SEMI E84 Compliant Series

FUNCTIONAL SAFETY
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SEMI E84 Compliant Series

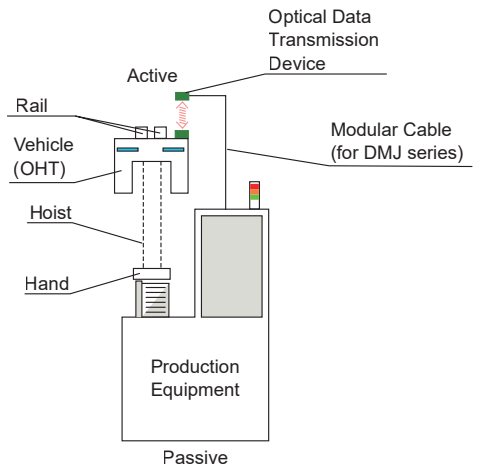
At a glance

- SEMI E84 compatible
- Transmission capacity : 8 BITS type
- Directional mounting : Head-ON type / Side-ON type
- Compact size
- With D-sub 25pins connector (metric or inch)

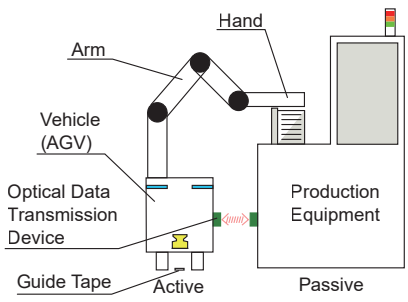
SEMI E84 Compatible

This product complies with the SEMI E84 standard, which specifies the communication protocol used for material handoff operations between active equipment and passive equipment in semiconductor manufacturing environments. It enables standardized and reliable communication between machinery and mobile robots.

Example of applications



OHT (Overhead Hoist Transportation)



AGV (Automated Guided Vehicle)

Specification

	DMS-□□□-Z□□ / DMJ-□□□-Z□□
Transmission capacity	8 BITS
Supply voltage	24VDC (10 to 30VDC)
Current consumption	100mA Max.
Light source	LED (850nm)
Ambient illuminance	4,000lx or less (Incandescent lamp)
Ambient temperature and humidity	-10~50℃, 85%RH or less

Model Line-up

DMS Series

Model No.	Code	Optical axis direction	Communication Distance	SEMI E84 compliant Dsub-25pin connector	Cable length	Mode setting
DMS-GB1-Z25	WDMS123	Head-ON	0~1m	Metric screw	5m	Transmit/Receive standby switchable
DMS-GB1-Z28	WDMS127					Receive standby
DMS-GB1-Z35	WDMS144		0~0.6m	Inch screw		
DMS-HB1-Z05	WDMS021	Side-ON	0~1m	Metric screw	5m	Transmit/Receive standby switchable
DMS-HB1-Z06	WDMS022				2m	
DMS-HB1-Z09	WDMS030			Inch screw	5m	
DMS-HB1-Z10	WDMS032				2m	
DMS-HB1-Z35	WDMS130			Metric screw	5m	

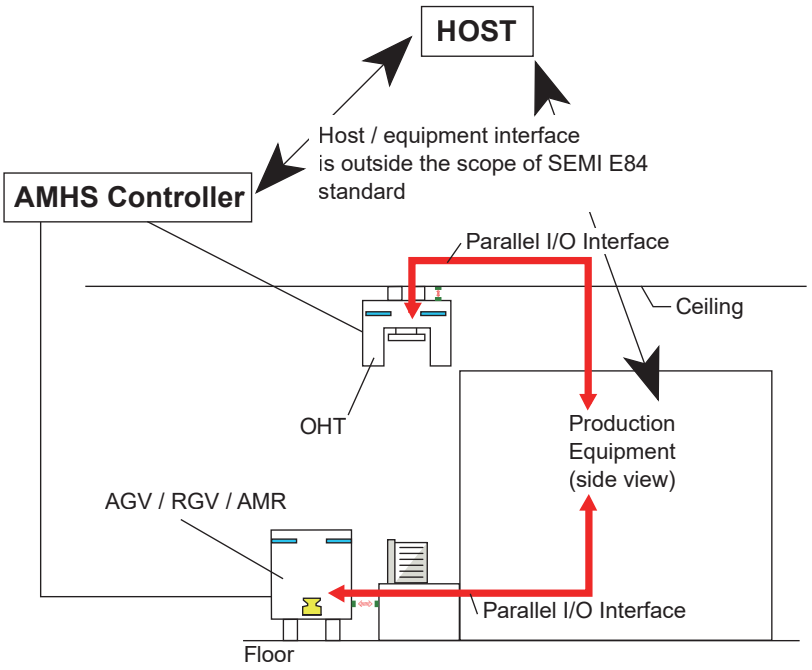
DMJ Series

Model No.	Code	Optical axis direction	Communication Distance	SEMI E84 compliant Dsub-25pin connector	Cable length	Mode setting
Standard series						
• Sensor head						
DMJ-GB1	WDMJ003	Head-ON	0~1m	—	—	—
DMJ-HB1	WDMJ004	Side-ON				
• Connector						
DMJ-CN1	WDMJ005	—	—	Metric screw	—	Transmit/Receive standby switchable
DMJ-CN2	WDMJ006			Inch screw		
DMJ-CN3	WDMJ007			Metric screw		Receive standby
DMJ-CN4	WDMJ008			Inch screw		
High frequency noise resitance type (-Z01 series)						
• Sensor head						
DMJ-GB1-Z01	WDMJ010	Head-ON	0~0.6m	—	—	—
DMJ-HB1-Z01	WDMJ011	Side-ON				
• Connector						
DMJ-CN3-Z01	WDMJ013	—	—	Metric screw	—	Receive standby
DMJ-CN4-Z01	WDMJ014			Inch screw		
Ambient light resistance type (-Z50 series)						
• Sensor head						
DMJ-GB1-Z50	WDMJ020	Head-ON	0~1m	—	—	—
DMJ-HB1-Z50	WDMJ015	Side-ON				
• Connector						
DMJ-CN3-Z50	WDMJ016	—	—	Metric screw	—	Receive standby
DMJ-CN4-Z50	WDMJ017			Inch screw		

System Structure

Enhanced Carrier Handoff Parallel I/O Interface

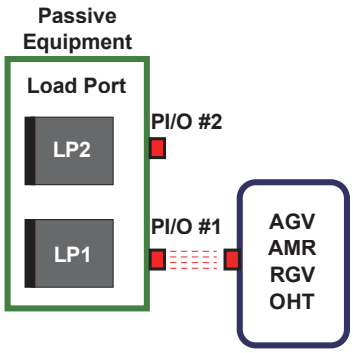
The enhanced carrier handoff parallel I/O interface enables automated transfer of carriers between active and passive equipment. This interface specifically controls the handoff process, in which a carrier is moved from one piece of equipment to another. The handoff is managed by both the active and passive equipment, without involvement of the factory-level controller (host).



Logical Concept

SEMI E84 Sensors can make a communication between Active (e.g. AGV, AMR, OHT) and Passive.
The signals CS_0 and CS_1 are used to select load ports to be used for the handoff.

One PIO will handle one load port



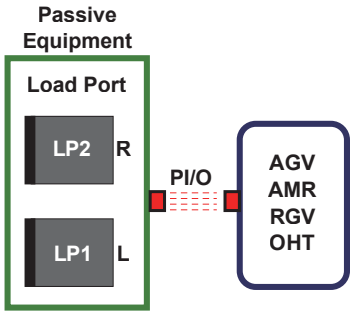
For a single load port, the signals must be set:

CS_0 : ON

CS_1 : OFF

* CS : Carrier Stage
* PIO : Parallel Input Output interface
* LP : Load Port

One PIO will handle two load port



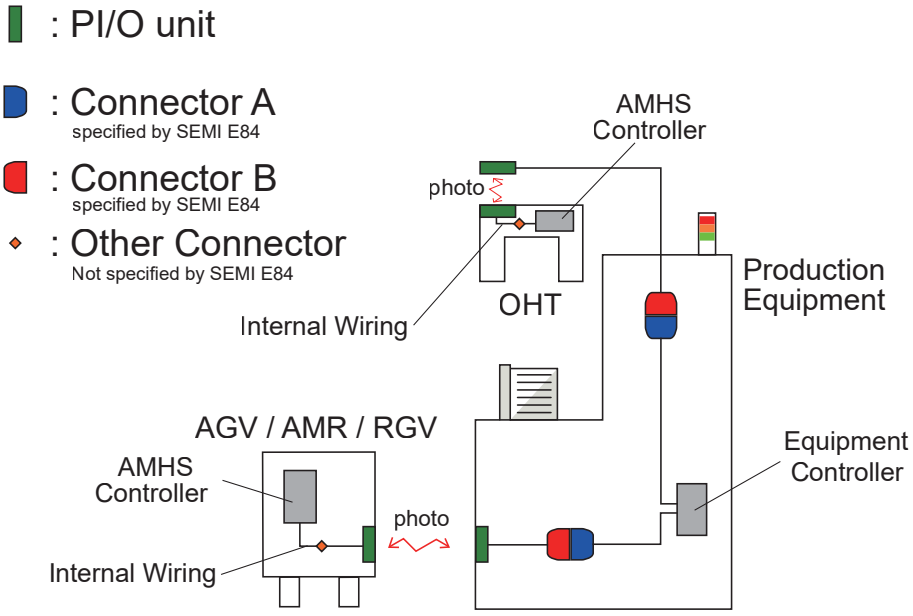
For a dual load port, the signals must be set:

CS_0 : Selects the left-hand load port
(when facing the equipment's load ports)

CS_1 : Selects the right-hand load port
(when facing the equipment's load ports)

This product supports controlling two load ports through a single common PIO, enabling flexible and efficient handoff operations.

System Configuration Example of SEMI E84 Connection



Option Product

For SEMI E84 Pre- and Post-Check

Model	Code	Ref.
BNC-HB1-S	WBNC004	BNC-HB1 (Head part)
		EPK-BNC1 (Power supplier for BNC-HB1)
		AC Power supply for EPK-BNC1 (Cable length : 1.2m)
		Cable for PC and EPK-BNC1 connection (Length : 300mm)
		Application Software (SFOC,RIS) *1

***1 SFOC :**
Software for reading and visualizing optical communication log data recorded by DMG/DMJ on your PC.

RIS :
A SEMI E84 emulator that allows PC-controlled optical communication, functioning as a virtual vehicle or fixed equipment in PIO-based interlock systems.

With two types of application software, you can :

- Troubleshoot transfer errors after operation (SFOC)
- Simulate transfers before equipment installation (RIS)

The software reads optical communication log data from DMG/DMJ and clearly displays it as timing charts on a PC, enabling quick and intuitive analysis.