MODELS T9008DSP, T9016DSP, T9024DSP, T9032DSP

DIGITAL SIGNAL PROCESSING MAINFRAMES

The Models T9008DSP, T9016DSP, T9024DSP, and T9032DSP Digital Signal Processing Mainframes provide digital audio network connections utilizing CobraNet technology to an IED audio network controller such as the IED 500ACS Announcement Control System. Local program or background music (BGM) inputs connect via analog connections.

Digital Signal Processing on each of 8, 16, 24, or 32 incoming signals (as appropriate) includes functions such as input level controls, paging routing, automatic ducking of BGM audio, equalization (up to 9 parametric bands per amplifier channel), signal delay, and IED's patented technology for ambient analysis based automatic level control. IED monitor/test functions are also included inside of these DSP Mainframes. The Monitor/Test functions are all also accomplished inside of the Mainframes with no external test circuit wiring required.

The DSP Mainframe require 2 rack units (RUs) of space or 3.5" of vertical space in a 19" equipment rack/cabinet. All cooling is back to front, so no additional vertical space is required in the rack for cooling. Local program or BGM inputs are provided on the back via plug-in lugless compression-type screw terminals. The Mainframes also are compatible with optional collector units such as the T9032NS Ambient Analysis Sensor Collector used to bring in IED 540S ambient sensor readings for the Ambient Analysis System computations. Another option is the T9032MT Monitor/Test Collector for additional monitor/test points. These add-on options are linked via the Ethernet connection.

Audio signals come into the T9008DSP/T9016DSP/T9024DSP/T9032DSP Mainframes either via the local analog program/BGM connections or via the Ethernet connection utilizing the CobraNet technology.

Models T9008DSPL/T9016DSPL/T9024DSPL/T9032DSPL are the part numbers for 120VAC power source, and Models T9008DSPH/T9016DSPH/T9024DSPH/T9032DSPH are the part numbers for 240VAC power source.

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Figure 1 - T9008DSP/T9016DSP/T9024DSP/T9032DSP Digital Signal Processing Mainframes
Front View

Figure 2 - T9032DSP Digital Signal Processing Mainframe
Rear View

SPECIFICATIONS

CAPACITIES

1. Maximum Number of local Program/BGM Inputs
   T9032/T9024/T9016/T9008 . . . . . 32/24/16/8
2. Maximum Number of Paging Zones Assignable to Frame
   T9032/T9024/T9016/T9008 . . . . . 32/24/16/8

CONNECTORS

1. Program/Background Music Inputs 32/24/16/8
   plug-in lugless compression-type screw terminals
2. Ethernet
   Network Audio . . . . . 2 - 100Base-T modular-8 RJ-45
   For redundant networks
   Control . . . . . 1 - 100Base-T modular-8 RJ-45
3. Test Signal Out, Test In, Monitor Out and Monitor In 4
   plug-in lugless compression-type screw terminals
4. Aux Line Level Outputs, 1A - 6A 6
   plug-in lugless compression-type screw terminals
5. AC Power Cord
   T9032DSPL for 120VAC Operation . . . . . (1) Belden/Volex 17250
   T9032DSPH for 240VAC Operation . . . . . (1) Belden/Volex 17850

DIGITAL SIGNAL PROCESSING FUNCTIONS

1. Level Controls
   T9032/T9024/T9016/T9008 . . . . . 32/24/16/8 Program, 32/24/16/8 BGM, 32/24/16/8 Overall Channel Levels
5. Built-in Testing
   Automated multi-frequency and 20kHz testing of all channels
6. Monitoring
   Capability to listen to any test point plus additional monitor-only points in the mainframe locally or via the network at another location.

ELECTRICAL

All of the following specifications apply with program input via the network (CobraNet®), or with direct inputs to the power amplifier.

1. Frequency Response . . . . . ±0.2 dB
   20 Hz - 20 kHz
2. Total Harmonic Distortion. THD . . . . . <0.01%
   20 Hz - 20 kHz
3. Signal-to-Noise Ratio, S/N . . . . . >93 dB
   22 Hz - 22 kHz, weighted
4. Maximum Input. . . . . +14 dBu
5. Maximum Output. . . . . +14 dBu

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ELECTRICAL (continued)

6. Gain
   - Via the network . . . . . Unity
   - Direct Input . . . . . 25 dB, Max
   - Background Music . . . . . 25 dB, Max
7. Analog-to-Digital Converter, A/D . . . . . 24 bit
8. Digital-to-Analog Converter, D/A . . . . . 24 bit
9. Internal processing . . . . . 32-bit, floating point
10. Sample Rate . . . . . 48 k
11. Latency . . . . . <1 ms
12. Crosstalk . . . . . below –75 dB
    f = 2 kHz

AC POWER REQUIREMENTS

1. Quiescent power . . . . . 83 W

MECHANICAL

1. Size, overall
   - Width, with ears . . . . . (48.3 cm) 19”
   - Height . . . . . (8.89 cm) 3.5”
   - Depth . . . . . (43.2 cm) 17”
2. Mounting Depth (rack depth) . . . . . (44.2 cm) 17.4"
   for proper fan operation add a minimum of 2" (5.1 cm) clearance
3. Weight
   - T9032DSP with supplied rack ears . . . . . (5.44 kg) 12.0 lbs
   - Extra rear rack ears . . . . . (0.68 kg) 1.5 lbs
4. Cooling fans 1
   For digital electronics
5. Mounting Ear Location Options 3
   front, rear, bottom

ENVIRONMENTAL

1. Operating Temperature Range . . . . . (+32 °F - +122 °F) 0 °C - +50 °C
   Applicable for typical voice paging and background music applications.
2. Storage Temperature Range . . . . . (–40 °F - +158 °F) –40 °C - +70 °C

SUPPORT EQUIPMENT OPTIONS

Below are optional units that may be ordered to work with and extend the capabilities of this mainframe.

1. T9032NS Ambient Sensor Collector
2. T0516BGM Background Music Hub
3. T9032MT Monitor/Test Collector
   For additional external monitor/test points
4. T9032LVIO Logic-Voltage I/O Collector
5. T9016RY 16-Channel Relay Interface
6. T9040NLR 16-Ch Noise, 16-Ch Logic/Voltage, 8-Ch Relay Interface

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