

## Data Sheet

### GU-LCT-RY-V1-10

Part No.: AA-10276-001

Optical Input / Output: Glass Fibre

### GU-LCT-RY-V1-11

Part No.: AA-10276-002

Optical Input / Output: Plastic (POF)



Picture shows AA-10276-001 (Glass Fibre)


## Trigger Generator

### Features

- For Series Connected Thyristors
- For Simultaneous Triggering
- Compact Design
- Immune to external EM Fields
- Optical Trigger Input Glass Fibre or Plastic (POF)
- Optical Status Feedback Glass Fibre or Plastic (POF)

Rev.	Remarks / changes	created		checked		released	
13	Initial, created from 5SYA1712-01	FF	14.08.12	AST	15.8.12	FF	15.8.12
14	Added input voltage range	AST	15.02.13	FF	15.02.13	AST	15.02.13
15	Added more information on paragraph 3.3ff	AST	03.04.13	FF	04.04.13	AST	04.04.13

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## 1. Introduction

### 1.1. Description

The Trigger Generator AA-10276-002 is used to generate a turn-on gate pulse for series connected thyristors. An inductive coupling using a high voltage isolated closed loop cable ensures the triggering of the thyristors at different potential levels. See also Order code.

### 1.2. Electrical interfaces

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Auxiliary power	$V_{Sup\_aux}$	AC, f=50/60Hz	34	40	46	VAC
	$V_{Sup\_aux}$	DC	26	28	56	VDC
Auxiliary power consumption	P	Depends on repetition rate f	15	-	40	W
Trigger repetition rate	F	-	-	-	60	Hz
Delay time	$T_d$	-	-	1.2	-	$\mu$ s
Max number of connected Thyristors	N	-	-	-	24	Pcs

### 1.3. Optical interfaces

#### 1.3.1. Optical Control Signal (CS)

##### AA-10276-001 GU-LCT-RY-V1-10 Glass Fibre

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Control signal CS power hi	$P_{Inp\_high}$	HFBR-2412	-9.2	-	-	dBm
Control signal CS power lo	$P_{Inp\_low}$	HFBR-2412	-	-	-40	dBm

##### AA-10276-002 GU-LCT-RY-V1-11 Plastic (POF)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Control signal CS power hi	$P_{Inp\_high}$	HFBR-2528 (Avago)	-20	-	-	dBm
Control signal CS power lo	$P_{Inp\_low}$	HFBR-2528 (Avago)	-	-	-42	dBm

#### 1.3.2. Optical Status Feedback (SF1, SF2)

##### AA-10276-001 GU-LCT-RY-V1-10 Glass Fibre

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Optical feedback SFx power hi <sup>1)</sup>	$P_{Out\_high}$	HFBR-1414	-10	-	-	dBm
Optical feedback SFx power lo <sup>1)</sup>	$P_{Out\_low}$	HFBR-1414	-	-	-40	dBm

##### AA-10276-002 GU-LCT-RY-V1-11 Plastic (POF)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Optical feedback SFx power hi <sup>1)</sup>	$P_{Out\_high}$	HFBR-1528 (Avago)	-20	-	-	dBm
Optical feedback SFx power lo <sup>1)</sup>	$P_{Out\_low}$	HFBR-1528 (Avago)	-	-	-40	dBm

1) For 1m optical cable

## 1.4. Environmental conditions

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Ambient temperature	T <sub>amb</sub>	-	-25	-	+85	°C
Storage temperature	T <sub>store</sub>	-	-40	-	+85	°C
Humidity	Hum	Non condensing	-	-	95	% RH
Operating altitude	Alt	-			3000	m

## 2. Connectors and indicators



The Trigger Generator GU-LCT-RY-V1X has a dangerous output voltage of 300V.  
 - Do not open the Trigger Generator housing when it is powered  
 - No wiring to be done when the Trigger Generator is powered

### 2.1. Connectors (POF model)

Parameter	Symbol	Description
Auxiliary power	40VAC	-
Optical control signal	CS	HFBR-2528 (Avago) /
Plug type on optical cable customer side	CS	HFBR-4532 (Avago)
Optical status feedback transmitter	SF1, SF2	HFBR-1528 (Avago)
Plug type on optical cable customer side	SF1, SF2	HFBR-4532 (Avago)

### 2.2. Connectors (ST model)

Parameter	Symbol	Description
Auxiliary power	40VAC	-
Optical control signal	CS	HFBR-2412 (Avago) /
Plug type on optical cable customer side	CS	01-H200/VJZ-D26
Optical status feedback transmitter	SF1, SF2	HFBR-1414 (Avago)
Plug type on optical cable customer side	SF1, SF2	01-H200/VJZ-D26

### 2.3. Terminal Block



Parameter	Symbol	Description
Electrical output	1,2	1 is near GND / 2 on potential (~300V)

### 2.4. Indicators

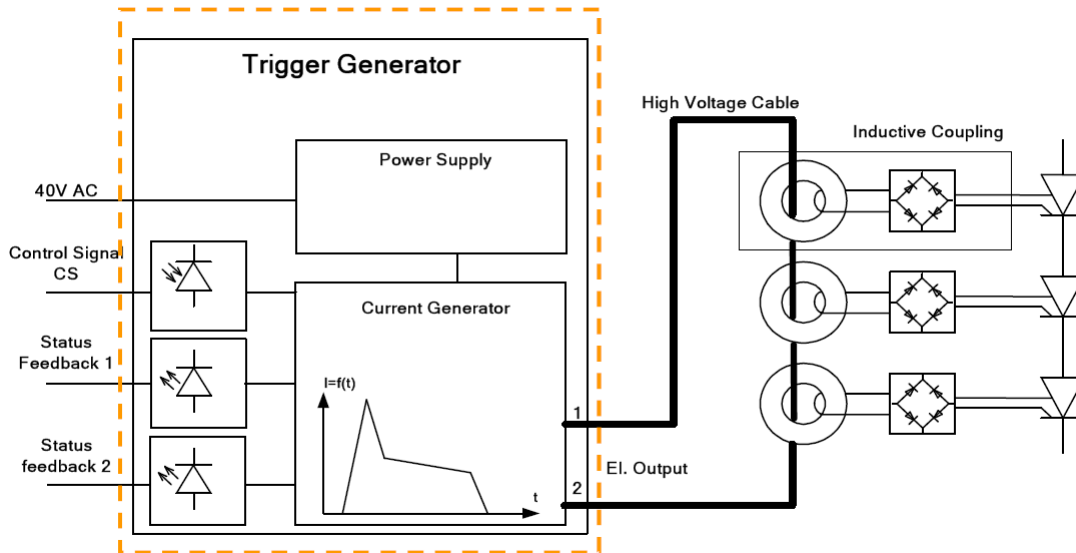
Parameter	Symbol	Description
LED (yellow)	CS_LED	Lit when CS is P <sub>INP_High</sub> Dark when CS is P <sub>INP_Low</sub>
LED (green)	SF2_LED	Lit when the trigger generator is ready Dark when the trigger generator is not ready

## 3. Function

### 3.1. Instructions for use

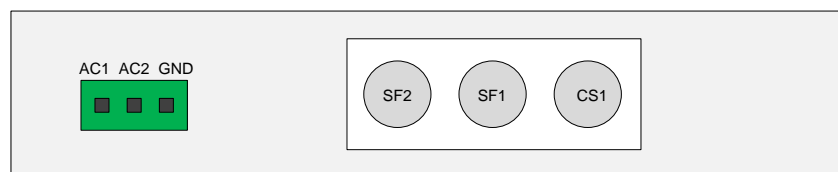
- Make sure that the device works correctly before using in a critical application.
- Consult the according datasheet for the correct optical power for the application you want to operate with this device

### 3.2. Block diagram



Inductive couplings and HV cable do not belong to scope of supply. To be ordered separately..

### 3.3. Power supply and optical IO



## 3.4. Timing diagrams

- Control signal = Trigger input from external source
- SF1 = Status feedback 1
- SF2 = Status feedback 2
- Electrical out = Current output to inductive coupling

### 3.4.1. Trigger pulse < 780ns

If the pulse on the control signal input has duration of less than 780ns no output pulse will be generated.

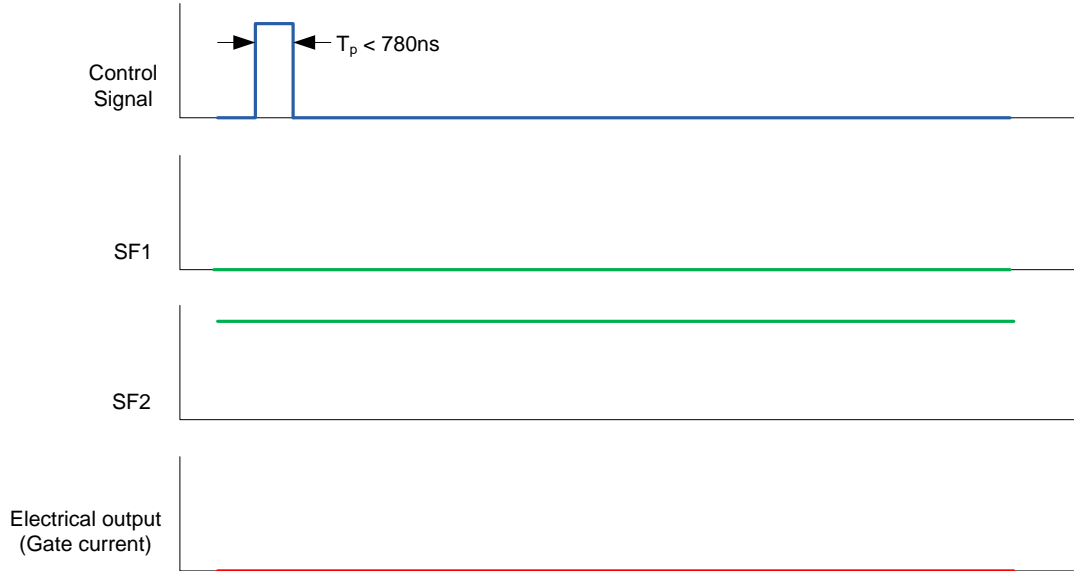


Fig. 1: Trigger pulse < 780ns

### 3.4.2. 780ns < Trigger pulse < 7ms

If the pulse duration lies between the minimum acceptable duration and 7ms the following output is generated.

- SF1 shows the active period of the GU-LCT
- SF2 shows the vital state of the Gateunit. Check before triggering. If there is no light the GU-LCT has a major problem and triggering is NOT allowed. See also 3.4.4.

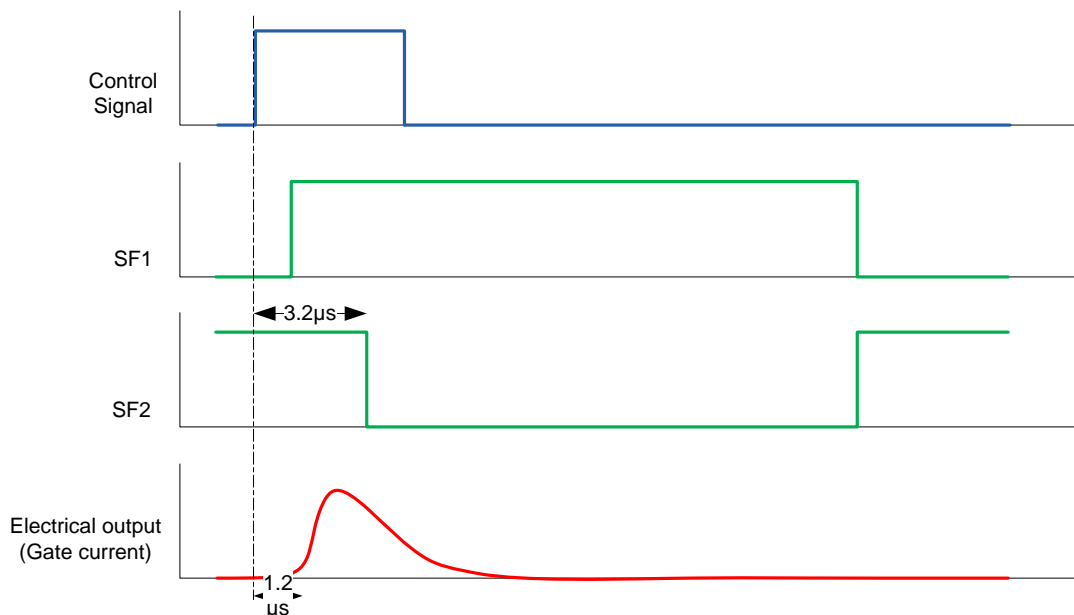


Fig. 2: 780ns < Trigger pulse < 7ms

### 3.4.3. Trigger pulse > 7ms

If the trigger pulse lasts longer than 7ms on the opto input there will be a post trigger every 7ms as long as the trigger input sees light (is in the On State).

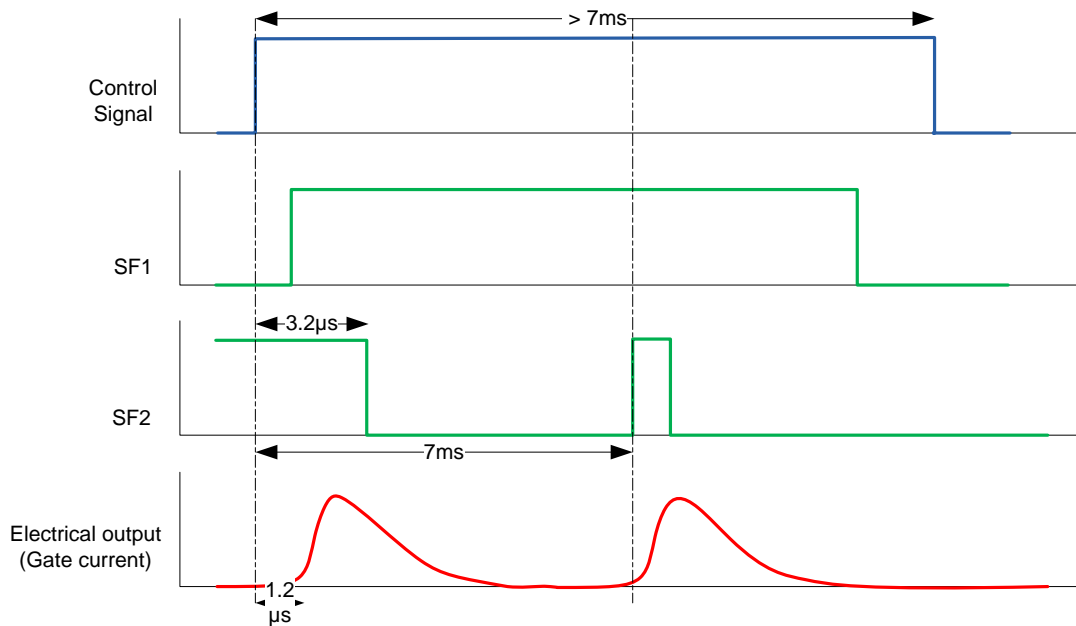
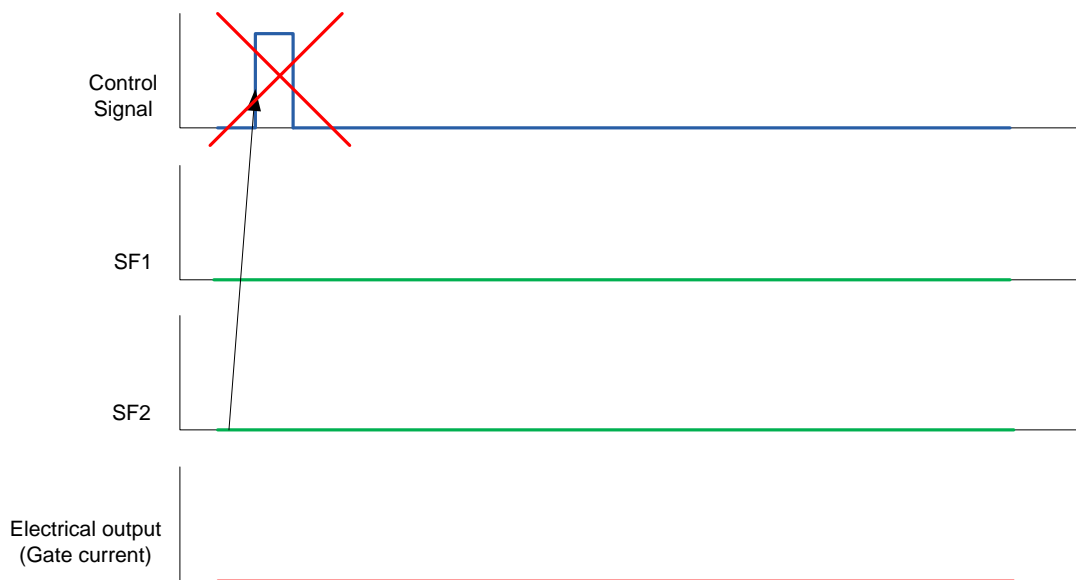


Fig. 3: Trigger pulse > 7ms

### 3.4.4. SF2 inactive (no light)

If SF2 is inactive (no light) there is a major problem in the GU-LCT (eg. Pulse voltage Generator, power supply or logic defective). If so, triggering in this state is prohibited.

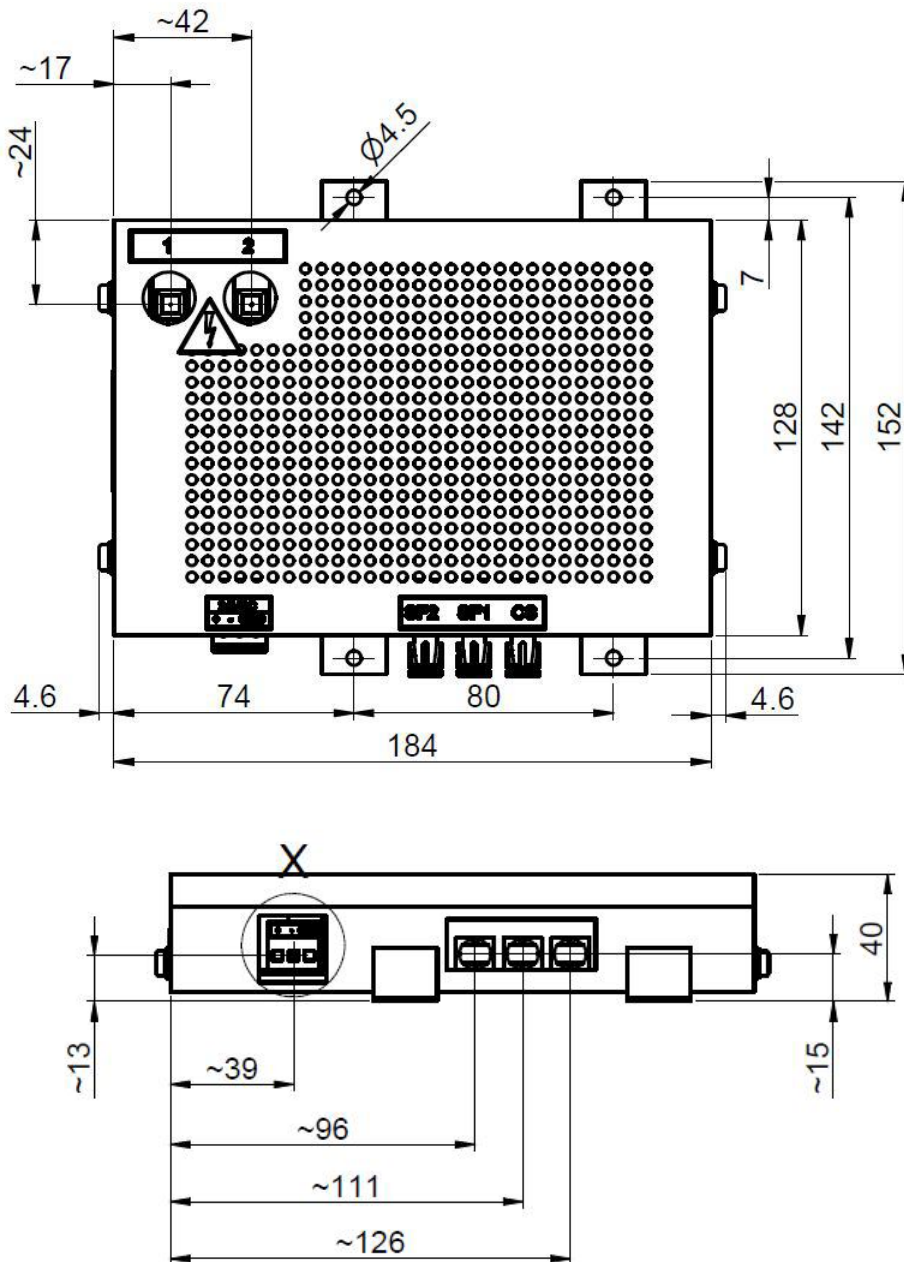


## 4. Mechanical

### 4.1. Parameters

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Weight	m	-		0.9		kg
Dimensions	WxDxH	-		(184 x 152 x 40)		mm

### 4.2. Mechanical Drawing







## 4.3. Labels

### 4.3.1. Front side

- Nothing

### 4.3.2. Rear side

- Nothing

### 4.3.3. Bottom side

- Type label with serial number

### 4.3.4. Top side

- Terminal (1, 2)
- CS
- SF1, SF2
- Aux. power

## 5. Order code

AA-10276-001

GU-LCT-RY-V1-10 Optical Input / Output Glass Fibre

AA-10276-002

GU-LCT-RY-V1-11 Optical Input / Output Plastic (POF)

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