FIDS – Technical Specification

Heathrow

Contents

Introduction

Heathrow has been the busiest international hub airport in the world for the past decade, handling more than 60 million passengers on an annual basis. In order to successfully cater for such an extraordinary high volume of traffic, the airport operation must be based on using a robust groundwork, providing a reliable, uninterruptable service. The IT infrastructure at Heathrow has been built to meet these challenging criteria, and is being constantly upgraded to adopt the latest innovations and standards. It has proven to be well designed to handle the daily routine operation, as well as to cope with unexpected events.

Now, all the Heathrow airport tenants may benefit from this powerful IT infrastructure, commonly with the airport operations teams. Modern, resilient, built for purpose - all at the fraction of the costs for which it has been put in place.

Airports rely on visual communications in order to share vital information such as flight times and other relevant messages with their passengers. HAL's Flight Information Display Screens (FIDS) is a solution which facilitates passenger flows through airports efficiently and effectively while also opening up revenue-generating opportunities as a result of keeping the travellers reliably updated on their flight status, giving them a stress-free environment to spend more time shopping, eating, or just relaxing at one of the lounges.

Service Overview

HAL offers FIDS as a managed service, providing the Customers with the complete turn-key solution. The screen or screens of the selected size are installed at a given location and configured with the content allowing filtering of the displayed flight information by carrier, alliance, destinations, outbound/inbound direction, and others, as per the customer preference. The content of the information displayed is managed centrally and manual interaction or control by Customer staff is needed.

All the screens are provided in a portrait configuration and the layout of the displayed information will be the same on all screens. This allows for a consistent presentation of the flight status to passengers across the entire airport.

HIGH LEVEL DESIGN

FIDS is a downstream passenger information service for departures and arrivals. The FIDS service receives input data from IDAHO Airport Operational Database (AODB) and formats it for delivery on public displays. FIDS control and formats the arrival and departure information on the public and airline check-in screens which provide passenger flight and baggage reclaim information via mounted displays, security and general passenger information.
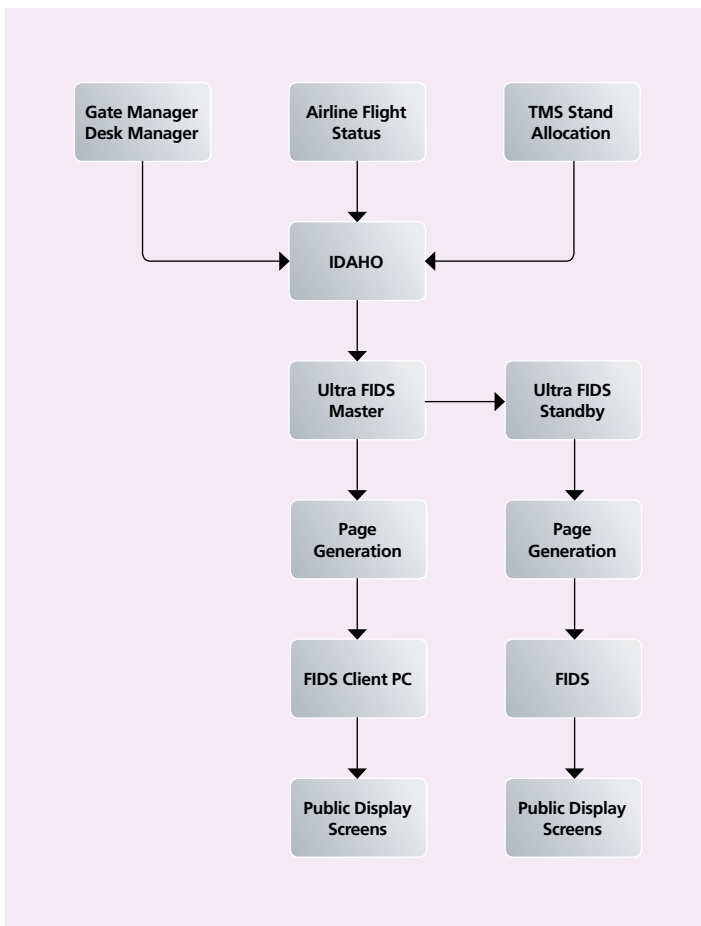
There are currently two separate FIDS applications in use at LHR, FIDS T1-T4 and FIDS T5. Oracle Database software is installed on each server although the actual database storage is on the SAN.

The data exchange between AODB and FIDS uses XML messages. Any potentially corrupt data is rejected through the message validation process. Today it is almost impossible to create corrupt data in this way (unlike old style interfaces where characters could be corrupted during transmission) so this is less of an issue.

Also, since the received data is stored in a database, Oracle database will also apply validation so it will be impossible for example, to store date of 30th February or a time of 25:36 etc.

The service has been implemented on a very resilient infrastructure with a dual server configuration over three separate data centres which allow service delivery even if one data centre is unavailable. For example, a server pair located in the data centre at T5 can provide service to T1-T4 FIDS displays. An automatic failover is in place between the master and standby server at every location.

OPTIONS

Content

Although the screen layout is kept the same across all of the FIDS deployed at Heathrow, there are still vast capabilities for customising the content displayed.

The flight information can be filtered according to the required criteria, displaying only:

- Arrivals
- Departures

Customers can also select to have the flight information displayed as per the carriers criteria:

- Single Airline
- Alliance / Code-share

The information displayed can also vary by location criteria:

- By Terminal (airside or landside, arrivals and departures)
- By Gates (departures only)
- For Piers, all the gates available in the Pier have to be entered into the filter (departures only)

Screens

Our screens deliver the longevity and reliability customers expect from a Public Display thanks to a professional Public Display panel and proven NEC engineering excellence. Their reduced depth and light weight makes them easy to handle and integrate while the new slim option slot STv2 allows for the integration of powerful slot-in PCs and other option slot products. They are ideal for a wide array of applications such as retail signage including 24/7, transport applications, conference rooms, lobby/reception installations and integration in totems and furniture.

HAL offers customers a wide range of FIDS.
Designed specifically for the airport environment in regards to durability, low energy consumption, and unbeatable picture quality.

Standard Features

- Programmable Ambient Light Sensor - for reduced power consumption and brightness levels.
- Colour Matching - the display can be hardware calibrated to display a certain colour temperature or brightness to match other displays in the same installation.
- NEC pioneered advanced thermal control and monitoring for public displays which is still unmatched. It secures longevity and reliability even in very demanding installations.
- NEC's STv2 Slot technology which was developed in cooperation with Intel enables the user to integrate various option boards enhancing flexibility and future functionality.
- Peace of mind thanks to full control of the display via LAN with free NEC software and alert emails in the unlikely event of a problem such as no signal, overheating, back light failure etc.
- Integrated speakers save installation costs and preserve the clean look of the display.
- Daisy chaining via DVI (max. 9 pieces) offering high flexibility at no extra cost if the signal needs to be passed on for video walls or back-to-back installations.
- Copy Settings feature via RS232 to reduce installation cost for back-to-back installations.

NECV322 - 32 inch display

INTERFACES LAYOUT
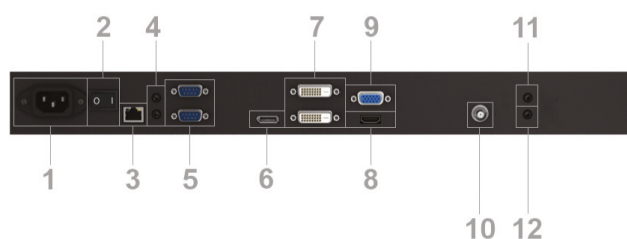
1. Power (AC in)
2. Main switch (on/off)
3. LAN with SNMP
4. Remote Control in / out
5. External control RS-232
   in / out
6. DisplayPort in
7. DVI in / out
8. HDMI in
9. RGB in
10. Composite in
11. Audio out
12. Audio in

DISPLAY

Panel Technology	S-PVA with CCFL backlights
Active Screen Area (W x H) [mm]	697.7 x 392.3
Screen Size [inch/cm]	31.5 / 80
Aspect Ratio	16:9
Brightness (shipping) [cd/m²]	340, (450 max)
Contrast Ratio (typ.)	3000:1
Viewing Angle [°]	178 horizontal / 178 vertical (typ. at contrast ratio 10:1)
Response Time (typ.) [ms]	8 (grey-to-grey)
Panel Refresh Rate [Hz]	60

SYNCHRONISATION RATE

Horizontal Frequency [kHz]	31.5 - 91.1 (analog and digital)
Vertical Frequency [Hz]	50 - 85

RESOLUTION

Native Resolution	1366 x 768 at 60 Hz
Supported on digital and analogue inputs (PC)	1920 x 1080; 1680 x 1050; 1600 x 1200; 1400 x 1050; 1366 x 786; 1360 x 768; 1280 x 1024; 1280 x 960; 1280 x 800; 1280 x 768; 1280 x 720; 1024 x 768; 800 x 600; 720 x 576; 720 x 400; 640 x 480
Supported on digital inputs (Video)	1920 x 1080i (59.94/60)16:9; 1920 x 1080p (59.94/60)16:9; 1920 x 1080p (50)16:9; 1920 x 1080p (23.97/24)16:9; 1920 x 1080p (25)16:9; 1920 x 1080p (29.97/30)16:9; 1280 x 720p (50)16:9; 720 x 576p (50)16:9; 720 x 480p (59.94/60)16:9

CONNECTIVITY

Input Video Analogue	D-Sub15 (PC RGB, Component, S-Video, Composite) Composite (BNC)
Input Video Digital	1 x DVI-D (with HDCP); 1 x HDMI 1.3 (with HDCP); 1 x DisplayPort (with HDCP)
Input Audio Analogue	1 x 3,5 mm jack
Input Audio Digital	DisplayPort; 1 x HDMI
Input Control	LAN 100Mbit; remote control wire (3,5mm jack); RS232
Output Video Digital	1 x DVI-D (with HDCP)
Output Audio Analogue	3,5mm jack
Output Control	remote control wire (3,5mm jack); RS232
Remote Control	LAN with SNMP; RS-232C (9-pin D-sub) Input and Output; Remote Control IR

OPTION SLOT

Slot Technology	STv2 (compatible with Intel / NEC OPS standard)
Inrush Current [A]	max. 10
Power Consumption [W]	max. 61
Voltage / Current [V/A]	16/4

ELECTRICAL

Power Consumption on Mode [W]	160 shipping; 305 (max.)
Power Savings Mode [W]	< 0.5 (ECO Standby); < 1
Power Management	VESA DPMS

ENVIRONMENTAL CONDITIONS

Operating Temperature [°C]	+5 to +40
Operating Humidity [%]	20 to 80
Storage Humidity [%]	10 to 90
Storage Temperature [°C]	-20 to +60

MECHANICAL

Dimensions (W x H x D) [mm]	Without stand: 786.8 x 476.2 x 93.5
Weight [kg]	Without stand: 12.1
Bezel Width [mm]	43.2 (left and right); 40.3 (top and bottom)
VESA Mounting [mm]	200 x 200 (FDMI); 4 holes; M6

AVAILABLE OPTIONS

Option Slot	Built-in PC; HD-SDI board

ADDITIONAL FEATURES

Colour Versions	Black Front Bezel, Black Back Cabinet
Safety and Ergonomics	CE; TÜV GS; C-tick; Energy Star 5.1; FCC Class B; UL/C-UL or CSA; PSB; VCCI; RoHS
Plug and Play	VESA DDC2Bi
Audio	Integrated Speakers (8 W + 8 W)

NEC X401S - 40 inch display

INTERFACES LAYOUT
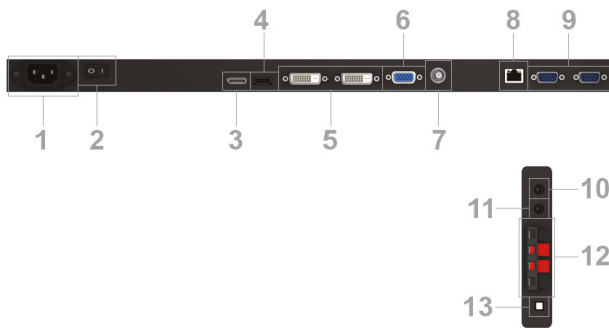
1. Power
2. Main Switch
3. DisplayPort in
4. HDMI in
5. DVI in / out
6. VGA IN (mini D-Sub 15 pin)
7. Composite in
8. LAN with SNMP
9. External control RS-232 in / out
10. Audio out
11. Audio in
12. External speakers
13. Internal / external speaker switch

DISPLAY

Panel Technology	S-PVA with edge LED backlights
Active Screen Area (W x H) [mm]	885.6 x 498.2
Screen Size [inch/cm]	40 / 101.6
Aspect Ratio	16:9
Brightness (shipping) [cd/m²]	500, (700 max)
Contrast Ratio (typ.)	3500:1
Viewing Angle [°]	178 horizontal / 178 vertical (typ. at contrast ratio 10:1)
Response Time (typ.) [ms]	8 (grey-to-grey)
Panel Refresh Rate [Hz]	60

SYNCHRONISATION RATE

Horizontal Frequency [kHz]	31.5 - 91.1
Vertical Frequency [Hz]	50 - 85

RESOLUTION

Native Resolution	1920 x 1080 at 60 Hz
Supported on digital and analogue inputs (PC)	1920 x 1080; 1680 x 1050; 1600 x 1200; 1400 x 1050; 1366 x 768; 1280 x 1024; 1280 x 960; 1280 x 800; 1280 x 768; 1280 x 720; 1024 x 768; 800 x 600; 720 x 576; 720 x 400; 640 x 480
Supported on digital inputs (Video)	1920 x 1080i (59.94/60)16:9; 1920 x 1080i (50)16:9; 1920 x 1080p (59.94/60)16:9; 1920 x 1080p (50)16:9; 1920 x 1080p (23.97/24)16:9; 1920 x 1080p (25)16:9; 1920 x 1080p (29.97/30)16:9; 1280 x 720p (59.94/60)16:9; 1280 x 720p (50)16:9; 720 x 576p (50)16:9; 720 x 480p (59.94/60)16:9

CONNECTIVITY

Input Video Analogue	1 x D-sub 15 pin; Composite (BNC)
Input Video Digital	1 x DVI-D (with HDCP); 1 x HDMI (with HDCP); 1 x DisplayPort (with HDCP)
Input Audio Analogue	1 x 3,5 mm jack
Input Audio Digital	DisplayPort; 1 x HDMI
Input Control	LAN 100Mbit; RS232
Output Video Digital	1 x DVI-D (with HDCP)
Output Audio Analogue	3,5mm jack
Output Control	RS232
Remote Control	LAN with SNMP; RS-232C (9-pin D-sub) Input and Output; Remote Control IR

OPTION SLOT

Slot Technology	STv2 (compatible with Intel / NEC OPS standard)
Inrush Current [A]	max. 10
Power Consumption [W]	max. 61
Voltage / Current [V/A]	16/4

ELECTRICAL

Power Consumption on Mode [W]	110 shipping; 235 (max.)
Power Savings Mode [W]	< 0.5 (ECO Standby); < 1
Power Management	VESA DPMS

ENVIRONMENTAL CONDITIONS

Operating Temperature [°C]	+5 to +40
Operating Humidity [%]	20 to 80
Storage Humidity [%]	10 to 90
Storage Temperature [°C]	-20 to +60

MECHANICAL

Dimensions (W x H x D) [mm]	Without stand: 925.1 x 537.1 x 43.3
Weight [kg]	Without stand: 14.9
Bezel Width [mm]	18 (left and right); 18 (top and bottom)
VESA Mounting [mm]	300 x 300 (FDMI); 4 holes; M6

AVAILABLE OPTIONS

Accessories	Feet (ST-322); Speaker (SP-RM2); Wall mount (PDW S 32-55 L and P)
Option Slot	Built-in PC; HD-SDI board

ADDITIONAL FEATURES

Colour Versions	Black Front Bezel, Black Back Cabinet
Safety and Ergonomics	CE; TÜV GS; C-tick; Energy Star 5.1; FCC Class A; UL/C-UL or CSA; PSB; VCCI; RoHS
Plug and Play	VESA DDC2Bi
Audio	Integrated Speakers (5 W + 5 W); Optional speakers NEC SP-RM2 (2x15W)

NEC X462S - 46 inch display

INTERFACES LAYOUT

1. Power
2. Main Switch
3. DisplayPort in
4. HDMI in
5. DVI in / out
6. D-sub with VGA, Component, Composite and S-Video
7. Composite in
8. LAN with SNMP
9. External control RS-232 in / out
10. Audio out
11. Audio in
12. External speakers
13. Internal / external speaker switch

DISPLAY

Panel Technology	S-PVA with edge LED backlights
Active Screen Area (W x H) [mm]	1,018.1 x 572.7
Screen Size [inch/cm]	46 / 117
Aspect Ratio	16:9
Brightness (shipping) [cd/m²]	500, (700 max)
Contrast Ratio (typ.)	4000:1
Viewing Angle [°]	178 horizontal / 178 vertical (typ. at contrast ratio 10:1)
Response Time (typ.) [ms]	8 (grey-to-grey)
Panel Refresh Rate [Hz]	60

SYNCHRONISATION RATE

Horizontal Frequency [kHz]	31.5 - 91.1
Vertical Frequency [Hz]	50 - 85

RESOLUTION

Native Resolution	1920 x 1080 at 60 Hz
Supported on digital and analogue inputs (PC)	1920 x 1080; 1680 x 1050; 1600 x 1200; 1400 x 1050; 1366 x 768; 1280 x 1024; 1280 x 960; 1280 x 800; 1280 x 768; 1280 x 720; 1024 x 768; 800 x 600; 720 x 576; 720 x 400; 640 x 480
Supported on digital inputs (Video)	1920 x 1080i (50)16:9; 1920 x 1080i (59.94/60)16:9; 1920 x 1080p (50)16:9; 1920 x 1080p (23.97/24)16:9; 1920 x 1080p (25)16:9; 1920 x 1080p (29.97/30)16:9; 1920 x 1080p (59.94/60)16:9; 1280 x 720p (59.94/60)16:9; 1280 x 720p (50)16:9; 720 x 576p (50)16:9; 720 x 480p (59.94/60)16:9

CONNECTIVITY

Input Video Analogue	1 x D-sub 15 pin; Composite (BNC)
Input Video Digital	1 x DVI-D (with HDCP); 1 x HDMI (with HDCP); 1 x DisplayPort (with HDCP)
Input Audio Analogue	1 x 3,5 mm jack
Input Audio Digital	DisplayPort; 1 x HDMI
Input Control	LAN 100Mbit; RS232
Output Video Digital	1 x DVI-D (with HDCP)
Output Audio Analogue	3,5mm jack
Output Control	RS232
Remote Control	LAN with SNMP; RS-232C (9-pin D-sub) Input and Output; Remote Control IR

OPTION SLOT

Slot Technology	STv2 (compatible with Intel / NEC OPS standard)
Inrush Current [A]	max. 10
Power Consumption [W]	max. 61
Voltage / Current [V/A]	16/4

ELECTRICAL

Power Consumption on Mode [W]	110 shipping; 255 (max.)
Power Savings Mode [W]	< 0.5 (ECO Standby); < 1
Power Management	VESA DPMS

ENVIRONMENTAL CONDITIONS

Operating Temperature [°C]	+0 to +40
Operating Humidity [%]	20 to 80
Storage Humidity [%]	10 to 90
Storage Temperature [°C]	-20 to +60

MECHANICAL

|	
Dimensions (W x H x D) [mm]	Without stand: 1,059.3 x 613 x 46.1
Weight [kg]	Without stand: 20.7
Bezel Width [mm]	18.7 (left and right); 18.7 (top and bottom)
VESA Mounting [mm]	300 x 300 (FDMI); 4 holes; M6

AVAILABLE OPTIONS

Accessories	Feet (ST-4020); Speaker (SP-RM1); Wall mount (PDW S 32-55 L + P); Wall mount (PDWXS 46 55 L)
Option Slot	HDSDI 1.5G and 3G; Intel Atom, Celeron and Core CPUs

ADDITIONAL FEATURES

Colour Versions	Black Front Bezel, Black Back Cabinet
Safety and Ergonomics	CE; TÜV GS; C-tick; Energy Star 5.1; FCC Class B; UL/C-UL or CSA; PSB; VCCI; RoHS
Plug and Play	VESA DDC2Bi
Audio	Integrated Speakers (5 W + 5 W); Optional speakers NEC SP-RM1 (2x15W)

NEC X552S - 55 inch display

INTERFACES LAYOUT
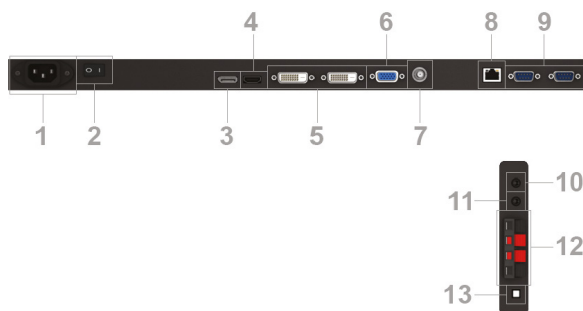
1. Power
2. Main Switch
3. DisplayPort in
4. HDMI in
5. DVI in / out
6. D-sub with VGA, Component, Composite and S-Video
7. Composite in
8. LAN with SNMP
9. External control RS-232 in / out
10. Audio out
11. Audio in
12. External speakers
13. Internal / external speaker switch

DISPLAY

Panel Technology	S-PVA with edge LED backlights
Active Screen Area (W x H) [mm]	1,209.6 x 680.4
Screen Size [inch/cm]	54.5 / 138.8
Aspect Ratio	16:9
Brightness (shipping) [cd/m²]	500, (700 max)
Contrast Ratio (typ.)	4000:1
Viewing Angle [°]	178 horizontal / 178 vertical (typ. at contrast ratio 10:1)
Response Time (typ.) [ms]	8 (grey-to-grey)
Panel Refresh Rate [Hz]	60

SYNCHRONISATION RATE

Horizontal Frequency [kHz]	31.5 - 91.1
Vertical Frequency [Hz]	50 - 85

RESOLUTION

Native Resolution	1920 x 1080 at 60 Hz
Supported on digital and analogue inputs (PC)	1920 x 1080; 1680 x 1050; 1600 x 1200; 1400 x 1050; 1366 x 768; 1280 x 1024; 1280 x 960; 1280 x 800; 1280 x 768; 1280 x 720; 1024 x 768; 800 x 600; 720 x 576; 720 x 400; 640 x 480
Supported on digital inputs (Video)	1920 x 1080i (59.94/60)16:9; 1920 x 1080i (50)16:9; 1920 x 1080p (59.94/60)16:9; 1920 x 1080p (50)16:9; 1920 x 1080p (23.97/24)16:9; 1920 x 1080p (25)16:9; 1920 x 1080p (29.97/30)16:9; 1280 x 720p (59.94/60)16:9; 1280 x 720p (50)16:9; 720 x 576p (50)16:9; 720 x 480p (59.94/60)16:9

CONNECTIVITY

Input Video Analogue	1 x D-sub 15 pin; Composite (BNC)
Input Video Digital	1 x DVI-D (with HDCP); 1 x HDMI (with HDCP); 1 x DisplayPort (with HDCP)
Input Audio Analogue	1 x 3,5 mm jack
Input Audio Digital	DisplayPort; 1 x HDMI
Input Control	LAN 100Mbit; RS232
Output Video Digital	1 x DVI-D (with HDCP)
Output Audio Analogue	3,5mm jack
Output Control	RS232
Remote Control	LAN with SNMP; RS-232C (9-pin D-sub) Input and Output; Remote Control IR

OPTION SLOT

Slot Technology	STv2 (compatible with Intel / NEC OPS standard)
Inrush Current [A]	max. 10
Power Consumption [W]	max. 61
Voltage / Current [V/A]	16/4

ELECTRICAL

Power Consumption on Mode [W]	160 shipping; 305 (max.)
Power Savings Mode [W]	< 0.5 (ECO Standby); < 1
Power Management	VESA DPMS

ENVIRONMENTAL CONDITIONS

Operating Temperature [°C]	+0 to +40
Operating Humidity [%]	20 to 80
Storage Humidity [%]	10 to 90
Storage Temperature [°C]	-20 to +60

MECHANICAL

Dimensions (W x H x D) [mm]	Without stand: 1,254.5 x 725.3 x 46.1
Weight [kg]	Without stand: 24.5
Bezel Width [mm]	20.5 (left and right); 20.5 (top and bottom)
VESA Mounting [mm]	300 x 300 (FDMI); 4 holes; M6

AVAILABLE OPTIONS

Accessories	Feet (ST-5220); Speaker (SP-PXS55 SM); Speaker (SP-RM1); Wall mount (PDW S 32-55 L and P); Wall mount (PDWXS 46 55 L)
Option Slot	HDSDI 1.5 and 3G; Intel Atom, Celeron and Core CPUs

ADDITIONAL FEATURES

Colour Versions	Black Front Bezel, Black Back Cabinet
Safety and Ergonomics	CE; TÜV GS; C-tick; Energy Star 5.1; FCC Class B; UL/C-UL or CSA; PSB; VCCI; RoHS
Plug and Play	VESA DDC2Bi
Audio	Integrated Speakers (5 W + 5 W); Optional speakers NEC SP-RM1 (2x15W)

Contacts

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