2007-01-10

5011652400-X2E0

http://www.delta.com.tw/industrialautomation/

DVP06XA-H2 Mixed Analog Input/Output Module

Instruction Sheet

Warning

- ✓ *Please read this instruction sheet carefully before use.*
- ✓ *DO NOT touch any terminal when the power is switched on. Switch off the power before wiring.*
- ✓ *DVP06XA-H2 is an OPEN-TYPE device and therefore should be installed in an enclosure free of airborne dust, humidity, electric shock and vibration. The enclosure should prevent non-maintenance staff from operating the device (e.g. key or specific tools are required to open the enclosure) in case danger and damage on the device may occur.*
- ✓ *DO NOT connect input AC power supply to any of the I/O terminals; otherwise serious damage may occur. Check all the wiring again before switching on the power.*
- ✓ *DO NOT touch the internal circuit for 1 minute after the power is switched off.*
- ✓ *Make sure the ground terminal ⏚ is correctly grounded in order to prevent electromagnetic interference.*

❶ Introduction

1.1 Model Explanation & Peripherals

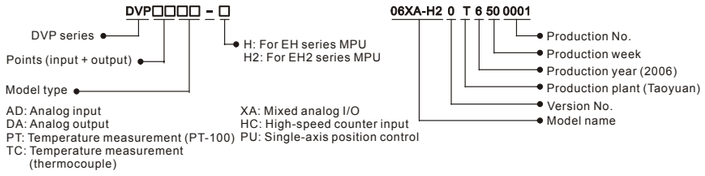
❖ Thank you for choosing Delta DVP series. DVP06XA-H2 is able to receive 4 points of analog input signals (voltage or current) and convert them into 12-bit digital signals. DVP06XA-H2 receives 2 groups of 12-bit digital data from PLC MPU and converts them into 2 points of analog signal for output (in voltage/current). There are 49 16-bit control registers (CR) in DVP06XA-H2. Through FROM/TO instructions in DVP-EH2 series MPU program, DVP06XA-H2 is able to read and write the data in the module.

❖ The user can select voltage or current input by wiring. Range of voltage input: ±10VDC (resolution: 5mV). Range of current input: ±20mA (resolution: 20μA).

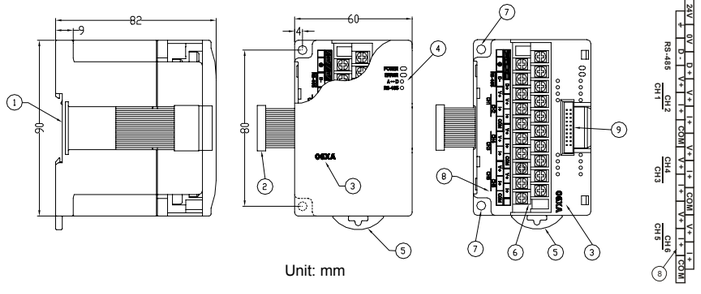
❖ The user can select voltage or current output by wiring. Range of voltage output: 0V ~ +10VDC (resolution: 2.5 mV), Range of current output: 0mA ~ 20mA (resolution: 5μA).

❖ **Nameplate Explanation**

❖ **Model/Serial No. Explanation**



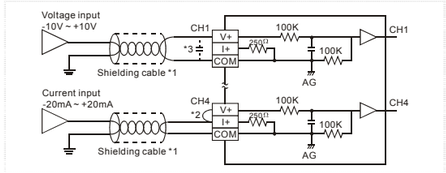
1.2 Product Profile (Indicators, Terminal Block, I/O Terminals)



Unit: mm

①	DIN rail (35mm)	⑥	Terminals
②	Connection port for extension unit/module	⑦	Mounting hole
③	Model name	⑧	I/O terminals
④	POWER, ERROR, A↔D indicator	⑨	Connection port for extension unit/module
⑤	DIN rail clip		

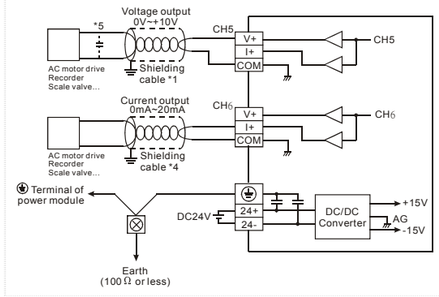
1.3 External Wiring



**1: When performing analog input, please isolate other power wirings.*

**2: Short-circuit V+ and I+ terminal when connecting current signals.*

**3: If the ripples at the input voltage cause noise interference, connect the wiring to 0.1 ~ 0.47μF 25V capacitor.*



**4: When performing analog output, please isolate other power wirings.*

**5: If the ripples at the loaded output are too significant that cause noise interference, connect the wiring to 0.1 ~ 0.47μF 25V capacitor.*

**6: Please connect the terminal ⏚ on both the power module and DVP06XA-H2 to the system earth point and ground the system contact or connect it to the cover of power distribution cabinet.*

Note: DO NOT wire empty terminal ⊡ .

❷ Specifications

2.1. Functions

Analog/Digital (AD)	Voltage input	Current input
Power supply voltage	24 VDC (20.4VDC ~ 28.8VDC) (-15% ~ +20%)	
Analog input channel	4 channels/module	
Range of analog input	±10V	±20mA
Range of digital conversion	±2,000	±1,000
Resolution	12 bits (1_{LSB} = 5mV)	11 bits (1_{LSB} = 20μA)
Input impedance	200KΩ or higher	250Ω
Overall accuracy	±0.5% when in full scale (25°C, 77°F) ±1% when in full scale within the range of 0 ~ 55°C, 32 ~ 131°F	
Responding time	3ms × the number of channels	
Isolation	Between analog and digital channels	
Range of absolute input	±15V	±32mA
Digital data format	11 significant bits out of 16 bits are available; in 2's complement	
Average function	Yes; available for setting up in CR#2 ~ CR#5; range: K1 ~ K20	
Self-diagnosis	Upper and lower bound detection/channel	
Digital/Analog (DA)	**Voltage output**	**Current output**
Analog output channel	2 channels/module	
Range of analog output	0 ~ 10V	0 ~ 20mA
Range of digital data	0 ~ 4,000	0 ~ 4,000
Resolution	12 bits (1_{LSB} = 2.5 mV)	12 bits (1_{LSB} = 5μA)
Overall accuracy	±0.5% when in full scale (25°C, 77°F) ±1% when in full scale within the range 0 ~ 55°C, 32 ~ 131°F	
Output impedance	0.5Ω or lower	
Response time	3 ms × the number of channels	
Max. output current	20mA (1KΩ ~ 2MΩ)	-
Tolerable load impedance	-	0 ~ 500Ω
Digital data format	11 significant bits out of 16 bits are available; in 2's complement	
Isolation	Internal circuit and analog output terminals are isolated by optical coupler. No isolation among analog channels.	
Protection	The voltage output is protected by short circuit. Please also be aware that being short circuit for too long period of time may cause damage on internal circuit. The current output can be open circuit.	
Communication mode (RS-485)	ASCII/RTU mode. Communication speed: 4,800/9,600/19,200/38,400/57,600 /115,200 bps ASCII data format: 7-bit, Even bit, 1 stop bit (7, E, 1) RTU data format: 8-bit, Even bit, 1 stop bit (8, E, 1) RS-485 cannot be used when connected to PLC MPU.	
When connected to DVP-PLC MPU in series	The modules are numbered from 0 to 7 automatically by their distance from MPU. No. 0 is the closest to MPU and No. 7 is the furthest. Maximum 8 modules are allowed to connect to MPU and will not occupy any digital I/O points.	

2.2. Others

Power Supply	
Max. rated power consumption	24VDC (20.4VDC ~ 28.8VDC) (-15% ~ +20%)., 3.5W supplied by external power
Environment	
Operation/storage	Operation: 0°C ~ 55°C (temperature); 50 ~ 95% (humidity); pollution degree 2 Storage: -40°C ~ 70°C (temperature); 5 ~ 95% (humidity)
Vibration/shock immunity	International standards: IEC1131-2, IEC 68-2-6 (TEST Fc)/IEC1131-2 & IEC 68-2-27 (TEST Ea)

❸ Control Register

DVP06XA-H2					Description
CR #	RS-485 Parameter address	Latched		Register content	b15 b14 b13 b12 b11 b10 b9 b8 b7 b6 b5 b4 b3 b2 b1 b0
#0	H'40C8	○	R	Model name	Set up by the system. DVP06XA-H2 model code = H'6604
#1	H'40C9	○	R/W	I/O mode setting	CH6 CH5 CH4 CH3 CH2 CH1 **Input mode (CH1 ~ CH4):** Mode 0 – Voltage input (-10V ~ +10V); default = H'0000 Mode 1 – Voltage input (-6V ~ +10V) Mode 2 – Current input (-12mA ~ +20mA) Mode 3 – Current input (-20mA ~ +20mA) **Output mode (CH5 ~ CH6)** Mode 0 – Voltage output (0V ~ 10V) Mode 1 – Voltage output (2V ~ 10V) Mode 2 – Current output (4mA ~ 20mA) Mode 3 – Current output (0mA ~ 20mA)
#2	H'40CA	○	R/W	CH1 average time	Range of settings in CH1 ~ CH4: K1 ~ K20. Default = K10.
#3	H'40CB	○	R/W	CH2 average time	
#4	H'40CC	○	R/W	CH3 average time	
#5	H'40CD	○	R/W	CH4 average time	
#6	H'40CE	×	R	CH1 input average	Average of input signals at CH1 ~ CH4.
#7	H'40CF	×	R	CH2 input average	
#8	H'40D0	×	R	CH3 input average	
#9	H'40D1	×	R	CH4 input average	
#10	H'40D2	×	R/W	CH5 output value	Output value at CH5 ~ CH6. Range: K0 ~ K4,000
#11	H'40D3	×	R/W	CH6 output value	Default = K0. Unit: LSB
#12	H'40D4	×	R	CH1 input present value	Present value of input signals at CH1 ~ CH4.
#13	H'40D5	×	R	CH2 input present value	
#14	H'40D6	×	R	CH3 input present value	
#15	H'40D7	×	R	CH4 input present value	
#16 ~ #17					Reserved
#18	H'40DA	○	R/W	Adjusted OFFSET value of CH1	OFFSET settings at CH1 ~ CH4. Default = K0; Unit: LSB When voltage input, range: K-1,000 ~ K1,000 When current input, range: K-1,000 ~ K1,000
#19	H'40DB	○	R/W	Adjusted OFFSET value of CH2	
#20	H'40DC	○	R/W	Adjusted OFFSET value of CH3	
#21	H'40DD	○	R/W	Adjusted OFFSET value of CH4	
#22	H'40DE	○	R/W	Adjusted OFFSET value of CH5	OFFSET settings at CH5 ~ CH6. Range: K-2,000 ~ K2,000 Default = K0; Unit: LSB
#23	H'40DF	○	R/W	Adjusted OFFSET value of CH6	
#24	H'40E0	○	R/W	Adjusted GAIN value of CH1	GAIN settings at CH1 ~ CH4. Default = K1,000; Unit: LSB When voltage input, range: K-800 ~ K4,000 When current input, range: K-800 ~ K2,600
#25	H'40E1	○	R/W	Adjusted GAIN value of CH2	
#26	H'40E2	○	R/W	Adjusted GAIN value of CH3	
#27	H'40E3	○	R/W	Adjusted GAIN value of CH4	
#28	H'40E4	○	R/W	Adjusted GAIN value of CH5	GAIN settings at CH5 ~ CH6. Range: K-1,600 ~ K8,000 Default = K2,000; Unit: LSB
#29	H'40E5	○	R/W	Adjusted GAIN value of CH6	
#30	H'40E6	×	R	Error status	Register for storing all error status. See the table of error status for more information.
#31	H'40E7	○	R/W	Communication address setting	For setting RS-485 communication address. Range: 01 ~ 255. Default = K1
#32	H'40E8	○	R/W	Communication speed (Baud Rate) setting	For setting up communication speed: 4,800/9,600/19,200/38,400/57,600/115,200bps ASCII data format: 7-bit, Even bit, 1 stop bit (7, E, 1) RTU data format: 8-bit, Even bit, 1 stop bit (8, E, 1) Default = H'0002 b0: 4,800bps b1: 9,600bps (default) b2: 19,200bps b3: 38,400bps b4: 57,600bps b5: 115,200bps b6 ~ b13: reserved b14: High/low bit exchange of CRC checksum (only valid in RTU mode) b15: Switch between ASCII/RTU mode; 0 = ASCII mode (default)
#33	H'40E9	○	R/W	Returning to default setting; OFFSET/GAIN tuning authorization	b15 b14 b13 b12 b11 b10 b9 b8 b7 b6 b5 b4 b3 b2 b1 b0 CH6 CH5 CH4 CH3 CH2 CH1 Default = H'0000. Take the setting of CH1 ~ CH4 for example: 1. When b0 = 0, the user is allowed to tune CR#18 (OFFSET) and CR#24 (GAIN) of CH1. When b0 = 1, the user is not allowed to tune CR#18 (OFFSET) and CR#24 (GAIN) of CH1. 2. b1 represents whether the OFFSET/GAIN tuning registers are latched. b1 = 0 (default, latched); b1 = 1 (non-latched) 3. When b2 = 1, all settings will return to default values. Take the setting of CH5 for the settings of CH5 ~ CH6: When b13 and b12 = 00: adjustable, latched; 01: adjustable, non-latched 10: not adjustable; 11: returning to default setting and reset b13 and b12 as 0.
#34	H'40EA	○	R	Firmware version	Displaying the current firmware version in hex; e.g. version 1.0A is indicated as H'010A.
#35 ~ #48					For system use

Symbols
○: latched (when written in through RS-485 communication)
×: non-latched
R: Able to read data by FROM instruction or RS-485 communication
W: Able to write data by TO instruction or RS-485 communication
LSB (Least Significant Bit): For voltage input 1_{LSB} = 10V/2,000 = 5mV. For current input 1_{LSB} = 20mA/1,000 = 20μA.
For voltage output 1_{LSB} = 10V/4,000 = 2.5mV. For current input 1_{LSB} = 20mA/4,000 = 50μA.

Explanations:

1. CR#0: Model name. The user can read the model name from the program and see if the extension module

exists.

2. CR#1: b0 ~ b11 are used for setting up the working mode of the 4 channels in analog input (A/D). There are 4 modes for each channel which can be set up separately. For example, if the user needs to set up CH1: mode 0 (b2 ~ b0 = 000), CH2: mode 1 (b5 ~ b3 = 001), CH3: mode 2 (b8 ~ b6 = 010), and CH4: mode 3 (b11 ~ b9 = 011), b0 ~ b11 have to be set as H688. b12 ~ b15 are used for setting up the working mode of the 2 channels in analog output (D/A). There are 4 modes for each channel which can be set up separately. For example, if the user needs to set up CH5: mode 2 (b13 ~ b12 = 10) and CH6: mode 1 (b15 ~ b14 = 01), b12 ~ b15 have to be set as H5. Default value = H0000.
3. CR#2 ~ CR#5: The settings of average times of the signals at CH1 ~ CH4. Range: K1 ~ K20 (default = K10). Please note that the average time settings at CR#2 ~ CR#5 only need to be written in once.
4. CR#6 ~ CR#9: The average of the signals at CH1 ~ CH4 obtained from the settings in CR#2 ~ CR#5. For example, if the settings in CR#2 ~ CR#5 is 10, the content in CR#6 ~ CR#9 will be the average of the most recent 10 signals at CH1 ~ CH4.
5. CR#10 ~ CR#11: The settings of output values at CH5 and CH6. Range: K0 ~ K4,000. Default = K0. Unit: LSB.
6. CR#12 ~ CR#15: The present value of input signals at CH1 ~ CH4.
7. CR#16, CR#17, CR#28 and CR#29 are reserved.
8. CR #18 ~ CR #21: The adjusted OFFSET value of CH1 ~ CH4, representing the analog input voltage or current when the analog signal is converted into digital value 0.

   The adjustable range of voltage: -5V ~ +5V (-1,000$_{LSB}$ ~ +1,000$_{LSB}$)
   The adjustable range of current: -20mA ~ +20mA (-1,000$_{LSB}$ ~ +1,000$_{LSB}$)
9. CR#22 ~ CR#23: The adjusted OFFSET value of CH5 and CH6, representing the analog output voltage or current when the digital output value is 0 after calculation (Range: -2,000 ~ +2,000).

   The adjustable range of voltage: -5V ~ +5V (-2,000$_{LSB}$ ~ +2,000$_{LSB}$)
   The adjustable range of current: -10mA ~ +10mA (-2,000$_{LSB}$ ~ +2,000$_{LSB}$)
10. CR #24 ~ CR #27: The adjusted GAIN value of CH1 ~ CH4, representing the analog input voltage or current when the analog signal is converted into digital value 4,000.

    The adjustable range of voltage: -4V ~ +20V (-800$_{LSB}$ ~ +4,000$_{LSB}$)
    The adjustable range of current: -16mA ~ +52mA (-800$_{LSB}$ ~ +2,600$_{LSB}$)

    Please note that: GAIN value – OFFSET value = +200$_{LSB}$ ~ +3,000$_{LSB}$ (voltage) or +200$_{LSB}$ ~ +1,600$_{LSB}$ (current) When GAIN – OFFSET is small (steep oblique), the resolution of input signal will be finer and variation on the digital value will be greater. When GAIN – OFFSET is big (gradual oblique), the resolution of input signal will be rougher and variation on the digital value will be smaller.
11. CR#28 ~ CR#29: The adjusted GAIN value of CH5 and CH6, representing the analog output voltage or current when the digital output value is 2,000 after calculation

    The adjustable range of voltage: -4V ~ +20V (-1,600$_{LSB}$ ~ +8,000$_{LSB}$)
    The adjustable range of current: -8mA ~ +40mA (-1,600$_{LSB}$ ~ +8,000$_{LSB}$)

    Please note that: GAIN value – OFFSET value = +400$_{LSB}$ ~ +6,000$_{LSB}$ (voltage or current). When GAIN – OFFSET is small (steep oblique), the resolution of output signal will be finer and variation on the digital value will be greater. When GAIN – OFFSET is big (gradual oblique), the resolution of output signal will be rougher and variation on the digital value will be smaller.
12. CR #30: Error status value (see the table below)

Error status	Content	b15 ~ b8	b7	b6	b5	b4	b3	b2	b1	b0
Abnormal power supply	K1(H'1)	reserved	0	0	0	0	0	0	0	1
Incorrect analog input value	K2(H'2)		0	0	0	0	0	0	1	0
Incorrect mode setting	K4(H'4)		0	0	0	0	0	1	0	0
OFFSET/GAIN error	K8(H'8)		0	0	0	0	1	0	0	0
Hardware malfunction	K16(H'10)		0	0	0	1	0	0	0	0
Abnormal conversion value range	K32(H'20)		0	0	1	0	0	0	0	0
Incorrect average times setting	K64(H'40)		0	1	0	0	0	0	0	0
Instruction error	K128(H'80)		1	0	0	0	0	0	0	0

Note: Each error status is determined by the corresponding bit (b0 ~ b7) and there may be more than 2 errors occurring at the same time. 0 = normal; 1 = error

13. CR#31: The setting of RS-485 communication address (Range: 01 ~ 255, default = K1).
14. CR#32: The setting of RS-485 communication speed. b0: 4,800bps; b1: 9,600bps (default); b2: 19,200bps; b3: 38,400bps; b4: 57,600bps; b5: 115,200bps; b6 ~ b13: reserved; b14: high/low bit exchange of CRC checksum (only valid in RTU mode); b15 = 0: ASCII mode; b15 = 1: RTU mode. ASCII data format: 7-bit, Even bit, 1 stop bit (7, E, 1); RTU data format: 8-bit, Even bit, 1 stop bit (8, E, 1).
15. CR#33: For authorizations on some internal functions, e.g. OFFSET/GAIN tuning. The latched function will store the output setting in the internal memory before the power is cut off.
16. CR#34: Firmware version of the model.
17. CR#35 ~ CR#48: Parameters for system use.
18. CR#0 ~ CR#34: The corresponding parameter addresses H'40C8 ~ H'40EA are for users to read/write data by RS-485 communication. When using RS-485, the user has to separate the module with MPU first.

    a. Communication baud rate: 4,800/9,600/19,200/38,400/57,600/115,200 bps

    b. Modbus ASCII/RTU communication protocols: ASCII data format (7-bit, Even bit, 1 stop bit (7, E, 1)); RTU data format (8-bit, Even bit, 1 stop bit (8, E, 1)).

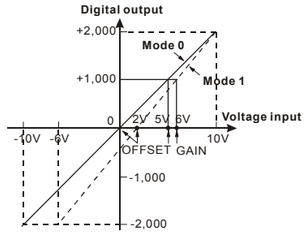
    c. Function: H'03 (read register data); H'06 (write 1 word datum to register); H'10 (write many word data to register)

    d. Latched CR should be written by RS-485 communication to stay latched. CR will not be latched if written by MPU through TO/DTO instruction.

❹ Adjusting A/D, D/A Conversion Curve

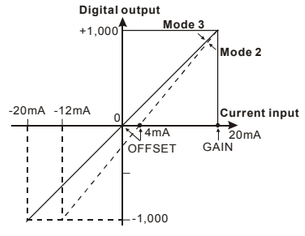
4.1 Adjusting A/D Conversion Curve at CH1 ~ CH4

Voltage Input Mode



CR#1 mode 0	GAIN = 5V (1,000$_{LSB}$) OFFSET = 0V (0$_{LSB}$)
CR#1 mode 1	GAIN = 6V (1,200$_{LSB}$) OFFSET = 2V (400$_{LSB}$)
GAIN	The voltage input value when the digital output value = K4,000 Range: -4V ~ +20V (-800$_{LSB}$ ~ +4,000$_{LSB}$)
OFFSET	The voltage output value when digital input value = K0 Range: -5V ~ +5V (-1,000$_{LSB}$ ~ +1,000$_{LSB}$)
GAIN - OFFSET	Range: +1V ~ +15V (+200 $_{LSB}$ ~ +3,000 $_{LSB}$)

Current Input Mode

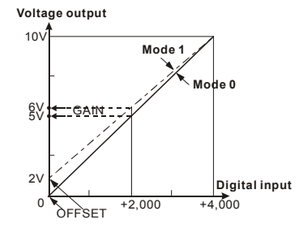


CR#1 mode 2	GAIN = 20mA (1,000$_{LSB}$) OFFSET = 4mA (200$_{LSB}$)
CR#1 mode 3	GAIN = 20mA (1,000$_{LSB}$) OFFSET = 0mA (0$_{LSB}$)
GAIN	The current output value when digital input value = K1,000 Range: -16mA ~ +52mA (-800$_{LSB}$ ~ +2,600$_{LSB}$)
OFFSET	The current output value when digital input value = K0 Range: -20mA ~ +20mA (-1,000$_{LSB}$ ~ +1,000$_{LSB}$)
GAIN - OFFSET	Range: +4mA ~ +32mA (+200 $_{LSB}$ ~ +1,600 $_{LSB}$)

The user can adjust the OFFSET/GAIN curve of voltage/current input mode according to the actual needs by changing the OFFSET value (CR#18 ~ CR#21) and GAIN value (CR#24 ~ CR#27).
LSB refers to "least significant bit": In voltage input, 1$_{LSB}$ = 10V/2,000 = 5mV; in current input, 1$_{LSB}$ = 20mA/1,000 = 20μA

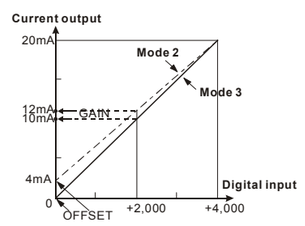
4.2 Adjusting D/A Conversion Curve at CH5 ~ CH6

Voltage Output Mode



CR#1mode 0	GAIN = 5V (2,000$_{LSB}$) OFFSET = 0V (0$_{LSB}$)
CR#1 mode 1	GAIN = 6V (2,400$_{LSB}$) OFFSET = 2V (800$_{LSB}$)
GAIN	The voltage output value when digital input value = K2,000 Range: -4V ~ +20V (-1,600$_{LSB}$ ~ +8,000$_{LSB}$)
OFFSET	The voltage output value when digital input value = K0 Range: -5V ~ +5V (-2,000$_{LSB}$ ~ +2,000$_{LSB}$)
GAIN - OFFSET	Range: +1V ~ +15V (+400 $_{LSB}$ ~ +6,000 $_{LSB}$)

Current Output Mode



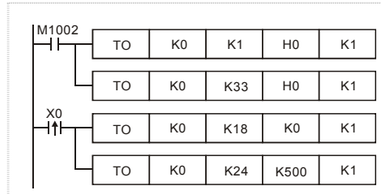
CR#1 mode 2	GAIN = 12mA (2,400$_{LSB}$) OFFSET = 4mA (800$_{LSB}$)
CR#1 mode 3	GAIN = 10mA (2,000$_{LSB}$) OFFSET = 0mA (0$_{LSB}$)
GAIN	The current output value when digital input value = K2,000 Range: -8mA ~ +40mA (-1,600$_{LSB}$ ~ +8,000$_{LSB}$)
OFFSET	The current output value when digital input value = K0 Range: -10mA ~ +10mA (-2,000$_{LSB}$ ~ +2,000$_{LSB}$)
GAIN - OFFSET	Range: +2mA ~ +30mA (+400 $_{LSB}$ ~ +6,000 $_{LSB}$)

The user can adjust the OFFSET/GAIN curve of voltage/current output mode according to the actual needs by changing the OFFSET value (CR#14 ~ CR#15) and GAIN value (CR#18 ~ CR#19).

LSB refers to "least significant bit": In voltage output, 1$_{LSB}$ = 10V/4,000 = 2.5mV; in current output, 1$_{LSB}$ = 20mA/4,000 = 5μA

4.3 Program Example for Adjusting A/D Conversion Curve

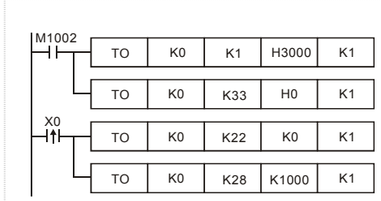
Set the OFFSET value of CH1 as 0V (= K0$_{LSB}$) and GAIN value as 2.5V (= K500$_{LSB}$).



- Write H'0 into CR#1 (b0 ~ b2) of the module No. 0 and set CH1 in mode 0 (voltage input: -10V ~ +10V)
- Write H'0 into CR#33 (b0 ~ b2) and allow OFFSET/GAIN tuning in CH1.
- When X0 goes from Off to On, write the OFFSET value K0$_{LSB}$ into CR#18 and the GAIN value K500$_{LSB}$ into CR#24.

4.4 Program Example for Adjusting D/A Conversion Curve

Set the OFFSET value of CH5 as 0V (= K0 $_{LSB}$) and GAIN value as 2.5V (= K1,000$_{LSB}$).



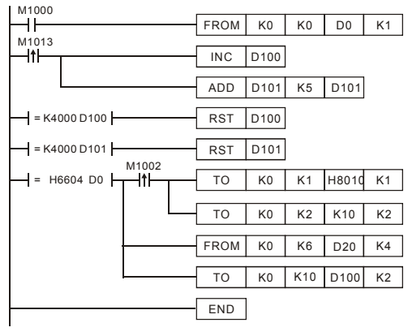
- Write H'3000 into CR#1 (b12 ~ b15) of the module No. 0 and set CH5 in mode 3 (current output: 0mA ~ +20mA).
- Write H'0 into CR#33 (b12 ~ b15) and allow OFFSET/GAIN tuning in CH5 and CH6.
- When X0 goes from Off to On, write the OFFSET value K0$_{LSB}$ into CR#22 and the GAIN value K1,000$_{LSB}$ into CR#28.

❺ Trial Operation & Troubleshooting

❖ **LED Display**

1. When the module is powered for the first time, POWER LED will be on and ERROR LED will be on for 0.5 second. After this, A↔D LED will start to flash.
2. When the power supply is normal, POWER LED will be on and ERROR LED should be off. When the power supply is less than 19.5V, ERROR LED will keep being on until the power supply is higher than 19.5V.
3. When the module is connected to PLC MPU in series, the RUN LED on the MPU will be on and A↔D LED will flash.
4. When controlled by RS-485, the A↔D LED will flash after receiving the first RS-485 instruction.
5. When the input or output value exceeds the upper bound or falls below the lower bound after conversion, ERROR LED will flash.

❖ **Program Example**



- Read the model name from K0 and see if it is DVP06XA-H2: H'6604 ◦
- If D0 = H'6604 read the average, set the input modes: (CH1, CH3, CH4) mode 0, (CH2) mode 2 and output modes: (CH5) mode 0, (CH6) mode 2.
- Set the average times in CH1 and CH2 as K10.
- Read the average of input signals at CH1 ~ CH4 from CR#6 ~ CR#9 and store the 4 data in D20 ~ D23.
- The value in D100 increases K1 every second and the value in D101 increases K5 every second. D100 and D101 will be cleared as 0 when the values in them reach K4,000.
- Write the output settings in D100 and D101 into CR#10 and CR#11. Analog output CH5 and CH6 will change with the changed values in D100 and D101.