

# **DELTA Newsletter** Industrial Automation Products

**Edition 2019-09**

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**sps**

smart production solutions

26. – 28.11.2019

Nuremberg



**AH5x1 CPU**

## 1 News

### 1.1 ftp-site link

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

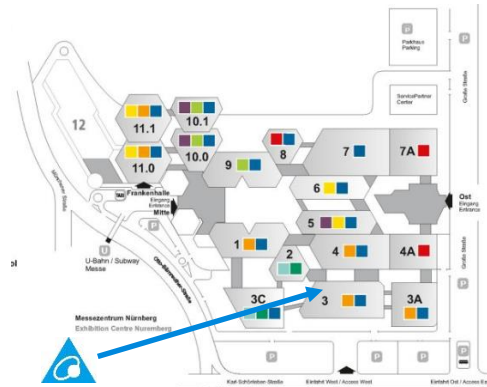
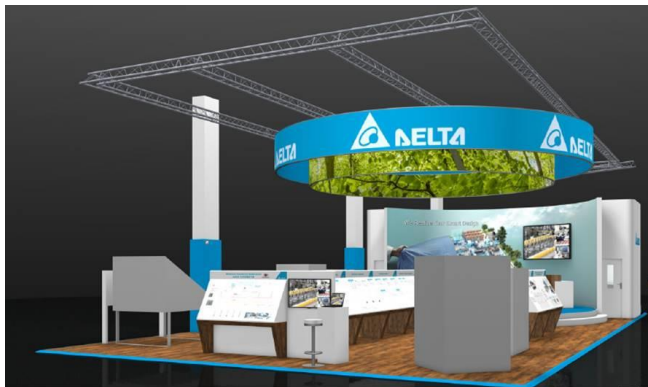
<ftp://den-eindhoven:BuPd2175@ftp2.delta-europe.com/deltronics-eindhoven/customer-service>

Name and password are included in the link.

Name: den-eindhoven

Password: BuPd2175

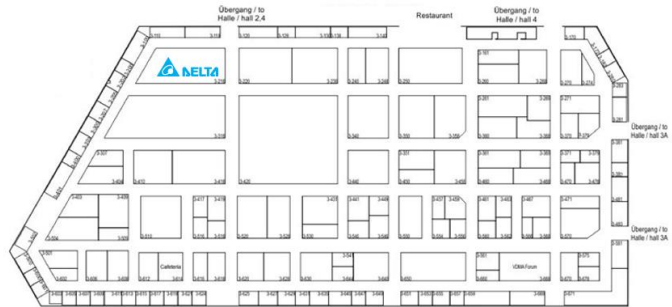
### 1.2 SPS2019



Also in 2019 Delta will be exhibiting at SPS in Nürnberg from 26~28 November 2019.

You will find us in Hall 3, 218.

We welcome you to visit us.



## 2 Product update

### 2.1 UPDATE – Hard drive partitions (drive C and D) for DIAVH Core-i series redesigned

Since DIAVH Core-i series is upgraded to Windows 10, the disk usage in the primary drive (drive C) is increased. The hard drive partitions (drive C and D) for DIAVH Core-i series were redesigned.

#### Changes:

- The capacity of drive C is partitioned into 100GB, instead of 50GB. Below is the detailed capacity of each drive.

Hard Drive Capacity	Applicable Part Number (P/N)	Before	After
Total Capacity	P/N ends with A	256 GB	256 GB
	P/N does NOT end with A	512 GB	512 GB
Drive C	P/N ends with A	50 GB	100 GB
	P/N does NOT end with A	50 GB	100 GB
Drive D	P/N ends with A	103 GB	156 GB
	P/N does NOT end with A	231 GB	415 GB
Drive E	P/N ends with A	103 GB	X
	P/N does NOT end with A	231 GB	X

- Applicable model names (part number):

IPC	DIAPH-IPC00310x, DIAPH-IPC00510x, DIAPH-IPC00310xA, DIAPH-IPC00510xA
PPC	DIAPH-PPC15310x, DIAPH-PPC15510x, DIAPH-PPC15310xA, DIAPH-PPC15510xA, DIAPH-PPC17310x, DIAPH-PPC17510x, DIAPH-PPC17310xA, DIAPH-PPC17510xA, DIAPH-PPC19310x, DIAPH-PPC19510x, DIAPH-PPC19310xA, DIAPH-PPC19510xA, DIAPH-PPC21310x, DIAPH-PPC21510x, DIAPH-PPC21310xA, DIAPH-PPC21510xA

**Release Date:** August 12, 2019 (Week 1933)

You can find the serial number on the product label of the IPC / PPC. If the serial number is IPCxxxxxxxW1933xxxx or PPCxxxxxxxW1933xxxx (indicating year 2019, week 33) or later, it means the drive C in this package has a disk capacity of 100GB.

### 2.2 UPDATE – DVP-12SE firmware updated from V1.92 to V1.94

DVP-12SE firmware version is released (V1.92 -> V1.94).

#### Changes:

- When the right-side module, DVP04PT-S (FW V4.08), is connected to DVP12SE11T/ DVP12SE11R, 10% of module detecting error may occur, when the power is supplied. Note: The firmware of DVP04PT-S has upgraded to V4.10 in year 2014. And since then, no similar issue ever happened again.
- Fixed the issue that when executing PWM instruction, the status of output points (ON/OFF) cannot be monitored through ISPSOft.

- Fixed the issue that when executing DCNT instruction to activate C251 or C252 for high-speed counting and use ISPSOft to update the current count, an incorrect value such as -30 may be shown.
- Fixed the issue that when M1035 is ON, the input point X7 cannot control PLC to Run or Stop.

### Release:

Series	Models	Firmware Version	Release Date
DVP-SE Series	DVP12SE11T	V1.92→ V1.94	2019.09.02 (W1936)
	DVP12SE11R		

## 2.3 NEW – AH5x1 CPU

The new AH CPUs, AH5x1 CPU, provide higher performance and memory capacity than the old AH CPUs AH5x0 CPU, and these new CPUs get more and more popular in the market because they bring more benefits to customers at the same price. Delta will release 4 new CPU models to complete its current new CPU family and customers can easily upgrade their old CPUs.




### Comparison:

Item	AH5x1 CPU	AH5x0 CPU
Program capacity	Increase 50% 48~384K Steps	32~256K Steps
D/L register capacity	Increase 50% 24~128K Words	16~64K Words
FB quantity	Increase 300% 512~4096 FBs	128~1024 FBs
LD execution time	20ns	100ns
EtherNet/IP	AHCPU5x1-EN support	Don't support
MODBUS TCP Server connections	AHCPU5x1-ENs support 48~160 connections	32 connections

### Product specification:

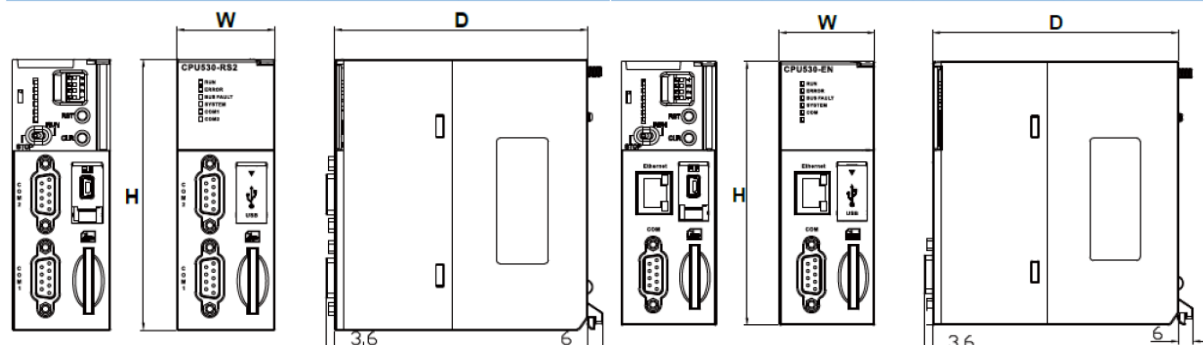
<b>AHCPU501-RS2, AHCPU521-RS2, AHCPU531-RS2</b> <ul style="list-style-type: none"> <li>Program capacity: <ul style="list-style-type: none"> <li>- AHCPU501-RS2: 48K steps (196KB)</li> <li>- AHCPU521-RS2: 192K steps (768KB)</li> <li>- AHCPU531-RS2: 384K steps (1.5MB)</li> </ul> </li> <li>LD execution time: 20ns</li> <li>Support of extension backplane: <ul style="list-style-type: none"> <li>- AHCPU501-RS2: No extension backplane</li> <li>- AHCPU521-RS2: 3 extension backplanes</li> <li>- AHCPU531-RS2: 7 extension backplanes</li> </ul> </li> <li>Built-in RS-232/485 multi-mode COM port x2</li> <li>Built-in SD card slot (max. 32 GB)</li> <li>Built-in Mini-USB programming port</li> <li>Support MODBUS RTU/ASCII</li> <li>Support LD/SFC/FBD/IL/ST programming languages</li> <li>Support 256 interrupts (Timed/IO/external/low voltage/communication)</li> <li>Support 2048 Timers &amp; Counters</li> <li>No battery required</li> <li>RTC function (max. 30 days after power off)</li> </ul>	<b>AHCPU501-EN</b> <ul style="list-style-type: none"> <li>Program capacity: 48K steps (196KB)</li> <li>LD execution time: 20ns</li> <li>Don't support extension backplane</li> <li>Built-in RS-232/485 multi-mode COM port x1</li> <li>Built-in Ethernet port x1 (100 Mbps)</li> <li>Built-in SD card slot (max. 32 GB)</li> <li>Built-in Mini-USB programming port</li> <li>Support MODBUS RTU/ASCII, MODBUS TCP</li> <li>Support EtherNet/IP <ul style="list-style-type: none"> <li>- Scanner &amp; Adapter modes</li> <li>- Support I/O connection &amp; explicit message</li> <li>- Connections: TCP=16 ; CIP=32</li> <li>- RPI: 1~1,000ms</li> <li>- 250 words/connection</li> </ul> </li> <li>Support LD/SFC/FBD/IL/ST programming languages</li> <li>Support 256 interrupts (Timed/IO/external/low voltage/communication)</li> <li>Support 2048 Timers &amp; Counters</li> <li>No battery required</li> <li>RTC function (max. 30 days after power off)</li> <li>Support NTP function</li> <li>Support WEB/E-Mail/IP Filter functions</li> </ul>
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### Specification:

Item	Specifications
Operating Conditions	<ul style="list-style-type: none"> <li>Temperature: -20~60°C</li> <li>Relative Humidity: 5~95% (Non-Condensing)</li> </ul>
Storage Conditions	<ul style="list-style-type: none"> <li>Temperature: -40~70°C</li> <li>Relative Humidity: 5~95% (Non-Condensing)</li> </ul>
Certificates	

### Dimensions:

AHCPU501RS 2 , AHCPU521 RS2 , AHCPU531 RS2				AHCPU501 EN			
Unit	H	W	D	Unit	H	W	D
mm	110	40	103	mm	110	40	103

### Ordering information:

Model	Description	Certificates
AHCPU501-RS2	AH standard CPU No extension backplane	CE, UL
AHCPU521-RS2	AH standard CPU Supports 3 extension backplanes	CE, UL
AHCPU531-RS2	AH standard CPU Supports 7 extension backplanes	CE, UL
AHCPU501-EN	AH Ethernet CPU No extension backplane	CE, UL

### Release information:

Product	Model	Release date (dd/mm/yyyy)	Region	MOQ ( pcs )
CPU	AHCPU501-RS2	29/7/2019	Global	4
CPU	AHCPU521-RS2	29/7/2019	Global	4
CPU	AHCPU531-RS2	29/7/2019	Global	4
CPU	AHCPU501-EN	29/7/2019	Global	4

## 2.4 UPDATE – VFD-DD firmware upgraded from 2.20 to 2.25

VFD-DD firmware has been upgraded to 2.25.

### Changes:

	v2.20 problem	v2.25 correction
1	There is no initial speed (Pr.04.00) when opening the door and it will accelerate directly to high speed (Pr.04.03).	Fixed a problem with no initial speed (Pr.04.00) when opening the door.

### Release:

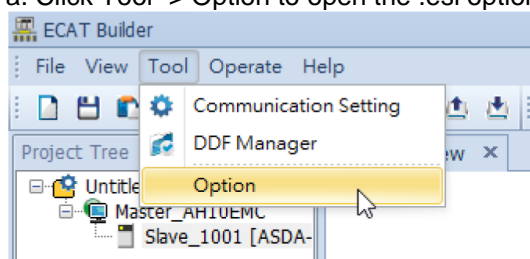
Firmware Version	Switching Period	
v2.25	Taoyuan	T1934

Firmware Version	*Estimated Switching Period	
v2.25	Wujiang	W1936

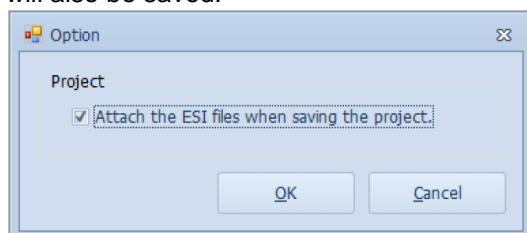
## 2.5 UPDATE – ECAT Builder software version 1.05 is released

### Changes:

- ECAT Builder V1.05 now supports .esi file that can be saved with the project.
  - Click Tool -> Option to open the .esi option window.

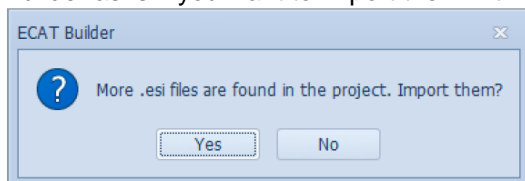


- Check the box to attach .esi files to the project. After that when saving the project, the .esi files will also be saved.



- ECAT Builder V1.05 now checks if are any .esi file is left without importing along with the project.
  - Open an ECAT project that has more .esi files that are not imported with the project. And ECAT

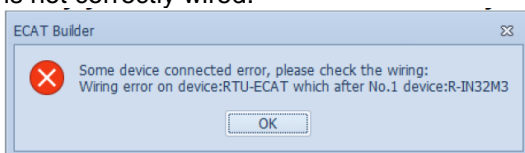
Builder asks if you want to import them with the project.



- The default slaves now include ASDA-A3-E CoE Drive, ASDA-B3-E CoE Drive, R1-EC5621, R1-EC7062.
- ECAT Builder V1.05 now supports String type parameters of Object Dictionary to be uploaded.

ECAT_Slave				
General PDO Mapping I/O Mapping Init Commands Parameters Distributed Clocks				
Parameters				
Index	Name	Flags	Type	Value
0x100A:000	Software version	--(Ro,Ro,Ro)	STRING(4)	1.01
0x100B:000	Device name	--(Ro,Ro,Ro)	STRING(27)	R-IN32M3 Ether-
0x1009:000	Hardware version	--(Ro,Ro,Ro)	STRING(3)	1.0

- When you add the scanned device in the network, ECAT Builder V1.05 checks if there is any error in the wiring. If any wiring is incorrectly set, an error message prompts to notify you which device is not correctly wired.



- Optimized the .esi file importing time.
- Optimized the product list refreshing time.
- Fixed the issue that when the PDO entry name contains a comma, the system cannot generate TAG automatically.
- Fixed the issue that settings in Operation Mode will be affected, once you switch to other setting page and then back.

You can find the software on our ftp site Folder: Customer-Service\Industrial Automation Products\PLC Programmable Logic Controllers\PLC Software

## 2.6 NEW – P.J.L Series Open Frame Power Supply for Lighting Applications

Delta Electronics' newest P.J.L series of open frame power supply is specifically targeted for lighting applications. The two models come with 48V constant voltage in 200W (P.J.L-48V200WBAA) and 400W (P.J.L-48V400WBAA) output power. The built-in active PFC products are designed in a small standard industrial 3" x 5" footprint and have a wide operating temperature from -40°C up to +80°C (+70°C for 200W) across the entire input voltage range of 85 to 305VAC based on a convection cooled design. It features low earth leakage current < 500 µA as well as low inrush current < 20A. Its optimum thermal management allows for high power efficiency up to 90.0%.

The products include major international safety standard for lighting application according to UL 8750, IEC 61347-2-13 and other approvals according to IEC/EN/UL 60950-1, IEC/EN/UL 62368-1 and are certified for EMI standards according to EN 55032 Class B.

### Highlights & Features:

- Universal AC input voltage range
- 200W with fan cooled and up to 150W convection cooled
- 400W with fan cooled and up to 200W convection cooled
- Standard industrial footprint of 3" x 5"
- Low inrush current < 20A and low earth leakage current < 500µA
- Conforms to harmonic current IEC/EN 61000-3-2, Class C
- Up to 90.0% efficiency
- Extreme low temperature operation at -40°C
- Lighting approvals to UL 8750, IEC 61347-2-13 and other approvals to IEC/EN/UL 60950-1, IEC/EN/UL 62368-1





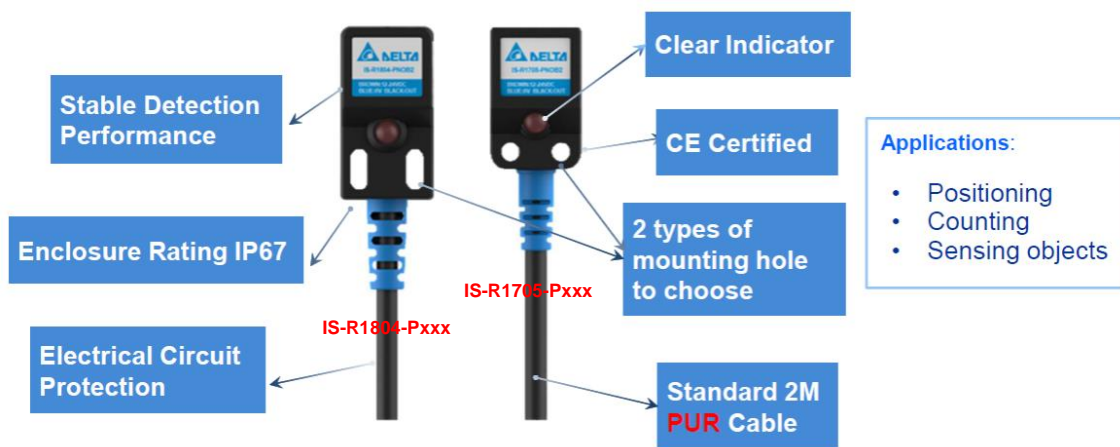
### 2.7 NEW – IS-R inductive sensor

Delta's new IS-R inductive sensors will soon be released after initial stock has arrived.

The following types are available:

Delta Model	Spec.
IS-R1705-PNOB2	Square Inductive sensor 5mm, NPN, NO
IS-R1705-PNCB2	Square Inductive sensor 5mm, NPN, NC
IS-R1705-PPOB2	Square Inductive sensor 5mm, PNP, NO
IS-R1705-PPCB2	Square Inductive sensor 5mm, PNP, NC

Delta Model	Spec.
IS-R1804-PNOB2	Square Inductive sensor 4mm, NPN, NO
IS-R1804-PNCB2	Square Inductive sensor 4mm, NPN, NC
IS-R1804-PPOB2	Square Inductive sensor 4mm, PNP, NO
IS-R1804-PPCB2	Square Inductive sensor 4mm, PNP, NC



## 3 Application

### 3.1 NEW – Application Notes

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

- MS300 Tension application.pptx
- Fluid Industry Notification - Glass Tempering Furnace System Solution.pdf
- Robot Industry - Delta MS Series Robot Controller 5-Axis SCARA Welding Application.pdf
- Robotics Industry Notification - Thickness Inspection of Mobile Phone Optical Lenses.pdf
- Construction Materials Industry Notification - Stainless Steel Pipe Automatic Production Solution.pdf
- Food Processing Industry Notification - Stuffed Bun Liner Paper Machine Solution.pdf
- Robot Industry Notification - Car Soundproofing Foam Packaging Machine.pdf
- Robotics Industry - Automated Fan Assembly Solution.pdf
- Fluid Industry Notification - Balance-Beam Pumping System Solution.pdf

### 3.2 MS300 Fire Mode in FW 1.08

MS300 also has Fire Mode in FW 1.08, although it is not in the manual yet but also not in FW 1.08 release announcement.

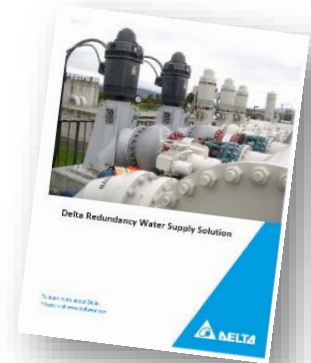
See [M300\\_FireMode\\_APP\\_note\\_20190808.pdf](#) on our ftp-site, folder Customer-Service\Industrial Automation Products\AMD\MS300\MS300 Application notes.

### 3.3 Delta Redundancy Water Supply Solution



The redundancy water supply solution can be used in firewater systems, domestic water (building solutions), industrial- or sewage treatment systems.

In this redundancy system, the drives communicate through inverter-to-inverter via RS485 communication. Each drive receives a start command by a digital input DI and a process value (pressure or flow) by analogue input AI, all controlled by the internal PLC.



Read more about it in [Delta Redundancy Water Supply Solution.pdf](#) in the ftp-site folders:

- Customer-Service\Industrial Automation Products\AMD\VFD-CP2000\VFD-CP Application Notes\Circulation Pump Application Note
- and
- Customer-Service\Industrial Automation Products\\_Delta Application Guide.

For more info you can contact Martien Heesterbeek ([mheesterbeek@deltaww.com](mailto:mheesterbeek@deltaww.com)) and/or Ufuk Ozer ([uozer@deltaww.com](mailto:uozer@deltaww.com)).

## 4 FAQ

### 4.1 VFD Series AC Motor Drives

#### Drives general

**Q** How to read/write from/to the onboard PLC through Modbus TCP and Ethernet IP?

**A** For the **CMC-MOD01** and **CMC-EIP01** cards this is supported starting with firmware **V1.08** (date code: W1852).

*The drive firmware needs to be at least:*

- **CP2000** - **V2.06** or higher.
- **CFP2000** - **V1.06** or higher.
- For **C2000** this has not yet been released.

*For the **CMM-MOD01** and **CMM-EIP01** cards this is supported starting with firmware **V1.04** (date code: W1850)*

*The drive firmware needs to be at least:*

- **MS300** - **V1.08** or higher.

*You can control the onboard PLC registers and contacts directly through station address acc. to Pr09-35.*



### Example 1:

You can read D100 by using command:  
'02 03 1064 0001'

02 (PLC address)  
03 (Read register)  
1064 (D100)  
0001 (1 register)

### Example 2:

You can read Y0~Y2 by using the  
command: '02 01 0500 0003'

02 (PLC address)  
01 (Coil read)  
0500 (Y0)  
0003 (3 values)

### 16-5-4 PLC Communication address

Device	Range	Type	Address (Hex)
X	00~37 (Octal)	bit	0400~041F
Y	00~37 (Octal)	bit	0500~051F
T	00~159	bit/word	0600~069F
M	000~799	bit	0800~0B1F
M	1000~1079	bit	0BE8~0C37
C	0~79	bit/word	0E00~0E47
D	00~399	word	1000~118F
D	1000~1099	word	13E8~144B
D	2000~2799	word	17D0~1AEF

Command code that can be used

Function Code	Description of Function	Function target
01	Coil status read	Y,M,T,C
02	Input status read	X,Y,M,T,C
03	Read single unit of data	T,C,D
05	Compulsory single coil status change	Y,M,T,C
06	Write single unit of data	T,C,D
0F	Compulsory multiple coil status change	Y,M,T,C
10	Write multiple units of data	T,C,D

### NOTE

When PLC functions have been activated, the C2000 can match PLC and drive parameters; this method employs different addresses, drives (default station number is 1, PLC sets station number as 2)

### MS300

Q

Why do I get LV-error even if the voltage is >LV-level (supplying 230VAC to a 400V drive)?

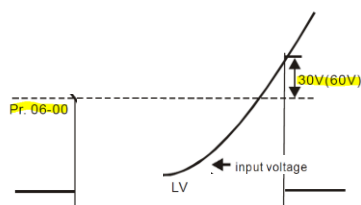
A

In Pr06-00 you can set the LV-level.

For a 400V drive, the minimum setting value is 300VDC.

When the drive is supplied with 230VAC, the DC-bus voltage is around  $230 \times \sqrt{2} = 325\text{VDC}$  which is higher than 300VDC so LV is not expected.

But in order to "cancel" LV, the DC-bus voltage must become  $>(\text{Pr06-00} + 60\text{VDC}^{**})$  which in this case never happens. Therefore LV stays and cannot be reset.



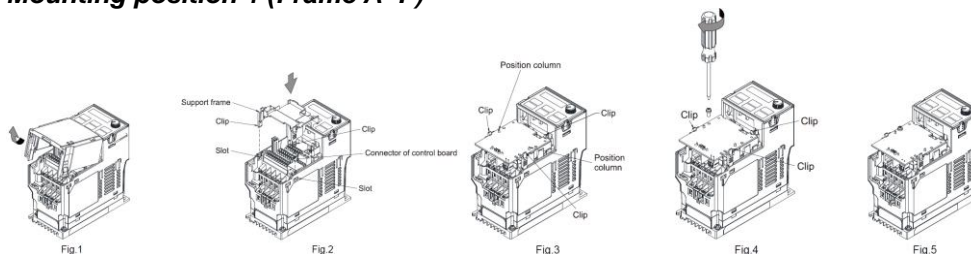
\*\* (For 230V drives, this value is +30VDC).

**Q**  
**A**

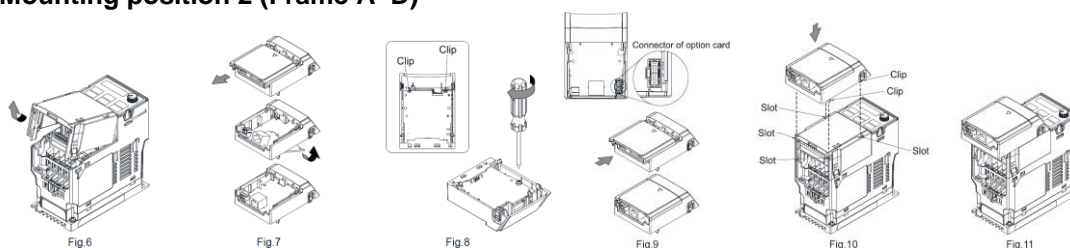
### How to install a fieldbus option card on MS300?

There have been some changes, please refer to this document: [MS300\\_Comm card\\_installation.pdf](#) which you can find on our ftp-site folder: Customer-Service\Industrial Automation Products\AMD-Options\AMD Fieldbus options

#### Mounting position 1 (Frame A~F)



#### Mounting position 2 (Frame A~D)



### Cable

Three types of cable length are available. As shown in the Fig.14, there are numbers on the two ends of the communication cable near the connector. The connection methods of option card of different frames are shown in the table below. Read the wording and numbers on the cables before wiring.

Frame	Mounting Position 1		Mounting Position 2	
	Connect to control board connector	Connect to option card connector	Connect to control board connector	Connect to option card connector
A	1	2	3	4
B	1	2	3	4
C	3	4	3	4
D	5	6	5	6
E	3	4	3	4
F	3	4	3	4

Number 1, 3, 5: Connect to control board connector  
Number 2, 4, 6: Connect to option card connector

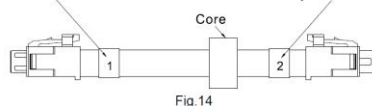


Fig.14

This info will be in the next user manual.