
Further:

The below engineering design provides a high-level overview of TeleDelta's turn-key IPTV (or MATV) Television and Entertainment solution for low, medium and high-risk Detention, Prison, Public space and Vandal prone environments.

Report Key Points:

- TeleDelta provides an engineered IPTV and Entertainment solution for Prisons, Detention Centres and Public / Vandal prone environments
- Solutions offer a low total cost of ownership with emphasis on high system-reliability and low OPEX costs
- Vandal Proof system design and installation items for equipment protection, security and safety
- High Levels on Integrated remote system management and control to Guard and Centre Staff Members
- A Building block approach is utilised to allow future proofing and expansion as / if required
- Management Integration with existing IT network systems – reducing overall CAPEX deployment costs
- Secure closed network design prevents external communication or access

Example System Components:

- TV Housings – Vandal, Waterproof and Penetration Protective Enclosures with security screens and options features including tamper detection / alerting and see-thru enclosure housings
- Wall Mount or housing mount control panels – high grade Stainless steel panels with Impact and Fluid resistant buttons
- IT Network Cabling and Infrastructure (Facility Wide)
- IPTV Control and Management Software (Guard / Staff Access from Control Room)
- Physical or Virtual Control Server and TV Gateway Hardware – (IT / Comms Room)
- Network Security – Ring fenced network prevents unwanted communication tunnels for secure environments

Vandal Proof Features:

The TeleDelta Prison and Detention Centre TV and Entertainment solutions incorporate high levels of asset and equipment protection through vandal proof enclosures and protective equipment at TV installation locations (such as in-cells) displays are installed within vandal and damage proof protective housings incorporating features such as:

- High-strength aluminium frames with re-enforced side walls – providing a strong yet lightweight design.
- Replaceable high strength scratch resistance polycarbonate clear front panels for occupant viewing
- Quick and minimal tools require for repair, replace and restoration of components
- Internal frame assembly of brackets, stud and lock nuts to prevent unauthorised access

- Optional anti-litigate (sloped) top and bottom panels to prevent standing and climbing on hardware
- Remote fault diagnostics, assists in identification of fault for fast repairs
- Ingress proof ventilation slots for equipment cooling (optional) with liquid penetration prevention and drain-off
- Internal Speaker and Control Panel mounting options
- Panic / Emergency call button mounting options
- Wall facing rear access for secure equipment cabling and installation access

TeleDelta system end-point hardware is designed especially for hostile and at-risk environments.

Above: Left – Anti-Litigate sloped top panel, middle and right – flat enclosures for in-wall or flush mount installations – available in sizes from 13~130 Inch displays. Transparent housings also available.

In-room Wall Panels

Custom sized and shaped Vandal and waterproof (IP67 / IP68) 3mm+ thickness 304 or 316 grade stainless steel wall plate and push buttons are integrated within each room for TV control – the standard 5-button panel provides TV on / off, Vol Up, Vol Down, Channel Up, Channel Down. An optional 6th Button can be integrated on each panel and programmed to function (i.e. Panic button) allowing additional safety and security to staff and occupants. High Force damage resistant buttons are employed to maximise longevity on components.

The wall panel itself is flush or surface mounted to the wall (or display enclosure case) by four anti-tamper mounting screws to a sealed in-wall cage housing safe low voltage button controls for the wall panel. Custom cage-depths can be supplied depending on wall thickness and pre-cast recess sizes. Anti-tamper switches located on housings remain operative during power-outages (optional feature)

Electrically the wall panel assembly connects to the local IT network via a single CAT5/6 cable the wall switch is powered via POE (power-over-ethernet) from the IT switch meaning mains cabling is not required at each wall plate. If a POE network switch is not installed in the comms room then a POE bridge can be installed at the comms room (recommended) to provide power to all the wall plate switches. Alternatively if POE is not possible then mains power is required behind the wall plate. Utilising POE for the wall switches reduces cable runs in the facility (no mains cable is required) and increases safety by operating across a low-voltage POE power system.

The wall panels communicate to the TeleDelta IPTV control software via the IT network when an in-room occupant presses a button on the wall panel the request is sent to the IPTV control software which checks for permission and authorises the occupant change (TV power, volume or channel change) and actions it on their TV. This design provides a high level of guard / staff management over specific occupants and displays allowing Guard / Staff to limit TV functions such as channel selection, volume and time-of-day TV viewing. When these rules are in-place pressing a button on the wall panel will not result in any changes on the TV.

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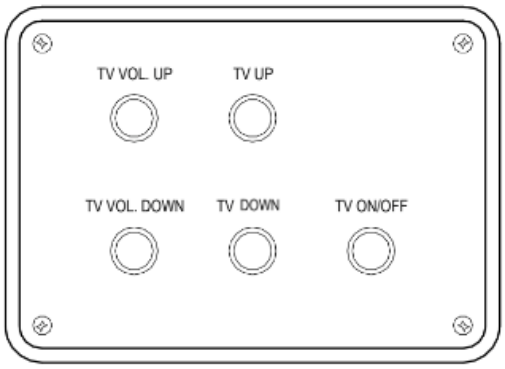

Right: Sample design of a 5-button stainless steel wall panel. Custom design and additional 6th Button can be fitted as required.

A standard panel design incorporated 3-5mm 304/316 grade stainless steel with IP67 rated momentary closed vandal proof buttons.

The TeleDelta TV and Entertainment System works with a wide range of TV and set-top box (STB) makes and models including Samsung, Phillips, LG, Sony, Panasonic, Amino and others For IPTV systems an approved “smart-TV” is deployed guaranteeing operation and long-term compliance, options for commercial and hospitality displays are also available with longer warranty periods and designed for harsher operational environments and periods (for example 16/365 or 24/365 hours of operation per day / year) are available.

The TeleDelta solution can integrate with multiple size TVs / displays based on installation location and housing requirements from small in-cell TVs to larger panel in common areas.

In the majority of installations mains power and network connection is required at each TV to provide TV content.

It should be noted the presence of an IT network cable at each TV does not mean the occupant can access the internet or any computer or communication functions, the IT network cable is present to provide the **TV content only** and provide guard / staff the ability to remotely control the TV’s function.

Guard and Staff TV and System Control:

The TeleDelta IPTV solution provides a high level of control to authorised Guards and Staff of individual TVs (Hardware) and content that can be accessed by occupants. The IPTV control software (called Conductor) provides a simple to use control web-interface that can be access on a staff or management PC, allowing staff to login and control individual or groups of TVs and / or limit specific content to individuals or group of displays.

The permissioned based operation of Conductor allows Guards / Staff to over-ride and “lockout” changes made from within cells preventing occupants to access TV channels, volume or TV power

on/ off as required. The Conductor control middleware can also be easily integrated into 3rd party control or building management systems.

Right: Authorised Guard / Staff are able to monitor and make changes to individual TV as required.

Here we can see the TV in Wing B – Cell 3, It is currently turned on, and watching ABC News 24, the volume is set to 7 (out of 100)

From the control middleware a guard or staff member could over-ride any occupant changes including channel, volume, or TV power on / off.

Some of the common uses of the Conductor control software are:

- **TV On / Off Function**: Ability to remotely turn TVs on or off based on a manual or automated schedule – for example switching TVs off at a certain time of night
- **Channel Locking**: Limit occupant access to certain channels only, or force certain channels to be displayed
- **Volume Locking**: Limit or prevent excess volume
- **Remote Messaging**: Display message, information to individual or multiple displays
- **Digital Signage**: Display local signage, notices or information boards to TVs
- **Educational content**: Display and Lock educational or training TV content on displays
- **Monitor Status**: Status of current TVs, On/Off and what content is being displayed

System Headend and IT Network:

The TeleDelta IPTV solution operates in a segmented section (VLAN) of the facilities IT network (we segment the IPTV traffic into a separate VLAN to ensure quality of service of content and security). All IPTV equipment including the TVs and wall-panel switches are cabled via CAT5E/6 cabling back to local IT network switches for interconnectivity and system control. The IPTV VLANs need some basic pre-operational setup including enabling multicast IPTV traffic and IGMP enabling to ensure correct operation (note: all this information is provided to IT departments prior to installation)

Within the Comms Room or a similar IT Equipment room we install the IPTV control server and depending on content to be distributed several additional “Gateways” to provide FTA Television, Pay-TV, Satellite or any locally introduced sources, such as Blue rays, DVDs via HDMI or analog video cabling.

Commonly in the IT room you would find:

- 2RU Rack Mount TeleDelta Conductor Server – this server hosts the IPTV control middleware and provides a central control server for guards and staff to remotely access (from their own terminals), login and control the TV / Entertainment network.

Note: The Conductor Control middleware can be deployed on a virtual server if this is the preference to the client.

- TeleDelta HDS2900-4R: Digital FTA (Free-to-Air) Gateway, that ingest the FTA TV channels from the antenna on the roof and makes then available for the IT network for distribution. The HDS29004R provides TV channels from ABC, SBS, Seven, Nine and Ten plus additional capacity to expansion channels in the future.

Below are some options parts you may find in the Headend installation

- HDS2803-77R: 4x HDMI Inputs to IPTV, this provides staff to input up to 4x additional sources via HDMI to the TV network, these are commonly sources such-as DVD or blue-ray players, media players, digital signage or laptops

- HDS2804-8SAT/IP: This hardware allows you to ingest Pay-TV or satellite content (i.e. Foxtel or VAST) to the IPTV network.

- TeleDelta SMP (Simple Media Player) for scheduled or adhoc media playout (i.e. information, safety notices etc)

- 3rd Party Devices / Gaming Consoles: Additional inputs to the system can be integrated and housed at the IPTV headend as required, providing a central location point for system components.

Final:

Hopefully the above has provided a brief high-level overview of the TeleDelta TV / IPTV and Entertainment System approach for Detention, Prison and Vandal Prone Environments. TeleDelta realise that each project has individual needs and requirements to be addressed due to safety, environment and technology considerations. Further discussion and system design is required to provide a "best-fit" solution for individual user applications. For more information and specific technical information please contact TeleDelta or a local distributor / representative.

About Us: Established in 2011 TeleDelta Pty Ltd is an Australian based Engineering and solutions supplier specialising in integrated communications, ICT and IPTV systems for Government, Defence Commercial and Corporate Clients through-out Australia and Worldwide.

TeleDelta's local manufacturing and engineering presence allows customised technical solutions to clients in a timely and cost-effective manner leveraging on TeleDelta's wide engineering and technical skill sets in the IT Communication, Engineering and the IPTV / Broadcast Technology Verticals.

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