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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

2 Product update

2.1 UPDATE – CP2000 firmware 2.03

CP2000 firmware is upgraded from 2.00 to 2.03.

Function correction

	Version 2.00 problem	Version 2.03 correction
1	Press the JOG command button continually will sometime cause motor keep running with JOG frequency even the JOG command has removed.	1. The mechanism of the delay run of "run after a free run stop" must apply to JOG function. 2. To modify the minimum setting value of Pr07-08 become 0.0sec(0.0sec: to disable mechanism of the delay run of "run after a free run stop").
2	The default of Pr06-00 of 440V 4KW model is incorrect.	The default of Pr06-00 of 440V 4KW model is correct(360Vdc).
3	When working on the "Parameter copy" function, the AFM-correction value will be overwritten and this will cause AFM output incorrect.	When working on the "Parameter copy" function, the AFM-correction value will not be overwritten.
4	The feedback value is larger than the target value and all motors are shut down, only one relay is at ON status. To set the MI function that corresponding to "this relay" as "Disable motor" and turn ON this MI, thus, this relay will changed to be OFF status. To turn OFF this MI and the relay will not be ON again even the feedback value is smaller than the target value. The output frequency remains at 0Hz and the RUN LED will steady ON, STOP LED is blinking. To press the STOP key is invalid and press the RUN key can run again.	Relay can work normally.
5	MIx=18 Emergency stop (Pr.07-20). While the motor is decelerating, close the MIx=18, the drive did not stop according to the setting in Pr.07-20.	While the motor is decelerating, close the MIx=18, the drive will stop according to the setting in Pr.07-20.
6	After set up Pr00-02=9, the Pr05-03 motor rated speed=1710rpm	After set up Pr00-02=9, the Pr05-03 motor rated speed=1410rpm
7	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.
8	At v1.21, the firmware has modified that "during speed search, give a Stop command, the drive will free run stop". This modification will cause Y-D switching function couldn't work normally.	During the speed search of Y-D switching function, give a Stop command, the drive will not free run stop.

Function modify

1. The kWh display on Pr05-28~Pr05-30 is very unintuitive and reading difficulties. Thus, to modify the kWh calculation method and display as kWh=P05-30*10000 + P05-29*1000 + P05-28 Wh

V2.00	V2.01
Total 76150.4kWh Pr05-28=400Wh (or 0.4kWh) Pr05-29=76150-65536 = 10614 Pr05-30=1 (1x 65536)	Total 76150.4kWh Pr05-28=400Wh (or 0.4kWh) Pr05-29=150kWh Pr05-30=76MWh

2. To modify Pr06-52 setting range.

✓	06-52	Ripple of Input Phase Loss	
			Factory Setting: 30.0 / 60.0
	Settings	230V models: 0.0~100.0 Vdc 460V models 0.0~200.0 Vdc	


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. CP2000 English parameters display modified" as below:


Parameter	Old display	New display
00-16	Duty Selection	Load Selection
00-17	Carry Frequency	Carrier FREQ
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

New function

1. Add Polish language for KPC-CC01
2. Add Pr13-00 Macro selection items: 2: Air compressor IM; 3: Fan; 4: Pump

13-00	Application Selection
	Factory Setting: 00
Settings	00: Disabled 01: User Parameter 02: Compressor 03: Fan 04: Pump 10 : Air Handling Unit, AHU

 Note: After selecting the macro, some of default values will be adjusted automatically according to the application selection.

 Group setting 02: Compressor
 The following table of contents is the relevant application parameters used for compressor settings.

Pr.	Explanation	Settings
00-11	Control of speed mode	0 (V/F control mode)
00-16	Load selection	0 (Normal load)
00-17	Carrier frequency	Factory default setting
00-20	Source of the master frequency command (AUTO)	2 (External analog input)
00-21	Source of the operation command (AUTO)	1 (External terminals)
00-22	Stop method	0 (Ramp to stop)
00-23	Control of motor direction	1 (Disable reverse)
01-00	Max. operation frequency of motor 1	Factory default setting
01-01	Output frequency of motor 1	Factory default setting
01-02	Output voltage of motor 1	Factory default setting
01-03	Mid-point frequency 1 of motor 1	Factory default setting
01-04	Mid-point voltage 1 of motor 1	Factory default setting
01-05	Mid-point frequency 2 of motor 1	Factory default setting
01-06	Mid-point voltage 2 of motor 1	Factory default setting
01-07	Min. output frequency of motor 1	Factory default setting
01-08	Min. output voltage of motor 1	Factory default setting
01-11	Output frequency lower limit	20 (Hz)
01-12	Accel. time 1	20 (s)
01-13	Decel. time 1	20 (s)
03-00	Analog input selection (AVI)	0 (No function)
03-01	Analog input selection (ACI)	1 (Frequency command)
05-01	Full-load current of induction motor 1 (A)	Factory default setting
05-03	Rated speed of induction motor 1 (rpm)	Factory default setting
05-04	Pole number of induction motor 1	Factory default setting

Group setting 03: Fan

The following table of contents is the relevant application parameters used for fan settings.

Pr.	Explanation	Settings
00-11	Control of speed mode	0 (VF)
00-16	Load selection	0 (Normal load)
00-17	Carrier frequency	Factory default setting
00-20	Source of the master frequency command (AUTO)	2 (External analog input)
00-21	Source of the operation command (AUTO)	1 (External terminals)
00-22	Stop method	1 (Coast to stop)
00-23	Control of motor direction	1 (Disable reverse)
00-30	Source of the master frequency command (HAND)	0 (Digital keypad)
00-31	Source of the operation command (HAND)	0 (Digital keypad)
01-00	Max. operation frequency of motor 1	Factory default setting
01-01	Output frequency of motor 1	Factory default setting
01-02	Output voltage of motor 1	Factory default setting
01-03	Mid-point frequency 1 of motor 1	Factory default setting
01-04	Mid-point voltage 1 of motor 1	Factory default setting
01-05	Mid-point frequency 2 of motor 1	Factory default setting
01-06	Mid-point voltage 2 of motor 1	Factory default setting
01-07	Min. output frequency of motor 1	Factory default setting
01-08	Min. output voltage of motor 1	Factory default setting
01-10	Output frequency upper limit	50 (Hz)
01-11	Output frequency lower limit	35 (Hz)
01-12	Accel. time 1	15 (s)
01-13	Decel. time 1	15 (s)
01-43	V/F curve selection	2 (2 nd V/F curve)
02-05	Multi-function input command 5 (MI5)	16 (Rotating speed command from ACI)
03-00	Analog input selection (AVI)	1 (Frequency command)
03-01	Analog input selection (ACI)	1 (Frequency command)
03-28	AVI terminal input selection	0 (0~10V)
03-29	ACI terminal input selection	1 (0~10V)
03-31	AFM output selection	0 (0~10V)
03-50	Analog input curve selection	1 (3 point curve of AVI)
07-06	Restart after momentary power loss	2 (Speed tracking by minimum output frequency)
07-11	Restart times after fault	5 (times)
07-33	Return time of fault restart	60 (s)

Group setting 04: Pump

The following table of contents is the relevant application parameters used for pump settings.

Pr.	Explanation	Settings
00-11	Control of speed mode	0 (VF)
00-16	Load selection	0 (Normal load)
00-20	Source of the master frequency command (AUTO)	2 (External analog input)
00-21	Source of the operation command (AUTO)	1 (External terminals)
00-23	Control of motor direction	1 (Disable reverse)
01-00	Max. operation frequency of motor 1	Factory default setting
01-01	Output frequency of motor 1	Factory default setting
01-02	Output voltage of motor 1	Factory default setting
01-03	Mid-point frequency 1 of motor 1	Factory default setting
01-04	Mid-point voltage 1 of motor 1	Factory default setting
01-05	Mid-point frequency 2 of motor 1	Factory default setting
01-06	Mid-point voltage 2 of motor 1	Factory default setting
01-07	Min. output frequency of motor 1	Factory default setting
01-08	Min. output voltage of motor 1	Factory default setting
01-10	Output frequency upper limit	50 (Hz)

01-11	Output frequency lower limit	35 (Hz)
01-12	Accel. time 1	15 (s)
01-13	Decel. time 1	15 (s)
01-43	V/F curve selection	2 (2 nd V/F curve)
07-06	Restart after momentary power loss	2 (Speed tracking by minimum output frequency)
07-11	Restart times after fault	5 (times)
07-33	Return Time of Fault Restart	60 (s)



Group setting 10 : Air Handling Unit, AHU


The following table of contents is the relevant application parameters used for AHU settings.

Pr.	Explanation	Settings
00-04	Multi-function Display (user defined)	2
00-11	Control of speed mode	0 (VF)
00-16	Load selection	0 (Normal load)
00-20	Source of the master frequency command (AUTO)	2 (External analog input)
00-21	Source of the operation command (AUTO)	1 (External terminals)
00-23	Control of motor direction	1 (Disable reverse)
00-30	Source of the Master Frequency Command (HAND)	0
00-31	Source of the Operation Command (HAND)	0
01-00	Max. operation frequency of motor 1	Factory default setting
01-01	Output frequency of motor 1	Factory default setting
01-02	Output voltage of motor 1	Factory default setting
01-07	Min. output frequency of motor 1	Factory default setting
01-10	Output frequency upper limit	50 (Hz)
01-11	Output frequency lower limit	35 (Hz)
01-34	Zero-speed Mode	2
01-43	V/F curve selection	2 (2 nd V/F curve)
02-05	Multi-function Input Command 5 (MI5)	16 or 17
02-13	Relay1: Multi Output Terminal	11
02-14	Relay2: Multi Output Terminal	1
03-00	Analog Input 1 (AVI1)	1
03-01	Analog Input 2 (ACI)	1
03-02	Analog Input 3 (AVI2)	1
03-28	AVI1 Selection	0
03-29	ACI Selection	1
03-20	Multi-function Output 1 (AFM1)	0
03-23	Multi-function Output 2 (AFM2)	0
03-31	AFM2 0-20mA Output Selection	0 or 1
03-34	AFM1 0-20mA Output Selection	0 or 1
03-50	Analog Calculation Selection	4
07-06	Restart after momentary power loss	2 (Speed tracking by minimum output frequency)
07-11	Restart times after fault	5 (times)
07-33	Return Time of Fault Restart	60 (s)

3. Add new parameter Pr06-86 Fire mode motion and Pr06-87 Fire mode PID set point

06-86	Fire mode motion	Factory Setting: 0
	Settings	Bit0: 0=Open Loop; 1=Close Loop (PID control) Bit1: 0=Manual reset fire mode; 1=Auto reset fire mode 0: Open loop control & manual reset fire mode 1: Close loop control & manual reset fire mode 2: Open loop control & auto reset fire mode 3: Close loop control & auto reset fire mode

06-87	Fire mode PID set point	Factory Setting: 0.0
	Settings	0~100.00% (according to Pr.01-00 Max. operation frequency)

 P06-87 is the Fire mode PID set point when the P06-86 bit 0=1.

4. Add PMSVC control mode

Because the 2.03 firmware release is very extensive, please also see the special separate announcements:

- PMSVC: 116A-FE-xCP-17420-E-01-01_CP2000 firmware v2.03_PMSVC.pdf and the belonging application note CP2000 PMSVC fine-tune SOP.pdf.
- Fire Mode: 116A-FE-xCP-17420-E-01-01_CP2000 firmware v2.00 update to v2.03_Fire mode.pdf

on our ftp-site (folder M:\Customer-Service\Industrial Automation Products\AMD\VFD-CP2000\VFD-CP Presentations&Announcements

You can also find the new user manual DELTA_IA-MDS_VFD-CP2000_UM_EN_20170602.pdf on our ftp-site

Production

Version	Series number	
v2.03	Taiwan	1717

Version	Series number	
v2.03	WJ	1717

2.2 NEW – STO certificate for MS/MH300

You can find the STO certificate STO MS-MH300 (01_205_5578_00_17_en_el).pdf for MS/MH300 on our ftp-site in the folder:

Customer-Service\Industrial Automation Products_Delta Company info\Certificates\STO



2.3 UPDATE – CP2000 Datasheet

Datasheet CP2000 Version11 June2017.pdf. It's on our ftp-site.

2.4 UPDATE – CP200 firmware 1.07

CP200 firmware is upgraded from 1.06 to 1.07.

Function correction		
	Errors in v1.06	Solutions in v1.07
1.	The PLFF message will be appeared after enabling PLC function without PLC program inside	The PLFF message will not be appeared after enabling PLC function without PLC program inside

Function modify

- To modify the Max. frequency setting value become 599.00Hz. The related parameters is as below table:

Parameter	Explanation	Settings	Factory Setting
01-00	Max. Operation Frequency	0.00~599.00Hz	60.00/ 50.00
01-01	Output Frequency of Motor 1	0.00~599.00Hz	60.00/ 50.00
01-03	Mid-point Frequency 1 of Motor 1	0.00~599.00Hz	3.00
01-05	Mid-point Frequency 2 of Motor 1	0.00~599.00Hz	1.50
01-07	Min. Output Frequency of Motor 1	0.00~599.00Hz	0.50
01-09	Start-Up Frequency	0.00~599.00Hz	0.50
01-10	Output Frequency Upper Limit	0.00~599.00Hz	599.00
01-11	Output Frequency Lower Limit	0.00~599.00Hz	0
01-22	JOG Frequency	0.00~599.00Hz	6.00
01-23	1st/4th Accel/decel Frequency	0.00~599.00Hz	0.00
01-28	Skip Frequency 1 (upper limit)	0.00~599.00Hz	0.00
01-29	Skip Frequency 1 (lower limit)	0.00~599.00Hz	0.00
01-30	Skip Frequency 2 (upper limit)	0.00~599.00Hz	0.00
01-31	Skip Frequency 2 (lower limit)	0.00~599.00Hz	0.00
01-32	Skip Frequency 3 (upper limit)	0.00~599.00Hz	0.00
01-33	Skip Frequency 3 (lower limit)	0.00~599.00Hz	0.00
01-35	Output Frequency of Motor 2	0.00~599.00Hz	60.00/ 50.00
01-37	Mid-point Frequency 1 of Motor 2	0.00~599.00Hz	3.00
01-39	Mid-point Frequency 2 of Motor 2	0.00~599.00Hz	1.50
01-41	Min. Output Frequency of Motor 2	0.00~599.00Hz	0.50
02-22	Desired Frequency Attained 1	0.00~599.00Hz	60.00/ 50.00
02-23	The Width of the Desired Frequency Attained 1	0.00~599.00Hz	2.00
02-24	Desired Frequency Attained 2	0.00~599.00Hz	60.00/ 50.00
02-25	The Width of the Desired Frequency Attained 2	0.00~599.00Hz	2.00
02-34	Output frequency setting for multi-function output terminal	0.00~599.00Hz (Motor speed when using PG Card)	0.00
02-48	Max. Frequency of Resolution Switch	0.00~599.00Hz	60.00
02-54	Display the Frequency Command Executed by External Terminal	Read only	Read only

✓	04-00	1st Step Speed Frequency	0.00~599.00Hz	0.00
✓	04-01	2nd Step Speed Frequency	0.00~599.00Hz	0.00
✓	04-02	3rd Step Speed Frequency	0.00~599.00Hz	0.00
✓	04-03	4th Step Speed Frequency	0.00~599.00Hz	0.00
✓	04-04	5th Step Speed Frequency	0.00~599.00Hz	0.00
✓	04-05	6th Step Speed Frequency	0.00~599.00Hz	0.00
✓	04-06	7th Step Speed Frequency	0.00~599.00Hz	0.00
✓	04-07	8th Step Speed Frequency	0.00~599.00Hz	0.00
✓	04-08	9th Step Speed Frequency	0.00~599.00Hz	0.00
✓	04-09	10th Step Speed Frequency	0.00~599.00Hz	0.00
✓	04-10	11th Step Speed Frequency	0.00~599.00Hz	0.00
✓	04-11	12th Step Speed Frequency	0.00~599.00Hz	0.00
✓	04-12	13th Step Speed Frequency	0.00~599.00Hz	0.00
✓	04-13	14th Step Speed Frequency	0.00~599.00Hz	0.00
✓	04-14	15th Step Speed Frequency	0.00~599.00Hz	0.00
✓	05-23	Frequency for Y-connection/ Δ -connection Switch of Induction Motor	0.00~599.00Hz	60.00
	06-31	Frequency Command for Malfunction	0.00~599.00Hz	Read only
	06-32	Output Frequency at Malfunction	0.00~599.00Hz	Read only
✓	07-04	Startup Frequency for DC Brake	0.00~599.00Hz	0.00
✓	07-16	Dwell Frequency at Accel.	0.00~599.00Hz	0.00
✓	07-18	Dwell Frequency at Decel.	0.00~599.00Hz	0.00
✓	08-10	Sleep Frequency	Pr.08-18=0 : 0.00~599.00Hz Pr.08-18=1 : 0.00~200.00%	0.00
✓	08-11	Wake-up Frequency	Pr.08-18=0 : 0.00~599.00Hz Pr.08-18=1 : 0.00~200.00%	0.00
✓	09-10	Main Frequency of the Communication	0.00~599.00Hz	60.00
✓	10-39	PM Sensorless Frequency Level to switch from V/F Mode to Detection Mode	0.00~599.00Hz	20.00
✓	10-40	PM Sensorless Frequency Level to switch from Detection Mode to V/F Mode	0.00~599.00Hz	20.00
	10-48	The Switching Frequency of the Calculation Method for the Low Resolution ppr Encoder at Low Speed	0.00~599.00Hz	25.00
✓	11-02	ASR1/ASR2 Switch Frequency	5.00~599.00Hz	7.00

2. VF curve factory setting has change as below:

Parameter	Explanation	Settings	Factory Setting
01-01	Output Frequency of Motor 1	0.00~599.00Hz	60.00/ 50.00
01-02	Output Voltage of Motor 1	230V : 0.0V~255.0V 460V : 0.0V~510.0V	200.0 400.0
01-03	Mid-point Frequency 1 of Motor 1	0.00~599.00Hz	3.00
✓ 01-04	Mid-point Voltage 1 of Motor 1	230V : 0.0V~240.0V 460V : 0.0V~480.0V	11.0 22.0
01-05	Mid-point Frequency 2 of Motor 1	0.00~599.00Hz	1.50
✓ 01-06	Mid-point Voltage 2 of Motor 1	230V : 0.0V~240.0V 460V : 0.0V~480.0V	5.0 10.0
01-07	Min. Output Frequency of Motor 1	0.00~599.00Hz	0.50
✓ 01-08	Min. Output Voltage of Motor 1	230V : 0.0V~240.0V 460V : 0.0V~480.0V	1.0 2.0
01-35	Output Frequency of Motor 2	0.00~599.00Hz	60.00/ 50.00
01-36	Output Voltage of Motor 2	230V : 0.0V~255.0V 460V : 0.0V~510.0V	200.0 400.0
01-37	Mid-point Frequency 1 of Motor 2	0.00~599.00Hz	3.00
✓ 01-38	Mid-point Voltage 1 of Motor 2	230V : 0.0V~240.0V 460V : 0.0V~480.0V	11.0 22.0
01-39	Mid-point Frequency 2 of Motor 2	0.00~599.00Hz	1.50
✓ 01-40	Mid-point Voltage 2 of Motor 2	230V : 0.0V~240.0V 460V : 0.0V~480.0V	5.0 10.0
01-41	Min. Output Frequency of Motor 2	0.00~599.00Hz	0.50
✓ 01-42	Min. Output Voltage of Motor 2	230V : 0.0V~240.0V 460V : 0.0V~480.0V	1.0 2.0

3. Software brake level factory setting has change as below

Parameter	Explanation	Settings	Factory Setting
07-00	Software Brake Level	230V : 350.0~450.0Vdc 460V : 700.0~900.0Vdc	370.0 740.0

New function

1. Add new parameter Pr06-49 LvX Auto Reset

06-49	LvX Auto Reset	Factory Setting:0
Settings	0 : Disable 1 : Enable	

Pr 06-49=0: Disable; LvA、LvD、LvN error will be record and need to be reset

Pr 06-49=1: Enable; LvA、LvD、LvN error will be record. The DCBUS voltage has reach Lv reset level and the Soft-start Relay has turn ON, the LvX error will be reset automatically.

Production

Version	Series number
v1.07	Taiwan T1727

Version	Series number
v1.07	WJ W1723

2.5 NEW – DRC-24V10W1HZ with Household Appliance Safety Approval

New Delta DRC-24V10W1HZ DIN Rail Power Supply offers Household Appliance Safety Approval for home and building automation systems.



DRC-24V10W1HZ, a new model to the current series of Class II [DIN rail power supply](#) by Delta Electronics, now comes with household appliance safety approval. This design not only does not require an earth connection, it also has a very low leakage current which is especially useful for building automation and the food and beverage industry. The DRC-24V10W1HZ offers full load up to 55°C in an extremely compact body measuring 55.6mm thick, 91mm tall and 18mm wide. This product accepts a universal input voltage range of 90-264Vac, and supports a wide operating temperature range of -25°C to 71°C.

Major approvals includes IEC/EN/UL 60950-1 (ITE) and IEC/EN 60335-1 (Household Electrical Appliance). The product meets the EMC approvals to EN 55014-1 / EN 55014-2 for household appliances and EN 61000-6-2 immunity for industrial environments without the need for an extra EMI filter. The series is also fully compliant with RoHS Directive 2011/65/EU for environmental protection.

Highlights & Features

- Protection Class II, Double Isolation (No Earth connection is required)
- Household appliance approvals IEC/EN 60335-1
- Universal AC input voltage and full power up to 55°C
- Efficiency > 80.0% @ 115Vac & 230Vac
- NEC Class 2 / Limited Power Source (LPS) certified
- Overvoltage / Overcurrent / Over Temperature Protections



2.6 NEW – ECMA High IP protection motor



We are glad to announce the release of the high IP protection motor. The availability of this high IP protection motor is from 100 W to 750 W with 40 mm to 80 mm flange range. It applies to 20-bit encoders only. This high IP protection motor can be installed in the environment which contain dust, oil and water. Its application includes CNC machining, primary packaging and water cutting.

Features

- IP67 connectors with highly flexible, fully shielded cables
- Fast clamping
- IP65 protection for the unit
- Easily exchangeable with other units
- Holding brake available
- Both 230 VAC and 400 VAC are available

Please check the product-related information on the ftp-site.

Ordering

ECMA-C10401YS

Similar to other ECMA
* only 20 bit encoder available.

YS=High IP protection, W/O brake
YF=High IP protection, with brake

Comparison

Comparison table		
	"Standard" motors	High IP protection
230Vac	ECMA-C10401RS	ECMA-C10401YS
	ECMA-C10401SS	ECMA-C10401YF
	ECMA-C10602RS	ECMA-C10602YS
	ECMA-C10602SS	ECMA-C10602YF
	ECMA-C10604RS	ECMA-C10604YS
	ECMA-C10604SS	ECMA-C10604YF
	ECMA-C10807RS	ECMA-C10807YS
	ECMA-C10807SS	ECMA-C10807YF
400Vac	ECMA-J10604RS	ECMA-J10604YS
	ECMA-J10604SS	ECMA-J10604YF
	ECMA-J10807RS	ECMA-J10807YS
	ECMA-J10807SS	ECMA-J10807YF

2.7 NEW – ECMA 400V with absolute encoder and shaft (European standards)

We are happy to announce the release of the new members of ECMA series servo motor.

The ECMA series servo motor with 400VAC now comes with an absolute encoder and a special shaft meeting European standards. With these new family members, we hope to eliminate coupling problems and shorten the settling time on ECMA series servo motor. Moreover, by using the new motor, customers can possibly shorten the BOM.

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

2.8 NEW – DVP-12SE firmware version 1.88 released

Description:

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.
6. **Release date:** July 20th, 2017

Refer also to the document [DELTA_SE_V1.88_T_EN_20170718-ATT1.pdf](#) on our ftp-site.

2.9 PHASE OUT – IFD8500 and IFD8510 phased out

In Newsletter 2017-05 we announced IFD8500-A and IFD8510-A as successors to IFD8500 and IFD8510 respectively.

The serial communication converter (IFD8500) and the serial communication repeater (IFD8510) are being phased out. We will continue to deliver IFD8500 and IFD8510 until our stock is depleted. The replacement products are IFD8500-A and IFD8510-A for IFD8500 and IFD8510, respectively.



Both IFD8500-A and IFD8510-A can automatically adjust the baud rate and transmission format and will be available in November, 2017 at the same price as IFD8500 and IFD8510, so there is no price change between two models.

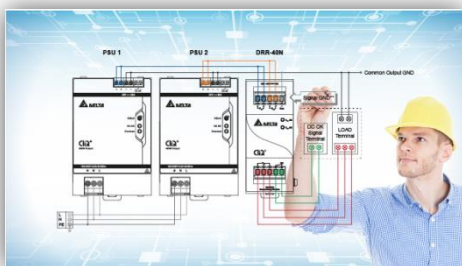
3 Application

3.1 NEW – Application Notes

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

- [CP2000 PMSVC fine-tune SOP.pdf](#)
- [Aquaculture Industry Notification-Aquatic Feeds Production Line Management System.pdf](#)
- [Electronics Industry Notification- DAF Equipment.pdf](#)
- [Fluid Industry Announcement-Air compressor union control solution.pdf](#)
- [Food & Pharmaceuticals Industry Notification-Sausage wire tie machine.pdf](#)
- [Footwear Industry Notification-Laser Cutting Machine Networking.pdf](#)
- [Robot Industry Notification-Delta SCARA labeling robot station.pdf](#)
- [CNC Industry Notification-Graphical User Interface for CNC Grinding Machine.pdf](#)

3.2 Power Supplies: How to Operate Parallel and Series Connection



Parallel or Series?

In general, when selecting a power supply, it is important to choose one with appropriate voltage and current rating to support the system requirements. Typically, power supplies are connected in parallel to increase the power/current rating and also to increase the system reliability by providing redundancy function. Series connection of power supplies can cater to special needs of the system when requiring higher output voltages.

Parallel Operation

The purpose of parallel operation is to get increased output current. When in 1+1 connection, the total output current will be maximum 2x of each individual power supply rating. Load sharing between the 2 supplies can also be achieved. (See "Load Sharing" topic below). When connecting more than one power supply (N+1), it is recommended to connect using external ORing diodes (Delta recommends the use of DRR-20N or DRR-40N). See Figure 2.

To achieve redundancy function, the system current demand should not be greater than the rating of a single power supply. More details are available under the "Redundancy" topic later in this article. In the

case of redundant connection, system operation is not disrupted when there is a failure in one of the power supply. This prevents overall system downtime.

- **Load Sharing Concept**

The power supplies can be connected together for parallel operation to increase the output current. See Figure 1 below. To achieve this, it is important that the output voltages of both power supplies must be within 25mV difference of each other. The output voltage adjustment must be done at 50% of max load current or at a load current 25% and above ensuring that both the power supplies have been adjusted at the same current level independently.

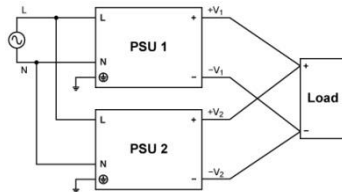


Fig 1. Load Sharing Connection Diagram (1+1)

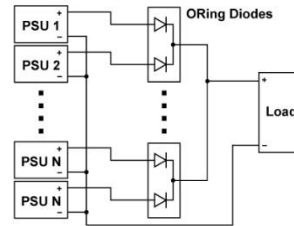


Fig 2. Load Sharing Connection Diagram (N+1)

- **Redundancy Concept**

Power supplies must be connected using OR-ing diodes to achieve redundant operation. The output voltage difference between the two power supplies is kept typically at 2% of the output voltage. For a 24V power supply, keep a gap of 0.48V (0.45~0.50V). In the event of a failure with one of the power supply, the other power supply will take over the system load. Ensure that the selected power supply is capable of providing the system load (current rating of the power supply must not be lower than system current demand). See Figure 3 below for connection diagram.

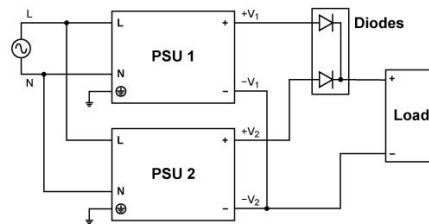


Figure 3. Redundant Connection Diagram

Notes:

- The selection criteria for individual OR-ing diode must be;
- Current rating at least 4x of the output load current
- Reverse voltage rating 2x of the power supply output voltage
- Heat sink with the OR-ing diode

Increase operational reliability of the system with Delta Redundancy Module

Delta redundancy modules DRR-20N and DRR-40N use Schottky diodes to keep the conduction losses at a minimum. The modules also use potential free contacts to provide an external signal when the failure from either power supply.

Delta recommends the use of DRR-20N and DRR-40N for load sharing and redundant operations.

Series Operation

Power supplies can be connected in series to increase the output voltage as shown in Figure 5. Only power supply from the same product series and with same rated output current should be used. The maximum load current should not exceed the smallest rated output current, when selecting power supplies with different current ratings. Any number of power supplies can be connected in series. System designers must note that an output voltage > 60Vdc will not meet SELV requirements, and can be dangerous. Under no circumstances the total voltage should exceed 150Vdc. When the total voltage exceeds the SELV limit of 60Vdc, a protective barrier against touching the output terminals must be installed, together with connecting the output ground (-V2 DC Return) terminal of power supply to Earth ground. See Figure 5.

An OR-ing diode in reverse bias must be added across output terminals of each power supply. This is to prevent -V voltage being applied to other power supply in fault conditions such as short circuit across load. During a short circuit, -V1 & +V1 will be connected across +V2 & -V2 which means the 2 power supplies output will be connected in opposite polarity and will cause damage to the power supplies.

With diode connected in reverse bias across the output, the voltage across each power supply output will be restricted to one diode drop – approximately 0.7V to 1.0V. It is recommended to provide sufficient voltage de-rating for diodes with 2x the voltage rating of series output voltage.

Example: When two 24V power supplies are connected in series, the total voltage will be 48V. During a short circuit, the current through the ORing diodes will be very high. Therefore, use ORing diodes with reverse voltage rating of at least $2 \times 48 = 96\text{V}$.

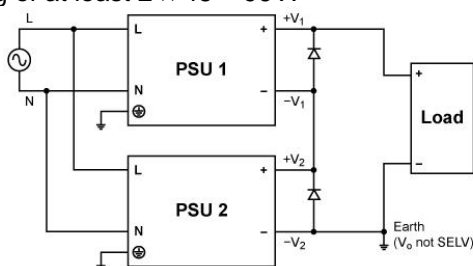


Figure 5. Series Operation Diagram

When two power supplies are connected in series, there is a possibility of a non-monotonic turn ON as the power supply with the fastest startup time and rise time will turn on first. As shown in Figure 6, the combined output voltage waveform of the 2 power supplies connected in series will result in a step.

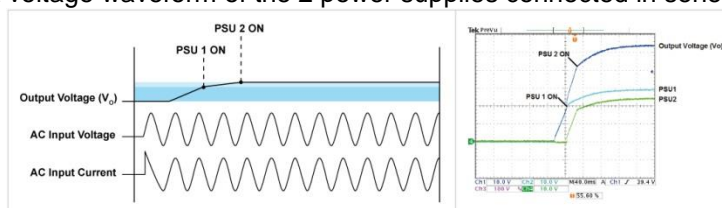


Figure 6. Non-monotonic Turn-on Waveform

When power supplies are used in parallel and series operations, parameters such as EMI, inrush current, leakage current, PARD, and startup time will be different compared to a standalone power supply. The system designer must consider these parameters on a system level.

Learn More

To learn more how to execute series and parallel operation, kindly contact your local distributor or please visit www.DeltaPSU.com for more information and other types of Delta power supplies.

4 FAQ

4.1 VFD-series AC Motor drives

VFD-L

Q Which Modbus commands are available?

A 03 = read N words
06 = write 1 word

08 (loop detection) and 10 (write multiple registers) are not available.

MS300

Q What does Pr07-20=5 (System deceleration) mean?

- A For MS300 there is the function Forced to stop (Pr02-01 ~ 02-06 = 18 or 10).
Then Pr07-20 needs to be set.

✖ **07-20** Deceleration of Emergency or Forced Stop Factory Setting: 0

Settings 0: Coast to stop
1: Stop by 1st deceleration time
2: Stop by 2nd deceleration time
3: Stop by 3rd deceleration time
4: Stop by 4th deceleration time
5: System Deceleration
6: Automatic Deceleration

📖 When the multi-function input terminal is set to EF (10) or forced stop (18) and the terminal contact is ON, the drive will stop according to the setting of this parameter.

Pr07-20=5 means the drive stops with the actual deceleration time.

C/CP2000

Q C2000 Pr10-42 setting?

- A Parameter 10-42 has two different setting in manual. Which one is correct and what is the default setting?

Page 12.1-10-8

✖ **10-42** Initial Angle Detection Time Factory Setting: 5

Settings 0.0~3.0

📖 PM Sensorless (I/f + FOC) Adjustment Procedure

1. When executing Static test for PM(IPM) (05-00=13), VFD software can be used to monitor adjustment procedure. To download VFD Software go to:

Page 12.2-00-10

✖ **10-42** Voltage pulse width Factory Setting: 10

Settings 0~50 ms

📖 The angle detection is 3:6-pulse. The parameter influences the value of pulse during the angle detection. The larger the pulse is, the higher of the accuracy of rotator's position. But it might cause oc easily.

📖 Increase the parameter when the running direction and the command are opposite while start-up. If oc occurs in the start-up moment, then decrease the parameter.

The info on page 12.1-10-8 is correct and on 12.2-00-10 it is wrong, it will be corrected in the next manual.

The default setting is 1 which also will be corrected (it is correct in the firmware).

Q C2000 Pr08-23 setting?

- A Pr08-23 is bit setting.
But because it only affects bit0, you can consider it to be:
Pr08-23=0 (bit0=0)
Pr08-23=1 (bit0=1).

Bit0=0

When the PID calculates its output to be positive or negative for forward or reverse, it is enabled if Pr08-21=1.

If Pr08-21=0, it only runs in the direction of the RUN command (FWD or REV).

Bit0=1

Then the PID calculates its output but it follows the rule as set in Pr00-23 (0=FWD/REV enable, 1=REV disable, 2=FWD disable).

4.2 Delta Temperature Controllers

DTC

Q

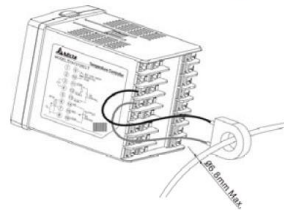
What are the current transformers for DTC?

A

They are the same as for DTB and DT3.

DT3-CT30A	30A CT Ring	Max. power wire diameter 7.0mm, max 30A
DT3-CT100A	100A CT Ring	Max. power wire diameter 19.5mm, max 100A

CT Wiring Method (if CT function is selected)



- How to Set Up Current Input

Remove the temperature controller cover and set JP8 to short. JP8 jumper locates near the sensor input area on PCB board.

Normal Input (Factory Setting)

Current Input (4 ~ 20mA, 0 ~ 20mA)

