Date：Nov. 26, 2012

Optical Data Transmission Device
DMS-GF1A/B-02
DMS-HF1A/B-02

Specifications

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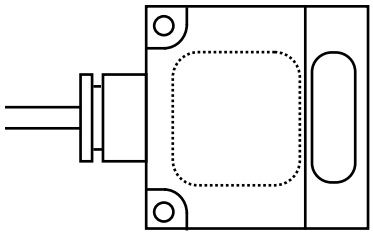
Approved by	Checked by	Drawn by	Designed by	Title	Optical Data Transmission Device DMS-G/HF1A/B-0 series Specifications	
		IGUCHI	IGUCHI	Drawing No.	C-42-3827B	1／5

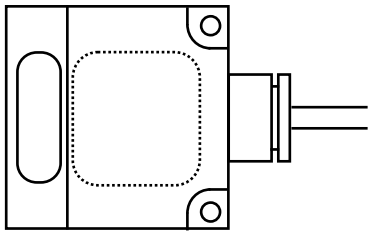
1. Features

- Optical transmission with signals through the interface of RS-232C
- Full duplex two-way transmission

2. Composition



DMS-G/HF1A-02

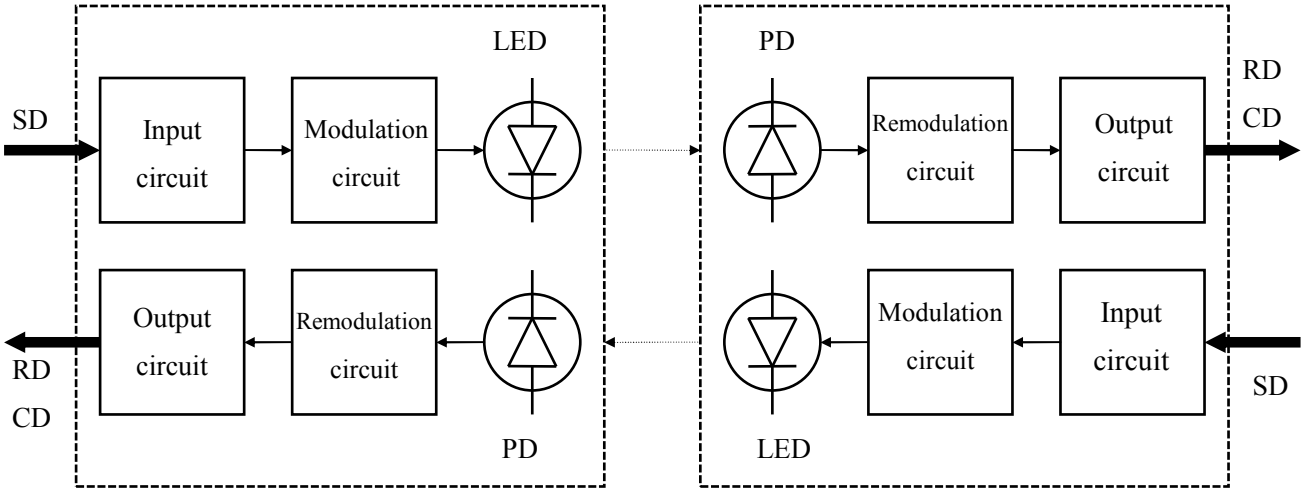


DMS-G/HF1B-02

3. Kinds

Model number	Transmission Frequency	Reception Frequency
DMS-G/HF1A-02	5.5MHz	6.0MHz
DMS-G/HF1B-02	6.0MHz	5.5MHz

4. Inner circuit block diagram



Type A　　Type B

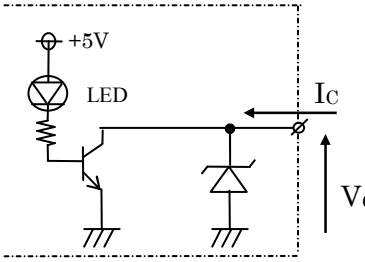
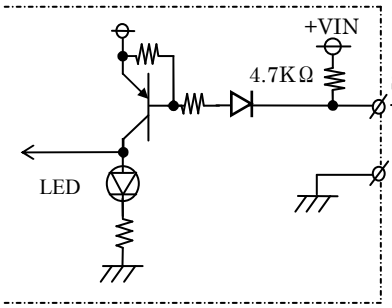
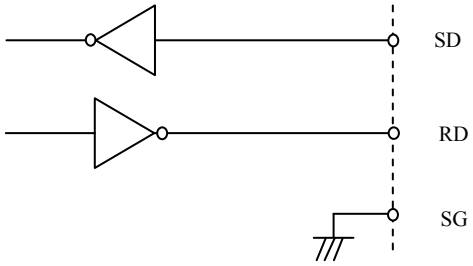
Since this device is full duplex two-way transmission system, modulation frequency is divided into type A and B, to prevent interference of transmission signal and reception signal each other. Therefore, be sure to use type A with transmission in 5.5MHz and reception in 6.0MHz and type B with transmission in 6.0MHz and reception in 5.5MHz, in pair.

5. Specifications

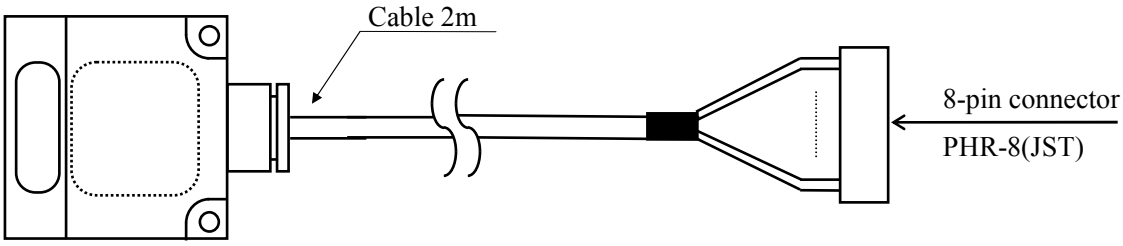
Model number	DMS-GF1A-02	DMS-GF1B-02	DMS-HF1A-02	DMS-HF1B-02
Transmission Distance	1m			
Directional angle	Full angle 30 degree			
Transmission direction	HEAD-ON		SIDE-ON	
Power source	24VDC +/- 10%			
Current consumption	Max. 50mA			
Transmission method	Full duplex two-way transmission			
Transmission speed	DC ~ 9600BPS			
Interface	RS-232C			
Modulated method	FSK			
Modulation frequency	Transmission 5.5MHz Reception 6.0MHz	Transmission 6.0MHz Reception 5.5MHz	Transmission 5.5MHz Reception 6.0MHz	Transmission 6.0MHz Reception 5.5MHz
CD output	NPN transistor Open-collector output			
Wiring	Flying lead wire ($0.2mm^2$ 7-core shield wire)			
Ambient temperature and humidity	-10℃ to +50℃, 85%RH or less (not frozen)			
Ambient illuminance	4,000 lux or less			
Impact resistance	$500m/S^2$ 10 times in each X, Y and Z direction			
Vibration resistance	Double amplitude 1.5mm 10 to 55Hz for 2 hours in each X, Y and Z direction			
Protective structure	IP64			
Weight	250g (including Lead wire 2m)			
Indication lamp	POW : Power CD : Light-reception (Carrier Detect) RD : Serial signal reception SD : Serial signal sending SEL : Input to stop transmission/reception (SRD OFF)			
External Dimension	Drawing No. C-40-3534			

Note) This model is compatible communication with DM-GF1A/B and DM-HF1A/B, however the transmission distance (actual value) and the directional angle are different from them.

6. External Connection

Signal	Purpose	Circuit composition and Remarks
+VIN -VIN (COM)	Power source 24VDC	
CD	Carrier Detect (ON when Carrier Detect)	 NPN Open-collector output VCE30V or less, IC 50mA or less Residual voltage 1.8V or less
SRD OFF (SEL)	Transmission/Reception stop (Stop transmission/ reception by shorted to –VIN)	 ON voltage : 2V or less OFF voltage: 8V or more
SD	Transmission Data (Input)	
RD	Reception Data (Output)	
SG	GND for signal	

7. Wiring



Note) The 8-pin connector attached on the end of the cable cannot be used as connecting terminal.

Pin No.	Color	Signal	Functions
1	Yellow	SD	Input (RS-232C)
2	Green	RD	Output (RS-232C)
3	Brown	SG	GND for Signal
4	Blue	CD	Carrier Detect output
5	White	SRD OFF	Transmission/Reception stop
6			
7	Black	-VIN	0V (Power source)
8	Red	+VIN	+24V (Power source)
Shield			Shield (cut inside of the shrinkable tube))

Note 1) Shield wire must not be connected to ground. To do so may cause electrical noises.

- Lead wire specifications

Items	Size and Diameter
Conductor size	0.18mm^2
Conductor outer dia.	0.54mm
Wire core dia.	1.1mm
Finish dia.	5.5 (+/-0.2mm)