



# BRIGHT LED ELECTRONICS CORP.

## FIBER OPTIC TRANSMITTER SPECIFICATION

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REVISION: 1.0

●COMMODITY : SIGNAL TRANSMISSION SPEED :MAX 12 Mbps

●DEVICE NUMBER : BFTX-1000/H1

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2001.08.29	1.0	1.0	1.0	1.0	1.0	1.0					Initial Released

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BRIGHT LED ELECTRONICS CORP.

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APPROVED	DRAWN

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## FIBER OPTIC TRANSMITTER SPECIFICATION

●DEVICE NUMBER: BFTX-1000/H1

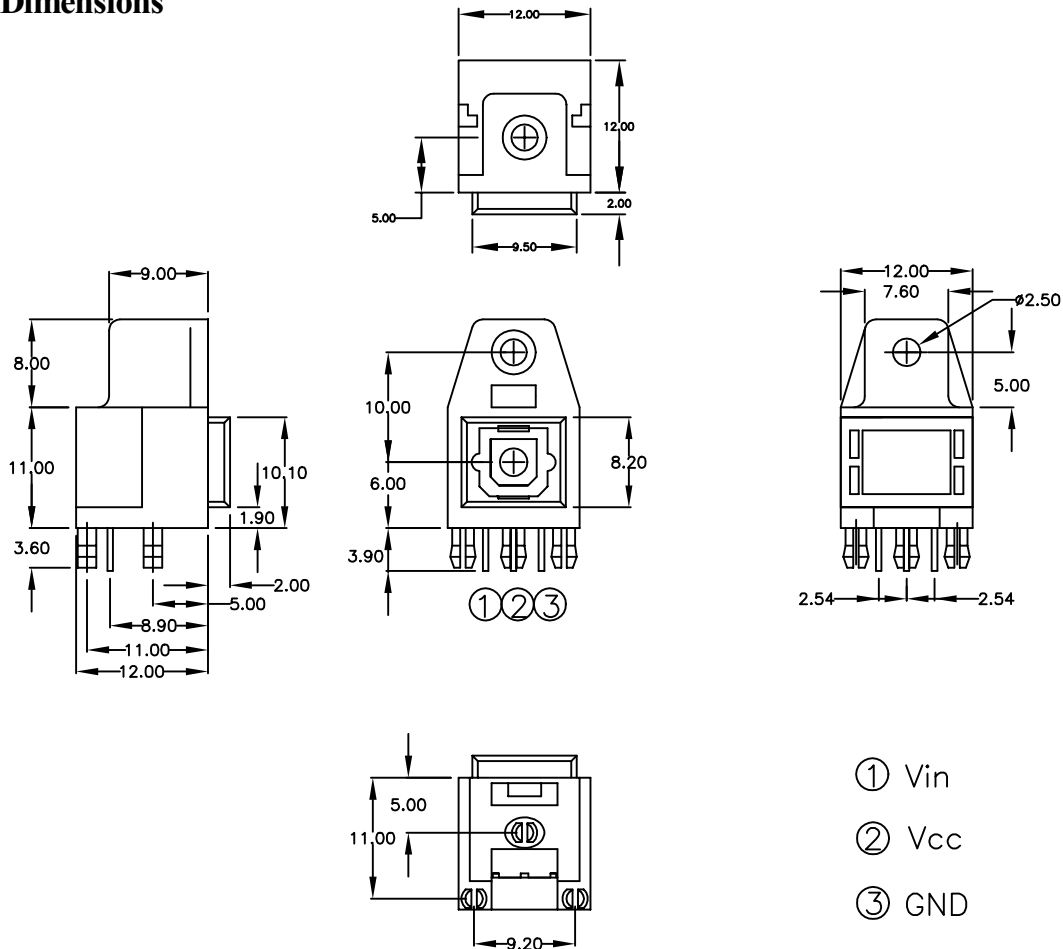
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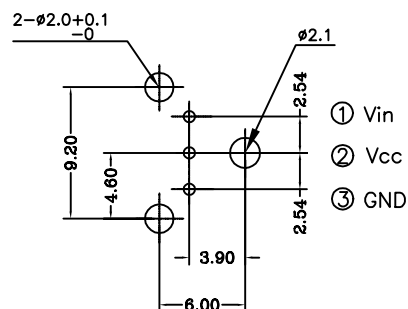
### ●Features:

1. Uni-directional data transmission using plastic fiber.
2. Signal transmission speed: MAX. 12 Mbps (NRZ signal).
3. Operating voltage: 4.75 to 5.25 V.
4. TTL and high speed C-MOS LOGIC compatible.

### ●Outline Dimensions



### ●Recommended drilling as viewed from the soldering face



NOTES: Tolerance is  $\pm 0.3$  mm unless otherwise noted.

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### ●Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	Rating	Unit
Power Dissipation	Pd	100	mw
Supply voltage	Vcc	-0.5 to + 7	V
Input voltage	Vin	-0.5 to Vcc + 0.5	
Operating temperature	Topr	-20 to + 70	°C
Storage temperature	Tstg	-30 to + 80	
Soldering temperature	Tsol	260 For 5sec	

### ●Electro-Optical Characteristics (Ta=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Peak wavelength	$\lambda_p$		---	660	---	nm
Operating supply voltage	Vcc		4.75	5.0	5.25	V
Data rate	T	NRZ code	---	---	12.0	Mbps
Optical power output	Pc	Refer to Fig. 1	-21	-17	-15	dBm
Dissipation current	Icc	Refer to Fig. 2	---	10	13	mA
High level input voltage	V <sub>iH</sub>	Refer to Fig. 2	2.1	---	Vcc	V
Low level input voltage	V <sub>iL</sub>	Refer to Fig. 2	0	---	0.8	
Low→High delay time	t <sub>PLH</sub>	Refer to Fig. 3	---	---	150	ns
High→Low delay time	t <sub>PHL</sub>	Refer to Fig. 3	---	---	150	
Pulse width distortion	$\Delta tw$	Refer to Fig. 3	-15	---	+15	
Jitter	$\Delta t_{jr}$	Refer to Fig. 3	---	1	15	

### ●Mechanical Characteristics (Ta=25°C)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Insertion Force		* 1	---	---	40	N
Withdrawal Force		* 1	6	---	40	
Torque for Self-Tap		Using self-tapping screw ( M3 x 8 )	60	---	100	N-cm

\* 1 : Using standard optical fiber cable ( 970/1000  $\mu$ m)

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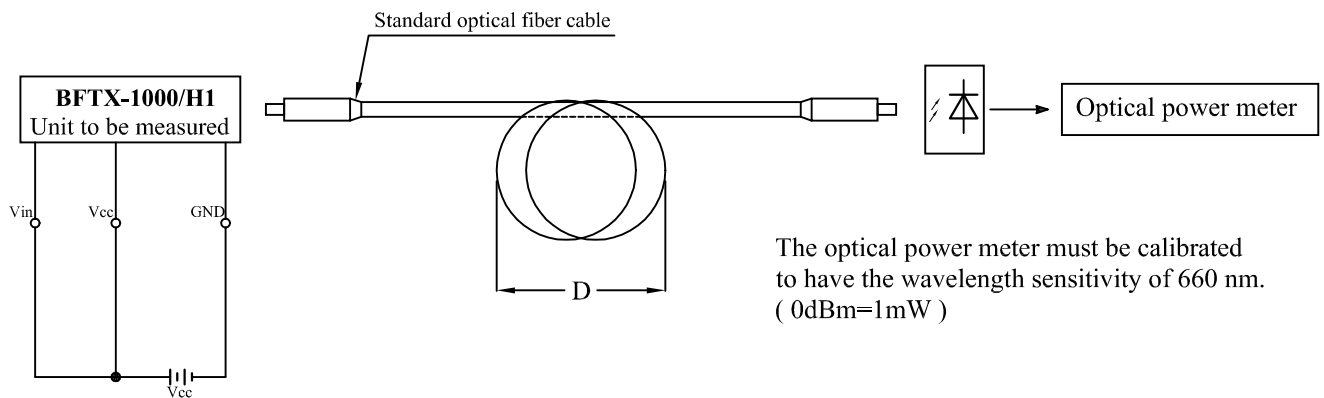
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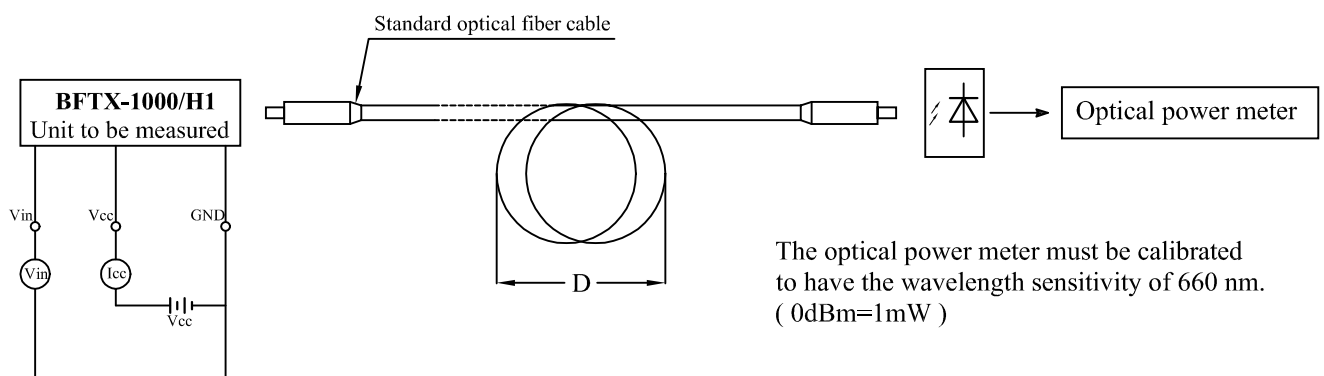
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### ●Fig.1 Measuring Method of Optical Output Coupling with Fiber.



- Notes: (1)  $V_{cc}=5.0V$  (State of operating)  
 (2) To bundle up the standard fiber optic cable, make it into a loop with the diameter  $D=10cm$  or more.

### ●Fig.2 Measuring Method of Input Voltage and Supply Current.



Input conditions and judgment method Supply Current.

Conditions	Judgment method
$V_{in}=2.1V$ or more	$-21\text{ dBm} \leq P_c \leq -15\text{ dBm}$ , $I_{cc}=13mA$ or less
$V_{in}=0.8\text{ V}$ or less	$P_c \leq -36\text{ dBm}$ , $I_{cc}=13mA$ or less

Notes:  $V_{cc}=5.0V$  (State of operating).

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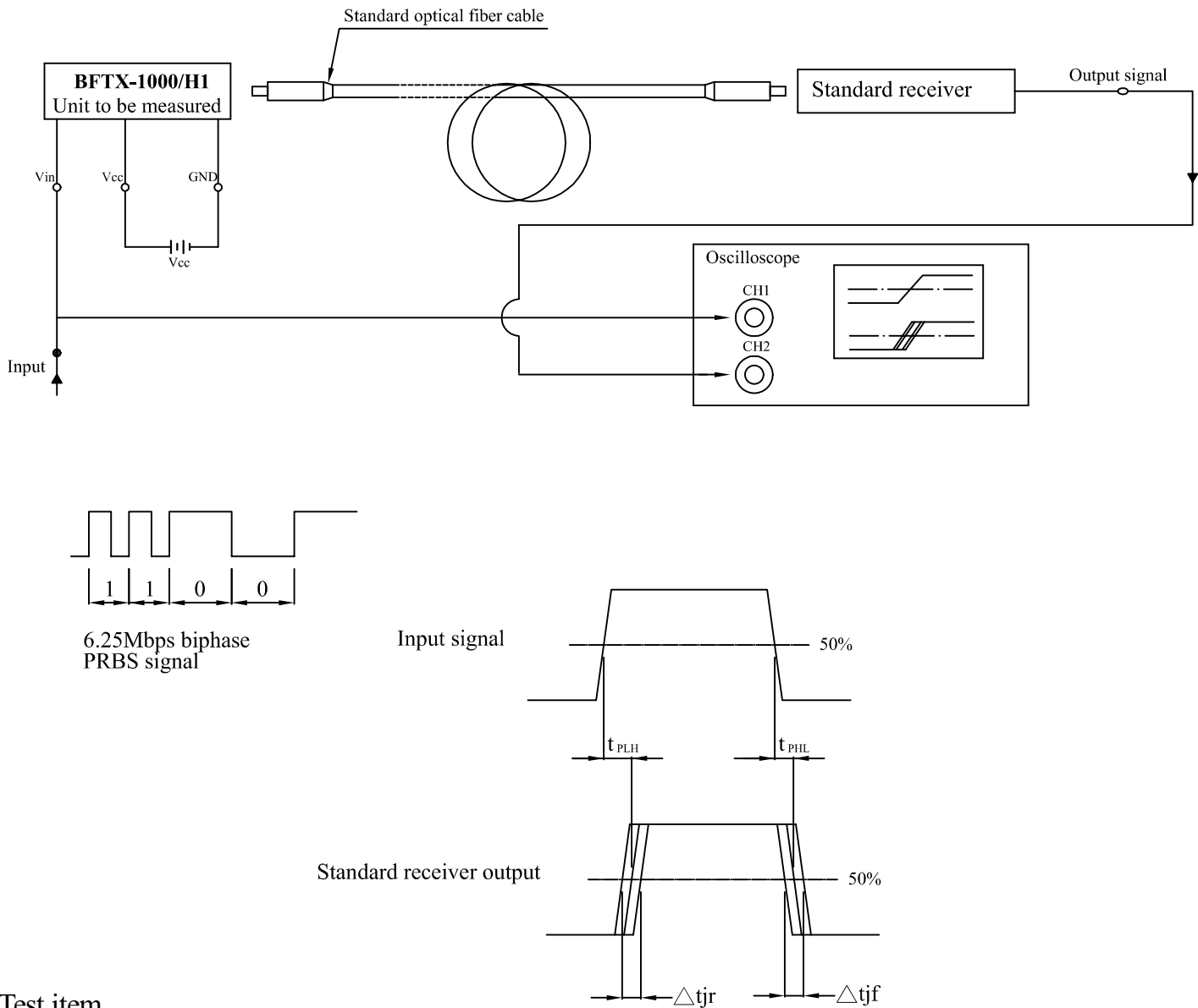
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●Fig.3 Measuring Method of Pulse Response and Jitter.



Test item

Test item	Symbol	Test item
Low→High pulse delay time	t <sub>PLH</sub>	Refer to the above prescriptions.
High→Low pulse delay time	t <sub>PHL</sub>	Refer to the above prescriptions.
Pulse width distortion	Δtw	Δtw=t <sub>PHL</sub> -t <sub>PLH</sub> .
Low→High Jitter	Δt <sub>j</sub>	Set the trigger on the rise of input signal to measure the jitter of the rise of output.
High→Low Jitter	Δt <sub>j</sub>	Set the trigger on the fall of input signal to measure the jitter of the fall of output.

- Notes:
- (1) The waveform write time shall be 4 seconds. But do not allow the waveform to be distorted by increasing the brightness too much.
  - (2) V<sub>cc</sub>=5.0V (State of operating)
  - (3) To probe for the oscilloscope must be more than 1MΩ and less than 10pF.

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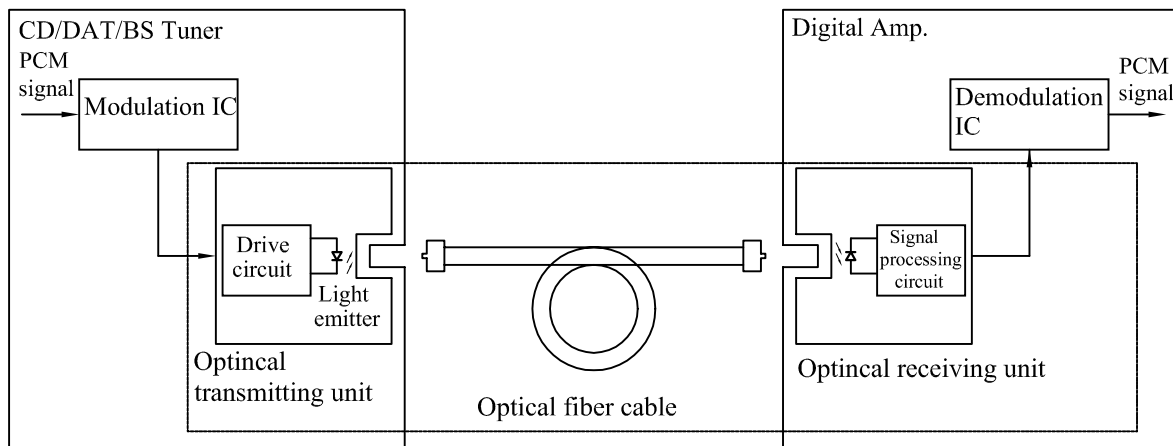
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### ●System Configuration Example:



### ●Application Circuit:

