DELTA Newsletter

Industrial Automation Products

Contents

TP70P → Display/Touchscreen

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, etc) on our ftp-site.

Note: The ftp-site cannot by accessed via Google Chrome, only via Internet Explorer.
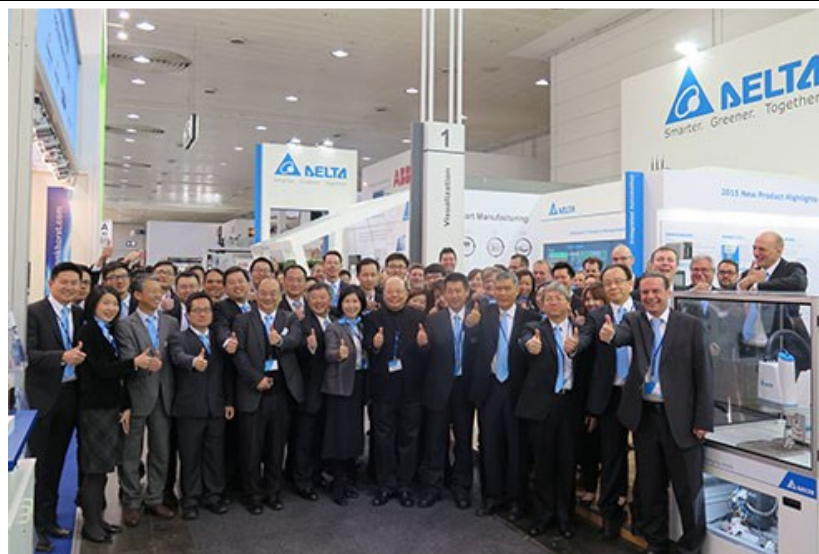
ftp://den-eindhoven:BuPd2175@ftp2.delta-europe.com/deltronics-eindhoven/customer-service

Name and password are included in the link.
Name: den-eindhoven
Password: BuPd2175

1.2   Delta at Hannover Messe 2015

Deltronics (Netherlands) B.V., De Witbogt 20, 5652 AG Eindhoven, The Netherlands
☎ +31 (0)40 2592850   🖷 +31 (0)40 2592851

Page 1 of 15

Delta showcased its smart and highly integrated solutions for industrial automation and energy management applications at the world's largest industrial fair, Hannover Messe 2015, in Germany from April 13th to 17th. Existing and potential customers have shown particular interest in Delta's SCARA robot arm solution which is capable of improving daily productivity by up to three times. In the 5 days of the show, 440 business leads have been collected by Delta's sales team.

On April 14th, Delta held a press conference for more than 50 journalists from over 10 countries. During the press conference chairman Yancey Hai highlighted Delta's contribution to a better tomorrow as the company's energy-efficient products and solutions have enabled energy savings of 14.8 billion kWh and a reduction in carbon emissions of 7.9 million tons for our customers worldwide.

Delta's president and general manager for the EMEA region, Jackie Chang, introduced Delta's expertise in integrating a broad spectrum of solutions that truly enhance the competitiveness of its customers throughout the EMEA region.

Highlights of Delta's showcase for Hannover Messe 2015 included:
Industrial Automation Solutions for industrial facilities and processes that aim to achieve high levels of integration, productivity and energy efficiency through the "smart manufacturing" concept, which include: A newly-launched programmable automation control (PAC) motion control solution, which is ideal for complex industrial processes such as plasma cutting and glass cutting,. A Hybrid Energy-saving System (HES) for injection moulding machinery that precisely controls flow and pressure to improve product duplication accuracy with excellent energy savings. Production automation solutions for beverage lines and food packaging that integrate Delta's machine vision system DMV Series for rapid detection or package defects confirmation. Delta's high performance mid-range programmable logic controller (PLC) AH500 Series offers a multi-axis control system with simple architecture, and high-extension possibilities to large-scale systems and machines with a maximum distance of 100m by cable or 2km by optical fiber between local expansion racks.

Visitors could experience live demos of Delta's new SCARA DRS40L Series solution, a robot arm system that improves daily productivity by up to three times in certain industrial applications, such as processes for insertion, screw locking, assembly, glueing, transporting and packaging for the consumer electronics, electronics, rubber and plastic, packaging, and metal fabrication industries (available in Taiwan/China in 2015).

Seminar
On Wednesday 15-4 we had a seminar, which was well attended and appreciated, with the following subjects and speakers.

Time	Topic		Presenter
14:00-14:05	Welcome & Opening		
14:05-15:15	Success Stories of Industrial Applications	Elevator Solution	Alan Chou
		Water Treatment Solution	Alejandro Dova
		Customized Pumping Software & Solution	Farhod Rakhimov
15:15-15:35	Tea Break		
15:35-16:00	Success Story of Industrial Application	Bottle Inspection Machinery	Weiping Chang
16:00-17:15	New Product Introduction	Temperature Controllers DT3/DTK Series Upgrades and PLC Software Starter Kit	Pere Roura
		AC Motor Drive ASDA-M-R Series	Weiping Chang
		HMI DOP-W Series and Touch Panel TP70P Series	Alejandro Dova
17:15-17:30	Q&A		
17:30-17:40	Awards Ceremony		

At the end, Mr. Simon Chang, IABG General Manager, awarded Raymond Feghali Co. from Lebanon with a trophy and certificate for excellent sales achievement in Middle East in 2014. It was handed over to Mark Ziade from Raymond Feghali Co.

After that we had a wonderful party at Munich Hall with our partners and colleagues.

1.3   Delta at MEE in Dubai from March 2~4, 2015

Delta Electronics exhibited at Middle East Electricity in Dubai, UAE March 2nd-4th, 2015.

This year, 2015, Delta Electronics exhibited at the Middle East Electricity Exhibition in Dubai, UAE.

(In the previous years Delta was represented by our partner based in the Middle East.)

Middle East Electricity 2015 was the 40th edition and is the largest power exhibition in the world. The show welcomed 1500 exhibitors from 60+ countries with 20,000+ registered visitors.

Delta Electronics exhibited with a booth of 36m^2, showcasing some of our many solutions; namely our CNC capabilities, Energy Regeneration Products and our Water Treatment Solutions.

We had many visitors throughout the days, mainly from other Middle Eastern Countries (Yemen, Saudi Arabia, Pakistan, Jordan, etc.) and from existing partners who were happy to find us there, as well as potential new Distributors, Integrators and OEM's.

The eye catcher of the Delta booth was the flying cut demo kit which showcases A2 Servo Drives, servo motors and an HMI.

Booth staff was Mazen Suleiman, Middle East Sales Manager; Amr Sadek Aldera, FAE; Arnoud de Bok, Product Manager; Monique Appeldoorn, Marketing; Barry Chi, Business Manager IABG, and Tim Lee, Senior Business Director IABG, Delta EMEA.

1.4   VFD-E: >1M sold world-wide and >100k in EMEA

Delta Industrial Automation announced milestones for its intelligent multifunction micro drive, VFD-E series, which reached sales of 1 million worldwide and 100 thousand in the EMEA in early December, 2014. These excellent achievements represent Delta's dedication to providing innovative automation products to the world market, as well as successfully extending its AC motor drive business into the highly competitive EMEA market.

The VFD-E Series is a micro drive that is multifunctional for various applications. It was launched in 2006 and soon became very popular in the market. Delta's product manager Mr. Jerry Chen said, "The special feature of the VFD-E Series is its built-in PLC function. It provides an easier way to write and execute simple PLC programs and reduces system costs by saving on an additional PLC. When launched in 2006, the VFD-E Series became an icon among other AC motor drive products of similar power range in the market."

Delta's VFD-E Series was launched in 2006 and soon became popular in the market. The pictures shows the 1st generation VFD-E product with its elegant, white design in 2006

Delta's VFD-E Series delivers accurate control of speed and torque, and can smoothly handle an increased load. It features a built-in EMI filter and RFI switch to effectively minimize interference and enhance control quality. In addition, the innovative high-efficiency cooling design of the VFD-E Series allows side-by-side installation and DIN RAIL mounting, which provides flexibility in arranging space for users.

Delta's VFD-E Series is enhancing machine automation and efficiency for many applications in various industries, including smaller cranes, robot arms of injection machines (clamps), grinding machines, drilling machines, wood machines, webbing looms, and air conditioning and water supply systems for large buildings. Delta celebrates 1 million VFD-E sales around the globe and 100 thousand in the EMEA, as we continue to provide innovative products to the market.
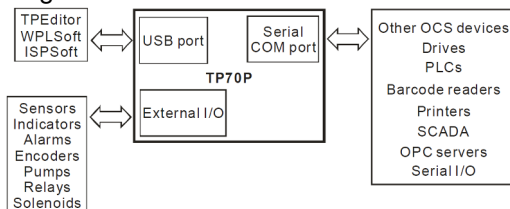
Tim Lee receives the award from Gavin Chang, MDSBU General Manager for 100,000 VFD-E sold in EMEA

2   Product update

## 2.1   NEW – TP70P: Text panel with touch-screen

TP70P is highly flexible in that it can be connected to various devices. The devices which can be connected to TP70P are shown in the block diagram below.

Functions

- The LCD on TP70P can display 65535, and is a touchscreen.
- TP70P provides various kinds of objects, including X-Y curves, circular meters, bars, sliders, and alarms.
- TP70P supports PLC Links.
- The driver in TP70P supports Delta controllers. It can be connected to Delta servo's, inverters, and temperature controllers
- There are two serial communication ports. One supports PLC communication, and the other supports TP70P communication.
- The USB port on TP70P can communicate with a computer. It supports the use of WPLsoft/ISPsoft/TPEditor to upload/download a program and to monitor devices.
- There are four models which have different I/O configurations. They can be connected to various types of output devices.

TP70P-16TP1R, TP70P-32TP1R, TP70P-22XA1R, TP70P-21EX1R
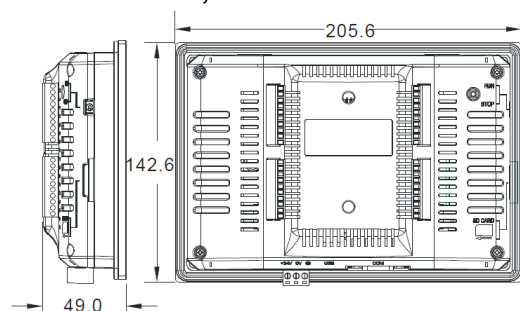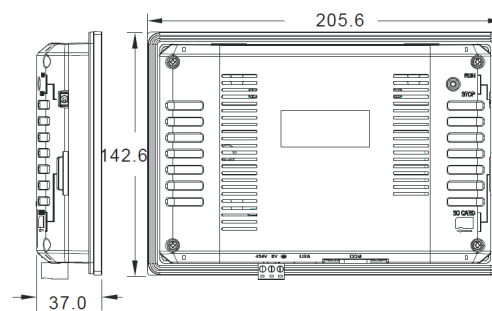
TP70P-RM0

Specifications

Model \ Specifications	TP70P -32TP1R	TP70P -16TP1R	TP70P -22XA1R	TP70P -21EX1R	TP70P -RM0
Display	Screen/Color	7″ TFT LCD (65535 colors)			
	Resolution	800×480 pixels			
	Backlight type	LED backlight (It has a lifespan of twenty thousand hours at a temperature of 25℃)			
	Display area	Width × Height = 154 × 85 (Unit: mm); 7 inches (diagonal)			
USB port		Transmission: Virtual communication port			
		Data length: 7 bits or 8 bits			
		Stop bit: 1 bit or 2 bits			
		Polarity: None/Odd/Even			

	Transmission rate: 9,600 bps~115,200 bps	
	USB port: Type B USB connector	

Extension communica tion ports	COM2	RS-485	RS-232
		Data length: 7 bits or 8 bits	
		Stop bit: 1 bit or 2 bits	
		Polarity: None/Odd/Even	
		Transmission rate: 9,600 bps~115,200 bps	
		Connector: Male DB-9 connector	
	COM3	RS-485/RS-422	RS-485
		Data length: 7 bits or 8 bits	
		Stop bit: 1 bit or 2 bits	
		Polarity: None/Odd/Even	
		Transmission rate: 9,600 bps~115,200 bps	

		Connector: Male DB-9 connector
Monitoring devices		After a program is downloaded to a text panel by means of the virtual communication port on the text panel, the devices in the PLC connected to the text panel can be monitored.

Model Name	Description
TP70P-16TP1R	8DI / 8DO(Relay)
TP70P-32TP1R	16DI / 16DO(Relay)
TP70P-21EX1R	8DI / 8DO(Relay) /2AI/2 PT /1AO
TP70P-22XA1R	8DI / 8DO(Relay) /4AI/2AO
TP70P-RM0	No IO , Expand IO by RTU-485, Only support Delta Driver

Release date
TP70P is ready for ordering.

2.2   NEW – Firmware C200 upgraded to v1.05

A new firmware for C200 has been released. It is upgraded from v1.04 to v1.05.

It went into production on:

Version	Series number		Series number	
V1.05	Taiwan	T1514	WJ	W1511

Function correction

	Version 1.04 problem	Version 1.05 correction
1	There is some parameters can't copy via VFDSoft.	C200 can do the parameter copy via VFDSoft.
2	CANopen heartbeat function no effective.	CANopen heartbeat function can work normally.
3	PLC program can't copy via keypad	PLC program can copy via keypad.
4	When the analog input function is set as PID Reference, PID Reference will over 100.00%	When the analog input function is set as PID Reference, PID Reference will not over 100.00%.
5	FOCPG/FOC control mode. When the Pr06-02 Selection for Over-voltage Stall Prevention =1 Smart over-voltage prevention and Pr01-13 Decel. Time 1=0 sec, drive couldn't stop.	The drive can stop normally. But, if the deceleration time=0 sec, the drive will down to 0Hz with a terrific speed and the motor is just like free run.
6	When the OC stall is happened during operating, the drive will decelerate to 0Hz and start output DC.	When the OC stall is happened during operating, the frequency will start to decrease. If the output current is not getting smaller, the frequency command will go down until reach one of below value (the highest value of below 3 will become lower frequency limit). 1. 0.5Hz 2. Fmin 3. Output Frequency Lower Limit

7	When the ACI input is working at negative gain, it will not be limit at -100%.	When the ACI input is working at negative gain, it will be limit at -100%.
8	The record value of P06-36 IGBT Temperature at Malfunction and P06-37 Capacitance Temperature at Malfunction are incorrect.	The record value of P06-36 IGBT Temperature at Malfunction and P06-37 Capacitance Temperature at Malfunction are correct.
9	Acc./Dec. setting unit is abnormally.	Acc./Dec. setting unit is correct.
10	The PM motor running at high speed (Flux Weakening zone) will cause an abnormally noise.	The PM motor can work very well at Flux Weakening zone.
11	The Pr11-00 Bit 7 Selection to save or not save the frequency function no effective.	The Pr11-00 bit7 Selection to save or not save the frequency can work normally.
12	When the PID function has enable, the Pr01-34 function is no effective.	When the PID function has enable, the Pr01-34 function is effective.
13	When the B.B. function has active, turn ON the JOG function via external terminal and turn OFF JOG terminal. Turn OFF the B.B. function terminal, the drive will stay at JOG status and output 6Hz.	When the B.B. function has active, the Run command is not accepted.
14	The operation direction is Reverse. Preset the Reset after a fault, the operation direction will sometime change become Forward.	After fault reset, the operation direction will remain as same as before error happen.
15	The Pr01-34=2 and the Pr01-11 is not 0Hz. When the frequency command is $\leq$ Pr01-07, the drive will suddenly speeds up to Pr01-11 (lower frequency) setting value.	The Pr01-34=2 and the Pr01-11 is not 0Hz. When the frequency command is $\leq$ Pr01-07, the drive will speeds up to Pr01-11 (lower frequency) setting value according to the acceleration time setting.
16	TQCPG control mode, press FWD/REV key will cause output frequency become 0Hz. The motor stop run.	TQCPG control mode, FWD/REV key is no effective.
17	The definition of PLC M1015 Frequency attained is no uniform. The M1015 turn ON timing is different between frequency command source is KPC-CC01 and analog input.	The definition of PLC M1015 will as same as MOx=2.
18	HOA function can't enable via Pr02-12.	HOA function can enable via Pr02-12
19	To use AUI for frequency command source, input a negative value and output frequency will sudden go reverse when the AUI is -1v.	AUI function is work normally.
20	The Mix=12 "Output stop" function is abnormal. The keypad output frequency display(H) will show Pr01-07 setting value when the Pr01-07 $\neq$ 0.	The Mix=12 "Output stop" function is normal.
21	The Pr05-02 English display is incorrect.	The display is correct(motro→motor).
22	The error code 68,69,70 display on the Led keypad is different to the manual.	68:SPdr → 68:Sdru; 69:SPdo → 69:Sdor; 70:SPdd → 70:SddE
23	The Pr02-35 External Operation Control Selection after Reset and Activate function is no effective.	The Pr02-35 function is effective. When the Pr02-35=1, the drive will accept Run command if the error code is LvS.

Function modify

1. Removed Tradition Chinese language display.
2. To moved Pr07-05 to Pr07-46.
3. FOC Sensor-less control mode, the speed search current limit will refer to Pr06-12.

New Function

1. Add new function: Multi-output function of Analog signal level achieved. Related parameters as below:

03-44	MO by AI level						
							Factory Setting:0
	Settings	0: AVI					
		1: ACI					
		2: AUI					
03-45	AI Upper level						
							Factory Setting:50%
	Settings	-100%~+100%					
03-46	AI Lower level						
							Factory Setting:10%
	Settings	-100%~+100%					

📖 This function is require to work with Multi-function Output item "67" Analog signal level achieved. The MO active when AI input level is higher than Pr03-45 AI Upper level. The MO shutoff when the AI input is lower that Pr03-46 AI Lower level.

📖 AI Upper level must bigger than AI Lower level.

↗	02-13	Multi-function Output 1 (Relay1)			
					Factory Setting:11
↗	02-14	Multi-function Output 2 (Relay2)			
					Factory Setting:1
↗	02-16	Multi-function Output 3 (DFM1) When Pr02-21 =0, this parameter is enabled.			
↗	02-17	Multi-function Output 4 (DFM2) When Pr02-55 =0, this parameter is enabled.			
					Factory Setting:66
	Settings				
	67：Analog signal level achieved				

Settings	Functions	Descriptions
67	Analog signal level achieved	Active when AI input level is higher than Pr03-45 AI Upper level. MO shutoff when the AI input is lower that Pr03-46 AI Lower level.

2.3 NEW – Industrial Power Supply Catalogue 2015

You can download the new Industrial Power Supply catalogue from:

http://www.deltapsu.com/manuals.do#Catalog

Leaflets
DIN Rail Power Supplies	PDF
Panel Mount Power Supplies	PDF
Open Frame Power Supplies	PDF
Panel Mount Power Supplies for LED Signage	PDF

Catalog
Delta Standard Power Supplies Catalog Apr 2015	PDF
Delta Medical Power Supply Catalog Q1 2015	PDF

## 2.4 NEW – DOPSoft V2.00.04

DOPSoft V2.00.04 has many new functions, see the summary below. A detailed release note will be sent out.
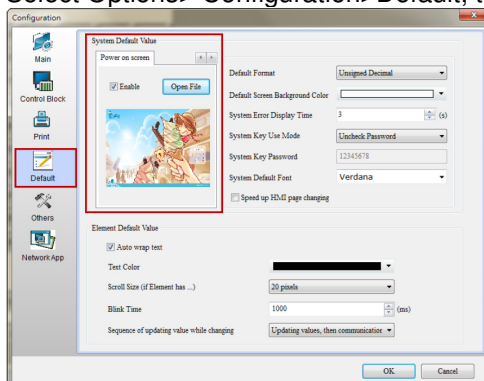
New functions

- Changed default screen

- Multi-Language Setting (DOP-W only)
  Multi-Language support: Max 32
- ffmpegtool supports Video elements (DOP-W only)
- Historical Overview Table is only different that it has file browser and function button to operate and view passed history data with History Trend Graph
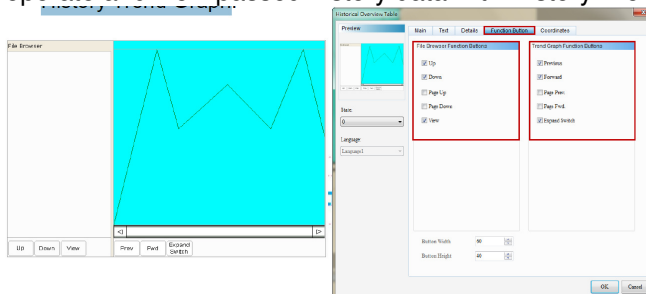
- Historical Overview Table provide Save as Multi-page and Saving Trigger function.
- Enhance Recipe supported data type is Word or Double Word and its data format can be BCD, Signed Decimal, Unsigned Decimal, Hex, Floating and Char.
  The read length of Char format can up to 32 Words (is equal to 64 bits).
  Enhance recipe has its own register, including ENRCP, ENRCPNO, ENRCPG and *ENRCP
- Machine ID
- Boot Screen file (not for B04S211, B05S100, B05S101, B07S201, B07S211)
  Select Options> Configuration>Default, to change Power on screen file

- Reset Default Logo function (not for B04S211, B05S100, B05S101, B07S201, B07S211)
- Global keypad Settings
- Select Options> Global Keypad Setting, to set Decimal, Binary, Hexadecimal, ASCII format keypad.
- Make Execution of Screen Download Data:
  Create a independence execution without open DOPSoftin next download.
  Every execution will according to download mode in project to decide next download way.
  If it has password setting in execution of project, when execution this file that will ask password for download.
- Screen Lock Address
- Write and Read Offset Address
- Cancel Action Address
- External ASCII: Character Entry, Barcode, Character Display add support EXASCII function.
- STATIONCHKMacro:
  Add STATIONCHK macro, it provide users to check COM link status.
  Only refresh the link status when screen data access the PLC address.
- Add STRCAT macro command to connect string.
- History and alarm add draw vertical and horizontal line
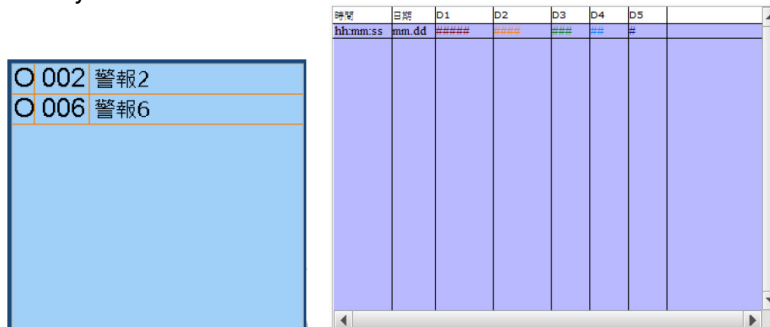
- Rectangle add Penetrate function.
  ON: ignore rectangle and allow pressing the button as below rectangle.
  OFF: cannot press the button as below rectangle.
- Alarm Moving Sign add Up and Down direction display
- Add Paste the specified screen function to customize which screen to paste.
- System Parameters
  Options> Configuration>Others, add some system parameters.
- To set USB Download mode, Brightness, Touch Panel Delay and Touch Panel Force.
- Pipe(6) and Pipe(7) add Cursor Colour with variables
- Non-current screen background processing permission
- B07S410 model type can select other PLC to connect.

3   Application

3.1   NEW – Application Notes

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

- Water treatment Industry Notification-Chemical dosing and Chlorine feeding Solution.pdf

- Printing Industry Notification-Carton-printing Machinery.pdf

- Electronics Industry Notification-Stator Winding Machine.pdf

- CNC Notification-Tooth Mould Engraving Machine.pdf

- Crane Industry Notification-Bridge Crane.pdf

- PA Industry Notification-Application of SVG in Automotive Industry.pdf

3.2   Automation Solution for Water Treatment Plant

Presentation by Alejandro Dova during the Hannover Messe seminar.

Main Goals:
- Provide drinking water and waste water treatment plant automation for the population of Sebes, Petresti and Lancram.
- System philosophy must be based on simplicity and reliability to ensure optimal functioning and low maintenance costs.
- Assure the quantitative and functional expansion of the system by selecting modular hardware architecture

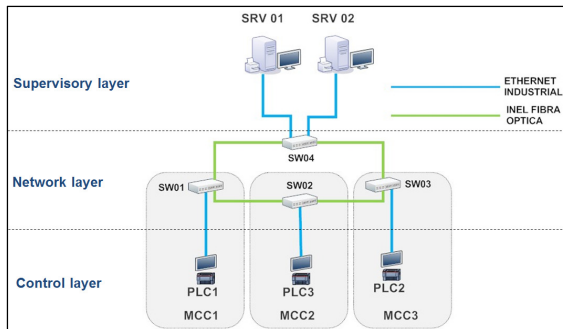**Location:** Sebes, Alba County, Romania

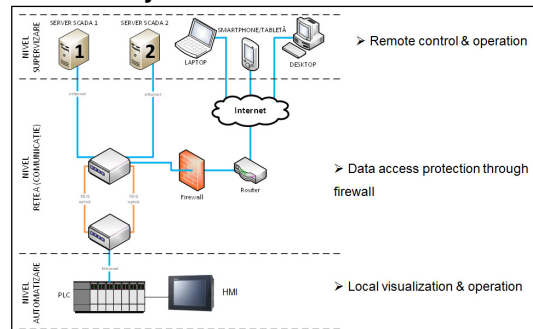**Plant layout and impression:**
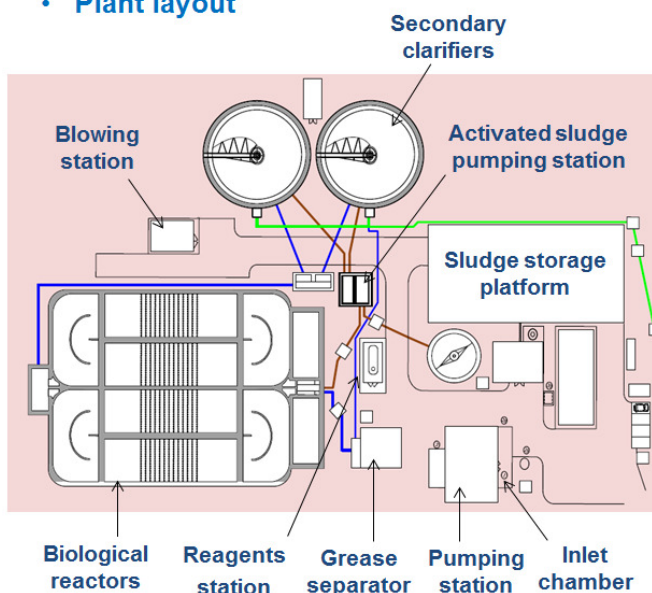
Challenge:
Provide a distributed control system for the water & wastewater treatment process to achieve the industry's most reliable and cost-saving process control.

Architecture

Network layer

- Remote control & operation
- Data access protection through firewall
- Local visualization & operation

The **Control Layer** consists of 3 main AH-500 PLCs + I/O modules + DOP-B HMI →1400 I/O points.

The project **Results** are:
- Higher productivity, reduced operating costs, and better utilization of staff with trustable process automation, communication, and information management.
- Easy control of pumping stations and monitoring of water levels.
- Fast and efficient alarm management enables engineers to react quickly to failures and malfunctioning.
- Improved response times and provides better environmental compliance and monitoring.
- The project serves as a model for new plants in the region.

If you are interested, you can get more detailed info from Alejandro Dova (adova@delta-europe.com).

4   FAQ

4.1   VFD-series AC Motor drives

VFD-E

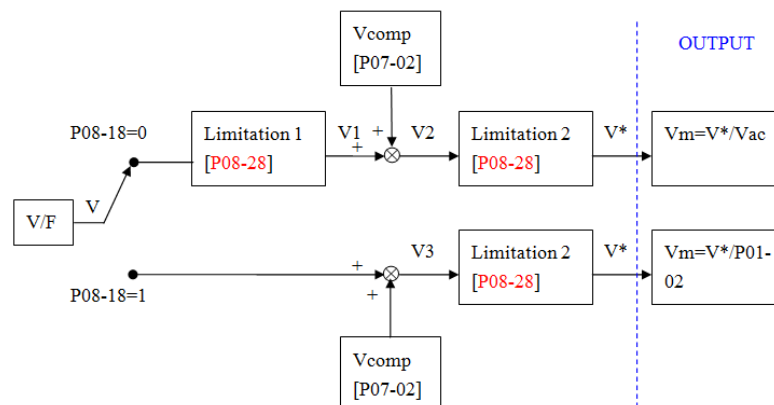Q   **What is the function of Pr08-28?**

A   *VFD-E Pr08-28 is the same as VFD-F Pr01-22.*
When Pr08-28>100%, it will increase output voltage limitation
Please see the function block diagram below for reference.

VFDE output voltage in V/F mode

Limitation 1: IF V>Pr08-28(Minimum of VAC and Pr01-02) then V= Pr08-28*(Minimum of VAC and Pr01-02)*
Limitation 2: IF V>Pr08-28(Pr01-02) then V= Pr08-28*(Pr01-02)*

where VAC is based on average DC-bus voltage.
Vm: voltage command for modulation

Q   **What is the effect of the S-curve settings?**
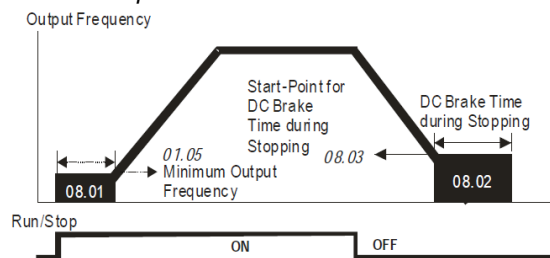*A*   *Pr01-17 must be smaller than Pr01-09/01-11.*
Pr01-18 must be smaller than Pr01-10/01-12.

Higher values of Pr01-17/01-18 will have no effect.

Q   **Why does DC-braking not work at start-up?**
A   *When started with frequency command < F_{min}, DC braking doesn't work. The frequency command must be >F_{min}.*
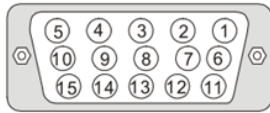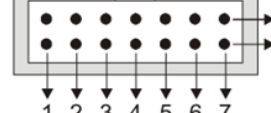
Acc. to the picture in the manual

DC-braking should be always on when $F_{command}<F_{min}$. But that could mean that DC-braking is on for a very long time. We took precaution to prevent this.

In the next manual a note will be made.

VFD-VL
Q   **How to connect a Heidenhain ERN1387 to encoder card EMVL-PGH01?**
A

EMVL-PGH01	Heidenhain ERN1387	Heidenhain ERN1387
1	5a	B-
2	NC	NC
3	4b	R+
4	4a	R-
5	6b	A+
6	2a	A-
7	5b	0V
8	3b	B+
9	1b	UP
10	1a	C-
11	7b	C+
12	2b	D+
13	6a	D-
14	-	-
15	-	-

C2000

Q   **What is the relationship between duty and max output frequency?**

A   *Contrary to what is stated in the manual, it is:*

			0.7	1.1	2.2	3.7	4	5.5	7.5	11	15	18.5	22	30	37	45	55	75	90	110	132	160	185	220	280	315	355	450
C2000	230V	ND	0~600Hz									0~500Hz				0~450Hz												
		HD	0~300Hz																									
	460V	ND	0~600Hz									0~500Hz				0~450Hz												
		HD	0~300Hz																									

Valid for firmware 1.20.

Q   **How to clear the alarm via the STO connector?**

A   *An error can occur as a result of incorrect connection of the STO connector of the C2000 series when testing or after moving.*
Screw the connector again with torque screwdriver in 1.5~2.2 kgf.cm. Then shake the wiring board to ensure the connector is correctly tightened and the alarm is cleared.

Correct   *Incorrect*

CP2000

Q   **What does "V"and "V(RS)" mean in tha table for error detection in normal mode, fire mode and bypass mode? (See Pr06-85)**

A   *"V" means detectable.*
"V(RS)"means detectable and can be auto-reset.

Q   **How to clear the alarm via the STO connector?**

A   *An error can occur as a result of incorrect connection of the STO connector of the CP2000 series when testing or after moving.*
Screw the connector again with torque screwdriver in 1.5~2.2 kgf.cm. Then shake the wiring board to ensure the connector is correctly tightened and the alarm is cleared.

Correct   *Incorrect*

VFD-B

Q   **How to read MI status and MO status via Modbus?**

A   *This info is not in the user manual and is only applicable to the latest firmware.*
2207hex is same as Pr04-26 (MI) in VFD-E

```
b15 b14 b13 b12 b11 b10  b9  b8  b7  b6  b5  b4  b3  b2  b1  b0
 0   0   0   0   0   EF REV FWD TRG JOG MI6 MI5 MI4 MI3 MI2 MI1
```

2208hex is as Pr03-13 (MO) in VFD-E.