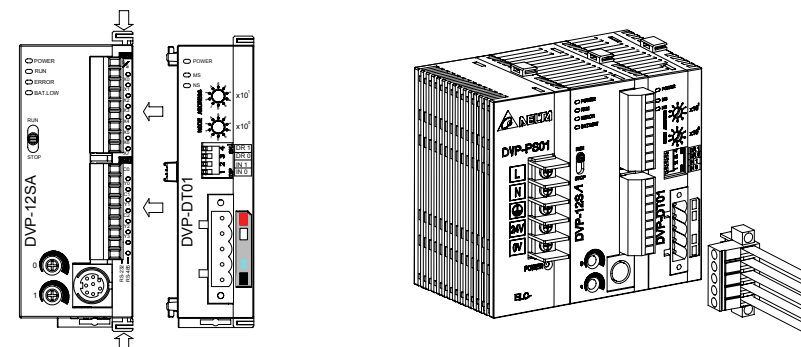
Item	Specification
<b>DeviceNet Connection</b>	
Interface	Pluggable connector (5.08mm)
Transfer method	CAN
Transfer cable	2-wire twisted shielded cable with 2-wire bus power cable and drain
Electrical isolation	500V DC
<b>Communications</b>	
Message types	I/O Polling Explicit
Baud Rates	125 K bps
	250 K bps
	500 K bps
Product Code	80
Product Type	12
Vendor ID	799 (Delta Electronics Inc.)
<b>Electrical Specification</b>	
DeviceNet	Module supply voltage: All other power derived from PLC controller power supply Network input current: less than 50mA (24V DC)
<b>Environmental Specifications</b>	
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)
Standard	IEC 61131-2, UL508 standard

#### 4 INSTALLATION AND CONFIGURATION

Profile Dimensions are in millimeter and [inch]

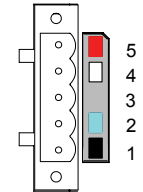


#### Install DVPDT01-S with PLC MPU



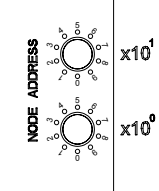
#### Pin Definition of DeviceNet Connector

Pin	Signal	Color	Content
1	V-	Black	0 VDC
2	CAN_L	Blue	Signal-
3	Drain	-	Shield
4	CAN_H	White	Signal+
5	V+	Red	24 VDC



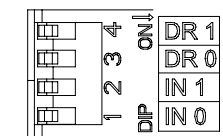
#### MAC ID Setting

Switch setting	Content
0 ... 63	Valid DeviceNet MAC ID setting
95	Set module entry update mode
Other	Invalid DeviceNet MAC ID setting



#### Function Switches Setting

DR1	DR0	Baud rate
OFF	OFF	125K bps
OFF	ON	250K bps
ON	OFF	500K bps
ON	ON	Auto Baud rate (not recommend)

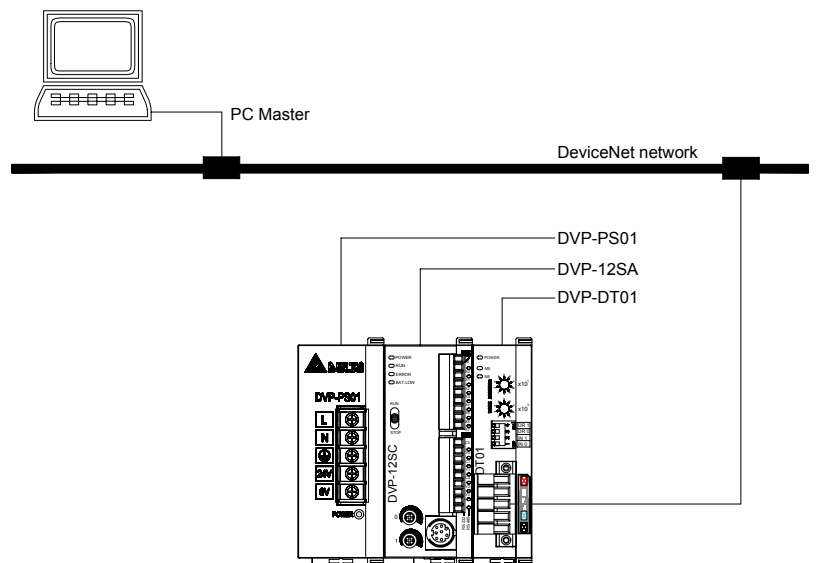


**IN0** ON – Hold the input and output buffer data when unit loss the DeviceNet communication.  
OFF – Clear the input and output buffer data when unit loss the DeviceNet communication.

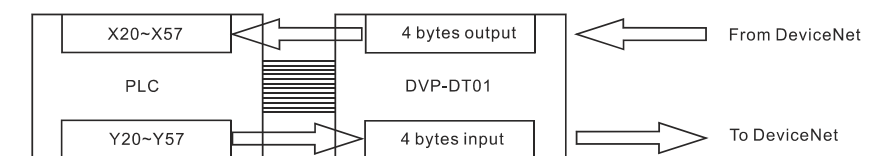
**IN1** Reserved

#### Connect DVPTD01-S to DeviceNet

Connection Example:



#### Data Mapping:



DVPDT01-S provides users with fixed 4bytes input data and 4bytes output data in DeviceNet network. 4bytes input data are transmitted from DVPDT01-S module to DeviceNet Master and they are mapping to Y20-Y57 in PLC controller when DVPDT01-S is the first extension unit of PLC. 4bytes output data are transmitted from DeviceNet Master and they are also mapping to X20-X57 in PLC controller.

### Cable Length and Baud Rates

The Maximum cable length in a segment depends on the transmission speed. DeviceNet communicates at speeds from 125K bps to 500K bps over distances from 100 to 500 meters.

Baud rate (bps)	125K	250K	500K
Length (m)	500	250	100

## 5 TROUBLESHOOTING

### NS LED

MS LED Status	Indication	Corrective Actions
OFF	No power/duplicate ID not completed	Check if DVPDT01-S module is powered on. Make sure one or more nodes are communicating on the network. Make sure at least one other node on the network is operational at the same time and baud rate as the DVPDT01-S module.
Green blinking	Online/not connected	No action needed.
Green LED	Online/connected. One or more connections established.	No action needed.
Red blinking	Online/time-out. IO connection timed out.	
Red LED	Network failure. Failed duplicate ID or Bus-off.	Make sure all nodes have unique address. Check network for correct media installation and baud rate.

### MS LED

MS LED Status	Indication	Corrective Actions
OFF	No power/off-line	Check if DVPDT01-S module is powered on.
Green blinking	Waiting for I/O data.	DVPDT01-S module has passed all operational tests and is waiting to exchange I/O data.
Green LED	I/O operational.	No action needed.
Red blinking	Configuration problem.	Reset or Re-power DVPDT01-S module.
Red LED	Hardware Failure. Failed	Return to manufacturer or distributor for repair.

### NS and MS LED

NS LED	MS LED	Indication	Corrective action
LED is off	OFF	No power.	Check if DVPDT01-S module is powered on.
LED is off	Steady Green	Duplicate ID check not completed.	Make sure at least one node on the network is operational at the same time and baud rate is as the same as DVPDT01-S.
Steady Red	Flashing Red	No 24VDC power from DeviceNet network.	Check the network cable and connections to DVPDT01-S. Check the 24VDC network power.
Steady Red	Steady Red	Hardware failure and no network power.	Return to manufacturer or distributor for problem verification.
Steady Red	Steady Green	MAC ID checks failure or Bus-off.	Change the MAC ID setting and re-power on DVPDT01-S.
Steady Green	OFF	DVPDT01-S entry firmware update mode.	Make sure MAC ID setting is 0~63 and re-power on DVPDT01-S.

## 6 APPENDIX-DeviceNet Objects

### Object Classes

Communication interface supports the following object classes:

Class	Object
0x01	Identity
0x02	Message router
0x03	DeviceNet
0x05	Connection

### Class 0x01 Identity

#### Class attributes

Attribute ID	Access rule	Name	Data type
1	Get	Revision	UINT
2	Get	MaxInstance	UINT
3	Get	NumberOfInstances	UINT
6	Get	MaxIdClass	UINT
7	Get	MaxIdInstance	UINT

#### Instance 1 :PLC Instance

Attribute ID	Access rule	Name	Data type
1	Get	VendorId	UINT
2	Get	DeviceType	UINT
3	Get	ProductCode	UINT
4	Get	Revision MajRev MinRev	USINT USINT
5	Get	Status	WORD
6	Get	Sn	UDINT
7	Get	ProdName StrLen ASCIIStr	USINT STRING

#### Common Services

Service Code	Implemented for		Service Name
	Class	Instance	
0x05	No	Yes	Reset
0x0e	Yes	Yes	Get_Attribute_Single
0x10	No	No	Find_Next_Object_Instance

### Class 0x02 Message Router

#### Class attributes

Attribute ID	Access rule	Name	Data type
1	Get	Revision	UINT
6	Get	MaxIdClass	UINT
7	Get	MaxIdInstance	UINT

#### Instance 1 :

Attribute ID	Access rule	Name	Data type
2	Get	NumAvailable	UINT
3	Get	NumActive	UINT

#### Common Services

Service Code	Implemented for		Service Name
	Class	Instance	
0x0e	Yes	Yes	Get_Attribute_Single

### Class 0x03 DeviceNet

#### Class attributes

Attribute ID	Access rule	Name	Data type
1	Get	Revision	UINT

#### Instance 1 :Drive Instance

Attribute ID	Access rule	Name	Data type
1	Get	MACID	USINT
2	Get	BaudRate	USINT
3	Get/Set	BusofInterrupt	BOOL
4	Get/Set	BusofCounter	USINT

Attribute ID	Access rule	Name	Data type
5	Get	AllocationInfo AllocationChioce MasterNodeAddress	BYTE USINT
6	Get	MACIDSwitchChanged	BOOL
7	Get	BaudRateSwitchChanged	BOOL
8	Get	MACIDSwitchValue	USINT
9	Get	BaudRateSwitchValue	USINT

#### Common Services

Service Code	Implemented for		Service Name
	Class	Instance	
0x0E	Yes	Yes	Get_Attribute_Single
0x10	No	Yes	Set_Attribute_Single
0x4B	No	Yes	Allocate_Master/Slave_Connection_Set
0x4C	No	Yes	Release_Master/Slave_Connection_Set

### Class 0x05 Connection

#### Class attributes

Attribute ID	Access rule	Name	Data type
1	Get	Revision	UINT

#### Instance 1 :Master/Slave Explicit Message Connection

Attribute ID	Access rule	Name	Data type
1	Get	State	USINT
2	Get	InstanceType	USINT
3	Get	TransportClassTrigger	USINT
4	Get	ProducedConnectionId	UINT
5	Get	ConsumedConnectionId	UINT
6	Get	InitialCommCharacteristics	BYTE
7	Get	ProducedConnectionSize	UINT
8	Get	ConsumedConnectionSize	UINT
9	Get/Set	ExpectedPackedRate	UINT
12	Get/Set	WatchdogTimeoutAction	USINT
13	Get	Produced Connection Path Length	USINT
14	Get	Produced Connection Path	EPATH
15	Get	Consumed Connection Path Length	USINT
16	Get	Consumed Connection Path	EPATH

#### Instance 2 :Polled I/O Connection

Attribute ID	Access rule	Name	Data type
1	Get	State	USINT
2	Get	InstanceType	USINT
3	Get	TransportClassTrigger	USINT
4	Get	ProducedConnectionId	UINT
5	Get	ConsumedConnectionId	UINT
6	Get	InitialCommCharacteristics	BYTE
7	Get	ProducedConnectionSize	UINT
8	Get	ConsumedConnectionSize	UINT
9	Get/Set	ExpectedPackedRate	UINT
12	Get/Set	WatchdogTimeoutAction	USINT
13	Get	Produced Connection Path Length	USINT
14	Get	Produced Connection Path	EPATH
15	Get	Consumed Connection Path Length	USINT
16	Get	Consumed Connection Path	EPATH

#### Common Services

Service Code	Implemented for		Service Name
	Class	Instance	
0x05	No	Yes	Reset
0x0E	Yes	Yes	Get_Attribute_Single
0x10	No	Yes	Set_Attribute_Single