GPIO Pulse Output

Version 1.0

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SGS

Overview

The Pulse output is designed to interface the Compac dispenser to a 3 party Controller/POS without the need to talk a communication protocol.

The Pulse output has the following parameters that can be changed

- Frequency
- Duty Cycle
- Output pulses for volume or amount
- The Value of a pulse

GPIO K Factor settings

The GPIO settings in the K factor board is where you set the GPIO specific settings. The below figure shows details of all the options available for each setting.

GP.0
0000

Duty Cycle Setting
- 0 – 50%
- 1 – 10%
- 2 – 20%
- 3 – 30%
- 4 – 40%
- 5 – 50%
- 6 – 60%
- 7 – 70%
- 8 – 80%
- 9 – 90%

Inputs Setting
- 0 – 0 Off
- 1 – 1 Channel Encoder
- 2 – 2 Channel Encoder
- 3 – 3 Channel Encoder
- 4 – Switch Input

Output Settings
- 0 – 0 off
- 1 – Volume (Litres/Kg's)
- 2 – Amount (Dollars)

Inputs Setting
- 0 – 1KHz
- 1 – 100Hz
- 2 – 200Hz
- 3 – 300Hz
- 4 – 400Hz
- 5 – 500Hz
- 6 – 600Hz
- 7 – 700Hz
- 8 – 800Hz
- 9 – 900Hz
- A – 1KHz
- b – 1.1KHz
- c – 1.2KHz
- d – 1.3KHz
- c – 1.4KHz
- d – 1.4KHz

Output

The output setting enables the GPIO board to output pulses. It also sets whether the output pulses are representing volume(litre/Kg's) or amount(dollars). Majority of applications will set the pulses to represent volume

Note you cannot have meter input enabled at the same time.

Frequency

The Frequency output setting sets the maximum speed of the output pulses. The Default setting of 0 sets the frequency to 1KHz. This setting combined with the Value per pulse setting sets the maximum flow rate of the dispenser.

Example

Frequency set to 1KHz (1000 pulses/sec)
Pulses per value are set to 00001 (10ml/pulse)

That means the maximum flow rate the dispenser can do before the output pulses lag behind is

$$maximum\ flow = maxium\ frequency\ \times\ pulses\ per\ value$$
$$maximum\ flow = 1000Hz\ \times\ 10ml$$
$$maximum\ flow = 10000\ ml\ per\ second$$
$$maximum\ flow = 600\ l\ per\ minute$$

The default setting of 1KHz should be sufficient for most applications. In applications where the maximum flow rate is lower and the 3rd party controller is only able to read pulses at a lower frequency then a lower frequency output can be selected.

Note that if the flow rate exceeds the maximum pulse output the next transaction will not be allowed until the pulses have completed being outputted.

Duty Cycle

The duty cycle setting gives the ability to set the percentage of the pulse high and low. The default setting is 50%. The pulse length is determined by the following formula.

Example

Duty cycle set to 50%
Frequency set to 1KHz (1000 pulses/sec)

$$Duty\ Cycle = Pulse\ Width\ (sec) \times Frequency\ (Hz) \times 100$$
$$50 = Pulse\ Width\ (sec)\ \times 1000 \times 100$$
$$\frac{50}{100} = Pulse\ Width\ (sec)\ \times 1000$$
$$\frac{0.5}{1000} = Pulse\ Width\ (sec)$$
$$500\ microseconds = Pulse\ Width\ (sec)$$

The Default setting of 50% should be sufficient for most applications.

Pulse value

The pulse value setting sets what a pulse is worth. When the output is set to volume the lowest volume a pulse can be set to is 00001 which is 0.1 ml. If the output is set to amount the lowest amount a pulse can be set to is 00001 which is 0.0001 dollars.

The most common setting for most applications would be 00100 or a factor of 10. Any other setting would cause an error with rounding.

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GP IO Pu
 00000
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