DELTA Newsletter

Industrial Automation Products

Contents

1   News

1.1   ftp-site link

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

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

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

1.2   Hispack May 8~11, 2018 in Barcelona

Delta participated for first time in last Hispack edition from May 8~11, 2018 with a 120m² booth in Barcelona, Spain.

Hispack is the biggest packaging exhibition in Spain and held every 3 years.
This year there were 843 exhibitors, 1.400 represented brands and around 40.000 visitors. This fair trade has been a good opportunity with great success to introduce Delta Electronics as a total provider for OEM machinery manufacturers and system integrators.
We presented our newest products Motion controllers PC based that created big interest.

2 Product update

2.1 UPDATE – C2000 will change into C2000 Plus in 2019Q3 !!

We already inform you that in 2019H1 we will change C2000 naming and duty.

- **The duty will be changed from ND (Normal Duty) into HD (Heavy Duty) without changing the rated current.**
- **C2000 model name aligns with CP2000 model name and will be referred to as C2000 Plus.**

Changes:
- C2000 Plus is based on C2000 ND specification (current, carrier frequency, operation temperature, etc), but the overload ability is changed to HD.
- C2000 is ND/HD, C2000 Plus is HD only.
- C2000 and C2000 Plus have the same function/size/accessories.
- C2000 Plus is the same price as C2000, but with better overload ability.
- 6 months after C2000 Plus is stable in market, C2000 will be phased out and fully replaced by C2000 Plus.

C2000 VS C2000 Plus Frame A~C

C2000 ND/HD

Frame Size		A						B			C		
Model VFD-_ _ _C_ _		7	15	22	37	40	55	75	110	150	185	220	300
Normal Duty Rated Output Capacity [kVA]		2.4	3.2	4.8	7.2	8.4	10	14	19	25	30	36	48
Rated Output Current [A]		3	4	6	9	10.5	12	18	24	32	38	45	60
Applicable Motor Output [kW]		0.75	1.5	2.2	3.7	4	5.5	7.5	11	15	18.5	22	30
Applicable Motor Output [HP]		1	2	3	5	5	7.5	10	15	20	25	30	40
Overload Capacity		120% of rated output current: 1 minute for every 5 minutes; 160% of rated output current: 3 seconds for every 30 seconds											
Max. Output Frequency [Hz]		0.00~599.00											
Carrier Frequency [kHz]		2~15 (Default: 8)									2~10 (Default: 6)		
Heavy Duty Rated Output Capacity [kVA]		2.3	3	4.5	6.5	6	9.6	14	18	24	29	34	45
Rated Output Current [A]		2.9	3.8	5.7	8.1	5	11	17	23	30	36	43	57
Applicable Motor Output [kW]		0.4	0.75	1.5	2.2	7	4	5.5	7.5	11	15	18.5	22
Applicable Motor Output [HP]		0.5	1	2	3	5	5	7.5	10	15	20	25	30
Overload Capacity		150% rated output current: 1 minute for every 5 minutes; 180% rated output current: 3 seconds for every 30 seconds											
Max. Output Frequency [Hz]		0.00~300.00											
Carrier Frequency [kHz]		2~ (Default: 2)									2~10 (Default: 2)		

C2000 plus HD only

Frame Size		A						B			C		
Model VFD-_ _ _C_ _		7	15	22	37	40	55	75	110	150	185	220	300
Heavy Duty Rated Output Capacity [kVA]		2.4	3.2	4.8	7.2	8.4	10	14	19	25	30	36	48
Rated Output Current [A]		3	4	6	9	10.5	12	18	24	32	38	45	60
Applicable Motor Output [kW]		0.75	1.5	2.2	3.7	4	5.5	7.5	11	15	18.5	22	30
Applicable Motor Output [HP]		1	2	3	5	5	7.5	10	15	20	25	30	40
Overload Capacity		150% of rated output current: 1 minute for every 5 minutes; 180% of rated output current: 3 seconds for every 30 seconds											
Max. Output Frequency [Hz]		0.00~599.00											
Carrier Frequency [kHz]		2~15 (Default: 8)									2~10 (Default: 6)		

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C2000 VS C2000 Plus Frame D0~H

C2000 ND/HD

Frame Size		D0		D	E		F		G		H			
Model VFD-_ _ _C_ _		370	450	550	750	900	1100	1320	1600	1850	2200	2800	3150	3550	4500
Normal Duty	Rated Output Capacity [kVA]	58	73	88	120	143	175	207	247	295	367	438	491	544	720
	Rated Output Current [A]	73	91	110	150	180	220	260	310	370	460	550	616	683	866
	Applicable Motor Output [kW]	37	45	55	75	90	110	132	160	185	220	280	315	355	450
	Applicable Motor Output [HP]	50	60	75	100	125	150	175	215	250	300	375	420	475	600
	Overload Capacity	120% of rated output current: 1 minute for every 5 minutes; 160% of rated output current: 3 seconds for every 30 seconds													
	Max. Output Frequency [Hz]	0.00~599.00													
	Carrier Frequency [kHz]	2~10 (Default: 6)			2~9 (Default: 4)										
Heavy Duty	Rated Output Capacity [kVA]	55	69	84	114	136	7	197	235	280	348	417	466	517	677
	Rated Output Current [A]	69	86	105	143	171	9	247	295	352	437	523	585	649	815
	Applicable Motor Output [kW]	30	37	45	55	75	0	110	132	160	185	220	280	315	355
	Applicable Motor Output [HP]	40	53	60	75	100	5	150	175	215	250	300	375	425	475
	Overload Capacity	150% rated output current: 1 minute for every 5 minutes; 180% rated output current: 3 seconds for every 30 seconds													
	Max. Output Frequency [Hz]	0.00~300.00													
	Carrier Frequency [kHz]	2~10 (Default: 2)			2~9 (Default: 2)										

C2000 plus HD only

Frame Size		D0		D	E		F		G		H			
Model VFD-_ _ _C_ _		370	450	550	750	900	1100	1320	1600	1850	2200	2800	3150	3550	4500
Heavy Duty	Rated Output Capacity [kVA]	58	73	88	120	143	175	207	247	295	367	438	491	544	720
	Rated Output Current [A]	73	91	110	150	180	220	260	310	370	460	550	616	683	866
	Applicable Motor Output [kW]	37	45	55	75	90	110	132	160	185	220	280	315	355	450
	Applicable Motor Output [HP]	50	60	75	100	125	150	175	215	250	300	375	420	475	600
	Overload Capacity	150% of rated output current: 1 minute for every 5 minutes; 180% of rated output current: 3 seconds for every 30 seconds													
	Max. Output Frequency [Hz]	0.00~599.00													
	Carrier Frequency [kHz]	2~10 (Default: 6)			2~9 (Default: 4)										

Delta Confidential

Naming:

C2000 Plus uses the same model name rule as CP/CH: It shows with/without conduit box by the code -00/-21 in the end of model name.

Frame A~C:
C2000   VFDxxxC43A without EMC filter
C2000 Plus   VFDxxxC43A-21 without EMC filter

C2000   VFDxxxC43E with built-in EMC filter
C2000 Plus   VFDxxxC4EA-21 with built-in EMC filter

Frame D0~H (no built-in filter):
C2000   VFDxxxC43A without conduit box
C2000 Plus   VFDxxxC43A-00 without conduit box

Frame D0~G (no built-in filter):
C2000   VFDxxxC43E with conduit box
C2000 Plus   VFDxxxC43A-21 with conduit box

Frame H (no built-in filter):
C2000   VFDxxxC43E with built-in conduit box, floor mounted
C2000 Plus   VFDxxxC43C-21 with built-in conduit box, floor mounted
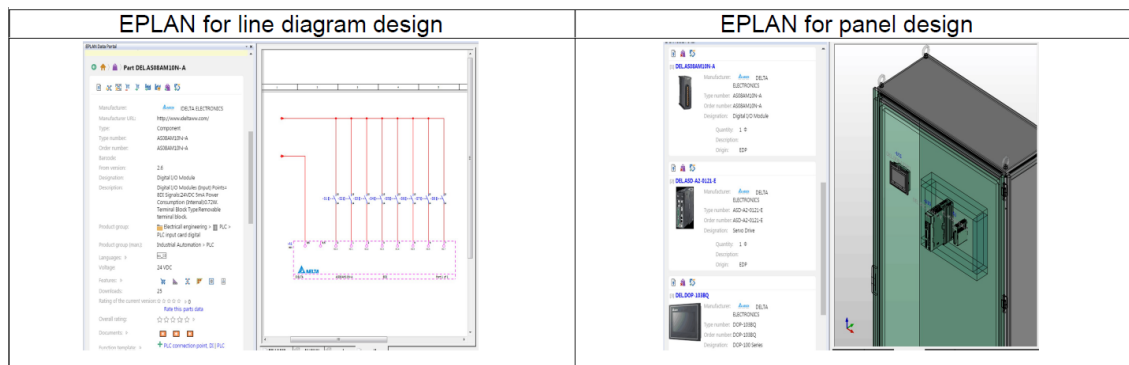
Replacement:

Rated Power kW	C2000	C2000 plus	C2000	C2000 plus
0.75	VFD007C43A	VFD007C43A-21	VFD007C43E	VFD007C4EA-21
1.5	VFD015C43A	VFD015C43A-21	VFD015C43E	VFD015C4EA-21
2.2	VFD022C43A	VFD022C43A-21	VFD022C43E	VFD022C4EA-21
3.7	VFD037C43A	VFD037C43A-21	VFD037C43E	VFD037C4EA-21
4	VFD040C43A	VFD040C43A-21	VFD040C43E	VFD040C4EA-21
5.5	VFD055C43A	VFD055C43A-21	VFD055C43E	VFD055C4EA-21
7.5	VFD075C43A	VFD075C43A-21	VFD075C43E	VFD075C4EA-21
11	VFD110C43A	VFD110C43A-21	VFD110C43E	VFD110C4EA-21
15	VFD150C43A	VFD150C43A-21	VFD150C43E	VFD150C4EA-21
18.5	VFD185C43A	VFD185C43A-21	VFD185C43E	VFD185C4EA-21
22	VFD220C43A	VFD220C43A-21	VFD220C43E	VFD220C4EA-21
30	VFD300C43A	VFD300C43A-21	VFD300C43E	VFD300C4EA-21

Rated Power kW	C	C plus	C	C plus
37	VFD370C43S	VFD370C43S-00	VFD370C43U	VFD370C43S-21
45	VFD450C43S	VFD450C43S-00	VFD450C43U	VFD450C43S-21
55	VFD550C43A	VFD550C43A-00	VFD550C43E	VFD550C43A-21
75	VFD750C43A	VFD750C43A-00	VFD750C43E	VFD750C43A-21
90	VFD900C43A	VFD900C43A-00	VFD900C43E	VFD900C43A-21
110	VFD1100C43A	VFD1100C43A-00	VFD1100C43E	VFD1100C43A-21
132	VFD1320C43A	VFD1320C43A-00	VFD1320C43E	VFD1320C43A-21
160	VFD1600C43A	VFD1600C43A-00	VFD1600C43E	VFD1600C43A-21
185	VFD1850C43A	VFD1850C43A-00	VFD1850C43E	VFD1850C43A-21
220	VFD2200C43A	VFD2200C43A-00	VFD2200C43E	VFD2200C43A-21
280	VFD2800C43A	VFD2800C43A-00	VFD2800C43E	VFD2800C43C-21
315	VFD3150C43A	VFD3150C43A-00	VFD3150C43E	VFD3150C43C-21
350	VFD3550C43A	VFD3550C43A-00	VFD3550C43E	VFD3550C43C-21
450	VFD4500C43A	VFD4500C43A-00	VFD4500C43E	VFD4500C43C-21

We will keep you informed about further details

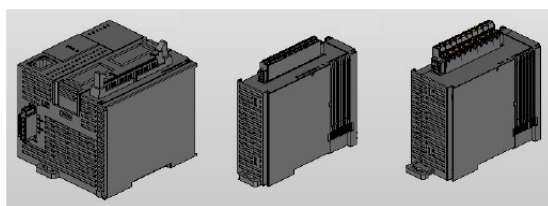## 2.2 NEW – IABG products in EPLAN

- EPLAN (https://www.eplanusa.com/us/home/) is a software company which provides a machine and system planning and drawing software. Their main software is called EPLAN Electric P8.
- More and more IABG customers are using EPLAN software to build their machines and systems. To serve IABG customers better, we introduce IABG product data on EPLAN.
- EPLAN is NOT Delta software. For more information about EPLAN, please find it in Appendix 1 hereafter.
- IABG product data are available on EPLAN from May 21st, 2018 and 652pcs are published.
- IABG product data download website: https://eplandata.de/portal/portal.php?action=partviewc&edpp=1.0&ev=1.9.11&lang=en_US&clang=en_US&mf=DEL&lastmpg=.&mcat=_eplan&tab=c&mcatsel=DEL
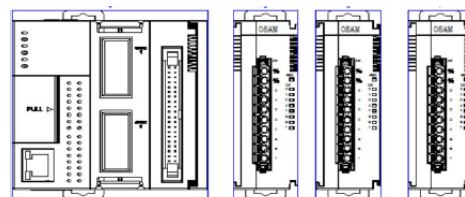
EPLAN for line diagram design	EPLAN for panel design

The following 652 products are introduced on EPLAN Data Portal (EDP):

TYPE	MODEL	QTY
Control	AS300 Series	25
	DOP-107 & DOP-100 Series	5
Motion	ASD-A2 Series, ECMA-A2 Series	508
Drive	VFD-C2000 Series	105
Field Device	DTK, DTC, DTE, DPA, DPB Series	9

These product data, consisting of product specifications and 2D&3D files, are packed into an .edz file. EPLAN users can use these .edz files to achieve their electrical project planning.

3D file   2D file

Future:
More IABG products will be introduced on EDP in the near future.

Release in August 2018:

TYPE	MODEL	QTY
Control	DVP, AH500 series,	211
Motion	ASD-B2, A3, M serise	28
	ECMA-A3 series	24
Drive	VFD-CP2000, VFD-MS MH series	197
Field Device	DFM, PS, LD series	6

Release in February 2019:

TYPE	MODEL	QTY
Control	AH500, AS new series	24
	DOP-WX series	2
Motion	ASD-A3, B2, B3 series	44
Drive	VFD-ME series	34

Appendix 1

EPLAN is a Global company which has more than 51,000 customers with more than 145,000 installations are using EPLAN software for development.
They provide solutions to industries which are
● Automotive,
● Food & Beverage,
● Machine Tools engineering,
● Oil & Gas,
● Panel Building,
● Power Engineers,
● Railway systems,
● Steel & Metal,
● Water & wastewater treatment.
EPLAN worldwide users can directly access IABG products information. The integration of the portal solution into EPLAN Platform makes IABG product data directly available to engineering. EPLAN's users will be Delta's potential customers; the users of these industries will see Delta products without our sale's team active promotion.

Please refer to https://www.eplanusa.com/us/industry/ for details.

You can find the orginal announcement with full product listing on our ftp-site:
Folder: Customer-Service\Industrial Automation Products_Delta EPLAN

2.3   UPDATE – Firmware of DVP06XA-S, DVP06AD-S, and DVP02DA-S is updated

Series	Models	Firmware Version	Release Date
Slim	DVP06XA-S	V4.12➔ V4.14	June 12, 2018 (W1824)
	DVP06AD-S	V4.10➔ V4.12	
	DVP02DA-S	V4.04➔ V4.06	

New functions
1. Added the resetting function for control registers (CRs) in non-latched areas. Write 0x4352 into CR#0 and then have the power of CPU and module turned off and then turn on again; all parameters in CRs, including communication parameters are restored to factory defaults.
2. Added RS485 communication format settings and new data length selections 7/8 are also available, see the following part in red for more information.

#32	H'40E8	○	R/W	Communication format settings	Communication baud rate: 4,800 / 9,600 / 19,200 bps / 38,400 bps / 57,600 bps / 115,200 bps Communication formats: ASCII: 7,E,1 / 7,O,1 / 8,E,1 / 8,O,1 / 8,N,1 RTU: 8,E,1 / 8,O,1 / 8,N,1 Factory defaults: ASCII,9600,7,E,1 (CR#32=H'0002)

b15 ~ b12		b11 ~ b8	b7 ~ b0
ASCII/RTU, exchange low and high byte of CRC check code		Data format	Baud rate
Description			
H'0	ASCII	H'0	7,E,1*1	H'01	4800 bps
H'8	RTU, do not exchange low and high byte of CRC check code	H'1	8,E,1	H'02	9600 bps
		H'2	reserved	H'04	19200 bps
H'C	RTU, exchange low and high byte of CRC check code	H'3	8,N,1	H'08	38400 bps
		H'4	7,O,1*1	H'10	57600 bps
		H'5	8.O,1	H'20	115200 bps

Note
*1: This is only available for ASCII format.

Ex: Write H'C310 into CR#32 for a result of RTU, exchange low and high byte of CRC check code, 8,N,1 and baud rate at 57600 bps.

Modified functions
1. When trying to write an invalid value into a CR, the system ignores this action and the value in the CR stays the same.
2. The CPU can use FROM/TO instructions to read/write the RS485 station number (CR#31) and the communication settings (CR#32) from the modules.
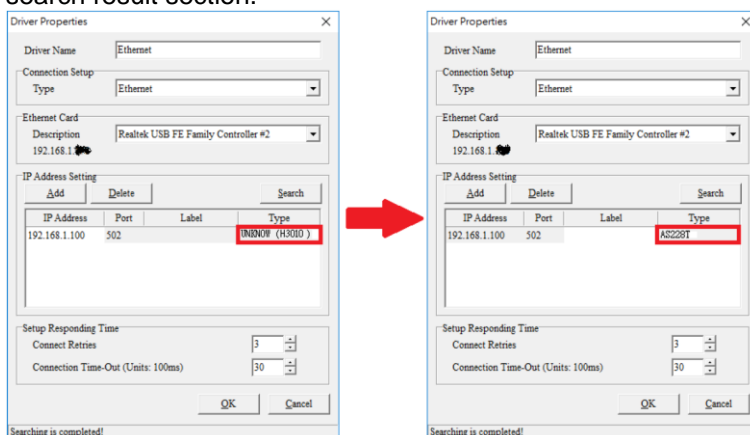
Fixed Issues
1. Fixed the issue that when DVP06AD-S is not supplied with 24V power, the connected right-side extension modules cannot be detected.
2. Fixed the issue that when using CR33 to restore the settings of DVP06AD-S to the defaults, the average value cannot be reset to the defaults.

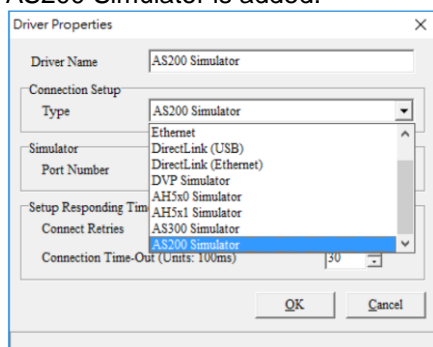## 2.4 UPDATE – COMMGR software 1.09 is released

Changes
1. Fixed the issue that COMMGR cannot be opened in some of Windows operating systems.
2. Fixed the issue that COMMGR crashes if the receiving packets are too big for simulators, including AH5x0, AH5x1, and DVP series.

3. When AS200 series is found during Ethernet IP search, AS200 series can be displayed in the search result section.

4. The simulators of AH5X0, AH5X1, AS300 and DVP series are upgraded.
5. AS200 Simulator is added.

You can find DELTA_IA-PLC_COMMGR-V1-09_SW_20180607.zip on our ftp-site in the folder Customer-Service\Industrial Automation Products\PLC Programmable Logic Controllers\PLC Software

2.5 UPDATE – Firmware of DVP extension modules (DVPEN01-SL & DVP-FEN01) is updated

Series	Models	Firmware Version	Release Date
DVP	DVPEN01-SL	V2.14 → V2.16	June 15, 2018
	DVP-FEN01	V1.02 → V1.04	

Added functions
1. While performing data mapping via Modbus TCP connection, if the attempt to use 0x17 function code fails, the system automatically uses 0x10 and 0x03 function codes instead to read and write.
2. Added CR104-CR106 to store the MAC address.

Modified function
1. Communication performance optimized through Ethernet Driver for DVP-FEN01.

2.6 PHASE OUT – DMV-CD5MGCL/DMV-CD5MCCL

In the future, CMOS sensing devices will consume less power, have higher efficiency and lower cost than CCD sensing devices. Therefore, manufacturers will stop production of DMV-CD5MGCL and DMV-CD5MCCL.

Reference Table for affected models and replacements

	Affected Models		Replacement Models		Last order Date	Discontinuance
	Models	Description	Models	Description		Date
DMV2000 Camera	DMV-CD5MGCL/ DMV-CD5MCCL	5 Megapixel CCD Grayscale Camera/5 Megapixel CCD color Camera	DMV-CM5MGCL/ DMV-CM5MCCL	5 Megapixel CMOS Grayscale Camera/5 Megapixel CMOS color Camera	2018/5/2	2018/5/4

Note: The replacement models listed in the table are only for reference. Please check with Delta sales representative or dealers before ordering.

Specification comparison between DMV-CD5MGCL and DMV-CM5MGCL

Model	DMV-CD5MGCL	DMV-CM5MGCL
Sensor Type	CCD	CMOS
Size	2/3"	2/3"
Resolution	2448x2058(5MP)	2448x2048(5MP)
Frame rates	16 fps	35.7 fps

Specification comparison between DMV-CD5MCCL and DMV-CM5MCCL

Model	DMV-CD5MCCL	DMV-CM5MCCL
Sensor Type	CCD	CMOS
Size	2/3"	2/3"
Resolution	2448x2058(5MP)	2448x2048(5MP)
Frame rates	16 fps	35.7 fps

2.7   UPDATE – DMV2000 hardware revision V3.02

Previous versions are 1.xx and 2.xx

The definition of 12 digital outputs has been changed:

OLD

Serial No.	Name	Description
1	OUT1	RDY: controller in standby waiting for image capture and output inspection
2	OUT2	TOUT1: Total Judged result output 1
3	OUT3	TOUT2: Total Judged result output 2
4	OUT4	ERR: error status indicator
5	OUT5	STR: parallel output handshake flag
6	OUT6	REND1: Camera 1 capture complete
7	OUT7	REND2: Camera 2 capture complete
8	OUT8	REND3: Camera 3 capture complete
9	OUT9	REND4: Camera 4 capture complete
10	OUT10	FLH1: Camera 1 light source strobe control output
11	OUT11	FLH2: Camera 2 light source strobe control output
12	COMOUT	12-pin output common contact (connect the negative terminal of the power source for the NPN output method).

NEW

Serial No.	Name	Description
1	OUT1	RDY: controller in standby waiting for image capture and output inspection
2	OUT2	TOUT1: Total Judged result output 1
3	OUT3	TOUT2: Total Judged result output 2
4	OUT4	ERR: error status indicator
5	OUT5	STR: parallel output handshake flag
6	OUT6	REND1: Camera 1 capture complete
7	OUT7	REND2: Camera 2 capture complete
8	OUT8	REND3: Camera 3 capture complete
9	FLH1	FLH1: Camera 1 light source strobe control output (Don't need resistance)
10	FLH2	FLH2: Camera 2 light source strobe control output (Don't need resistance)
11	COMOUT+	FLH1 and FLH2 output common contact
12	COMOUT-	9-pin output common contact (connect the negative terminal of the power source for the NPN output method).

Note: The information below is the difference between the DMV2000 hardware revision and the version number on the PCB. The CPU board and the PWR board need to be of the same version. When the maintenance is performed, the two boards must be either be the old version or the new version.

2.8   NEW – LD series laser displacement sensors

We are pleased to announce the release of the new LD series laser displacement sensors, the LD-040N-C2B, LD-080N-C2B and LD-150N-C2B.

The new LD series sensors use a CCD image device along with triangle reflection to reach high-precision performance. Its repeatability is up to 2μm. It features a strong structure, has a compact size, it has a built-in average time setting and is IP67 rated. Furthermore, three different lengths of PUR cables are also available: 1.5, 3, and 5m.

The new LD series sensor can be applied in various industrial automation applications like food & beverage, packaging, pharma manufacturing, electronic manufacturing, plastic industry, warehousing, and the machine tool industry.

Specifications

LD Sensor	Laser Displacement Sensor		
Sensing Methode	Triangulation		
Model Name	LD-040N	LD-080N	LD-150N
Reference Distance	40 mm	80 mm	150mm
Measurement Range	± 10 mm	± 25 mm	± 60 mm
Interface	Digital IO / MODBUS RS-485	Digital IO / MODBUS RS-485	Digital IO / MODBUS RS-485
	RS-485		
Light Source	Laser CLASS 2		
Input Voltage	12~24 Vdc ± 10%		
Repeatability	2 μm	5 μm	15 μm
Linearity	± 0.1%	± 0.1%	± 0.1%
Sampling Rate	1 ms		
Indicator	Laser ON: Blue, Measurement range: Green, Out of measurement range: Orange, DO: Yellow, DI: Red.		
Protection Circuit	Protection against reverse power connection, output overcurrent, power supply surge, output surge		
Operating Temperature	10 ℃ ~ 50 ℃		
Storage Temperature	- 20 ℃ ~ 75 ℃		
Ambient Humidity	30 ~ 85 %		
Enclosure Rating	IP 67		
Ambient Resistance	5.000 lux or less		
Vibration Resistance	10~ 55 Hz, 1.5 mm, 3 axes for 2 hours.		
Insulating Resistance	20 MΩ or more (500Vdc)		
Withstand Voltage	1.000 Vac 50/60 Hz, 1 min.		
Material	Case: Aluminium, Optical window: Glass, Cable: PVC		
Dimension (HxWxD)	55 x 42 x 24 mm		
Weight	113 g		
Cables	M8 Connector (8 pins)		
Certifications	CE		

* For an avarage count of 100. The Value is ± 2 μm for an avarage count of 100 (sensing objective: white ceramic substrate)

Ordering information

Model Name	Sensing Distance	Repeatability	Interface
LD-040N-C2B	30~50 mm	2 μm	Digital IO / Modbus Communication (RS 485)
LD-080N-C2B	55~105 mm	5 μm	Digital IO / Modbus Communication (RS 485)
LD-150N-C2B	90~210 mm	15 μm	Digital IO / Modbus Communication (RS 485)

LD cable with Connector	Model Name	Length
	UC-SO15088	1.5 m
	UC-SO30088	3 m
	UC-SO50088	5 m

2.9   NEW – DVP AS300 starter kit

We are pleased to announce the release of the new DVP AS300 starter kit, the UT-AS332-C.

This DVP AS300 starter kit is a new generation CPU package, which contains the CPU family AS300 with necessary connection cables. With the provided programming examples, you can start develop your ideas with minimum effort. This all-in-one package can help you getting familiar with the ISPSoft and AS300 easily.

Please check below for the list of items in the kit:
- AS332T-A (16 DI/16DO PNP)
- AS-PS02A (24 VDC power supply)
- UC-PRG015-01A (programming PLC cable)
- UN-10-IO32D (I/O simulator board)
- UT-USB01 (USB Flash drive with learning documentation)
- Printed Starter Kit Manual

The UT-AS332-C is on stock and ready to be ordered.

2.10 NEW – DX-3001H9 Industrial 3G/WAN Cloud Router

Machine devices are going to connect via the Internet. There is an increasingly significant universe of devices that communicate with one another without human intervention. These devices are called "machine devices are called "machine -to - machine (M2M) devices.
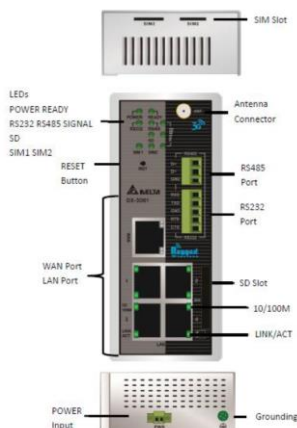
DX series products allow us to connect any devices the Internet via wire and 3G cellular networks. Help to connect any device the DIACloud cloud service as well.

DIACloud is the cloud platform, built-in any DX series products. DIACloud makes users no need public IP or set up private VPN server to complete remote monitoring and control through the Internet. All can be done by DIACloud. Available for web browser, iOS and Android, simplifies the progress of managing dynamic device infrastructures and makes it easy to deploy devices and applications.

Security is firmly at the core of every feature developed and decision that made regarding to DIACloud. Of course, a variety of security patents is our guarantee

View

Features

- A data acquisition device connected to cloud servers. Supports a two-way data collection channel between the device and the cloud
- Supports MODBUS TCP and MODBUS ASCII/RTU protocols
- Using UMTS/HSPA+ 3G technology, supports a wide range of bands (850 / 800, 900, AWS1700, 1900, 2100 MHz). Downward compatible with GSM/GPRS/EDGE 2G network
- Dual SIM redundancy design : seamless switch between two ISP systems for continuous online operation.
- HSPA+ data transmission rate up to 21.6Mbps (downlink)/5.76Mbps (uplink)
- Automatic APN parameter matching and connection redial
- Flexible connection method over WAN port, e.g. static IP, DHCP client and more
- Users configurable priorities of the connection to Internet over WAN and 2 cellular networks
- Various peripheral interfaces include RS-485, RS-232 and 4 LAN ports
- Built-in RTC and supports NTP time synchronization over a network
- Supports TCP/IP, UDP, ICMP, DHCP, HTTP, DNS and SSH protocols
- Device configurations import/export
- Network data flow statistics
- Networking failure diagnostics

Interface

Cellular	2G/3G	GSM/GPRS/EDGE/UMTS/HSPA+
	Antenna	1 2.5dBi omni-directional, SMA(male) connector, 3 meters cable with magnetic stand
Ethernet Ports	RJ45 WAN	1 10/100Base-T(X), auto MDI/MDI-X, auto negotiation
	RJ45 LAN	4 10/100Base-T(X), auto MDI/MDI-X, auto negotiation
Serial Ports	RS-232	1 Port, terminal block(5 contacts), 15KV isolation protect
	RS-485	1 Port, terminal block(3 contacts), 15KV isolation protect
	Baud Rate	2400bps to 115200bps
SIM Slot	Number of SIMs	2, Mini-SIM (25mm x 15mm)
	Operating Voltage	1.8V/3V
SD Socket	SDHC(32mm x 24mm x 2.1mm), up to 32GB	
Reset Button	1 set	

Cellular RF

Frequency Band	UMTS/HSPA+: 800 / 850, 900, AWS1700 , 1900 , 2100 MHz
	GSM/GPRS/EDGE: 850 / 900 / 1800 / 1900 MHz
Data Transmission Rates	HSPA+: Up link 5.76 Mbps / Down link 21.6 Mbps
	UMTS: Up link 384 kbps / Down link 384 kbps
	EDGE: Up link 236.8 kbps / Down link 296 kbps
	GPRS: Up link 85.6 kbps / Down link 85.6 kbps
RF Output Power	Class 4 (2 W, 33 dBm) @GSM 850 / 900
	Class 1 (1 W, 30 dBm) @GSM 1800 / 1900; Class 3 (0.25 W,24 dBm) @UMTS; Class E2 (0.5 W,27 dBm) @EDGE 850 / 900; Class E2 (0.4 W,26 dBm) @EDGE 1800 / 1900
Receiver Sensitivity	-108 dBm @ UMTS; -107 dBm @ GSM 850 / 900; -106 dBm @ DCS1800 / PCS1900

Management

Console	WEB browser, DIACom, Android/iOS App
Cloud Service	DIACloud
Software	SSH, DNS, HTTP, TFTP, DHCP Server/Client, Syslog, NTP, MODBUS RTU Master, SNMP Server
Security Access	MAC/IP/URL filtering, SSH, SPI, Prevent denial of service (DoS) attacks, Port triggering, Port mapping

Specifications

Input Voltage	1 set, 12 to 48VDC by terminal block
Power Consumption	MAX. 1A
Overload Current Protection	Present, Max. Input current 1.5A
Reverse Polarity Protection	Present

Housing	IP30 protection, metal case
Dimensions	145.3 mm(H) x 45 mm(W) x 112.3 mm (D)
Weight	372g
Installation	Industrial DIN-Rail and Wall mounting

Operating Temperature	-20℃ to 70℃(-4℉ to 158℉)
Storage Temperature	-40℃ to 85℃(-40℉ to 185℉)
Ambient Relative Humidity	5% to 95%(non-condensing)

Safety	UL 60950-1, EN 60950-1
EMI	FCC 47 CFR Part 15 Subpart B Class A, EN 55022, EN 301 489-1/7/24
EMS	IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8
RF	EN 301 511, EN 301 908-1; FCC Part 22H, 24E, 27; ANATEL(*Jun/2018*)

Cloud service package – Free basic service package included

No.	Description
1	12GB free tunneling data transfer per year per device
2	10MB free cloud server storage space per device
3	Free mobile APP(iOS/Android)
4	Free access to standard WEB portal by DIACloud website

Notes:
- *THREE(3) YEARS product hardware limited warranty. The basic service package will be effective after customer's DX series product is connected for the first time to DIACloud. The service is lifetime available and ends after failure of the product.*
- *When the cloud service becomes non-available due to any damage of product hardware caused by not following the instructions related to DX product's use, return of cash / or transfer the right to another account/device will NOT be accepted.*
- *Data transfer quota remaining at the end of year will NOT be carried over to the next year.*

DIACloud Value-added Service Rate Plans - Recharge

No.	Model Name	Description
1	DX-Service-T1GB-WW	Data traffic fee of 1-year package for 1GB extra traffic per month between device and DIACloud(Per Year, Per Device)
2	DX-Service-S1MB-WW	Cloud storage fee of 5-years package for 200MB DIACloud storage space in one account(Per 200MB, Per Account)
3	DX-Service-API-WW	Total 1,000,000 calls to DIACloud server API. Maximum 10,000 calls daily

Notes:
- *Online recharge service website – http://www.diacloudsolutions.com.*
- *Data remaining at the end of the month NOT be carried over to the next month (DX -Service-T1GB-WW)*
- *Expired period will NOT be extended.(DX-Service-S1MB-WW).*
- *Payment for the products will be made by credit card. Online payment is available by **PayPal**.*

Country List of Region Radio Frequency Conformity

Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland , France, Germany, Greece, Hungary, Ireland, Iceland, Italy, Liechtenstein, Lithuania, Luxembourg, Latvia, Malta, Netherlands, Norway, Portugal, Poland, Romania, Switzerland, Sweden, Slovenia, Slovak Republic, Spain, United Kingdom, Turkey, the United States, China(PRC), Brazil(certified by Jun/2018), India

Ordering Information

Product		Port Combination				Interface
Model Name	Operating Temperature	3G	10/100Base-T(X)	RS-232	RS-485	Power Input
DX-3001H9	-20℃ to 70℃	2	5	1	1	1

2.11 NEW – AS200

We are happy to announce the release of a new AS300 family member: AS200.
This new AS200 has inherited all of the best key features from the AS300:
- IEC61131 compatible (ST included)
- Easy hardware configuration
- Compatible with all AS300 series modules

And the added benefits of the new generation CPU, are:
- I/O Spring type connectors on the CPU
- Built-in CANopen and EIP communication
- Competitive price

In order to get a clear picture of the differences between the AS300 and the AS200 series models, please refer to the table below:

Machine devices are going to connect via the Internet. There is an increasingly significant universe of devices that communicate with one another without human intervention. These devices are called "machine -to -machine (M2M) devices.

Specification Item		MPLC AS Series	
		AS332T-A	AS228T-A
Programming Language		LD, SFC, FBD, ST	
Program Capacity		128K Step	64K Step
Data Memory		64K Word	
Extended Memory		64K Word	
Memory Card		SD Card	
High Speed Counter	A/B Phase	200K x 6	200K x 4
	One Phase	200K x 12	200K x 8
Pulse output	Pulse / Dir	200K x 6	200K x 6
	Pulse	200K x 12	200K x 12
Built-in Analog I/O		Option	None
Min. Execution Time	LD	25 ns	
	MOV	150 ns	
Built-in I/O	Input	16	16
	Output	16	12
Programming Port		USB (mini B type)	
Built-in Serial Ports		RS-485 x 2	
Built-in Network		Ethernet	Ethernet, CANopen
Ethernet Network Protocol	MODBUS TCP	Client: 32 / Server: 32	Client: 16 / Server: 16
	Ethernet I/P	Scanner / Adapter CIP: 32	Scanner / Adapter CIP: 16
Function Card		Built-in 2 ports	None
Terminal Block		High-density	Spring Type
VR Switch		2	None
Width		80 mm	88 mm

At the same time, we are also happy to introduce two new analogue input modules, **AS08AD-B** and **AS08AD-C**, therefore, making our product offering more complete.

These two modules have been designed to potentially make your applications more cost effective with 8 analogue inputs in each module. Similar to the other AS family analog modules, they deliver 16-bit resolution and their response time is 2msec per channel.

	AS04AD-A	AS08AD-B	AS08AD-C
Type	Voltage / Current	Voltage	Current
Number of Channels	4	8	8
Range	0 – 5 V_{DC} 1 – 5 V_{DC} -5 – 5 V_{DC} 0 – 10 V_{DC} -10 – 10 V_{DC} 0 -20 mA 4 – 20 mA -20 – 20 mA	0 – 5 V_{DC} 1 – 5 V_{DC} -5 – 5 V_{DC} 0 – 10 V_{DC} -10 – 10 V_{DC}	0 -20 mA 4 – 20 mA -20 – 20 mA
Hardware Resolution	16-bit		
Conversion Time	2 ms/channel		

The AS200 CPU and the new analogue input modules are now on stock and ready to be ordered. You can also find infop on our ftp-site.

3   Application

3.1   NEW – Application Notes

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

- Machine Tool Industry Notification - Integrated Vertical Milling Process.pdf

- Robotics Industry Notification - Electric Fan Gluing Solution.pdf

- Rubber and Plastics Industry Notification-Metal Weaving Machine Solution.pdf

- Packaging Industry Notification - Adhesive Bandage Packaging Machine.pdf

- Food Processing Industry Notification - High-Speed Tray Arranging Machine Control System - Arthur Dai 0702.pdf

- Machine Tool Industry Notification - 5-Axis Mini Cutter Grinding Machine.pdf

3.2   Application C(F)P2000 PID pump control with long pipe line

Customer wants to realize a closed loop pressure control with C(F)P2000.
Because the pipeline is very long, PID control must not be active when the pipe line is empty. It needs to be filled first at low frequency to prevent cavitation.
After that the PID control can take over.

Can this be done with parameter settings without having to write a PLC program?

Yes, the solution is:
1. Select in Pr03-44 which analogue input is to be compared, in this case the feedback signal.
2. Set Relay1 (Pr02-13) to 67 (easiest is to use Relay1 because it has change-over contacts, the other relays only NO (make) contacts). See note below.
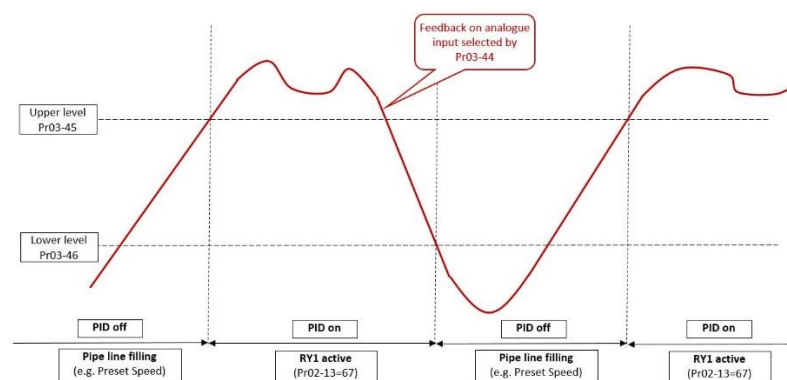
67	Analog input signal level achieved	Multi-function output terminals operate when analog input signal level is between high level and low level. Pr.03-44: Select one of the analog signal channel, AVI1, ACI, and AVI2, that is going to be compared. Pr.03-45: The high level of analog input, factory setting is 50.00% Pr.03-46: The low level of analog input, factory setting is 10.00%. If analog input > Pr.03-45 upper limit, then multi-function output terminal operates. If analog input < Pr.03-46 lower limit, then multi-function output terminal stops outputting.

When the analogue input is >Pr03-45, Relay1 is ON.
When the analogue input becomes <Pr03-46, Relay1 is OFF again.
3. Set a digital input (Pr02-01 to 02-08) to 21.
    ON = PID not active
    OFF = PID active
4. Connect the relay NC contact (RB1~RC1) to the digital input.

CP2000 Application:
Filling long pipe line

- When the pipe is empty, the feedback is low. The relay is OFF and RB1~RC1 is closed. Therefore MIx is active and PID is not active.
- When the feedback reaches its normal value range (set in Pr03-45) because the pipe line is full enough, the relay is ON and RB1~RC1 is open. Therefore MIx is off and PID is active.
- When the pipe line becomes empty (feedback<Pr03-46), the relay is off, MIx is activated and PID is not active.

Note: When PID is not active, you could also activate a digital input to select a preset speed.
Note: If you want to use Relay2 or 3 (only NO (make) contact) you can set Pr02-12 to make the used MIx NC instead of the default NO. Refer to the user manual.

4 FAQ

4.1 VFD Series AC Motor Drives

C/CP2000

Q   **Is it possible to run the C2000 in torque mode and use a pulse train as speed limit?**
A   *This is possible by setting the following parameters:*
Pr00-20 = 4 or 5
Pr11-36 = 2
Pr10-16 = 1 ~ 5 (depending on the type of pulses you are using)

Note: *For Pr10-16 = 1 ~ 4 you will need to use a PG card and connect the pulse train to the PG2 terminals.*

Q   **Is it possible to set the password only by software?**
A   *This is possible.*
- Enter the password in VFDSoft, e.g. Pr00-08=1234 and write to Pr00-08.
 Password is then set.
 After that all parameters show 0 because the drive is password protected and Pr00-08 shows reserved.
- Then you can write 1234 to Pr00-07 (the only parameter you can write to in that case) to unlock the drive.

VFD-L

Q   **Does VFD-L have brake chopper built-in?**
A   *No.*

The manual is wrong:

8 - 16	Dynamic Braking Voltage	Factory Setting: d 380*
Settings	d 350 to d 450V*	Unit: 1Volt*

During deceleration, the DC-bus voltage will increase due to motor regeneration. When DC bus voltage level exceeds the Dynamic Braking Voltage, the DC brake output pins (B1, B2) will be activated.

This parameter has no function.

VFD series

Q   **Braking with brake resistor doesn't work well. Why?**
A   *When you use a brake resistor (brake chopper built-in or external brake unit) you have to disable OV-stall prevention. It will interfere with the braking action, resulting in longer deceleration rampes than expected.*

Please refere to the different user manuals for the exact parameter.