

DELTA Newsletter

Industrial Automation Products

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Content

1	News	1
1.1	FTP-Site Link & Update	1
2	Product update	2
2.1	NEW – 200 W and 150 W PMT2 Series Low Profile Power Supply	2
2.2	UPDATE – Firmware of MS300 upgraded from V1.09 to V2.00.....	2
2.3	UPDATE – Firmware of ME300 upgraded from V1.02 to V2.00.....	6
2.4	UPDATE – Firmware of VFD-EL upgraded from V1.16 to V1.17.....	7
2.5	UPDATE – Firmware of MH300-L upgraded from V1.01 to V1.02	8
2.6	UPDATE – Firmware of VFD-DD upgraded from V2.31 to V2.32.....	12
2.7	UPDATE – CPU of DVP-SS2 is updated	12
2.8	UPDATE – CPU of DVP-SE is updated	17
2.9	UPDATE – The firmware of IFD9506 and DVP RTU-EN01 is updated	24
2.10	NEW – DOP-103SQ release	25
2.11	UPDATE – DIN Rail LYTE II 120W and 240W series Product Change.....	27
2.12	UPDATE – DIASelector version 1.1.1 is released	28
2.13	UPDATE – DCISoft is updated to V1.24	29
2.14	NEW – Power meters DPM-C530E, DPM-MA1121 and DPM-MA3222	31
3	Application	34
3.1	NEW – More technical videos are available on YouTube Channel.....	34
3.2	NEW – Advanced Training Schedule	35
4	FAQ	36
4.1	AC Motor Drives.....	36



1 News

1.1 FTP-Site Link & Update

Our FTP server provides product information that is not available in Delta's Download Center on the global website, e.g. datasheets, technical notes, presentations, software, etc. You can visit our FTP site with below account info.

Host: ftp2.delta-europe.com/deltronics-eindhoven/customer-service/
 Username: den-eindhoven
 Password: BuPd2175

- NOTE** After migration of the ftp-server, from now on it is only possible to access our FTP via TCP port 22/23. Therefore, please use common FTP clients such as FileZilla or Total Commander. Access with standard web browsers, like Edge, Chrome, Opera, etc. is not possible anymore.

Delta Electronics (Netherlands) B.V., De Witbogt 20, 5652 AG Eindhoven, The Netherlands

+31 (0)40 8003800

+31 (0)40 8003898 and 99

2 Product update

2.1 NEW – 200 W and 150 W PMT2 Series Low Profile Power Supply

Delta has expanded the PMT2 Series low profile power supply by adding the 200 W (AC input selectable by switch) and 150 W (90 – 264 Vac universal input range) models.

The 200 W models are 62% smaller than its predecessor at a slim footprint of 159 x 97 x 30 mm. These models has a selectable AC input switch and offer single outputs of 12 V, 24 V, 36 V, and 48 V. The 150 W models are the same dimensions as the 200 W models (29% smaller than the previous generation) and offer single outputs of 12 V, 15 V, 24 V, 30 V, 36 V and 48 V.

Like the other models of the PMT2 Series, the 200 W and 150 W models are designed to be competitively priced with a low profile of ≤ 30 mm height. Both models can operate within a wide temperature range from -30°C to $+70^{\circ}\text{C}$ and full power up to $+50^{\circ}\text{C}$. They also have a low no-load power consumption of less than 0.3 W (150 W) and 0.5 W (200 W) respectively and low leakage current < 0.5 mA.

Certified with IEC/EN/BS EN 60335-1 & IEC/EN/BS EN 61558-2-16 for household appliances safety, IEC 60950-1 & IEC/EN/BS EN/UL 62368-1 for information and communication technology equipment, and EMI standard EN55032, Class B, the PMT2 Series is suitable for household appliances and industrial automation equipment requiring 1U low profile power supplies.

Highlights and Features:

- Household appliance approvals including IEC/BS EN/EN 60335-1, IEC/BS EN/EN 61558-1 and IEC/BS EN/EN 61558-2-16
- Low no-load power consumption: < 0.3 W (150 W models) / < 0.5 W (200 W models)
- Low profile design: 30 mm height
- OVC III, Pollution Degree 3
- Wide operating temp.: -30°C $\sim 70^{\circ}\text{C}$ (supports -40°C cold start)
- Conforms to harmonic current IEC/BS EN/EN 61000-3-2, Class A
- High MTBF $> 700,000$ hrs per Telcordia SR-332

2.2 UPDATE – Firmware of MS300 upgraded from V1.09 to V2.00

See announcement [116A-FE-MSx-21506-E-01-01The firmware update V2.00 from V1.09.pdf](#) on our ftp-site in the folder: Customer-Service\Industrial Automation Products\Drive & Power Quality\M300 Series\MS300\Firmware\Firmware Release Announcement

The control boards used in the new version are slightly different which means it is not possible to burn a V1.xx firmware file into a V2.xx drive or vice-versa.

Before any firmware update is attempted, users have to check the hardware version of the drive and then use the correct corresponding firmware file.

The hardware version can be checked by setting pr00-04=45 and then reading it out from the home screen of the drive keypad. Depending on the hardware version, the following combinations are possible:

Label Firmware Version (Factory default)	Content of Multi-function Display 00-04=45	Available with firmware version	FW Date code
V1.0x	0	V1.01~V1.09	20043
V2.0x	101	V2.0 or later	21215
V2.0x	102	V2.0x or later	21215
V2.0x	201	V2.0x or later	21215

You can find the latest update software and update instructions on our ftp-site in the folder: Customer-Service\Industrial Automation Products\Drive & Power Quality\M300 Series\MS300\Firmware\Update Tools & Instructions

Corrections:

Version 1.09 problem	Version V2.00
Using rotation auto-tuning and the expected rotation frequency is higher than the maximum operating frequency (Pr.01-00), the operation will be restricted and the rotation program cannot be ended.	Using rotation auto-tuning and the expected rotation frequency is higher than the maximum operating frequency (Pr.01-00) is normal.
When using the built-in PLC program,"Counter" is used with Reset, the RST command is abnormal.	When using the built-in PLC program,"Counter" is used with Reset, the RST command is normal.
EtherNET/IP communication card implicit messaging reading item, user read Addr_20xxh, 60xxh, the value read is 0.	EtherNET/IP communication card implicit messaging reading item, user can set to read Addr_20xxh, 60xxh content normally.
Set and read the AO value by communication address, the current AO output value cannot be read through Addr_268xh.	Set and read the AO value by communication address, the current AO output value can be read through Addr_268xh.
In torque mode, if torque command gain value (Pr.11-27) is used to increase torque command level, torque command will exceed 100%, which will cause the torque command to be memorized when the power is off (Pr.11-34) If the upper limit is exceeded, cF2 will occur after power on.	Torque command (Pr.11-34) is divided by the torque command gain value (Pr.11-27) during power-off memory, and then stored. After power-off and power on, cF2 will not occur.
The low current detection function (Pr.06-71~73) does not consider the Standby state.	The low current detection function (Pr.06-71~73) does consider the Standby state.
For PMSVC, turn on the function of restart after instantaneous power failure (Pr.07-06). When the EF is triggered and cleared, it will restart after instantaneous power off.	For PMSVC, turn on the instantaneous power failure restart function (Pr.07-06). When the EF is triggered and cleared, the drive will no longer run.
When abnormal restart action set 1 or 2 (Pr.07-10), there is no output when restarting.	When abnormal restart action set 1 or 2 (Pr.07-10),output normal.

Modifications:

1. Orp protection module optimization
2. FOC speed tracking optimization.
3. GFF OC retry mechanism optimization.
4. PMSVC control algorithm optimization.
5. When the PID function is turned on, JOG has the highest priority.
6. The calculation of output power and output torque optimization.
7. Set frequency command source (AUTO, REMOTE) (Pr.00-20), operation command source setting (AUTO, REMOTE) (Pr.00-21), and frequency command source setting (HAND, LOCAL) (Pr.00-30) and operation command source setting (HAND, LOCAL) (Pr.00-31) change the attribute to cannot be set during operation.

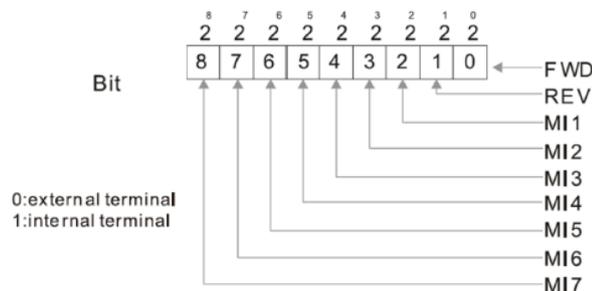
8. PLC multi-speed operation function optimization (check release announcement for the detailed description)
9. PLC swing frequency function optimization (check release announcement for the detailed description)

New functions:

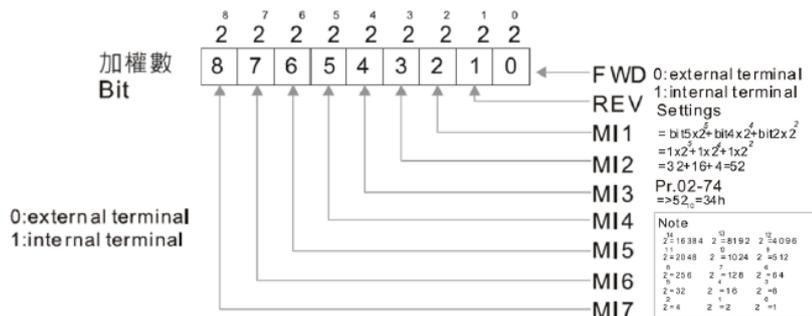
1. Added parameters 02-74, 02-75: virtual terminal function

Pr.	Name	Setting range	Present	Add	Default
02-74	Internal / External Multi-function Input Terminal Selection	0000 ~ FFFFh		V	0000h

- Selects the terminals MI1–MI15 to be internal terminals or external terminals. When the MIx is set as internal terminal, the corresponding external terminal function is disabled.
- To activate internal terminals via Pr.02-75 setting.



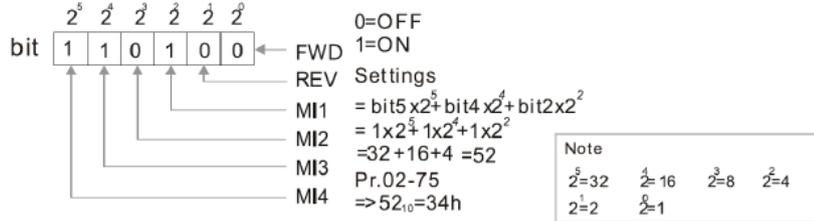
Setting method: convert the binary 12bit number to hexadecimal number for input.
 Example: if the MI1, MI3, MI4 are virtual terminals, Pr.02-74=34h.



Pr.	Name	Setting range	Present	Add	Default
02-75	Internal Multi-function Output Terminal Selection	0000 ~ FFFFh		V	0000h

- The Local / Remote options on the digital keypad have the lowest priority.
- Pr.02-74 and Pr.02-75 can both be changed during RUN.
- Pr.02-74 and Pr.02-75 are saved after power off.
- You can choose N.O. (Pr.02-12 bit = 0) or N.C. (Pr.02-12 bit = 1) through the Pr.02-12 MI mode to trigger the virtual terminals.
- When the PLC uses the entity DI, the corresponded function of original DI can still be triggered through virtual terminals.

Example: Set Pr.02-75=34h to activate MI1, MI3 and MI4.



2. Added parameter 05-51: Motor Code

When using Delta MSI motor, user can use this parameter to input the corresponding setting value to perform the best motor capability.

Pr.	Name	Setting range	Present	Add	Default
05-51	Mode Code	0 ~ 65535		V	0000h

MSI Specification			Drive value
Model Name	Power (kW)	Machine base (mm)	05-51
			Motor code (User setting)
MSI75B-30CDXS2□1A	0.75	80	1204
MSI11C-30CDXS2□1A	1.1	80	1205
MSI15C-30CDXS2□1A	1.5	80	1206
MSI22C-30CDXS2□1A	2.2	80	1207
MSI30C-30CDXS2□1A	3	90	1208
MSI40C-30CDXS2□1A	4	90	1210
MSI55C-30CDXS2□1A	5.5	100	1211
MSI75C-30CDXS2□1A	7.5	100	1212
MSI11D-30CDXS2□1A	11	112	1213
MSI15D-30CDXS2□1A	15	112	1214
MSI18D-30CDXS2□1A	18.5	132	1215
MSI22D-30CDXS2□1A	22	132	1216

3. Add PLC Instruction

WPRA

When using the WPR instruction, if it is frequently written, there is a risk that the EEPROM will be written badly, which will cause cF2 error and permanently damage. Therefore, if parameters need to be written frequently, WPRA instruction must be used instead of the WPR instruction

FLT

BIN integer → single-precision floating-point number conversion

INT

Single-precision floating-point number → BIN integer conversion

OVRW

Communication address overwrite value, use this command to overwrite the defined value of communication address (RW attribute is valid)

4. Added PLC upload prohibition function

The function is activated by WPLsoft or ISPsoft to protect the program from being uploaded by others.

- 📖 After starting, PLC mode=Enable, the program cannot be uploaded by WPLsoft or ISPsoft.
- 📖 After startup, PLC mode=Disable, the program cannot be uploaded from the Keypad.
- 📖 PLC mode=Enable, it is cancelled by WPLsoft or ISPsoft operation to restore the factory state.
- 📖 PLC mode=Disable, by Pr00-02=6, the operation to restore the factory state is cancelled.
- 📖 PLC mode=Disable, Keypad Copy PLC=KPD Write to PLC, let the PLC return to the state of "no" prohibiting upload function.

Release:

Firmware Version	Switching Period	
V2.00	Taoyuan	TBD
V2.00	Wujiang	W2123

2.3 UPDATE – Firmware of ME300 upgraded from V1.02 to V2.00

See announcement [116A-FE-MEx-21921-E-01-01 Firmware Update V2_00 from V1_02.pdf](#) on our ftp-site in the folder: Customer-Service\Industrial Automation Products\Drive & Power Quality\M300 Series\ME300\Firmware\Firmware Release Announcement

The control boards are slightly different which means it is not possible to burn a V1.xx firmware file into a V2.xx drive or vice-versa.

Before any firmware update is attempted users have to check the hardware version of the drive and then use the corresponding firmware file.

Corrections:

Version 1.02 problem	Version 2.00
When connecting to CC01, have to set the COM1 communication transmission speed (Pr.09-01) and COM1 communication format (Pr.09-04).	When connecting to CC01, it will automatically search for COM1 communication transmission speed (Pr.09-01) and COM1 communication format (Pr.09-04), complete the connection.
The decimal point of the user-defined (Pr.00-25) is displayed abnormally.	The decimal point of the user-defined (Pr.00-25) is displayed normally.
The multi-function input terminal uses preheating function to automatically start (MIx=69) and cannot be set.	The multi-function input terminal uses preheating function to automatically start (MIx=69) and can be set normally.
Use the control mode as PMSVC and turn on the function of restart after instantaneous power failure (Pr.07-06). When the EF is triggered and reset, it will restart after instantaneous power failure.	Use the control mode as PMSVC and turn on the instantaneous power failure restart function (Pr.07-06). When the EF is triggered and reset, the drive will no longer run.

Modifications:

1. CC01 connection speed optimization.
2. Change RPWM range (Pr.00-34) default value to 0.

3. STO trigger time optimization.
4. Orp protection module optimization.
5. PMSVC control algorithm optimization.
6. Anti-sway mechanism of crane optimization.
7. RS485 disconnection timeout mechanism optimization.

New functions:

Added parameters 00-28 : Switching from AUTO Mode to HAND Mode

Pr.	Name	Setting range	Present	Add	Default
00-28	Switching from AUTO Mode to HAND Mode	bit0: Sleep function control bit 0: Cancel sleep function 1: Sleep function and AUTO mode are the same bit1: Control bit unit 0: Displaying unit in Hz 1: Same unit as the AUTO mode bit2: PID Feedback Signal Error Detection 0: Disable 1: Enable bit3: Frequency source control bit 0: Frequency source set up by parameter, if the multi-step speed is activated, then multi-step speed has the priority. 1: Frequency command set up by Pr.00-30, regardless of whether the multi-step speed is activated.		V	0

Release:

Firmware Version	Switching Period	
V2.00	Taoyuan	TBD
V2.00	Wujiang	TBD

2.4 UPDATE – Firmware of VFD-EL upgraded from V1.16 to V1.17

See announcement [VFD-EL firmware version V1.17 released.pdf](#) on our ftp-site in the folder: Customer-Service\Industrial Automation Products\Drive & Power Quality\VFD-E & -EL\VFD-EL\Firmware\Firmware Release Announcements

Corrections:

Optimized GFF (Ground Fault) protection rules.

Release:

Firmware Version	Switching Period	
V1.17	Taoyuan	T2117
V1.17	Wujiang	W2113
V1.17	Hosur	H2115

2.5 UPDATE – Firmware of MH300-L upgraded from V1.01 to V1.02

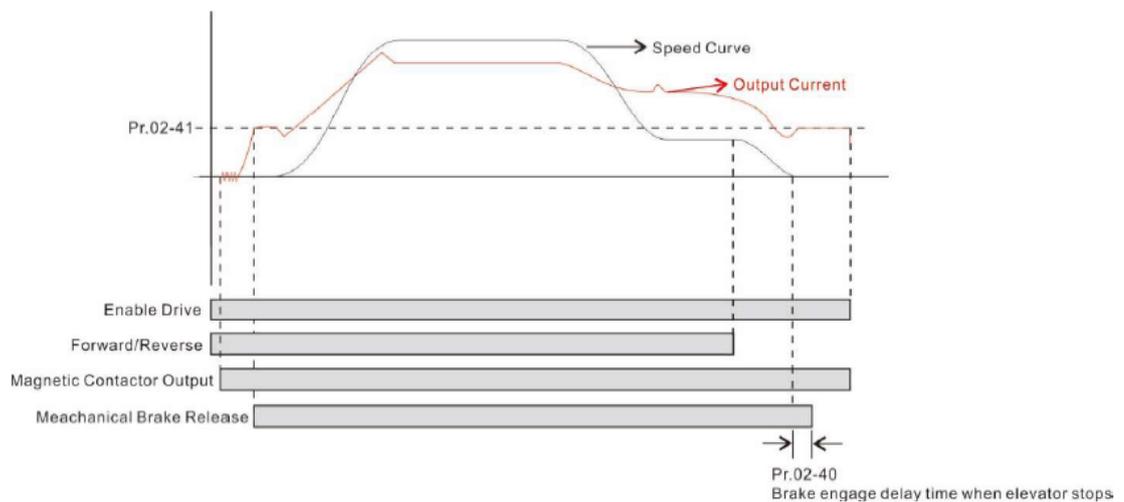
See announcement [116A-FE-VFD-MH300-L-21618-E-01-01 MH300-L firmware v1_01 update v1_02.pdf](#) on our ftp-site in the folder: Customer-Service\Industrial Automation Products\Drive & Power Quality\M300 Series\MH300-L\Firmware\Firmware Release Announcement

Modifications:

- Rollback solution:

✓	02-42 Brake Release Function Option	Default: 0000h
Settings	Bit 0 = 0: No function Bit 0 = 1: Check torque output function switch Bit 1 = 0: No function Bit 1 = 1: Brake control by frequency threshold function switch	

Bit 0: When the drive receives the operation signal, the drive checks if there is a torque output. When enabled, the drive releases mechanical brake after confirming that there is torque output.

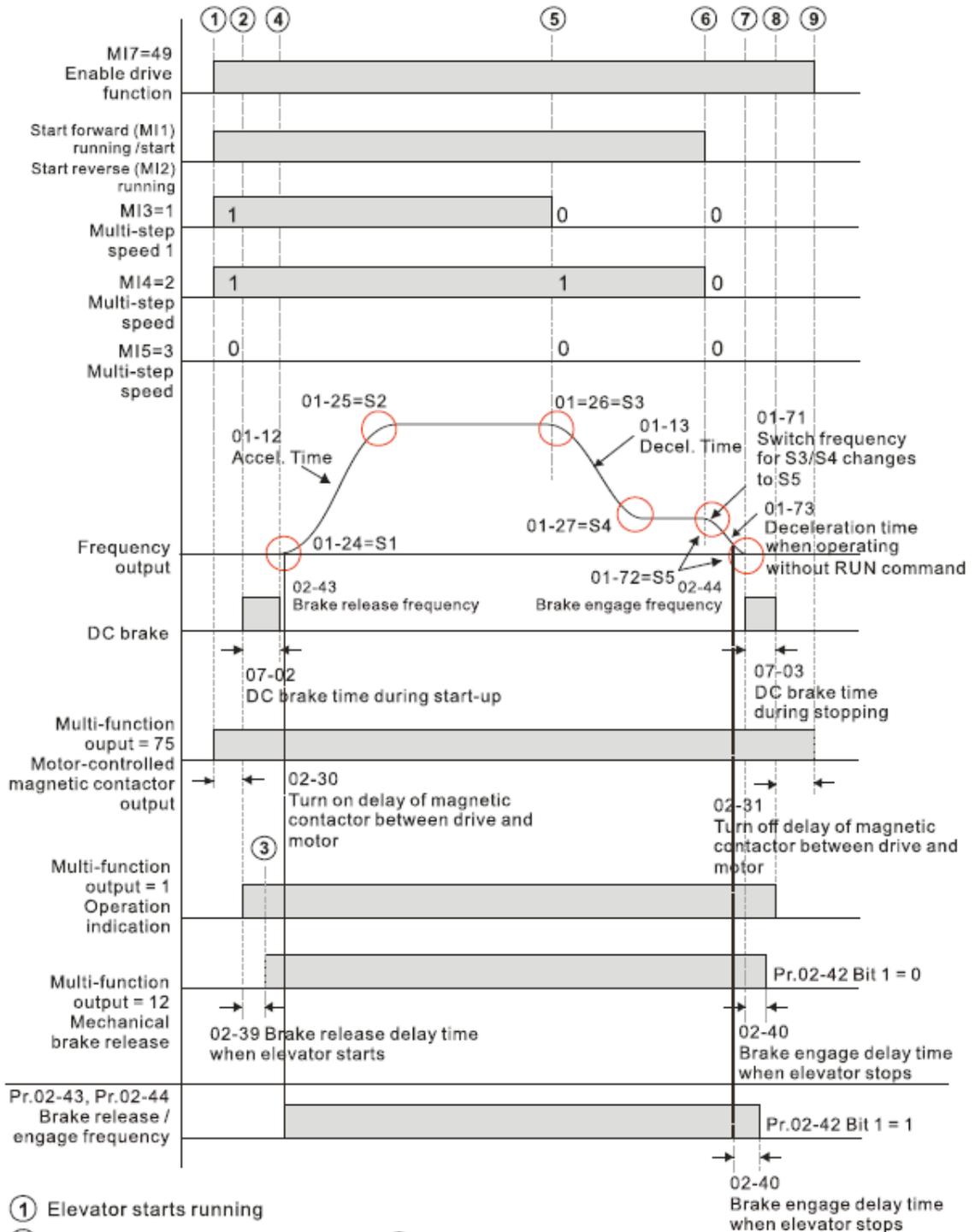


Sequence Diagram

Bit 1: See the elevator timing diagram on page 12-02-15.

Roll-back solution:

- Set contactor delay and DC brake (Pr.07-01 and Pr.07-03) constant time during stop.
- Set Pr.02-42 Bit 1=1.
- Set frequencies for brake release and brake engage (Pr.02-43 and Pr.02-44) to solve roll-back issue.



Elevator Timing Diagram

2. EPS Solution:

02-83 Initial Frequency Command (F) Setting after Stop

Default: 5.00

Settings 0.00–599.0 Hz

-  Sets the elevator's running speed when using Emergency Power Supply (EPS).
-  When elevator uses EPS, it runs at Pr.02-83, and the maximum running speed should not be larger than Pr.06-81 (Emergency Power Speed in Operation). If you set Pr.02-83 to be larger than Pr.06-81, the elevator runs at Pr.06-81 setting value.

06-81 Emergency Power Speed in Operation

Default: Read only

Settings 0.00–599.0 Hz

-  Sets the elevator's running speed when using Emergency Power Supply (EPS).
-  You can set the elevator's running speed during EPS by using Pr.02-83, but the running speed should not be larger than Pr.06-81 setting value.
-  When using EPS as an emergency power system, you must enter the power capacity of emergency power. When using emergency power, the drive calculates elevators' running speed according to the calculation formula below.

$$V_{eps_max} = \frac{06 - 82 \times 0.5}{\sqrt{3} \times I_{motor_rated}}$$

$$f_{eps_limit} = \frac{V_{eps_max}}{01 - 02} \times 01 - 01 \times 0.5$$

$$I_{motor_rated} = 05 - 01 \text{ (Induction Motor)}$$

When Frequency command > fEPS, the running speed of EPS emergency power: fEPS.

When Frequency command ≤ fEPS, the running speed of EPS emergency power: runs according to the current Frequency command.

New functions:

1. Rollback Solution:

02-43 Brake Release Frequency

Default: 0.00

Settings 0.00–10.00 Hz

-  Use this function with Pr.02-42 Bit 1 =1.

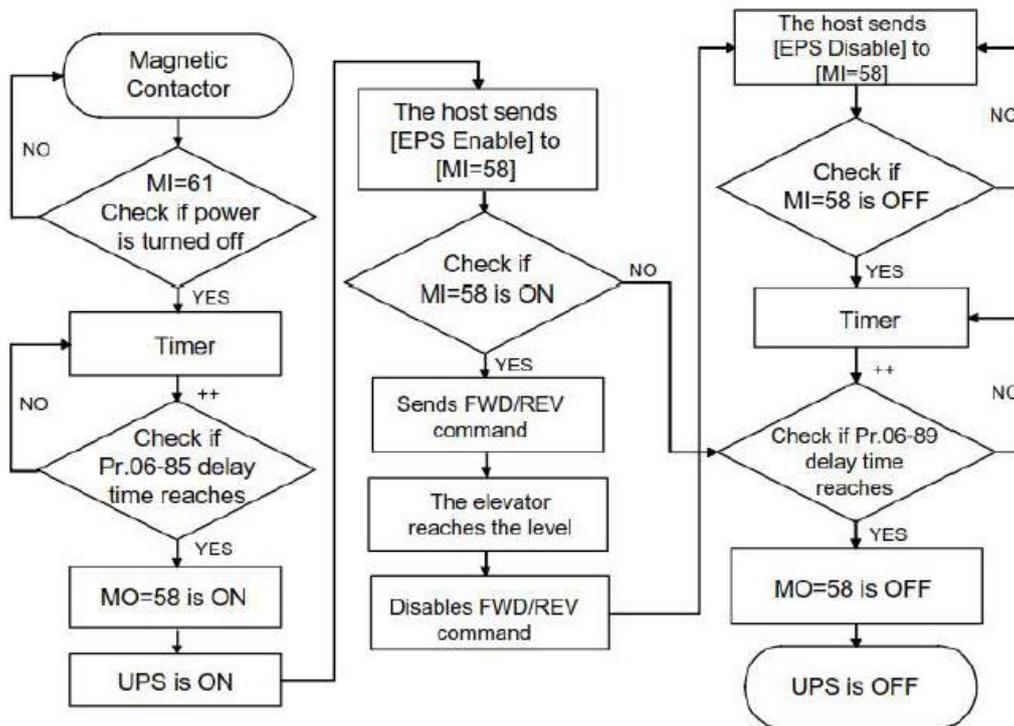
02-44 Brake Engage Frequency

Default: 0.00

Settings 0.00–10.00 Hz

-  Use this function with Pr.02-42 Bit 1 =1.

2. EPS Solution - New block diagram for Pr06-89:



3. New input function:

Settings	Functions	Descriptions
62	Mechanical brake error detection 2	When the drive receives RUN command after Pr.02-39 release time, it switches its corresponding multi-function output terminal (setting value = 12) to ON. Then the drive begins to confirm whether the contact for this parameter setting receives brake's normal signal (closed) according to Pr.02-33 mechanical brake detection time. If the drive does not close within Pr.02-33 release time, it means that mechanical brake is abnormal, and the drive displays error code 71 (MBF2).

4. New error code:

ID No.	Display	Descriptions
71	MBF2	<p>Mechanical brake error 2</p> <p>Corrective Actions</p> <ul style="list-style-type: none"> ■ Check if the mechanical brake signal is correct. ■ Check if the detection time setting of mechanical brake (Pr.02-33) is correct.

Release:

Firmware Version		*Estimated Switching Period
v1.02	Wujiang	W2136

2.6 UPDATE – Firmware of VFD-DD upgraded from V2.31 to V2.32

See announcement [VFD-DD firmware v2.31 update to v2.32.pdf](#) on our ftp-site in the folder: Customer-Service\Industrial Automation Products\Drive & Power Quality\VFD-DD\Firmware\Firmware Release Announcements

Corrections:

No.	V2.31 problems	V2.32
1	Fix the problem that CF2 errors will occur after using the door width auto-tuning function under open loop control (SVC、VF and VFPG) and then power on again. This error will cause all parameters to return to factory default values.	Fixed

Release:

Firmware Version	*Estimated Switching Period	
V2.32	Taoyuan	T2137
V2.32	Wujiang	W2137

2.7 UPDATE – CPU of DVP-SS2 is updated

Series	Models ^{#1}	The Latest Firmware Version ^{#2}		Release Date
		Old MCU	New MCU	
DVP SS2	DVPxxSS211T DVPxxSS211R	V3.60 => V3.63	V4.00	2021.08.18 (W2134)

Note:

#1: The “xx” used in the model name indicates the number of the built-in points in the model and there are various types of the built-in point number for this series, including 12, 14, and 28 points.

#2: Given the severe shortage of MCU globally, the supply of the original MCU is unstable. To ensure a solid supply, new MCU is now included in the new manufactured SS2 PLC CPU. SS2 PLC CPU with firmware version 4.00 or later are equipped with new MCU, while SS2 PLC with firmware version 3.63 or previous versions are built with old MCU. Whether with old or new MCU, they have almost exactly the same features and functions. No need to worry about the compatibility issues. **Please note the firmware of CPU with new and old MCUs are not interchangeable.**

Corrections:

No.	Functions / Instructions	Descriptions
1	DCNT (A/B phase counter using one time frequency input)	During the execution of DCNT instruction, if A/B phase counter uses one time frequency input and Z phase signal to clear the counted value to zero, the retainable values and the absolute position of Z phase may be offset after turning the CPU power on and then off for a dozen of times.

New instructions and functions:

The following instructions and functions should work with ISPSOft V3.13 or later versions.

No.	API No.	Functions / Instructions	Descriptions	Reference
1	343	\$MOV	Strings is editable in the instruction.	Att. B-1
2	88	PID	A new mode 9 is added for PID instruction. If the MV exceeds the upper/lower limits, I_MV calculates according to KI and does not accumulate the integral calculus.	
3		Postpone the act to save the PLC program to the latched area	Added a new flag M1166: When in online mode to execute PLC update, you can set the flag M1166 to ON, the act to save the PLC program to the latched area will be postponed to avoid the execution of interrupts cannot be performed accordingly. When the flag M1166 is switched from ON to OFF, the PLC program will be saved to the latched area automatically if the online update had been executed.	

Modified instructions and functions:

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

No.	Functions / Instructions	Descriptions	Remarks
1	Filtering time (D1020)	If the value is set less than 0, the CPU corrects to 0 automatically.	

API	Mnemonic		Operands		Function	Controllers			
						ES2 EX2	SS2	SA2 SE	SX2
343	\$MOV	P	(S)	(D)	Transferring a string				

OP	Type	Bit Devices				Word devices										Program Steps	
		X	Y	M	S	K	H	KnX	KnY	KnM	KnS	T	C	D	E		F
S												*	*	*			\$MOV, \$MOV P: 5~12 steps
D												*	*	*			

PULSE				16-bit				32-bit
ES2 EX2	SS2	SA2 SE	SX2	ES2 EX2	SS2	SA2 SE	SX2	-

Operands

S : Data source

D : Data destination

Explanation

1. This instruction is available for ES2/EX2 FW V3.68, 12SA2/SX2 FM V3.02, SS2 FW V4.00 and SE FW V2.02 or later.
2. This instruction can be used in ISPSOft V3.13 or later, but NOT WPLSoft.
3. The data type, strings, e.g. "abcd" can be used in **S**.
4. If strings are used, you can enter maximum 16 characters.
5. This instruction transfers the string in **S** to **D**, and adds the code 16#00 to the end of the string.
6. When the operand **S** is not a string, the instruction adds the code 16#00 to the end of the data transferred. And maximum 256 characters can be used. (The ending code 16#00 is included.)

7. When the ending code 16#00 cannot be found in **S** for 256 characters in a row or even beyond the device range, the instruction is not executed; M1067/M1068 is ON and the error code in D1067 is 16#01AE.
8. When the operand **S** is not a string and the instruction is executed, the string starting with the data in the device specified by **S** (including 16#00) is transferred to **D**. When the instruction is not executed, the data in **D** is unchanged.
9. If **D** is not sufficient to contain the string composed of the values in **S**, the instruction is not executed, M1067/M1068 is ON and the error code in D1067 is 16#01AE.
10. Suppose the operand **S** is not a string. When the instruction is executed and the first character in **S** is the code 16#00, 16#00 is still transferred to **D**.
11. When 16#00 appears in the low byte, the execution of the instruction is as follows.

Before the instruction is executed:

	b15~b8	b7~b0		B15~b8	b7~b0	
S	16#31	16#30		D	16#38	16#39
S+1	16#33	16#32	⇒	D+1	16#36	16#37
S+2	16#35	16#34		D+2	16#34	16#35
S+3	16#30	16#00		D+3	16#32	16#33

After the instruction is executed:

	b15~b8	b7~b0		b15~b8	b7~b0	
S	16#31	16#30		D	16#31	16#30
S+1	16#33	16#32	⇒	D+1	16#33	16#32
S+2	16#35	16#34		D+2	16#35	16#34
S+3	16#30	16#00		D+3	16#00	16#00

↙ 16#30 in the high byte is not transferred. ↙ 16#32 in the high byte turns into 16#00.

12. When 16#00 appears in the high byte, the execution of the instruction is as follows. The transfer stops when the code 16#00, leaving the remainder of **D** unchanged.

Before the instruction is executed:

	b15~b8	b7~b0		b15~b8	b7~b0	
S	16#31	16#30		D	16#38	16#39
S+1	16#33	16#32	⇒	D+1	16#36	16#37
S+2	16#00	16#34		D+2	16#34	16#35
S+3	16#37	16#36		D+3	16#32	16#33

After the instruction is executed:

	b15~b8	b7~b0		b15~b8	b7~b0	
S	16#31	16#30		D	16#31	16#30
S+1	16#33	16#32	⇒	D+1	16#33	16#32
S+2	16#00	16#34		D+2	16#00	16#34
S+3	16#37	16#36		D+3	16#32	16#33

13. When **S** overlaps **D** and the device number of **S** is less than the device number of **D**, the transfer of the data to **D** starts from the ending code 16#00.

Before the instruction is executed:

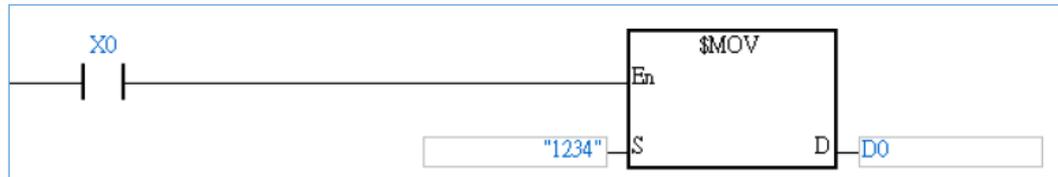
	b15~b8	b7~b0		b15~b8	b7~b0	
D0	16#31	16#30		D1	16#33	16#32
D1	16#33	16#32	⇒	D2	16#35	16#34
D2	16#35	16#34		D3	16#30	16#00
D3	16#30	16#00		D4	16#38	16#37

After the instruction is executed:

	b15~b8	b7~b0		b15~b8	b7~b0	
D0	16#31	16#30		D1	16#31	16#30
D1	16#33	16#32	⇒	D2	16#33	16#32
D2	16#35	16#34		D3	16#35	16#34
D3	16#30	16#00		D4	16#00	16#00

Example 1

Suppose the data in **S** is the string "1234" (even number of bytes). When X0 is enabled, the data 1234 and the ending code 16#00 is transferred to D0–D3 and 16#00 is added to the high byte in **D**, as follows.



The operand **S**:

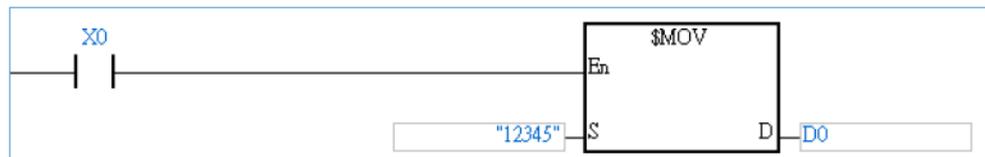
String	'1'	'2'	'3'	'4'
Hexadecimal value	16#31	16#32	16#33	16#34

After the instruction is executed, the data in **D** is as follows.

Device	High byte	Low byte	Note
D0	16#32	16#31	'1'=16#31; '2'=16#32
D1	16#34	16#33	'3'=16#33; '4'=16#34
D2	16#00	16#00	The ending code 16#00 is in the low byte. 16#00 is automatically added in the high byte.
D3	Unchanged	Unchanged	

Example 2

Suppose the data in **S** is the string "12345" (odd number of bytes). When X0 is enabled, the data 12345 is transferred to D0–D3 as follows.



The operand **S**:

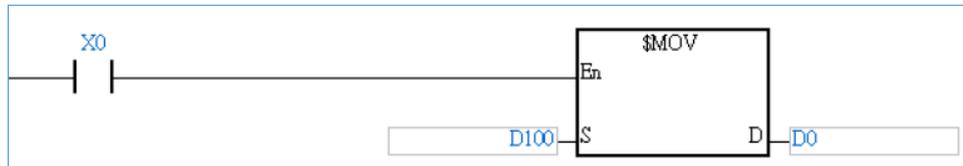
String	'1'	'2'	'3'	'4'	'5'
Hexadecimal value	16#31	16#32	16#33	16#34	16#35

After the instruction is executed, the data in the operand **D** is as follows.

Device	High byte	Low byte	Note
D0	16#32	16#31	'1'=16#31; '2'=16#32
D1	16#34	16#33	'3'=16#33; '4'=16#34
D2	16#00	16#35	The ending code 16#00 is in the high byte.
D3	Unchanged	Unchanged	

Example 3

When the data in **S** is not a string and the ending code 16#00 appears in the low byte, the execution of the instruction is as follows.



The operand **S**:

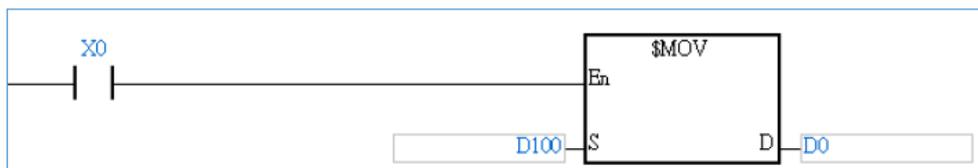
Device	High byte	Low byte	Note
D100	16#31	16#30	'1'=16#31; '0'=16#30
D101	16#33	16#32	'3'=16#33; '2'=16#32
D102	16#35	16#34	'5'=16#35; '4'=16#34
D103	16#30	16#00	'0'=16#30; 16#00 is the ending code.

After the instruction is executed, the data in the operand **D** is as follows.

Device	High byte	Low byte	Note
D0	16#31	16#30	'1'=16#31; '0'=16#30
D1	16#33	16#32	'3'=16#33; '2'=16#32
D2	16#35	16#34	'5'=16#35; '4'=16#34
D3	16#00	16#00	The ending code 16#00 is in the low byte. 16#00 is automatically added in the high byte.
D4	Unchanged	Unchanged	

Example 4

When the data in **S** is not a string and the ending code 16#00 appears in the high byte, the execution of the instruction is as follows.



The operand **S**:

Device	High byte	Low byte	Note
D100	16#31	16#30	'1'=16#31; '0'=16#30
D101	16#33	16#32	'3'=16#33; '2'=16#32
D102	16#00	16#34	16#00 is the ending code. '4'=16#34
D103	16#37	16#36	'7'=16#37; '6'=16#36

After the instruction is executed, the data in the operand **D** is as follows.

Device	High byte	Low byte	Note
D0	16#31	16#30	'1'=16#31; '0'=16#30
D1	16#33	16#32	'3'=16#33; '2'=16#32
D2	16#00	16#34	16#00 is the ending code. '4'=16#34
D3	Unchanged	Unchanged	

2.8 UPDATE – CPU of DVP-SE is updated

Series	Models	The Latest Firmware Version#1		Release Date
		MCU (Manufacturer R)	MCU (Manufacturer S)	
DVP SE	DVP12SE11T DVP12SE11R	V1.94 => V1.95	V2.02	2021.07.19 (W2130)
	DVP26SE11T DVP26SE11R		V1.02 => V2.02	

#1: Given the severe shortage of MCU globally, the supply of the original MCU is unstable. New manufactured DVP-12SE Series CPU is now switched to new MCU of the DVP-26SE to ensure a solid supply. SE Series CPU with firmware version 2.02 or later are equipped with new MCU. For 12SE Series CPU with old MCU, you can only update the firmware to V1.95.

Please note the MCUs from different manufacturers are not interchangeable, so does firmware upgrades of each CPU.

Corrections:

For DVP12SE:

No.	Functions / Instructions	Descriptions
1	Ethernet communication	Fixed an issue that if there is an unknown communication interference, there is a slight chance for the connection to be lost.

For DVP26SE:

No.	Functions / Instructions	Descriptions
1	DCNT (A/B phase counter using one time frequency input)	During the execution of DCNT instruction, if A/B phase counter uses one time frequency input and Z phase signal to clear the counted value to zero, the retainable values and the absolute position of Z phase may be offset after turning the CPU power on and then off for a dozen of times.
2	Ethernet/IP connection	Fixed an issue that if a cyber attack occurs while stopping the Ethernet/IP connection, it is possible that the communication cannot be working properly afterwards.
3	Ethernet communication	Fixed an issue that online monitoring is not functioning in Ethernet communication.
4	Output points	Fixed an issue that after power-on and before the PLC state switches to PLC RUN, the output points Y0 to Y3 can NOT be managed by ISPSOft.

New instructions and functions:

For DVP12SE:

No.	API No.	Functions / Instructions	Descriptions	Applicable firmware version	Ref.
1		Ethernet/IP	Added new communication protocol, Ethernet/IP. It is suggested to use with DVP-SE EDS file V1.04.	V2.02	Att. 1

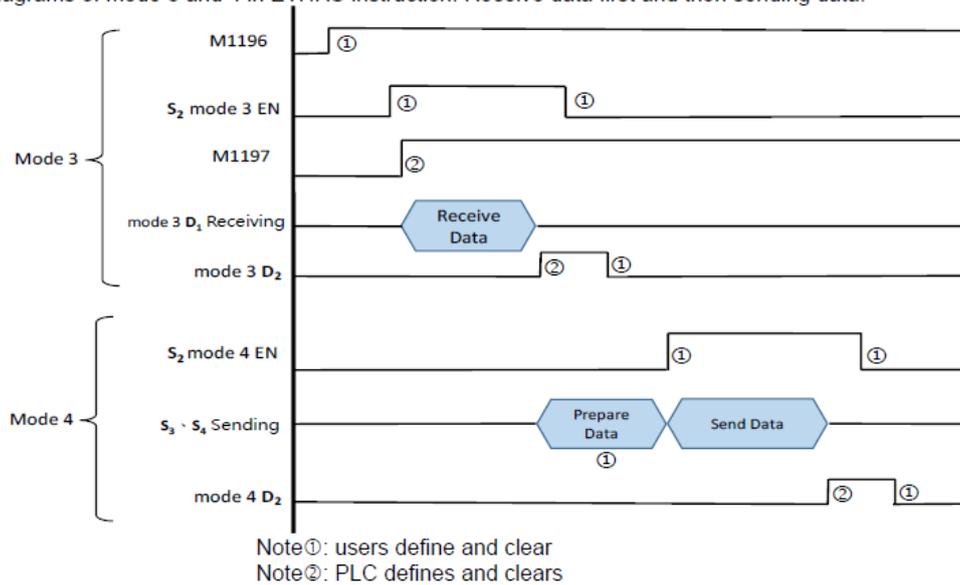
For DVP12SE and DVP26SE:

The following instructions and functions should work with ISPSOft V3.13 or later versions.

No.	API No.	Functions / Instructions	Descriptions	Applicable firmware version	Ref.
1	343	\$MOV	Strings are editable in the instruction.	V2.02	Note B-1
2	88	PID	A new mode 9 is added for PID instruction. If the MV exceeds the upper/lower limits, I_MV calculates according to KI and does not accumulate the integral calculus.	V1.95 V2.02	
3		Extension module	Add new device code for DVP06PT-S so that DVP12SE and DVP26SE can identify the device.	V2.02	
4		DCISoft Detection function	Now DVPSE CPU can be detected by USB communication port in DCISoft.	V1.95 V2.02	
5	337	ETHRS	Added mode 4 for ETHRS (self-defined EtherNet communication instruction) for the application of executing data receiving before data sending.	V1.95 V2.02	Note B-5
6		M1166	Added a new flag M1166: When in online mode to execute PLC update, you can set the flag M1166 to ON, the act to save the PLC program to the latched area will be postponed to avoid the execution of interrupts cannot be performed accordingly. When the flag M1166 is switched from ON to OFF, the PLC program will be saved to the latched area automatically if the online update had been executed.	V2.02	
7	205	CMPT	Operand that is modified by an index register can be used, e.g. D0@E1.	V2.02	
8		M1579	Added flag M1579, when it is set to ON, disable the communication checking function for the extension modules to save the PLC scan time.	V1.95 V2.02	
9	315 & 316	XCMP, YOUT	New instructions for comparing the inputs of multiple work stations and comparing the outputs of multiple work stations. Refer to Programming Manual for more information.	V2.02	

Note B-5:

Timing diagrams of mode 3 and 4 in ETHRS instruction: Receive data first and then sending data.



Modified instructions and functions:

For DVP12SE and DVP26SE:

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

No.	Functions / Instructions	Descriptions	Applicable firmware version
1	DHSCS/DHSCR	During the execution of DHSCS instruction, the output points can also be controlled by non-high-speed output instructions including OUT, SET, and RST. To avoid interferences among the instructions and then affecting the output results, now it is NOT allowed for non-high-speed output instructions to control Y0 to Y3 during the executions of high-speed output instructions.	V2.02
2	DCNT	Now you can edit the current values while C247 and C248 of DCNT instruction are used to count.	V2.02
3	D1038	Changed the allowable range for D1038 to 0-20, so that the scan time can also be reduced.	V1.95 V2.02
4	GPWM	Changed the unit of output time from 1 ms to 0.1 ms to improve the accuracy of output time.	V2.02

API	Mnemonic		Operands	Function	Controllers			
					ES2 EX2	SS2	SA2 SE	SX2
343	\$MOV	P	S D	Transferring a string				

Type OP	Bit Devices				Word devices										Program Steps	
	X	Y	M	S	K	H	KnX	KnY	KnM	KnS	T	C	D	E		F
S											*	*	*			\$MOV, \$MOV P: 5~12 steps
D											*	*	*			

PULSE				16-bit				32-bit
ES2 EX2	SS2	SA2 SE	SX2	ES2 EX2	SS2	SA2 SE	SX2	-

Operands

S : Data source

D : Data destination

Explanation

- This instruction is available for ES2/EX2 FW V3.68, 12SA2/SX2 FM V3.02, SS2 FW V4.00 and SE FW V2.02 or later.
- This instruction can be used in ISPSOft V3.13 or later, but NOT WPLSOft.
- The data type, strings, e.g. "abcd" can be used in **S**.
- If strings are used, you can enter maximum 16 characters.
- This instruction transfers the string in **S** to **D**, and adds the code 16#00 to the end of the string.
- When the operand **S** is not a string, the instruction adds the code 16#00 to the end of the data transferred. And maximum 256 characters can be used. (The ending code 16#00 is included.)
- When the ending code 16#00 cannot be found in **S** for 256 characters in a row or even beyond the device range, the instruction is not executed; M1067/M1068 is ON and the error code in D1067 is 16#01AE.
- When the operand **S** is not a string and the instruction is executed, the string starting with the data in the device specified by **S** (including 16#00) is transferred to **D**. When the instruction is not executed, the data in **D** is unchanged.
- If **D** is not sufficient to contain the string composed of the values in **S**, the instruction is not executed, M1067/M1068 is ON and the error code in D1067 is 16#01AE.
- Suppose the operand **S** is not a string. When the instruction is executed and the first character in **S** is the code 16#00, 16#00 is still transferred to **D**.
- When 16#00 appears in the low byte, the execution of the instruction is as follows.

Before the instruction is executed:

b15~b8		b7~b0		B15~b8		b7~b0	
S	16#31	16#30		D	16#38	16#39	
S+1	16#33	16#32		D+1	16#36	16#37	
S+2	16#35	16#34		D+2	16#34	16#35	
S+3	16#30	16#00		D+3	16#32	16#33	

After the instruction is executed:

b15~b8		b7~b0		b15~b8		b7~b0	
S	16#31	16#30		D	16#31	16#30	
S+1	16#33	16#32		D+1	16#33	16#32	
S+2	16#35	16#34		D+2	16#35	16#34	
S+3	16#30	16#00		D+3	16#00	16#00	

- When 16#00 appears in the high byte, the execution of the instruction is as follows. The transfer stops when the code 16#00, leaving the remainder of **D** unchanged.

Before the instruction is executed:

b15~b8 b7~b0		b15~b8 b7~b0	
S	16#31 16#30	D	16#38 16#39
S+1	16#33 16#32	D+1	16#36 16#37
S+2	16#00 16#34	D+2	16#34 16#35
S+3	16#37 16#36	D+3	16#32 16#33

After the instruction is executed:

b15~b8 b7~b0		b15~b8 b7~b0	
S	16#31 16#30	D	16#31 16#30
S+1	16#33 16#32	D+1	16#33 16#32
S+2	16#00 16#34	D+2	16#00 16#34
S+3	16#37 16#36	D+3	16#32 16#33

13. When **S** overlaps **D** and the device number of **S** is less than the device number of **D**, the transfer of the data to **D** starts from the ending code 16#00.

Before the instruction is executed:

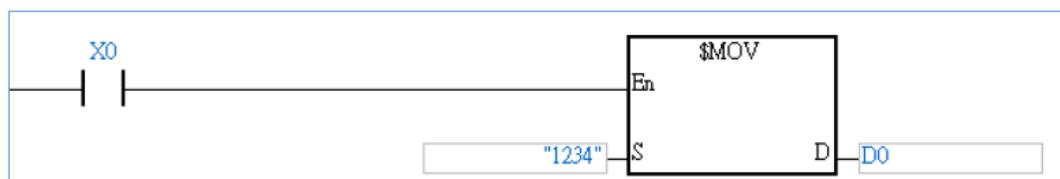
b15~b8 b7~b0		b15~b8 b7~b0	
D0	16#31 16#30	D1	16#33 16#32
D1	16#33 16#32	D2	16#35 16#34
D2	16#35 16#34	D3	16#30 16#00
D3	16#30 16#00	D4	16#38 16#37

After the instruction is executed:

b15~b8 b7~b0		b15~b8 b7~b0	
D0	16#31 16#30	D1	16#31 16#30
D1	16#33 16#32	D2	16#33 16#32
D2	16#35 16#34	D3	16#35 16#34
D3	16#30 16#00	D4	16#00 16#00

Example 1

Suppose the data in **S** is the string "1234" (even number of bytes). When X0 is enabled, the data 1234 and the ending code 16#00 is transferred to D0–D3 and 16#00 is added to the high byte in **D**, as follows.



The operand **S**:

String	'1'	'2'	'3'	'4'
Hexadecimal value	16#31	16#32	16#33	16#34

After the instruction is executed, the data in **D** is as follows.

Device	High byte	Low byte	Note
D0	16#32	16#31	'1'=16#31; '2'=16#32
D1	16#34	16#33	'3'=16#33; '4'=16#34
D2	16#00	16#00	The ending code 16#00 is in the low byte. 16#00 is automatically added in the high byte.
D3	Unchanged	Unchanged	

Example 2

Suppose the data in **S** is the string "12345" (odd number of bytes). When X0 is enabled, the data 12345 is transferred to D0–D3 as follows.



The operand **S**:

String	'1'	'2'	'3'	'4'	'5'
Hexadecimal value	16#31	16#32	16#33	16#34	16#35

After the instruction is executed, the data in the operand **D** is as follows.

Device	High byte	Low byte	Note
D0	16#32	16#31	'1'=16#31; '2'=16#32
D1	16#34	16#33	'3'=16#33; '4'=16#34
D2	16#00	16#35	The ending code 16#00 is in the high byte.
D3	Unchanged	Unchanged	

Example 3

When the data in **S** is not a string and the ending code 16#00 appears in the low byte, the execution of the instruction is as follows.



The operand **S**:

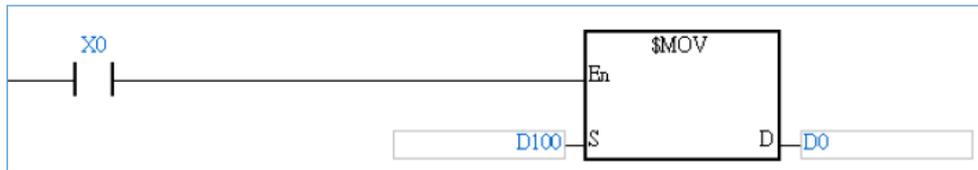
Device	High byte	Low byte	Note
D100	16#31	16#30	'1'=16#31; '0'=16#30
D101	16#33	16#32	'3'=16#33; '2'=16#32
D102	16#35	16#34	'5'=16#35; '4'=16#34
D103	16#30	16#00	'0'=16#30; 16#00 is the ending code.

After the instruction is executed, the data in the operand **D** is as follows.

Device	High byte	Low byte	Note
D0	16#31	16#30	'1'=16#31; '0'=16#30
D1	16#33	16#32	'3'=16#33; '2'=16#32
D2	16#35	16#34	'5'=16#35; '4'=16#34
D3	16#00	16#00	The ending code 16#00 is in the low byte. 16#00 is automatically added in the high byte.
D4	Unchanged	Unchanged	

Example 4

When the data in **S** is not a string and the ending code 16#00 appears in the high byte, the execution of the instruction is as follows.



The operand **S**:

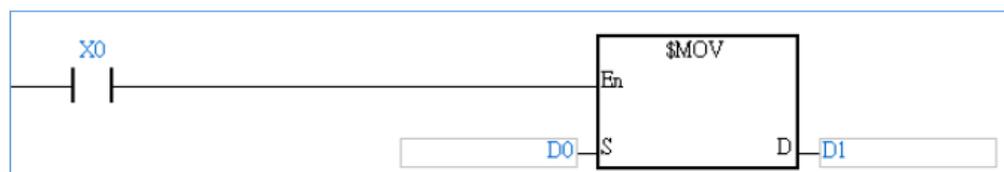
Device	High byte	Low byte	Note
D100	16#31	16#30	'1'=16#31; '0'=16#30
D101	16#33	16#32	'3'=16#33; '2'=16#32
D102	16#00	16#34	16#00 is the ending code. '4'=16#34
D103	16#37	16#36	'7'=16#37; '6'=16#36

After the instruction is executed, the data in the operand **D** is as follows.

Device	High byte	Low byte	Note
D0	16#31	16#30	'1'=16#31; '0'=16#30
D1	16#33	16#32	'3'=16#33; '2'=16#32
D2	16#00	16#34	16#00 is the ending code. '4'=16#34
D3	Unchanged	Unchanged	

Example 5

When **S** overlaps **D**, and the device number of **S** is less than the device number of **D**, the transfer of the data to **D** starts from the ending code 16#00.



The operand **S**:

Device	High byte	Low byte	Note
D0	16#31	16#30	'1'=16#31; '0'=16#30
D1	16#33	16#32	'3'=16#33; '2'=16#32
D2	16#35	16#34	'5'=16#35; '4'=16#34
D3	16#30	16#00	'0'=16#30; 16#00 is the ending code.
D4	16#38	16#37	'8'=16#38; '7'=16#37

After the instruction is executed, the data in D is as follows.

Device	High byte	Low byte	Note
D1	16#31	16#30	'1'=16#31; '0'=16#30
D2	16#33	16#32	'3'=16#33; '2'=16#32
D3	16#35	16#34	'5'=16#35; '4'=16#34
D4	16#00	16#00	The ending code 16#00 is in the low byte. 16#00 is automatically added in the high byte.
D5	Unchanged	Unchanged	

2.9 UPDATE – The firmware of IFD9506 and DVP RTU-EN01 is updated

Series	Models	Firmware Version	Release Date
IFD	IFD9506	V2.04 → V2.06	2021.08.27
DVP	RTU-EN01	V2.00 → V2.02	2021.08.27

Corrections and modifications:

IFD9506, RTU-EN01

1. Fixed a connection problem for 10mbps full-duplex and 100Mbps half-duplex modes.
2. Fixed an issue that while communicating in RS485 mode, the system on rare occasions will go crash and the digital display on the device will show FF.
3. Modified the default delay time from 0 ms to 5 ms for sending data from Modbus TCP to RS485 port in serial communication - master mode.

IFD9506

1. Fixed an issue that if the parameter setting is set to 7-N-1 or 7-N-2 in RS485 or RS232 mode, when communicating to AS300 PLC CPU, a compatibility issue will occur.
2. Fixed an issue that when the format is user-defined, if the packet condition is not set, the packet cannot be received.
3. Fixed an issue that when the total connection number exceeding the limit of 16, the error code, F6, does NOT appear.
4. Fixed the EtherNet/IP security vulnerability.

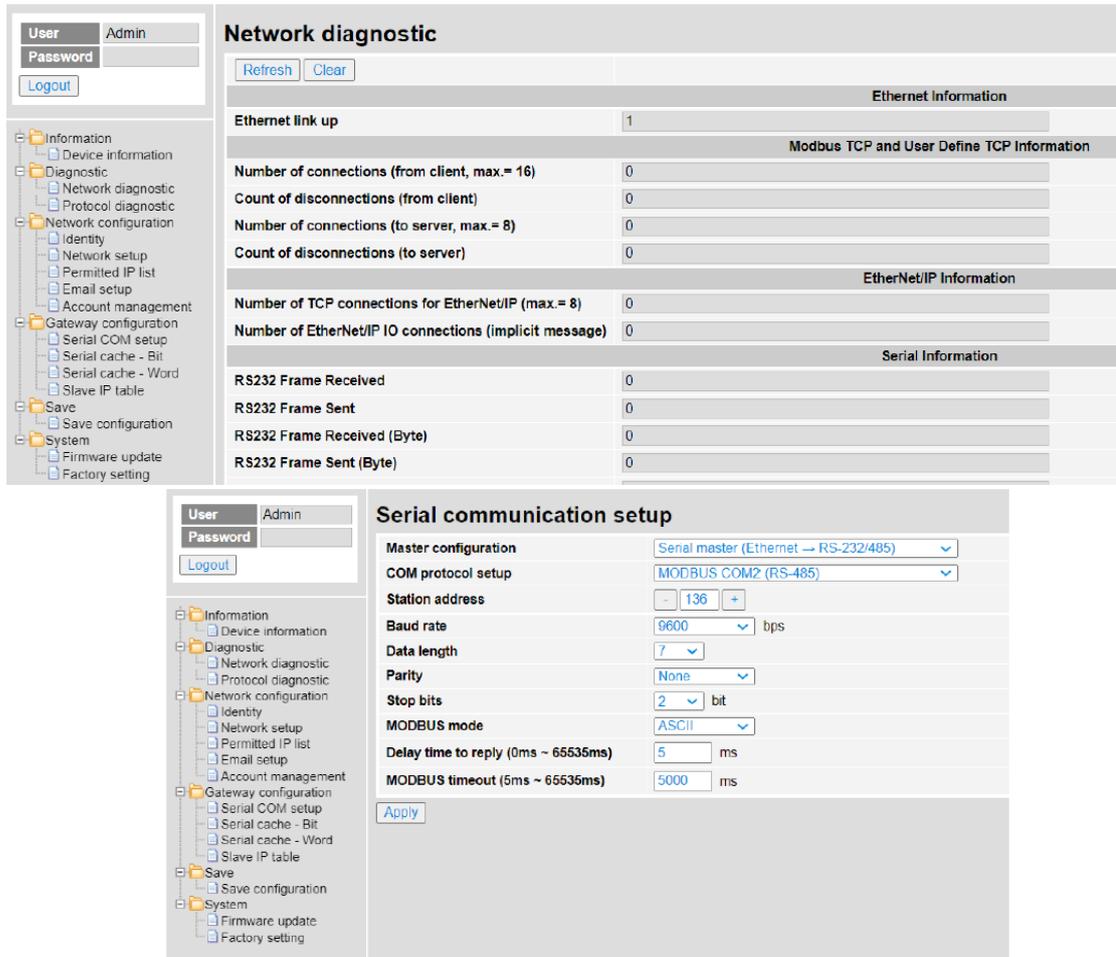
RTU-EN01

1. Fixed an issue that after changing to RS485 communication mode in DCISoft, the parameters in Monitor Table cannot be auto-updated accordingly.

New functions:

IFD9506

1. Added new web page function: network diagnostic and serial communication setup can be done on the web page.



2. Serial Device Server Mode (Peer to peer; P2P) now is available for RS485. In RS485 communication mode, the data can be transmitted freely not by the message exchange pattern of request-response.
3. A new error code, F8, is added on display, to indicate IP conflicts.

2.10 NEW – DOP-103SQ release

DOP-103SQ has the same performance and panel cutout as DOP-103BQ but with the below differences:

Appearance:

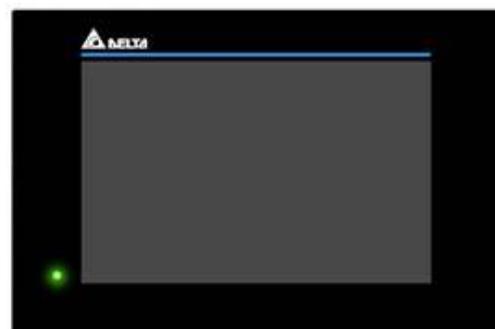
- New appearance in accordance to Delta corporate guidelines
- Full Nameplate instead of hollow nameplate.
- Without R angle on left and right sides of HMI.

Glass thickness:

- Increased from 0.7mm to 1.8mm.

View angle:

- Uses [IPS technology](#) that improves the viewing angle of the HMI.



Specifications:

Model		DOP-103SQ
Display	Panel type	4.3" TFT LCD (65,535 colors)
	Resolution	480 x 272 pixels
	Backlight	LED backlight (half-life at room temperature of 25°C (77°F) > 20,000 hours) ¹
	Display range	95.04 x 53.856 mm
	Brightness	400 cd/m ² (Typ.)
CPU		ARM Cortex-A8 (800 MHz)
Flash ROM		256 Mbytes
RAM		256 Mbytes
Touchscreen		4-wire resistive touchscreen > 1,000,000 operated
Buzzer		Multi-tone frequency (2 - 4 kHz) / 80 dB
Network interface		N/A
USB		1 USB slave Ver 2.0; 1 USB host Ver 2.0
SD		N/A
Serial communication port	COM1	RS-232 (supports flow control) / RS-485 ²
	COM2	RS-422 / RS-485 ²
	COM3	N/A
Auxiliary function key		N/A
Calendar		Built-in
Cooling method		Natural cooling
Approvals		CE / UL (use shielded network cable and magnetic ring with the filter of 300 ohm / 100 MHz)
Panel waterproof level		IP65 / NEMA4 / UL TYPE 4X (for indoor use only)
Operation voltage ²		DC +24V (-15% to +15%) (use an isolated power supply) Supplied by Class 2 or SELV circuit (isolated from MAINS by double insulation)
Dielectric strength		500 V _{AC} for 1 minute (between DC24V terminal and FG terminal)
Power consumption ²		5.67 W (Max.) ³
Backup battery		3V lithium battery (CR2032) × 1
Backup battery life		About 3 years or more at room temperature of 25°C (77°F) (subject to operating temperature and condition)
Operating temperature		0°C to 50°C (32°F to 122°F)
Storage temperature		-20°C to +60°C (-4°F to +140°F)
Operating environment		10% to 90% RH [0°C to 40°C (32°F to 104°F)] 10% to 55% RH [41°C to 50°C (105.8°F to 122°F)] Pollution degree: 2
Vibration resistance		Conforms to IEC61131-2: continuous vibration 5 Hz - 8.3 Hz with amplitude 3.5 mm; 8.3 Hz - 150 Hz with amplitude 1G
Shock resistance		Conforms to IEC60068-2-27: 11 ms, 15 G Peak, in X, Y, Z directions each for 6 times
Dimensions (W) x (H) x (D) mm		129 x 103 x 37.8
Mounting dimensions (W) x (H) mm		118.8 x 92.8
Weight		Approx. 280 g

Note:

- The half-life of the backlight is defined as the maximum luminance being reduced by 50% when the maximum drive current is supplied to the HMI. The life of LED backlight specified here is estimated at room temperature of 25°C (77°F) with ambient humidity.
- The withstand voltage of the isolated power circuit is 1500V peak for 1 minute.
- The HMI power consumption is the power consumed when the HMI is not connecting with other peripheral devices. To ensure normal operation of the HMI, the recommended capacity of the power supply is 1.5 to 2 times of the specified power consumption.
- Isolated power supply is recommended.
- To download the DOP-100 series programming software DOPSoft and the user manual, go to Delta's website at <http://www.deltaww.com>.
- The DOP-100 series can be used with other industrial automation equipment. Read this sheet carefully and install the product according to the instructions to avoid danger.

2.11 UPDATE – DIN Rail LYTE II 120W and 240W series Product Change

LYTE II DRL-120W and DRL-240W power supply series will:

1. Add UKCA and BSMI safety approvals
2. Revise KCC safety approval (For DRL-24V120W1ENx and DRL-24V240W1ENx)

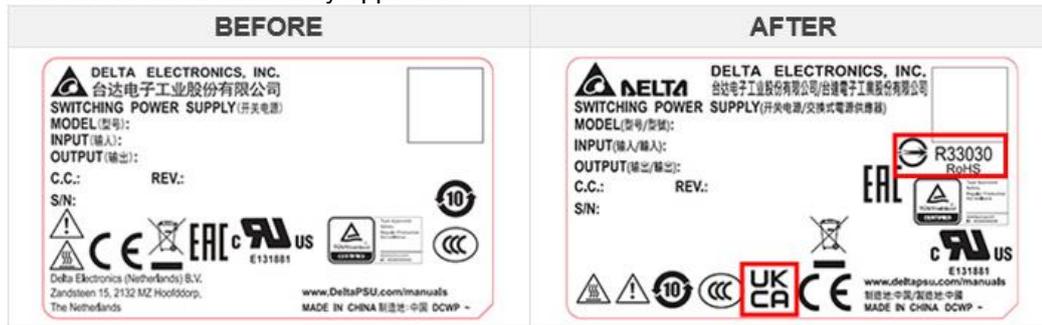
Please refer to below for more details. The latest specifications are updated on DeltaPSU website.

Model List:

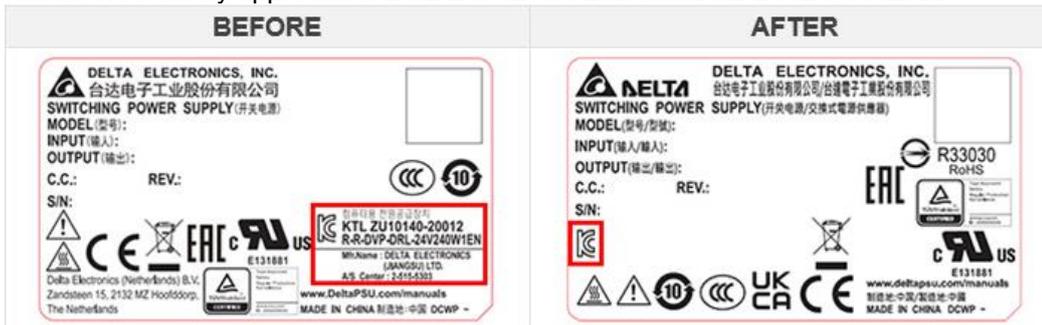
Model Name	Old Revision	Update Revision	Implementation Date
DRL-12V120W1EN	00	01	2021/09/01
DRL-24V120W1ENx	00	01	2021/09/01
DRL-48V120W1EN	00	01	2021/09/01
DRL-12V240W1EN	00	01	2021/09/01
DRL-24V240W1ENx	00	01	2021/11/01
DRL-48V240W1EN	00	01	2021/09/01

Spec label change:

1. Add UKCA and BSMI safety approvals



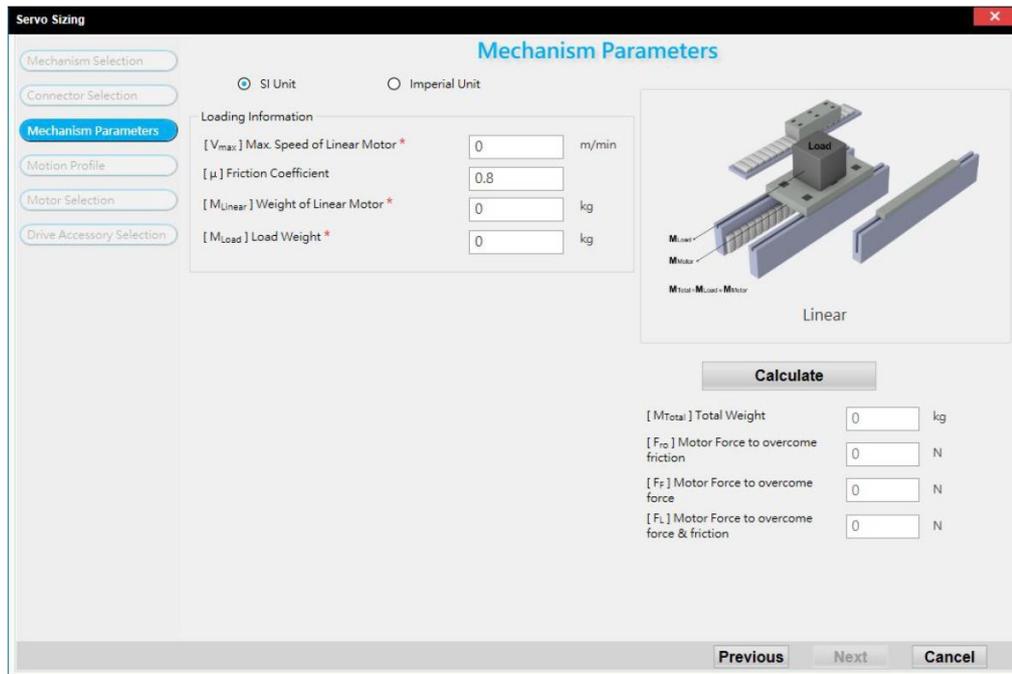
2. Revise KCC safety approval for DRL-24V120W1ENx and DRL-24V240W1ENx.



2.12 UPDATE – DIASelector version 1.1.1 is released

New functions:

Assist users with the selection of Delta AC Servo Motors, AC Servo Drives, and the related accessories before implementing linear Mechanism for quick purchasing and to avoid selecting incorrect models.



Release date:

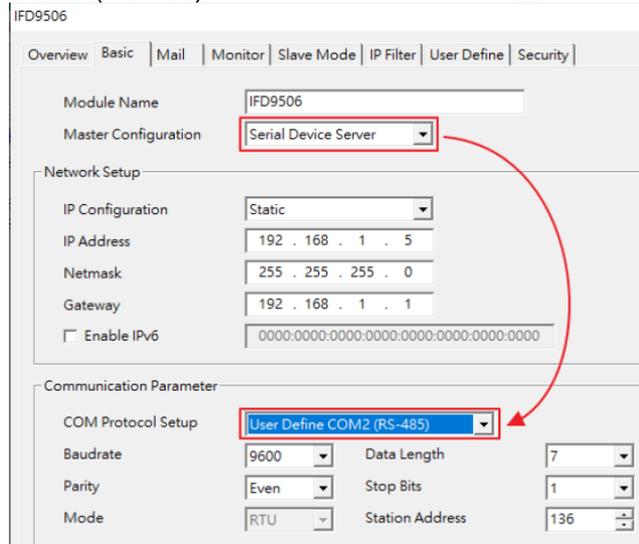
Software	Version	Expected Release Date (YYYY/MM/DD)
DIASelector (Desktop)	V1.1.1	2021/07/23

- Please install DIASelector V1.1.0 after downloading DIASStudio V1.1.0, and install/perform DIASelector Patch.
- DIASStudio V1.1.0 download: <https://diastudio.deltaww.com/home/downloads?sec=download>

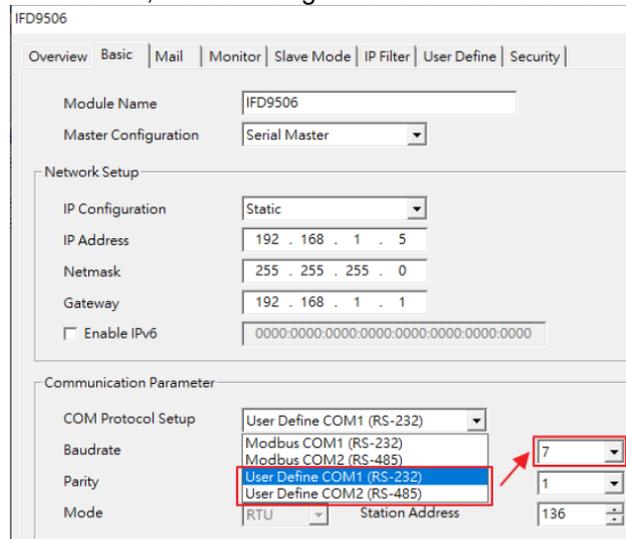
2.13 UPDATE – DCISoft is updated to V1.24

Modifications:

1. Updated settings in IFD9506
 - a. When Serial Device Server is selected in Master Configuration, the option “User Define COM2 (RS-485)” is added for selection in COM Protocol Setup.

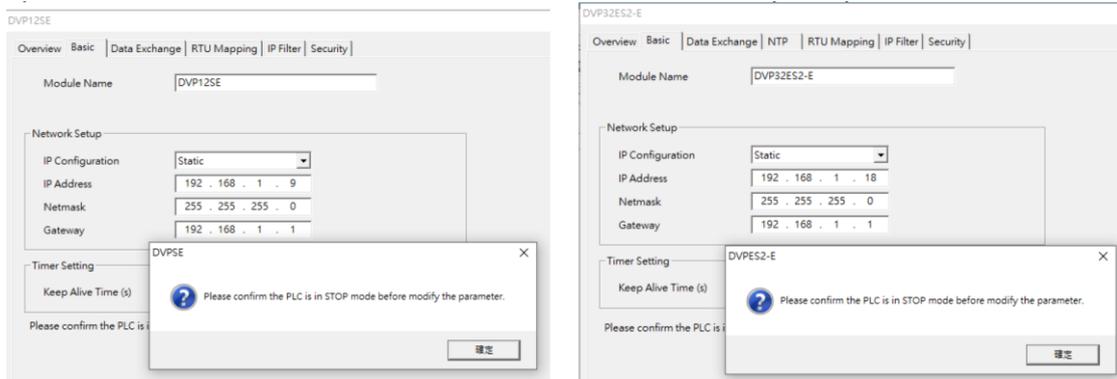


- b. When the option User Define COM1 (RS-232) or User Define COM2 (RS-485) is selected in Baudrate, the data length 7 and 8 are available for selection.

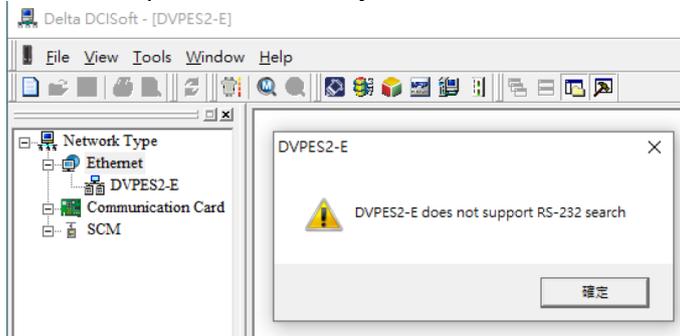


- c. Removed the NTP setting page

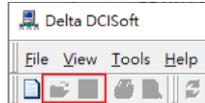
2. When DVPSE or DVPES2-E downloads parameters to PLC via DCISoft, DCISoft will check if the PLC is at the state of STOP. If the PLC is at the state of RUN, a reminder will prompt up “Please confirm the PLC is in STOP mode before modify the parameter”



3. Since when the communication mode is in RS-232, the search for DVPES2-E is not available, a reminder is provided if users try to search for DVPES2-E in RS-232 communication mode.



4. The functions of opening and saving are disabled.



5. Updated SCMSOft (embedded in DCISoft) to version 1.24.18 and it is also available in DIADesigner V1.1.

Download the software at:

[Delta | Download Center \(deltaww.com\)](http://Delta | Download Center (deltaww.com))

2.14 NEW – Power meters DPM-C530E, DPM-MA1121 and DPM-MA3222

We are pleased to announce the official release of 3 new power meters which will enlarge our existing meter product portfolio.



DPM-C530E – Display Power meter design with Dual Ethernet port for Daisy Chain

General Features:

- Panel mount installation (with display)
- Measuring current via external CT
- RS-485 / Ethernet

Specifications:

Model	C530	C530E (New)
Dimensions	96mm x 96mm	
Display	LCD/M. Language	
Electricity Parameters	V, I, P, Q, S, F, PF, Wh, VARh, VAh	
Active Energy Accuracy	Class 0.5S	
Current Range	1A/5A	
Total Harmonic Distortion	•	
Individual Harmonics	Up to 31st	
Multi-Tariff	8	
Demand	• (Power, Current)	
Data Record	Up to 62 days	
Alarm Record	•	
Min./Max. Record	•	
Communication	RS-485 (Modbus RTU)	Ethernet *2 (Modbus TCP) for Daisy Chain
Certificate of Safety	CE / UL	

Applications:

- Power monitoring of main circuit
- Energy management (Demand / TOU)
- Distribution board, Electrical room, Energy management systems

DPM-MA1121 – DIN Rail Multi-Circuit Power meter, designed for DC measurements (Dedicated power supply DPM-PS01 for hall Sensor is optional)

General Features:

- DIN Rail mount installation (with display)
- 5 loops DC measurement
- Measuring current via Hall Sensor
- RS-485 (Modbus)

Specifications:

Model	MA1121	
Dimensions	54mm x 81mm x 66mm	
Display	LCD (39mm x 22mm)	
Measurement type	DC	
Loop Number	5	
Electricity Parameters	V, I, P, Wh	
Active Energy Accuracy	0.5%	
Current Measurement	Via Hall Sensor	
Data Record	•	
Communication	RS-485 (Modbus RTU)	
Certificate of Safety	CE	

Applications:

- DC power Measurement
- Focus: Telecom, green energy, energy storage

DPM-MA3222 – DIN Rail Multi-Circuit Power meter, design for 8 circuits (3 phases) or 24 circuits (Single phase) AC measurements.

General Features:

- DIN Rail mount installation (with display)
- Main circuit: 2
- Branch circuit: 8 (3 ϕ) / 24 (1 ϕ)
- Measuring current via external CT
- RS-485 (Modbus)

Specifications:

Function	MA3222
Dimensions	199mm x 118mm x 77mm
Display	LCD (50mm x 28mm)
Measurement type	AC
Loop Number	Main: 2 Branch: 8 (3ph) / 24 (1ph)
Electricity Parameters	V, I, P, Q, S, F, PF, Wh, VARh, VAh
Active Energy Accuracy	0.5%
Total Harmonic Distortion	•
Individual Harmonics	Up to 31st
Current Range (Secondary side)	Main: 1A/5A Branch: 333mV
Demand	Current/Power
Data Record	•
Min./Max. Record	•
I/O	2DI/4RO/1PO
Communication	RS-485 (Modbus RTU)
Certificate of Safety	CE

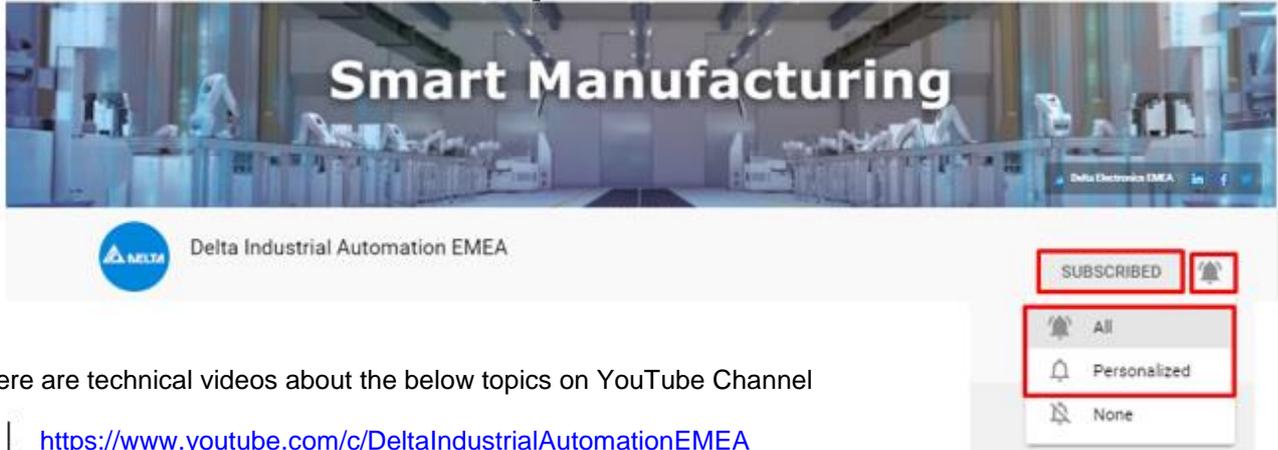


Applications:

Situations with plenty of circuits (shopping malls, dormitory, etc.) to simplify wiring & reduce cost per circuit

3 Application

3.1 NEW – More technical videos are available on YouTube Channel



There are technical videos about the below topics on YouTube Channel

<https://www.youtube.com/c/DeltaIndustrialAutomationEMEA>

Subscribe and enable notification in order to get notifications on all our new videos.

1. [Machine Vision System DMV3000G Tutorial - Shape Function](#)
2. [AX-308E Series Tutorial 5 – How to Set Up the Modbus TCP Master](#)
3. [DIASudio - How to use Tag Sharing function between DIADesigner & DIAScreen](#)
4. [Machine Vision System DMV3000G Tutorial - Platform Alignment](#)
5. [DIASelector - How to use AC Motor Drive Configuration Function](#)
6. [DIAVision VGR Tutorial Inspection of a Random Number of Objects](#)
7. [DIADesigner - How to Use Auxiliary tools for Register](#)
8. [Delta Machine Vision System DMV3000G Tutorial - Communication Function](#)
9. [AX-308E Series Tutorial 6 - Creating the ST language Subroutine in Ladder Language](#)
10. [DIAVision VGR Tutorial How to Calibrate Part Gripping with Two Machine Vision Cameras](#)
11. [DIASelector - How to Use Servo Sizing Function](#)
12. [AX-308E Series Tutorial 7 How to Connect to the Temperature Sensors via RS-485 Interface](#)
13. [Motion Control Solutions | Online Basic Training \(DIADesigner-AX\)](#)
14. [DIASelector - How to Select Controllers](#)
15. [AX-308E Series Tutorial 8 How to Establish the EIP Adapter](#)
16. [PLC | Online Basic Training \(DIADesigner\)](#)
17. [AX-308E Series Tutorial 9 - How to Create the EIP Scanner](#)
18. [Field Device | Online Machine Vision Training \(DMV2000\)](#)
19. [DIN Rail LYTE II Power Supply](#)
20. [DIADesigner - Commissioning Function](#)
21. [AX-308E Series Tutorial 10 - How to Setup the OPC UA Server](#)
22. [30 minuti con Delta - C2000 Plus | 30 minutes with Delta online event](#)
23. [DIADesigner - DTC Monitoring](#)
24. [30 minuti con Delta - Motion Controller AX-8 Series](#)
25. [AX-308E Series Tutorial 11 - How to Connect to the Delta HMI](#)
26. [30 minuti con Delta - DVP50MC](#)
27. [DIADesigner - How to set up Position Plan Table](#)
28. [30 minuti con Delta - Industrial Ethernet Switches and Industry 4.0](#)
29. [AX-308E Series Tutorial 12 - Download and Upload the PLC Project File via HMI](#)
30. [AX-308E Series Tutorial 13 - How to Setup the DVP RTU ECAT](#)
31. [DIASudio - How to set up Communication Setting in DIADesigner and COMMGR](#)

3.2 **NEW** – Advanced Training Schedule

We are happy to announce that the Online Advanced-level Training for the second half of 2021 is open for registration. If you have already have industrial automation experience and would like to enhance your technical competence on specific subjects then you can register by clicking [here](#).

- **C2000 Positioning via CANopen (30th of September, 10:30 - 11:30)**
Learn how to configure the hardware and the limit switches, hear about the VFD parameterization and object description. You will also get a hands-on exercise.
- **AS Series CANopen Mode (7th of October, 10:00 - 12:00)**
You will have an overview of the AS series positioning function and learn how to configure the ASDA series servo drives and AS series PLC HWConfig. Discover the API instructions, such as INTC, ASDON, CASD, RST/EMER, Special marks and registers and CANopen RTU.
- **Harmonic Distortion (29th of October, 10:00 - 12:00)**
Get an overview of harmonic distortion, gain a deeper comprehension of solutions to reduce harmonics in drive and Delta power quality solutions.
- **SCADA DIAView - Where to Start and Client/Server Version Explanation (4th of November, 10:00 - 12:00)**
Get an insight to DIAView development environment. You will learn how to start your first project and gain an overview of I/O drive communications, variables and animation elements, run time setting and the comparisons between Client/Server and browser/server versions.
- **Load Cell Operation with the AS Series (11th of November, 10:00 -11:00)**
Learn about load cell module introduction, installation and wiring. Learn how to configure the load cell module devices and functionalities.
- **Delta Industrial Ethernet Solutions and Analysis for Network Debug (17th of November, 10:00 - 11:30)**
Discover the differences between unmanaged and managed switches. Get an overview of Delta industrial Ethernet products portfolio and the advantages of network analysis. Increase your knowledge of the port mirroring function and WireShark Software.
- **DIASstudio LUA Programming (18th of November, 09:00 - 12:00)**
Hear about the introduction of LUA programming and DIASstudio. Learn about the LUA program language and functionalities of DIAScreen for editing HMI, including Memory Library, Link Library, File Management, Draw Functions and TCP Sockets.

Other upcoming trainings

- **HMI OPCUA (13th of December, 09:30 - 12:00)**
- **Pump functions (December – TBD)**
- **Machine vision (December – TBD)**

Stay tuned to our marketing announcement for more training information.

4 FAQ

4.1 AC Motor Drives

- Q** The control diagram for induction motors is the same in Vf mode (pr00-11=0) and in SVC mode (pr00-11=2). So then, what is the difference between the two methods?
- A** *The difference is in the internal control algorithm.
In Vf mode the slip and torque compensation is done in a linear manner. The higher the gain setting the higher the compensation will be.
In SVC mode the slip and torque compensation is done based on the actual motor model. This makes the compensation more accurate. However, this does mean that the exact motor parameters have to be entered and an autotune needs to be performed.*