

EXTERNAL INFRARED RECEIVER MODULE SPECIFICATION

TITLE : **SW-EM01 series**

1. Description

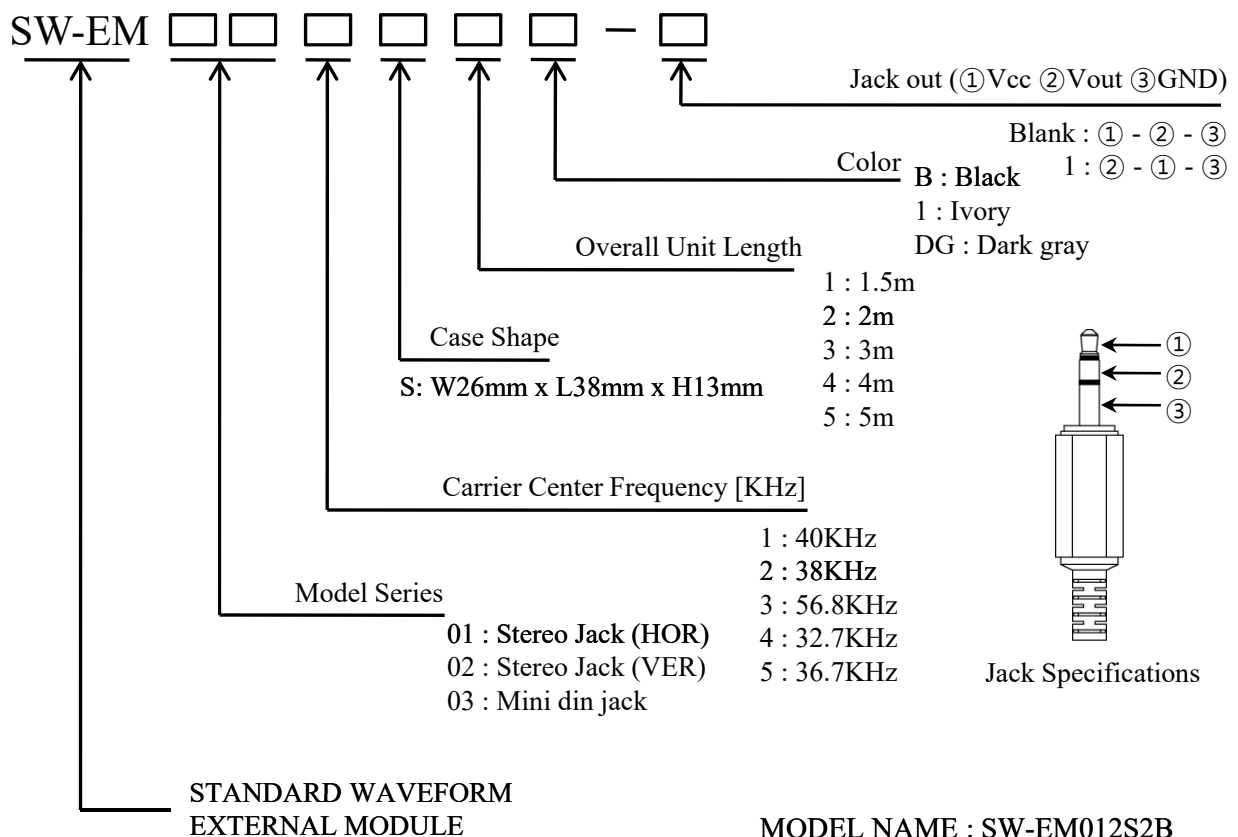
The SW-EM01 series are receiver units for infrared control system. Assembled high performance PIN photodiode and preamplifier on lead frame is molded in uniquely designed epoxy package with daylight cut filter & metal shield case

2. Features

- Low power consumption
- Possible to direct connection to TTL & CMOS
- Low sensitivity against fluorescent lamp driven by inverter
- Open collector output with a pull-up resistance
- Various Band Pass Filter frequency

3. Product Designation

The Product designations for Celadon's external receiver module consist of a type name as show in below.



EXTERNAL INFRARED RECEIVER MODULE SPECIFICATION

TITLE : SW-EM01 series

4. Absolute Maximum Ratings

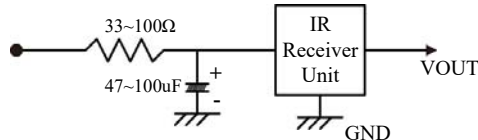
Parameter	Symbol	Rating	Unit
Supply voltage	Vcc	5.5	V
Operating temperature	Topr	-10 ~ +60	°C
Storage temperature	Tstg	-20 ~ +75	°C
Soldering temperature *1	Tsol	260	°C

*1. Within 5 seconds

5. Recommended Operating Conditions

Parameter	Symbol	Rating	Unit
Supply voltage	Vcc	2.7 ~ 5.5	V

* In case of Vcc include noise factor please add the R-C line filter as shown



6. Electro-optical Characteristics

Ta=25°C, Vcc=3V to 5V

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remarks
Current consumption	Icc		1.2		mA	No input signal
High level output voltage	VOH	Vcc-0.25	Vcc		V	*2
Low level output voltage	VOL			0.25	V	*2
High level pulse width	TWH	450	600	750	us	*2
Low level pulse width	TWL	450	600	750	us	*2
B.P.F. center frequency	fo	40.0, 38.0, 56.7, 32.7, 36.7			KHz	*2
Peak sensitive wavelength	λP		940		nm	
Detecting distance	L	8			m	*2 Ec=200LUX
Detecting half angle	Δθ		±45		deg	Horizontal direction

*2. The output signal and detecting distance of this receiver unit shall satisfy the following requirements with the transmitter specified as below (Fig.1) in the optical standard system (Fig.2).

(1) Standard transmitter

A transmitter output shall be set as Vout=40mVpp, and the burst wave as shown in the figure shall be transmitted by the transmitter.

However the SW-D470R in this application is Pin Photodiode which has a characteristics as short-circuit current Isc=25mA at Ev=1000LUX (2856°K standard light source), spectral sensitivity I=880~1050nm.

EXTERNAL INFRARED RECEIVER MODULE SPECIFICATION

TITLE : SW-EM01 series

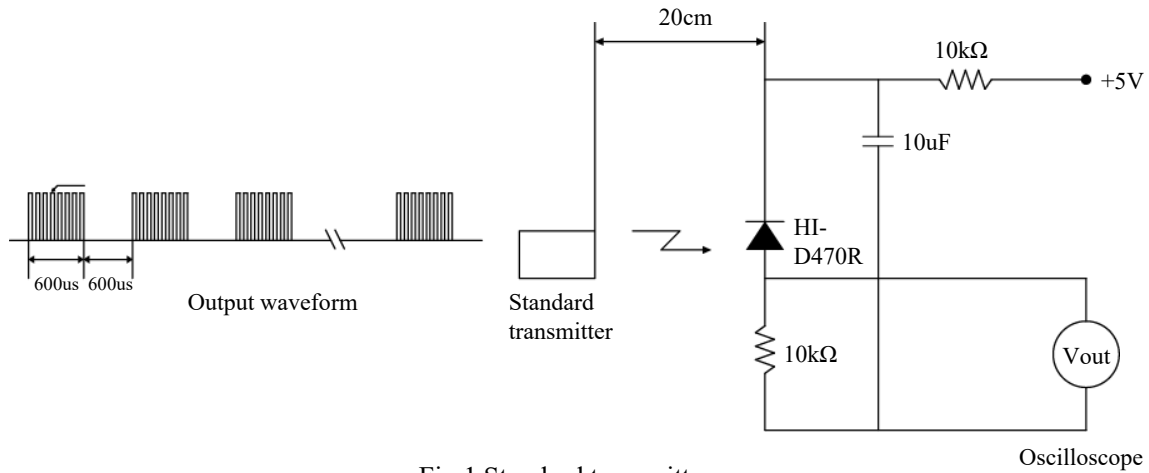


Fig.1 Standard transmitter

(2) Standard optical system

Using a standard transmitter (Fig.1) output pulse width T_{WL} and T_{WH} is tested at the detector face illuminance $E_e=200\text{LUX}$ by outer peripheral light source.

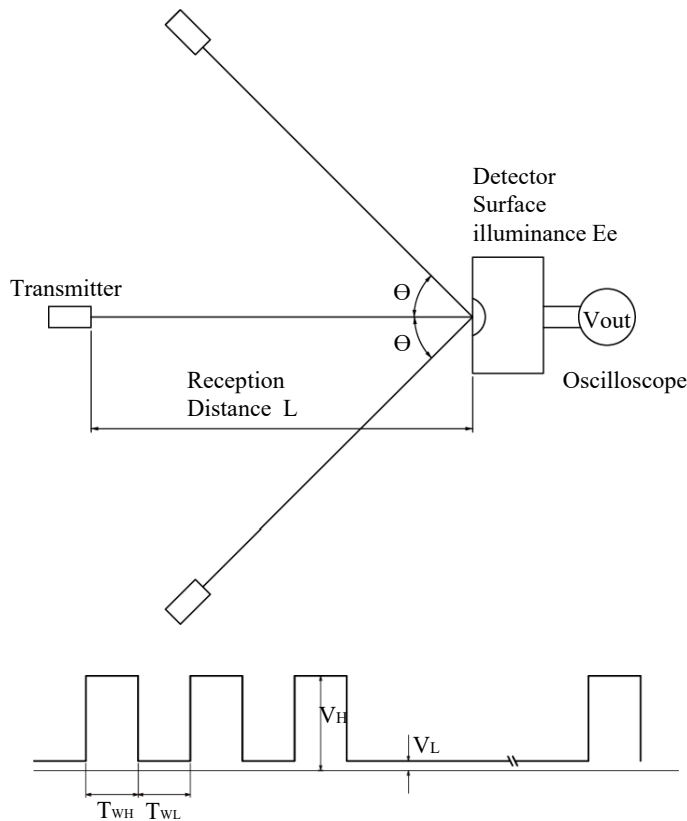


Fig.2 Standard optical test system

EXTERNAL INFRARED RECEIVER MODULE SPECIFICATION

TITLE : SW-EM01 series

7. Reliability test items and condition

No	Test Items	Test Conditions
1	Terminal tension	Weight: 50g, 30sec. / each terminal
2	Terminal bending	Weight: 250g, 0°~90°~0° , 2times / each terminal
3	Shock	Acceleration: 100g, 6ms, 3direction / 3times
4	Variable frequency Vibration	Fre.R:10~55Hz/1min, Amp.:1.5mm X,Y,Z/2H,each
5	High temp./high hum. Storage	Ta= 40°C, 90%RH t=240H
6	High temperature storage	Ta= 75°C t=240H
7	Low temperature storage	Ta= -20°C t=240H
8	Temperature cycling	-20°C(30min.) ~ +70°C(30min.) 20cycle
9	Operation life (high temp.)	Ta= 60°C, Vcc=5V t=240H
10	Soldering heat	260 ± 5°C 5sec.

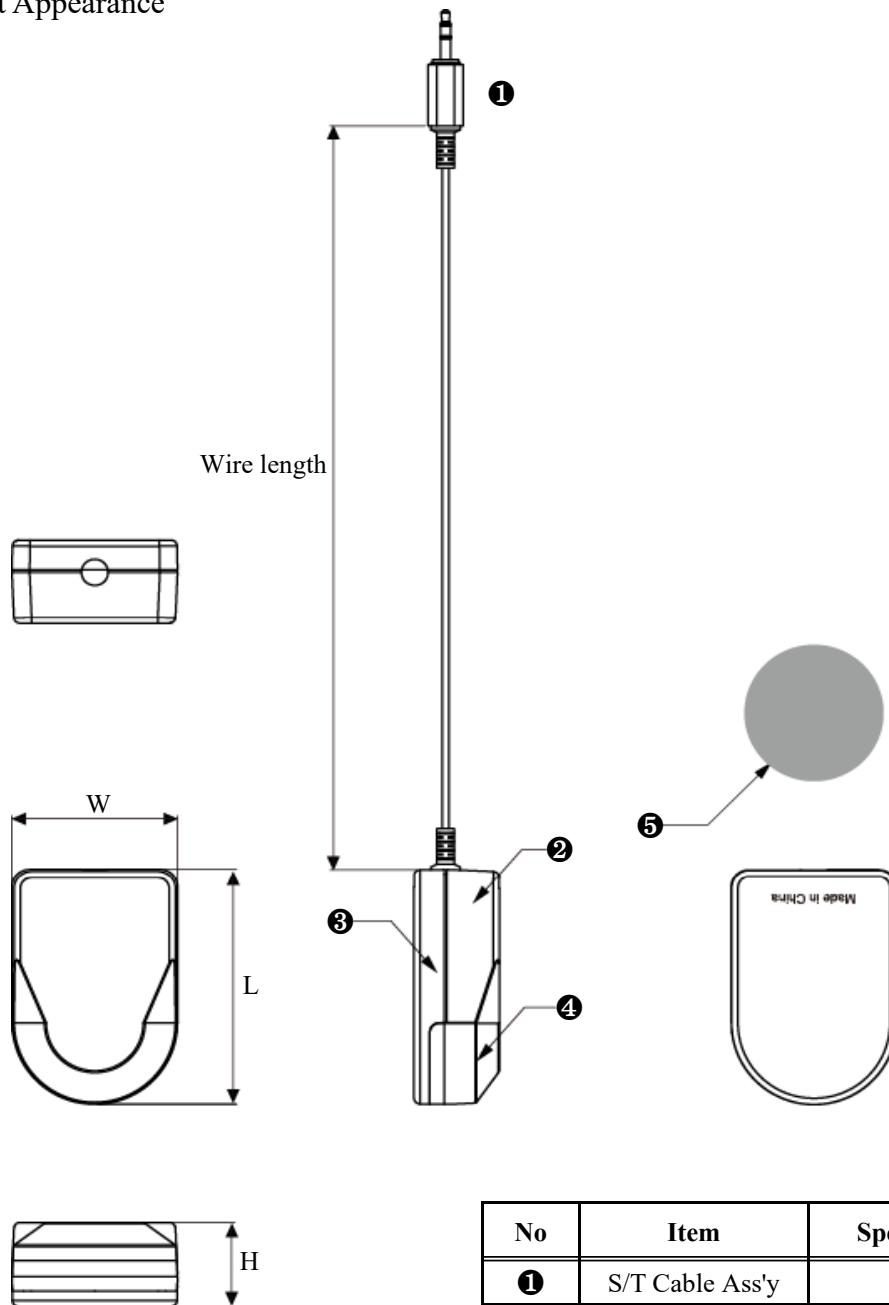
In performance test, Electro-optical characteristics should be satisfied but it is required that the samples passed through test No.5~No.9 are left 2 hours at normal temperature and humidity after taken out of the chamber.

EXTERNAL INFRARED RECEIVER MODULE SPECIFICATION

TITLE : SW-EM01 series

8. Dimension

1) Product Appearance

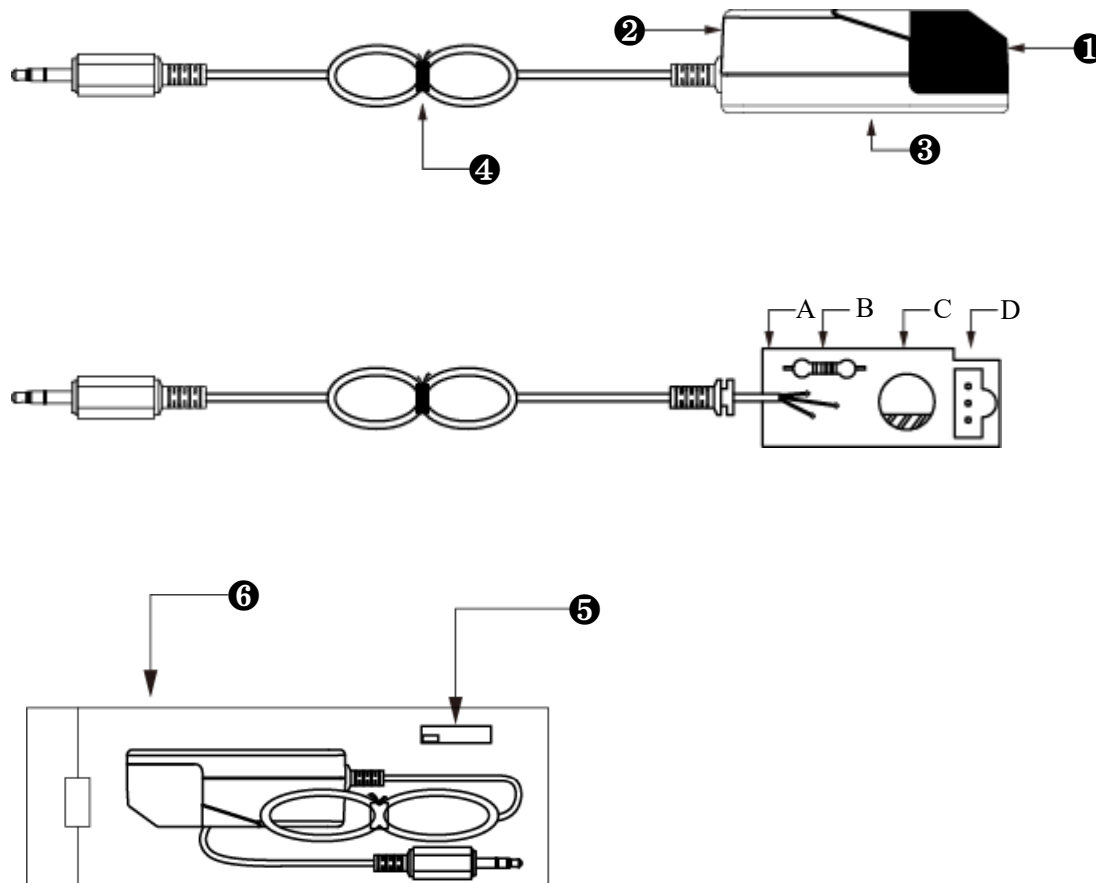


No	Item	Specification
①	S/T Cable Ass'y	
②	Case Top	ABS (LGXR-401)
③	Case Bottom	ABS (LGXR-401)
④	Window	PC
⑤	Velcro	3M 944HK

EXTERNAL INFRARED RECEIVER MODULE SPECIFICATION

TITLE : SW-EM01 series

2) Product Composition



No	Item	Specification
A	PCB	FR-2 1.6t
B	Resister Carbon	47ohm, 1/8W
C	Cap. Electric	100uF, F/16V
D	IR Module	HI-M602V0
1	Window	PC
2	Case Top	ABS (LGXR-401)
3	Case Bottom	ABS (LGXR-401)
4	T.I.M	Black 70mm
5	Velcro	3M 944HK D=22mm
6	Vinyl Pak	180mm x 120mm