# **DVPEN01-SL**



安	装	说	明
Ethern	et Commui	nication M	odule
Ethern	et 通訊模組		

Ethernet 通讯模块

Transmission cable	DVPACAB2A30 DVPACAB2B10	Power supply voltage	24VDC (-15% ~ 20%) (Power is supplied by the internal bus of MPU)	
Environment				
Noise immunity	ESD (IEC 61131-2, IE EFT (IEC 61131-2, IEC Damped-Oscillatory W RS (IEC 61131-2, IEC	C 61000-4-2): 8kV Air I C 61000-4-4): Power Li ave: Power Line: 1kV, 61000-4-3): 26MHz ~	Discharge ne: 2kV, Communication I/O: 1kV Digital I/O: 1kV 1GHz, 10V/m	
Environment	Operation: $0^{\circ}C \sim 55^{\circ}C$ (temperature), $5 \sim 95\%$ (humidity), Pollution degree 2; Storage: $-25^{\circ}C \sim 70^{\circ}C$ (temperature), $5 \sim 95\%$ (humidity)			
Vibration/shock resistance	Standard: IEC61131-2	, IEC68-2-6 (TEST Fc)	/IEC61131-2 & IEC68-2-27 (TEST Ea)	
Certificates	<b>( €</b> 🕪 🛯			
Ø Installati	ion			

#### ម Installation





# How to Connect DVPEN01-SL to PLC

Adjust the I/O module clip on the left side of the PLC. 1.

Meet the I/O module port on the PLC with DVPEN01-SL and connect them as shown in [Figure1]. 3. Fasten the I/O module clip.

### Connect DVPEN01-SL to Other Modules





			_				
CR#		Turne	Contont	Evolution			
HW	HW LW		Content	Explanation			
	#0	R	Model name	Read only; The model code of DVPEN01-SL = H'4050			
	#1 R Firmware version		Firmware version	Displaying the current firmware version in hex, e.g. V1.00 is indicated as H'0100.			

CI	<b>२</b> #	_							
HW	LW	Туре	Content			Explar	ation		
					0: Disabled; 1: Enabled				
	#2	R	Communication mode		b0	Setting for MODBUS TCP mode			
				Mail Event 4		Setting for data exc	hange mo	de	
	#3	W	Trigger E-Mail Event 1	Trigger E-Mail Event 1					
	#4	W	Trigger E-Mail Event 2		1: Send	E-mail 2			
	#5	W	Trigger E-Mail Event 3		1: Send	E-mail 3			
	#6	W	Trigger E-Mail Event 4		1: Send	E-mail 4			
CR#3 CR#3	~ CR#	6: After 6 to av	the E-Mail is sent, the CR will auto oid continual sending of e-mails.	omat	tically be	set to 0. Please use di	fferential	commands to trigger	
	#7	R	Status of E-Mail 1, 2		b0~b7	Status of E-Mail 2	b8~b15	Status of E-Mail 1	
	#8	R	Status of E-Mail 3, 4		b0~b7	Status of E-Mail 4	b8~b15	Status of E-Mail 3	
CR#7	~ CR#	8: E-M	ail Status. See the table below.						
CR	value		E-Mail status	CR	t value	E-M	ail status		
	0		Not being sent		11	Incorrect e-mail	address	of recipient	
	1		Processing		12	SMTP server o	ommunic	ation error	
	2		Successfully sent		13	No available	TCP con	nections	
	10	Una	able to connect to SMTP server						
	#9	R/W	Code after title of E-Mail 1		Filled in	by the user.			
	#10	R/W	Code after title of E-Mail 2		Filled in	by the user.			
	#11	R/W	Code after title of E-Mail 3		Filled in	by the user.			
	#12	R/W	Code after title of E-Mail 4		Filled in	by the user.			
	#13	R/W	Data exchange enabled flag		1: Exec 2: Exec	1: Execute data exchange mode (1) or (2) one time 2: Execute data exchange mode (3) continually			
	-		5		3: Exec	ute data exchange mo	de (3) on	ce	
	#14	R	Status of data exchange		Status of	of data exchange mode	e (1) or (2	)	
CR#1 excha	4: 0 => ange fai	· data n ils.	ot received; 1 => data exchange b	eing	process	ed; 2 => data exchange	e success	sful; 3 => data	
	#15	R/W	RTU mapping enabled flag		1: Enab	led; 0: Disabled (defau	lt)		
					b0: Cor	nection status of RTU	slave 1		
	#16	D/M/	Status of slave connection in RTU	U	b1: Cor	nection status of RTU	slave 2		
	#10	~~ v	mapping		b2: Cor	nection status of RTU	slave 3		
					b3: Cor	nection status of RTU	slave 4		
	#17	R/W	Data exchange cycle time		Min. cy comma	cle time (ms) for execut nd	ting data	exchange mode (3)	
			Error status of slaves in data		CR#19	b0 ~ b15: Error in slave	e 1 ~ 16		
#19	#18	R	exchange		CR#18	b0 ~ b8: Error in slave	17 ~ 24		
			<b>5</b> .		1: Error	occurs			
#26	#25	R/W	Destination IP		Destina	tion IP address for data	a exchanç	je	
CR#2 destir H'00,	5 ~ CR ation IF K2 = H	#26: Be Paddre '02)	efore setting up the destination IP a ess to 192.168.0.2, write H'0002 to	addre CR#	ess, set #25 and I	CR#28 to 0. Ex: If the u H'C0A8 to CR#26. (K19	iser want 92 = H'C(	s to set the ), K168 = H'A8, K0 =	
	#27	DAM	Function code for data exchange		0: The f data	unction code for the rea is "17".	ading of d	ata and the writing of	
	#21	1.0.00	mode (3)		1: The f funct	unction codes for the r ion code for the writing	eading of of data is	data is "03, and the "10".	
_	#28	R/W	Slave IP list		Select a	an IP for slave from the	list.		
CR#2 CR#2	8: Rang 5 and 0	ge: K1 CR#26	~ K255. Once set, DVPEN01-SL w will be regarded as the destination	vill au slav	utomatica re IP add	ally search for the IP ad ress.	dress fro	m the list. If set to 0,	
#48 -	~ #29	R/W	Data exchange buffer (sending)	I	For data	a exchange mode (1)			

#68 ~ #49 R Data exchange buffer (receiving) For data exchange mode (1)

CR# .		Туре	Content	Explanation			
HW	±81	RW	Read address in data exchange	Buffer address sent from slave in data exchange mode (2)			
	#82	R/W	Read data length in data exchange	Number of registers read in data exchange mode (2) Range: K1 ~ K100			
	#83	R/W	Received address in data exchange	Buffer address received by master in data exchange mode (2)			
	#84	R/W	Written address in data exchange	Buffer address received by slave in data exchange mode (2)			
	#85	R/W	Written data length in data exchange	Number of registers sent in data exchange mode (2) Range: K1 ~ K100			
	#86	R/W	Sent address in data exchange	Buffer address sent from master in data exchange mode (2)			
CR#8 Ex: W in D0 into C the sl defau	1, CR# /rite H10 of the s R#86, a ave. Th It buffer	83, CR 000 (D0 slave w and if t e send rs for d	#84, CR #86: MODBUS address of bu b) to CR#81, K1 to CR#82 and H1064 ill be written into D100 of the master. I he data exchange is successful, the ve ing and receiving can both be execute ata exchange mode (1) (CR#29 ~ CR#	Iffers for data exchange mode (2) (D100) to CR#83. If the data exchange is successful, the value Vrite H1002 (D2) into CR#84, K4 into CR#85 and H1008 (D8) alues in D8 ~ D11 of the master will be written into D2 ~ D5 of d at the same time. When both CR#82 and CR#85 are 0, the 468) and the number of registers (K20) will be used.			
	#87	R/W	Mode of setting an IP address	0: Static IP address 1: DHCP			
#89	#88	R/W	IP address	Setting an IP address If an IP address is 192.168.1.5, the value in CR#88 will be H0105, and the value in CR#89 will be HC0A8.			
#91	#90	R/W	Netmask	Setting a netmask If a netmask is 255.255.255.0, the value in CR#90 will be HFF00, and the value in CR#91 will be HFFFF.			
#93	#92	R/W	Gateway IP address	Setting a gateway IP address If a gateway IP address is 192.168.1.5, the value in CR#92 will be H0105, and the value in CR#93 will be HC0A8.			
	#94	R/W	Enabling the setting of an IP address	Executing the setting of an IP address			
	#95	R	Status of setting an IP address	Showing the status of setting an IP address 0: The setting of an IP address is successful. 1: The setting of an IP address fails.			
	#111	R/W	8-bit processing mode	Set the MODBUS TCP transmission of slave to 8-bit mode.			
	#112	R/W	MODBUS TCP keep-alive time-out	Unit: second			
	#113	R	Status of MODBUS TCP connection	The current status of MODBUS TCP connection			
CR#1	13: 0 =:	> curre	nt TCP connection is closed; 1 => TCF	<sup>o</sup> connection has been established.			
	#114	R/W	MODBUS TCP communication time-out	Unit: ms			
	#115	R/W	Sending MODBUS TCP command	1: Send MODBUS TCP command			
comp comm comm to 3, t	15: Wh leted, C hand. W leted, th he curr	en CR R#115 /hen Cl ne TCP ent TC	will be set to 1, the MODBUS TCP da will be set to 0 automatically. Use risin #115 is set to 2, the MODBUS TCP of connection will stay connected, waitin P connection will be cut off.	ta transmission will be enabled. Unce the transmission is op-edge or falling-edge trigger to trigger the sending of tata transmission will be enable, and once the transmission is ig for the next transmission to take place. When CR#115 is set			
	#116	R/W	MODBUS TCP status	Current status of the MODBUS TCP mode			
CR#1 excha	16: 0 =: inge fai	> data ls.	not yet received; 1 => data exchange l	being processed; 2 => data exchange is successful; 3 => data			
#118	~#117	R/W	Destination IP in MODBUS TCP mode	The destination IP address in MODBUS TCP mode			
CR#1	17 ~ CF	R#118:	See explanations on CR#25 and CR#	26.			
	#119	R/W	Data length in MODBUS TCP mode	The length of data in the communication in MODBUS TCP			

			-	moue
CR#1	19: Rar	nge at l	K1 ~ K100 when in 8-bit mode; K1 ~ K	200 when in 16-bit

CF HW	R# LW	Туре	Content	Explanation			
#219 ~ #120		R/W	Buffers for data transmission in MODBUS TCP mode	Buffers for sent/received data in MODBUS TCP mode			
	#251	R	Error code	<ul> <li>b0: Not connected to the network</li> <li>b3: CR#13 is set to sending data but the data exchange mode has not been enabled.</li> <li>b7: Connecting to SMTP server fails.</li> <li>b8: DHCP did not acquire correct network parameters.</li> </ul>			
Symb	ols:		the set of FDOM is the sting	W/ Able to write data through the use of TO instruction			

The No. for left-side high-speed I/O modules:  $100 \sim 107$  (m1 =  $100 \sim 107$ )

# **O LED Indicators & Troubleshooting**

LED IN	dica	tion				
LED	LE	D Status	Indication	ı	How to correct	
	Const	antly ON	Power supply is norma	al.		
POWER (green)	Constantly OFF		No power supply		Check whether the CPU module supplies power normally, and DVPEN01-SL is connected tightly.	
Flash		ng	There are data being transmitted in the serial port			
(red)	Const	antly OFF	No data transmission		Check whether the RS-232 cable is connected to the COM port on DVPEN01-S when in RS-232 communication.	
	Const	antly ON	Connected to Ethernet	t at 100Mbps		
100M (orange)	Const	antly OFF	Connected to Ethernet	t at 10Mbps	Check whether the network cable is connected correctly, the transmission speed is 100Mbps, and the RJ45 connector is connected normally.	
	Const	antly ON	The network connection	on is normal.		
LINK	Flashi	ng	Network in operation		-	
(green)	Const	antly OFF	The network is not connected		Check whether the network cable is connected correctly, and the RJ45 connector is connected normally.	
Trouble	esho	oting				
Abnormality		Cause		How to correct		
Linable to loc	ate a	DVPEN01-S the network.	L is not connected to	Check whether DVPEN01-SL is correctly connected to the network.		
module	ato u	The PC and DVPEN01-SL are on different networks and blocked by a firewall.		Use a specific IP address to locate a module or use RS-232 for relevant settings.		
		DVPEN01-SL is not connected to a network.		Check whether DVPEN01-SL is correctly connected to a network.		
Unable to op DVPEN01-SI	en the	Incorrect communication settings in WPLSoft		Check whether "Ethernet" is selected in the communication settings.		
setup page		The PC and DVPEN01-SL are on different networks and blocked by a firewall.		Set DVPEN01-SL by RS-232.		
Able to open DVPEN01-SL setup page but fail to upload /download program and monitor by WPLSoft		The network setting for DVPEN01-SL is incorrect.		Check whether the network setting for DVPEN01-SL is correct. Consult the IT staff if you are using the Intranet in the company or refer to the network setting instructions provided by your ISP.		
Unable to ser	nd	The network DVPEN01-S	setting for L is incorrect.	Check wheth correct.	er the network setting for DVPEN01-SL is	
emails		Incorrect CR	t settings	Check wheth	er the CR is used correctly.	
		Incorrect set	tings for e-mail server	Confirm the I	P address of the SMTP server.	

# **A** NELTA

ENGLISH

# (!) Warning .....

- EN X DVPEN01-SL is an OPEN-TYPE device. It should be installed in a control cabinet free of airborne dust, humidity, electric shock and vibration. To prevent non-maintenance staff from operating DVPEN01-SL, or to prevent an accident from damaging DVPEN01-SL, the control cabinet in which DVPEN01-SL is installed should be equipped with a safeguard. For example, the control cabinet in which DVPEN01-SL is installed can be unlocked with a
- special tool or key. EN ≠ DO NOT connect AC power to any of I/O terminals, otherwise serious damage may occur. Please check all wiring again before DVPEN01-SL is powered up. After DVPEN01-SL is disconnected, Do NOT touch any terminals in a minute. Make sure that the ground terminal O on DVPEN01-SL is correctly grounded in order to prevent
- electromagnetic interference.
  FR × DIPENOI-SL est un module OUVERT. Il doit être installé que dans une enceinte protectrice (buitier, armoire, etc.) saine, dépourvue de poussière, d'humidité, de vibrations et hors d'atteinte des chocs électriques. La protection doit éviter que les personnes non habilitées à la maintenance puissent accéder à l'appareil (par exemple, une clé ou un outil doivent être nécessaire pour ouvrir a protection).
- FR ✓ Ne pas appliquer la tension secteur sur les bornes d'entrées/Sorties, ou l'appareil DVPEN01-SL pourra être endommagé. Merci de vérifier encore une fois le càblage avant la mise sous tension du DVPEN01-SL. Lors de la déconnection de l'appareil, ne pas toucher les comecteurs dans la minute suivante. Vérifier que la terre est bien reliée au connecteur de terre @ afin d'éviter toute interférence électromagnétique.

4. Supports e-mail function 5. RS-232/Ethernet configuration 6. Transmission speed: 10/100Mbps

② POWER, LINK, RS-232, 100M LED

S Mounting hole for I/O module 6 Connection port for I/O module

③ Extension port to I/O module connection

① Model name

I/O module clip

⑦ RS-232 port

⑧ Ethernet RJ-485 port DIN rail clip

#### • Introduction

#### Functions

1. Supports MODBUS TCP
2. Supports Master and Slave data exchange
3. PLC automatic time correction

Product Profile & Outline



# **Ø** Specifications

-						
• N	Jetwo	rk	Inte	orfa	0.00	

- Network inter	lace					
Interface	RJ-45 with Auto MDI	MDIX				
Number of ports	1 port					
Transmission method	IEEE 802.3, IEEE 80	2.3u				
Transmission cable	Category 5e (TIA/EIA	A-568-A, TIA/EIA-568-B)				
Transmission speed	10/100 Mbps Auto-D	10/100 Mbps Auto-Detect				
Protocol	ICMP, IP, TCP, UDP,	DHCP, SMTP, SNMP, NT	P, MODBUS TCP			
Serial Interfact	e	Electrical Spe	cifications			
Interface	RS-232	Weight (g)	92 (g)			
Number of ports	1 port	Insulation voltage 500VDC				
Transmission cable	DVPACAB230	Power consumption	1.5W			

[Figure 1] Ocontrol Registers

CR#		Туре	Content			Explar	nation		
100	LVV			0.1	Diagh	od: 1: Epoblod			
	#2	B Communication mode		0.1	Disabled; 1: Enabled				
	<i>#</i> <b>2</b>		Communication mode		b0	Setting for data exc	hange mo	de	
	#3	w	Trigger E-Mail Event 1	1.1	Send	E-mail 1	nange mo	uc	
	#4	w	Trigger E-Mail Event 2	1.	Send	E-mail 2			
	#5	w	Trigger E-Mail Event 3	1:3	Send	E-mail 3			
	#6	W	Trigger E-Mail Event 4	1:3	Send	E-mail 4			
R#3	~ CR#	6: After	the E-Mail is sent, the CR will auto	omatical	Ilv be s	set to 0. Please use di	fferential	commands to trigge	
R#3	~ CR#	6 to av	oid continual sending of e-mails.		,				
	#7	R	Status of E-Mail 1, 2	b	0~b7	Status of E-Mail 2	b8~b15	Status of E-Mail 1	
	#8	R	Status of E-Mail 3, 4	b	0~b7	Status of E-Mail 4	b8~b15	Status of E-Mail 3	
`R#7	~ CR#	8. E-W	ail Status. See the table below						
CR	value		F-Mail status	CR val	alue	E-M	ail status		
0.1	0	Not being sent		11		Incorrect e-mail address of recipient			
1		Processing				SMTP server c	ommunica	ation error	
2			Successfully sent	13		No available	TCP conr	ections	
	10	Una	able to connect to SMTP server						
	#9	R/W	Code after title of E-Mail 1	Fill	lled in	by the user.			
	#10	R/W	Code after title of E-Mail 2	Fill	Filled in by the user.				
	#11	R/W	Code after title of E-Mail 3	Fill	Filled in by the user.				
	#12	R/W	Code after title of E-Mail 4	Fill	Filled in by the user.				
	#13	DAM Data such as a sacklad flag		1:	1: Execute data exchange mode (1) or (2) one time 2: Execute data exchange mode (3) continually				
	#13	10.44	Data exchange enabled hag	2.	Execu	ite data exchange mo	de (3) con de (3) onc	e	
	#14	R	Status of data exchange	Sta	atus o	f data exchange mode	e (1) or (2)	-	
R#1	4: 0 =>	data n	ot received; 1 => data exchange b	eing pro	ocesse	d; 2 => data exchange	e success	ful; 3 => data	
	#15	R/W	RTU mapping enabled flag	1:	Enabl	ed; 0: Disabled (defau	ilt)		
				b0	): Con	nection status of RTU	slave 1		
	#16	DAM	Status of slave connection in RTU	J b1	b1: Connection status of RTU slave 2				
	#10	FV VV	mapping	b2	b2: Connection status of RTU slave 3				
				b3	3: Coni	ection status of RTU slave 4			
	#17	R/W	Data exchange cycle time	Mir	in. cyc ommar	le time (ms) for execu d	ting data e	exchange mode (3)	
			Error status of slaves in data	CF	R#19 b	0 ~ b15: Error in slave	e 1 ~ 16		
19	#18	к	exchange	CF 1	CR#18 b0 ~ b8: Error in slave 17 ~ 24				
126	#25	D/M	Destination ID			uccuis	a avaba		
-20	#20	10/07	Desundtion IF	Desunation IP address for data exchange					

繁體中文

# ⚠ 注意事項 ✓ 此安裝手冊只提供電氣規格、一般規格、安裝及配線等。詳細關於 DVPEN01-SL 所包含的網路協定內容,請

- 參閱相關的專業文章或書籍資料。 ✓ 本機為開放型(OPEN TYPE)機殼,因此使用者使用本機時,必須將之安裝於具防塵、防潮及免於電擊/衝擊
- 意外之外极配線箱內。另必須具備保護措施(如:特殊之工具或鑰匙才可打開),防止非維護人員操作或意外 衝擊本體,造成危險及損壞,且請勿在上電時觸摸任何端子。
- ✓ 請務必仔細閱讀本使用手冊,並依照本手冊指示進行操作,以免造成產品受損,或導致人員受傷。

#### ● 產品簡介

#### ■ 功能特色

- 1. 支援 MODBUS TCP 協定
- 2. 主站與從站間資料交換同步化
- 3. 自動校正 PLC 主機的萬年曆

#### ■ 產品外觀部位介紹



- 4. 發送電子郵件通知訊息
- 5. RS-232/Ethernet 組態設定
- 6. 傳輸速率 10/100Mbps

<ol> <li>機種名稱</li> </ol>
② 電源、LINK、RS-232、100M 指示燈
③ 下一級 I/O 模組連接埠
<ul> <li>I/O 模組固定埠</li> </ul>
⑤ I/O 模組定位孔
⑥ 上一級 ⅣO 模組連接埠
⑦ RS-232 連接埠
⑧ Ethernet 連接埠
⑨ DIN 軌固定扣

## ❷ 功能規格

# ■ 網路介面

接頭	RJ-45 with Auto MDI/MDIX	
埠數	埠數 1 Port	
傳輸方式	傳輸方式 IEEE 802.3, IEEE 802.3u	
傳輸線	輸線 Category 5e (TIA/EIA-568-A, TIA/EIA-568-B)	
傳輸速率	專輸速率 10/100 Mbps Auto-Detect	
網路協定	ICMP, IP, TCP, UDP, DHCP, SMTP, SNMP, NTP, MODBUS TCP	

#### 串列通訊介面

接頭	RS-232	重量	92g
埠數	1 Port	絕緣電壓	500V
	DVPACAB230,	消耗電力	1.5W
傳輸線	DVPACAB215, DVPACAB2A30, DVPACAB2B10	電源電壓	24VDC (-15% ~ 20%) (由主機經由內部匯排流供應)

■ 雷氣規格

#### ■ 環境規格

雜訊発疫力	ESD (IEC 61131-2, IEC 61000-4-2): 8KV Air Discharge EFT (IEC 61131-2, IEC 61000-4-4): Power Line: 2KV, 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	
操作/儲存環境	▶/儲存環境 操作:0°C ~ 55°C(溫度),5 ~ 95%(濕度),污染等級 2 儲存:-25°C ~ 70°C(溫度),5 ~ 95%(濕度)	
耐振動/衝撃	動/衝擊 國際標準規範 IEC61131-2, IEC 68-2-6 / IEC61131-2 & IEC 68-2-27	
標準		

#### ❸ 安裝





尺寸單位:mm

33 1[1 3031

# ■ PLC 主機與 DVPEN01-SL 結合

1. 調整主機連接左側模組扣環。

2. 對準左側模組與主機連接埠,接著依照圖1所示方式將左側模組與主機結合。

3. 扣緊主機連接左側模組扣環。

#### ■ 下一級 I/O 模組與 DVPEN01-SL 結合

與下一級左側模組連接安裝時,需使用螺絲起子將左側模組固定扣往上撥,並打開擴充側蓋,如圖2~3所示。





[圖 2]



[圖 3]

# ❹ 控制暫存器 CR

CR 編號		Here Auto	#6.47.00 クシ <sup>5</sup>	
HW	LW	腦化	作生	設定値
	#0	R	機種代號	系統內定,唯讀;DVPEN01-SL 機種編碼=H'4050
	#1	R	系統版本	系統版本指示,16進位表示,例如:H'0100,表示軟體版