LSI CARD
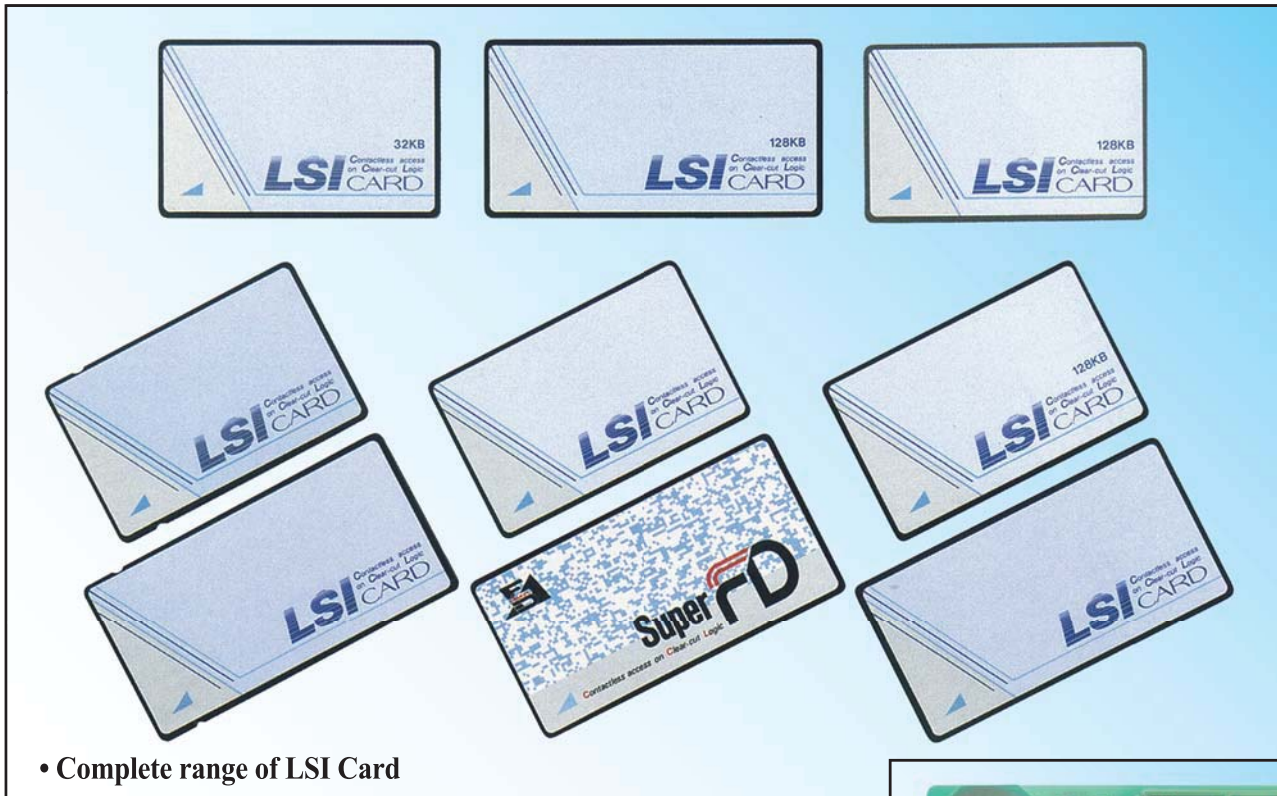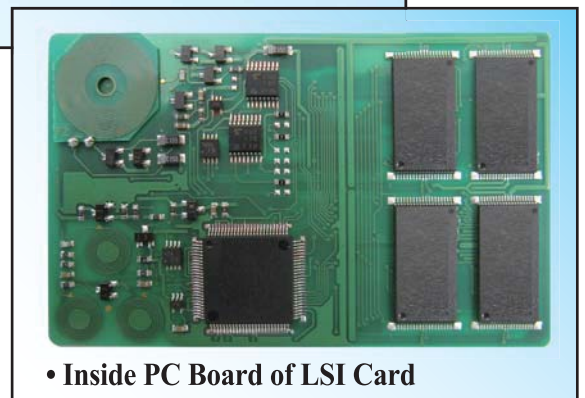### Contactless access on Clear-cut Logic

Works in the harsh environment!
The best seller memory card for Railway application!

Contactless Memory Card

• Complete range of LSI Card

• Inside PC Board of LSI Card

■ Special feature of LSI Card is that it is "CONTACTLESS"

What is contactless...

It refers to the **CCL** system (**C**ontactless access on **C**lear-cut **L**ogic) which performs all access functions by means of an electromagnetic coupling system. Four built-in sheet coils provide power carry commands, and allow reading and writing without any physical connections using pins.

Contactless freedom...

Allows you to never worry about poor contacts (from vibration wear, oil, water, metal powder, dirt, etc.), or problems caused by static electricity, and magnetic interference.

Additionally...

Since the inside of the card is sealed in epoxy resin, it is resistant to folding and physical shock.

■ Type of LSI Cards

The LSI Card format is largely divided into R series card equipped with S-RAM and S series cards equipped with FLASH memory.

■ R series RoHS compliant

Model	Part No.	Capacity	Size(mm) *1	Weight(g) *2	Hardware page *3	Backed-up battery *3	Life of battery *5
S-RAM CARD	R-32KB	32Kbyte	54.0x85.6x3.8	Approx. 24.0	None	Battery built-in	5 years
	RR-128KB	128Kbyte		Approx. 26.0			
	R-512KB	512Kbyte		Approx. 24.0			
	RL-128KB	128Kbyte	54.0x103.0x4.1	Approx. 31.5			
	RTS-128KB	128Kbyte	54.0x85.6x3.8	Approx. 26.5	Divided	Exchangeable	5 years
	RTS-256KB	256Kbyte					2 years
	RTS-512KB	512Kbyte					1 year
	RTL-256KB	256Kbyte	54.0x103.0x3.8	Approx. 31.0			2 year
	RTL-512KB	512Kbyte					1 year
	RTL-1MB	1Mbyte		Approx. 32.5			

*1: The size is given as width x length x thickness(mm).
*2: The weight is including the battery weight.
*3: Card with hard page boundaries are physically divided into 8Kbyte segments inside the card.
*4: The back-up battery in battery replacement type cards can be replaced a maximum of 5 times.
*5: The specified battery life is for an environment that is 25ºC or less, from the day the bettery is manufactured. The working life of the card itself is specified as 10 years.

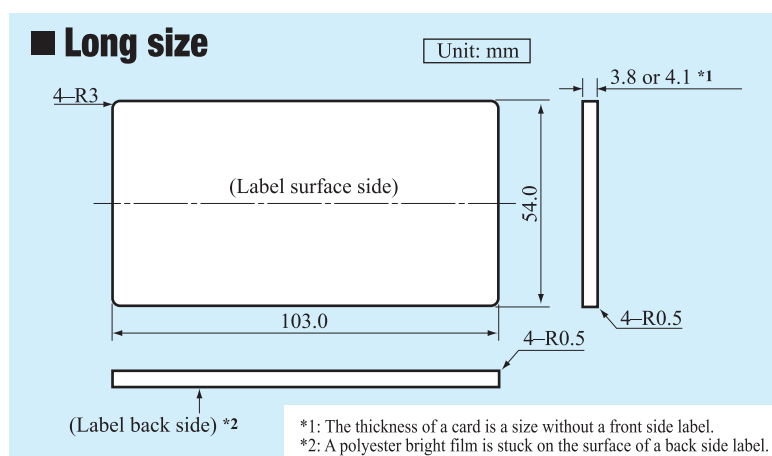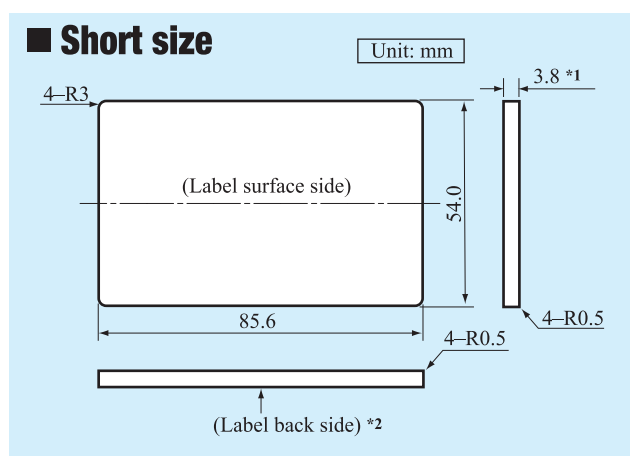**Backed-up battery Part No. : BT2025**

■ S series RoHS compliant

Model	Part No.	Capacity	Size(mm) *1	Weight(g) *2	Hardware page *2	Backed-up battery	Life of battery *3
FLASH CARD	SL-1MB	1Mbyte	54x103.0x4.1	Approx. 30.5	Divided	None	Erasable 100,000times
	SL-2MB	2Mbyte		Approx. 30.5			
	SL-4MB	4Mbyte		Approx. 30.5			
	SL-8MB	8Mbyte		Approx. 32.0			
	SL-16MB *4	16Mbyte		Approx. 31.0			
	SS-1MB	1Mbyte	54.0x85.6x3.8	Approx. 22.5			
	SS-2MB	2Mbyte		Approx. 23.0			
	SS-4MB	4Mbyte		Approx. 24.0			

*1: The size is given as width x length x thickness(mm).
*2: Cards with hard page boundaries are physically divided into 2Mbyte segments inside the card.
*3: The minimum erasable unit is 64Kbytes. The working life of the card itself is specified as 10 years.
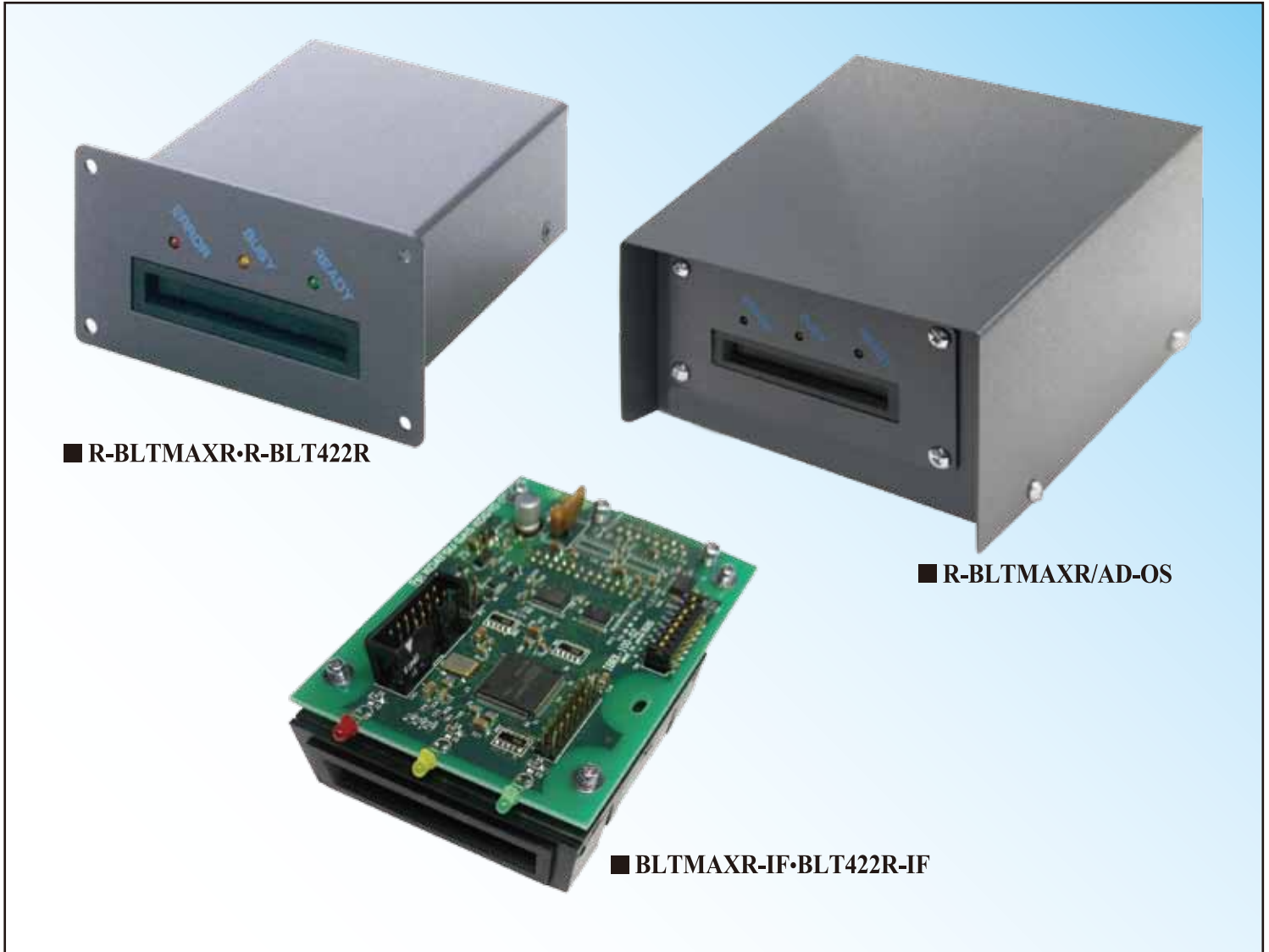*4: SL-16MB is not compliant RoHS yet.

■ Short size

Unit: mm

4–R3

(Label surface side)

54.0
85.6
3.8 *1
4–R0.5
4–R0.5

(Label back side) *2

■ Long size

Unit: mm

4–R3

(Label surface side)

54.0
103.0
3.8 or 4.1 *1
4–R0.5
4–R0.5

(Label back side) *2

*1: The thickness of a card is a size without a front side label.
*2: A polyester bright film is stuck on the surface of a back side label.

■ **Specifications are subject to change without notice.**
2015.1.20

LSI CARD

Contactless access on Clear-cut Logic

R-BLTMAXR
R-BLT422R
R-BLTMAXR/AD-OS

High reliability supported by sales records to Railway industry!

LSI Card use Reader/Writer

■ R-BLTMAXR・R-BLT422R
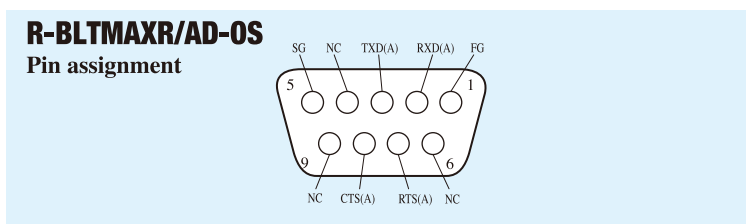
■ R-BLTMAXR/AD-OS
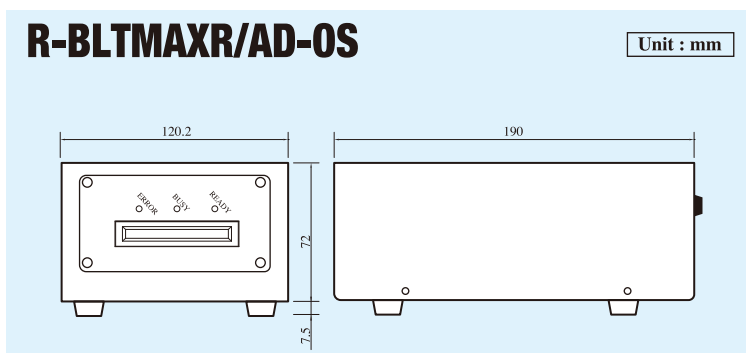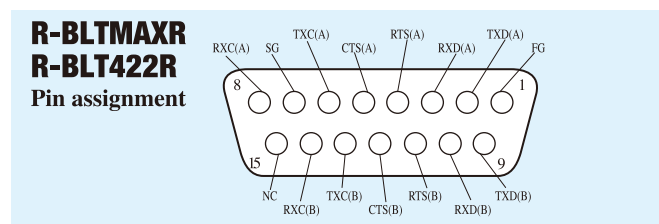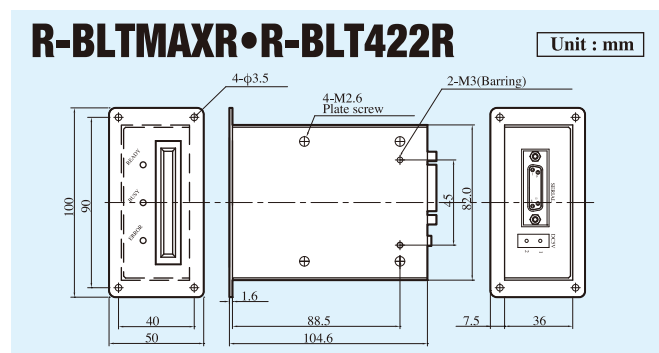
■ BLTMAXR-IF・BLT422R-IF

Outline Description

■ These are a reader/writer equipped with a standard RS-232C or RS-422 interface.

■ Since reading and writing can be controlled with simplified commands, custom software can be created easily.

■ This unit incorporates a DMA accessible drive unit (R-DU/88F), which makes high-speed processing possible.

■ This unit can easily be built into devices on site.

■ The BLTMAXR-IF and BLT422R-IF models, without a case, and the R-BLTMAXR/AD-OS model, with a constant voltage power supply model.

■ The maximum RS-232C and RS-422 transfer rate are 115.2 Kbps and 1.152Mbps, respectively, which means this unit can read and write mass-storage cards at high speed.

■ R-BLTMAXR•R-BLT422R

Item	Specification	
LED	READY BUSY ERROR	: Standard status : Accessing to a card : Error status
Drive Unit	Random Access type Drive Unit	: R-DU/88F
Serial Communication	Synchronization Data Length Stop Bit Parity	: Start-Stop Transmission : 8 bit : Changeable (1Bit, 2Bit) : Changeable (None, Even, Odd Parity)
R-BLTMAXR	Baud Rate Driver/Receiver IC	: Changeable (2400bps to 115.2Kbps) : Max3232E equivalent
R-BLT422R	Baud Rate Driver IC Receiver IC	: Changeable (2400bps to 1.152Mbps) : Max3031E equivalent : Max3096 equivalent
Dimensions (WxDxH)	100mm x 104.6mm x 50mm, Weight : Approx. 340g	
Power Consumption	DC5V, Less than 750mA	

■ R-BLTMAXR/AD-0S

Item	Specification	
LED	READY BUSY ERROR	: Standard status : Accessing to a card : Error status
Drive Unit	Random Access type Drive Unit	: R-DU/88F
Serial Communication	Synchronization Data Length Stop Bit Parity Baud Rate Driver/Receiver IC	: Start-Stop Transmission : 8 bit : Changeable (1Bit, 2Bit) : Changeable (None, Even, Odd Parity) : Changeable (2400bps to 115.2Kbps) : Max3232E equivalent
Dimensions (WxDxH)	120.2mm x 190.0mm x79.5mm, Weight : Approx. 1.19Kg	
Power Consumption	AD180-250V (DC5V self-powered equipment included) Noise Filter & Fuse included Power Consumption	 : Less than 5W

R-BLTMAXR•R-BLT422R

Unit : mm

R-BLTMAXR/AD-0S

Unit : mm

R-BLTMAXR R-BLT422R Pin assignment

R-BLTMAXR/AD-0S Pin assignment

■ Specifications are subject to change without notice. (2015.1.15)

LSI CARD

Contactless access on Clear-cut Logic

4times Faster High Speed LSI Card

Special feature of 4times Faster High Speed LSI Card Reader/Writer

- Data transfer rate is 2Mbps between High Speed LSI Card and High Speed LSI Card Reader/Writer. 4 times faster than the conventional LSI Card data transfer (500Kbps)

- It is possible to use the conventional LSI Card. (However, the data transfer speed is 500Kbps in this case.)

- The access between the card and Reader/Writer is using electromagnetic coupling system, it is very strong for environment resistance.
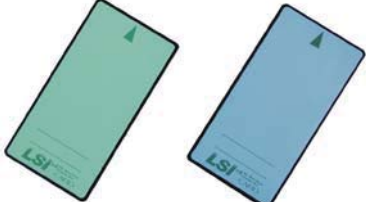
■ Built-in Type Reader/Writer

Model	Item	Specification
	Interface	RS-485*
	Power Supply	DC5V, Less than 2A
	Operating Temp.	0-50ºC (No condensation)
	Outer Dimension	135(W) x 137(D) x 60(H) mm
	Feature 1 : Send/receive the original command with HDLC Flame. Feature 2 : Switchable between Full-duplex and Half-duplex by jumper switch. Feature 3 : It can read/write the conventional LSI Card.	
Model : NS-100	*RS-232C and RS-422 are option.	

■ Stationary Type Reader/Writer

Model	Item	Specification
	Interface	Ethernet
	Power Supply	AC85-264V (Power consumption : Max. 5W)
	Operating Temp.	0-50ºC (No condensation)
	Outer Dimension	170(W) x 138(D) x 90(H) mm
	Feature 1 : Protocol : TCP/IP, Socket connector. Feature 2 : Available automatic change 10BASE-T/100BASE-TX. Feature 3 : Fixed IP address (Capable to set the specified address). Not correspond DHCP server. Feature 4 : It can read/write the conventional LSI Card.	
Model : NS-200E		

■ 4times Faster High Speed LSI Card

Model	Item	Specification
	Memory capacity	S-RAM : 1MByte, 2MByte
		FLASH : 16MByte, 32MByte
	Operating Temp.	0-50ºC (No condensation)
	Outer Dimension	54(W) x 103(D) x 4.1(H) mm
	Operation life [1]	S-RAM : 1MB Card : 5 years, 2MB Card : 3 years[1]
		FLASH : Write-erase time : 100,000 times[2]
Model : NSL-*MBR (S-RAM) **Model : NSL-*MBO (FLASH)**	[1] : S-RAM : The battery's operation life time from manufacturing date under condition of normal room temperature. [2] : FLASH : Write-erase time : 100,000 times. Both cards' body itself can be used around 10 years.	

LSI CARD

Contactless access
on **C**lear-cut **L**ogic

10times Faster High Speed LSI Card

Special feature of 10times Faster High Speed LSI Card Reader/Writer

- ■ Data transfer rate is 5Mbps between High Speed LSI Card and High Speed LSI Card Reader/Writer. 10 times faster than the conventional LSI Card data transfer (500Kbps)

- ■ High Speed processing available.

- ■ The access between the card and Reader/Writer is using electromagnetic coupling system, it is very strong for environment resistance.

■ Built-in Type Drive Unit

Model	Item	Specification
	Interface	8bit parallel
	Power Supply	DC5V, Less than 800mA
	Operating Temp.	0-50ºC (No condensation)
	Outer Dimension	132(W) x 83(D) x 26(H) mm
	Feature 1 : Protocol : CMOS Logic Hand-shake method Feature 2 : It can acces using original simple read/write command, because it has CPU. Feature 3 : It can read/write the conventional LSI Card.	
Model : HSPA200	*Reader/Writer is option as customer's request.	

■ Stationary Type Reader/Writer

Model	Item	Specification
	Interface	Ethernet
	Power Supply	AC85-264V(Power consumption : Max. 5W)
	Operating Temp.	0-50ºC (No condensation)
	Outer Dimension	170(W) x 138(D) x 90(H) mm
	Feature 1 : Protocol : TCP/IP, Socket connector Feature 2 : Available automatic change 10BASE-T/100BASE-TX Feature 3 : Fixed IP address (Capable to set the specified address). Not correspond DHCP server.	
Model : HS-200E		

■ 10times Faster High Speed LSI Card

Model	Item	Specification
	Memory capacity	S-RAM : 1Mbyte, 2Mbyte
		FLASH : 16Mbyte-64Mbyte
	Operating Temp.	0-50ºC (No condensation)
	Outer Dimension	62(W) x 103(D) x 4.5(H) mm
	Operation life *1	S-RAM : 1MB Card : 5 years, 2MB Card : 3 years
		FLASH : Write-erase time : 100,000 times
Model : HSS-*MBR (S-RAM) **Model : HSS-*MBO (FLASH)**	*1 : S-RAM : The battery's operation life time from manufacturing date under condition of normal room temperature. FLASH : Write-erase time : 100,000 times. Both cards' body itself can be used around 10 years.	

■ **Specifications are subject to change without notice.**
2015.1.20

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