

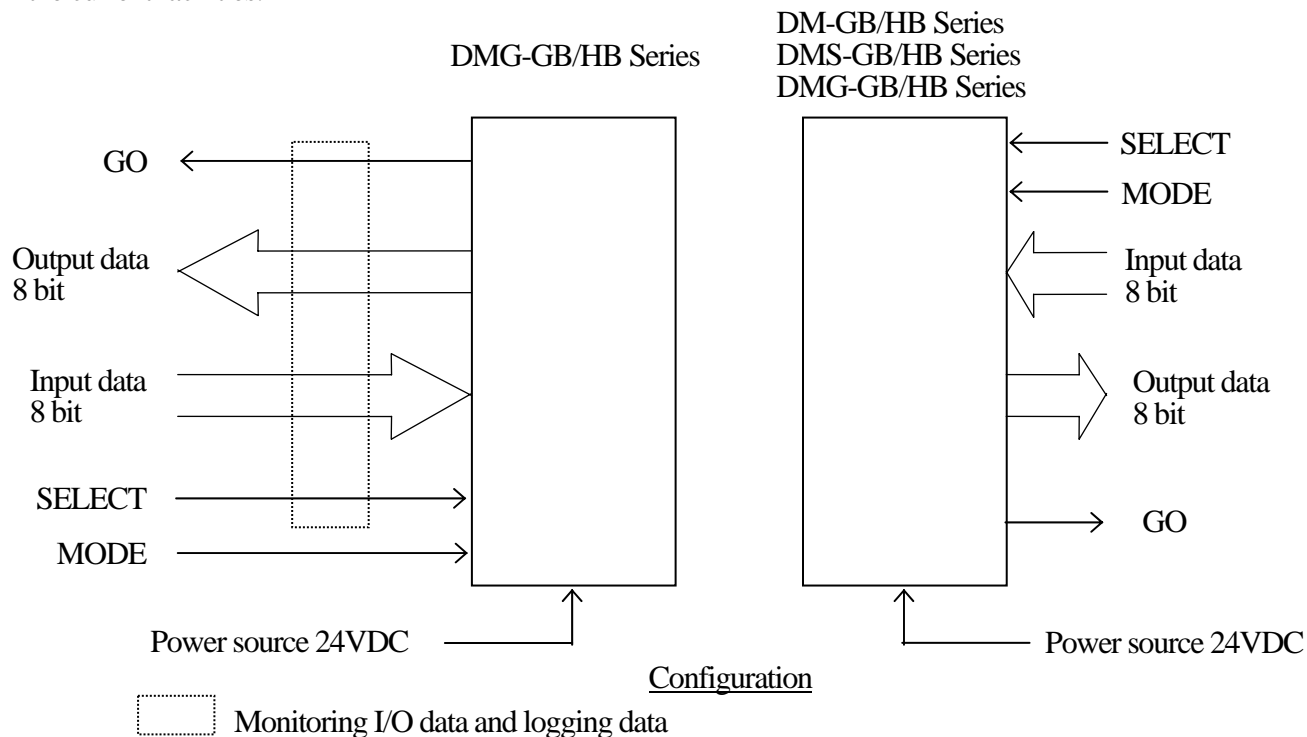
OPTICAL DATA TRANSMISSION DEVICE
 WITH LOGGING FUNCTION
 DMG-HB1-Z03 \triangle ₁
 WITH D-SUB CONNECTOR AND 5M CABLE
 SPECIFICATIONS

Corresponding to SI unit

\triangle ₁ X 2	Model No. changed			1, 2	Jul.31'02	Hoshino	FA4671
Symbol	Amended reason			Pages	Date	Corrector	Amended No.
Approved by	Checked by	Drawn by	Designed by	Title	Optical Data Transmission Device With Logging function DMG-HB1-Z03 Specifications		
			HOSHINO				

1. General

This is an optical data transmission device with 8 bits parallel I/O. This device provides with I/O data memorized function(Logging function) and so this function is very helpful to analyze when troubles such as interlocking etc. happened. Also, this device is compatible with standard models, DMS-HB1/GB1 series under the circumstances such as optical communication, input/output and installation and so it is easy to replace them at the current facilities.



* Refer to page 5 later about specifications of logging functions etc.

2. Specifications

Model No.	DMG-HB1-Z03
Transmission distance	0 to 1m(With projection amount adjuster)
Directive angle	30 degrees(Full angle)
Transmission directions	SIDE-ON
Transmission capacity (Input/Output)	8 bit/8 bit
Transmission method	Half-duplex two-way transmission
Transmission time	40msec
Modulation method	Pulse modulation
Verification method	Parity check
Power source	10 to 30VDC(24VDC is recommended)
Current consumption	100mA Max.
Ambient illuminance	4,000lux or less
Ambient temperature/ humidity	-10 to 50 degrees C, 85%RH or less(Not dew-drops)
Vibration resistance	Double amplitude 1.5mm, 10 to 55Hz, Each 2 hour in X, Y and Z directions
Impact resistance	490m/s ² Each 10 times in X, Y and Z directions
Connection	D-sub connector 25 pins
Protective structure	IP64

Title

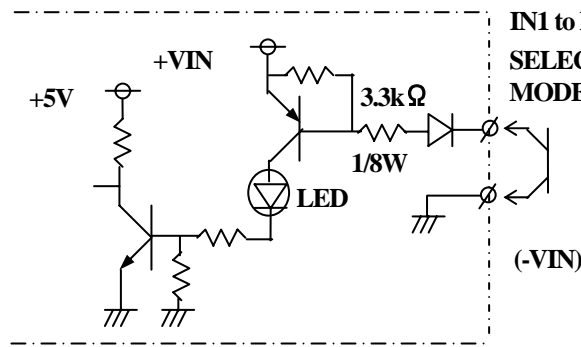
Optical Data Transmission Device With Logging
function DMG-HB1-Z03 Specifications

Drawing
No.

C-42-3050

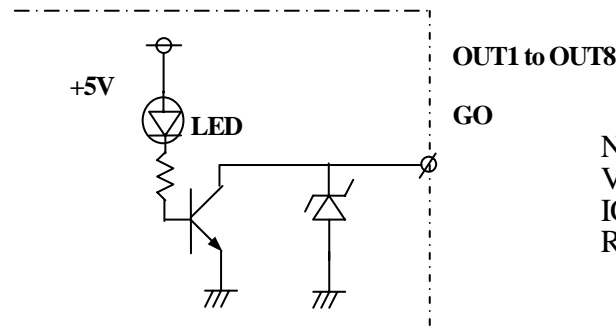
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Input
IN1 to IN8, SELECT,
MODE



IN1 to IN8
SELECT,
MODE
ON current 2.5mA or more
OFF current 1mA or less
(Operation threshold current
1.5 to 2mA)

Output,
OUT1 to OUT8,GO



OUT1 to OUT8
GO
NPN open-collector output
VCE30V or less
IC50mA or less
Residual voltage 1.8V or less

3. Logging data processing

(1) This device memorizes transmission/reception data, GO, SELECT and invariable time of reception data in non-volatile storage in all time by using changes of transmission/reception data, SELECT input and GO output as trigger. ^{Note 1)}

(2) Communication logging specifications

Data variable time	Max. 100 times ^{Note 2)}
Memorizing data	Transmission/reception data : Each 8 bits, GO output, SELECT input
Measuring unit of invariable time	0.05sec
Measuring error of invariable time	+/- 0.05sec
Measuring range of invariable time	Max. 1638.35sec(Approx. 27min.) ^{Note 3)}
Memorizing media	Ferroelectric memory(512 byte)
Memorizing cycle	Min. 20msec
Memorizing life	Nos. 10^{10} times
	Years 10 years

Note 1) Transmission/reception data is monitored and memorized. It may be different with input/output data.

Note 2) In case that data variable Nos. exceed max. value, it is overwritten from older data.

Note 3) In case that measuring of invariable data for transmission/reception data exceeds max. value, it is memorized as max. value.

4. Transmission characteristics

(1) Characteristics data

Unit(msec)

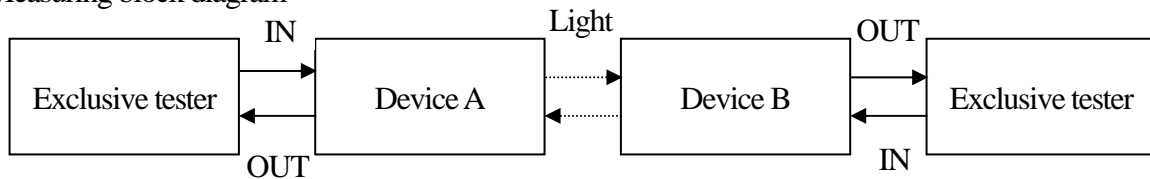
Items	Symbols	MIN	MAX
Input data holding time	tIH	30	-
Transmission time	tON, tOFF	13	40
Transmission starting delay time (Against optical axis coincidence)	tSD	30	110
Output holding time(Against SELECT A)	tOH1	50	90
Output holding time(Against SELECT B)	tOH2	-	5
Output holding time(Against light-interruption)	tOH3	50	90

(2) Characteristics measuring condition

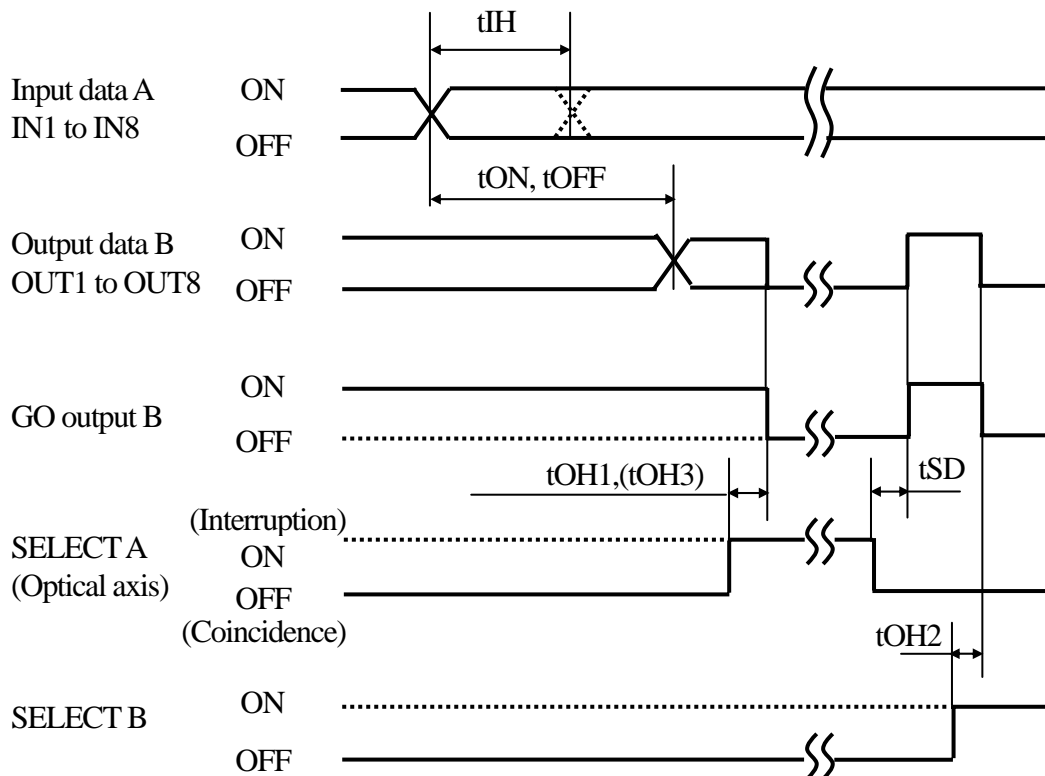
*Mode : Side A – Reception stand-by mode, Side B – Transmission stand-by mode

*It was measured under input(side A) and output(side B).

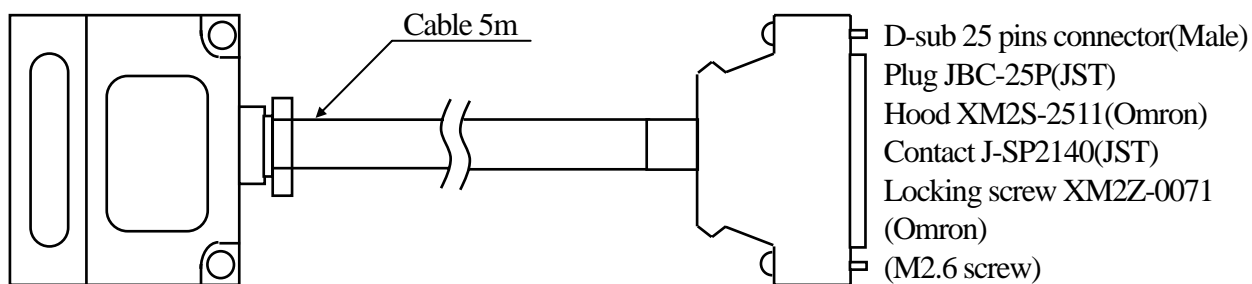
(3) Measuring block diagram



(4) Transmission timing



5. External wiring



Colors	Pin No.	Functions	Colors	Pin No.	Functions
Brown	1	IN1	Brown/Black	14	OUT1
Red	2	IN2	Red/Black	15	OUT2
Orange	3	IN3	Orange/Black	16	OUT3
Yellow	4	IN4	Yellow/Black	17	OUT4
Green	5	IN5	Green/Black	18	OUT5
Blue	6	IN6	Blue/Black	19	OUT6
Purple	7	IN7	Purple/Black	20	OUT7
Gray	8	IN8	Gray/Black	21	OUT8
White	10	SELECT	Pink/Black	23	+VIN
Pink	11	MODE	----	22	+VIN
White/black	12	GO	Pale blue/Black	24	-VIN
			Pale blue	25	COM

Shorted between 22 and 23

* It is shorted between COM and -VIN inside.

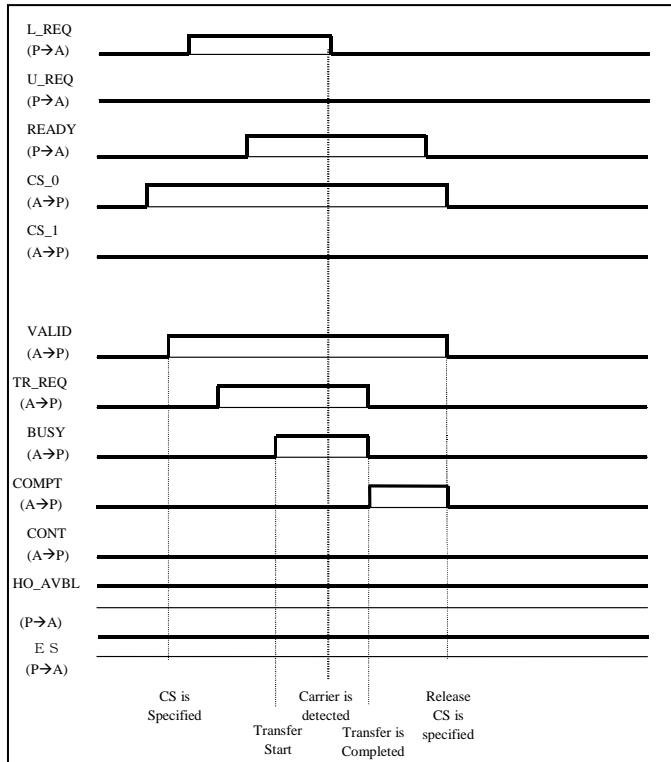
6. Function for each terminal

Terminals	Functions
IN1 to IN 8	Input data
OUT1 to OUT8	Output data
SELECT input	It is shorted to COM : Transmission/reception is stopped and logging data can't be read out. It is opened : Transmission/reception is operated and logging data can be read out.
MODE input(Note)	It is opened : Transmission standby mode It is shorted to COM : Reception standby mode
GO output	It is ON when normal data was received and OFF when light was interrupted or reception error.
COM	Common for input and output
+VIN	24VDC(10 to 30V)
-VIN	0V
	(Power source input)

Note) Make sure to set other one to reception standby mode.

7. Logging function of communication data

Logging function means to memorize both transmission/reception and variable time between Active equipment (A) and Passive Equipment(P) in a lump at all time when ordinary sequence will be made. Accordingly, the following sequence data(Time chart) can be memorized:-



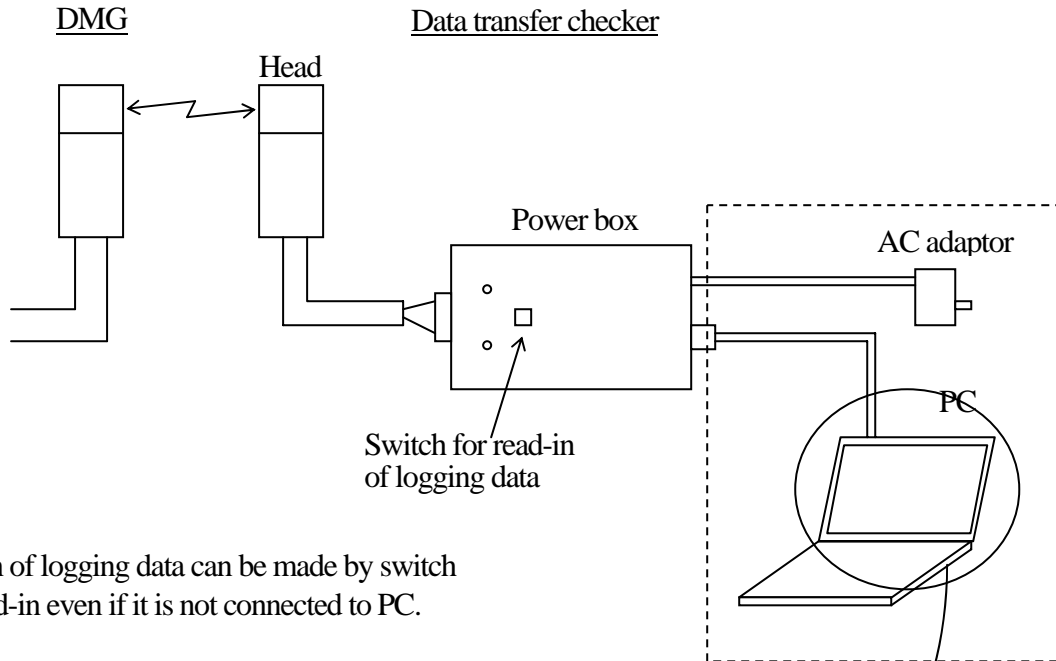
Single Time Diagram for Single Handoff(LOAD)

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8. How to read out logging data

When some troubles such as interlocking etc. happened, you can read out memorized data with data transfer checker(Optical remote controller as option) and show them on PC with exclusive application software. It is easy to read out without removing cover because of reading out by optical communication. It is made by facing the head of data transfer checker(Optical remote controller) to transmission/reception part of DMG. However, when read out, make sure to be active status by releasing SELECT input(Opened or +VIN). (Refer to the specifications sheet of data transfer checker in details.)

Structure



Read-in of logging data can be made by switch
For read-in even if it is not connected to PC.

