Solution-ePC series
19 inch rack mount type Custom Computers
MR4310

* Specifications, color and design of the products are subject to change without notice.

This product is a 19-inch rack-mount industrial-use PC that supports the 13th (Raptor Lake) of Intel® Core ™ series and contains the H610E chipset. In addition to a wide range of interfaces, expansion slots of PCI bus x 5, PCI Express Gen5(x16) bus x 1, or PCI Express Gen5(x8) x 1, PCI Express Gen3(x4) x 1 bus are equipped. A reliable, Japan-made power supply can be selected. A power supply equipped with a nickel metal hydride battery, for optimal countermeasures against momentary and prolonged power outages are also available.

Solution-ePC is an industrial-use computer that offers BTO (Build to Order) specifications to suit the requests of customers.

Only carefully selected components offering high reliability and stable supply are used, making the product suitable for industrial use.

* The contents in this document are subject to change without notice.
* Visit the CONTEC website to check the latest details in the document.
* The information in the data sheets is as of March, 2025.

Features

High-power, 4U rack-mounted PC
This product is an EIA 19 rack-mounted (4U) industrial computer compatible with 13th generation Intel® Core™ processors (Raptor Lake).

It is ideal for fields requiring advanced multiprocessing such as semiconductor manufacturing equipment, inspection equipment, social infrastructure, and medical equipment.

Can house up to seven function expansion cards
This product is equipped with one PCI Express Gen(x16) *, one PCI Express Gen3(x4) and five PCI slots.

It can house the signal input and output required for measurement control systems as well as multiple expansion interface cards required for AI/ML workloads and machine vision.

* You can use a jumper to switch the PCI Express Gen5(x16) slot to a PCI Express Gen5(x8) slot.

Equipped with various expansion interfaces
This product is equipped with various expansion interfaces including two Gigabit LAN ports, 8 USB ports, six COM communication ports, and video output ports (HDMI and DVI-I).

Supports Windows 10 IoT Enterprise 2021 LTSC in multiple languages
Windows 10 IoT Enterprise 2021 LTSC, an OS designed for specific applications, can be selected in one of four languages: English, Japanese, Chinese, and Korean.

This OS can be used as a long-term fixed version with no function updates.

The built-in lockdown function allows users to limit writing to storage.

MIRACLE LINUX 9.4 support
Cybertrust MIRACLE LINUX 9.4, a clone of RHEL (Red Hat Enterprise Linux) developed in Japan, can be selected.

A support menu (purchase required) equivalent to MIRACLE LINUX Standard Support is provided as an OEM license.

(Japanese version only)

Supported OS

Windows 10 IoT Enterprise 2021 LTSC 64bit (Japanese / English / Chinese / Korean)

MIRACLE LINUX 9.4 (Japanese version only)

Specifications

Function specification

Item		Description
CPU [Selection]		Intel® Core i9 13900E Processor 1.8GHz Intel® Core i7 13700E Processor 1.9GHz Intel® Core i5 13500E Processor 2.4GHz Intel® Core i3 13100E Processor 3.3GHz
Chip set		Intel® H610E
BIOS		AMI UEFI BIOS
Memory [Selection]		Max. 64GB 16GB: 16GB DDR5 4800MHz x 1 Non-ECC 32GB: 16GB DDR5 4800MHz x 2 Non-ECC 64GB: 32GB DDR5 4800MHz x 2 Non-ECC
Graphic		
	Controller	Intel® UHD Graphics 730/770 (CPU integrated)
System Resolution	HDMI	800 x 600, 1,024 x 768, 1,152 x 864, 1,280 x 600, 1,280 x 720, 1,280 x 768, 1,280 x 800, 1,280 x 960, 1,280 x 1,024, 1,360 x 768, 1,366 x 768, 1,400 x 1,050, 1,440 x 900, 1,600 x 900, 1,600 x 1,200, 1,680 x 1,050, 1,792 x 1,344, 1,856 x 1,392, 1,920 x 1,080, 1,920 x 1,200, 1,920 x 1,440, 2,048 x 1,152, 2,048 x 1,536, 2,560 x 1,600, 2,560 x 1,920, 2,560 x 2,048, 3,840 x 2,160, 4,096 x 2160 (16,770,000 colors)
	Analog RGB	800 x 600, 1,024 x 768, 1,152 x 864, 1,280 x 600, 1,280 x 720, 1,280 x 768, 1,280 x 800, 1,280 x 960, 1,280 x 1,024, 1,360 x 768, 1,366 x 768, 1,400 x 1,050, 1,440 x 900, 1,600 x 900, 1,680 x 1,050, 1,920 x 1,080 (16,770,000 colors)
Storage [Selection]		SATAIII 3.5-inch HDD 2TB SATAIII 3.5-inch HDD 4TB SATAIII 2.5-inch SSD 256GB SATAIII 2.5-inch SSD 512GB SATAIII 2.5-inch SSD 1TB Hardware RAID (Mirroring)
Optical Drive [Selection]		DVD slim drive
Interface	Display	DVI-I x 1 (Analog RGB + DVI-D), HDMI x 1
	USB	A-Type connector Front : USB2.0 x 2ports Rear : USB3.2 Gen1 (USB3.0) x 4ports, USB2.0 x 2ports
	Audio	HD Audio compliant, 3.5φ stereo mini jack, Rear : LINE OUT x 1, LINE IN x 1, MIC IN x 1
	Serial	9pin D-SUB connector(male) x 2 (RS-232C/422A/485 x 2) RS-232C x 4 (Internal connector) Baud rate : 50 - 115,200bps
	LAN	2ports (RJ-45 connector) 1000BASE-T/100BASE-TX/10BASE-T, Wake On LAN

Expansion Slot *1 [Selection]		- PCI Express Gen5(x16)/(x8) slot x 1 * Switched with the jumper *1
		   Usable card dimension: Max. 312mm(L) x 111.15mm(H)
		- PCI Express Gen3(x4) slot x 1
		   Usable card dimension: Max. 307mm(L) x 111.15mm(H)
		- PCI slot x 5
		   Usable card dimension: Max. 307mm(L) x 107mm(H)

RAS		WDT: 1sec - 255 sec (Causes a reset upon time-out.) Remote reset / Remote power on, External input signal Monitoring function (fan speed, CPU temperature, voltage data readout)
Security (TPM)		TCG TPM2.0
RTC/CMOS		The real-time clock is accurate within ±3 minutes (at 25°C) per month, Lithium backup battery life : 7 years or more
Supportable OS [Selection]		None Windows 10 IoT Enterprise 2021 LTSC 64bit (Japanese / English / Chinese / Korean)

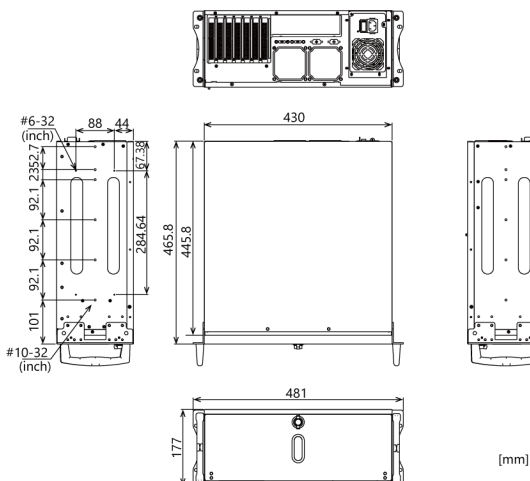| Item	Description
	MIRACLE LINUX 9.4 *3
Power Supply [Selection]	Japan-made 520W ATX power supply (50/60Hz Input auto switching) Japan-made 520W ATX power supply Supports UPS nickel metal hydride battery (50/60Hz Input auto switching) Non-Japan-made 500W ATX power supply (50/60Hz Input auto switching)
Rated input voltage	100 - 240VAC
Range of input voltage	90 - 264VAC
Power consumption	With 500/520 W power supply : 3.6A (100VAC) (Max)
External device power supply capacity	USB 2.0 : 5V 0.5A x 4　2.0A USB 3.0 : 5V 0.9A x 4　3.6A PCI Express Gen5(x16) slot : 3.3V 3A, 12V 5.5A PCI Express Gen3(x4) slot : 3.3V 3A, 12V 2.1A Expansion PCI : 3.3V 3.4A, 5V 3.4A, 12V 0.9A (5 slots total)
Physical dimensions (mm)	430(W) x 445(D) x 177(H) (Excluding Front Bezel and Handles)
Weight *2	15.6Kg (approx.) (500W power supply, HDD x 2 (Removable), optical drive configuration) *2

*1　If the expansion card is wider than 18.71 mm, it may cover the adjacent PCI bus, limiting the available PCI buses to four slots.
　　(Example: The adjacent PCI bus cannot be used with a dual-slot graphics card. Depending on the card being installed, the adjacent bus may also not be usable with some single-slot graphics cards.)

*2　The weight (which does not include accessories) may vary depending on the product configuration.

*3　With MIRACLE LINUX 9.4, the language and keyboard layout are set to Japanese in the default setup.

Installation Environment Requirements

Item		Description
Operating ambient temperature		5 - 40°C
Non-operating ambient temperature		-20 - +60°C * With nickel metal hydride battery : 0 - 50°C
Humidity		20 - 80%RH (No condensation)
Floating dust particles		Not to be excessive
Corrosive gases		None
Line-noise resistance	Line noise	AC line / ±2kV (IEC61000-4-4 Level 3, EN61000-4-4 Level 3), Signal line / ±1kV (IEC61000-4-4 Level 3, EN61000-4-4 Level 3)
	Static electricity resistance	Contact discharge / ±4kV (IEC61000-4-2 Level 2, EN61000-4-2 Level 2), Air discharge / ±8kV (IEC61000-4-2 Level 3, EN61000-4-2 Level 3)
Vibration resistance	Sweep resistance	- HDD configuration (when powered on) 10 - 50Hz / 0.5G 25 min. each in x, y, and z directions (JIS C60068-2-6 compliant, IEC60068-2-6 compliant) - SSD configuration (when powered on) 10 - 57Hz / semi-amplitude : 0.075mm, 57 - 150Hz / 1.0G 40 min. each in x, y, and z directions (JIS C60068-2-6 compliant, IEC60068-2-6 compliant) * Excluding vertical installation and optical drive usage
Impact resistance		10G, half-sine shock for 11ms in x, y, and z directions (JIS C60068-2-27 compliant, IEC 60068-2-27 compliant)
Grounding		Class D grounding, SG-FG / continuity
Standard		VCCI Class A, FCC Class A

Physical Dimensions

Horizontal Installation

[mm]

With Vertical Resin Stands Attached
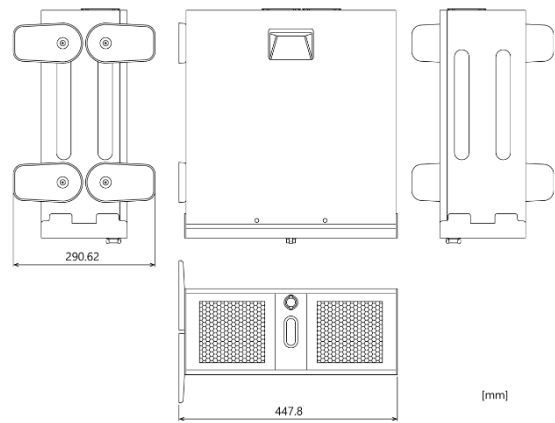
Included Items

Product [MR4310] …1
AC Cable … 1
Front Bezel Key … 2
Key For Removable … 4 *1
Vertical Resin Stand … 1 set
Mount Bracket … 1 set

RS-232C Cable For Battery … 1 *1
Vertical orientation stand bracket … 2 *1
Keyboard … 1 *1
Mouse … 1 *1
Product Guide … 1

Optional Products

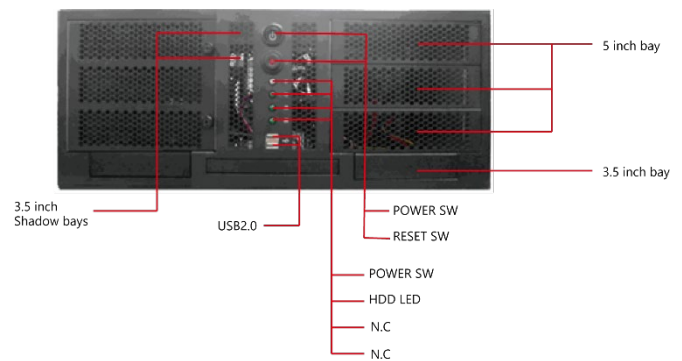| Parts name	Type	Description
Hard Disk	HDD-2TS-3	3.5 inch SATA HDD 2TB
	HDD-2TS-3R	3.5 inch SATA HDD 2TB (Support for RAID)

⚠ CAUTION

If a product other than our optional one is used, the normal operation may be impaired or the functions may be limited.

* Visit the CONTEC website for the latest optional products.

Component Name

Front View
Front components

3.5 inch Shadow bays
USB2.0
POWER SW
RESET SW
5 inch bay
3.5 inch bay

POWER SW
HDD LED
N.C
N.C

Front components with options installed

Removable drive 1
Removable drive 2
Storage 1 (inside chassis: shadow bay)
Storage 2 (inside chassis: shadow bay)

LEDs with hardware RAID selected (3.5 inch bay)

Drive2 LED↵
Drive1 LED↵
Access LED↵
Power LED↵
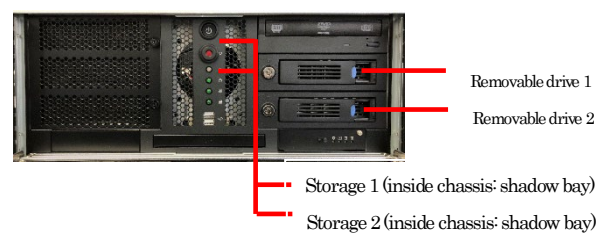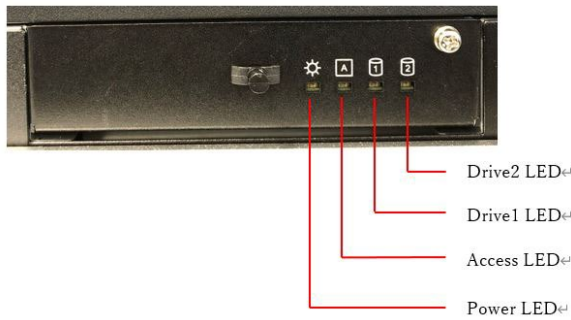
With front cover attached

* The 5 inch bays store the customer-selected optical drives, batteries, and storage devices.

* The 3.5 inch bay stores the RAID board when RAID is selected.

* The 3.5 inch shadow bays store the selected storage devices.

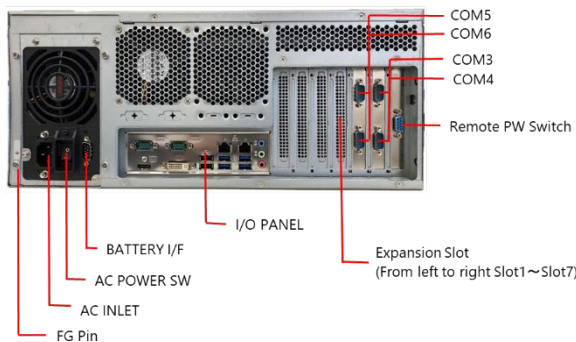| Name		Function
Front	Optical drive	Slim DVD super multi drive (5 inch bay)
	Nickel metal hydride battery	Selectable when the Japan-made 520 W power supply is selected (upper 5 inch bay)
	Power LED (For hardware RAID)	Power LED with hardware RAID selected (3.5 inch bay for hardware RAID)
	Access LED	Status LED with hardware RAID selected (3.5 inch bay for hardware RAID)
	Drive 1 LED	SATA device 1 access LED with hardware RAID selected (3.5 inch bay for hardware RAID)
	Drive 2 LED	SATA device 2 access LED with hardware RAID selected (3.5 inch bay for hardware RAID)
	POWER SW	Power switch
	RESET SW	System reset switch
	POWER LED	Power LED (For PC main body)
	HDD LED	SATA device LED
	USB2.0	USB 2.0 (Type-A connector) x 2
	Removable drive 1	SATAIII, 2.5 inch / 3.5 inch removable drive (5 inch bay)
	Removable drive 2	SATAIII, 2.5 inch / 3.5 inch removable drive (5 inch bay)
	Storage 1	SATAIII, 3.5 inch drive (Shadow bay)
	Storage 2	SATAIII, 3.5 inch drive (Shadow bay)

Rear View

COM5
COM6
COM3
COM4
Remote PW Switch
I/O PANEL
BATTERY I/F
AC POWER SW
AC INLET
FG Pin
Expansion Slot (From left to right Slot1～Slot7)
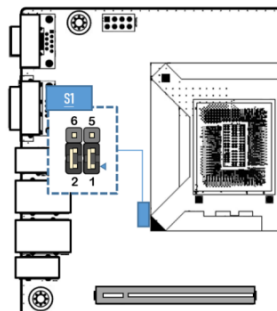
Name		Function
Rear	I/O PANEL	Stores various interfaces
	COM 3/4/5/6	RS-232C (9pin D-SUB connector (Male)) 2 port x2　*Selection
	Remote PW Switch	Allows the product to be started remotely
	FG Pin	Frame ground terminal
	AC INLET	100 - 240VAC Power Input Connector
	AC POWER SW	AC Power Switch

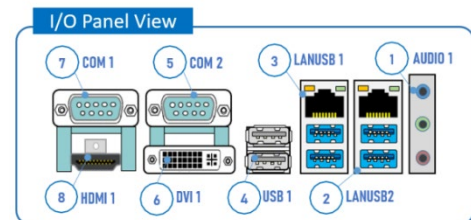| Name		Function
	Expansion Slot	From the left Slot1 (PCI Express 1) : PCI Express Gen5(x16)/(x8) slot x1 Slot2 (PCI1) : PCI slot x1 Slot3 (PCI Express 2) : PCI Express Gen3(x4) slot x1 Slot4 (PCI2) : PCI slot x1 Slot5 (PCI3) : PCI slot x1 Slot6 (PCI4) : PCI slot x1 Slot7 (PCI5) : PCI slot x1 * Use the jumper (S1) to switch between PCI Express Gen5(x16) and PCI Express Gen5(x8). * Remote PW switch, COM 3/4/5/6 occupy expansion slots. From right to left on the rear panel: Remote PW switch, COM 3/4, COM 5/6, and right to left.
	BATTERY I/F	COM port for battery

Jumper (S1) settings

When configuring this setting, use the jumper (S1) on the motherboard.

Label	Setting	Function
S1	(Initial value) 2 - 4 : connection 1 - 3 : connection	PCI Express Gen5(x16) x 1
	2 - 4 : connection 3 - 5 : connection	PCI Express Gen5(x8) x 2

I/O panel details

I/O Panel View

7 COM 1　5 COM 2　3 LANUSB 1　1 AUDIO 1
8 HDMI 1　6 DVI 1　4 USB 1　2 LANUSB2

Name		No.	Function
I/O PANEL	AUDIO1 (LINE IN)	1	Line input (3.5φPHONE JACK)
	AUDIO1 (LINE OUT)	1	Line output (3.5φ PHONE JACK)
	AUDIO1 (MIC IN)	1	Mic input (3.5φ PHONE JACK)
	LANUSB1 (LAN A)	3	1000BASE-T/100BASE-TX/10BASE-T (RJ-45 Connector)
	LANUSB2 (LAN B)	2	1000BASE-T/100BASE-TX/10BASE-T (RJ-45 Connector)
	LANUSB1 (USB 3.2 Gen1)	3	USB 3.2 Gen1 (USB 3.0) (Type-A Connector) 2 ports
	LANUSB2 (USB 3.2 Gen1)	2	USB 3.2 Gen1 (USB 3.0) (Type-A Connector) 2 ports
	USB 1 (USB 2.0)	4	USB 2.0 (Type-A Connector) 2 ports
	COM 1	7	RS-232C/RS-422A/RS-485(9pin D-SUB Connector (male))
	DVI 1	6	Display (24pin + 5pin, female)
	COM 2	5	RS-232C/RS-422A/RS-485 (9pin D-SUB Connector (male))
	HDMI 1	8	Display (19pin, female)

Model Name Description

MR4310 Type Rule

Model Name	**MR4310**											
Type Name	N	2	8	8	9	9	1	H	0	0	0	0
No.	1	2	3	4	5	6	7	8	9	10	11	12

No.	Item	Type Name	Description
1	Power *2	P	Reserved
		F	Non-Japan-made (500W) power supply
		N	Japan-made (520W) power supply
		U	Japan-made (520W) power supply (with nickel metal hydride battery pack)
2	CPU	1	Intel® Core™ i3 13100E Processor 3.3GHz
		2	Intel® Core™ i5 13500E Processor 2.4GHz
		3	Intel® Core™ i7 13700E Processor 1.9GHz
		4	Intel® Core™ i9 13900E Processor 1.8GHz
		A	Reserved
3	Memory	1 - 7	Reserved
		8	16GB : DDR5 non-ECC DIMM (16GB x 1)
		9	32GB : DDR5 non-ECC DIMM (16GB x 2)
		A	64GB : DDR5 non-ECC DIMM (32GB x 2)
		B	Reserved
		C	Reserved
4	Optical Drive	0	Without optical drive
		1 - 7	Reserved
		8	With optical drive
		9 -	Reserved
5	Removable drive Storage 1 * The setting selected for whether a removable drive is present is common for storage 1 and storage 2. (Example: If you select that storage 1 is present, storage 2 is also selected to be present.)	0	Without 5 inch removable, No Storage
		1	Without 5 inch removable, 3.5 inch SATA/HDD 2TB
		2	Without 5 inch removable, 3.5 inch SATA/HDD 4TB
		3	Without 5 inch removable, 2.5 inch SATA/SSD 256GB (3D TLC BICS5)
		4	Without 5 inch removable, 2.5 inch SATA/SSD 512GB (3D TLC BICS5)
		5	Without 5 inch removable, 2.5 inch SATA/SSD 1TB (3D TLC BICS5)
		6 - 8	Reserved
		9	With 5 inch removable, 3.5 inch SATA/HDD 2TB
		A	With 5 inch removable, 3.5 inch SATA/HDD 4TB
		B	With 5 inch removable, 2.5 inch SATA/SSD 256GB (3D TLC BICS5)
		C	With 5 inch removable, 2.5 inch SATA/SSD 512GB (3D TLC BICS5)
		D	With 5 inch removable, 2.5 inch SATA/SSD 1TB (3D TLC BICS5)
		E -	Reserved
6	Removable drive Storage 2 * The setting selected for whether a removable drive is present is common for storage 1 and storage 2. (Example: If you select that storage 1 is present, storage 2 is also selected to be present.)	0	Without 5" removable, No Storage
		1	Without 5 inch removable, 3.5 inch SATA/HDD 2TB
		2	Without 5 inch removable, 3.5 inch SATA/HDD 4TB
		3	Without 5 inch removable, 2.5 inch SATA/SSD 256GB (3D TLC BICS5)
		4	Without 5 inch removable, 2.5 inch SATA/SSD 512GB (3D TLC BICS5)
		5	Without 5 inch removable, 2.5 inch SATA/SSD 1TB (3D TLC BICS5)
		6 - 8	Reserved
		9	With 5 inch removable, 3.5 inch SATA/HDD 2TB
		A	With 5 inch removable, 3.5 inch SATA/HDD 4TB
		B	With 5 inch removable, 2.5 inch SATA/SSD 256GB (3D TLC BICS5)
		C	With 5 inch removable, 2.5 inch SATA/SSD 512GB (3D TLC BICS5)
		D	With 5 inch removable, 2.5 inch SATA/SSD 1TB (3D TLC BICS5)
		E -	Reserved
7	OS	0	None
		1	Windows 10 IoT Enterprise 2021 LTSC 64bit (Japanese / English / Chinese / Korean)
		2	Reserved
		3	Reserved
		A	Reserved
		B	MIRACLE LINUX 9.4 (Japanese version only)
8	RAID	0	None
		R	Reserved
		H	Hardware RAID
9	Keyboard & Mouse	0	None
		1	USB Japanese 109 keyboard (JP109)

No.	Item	Type Name	Description
		2	USB Optical mouse
		3	USB Japanese 109 keyboard (JP109) + USB Optical mouse
		4	USB English 104 keyboard (US104)
		6	USB English 104 keyboard (US104) + Optical mouse
10	Expansion slot COM	**0**	No COM port expansion
		1	COM3, COM4 2 ports expansion
		2	Reserved
		3	COM3, COM4, COM5, COM6 4 port expansion
		4 -	Reserved
11	Vertical Stand Remote PW Switch	**0**	Without Vertical Stand, Without remote PW switch
		1	With Vertical stand, Without remote PW switch
		2 - 7	Reserved
		8	Without Vertical Stand, With remote PW switch
		9	With Vertical Stand, With remote PW switch
		A -	Reserved
12	Reserved	**-**	Reserved