GNSS 光伝送ユニット

RF over Fiber Unit for GNSS
specification

Ver.1.5

Jan. 25, 2024

Seikoh Giken Co., Ltd.

Specifications, characteristics, data, materials, structures, specified in this spec sheet are subject to change without notice. Please refer to the latest specification before use of Seikoh Giken products.

1.適用

本仕様書はGNSS光伝送ユニットに適用する。

This specification applies to RF over Fiber Unit for GNSS.

2. 型名 Product code

Table 1

Product code	Remarks
ET-G15A	Tx (Optical transmission part)
ER-G15A	Rx(Optical reception part)
ER-G15A-151※	

※Built-in resistor(150Ω) for GNSS antenna monitor current consumption.

3.付属品 Accessories

Table 2

Item	Quantity	Remarks
AC adapter	2	Input: AC100V-240V 50/60Hz Output:DC+5V, 2.5A max, L=1.2m AC Inlet: IEC 320-C14 DC Plug: Power DIN 4pin (Lock) MTBF : 100kh
AC cable	2	L=1.8m Plug type A (2Pin)

4.環境条件 Standard operating conditions

Table 3

Item	Specification				Remarks
	Min.	Typ.	Max.	Unit	
Operating temperature range	-20		60	℃	—
Operating humidity range	10		85	%RH	Refrain from dew condensation
Storage temperature range	-20		70	℃	—
SET-up location	Indoor use only				—

5.定格 Rating

Table 4

Parameter		Value		Note
Electrical	Input Damage Level	0dBm		—
	Input P1dB	-30dBm typ.		—
Optical	Operating Wavelength	1550nm typ.		—
	Output Power	4mW typ.		—
	Input/Output Connector	SC/PC		—
	Fiber used	SMF/1port		—
LED Status indicators	Power(Tx/Rx)	Pilot LED.		—
	OPT.(Tx)	Optical output power alarm.		<3dBm
	OPTICAL INPUT(Rx)	Optical input power monitor.		See Table 6
	ALM.(Rx)	Optical input power alarm.		<-14dBm
	Low(Rx)	Low mode ON/OFF.		—
General	GNSS input connector	BNC/J (DC5V output)		50mA max
	GNSS output connector	BNC/J	none:DC Blocked	Withstand voltage 50V
			-151:150Ω(DC5V33mA)	DC5.5V max
	Power consumption	Tx:5W max Rx:2W max		—
	Weight	0.3kg		—
	Dimension	130×86×39mm		—

6.性能 Specifications

Table 5

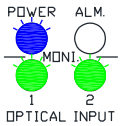
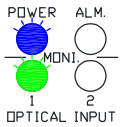
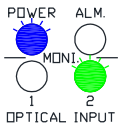
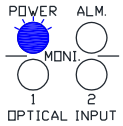
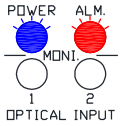
Parameter			Min	Typ.	Max	Unit	Note
Modulation Bandwidth			1		2	GHz	GPS,QZSS,GLONASS, BeiDou,Galileo,NavIC,etc.
Link Gain	Gain Selector	1		-5		dB	Frequency:1.5GHz Optical loss:0dB
		2		4			
		3		12			
		4		20			
	Low switch ON	—		-15			
Group Delay			4	7	10	ns	Frequency:1.5GHz Temperature:25℃

7. 外観図 External

Tx:付図SNDM-E045-03 Rev2.0による。
Tx is shown in Fig. SNDM –E045-03 Rev2.0.
Rx:付図SNDM-E046-04 Rev2.0による。
Rx is shown in Fig. SNDM –E046-04 Rev2.0.

8.光入力モニタ Optical input power monitor

Table 6

LED status indicators of Rx	Fiber loss
	0～4dB
	4～8dB
	8～12dB
	12～20dB
	≧20dB

9.光損失に対する利得 Gain to Optical loss

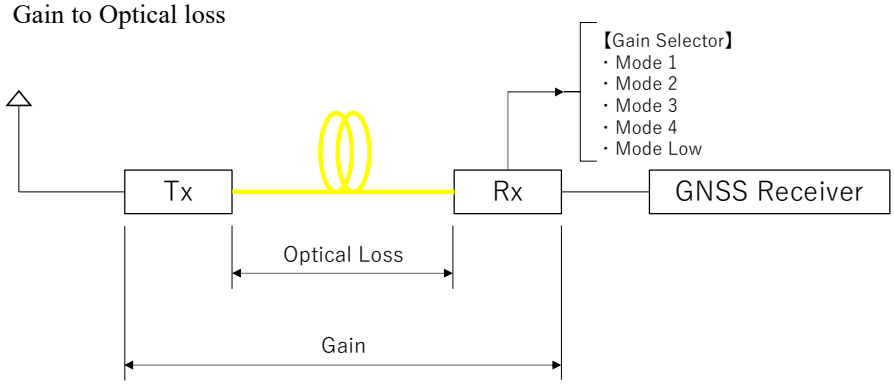


Fig.1 System diagram

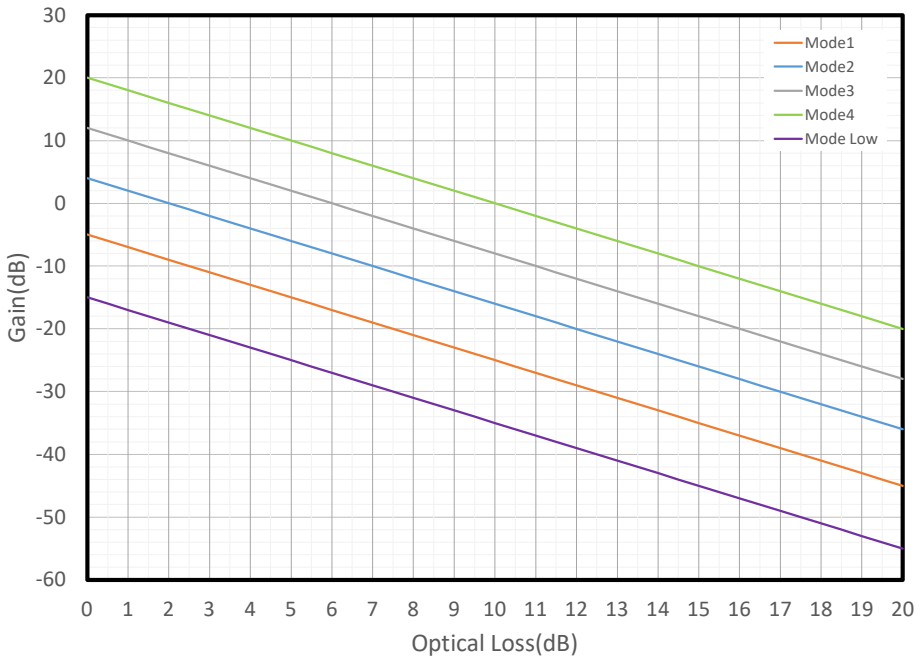


Fig.2 Gain vs Optical Loss

10.ゲイン設定 Gain setup

アンテナ～GNSS受信機間の利得がGNSS受信機の入力範囲内となるようFig.1～3を参照しGain Selectorを設定してください。

Set the Gain Selector by referring to Figures 1 to 3 so that the gain between the antenna and the GNSS receiver is within the input range of the GNSS receiver.

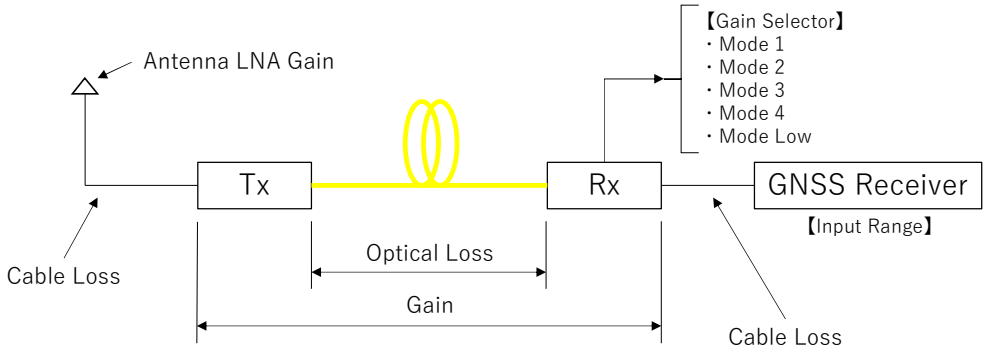


Fig.3 System Gain diagram

11.群遅延 Group Delay

本装置の群遅延は光ファイバーの長さが支配的となります。光ファイバー1mあたり5nsで計算します。

The group delay of this device is dominated by the length of the optical fiber. Calculate with 5ns per 1m of optical fiber.

・A+C=7ns
・B=5ns/m

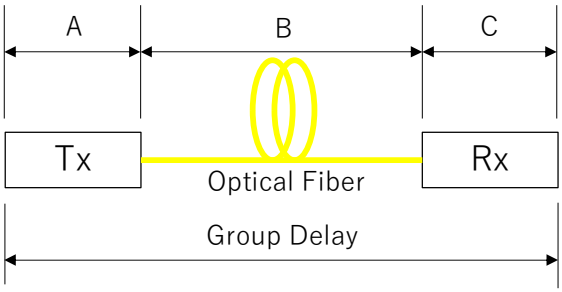


Fig.4 System Group Delay diagram

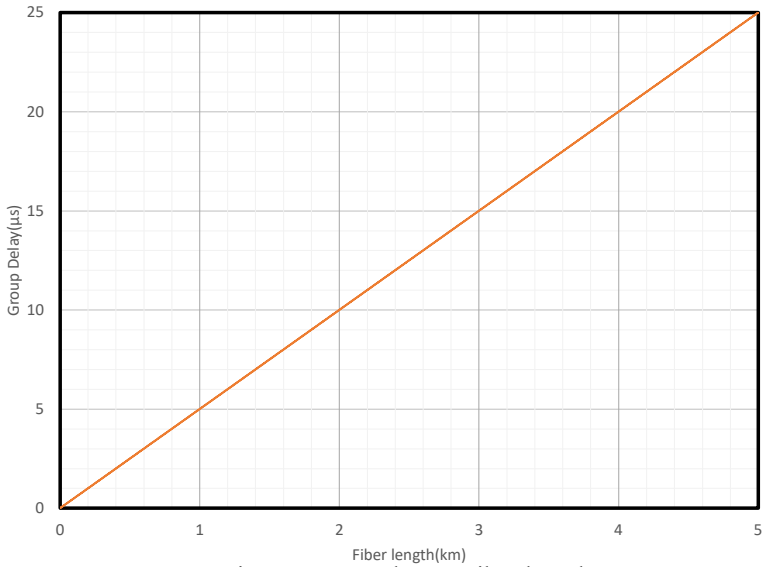
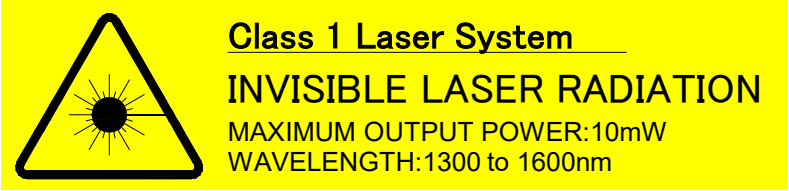


Fig.5 Group Delay vs Fiber length

12.セーフティーインフォメーション Safety information

本製品はクラス1不可視レーザ光を使用しております。直接レーザ光を見ないようにして下さい。

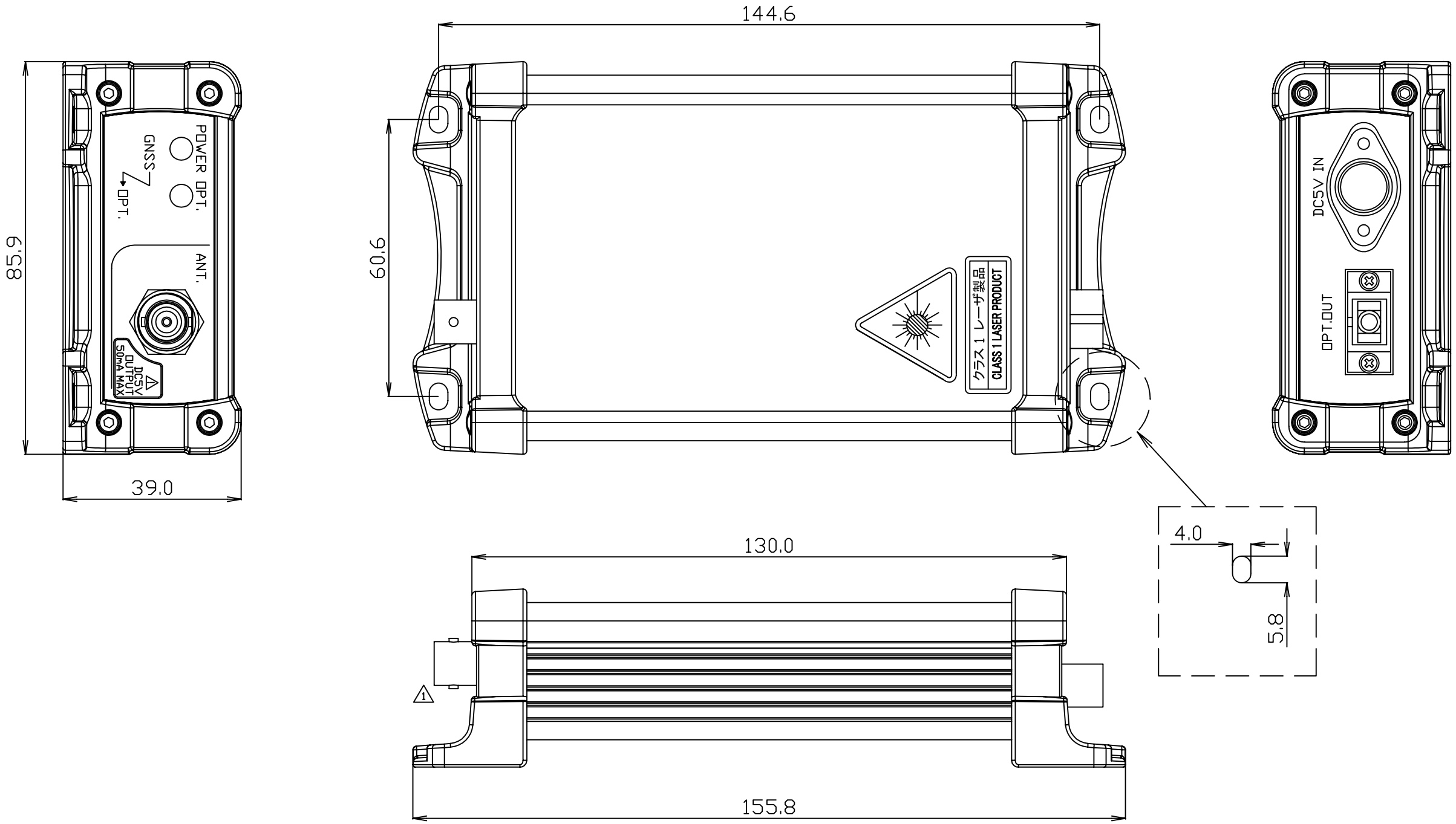
This product uses a class 1 laser light that is not visible to the human eye. Please exercise proper caution and do not look directly into the laser light as it may cause blindness.



13.保証 Warranty

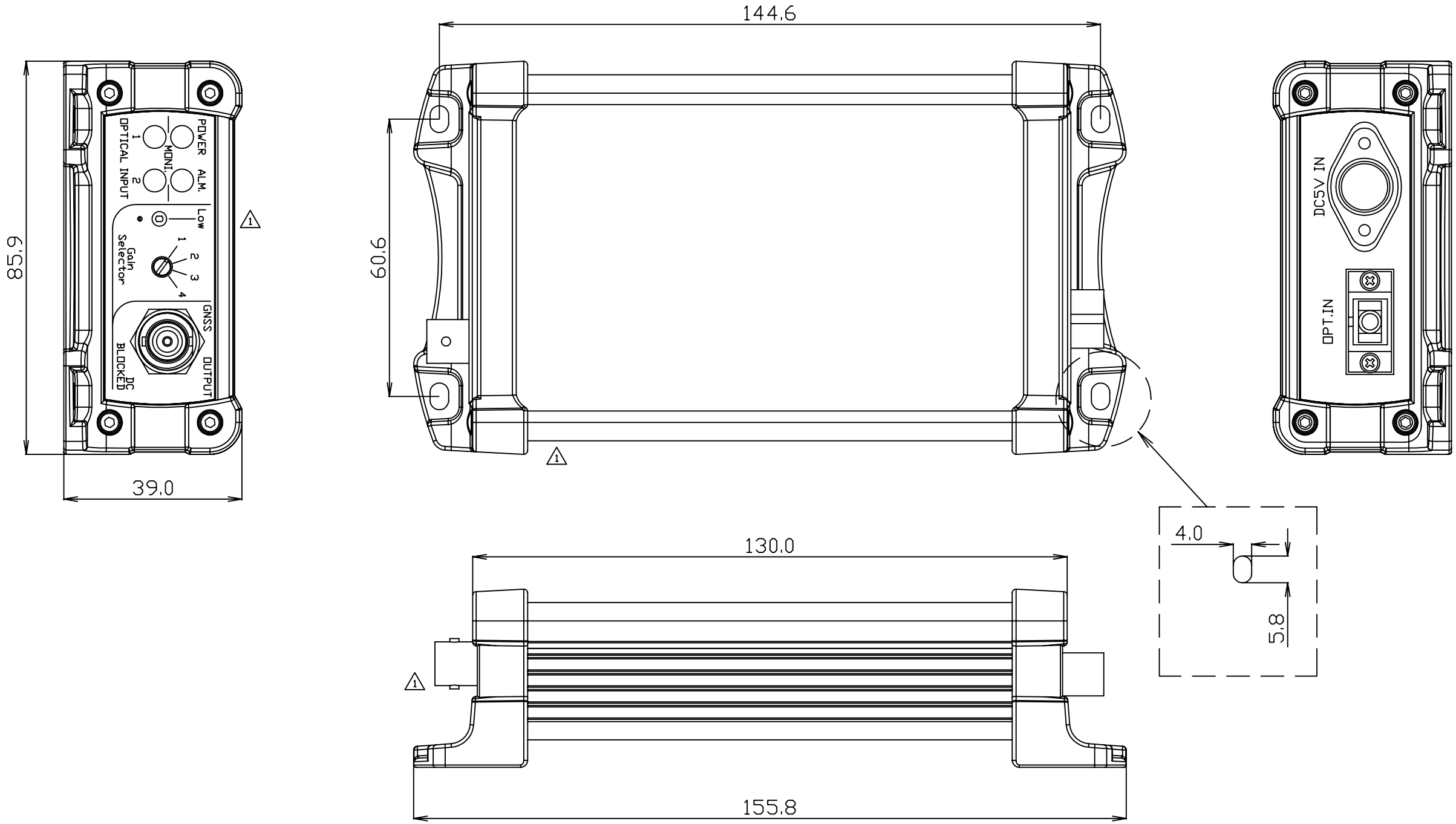
本製品に関し、構成部品の故障や製造上の欠陥に対して納入日から1年間無償修理保証致します。
但し、本保証は製品の正常な使用において発生した故障のみに適用致します。

SEIKOH GIKEN warrants the Controllers against defects in parts and workmanship for one full year from B/L date. This warranty shall be invalid by any abuse, misuse, misapplication or improper installation.



年・月・日	訂正記事
22.04.05	1 SMA→BNC

発　行	22.04.05	名称	ET-G15A 外観図
Rev.	2.0		
単　位	[mm]		
尺　度	1/1		
一般公差	JIS中級	図番	SNDM-E045-03
承　認	鬼沢　正俊		
検　図	山内　隆行		SEIKOH GIKEN（株）精工技研
製　図	寺門　純一		



年・月・日	訂正記事				
22.04.05	1 SMA→BNC、LowSW追加 上面シール削除	発　行	22.04.05	名称	ER-G15A 外観図
		Rev.	2.0		
		単　位	[mm]		
		尺　度	1/1		
		一般公差	JIS中級	図番	SNDM-E046-04
		承　認	鬼沢　正俊		
		検　図	山内　隆行		SEIKOH GIKEN（株）精工技研
		製　図	寺門　純一		