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# INSTALLATION AND OPERATOR'S MANUAL

***MatrixPRO***<sup>TM</sup>

**MatrixPRO Remote Control Panel — Ethernet**

Manual #26-0301300-00 / Revision A

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## Change History

Rev #	Date	ECO #	Description	Approved By
A	7/21/06	1681	Release	C. Brenner

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## Operators Safety Summary

The general safety information in this summary is for operating personnel.

- **Power Source**

This product is intended to operate from a power source that will not apply more than 230 volts RMS between the supply conductors.

- **Use the Proper Power Cord**

Use only the power cord and connector specified for your product. Use only a power cord that is in good condition. Refer cord and connector changes to qualified service personnel.

- **Do Not Operate in Explosive Atmospheres**

To avoid explosion, do not operate this product in an explosive atmosphere.

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## Terms In This Manual

**WARNING**

Highlights an operating procedure, practice, condition, statement, etc., which, if not strictly observed, could result in injury to or death of personnel.

**Note:**

Highlights an essential operating procedure, condition or statement.



**CAUTION!**

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



**AVERTISSEMENT!**

Le point d'exclamation dans un triangle équilatéral signale à alerter l'utilisateur qu'il y a des instructions d'opération et d'entretien très importantes dans la littérature qui accompagne l'appareil.



**VORSICHT!**

Ein Ausrufungszeichen innerhalb eines gleichwinkligen Dreiecks dient dazu, den Benutzer auf wichtige Bedienungs- und Wartungsanweisungen in der Dem Great beiliegenden Literatur aufmerksam zu machen.

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## Terms As Marked on Equipment

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Highlights an operating procedure, practice, condition, statement, etc., which, if not strictly observed, could result in injury to or death of personnel.



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#### Note:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at the users own expense.

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## Chapter 1 — Introduction

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### In This Chapter

- [About the MatrixPRO Remote Control Panel](#)
- [Features](#)

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## About the MatrixPRO Remote Control Panel

The MatrixPRO Remote Control Panel provides a simple-to-use remote control for Barco MatrixPRO series routers.

Attention to the Installation and Operation Sections of this manual is important to ensure trouble-free operation. Should you have any questions regarding the operation of this unit, please consult the factory.

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## Features

- Provides 16 input and 16 output push button switches (XY model) for remote control of up to a 16x16 MatrixPRO
- The output keys can be locked in order to prevent unintended operation of specific channels
- The take key can be disabled to allow for immediate routing of inputs on XY panels
- Ability to connect up to 16 Remote Control units through Ethernet to a MatrixPRO series router
- Flexible cabling configurations via Ethernet



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## Chapter 2 — Installation

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### In This Chapter

- [Rear Panel Connectors](#)
- [Rack-Mount Installation](#)
- [Power Cord/Line Voltage Selection](#)

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## Rear Panel Connectors

The figure below illustrates the rear panel:



*MatrixPRO Remote Control Panel Rear*

- DC Power Input
- RS-232 DB-9 connector
- Ethernet connector

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## Rack-Mount Installation

MatrixPRO Remote Control Panel units are designed to be rack mounted, and are supplied with all of the required rack-mount hardware. When rack mounting the unit, remember that maximum ambient operating temperature for the unit is 40 degrees C. When installing equipment into a rack, distribute the units evenly to prevent hazardous conditions that may be created by uneven weight distribution. Connect the unit only to a properly rated supply circuit. Reliable grounding (Earthing) of Rack-Mounted Equipment should be maintained.

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## Power Cord/Line Voltage Selection

The MatrixPRO Remote Control Panel DC supply performs line Voltage Selection automatically. No user controls are required for line voltage selection.

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## Chapter 3 — Operation

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### In This Chapter

This section provides instructions that indicate how to control all MatrixPRO Remote Control Panel functions. Keys on the MPRC front panel are used to select input sources and output destinations, and setup channel lockouts.

- [Power-up Initialization](#)
- [Connecting to a MatrixPRO Router](#)
- [Front Panel Operation](#)
- [Control of Audio and Video Switching on XY Panels](#)
- [Disabling the Take Key on XY Panels](#)
- [Control of Audio and Video Switching on Single Bus Panels](#)
- [Status](#)
- [Output Select](#)
- [Selecting an IP Address](#)

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## Power-Up Initialization

Plug in the AC to DC power supply. During boot up the Input and Output LED's will flash.

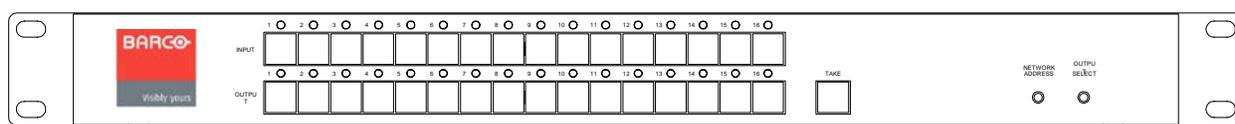
## Connecting to a MatrixPRO Router

The Remote Control can be connected to a MatrixPRO router through an Ethernet hub or switch. If only one Remote Control will be connected to the MatrixPRO router, then a CAT-5 crossover cable can be used to connect directly between the two.

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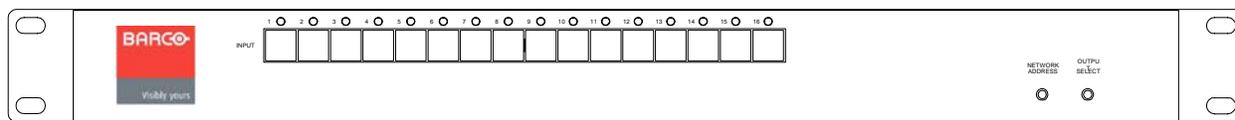
## Front Panel Operation

The figure below illustrates the XY MPRC front panel:



*XY MPRC Panel Front*

The figure below illustrates the single bus MPRC front panel:



*Single Bus MPRC Panel Front*

## Control of Audio and Video Switching on XY Panels

Use the following steps to control audio and video switching on XY panels:

1. Select an output.
2. The Input corresponding to the selected output will be illuminated.
3. Select a new input source. The newly selected input LED will start blinking, and the currently routed input LED will turn off. The blinking indicates that a new source has been selected to be routed to that output once the take key is pressed.
4. To set up additional pending routes, or to edit the previously entered selections repeat steps 1-3.
5. Press the take key to complete the pending routes. If the take key is disabled, then a route will complete immediately when the input key is pressed.

## Disabling the Take Key on XY Panels

Use the following steps to disable the Take key on XY panels:

1. Simultaneously press the output select button and the take key. The output LEDs will indicate the state of the take key. If the LEDs are lit, then the take key is enabled.
2. While pressing the output select button and take key, press the output 16 key. The output LEDs will turn off, and the take key will then be disabled.
3. To enable the take key repeat steps 1-2.

## Control of Audio and Video Switching on Single Bus Panels

Use the following steps to control audio and video switching on single bus panels:

1. Select a new input source. The newly selected input will be immediately routed, and the corresponding LED will light.
2. If there was some problem that prevented the input from being routed, the LED will blink. Press the key again to cancel the route request, or a different key to route a different input.

### Status

To see which input is associated with an output, press and release an output key. The input currently assigned to the output will be illuminated. If a source change is pending, but not yet routed, then the LED corresponding to the input that is to be routed will blink.

### Output Select

Output select allows a specific output channel to be set as the only output to which inputs will be routed. Use the following steps to select an output channel:

1. Press and hold the output select button.
2. Press the output key corresponding to the channel to which all inputs should be routed. The LED above the key will illuminate. On single bus panels use the input keys instead.
3. To return an XY panel to full XY control mode, press the output key that corresponds to the currently selected output. The LED will turn off, and the panel will return to full XY operation when the output select button is released.

### Selecting an IP Address

The MPRC defaults to the IP address range 192.168.0.201 through 192.168.0.216. Use the following steps to select an IP address:

1. Press and hold the Network Address button.
2. Press the input key corresponding to the desired IP address, i.e. pressing input key 1 will set the IP address to 192.168.0.201.
3. Release the Network Address button.
4. Press the Network Address button again within five seconds to allow selection of the target router IP address; the input LED will blink.
5. Press the input key corresponding to the desired router.
  - ~ 1 for the analog router (192.168.0.241)
  - ~ 2 for the SDI router (192.168.0.242)
  - ~ 3 for the DVI router (192.168.0.243)
6. Release the Network Address button.





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## Chapter 4 — Connecting MatrixPRO RCP

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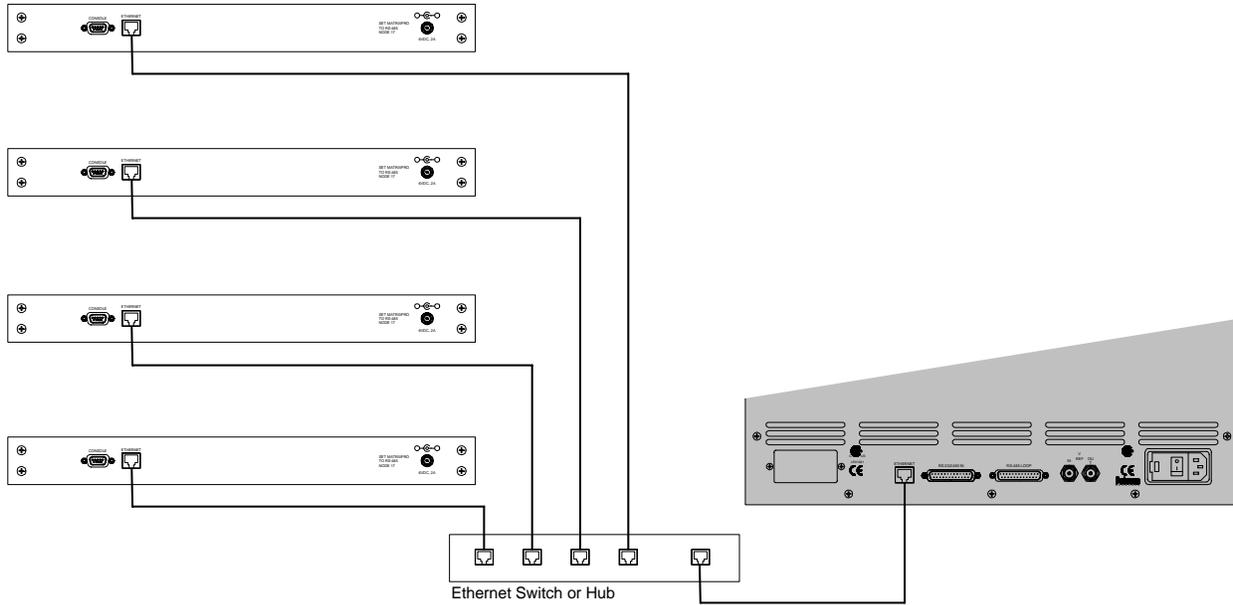
### In This Chapter

- [Connectivity Diagrams](#)

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## Connectivity Diagram

The figure below illustrates the connection of a MatrixPRO Remote Control Panel to a MatrixPRO 16x16.



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## Chapter 5 — External Remote Control

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### In This Chapter

- [Serial Command Syntax Specification](#)
- [Serial Parameters](#)
- [RS-232](#)
- [Commands](#)
- [MatrixPRO RCP Commands](#)
- [MatrixPRO RCP Serial Command List and Description](#)
- [IP Address Configuration GUI](#)

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## Serial Command Syntax Specification

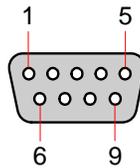
### Serial Parameters

The following are the parameter settings for serial communication.

- Baud Rate is 57600 baud.

### RS-232

A PC can be connected to the RS-232 port in order to update its firmware. The connector pin-out is shown in the diagram:



DB9	RS-232
1	N/C
2	TxD
3	RxD
4	DSR
5	GND
6	DTR
7	CTS
8	RTS
9	N/C

---

## Commands

Single commands will be combined with a command delimiter start, device number, command separator and command delimiter end to form a command string as shown below:

### Single Command Format

```
cdsidcmd arg1 arg2 ..argncde
```

### Multiple Command Format

```
cdsidcmd arg1 arg2 ..argn,idcmd arg1 arg2 ..argn,...,idcmd arg1 arg2 ..argncde
```

Abbreviation	Description
cds	cds is the command delimiter start character '*' (ASCII 42).
id	id is the device number in the range of 1 to 32. This can be a single character for values less than 10, no preceding zero is required.
cmd	cmd is any valid Graphics Board command, typically 2 to 6 characters in length
arg	arg1,2,n is any required or optional parameters need for the command
,	separates multiple commands
cde	cde is the command delimiter end character '!' (ASCII 33).

### Example:

```
*12XYZ A 9,9PDQY 1234,31WX 200 98! Or *17MPCRC 5!
```

The command string is started by the command delimiter start character '\*'. The first command follows directly after the cds. The example shows that device 12 should process the XYZ command with A and 9 as parameters. A coma (ASCII 44) separates the commands. Device 9 will process the PDQY command with a parameter of 1234 and device 31 will process the WX command with parameters of 200 and 98. The cde '!' follows directly after the last command to end the command string.

Commands received in the command string will not be processed until the cde character '!' is received. This format allows commands to be stack to the same or multiple devices and executed when the cde '!' character is received by all units. Any incomplete or unknown commands will be ignored. The maximum number of commands that can be stacked per unit is 16. Each unit will only stack those commands assigned to it, even though all units receive the same command string.

During queue processing, no input buffer processing is performed. Characters sent through the serial port during queue processing are still stored in the input buffer. If hardware flow control is not observed, it is important to guarantee that the input buffer limit is not exceeded before completion of the last command string. Note: The command queue does not support backspace characters.

To minimize bus traffic the command words will be kept as short as possible. The units will not respond with prompts or any command error conditions.

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## MatrixPRO RCP Commands

- **HELP**  
Capabilities. Send list of commands available back in ASCII format
- **OSTAT [out]**  
Displays output status in ASCII.
- **RTEMP out in audio**  
Route inputs to outputs. If output is in group, group is routed too.
- **TAKE en**  
en = 1 simulates a TAKE button pushed on the front panel (i.e., takes all prelim routes and makes it permanent).  
en = 0 simulates a CANCEL button pushed

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## MatrixPRO RCP Serial Command List and Description

- **HELP**
  - ~ **Description:** Displays the list of available command on a terminal emulator
  - ~ **Parameters:** None
  - ~ **Example:** HELP (Returns the command list.)
- **OSTAT**
  - ~ **Description:** Displays output information (i.e. which input video/audio # routed, audio level, etc). It is also used to return the status value in RS-485
  - ~ **Parameters:** **out** - Output number; [1 – 16]  
**Note:** this parameter is optional, if no parameter exists, all output information (i.e. 1-8) will be displayed.
  - ~ **Example:**
    - OSTAT 1 (Displays output status for output 1.)
    - OSTAT (Displays output status for all outputs.)
- **RTEMP out in audio**
  - ~ **Description:** Routes input to output. If the output is in a group, all the outputs in the group will be routed to the input specified. If the output is in a I/O group but the input is not in the group, the command will be ignored.
  - ~ **Parameters:**
    - **out** - Output number; [1 - 16]
    - **in** - Video Input number to route video; [1-16] / 101 if no input to add
    - **audio** - Audio Input number to route audio; [1-16] / 101 if no audio to add

~ **Query:**

- RTEMP? out - returns the current video and audio inputs routed to the specified output in the format: =in audio

~ **Example:**

- RTEMP 1 3 4 (Route to output 1, video input 3, audio input 4.)
- RTEMP 4 101 5 (Route to output 4, audio input 5)

#### • **TAKE en**

~ **Description:** Route / Cancel all pending video/audio routes.

~ **Parameters:** en - Mode; [0|1], Cancel all pending | Route all pending.

- 0 is the equivalent of pressing **ESC** on the front panel.
- 1 is the equivalent of pressing **TAKE** on the front panel.

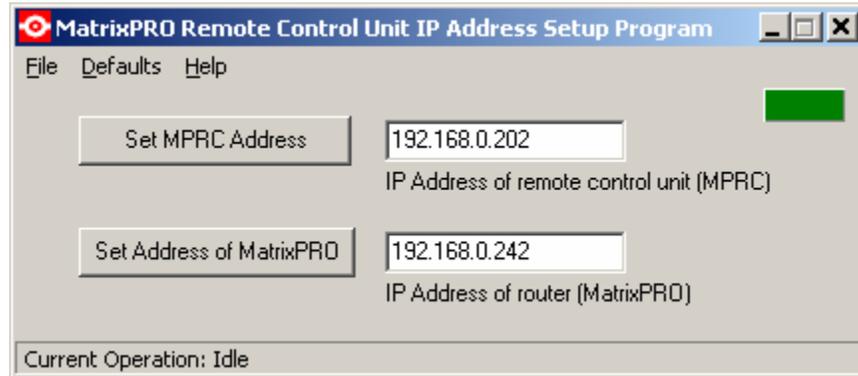
~ **Example:** TAKE 1 (Routes all pending video/audio routes.)

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## IP Address Configuration GUI

The MPRC can be configured with IP addresses of your choice in case you are using it on a network that is configured with a subnet address other than 192.168.0.x.

The GUI will run on any standard PC. Connect a serial cable between the PC and the MPRC, and then launch the “MPRCset.exe” program.



*MPRCset.exe Dialog*

Give the MPRC an appropriate IP address by entering the desired address into the box titled “IP Address of remote control unit (MPRC)”, and clicking the “**Set MPRC Address**” button.

By the same means, you can specify the IP address of the router you wish to control with the MPRC. Enter the desired address into the box titled “IP Address of router (MatrixPRO)”, and then click the “**Set Address of MatrixPRO**” button.



# MatrixPRO™

## Chapter 6 — Barco Information

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### In This Chapter

- [Barco Warranty](#)
- [Return Material Authorization \(RMA\)](#)
- [Barco Contact Information](#)

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### Barco Warranty

All video products are designed and tested to the highest quality standards and are backed by a full 3-year parts and labor warranty. Warranties are effective upon delivery date to customer and are non-transferable. Barco Folsom warranties are only valid to the original purchaser/owner. Warranty related repairs include parts and labor, but do not include faults resulting from user negligence, special modifications, lightning strikes, abuse (drop/crush), and/or other unusual damages.

The customer shall pay shipping charges when unit is returned for repair. Barco will cover shipping charges for return shipments to customers.

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## Return Material Authorization (RMA)

In the unlikely event that a product is required to return for repair, please call (866) 374-7878 and ask for a Sales Engineer to receive a Return Merchandise Authorization number (RMA).

RMA Conditions:

- Prior to returning any item, you must receive a Return Merchandise Authorization (RMA) number.
- All RMA numbers must appear on their return-shipping label.
- RMA numbers are valid for ten (10) days from issue date.
- All shipping and insurance charges on all RMA's must be prepaid by the customer

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## Barco Contact Information

### Sales Contact Information

- Direct Sales Line: (916) 859-2505
- Toll Free Line: (888) 414-7226
- E-mail: [folsomsales@barco.com](mailto:folsomsales@barco.com)

### General Company Information

Barco Media and Entertainment  
11101 Trade Center Drive  
Rancho Cordova, CA 95670

- Tel: (916) 859-2500
- Fax: (916) 859-2515
- Websites: [www.barco.com](http://www.barco.com)

Barco Europe  
Barco NV  
Noordlaan 5  
8520 Kuurne  
Belgium

- Tel: +32 56.36.82.11
- Fax: +32 56.35.16.51

### Technical Support Information

- Tech Line: (866) 374-7878 (24 hours per day, 7 days per week)
- E-mail: [folsomsupport@barco.com](mailto:folsomsupport@barco.com)

# MatrixPRO™

## Appendix A — Specifications

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### In This Appendix

- [MatrixPRO Remote Control Panel Technical Specifications](#)
- [Control](#)
- [Console](#)
- [Power](#)
- [Enclosure](#)
- [Environmental](#)
- [Agency](#)

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### MatrixPRO Remote Control Panel Technical Specifications

This section provides MatrixPRO Remote Control Panel specifications:

#### Control

Parameter	Specification
Ethernet connector	RJ-45
Data rate	10Base/100Base

#### Console

Parameter	Specification
Serial console port	RS-232, 9-pin female D connector
Baud rate and protocol	57600, 8-bit, 1 stop bit, no parity

## Power

Parameter	Specification
Type MPRC Panel	+6VDC, 2A
Type AC to DC Power Supply	100-240 VAC, 47-63 Hz, auto-configuring
Power Dissipation	8 watts

## Enclosure

Parameter	Specification
Dimension	1.75" H x 17.0" W x 2.5" D 4.5 cm H x 43.2 cm W x 6.0 cm D 1U high, full rack width
Weight	3 lbs (1.4 kg)
Shipping weight	4 lbs (1.8 kg)
Rack mount	Yes, with included parts
Enclosure type	Metal

## Environmental

Parameter	Specification
Temperature	0-40 degrees C
Humidity	0-95%, non-condensing

## Agency

Parameter	Specification
FCC	Part 15, Subpart B - Class A, EN55022:1998 Class A and EN550024:1998
CE	Safety EN 60950, 1992