ΔELTA Newsletter

Industrial Automation Products

Edition 2020-05

Contents

PMT2 Power supplies

---

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

Delta Electronics (Netherlands) B.V., De Witbogt 20, 5652 AG Eindhoven, The Netherlands
☎ +31 (0)40 8003800   📠 +31 (0)40 8003898 and 99

Page 1 of 23

2   Product update

2.1   PHASE OUT – VFD-L2 will be phased out on 31-3-2021

Because major component suppliers will discontinue to supply the components for VFD-L2 series in the near future, VFD-L2 has come to its end of the product life cycle.
The new drive series VFD-EL-W and the existing drive series VFD-EL series will replace VFD-L2.

VFD-L2 will be phased-out on 31-3-2021.

Last orders from customers will be accepted on 28-2-2021.

Replacement

Code	VFD-L2	VFD-L2 description	VFD-EL-W series	VFD-EL series
A	VFD002L11A	Standard	N/A	VFD002EL11A
	VFD004L11A	Standard	N/A	VFD004EL11A
	VFD002L21A	Standard	VFD002EL21W	VFD002EL21A
	VFD004L21A	Standard	VFD004EL21W	VFD004EL21A
	VFD007L21A	Standard	VFD007EL21W	VFD007EL21A
	VFD015L23A	Standard	N/A	VFD015EL23A
B	VFD002L21B	Build-in EMC filter	N/A	VFD002EL21A
	VFD004L21B	Build-in EMC filter	N/A	VFD004EL21A
	VFD007L21B	Build-in EMC filter	N/A	VFD007EL21A
D	VFD004L21D	PNP terminal	VFD004EL21W	VFD004EL21A
	VFD007L21D	PNP terminal	VFD007EL21W	VFD007EL21A
E	VFD004L21E	PNP terminal, build-in EMC filter	N/A	VFD004EL21A
	VFD007L21E	PNP terminal, build-in EMC filter	N/A	VFD007EL21A

2.2   NEW – Cost Effective 35-350W PMT2 Series in Low Profile Design

Delta PMT2 panel mount power supply series now offers power ratings of 35W, 50W, 75W, 100W, 150W, 350W single output and 75W dual output. A wide range of 12V to 48V outputs are available for 35-350W models, while the two 75W dual output models are available in 5V/12V and 5V/24V. This series is designed based on a common profile of ≤ 30mm height and can withstand shock and vibration requirements (in accordance to IEC 60068-2-27 and IEC 60068-2-6 respectively). Despite the smaller form factor, the PMT2 can still operate a wide temperature range from -30°C to +70°C. The lightning surge immunity meets IEC 61000-4-5, Level 4 (CM: 4kV, DM: 2kV).

Safety approvals include IEC/EN/UL 62368-1 and IEC 60950-1 while most models meet IEC/EN 60335-1, IEC/EN 61558-2-16 for household electrical appliances safety approvals. EMI standard complies to EN 55032, Class B.

Highlights & Features
- Household appliance approvals according to IEC/EN 60335-1, IEC/EN 61558-1 and IEC/EN 61558-2-16 (Except 350W models)
- OVC III and Pollution Degree 3 (Except 350W models)
- No load power consumption
- < 0.3W for 35W, 50W, 75W, 100W, 75W Dual models
- < 0.5W for 150W models
- < 0.75W for 350W models
- Low profile design: ≤ 30mm height
- Wide operating temp -30°C to 70°C (Support -40°C cold start)
- Conforms to harmonic current IEC/EN 61000-3-2, Class A
- High MTBF > 700,000 hrs per Telcordia SR-332.

2.3 NEW – TPEditor version 1.97

Changes:
1. Font size of the wordings on the pages, buttons and indicators, including static texts, displayed messages, can be adjusted.
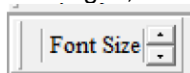
2. Fixed the flow that you do not need to compile the file before downloading. You can download the file directly after opening an old file.
3. Fixed the issue that after the image of the indicator is set, the image cannot be saved.
4. Fixed the security vulnerability issues.

2.4 UPDATE – CMC-EIP01 firmware v2.02.00 updated to v2.04.01

Changes:

V2.02.00 problem	V2.04.01
Keyence and Omron host computers cannot connect to the drive through EtherNet / IP.	Keyence and Omron host computers can connect to the drive through EtherNet / IP.
AB host computer and the drive have established an EIP connection and are under control. At this time, after the host computer modifies the online parameters and downloads and resumes the connection, drive cannot be controlled normally.	AB host computer and the inverter have established an EIP connection and are under control. At this time, the host computer can modify the online parameters and download and restore the connection to control the drive normally.

New function:
Added the ability to write EIP Messages function under I/O connection

Release

Firmware Version	Switching Period	
V2.04.01	Wujiang	TBD

2.5 UPDATE – MS300 firmware updated from V1.08 to V1.09

Corrections:

Version 1.08 problem	Version V1.09
When external terminal is running (Pr.00-21= 1), it will run automatically when it is powered on (Pr.02-35=1) and acceleration time is too fast (Pr.01-12 = 1) ,LVA will be caused.	Modified the running program to identify the soft start relay signal mechanism.
When the running command is set to external terminal (Pr.00-21 = 1), fast start (Pr.02-00 = 4 ~ 6) and carrier 2k (Pr.00-17 = 2), drive will trigger the error code GFF by mistake / OL.	When operation command is set to be used with external terminal control (Pr.00-21 = 1) and quick start (Pr.02-00 = 4 ~ 6), the LVx of CB2 must be handled incorrectly (Pr.06-49 = 1 and Pr.07 -06 = 0), then Reset can be performed, otherwise the program will be restarted by instantaneous interruption.
Use MI to control PLC Mode (MI = 51, 52) PLC does not judge according to the MI operation cycle, and an error occurs.	Use MI to control PLC Mode (MI = 51,52). When MI performs switching control, modify and determine the PLC status mechanism.
When using three-wire control to start and stop (Pr.02-00 = 3), main frequency source will be invalid, and the F frequency command cannot be modified, power must be turned on again.	When using three-wire control to start and stop (Pr.02-00 = 3),main frequency source is normal, and the F frequency command can be modified.
Use KPMS-LE01 to read the IGBT temperature (Pr.06-36) and the number of decimal places is abnormal.	The attribute of the temperature recording parameter is a signed number, and the number of decimal places on the signed number is correct.

Modifications:

Quick start (Pr.02-00 = 4 ~ 6) optimization.

New functions:

1. Added parameter 11-33 = 5 Torque command source: communication card


```
11-33  Torque Command Source
                                              Default: 0
Settings  0: Digital keypad
          1: RS-485 communication (Pr.11-34)
          2: Analog signal input (Pr.03-00)
          3: CANopen
          5: Communication Card
```

📖 When Pr.11-33 is set to 0 or 1, you can set the torque command in Pr.11-34.

📖 When Pr.11-33 is set to 2, 3 or 5, Pr.11-34 only displays the torque command.

2. Added parameter 00-47: Output phase sequence exchange

Parameter	Name	Settings	
00-47	Output phase order selection	0: Standard	
		1: Exchange the rotation direction	

Note Without changing the wiring and light indicator, you can use this parameter to change the rotation direction from forward to reverse or from reverse to forward.

Note When using this parameter with Pr.00-23 (Motor Direction Control), Pr.00-23 has priority over Pr.00-47.

Release:

Firmware Version	Switching Period	
V1.09	Taoyuan	TBD
V1.09	Wujiang	TBD

2.6 UPDATE – AH-EMC series firmware updated to V2.03.00.

| Series	Models	Firmware Version	Release Date
AHEMC	AH08EMC	V2.03.00	Apr. 23, 2020
	AH10EMC		
	AH20EMC		

New instructions and functions:

1. New instructions (SPLIT and MERGER) are added for AHEMC series. Refer to the attachment 1 for more details.

FB/FC	Instruction code (bit)			P instruction	Function
	16	32	64		
FC	SPLIT	–	–	✓	Splitting strings
FC	MERGE	–	–	✓	The absolute value of the floating-point number.

2. New function blocks (MC_Jog, DFB_ServoParamBackup, DFB_ServoParamRecover, DFB_CamCurveFRC, and DFB_CamCurveTMRC) are added for AHEMC series. Refer to the attachment 2 for more details.

| Categories		Name	Description
Single axis motion instructions	Velocity control	MC_Jog	MC_Jog assigns axis to activate JOG operation.
	Administrative	DFB_ServoParamBackup	DFB_ServoParamBackup backs up Servo parameter data.
		DFB_ServoParamRecover	DFB_ServoParamRecover restores Servo parameter data.
		DFB_CamCurveFRC	Controller generates the E-Cam table according to the input parameters; this function block is based on rotary cut concept, mainly for film cutting application.
		DFB_CamCurveTMRC	Controller generates the E-Cam table according to the input parameters; this function block is based on rotary cut concept, mainly for thick material cutting application.

3. Added a new function Back-up / Restore Servo Parameter
Right-click *Axis (Cycle Time)* to see and select the option *Back-up / Restore Servo Parameter* to open the setting page in ISPSoft.
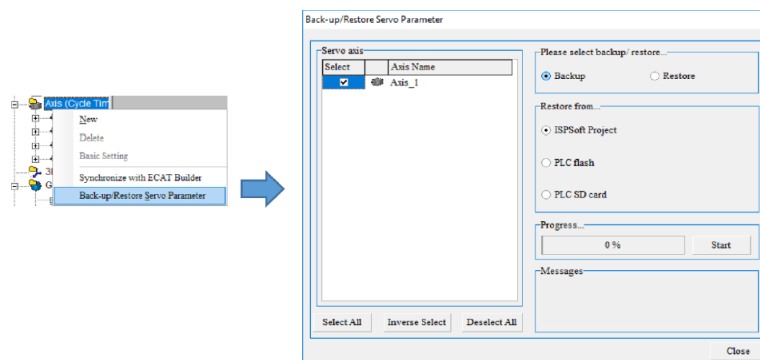
4. Added a new function to initialize values of the symbol table

If the ISPSoft you are using is V3.09 or later, you can enable this function to initialize values in the symbol table whenever the PLC switches from Stop to Run to download the initial values to PLC. The default setting is *Disable*.

- Stop -> Run initialize the **non-retentive** symbols
- Stop -> Run initialize the **retentive** symbols
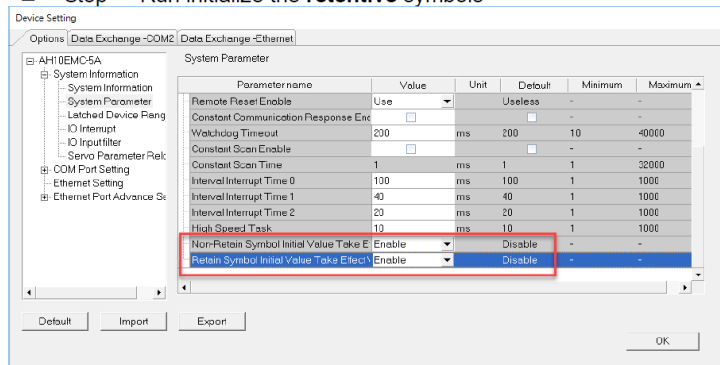
5. Added FB compatibility check function

If the ISPSoft you are using is V3.10 or later, the system can check the compatibility of the function block version and the firmware version of AHEMC Series PLC for you. Once the compatibility check on the versions of firmware and the function block fails, a warning appears. If they are compatible with one another, you can download the project.

Firmware / Function Block	V2.03	V2.03
V1.0	Downloadable	**Warning**[*1]
V2.0	**Warning**[*2]	Downloadable

Note: *1: In ISPSoft V3.10, if you use the PLC with FW V2.03 to open an old downloaded project created with function block V1.0, a warning will appear. You need to delete old function blocks in the old project by batch and import new version of function block to the project.

Warning

Cannot download program.
Current PLC version is: V2.03.00
The plc version cannot support those function blocks:
MC_Power (V1.00)
MC_GearIn (V1.00)
MC_GearOut (V1.00)
DFB_ECATReset (V1.00)
MC_Reset (V1.00)

Please check the project and upgrade those function blocks.

Note *2: If you download a new project created with function block V2.0 in ISPSoft V3.10 to the PLC with V2.02 firmware or previous versions to, a warning will appear. You need to update the PLC firmware version and download the new project again.
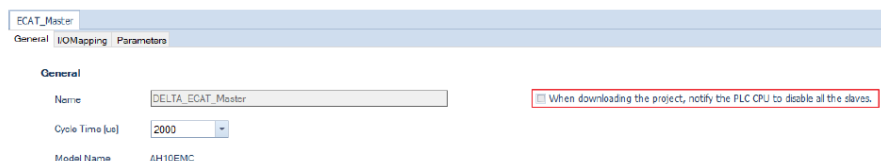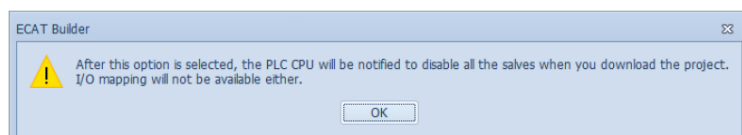
Warning

⚠ Cannot download program.
Current PLC version is: V2.02.00
The plc version cannot support those function blocks:
DFB_AxisSetting1 (V2.00)
DFB_AxisParaRead (V2.00)
DFB_AxisParaWrite (V2.00)
DFB_InputPolarity (V2.00)
DFB_CamMultiRead (V2.00)
DFB_CamMultiWrite (V2.00)
DFB_CamKeyPointWrite (V2.00)
DFB_GroupAbsLinear (V2.00)
DFB_GroupRelLinear (V2.00)
DFB_GroupAbsCircular (V2.00)
DFB_GroupRelCircular (V2.00)
DFB_GroupEnable (V2.00)
DFB_GroupDisable (V2.00)
DFB_GroupReset (V2.00)
DFB_GroupStop (V2.00)
DFB_ReadGroupStatus (V2.00)
DFB_HCnt (V2.00)
DFB_HTmr (V2.00)
DFB_Compare (V2.00)
DFB_CmpOutRst (V2.00)
DFB_ECATReset (V2.00)
...

Please check the project and upgrade those function blocks.

6. You can disable all the slaves without changing the network configurations.

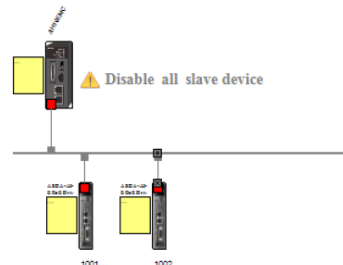a. Tick the option "When downloading the project, notify the PLC CPU to disable all the slaves" to disable all the slaves.

ECAT_Master		
General	I/OMapping	Parameters

General

Name	DELTA_ECAT_Master	☐ When downloading the project, notify the PLC CPU to disable all the slaves.
Cycle Time [us]	2000 ▾	
Model Name	AH10EMC	

b. Confirmation to disable all the slaves.

ECAT Builder ⛶

⚠ After this option is selected, the PLC CPU will be notified to disable all the salves when you download the project. I/O mapping will not be available either.

[OK]

c. Once the option "When downloading the project, notify the PLC CPU to disable all the slaves" is confirmed, the network configuration looks like below.

⚠ Disable all slave device

1001   1002

d. Once you click **Download** button for downloading the project, the system will notify you that The option "When downloading the project, notify the PLC CPU to disable all the slaves." is selected. All the slaves will be disabled after downloading the project.

ECAT Builder ⛶

⚠ The option "When downloading the project, notify the PLC CPU to disable all the slaves. " is selected. All the slaves will be disabled after downloading the project.

[OK]   [Cancel]
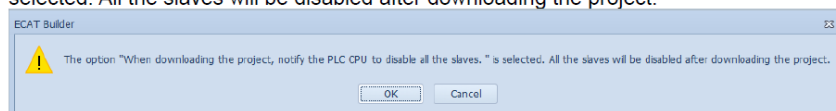
7. AHEMC Series PLC supports configurations for Modular Device that complies with EtherCAT protocol.

- You can scan Modular Device typed slaves. (should work with ECAT Builder V1.06 or later)
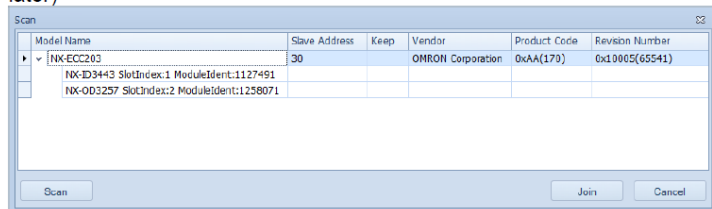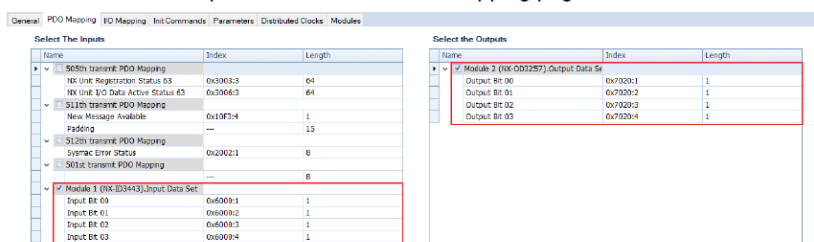

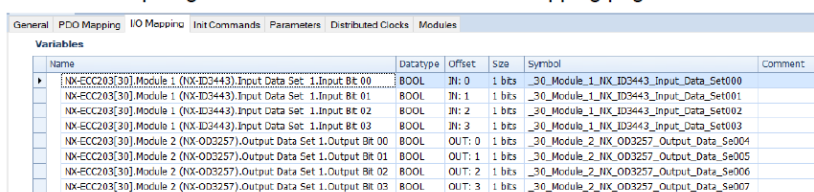- You can configure the remote IO of Modular Devices.

  a. Module configuration page
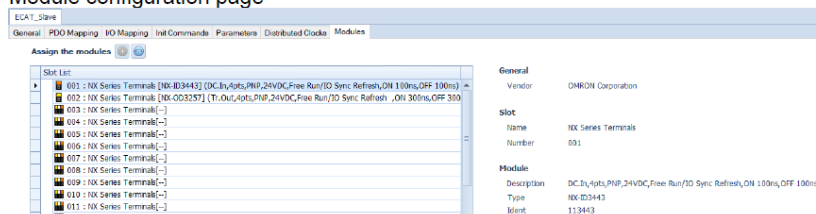
  b. You can check PDO parameters on the PDO Mapping page.

  c. You can set up Tags for the module PDO on the I/O Mapping page.

8. Added a function to check the error occurred position after an error occurred.
   If the ISPSoft you are using is V3.10 or later, when an error occurs and you are not in the online mode, you can double click the item that you'd like to check under the error log tab, the system will direct you to the program where the error occurred.
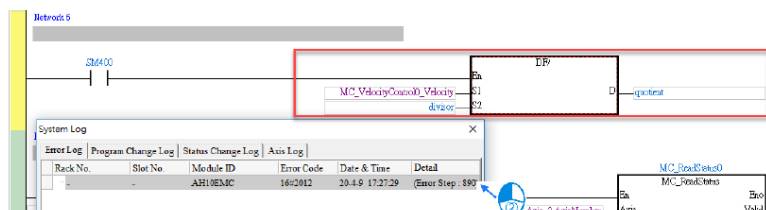
Possible issues and solutions:
1. Fixed an issue that all the modules stop outputting after downloading the program in Online editor, even though PLC is still running and ISPSoft shows the output is still on-going.
2. Added a new error code, 0x3168: if the MC_Stop deceleration value is set over the maximum value of the axis, when PLC is supplied with power, an error occurs.

3. Added a new error code, 0x3955: if the execution of MC_TorqueControl is interrupted or stopped, and if all 3 attempts to restore to the maximum value fail, an error occurs.
4. Modules cannot use SM22 to clear the system errors.
5. Fixed an issue that a FPGA error occurs during the execution of DFB_Compare or DFB_Capture2, the shown error code is not for this issues.
6. Fixed an issue that when a Servo error AL500 STO occurs in a group of axes, even after DFB_GroupReset is executed, an error 0x3801 still occurs during the execution of MC_Power.
7. Fixed an issue that setting the triggers of rising-edge and falling-edge in Data Tracer, but the triggering outcomes are not as they are set.
8. Fixed an issue that using DFB_CAMCurve2 to create an E-Cam curve, jumps may occur in acceleration curve when adding E-Cam points in.
9. Fixed an issue that if the torque velocity is set too high in module mode, the function block shows error code 0x3955 but the motor still keeps running.
10. Fixed an issue that when executing MC Power to set Servo to OFF during the execution of MC_TorqueControl, sometime there is no response on the contact of the torque function block, CommandAborted.

2.7 UPDATE – AS02LC-A firmware updated

Release:

Series	Models	Firmware Version	Release Date
AS	AS02LC-A	V1.02➔ V1.04	Mar. 24, 2020 (W2013)

New functions

The LC Wizard (ISPSoft V3.10 -> HWCONFIG -> AS02LC-A Communication Software -> LC Wizard) is a calibration software exclusively for AS02LC-A. For easier operation, a new function, on-line mode is added; you can check the current weight value, status flag and other parameters when using this mode.

- The latest LC Wizard is included in ISPSoft V3.10 and later versions.
- For AS02LC-A modules with firmware V1.04 or higher versions, you need to use ISPSoft V3.10 or later versions.
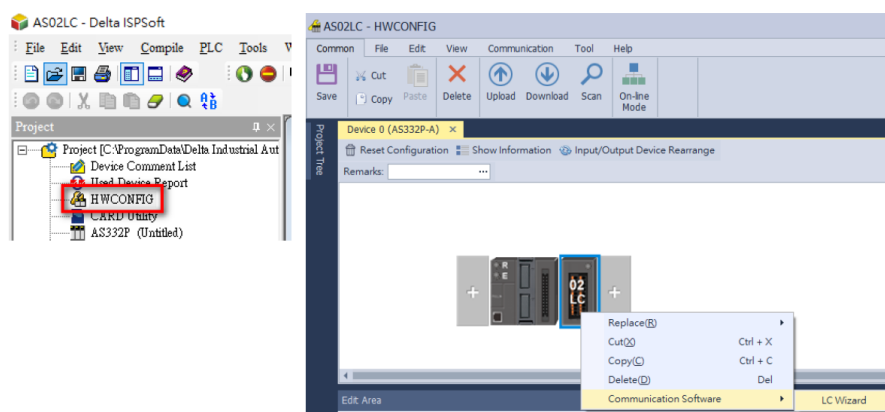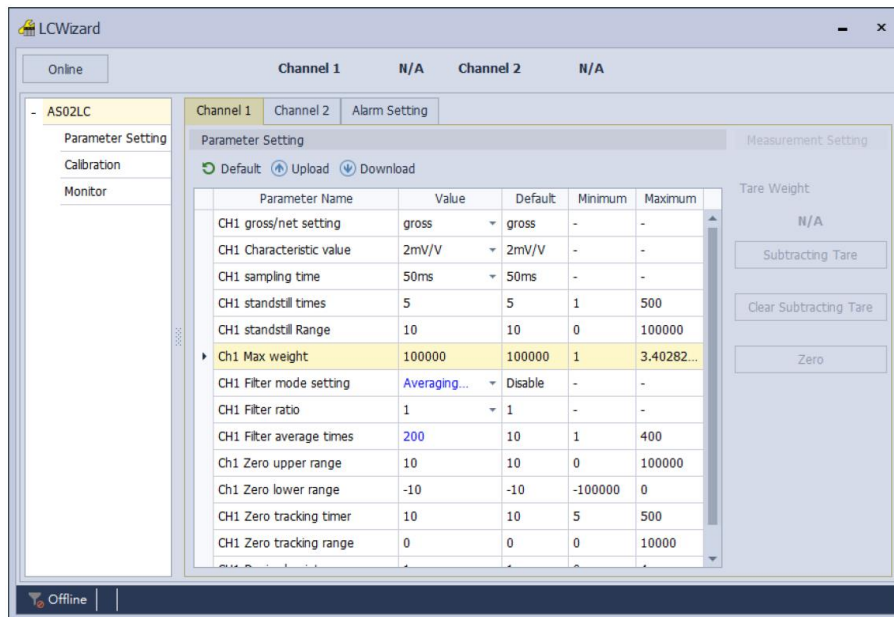
Modified functions:
1. Fixed the issue that when AS02LC-A is connected on the right-hand side of the RTU module (i.e. AS00SCM-A), the AS02LC parameters will be written by the default settings of AS00SCM-A after power-off and power-on.
2. Fixed the issue that when the sampling cycle time is set to 2.5 ms, the actual sampling time is not as it is set.
3. Fixed the issue that when you keep writing values in the Average Weight Measured Times, it cannot generate an average result.
4. Fixed the issue that when executing the command of Clearing the Weight to Zero, the weight value is not cleared to zero but keep jittering.
5. Changed the default setting of the External Power Supply Error from Disable to Enable.
6. Changed the maximum value of the Average Weight Measured Times from 100 to 400.
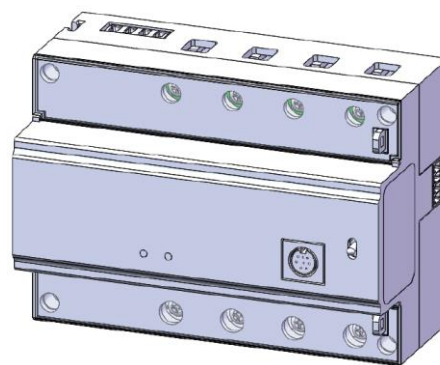
2.8   UPDATE – DPM-D520I: RJ45 port removed

To avoid users mistake the RJ45 port in front of DPM-502I for an Ethernet port, we removed the RJ45 port design in DPM-D520I.
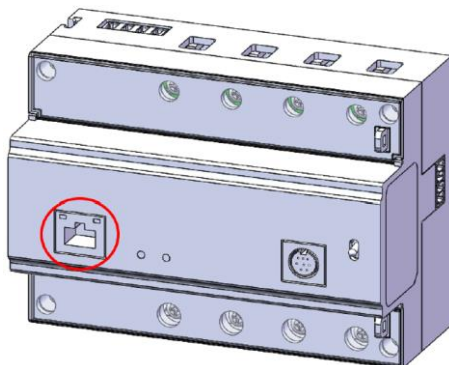
OLD   **NEW**
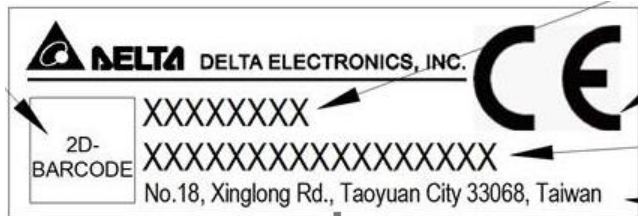

Release:
Release Date: April 06, 2020 (Week 15)
You can find the serial number on the product label of DPM-520I: DPMD520W1929xxxx
If the date code is 2015 (year 2020, week 15) or later, it means the device is without any RJ45 port.

2.9   UPDATE – KPE-LE02 will have CE mark on label

KPE-LE02 will have this new label after date code 2022 (year 2020 / week 22).
The CE symbol will be 5mm

2.10 UPDATE – EMM-SAF01 withdrawn from EMEA market

Originally EMM-SAF01 for ME300 was introduced so customer could install it afterwards if needed. But then the STO functionality is not certified.

Because in EMEA the STO function must be certified (which can only be achieved and guaranteed by Delta if Delta installs it) it has been decided to withdraw it from EMEA market.

2.11 UPDATE – KPC-CC01/CC02 firmware updated from 1.40 to 1.42

Changes
1. Start Wizard menu changes
    The menu items include Start Wizard / Exit Wizard / Main MENU / Monitor in previous version, as shown in Figure A, New release version includes Start Wizard / Exit Wizard / test mode (Hidden), as shown in Figure B.


(A)   (B)

2. Add test mode in start-up setting process
    - To avoid misuse, the function is in hidden mode, please refer to the flow chart below for the entry method.
    - The purpose of the mode is to facilitate the use of merchandise management operations before selling from distributor / equipment vendor / customer.
    - When the "test mode" is executed, the inverter will temporarily leave the "Start Wizard" and "Exit Wizard" processes.
    - Enter the test mode and do not execute the Exit Wizard, The next time you start the inverter, it will still enter the new drive start-up wizard setup process.
    - When the screen presents Figure B and press the MENU key, it will ask "Go to test mode" screen, as shown in Figure C. Selecting "YES" will directly enter the Menu screen, as shown in Figure D. For detailed operation, please refer to "New drive start-up setting Process".
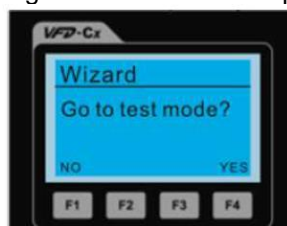
(C)   (D)

3. There is a compatible issue between the Start Wizard and the inverter version, the minimum firmware required for each series is as follows:

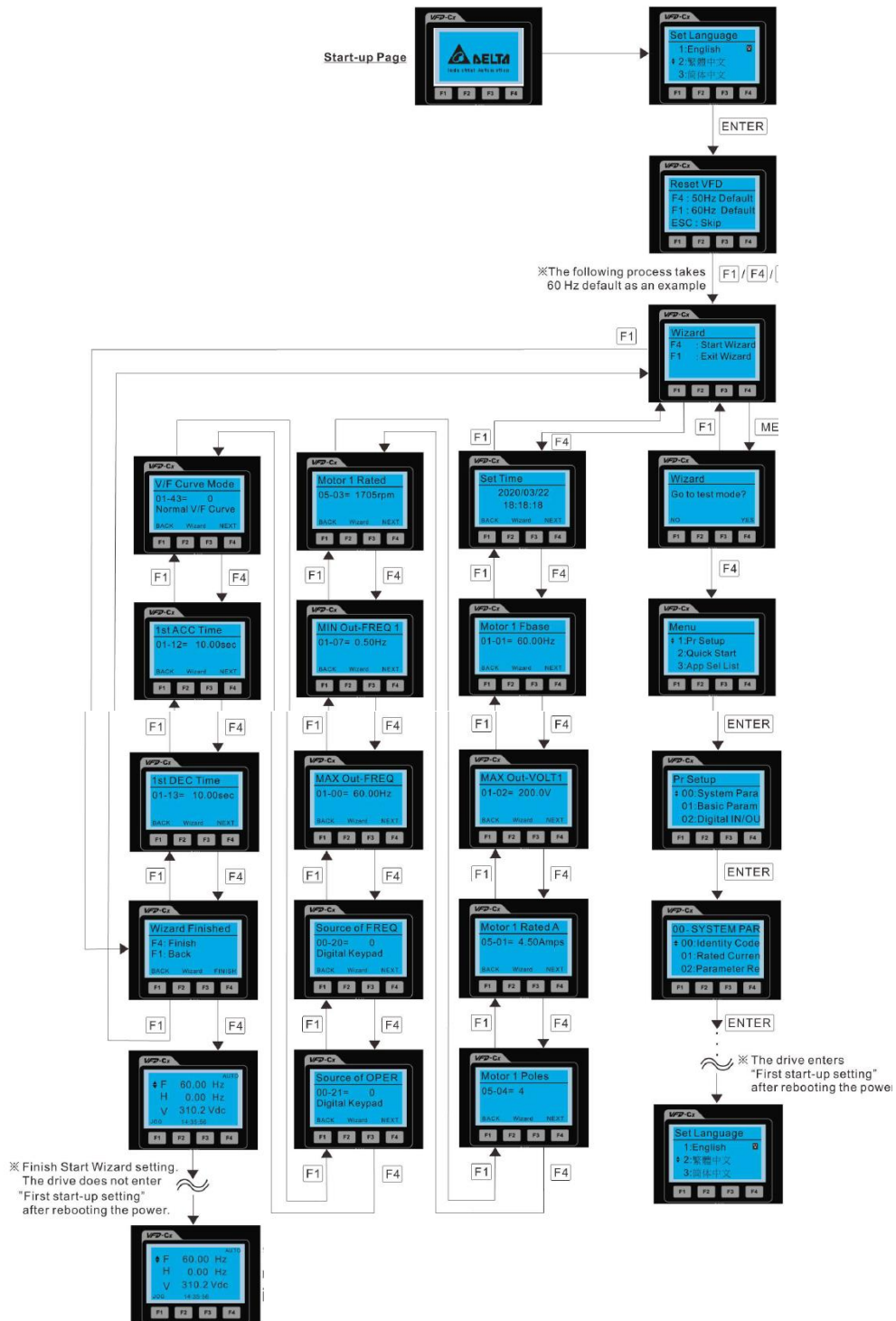| Series	C	C+	CH	CP	CFP
FW ver.	V2.05	V3.05	V2.05	V2.06	V1.06

New drive start-up setting process

After the new drive is turned on, it will directly enter the start-up setting process, there are three modes to select: Start Wizard, Exit Wizard and Test Mode.
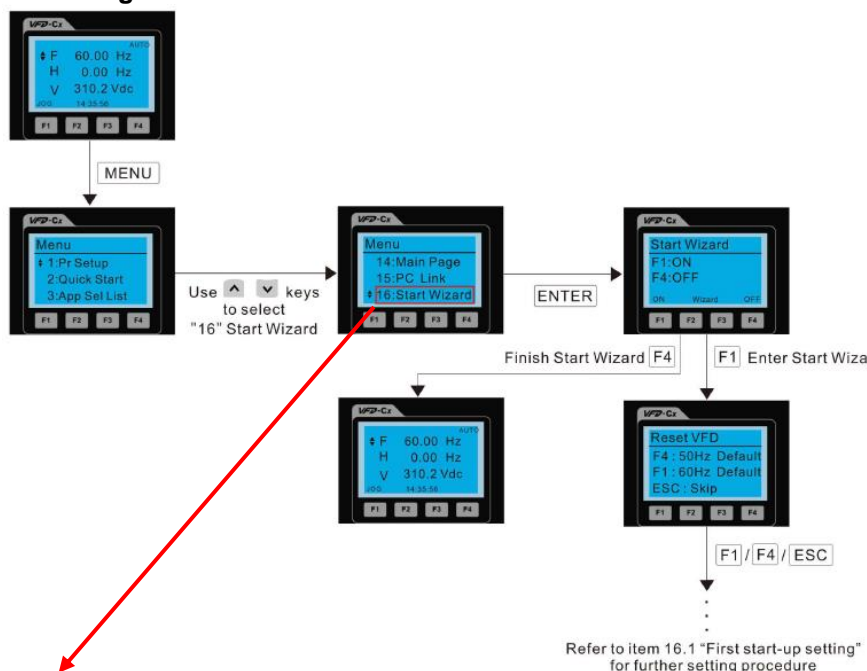
- Start Wizard:
  - Perform the "Start Wizard" process to set inverter related parameters such as real time clock, maximum frequency and maximum voltage, etc. Please refer to Table 1 for parameter setting items and order.
  - After completing all the setting procedures, the inverter will leave the wizard, and restarting the inverter will no longer enter the new drive start-up setting process.
- Exit Wizard：
  Close the Startup Wizard program, and restarting the inverter will no longer enter the new drive Start-up setting process.
- Test mode：
  - Please refer to the description of changing functions point 2.

Table1： Start Wizard related parameters setting

Setting order	Name	According to Pr.
1	Real Time clock	NA
2	Output frequency of motor 1	01-01
3	Output voltage of motor 1	01-02
4	Full-load current for induction motor 1 (A)	05-01
5	Number of poles for induction motor 1	05-04
6	Rated speed for induction motor 1 (rpm)	05-03
7	Min. output frequency of motor 1	01-07
8	Maximum operation frequency	01-00
9	Master frequency command (AUTO) source / Source selection of the PID target	00-20
10	Operation command (AUTO) source	00-21
11	V/F curve selection	01-43
12	Acceleration time 1	01-12
13	Deceleration time 1	01-13

Start-up Page

Set Language
1:English
2:繁體中文
3:简体中文

ENTER

Reset VFD
F4 : 50Hz Default
F1 : 60Hz Default
ESC : Skip

※The following process takes
60 Hz default as an example

F1 / F4 /

F1

Wizard
F4 : Start Wizard
F1 : Exit Wizard

F1   F4   F1   F4   F1   ME

V/F Curve Mode
01-43=   0
Normal V/F Curve
BACK Wizard NEXT

Motor 1 Rated
05-03= 1705rpm
BACK Wizard NEXT

Set Time
2020/03/22
18:18:18
BACK Wizard NEXT

Wizard
Go to test mode?
NO   YES

F1   F4   F1   F4   F1   F4   F4

1st ACC Time
01-12= 10.00sec
BACK Wizard NEXT

MIN Out-FREQ 1
01-07= 0.50Hz
BACK Wizard NEXT

Motor 1 Fbase
01-01= 60.00Hz
BACK Wizard NEXT

Menu
1:Pr Setup
2:Quick Start
3:App Sel List

F1   F4   F1   F4   F1   F4   ENTER

1st DEC Time
01-13= 10.00sec
BACK Wizard NEXT

MAX Out-FREQ
01-00= 60.00Hz
BACK Wizard NEXT

MAX Out-VOLT1
01-02= 200.0V
BACK Wizard NEXT

Pr Setup
00:System Para
01:Basic Param
02:Digital IN/OU

F1   F4   F1   F4   F1   F4   ENTER

Wizard Finished
F4: Finish
F1: Back
BACK Wizard FINISH

Source of FREQ
00-20=   0
Digital Keypad
BACK Wizard NEXT

Motor 1 Rated A
05-01= 4.50Amps
BACK Wizard NEXT

00-SYSTEM PAR
00:Identity Code
01:Rated Curren
02:Parameter Re

F1   F4   F1   F4   F1   F4   ENTER

F   60.00 Hz   AUTO
H   0.00 Hz
V   310.2 Vdc

Source of OPER
00-21=   0
Digital Keypad
BACK Wizard NEXT

Motor 1 Poles
05-04= 4
BACK Wizard NEXT

※ The drive enters
"First start-up setting"
after rebooting the power

Set Language
1:English
2:繁體中文
3:简体中文

F1   F4   F1   F4

※ Finish Start Wizard setting.
The drive does not enter
"First start-up setting"
after rebooting the power.

F   60.00 Hz   AUTO
H   0.00 Hz
V   310.2 Vdc

Restarting wizard flow chart

NOTE: The"16: Start Wizard"on the menu is to set whether shows start wizard when start up the drive.

II. Firmware Version & Switching Period

Firmware Version		Switching Period
V1.42	Taoyuan	NA
V1.42	Wujiang	W2012

2.12 UPDATE – DIAView version 3.5.0 is released

Changes:
1. Added Browser/Server (B/S) architecture.
2. Added the function of showing and hiding the Client/Server (C/S) server manager.
3. Optimized the refreshing performance of client data.
4. Optimized the client reconnection panel.
5. Added search and replace function. Hot key: Ctrl + F
6. Added robot gallery.
7. When dragging an object to the edge in canvas, the scroll bar automatically adjusts the visible area.
8. Added properties to modify axis title font and axis color in curve control.
9. Fast line is added to XY curve, and data refresh rate of this line can reach 1/100ms.
10. Added a report wizard for easier report creation.
11. Added a new table control and users can generate a table with one click.
12. Added script for querying record boxes by event type.
13. New video monitor (Hikvision) supported.
14. The simulator is no longer free of charge and IO statistics panel has been adjusted.
15. Added a function of keeping variable values when IO communication is interrupted.
16. Added a password creating rule: if a password that had been used for the last N times, it cannot be used as a new password again. (compliance to FDA regulations).
17. Optimized the cycle time for the history group variables timer, shortened to 100ms.
18. Added data verification tool (compliance to FDA regulations).

19. For tamper-proof, a verification code is attached when exporting reports, variables, and alarms. (compliance to FDA regulations).
20. Added Sleep (int millisecond) script function.
21. Use independent script engine to execute conditional program and time program.
22. Added a function to compile VBS to Javascript, and the syntax check is included.
23. Added Delta MC PLC driver.
24. Added the packaging function for the project file and operation environment to be included in one installation package.
25. Added the function of binding the project and its license key (dongle) together for the protection of the SI manufacturer's intellectual property rights.

2.13 UPDATE – TP04 Series firmware updated from V1.03 to V1.04

- **New functions**
  The following functions are compatible with your compiled PLC programs.

No.	Functions	Descriptions	Remarks
1	Alarm display setting of the battery low voltage error	Added M1664 to show or hide the battery low voltage error on the monitor; default setting is OFF (show alarm).	ON: Hide alarm OFF: Show alarm
2	Battery status flag	Added M1077 to show if the battery voltage is low. With this newly added flag, you can check the battery status whenever needed. (If there is no flag to show the battery status, you can only learn the status when there is an alarm on the monitor. If the alarm is gone, you won't be able to know if the battery voltage is still low.)	ON: Battery low voltage OFF: Normal

- **Modified functions**
  The following functions are compatible with your compiled PLC programs.

No.	Functions	Descriptions	Remarks
1	Flash memory	Optimized the saving process to achieve greater efficiency.	

Release

Series	Model	Firmware Version	Release Date
TP04P	TP04P-20EXL1T	V1.03→ V1.04	2020.04.15 (W2016)

2.14 NEW – www.deltapsu.com has been renewed

A new look and feel for www.DeltaPSU.com. The website is fully compatible with the latest internet browsers and mobile devices. With the newly renovated search engine, the search results will be available at the snap of your fingers.
The site went LIVE on 9th May 2020. Please take this opportunity to explore the various functions and interface.
We hope that you will enjoy the fresh look and feel of our updated website!

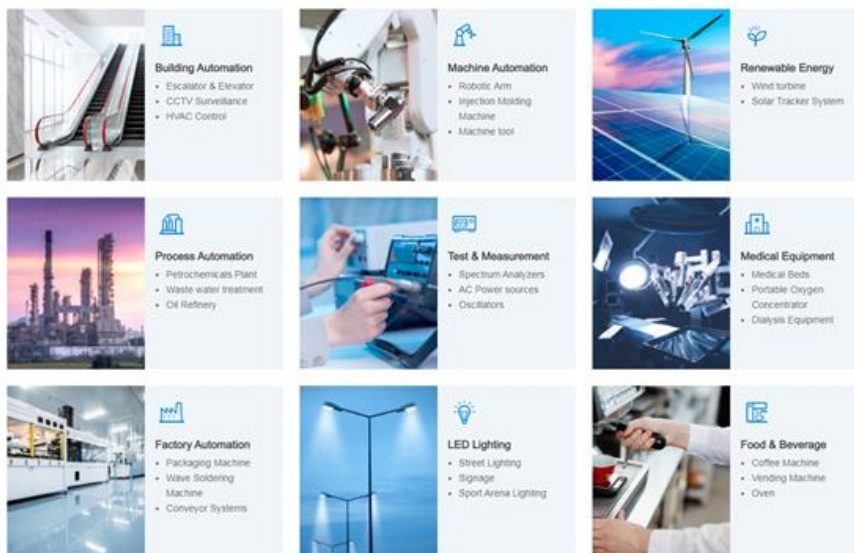## A SNEAK PREVIEW AT WHAT'S NEW

What type of power supply?

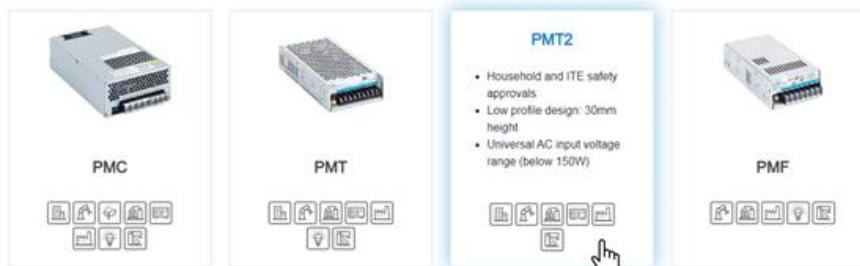Right from the homepage, you can select the type of power supply you need.

Product Selector

| DIN Rail | Panel Mount | Open Frame | Configurable Power | LED Driver | Enclosed |

What is your application?

If you are not sure what type of power supply is suitable, let DeltaPSU recommend based on your application.

Applications

Building Automation
- Escalator & Elevator
- CCTV Surveillance
- HVAC Control

Machine Automation
- Robotic Arm
- Injection Molding Machine
- Machine tool

Renewable Energy
- Wind turbine
- Solar Tracker System

Process Automation
- Petrochemicals Plant
- Waste water treatment
- Oil Refinery

Test & Measurement
- Spectrum Analyzers
- AC Power sources
- Oscillators

Medical Equipment
- Medical Beds
- Portable Oxygen Concentrator
- Dialysis Equipment

Factory Automation
- Packaging Machine
- Wave Soldering Machine
- Conveyor Systems

LED Lighting
- Street Lighting
- Signage
- Sport Arena Lighting

Food & Beverage
- Coffee Machine
- Vending Machine
- Oven

Which series is suitable?

If you are overwhelmed by the many product series, just move your cursor over the image to see the key features.

PMC

PMT

PMT2
- Household and ITE safety approvals
- Low profile design: 30mm height
- Universal AC input voltage range (below 150W)

PMF

How to do a product comparison?

DeltaPSU.com allows you to compare side by side up to 3 different models. You can download the comparison result to review offline and share with your colleagues.

2.15 NEW – AX-8 series motion controller

We are pleased to announce the release of the AX-8 series motion controller, the first Delta CODESYS-based device. .

The AX-8 Series Motion Controller at a glance
The AX-8 is a powerful industrial PC, equipped with Windows 10 IoT. The AX-8 is also a motion controller. When integrating with CODESYS, its embedded real-time extension allows PLC, Motion Control and Windows to be compatible with each other in the same device. However, users can install the third party software tools. See below for some of the features of the AX-8 series:

- Industrial PC with Windows 10 IoT, Intel Celeron J1900 processor, 4GB RAM, 32GB storage size
- Available with CODESYS SoftMotion, or SoftMotion CNC+Robotics
- Up to 16, 32 or 64 axes
- Communication protocols available: EtherCAT, ModbusTCP/RTU, OPC UA, Ethernet/IP
- Integrated incremental/absolute encoder interfaces, high-speed digital inputs and outputs and serial ports

CODESYS
CODESYS, the leading software platform for industrial automation project engineering. It combines standard IEC61131-3 PLC programming with the capabilities of a professional development and commissioning software for automation devices. The entire application can be configured, programmed, tested, and operated in a single user interface, including typical engineering tasks, such as:

- Standardized programming, in accordance with IEC61131-3 and PLCOpen standards
- Configuration of different fieldbus systems
- Planning and execution of complex applications for motion control, including E-CAMs and speed synchronization
- Planning and execution of CNC and robotics applications
- Integrated commissioning tools like digital oscilloscope, data monitoring, breakpoints, diagnostics and online changes

With the integration of CODESYS, users are able to develop libraries easily, function blocks and software tools with all Delta products including servo drives, AC motor drives and vision systems for specific applications. Furthermore, hardware is no longer the boundary as the CODESYS platform allows users to keep the same project and migrate among different devices.

2.16 NEW – New firmware 1.08 for AS200 and AS300 Series PLC is released

The modified and added functions are described as below. All the issues below can be fixed by upgrading firmware to V.1.07.20 or above (no tools are required.). Contact Delta for a firmware upgrade for AS series.

A. Possible issues and solutions:

No.	Functions / Instructions	Descriptions	Remarks
1	PWD	When using the measurement unit 1µs (S_2 code 0 or 4) in detecting pulse width, it is possible to treat the detected maximum value as its detected pulse width result.	
2	DDRVI	When selecting an odd number output point, such as Y0.1 or Y0.3, and if the target frequency is too low, it may not be able to complete the task of ramp-up or ramp-down and that may lead to no outputting.	
3	Arc Interpolation & Circle Drawing	After the outputting positioning is complete, it is possible to have one pulse position error.	
4	CANRS	When executing in the receiving mode, the CANopen DS301 communication may run incorrectly.	
5	MSEND	It is possible that emails cannot be sent correctly.	
6	SD card	Sometimes it cannot detect the SD card even when it is actually inserted in the SD slot.	
7	Data Exchange Setup	If the mode for Data Exchange Setup-COM1 or COM2 is set to the followings in HWCONFIG, it is possible to cause the AS Series to crash. • Set the starting mode to "Always Enable" • Set the starting mode to "Detect" • Data length of read and write are set to 0.	
8	Positioning output instruction	The acceleration/deceleration time is set as a fixed slop but if you change the target speed, the set acceleration/deceleration time will be different from what you have set.	
9		If you set the odd number axis (e.g. Y0.1, Y0.3) to output, the acceleration/deceleration time may be incorrect.	
10	CSFO	• If you change the proportion of the input / output frequency in the on-line mode, the output may be incorrect. • The output continues even after reaching the positive and negative limits.	
11	Extension Module Communication	If the setting of the Delay Time to Sending for COM1/2 Port Setting is set over 1000 ms in HWCONFIG, AS Series PLC may misjudge and cause the extension module communication to stop.	

12	DA Output Setting	When outputting in the floating-point format, if the set value exceeding the upper/lower limits, it should use the maximum setting value to output, instead of using the set value to output.	Connected with DA or XA modules
13	Remote Communication	If the connection to SCM (RTU mode) is lost, the re-connection may fail.	
14	Ethernet/IP Communication	When in Scanner mode, the timeout setting for RPI (Requested Packet Interval) is invalid.	
15		Incompatible issue may occur when connecting to Omron devices via Ethernet/IP communication.	
16	Ethernet Communication	If the transmission loading is too high, the Ethernet communication may lost from time to time.	
17	CNT, DCNT	CNT/DCNT, the instruction can only be used once in a function block. Using more than once can cause an error to occur.	
18	CSFOC	When using CSFOC instruction to control Delta ASDA-A3/B3 servo system, the response may delay.	

B. **New instructions and functions**
The following instructions and functions work with ISPSoft V3.09 or later.

No.	API No.	Functions / Instructions	Descriptions	Reference
1	2817	DTQC	New instructions to control torque for Delta Special Driver & CANopen DS301 communication mode.	Attachment 1
2	2818	DTQLC		
3	1227	ZSET	Use this instruction to set all the bits in the section.	--
4	1106 ~ 1108	SFPO, SFDEL, SFINS	New instructions for strings	Attachment 1
5	1102 ~ 1108	DWSFR ~ DSFINS	New 32-bit instructions	--
6	1014	DHSCY	New output instruction: using cyclically incremented method and comparing table to output	Attachment 1
7	1015	PPDT	Time detection of phase difference for two-phrase inputs	Attachment 1
8	1226	DTM	New conversions K18→ convert string to floating point K19→ convert floating point to string K46→ calculate the output acceleration / deceleration time for positioning instruction	--
9	--	Analog input	New 4-20 mA mode added for built-in AD points of AS218 Series PLC	--
10	0600	REF	Added a new function to update the data exchange table via CANopen DS301 communication. Other than updating after one scan cycle is complete, you can use time interrupt to update.	Note B-10
11	2800	INITC	Added a new function to appoint one single-axis to activate Delta Special Driver mode.	Note B-11
12	--	Initialize values in the symbol table	Use this function to download the initial values to PLC and you can activate the function to initialize values in the symbol table whenever the PLC switches from Stop to Run.	--

13	1402 ~ 1417	Module instruction	New instructions for extension modules including temperature and load cell modules.	Attachment 1
14	2200	SOPEN	Added new communication modes 2 and 3 in S_3 which are very useful when you need to know the receiving data length.	Attachment 1
15	--	Backup and restore functions	New function for Delta device parameters backup and restore	Attachment 2

Note B-10:

Value in n	D device	Execution of REF instruction
n = -1	Input point X	Refresh the data in the mapping area DS301 TxPDO (Master <= Slave) immediately
n = -1	Output point Y	Refresh the data in the mapping area DS301 RxPDO (Master => Slave) immediately.

Execute this function will not affect the update cycle of the PDO data exchange. It is suggested to use this function when the PLC scan cycle time is larger than the update cycle of the PDO data exchange.

Note B-11:

When the flag SM1686 is set to ON, the axis appointed by INITC instruction is the output axis. This function allows you select one individual axis to output for better management.

You can find the attachments 1 & 2 on our ftp-site.

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

No.	Functions / Instructions	Descriptions	Remarks
1	High-speed output	Added SR30/SR31 (32-bit) to show the error step; an error occurs when the same output point is being used more than once at the same time.	
2	Modbus communication	Increased the coil length to read and write for communication codes 0x01, 0x02, 0x0F from 256 to 1600.	
3	Restore to defaults	Included the data of CANopen DS301 data exchange to be restored back to default vales.	
4	COPRW	The setting of Remote and CANopen communication timeout was fixed to 1 second in the previous version. Now you can set the time for Remote and CANopen communication time out in HWCONFIG.	Note C-4
5	CSFO	When reaching the positive/negative limit, the output can continue in the opposite direction; you don't need to stop the instruction to start outputting.	Note C-5
6	TPO	Now you can use the stop flag to stop the output in the Single-axis multi-segment motion output.	

Note C-4: Example of setting the timeout for Remote and CANopen communication in COPRW instruction.

Note C-5:

When reaching the positive limit, the output cannot go any further in the positive direction.
However you can input an opposite signal to have the output go in the negative direction.
The same rule applies to the case of reaching the negative limit.

Series	Models	Firmware Version	Release Date
AS	AS200 Series PLC AS300 Series PLC	V1.06→ V1.08	20200518 (W2021)

2.17 NEW – Machine Vision Products

Delta's Newest Machine Vision Products, Stand alone DMV3000G controller based on GigE, PC based machine vision software DIAVision and industrial cameras.

Note: VGR= Vision-Guided Robot

3   Application

3.1   NEW – Application Notes

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

- DIACloud Large Data Traffic.pdf

- Fluid Industry Notification - Air Conditioning Water Side Intelligent Diagnosis and Energy Saving System.pdf

- Fluid Industry Notification - Delta Variable-Frequency High-Speed Speed Blower Solution.pdf

- Packaging Industry Notification - Hydrocolloid Bandage Production Line Solution.pdf

- Robot Industry Notification - Delta MS Series Robot Controller Parallel Robot Cooperation Applications.pdf

- Tunnel Industry Notification - Delta Tunnel Redundancy Control System Solution V2003-09001.pdf

- Robot Industry Notification - Application of Delta IA Products In Automatic Screwing Machine.pdf

- Packaging Industry Notification - Automatic N95 Face Mask Machine Solution.pdf

- Packaging Industry Notification - Cellophane Packaging Machine Solution.pdf

- Petrochemical Industry Notification - Oil Gas Gathering and Transferring Monitoring System Solution.pdf

4   FAQ

4.1   VFD Series AC Motor Drives

General VFD

Q   **Pr00-22=0 Coast to Stop. Why do we get ovD error?**

A   *Coasting happens only when the drives receives a STOP command.*
If the load has high inertia and you give a frequency command lower than the actual frequency then it does not matter that the drive is set to coast. The drive will still follow the programmed deceleration ramp to get to the new frequency command and if the regenerated energy is too big then it will trip on ovD.

MS300

Q   **Can KPMS-LE01 be replaced by KPE-LE02?**
(cabinet doors already prepared for KPE-LE02)

A   *KPMS-LE01 and KPE-LE02 have different dimensions.*
The pin-out is the same.
But KPMS-LE01 has 5 digits, whereas KPE-LE02 has 4 digits.
So they cannot be interchanged.

C200

Q   **What does fault cd3.1 mean?**

A   *The C200 user manual only mentions cd1, cd2 and cd3.*
But in reality the display shows cd3.1(=cd1), cd3.2(=cd2) and cd3.3(=cd3).

33	c d 1	Fault cd1 Ias sensor err	U-phase error **Corrective Actions:** Re-power on to try it. If fault code is still displayed on the keypad, please return to the factory.
34	c d 2	Fault cd2 Ibs sensor err	V-phase error **Corrective Actions:** Re-power on to try it. If fault code is still displayed on the keypad, please return to the factory.
35	c d 3	Fault cd3 Ics sensor err	W-phase error **Corrective Actions:** Re-power on to try it. If fault code is still displayed on the keypad, please return to the factory.