May 7th'05

MODULAR TYPE OPTICAL DATA TRANSMISSION DEVICE SPECIFICATIONS (SEMI STANDARD TYPE) (CE MARKING)

HEAD

DMJ-GB1(HEAD-ON)
DMJ-HB1(SIDE-ON)

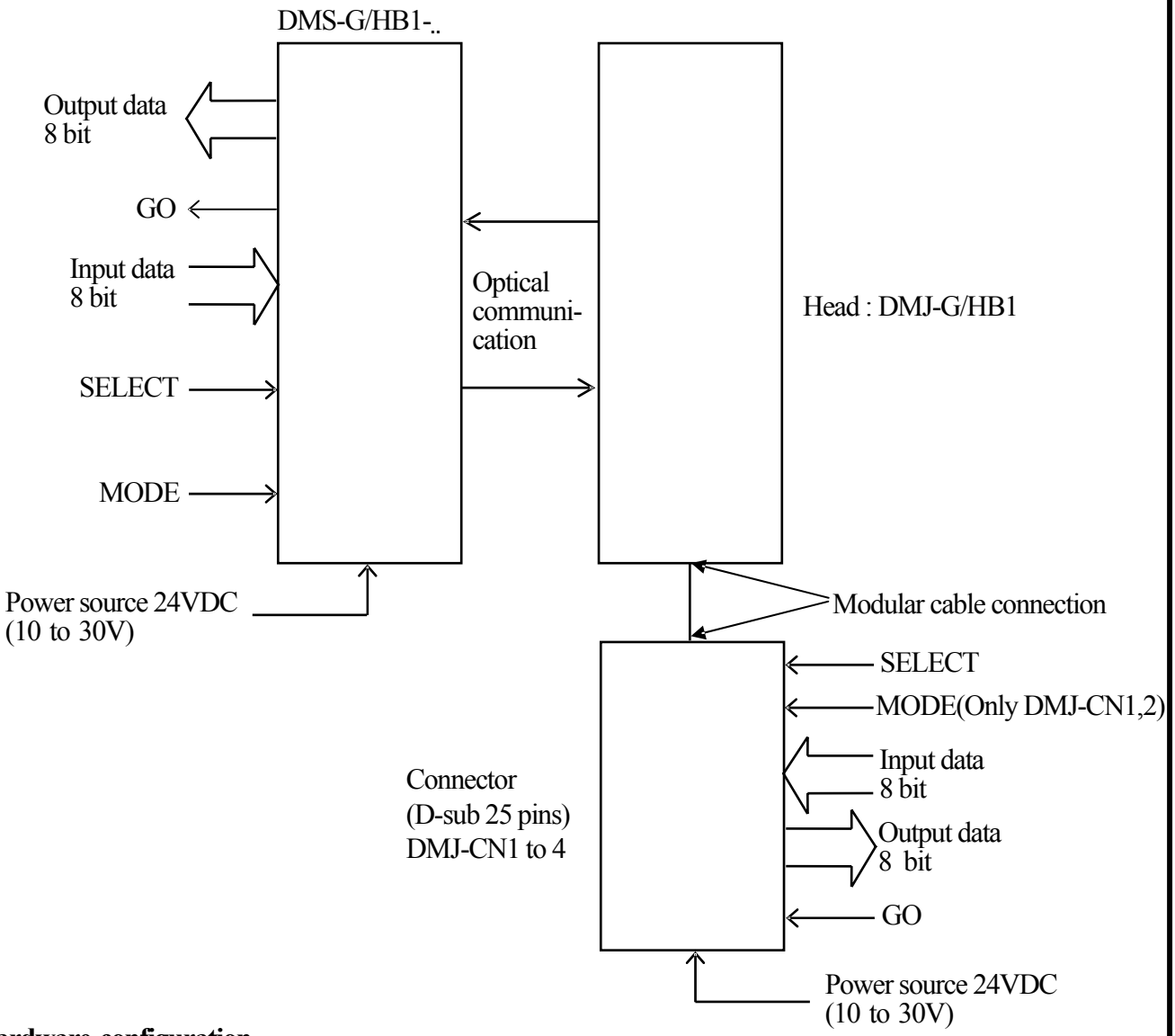
CONNECTOR

DMJ-CN1(METRIC SCREW)
DMJ-CN2(INCH SCREW)
DMJ-CN3(RECEPTION STANDBY/METRIC SCREW)
DMJ-CN4(RECEPTION STANDBY/INCH SCREW)

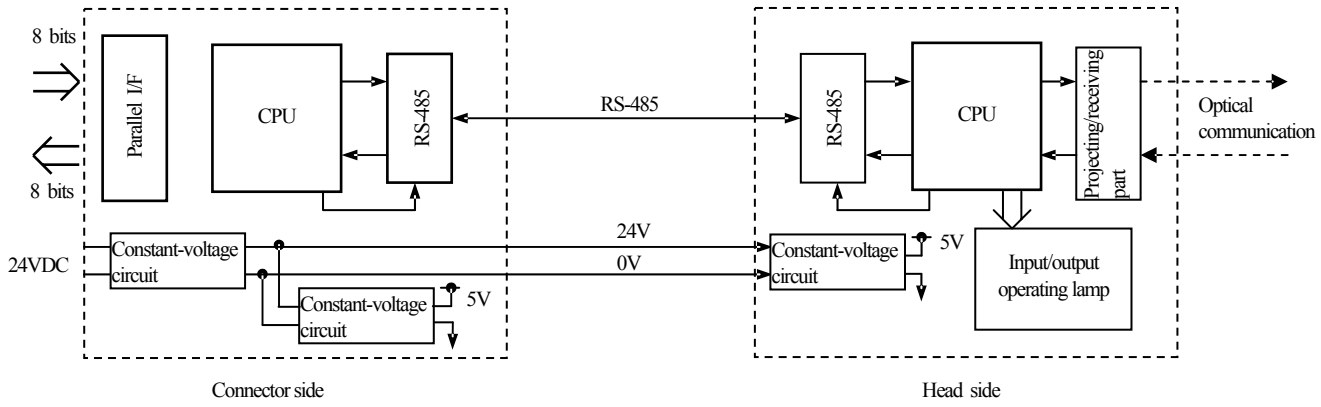
Symbol	Amended reason			Pages	Date	Corrector	Amended No.
Approved by	Checked by	Drawn by	Designed by	Title	Modular Type Optical Data Transmission Device DMJ-H/GB1 Specifications		
MAEJIMA	OJIMA	IGUCHI	OJIMA	Drawing No.	C-42-3346		1/6

1. General

Modular cable is applied between a head and a connector of E84 parallel I/O and it is very easy to make a wiring at user side. Communicating configuration is as follows:-



2. Hardware configuration

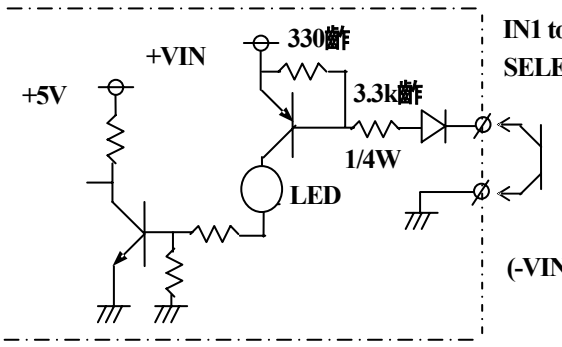
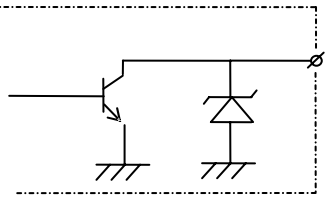


Title	Modular Type Optical Data Transmission Device, DMJ-H/GB1 Specifications	Drawing No.	C-42-3346	2/6

3. Specifications

Model No.(Head)	DMJ-GB1	DMJ-HB1
Direction	Head-ON	Side-ON

Model No. (Connector)	DMJ-CN1	DMJ-CN2	DMJ-CN3	DMJ-CN4
Mode	Changeover of transmission/reception standby by outer input	Changeover of transmission/reception standby by outer input	Reception standby (Fixed)	Reception standby (Fixed)
Fixed screw	Metric screw	Inch screw	Metric screw	Inch screw

Model No.	DMJ-G/HB1
Transmitting distance	1.0m(It can be changed by adjuster)
Directional angle	30 degrees(Full angle)
Transmitting capacity(I/O)	8 bits/8 bits
Transmitting system	Half-duplex two-way transmission system
Transmitting time	40msec
Power source	24VDC
Current consumption	100mA max.
Ambient illuminance	4,000lux or less
Ambient temperature/ humidity	-10 to 50 degrees C/85%RH
Vibration resistance	Double amplitude 1.5mm, 10 to 55Hz, Each 2 hour in X, Y and Z directions
Impact resistance	500m/s^2 Each 10 time in X, Y and Z directions
Connection	D-sub 25 pins connector
Protective structure	IP40
Input IN1 to IN8, SELECT, MODE	 ON current 2.5mA or more OFF current 1mA or less (Operating threshold current 1.5 to 2mA)
Output, OUT1 to OUT8, GO	 NPN open-collector output VCE30V or less IC50mA or less Residual voltage 1.8V or less
Optical communication part	Modulating system: Pulse modulation Detecting system: Parity check, All output is getting OFF when twice continuous error	

Specifications between a head and connector	Communicating standard	RS-485
	Communicating speed	38.4kbps
	Detecting system	Parity check/SUM check
	Connection	RJ-11(Modular jack)
Max. extending length	200m*	

* Cable should be AWG26.

4. 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	Transmitting/receiving 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) Transmitting/receiving 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 transmitting/receiving data exceeds max. value, it is memorized as max. value.

5. Transmission characteristics

(1) Characteristics data Unit(msec)

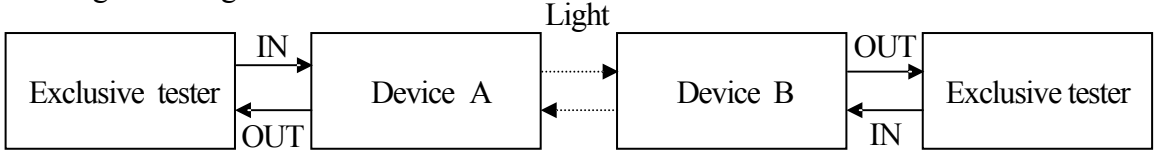
Items	Symbols	MIN	MAX
Input data holding time	tIH	30	-
Transmission time	tON, tOFF	13	40
Transmission starting delay time (Against optical axis coincidence)	tSD	30	110
Output holding time(Against SELECT A)	tOH1	50	90
Output holding time(Against SELECT B)	tOH2	-	5
Output holding time(Against light-interruption)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

(2) Characteristics measuring condition

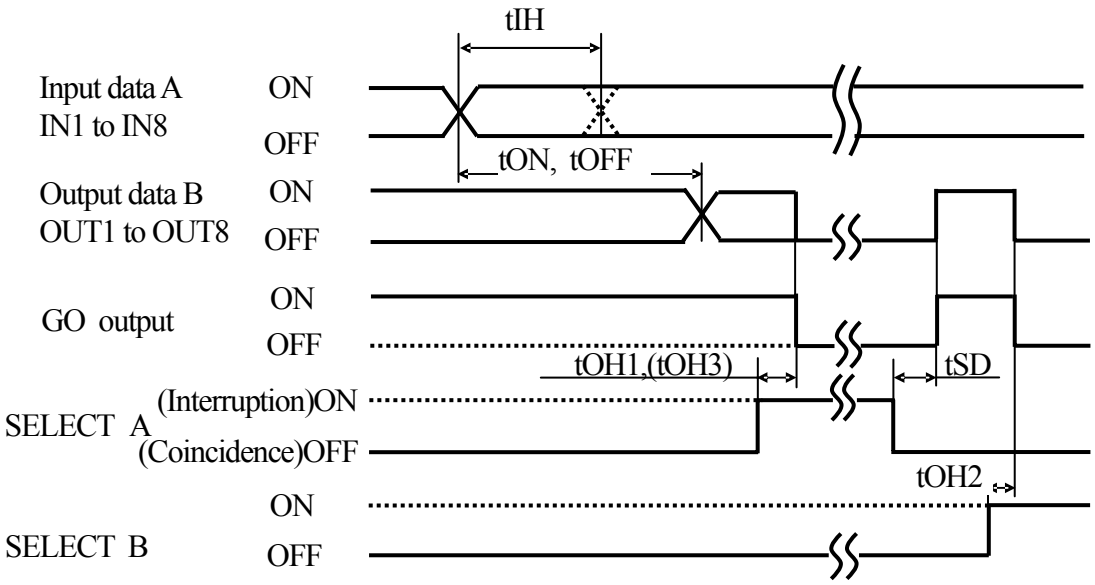
*Mode : Side A – Reception standby mode, Side B – Transmission standby mode

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

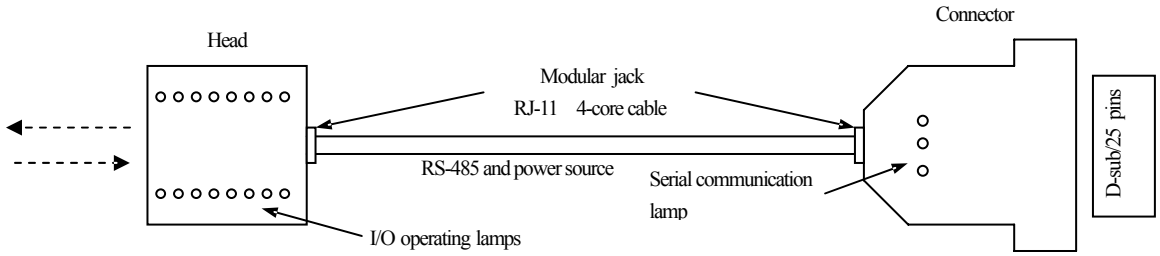
(3) Measuring block diagram



(4) Transmission timing



6. Appearance and connection



Pin No.	Functions	Pin No.	Functions
1	IN1	14	OUT1
2	IN2	15	OUT2
3	IN3	16	OUT3
4	IN4	17	OUT4
5	IN5	18	OUT5
6	IN6	19	OUT6
7	IN7	20	OUT7
8	IN8	21	OUT8
9	NC	22	+VIN
10	SELECT	23	+VIN
11	MODE	24	-VIN
12	GO	25	COM
13	NC		

* It is short-circuited between pin No.22 and No.23.
* It is short-circuited between –VIN(Pin No.24) and COM(Pin No.25) inside.
* Mode is available only for DMJ-CN1 and DMJ-CN2.

7. Function for each terminal

Terminals	Functions	
IN1 to IN 8	Input data	
OUT1 to OUT8	Output data	
SELECT	It is shorted to COM : Stop to communicate It is opened : Possible to communicate	
MODE	It is opened : Transmission standby mode It is shorted to COM : Reception standby mode	
GO	ON when receiving normal data OFF when interrupting the beam	
COM	Common for input/output	
+VIN	+24V(+/- 10%)	Power source
-VIN	0V	

Note) Make sure to set one side to reception stand-by mode.

8. Operating lamps

Head	Each parallel I/O is shown. I/O is the same indication as standard device(8-bit type) IN : 8 points, OUT : 8 points, GO, POW, NS NS : Lights up when serial communication with connector is normal.
Connector	NS : Lights up when serial communication with head is normal. MODE : Lights up when reception-standby mode POW : Lights up when putting power source in