

Visual Displays



Smart p1
ECOsystème



Audio PA Systems



Help
Information
Points



Ambient Noise Control



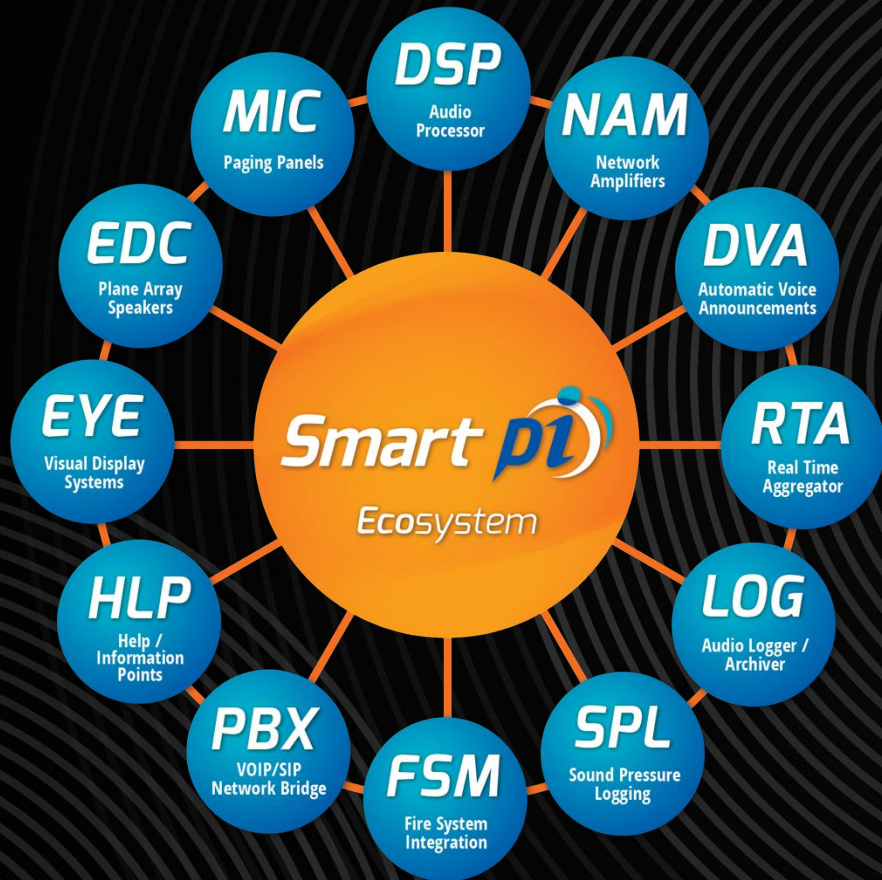
Hearing Loops

Onboard Audio & AFILs



Providing high quality
hardware and software
technology solutions for
public address

A fully integrated Smart Public Information ECO system.



Contents

- Smart *pi* **DVA**
- Smart *pi* **DSP**
- Smart *pi* **EDC**
- Smart *pi* **EYE**
- Smart *pi* **FSM**
- Smart *pi* **HLP**
- Smart *pi* **LOG**
- Smart *pi* **MIC**
- Smart *pi* **NAM**
- Smart *pi* **PBX**
- Smart *pi* **RTA**
- Smart *pi* **SPL**



Digital Voice Announcement System

The Smart pi DVA is our Automatic (Digital Voice Announcement) system and is perfect for the transport industry.

Incorporating a web-based GUI with mobile support that is easy to operate, with multi-language support, text to speech engine and more.

Messages are clear and understood, every time with a built in scheduler, GTFS and GTFS-R support simple integration for automated announcements have never been this easy.

The Smart pi DVA is the perfect fit for large scale transportation hubs where clear, timely and correct announcements to passengers are key.

Features

- Exceptional Audio Quality and Speech Intelligibility
- A simple to operate web based GUI with built in mobile support
- Multi Language support with either audio library or Text to Speech
- A Natural Speech Engine to ensure your announcements sound human
- Full Scheduler and Timetable allowing either scheduled or set interval messaging
- LDAP / Active Directory Security Control
- Full API and GTFS/GTFS-R support
- Rolling stock EN50155 option available
- Standards Based API for control and integration.

Display Screen Views

Smart pi DVA Administrator/Admin 2020/10/26 10:28:24 Am LOG OFF

Timetable Overview

Timetable	Imported	Start	End	Mo	Tu	We	Th	Fr	Sa	Su	Time
GTS	2020-08-12 9:38:52	2020-08-12	2020-08-14	✓	✓		✓	✓			13:08
GTS	2020-08-12 9:38:52	2020-08-15	2020-08-16			✓			✓	✓	14:08
GTS	2020-08-12 9:38:52	2020-08-17	2020-08-21	✓	✓		✓				16:03
GTS	2020-08-12 9:38:52	2020-08-22	2020-08-23						✓	✓	16:10
GTS	2020-08-12 9:38:52	2020-08-24	2020-08-26	✓	✓		✓	✓			16:45
GTS	2020-08-12 9:38:52	2020-08-28	2020-08-30	✓	✓	✓	✓	✓	✓	✓	16:15
ATrak Real-time	2018-10-24 10:12:06	2018-10-23	2018-08-29		✓						3
ATrak Real-time	2018-10-24 10:12:06	2018-10-24	2018-08-29			✓					33
ATrak Static	2018-10-24 02:08:48	2018-10-24	2018-08-29			✓					79
ATrak Static	2018-10-24 02:08:48	2018-10-25	2018-08-29				✓				166
ATrak Static	2018-10-24 02:08:48	2018-10-26	2018-08-29					✓			386
ATrak Static	2018-10-24 02:08:48	2018-10-27	2018-08-29						✓		330
ATrak Static	2018-10-24 02:08:48	2018-10-28	2018-08-29							✓	87
ATrak Static	2018-10-24 02:08:48	2018-10-29	2018-08-29	✓							363
ATrak Static	2018-10-24 02:08:48	2018-10-30	2018-08-29		✓						366
ATrak Static	2018-10-24 02:08:48	2018-10-31	2018-08-29			✓					366
ATrak Static	2018-10-24 02:08:48	2018-11-01	2018-08-29				✓				366

HOME BACK TO TIMETABLE

Smart pi FSM ADMINISTRATOR LOGOUT

SETTINGS

IP CONFIGURATION LDAP **MODE**

Monitoring Mode ☒ EN54 ☐ Multi - Zoned

Smart pi LOG Markwords LOGOUT

NODE

1

DAYS

MONDAY TUESDAY WEDNESDAY THURSDAY FRIDAY SATURDAY SUNDAY WEEKDAY WEEKEND ALL

RANGE

Start Time 00 / 00 Start Date 05 / 12 / 2017

End Time 23 / 59 End Date 05 / 12 / 2020

DESCRIPTION

SEARCH

Last Recorded

Channel	Sound	Time	Download
Channel 1	"SOUND"	2018-10-26 12:24:49	DOWNLOAD
Channel 2	"SOUND"	2018-10-26 12:24:49	DOWNLOAD
Channel 3	"SOUND"	2018-10-26 12:24:49	DOWNLOAD
Channel 4	"SOUND"	2018-10-26 12:24:49	DOWNLOAD

ADMIN STATUS LOGS

Master DVA

- Centralised User interface for 1000+ Zones
- Connect Multiple Nodes to single Master DVA
- Active Directory /LDBA Single Sign On
- Manage Multiple Agencies / Transport Modes
- Runs on Linux / Windows



Node DVA

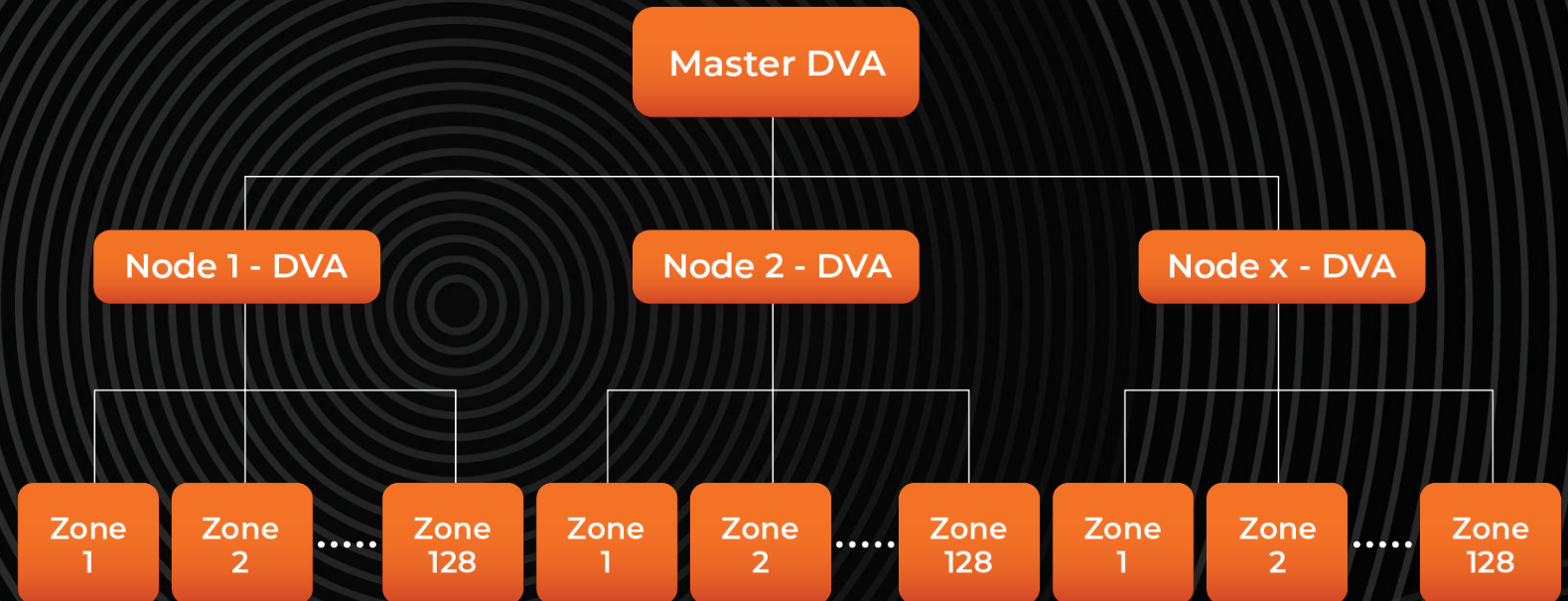
- 2-512 Audio Channels / Zones per node
- Self hosted User Interface for smaller systems
- Run on Linux / Windows
- Up to 20 nodes in a single system



Audio Features

- Supports all standard audio formats
- Text to Speech with Murf.ai or Amazon Polly
- Supports Virtualised environments with up to 512 zones per server
- Supports Bare Metal environments with up to 512 zones per server
- 100 Audio Priorities
- Integration to Smart pi ECOsystem.
- Optional GTFS/GTFS-R Module

System Topology





Digital Signal Processor

The Smart pi DSP (Digital Signal Processor) is the next generation of digital PA processor with massive audio processing ability that can support the smallest to the very largest of systems.

The Smart pi DSP is completely modular and future upgradeable via simple firmware updates. It is based on industry standards including Dante and OCA/AES70.

All configuration is managed in a simple web interface and can be externally controlled via OCA/AES70.

The hardware comes in a 1RU Node or 2RU SuperNode format being able to manage up to 384 zones in a single unit.

As with all Smart pi products, all components are high quality and industrially rated.



Features

- Exceptional Audio Quality and Speech Intelligibility
- Modular system to ensure flexible installation options
- Very easy to use and can be configured by anyone via a simple web UI
- Front to back cooling ensuring maximum use of rack space, with embedded web server so no additional computer is required
- Highly reliable, each card manages itself and can be mirrored (N+1). The Nodes use a passive backplane to ensure there is no single point of failure
- Standards Based API using OCA / AES70 for control and integration.

<awml/>

OCA^{AES70}
OPEN CONTROL ARCHITECTURE

toolkit

Dante®



Web Based User Interface

The web-based user interface for the Smart pi DSP is divided into two main sections: Configuration and Status.

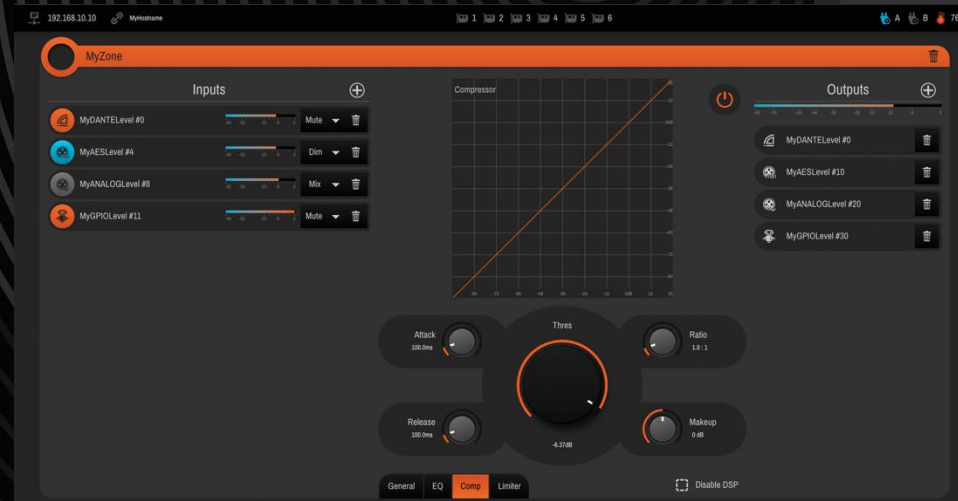
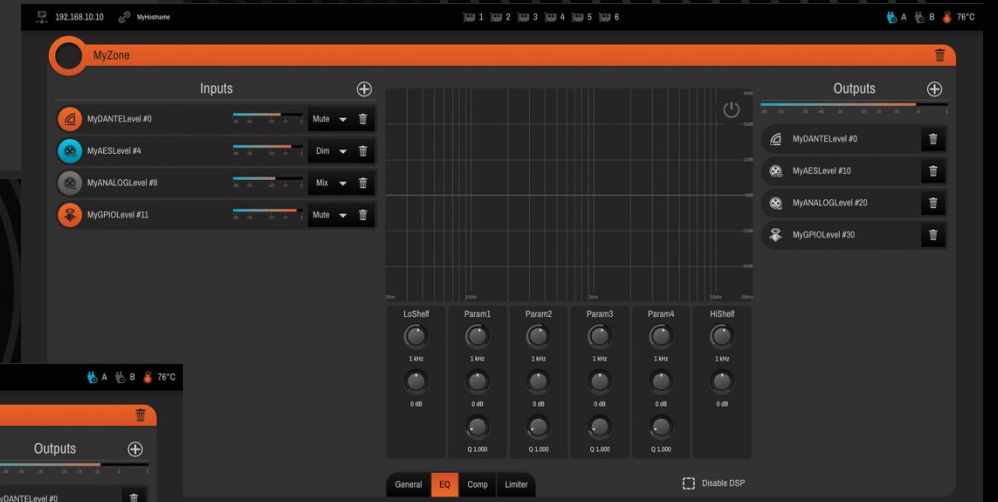
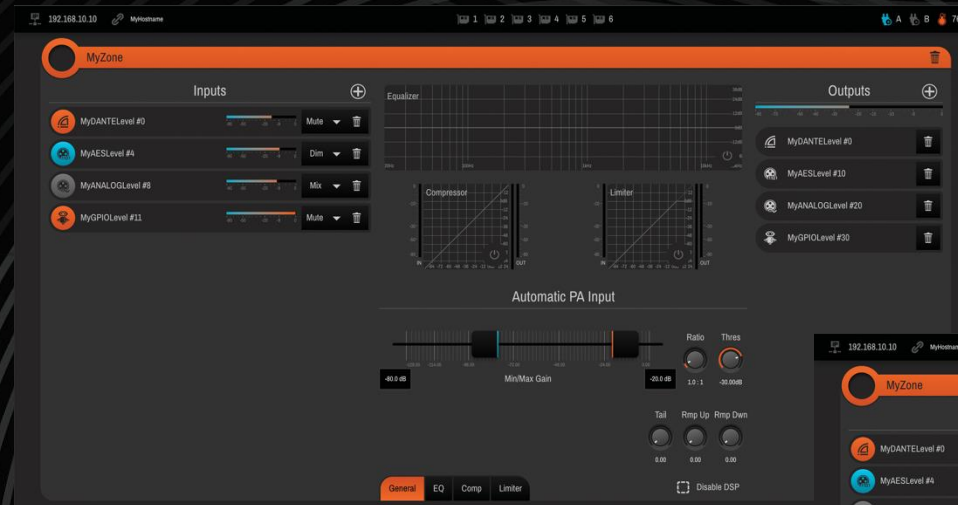
Configuration Page (Left Screenshot):

- Header:** Displays the IP address (192.168.10.10), hostname (MyHostname), and a row of icons for slots 1 through 6. On the right, it shows temperature indicators for A, B, and a current temperature of 76°C.
- Device Information:**
 - Dante Device:** Fields for Device Name (MyDanteDevice#1), Password, Redundancy (Redundant), Redundancy (Reboot) (Redundant), and Master Clock (ON).
 - Dante Primary:** Fields for IP Address (192.168.10.10), Subnet Mask (255.255.255.0), Gateway (192.168.0.1), DNS Server (192.168.0.1), DNS Suffix (stagetec.com.au), MAC Address (00:1D:C1:10:48:7A), Clock State (SLAVE), TX/RX util Kbps (53/11), DHCP Active (ON), and DHCP (Reboot) (ON).
 - Dante Secondary:** Identical fields to the Primary section.
- Performance:** A slider for Latency (20ms to 250ms) and a button for Channels / Flow (4).

Status Page (Right Screenshot):

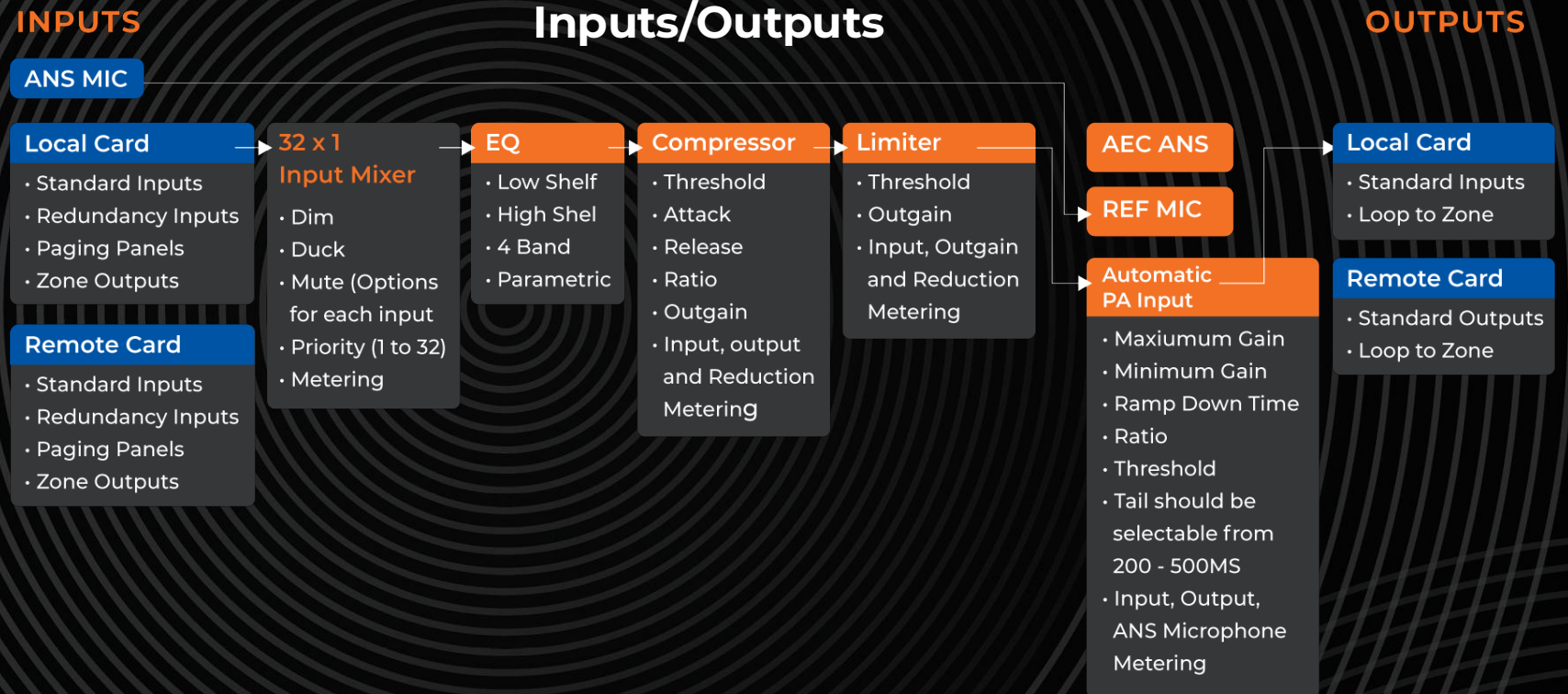
- Header:** Similar to the configuration page, showing IP, hostname, and slot icons. Temperature indicators show 76°C.
- Real-time Metrics:**
 - DSP: 31%
 - Backplane: 56%
 - Temperature: 48°C
- Extension Cards:**
 - Net:** Net 1 (1Gbit) and Net 2 (100Mbit) status.
 - SFP:** SFP 1 (optical) and SFP 2 (optical) status.
 - AES:** AES INPUTS and AES OUTPUTS bar charts.
 - ANALOG:** ANALOG INPUTS and ANALOG OUTPUTS bar charts.
 - GPIO:** GPIO INPUTS and GPIO OUTPUTS bar charts.
- Inputs and Outputs:**
 - Inputs:** A list of 10 input levels (MyDANTELevel #0 to MyGPIOLevel #10) with status icons.
 - Outputs:** A list of 31 output levels (MyDANTELevel #0 to MyGPIOLevel #31) with status icons.

Zones Configuration



Audio Features

- Fully Digital Signal Processor
- 64 Zones Per Slot for a maximum of 384 in 2RU and 192 in 1RU
- Each Zone has 32 Inputs (With prioritisation and mixing)
- Echo Cancelled Ambient Noise Control (EC ANC)
- 6 Band Parametric Equaliser
- Compressor
- Limiter
- All Audio and Processing is at 24bit 48K

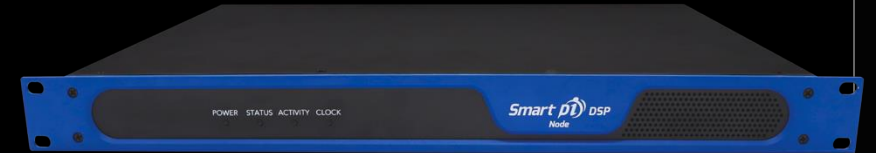


Dante Features

- Dante Domain Manager (DDM) Compatible
- Enhanced Dante Wide Area Support for low bandwidth and large systems.

1RU Node

- Supports up to 3 DSP Cards and 1 I/O Card
- A switch with up to 12 ports switch with 6 x Ethernet and 6 x SFP ports
- Up to 192 Zones can be installed.



2RU Node

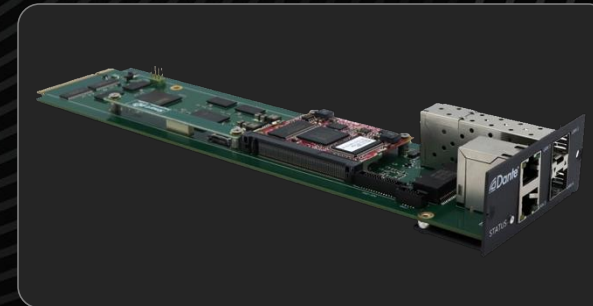
- Up to 24 Port Switch with 12 x Ethernet and 12 x SFP ports
- Hot Swap Redundant Power Supplies
- Front Panel Multi Touch Screen.



Supernode TFT



Dante DSP Card



Technical Specifications

1RU Node

Power Supply Type	Non Redundant 300W
Power Connector	1 x IEC C14 Type Inlet
Input Voltage	88 – 264 Volts AC
Input Frequency	47 – 63 hertz
Power Consumption	Max 50W
Temperature Range	0C - +50C
MTBF	Greater than 100000 hours
Slots	3 x DSP, 1 x PSU
Rack Units (RU)	1 Rack Unit
Status	4 x Tri Colour LED

2RU Node

Power Supply Type	Redundant Dual Input 450W
Power Connector	2 x Isolated IEC C14 Type Inlets
Input Voltage	88 – 264 Volts AC
Input Frequency	47 – 63 hertz
Power Consumption	Max 150W
Temperature Range	0C - +50C
MTBF	Greater than 100000 hours
Slots	3 x DSP, 2 x PSU
Rack Units (RU)	2 Rack Unit
Status	4 x Tri Colour LED, TFT Display

Dante-DSP Card

Style	Smart pi DSP Node / Supernode
Connector	PCIe Type Connector
Options	Optional DSP Processor Board
SD Card	16GB SD
Ports	2 x Ethernet and 2 x SFP
Status	Status LED



Smart pi EDC Acoustics

The Smart pi EDC is a partnership with EDC Acoustics to integrate EDC's Plane Array™ technology which allows software define coverage.

Each speaker is capable of vertical and/or horizontal steering as well as customisable wave shaping, allowing re-configurable pattern control to suit any venue or area further increasing speech intelligibility in difficult acoustic environments.

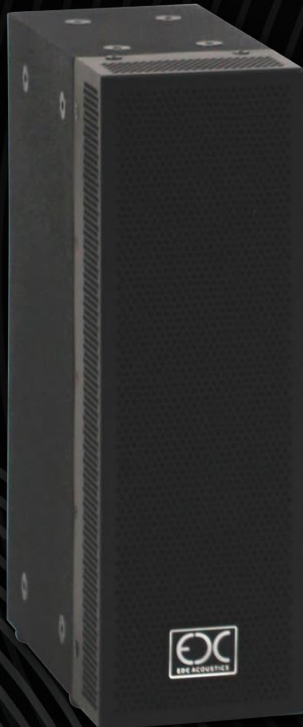


Features

- EDC Plane Array Technology
- Digitally steerable via software
- High directivity to minimise environmental noise spill and acoustic control
- Weatherproof designed for outdoor use
- Can be mounted horizontally or vertically
- High SPL with onboard power amplifiers and DSP
- Uses industry standard, Dante, OCA/AES70 on Fibre or Ethernet connections
- Three sizes available.



CS-30



Specifications

HF: 27x High Frequency Transducers

LF: 3x Low Frequency Transducers

HF Power: 27x 30W Amplifiers

LF Power: 3x 200W Amplifiers

Total Amplification: 1,410W

Frequency Response: (0dB,-3dB): 100Hz-20kHz

Peak SPL: Configuration Dependent

Array-ability: Both Horizontal and Vertical

Arrayed Horizontal Dispersion: User Configurable (0 -120 degrees)

Arrayed Vertical Dispersion: User Configurable (0 -120 degrees)

Arrayed Pan Control: +60 to -60 degrees, 0.1 degree resolution

Arrayed Tilt Control: +60 to -60 degrees, 0.1 degree resolution

Other Control: Symmetrical and Non-Symmetrical 3-Dimensional Wavefront Capable

DSP Processing: Input Parametric EQ, Input Mixing, Input Dynamics, Output FIR Filters with Auto-Calculation, Output Delay, Output Muting, Output Levels, Output Mute

Control: OCA/AES70 on IP with RJ45 and/or SFP

Connections: Dante on RJ45 and/or SFP

Dimensions: 14cm (Wide), 43cm (Tall), 34cm (Deep)

Weight: 12kg

Mains Voltage: 110-255V AC or 24-48V DC

Power Consumption: 620VA

Options: Weatherproof, U Bracket, Custom Colours

CS-60



Specifications

HF: 54x High Frequency Transducers

LF: 6x Low Frequency Transducers

HF Power: 54x 30W Amplifiers

LF Power: 6x 200W Amplifiers

Total Amplification: 2,820W

Frequency Response(0dB,-3dB): 100Hz-20kHz

Peak SPL: Configuration Dependent

Array-ability: Both Horizontal and Vertical

Arrayed Horizontal Dispersion: User Configurable (0 -120 degrees)

Arrayed Vertical Dispersion: User Configurable (0 -120 degrees)

Arrayed Pan Control: +60 to -60 degrees, 0.1 degree resolution

Arrayed Tilt Control: +60 to -60 degrees, 0.1 degree resolution

Other Control: Symmetrical and Non-Symmetrical 3-Dimensional Wavefront Capable

DSP Processing: Input Parametric EQ, Input Mixing, Input Dynamics, Output FIR Filters with Auto-Calculation, Output Delay, Output Muting, Output Levels, Output Mute

Control: OCA/AES70 on IP with RJ45 and/or SFP

Connections: Dante on RJ45 and/or SFP

Dimensions: 14cm (Wide), 86cm (Tall), 34cm (Deep)

Weight: 24kg

Mains Voltage: 110-255V AC or 24-48V DC

Power Consumption: 1,220VA

Options: Weatherproof, U Bracket, Custom Colours

CS-90



Specifications

HF: 81x High Frequency Transducers

LF: 9x Low Frequency Transducers

HF Power: 81x 30W Amplifiers

LF Power: 9x 200W Amplifiers

Total Amplification: 4,230W

Frequency Response(0dB,-3dB): 100Hz-20kHz

Peak SPL: Configuration Dependent

Array-ability: Both Horizontal and Vertical

Arrayed Horizontal Dispersion: User Configurable (0 -120 degrees)

Arrayed Vertical Dispersion: User Configurable (0 -120 degrees)

Arrayed Pan Control: +60 to -6 degrees, 0.1 degree resolution

Arrayed Tilt Control: +60 to -60 degrees, 0.1 degree resolution

Other Control: Symmetrical and Non-Symmetrical 3-Dimensional Wavefront Capable

DSP Processing: Input Parametric EQ, Input Mixing, Input Dynamics, Output FIR Filters with Auto-Calculation, Output Delay, Output Muting, Output Levels, Output Mute

Control: OCA/AES70 on IP with RJ45 and/or SFPt

Connections: Dante on RJ45 and/or SFP

Dimensions: 14cm (Wide), 129cm (Tall), 34cm (Deep)

Weight: 36kg

Mains Voltage: 110-255V AC or 24-48V DC

Power Consumption: 1,220VA

Options: Weatherproof, U Bracket, Custom Colours

Visual Display System

Smart pi EYE Realtime Digital Signage.
Advertising and Way Finding from a single
interface even for the largest of systems.

Features

- Completely web based configuration and management
- Customisable and easily scalable to many thousands of screens.
- Supports GTFS / GTFS-R Dashboard and custom protocols for Passenger Information.
- Fully Integrated into NMS / DVA and Help / Information Points.
- LDAP Integration (single sign on).
- Smart pi EYE-HD hardware (no PC required for each screen).
- Generates all views automatically with no settings are stored in the client.
- Full redundancy options available.

Multiple Display Options

Smart pi EYE		Next Service		10:21:22
T1	North Sydney	Platform 3		
	Wynyard Milsons Point North Sydney			
			Departs	3 mins
T1	Lindfield	Platform 3	Departs	6 mins

Smart pi EYE		Next Service		10:21:52
T1	Hornsby via Gordon	Platform 3		
			Departs	13 mins
T1	North Sydney	Platform 3		
			Departs	17 mins

Smart pi EYE		Next Services		10:23:10
Due	Destination	Departs	Platform	
10:24	Kiama	1m	4	
10:24	North Sydney	1m	3	
10:25	Central	1m	2	
10:27	Bondi Junction	4m	5	

The system:

Master – System Configuration and Content Management System.

Node – Display Capacity and Business Logic.

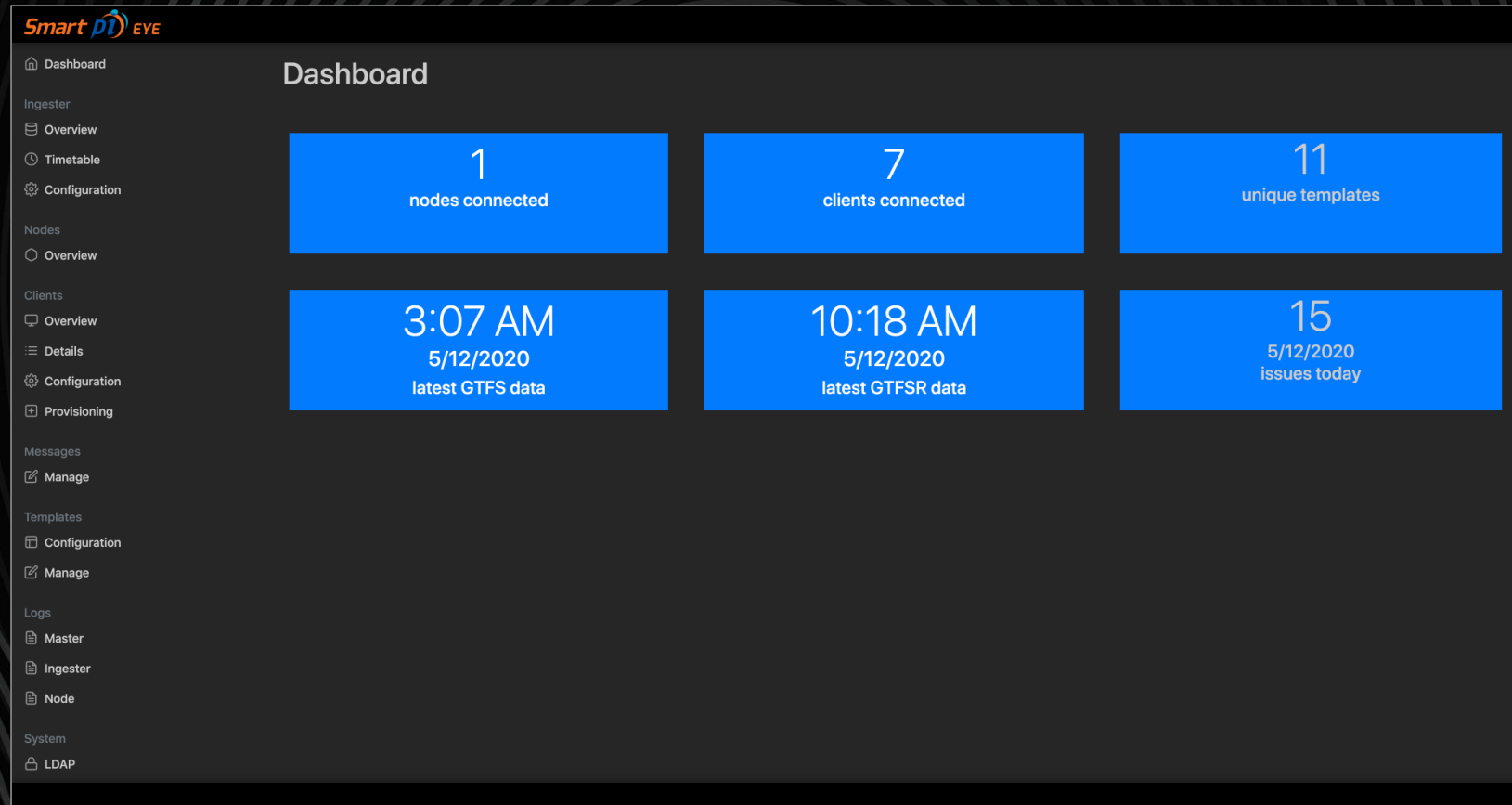
Ingestor – Ingest Realtime Feeds

EYE-HD - Embedded Hardware for HDMI Output to screens.

The flexible topology allows for the system to be installed in smaller environments and expanded as needed to support more displays or integrate into other services. Multiple types of displays are configured via templates. This allows CMS Administrators to select the display type which can then automatically render the information for the Smart pi EYE-HD client in the correct format all from a single web interface, even for very large environments.



Smart pi EYE Dashboard











Passenger Information


- Realtime Information from GTFS/GTFS-R
- Next and Following Service Information
- Multi Agency Support
- Customise Templates
- Scale to 1000+ displays
- Business Rules per requirement
- Visualise Load Data
- Message / Advertising Integration

Olympic Park Services				Time now
				16:45
Next train	Capacity	Departs	Platform	
 Olympic Park	<div><div></div></div>	4 min	7	
 Olympic Park		12 min	4	
 Olympic Park	<div><div></div></div>	21 min	3	
 Olympic Park		25 min	6	
 Olympic Park		37 min	5	
 Olympic Park		44 min	7	
 Olympic Park		51 min	6	
 Olympic Park		54 min	4	
 Olympic Park		17:52	7	
 Olympic Park		17:57	5	










FIFA Women's World Cup™

Noarlunga Centre				Time now
				10:10 am
Next bus services	Zones F, G, H			
 Old Reynella	Now	H		
 City	7 min	G		
 City	13 min	F		
 Old Reynella	30 min	H		
 City	37 min	G		
 City	43 min	F		
 Old Reynella	60 min	H		
 City	11:18	G		








Services will not stop at Noarlunga due to technical issues.
Bus replacement service available from Stand A.
 Visit adelaidemetro.com.au for service updates or to plan your trip


				Time now
				17:34
Next service	Stand	Departs		
 Miller T-Way Stn - To Liverpool	B2	4 min		
 Rouse Hill Station	B4	4 min		
 Castle Hill Station	B4	4 min		
 West Ryde	A3	5 min		
 Norwest Station	B4	5 min		
 Macquarie Rd Before Gipps Rd	B2	6 min		





Light Rail
From Parramatta Square

Next service	Departs
 Westmead	3 min
 Carlingford	9 min
 Westmead	12 min
 Carlingford	18 min

Next Services				Time now
				12:37
	Platform	Capacity	Departs	
Bradfield 	2	<div><div></div></div>	Now	
St Marys	1	<div><div></div></div>	3 min	



Services will not stop at Luddenham due to technical issues.
Bus replacement service available from Stand B on Station Street.
 Visit transportnsw.info for service updates or to plan your trip

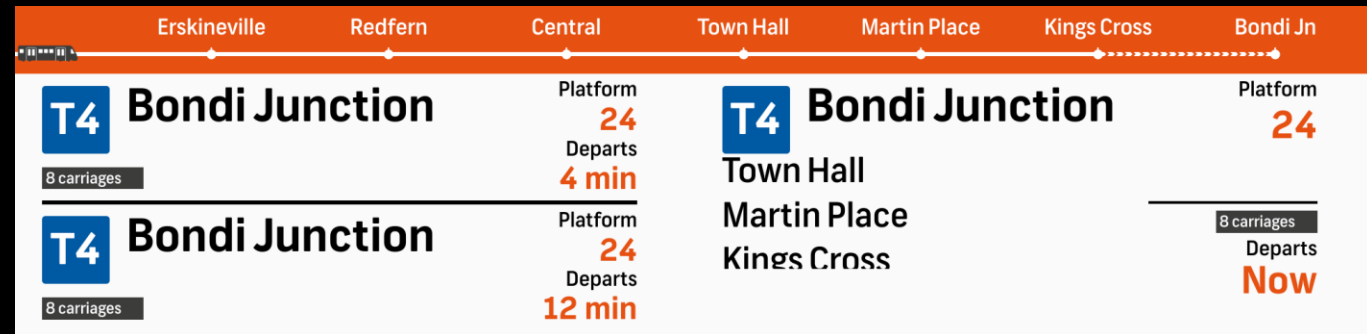
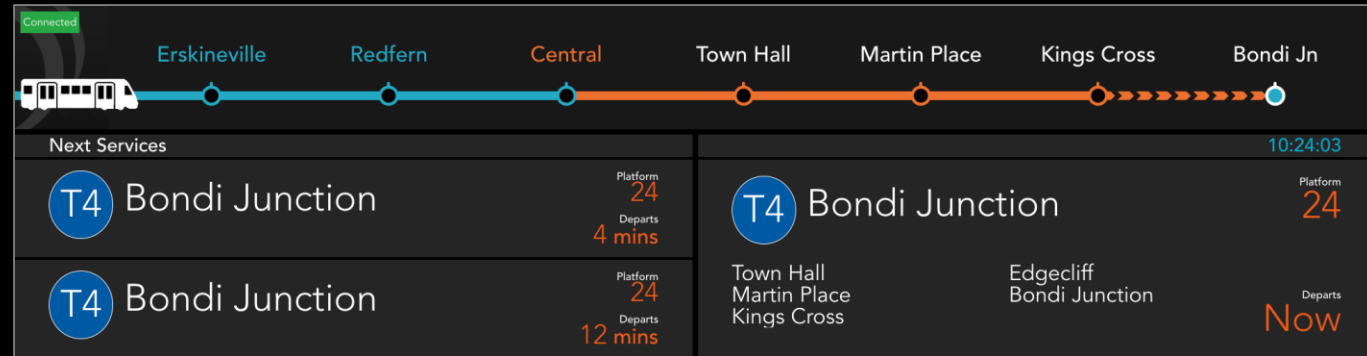
Next Services				Time now
				12:41
	Platform	Capacity	Departs	
Bradfield 	2	<div><div></div></div>	2 min	
St Marys	1	<div><div></div></div>	5 min	
Bradfield 	2	<div><div></div></div>	7 min	
St Marys	1	<div><div></div></div>	9 min	

Display Types

- Next Services
- Following Services
- Multi Services
- Dual Next Services
- Departure Boards
- LED Displays
- Kiosks
- URL Passthrough
- Clock

Display Information your way

- All displays can be customised
- Select Display Type and Create Templates
- Message and Alert Engine for all display types



Multi Agency Support

Smart pi EYE Multi Agency ensures passengers have access to accurate and real-time information across all transport modes.

Whether it's buses, trains, or ferries, the system provides updates on schedules, delays, and routes, making travel easier.

Features


- Single System for all Modes of Transport
- Buses, Trains, Trams, Metro, Ferries, Airports and More
- Add Unlimited Agencies / GTFS feeds
- Filter and Display information on a single screen
- Custom templates



T Trains from Strathfield station				Time now 14:17
Next train		Departs	Platform	
T1	Richmond	Now	6	
T2	City Circle	Now	7	
T1	Gordon	2 min	4	
T2	Parramatta	3 min	8	
T1	Penrith	5 min	6	
T9	Gordon	6 min	5	
T2	Leppington	6 min	8	
T2	City Circle	7 min	7	
CCN	Newcastle	9 min	3	
T9	Hornsby	11 min	6	

B Buses from Everton Road, Stand A-D			
Next bus	Capacity	Departs	Stand
458 Ryde Shops - Church St	3	4 min	A
526 Rhodes Shopping Centre (Rider Bvd)	3	12 min	B
526 Burwood Westfield	3	26 min	D
458 Burwood Westfield	3	29 min	D
458 Ryde Shops - Church St	3	34 min	A
526 Rhodes Shopping Centre (Rider Bvd)	3	44 min	B
526 Burwood Westfield	3	58 min	D
458 Ryde Shops - Church St	3	15:21	A
458 Burwood Westfield	3	15:21	D
526 Rhodes Shopping Centre (Rider Bvd)	3	15:27	B

B Buses from Everton Road, Stand A-D				Time now 16:11	→
Next bus	Capacity	Departs	Stand		
526 Burwood Westfield	3	6 min	D		
458 Burwood Westfield	3	8 min	D		
458 Ryde Shops - Church St	3	9 min	A		
526 Rhodes Shopping Centre (Rider Bvd)	3	10 min	B		
526 Rhodes Shopping Centre (Rider Bvd)	3	30 min	B		
458 Burwood Westfield	3	37 min	D		
526 Burwood Westfield	3	37 min	D		
458 Ryde Shops - Church St	3	39 min	A		
526 Rhodes Shopping Centre (Rider Bvd)	3	47 min	B		
526 Rhodes Shopping Centre (Rider Bvd)	3	17:14	B		
458 Burwood Westfield	3	17:17	D		
526 Burwood Westfield	3	17:20	D		
458 Ryde Shops - Church St	3	17:21	A		

Strathfield Interchange Map			
			

Dynamic Wayfinding

- Custom Size LED Displays
- Integrated Real-Time Transportation Data
- Simple Web / Mobile Control
- Animated / Video Integration
- High Brightness Indoor / Outdoor
- Up to 20 Displays from an EYE-HD

Complete Control

- Dynamic Wayfinding, move crowds where you want them
- Control Displays individually or as a Group
- Integrate to GTFS-R Alerts
- Integrate with Lifts and Escalators

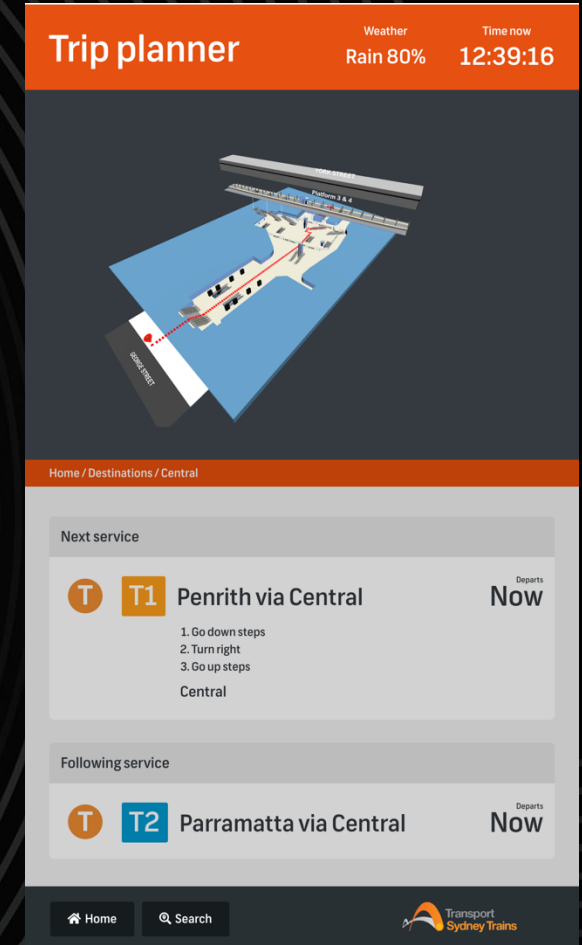
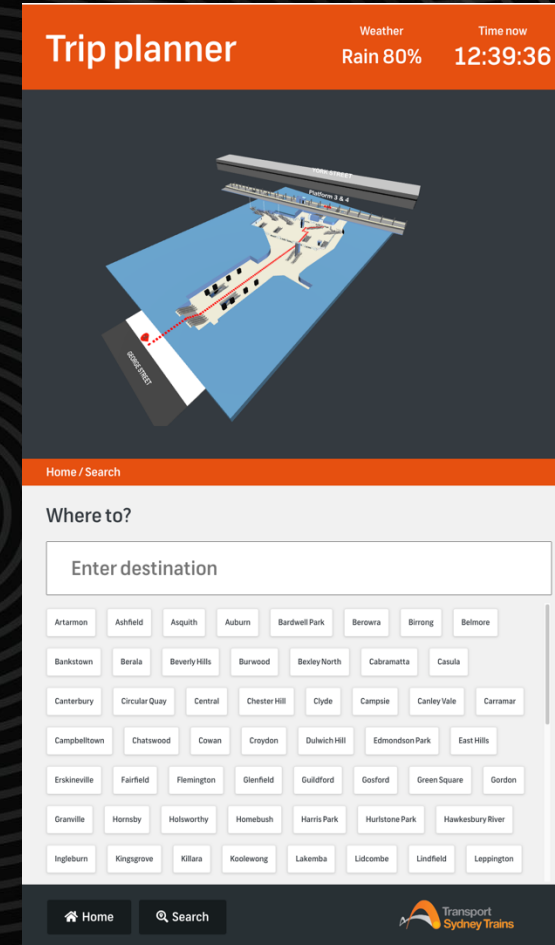


Interactive Kiosks

The Smart Pi EYE - KIOSK trip planner uses real-time updates and custom 3D models to simplify travel. It highlights schedules, routes, and points of interest, offering passengers an engaging and efficient planning experience.

Features

- Real Time Information Interactive Kiosk
- Import 3D models and layers for wayfinding
- Automatically filters possible destinations
- Include RSS feeds and tickers for news / weather etc
- Add in custom Points of Interest
- Designed for touch



Integrated Marketing

- Integrated Messaging Templates
- Built in Messaging System
- Build Marketing Templates
- Animated / Video Integration
- Partial or Full Screen messages

Integrated Templates

Olympic Park Services

Time now
16:45

Next train	Capacity	Departs	Platform
 Olympic Park	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	4 min	7
 Olympic Park		12 min	4
 Olympic Park	<div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div></div>	21 min	3
 Olympic Park		25 min	6
 Olympic Park		37 min	5
 Olympic Park		44 min	7
 Olympic Park		51 min	6
 Olympic Park		54 min	4
 Olympic Park		17:52	7
 Olympic Park		17:57	5



FIFA Women's World Cup™

Speech to Text


- Integrate for Live and DVA Announcements
- Multi-Lingual Support
- Supports Google AI & Voice Interaction
- Rest API for custom integrations
- Free text Options
- Train Custom Models with Voice Interaction



Complete Control

- Customise any template to Support Speech to Text Announcements
- Create as Full Screen or Partial Screen
- Add Icons and Headers

Beecroft		Cheltenham	Epping	Eastwood	Denistone	West Ryde	Central
T9	Gordon via Strathfield				T9	Gordon via Strathfield	
	Platform 1						Platform 1
	8 carriages Limited stops						
			Departs 19 min				
T9	Gordon via Strathfield						
	Platform 1						
	8 carriages Limited stops						
			Departs 22 min		Eastwood Denistone West Ryde		Departs 4 min

		Eastwood	Denistone	West Ryde	Central
	Announcement				
Mind the gap when boarding the train.					
					T9
					Gordon via Strathfield
					Platform 1
					8 carriages Limited stops
					Departs 4 min

DVA Integration

- Automate and Control Messages via DVA Audio
- Control Modes via DVA Audio
- Control Videos and Images via DVA Audio
- Buttons to “read” / playout screen content (Smart pi HLP)



The Hardware

- Smart pi EYE-HD has no moving parts.
- Controlled in Real-time via the main web interface.
- Only the device name is configured on the actual EYE-HD unit.
- Indoor and Outdoor versions available.
- Low power usage, can be powered from the USB output on the screen.
- Screengrab every 60 seconds
- Hyundai IT / Daktronics Display Integration

Front

- 3 x USB
- 1 x Ethernet
- Status Screen



Rear

- Micro USB - 5v power
- 2 x GPI/O
- 2 x Balanced Audio Outputs
- 1 x HDMI



Rackmount Kit

- 3RU Rackmount Kit
- Up to 9 x EYE-HD
- Easy cable management





Fire Safety Manager

The Smart pi FSM or Fire Safety Manager is designed to comply with the EN54-16 standards and can be used to make a Smart pi ECOsystem compliant to EN54-16.

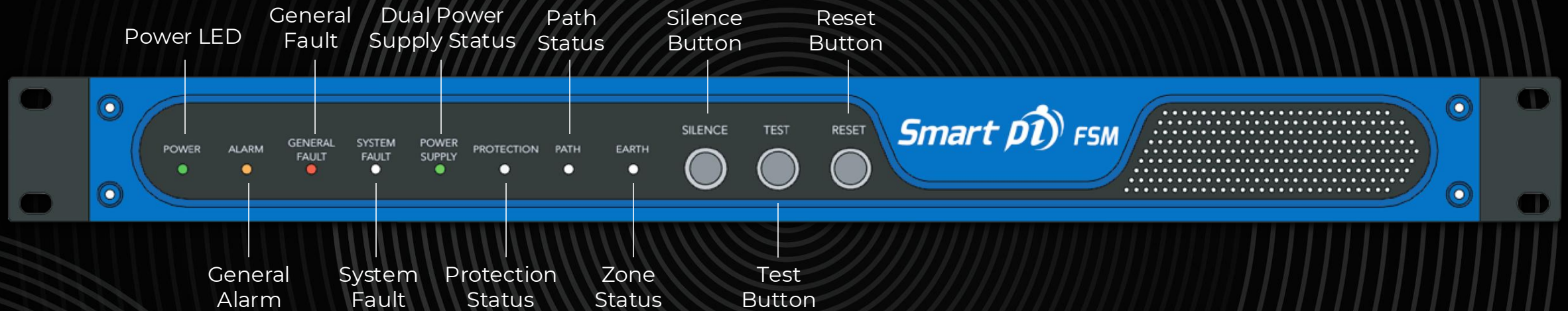
Additionally, the Smart pi FSM can be used to monitor and control audio for other standards such as the AS 60849 Sound systems for emergency purposes (IEC 60849:1998 MOD) standard in Australia.



Features

- Monitor a single EN54-16 Zone with Smart pi NAMs
- Easily Configurable via built in web interface
- Compliant for EN54-16 Standards
- Front to back cooling ensuring maximum use of rack space, with embedded web server so no additional computer or software is required
- LDAP / Active Directory Security Control
Additional monitoring modes for larger systems where EN54-16 is not required
- Highly reliable with built in watchdog protection
- OCA / AES70 interface for for control and integration

Front Panel



Designed for EN54-16 systems

Monitor a single EN54-16 evacuation zone with multiple Smart pi NAMs

Screen Display Views

Configuration

Smart pi FSM

ADMINISTRATOR

LOGOUT

CONFIGURATION

ZONE-1

DEVICE

Status:

OK

IP Address:

192.168.100.100

☐ Disabled

Name:

GATE-1-1

Monitor Channels:

☒ Channel 1

☒ Channel 2

☒ Channel 3

☒ Channel 4

SAVE

CANCEL

Smart pi FSM

ADMINISTRATOR

LOGOUT

CONFIGURATION

ZONE-1

ADD

SAVE

CANCEL

Screen Display Views

Settings

Smart pi FSM

ADMINISTRATOR [LOGOUT](#)

SETTINGS

IP CONFIGURATION

LDAP

MODE

Interface Mode:

☒ STATIC ☐ DHCP

IP Address:

192.168.10.128

Network Mask:

255.255.255.0

Gateway:

192.168.10.254

DNS Server:

192.168.10.1

DNS Suffix:

stagetec.com.au

Hostname:

smartpi-fsm-zone1

NTP Server:

au.pool.ntp.org

SAVE

CANCEL

SETTINGS

IP CONFIGURATION

LDAP

MODE

Authentication

☒ Enabled ☐ Disabled

Host Name:

192.168.10.1

Domain:

@stagetec.com.au

Admin Group:

FSM

User Group:

FSM

SAVE

CANCEL

SETTINGS

IP CONFIGURATION

LDAP

MODE

Monitoring Mode

☒ EN54 ☐ Multi - Zoned

SAVE

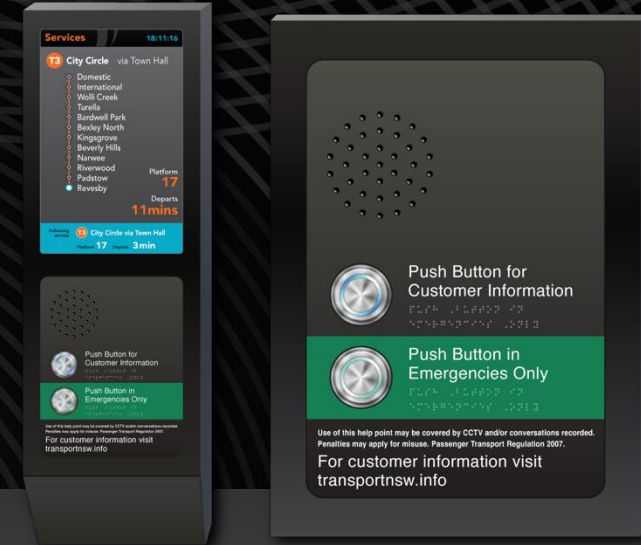
CANCEL

Help and Information Points

The Smart pi HLP (Help and Information Points) the ability to contact a Network Operations Centre to talk with an operator or listen to automated information messages generated by the Smart pi DVA.

Help and Information points offer vital information so quality audio and performance reliability are a top priority.

The Help Point systems are completely configurable, buttons can be configured to play announcements in different languages and video integration with Smart pi EYE is also available. Custom chassis are available to completely fit in with the image of any organisation.

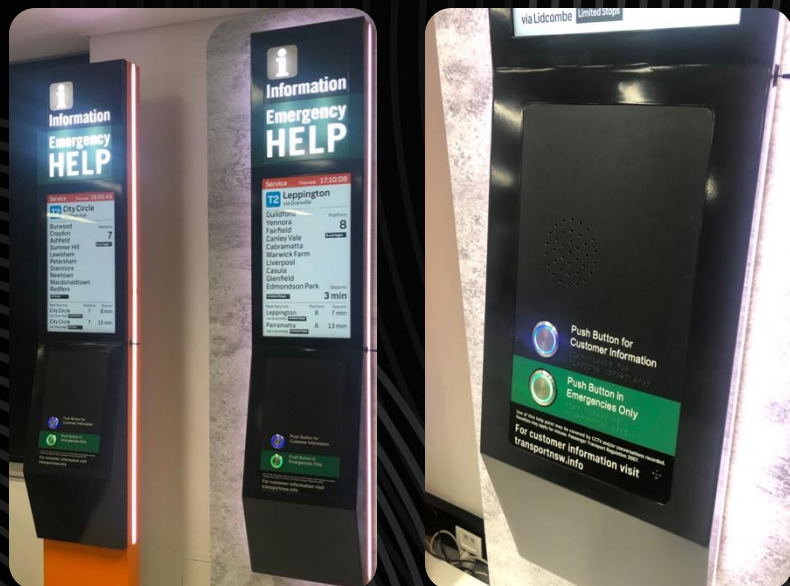


Features

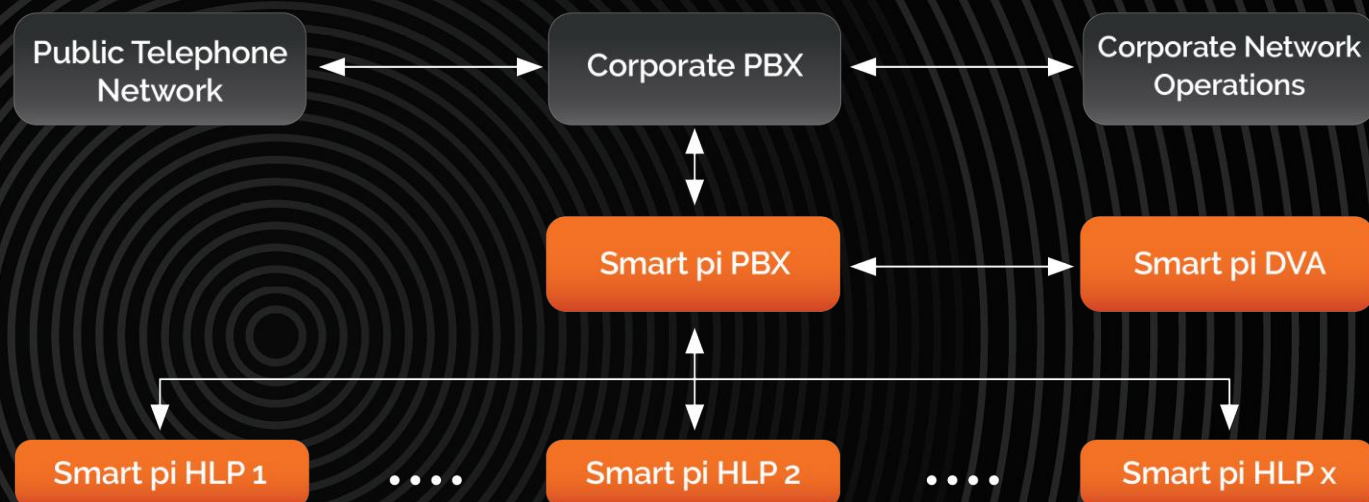
- Exceptional Audio Quality and Speech Intelligibility
- Exceptional Audio Quality with OPUS VoIP codecs
- Large 108mm 30 Watt driver to ensure you can hear even in loud environments
- Very easy to use and can be configured by anyone via a simple web UI
- Monitored with alerts via the Smart pi PBX
- Built in Induction loop for the hearing impaired
- Noise cancelling MEMs microphone to ensure you can be heard and understood
- Full integration to the Smart pi DVA for automated messaging
- Multi-function display option with Smart pi EYE.

Customisation Options

- Fully Customisation available for the housing
- Electronics Only supply to integrate to your existing housings
- Supports Standard SIP to integrate with ANY IP PBX.



Example Topology



Audio Features

- Crystal Clear audio with OPUS codec even via the internet
- Noise Cancelling MEMs microphone
- Large 30W speaker with 60hz-20khz frequency response
- 7 Band Parametric Equaliser
- Speaker monitoring.





Audio Logger

Smart pi LOG (Audio Logger) can scale from 64-512 channels with a single server, and to higher channel counts by adding Node Servers, with the ability to have over 1000 channels in a single system.

All users access the Server via the web interface which includes mobile support. Users can search, listen and download audio files.

As with all Smart pi ECOsystem products, Active Directory and LDAP are available for authentication, ensuring only required users have access to the system.

Speech to text conversion is available using Google AI and can be stored alongside any audio as meta data.

Additional encryption options are available if additional security is required.



Features

- Full Linear Audio Quality
- Modular Node based design can scale to 1000's of channels in a single system
- Very easy to use via a simple web UI with Active Directory / LDAP Authentication
- Optional file encryption for further security
- Google AI integration for automatic speech to text metadata ingest
- Up to 64 channels per node in Virtual Environment or 512 channels in Bare Metal!
- Centralised search across all nodes or individually
- Storage / Archive only limited by disk size

Screen View

Smart pi LOG

Marklowds LOGOUT

NODE

1

DAYS

MONDAY

TUESDAY

WEDNESDAY

THURSDAY

FRIDAY

SATURDAY

SUNDAY

WEEKDAY

WEEKEND

ALL

RANGE

Start Time

00 : 00

Start Date

05 / 12 / 2017

End Time

23 : 59

End Date

05 / 12 / 2020

DESCRIPTION

SEARCH

Channel 1	*SOUND*1	2018-10-25 13:54:43	1970-01-01 00:00:00	DOWNLOAD
Channel 2	*SOUND*1	2018-10-25 13:54:43	1970-01-01 00:00:00	DOWNLOAD
Channel 3	*SOUND*1	2018-10-25 13:54:43	1970-01-01 00:00:00	DOWNLOAD

First

Previous

2

3

4

5

Next

Last

Last Recorded

Channel 1	*SOUND*3	2018-10-26 12:24:48		DOWNLOAD
Channel 2	*SOUND*3	2018-10-26 12:24:48		DOWNLOAD
Channel 3	*SOUND*3	2018-10-26 12:24:48		DOWNLOAD
Channel 4	*SOUND*3	2018-10-26 12:24:48		DOWNLOAD

ADMIN

STATUS

LOGS



Paging Microphone

POE Powered Paging Microphone

Completely configurable remotely via Smart pi DSP or standalone configuration via web page

Both physical and touch buttons

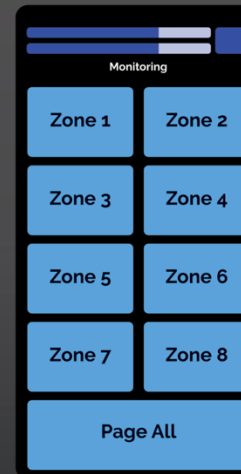
Local speaker output for monitoring of destinations and intercom operability

AES70/OCA Control

Dante Audio over IP Standard

Features

- Built in Digital Signal Processing
- Support for Multiple Language Labels
- Built in Speaker for monitoring and talkback
- High Quality Industrial Design.



Audio Features

- Additional Page if required.



Network Amplifier Modules

The Smart pi NAM (Network Amplifier Modules) are commercial and industrial amplifiers that can be installed in the field and close to the speaker location, this allows ease of changing audio zoning, sources, priorities and volume for every single speaker within the system.

Indoor and Outdoor (IP66) NAMs are available for each model.

Each NAM has 4 x 12-Watt RMS class D amplifiers, an Ethernet switch with 2 fibre and 2 ethernet ports, and built in DSP (EQ, FIR, delay and gain).

The NAM-HP has 4 x 75-Watt RMS class D amplifiers further offering the ability to incorporate TCoil and induction loops into PA systems for the hearing impaired.



Hardware Features

Power	36 – 52 VDC (1.5 A) – with real-time monitoring
Network	2 x Gigabit Ethernet and 2 x Small form-factor pluggable (SFP) ports.
AutoDetecting	– one of each type assigned per LAN in redundancy config.
Amplification	NAM: 4 x 12 W RMS (8 Ω) NAM-HP: 4 x 75 W RMS (8 Ω)
AES-3 IN (PLUS)	24 bit, sample rate conversion, Input Max 7:1, max range 139 DNR.
Analogue I/O (PLUS)	Up to 2 in and 2 out at +4 dBu Line Level
GPIO (PLUS)	Vox sources for GPIO triggers.
Microphone input	48v Phantom, ref level -18 / -20 dBfs, gain -2.5 to +41.5 dB, max in +18 dB
SD card	Audio files = 48k / 16 bit mono (card FAT32 : allocation unit size 512 bytes).
Status	Amp status LED Indicator. AES 'Lock' LED Indicator (PLUS option).
Management	Web browser interface (up to 20 users). API for remote integration. Dante™ Domain Manager (DDM). Backup / Restore Remote update

Audio Features

Linear Dante Support

SIP (OPUS) option available for Wide Area and Internet based connectivity

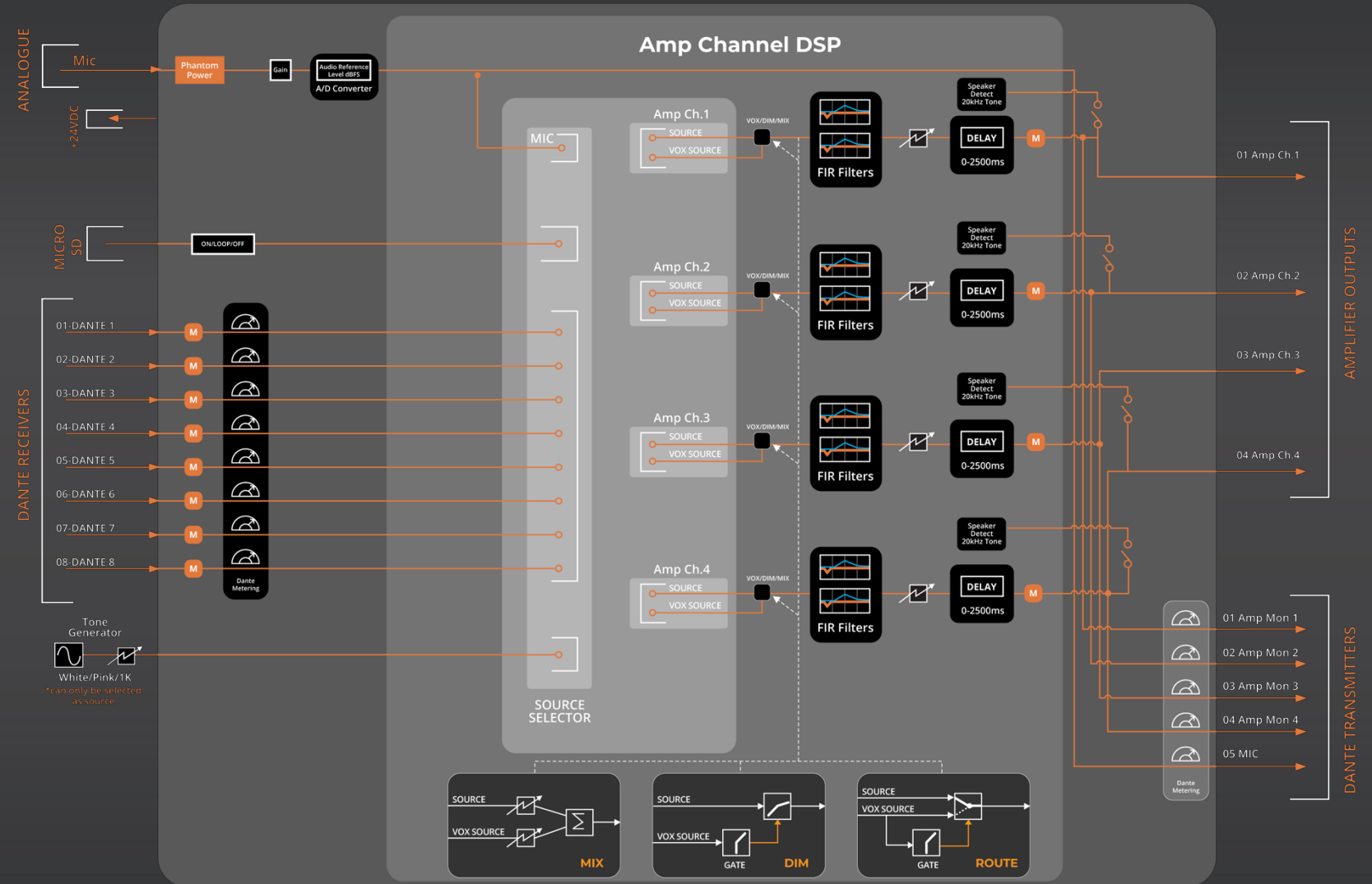
7 Band Parametric Equalisers

Ambient Noise Sensing Microphone input

Mix, Mute and DIM options built in for smaller installations

Low Noise High Quality Class D Amplifiers

Block Diagram - Smart pi NAM



Audio Features

Linear Dante Support

SIP (OPUS) option available for Wide Area and Internet based connectivity

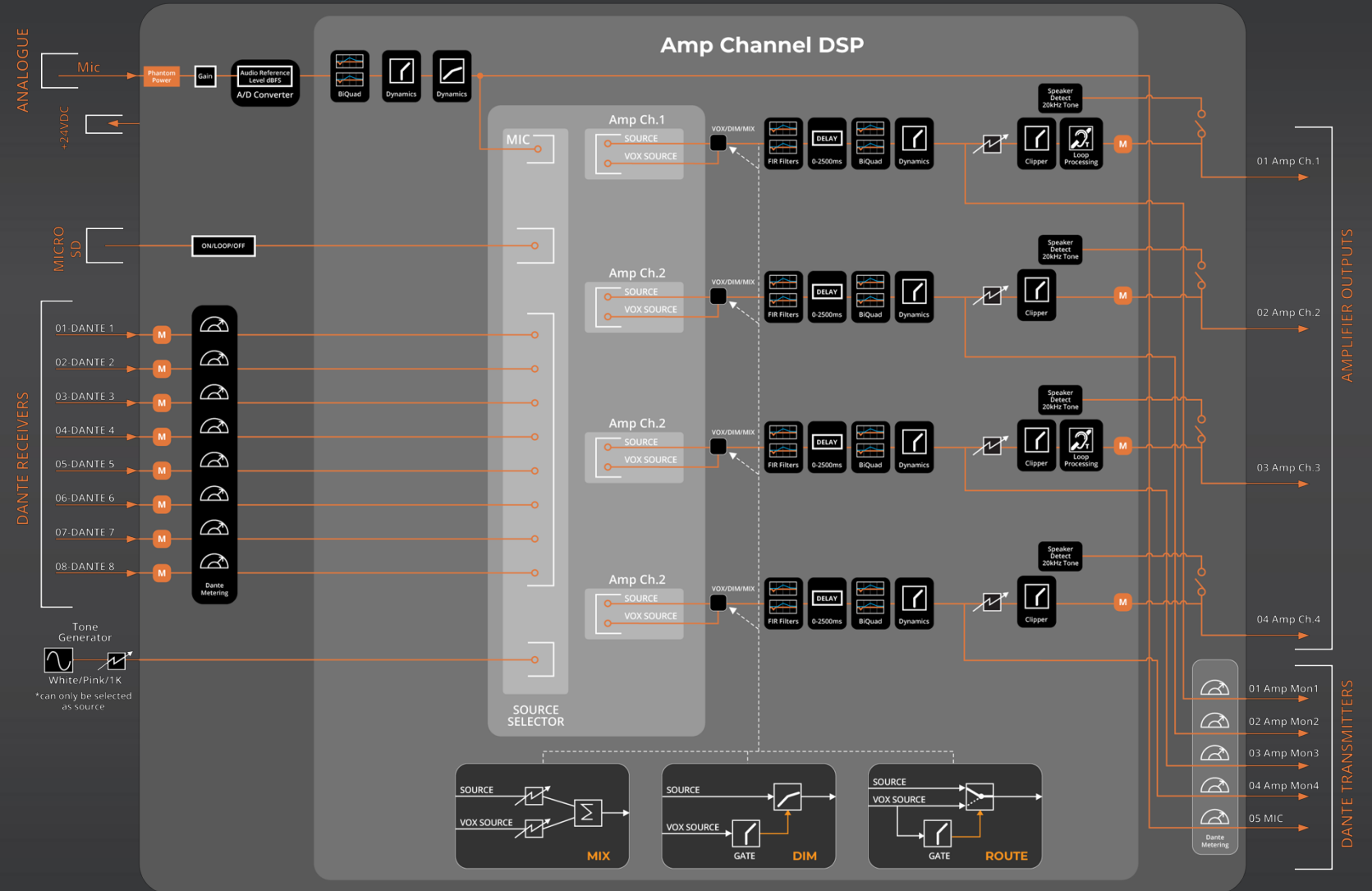
7 Band Parametric Equalisers

Ambient Noise Sensing Microphone input

Mix, Mute and DIM options built in for smaller installations

Low Noise High Quality Class D Amplifiers

Block Diagram - Smart pi NAM-HP



Processing

- Speaker Impedance Measurement with definable tolerance range
- Amp status with fault codes
- Onboard tone generator
 - White, Pink, 1 k Sine, 400 Hz Sine – adjustable level
- Selectable DSP per output and input
 - AES, Dante™ 1-8, Mic, AES (L,R), Tone and SD Card.
- 2500 ms delay per channel in 1 ms steps.
- VOX control triggers – Dante™ 1-8, Mic, AES (PLUS option)
- Latency settings
- 1000 point FIR filter per channel



Dante Features

Dante Domain Manager (DDM)
Compatible

Enhanced Dante Wide Area Support for
low bandwidth and large systems.

Indoor NAMs

Standard 4 x 24 Watt NAM and

NAM-HP 4 x 75 Watt versions available

Supports up to 4 zones with built in DSP
(EQ, Dynamics, Mixer)

Speaker Monitoring

Hearing and Induction Loops (NAM-HP
only)



Outdoor IP66 NAMs

NAM and NAM-HP options available

NAMplus boards for GPIO, AES/IP
and sip available

4 port switch 2 x Ethernet RJ45
and 2 x SFP

Custom Colours Available



Modules

Outdoor NAMs have the possibility to add different modules depending on the features required.

Enhanced Dante Wide Area Support for low bandwidth and large systems.

Outdoor Modules

- AFILS Board
- SIP Module
- Auracast Module
- GPI/O Module
- EN-54 Module (Analogue Audio & GPIO)





Private Branch Exchange

The Smart pi PBX (Private Branch Exchange) is an Audio Over IP gateway.

The Smart pi PBX has additional features including high quality compressed OPUS audio algorithms for use on Wide Area Networks where it is not possible to use linear audio such as Dante.

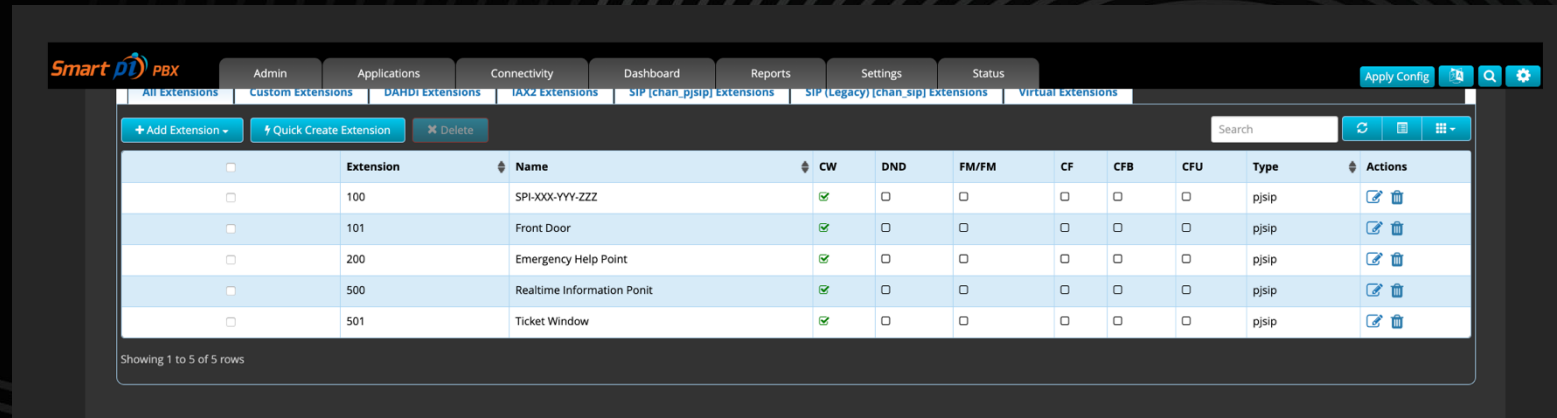
The Smart pi PBX ties all low bandwidth products together and monitors their connection status, this includes, Help and Information Points, the Smart pi DVA (for integrated Realtime automated messaging) and the Smart pi NAM for Wide Area support or paging from a customer's phone system.

This flexible design allows systems of any complexity and design to be seamlessly integrated using industry stand SIP protocols and networks including the internet and VPN tunnels.

Features

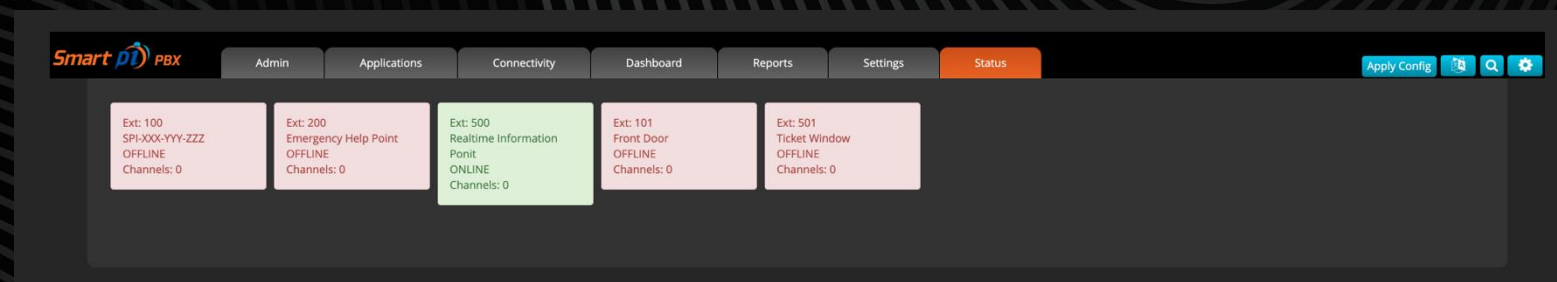
- Exceptional Audio Quality and Speech Intelligibility
- Modular system to ensure flexible installation options
- Very easy to use and can be configured by anyone via a simple web UI
- Front to back cooling ensuring maximum use of rack space, with embedded web server so no additional computer is required
- LDAP / Active Directory Security Control
- Built in Logic Engine can trigger and process calls from local and remote units via TCP/IP
- Highly reliable, each card manages itself and can be mirrored (N+1). The Nodes use a passive backplane to ensure there is no single point of failure
- Standards Based API using OCA / AES70 for control and integration

Display Screen Views



Extension	Name	CW	DND	FM/FM	CF	CFB	CFU	Type	Actions
100	SPI-XXX-YYY-ZZZ	✓	□	□	□	□	□	pjsip	[Edit] [Delete]
101	Front Door	✓	□	□	□	□	□	pjsip	[Edit] [Delete]
200	Emergency Help Point	✓	□	□	□	□	□	pjsip	[Edit] [Delete]
500	Realtime Information Ponit	✓	□	□	□	□	□	pjsip	[Edit] [Delete]
501	Ticket Window	✓	□	□	□	□	□	pjsip	[Edit] [Delete]

Showing 1 to 5 of 5 rows



Ext	Name	Status	Channels
Ext: 100	SPI-XXX-YYY-ZZZ	OFFLINE	Channels: 0
Ext: 200	Emergency Help Point	OFFLINE	Channels: 0
Ext: 500	Realtime Information Ponit	ONLINE	Channels: 0
Ext: 101	Front Door	OFFLINE	Channels: 0
Ext: 501	Ticket Window	OFFLINE	Channels: 0

Connectivity

- Smart pi HLP Help and Information Points
- Smart pi NAM (with SIP option)
- Smart pi DVA (with SIP option)
- Most Corporate IP PBX's via SIP or IAX Trunks
- Most VoIP / SIP Providers via SIP or IAX Trunks

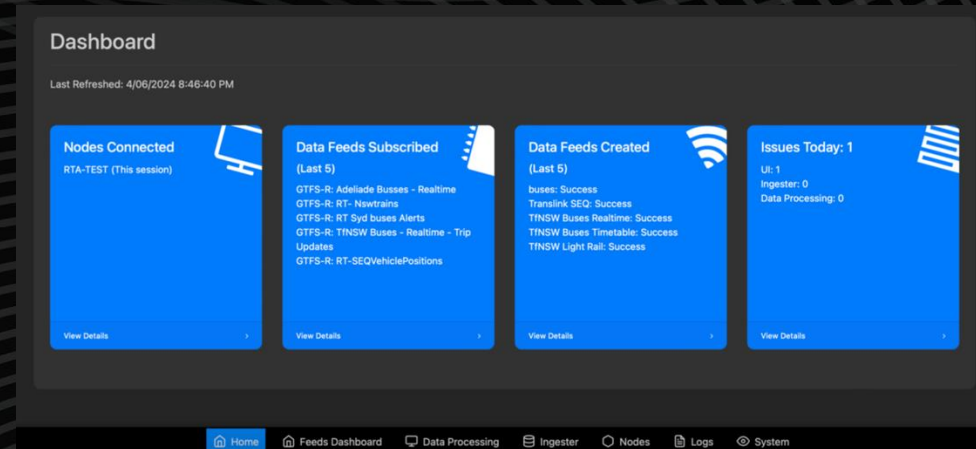


Real Time Aggregator

The Smart pi RTA (Real Time Aggregator) is a node based software application that can process large feeds of real-time data in GTFS and GTFS-R formats, supporting both single and multiple agencies.

The Smart pi RTA has fast processing times of 70 seconds for GTFS and less than 5 seconds for GTFS-R.

Smart pi RTA can filter feeds by agency and/or create new feeds with only the required agencies, it is also possible to merge multiple feeds together and remove unused data from feeds such as shape data, ensuring downstream systems only process the data required (Smart pi EYE, Smart pi DVA etc).



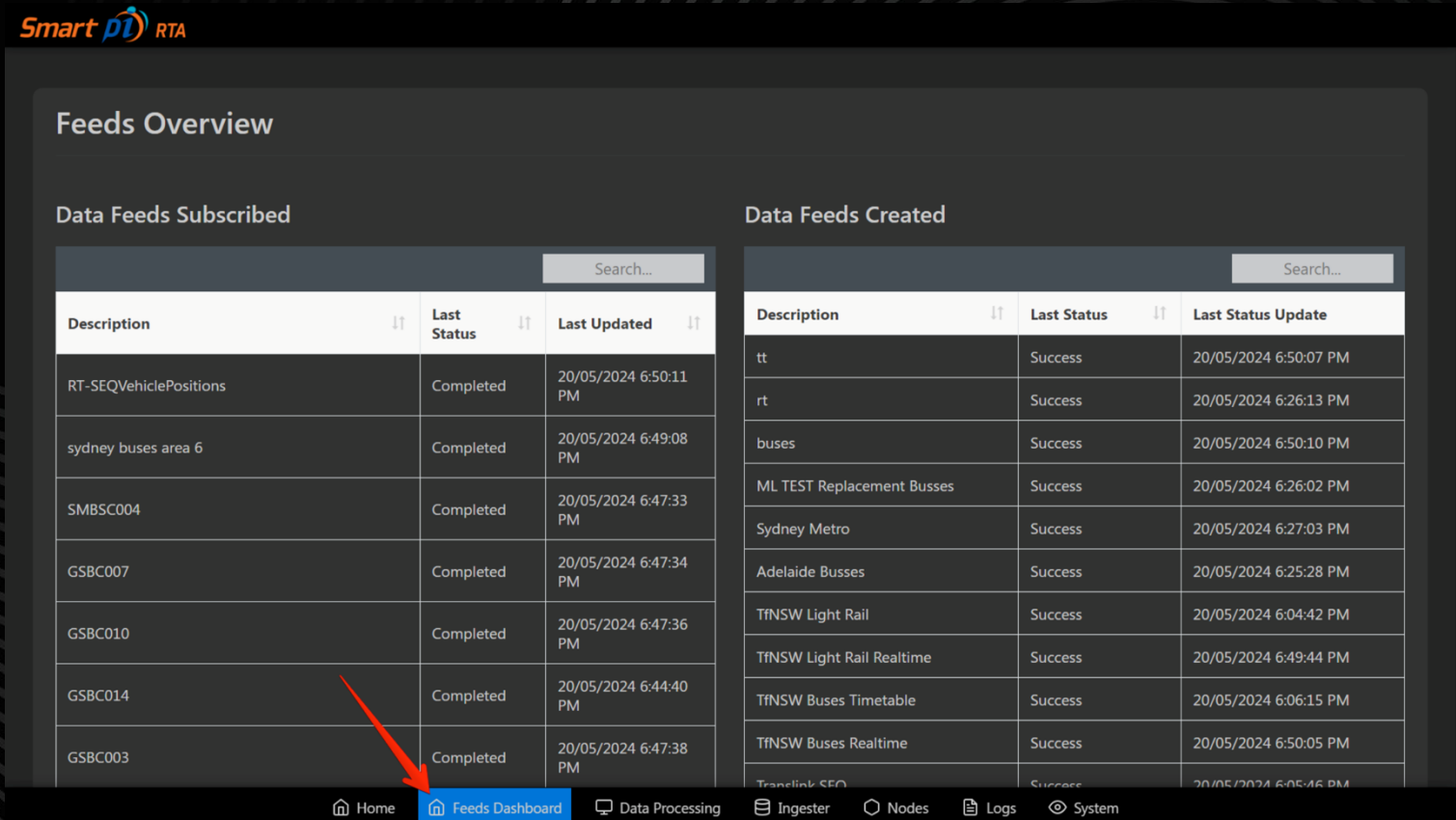
The Smart pi RTA application it is written on the .NET platform and is managed via a built in web interface.

The RTA node server can be installed and run on Windows and/or Linux servers and can be installed on premises, in the cloud or as a hybrid installation.

All user interfaces are HTML5 based and can be used with any browser, LDAP integration is available for security permissions and single sign on, the .NET application self hosts the user interface for easy of installation, upgrades and management.

Smart pi RTA is node-based for easy expansion and has a fully redundant architecture.

Display Screen Views



The screenshot shows the 'Feeds Overview' dashboard with two main sections: 'Data Feeds Subscribed' and 'Data Feeds Created'. Both sections have a search bar and a table of feeds. The 'Data Feeds Subscribed' table lists feeds like 'RT-SEQVehiclePositions', 'sydney buses area 6', 'SMBSC004', 'GSBC007', 'GSBC010', 'GSBC014', and 'GSBC003'. The 'Data Feeds Created' table lists feeds like 'tt', 'rt', 'buses', 'ML TEST Replacement Busses', 'Sydney Metro', 'Adelaide Busses', 'TfNSW Light Rail', 'TfNSW Light Rail Realtime', 'TfNSW Buses Timetable', 'TfNSW Buses Realtime', and 'Translink SEQ'. A red arrow points to the 'Feeds Dashboard' link in the bottom navigation bar.

Feeds Overview

Data Feeds Subscribed

Description	Last Status	Last Updated
RT-SEQVehiclePositions	Completed	20/05/2024 6:50:11 PM
sydney buses area 6	Completed	20/05/2024 6:49:08 PM
SMBSC004	Completed	20/05/2024 6:47:33 PM
GSBC007	Completed	20/05/2024 6:47:34 PM
GSBC010	Completed	20/05/2024 6:47:36 PM
GSBC014	Completed	20/05/2024 6:44:40 PM
GSBC003	Completed	20/05/2024 6:47:38 PM

Data Feeds Created


Description	Last Status	Last Status Update
tt	Success	20/05/2024 6:50:07 PM
rt	Success	20/05/2024 6:26:13 PM
buses	Success	20/05/2024 6:50:10 PM
ML TEST Replacement Busses	Success	20/05/2024 6:26:02 PM
Sydney Metro	Success	20/05/2024 6:27:03 PM
Adelaide Busses	Success	20/05/2024 6:25:28 PM
TfNSW Light Rail	Success	20/05/2024 6:04:42 PM
TfNSW Light Rail Realtime	Success	20/05/2024 6:49:44 PM
TfNSW Buses Timetable	Success	20/05/2024 6:06:15 PM
TfNSW Buses Realtime	Success	20/05/2024 6:50:05 PM
Translink SEQ	Success	20/05/2024 6:05:46 PM

Navigation: Home, **Feeds Dashboard**, Data Processing, Ingestor, Nodes, Logs, System

Features

- Process Large Feeds for single and multiple agencies
- Fast processing (70 seconds for GTFS and <5 seconds for GTFS-R)
- Filter feeds by agency / creating new feeds with only required agencies
- Merge multiple feeds together
- Remove unused data from feeds (IE shape data)
- Add new plugins for custom protocols and map to GTFS/GTFS-R output

Display Screen Views

Smart  RTA

Processing Jobs Listing

Data Processing

+ Create Processing Job

Existing Processing Jobs

Search...

Summary	Interval (secs)	
TfNSW_Buses_Selected_Realtime_VEHICLES	30	<div>EditDelete</div>
TfNSW_Buses_Selected_Realtime_SERVICE_TRIP	30	<div>EditDelete</div>
SydneyTrainsRealtime	15	<div>EditDelete</div>
SydneyTrainsTimetable	1500	<div>EditDelete</div>

Home

Feeds Dashboard


Data Processing

Ingestor

Nodes

Logs

System

Smart  RTA

Ingest Jobs Overview

+ Create Feed Ingest

Search...

Description	Status	Status Time	Last Run	Last Run Time	
Sydney Trains GTFS	Completed	31/07/2023 9:04:48 AM	Completed	21/07/2023 2:04:27 PM	<div>EditDelete</div>
NSW Trains	Completed	1/08/2023 12:05:30 AM	Completed	21/07/2023 2:04:28 PM	<div>EditDelete</div>
NSW TRAINS Trip Updates GTFS-R	Completed	1/08/2023 12:48:14 AM	Completed	21/07/2023 2:04:28 PM	<div>EditDelete</div>
NSW Trains VP GTFS-R	Completed	1/08/2023 12:48:14 AM	Created		<div>EditDelete</div>

<<

<

1

>

>>

Home

Feeds Dashboard

Data Processing

Ingestor

Nodes

Logs

System



Sound Pressure Level Metering & Logging

Professional Sound Pressure Level Metering & Logging (Smart pi SPL) with dual inputs.

The Smart pi SPL has both a web server for remote interfaces and HDMI for direct connection to any screen. The Smart pi SPL includes all requirements for government mandated metering including configurable display values and logging.

The system is compatible with any Class 2 microphone and allows for a measurement chain according to IEC 61672-1. An optional MEMS microphone is also available.

The system is easy to calibrate and generates calibration certificates via the web interface. Logging files can be exported in a variety of formats and the system can be optionally configured for remote access.

Features

- 2 x Class 2 Preamps (recommended MicW i436 Class 2 certified measurement microphone)
- Web Interface for both configuration and display with up to 20 users
- HDMI output for display
- USB powered
- Easy to update
- Ethernet and WiFi connectivity.

Configurable Interfaces can include:

- LAeq ,1sec, 10mins, 15mins, 60mins, 90mins
- LCeq ,1sec, 10mins, 15mins, 60mins, 90mins
- LA10 10mins, 15mins
- LA90 10mins, 15mins
- Last calibration date
- Other display requirements can be configured

Logging:

- Download Logs via web interface
- Remote logging options available
- Auto erase function, number of days can be configured

There is no PC required to run the unit

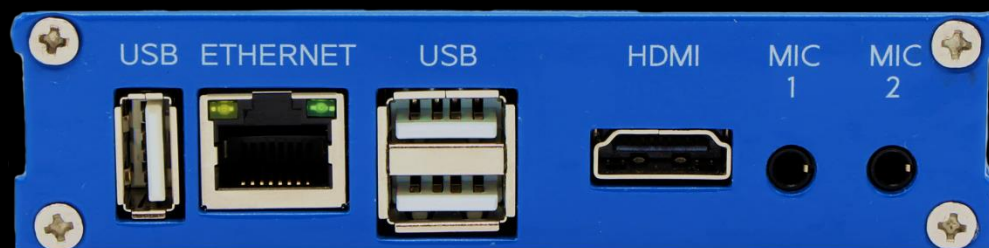
Calibration via web browser*

*Requires optional calibration unit such as: BWSA Tech CA114/115



Front

- **MIC 1** – 3.5mm socket
- **MIC 2** – 3.5mm socket



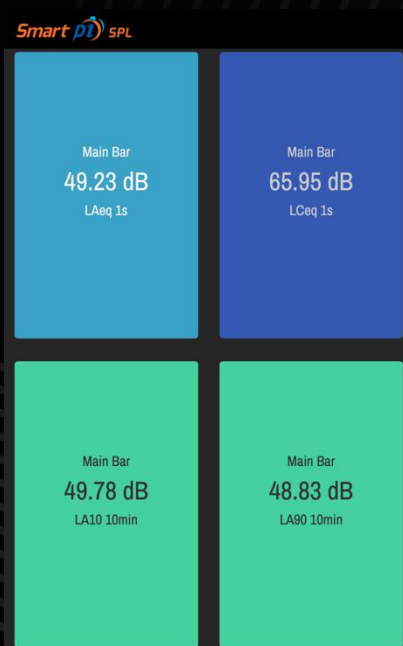
Rear

- MEMS MIC – 2.5mm socket
- Micro USB – Power
- WiFi Antenna socket



Display Screen Views

Mobile / Vertical



PC / Landscape

