# DELTA Newsletter

Industrial Automation Products

**Edition 2017-09**

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# 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, 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

## 1.2 SPS/IPC/Drives in Nürnberg from 28-30 Nov 2017

Delta will exhibit at SPS Nurnberg **Hall 3-220** this year with main focus on Digital Transformation to Industry 4.0.

More news and info will follow. Please reserve the time in your agenda. We look forward to your visit.
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# 2 Product update

## 2.1 NEW – CFP2000

The new Delta CFP2000 was designed to achieve full functionality for fan & pumps for a wide spectrum of applications in Water, HVAC (Heating, Ventilation and Air-conditioning) and BMS (Building Management Systems) industries. With its new enclosure in IP 55, applications where water splashes and dust are constant will be no longer a problem for the electrical system designers. As a consequence of its design, the CFP2000 does not need to be installed in cabinets for environment protection, which allows project technicians and engineers full flexibility in wet and dusty applications such as: Water treatment pump stations, pressure boosters, circulation systems and so on.

The CFP2000 makes use of newly built-in EMC filters through its entire power range, which helps to meet IEC 61800-3 (C1,C2) for residential and commercial buildings and infrastructure. The CFP2000 is equipped with internal DC chokes to fulfll harmonics reduction according to EN61000-3-12 to mitigate harmonic content in industrial and commercial applications, allowing higher energy efficiency and cooperation with the power-grid. The CFP2000 still contains all embedded know-how acquired by Delta in years of pump & fan applications and also allows the user total flexibility with its internal PLC, which can be programmed to perfom any task required by the application.

As part of its IP55 design the CFP2000 was also designed for harsh environments in industry, such as chemical treatment stations and other contaminated areas. To achieve that it contains conformal coating on its internal boards according to IEC 60721-3-3 class 3C3, which ranks Delta CFP2000 in a higher level of protection compared to its competitors. With the commitment of providing better energy efficiency in drive technologies, the CFP2000 now can run PM (Permanent Magnet) motors, which are more efficient and a trend in water industry. This action highlights our commitment to a greener world by providing functionality for more efficient equipment.

Connectivity is also part of Delta's research, and for this reason the CFP2000 is compatible to all the major field-buses in the market: from Modbus RTU, Profibus DP, CANopen, BACnet, DeviceNET to Modbus TCP, EtherCAT and Ethernet IP. Which means CFP2000 is ready to be connected to the digital transformation and Industry 4.0 age of modern automation. With CFP2000 Delta consolidates its commitment to a more efficient world by providing solution-oriented products with industry's specific demands, ready to be integrated and easily commissioned.

**Industry specific new features:**

- IP 55/41
- External Switch as option
- EMC Compliant – EN61800-3 Class C1, C2 built-in filters
- IEC 60721-3-3 Class 3C3 – Conformal Coating
- High ambient temperature operation (up to 50oC. Up to 60oC with derating)
- Built-in DC choke - EN61000-3-12 (THDi < 48%)
- PM (Permanent Magnet) motor operation

**Mains Input Voltage Range**

- 3-phase AC 380 V ~ 480 V (-15% ~ +10%), 50/60 Hz

**Fieldbus communication**

- Modbus RTU®
- Profibus® DP
- CANopen®
- BACnet®
- DeviceNET®

- Modbus TCP®
- EtherCAT®
- Ethernet IP™

For prices, orders & pre-sale support for projects, please consult your Regional Sales Manager.
For technical support, write to iatechnicalsupport@deltaww.com

All product documentation can be found on our ftp site.

## 2.2 UPDATE – Datasheet C-family EMC filters

A new version of the "C family EMC filters" datasheet has been released: Datasheet Filters for C2000 Family Version6 Aug2017.pdf.
It can be downloaded from our ftp-site (Folder: M:\Customer-Service\Industrial Automation Products\AMD-Options\AMD Filters\AMD Filters Datasheet)

## 2.3 UPDATE – VFD-ED-S firmware 1.05

VFD-ED-S firmware version has been changed from v1.04 to v1.05.

**A. Corrections**

| | V1.04 Problem description | V1.05 Handling instructions |
|---|---|---|
| 1 | Some inverter parameters of the character format is not uniform, resulting in VFD SOFT Software is unable to read. | Frequency converter parameter character formats have been unite, VFD SOFT Software can be read properly. |
| 2 | Parameters in the modified, inverter need reset power for parameter storage function, Due to customer after you have set the parameter has no reset power, continue to take other actions, if updating firmware at this time, pre-set values are not stored, the parameters will keep last time a power outage on record, causing inconvenience to the customer. | Update software function, now even without power, also will carry out parameters are stored. |
| 3 | Panel KPC-CC01 The implementation of "all parameter copy" feature, set in some cases, replication is not successful , Error code SE2 | Modified drive "parameter to copy" function, use KPC-CC01 Parameters of all copy successful |
| 4 | Field tests in an elevator, and found that the drive is not in accordance with the power generation mode operation.<br><br>the reason: | Amended MO=32 ( power mode ) Should also take into account the following two output signals:<br>1. power generation / electric detection results<br>2. Pr.00-11 ( driver output detection) settings |

<table>
<tr>
<td></td>
<td>When Pr.00-11 sets the drive output direction to "set reverse", the host computer to the "up" direction command, the drive will actually run "under", not running in the power generation direction.</td>
<td>
<table>
<tr><th>The software Power generation</th><th>Parameters 00-11 Set value</th><th>Before correction</th><th>The corrected</th></tr>
<tr><td>Up</td><td>And set to</td><td>Up</td><td>Up</td></tr>
<tr><td>Up</td><td>Setting reverse</td><td>Up</td><td>Down</td></tr>
<tr><td>Down</td><td>And set to</td><td>Down</td><td>Down</td></tr>
<tr><td>Down</td><td>Setting reverse</td><td>Down</td><td>Up</td></tr>
</table>
</td>
</tr>
<tr>
<td>5</td>
<td>Customers on the market applications, will operate at the rated frequency 5~10Hz , the need to Pr.01-00 (maximum operating frequency) of the minimum set value down correction.</td>
<td>Modify the minimum value of the parameter 01-00 (maximum operating frequency) to 5Hz.</td>
</tr>
</table>

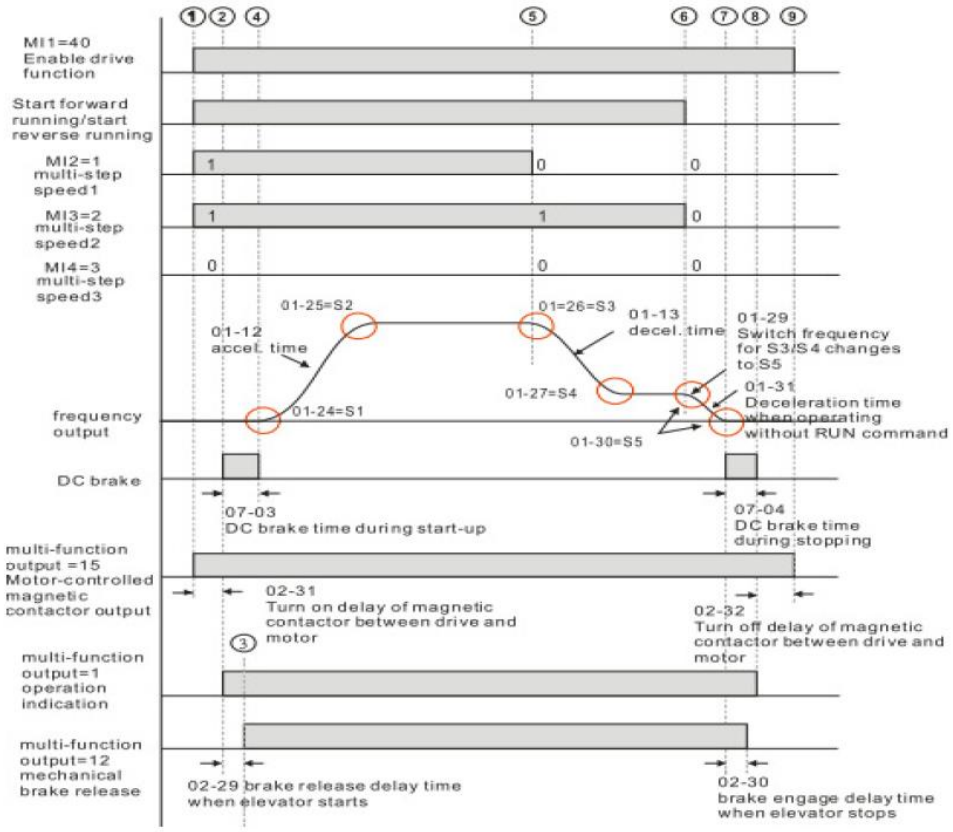
## B. Modification

1. DC braking modes modified:

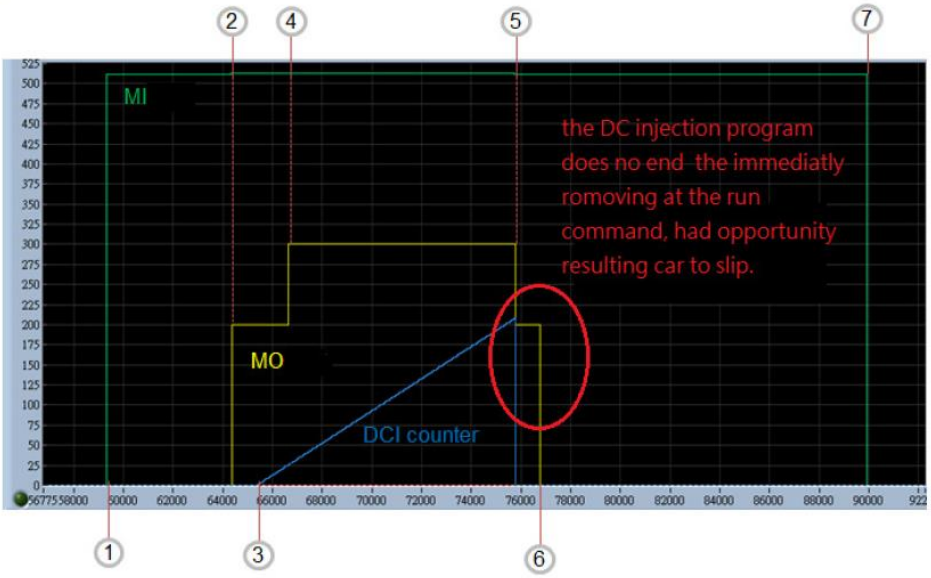
   Problem:

   After running the command given at startup DC injection Program does not end then immediately removing at the run command, the drive will immediately end the output and output the brake signal, but the brake solenoid usually with magnetizing or demagnetizing time, resulting in had the opportunity to have a short time before the actual brake drive status with no output, resulting the car to slip.

   Lift start-stop - Normal action sequence diagram

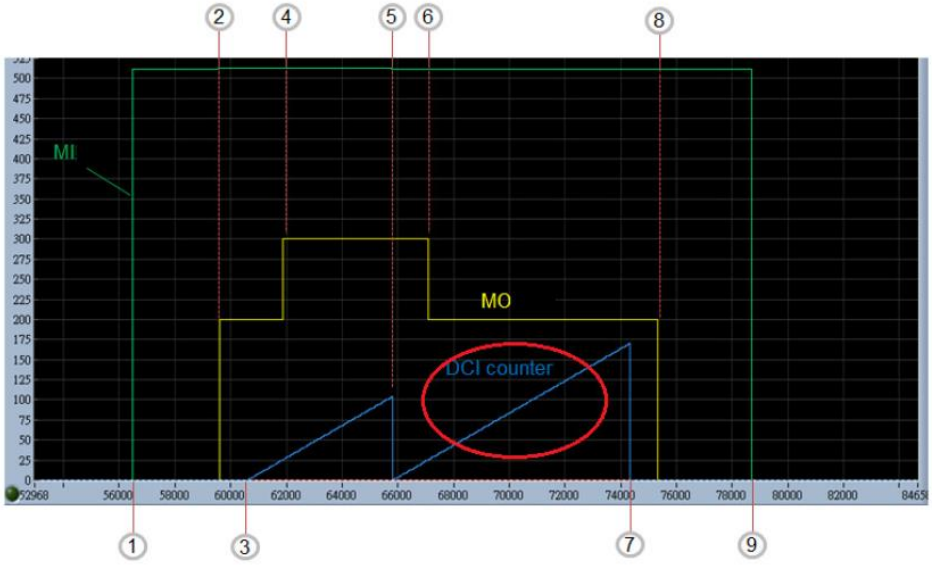



[Before] The action sequence before modification



Step1 ➔ MI Enter Enable Signal
Step2 ➔ Enter the Run,MO solenoid valve control signal output Motors
Step3 ➔ Delayed 02-31 solenoid valve closing delay time counting starts after DCI
Step4 ➔ Delayed 02-29 brake release delay time is output when the elevator starts MO signal
Step5 ➔ Remove Run Command, DCI Count end ( DC brake release brake solenoid valve has not been action, resulting the car to slip.)
Step6 ➔ Delay 02-30 Brake the brake delay time has passed when the elevator stops output MO Signal
Step7 ➔ The end of Enable Signal input

[After] Revised time series




Step1 ➔MI Enter Enable Signal
Step2 ➔Enter the Run,MO solenoid valve control signal output Motors
Step3 ➔Delayed 02-31 solenoid valve closing delay time counting starts after DCI
Step4 ➔Delayed 02-29 brake release delay time is output when the elevator starts MO signal
Step5 ➔Remove Run command and added count stops DCI timing ( to Avoiding the brake solenoid valve is not action)
Step6 ➔Delayed 02-30 brake the brake delay time has passed when the elevator stops output MO signal
Step7 ➔When DCI time count ends
Step8 ➔Delayed 02-32 solenoid valve opening delay time ends after MO output
Step9 ➔The end Enable signal input

## C. New function

1. CAN Communications added UCMP Brake clamp detection function :

   UCMP Brake clamp detection function required for use with elevator controller, if necessary details, please contact the original contact.

2. Added PWM Mode selection (Pr.11-20):

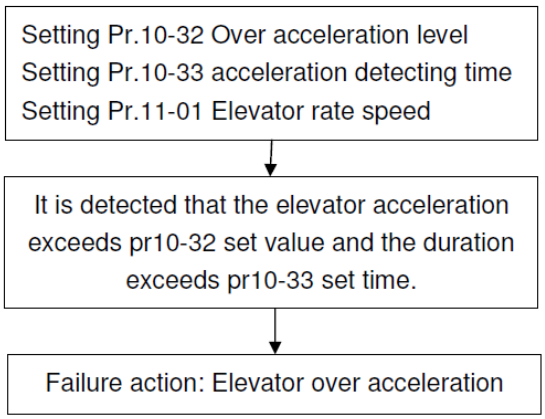
   Due to customer demand in the running a sound environment and we hope to reduce the operation of high frequency noise. Additional parameters (Pr.11-20), can provide SVPWM ( space vector modulation ) modulation mode, can inhibit the High frequency noise audio.

| Parameter | Parameter name | Setting range | Initial value |
|---|---|---|---|
| 11-20 | PWM Mode selection | 0: Digital Pulse Width modulation modes (DPWM mode)<br>1: Space vector modulation modes (SVPWM mode) | 0 |
| | | | |

3. Added over-acceleration protection mechanisms :

   Users can add new parameters Pr.10-32、Pr.10-33, we can set acceleration protection level for elevator, elevator if the purpose faster than this level set, the resulting error warning.

   Step: ⇨




| Parameter | Parameter name | Setting range | Initial value |
|---|---|---|---|
| 10-32 | Over-acceleration level | 0.05~5.00 sec | 0.05 |
| 10-33 | Over-acceleration detection time | 0~1,<br>0:always detect<br>1:detect during run | 0 |
| 11-01 | Lift the rated speed | 0.10~4.00 m/s | 1.00 |

4. Add a star sealed contactor sequence:

This feature to improve security for the client, it's function through the parameter set can be VFD-ED-S Added a Multi-Output function of stars sealed contactors in the elevator control sequence.

Step:

Setting Pr.02-11 ~02-16 = 48
Setting Pr.02-38 Star sealed contactor closing delay
Setting Pr.02-39 Star sealed contactor opening delay

↓

The drive receives the Run / Stop command and outputs the signal from the MO terminal.

| Parameter | Parameter name | Setting range | The default value |
|---|---|---|---|
| 02-11 ↓ 02-16 | Multifunction Relay / Output | 0~48 , 48: Star sealed contactor output | 0 |
| 02-31 | Star sealed contactor closing delay | 0.000~65.000 sec | 0.200 |
| 02-32 | Star sealed contactor opening delay | 0.000~65.000 sec | 0.200 |

5. Added CAN Communications interference index (CAN-Bus Rx efficiency):

This function is mainly to provide a CAN-Bus receive a compliance rate of quantitative data to the user, which confirmed CAN-Bus There is no packet loss, the signal loss quantification value is displayed in %.

This quantitative data as percentage units (%), 100% on behalf of its receiving effective rate of 100, if there is packet loss data, this data will be less than 100%, and on this basis will be able to explore the CAN-Bus there is no packet loss, the data is updated every 1 second.

Step:

Setting Pr.00-04 = 36
(CAN-Bus Rx efficiency)

↓

Setting Pr.09-14 = 1ms
(PDO transmission interval time )

↓

From the Keypad Observe whether the CAN-Bus Rx efficiency is 100%

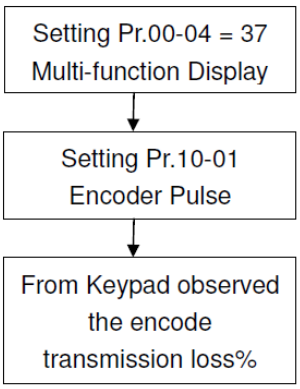
| Parameter | Parameter name | Setting range | Initial value |
|---|---|---|---|
| 00_04 | User value | 0~37, 36: CAN Communications interference index | 0 |
| 09-14 | PDO Transmission interval | 0~65.000 sec | 1ms |

6. Added Encoder feedback interference index:

This function is mainly to provide the user, can be set through parameters and from keypad observe the encoder is a loss of signal, the signal loss quantification value is displayed in %.

By setting parameters 00-04 Multi- display options and parameters 10-02 Points per revolution of the encoder, can be followed by keypad get the encoder to transmission loss rate and display 0% For the best no signal loss.

Step: ⇨




| Parameter | Parameter name | Setting range | Initial value |
|---|---|---|---|
| 00_04 | User value | 0~37, 37: CAN Encoder feedback interference index. | 0 |
| 10-01 | Points per revolution of the encoder | 1~25000 ppr | 600 |

**In production:**

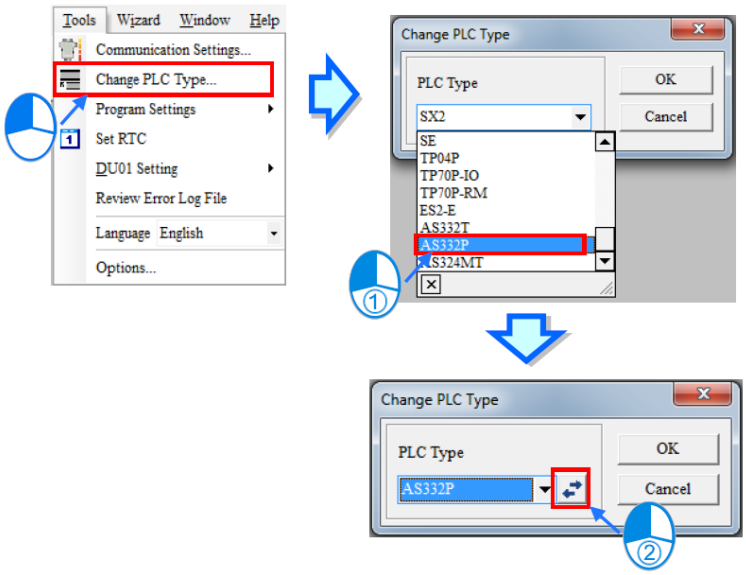
| | | | | |
|---|---|---|---|---|
| V1.05 | Wu Jiang | W1736 | Taoyuan | T1734 |

## 2.4 UPDATE – ISPSoft version 3.03

ISPSoft 3.03 has the following modified and new functions.

1. **ISPSoft V3.03 now supports DVP-ES2-E models**

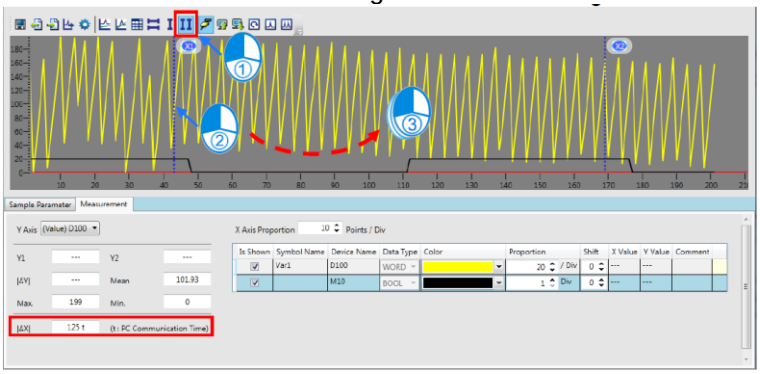
2. **The DVP projects can be converted into AS300 projects**
   AS300 series is added in the list for the function of changing the PLC type within a DVP project. Go to Tools -> Change PLC Type for this function.



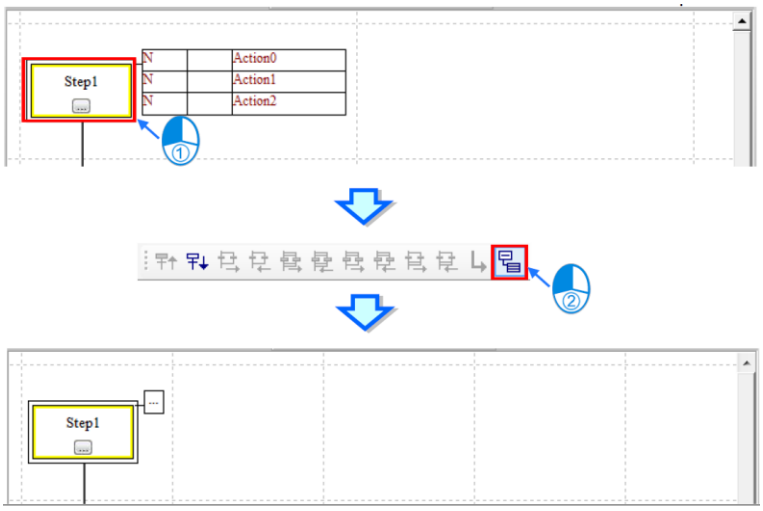

**Note:** The supporting functions, device ranges, and instructions may vary between models. Users need to make sure that once the original model is changed to other model, the original programs, parameter settings, hardware configurations, and network planning, etc. can still function properly.

3. **ISPSoft V3.03 now supports AS300 Simulator** which is supported by the COMMGR with version 1.07 or later versions.

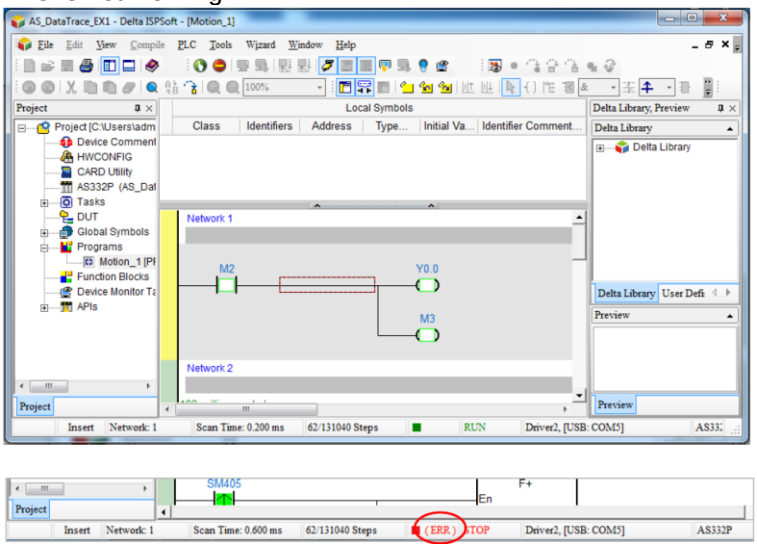
4. **Optimized the Data Tracer function**
   Click the icon on the tool bar and then users will see two vertical lines, X1 and X2. Use the mouse to drag the two vertical lines to select the section and have its time measured; the value will be shown in IΔXI. And the t behind the value in IΔXI means one communication time between the PC and the PLC as the image shown below.



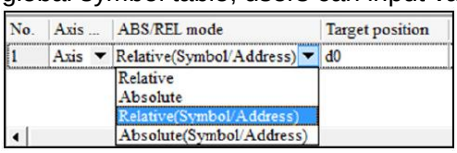
5. **Optimized the SFC editing function**
   SFC (Sequential Function Chart) programming allows users to add actions in the steps. Users can now use the fold button to fold the action list to save space on the screen.

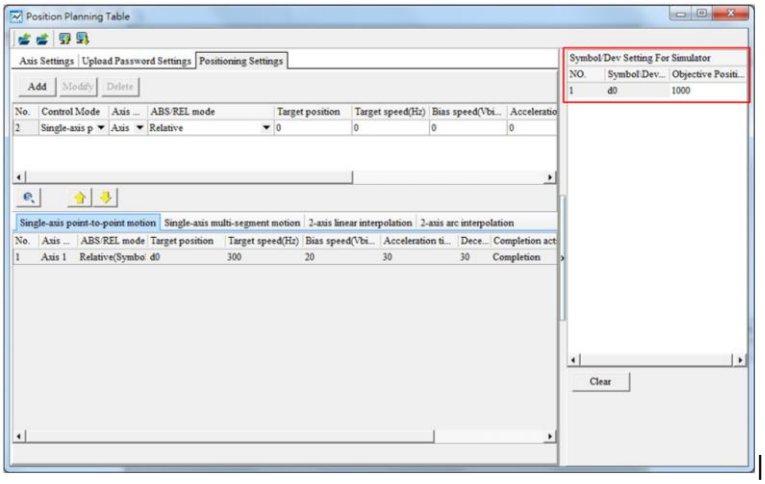



6. **Changed the status bar display**
Changed the flashing block to a solid one and add the wording (ERR) behind the red block on the status bar. When in the On-Line mode, users can learn the scan time and the status of the PLC from the status bar. If the block is green, it indicates the communication is on-going. If the block is red, there will be a wording (ERR) behind the red block, indicating there is an error occurred. As for the wordings, RUN and STOP, RUN indicates the PLC is in operation and STOP indicates the PLC is not working.

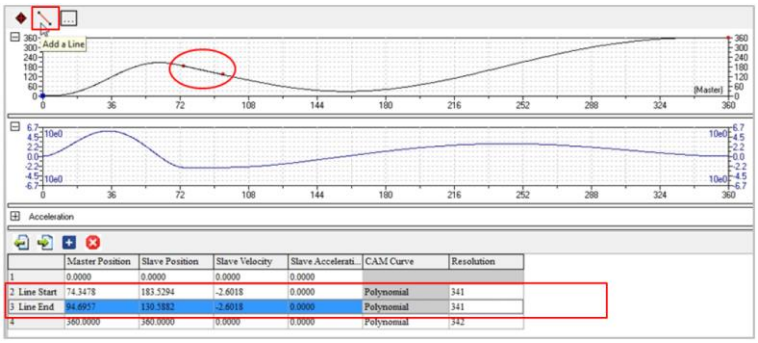



7. **Optimized the Position Planning Table**
Options including Relative (Symbol/Address) and Absolute (System/Address) are added in the positioning setting tab. When the options above are selected, devices and symbols can be used in the target position. For devices, only data devices are supported. As for the symbols, they should be declared in the global symbol table first before being used in the target positon. The address should be a data device and the data types should be DWORD or DINT. On the right side of the global symbol table, users can input values for simulation.

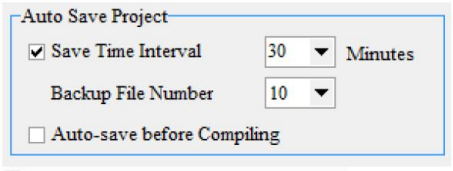


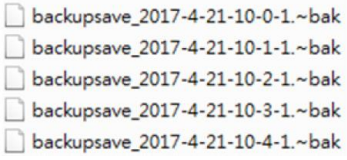



8. **Added a new form of curve, polynomial for the E-CAM editing, available for AHxxEMC series PLC**




9. **Optimized the back-up function.**
   Users can set up the backup interval time and the total number of the backup files in the Tools -> Options -> Project Setting tab, and the system will save a backup file (*.~bak) in the project list accordingly. When needed, users can use the backup file as the project file by simply changing the extension file name from (*.~bak) to (*.isp).




10. **HWCONFIG supports new models including AS08AD-B and AS08AD-C**
    Be sure to refer to the relative manuals before any setup. In order to prevent any personal injury or property damage, make sure all the setups are done logically.

11. **Added a new wizard for Extension Module**

12. **ISPSoft user manual is updated accordingly**

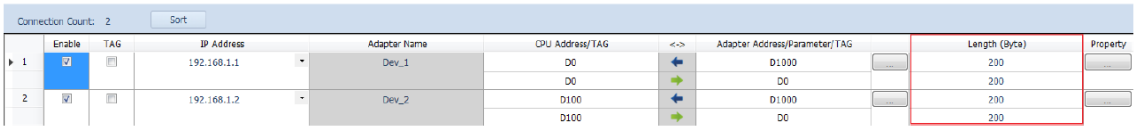
You can find ISPSoft 3.03 on our ftp-site

## 2.5 UPDATE – EIP Builder version 1.03 released

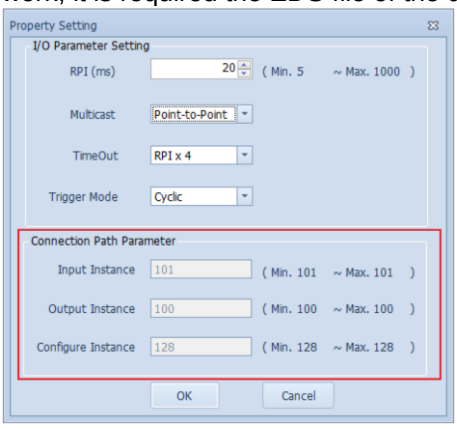
EIP Builder V1.03 is released along with the Delta EtherNet/IP related products, AHCPU5X1-EN and EtherNet/IP remote I/O modules. The functions which are modified and the functions which are added are described as below.

1. **EIP Builder V1.03 now supports AHCPU5X1-EN and remote I/O module AHRTU-ETHN-5A**
   * AHRTU-ETHN-5A is supported for AHCPU511/521/531-EN with firmware version 2.0 or later versions. Refer to AH EtherNet/IP user manual for more information on operation.

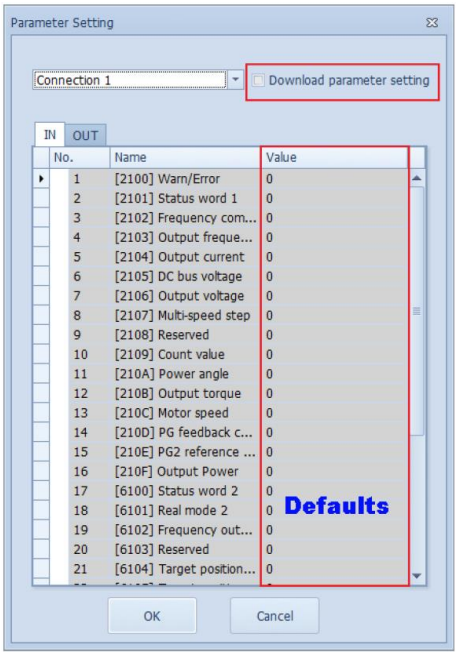
2. **Add a new column "Length (Byte)" in the editing area for data mapping**
   Users can modify the data length in this newly added column according to the application used.




3. **Path parameters can be edited in this new version**
   Users can read and edit the path parameters in the Property Setting window. For this function to work, it is required the EDS file of the device should support the editing of the path parameters.




4. **Download parameter settings (defaults) can be selected or deselected**
   When the option is not selected, the defaults will not be imported when the connection is being established or reestablished.



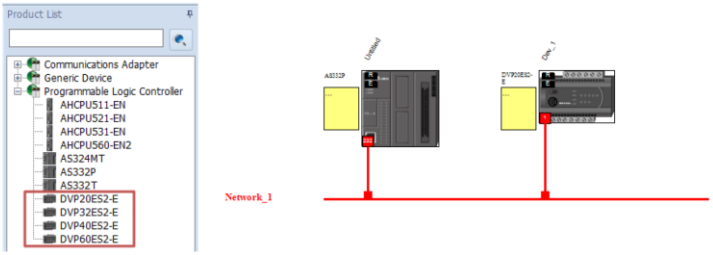

5. **Fix the issue that errors may occur in COMMGR**
   COMMGR (V1.06 and V1.07) while connecting to devices via EIP Builder

You can find EIP Builder 1.03 on our ftp-site.

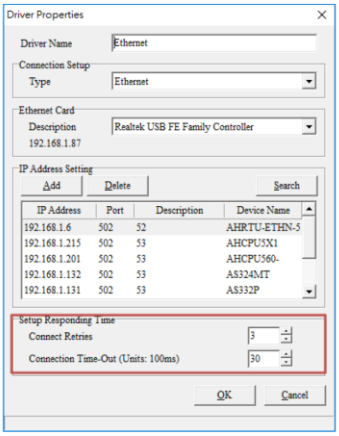
## 2.6 UPDATE – EIP Builder version 1.04 released

EIP Builder V1.04 is released along with the DVPES2-E.

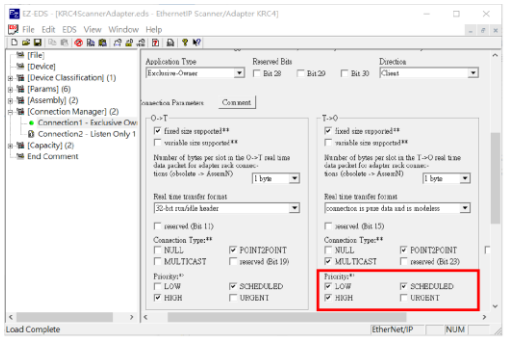
1. EIP Builder V1.04 now supports DVPES2-E series.



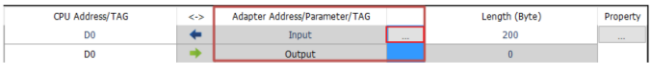

2. Responding Time of Scan Network (Operate > Scan Network in EIP Builder) can be set in COMMGR.



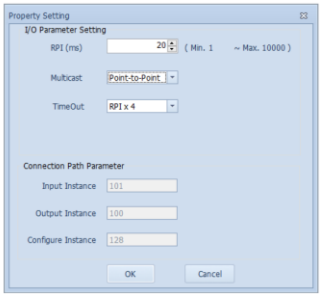
3. New formats of I/O connection priority for EDS files are supported such as SCHEDULE, HIGH and LOW. (Only the option "Schedule" is supported in V1.03.)



4. When the option "Connection_Listen Only" is selected in ... (Parameter Setting), the items "Input" and "Output" in the column "Adapter Address/Parameter/Tag" are fixed during connection.




5. Fix the issue that the Property Setting cannot be set for General Devices.




You can find EIP Builder 1.04 on our ftp-site.

## 2.7 NEW – DVP ES2-E

To get higher market share and enhance the performance/functions for DVP ES2ES2 series PLC, , Delta releases DVP ES2-E series CPU with built-in Ethernet port to fulfill the requirements of Ethernet port to fulfill the requirements of Ethernet port to fulfill the requirements of Ethernet port to fulfill the requirements of functions, performance and price from the markets.

### Features

- Provides 4 models with different built-in I/O points (20/32/40/60 points)
- Built-in Ethernet port (100M)
- Supports EtherNet/IP (Adapter 模式) (From firmware version V1.04 )
- Supports MODBUS TCP
- Execution speed is doubled than DVP ES2 series CPU
- Supports specific memory card

### Target

- Customers who already used DVP ES2, but need Ethernet function in the future
- Customers who were interested in DVP ES2 series PLC, but finally was forced to select the other products due to without the Ethernet function
- Customers who use SIEMENS S7-200/1200, MITSUBISHI FX3 and SCHNEIDER M100 series PLC (Brick type)

## Comparison

- With DVP ES2

| Spec. | DVP ES2-E | DVP ES2 |
|---|---|---|
| Prog./Data capacity | 16K steps / 20KB | The same |
| Memory card | Support (DVP-E64FM) | No |
| High speed input (HSC) | 50K x2 (AB phase) or 100K x2 (open collector) | The same |
| High speed output (PTO) | 100K x2 | The same |
| LD execution time | 0.5us | 1us |
| Serial (COM) | RS232 / RS485 x2 | The same |
| Ethernet | MODBUS TCP EtherNet/IP | No |

- With competitors

| Spec. | DELTA DVP ES2-E | SIEMENS S7 1211C | MITSUBISHI FX3G-14M |
|---|---|---|---|
| Prog./Data capacity | 16K steps / 20KB | 30KB / 1MB | 32K steps / 112KB |
| Memory card | Support (DVP-E64FM) | Support (MMC) | No |
| High speed input (HSC) | 50K x2 + 5K x2 (AB phase) or 100K x2 + 10K x6 (open collector) | 80K x3 (AB phase) or 100K x3 (open collector) | 30K x2 + 5K (AB phase) or 60K x4 + 10K x2 (open collector) |
| High speed output (PTO) | 100K x2 or 100K x2 + 10K x2 (without direction) | 100K x4 | 100K x2 |
| LD execution time | 0.5us | 0.08us | 0.21us |
| Serial (COM) | RS232 / RS485 x2 | No | USB / RS422 |
| Ethernet | MODBUS TCP EtherNet/IP | Profinet MODBUS TCP | No |
| Battery | No | No | Needed |

## Software

- COMMGR v1.07 (Communication management software)
- ISPSoft v3.03 (Programming software)
- EIP Builder v1.03 (EtherNet/IP configuration software)

## CPU Specification

- 32-bit CPU
- Program: 16k steps, Data: 10k words
- PLC execution time: LD:0.5μs, MOV: 2μs
- Built-in RS232 & RS485 (Master/Slave)
  - Supports MODBUS ASCII/RTU and PLC Link
- Built-in Ethernet
  - Supports EtherNet/IP (Adapter) & MODBUS TCP

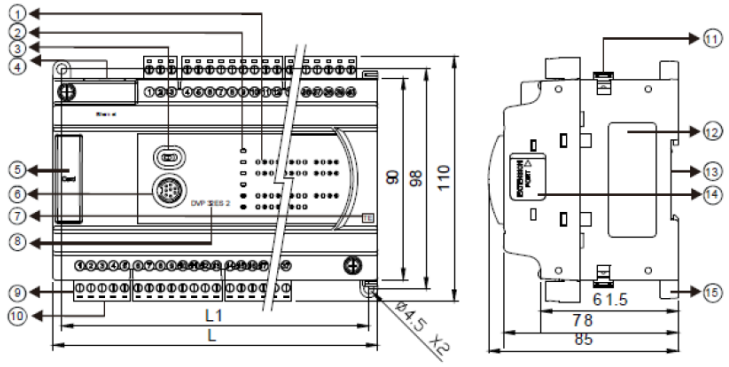
| Built-in Ethernet | | | |
|---|---|---|---|
| MODBUS | | EtherNet/IP | |
| Number of Connections | Server: 16 Client: 8 | Number of Connections | TCP: 4 CIP: 8 |
| Max. Data Exchange (each connection) | 100 words | Max. Data Exchange (each connection) | 250 words |
| | | RPI | 5~1,000 ms |
| | | PPS | 1,000 PPI |

- High speed output (PTO)
  - 100k Hz x2 or
  - 100K Hz x2 + 10K Hz x2 (without direction)
- High speed input (HSC)
  - 100k Hz x2 and
  - 10k Hz x6

## Electrical Specification

| | AC |
|---|---|
| Power Supply Voltage | 100~240 $V_{AC}$ (-15%~10%), 50/60Hz ±5% |
| Fuse Capacity | 2A/250 $V_{AC}$ |
| Spike Voltage Durability | 1500 $V_{AC}$ (Primary-secondary); 1500 $V_{AC}$ (Primary-PE); 500 $V_{AC}$ (Secondary-PE) |
| Insulation Impedance | >5MΩ (all I/O point-to-ground: 500 $V_{DC}$) |
| Noise Immunity | ESD: 8kV Air Discharge<br>EFT: Power Line, 2kV<br>Digital I/O: 1 kV<br>Analog & Communication I/O: 1 kV<br>RS: 26MHz~1 GHz, 10 V/m |
| Earth | The diameter of grounding wire shall not be shorter than that of the power supply cable.<br>(When many PLCs are in use at the same time, please make sure every PLC is properly grounded.) |
| Storage/Operation | Storage: -25°C~70°C (temperature); 5%~95% (humidity)<br>Operation: 0°C~55°C (temperature); 5%~95% (humidity); pollution degree 2 |

## Dimensions




| Dimensions(mm) | | | | |
|---|---|---|---|---|
| Model name | 20ES2 00RE/TE | 32ES2 00RE/TE | 40ES2 00RE/TE | 60ES2 00RE/TE |
| L | 125 | 165 | 194 | 255 |
| L1 | 117 | 157 | 186 | 247 |

## Ordering

| Model | Power (Vac) | DI Pts. | DO Pts. | DO Type | LD | MOV | Certification |
|---|---|---|---|---|---|---|---|
| DVP20ES200RE | 100~240 | 12 | 8 | Relay | 0.5µs | 2µs | CE, UL |
| DVP20ES200TE | 100~240 | 12 | 8 | Transistor (NPN) | 0.5µs | 2µs | CE, UL |
| DVP32ES200RE | 100~240 | 16 | 16 | Relay | 0.5µs | 2µs | CE, UL |
| DVP32ES200TE | 100~240 | 16 | 16 | Transistor (NPN) | 0.5µs | 2µs | CE, UL |
| DVP40ES200RE | 100~240 | 24 | 16 | Relay | 0.5µs | 2µs | CE, UL |
| DVP40ES200TE | 100~240 | 24 | 16 | Transistor (NPN) | 0.5µs | 2µs | CE, UL |
| DVP60ES200RE | 100~240 | 36 | 24 | Relay | 0.5µs | 2µs | CE, UL |
| DVP60ES200TE | 100~240 | 36 | 24 | Transistor (NPN) | 0.5µs | 2µs | CE, UL |

**Release**

| Product | Model | Launch Date (dd/mm/yyyy) | Area | MOQ ( Qty. ) |
|---|---|---|---|---|
| CPU | DVP20ES200RE | 22/06/2017 | World wide | 6 |
| | DVP20ES200TE | | | 6 |
| | DVP32ES200RE | | | 6 |
| | DVP32ES200TE | | | 6 |
| | DVP40ES200RE | | | 6 |
| | DVP40ES200TE | | | 6 |
| | DVP60ES200RE | | | 4 |
| | DVP60ES200TE | | | 4 |

## 2.8 UPDATE – DVP-EH3/DVP-EH3-L/ DVP-SV2 firmware updated to V2.06

Modified and added functions are:

《**New Functions and Instructions**》

1. Add X0~X17 single points for input filter.
   M1630 is for enabling (ON) / disabling (OFF) the filter function on single points X0~X17.

   M1631 is the flag for changing the filter time from OFF to ON on single points X0~X17.
   It is required to work with D1970 (for X0), D1971(for X1) …~ D1985 (for X17) for setting up the filter time on every single point. Refer to the attachment for more details.
2. In the past, to update the positions of the high-speed outputs can only be done through high-speed instructions. Add flags M1640~M1643 to work with the instruction REF to update the positions of the high-speed outputs (Y0, Y2, Y4, Y6) immediately. Refer to the attachment for more details.
3. Add a new flag M1019. When M1019 is ON and the power supply is steady on the PLC, the error LED indicator will blink rapidly in every 0.2 seconds. When M1019 is OFF (by default), no error will be shown when the power supply is not steady and when the power supply is back to normal, it will keep running.
4. Add a new instruction DTM to work with parameter K39 to read the imprinted serial number of the product. This function can be used for locating the designated PLC through the serial number.

《**Modified Functions**》

1. Issue: When using the MODRW instruction in the timer interrupts, the X21~X37 may act incorrectly.
   Solution 1: Use the MODRW instruction in the PLC main program.
   Solution 2: Contact the company or the technicians from the agents for a firmware upgrade (V2.05 or later versions).
2. Issue: When the high-speed axis 3 (Y4/Y5) works with the mark function, the mask function for the range (D1154/D1155) will be invalid.
   Solution: Contact the company or the technicians from the agents for a firmware upgrade (V2.05 or later versions).
3. Issue: When the instruction DPTPO is only executed in the output of the first segment, after the output is done, the completion flag will not be ON.
   Solution 1: Change the output to the first and second segment.
   Solution 2: Contact the company or the technicians from the agents for a firmware upgrade (V2.05 or later versions).
4. Issue: Download the program with the instruction LDZ which has been complied logically to the PLC, but the PLC responds with a syntax error.
   Solution: Contact the company or the technicians from the agents for a firmware upgrade (V2.05 or later versions).
5. Issue: When the input is a designated DOG point in the instruction DZRN, and the following external input points X0, X4, X10 and X14 are also activated, chances are some of the external input interrupts will be disabled.
   Solution: Contact the company or the technicians from the agents for a firmware upgrade (V2.05 or later versions).
6. Issue: While the instruction RS is in the mode of sending but not receiving, M1128 is not cleared to OFF, after the sending is complete.
   Solution: Contact the company or the technicians from the agents for a firmware upgrade (V2.05 or later versions).
7. Revise the instruction SCLP which is used for dividing by 0. In the past, it can set not to operate the act of dividing by 0. Now it is revised not only not to operate the act but also to store the error messages of dividing by 0 (0x0E19) in D1067 and the error address in D1068.

《**Deleted Instruction**》

In order to increase the firmware space, DSPA instruction is deleted on SV2 series PLC. for EH3 and EH3-L, the instruction DSPA has already been deleted on V2.04.

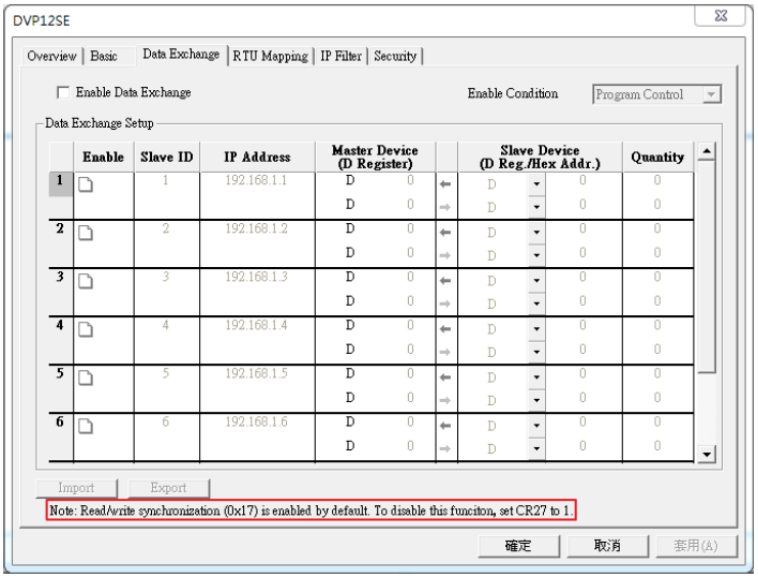
The new firmware was released on July 20, 2017. (W1730)

## 2.9 DCISoft V1.18 is released

**Modified and added functions:**

- SCMSoft version 1.24.02 now supports AH15SCM.
- DCISoft V1.18 now supports DVP-ES2-E.
- Updated the EDS files for the right side module, RTU-EN01.
- SCMSoft now supports editing AH560 Redundant backplane on HWCONFIG of ISPSoft.
- Fixed the BACnet upload/download written problems in SCMSoft.
- Fixed the module upload/download interrupt problems in SCMSoft.

- Added a NOTE concerning read/write synchronization on the Data Exchange Setup page in DCISoft.

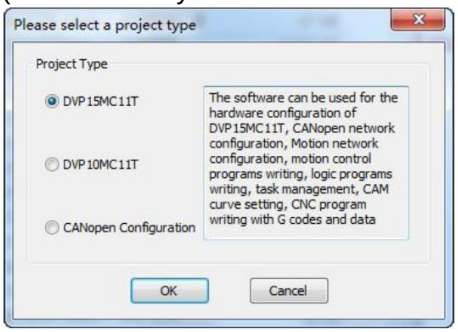



You can find DCISoft 1.18 on our ftp-site.

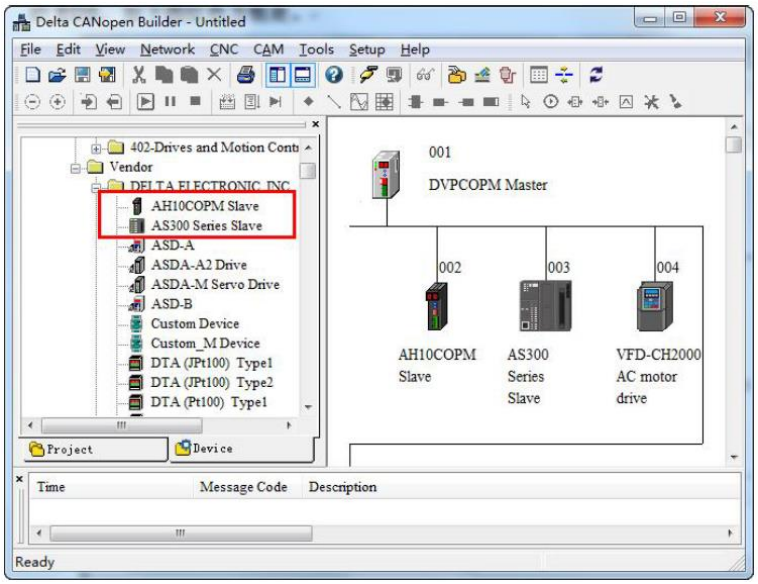
## 2.10 CANopen Builder V6.0 is released

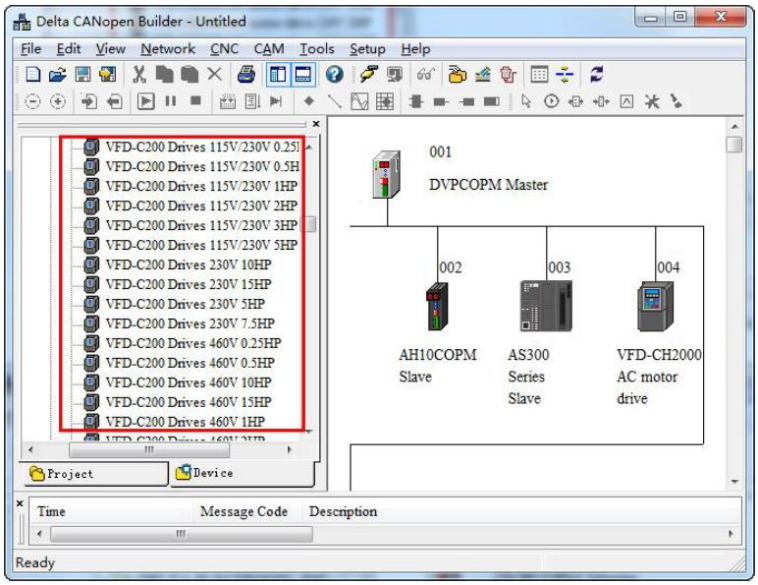
**Modified and added functions:**

- Model DVP15MC11T is added.
  CANopen Builder V6.00 and above support DVP15MC11T. After the new CANopen Builder software is started, the project types are displayed for option as shown in the figure below: (Note: Currently it is available for Chinese version only.)




- The EDS files of AH10COPM, AS300, CH2000, MS300 and MH300 series AC motor drives as slaves have been added to the V6.00 software as shown in the red box of the following figure:




You can find 2.6 CANopen Builder V6.0 on our ftp-site.

## 2.11 DOPSoft 2.00.06 released

Release information about the application software DOPSoft 2.00.06 for DOP series products.

**Applicable models:** DOP-B / DOP-W / DOP-H / HMC series

**Software/firmware revisions:**

1.1 Fix the DOP-B series HMI crash occurring when you enter the system menu and return to general screens if IP conflict occurs.
1.2 Fix the DOP-B series HMI crash occurring when it reads from or writes to devices with allocation unit size over 4K.
1.3 Fix the issue of exporting older history data in non-volatile memory in HMI.
1.4 Fix the DOP-B series HMI crash occurring when you insert an external device and set to save the non-volatile data in the external device.
1.5 Fix the communication setting error occurring when cycling the power to DOP-B07S410 HMIs.
1.6 Fix the continuous error of auto-detection window when the communication setting between DOP- B07S410 HMI and Delta ASDA-A2 is correct.
1.7 Fix the communication error between DOP-W series HMIs and the controller using Modbus TCP/IP when the communication is lost for 16 times or more.
1.8 Fix the copying failure occurring when the DOP-W series HMI screen data file contains alarm data.
1.9 Fix the execution error of the momentary button with user security level settings for DOP-W series HMIs.
1.10 Fix the execution error of the control section occurring when the DOP-W series HMI enables the communication optimization function.
1.11 Fix the DOP-W series HMIs with no response for a short time when you trigger the bit for saving as multiple files in history buffer.
1.12 Fix the DOP-W series HMIs with alarm clearance error when the number of alarms exceeds the savable range in the history buffer.
1.13 Fix the screen download failure when DOPSoft is in Windows 10 environment.
1.14 Fix the DOPSoft crash issue when exporting multi-language texts in Windows 10.
1.15 Fix the calculation error (repeat calculation) when you compile projects in DOPSoft.
1.16 When HMI connects with eRemote, fix the HMI crash occurring if you go to the system menu and return to general screens.
1.17 Fix the connection error between eRemote and the HMI when GridBox element is set with an After Execute macro.
1.18 Fix the HMI with no response due to users' not removing the external device safely before re-plugging in the device.
1.19 Fix the HMI crash occurring when it reads from or writes in NTFS-formatted storage devices.
1.20 Fix the reading error occurring when the enhance recipe imported to the HMI is edited with Excel.
1.21 Fix the HMI crash occurring if you plug in the external device to auto import the recipe when HMI screen shows the message that the USB Disk does not exist.
1.22 Fix the HMI crashing error occurring when the alarm message contains more than 56 characters.
1.23 Fix the alarm number recording error that occurs when you set to save the non-volatile data (alarm history) in the HMI.
1.24 Fix the issue of being unable to open the file by computer while you use “Save as Multiple Files” function in the history buffer.
1.25 Fix the result error occurring when you use Modbus to access 16-bit recipe values.
1.26 Fix the reconnection error occurring when communication failure occurs for over 16 times between the HMIs and some network type PLCs.
1.27 Fix the issue that the HMI keeps showing the alarm window when booting if the HMI cannot automatically obtain the IP address.
1.28 Fix the HMI crash occurring when HMI updates the RTC (real-time clock) through PLC.
1.29 Fix the HMI crash occurring when the barcode reader connecting to the HMI is interfered.
1.30 Change the controller name Omron CJ2M TCP to CJ/NJ Series FINS TCP.

**New software/firmware functions:**

2.1 Add the FTP Client function.
2.2 Add operation log for DOP-W series HMIs.
2.3 Add the sorting function to the Alarm Frequency Table for DOP-B series HMIs.
2.4 Add internal system parameter KEY_CHAR for DOP-B and DOP-H series HMIs to capture the keyboard input characters.
2.5 Add the ascending/descending sorting function in alarm history list for DOP-W series HMIs.
2.6 Screen display becomes faster when DOP-W series HMIs connect to PLCs.
2.7 Add network type PLC information when you obtain the firmware version in DOPSoft.
2.8 Add the supporting MC protocol for FX3U Ethernet controllers.
2.9 Add the function for re-obtaining the Ethernet address (DHCP) during screen operation.
2.10 Add a new macro EXALARMGROUP that exports the alarms based on groups for DOP-B series HMIs.
2.11 Add the USB host waiting time setting in the [System Menu] for DOP-B series HMIs.
2.12 More controllers (listed below) can now connect with the Delta HMI.
- Delta 15MC
- Delta 15MC TCP
- Delta 10EMC TCP
- Delta CNC Controller ASCII
- Fatek FBseries TCP
- LS XBM/XBC/XGK CPU Direct
- Mitsubishi FX5U
- Mitsubishi FX5U Ethernet
- Mitsubishi QnA Series CPU Port
- Moeller EasyPLC 800/MFD
- Siemens S7 1500 (ISO TCP)

2.13 New models: B07SS411

You can find DOPSoft-2-00-06 on our ftp-site.

You can find more detailed info in
DELTA_IA-HMI_DOPSoft-2-00-06_Technical Announcement_UM-EN_20170808.pdf
on our ftp-site

## 2.12 DVP-12SE firmware version 1.88 released

**Modified and added functions:**

1. **Issue:** When a DVP-SE series PLC receives MODBUS TCP data with any incorrect transmission length or address via Ethernet communication, the Ethernet communication may stop working.

   **Solution 1:** Contact the company or the technicians from the agents for a firmware upgrade for DVP-12SE (V1.87 or later versions).

   **Solution 2**: Use correct MODBUS TCP data format for transmission.

2. **Issue:** When the PLC Link function is enabled and uses the maximum-32-slaves connection mode, the slave numbers 17~32 do not support the latch function for communication parameters storing.

   **Solution:** Contact the company or the technicians from the agents for a firmware upgrade (V1.87 or later versions).

3. **Issue:** The instruction DCNT is executed to start C244 counter, but it cannot determine if the count has been reached nor the reached state will be shown correctly.

   **Solution:** Contact the company or the technicians from the agents for a firmware upgrade (V1.87 or later versions).

4. **Issue:** The DVP-SE series PLC with version 1.86 can only execute the instruction TWRP once while it is supplied with power.

   **Solution 1:** Use the instructions LDP M0 and TWR D0 at the same time to write the RTC in.

   **Solution 2**: Contact the company or the technicians from the agents for a firmware upgrade for DVP-12SE (V1.87 or later versions).

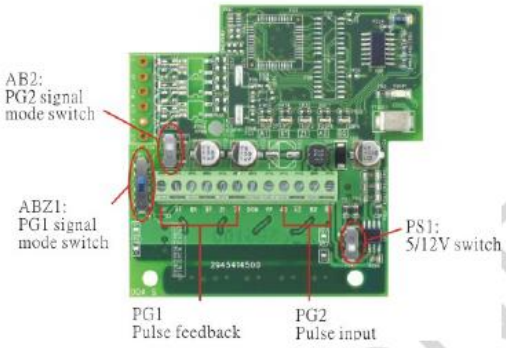
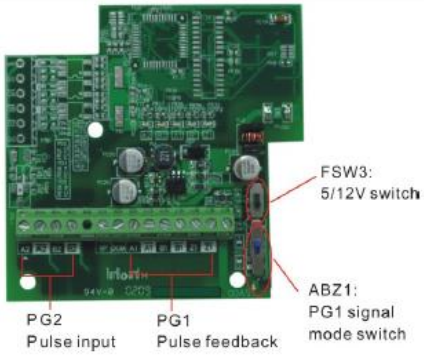
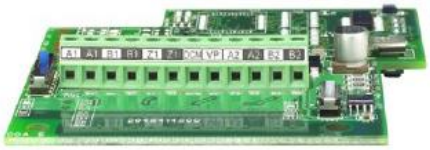
5. New Function: Add a new communication instruction CANRS for self-defined communication protocols via CAN communication to work with DVPCOPM-SL modules. Please refer to the attachment for more details on the instruction CANRS. Note: this instruction can only be executed in WPLSoft V2.45 and ISPSoft V3.03 or later versions.

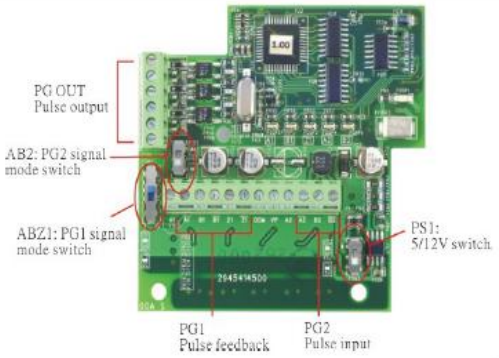
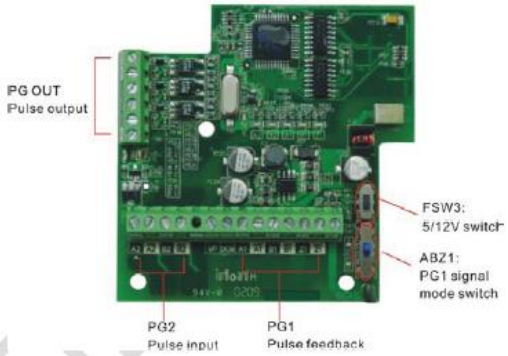
Release date: July 20th, 2017

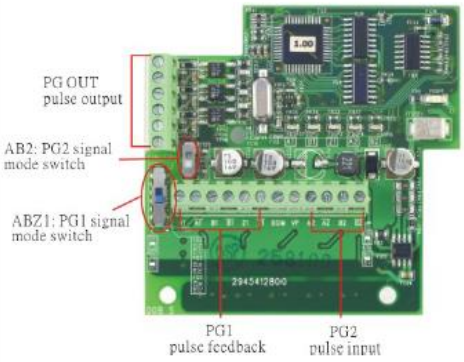
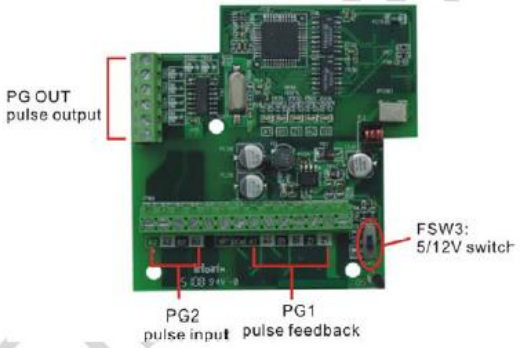
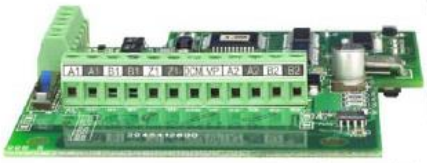
## 2.13 PHASE OUT – EMV-PG01x for VFD-VE

The following encoder cards for VFD-VE have been phased out recently:

- EMV-PG01X: Replaced by EMV-PG02X
- EMV-PG01O: Replaced by EMV-PG02O
- EMV-PG01L: Replaced by EMV-PG02L

| Model | EMV-PG01X | EMV-PG02X |
|---|---|---|
| Top view |  |  |
| Side view |  |  |
| PG1 | VP: Power source of EMV-PG01X (use PS1 to switch 12V/5V)<br>Output Voltage: +5V/+12V±5% 200mA | VP: Power source of encoder (use FSW3 to switch +5V/+12V)<br>Output Voltage: +5V±5%/+12V±1V 200mA |
| | DCM: Power source and input signal common | DCM: Power source and input signal common |
| | Input signal. Input type is selected by ABZ1. It can be 1-phase or 2-phase input. Maximum 300kP/sec | Encoder input signal. Input type is selected by ABZ1. Applicable for 1-phase/2-phase input. Maximum 300kP/sec |
| PG2 | Pulse Input signal. Input type is selected by AB2. It can be 1-phase or 2-phase input. Maximum 300kP/sec | Pulse input signal. No internal pull-high resistor. The external pull-high resistor can be connected to PLC or the power of host controller. Applicable for 1-phase/2-phase input. Maximum 300kP/sec |
| PG OUT | No PG out | No PG out |
| ⏚ | Grounding | Grounding (For PG Shielding) |

| Model | EMV-PG01O | EMV-PG02O |
|---|---|---|
| Top view |  |  |
| Side view |  |  |
| PG1 | VP: Power source of EMV-PG01X (use PS1 to switch 12V/5V)<br>Output Voltage: +5V/+12V±5% 200mA | VP: Power source of encoder (use FSW3 to switch +5V/+12V)<br>Output Voltage: +5V±5%/+12V±1V 200mA |
| | DCM: Power source and input signal common | DCM: Power source and input signal common |
| | Input signal. Input type is selected by ABZ1. It can be 1-phase or 2-phase input. Maximum 300kP/sec | Encoder input signal. Input type is selected by ABZ1. Applicable for 1-phase/2-phase input. Maximum 300kP/sec |
| PG2 | Pulse Input signal. Input type is selected by AB2. It can be 1-phase or 2-phase input. Maximum 300kP/sec | Pulse input signal. No internal pull-high resistor. The external pull-high resistor can be connected to PLC or the power of host controller. Applicable for 1-phase/2-phase input. Maximum 300kP/sec |
| PG OUT | VP: Power source of EMV-PG01X (use PS1 to switch 12V/5V)<br>Output Voltage: +5V/+12V±5% 200mA | V+: To input external power for PG output signal. Input voltage: +5V ~ +20V current 50mA Max. |
| | DCM：Power source and input signal common | V-: Reference power level for PG output signal and external power |
| | AO / BO / ZO ：Output signal. It has division frequency function (Pr.10-16), open collector: max. output DC20V 50mA | AO / BO / ZO PG: PG output signal with frequency division function (Pr.10-16). It's open collector output without internal pull-high resistor and needs to connect to PLC or host controller. Max. output frequency: 300kP/sec |
| ⏚ | Grounding | Grounding (For PG Shielding) |

| Model | EMV-PG01L | EMV-PG02L |
|---|---|---|
| Top view |  |  |
| Side view |  |  |
| PG1 | VP: Power source of EMV-PG01X (use PS1 to switch 12V/5V)<br>Output Voltage: +5V/+12V±5% 200mA | VP: Power source of encoder (use FSW3 to switch +5V/+12V)<br>Output Voltage: +5V±5%/+12V±1V 200mA |
| | DCM: Power source and input signal common | DCM: Power source and input signal common |
| | Input signal. Input type is selected by ABZ1. It can be 1-phase or 2-phase input. Maximum 300kP/sec | Encoder input signal (only for Line driver). Applicable for 1-phase/2-phase input. Maximum 300kP/sec |
| PG2 | Pulse Input signal. Input type is selected by AB2. It can be 1-phase or 2-phase input. Maximum 300kP/sec | Pulse input signal. No internal pull-high resistor. The external pull-high resistor can be connected to PLC or the power of host controller. Applicable for 1-phase/2-phase input. Maximum 300kP/sec |
| PG OUT | AO / BO / ZO $\overline{AO}$ / $\overline{BO}$ / $\overline{ZO}$ : Output signal. It has division frequency function (Pr.10-16), Line driver: max. output DC5V 50mA | AO / BO / ZO $\overline{AO}$ / $\overline{BO}$ / $\overline{ZO}$ : Output signal. It is Line driver output and has division frequency function (Pr.10-16). Output voltage: 5V Max. current 50mA<br>Max. output frequency: 300kP/sec |
| ⏚ | Grounding | Grounding (For PG Shielding) |

**Phase-out date**

| Date | Area |
|---|---|
| 2017/8/18 | Worldwide |

## 2.14 DOP-H series: FTP Client function improved

**Function explanation**

Users can use this function to transfer data to FTP Server (FTP Client). Of course, including account login-logout mechanism / file upload / file delete / file download / file management / Rename / directory (folder) management and other functions.

**Description:**

a. FTP file list element property.
b. FTP file setting property.
c. Description of macro command : FileSlotGetName / FileSlotGetID

Please refer to the document
DELTA_IA-HMI_FTP Client_UM-EN_20170808 (2).pdf
on our ftp-site

# 3 Application

## 3.1 NEW – Application Notes

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

- 116A-FE-xM3-175728-A-01-01_Safety precautions and instructions for MH&MS300 series three-phase inverter using single-phase power supply.pdf
- Packaging Industry Notification-Corrugated carton bonding machine.pdf
- Warehouse and Logistics Notification _20170807_Morsun.pdf
- Woodworking Industry Notification-Tenon Processing Center.pdf
- Rubber Plastic Industry Announcement--Wood plastic extruder machine solution.pdf
- Robot Industry Notofication-Delta IA Product Application on Screw Locking_EN_REV.pdf
- Industry Notification - Textile Industry Synchronous Stopping Solution for Twisting Machines_EN.pdf
- Robot Industry Notification-Automatic gluing system for car resistor lead frame.pdf
- Robot Industry Notification - Delta MS Series Application on real-time tracking via conveyor belts for six-axle robotic arms.pdf

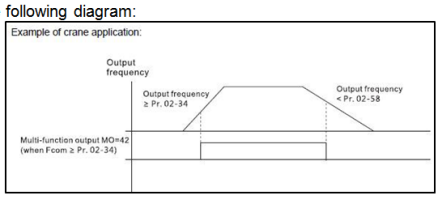
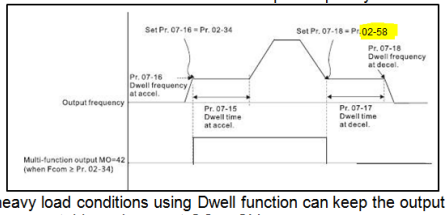
# 4 FAQ

## 4.1 VFD-series AC Motor drives

**MS300**

**Q** **What is the crane function (MO=42)?**

*A* *The crane function is as follows (the info in the manual will be corrected).*

| | | |
|---|---|---|
| 42 | Crane function | The crane function is to control a mechanical brake.<br>It works together with Pr02-34 and Pr02-58.<br><br>When a multi-function output is set (Pr02-13, Pr02-17, Pr02-18) to 42:<br>It activates when the output frequency (H) ≥ Pr02-34<br>It de-activates when the output frequency (H) < Pr02-58 after a stop command.<br><br>See following diagram:<br>  <br>It is recommended to use it together with the dwell function which is then active after STOP command and output frequency <Pr02-58:<br>  <br>In heavy load conditions using Dwell function can keep the output frequency stable and prevent OC or OV. |

| 02-34 | Frequency Setting for Multi-function Output | Factory Setting: 0.00Hz |
|---|---|---|
| | Setting range 0.00~599.0Hz | |

- When output frequency (H) ≥Pr.02-34, the multi-function output activates when set to 29. (Pr.02-13, Pr.02-16, Pr.02-17). It de-activates when output frequency (H) <Pr.02-34.
  When output frequency (H) ≥Pr.02-34, the multi-function output activates when set to 42. (Pr.02-13, Pr.02-16, Pr.02-17).
- When output frequency (H) <Pr.02-34, the multi-function output activates when set to 30. (Pr.02-13, Pr.02-16, Pr.02-17). It de-activates when output frequency (H) ≥Pr.02-34.
- When using MO=42, Pr02-34 must be >Pr02-58.

| 02-58 | Frequency Setting for Multi-function Output Crane Function | Factory Setting: 0.00Hz |
|---|---|---|
| | Setting range 0.00~599.0Hz | |

- Pr.02-58 is used together with Pr.02-34 and multi-function out set to 42 of (Pr.02-13, Pr.02-16, Pr.02-17).
- When, after STOP command, output frequency (H) <Pr.02-58, the multi-function output de-activates.
- When using MO=42, Pr02-58 must be <Pr02-34.

**Q** **How to set pulse train frequency command?**

*A* *Set the following parameters to use a pulse train as frequency command:.*

*- Pr02-07=0 (MI7 no function, therefore can be used for pulse train input.)*
*- Connect a 24VDC pulse train signal to MI7 (PNP or NPN depending on wiring).*
*Max frequency on MI7 is 33kHz.*
*- Pr00-20=4 (pulse input without direction)*
*Note: direction via terminals or keypad*
*- Pr10-00=5 (pulse input MI7)*
*- Pr10-16=5 (single phase input MI7)*
*- Pr10-01 for frequency relationship:*
*E.g. Pulse train f=0~10kHz.*
*Pr10-01=100. Then Fout (H)= f/100*
*Note: $F_{max}$ must be ≥f/100*

## 4.2 DPM

**DPM-D520I**

**Q** **How to set up communication on DPM-D520I?**

*A*

1. There are two mode to set the settings of Modbus, such as slave ID, Baud Rate…etc.
2. **USER Mode** :
   ① **If users know the settings of Modbus**, they can communication with DPM-D520I directly.
   ② Or users can set the settings of Modbus directly which they want.

1. **SETUP Mode** :
   ① **If users forgot the settings of Modbus** which they had set before, users can reset the settings of Modbus in this mode.
   ② When switch to SETUP mode, the settings of Modbus will be set to the fixed parameters automatically as Slave ID=1, Baud Rate=9600 bps, Data Len=8 bits, Parity Bit=None, Stop Bit=1 bit.
   ③ Then, users can set Modbus parameters again which they want to be.
   ④ After finishing setup, switch to USER mode. The settings of Modbus will be what users have set just.