

Date : April 6, 2015

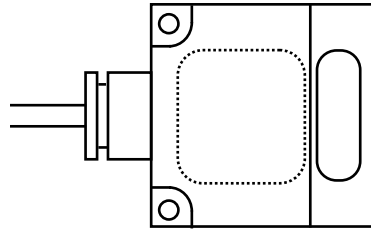
**Optical Data Transmission Device**  
**DMS-GF2A/B-12**  
**DMS-HF2A/B-12**  
**Specifications**

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△ ×	Supply Voltage & Current Consumption	3 – 5	Feb. 23'16	Yamaguchi	FA-7721
Symbol	Corrected Reason	Page	Date	Corrector	No.
Approved by	Checked by	Drawn by	Designed by	Optical Data Transmission Device DMS-G/HF1A/B-12 series Specifications	
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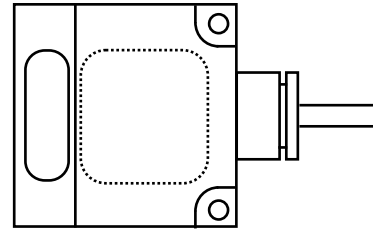
1. Features

- Optical transmission with signals through the interface of RS-422
- Full duplex two-way transmission

2. Composition



DMS-G/HF2A-12

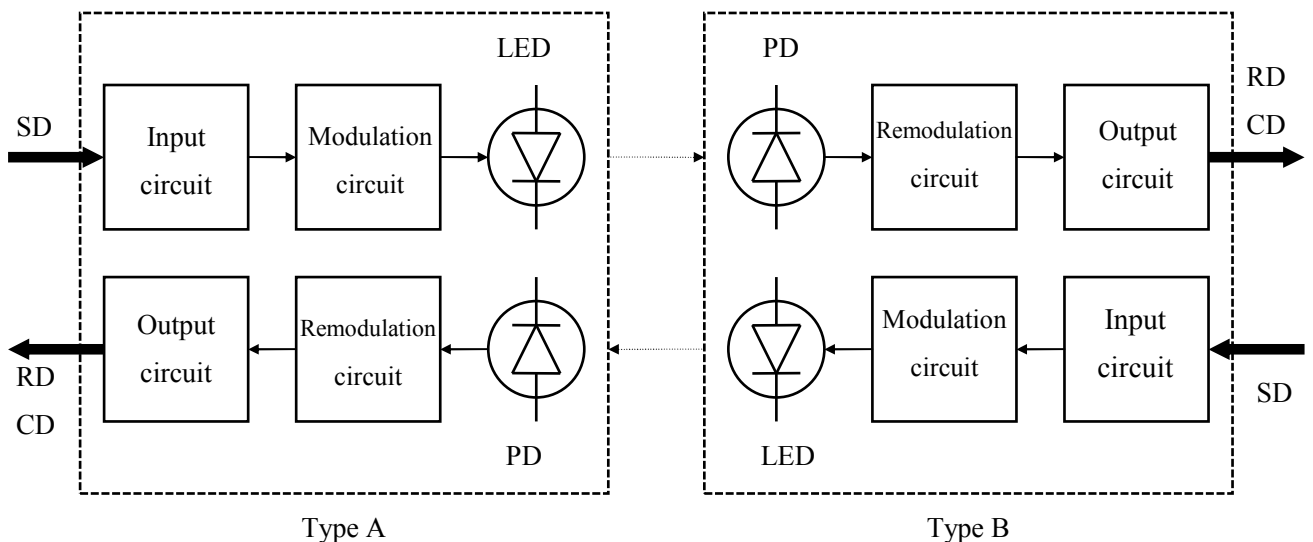


DMS-G/HF2B-12

3. Kinds

Model number	Transmission Frequency	Reception Frequency
DMS-G/HF2A-12	5.5MHz	6.0MHz
DMS-G/HF2B-12	6.0MHz	5.5MHz

4. Inner circuit block diagram



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.

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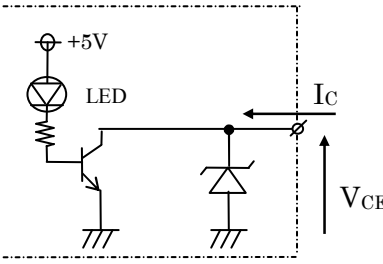
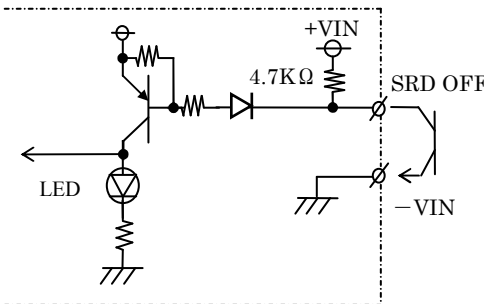
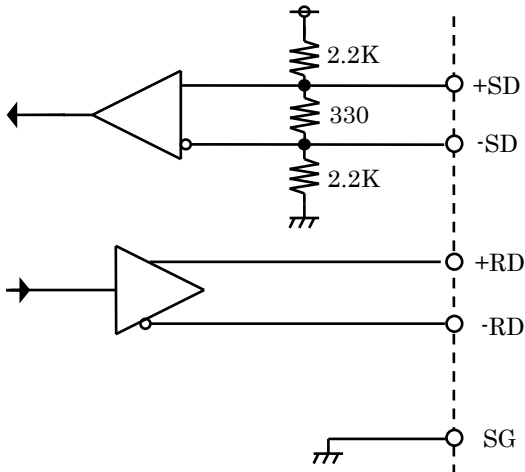
## 5. Specifications

Model number	DMS-GF2A-12	DMS-GF2B-12	DMS-HF2A-12	DMS-HF2B-12
Transmission Distance	3m			
Directional angle	Full angle 5 degree			
Transmission direction	HEAD-ON		SIDE-ON	
Power source	12 to 24VDC +/- 10% $\triangle$			
Current consumption	Max. 70mA (at 12V) Max. 50mA (at 24V) $\triangle$			
Transmission method	Full duplex two-way transmission			
Transmission speed	DC ~ 9600BPS			
Interface	RS-422			
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 <sup>2</sup> 10-core shield wire)			
Ambient temperature and humidity	-10°C to +50°C, 85%RH or less (not frozen)			
Ambient illuminance	4,000 lux or less			
Impact resistance	500m/S <sup>2</sup> 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-GF2A/B and DM-HF2A/B, however the transmission distance (actual value) and the directional angle are different from them.

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6. External Connection

Signal	Purpose	Circuit composition and Remarks
+VIN	Power source 12 to 24VDC $\Delta$	/
-VIN (COM)		
CD	Carrier Detect (ON when Carrier Detect)	 <p>NPN Open-collector output VCE30V or less, IC 50mA or less Residual voltage 1.8V or less</p>
SRD OFF (SEL)	Transmission/Reception stop  (Stop transmission/ reception by shorted to -VIN)	 <p>ON voltage : 2V or less OFF voltage: 8V or more</p>
+SD	Transmission Data (Input)	
-SD		
+RD	Reception Data (Output)	
-RD		
SG	GND for signal	

Title

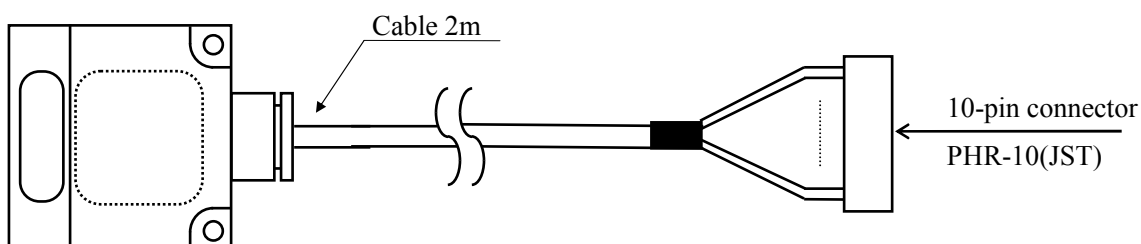
Optical Data Transmission Device  
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## 7. Wiring



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-422)
2	Green	-SD	Input (RS-422)
3	Orange	+RD	Output (RS-422)
4	Purple	-RD	Output (RS-422)
5	Brown	SG	GND for Signal
6	Blue	CD	Carrier Detect output
7	White	SRD OFF	Transmission/Reception stop
8	Gray	COM	COM
9	Black	-VIN	0V (Power source)
10	Red	+VIN	+12 to 24V (Power source) $\triangle$
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	0.2mm <sup>2</sup>
Conductor outer dia.	0.58mm
Wire core dia.	1.0mm
Finish dia.	6.5 (+/-0.1mm)

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