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# PWM: Can I generate D/O square pulse up to 1KHz with I-8417/8817/8437/8837, 7188EG & 7188XG? How?

Click the link for more ISaGRAF FAQ.

**Ans:** If you have the user's manual, please refer to section 3.7 – "PWM output".

ISaGRAF user's manual can be download at

http://www.icpdas.com/en/download/show.php?num=333&nation=US&kind1=&model=&kw=isagraf

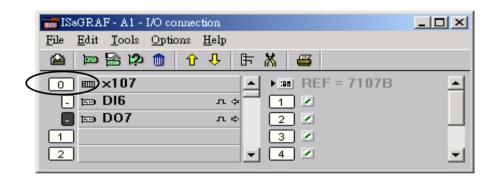
I-8417/8817/8437/8837 support PWM output (Pulse Width Modulation) since its driver version of 2.29. Only parallel Output boards are supported, not for serial boards. The following output boards are available with the PWM function.

I-8037, 8041, 8042, 8054, 8055, 8056, 8057, 8060, 8063, 8064, 8065, 8066, 8068, 8069

I-7188EG supports PWM function since its driver version of 1.21 while I-7188XG since 1.19. Only the X-board with digital output channels are available with PWM function.

### Note:

- 1. Max 8 digital outputs can call PWM en, PWM en2, pwm ON & pwm OFF at the same time.
- 2. I-7188EG/XG must connect the X-board at slot 0, or the PWM function will not work.



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The below functions are for PWM output.

**PWM\_dis** Disable PWM output

Parameters:

SLOT\_ integer Which slot?

 $0 \sim 7$  for I-8xx7, only 0 for I-7188EG & I-7188XG.

CH integer Which channel ? 1 ~ 32.

Return:

Q\_ Boolean TRUE: Ok.

FALSE: wrong input parameters, too many PWM outputs been enable,

pwm\_dis

pwm en

Q

SLOT\_

CH\_

OFF

ON.

SLOT\_

1сн

or the associate output channel is not found.

Note:

1. After calling PWM dis, the associate output will then be controlled by the ISaGRAF cycle engine.

2. Max 8 output channels can call PWM\_en, PWM\_en2, pwm\_ON, pwm\_OFF at one PAC.

Example: demo 50

**PWM\_en** Enable PWM to output until PWM\_dis is called

Parameters:

SLOT\_ integer Which slot?

 $0 \sim 7$  for I-8xx7, only 0 for I-7188EG/XG.

CH integer Which channel ? 1 ~ 32.

OFF integer Off time, 0 ~ 32,767, unit is ms.

If set as 0, it means OFF time is 0.5 ms.

ON integer On time, 0~32,767, unit is ms.

If set as 0, it means ON time is 0.5 ms.

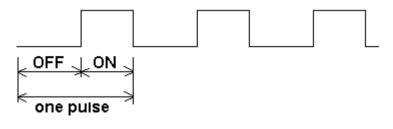
Return:

Q\_ boolean TRUE: Ok.

FALSE: wrong input parameters, too many PWM outputs been enable,

or the associate output channel is not found.

Example: demo\_50



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PWM en2	Enable PWM to output a given number of p	oulse

Parameters:

SLOT integer Which slot?

0 ~ 7 for I-8xx7, only 0 for 7188EG & 7188XG.

CH\_ integer Which channel ? 1 ~ 32.

OFF integer Off time, 0 ~ 32,767, unit is ms.

If set as 0, it means OFF time is 0.5 ms.

ON integer On time, 0 ~ 32,767, unit is ms.

If set as 0, it means ON time is 0.5 ms.

NUM\_ integer number of pulse to output, 1 - 2,147,483,647

Return:

Q\_ boolean TRUE: Ok.

FALSE: wrong input parameters, too many PWM outputs been enable,

PWM en2

SLOT

СН

OFF

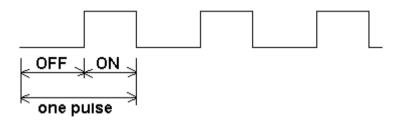
ON

MUM!

or the associate output channel is not found.

Example: demo\_55

# PWM output curve:



#### Note:

- 1. Every time the PWM\_en or PWM\_en2 is called, it will reset its internal tick to 0, and re-start ticking to OFF, ON, OFF, ON, ...
- 2. If the given number of pulse of pwm\_en2 is reached, it will stop & disable PWM auomatically (Calling PWM\_dis for pwm\_en2 is not necessary).
- 3. PWM sts can be used to test if pwm en2 reaches its given number of pulse or not.
- 4. Max 8 output channels can call PWM\_en, PWM\_en2, pwm\_ON, pwm\_OFF at one PAC.
- 5. Do not enable the channel that is already enable. Please disable it first.

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**PWM\_sts** Get PWM status

Parameters:

SLOT\_ integer Which slot?

 $0 \sim 7$  for I-8xx7, only 0 for 7188EG & 7188XG.

CH integer Which channel ? 1 ~ 32.

Return:

Q\_ boolean TRUE: this channel has been enable

FALSE: disable (for pwm\_en2 been called, it means the given pulse

number is reached).

Note:

1. Max 8 output channels can call PWM\_en, PWM\_en2, pwm\_ON, pwm\_OFF at one PAC.

2. This function can be used to test if "PWM\_en2" reaches its given pulse number or not.

Example: demo\_55

**pwm\_ON** Set parallel D/O to TRUE immediately

Parameters:

SLOT\_ integer Which slot?

 $0 \sim 7$  for I-8xx7, only 0 for 7188EG & 7188XG.

CH\_ integer Which channel ? 1 ~ 32.

Return:

Q boolean TRUE: Ok.

FALSE: wrong input parameters, too many PWM outputs been enable,

or the associate output channel is not found.

Example: demo\_55

pwm\_sts -sLOT\_ -CH Q

pwm\_ON

SLOT\_

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pwm\_OFF Set parallel D/O to FALSE immediately

Parameters:

SLOT integer Which slot?

 $0 \sim 7$  for I-8xx7, only 0 for I-7188EG/XG.

CH integer Which channel ? 1 ~ 32.

Return:

Q\_ boolean TRUE: Ok.

FALSE: wrong input parameters, too many PWM outputs been enable,

or the associate output channel is not found.

Example: demo\_55

#### Note:

1. Max 8 output channels can call PWM\_en, PWM\_en2, pwm\_ON, pwm\_OFF at one PAC.

- 2. pwm ON will set the associate parallel D/O to TRUE immediately.
- 3. pwm OFF will set the associate parallel D/O to FALSE immediately.
- 4. If users wish to enable one D/O as PWM output by PWM\_en or PWM\_en2 after pwm\_ON & pwm\_OFF has been called, please disable it first by PWM\_dis, then call PWM\_en or PWM\_en2.

Click the link for more ISaGRAF FAQ:

http://www.icpdas.com/en/faq/index.php?kind=280#751



pwm\_OFF

SLOT