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DENSiTRON ids IP-Based Intelligent Display System Instruction Manual

DENSiTRON | ids

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IP-Based Intelligent Display System

ids

IPE Products Strategy

IDS were born from the demands for accurate clocks, timing and cue information which are essential components of any broadcasting environment. Directors, production teams and presenters depend on this information for the delivery of broadcast-critical operations.

The IDS strategy is to give our clients all the traditional broadcast requirements while incorporating far more than clocks, timing and cue information. At the heart of IDS is our IP-based configuration software. The IDS Core was

specifically designed for broadcast and is flexible, scalable and updatable. IDS core gives complete control of many different types of hardware devices across a whole organisation, even if they are geographically dispersed.

There are more than 100 IDS systems worldwide, currently in operational service for major broadcasters in the UK, USA, Europe, Russia, Asia and the Middle East. The first system was commissioned in 2008 for Technicolor (now Ericsson) for their new ITV playout HQ facility in Chiswick Park this system is sill in 24/7 service and has been added to many times.

Common to all systems, irrespective of size or complexity, is a centralised IDS Core software running on a local Linux server. The largest system in daily use now is in the BBC's New Broadcasting House HQ in London. The overall system includes:

- 360 IDS displays
- 185 IDS desk touchscreens
- 175 IDS IP based RGB table and Wall lights
- 400 IDS peripheral interfaces (GPI/DMX/LTC etc.)

These are located, building-wide in:

- Central open areas across 6 floors (newsrooms, lobby areas, etc.)
- 5 large studio/control rooms for news radio
- 42 self-op radio studios for BBC News & BBC World Service
- 6 large popular music studios (BBC Radio One)
- 31 TV edit suites
- 5 large TV studios/galleries, TV translation and weather studios
- `One Show' TV studio

The smallest system (and one of a number supplied) was supplied to BFBS for their mobile studios. These usually consist of just a single, or sometimes, 2 displays. As each IDS display, can be dynamically controlled, it allows each screen to be configured to display only the information that is required for that position, in the format that it is needed in.

IDS is much more than just a digital signage for broadcasters. One of the reasons why IDS is unique is due to the range of peripherals designed specifically for TV/radio studio environments. These include:

- R4: Silent, powerful fan-less display processors (live microphone environment)
- R4+: Higher power (4K) display processor
- TS4: compact 10.1″ `presenter' touchscreens with table or VESA mount
- SQ-WL2: Dual LED/RGB signal wall lights. PoE, powered, network configured
- SQ-TL2: Single/ dual table signal lamps using the same technology as the SQ-WL2
- SQ-GPIO3: Local 3 GPI, 3 relay compact interface, PoE
- SQ- DMX: Local compact DMX512 interface, PoE
- SQ-IRQ: Local compact quad IR emitter interface, PoE
- SQ- NLM: Local SPLl monitor (with remote mic) for monitoring local sound levels
- SQ-DTC: dual LTC interface for Harris UDT5700 production timers, PoE

IDS Key Functions

Information display

With IDS, it is easy to customise screens. Designs can include clocks, timing information, cue lamps, alerts, warnings, scrolling text, video streams, URLs, RSS feeds, signage and branded media. The number of designs is practically limitless, and can be connected and displayed anywhere on the IDS network.

Timing and control

IDS synchronise network devices using NTP/LTC, effortlessly taking care of all timing requirements including clocks, multiple-time zones, up/down timers and offset time recording.

Content management

Information is becoming increasingly complex. From live video streaming and media playback to messaging and RSS feeds, IDS lets you manage and distribute digital content to IDS display devices throughout your organisation effortlessly.

Control and integration

From simple to complex, IDS is completely flexible and scalable. IDS integrates with crucial broadcast equipment and interfaces with third-party controls, playout systems, camera controls, DMX lighting, mixers and many other common devices.

It is easy to create and configure pre-set controls for multi-use facilities which can include the dynamic control of any displayed content, branding in live environments and lighting. Customer defined integration and centralised distribution add even more flexibility. Different designs can be allocated to any screen on the system, and dynamically switched either centrally, or locally using IDS touch screen control.

How IDS screens are configured in real broadcast installations

IDS screens can be configured in many ways, their layout, configuration and implementation is only limited by imagination. The following photographs illustrate differing ways that actual IDS customers have created screen layouts to suit their needs;
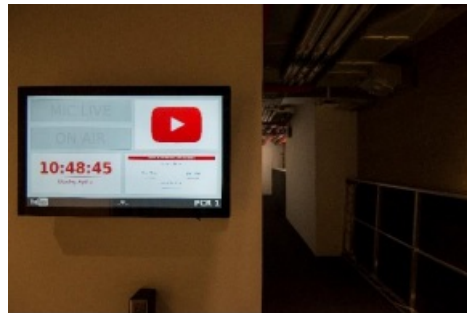

Display of multiple time zones

Newsroom arrivals screen

Examples of Displays with Clock and Tally Lights (`Mic Live ``On Air', `Cue light' Phone, ISDN)

Displays outside studios:

The two screenshots above are from the same IDS system, showing two different layouts. The media element (top left) automatically changes from a still graphical image to a live TV PGM feed whenever the studio is in live transmission. The `text' fields which show the name of the producer, name of the director, name of the floor manager and the name of the studio manager are populated using an IDS web application running on a local desktop PC.

Multimedia displays

This IDS screen layout shows four simultaneous IP `snoop' camera feeds, with a clock and tally lamps (The coloured bezel shows which studio is in transmission). This should not to be mistaken for a traditional multi-viewer with dedicated hardware. It is simply just another IDS screen layout.

Studio touchscreen designs

Screen 1   Screen 2

Screen 3

Screen 1. Shows a local clock tally lights for on air, mic live and cue information.

Screen 2. Shows a screen tab for changing the on-screen logos (branding) and clock styles on the main IDS studio displays.

Screen 3. Shows a production up/down timer with the output timers repeated on the studio display in the background of the picture.

Touch screen layouts are very flexible with a wide range of possible functions

A   B

C

D

E

F

G

H

A. Home screen with local presenter's clock and tally lamps. The clock icon (in the middle left of the screen) selects the `B' screenshot shown.

B. Shows `offset' time control. This allows the users to switch time of day clocks to display a temporary different time of day time. This can be used, for example, during pre-recordings that will be transmitted later.

C. Shows a 32×1 IP camera selector with a preview window. This can be used to route any one of 32 live video sources to any display on the system. The camera control button (bottom left) switches the screen to the layout D.

D. Shows remote PTZ control of the selected cameras

E. Shows a 4-channel production up/down timer

F. Shows 10 active video/media thumbnail switches (this is used to control the display of branding logos, to match the studio branding to the relevant network or production

G. Shows local DMX lighting control

H. Shows remote IR control of 2 conventional televisions located in a studio

What makes the IDS system unique?

- The IDS system is IP-based, flexible, upgradable, updateable and easy to use
- IDS was designed specifically for the broadcast system environment

   o It uses fan- less display processors (Remora)

   o The touch screens have a small footprint, suitable for use by a presenter on a desk, or fitted on a vesa mount.
- IDS can now scale to many other markets and sectors including education, health care, corporate, mod
- IDS allows control over LAN making it the only solution on the market today of its type that can control a building-wide or geographically dispersed organisation
- The system and screen designs are completely customisable
- The user UI is designed for non-technical users so is operable by either technical or non-technical staff
- IDS offers an ever-growing library of third party device driver interfaces
- IDS use Power over Ethernet (PoE) to minimise installation time and costs
- IDS has an extremely rugged architecture and offers exceptional system security
- IDS is an independent control systems provider, the most important part of our business is giving our clients the best products and solutions for their business
- IDS have a team that is dedicated to continual system development
- IDS offer the custom design and manufacture of a dedicated range of interfacing hardware

Building an IDS System

Network requirements

You will need a cabled network infrastructure on which to install IDS devices. IDS uses standard TCP/IP protocols and will run on a wide range of network configurations. In its basic form, it will run on a 100megabit network, but if video streaming is required a gigabit network is preferable. If IDS is sharing an IT Infrastructure, it will require its own dedicated VLAN. Some IDS devices such as the range of `IDS SQuidlets' are powered by PoE. It may be worth considering using network switches that support PoE.

Essential IDS requirements

Every IDS system requires a minimum of one centralised IDS server. A second IDS server can be added for resilience if required.

Core software

The software that runs on the IDS server is known as the IDS Core and is supplied by IPE on a high-spec USB drive. Its order reference is IDS CORE drive.

The IDS Core software is supplied with a custom IDS build of the Linux operating system (OS). It should be noted that the IDS Core software will only run with the supplied OS. It is not Windows nor Mac compatible.

IDS Core server options

IPE can supply a suitable server platform for the Core software, or it can be sourced locally be the distributor. Specifications for suitable server hardware are:

	Minimum	Recommended
CPU	X86 64bit	Dual Core 64bit CPU
RAM	2GB	4GB
Storage	40GB	250GB
Network	100 BaseT	1000 BaseT (Gigabit)

Once the Network and the IDS Core are in place, the remainder of the system is entirely modular, depending on what functionality that is required. The functionality is wholly dependent on your requirements.

Modular hardware elements

IDS Remora

Every IDS display requires an IDS Remora (R5) display processor. The screen and Remora's are connected via a standard HDMI or DVI cable (with convertor). The Remora is connected to a dedicated network port on the IDS LAN. The R5 is capable of dual 1080p streams and fluid scrolling text.

There is no practical limit to the number of displays that can be connected to the IDS LAN.

IDS Touchscreen

The 10.1″ IDS Touchscreen (IDS TS5) is a powerful IDS UI that has the same processor as the R5. It is connected to a dedicated network port on the IDS LAN.

There is no practical limit to the number of touchscreens that can be connected to the IDS LAN.

External GPIO interfaces

External GPI voltage triggers can be interfaced to IDS using either the SQ3 or SQ-GPIO3.

The SQ3, (often called `the SQuid'), is used to provide a centralised GPIO interface, for example in an Apparatus room. It offers 32 opto-isolated inputs and 32 isolated relay outputs, in a 1RU 19″ rack-mount chassis with dual hot-plug PSUs. It is connected to a dedicated network port on the IDS LAN.

The SQ-GPIO3 (part of the IDS `SQuidlet' range), is typically used in local situations where a small number of GPIO connections are required. It provides 3 opto-isolated inputs and 3 isolated relay outputs in a compact case. It is powered by PoE, either from a dedicated network port on the IDS LAN or via a third party PoE injector (not supplied).

Time reference

There are several options for taking a time reference into the IDS system:

- The IDS Core may be referenced to an external NTP time server. In broadcast facilities, NTP time is often

distributed from the core network switch. Otherwise suitable NTP internet servers may be used

- Reference to SMPTE EBU longitudinal timecode. This may be done in two ways:

  o Using an IDS SQ3

  o Using an SQ-NTP interface If DCF-77 or GPS is required please contact IPE for further information

Signal Lamps

IDS offer's a range of low voltage, configurable LED RGB signal lamps;

- The SQ-WL2 is designed for wall mounting, offering dual LED/RGB signal lights with a greater than 180 degree viewing angle.
- The SQ-TL1/SQ-TL2, (single and dual lap versions) are designed for table mounting, for use as a `mic live/On-air' cue lamp).

All IDS signal lamps are powered by PoE, either from dedicated network ports on the IDS LAN or via a third party PoE injector (not supplied).

The signal lamps only have one connection, the network PoE connection. They are controlled over the IDS Network LAN, consequently, they do not incorporate any local controls.

Third party Device drivers

- Pan/tilt/Zoom (PTZ) control of Sony BRC300/700/900 Cameras (serial)
- Pan/tilt/Zoom (PTZ) of Panasonic AW-HE60/120 cameras (IP)
- Probel (Snell) `PBAK' interface for Morpheus Playout Automation (XML export of metadata such as; next-event timing, material ID etc.)
- Probel (Snell) MOS Server interface for Morpheus Playout Automation (XML export of next-event timing, material ID etc.)
- Generic XML file import
- Harris `Platinum' HD/SDI Router control
- VCS playout automation (XML export of next-event timing, material ID etc.)
- BNCS control system interface (including metadata)
- `EMBER' and `EMBER +' driver to interface to a range of 3rd party products including Studer and VSM.
- Vinten fusion pedestal integration

Third party Device drivers (under development)

- Avid I-news interface for creation of newsroom `arrivals boards' based on Avid messaging
- A Web based instant messenger. This enables individual or groups of screens across the whole IDS network to display instant text messages. For example, this might allow reception to send a message to a studio announcing that the guest had arrived, or on a building wide basis, that a fire alarm test has been scheduled for 11am.
- A more granular content manager application with scheduling and timed elements installed.

Other IDS hardware interfaces

- The SQ-DTC is used to interface to legacy Leitch/Harris UDT5700 up/down timers. Note that IDS incorporate a software version of the UDT5700 which is operated from an IDS touch screen, it includes all the features of the UDT5700
- The SQ-DMX provides an DMX interface for Lighting control
- The SQ-IR is used for infra-red control of televisions and set top boxes (STBs)
- The SQ-NLM is used to monitor sound pressure levels and can be used as part of an IDS system to give a visible warning of excessive noise levels in studios and control rooms.

Documents / Resources

DENSITRON | ids IP-Based Intelligent Display System *ids*	**DENSiTRON ids IP-Based Intelligent Display System** [pdf] Instruction Manual ids IP-Based Intelligent Display System, ids, IP-Based Intelligent Display System, Intelligent Display System, Display System