CT-G Series Specification

Compact Non-contact Infrared Thermometer

Temperature Range, Field-of-View

CT - □G

Temp. code	Measurement range	FOV (field of view)
100	-20℃ ... 100℃	7.16°

e.g. Model CT-100G has a 7.16° field of view and provides Object temperatures of -20...100℃.

Product Specifications

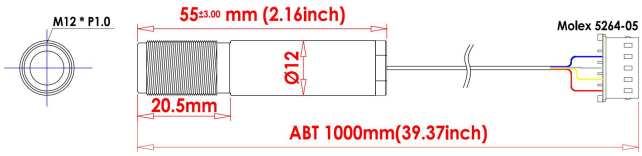
If not otherwise noted, 25℃ ambient temperature, 5V supply voltage were applied.

Parameter		min	Typ	Max	Unit
Supply voltage		4.75	5	12	V
Supply current			15		mA
Spectral range		8	-	14	㎛
Operating temperature		-20		70	℃
IR refresh rate			10	10	Hz
Response time			1		Hz
Accuracy (*)	Object 20~41℃		±0.3		℃
	else(0~20, 41~100℃)		±1		℃
Resolution digital			0.01		℃
Emission coefficient		0.1	0.99	1.0	ε
Standard start-up time			1	2	sec
Stabilization time		1			min
Dimensions		Ø12 x 55mm(long)			
Thread mounting		M12 x 1mm pitch			
Cable length		about 1m (39.37 inch)			
Weight with cable		36g			
Cable interface		molex 5264-05			
Communication interface/ protocol		RS-485/ Modbus-RTU			
Relative humidity		95% Max. non-condensing			

***: Accuracy is only effective if the object is fully covered by the sensor's FOV and applicable to stable temperature conditions.**

Dimensions / Pins and Wiring colors

unit: mm



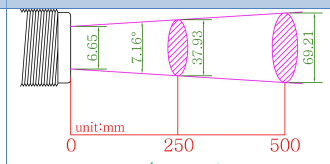
The shield wire is connected to the GND wire.

No.	Wire Color	Description
1	Red	VDD (5V)
2	Yellow or Black	Ground
3	White	RS485 D-
4	Blue or Green	RS485 D+
5	None	None

Calculate Field of View

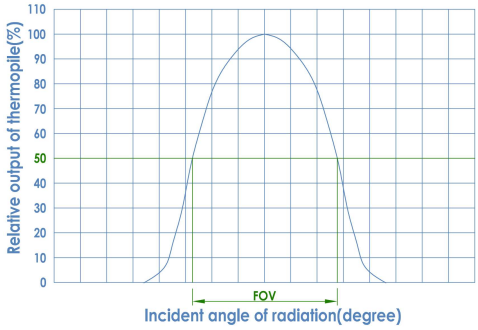
The FOV determines the size of the infrared measurement area according to the distance.

unit: mm

Angle	FOV
7.16°	

2 x tan(7.16°/2) x distance(mm) + 6.65 (mm)

The optical chart below indicates the nominal target spot diameter at any given distance from the sensing head and assumes 50% energy.



Accessories

	nut (assembled to the body.)	2 pcs
	Protective cap (Remove when using)	1 pc
	Molex 5267-05A-X	1 pc

Modbus-RTU Register Table

- BaudRate: 19,200 bps(fixed), data bit: 8, stop bit: 1, parity: none, flow control: none. - R = Read - W = Write (single write)

Address		Length	Description	R/W
Dec	Hex	(short)		
40,000	0x9C40	1	Device ID (1 ~ 200), Modbus broadcast not supported.	R/W
40,001	0x9C41	1	Emissivity (10~100. default : 99) (*)	R/W
40,002	0x9C42	1	Object temperature	R
40,003	0x9C43	1	Ambient temperature	R

***: "99" means emissivity "0.99". To adjust the emissivity to 0.98, write 98 not 0.98.**

Support Modbus function codes

- Read Holding Registers 03 (0x03)
- Write Single Register: 06 (0x06)

Object Temperature: To, Ambient Temperature: Ta

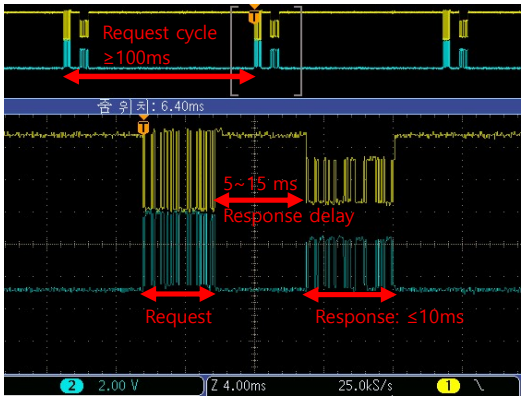
To is the object temperature derived from thermopile and ambient sensor outputs.
Ta stands for ambient temperature.

0x3BFB(read data) = 15,355(dec) → 15,355 * 0.02 - 273.15 = 33.95℃
0x3365(read data) → 13,157(dec) → 13,157 * 0.02 - 273.15 = -10.01℃

Output Data limit (object temperature): -19.99℃ ... 105.01℃

Request & Response timing

- Request cycle: ≥100ms
- First data request time after Power-on: ≥ 1 sec
- Timeout: ≥ 25ms



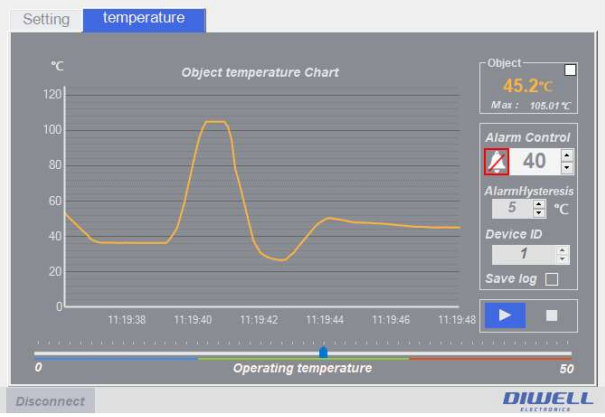
Note. If there is an error in the request sequence (including crc), there is no response data.

Products handling precaution

※ When it comes to dust removal by air, the best method is to use a blower, and to avoid using compressed air.
※ Do not press the lens with your hands or any other object.
※ Do not scratch the lens surface with sharp objects.
※ Voluntary disassembly and modification of the product is prohibited.
※ Avoid direct sunlight, chemical substance, heat or fire.
※ Water resistance is not guaranteed.

PC Software

The program runs in the Windows 10 environment.
It is not guaranteed to be used on other OS.
For more information, refer to the Test Board manual.
https://www.diwellshop.com/web/en/CT-G/CT-G_Testboard_en.pdf



Additional information

Manufacturer: DIWELL Electronics Co., Ltd. (South Korea)
Technical support: mailto:expoeb2@diwell.com, mailto:dsjeong@diwell.com

Revision history

Version	Date(Y,M,D)	Description
1.0.0	2022. 5. 9.	First version is released