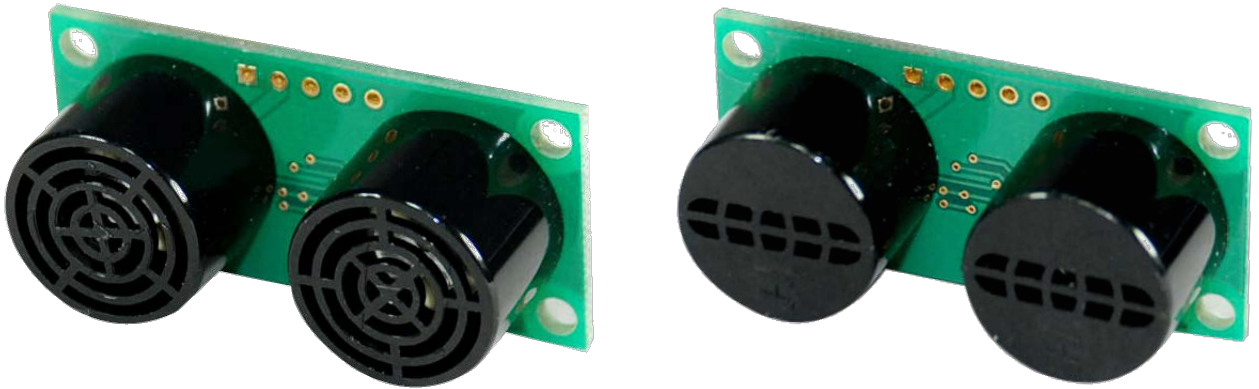


Combi ASIC Ultrasonic Sensor & Module *(HG-B40 Series)*



Leading Company of Advanced Sensors

HAGISONIC Co., Ltd.

Sensors & Application Systems for Robots, AGVs, Automobiles, Automations
and Energy-Saving Apparatus



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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 captian.
- The same standards as existing foreign products and mutually replaceable.



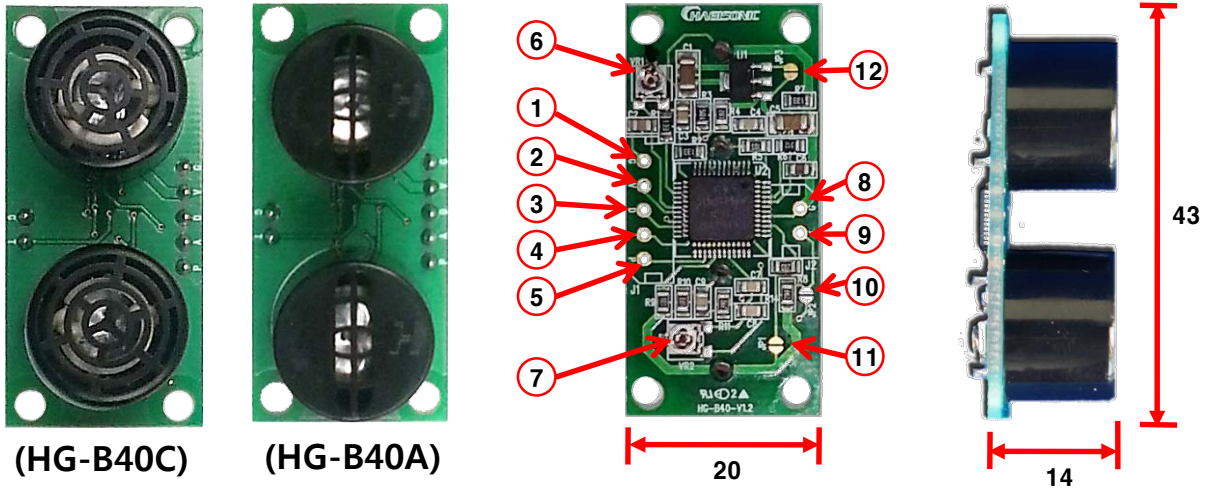
■ Specification

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)

Combi ASIC Ultrasonic Sensor & Module

■ Model : HG-B40C, HG-B40A

▣ Terminals & Parts Description

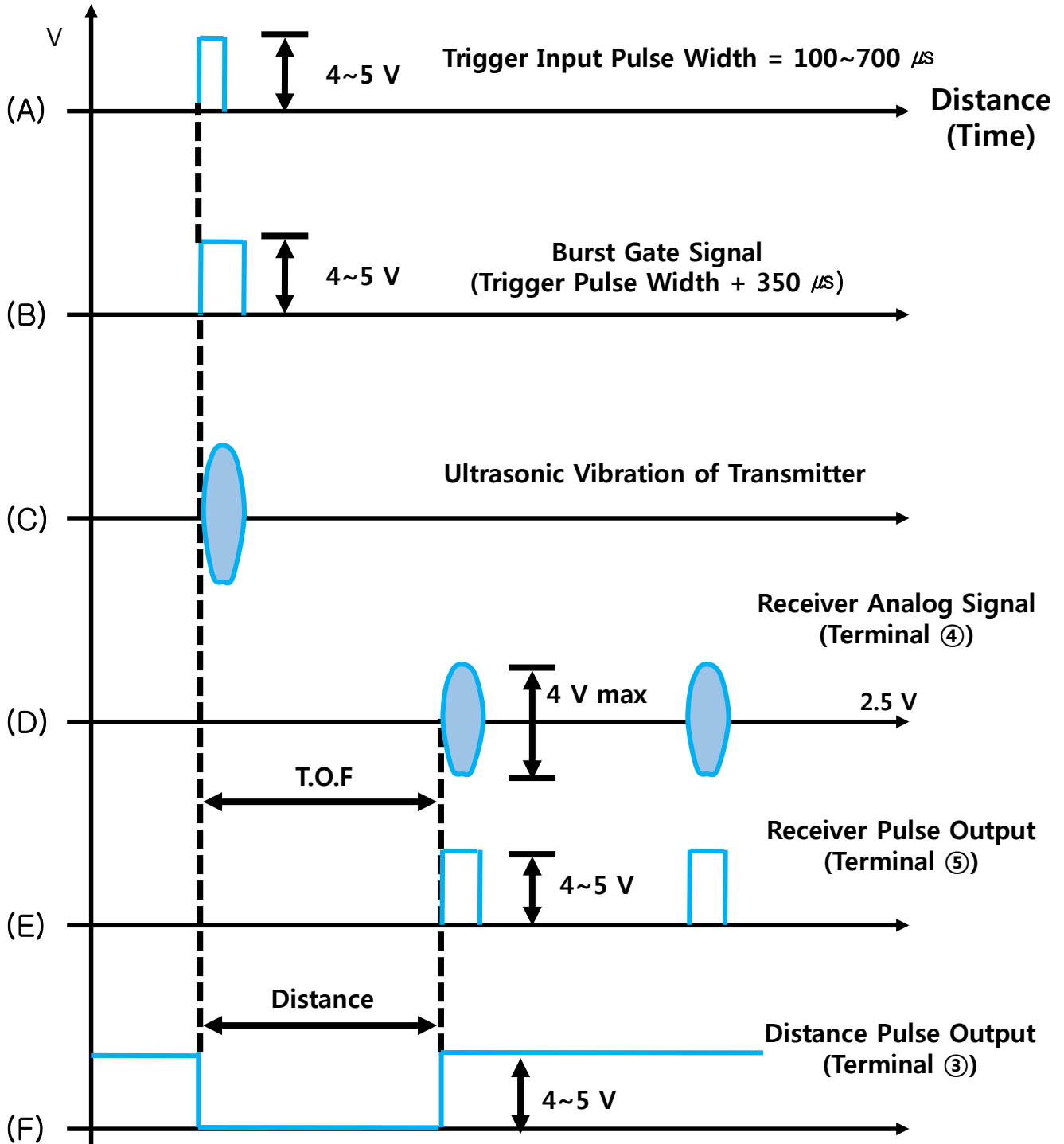


- ① GND
- ② DC input power terminal : 5V±0.5V (For low voltage type only), 6~16V (For high voltage type)
- ③ Distance pulse output : The pulse width is proportional to the distance
- ④ Receive analog signal output : Amplified receive signal (Real time)
- ⑤ Receive pulse output : Real time square wave 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**)

Combi ASIC Ultrasonic Sensor & Module

■ Model : HG-B40C, HG-B40A

▣ Timing Chart

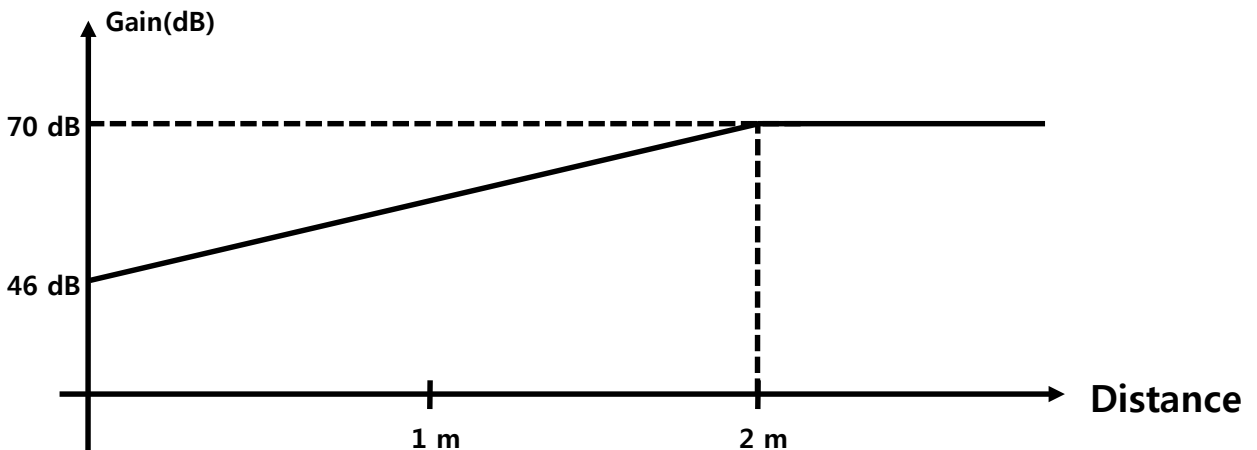
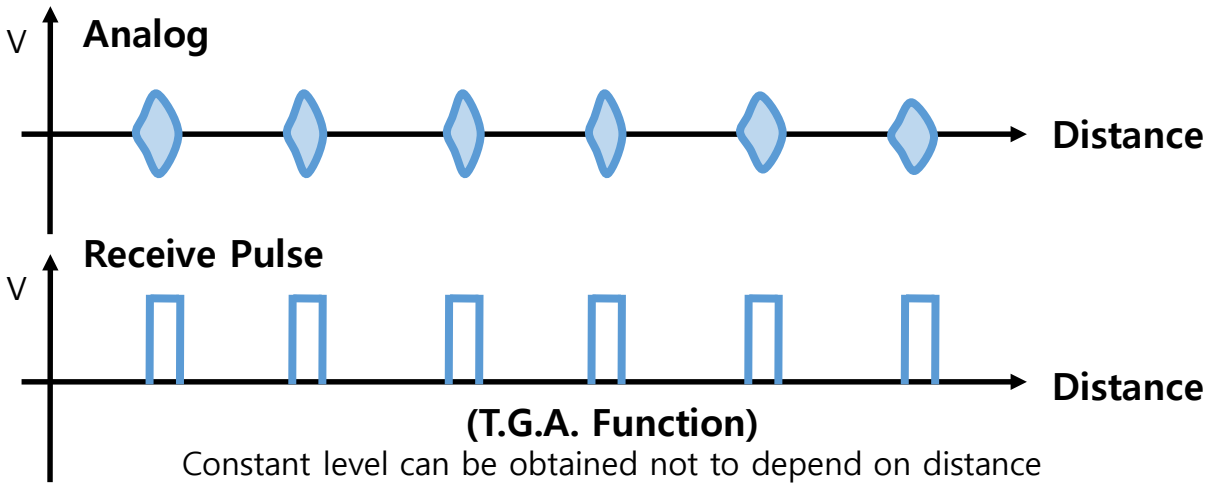
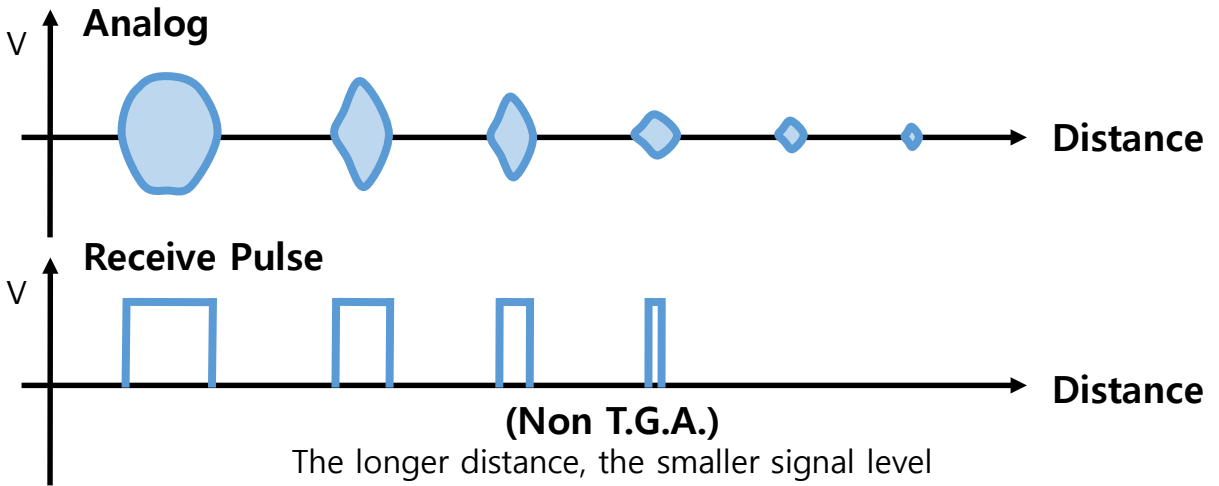


※ If the transmit mode is selected to Free Run Mode
 The burst gate signal (B) can be observed at monitor terminal and its pulse width is about 600 μ s fixed.

Combi ASIC Ultrasonic Sensor & Module

■ Model : HG-B40C, HG-B40A

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



Characteristics of Gain Control vs. Distance (Time)

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

Combi ASIC Ultrasonic Sensor & Module

■ Model : HG-B40C, HG-B40A

▣ 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.)