New Functions of DVP24SV2 (in Comparison with DVP28SV)

1. Analog-to-digital modes are added.

Two analog input channels (AD0~AD1): The analog input function of a PLC can be enabled only when the PLC runs.

The relation among analog input modes, digital values, and conversion time is described below.

Mode		Digital value	Conversion time
Voltage	0 V~10 V (12-bit)	0~4000	D1118 Conversion time is limited by a scan cycle.
Current	0 mA~20 mA (11-bit)	0~2000	

Registers related to analog input:

Device number	Function
D1062 (Latching device)	Number of analog input values (AD0~AD1) by which the sum of analog input values is divided: 1~20 Default value: K2
D1110	Digital average of analog input channel 0 (AD0) If the value in D1062 is 1, the value in D1110 will be the present value of AD0.
D1111	Digital average of analog input channel 1 (AD1) If the value in D1062 is 1, the value in D1111 will be the present value of AD1.
D1115 (Latching device)	Setting an analog input mode Default value: HFFFF : Bit 0~3: AD0 Bit 4~7 : AD1 Analog input modes: 0x0: Voltage mode (0 V~+10 V) 0x1: Current mode (0 mA~+20 mA) 0xF: Disabled Bit 15~8 | Bit 7~4 | Bit 3~0 D1115 | Reserved | AD1 | AD0
D1118	Analog-to-digital conversion time Unit: ms Not a latching device Default value: K5

Flags related to analog input:

Device number	Function
M1588	The input value of AD0 is greater than the maximum value. (The conversion value gotten is greater than 4047 (voltage)/2023 (current).)
M1589	The input value of AD1 is greater than the maximum value. (The conversion value gotten is greater than 4047 (voltage)/2023 (current).)

Note: The single analog input terminal GND must be connected to SG (common ground).

2. Description of new special auxiliary relays and special data registers

Descriptions of special auxiliary relays:

Special M	Function	EH3 SV2	Off ⇩ On	STOP ⇩ RUN	RUN ⇩ STOP	Attribute	Latching	Default
M1326*	Fifth group: CH4 (Y10/Y11) completes the production of pulse output.	24SV2	Off	Off	-	R/W	No	Off
M1327*	Sixth group: CH4 (Y12/Y13)) completes the production of pulse output.	24SV2	Off	Off	-	R/W	No	Off
M1568	Fifth group: Users can set the time it takes for CH4 (Y10/Y11) to decelerate the production of pulse output. It is used with D1196.	24SV2	Off	-	-	R/W	No	Off
M1569	Sixth group: Users can set the time it takes for CH5 (Y12/Y13) to decelerate the production of pulse output. It is used with D1197.	24SV2	Off	-	-	R/W	No	Off
M1588*	The input value of AH0 is greater than the maximum value.	24SV2	Off	Off	-	R	No	Off
M1589*	The input value of AD1 is greater than the maximum value.	24SV2	Off	Off	-	R	No	Off

Descriptions of special data registers:

Special D	Function	EH3 SV2	Off ⇩ On	STOP ⇩ RUN	RUN ⇩ STOP	Attribute	Latching	Default
D1022	Fifth group: Frequency with which the first section of the pulse output produced by CH4 (Y10/Y11) starts, and frequency with which the last section of the pulse output produced by CH4 (Y10/Y11) ends.	2S4V2	-	-	-	R/W	Yes	200

Special D	Function	EH3 SV2	Off ⇩ On	STOP ⇩ RUN	RUN ⇩ STOP	Attribute	Latching	Default
D1023*	Sixth group: Frequency with which the first section of the pulse output produced by CH5 (Y12/Y13) starts, and frequency with which the last section of the pulse output produced by CH5 (Y12/Y13) ends.	24SV2	-	-	-	R/W	Yes	200
D1030*	Fifth group: Number of pulses produced by CH4 (Y10/Y11) (Low word)	24SV2	-	-	-	R/W	Yes	0
D1031*	Fifth group: Number of pulses produced by CH4 (Y10/Y11) (High word)	24SV2	-	-	-	R/W	Yes	0
D1032	Sixth group: Number of pulses produced by CH5 (Y12/Y13) (Low word)	24SV2	-	-	-	R/W	Yes	0
D1033	Sixth group: Number of pulses produced by CH5 (Y12/Y13) (High word)	24SV2	-	-	-	R/W	Yes	0
D1062*	Number of analog input values by which the sum of analog input values received by AD0~AD1 is divided: 1~20	24SV2	-	-	-	R/W	Yes	2
D1110*	Digital average of analog input channel 0 (AD0) If the value in D1062 is 1, the value in D1110 will be the present value of AD0.	24SV2	0	-	-	R	No	0
D1111*	Digital average of analog input channel 0 (AD1) If the value in D1062 is 1, the value in D1111 will be the present value of AD1.	24SV2	0	-	-	R	No	0
D1115*	Setting an analog input mode Bit 0~3: AD0 Bit 4~7: AD1 K0: Voltage mode (0 V~10 V) K1: Current mode (0 mA~20 mA) K15: Disabled	24SV2	-	-	-	R/W	Yes	H'FFFF
D1147	Fifth group: Time it takes for CH4 (Y10/Y11) to accelerate/decelerate the production of pulse output.	24SV2	-	-	-	R/W	Yes	100
D1149	Sixth group: Time it takes for CH5 (Y12/Y13) to accelerate/decelerate the production of pulse output.	24SV2	-	-	-	R/W	Yes	100

Special D	Function	EH3 SV2	Off ⇩ On	STOP ⇩ RUN	RUN ⇩ STOP	Attribute	Latching	Default
D1196	Fifth group: When M1568 is ON, users can set the time it takes for CH4 (Y10/Y11) to decelerate the production of pulse output.	24SV2	-	-	-	R/W	Yes	200
D1197	Sixth group: When M1569 is ON, users can set the time it takes for CH5 (Y12/Y13) to decelerate the production of pulse output.	24SV2	-	-	-	R/W	Yes	200

3. New functions of output instructions:

API	Mnemonic	Operands	Function
57	D PLSY	S_1 S_2 D	Pulse Y Output

Type / OP	Bit Devices				Word Devices										Program Steps
	X	Y	M	S	K	H	KnX	KnY	KnM	KnS	T	C	D	E	F	
S_1					*	*	*	*	*	*	*	*	*	*	*	PLSY: 7 steps DPLSY: 13 steps
S_2					*	*	*	*	*	*	*	*	*	*	*	
D		*														

PULSE									16-bit									32-bit								
ES	EX	SS	SA	SX	SC	EH	SV	EH3 SV2	ES	EX	SS	SA	SX	SC	EH	SV	EH3 SV2	ES	EX	SS	SA	SX	SC	EH	SV	EH3 SV2

Operands:

S_1: Pulse output frequency **S_2**: Number of output pulses **D**: Pulse output device (please use transistor output module)

Explanations:

1. **S_1** designates the pulse output frequency. With M1133 ~ M1135 and D1133, Y0 of SA/SX series MPU is able to output pulses at 50kHz. SV/EH2/EH3/SV2 series MPU of V1.4 and later versions use M1190 ~ M1191, and Y0 and Y2 are able to output 0.01 ~ 500Hz.

   Range of output frequency for all series:

MPU	ES/EX/SS	SA/SX	SC	EH	EH2/SV/EH3/SV2 (Note)
Frequency range	0~10kHz	Y0: 0~32kHz Y1: 0~10kHz	Y0: 0~30kHz Y1: 0~30kHz Y10: 77~100kHz Y11: 77~100kHz	Y0: 1~200kHz Y2: 1~200kHz	Y0: 0~200kHz Y2: 0~200kHz Y4: 0~200kHz Y6: 0~200kHz Y10: 0~10kHz Y12: 0~10kHz

   Note: Only 24SV2 supports Y10 and Y12.

2. **S_2** designates the number of output pulses. The 16-bit instruction can designate 1 ~ 32,767 pulses and the 32-bit instruction can designate 1 ~ 2,147,483,647 pulses.

   Number of continuous pulses for all series:

MPU	ES/EX/SS/SA/SX/SC	SC	EH/EH2/SV/EH3/SV2
How to designate continuous pulses	M1010 (Y0) On M1023 (Y1) On	M1010 (Y0) On M1023 (Y1) On The number of output pulses designated for Y10 and Y11 is set to K0.	The number of output pulses designated for Y0, Y2, Y4, Y6, Y10, and Y12 is set to K0.

3. For EH/EH2/SV/EH3/SV2 series MPU, when the number of output pulses is set to 0, there will be continuous pulse output with no limitation on the number of pulses. For ES/EX/SS/SA/SX/SC series MPU, you have to make

M1010 (Y0) or M1023 (Y1) On to allow a continuous pulse output with no limitation on the number of pulses.

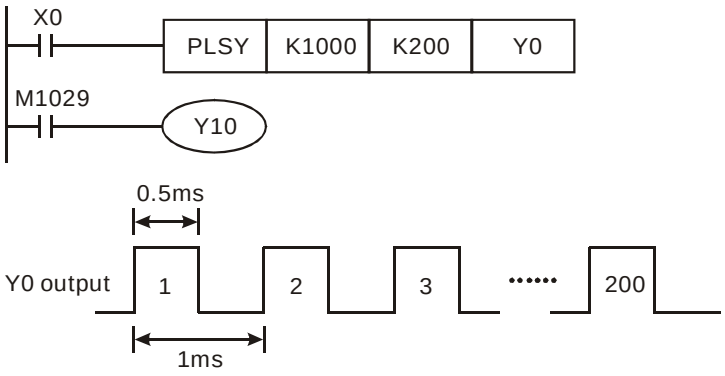
4. For the pulse output device designated in D, EH series MPU can designate Y0 and Y2, EH2/SV/EH3/28SV2 series MPU can designate Y0, Y2, Y4 and Y6, 24SV2 series MPU can designate Y0, Y2, Y4, Y6, Y10, and Y12, ES/EX/SS/SA/SX series MPU can designate Y0 and Y1, SC series MPU can designate Y0, Y1, Y10 and Y11. (SC V1.2 and above series MPU supports Y10 and Y11).
5. EH series MPU has two groups of A-B phase pulse output from CH0 (Y0, Y1) and CH1 (Y2, Y3); EH2/SV/EH3/SV2 series MPU has four groups of A-B phase pulse output from CH0 (Y0, Y1), CH1 (Y2, Y3), CH2 (Y4, Y5) and CH3 (Y6, Y7). See remarks for how to set up.
6. CH4 (Y10, Y11) and CH5 (Y12, Y13) in a 24SV2 series MPU are single pulse outputs (Y10, Y12).
7. When PLSY instruction is executed, it will designate the number of output pulses (**S_2**) output from the output device (**D**) at a pulse output frequency (**S_1**).
8. When PLSY instruction is used in the program, its outputs cannot be the same as those in API 58 PWM and API 59 PLSR.
9. Pulse output completed flags for all series:

MPU	**EH2/SV/EH3/SV2**					
Output device	**Y0**	**Y2**	**Y4**	**Y6**	**Y10**	**Y12**
Flag	M1029	M1030	M1036	M1037	M1326	M1327

10. For EH2/SV/EH3/SV2 series MPU, when PLSY and DPLSY instruction is disabled, the user will have to reset the pulse output completed flags.
11. The user has to reset the pulse output completed flags after the pulse output is completed.
12. After PLSY instruction starts to be executed, Y will start a pulse output. Modifying **S_2** at this moment will not affect the current output. If you wish to modify the number of output pulses, you have to first stop the execution of PLSY instruction and modify the number.
13. **S_1** can be modified when the program executes to PLSY instruction.
14. Off time : On time of the pulse output = 1 : 1.
15. When the program executes to PLSY instruction, the current number of output pulses will be stored in the special data registers D1336 ~ D1339. See remarks for more details.
16. For SA/EH series MPU, there is no limitation on the times using this instruction. For SA/SX/SC/EH series MPU, the program allows two instructions being executed at the same time. For EH2/SV/EH3/28SV2 series MPU, the program allows four instructions being executed at the same time. For 24SV2 series MPU, the program allows six instructions being executed at the same time.

Program Example:

1. When X0 = On, there will be 200 pulses output from Y0 at 1kHz. When the pulse output is completed, M1029 will be On and Y10 will be On.
2. When X0 = Off, the pulse output from Y0 will stop immediately. When X0 is On again, the output will start again ffrom the first pulse.



Remarks:

1. Flags and special registers for EH/EH2/SV/EH3/SV2 series MPU:

M1010: (EH/EH2/SV/EH3/SV2) When On, CH0, CH1, CH2 and CH3 will output pulses at END instruction. Off when the output starts.

M1029: (EH/EH2/SV/EH3/SV2) On when CH0 pulse output is completed.

M1030: (EH/EH2/SV/EH3/SV2) On when CH1 pulse output is completed.

M1036: (EH2/SV/EH3/SV2) On when CH2 pulse output is completed.

M1037: (EH2/SV/EH3/SV2) On when CH3 pulse output is completed.

M1190: (EH2/SV/EH3/SV2) Able to output 0.01 ~ 500Hz when PLSY Y0 high-speed output is enabled.

M1191: (EH2/SV/EH3/SV2) Able to output 0.01 ~ 500Hz when PLSY Y2 high-speed output is enabled.

M1326: (24SV2) After CH4 completes the production of pulse output, M1326 will be On.

M1327: (24SV2) After CH5 completes the production of pulse output, M1327 will be On.

M1334: (EH/EH2/SV/EH3/SV2) CH0 pulse output pauses.

M1335: (EH/EH2/SV/EH3/SV2) CH1 pulse output pauses.

M1520: (EH2/SV/EH3/SV2) CH2 pulse output pauses.

M1521: (EH2/SV/EH3/SV2) CH3 pulse output pauses.

M1336: (EH/EH2/SV/EH3/SV2) CH0 pulse output has been sent.

M1337: (EH/EH2/SV/EH3/SV2) CH1 pulse output has been sent.

M1522: (EH2/SV/EH3/SV2) CH2 pulse output has been sent.

M1523: (EH2/SV/EH3/SV2) CH3 pulse output has been sent.

M1338: (EH/EH2/SV/EH3/SV2) CH0 offset pulses enabled.

M1339: (EH/EH2/SV/EH3/SV2) CH1 offset pulses enabled.

M1340: (EH/EH2/SV/EH3/SV2) I110 interruption occurs after CH0 pulse output is completed.

M1341: (EH/EH2/SV/EH3/SV2) I120 interruption after occurs CH1 pulse output is completed.

M1342: (EH/EH2/SV/EH3/SV2) I130 interruption occurs when CH0 pulse output is sending.

M1343: (EH/EH2/SV/EH3/SV2) I140 interruption occurs when CH0 pulse output is sending.

M1344: (EH/EH2/SV/EH3/SV2) CH0 pulse compensation enabled.

M1345: (EH/EH2/SV/EH3/SV2) CH1 pulse compensation enabled.

M1347: (EH/EH2/SV/EH3/SV2) CH0 pulse output reset flag

M1348: (EH/EH2/SV/EH3/SV2) CH1 pulse output reset flag

M1524: (EH2/SV/EH3/SV2) CH2 pulse output reset flag

M1525: (EH2/SV/EH3/SV2) CH3 pulse output reset flag

D1030: (24SV2) Number of pulses produced by CH4 (Low word)

D1031: (24SV2) Number of pulses produced by CH4 (High word)

D1032: (24SV2) Number of pulses produced by CH5 (Low word)

D1033: (24SV2) Number of pulses produced by CH5 (High word)

D1220: (EH/EH2/SV/EH3/SV2) Phase setting of CH0 (Y0, Y1): D1220 determines the phase by the last two bits; other bits are invalid.

1. K0: Y0 output
2. K1: Y0, Y1 AB-phase output; A ahead of B.
3. K2: Y0, Y1 AB-phase output; B ahead of A.
4. K3: Y1 output

D1221: (EH/EH2/SV/EH3/SV2) Phase setting of CH1 (Y2, Y3): D1221 determines the phase by the last two bits; other bits are invalid.

1. K0: Y2 output
2. K1: Y2, Y3 AB-phase output; A ahead of B.
3. K2: Y2, Y3 AB-phase output; B ahead of A.
4. K3: Y3 output

D1229: (EH2/SV/EH3/SV2) Phase setting of CH2 (Y4, Y5): D1229 determines the phase by the last two bits; other bits are invalid.

1. K0: Y4 output
2. K1: Y4, Y5 AB-phase output; A ahead of B.
3. K2: Y4, Y5 AB-phase output; B ahead of A.
4. K3: Y5 output

D1230: (EH2/SV/EH3/SV2) Phase setting of CH3 (Y6, Y7): D1230 determines the phase by the last two bits; other bits are invalid.

1. K0: Y6 output
2. K1: Y6, Y7 AB-phase output; A ahead of B.
3. K2: Y6, Y7 AB-phase output; B ahead of A.
4. K3: Y7 output

D1328: (EH/EH2/SV/EH3/SV2) Low word of the number of CH0 offset pulses

D1329: (EH/EH2/SV/EH3/SV2) High word of the number of CH0 offset pulses

D1330: (EH/EH2/SV/EH3/SV2) Low word of the number of CH1 offset pulses

D1331: (EH/EH2/SV/EH3/SV2) High word of the number of CH1 offset pulses

D1332: (EH/EH2/SV/EH3/SV2) Low word of the number of remaining pulses at CH0

D1333: (EH/EH2/SV/EH3/SV2) High word of the number of remaining pulses at CH0

D1334: (EH/EH2/SV/EH3/SV2) Low word of the number of remaining pulses at CH1

D1335: (EH/EH2/SV/EH3/SV2) High word of the number of remaining pulses at CH1

D1336: (EH/EH2/SV/EH3/SV2) Low word of the current number of output pulses at CH0

D1337: (EH/EH2/SV/EH3/SV2) High word of the current number of output pulses at CH0

D1338: (EH/EH2/SV/EH3/SV2) Low word of the current number of output pulses at CH1

D1339: (EH/EH2/SV/EH3/SV2) High word of the current number of output pulses at CH1

D1375: (EH2/SV/EH3/SV2) Low word of the current number of output pulses at CH2

D1376: (EH2/SV/EH3/SV2) High word of the current number of output pulses at CH2

D1377: (EH2/SV/EH3/SV2) Low word of the current number of output pulses at CH3

D1378: (EH2/SV/EH3/SV2) High word of the current number of output pulses at CH3

D1344: (EH/EH2/SV/EH3/SV2) Low word of the number of compensation pulses at CH0

D1345: (EH/EH2/SV/EH3/SV2) High word of the number of compensation pulses at CH0

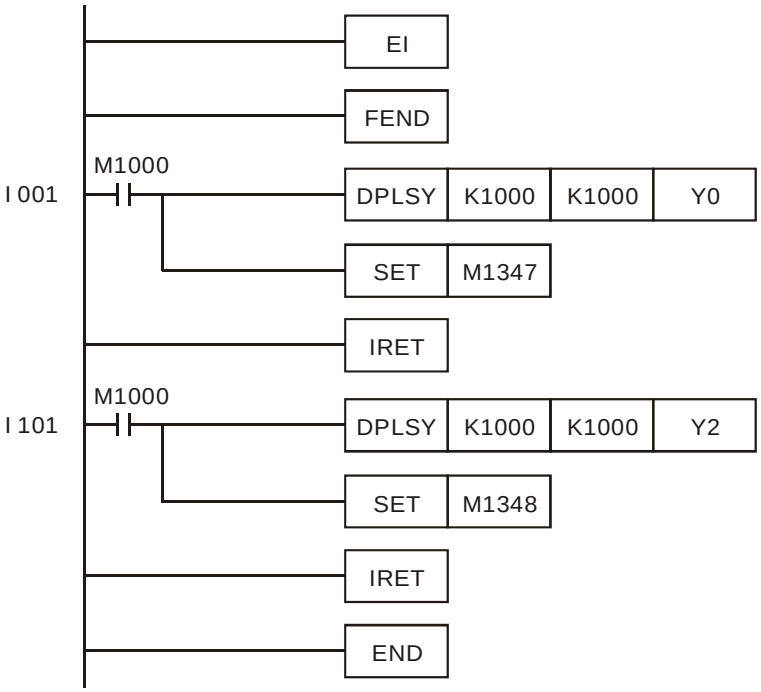
D1346: (EH/EH2/SV/EH3/SV2) Low word of the number of compensation pulses at CH1

D1347: (EH/EH2/SV/EH3/SV2) High word of the number of compensation pulses at CH1

2. When there are many high speed output instructions (PLSY, PWM, PLSR) for Y0 output in a program, PLC will only execute the settings and outputs of the instruction that is first enabled.
3. More explanations on M1347 and M1348:

   If M1347 and M1348 is enabled, and when the execution of PLSY instruction has been completed, M1347/M1348 will be reset automatically, i.e. you do not have to turn the status of the drive contact from Off to On before PLSY instruction and when PLC scans to the instruction (assume the drive contact of the instruction is True), there will still be pulse output. PLC detects the status of M1347 and M1348 when END instruction is being executed. Therefore, when the pulse output is completed and if PLSY instruction is a continuous execution one, there will be a scan time of delay in the next string of pulse output.

Program Example 1:

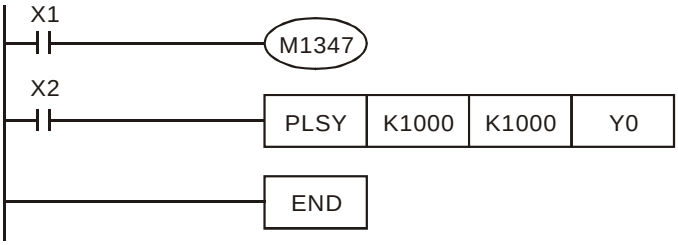


Explanations:

a) Whenever X0 is triggered, Y0 will output 1,000 pulses; whenever X1 is triggered, Y2 will output 1,000 pulses.

b) When X triggers Y pulse output, there should be an interval of at least one scan time between the end of Y pulse output and the next X-triggered output.

Program Example 2:



Explanations:

When both X1 and X2 are On, Y0 pulse output will keep operating. However, there will be a short pause (approx. 1 scan time) every 1,000 pulses before the output of the next 1,000 pulses.

API	Mnemonic	Operands	Function
59	D PLSR	(S1) (S2) (S3) (D)	Pulse Ramp

Type / OP	Bit Devices				Word Devices											Program Steps
	X	Y	M	S	K	H	KnX	KnY	KnM	KnS	T	C	D	E	F	PLSR: 9 steps DPLSR: 17 steps
S_1					*	*	*	*	*	*	*	*	*	*	*	
S_2					*	*	*	*	*	*	*	*	*	*	*	
S_3					*	*	*	*	*	*	*	*	*	*	*	
D		*														

PULSE									16-bit								32-bit								
ES	EX	SS	SA	SX	SC	EH	SV	EH3 SV2	ES	EX	SS	SA	SX	SC	EH	SV	EH3 SV2	ES	EX	SS	SA	SX	SC	EH	SV	EH3 SV2

Operands:

S_1: Maximum speed of pulse output **S_2**: Total number of output pulses **S_3**: Acceleration/deceleration time (ms)

D: Pulse output device (please use transistor output module)

Explanations:

1. See the specifications of each model for their range of use.
2. For ES/EX/SS series MPU, PLSR instruction can be used twice in the program but the outputs cannot be overlapped.
3. Flags: See remarks of API 57 PLSY.
4. Range of **S_1**: 10 ~ 32,767Hz (16-bit); 10 ~ 200,000Hz (32-bit). The maximum speed has to be 10's multiple; if not, the 1s digit will be left out. 1/10 of the maximum speed is the variation of one acceleration or deleration. Please be aware if the variation reponds to the acceleration/deceleration demand from the step motor, in case the step motor may crash.
5. Range of **S_2**: 110 ~ 32,767 (16-bit); 110 ~ 2,147,483,647 (32-bit). If **S_2** is less than 110, the pulet output will be abnormal.
6. Range of **S_3**: below 5,000ms. The acceleration time and deceleration time have to be the same.
   a) The acceleration/deceleration time has to be 10 times longer than the maximum scan time (D1012). If not, the slope of accleration and deceleration will be incorrect.
   b) The minimum set value of acceleration/deceleration time can be obtained from the following equation:

      $$S_3 \geqslant \frac{90{,}000}{S_1}$$

      If the set value is less than the result obtained from the equation, the acceleration/deceleration time will be longer. If the set value is less than 90,000/**S_1**, use the result of 90,000/**S_1** as the set value.
   c) The maximum set value of acceleration/deceleration time can be obtained from the following equation:

      $$S_3 \leqslant \frac{S_2}{S_1} \times 818$$

   d) The speed variation is fixed to 10 steps. If the input acceleration/deceleration time is longer than the maximum set value, the acceleration/deceleration time will follow the maximum set time. If shorter than the minimum set value, the accleration/deceleration time will follow the minimum set time.

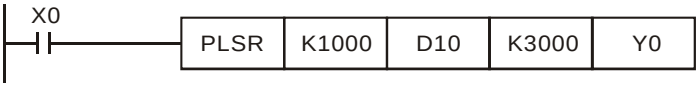
7. **D** for all series MPU:

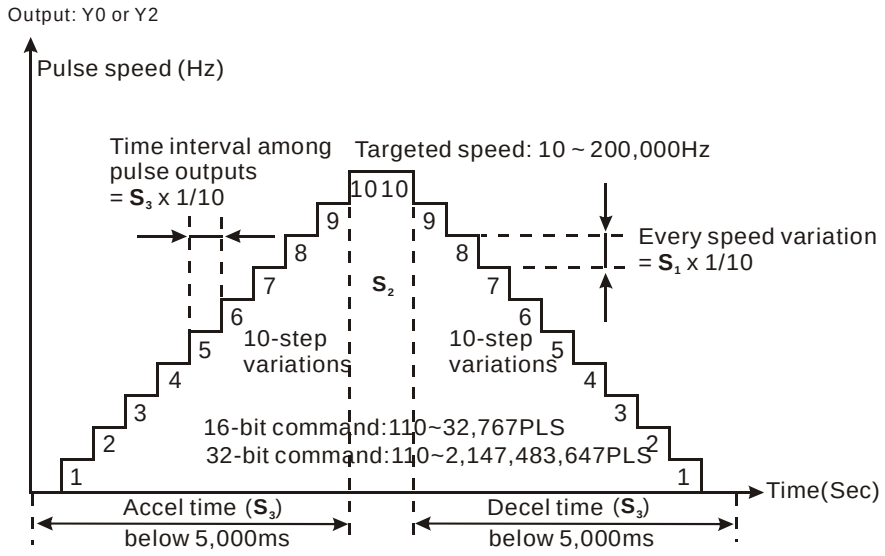
MPU	ES/EX/SS/SA/SX/SC	EH	EH2/SV/EH3/SV2
Output point	Y0, Y1	Y0, Y2	Y0, Y2, Y4, Y6, Y10, Y12

8. EH series MPU has two groups pf A-B phase pulse output CH0 (Y0, Y1) and CH1 (Y2, Y3). EH2/SV/EH3/SV2 series MPU has four groups pf A-B phase pulse output CH0 (Y0, Y1), CH1 (Y2, Y3), CH2 (Y4, Y5) and CH3 (Y6, Y7). See remarks of API 57 PLSY for how to set up. Only 24SV2 supports Y10 and Y12, and it does not support A-B phase pulse output.
9. PLSR instruction is a pulse output instruction with acclerating and decelerating functions. The pulses accelerate from the static status to target speed and decelerates when the target distance is nearly reached. The pulse output will stop when the target distance is reached.
10. When PLSR instruction is executed, after $\mathbf{S_1}$, $\mathbf{S_2}$ and $\mathbf{S_3}$ are set, the pulses will output from **D**. The output starts at the frequency of increasing $\mathbf{S_1}$/10 at a time. The time forf every frequency is fixed at $\mathbf{S_3}$/9.
11. $\mathbf{S_1}$, $\mathbf{S_2}$ and $\mathbf{S_3}$ can be changed when PLSR instruction is being executed.
12. For ES/EX/SS/SA/SX/SC series MPU, when all the Y0 pulses have been sent, M1029 will be On; when all the Y1 pulses have been sent, M1030 will be On. Next time when PLSR instruction is enabled, M1029 or M1030 will be 0 again and after the pulse output is completed, it will become 1 again.
13. For EH/EH2/SV/EH3/SV2 series MPU, when all the CH0 (Y0, Y1) pulses have been sent, M1029 will be On; when all the CH1 (Y2, Y3) pulses have been sent, M1030 will be On; when CH2 (Y4, Y5) pulses have been sent, M1036 will be On; when CH3 (Y6, Y7) pulses have been sent, M1037 will be On. Next time when PLSR instruction is enabled, M1029, M1030, M1036 or M1037 will be 0 again and after the pulse output is completed, they will become 1 again.
14. For EH2/SV/EH3/SV2 series MPU V1.4 and later versions, when the instruction designate incorrect parameters, the default output will become the maximum value or mininum value.
15. During every acceleration section, the number of pulses (frequency × time) may not all be integers. PLC will round up the number to an integer before the output. Therefore, the acceleration time of every section may not be exactly the same. The offset is determined upon the frequency and the decimal after rounding up. In order to ensure the correct number of output pulses, PLC will supplement insufficient pulses in the last section.
16. For SA/EH series MPU, there is no limitation on the times of using this instruction in the program. However, for SA/SX/SC/EH series MPU, two instructions can be exeucted at the same time; for EH2/SV/EH3/SV2 series MPU, four instructions can be executed at the same time.

Program Example:

1. When X0 = On, the pulses will output at the maximum frequency 1,000Hz with the total number D10 at 3,000ms from Y0. The frequency will increase by 1,000/10Hz at a time and every frequency will last for 3,000/9 (ms).
2. When X10 is Off, the output will be interrupted. When X0 is On again, the counting of pulses will start from 0.





Remarks:

1. The outputs cannot be the same as those of API 57 PLSY and API 58 PWM.
2. When there are many high speed pulse output instructions (PLSY, PWM, PLSR) in a program for Y0 output, and provided these instructions are being executed in the same scan period, PLC will set up and output the instructions with the fewest steps.
3. With M1133 ~ M1135 and D1133, Y0 of SA/SX/SC series MPU can output pulses at up to 50kHz. See 2.11 for more details of special D and special M.

   Range of output frequecies for all series:

MPU	ES/EX/SS	SA/SX/SC	EH	EH2/SV/EH3/SV2
Range	Y0: 10 ~ 10,000Hz Y1: 10 ~ 10,000Hz	Y0: 10 ~ 30,000Hz Y1: 10 ~ 30,000Hz	Y0: 10 ~ 200,000Hz Y2: 10 ~ 200,000Hz	Y0: 10 ~ 200,000Hz Y2: 10 ~ 200,000Hz Y4: 10 ~ 200,000Hz Y6: 10 ~ 200,000Hz Y10: 10~10000Hz Y12: 10~10000Hz

4. Flags and special registers for SA/SC series MPU:

M1347	For SA/SC. Reset flag for Y0 pulse output (Available in SA V1.8 and later version, SC V1.6 and later versions)
M1348	For SA/SC. Reset flag for Y1 pulse output (Availabe in SA V1.8 and later versions, SC V1.6 and later versions)
M1524	For SC (V1.6 and later versions). Reset flag for Y10 pulse output
M1525	For SC (V1.6 and later versions). Reset flag for Y11 pulse output

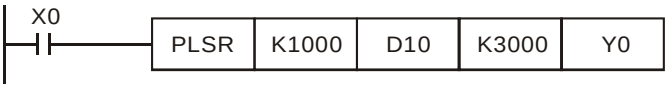
5. Flags and special registers for EH2/SV/EH3/SV2 series MPU:

M1257	The acceleration/decelration of the high-speed pulse output Y0, and that of Y2 are S curves.
M1308	Off->On: The high-speed output of the first pulse CH0 (Y0, Y1) paruse immediately. On->Off: Continue to output the pulses which have not been output.

M1309	Off->On: The high-speed output of the first pulse CH1 (Y2, Y3) paruse immediately. On->Off: Continue to output the pulses which have not been output.
M1310	Off->On: The high-speed output of the first pulse CH2 (Y4, Y5) paruse immediately. On->Off: Continue to output the pulses which have not been output.
M1311	Off->On: The high-speed output of the first pulse CH3 (Y6, Y7) paruse immediately. On->Off: Continue to output the pulses which have not been output.
M1347	For EH2/SV/EH3/SV2 (V1.4 and later versions). Reset flag for CH0 pulse output
M1348	For EH2/SV/EH3/SV2 (V1.4 and later versions). Reset flag for CH1 pulse output
M1524	For EH2/SV/EH3/SV2 (V1.4 and later versions). Reset flag for CH2 pulse output
M1525	For EH2/SV/EH3/SV2 (V1.4 and later versions). Reset flag for CH3 pulse output
D1127	The number of pulses at the acceleration setion for the position instruction (low word)
D1128	The number of pulses at the acceleration setion for the position instruction (high word)
D1133	The number of pulses at the deceleration setion for the position instruction (low word)
D1134	The number of pulses at the deceleration setion for the position instruction (high word)

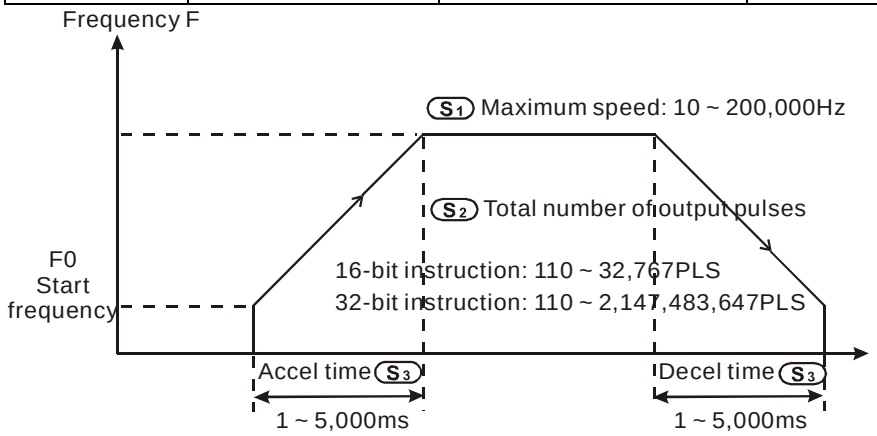
Functions in EH series MPU:

1. Relevant devices for EH/EH2/SV/EH3/SV2 series MPU:



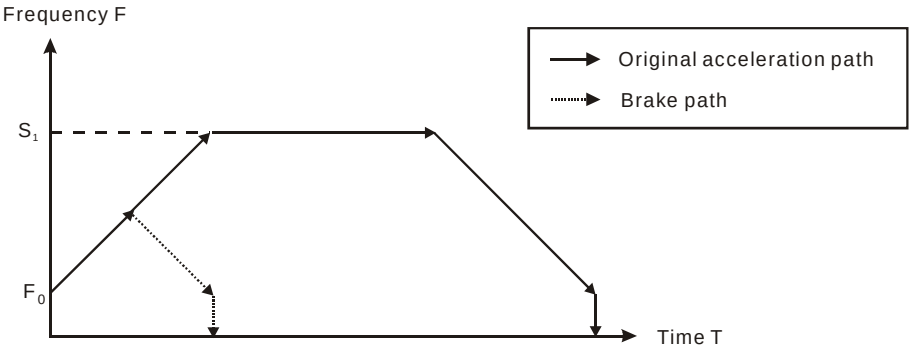
2. The range of pulse speed for this instruction is 10 ~ 200,000Hz. If the set values of maximum speed and acceleration/deceleration time exceed the range, PLC will operate by the default value that is within the range.

Operand		S_1	S_2	S_3	D
Explanation		Max. frequency	Total number of pulses	Accel/Decel time	Output point
Range	16-bit	10 ~ 32,767Hz	110 ~ 32,767	1 ~ 5,000ms	Y0 ~ Y7
	32-bit	10 ~ 200kHz	110 ~ 2,147,483,647		
Definition		K0: No output Kn: Designated frequency	Kn: Designated number	Flag: M1067, M1068	See settings of D1220, D1221



3. The acceleration/deceleration of EH/EH2/SV/EH3/SV2 series MPU is based on the number of pulses. If the output cannot reach the maximum acceleration frequency within the acceleration/deceleration time offered, the instruction will automatically adjust the acceleration/deceleration time and the maximum frequency.
4. The operands have to be set before the execution of the instruction PLSR.

5. All acceleration/deceleration instructions are included with the brake function. The brake function will be enabled when PLC is performing acceleration and the switch contact is suddenly Off. The deceleration will operate at the slope of the acceleration.



API	Mnemonic		Operands	Function
158	D	DRVI	(S1) (S2) (D1) (D2)	Drive to Increment

Type / OP	Bit Devices				Word Devices											Program Steps
	X	Y	M	S	K	H	KnX	KnY	KnM	KnS	T	C	D	E	F	DRVI: 9 steps
S_1					*	*	*	*	*	*	*	*	*	*	*	DDRVI: 17 steps
S_2					*	*	*	*	*	*	*	*	*	*	*	
D_1		*														
D_2		*	*	*												

PULSE									16-bit									32-bit								
ES	EX	SS	SA	SX	SC	EH	SV	EH3 SV2	ES	EX	SS	SA	SX	SC	EH	SV	EH3 SV2	ES	EX	SS	SA	SX	SC	EH	SV	EH3 SV2

Operands:

S_1: Number of output pulses (relative designation) **S_2**: Pulse output frequency **D_1**: Pulse output device (please use transistor output module) **D_2**: Output device for the signal of rotation direction

Explanations:

1. **S_1** is the number of output pulses (relative designation). For EH/EH2/SV/EH3/SV2 series MPU, the 16-bit instruction can designate the range -32,768 ~ +32,767. The range designated by 32-bit instruction is -2,147,483,648 ~ +2,147,483,647. For SC series MPU, the 32-bit instruction can designate the range -2,147,483,648 ~ +2,147,483,647. "+/-" signs indicate forward/backward directions.
2. **S_2** is the designated pulse output frequency. For EH/EH2/SV/EH3/SV2 series MPU, the 16-bit instruction can designate its range 10 ~ 32,767Hz. The range designated by 32-bit instruction is 10 ~ 200,000Hz. For 24SV2 series MPU, the 16-bit instruction can designate the range 10 ~ 10,000Hz. The range designated by 32-bit instruction is 10 ~ 10,000Hz. For SC series MPU, the 32-bit instruction can designate the range 100 ~ 100,000Hz.
3. EH2/SV/EH3/SV2 series MPU has four groups of A/B phase pulse output, CH0 (Y0, Y1), CH1 (Y2, Y3), CH2 (Y4, Y5) and CH3 (Y6, Y7). See remarks for the setup methods.
4. In a 24SV2 series MPU, CH4 is Pulse(Y10)+Direction (Y11), and CH5 is Pulse (Y12)+Direction (Y13).
5. Pulse output device **D_1** in different models

Model	SC MPU	EH MPU	EH2/SV/EH3/SV2 MPU (Note)
Pulse output end	Y10, Y11	Y0, Y2	Y0, Y2, Y4, Y6, Y10, Y12

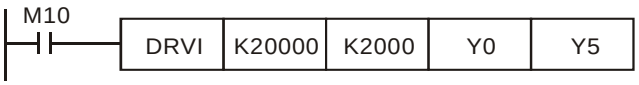
   Note: Only 24SV2 supports Y10 and Y12.
6. The operation of **D_2** corresponds to the "+" or "-" of **S_1**. When **S_1** is "+", **D_2** will be On; when **S_1** is "-", **D_2** will be Off. **D_2** will not be Off immediately after the pulse output is over; it will be Off only when the drive contact of the instruction turns Off. If **D_1** and **D_2** in a 24SV2 series MPU are Y devices, Y10/Y11 and Y12/Y13 must be used.
7. For EH/EH2/SV/EH3/SV2 series MPU, **S_1** is
   - The 32-bit data stored in the present value registers D1337 (high word) and D1336 (low word) of CH0 (Y0, Y1).
   - The 32-bit data stored in the present value registers D1339 (high word) and D1338 (low word) of CH1 (Y2, Y3).

- The 32-bit data stored in the present value registers D1376 (high word) and D1375 (low word) of CH2 (Y4, Y5).
- The 32-bit data stored in the present value registers D1378 (high word) and D1377 (low word) of CH3 (Y6, Y7).
- The 32-bit data stored in the present value registers D1031 (high word) and D1030 (low word) of CH4 (Y10, Y11).
- The 32-bit data stored in the present value registers D1033 (high word) and D1032 (low word) of CH5 (Y12, Y13).
- When in backward direction, the content in the present value register will decrease.

8. When DRVI instruction is executing pulse output, you cannot change the content of all operands. The changes will be valid next time when DRVI instruction is enabled.
9. For EH/EH2/SV/EH3/SV2 series MPU, when the drive contact of DRVI instruction is Off, even the indication flag M1336 sent by CH0 pulses, M1337 sent by CH1 pulses, M1522 sent by CH2 pulses and M1523 sent by CH3 pulses are “On”, DRVI instruction will not be driven again.
10. When the absolute value of the input frequency of DDRVI insturction in EH/EH2/SV/EH3/SV2 series MPU is larger than 200kHz, the output will be operated at 200kHz. When the absolute value of the input frequency is smaller than 10Hz, the output will be operated at 10Hz.
11. D1343 (D1353, D1381, D1382, D1147, D1149) in EH/EH2/SV/EH3/SV2 series MPU is for setting up the time of the first acceleartion segment and last deceleration segment of CH0 (CH1, CH2, CH3, CH4, CH5). The acceleration and deceleration time of EH/EH2/SV/EH3/SV2 series MPU is 1 ~ 10,000ms. The output will be operated for the default 100ms if the time is longer than 10,000ms. D1343 (D1353) in SC series MPU is for setting up the time of the first acceleartion segment and last deceleration segment of CH0 (CH1). The acceleration and deceleration time of SC series MPU is 50~20,000ms. The output will be operated for 20,000ms or 50ms if the time set is longer than 20,000ms or shorter than 50ms.
12. For EH/EH2/SV/EH3/SV2 series MPU, M1305 (M1306, M1532, M1533) is the direction signal of CH0 (CH1, CH2, CH3). When $\mathbf{S_1}$ is a positive number, the output will be operated in a forward direction and M1305 (M1306, M1532, M1533) will be Off. When $\mathbf{S_1}$ is a negative number, the output will be operated in a backward direction and M1305 (M1306, M1532, M1533) will be On.

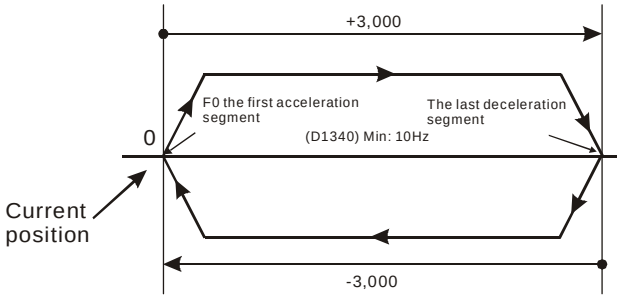
Program Example:

When M10= On, Y0 will output 20,000 pulses (relative designation) at 2kHz. Y5 = On indicates the pulses are executed in forward direction.

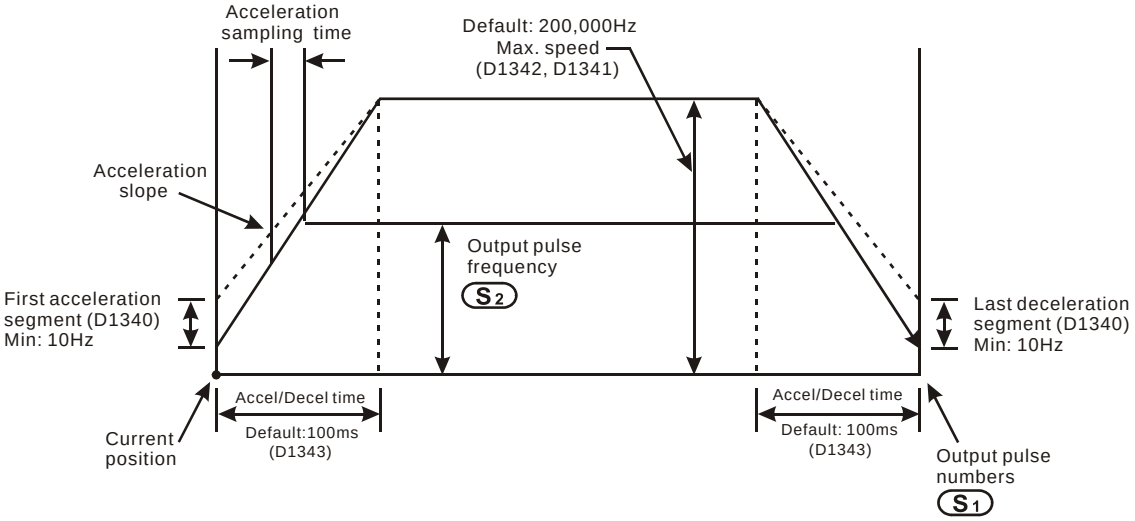


Remarks:

1. Explanations on EH/EH2/SV/EH3/SV2 series MPU:
   a) Relative position control: Designating the traveling distance starting from the current position by “+/ -“ signs; also known as a relative driving method.



b) Settings of relative positioning and the acceleration/deceleration speed:



2. Flags for EH/EH2/SV/EH3/SV2 series MPU:

M1010: For EH/EH2/SV/EH3/SV2, when M1010 = On, CH0, CH1, CH2 and CH3 will output pulses when END instruction is being executed. M1010 will be Off automatically when the output starts.

M1029: For EH/EH2/SV/EH3/SV2, M1029 = On after CH0 pulse output is completed.

M1030: For EH/EH2/SV/EH3/SV2, M1030 = On after CH1 pulse output is completed.

M1036: For EH2/SV/EH3/SV2, M1036 = On after CH2 pulse output is completed.

M1037: For EH2/SV/EH3/SV2, M1037 = On after CH3 pulse output is completed.

M1119 For EH2/SV/EH3/SV2, the instruction DDRVI/DDRVA is enabled when M1119 is On.

M1257 For EH/EH2/SV/EH3/SV2, the acceleration/deceleration of high-speed outputs Y0 and Y2 are S curves when M1257 is On.

M1305: For EH/EH2/SV/EH3/SV2, direction signal of CH0.

M1306: For EH/EH2/SV/EH3/SV2, direction signal of CH1.

M1334: For EH, CH0 pulse output pauses.

For EH2/SV/EH3/SV2, CH0 pulse output stops.

M1308 For EH/EH2/SV/EH3/SV2,

Off->On: The first high-speed pulse output CH0 (Y0, Y1) pauses immediately.

On->Off: Continuing to output the pulses which have not been output

M1309 For EH/EH2/SV/EH3/SV2,

Off->On: The first high-speed pulse output CH1 (Y2, Y3) pauses immediately.

On->Off: Continuing to output the pulses which have not been output

M1310 For EH/EH2/SV/EH3/SV2,
Off->On: The first high-speed pulse output CH2 (Y4, Y5) pauses immediately.
On->Off: Continuing to output the pulses which have not been output

M1311 For EH/EH2/SV/EH3/SV2,
Off->On: The first high-speed pulse output CH3 (Y6, Y7) pauses immediately.
On->Off: Continuing to output the pulses which have not been output

M1326 For 24SV2, after CH4 completes the production of pulse output, M1326 will be On.

M1327 For 24SV2, after CH5 completes the production of pulse output, M1327 will be On.

M1335: For EH, CH1 pulse output pauses.
For EH2/SV/EH3/SV2, CH1 pulse output stops.

M1336: For EH/EH2/SV/EH3/SV2, “CH0 sends out pulses” indication.

M1337: For EH/EH2/SV/EH3/SV2, “CH1 sends out pulses” indication.

M1347: For EH2/SV/EH3/SV2 (V1.4 and later versions). Reset flag for CH0 pulse output.

M1348: For EH2/SV/EH3/SV2 (V1.4 and later versions). Reset flag for CH1 pulse output.

M1520: For EH2/SV/EH3/SV2, CH2 pulse output stops.

M1521: For EH2/SV/EH3/SV2, CH3 pulse output stops.

M1522: For EH2/SV/EH3/SV2, “CH2 sends out pulses” indication.

M1523: For EH2/SV/EH3/SV2, “CH3 sends out pulses” indication.

M1524: For EH2/SV/EH3/SV2 (V1.4 and later versions). Reset flag for CH2 pulse output.

M1525: For EH2/SV/EH3/SV2 (V1.4 and later versions). Reset flag for CH3 pulse output.

M1534: For EH2/SV/EH3/SV2, designated deceleration time of CH0 (should be used with D1348).

M1535: For EH2/SV/EH3/SV2, designated deceleration time of CH1 (should be used with D1349).

M1536: For EH2/SV/EH3/SV2, designated deceleration time of CH2 (should be used with D1350).

M1537: For EH2/SV/EH3/SV2, designated deceleration time of CH3 (should be used with D1351).

M1532: For EH2/SV/EH3/SV2, direction signal of CH2.

M1533: For EH2/SV/EH3/SV2, direction signal of CH3.

M1568 For 24SV2, users can set the time it takes for CH4 to decelerate the production of pulse output. It is used with D1196.

M1569 For 24SV2, users can set the time it takes for CH5 to decelerate the production of pulse output. It is used with D1197.

3. Special registers for EH/EH2/SV/EH3/SV2 series MPU:

D1022 For 24SV2, users can set the frequency with which the first section of the pulse output produced by CH4 starts, and the frequency with which the last section of the pulse output produced by CH4 ends.

D1023 For 24SV2, users can set the frequency with which the first section of the pulse output produced by CH4 starts, and the frequency with which the last section of the pulse output produced by CH4 ends.

D1030 For 24SV2, the number of pulses produced by CH4 (Low word)

D1031 For 24SV2, the number of pulses produced by CH4 (High word)

D1032 For 24SV2, the number of pulses produced by CH5 (Low word)

D1033 For 24SV2, the number of pulses produced by CH5 (High word)

D1127: For EH2/SV/EH3/SV2, the number of pulses in the acceleration section in the position instruction (low word)

D1128: For EH2/SV/EH3/SV2, the number of pulses in the acceleration section in the position instruction (high word)

D1133: For EH2/SV/EH3/SV2, the number of pulses in the deceleration section in the position instruction (low word)

D1134: For EH2/SV/EH3/SV2, the number of pulses in the deceleration section in the position instruction (high word)

D1147 For 24SV2, the time it takes for CH4 to accelerate/decelerate the production of pulse output.

D1149 For 24SV2, the time it takes for CH5 to accelerate/decelerate the production of pulse output.

D1196 For 24SV2, when M1568 is ON, users can set the time it takes for CH4 to decelerate the production of pulse output.

D1197 For 24SV2, when M1569 is ON, users can set the time it takes for CH5 to decelerate the production of pulse output.

D1220: For EH/EH2/SV/EH3/SV2, phase setting of CH0 (Y0, Y1): D1220 determines the phase by the last two bits; other bits are invalid.

1. K0: Y0 output
2. K1: Y0, Y1 AB-phase output; A ahead of B.
3. K2: Y0, Y1 AB-phase output; B ahead of A.
4. K3: Y1 output

D1221: For EH/EH2/SV/EH3/SV2, phase setting of CH1 (Y2, Y3): D1221 determines the phase by the last two bits; other bits are invalid.

1. K0: Y2 output
2. K1: Y2, Y3 AB-phase output; A ahead of B.
3. K2: Y2, Y3 AB-phase output; B ahead of A.
4. K3: Y3 output

D1222: For EH/EH2/SV/EH3/SV2, the time difference between the direction signal and pulse output sent by CH0.

D1223: For EH/EH2/SV/EH3/SV2, the time difference between the direction signal and pulse output sent by CH1.

D1229: For EH2/SV/EH3/SV2, phase setting of CH2 (Y4, Y5): D1229 determines the phase by the last two bits; other bits are invalid.

1. K0: Y4 output
2. K1: Y4, Y5 AB-phase output; A ahead of B.
3. K2: Y4, Y5 AB-phase output; B ahead of A.
4. K3: Y5 output

D1230: For EH2/SV/EH3/SV2, phase setting of CH3 (Y6, Y7): D1230 determines the phase by the last two bits; other bits are invalid.

1. K0: Y6 output
2. K1: Y6, Y7 AB-phase output; A ahead of B.
3. K2: Y6, Y7 AB-phase output; B ahead of A.
4. K3: Y7 output

D1336: For EH/EH2/SV/EH3/SV2, low word of the current number of output pulses from CH0.

D1337: For EH/EH2/SV/EH3/SV2, high word of the current number of output pulses from CH0.

D1338: For EH/EH2/SV/EH3/SV2, low word of the current number of output pulses from CH1.

D1339: For EH/EH2/SV/EH3/SV2, high word of the current number of output pulses from CH1.

D1340: For EH/EH2/SV/EH3/SV2, settings of the first start frequency and the last end frequency of CH0.

D1343: For EH/EH2/SV/EH3/SV2, settings of acceleration/deceleration time for CH0 pulse output.

D1348: For EH2/SV/EH3/SV2, deceleration time for CH0 pulse output when M1534 = On.

D1349: For EH2/SV, deceleration time for CH1 pulse output when M1535 = On.

D1350: For EH2/SV, deceleration time for CH2 pulse output when M1536 = On.

D1351: For EH2/SV, deceleration time for CH3 pulse output when M1537 = On.

D1352: For EH/EH2/SV/EH3/SV2, settings of the first start frequency and the last end frequency of CH1.

D1353: For EH/EH2/SV/EH3/SV2, settings of acceleration/deceleration time for CH1 pulse output.

D1375: For EH2/SV/EH3/SV2, low word of the current number of output pulses from CH2.

D1376: For EH2/SV/EH3/SV2, high word of the current number of output pulses from CH2.

D1377: For EH2/SV/EH3/SV2, low word of the current number of output pulses from CH3.

D1378: For EH2/SV/EH3/SV2, high word of the current number of output pulses from CH3.

D1379: For EH2/SV/EH3/SV2, settings of the first start frequency and the last end frequency of CH2.

D1380: For EH2/SV/EH3/SV2, settings of the first start frequency and the last end frequency of CH3.

D1381: For EH2/SV/EH3/SV2, settings of acceleration/deceleration time for CH2 pulse output.

D1382: For EH2/SV/EH3/SV2, settings of acceleration/deceleration time for CH3 pulse output.

D1383: For EH2/SV/EH3/SV2, the time difference between the direction signal and pulse output sent by CH2.

D1384: For EH2/SV/EH3/SV2, the time difference between the direction signal and pulse output sent by CH3.

API	Mnemonic		Operands	Function
159	D	DRVA	(S1) (S2) (D1) (D2)	Drive to Absolute

Type / OP	Bit Devices				Word Devices											Program Steps
	X	Y	M	S	K	H	KnX	KnY	KnM	KnS	T	C	D	E	F	DRVA: 9 steps
S_1					*	*	*	*	*	*	*	*	*	*	*	DDRVA: 17 steps
S_2					*	*	*	*	*	*	*	*	*	*	*	
D_1		*														
D_2		*	*	*												

PULSE										16-bit										32-bit									
ES	EX	SS	SA	SX	SC	EH	SV	EH3 SV2		ES	EX	SS	SA	SX	SC	EH	SV	EH3 SV2		ES	EX	SS	SA	SX	SC	EH	SV	EH3 SV2	

Operands:

S_1: Number of output pulses (absolute designation) **S_2**: Pulse output frequency **D_1**: Pulse output device (please use transistor output module) **D_2**: Output device for the signal of rotation direction

Explanations:

1. **S_1** is the number of output pulses (absolute designation). For EH/EH2/SV/EH3/SV2 series MPU, the 16-bit instruction can designate the range -32,768 ~ +32,767. The range designated by 32-bit instruction is -2,147,483,648 ~ +2,147,483,647. For SC series MPU, the 32-bit instruction can designate the range -2,147,483,648 ~ +2,147,483,647. “+/-” signs indicate forward/backward directions.
2. **S_2** is the designated pulse output frequency. For EH/EH2/SV/EH3/SV2 series MPU, the 16-bit instruction can designate its range 10 ~ 32,767Hz. The range designated by 32-bit instruction is 10 ~ 200,000Hz. For 24SV2 series MPU, the 16-bit instruction can designate its range 10 ~ 10,000Hz. The range designated by 32-bit instruction is 10 ~ 10,000Hz. For SC series MPU, the 32-bit instruction can designate the range 100 ~ 100,000Hz.
3. Pulse output device **D_1** in different models

Model	EH/EH2/SV/EH3/SV2	24SV2	SC
Pulse output point	Y0, Y2, Y4、Y6	Y0, Y2, Y4, Y6, Y10, Y12	Y10, Y11

4. When **S_1** is larger than the current relative position, **D_2** will be Off; when **S_1** is smaller than the current relative position, **D_2** will be On. **D_2** will not be Off immediately after the pulse output is over; it will be Off only when the drive contact of the instruction turns Off. If **D_1** and **D_2** in a 24SV2 series MPU are Y devices, Y10/Y11 and Y12/Y13 must be used.
5. For EH/EH2/SV/EH3/SV2 series MPU, **S_1** is
   - The 32-bit data stored in the present value registers D1337 (high word) and D1336 (low word) of CH0 (Y0, Y1).
   - The 32-bit data stored in the present value registers D1339 (high word) and D1338 (low word) of CH1 (Y2, Y3).
   - The 32-bit data stored in the present value registers D1376 (high word) and D1375 (low word) of CH2 (Y4, Y5).
   - The 32-bit data stored in the present value registers D1378 (high word) and D1377 (low word) of CH3 (Y6,

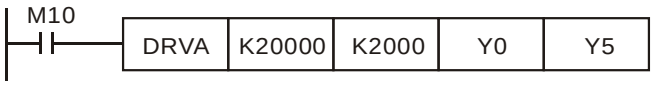
Y7).

- The 32-bit data stored in the present value registers D1031 (high word) and D1030 (low word) of CH4 (Y10, Y11).
- The 32-bit data stored in the present value registers D1033 (high word) and D1032 (low word) of CH5 (Y12, Y13).
- When in backward direction, the content in the present value register will decrease.

6. For EH/EH2/SV/EH3/SV2 series MPU, when DRVA instruction is executing pulse output, you cannot change the content of all operands. The changes will be valid next time when DRVA instruction is enabled.
7. For EH/EH2/SV/EH3/SV2 series MPU, when the drive contact of DRVA instruction is Off, the pulse output will decelerate to stop and M1029, M1030, M1036, M1037, M1326, M1327 will be enabled. For SC series MPU, the pulse output will decelerate to stop and M1102 and M1103 will be enabled.
8. For EH/EH2/SV/EH3/SV2 series MPU, when the drive contact of DRVA instruction is Off, even the indication flag M1336 sent by CH0 pulses, M1337 sent by CH1 pulses, M1522 sent by CH2 pulses, or M1523 sent by CH3 pulses are “On”, DRVA instruction will not be driven again.
9. When the absolute value of the input frequency of DRVA and DDRVA insturctions in EH/EH2/SV/EH3/SV2 series MPU is larger than 200kHz, the output will be operated at 200kHz. When the absolute value of the input frequency is smaller than 10Hz, the output will be operated at 10Hz.
10. D1343 (D1353, D1381, D1382, D1147, D1149) in EH/EH2/SV/EH3/SV2 series MPU is for setting up the time of the first acceleartion segment and last deceleration segment of CH0 (CH1, CH2, CH3, CH4, CH5). The acceleration and deceleration time of EH/EH2/SV/EH3/SV2 series MPU is 1 ~ 10,000ms. The output will be operated for the default 100ms if the time is longer than 10,000ms. D1343 (D1353) in SC series MPU is for setting up the time of the first acceleartion segment and last deceleration segment of CH0 (CH1). The acceleration and deceleration time of SC series MPU is 50~20,000ms. The output will be operated for 20,000ms or 50ms if the time set is longer than 20,000ms or shorter than 50ms.
11. For EH/EH2/SV/EH3/SV2 series MPU, M1305 (M1306, M1532, M1533) is the direction signal of CH0 (CH1). When $\mathbf{S_1}$ is a positive number, the output will be operated in a forward direction and M1305 (M1306, M1532, M1533) will be Off. When $\mathbf{S_1}$ is a negative number, the output will be operated in a backward direction and M1305 (M1306, M1532, M1533) will be On.

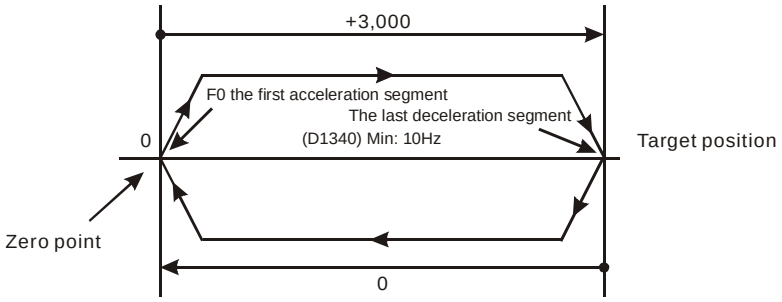
Program Example:

When M10= On, Y0 will output 20,000 pulses (absolute designation) at 2kHz. Y5 = On indicates the pulses are executed in forward direction.

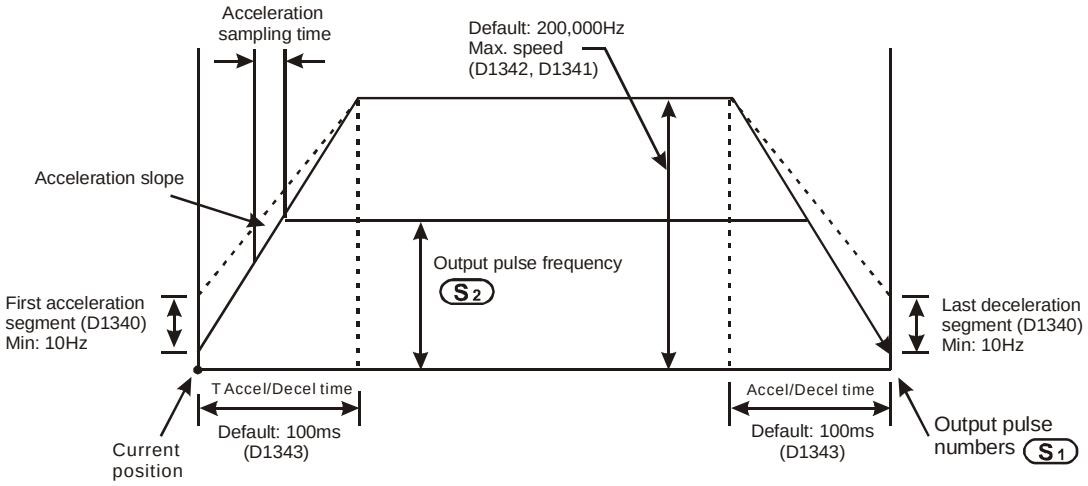


Remarks:

1. Explanations on EH/EH2/SV/EH3/SV2 series MPU:
   a) Absolute position control: Designating the traveling distance starting from the zero point (0); also known as a absolute driving method.



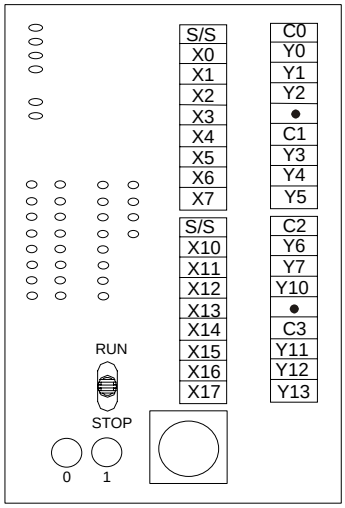
b) Settings of absolute positioning and the acceleration/deceleration speed:



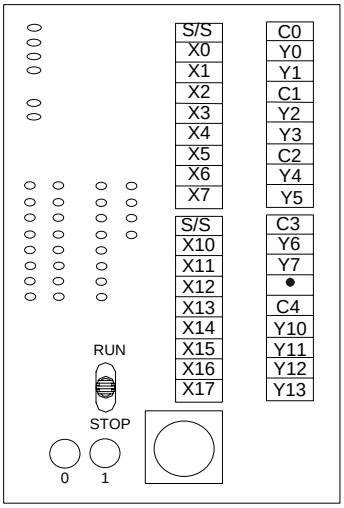
4. MPU terminal layout

■ For SV2 series MPU

DVP28SV11R2



DVP28SV11T2



DVP24SV11T2