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VFD-PU08



VFD-PU08V

**for EL-W
and ME300**

1 News

1.1 ftp-site link

Just to let you know (again), you can find the latest info about our products (manuals, pictures, catalogues, data sheets, application notes, presentations, software, etc.) on our ftp-site.

<ftp://den-eindhoven:BuPd2175@ftp2.delta-europe.com/deltronics-eindhoven/customer-service>

Name and password are included in the link.

Name: den-eindhoven

Password: BuPd2175

2 Product update

2.1 **NEW** – CMM-xxx02 M300 Communication Cards Packaging Changed

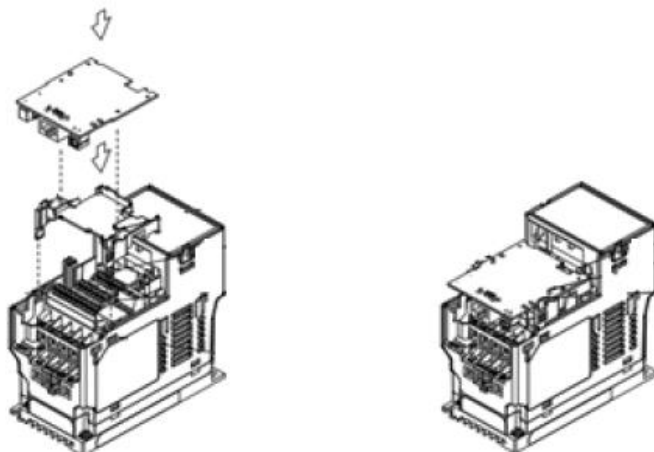
The revision only changes the contents of the product package. The cards and functionality has not changed.

For the detailed specification of communication cards, please refer to the user manual or the instruction manual included in the package.

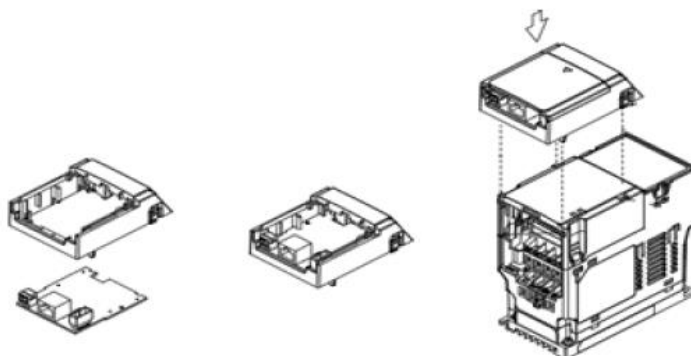
Previous situation CMM-xxx01

The original packaging comes with three connection wires and a communication card installation box, as shown below picture in the red box on the left. Customer will only choose one wire connected to control board according to the frame size of drive, the remaining two wires are useless. The communication card installation box will also depend on the customer installation needs (mounting method 2, as shown below picture). If not used it will cause waste (mounting method 1, as shown below picture when the communication card is installed inside the drive without using installation box). In order to reduce unnecessary waste and reduce the environmental impact, so CMM-xxx02 comes without the wire and installation box.

- **Mounting method 1:** Install the communication card directly inside the drive

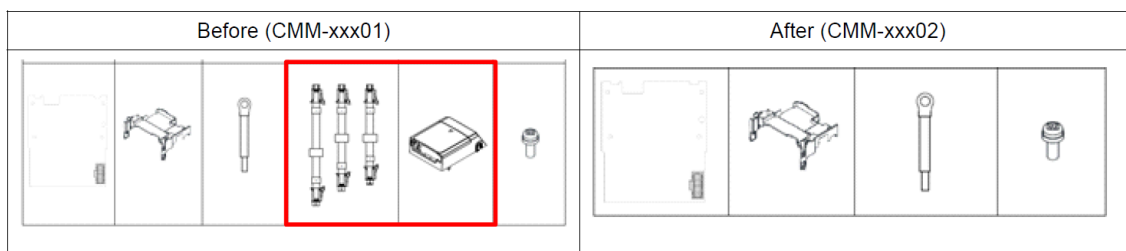


- **Mounting method 2:** Installation box (Front-mounting the option card, but will increase depth size)



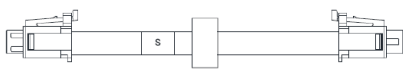
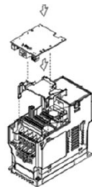

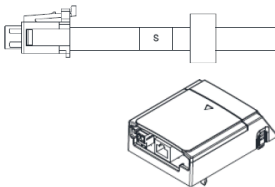
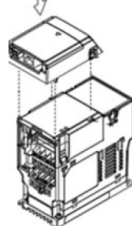
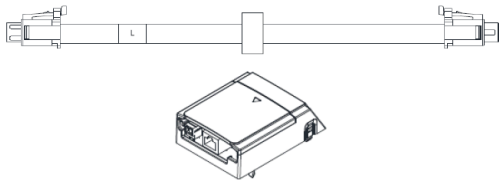
New situation CMM-xxx02

As shown below picture on the right, the CMM-xxx02 of communication cards will not include connecting wires and installation box, but customer needs to purchase one wire according to the frame size of drive or installation box if necessary.



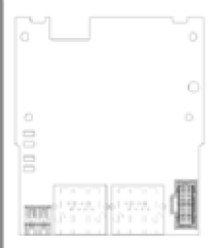
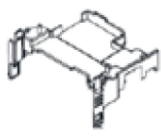

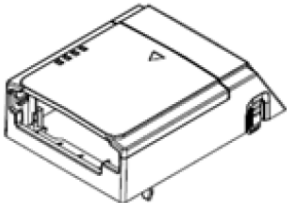

The product description of communication card connection wires are as follows:

The communication card needs to be connected to the drive with this wiring, so please be sure to purchase the right wire and box

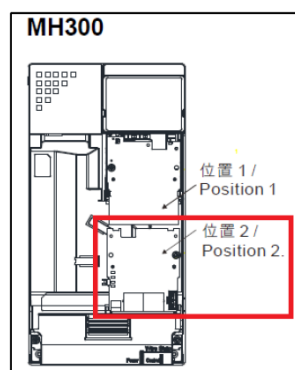
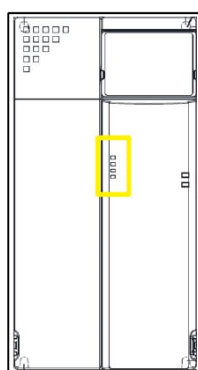
Model	Package content	Description	Scheme diagram
CBM-CL01A		For Frame A / B model used	<p>The communication card is directly installed inside the drive. (<u>Back-mounting the option card</u>)</p> 
CBM-CL02A		For Frame C / D / E / F model used	
CBM-CC01A <i>* The wire is the same as CBM-CL01A, the model include installation box.</i>		For Frame A model used	<p>Installation box (<u>Front-mounting the option card</u>)</p>  <p> <i>* This installation method will increase the depth of drive.</i> <i>* The installation is not applicable for Frame E and Frame F models</i> <i>* The installation is not applicable for MS300 IP66 models</i> </p>
CBM-CC02A <i>* The wire is the same as CBM-CL02A, the model include installation box.</i>		For Frame B / C / D model used	

Note:

The EtherCAT card CMM-EC02 comes with an installation box (for EtherCAT LED indicator), as shown below picture, but does not include connection wire, so please be sure to purchase the CBM-CL01A (for Frame A model) or CBM-CL02A (for Frame B/C/D model) connection wire.

EtherCAT card	Support frame	Grounding wire	Installation box	Screw
				

The EtherCAT LED indicator for Frame E/F models is shown as below picture in the yellow box. When using the MH300 to install the EtherCAT card for Frame E/F models, please be sure to install the card in the position shown in the red box below to indicate the EtherCAT LED indicator. For detailed installation instructions, please refer to user manual.



How to select connection wire:

Step 1 : Confirm the installation location of the communication card

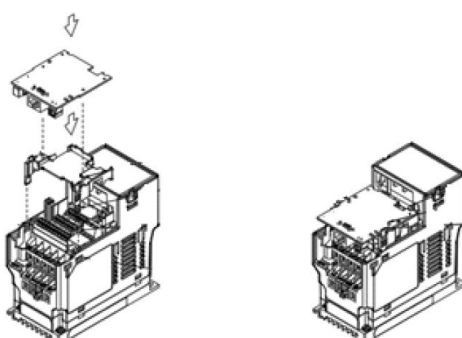
- A. Install the communication card directly inside the drive
- B. Installation box

Step 2 : Confirm the model frame of the communication card to be installed

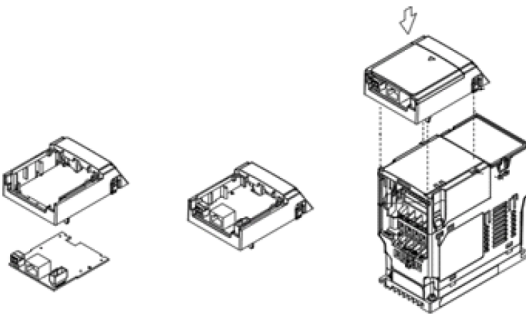
Step 3 : Confirm the connection wire model CBM-xxxxA

Step 4 : Communication card selection is complete CMM-□□□02 + CBM-xxxxA

A. Communication card installed inside the drive

Step 1	Installation method	Installed inside the drive					
	Scheme of installation						
	Confirm model frame	Frame A	Frame B	Frame C	Frame D	Frame E	Frame F
Step 3	Confirm connection wire	CBM-CL01A			CBM-CL02A		
Step 4	Communication card CMM-□□□02 + CBM-CLxxA selection is complete	Voltage	Model		Frame	Comm. card + wire	
		110V/1φ	VFD1A6_11□NSAA VFD2A5_11□NSAA		A	CMM-□□□02 + CBM-CL01A	
			VFD4A8MS11□NSAA VFD5A0MH11□NSAA		C	CMM-□□□02 + CBM-CL02A	
		230V/1φ	VFD1A6_21□SAA VFD2A8_21□SAA VFD4A8MS21□SAA VFD5A0MH21□SAA		A/B	CMM-□□□02 + CBM-CL01A	
			VFD□□□_21□S□A		C/D/E/F	CMM-□□□02 + CBM-CL02A	
		230V/3φ	VFD1A6_23□NSAA VFD2A8_23□NSAA VFD4A8MS23□NSAA VFD5A0MH23□NSAA VFD7A5_23□NS□A		A/B	CMM-□□□02 + CBM-CL01A	
			VFD□□□_23□NSAA		C/D/E/F	CMM-□□□02 + CBM-CL02A	
		460V/3φ	VFD1A5_43□SAA VFD2A7MS43□SAA VFD3A0MH43□SAA VFD4A2_43□S□A		A/B	CMM-□□□02 + CBM-CL01A	
			VFD□□□_43□SAA		C/D/E/F	CMM-□□□02 + CBM-CL02A	

B. Installation box

Step 1	Installation method	Installation box (this installation will increase depth size)					
	Scheme of installation						
	Confirm model frame	Frame A	Frame B	Frame C	Frame D		
Step 3	Confirm connection wire	CBM-CC01A			CBM-CC02A		

Step 4	Communication card CMM-xxx02 + CBM-CCxxA selection is complete	Voltage	Model <i>* The installation is not applicable for MS300 IP66 models</i>	Frame	Comm. card + wire
		110V/1φ	VFD1A6_ _11□NSAA VFD2A5_ _11□NSAA	A	CMM-xxx02 + CBM-CC01A
			VFD4A8MS11□NSAA VFD5A0MH11□NSAA	C	CMM-xxx02 + CBM-CC02A
		230V/1φ	VFD1A6_ _21□NSAA VFD2A8_ _21□NSAA	A	CMM-xxx02 + CBM-CC01A
			VFDxxx_ _21□S□A	B/C/D	CMM-xxx02 + CBM-CC02A
		230V/3φ	VFD1A6_ _23□NSAA VFD2A8_ _23□NSAA VFD4A8MS23□NSAA VFD5A0MH23□NSAA	A	CMM-xxx02 + CBM-CC01A
			VFDxxx_ _23□NSAA	B/C/D	CMM-xxx02 + CBM-CC02A
		460V/3φ	VFD1A5_ _43□SAA VFD2A7MS43□SAA VFD3A0MH43□SAA	A	CMM-xxx02 + CBM-CC01A
			VFDxxx_ _43□SAA	B/C/D	CMM-xxx02 + CBM-CC02A

[Note 1.] : CMM-xxx02 · where xxx symbol represents:

COP: CANopen (only for MS300)
PD: PROFIBUS DP
DN: DeviceNet
EIP: EtherNet/IP & Modbus TCP
EC: EtherCAT

[Note 2.] : The symbol " _ _ " stands for MS or MH

Ordering information

Item	Model	Note
Communication		
EtherNet/IP & Modbus TCP	CMM-EIP02	--
CANopen	CMM-COP02	Only for MS300 <i>*(MH300 built-in)</i>
PROFIBUS DP	CMM-PD02	--
DeviceNet	CMM-DN02	--
EtherCAT	CMM-EC02	--
Connection wire		
Install the communication card directly inside the drive	CBM-CL01A	Applicable model : Frame A / B
	CBM-CL02A	Applicable model : Frame C / D / E / F
Installation box <i>(The installation method is not applicable for MS300 IP66 models)</i>	CBM-CC01A	Applicable model : Frame A
	CBM-CC02A	Applicable model : Frame B / C / D <i>(The installation method is not applicable for Frame E / F models)</i>

CMM-xxx02 Launch Date

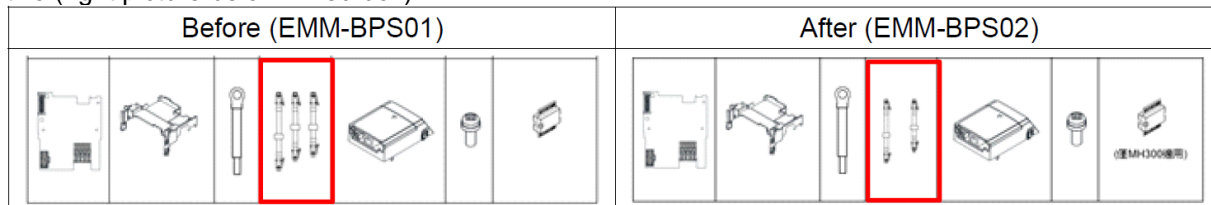
Region	Launch Date
Worldwide	2020/7/20

CMM-xxx01 Discontinuation Schedule & Area

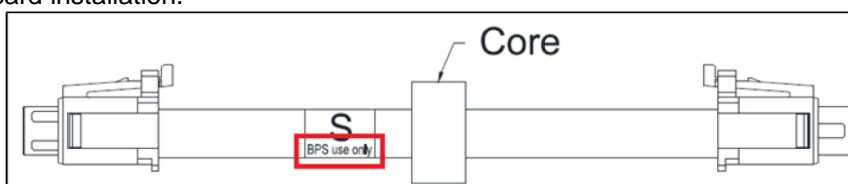
Region	Discontinuation Date
Worldwide	2020/7/20

2.2 NEW – EMM-BPS02

The contents of the revised version of the MS300 / MH300 series 24V power card (EMM-BPS01) is to converge the three connection wires (left picture below in red box) included with the EMM-BPS01 into two (right picture below in red box).



The wire is marked with "BPS use only" (red box below), which means that the wire can only be used on the power card installation.



The product specifications of EMM-BPS02 are the same as EMM-BPS01. Please refer to the instruction manual for related product specifications.

Ordering information

Item	Model
24V power card	EMM-BPS02

EMM-BPS02 Launch Date

Region	Launch Date
Worldwide	2020/7/20

EMM-BPS01 Discontinuation Schedule & Area

Region	Discontinuation Date
Worldwide	2020/7/20

2.3 UPDATE – CP2000 firmware upgraded from v2.06 to v2.07

Release on 5-8-2020

Corrections


1. The frequency command unit adopts Pr00-25 & 00-26 user-defined display (such as bar). When switching in AUTO / HAND mode, the frequency command will display the wrong value.
2. In Pr00-04 User-defined display function, when AUTO / HAND mode is switched, the display unit is inconsistent, for example, bar is displayed in AUTO mode, and % is displayed in HAND mode.
3. The 00-07 & 00-08 parameter protection function is normal, but the operation flow is abnormal. If the password input exceeds the limited number of errors, you can still enter it.
4. For CP690V model, when PM motor is selected, the carrier frequency upper limit value is wrong to 6KHz.
5. OC STALL level cannot be set to a maximum of 130%.
6. AFM2 analog output bias is not accurate.
7. Under CANopen, it cannot be mapped to the maximum parameter position of the group.
8. Under PLC programming, RST T0 instruction cannot be recounted.

New functions:

1. Added AES energy saving mode (07-21 = 2).
2. Added synchronous reluctance speed mode (00-11 = 8).
3. Added permanent magnet synchronous motor field-oriented sensorless vector control (00-11 = 6).
4. Added CANopen acceleration and deceleration time synchronization to the first stage of acceleration and deceleration time selection.
5. Added CANopen built-in PLC D register mapping, from D900 ~ D999 to 3000H ~ 3063H.
6. Added CANopen EDS file adoptable series creation method.
7. Add PLC special M and D register information.
 - M1005 Inverter fault indication
 - M1019 Inverter warning indication
 - D1036 Inverter fault code
 - D1560 inverter warning code

2.4 NEW – VFD-PU08 & VFD-PU08V

VFD-PU08 and VFD-PU08V is a detachable digital panel support ME300, VFD-EL-W series via RS485 protocol.

- VFD-PU08 and VFD-PU08V are both 4-digits display on the main display area.
- Status display area: Run, Stop, Forward, Reverse, VR  (enable the frequency setting knob)
- Frequency setting knob
- Communicate with the inverter via RS485 protocol (RJ45 interface)
- The operation way is as the same as embedded digital panel on ME300, VFD-EL-W.
- VFD-PU08 size is mentioned in Chapter 4.1
- VFD-PU08V is suitable for the narrow space. Details are mentioned in the following chapters

Functionality and description:

VFD-PU08

Main display area

Frequency, current, voltage, user-define, fault code, etc. display

Status display area

Indicate frequency status: run, stop, forward, reverse, enable / disable the frequency setting knob.

Direction function key (Up)

Adjust the parameters or the values

Run

Start VFD operation

Stop/Reset

Stop or reset VFD



Frequency setting knob

Input the main frequency

Mode

To change the different mode selection step by step

Enter

1. To enter the settings page
2. To confirm the parameter setting

Direction function key (Down & left)

Adjust the parameters or the values / Long press MODE button to switch between down or left button

VFD-PU08V

Main display area

Frequency, current, voltage, user-define, fault code, etc. display

Status display area

Indicate frequency status: run, stop, forward, reverse, enable / disable the frequency setting knob.

Direction function key (Up)

Adjust the parameters or the values

Run

Start VFD operation

Stop/Reset

Stop or reset VFD



Mode

To change the different mode selection step by step

Enter

1. To enter the settings page
2. To confirm the parameter setting

Direction function key (Down & left)

Adjust the parameters or the values / Long press MODE button to switch between down or left button

Frequency setting knob

Input the main frequency

General specifications

Items	Description
Applicable VFD series	ME300 - VFD-EL-W
Communication Interface	RS485 (exclusive mode), the host cannot use this interface when occupying.
Auto-Tuning	1. Auto-tuning supports, default parameters ASCII, 9600bps, 7, N, 2 settings. 2. Other models do not support and will show the warning message.
Size	VFD-PU08 size is mentioned in Chapter 4.1 VFD-PU08V size is mentioned in Chapter 4.2
Color	Black
Installation	VFD-PU08 fixed by plastic hook or screw, VFD-PU08V is fixed by 2 screws, 2 screws are included in the accessories package.
IP Level	Front panel: IP20. Back panel: IP00.
Connector	RJ45
Max. length of extension cable	5m
Panel Display	4-digits display with decimal point
Status Display	RUN/STOP/FWD/REV/VR
Button Functionality	RUN, STOP/RESET, UP, DOWN/LEFT, MODE, ENTER
Frequency setting Knob (VR)	To adjust the frequency as default setting, to switch between enable / disable by different button combination.
Value Displayed	Supported all the parameters and all the adjustments in the applicable VFD series mentioned in the user manuals, and all physical quantities defined by 00-03 / 00-04.
Core Functionality	Read and Write, status display, operation instruction via RS485.
Certification	CE, RoHS, GB 12668.3

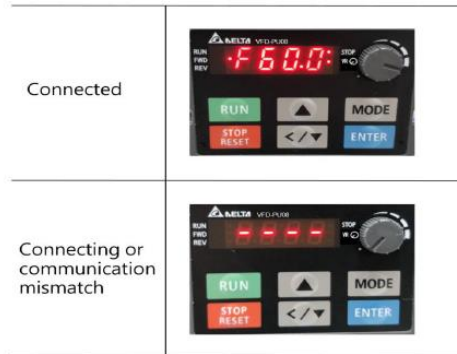
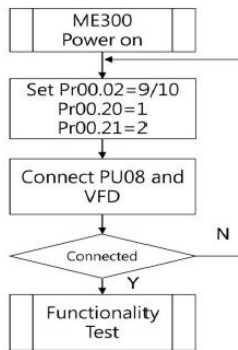
Functionality

- 4-digits display on the main display area.
- Switching the functionality between Direction function key & VR
- Communicate with the inverter via RS485 protocol (RJ45 interface)
- No parameter copy functionality

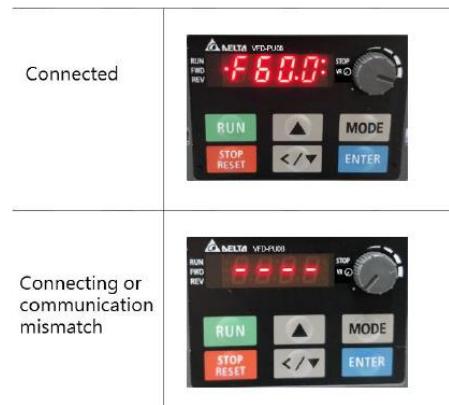
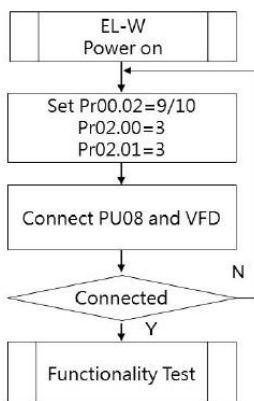
VFD setting & RJ45 Extension Cable

VFD-PU08 and VFD-PU08V are with the same setting, the picture below is VFD-PU08 as example

ME300



VFD-EL-W



RJ45 Extension Cable for Digital Keypad

VFD-PU08 and VFD-PU08V has no patch cable, it needs to be purchased separately.

1. RJ45 Extension Cable information:



No.	Model	Length	
		mm	inch
1	UC-CMC003-01A	300	11.8
2	UC-CMC005-01A	500	19.6
3	UC-CMC010-01A	1000	39.0
4	UC-CMC015-01A	1500	59.0
5	UC-CMC020-01A	2000	78.7
6	UC-CMC030-01A	3000	118.1
7	UC-CMC050-01A	5000	196.8

- If the customer would like to customize the patch cable, it should follow the below RJ45 interface definition. (The inverter side is the same as the VFD-PU08 side)

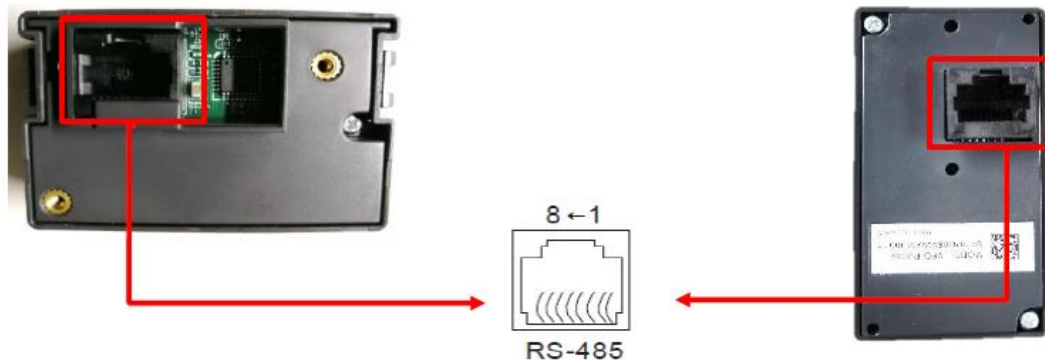


Diagram	Pin	PU08 Pin define	PU08V Pin define
 RS-485	1	NC	NC
	2	Vcc	NC
	3	DGND	DGND
	4	SG-	SG-
	5	SG+	SG+
	6	DGND	NC
	7	NC	NC
	8	Vcc	Vcc

Status displayed

Status displayed	Note
RUN: F600	RUN: VFD is running
FWD: F600	FWD: VFD is running forwardly
REV: F600	REV: VFD is running reversely
STOP: F600	STOP: VFD is stopped
STOP Flashing: F600	STOP Flashing: VFD is stopping
VR light on: F600	VR light on: VFD potentiometer function is enabled
VR light off: F600	VR light off: Direction function key (Up) and Direction function key (Down & left) is enabled

Button functionality

MODE	To change the different mode selection	Press MODE button for 2 seconds, when "X" flashing: < Direction function key "<" is enabled, > Direction function key ">" is disabled. Press MODE button for 2 seconds, when "X" stop flashing: < Direction function key "<" is disabled, > Direction function key ">" is enabled.
< >	Decrease / Shift	Press Direction function key ">" to decrease the value. Press Direction function key "<" to shift the set value and parameter.

Variable Resistor (VR)



VFD-PU08



VFD-PU08V

• Functionality

- When enabled, light is on, and the running frequency command F can be adjusted via the panel potentiometer.
- If the power off then powered on, the default value is enabled.

- **Enable the functionality**

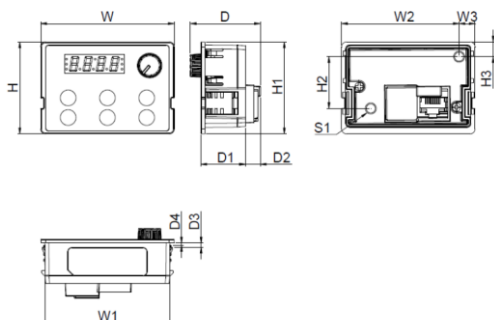
When VFD-PU08 / VFD-PU08V is power on, the inverter, VFD-PU08 / VFD-PU08V communication protocol and model settings are paired, the default value enabled.

- **Switching the functionality**

- 1) When $\bullet VR$ light is on, press **MODE** + **ENTER** keys to change the inverter frequency command input to direction function key (Up) \blacktriangle and direction function key (Down & left) $\blacktriangleleft/\blacktriangledown$, at the same time, the $\bullet VR$ light goes out.
- 2) When the $\bullet VR$ light goes out, press **MODE** + **ENTER** keys, the inverter frequency command input changes to panel potentiometer, and the light goes on again.
- 3) When the $\bullet VR$ light goes out, the inverter frequency command input changes to direction function key (Up) \blacktriangle and direction function key (Down & left) $\blacktriangleleft/\blacktriangledown$, but when power on again, the inverter frequency command input is from panel potentiometer as default.

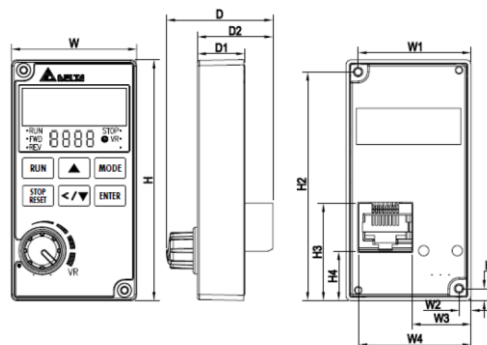
Dimensions and installation

VFD-PU08



W	W1	W2	W3	H	H1	H2	H3
68.0[2.68]	63.8[2.51]	59.9[2.36]	8.1[0.32]	46.8[1.84]	42.0[1.65]	26.3[1.04]	7.5[0.30]
D	D1	D2	D3	D4	S1		
35.6[1.40]	22.7[0.89]	7.6[0.30]	2.2[0.09]	1.3[0.05]	M3*0.5 (2X)		

VFD-PU08V



W1	W2	W3	W4	W
32.9[1.30]	3.6[0.14]	17.3[0.68]	32.8[1.29]	36.5[1.44]

H1	H2	H3	H4	H	D1	D2	D
3.5[0.14]	66.5[2.62]	28.3[1.11]	14.3[0.56]	70.0[2.76]	13.8[0.54]	22.0[0.87]	31.0[1.22]

Launch

Region	Launch Date
Worldwide	July, 2020

2.5 **NEW** – Compact PMC Series 24V 600W with Remote Sense



The new PMC-24V600W1RW/1SW is now 20% smaller and has improved efficiency levels than its earlier version. Leakage current has also been reduced to less than 0.75mA. Delta is keeping conformal coating on PCBAs as a standard feature on this model, providing protection against dust and chemical pollutants. This 24V 600W power supply is certified to IEC/EN/UL 62368-1 and other major Industrial and ITE safety standards. Suitable applications include machine automation, banking machines and showcase.

Highlights & Features

- Universal AC input range
- Power Factor up to 0.99 with active PFC
- Surge Immunity IEC 61000-4-5, Level 4 (CM: 4kV, DM: 2kV)
- Wide operating temperature range -20°C to 70°C
- Built-in fan speed control and fan lock protection
- Conformal coating on PCBA to protect against chemical and dust pollutants
- Constant current circuit for reactive loads
- Design compliance with Japan PSE (DENAN)

2.6 **NEW** – CANopen RTU module: RTU CN01

To enhance the integration ability of DVP MC series PLC and provide complete RIO solution, Delta releases the CANopen RTU module RTU CN01, to help users to build up the control system easier and faster.

Release

Product	Model	Launch Date (dd/mm/yyyy)	Area	MOQ (Qty.)
RTU	RTU-CN01	27/05/2020	Global	6

Ordering

Model	Function	Certification
RTU-CN01	DVP CANopen RTU module	CE, UL



Features

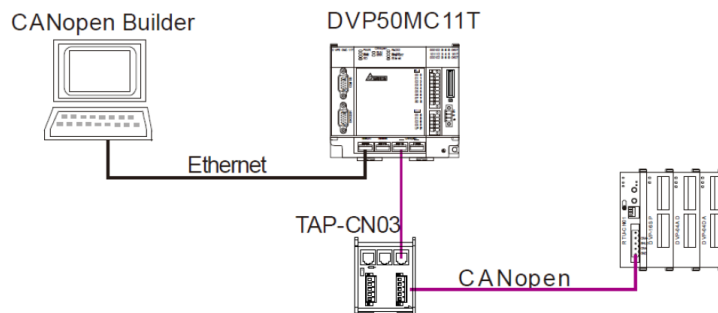
- Supports CANopen DS310
- Supports up to 128 DI and 128 DO points
- Supports up to 14 DVP S I/O modules (Max quantity of modules other than DIO is 8 modules)
- Built-in ID switches
- Max baud rate is 1MHz

Target

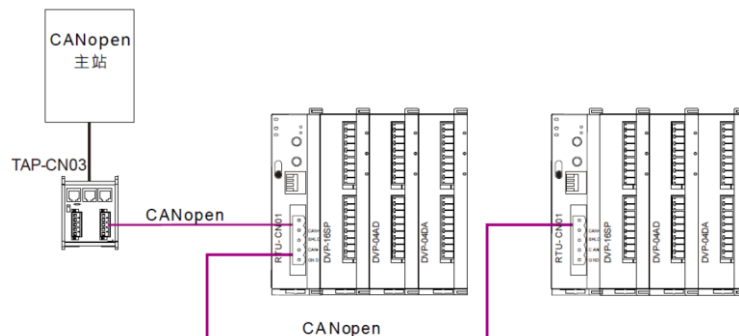
- Customers who need CANopen DVP S RIO solution on DVP 15 MC /DVP50MC series PLC
- Customers who need CANopen DVP S RIO solution on 3rd party controllers

Application Structure

- DVP MC/AS controller + RTU CN01 + DVP S I/O



- 3rd party controller + RTU CN01 + DVP S I/O



Software

- CANopen Builder v6.05 (CANopen configuration software)

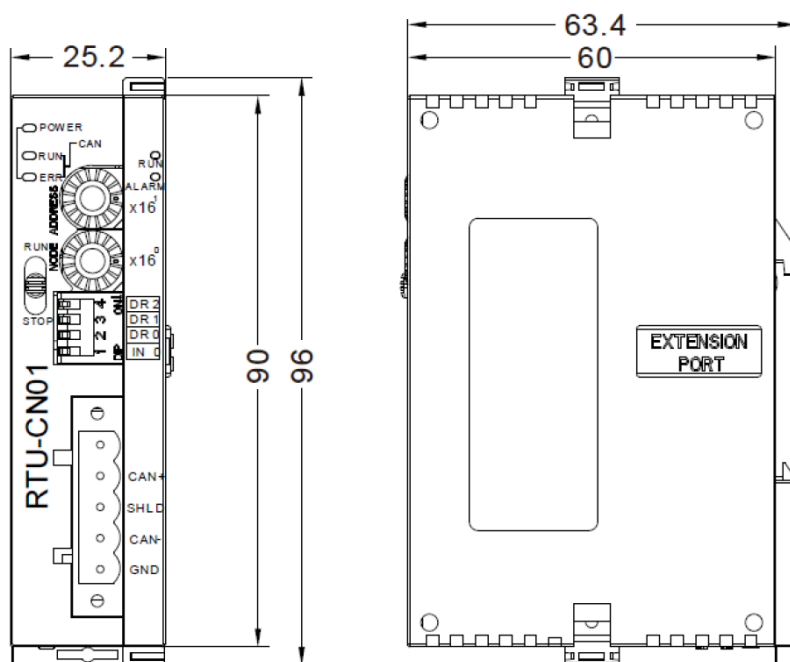
Specification

- Supports CANopen DS301
- Supports PDO , SDO , SYN C , Emergency and NMT
- Baud rate: 10K/20K/50K/125K/250K/500K/800L/1M bps
- Built in ID switches
- Supports DVP S DIO , AIO temperature modules
- Supports up to 14 DVP S I/O modules (Max quantity of modules other than DIO is 8 modules)

Electrical specification

Item	Specification
Noise Immunity	ESD (IEC 61131-2, IEC 61000-4-2): 8KV Air Discharge, 6KV Contact Discharge EFT (IEC 61131-2, IEC 61000-4-4): Power Line: 2KV, Digital I/O: 1KV Communication I/O: 2KV Damped-Oscillatory Wave: Power Line: 1KV, Digital I/O: 1KV RS (IEC 61131-2, IEC 61000-4-3): 80MHz~1000MHz, 10V/m; 2000 MHz~6000 MHz, 3V/m
Operation	0°C ~ 55°C (temperature), 50 ~ 95% (humidity), pollution degree 2
Storage	-25°C ~ 70°C (temperature), 5 ~ 95% (humidity)
Vibration/shock resistance	Standard: IEC 61131-2, IEC 68-2-6 (TEST Fc)/IEC 61131-2 & IEC 68-2-27 (TEST Ea)
Certificates	IEC 61131-2, UL508
Weight	71g

Dimensions



2.7 UPDATE – VFD-E, VFD-EL: Removal of Compact Disc

The CD will be no longer included in the product in consideration of low usage and environmental protection.

Wujiang	
VFD-E	W2023
VFD-EL	

2.8 UPDATE – Firmware VFD-DD upgraded from v2.25 → v2.30

Corrections:

No.	v2.25 problems	v2.30
1	Turn on the DC braking function. When the door stop time is too short and then restart, the current center value will change, which will cause the door shake after the door is in place.	When stop operation, recalibrate the current center value.
2	Under FOC PG control, the set value may be cleared during the door is working. It caused no current and voltage output during door operation; under fixed conditions, it may cause door closing much forced.	Fix the torque value overflow caused the out of control problem.
3	The static auto-tuning IM motor's no-load current is too large, which caused the drive to saturate and slow down when the motor rotates forward.	During static auto-tuning, the no-load current is automatically set to 40% of the motor rated current.
4	When the door is running at low speed, the direction of PG is reverse but no showing error of jumping PGF1.	Add PGF1 judgment mechanism to low speed algorithm.
5	In speed mode, the decimal point of the blocked current is wrong (parameter 05-26).	Corrected position of decimal point.

Changes:

1. Change the unit of parameter 01-02 to W.
2. Remove parameter 06-01.
3. Change the original parameter 07-10 gear ratio to be adjusted by 2 parameters:

Gear ratio	Pr.07-10	Pr.03-15	Pr.03-16
1/10	N/A	1	10
1/100	N/A	1	100

New functions:

1. Low-resolution open-loop distance control mode:
Introduce the function of open-loop distance control mode. The low-resolution encoder is only used for door width estimation and will not perform closed-loop control. The 4-points encoder calculation function is combined with VF/VFPG/SVC, and VF and SVC also support distance Control Mode

Firmware Version	*Estimated Switching Period	
V2.30	Wujiang	W2025

*Delta reserves the right to make changes to the switching period and will notify you once confirmed.

2.9 NEW – TPEditor version 1.98 is released

Changes

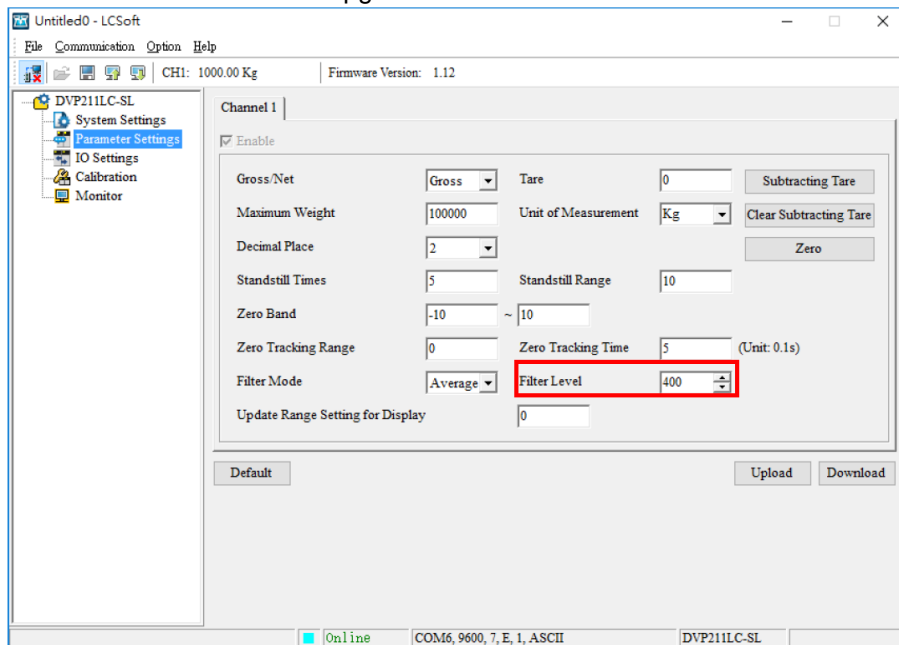
1. Fixed the issue that the pictures cannot be kept in the static and dynamic objects.
2. Fixed the security vulnerability issues.

You can download TPEditor v1.98 from our ftp-site. Folder: Customer-Service\Industrial Automation Products\TP Graphic Displays\TP Software

2.10 UPDATE – Software version 1.13 for DVP-SL series released

Changes:

1. The maximum filter level is upgraded from 100 to 400 times.



2.11 NEW – New versions of software and firmware for DX series released

1. DX-2100L1-CN: The firmware is upgraded to V1.5.0.6. (Only Chinese version is available.)
2. DX-2100RW-WW/DX-2300LN-CN/ DX-2300LN-WW: The firmware is upgraded to V1.5.0.4.

Series	Model	Version	Release Date
DX Series	DX-2100L1-CN	V1.5.0.6	2020.05.15 (W2020)
	DX-2100RW-WW DX-2300LN-CN DX-2300LN-WW	V1.5.0.4	2020.05.06 (W2019)
	DX-3001H9-V	V1.3.1.0	2020.05.15 (W2020)
	DIACOM	V1.4.1.6	2020.05.06 (W2019)

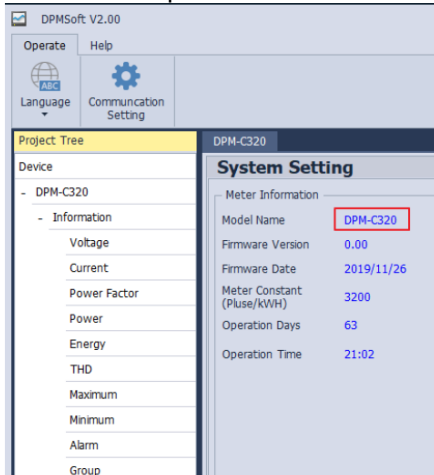
See info on ftp-site, folder: Customer-Service\Industrial Automation Products\IIoT Solutions

2.12 UPDATE – DPMSOft v2.00 is released

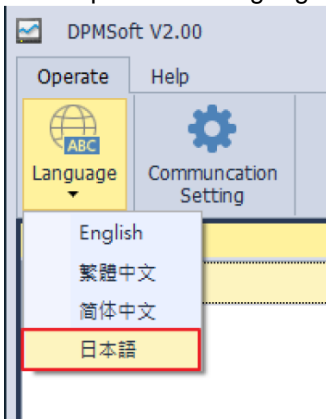
Changes:

1. Optimized the UI design for better user experiences. DPMSOft V2.00 optimized operation procedures, allowing users to set up parameters and monitor power meters in an easier way. DPMSOft V2.00 should run on a Windows operation system environment (Windows 7 or later versions) with .NET Framework 4.7.2 installed.

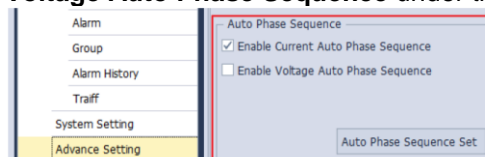
2. DPMSOFT V2.00 supports DPM-C320.
You can set up or monitor DPM-C320 through COM port connection or internet connection.



3. DPMSOFT V2.00 supports Japanese.
Click Operate -> Language -> 日本語 to switch the UI language to Japanese.



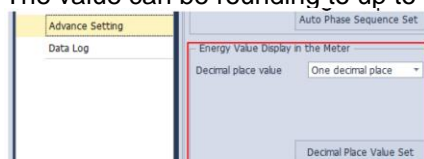
4. Added a new function "Auto Phase Sequence". Click **Advance Setting** to open the setting item for Auto Phase Sequence. You can either select **Enable Current Auto Phase Sequence** or **Enable Voltage Auto Phase Sequence** under this option.



The following list is the models and their firmware versions that support this function.

Models	Firmware Version	Remarks
DPM-C530	V1.0406	
DPM-D520I	V1.0408	
DPM-C502	V1.06	Only support Current Auto Phase Sequence

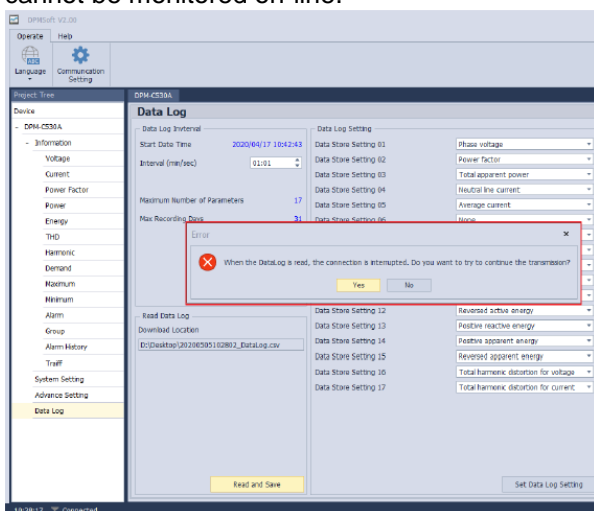
5. Added a new function to set up the decimal place for the Energy Value to be shown on the meter. The value can be rounding to up to three decimal places.



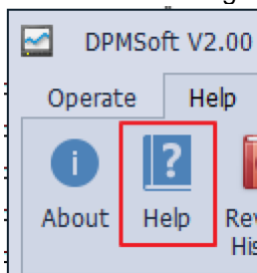
The following list is the models and their firmware versions that support this function.

Models	Firmware Version	Remarks
DPM-C530	V1.0406	
DPM-D530A	V1.2030	

- Added a new function to determine whether to resume the connection and data transmission or not, when the connection is lost. Click **Read and Save** and then DPMSOft V2.00 will send data log from the power meter to your computer. If the connection is lost during data transmission, a window prompts up to ask you if you want to reconnect and resume the data transmission. If you click "NO", another window shows up asking if you want to stay connected and if not, the device cannot be monitored on-line.



- Added the DPMSOft User Manual in. Click Help -> Help to open DPMSOft User Manual. Now DPMSOft User Manual are only available in Chinese and English.



2.13 NEW – New firmware v2.24 for DVP-EH3, EH3-L and SV2 Series released

Series	Models	Firmware Version	Release Date
DVP-EH3 DVP-EH3-L DVP-SV2	DVPxxEH00T3#1 DVPxxEH00R3#1 DVP32EH00T3-L DVP32EH00R3-L DVP32EH00M3 DVP32EH00MT DVPxxSV11T2#2 DVP28SV11R2 DVP28SV11S2	V2.22→ V2.24	20200728 (W2031)

- The "xx" used in the model name indicates the number of the built-in points in the model and there are 6 different-types of the built-in point number for this series, including 16, 20, 32, 40, 48 64 and 80 points.
- The "xx" used in the model name indicates the number of the built-in points in the model and there are 2 different-types of the built-in point number for this series, including 24 and 28 points.

Modified and added functions are described below.

All the issues below can be fixed by upgrading firmware to V2.23 or above (for SV2 series, no tools are required.).

Modified functions

No.	Functions / Instructions	Descriptions	Remarks
1	Communication with DOP100 (V4.00.06.47)	Fixed an issue that DOP100 writes an out of range value in D1038, whenever it is connected to PLC and supplied with power. Once PLC executes D1038 by accident, the communication stops. Solution: Only values within allowable range can be written in D1038.	
2	Modbus communication instructions	Fixed an issue that when using Modbus communication instructions in RTU mode, sometimes the Slave only responses with one Byte and the communication stops.	
3	DZRN	When selecting Y2, Y4 and Y6 to output, if the left limit point is designated as an external input interrupt, even if you did not enable the left limit, it is possible to activate the left limit of DZRN by mistake.	
4	M1156 marking alignment	When M1156 is enabled, if the marking alignment takes place in a deceleration section, it is possible that the output number may not be accurate after the marking.	
5	CSFO	When the output proportion is set below 100%, it is possible that the output is carried out in low speed if the input has stopped and needed to be started again.	
6	Working with FEN01 communication card	When using WPLSoft V2.46 or previous versions to have PLC communicate with DVP-FEN01, it is possible that the subroutine of PLC program cannot work.	

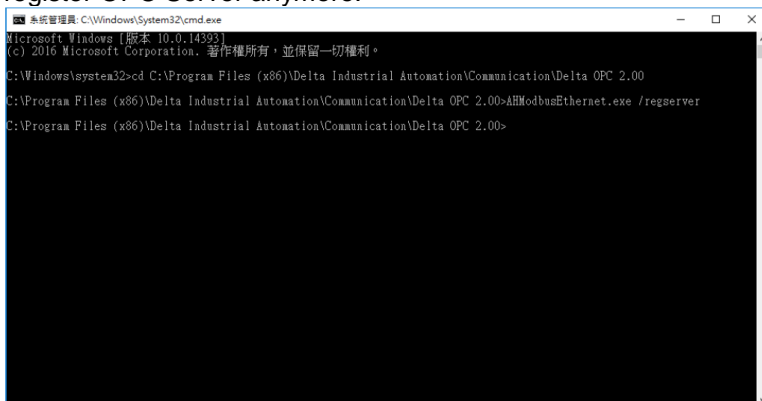
Added functions:

No.	API No.	Functions / Instructions	Descriptions	Reference
1	88	PID	Added a new control mode, K9. When MV reaches its upper/lower limit, the accumulated integral value increases according to the MV upper/lower limits and integral gain (KI). So that you can act accordingly if the controlling parameters vary.	--

2.14 NEW – Delta OPC software v2.01 released

Changes

When installing Delta OPC V2.00 and its previous versions on Windows 10, before using the software, you need to register OPC Server as the example image shown below. For Delta OPC V2.01 and later versions, you can simply click the install button to complete the installation. You do NOT need to register OPC Server anymore.



2.15 **NEW** – New firmware v1.40 for DVP-ES2-E Series PLC released

Series	Models	Firmware Version	Release Date
DVP-ES2-E	DVP20ES200TE DVP20ES200RE DVP32ES200TE DVP32ES200RE DVP40ES200TE DVP40ES200RE DVP60ES200TE DVP60ES200RE	V1.20 → V1.40	20200728 (W2031)

Corrected and added functions are described below.

All the issues below can be fixed by upgrading firmware to v1.29 or above (no tools are required.).

Corrected functions

No.	Functions / Instructions	Descriptions	Remarks
1	Ethernet Communication	When the Ethernet communication is consistently working for 24 hours everyday and the network communication load is full all the time. After one or two months, PLC may not be able to communicate again.	
2	COM3 Communication	When using MODRW instruction to read and write data from the Slave through COM3 communication in RTU mode, due to the communication noise on site, the completion flag may not be ON even when the communication is complete.	
3	AIO module – Data mapping area	When writing mapped data to DVP06XA-E2 and DVP04DA-E2, their DA analog output channels may not be able to output normally.	
4	Communication with DOP100 (V4.00.06.47)	Fixed an issue that DOP100 writes an out of range value in D1038, whenever it is connected to PLC and supplied with power. Once PLC executes D1038 by accident, the communication stops. Solution: Only values within allowable range can be written in D1038.	

Added functions

The following instructions and functions should work with ISPSOFT V3.09 and WPLSOFT V2.48 or later versions.

No.	API No.	Functions / Instructions	Descriptions	Reference
1	66	DTM	Added a new control mode, K15. To calculate the local time for sunrise and sunset.	Note B-1
2	--	AIO module – Data mapping area	Added a new module DVP06PT-E2 that can perform data mapping automatically.	
3	--	Marking alignment	DRVI and PLSR instructions now can work with the mask value -1, -2 and -3 for the setting of the corresponding masked areas.	Note B-3
4	315	XCMP	Setup for comparing the inputs of multiple workstations	
5	316	YOUT	Comparing the outputs of multiple work stations	

6	50	REF	Use REF instruction to work with M1672 ~ M1675. When the flag is ON, refresh the current corresponding output position of the high-speed output points Y0 ~ Y3 in D devices.	Note B-6
7	--	Update program online	Added M1166. When M1166 is ON during PLC program update, you can stop saving the PLC program to the permanent data backup area to save approximately 100 ms of freeze time while updating.	

Note B-1:

Settings for Parameter M

K15: to calculate the local time for sunrise and sunset

Explanation on operands:

S:

S+0, S+1: Local longitude (floating-points)

S+2, S+3: Local latitude (floating-point)

S+4: Time zone (integer)

S+5: If the day light saving time is enabled, it is in the integer format. 0: disable; others: enabled.

S+6, S+7, S+8: Year, Month, Day, Hour, Minute, Second of local time (integer); the value used in year should be 2000 or later.

D:

D+0, D+1, D+2: Hour (24-hour format), Minute, Second of the converted local sunrise time (integer)

D+3, D+4, D+5: Hour (24-hour format), Minute, Second of the converted local sunset time (integer)

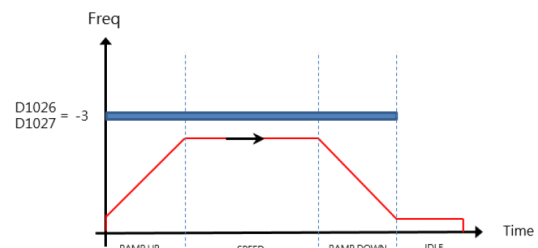
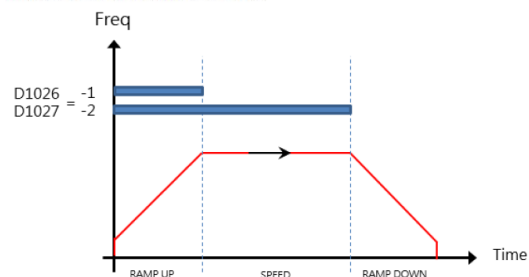
m: function code 15

n: Reserved

Note B-3:

When the masking number is -1 in the front masking area, it indicates masking occurs in the acceleration area; -2 in the front masking area means masking occurs in the areas of acceleration and full-speed; -3 (only available for DCLLM instruction) in the front masking area means masking occurs in the areas of acceleration, full-speed and deceleration.

See the Y0 example below. The values of D1026/1027 in front masking area are set among -1 to -3. The masking can be done accordingly, you do not need to calculate the number of pulses in each area.



Note B-6:

Special D and special M: new function is added to refresh the pulse position immediately.

Output Point	Y0	Y1	Y2	Y3
Flag to refresh the pulse position	M1672	M1673	M1674	M1675
The current value of the output pulse	D1030/D1031	D1032/D1033	D1336/D1337	D1338/D1339

- The pulse position is refreshed, when PLC executes the output pulse instruction. If the program is too large, using this method to refresh the current output position may not be that accurate.
- Use M1672~1675 to work with the REF instruction can have the pulse position refreshed immediately, not be affected by the scan cycle. (When using the flags with the REF instruction, the REF instruction only reads the pulse position. The actual input/output point refreshing is not executed.)

Note B-6:

Special D and special M: new function is added to refresh the pulse position immediately.

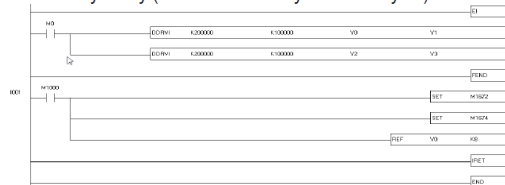
Output Point	Y0	Y1	Y2	Y3
Flag to refresh the pulse position	M1672	M1673	M1674	M1675
The current value of the output pulse	D1030/D1031	D1032/D1033	D1336/D1337	D1338/D1339

A. The the pulse position is refreshed, when PLC executes the output pulse instruction. If the program is too large, using this method to refresh the current output position may not be that accurate.

B. Use M1672~1675 to work with the REF instruction can have the pulse position refreshed immediately, not be affected by the scan cycle. (When using the flags with the REF insturctiorn, the REF insturctiorn only reads the pulse positon. The actual input/output point refreshing is not executed.)

Program Example:

When M0 = On, DDRVI instruction starts to output pulse. When there is an external interrupt in X0, the pulse positions D1030/D1031 and D1336/D1337 will be refreshed immediately without any delay (not be affected by the scan cycle).



Modified functions

The following instructions and functions are compatible with your compiled PLC programs.

No.	Functions / Instructions	Descriptions	Remarks
1	M1035	When M1035 is ON, you can use it to work with input point X7 to set PLC to Stop or Run.	
2	Password protection	Updated the password protection function for PLC program to avoid memory data to be copied.	Note C-2

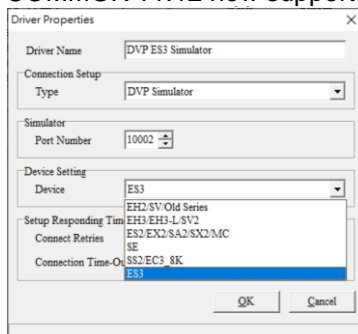
Note C-2:

If you need to update the firmware from V1.20 or previous version, you need to make a copy of your PLC program and parameters before updating the firmware. After the firmware updating is done, restore to the default settings first and then use your copy of PLC program and parameters to restore.

2.16 NEW – COMMGR software v1.12 released

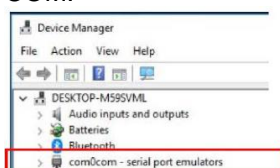
Modified and added functions are described below.

1. COMMGR v1.12 now supports the simulator of DVP-ES3 Series.

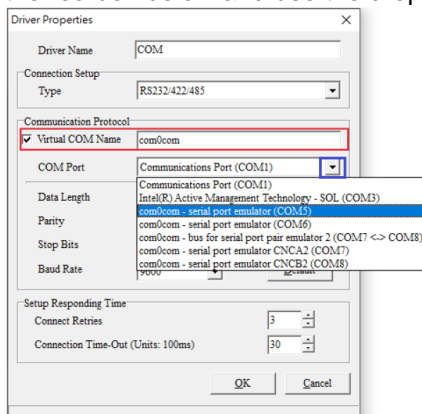


2. New virtual COM search function. Right-click the Windows icon on your computer and then you will see a list. Click Device Manager to find the virtual COM name (here com0com is the virtual COM name). You can use the virtual COM name in COMMGR V1.12 to search for other virtual

COM.



3. Enter the virtual COM Name (here com0com is used as an example) in the blank field as shown in the red box below and use the drop-down list (shown in blue box below) to see the availabilities.



You can download COMMGR v1.2 from our ftp-site. Folder: Customer-Service\Industrial Automation Products\PLC Programmable Logic Controllers\PLC Software

2.17 UPDATE – IEXplorer software upgraded to V1.2.1.4.

Series	Model ^{#1}	Version	Release Date
IEXplorer	DVW Series DVS Network Management Series	V1.2.1.4	2020.06.19 (W2025)

New function:

IEXplorer V1.2.1.4 now supports Slim-type DVW Series, including DVW-W01I3-E1-CN, DVW-W01I2-E1, DVW-W01I2-E1-CN, and DVW-W01I2-E1-EU.

Improvements

1. Fixed an issue that when using a Hot Key, it is possible to enter the software page without logging-in.
2. The file with account and password is now protected.

2.18 NEW – ISPSOFT version 3.11 is released

See the document [DELTA_ISPSOFT_V3.11_T_EN_20200724.pdf](#) on our ftp-site.
Folder: Customer-Service\Industrial Automation Products\PLC Programmable Logic Controllers\Technical Announcements

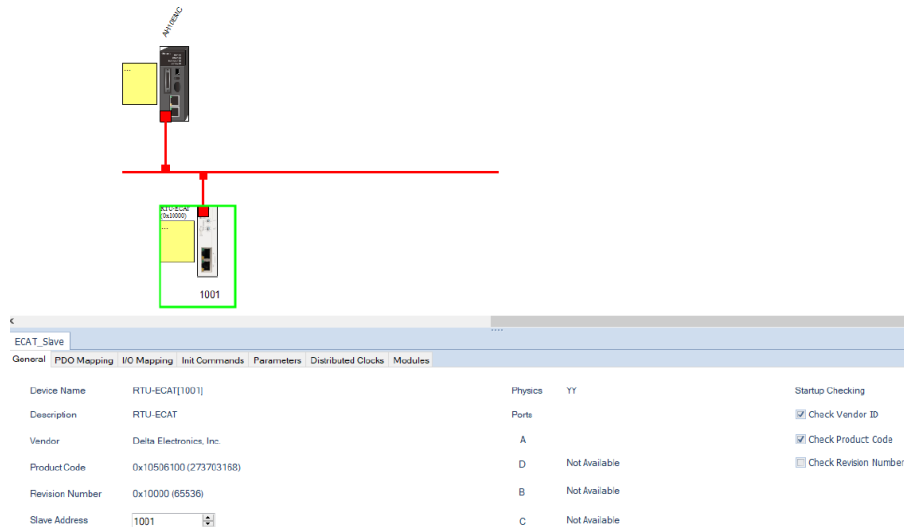
You can find the software on our ftp-site:

Folder: Customer-Service\Industrial Automation Products\PLC Programmable Logic Controllers\PLC Software

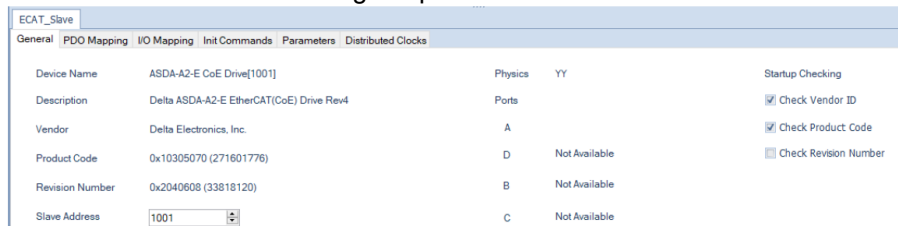
2.19 NEW – ECAT Builder version 1.07 is released

Changes:

1. ECAT Builder now supports RTU-ECAT can act as EtherCAT Slave.



2. The PLC CPU can set up checking items to identify if the identification of the Slave is the same as the ECAT's when downloading the parameters.



3. Change the default EtherCAT Slave Information (ESI) of ASDA-A3/B3 to EMC exclusively.

You can find the software on our ftp-site:

Folder: Customer-Service\Industrial Automation Products\PLC Programmable Logic Controllers\PLC Software

3 Application

3.1 NEW – Application Notes

New application notes have been published recently on our ftp-site:

- Packaging Industry Notification - Medicine Blister Pack Material Handling Line Solution.pdf
- Rubber & Plastics Industry Notification - Delta Hybrid Electric Extrusion Blow Molding Machine Solution.pdf
- Electronics Industry Notification-Welding Gas Leak Detector Vision Inspection Solution.pdf
- IoT Industry Notification - Device Test System Integrated Solution.pdf
- Lifting Industry Notification - Double Main Hooks Overhead Crane.pdf
- Machine Tool Industry Notification - Servo Punching Machine System.pdf
- Packaging Industry Notification - Bottom Lock Folder-Gluer Solution.pdf
- Robot Industry Notification - Application of Delta IA Products In Fan Blades Auto Assembling Machine.pdf
- IIoT Industry Notification - IIoT Monitoring System Solution.pptx

4 FAQ

4.1 VFD Series AC Motor Drives

MS300

Q

Can I set Time and Ripple for OrP Input Phase Loss detection?

A

There are no parameters to set Input Phase Loss detection. They are fixed in the firmware and cannot be changed.

The user manual will be corrected.

ID*	Display on LCD Keypad	Fault Name	Fault Descriptions
15	orP	Phase loss protection (orP)	Phase loss of power input
Action and Reset			
Action level	When DC bus ripple is higher than the protection level, and the output current exceeds 50% of the rated current, the drive starts counting. When the counting value reaches the upper limit, an orP error occurs.		
Action time	The action time varies with different output current.		
Fault treatment parameter	Pr06-53		
Reset method	Manual reset		
Reset condition	Immediately reset when DC bus is higher than Pr07-00		
Record	Yes		
Cause		Corrective Actions	
Phase loss of input power	Correctly install the wiring of the main circuit power.		
Single phase power input to three-phase model	Choose the model whose power matches the voltage.		
Power voltage changes	If the main circuit power works normally, verify the main circuit. Cycle the power after checking the power; if orP error still exists, return to the factory for repair.		
Loose wiring terminal of input power	Tighten the terminal screws according to the torque described in the user manual.		
The input cable of three-phase power is cut off	Wire correctly. Replace the cut off cable.		
Input power voltage changes too much	Verify the setting value for Pr06-50 Time for Input Phase Loss Detection and Pr06-53 Ripples of Input Phase Loss.		

Q

Which parameters get written directly to EEPROM and how can I avoid damaging the drive memory by writing too many times into it?

A

Almost all drive parameters are written directly into the EEPROM memory. There are only a few exceptions to this rule, which are mentioned below:

C Series:

Pr00-10: Control method
 Pr00-11: Speed mode selection
 Pr00-13: Torque mode select
 Pr00-27: User-defined value
 Pr01-12: Acceleration time 1
 Pr01-13: Deceleration time 1
 Pr01-14: Acceleration time 2
 Pr01-15: Deceleration time 2
 Pr01-16: Acceleration time 3
 Pr01-17: Deceleration time 3
 Pr01-18: Acceleration time 4
 Pr01-19: Deceleration time 4
 Pr02-12: Select MI Conversion Time mode
 Pr02-18: Select MO Conversion Time mode
 Pr04-50~Pr04-69: PLC register parameter 0—19
 Pr08-04: Upper limit of integral control
 Pr08-05: PID output upper limit
 Pr10-17: Electronic gear A
 Pr10-18: Electronic gear B
 Pr11-34: Torque command
 Pr11-43: P2P highest frequency
 Pr11-44: Position control acceleration time
 Pr11-45: Position control deceleration time

M300 Series:

Pr00-10: Control method
 Pr00-11: Speed mode selection
 Pr00-27: User-defined value

Pr02-12: Select MI Conversion Time mode
 Pr02-18: Select MO Conversion Time mode
 Pr04-50~Pr04-69: PLC register parameter 0—19

Extra attention must be given when writing into the drive parameters that are not mentioned above. It is very easy to exceed the maximum number of EEPROM write times when using a communication protocol or when using the WPR function block of the onboard PLC. When this happens, a cF2 fault will appear indicating that the drive is no longer able to read the damaged section of the EEPROM memory.

For communication protocols we recommend that drive parameters are written via acyclic communication.

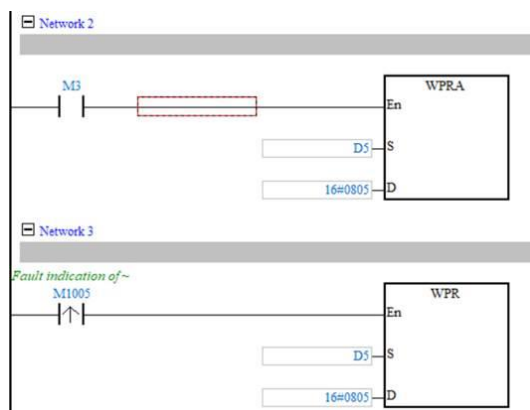
For the onboard PLC it is recommended to use the WPR function in combination with a rising-edge contact:



Or to use WPRP function instead:



In some cases this might not be acceptable since the value that is being written needs to be updated continuously. For these cases we've created a new function block called WPRA. This function block only writes into the RAM memory, not directly in EEPROM. This means that the values written with WPRA do not get saved after a power down. If this is needed then it's possible to use the special M relay function M1005 as shown below:



In this program the value in Pr08-05 is being continuously updated through WPRA function block. As soon as a fault occurs (for example LvS when the drive is switched off) the drive will write once into the EEPROM memory the value of parameter Pr08-05. The WPRA function was added in the MS300 firmware V1.09 (C/CP2000 already have it).