# DELTA Newsletter

## Industrial Automation Products

## Contents

# 1 News

## 1.1 Hannover Messe from 24~28 April, 2017
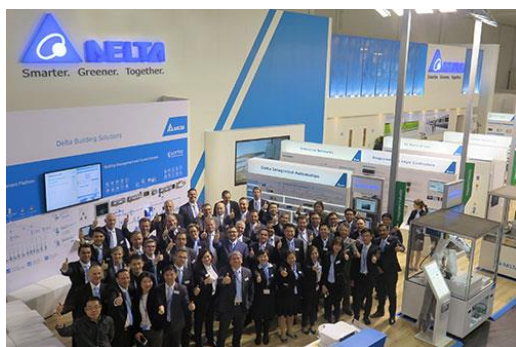
At Hannover Messe 2017, Delta demonstrated its wide spectrum of energy-efficient solutions and its deep track record in system integration to nurture the competitiveness of low-carbon sectors such as e-mobility, smart manufacturing, sustainable buildings, and renewable energy. These solutions include: the 150kW DC Ultra-Fast EV Charger, currently offering reduced charging times by close to 35% for EV drivers in Western and Northern Europe; the new Integrated IIoT & Robot Workstation live demo for smart manufacturing; and the newly-launched wireless charging system for electric forklifts, which represents the high diverse nature of Delta's showcase this year at the world's largest industrial fair.

Delta's president & general manager for Europe, Middle East & Africa (EMEA), Mr. Jackie Chang, remarked, "This year represents the 30th anniversary of Delta's presence in the EMEA region, where we provide a comprehensive portfolio of innovative and energy-efficient solutions designed to optimize the productivity and carbon footprint of our customers. We've recently supported the expansion of a colossal cluster of solar PV plants in Denmark to 75.4 MW, enough to fulfill the annual electricity needs of approximately 32,250 households, by integrating Delta's high-efficiency PV inverters while sharing our system integration know-how. In addition to that we applied our full range of energy-saving, energy generation and energy storage solutions on our newly renovated EMEA headquarters

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in the Netherlands, achieving up to 45% energy saving as well as the BREEAM green building qualification."

On April 25, Delta held an international press conference in which 32 influential journalists learned further regarding the company's new solutions for smart manufacturing, eco-friendly building automation, e-mobility and wireless charging. In the press conference, Mr. Jackie Chang underscored key milestones of Delta in the past year, such as the recent inauguration of its newly-renovated EMEA HQs green building as well as solution integration success stories across. Strong interest in Delta's impressive global capabilities during the press conference was palpable as two major media publications from Italy and Colombia visited our booth right after to perform audiovisual interviews with key Delta representatives. Moreover, IABG's Product Manager for EMEA, Mr. Alejandro Dova, participated at TAITRA's media event to introduce Delta's innovative industrial IoT (IIoT) router technology.
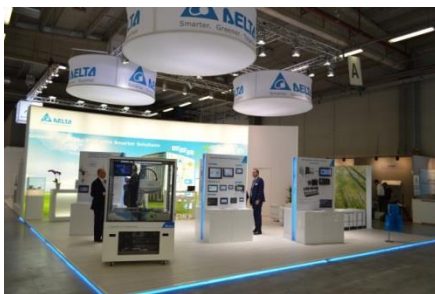
**Significant highlights from Delta's exhibition at Hannover Messe include:**

● Industrial Automation Solutions: This year, the live demo of our new Integrated IIoT & Robot Workstation will reveal Delta's system integration capabilities towards smart manufacturing. The workstation leverages Delta's manufacturing execution system (MES), 6-axis articulated robot, high-performance machine vision systems, IIoT connectivity and area sensor devices to execute on-site customer orders (processed via a cloud system) for laser-engraved names on business card holder gifts. Other live demo will feature newly-launched products such as the AC Servo Drive ASDA-A3 Series which boasts a vibration suppression function to optimize the operation of advanced machines and motion equipment.

● Building Automation Solutions: Delta's Building Management and Control System leverages its exclusive compatibility with all building control protocols used globally, including BACnet, Modbus, EnOcean, LON, M-Bus, KNX, OPC and DALI, to facilitate smart, remote and energy-efficient control of key infrastructure and equipment such as HVAC systems, power generation, lighting, security, among others.

● Wireless Charging Systems: Our newly-launched wireless power transfer system for industrial, robotics and AGV applications achieves over 93% energy efficiency from 1kW to 30kW capacity. CAN bus communication capability and an IP65-rated rugged waterproof casing are value-added qualities of this innovative system.

Read more:
http://www.deltaww.com/news/pressDetail.aspx?secID=3&pID=1&typeID=2&itemID=7347&tid=0&hl=en-US

## 1.2   SPS IPC Drives Parma from 23~25<sup>th</sup> May, 2017

Delta Industrial Automation, Italy participated in SPS IPC Drives Parma from May 23rd to 25th, 2017 and showcased its complete portfolio of next-generation industrial automation products and solutions designed to augment the productivity of manufacturing and industrial processes in a broad spectrum of applications.
The eye catcher of the booth was the Conveyor Tracking Glue Dispensing Robot Workstation which adopts Delta's Robot Controller with the Servo Drive Integrated ASDA-MS Series to control Delta's SCARA Robot DRS60L Series, and perform rapid and stable conveyor tracking and a glue dispensing simulation.

● **Industry-specific fan/pump drive CFP2000 Series** is Delta's brand new high durability Vector Control Drive for fan and pump applications. Featuring a built-in EMC filter, DC choke, Real-Time Clock (RTC), and BACnet, the CFP2000 Series provides the best solution for the special needs of

the HVAC industry. The IP55 model features highly effective protection against dust and water in harsh environments.

- Delta's **Internet Cloud Service Platform DIACloud** provides big data storage and management for remote monitoring by users. DIACloud is able to collect real-time facility operation data with Delta's Supervisory Control And Data Acquisition (SCADA) system DIAView, and energy consumption information with Delta's Industrial Energy Management System (IEMS) DIAEnergy. It can also acquire and preserve operational information when connected to an Enterprise Resource Planning (ERP) system and Manufacturing Execution System (MES), manufacturing facilities and factory facilities. With data saved and managed, DIACloud allows users to access and remotely monitor real-time operational information via PCs and mobile devices, providing a fast and convenient real-time remote monitoring solution for smart manufacturing.

- **Horizontal Flow Wrapping Solution**: This solution, capable of facilitating the control of as many as 32 axes in horizontal flow wrapping machines through the embedded EtherNet/IP and EtherCAT protocols, is a living proof of Delta's growing capabilities in system integration as it combines the newly-launched HMI DOP-100 series, the hot swappable Motion Controller AH10EMC series, Remote I/O modules R1-EX series, the AC Servo Drive ASDA-A2-E series and the High-Performance Compact Drive MH300 series. Customers can benefit further by utilizing the valuable and quick global data access and storage enabled by Delta's DIACloud Cloud Management Platform.

- **CNC Control Solutions**: Delta is unveiling two different CNC Control Solutions architectures at SPS Parma 2017:
  - PC-based CNC Solution: The controller enables to manage 6 axes and up to 4 interpolated axes via EtherCAT which makes it a preferred choice for applications such as thermal cutting and glass cutting. The system was designed for hardware integration allowing for Delta's PC-based Host Motion Controller MH1 series, AC Motor Drive ASDA-A2-E and the High-Performance Compact Drive MH300 series to be integrated meeting high precision requirements.
  - Open CNC Solution: This option allows for the management of 4 axes with 4 interpolated axes through the integration of Delta's own Open CNC Controller NC30E series, AC Servo Drive ASDA-A2-F series and Spindle Motor Drive ASDA-S-N series. In addition, permanent magnet spindle or 3rd-party induction motors can also operate under Delta's Open CNC Solution.
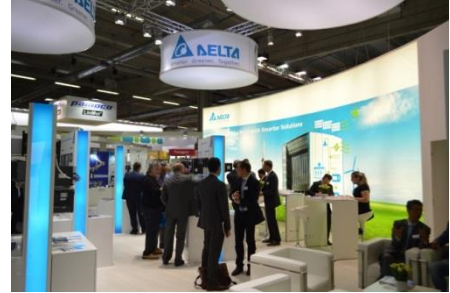
It was a successful show with many interested visitors and some very good leads.

## 1.3  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

# 2    Product update

## 2.1   UPDATE – C2000 firmware 2.02

C2000 firmware is upgraded from 2.01 to 2.02.

| | **Function correction** | |
|---|---|---|

| | Version 2.01 problem | Version 2.02 correction |
|---|---|---|
| 1 | When the Treatment to 4-20mA Analog Input Signal Loss 03-19=1 Continue operation at the last frequency, the frequency output will has "no-continuous" problem. | The Pr03-19 can work normally. |
| 2 | Because there has a "special letter" in the Error described with French language as below:<br>Error = SpdFbk d?vier SdDe<br>Error = Forcer 1'Arr?t FStp | Error = SpdFbk devier SdDe<br>Error = Forcer 1'Arret FStp |
| 3 | The PID P gain scale need to handle 10 times scale when it is switched and select with how many decimal number. | The P gain function can work normally. |
| 4 | Pr00-29 LOCAL/REMOTE Selection =2 Switching Local/Remote, the drive runs as the REMOTE setting for frequency and operation status: after switch to Local mode, drive had a fault and trip up, to press Reset command will enable Local mode frequency command to become 0Hz. | After a fault reset, the Keypad frequency command will not change to be 0Hz. |
| 5 | C2000 in P2P absolute mode does not go to reference if position is manually changed | The P2P absolute mode can work normally even the position has manually changed. |

| | **Function modify** | |
|---|---|---|

1. The "COPY function" of KPC-CC01：the process will auto-stop if an error has happened during the COPY operation. Thus, the COPY function will pass over Multi-function IO status checking procedure to avoid that "MI active→Error happen→COPY stop". For example, the MIx has been set as BB, EF,EF1 or other "error" input, the system IO and Pr02-12 have N.O./N.C. selection, those selection will cause an "error" input to be active during parameter copying.
2. Pr03-19 has changed to become "Can't change during operating".
3. C2000 English parameters display modified" as below:

| Parameter | Old display | New display |
|---|---|---|
| 00-16 | Duty Selection | Load Selection |
| 00-17 | Carry Frequency | Carrier FREQ |
| 02-47 | Desire RPM | Target RPM Level |
| 03-50 | AI Calculate Way | AI Curve |
| 06-29 | PTC Treatments | PTC Detection |
| 07-10 | Fault Re-RUN Way | Fault Recovery |
| 07-19 | Cooling Fan Way | Cooling Fan Ctrl |
| 07-31 | Over Slip Way | OverSlip Recover |
| 08-16 | PID Offset Way | PID Compensation |
| 09-02 | MODBUS Fault Way | MODBUS Fault Act |
| 09-10 | Comm Main FREQ | FREQ when Error |

4. When use KPC-CC01 for parameter copy, the SE3 will be displayed when the different power range drive parameters are copied, and can be reset. If the communication disconnected during parameter copying process, the SE1 and SE2 will be displayed, this warning code can't be reset, the drive need to power off to reset warning code.

| New Function |
| --- |

1.  C2000 v2.02 support EtherCAT card-CMC-EC01.
2.  C2000 v2.02 support CANopen parameter PDO mapping.

**Production:**

| Version | Series number | |
| --- | --- | --- |
| v2.02 | WJ | 1710 |

## 2.2   UPDATE – REG2000 firmware 1.05

REG2000 firmware is upgraded from 1.04 to 1.05.

| Correcting functions |
| --- |

| | Corrections in V1.05 |
| --- | --- |
| 1 | Optimized the voltage frequency detection mechanism: when the normal operating frequency is exceeded (47~63HZ +/- 4Hz), REG will stop the regenerative voltage command update. <br><br> When the x-capacitor at mains side is large (*Note), this function will be effective to solve the mistake triggering problem. <br> If you have any questions, please contact the BU FAE for further information. <br><br> *Note: The customer system applications have add EMI filter, when the power off, often there are still residual voltage in the phase capacitance. |

**Production:**

| Firmware version | Switching period | |
| --- | --- | --- |
| V1.05 | Taoyuan | T1718 |

## 2.3   **PHASE OUT** – VFD-M

VFD-M is already phased out for Europe but it will be phased out completely by the end of 2018.
Replacement is MS300 with the main advantages of built-in filter, STO, PLC, Fieldbus option modules.
Further details will follow later.

## 2.4   **PHASE OUT** – VFD-B

VFD-B will be phased out by the end of 2018.
Replacements are:
  ≤22kW   MH300
  ≥30kW   C2000
with the main advantages of built-in filter, STO, PLC, Fieldbus option modules.
Further details will follow later.

## 2.5   **NEW** – IFD8500-A/IFD8510-A

We replaced IFD8500 by IFD8500-A. The key function is transferring the RS232 signals to RS485 /RS422 differential signals. The RS232 interface of computers, PLCs and other controllers can be converted to RS485/RS422 over long communication distances and simple multi –points industrial networks.

We replaced IFD8510by with with IFD8510 -A. The key function is repeating the RS485/RS422 differential signals to get longer communication distance than 1200m or more communication nodes than 32. Moreover, it supports RS485 half-duplex, RS422 full duplex and data flow auto -detect and auto –switch.

## Features

- Detect and configure the communication format automatically

- Switch-less and fully-isolated design

- Communication baud rate: up to 115200bps

## Dimensions

IFD8500-A
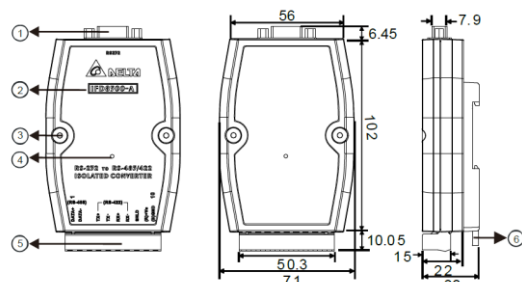
| 1 | RS-232 Port ( DB9 ) | 2 | Model Name |
|---|---|---|---|
| 3 | M3 Special Screw | 4 | LED Indicator |
| 5 | RS-485/RS-422 & Power Input Terminal | 6 | DIN Rail Clip |

IFD8510-A
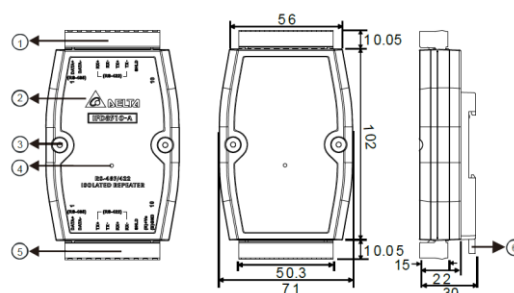
| 1 | RS-485/RS-422 Terminal | 2 | Model Name |
|---|---|---|---|
| 3 | M3 Special Screw | 4 | LED Indicator |
| 5 | RS-485/RS-422 & Power Input Terminal | 6 | DIN Rail Clip |

## Specifications:

■ Electrical

| Item | IFD8500-A | IFD8510-A |
|---|---|---|
| Power input | +9V ~ +48VDC | |
| Power consumption | 0.4 W | |
| Weight | 122g | 133g |

- **RS-232 /RS-485/RS-422**

| Baud rate | Up to 115200 bps (Auto) |
|---|---|
| Transmission delay | <2.5 us |
| Isolated voltage | 5000VAC |
| Interface | 10 PIN Terminal(RS-485/RS-422) / DB9(RS-232) |

● **Environment**

| | |
|---|---|
| Noise Immunity | ESD（IEC 61131-2，IEC 61000-4-2）：<br>8KV Air Discharge<br>6KV Contact Discharge<br>EFT（IEC 61131-2，IEC 61000-4-4）：<br>Power Line：2KV<br>Communication I/O：2KV<br>SURGE（IEC 61131-2，IEC 61000-4-5）：<br>Power Line：0.5KV<br>Communication I/O：1KV<br>CS（IEC 61131-2，IEC 61000-4-6）：0.15MHz ~ 80MHz，10V/m<br>RS（IEC 61131-2，IEC 61000-4-3）：80MHz ~ 1GHz，10V/m |
| Operation Temperature | -20 ºC ~ 65 ºC |
| Storage Temperature | -40 ºC ~ 70 ºC |
| Humanity | 5%~95% |
| Other | Pollution Level 2 |
| Shock and Vibration | IEC 61131-2、IEC 68-2-6（TEST Fc）IEC 61131-2 & IEC 68-2-27（TEST Ea） |
| Standard | IEC 61131-2、UL508 |

## Ordering Information

| Series | Model |
|---|---|
| Isolated RS-232 to RS-422/RS-485 Converter | IFD8500-A |
| Isolated RS-422/RS-485 Repeater | IFD8510-A |

## Release Information

| Released Date | Available Date | MOQ | Lead Time |
|---|---|---|---|
| 2017/4/25 | 2017/4/25 | 4 | 2 weeks |

### 2.6 UPDATE – New manual for VFD-ED

DELTA_IA-MDS_VFD-ED_UM_EN_20170315.pdf. It's on our ftp-site

## 2.7   NEW – R1-EC EtherCAT I/O remote modules

We are happy to announce the release of R1-EC EtherCAT I/O remote modules.

Delta's R1-EC modules are designed for EtherCAT ultra rapid and high performance communication. Unlike the traditional I/O systems, EtherCAT frames pass unchanged through all the modules, with great benefits in terms of performance and diagnostics.

**The product range includes:**
- R1-EC5500D0: Rugged and compact gateway-type E-bus power coupler that acts as an accessing station for other modules
- R1-EC5621D0: Single-axis pulse output module which supports CW/CCW and AB phase mode
- R1-EC6002D0 / R1-EC6022D0: 16-channels digital input modules with 100 µs and 2 ms as input filter
- R1-EC7062D0: 16-channels digital output module (NPN) with 0.5 A at each channel
- R1-EC8124D0: 4-channels analog input module (16 bits)
- R1-EC9144D0: 4-channels analog output module (16 bits)

R1-EC modules can be used with Delta EtherCAT controllers or any other 3rd-party EtherCAT master. They also have EMC immunity based on ESD, EFT, RS (IEC 61131-2, IEC 61000-4-2) and high vibration resistance which complies to EN 60068-2-6 and EN 60068-2-27/29.

Please check also product-related documentation on the FTP server:

R1-EC modules are on stock and ready to be ordered. Please contact your Sales Manager for the prices, and do not hesitate to contact us if you have any questions or requests.

## 2.8   NEW – DVS PoE+ series devices

We are happy to announce the release of DVS PoE+ series devices: PoE Managed switch (DVS-G512W01-4GF), PoE injector (DVS-G402R00-INJ) and PoE splitter (DVS-G401R00-SPL).

The DVS series PoE switches support Power over Ethernet, a system to transmit electrical power up to 30 watts per port. It offers LEVEL 3 and 4 of immunity electromagnetic interference (EMI) which is well beyond what is currently delivered by commercial grade networking products.They also allow the wide range of operating temperature from -40 to 70℃, which is applicable to the applications in any harsh environment.

**PoE Managed Switch**
DVS-G512W01-4GF

**PoE Injector**
DVS-G402R00-INJ

**PoE Splitter**
DVS-G401R00-SPL
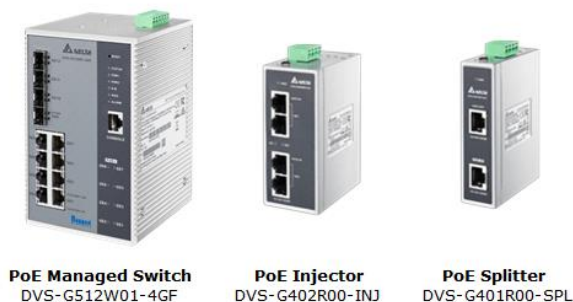
**Main features PoE Managed switch (DVS-G512W01-4GF)**
- Based on IEEE 802.3at standard up to 30Watts per port
- Backward compatible with IEEE 802.3af
- Advanced PoE management and intelligent powered device (PD) class detection
- IPv6 address suitable for larger network and neighbor discovery
- Automatic IP assignment by DHCP server for easy network construction
- DHCP relay option 82 for sending DHCP requests with clients' identities to a DHCP server

- DHCP relay option 82 for sending DHCP requests with clients' identities to a DHCP server
- IEC 62439-2 MRP (media redundancy protocol) for IEC-based redundant ring topology
- STP/RSTP/MSTP for network redundancy further ensures reliability
- QoS (IEEE 802.1p) and TOS/DSCP for mission-critical applications
- IEEE 802.1Q VLAN
- Enhanced network security with IEEE 802.1X, TACACS+, SSH, HTTPS and SNMP v3
- IEEE 802.3ad port Trunking in parallel to increase the link bandwidth
- IEEE 1588v2 PTP (Precision Time Protocol) for precise time synchronization of network
- Broadcast/multicast/unknown unicast storm control improves throughput problems
- Loopback-detection to avoid broadcast loops, and shutdown the corresponding ports automatically
- Loopback-detection to avoid broadcast loops, and shutdown the corresponding ports automatically
- MAC addresses filtering function per port blocks unauthorized access

Please check also product-related documentation on the ftp-site.

PoE Managed switch (DVS-G512W01-4GF) and PoE injector (DVS-G402R00-INJ ) and PoE splitter (DVS-G401R00-SPL) are now on stock and ready to be ordered. Please contact your Sales Manager for the prices, and do not hesitate to contact us if you have any questions or requests.

## 2.9 NEW – Delta's SCADA System DIAView

We are happy to announce the release of Delta's SCADA System DIAView.

Delta's SCADA (Supervisory Control And Data Acquisition) System DIAView is a computer system for gathering information, monitoring real time data, and carrying out necessary analysis and control. It can greatly reduce energy consumption and increase overall efficiency and capacity. When combined with Delta's industrial automation products, customers can even easily monitor and effectively manage factories and the subsystems by the established complete automation solution.

**Features**
- Stable industrial communication design
- Excellent graphical demo platform
- Flexible variable dictionary
- A variety of data visualization tools
- Robust and efficient alarm management
- Easy-to-learn VBScript language
- Effect recipe management
- Reliable user authority management

**Applications**
The DIAView system can be applied in industries such as machinery, metallurgy, water treatment, packaging, transportation, central heating control, environmental monitoring, smart buildings and etc.

**System requirements**

| Hardware / Software | System Requirements |
|---|---|
| CPU | Pentium 2.0GHz or greater is recommended (Intel's Core I3 and higher processors are recommended) |
| Memory | 2G MB and above is recommended |
| Hard Disk | Capacity: 10GB and above |
| Monitor | Supports resolution: 1024 x 768 or higher full-color display |
| Operating System | Windows 7 Professional / Ultimate (32 bit & 64 bit); Windows 8 Professional / Ultimate (32 bit & 64 bit); Windows Server 2003/2008/2012  (32 bit & 64 bit) |
| Web Installer | Microsoft NET Framework 4.0 should be installed |

**Ordering Information**

For allowing users to test projects in programming phase, users can run DIAView for 2 hours without a license.
Different licenses are available according to the amount of external I/O that users required. Please refer to the catalogue for further information.

Please check the product-related documentation on the ftp-site:

DIAView is ready to be ordered. Please contact your Sales Manager for the prices, and do not hesitate to contact us if you have any questions or requests.

## 2.10 NEW – DVW series high-gain antennas

We are happy to announce the release of DVW series high-gain antennas: DVW-ANTRM8N-B3 and DVW-ANTRM7G-B3.
DVW series high-gain antennas are IEEE 802.11 wireless LAN products, which are compatible with multiple communication protocols, including IEEE 8.2.11 a/n in 5 GHz or IEEE 802.11 b/g/n in 2.4 GHz. DVW series enables users to construct a reliable industrial wireless network. Moreover, the network bandwidth can reach 450 Mbps when adopting Multiple-input and Multiple-output (MIMO) technology.

**Main features**
- 8dBi/7 dBi high-gain antennas to enhance wireless access performance
- Powerful magnetic base with 3 meters extended cable, RP-SMA (male) connector
- IP65 weatherproof with UV resistant design, suitable for all weather conditions
- Easy installation for indoor or outdoor environments

Please check also product-related documentation on the ftp-site.

DVW high-gain antennas: DVW-ANTRM8N-B3 and DVW-ANTRM7G-B3 are now on stock and ready to be ordered. Please contact your Sales Manager for the prices, and do not hesitate to contact us if you have any questions or requests.

## 2.11 NEW – AH10EN-5A firmware version 2.00

We are happy to announce AH10EN-5A firmware version 2.00 is released.

AH10EN-5A of Delta AH series is an Ethernet communication module, supporting MODBUS TCP communication protocol. For the benefits of users, AH10EN-5A V2.00 now supports EtherNet/IP communication protocol as well; simply upgrade the AH10EN-5A to firmware V2.00 to have this feature.

FW version 2.00 includes new and modified functions as described below:

- EtherNet/IP works on a TCP/UDP/IP based Ethernet network and uses most widely deployed collections of Ethernet standards to provide a broad range of applications in different industries that require high-speed and stability such as Factory Automation (FA), Building Automation (BA) and Process Automation (PA)
- AH10EN-5A supports lots of EtherNet/IP related functions, including serving as network redundant, allowing data mapping cyclically or non-cyclically via EtherNet/IP, acting as a scanner or adapter. Users can also download the EDS file and connect to the EtherNet/IP devices of other brands with the downloaded EDS file.
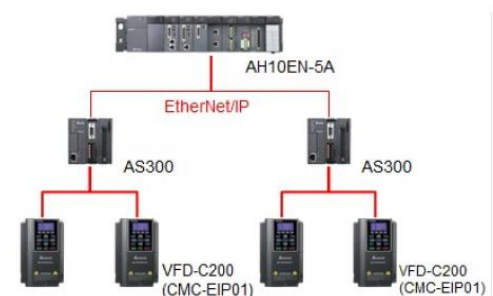
**Software**

- EIP Builder V1.03
  is Delta's EtherNet/IP software which can be called through the ISPSoft software.
  EIP Builder V1.03 supports the following Delta products and their specifications:

| | PLC | | Inverter |
|---|---|---|---|
| | **AH10EN-5A** | **AS300** | **CMC-EIP01 (VFD-C2000)** |
| Version | V2.0 | V1.0 | V1.06 (inverter board: V2.01) |
| Type (scanner/adapter) | scanner / adapter | scanner / adapter | adapter |
| Number of TCP connections | 64 | 16 | 8 |
| Number of CIP connections | 64 | 32 | 16 |
| Implicit Message (data mapping cyclically) | ● | ● | ● |
| Explicit Message (data mapping non-cyclically) | ● | ● | ● |
| RPI (ms) | 1~1000 | 5~1000 | 5~1000 |
| PPS | 10,000 | 3,000 | 800 |

※ Models added to support EtherNet/IP will be updated on Delta official website.
Please check the complete list on our website.

- EDS Builder V3.00
  - Add and edit the EtherNet/IP EDS files
  - Create EtherNet/IP EDS file as the picture below
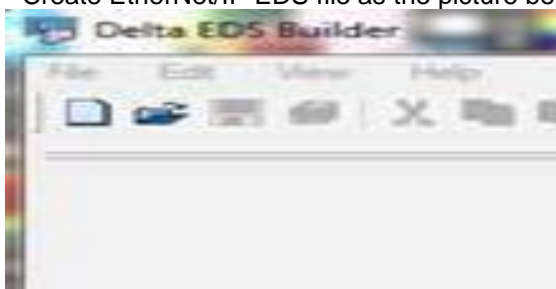


Please download EIP Builder V1.03, ISPSoft V3.02 and EDS Builder V3.00 from this link

Don't hesitate to contact us in case of further support or information is needed.

## 2.12 NEW – DPM-C520 UL version

Delta will launch DPM-C520 UL version during mid of July and new orders can be placed for C520 UL version at that time frame as well.
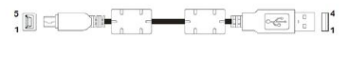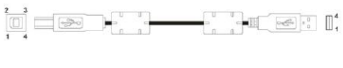
In order to do product conversion(from original C520 to C520 UL version), the WJ factory will NOT manufacture original C520 from end of May.
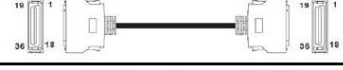
## 2.13 NEW – Unified cables

We have unified the cable namening and part numbers.

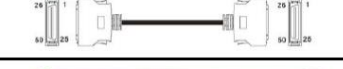Please order them from now on.
The old part numbers will be phased out.

**Programming Cables**

| Model Number | | Description | Description | Old model name |
|---|---|---|---|---|
| UC-PRG020-12A | | USB type A to mini DIN and DB9 Female, 2 m Programming DVP | | New |
| UC-PRG015-01A | | USB mini to USB type A, 1.5 m Programming DVP & AH | | New |
| UC-PRG030-01A | | USB mini to USB type A, 3 m Programming DVP & AH | | New |
| UC-PRG015-02A | | USB type B to USB type A, 1.5 m Programming DOP & TP-P | | DOPCAUSBAB |
| UC-PRG030-02A | | USB type B to USB type A, 3 m Programming DOP & TP-P | | New |
| UC-PRG030-20A | | RJ45 to RJ45 Ethernet CAT5, 3 m | | New |
| UC-MS010-02A | | DB9 Female to Mini DIN, 1m Programing DVP Communication DOPB with DVP | | DVPACAB2B10 |
| UC-MS020-01A | | DB9 Female to Mini DIN, 2m Programing DVP Communication DOPB with DVP | | DVPACAB2A20 |
| UC-MS030-01A | | DB9 Female to Mini DIN, 3m Programing DVP Communication DOPB with DVP | | DVPACAB2A30 |
| UC-MS020-06A | | DB9 Male to Mini DIN, 2m Comunication DOPB03 to DVP | | DOP-CA232DP |
| UC-MS030-06A | | DB9 Male to Mini DIN, 3m Comunication DOPB03 with DVP | | DOPACAB2A30L |
| UC-PRG030-10A | | DB9 Female to DB9 Female, 3m - Programing TP | | DVPACAB530 |
| UC-MS030-03A | | DB9 Female to DB9 Male, 3m Communication AH500 with TP or DOPB | | NEW |
| UC-MS030-04A | | DB9 Male to DB9 Male, 3m Comunication AH500 with DMV | | NEW |

**Extension cables and terminal units for AH500 Motion Control**

| Model Number | | | | Old model name |
|---|---|---|---|---|
| UC-ET010-13B | | I/O extension cable for external terminal module (HDC), 1 m | | DVPACAB7D10 |
| UB-10-IO16C | | External terminal module for motion control modules (HDC) | | DVPAETB-IO16C |
| UB-10-IO22C | | External terminal module for motion control modules (HDC) | | DVPAETB-IO22C |

Note1: Cable and terminal units to be used with AH20MC-5A and AH04HC-5A

| Model Number | | | | Old model name |
|---|---|---|---|---|
| UC-ET010-15B | | I/O extension cable for external terminal module (HDC), 1 m | | DVPACAB7E10 |
| UB-10-IO24C | | External terminal module for motion control modules (HDC) | | DVPAETB-IO24C |
| UB-10-IO34C | | External terminal module for motion control modules (HDC) | | DVPAETB-IO34C |

Note1: Cable and terminal units to be used with AH10PM-5A and AH15PM-5A

**Extension cables and terminal units for High density modules for AH500 and DVP**

| Model Number | | | | Old model name |
|---|---|---|---|---|
| UC-ET010-24A | | I/O extension cable for external terminal module (MIL connector IDC40 to IDC40), 1 m | | DVPACAB7A10 |
| UC-ET010-24B | | I/O extension cable for external terminal module (MIL connector IDC40 to IDC40), 1 m (shield) | | DVPACAB7A10S |
| UC-ET020-24B | | I/O extension cable for external terminal module (MIL connector IDC40 to IDC40), 2 m (shield) | | DVPACAB7A20S |
| UC-ET030-24B | | I/O extension cable for external terminal module (MIL connector IDC40 to IDC40), 3 m (shield) | | DVPACAB7A30S |
| UB-10-ID32A | | External terminal module for digital input module(MIL connector) | | DVPAETB-ID32A |
| UB-10-OT32A | | External terminal module for digital output modules (transistor output, MIL connector) | | DVPAETB-OT32A |

Note1: Cable and terminal units to be used with DVP32SM11N, DVP32SN11NT, AH32AM10N-5C, AH64AM10N-5C, AH32AN02T-5C, AH32AN02P-5C, AH64AN02T-5C and AH64AN02P-5C

**Extension cables and terminal units for High density modules for AH500 and DVP**

| Model Number | | | | Old model name |
|---|---|---|---|---|
| UC-ET010-24C | | I/O extension cable for external terminal module (MIL connector IDC40 to IDC20x2), 1 m | | DVPACAB7B10 |
| UC-ET010-24D | | I/O extension cable for external terminal module (MIL connector IDC40 to IDC20x2), 1 m (shield) | | DVPACAB7B10S |
| UC-ET020-24D | | I/O extension cable for external terminal module (MIL connector IDC40 to IDC20x2), 2 m (shield) | | DVPACAB7B20S |
| UC-ET030-24D | | I/O extension cable for external terminal module (MIL connector IDC40 to IDC20x2), 3 m (shield) | | DVPACAB7B30S |
| UB-10-ID16A | | External terminal module for digital input module(MIL connector) | | |
| UB-10-OR16A | | External terminal module for digital output modules (16-point relay output, MIL connector) | | DVPAETB-OR16A |
| UB-10-OR16B | | External terminal module for digital output modules (16-point relay output, MIL connector) | | DVPAETB-OR16B |

Note1: Cable and terminal units to be used with DVP32SN11NT, AH32AN02T-5C, AH32AN02P-5C, AH64AN02T-5C and AH64AN02P-5C

**Extension cables and terminal units for High density modules for AH500 and DVP**

| Model Number | | | | Old model name |
|---|---|---|---|---|
| UC-ET010-33B | | I/O extension cable for external terminal module (DB37), 1 m | | DVPACAB7C10 |
| UB-10-ID32B | | External terminal module for digital input modules (DB37 connector) | | DVPAETB-ID32B |
| UB-10-OT32B | | External terminal module for digital output modules (transistor output, DB37 connector) | | DVPAETB-OT32B |
| UB-10-OR32A | | External terminal module for digital output modules (32-point relay output, DB37 connector) | | DVPAETB-OR32A |
| UB-10-OR32B | | External terminal module for digital output modules (32-point relay output, DB37 connector) | | DVPAETB-OR32B |

Note1: Cable and terminal units to be used with AH32AM10N-5C, AH32AN02T-5B, AH32AN02P-5B

### Extension cables for AH500 local network

| Model Number | | Description | | Old model name |
|---|---|---|---|---|
| AHACAB06-5A | | I/O extension cable for extension backplane, 0.6 m | | |
| AHACAB10-5A | | I/O extension cable for extension backplane, 1 m | | |
| AHACAB15-5A | | I/O extension cable for extension backplane, 1.5 m | | |
| AHACAB30-5A | | I/O extension cable for extension backplane, 3 m | | |
| AHACAB50-5A | | I/O extension cable for extension backplane, 5 m | | |
| AHACABA0-5A | | I/O extension cable for extension backplane, 10 m | | |
| AHACABA5-5A | | I/O extension cable for extension backplane, 15 m | | |
| AHACABB0-5A | | I/O extension cable for extension backplane, 20 m | | |
| AHACABC0-5A | | I/O extension cable for extension backplane, 30 m | | |
| AHACABD0-5A | | I/O extension cable for extension backplane, 40 m | | |
| AHACABE0-5A | | I/O extension cable for extension backplane, 50 m | | |
| AHACABF0-5A | | I/O extension cable for extension backplane, 60 m | | |
| AHACABG0-5A | | I/O extension cable for extension backplane, 70 m | | |
| AHACABH0-5A | | I/O extension cable for extension backplane, 80 m | | |
| AHACABJ0-5A | | I/O extension cable for extension backplane, 90 m | | |
| AHACABK0-5A | | I/O extension cable for extension backplane, 100 m | | |

Note1: If the cable is reworked by customer, Delta do not take responsability on the performance
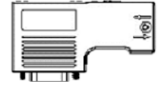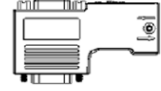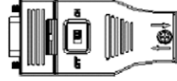Note2: There's Optic fiber adapter (AHAADP01EF-5A and AHAADP02EF-5A) in case the distance required is longer than 100m

### Optic Fiber Adapters

| Model Number | | Description | | Old model name |
|---|---|---|---|---|
| AHAADP01EF-5A | | Emiter Optic FIber adaptor | | |
| AHAADP02EF-5A | | Reciever Optic Fiber adaptor | | |

Note1: AHAADP01EF-5A needs to be used always together with AHAADP02EF-5A

### Field Bus cabling

| Model Number | | Description | | Old model name |
|---|---|---|---|---|
| UC-CMC003-01A | | CANopen communication cable, 0.3 m | | TAP-CB03 |
| UC-CMC005-01A | | CANopen communication cable, 0.5 m | | TAP-CB05 |
| UC-CMC010-01A | | CANopen communication cable, 1 m | | TAP-CB10 |
| UC-CMC015-01A | | CANopen communication cable, 1.5 m | | NC-CAB-DMC015 |
| UC-CMC020-01A | | CANopen communication cable, 2 m | | TAP-CB20 |
| UC-CMC050-01A | | CANopen communication cable, 5 m | | NC-CAB-DMC050 |
| UC-CMC100-01A | | CANopen communication cable, 10 m | | NC-CAB-DMC100 |
| UC-CMC200-01A | | CANopen communication cable, 20 m | | NEW |
| UC-EMC003-02A | | EtherCAT communication cable, 0.3 m | | NEW |
| UC-EMC005-02A | | EtherCAT communication cable, 0.5 m | | NEW |
| UC-EMC010-02A | | EtherCAT communication cable, 1 m | | NEW |
| UC-EMC020-02A | | EtherCAT communication cable, 2 m | | NEW |
| UC-EMC050-02A | | EtherCAT communication cable, 5 m | | NEW |
| UC-EMC100-02A | | EtherCAT communication cable, 10 m | | NEW |
| UC-EMC200-02A | | EtherCAT communication cable, 20 m | | NEW |
| UC-PF01Z-01A | | PROFIBUS communication cable, 305 m | | TAP-CBDP |
| UN-03PF-01A | | PROFIBUS connector | | TAP-CN20 |
| UN-03PF-02A | | PROFIBUS connector | | TAP-CN21 |
| UN-03PF-03A | | PROFIBUS connector | | TAP-CN22 |

Note: The cable is sold by the meter. Max. ordering quantity: 305 meters(1 roll). Min. ordering quantity: 1 meter.

**Adapters, Splitter and terminal resistors**

| Model Number | | | | Old model name |
|---|---|---|---|---|
| TAP-CN01 | | DeviceNet/CANopen distribution Box, 1 to 2 (Terminator 121Ω) |  | TAP-CN01 |
| TAP-CN02 | | DeviceNet/CANopen distribution Box, 1 to 4 (Terminator 121Ω) |  | TAP-CN02 |
| TAP-CN03 | | DeviceNet/CANopen distribution Box, 1 to 4, RJ45 adapter (Terminator 121Ω) |  | TAP-CN03 |
| TAP-CP01 | | DeviceNet/CANope Power supply distribution box (Terminator 121Ω) |  | TAP-CP01 |
| UN-03EN-04A | | RJ45 daisy chain adapter |  | NEW |
| MKE-HUB01 | | RJ45 daisy chain adapterwith ground |  | |
| TAP-TR01 | | Terminator, 121 W - Canopen |  | TAP-TR01 |

## 2.14 NEW – Planetary gear box PS/PA series

We are happy to announce the release of the new planetary gear box PS/PA series.

The Delta planetary gearbox PS/PA series are able to transfer power from motor to applications. Both of them have IP65 seal design, which requires no lubrication. See the main features as follows:

- High and standard backlash
- Suitable for Delta's servo motors
- Up to 92 - 97% of efficiency
- High stability
- High rigidity -  full needle roller bearings
- Low noise and low vibration
- High precision, available from 3 arc-min to 12 arc-min
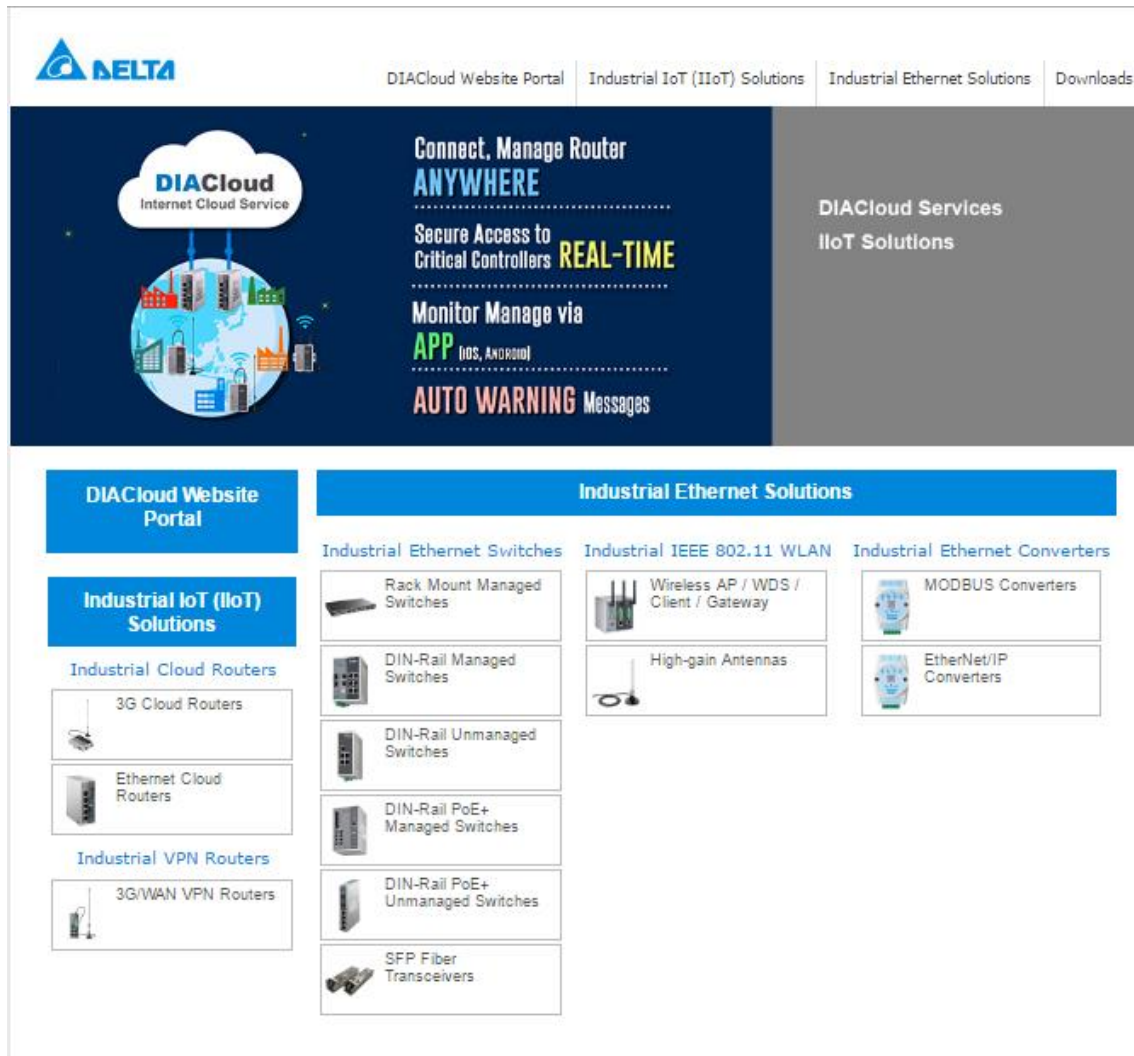- Right angle model type is available

Please check also product-related documentation on the ftp-site.

This is a **BTO product**. Please contact your Sales Manager for prices, and do not hesitate to contact us if you have any questions or requests.

For any technical issues, please email to iatechnicalsupport@deltaww.com.

## 2.15 NEW – Dedicated website for Industrial Ethernet Switches

Finally we've got a dedicated website for Industrial Ethernet Switches.

http://www.deltaww.com/ia_SoftwareService/IES/



# 3    Application

## 3.1   NEW – Application Notes

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

- Electronics Industry Notification - The Application of DMV System in Auto Soldering and Dispensing.pdf

- Electronics Industry Notification - SMS Alarm System  Solution.pdf

- Electronics Industry Notification - Dispensing Machine.pdf

- Robot Industry Notification - Delta SCARA  fan assembly station.pdf
- Robot Industry Notification - Puncher robot.pdf
- Robot Industry Notification - Delta SCARA vision on the fly for inductance assembly station.pdf
- Textile Industry Notification - Combing Machine.pdf

# 4   FAQ

## 4.1   VFD-series AC Motor drives

**VFD-E**

**Q**      **How to activate an output/relay in case of a warning?**
*A*      *Set Pr03-00/03-01=20.*
      *See alo the user manual.*

**Q**      **Why does Pr07-01 display the wrong value?**
*A*      *This is a bug in firmware 1.23/2.23.*
      *After setting Pr07-01 it shows the wrong value after powre off/on. The internal value of Pr07-01 is still correct however but only the display value is wrong.*

      *It will be corrected in the next firmware*

**VFD-EL**

**Q**      **How to activate  the relay in case of a warning?**
*A*      *Set Pr03-00=20.*
      *See also the user manual.*

**C/CP2000**

**Q**      **How to copy the PLC program into the keypad?**
*A*      *For C family, we need to disable PLC first.*

      *The steps are as follows:*
      1. ***Disable PLC***
         *On the keypad, go to Menu #4 PLC*
         *Select 1=Disable PLC*
      2. ***Upload PLC program***
         *On the keypad, go to Menu #5 Copy PLC*
         *Select the file (001, 002, etc)*
         *Press ENTER*
         *Select 2:VFD->Keypad (for uploading to keypad)*
         *Enter a password if desired, otherwise skip*
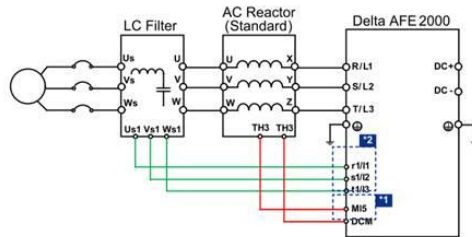         *Press ENTER and uploading starts*

**AFE2000**

**Q**      **How to connect the AFE LC filter?**

*A*

## LC Filter Wiring Diagram

The AFE LC filter enhances system power efficiency and suppresses frequency interference when matched with standard reactors and active front end units.



*1 Delta's AC reactor (standard installation accessory) is equipped with a thermal protection function. The TH3 terminal will have the AFE2000 send out a warning message when the reactor temperature exceeds 120°C .

*2 For installing an LC filter, please connect the AFE's power input terminals (r1/l1, s1/l2, t1/l3) to the LC filter's AC detection terminals (Us1, Vs1, Ws1).