Combi ASIC Ultrasonic Sensor & Module

■ Model : HG-B40C, HG-B40A

▣ Features

- Low-power, high-sensitivity module.
- Choose from a wide variety of input/output Mode.
- Auto sensitivity control function as a distance proportional to the distance error captain.
- The same standards as existing foreign products and mutually replaceable.

▣ Specification

Frequency (KHz)	40±2	
Transmit Mode	Free Run	No Connection
	External Trigger	TTL Pulse (100~700 μs)
		Repetition Rate (10~30 time / sec)
Receiver Output Signal	Analog	±2 V max at 2.5 V Base Line
	Real Time Pulse	4~5 V TTL, All the objects detected
	Distance Pulse	4~5 V TTL Only the nearest Object
Input DC & Detecting Range (at in front angle flat plate)	Low Voltage Type (5 V dc)	0~3 m (Conventional, HG-B40C)
	High Voltage Type (12 V dc)	0~6 m (Conventional, HG-B40C) 0~3 m (Anistropic, HG-B40A)

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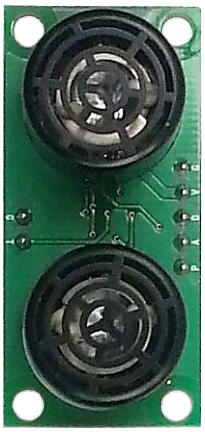
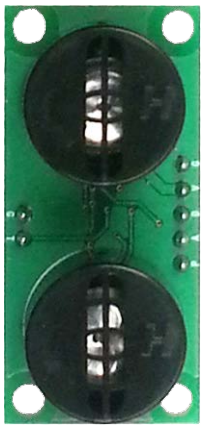
■ Model : HG-B40C, HG-B40A

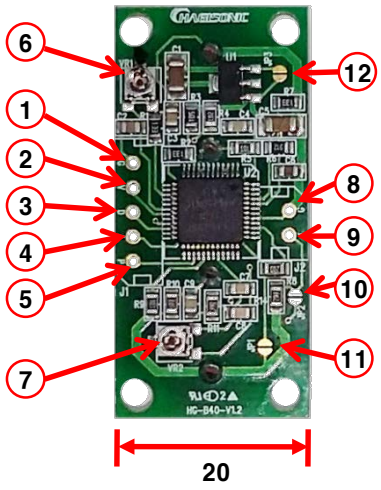
▣ Terminals & Parts Description

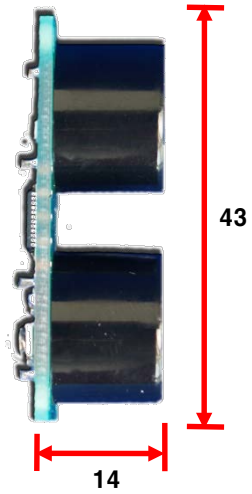


(HG-B40C)



(HG-B40A)





① **GND**

② **DC input power terminal** : 5V±0.5V (For low voltage type only), 6~16V (For high voltage type)

③ **Distance pulse output** : The pulse width is proportional to the distance

④ **Receive analog signal output** : Amplified receive signal (Real time)

⑤ **Receive pulse output** : Real time square wave form of receiver

⑥ **Internal ultrasonic frequency adjust VR(VR1)** : 40 kHz ±2 kHz (Adjusted in factory) <Please do not change this setting>

⑦ **Receiver gain adjust VR(VR2)**

⑧ **GND**

⑨ **Trigger input / output** :

- External Trigger Mode : signal input (100 μs ~ 700 μs pulse width TTL is recommended)
- Free Run Mode(Internal Trigger) : Transmitting timing signal output(monitor)

⑩ **Transmit mode select pad(JP2)** :

- External trigger input mode : open
- Free run mode : Short with soldering **(Factory Default)**

⑪ **Auto Time gain control (T.G.A) mode select pad(JP1)** : Auto gain control (open), Maximum fixed gain (Short with soldering)

⑫ **DC input power select pad(JP3)** : 6~16V High-voltage type factory

- 5V Low-voltage type : Short with soldering
- 6~16V High-voltage type : open **(Factory Default)**

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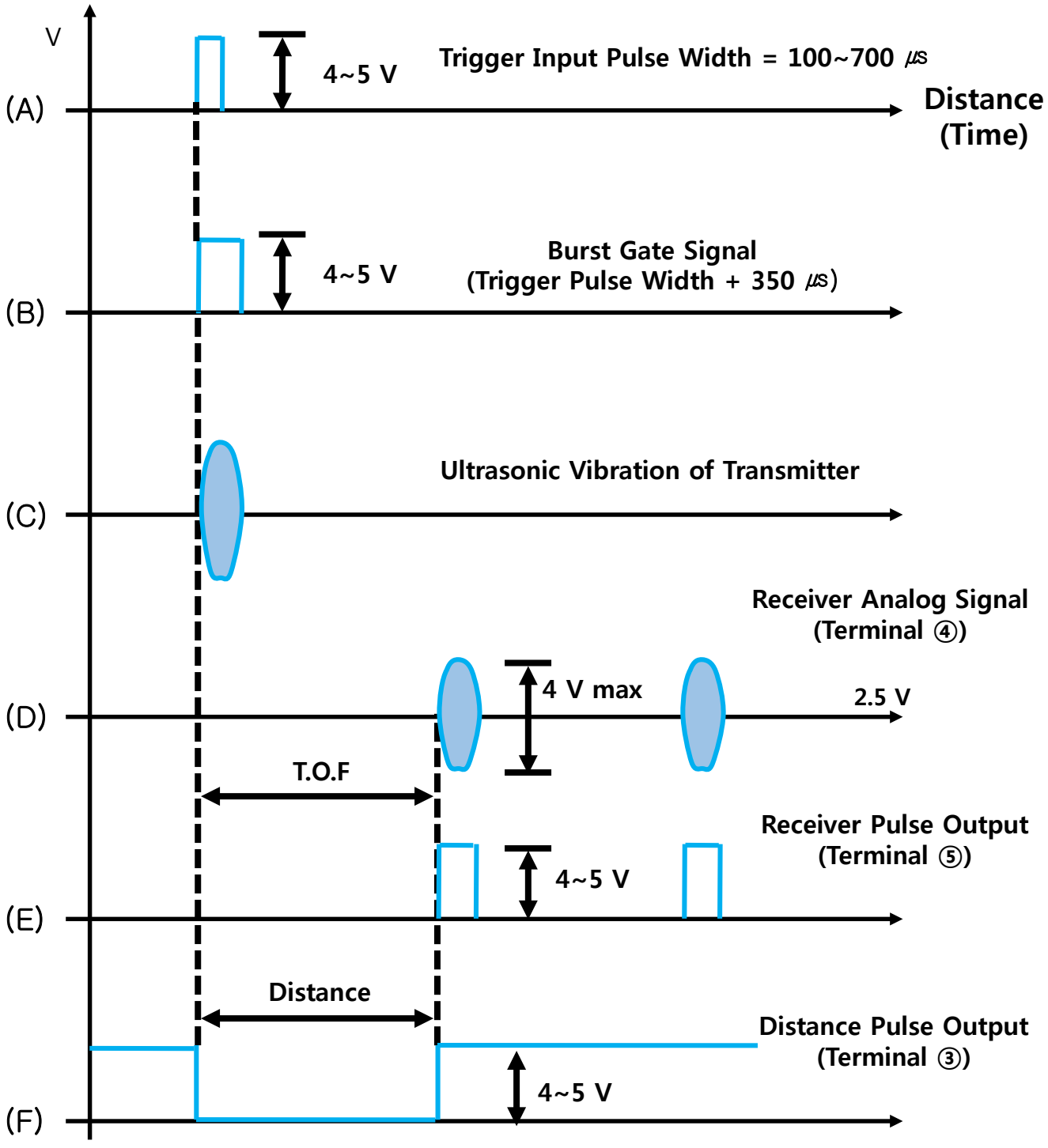
▣ Timing Chart



※ If the transmit mode is selected to Free Run Mode
The burst gate signal (B) can be observed at monitor terminal and its pulse width is about 600 ㎲ fixed.

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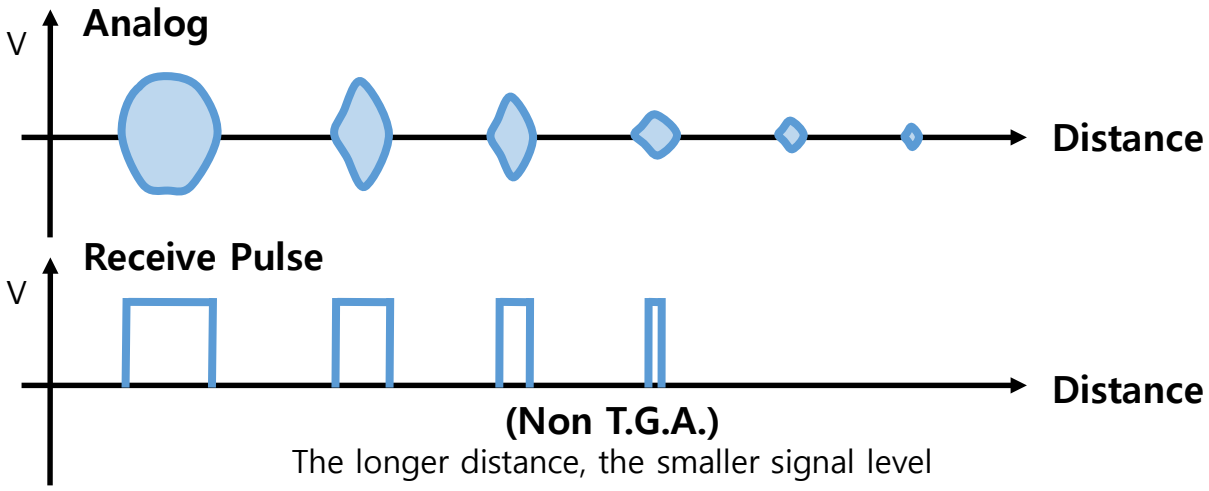
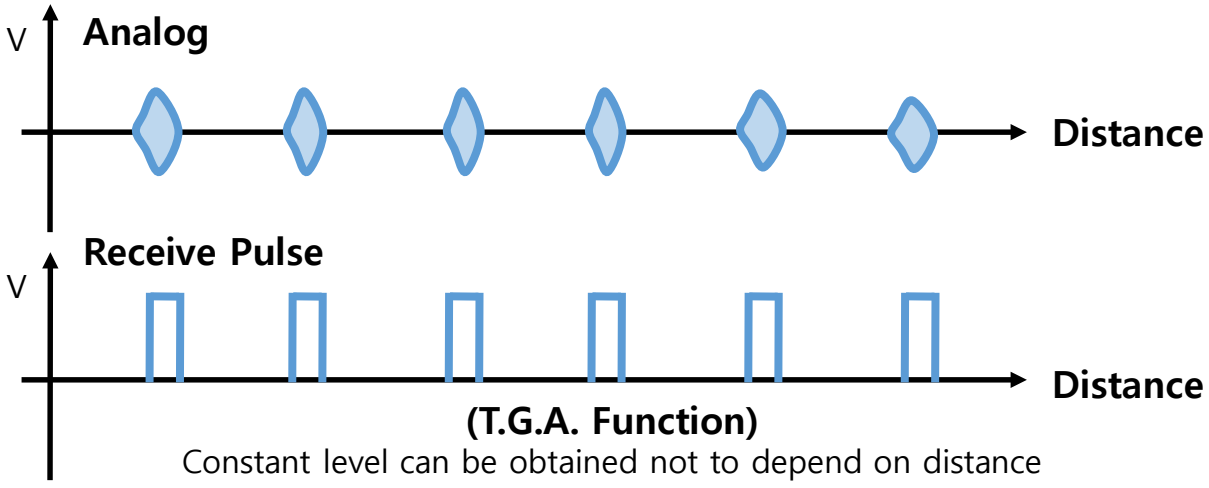
▣ The Effect of T.G.A. (Time Gain Amplification)



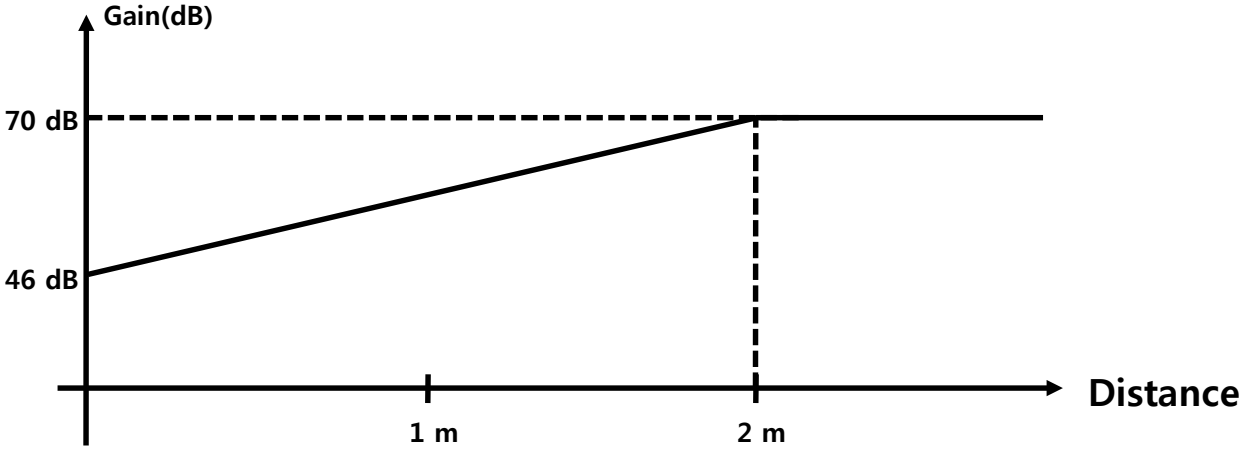
(Non T.G.A.)

The longer distance, the smaller signal level



(T.G.A. Function)

Constant level can be obtained not to depend on distance



Characteristics of Gain Control vs. Distance (Time)

(Compensation proportional to distance in the range of 0~2m

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▣ Select the option Guide

- **Option1) Transmit mode selection order spec**
  - **Free Run Mode :**
    - → As soon as you connect the power only works. (easy at exclusive use.)
    - → In this case, the Terminal through the Trigger signal to the Monitor.
    - → PCB Jumper Pad(JP2) soldering connection. (You can also remove an on-demand users.)
  - **External Trigger Mode :**
    - → Trigger signal to the frequency, and so on, so that works every time the trigger is in external CPU cycles, control. (When using the integration needs.)
    - → PCB Jumper Pad(JP2) are not soldered in. (If necessary: soldering paste can be used as a Free Run Mode).

- **Option2) Input DC power accordance with the order spec**
  - **Low Voltage Type (5V) :**
    - → 5V-only 4.5~5.5 V as actually available. (In addition, this does not work, or a malfunction in the range of m.)
    - → Sensitivity is a little weak but close enough to be practical.
  - **High Voltage Type (12V) :**
    - → 6~16 V can write freely in a range of sensitivity is high. (Voltage, the higher the sensitivity.)
    - → In this setting, the behavior is possible but with sensitivity as low as 5V power is slightly unstable. (5V low-voltage PCB Jumper Pad(JP3) for paragraph.)