



Humm

Digital Sound Masking

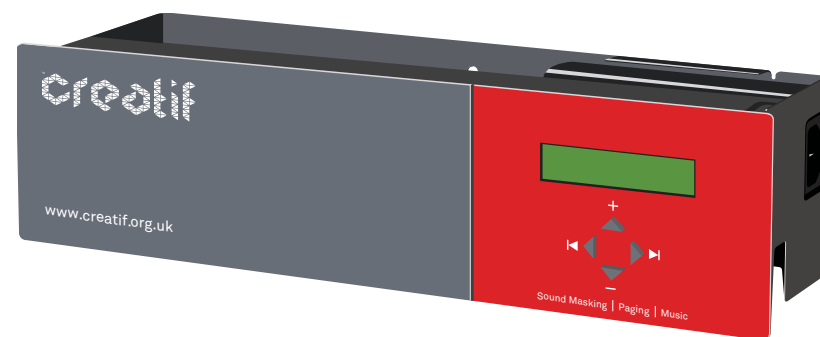
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02_Humm Digital Sound Masking

Creatif's digital sound masking system aims to reduce noise distraction, protect speech privacy and ultimately increase workplace productivity.

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03_What is Humm?

Humm is the process of adding to an environment a low level of unobtrusive background sound, which is engineered to protect confidentiality and reduce distractions by lowering the intelligibility of speech. This in turn makes the acoustical environment more comfortable.

A crucial component of Acoustic Design

When designing an optimal acoustic environment, architects consider a variety of elements to address noise control and speech privacy.

Elements added either Absorb, Block, or Cover sound, and are collectively called the ABC's of acoustic design.

The ABC's of Acoustic Design

- A** | **Absorb:** Acoustic wall panels, carpets and ceiling tiles help absorb excess sound.
- B** | **Block:** Solid barriers, partitions and walls help block sound.
- C** | **Cover:** Humm helps cover up sound.

The concept explained

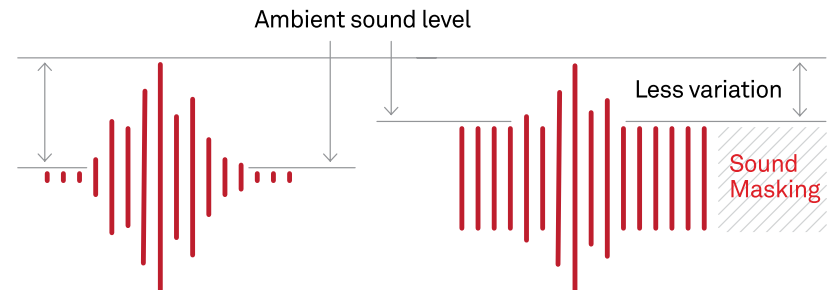
Adding sound to a space actually makes the space seem quieter. It sounds counter-intuitive but it's true. Imagine looking up at the stars...



The stars shine brightly against the night sky. As dawn breaks, the stars appear to dim as the ambient light increases. The intensity of the starlight has not changed, but rather as the ambient light increases, it becomes more difficult to discern the light from the stars.

How is this applied to speech?

This works the same for human speech. As the ambient sound in the room increases, it becomes more challenging to discern an individual's conversation from across the room. This inability to understand the conversation reduces distractions and increases the speaker's speech privacy.



04_The Problems

Most workplaces today feature more open spaces and smaller, and often shared, workstations. Less sound absorptive materials are being used such as lower or non-existent partitions, hard or glass surfaces, and thinner walls and doors.

This creates acoustical challenges that negatively impact workplace satisfaction, productivity, and speech privacy.

Sound Distraction

Distraction brought about by noise is driving your employees crazy. Its why they put in headphones, or feel the need to shout to be heard by their colleagues. More distraction means less productivity, which essentially means less money!



Speech Privacy

Confidential and sensitive information is communicated within every workspace in the world on a daily basis. Private meeting rooms do not usually totally eliminate sound transfer, meaning people have to step outside to have a private conversation, or whisper whilst looking over their shoulders.



05_The Problems

It has been proven that noise distraction has a monetary cost to businesses and organisations.

Noise Distractions & Monetary Cost

In a recent study presented to the International Congress of Noise as a Public Health Problem, researchers found that on average employees wasted 21.5 minutes per day due to conversational distractions, making lack of speech privacy the number one cause of reduced productivity. An additional 2014 Steelcase/Ipsos study found that employees lost as much as 86 minutes per day due to noise distractions.

Even using conservative estimates, this loss of productivity adds up to big monetary losses for companies. 21.5 minutes daily is roughly 4% of an average employee's work day (based on an 8 hour day). Some quick math shows that a company with 100 employees and an average employee salary cost of \$50,000 is losing \$200,000 a year in lost productivity.

Noise Distractions & Productivity

Employees are interrupted once every 11 minutes according to research from UC Irvine, and it takes them up to 23 minutes to get back into the flow of what they were doing before they were interrupted.

And its not just interruptions that are a problem... Employees are all too aware of lack of speech privacy within the workspace – so much so, it has been identified as one of the biggest frustrations experienced by staff when evaluating their own workspace.

06_The Solution

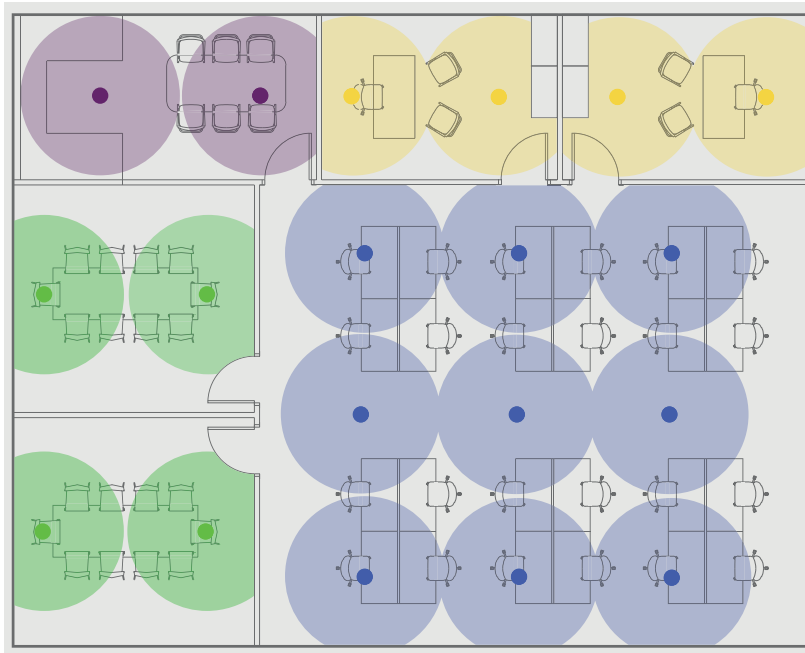
QtPro uniformly disperses a pre-tuned Humm signal directly into the workspace. The result is a consistent sound throughout the space that is easily achievable without the complex tuning required by indirect systems.

Zoning

The QtPro system is designed to meet the unique acoustic requirements of a space, whether large or small.

Qt emitters are easily installed by certified masking professionals in a simple grid pattern, determined by ceiling height. During the layout and design phase, the space is divided into zones based on acoustic requirements of the space. Zones can range from 100 square feet (9.3 m2) to 12,000 square feet (1,115 m2).

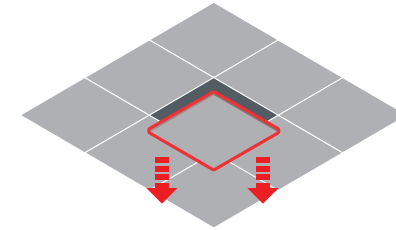
In the example below, the office space is separated into six zones, allowing for different volume levels for each unique space.



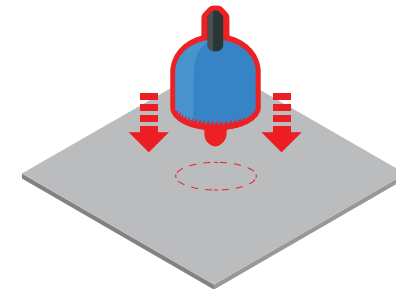
Installation

The versatile Qt Emitters are capable of being mounted in any ceiling type.

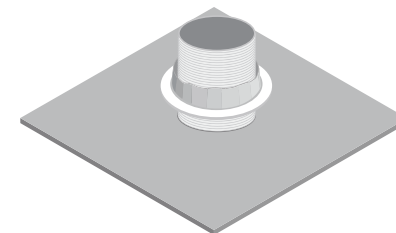
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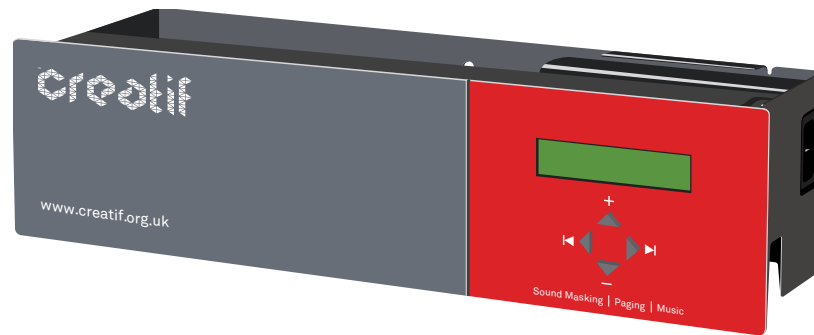
07_The Qt Pro™ Humm System

The patented QtPro system is a cost-effective solution to protecting speech privacy and reducing distractions.

It consists of three simple components; emitters (i.e. loudspeakers), control modules, and cables that connect the emitters to the control modules. The Qt® control modules come in three different sizes depending on the size of the space they cover.

Control Modules

Qt Emitters are powered and controlled by intuitive Qt Control Modules. The modules come in three different sizes depending on the size of the space being masked. A single Qt 600 for example can connect to up to 720 emitters — covering up to 72,000 square feet (6,690 m²) of space.



Qt Control Module

Qt® Emitters

Qt Emitters are the backbone of the Qt Quiet Technology Humm System. Qt emitters are wide dispersion direct-field speakers with 1.25" (3.17 cm) drivers and are smaller than a coffee mug. These emitters deliver four uncorrelated audio channels, which provide uniform, unobtrusive Humm. This feature, along with easy configuration capability, makes QtPro the most intelligently engineered and most effective Humm system available.



08_ System Options - Qt™ Conference Room Edition

What comes with the Qt Conference Room Edition?

One wall-mounted ST 1000 control module

One 4-gang adapter plate for control module (or EU/UK 3-gang box)

Two automatically lighted privacy signs

Two 1-gang adapter plates for privacy signs

Two 50 ft (15.2 m) plenum-rated cables for privacy signs

One power supply Eight Qt Emitters

Seven 16 ft (4.8 m) audio cables

One 50 ft (15.2 m) homerun audio cable

One hole saw

Technical Specification

	Control Module	Privacy Signs	Qt Emitters
Dimensions	H 4.4" x W 8.31" x D 1.06" (11.3 x 21.1 x 2.7 cm)	H 4.5" x W 3.5" x D .19" (11.3 x 9 x .48 cm)	Height: 2.5" (6.4 cm) Diameter: 3.25" (8.3 cm)
Weight	0.7lb (300 g)	0.1lb (50 g)	5.6oz (159 g)
Power supply	Compatible with 100V to 240V AC power mains	Powered from the Control Module via plenum rated wire	Powered from the Control Module via plenum rated wire
Power consumption	Entire systems use less than 7 watts		

Cables

Qt Emitters connect to control modules via pre-terminated, pre-test, plenum-rated category cables.



09_ System Options - Qt™ 100

The Qt 100 control module is a sound masking generator, controller and amplifier, with one auxiliary audio input to allow for distribution of audio from a paging controller or (background) music player.

The Qt 100 control module is a compact one-zone controller suitable for installations of up to 12,000 square feet (1,115 m²). The masking level can be adjusted from the unit's front panel. Auxiliary audio level is set via the front panel.

Dimensions: W x H x D	7" x 3.5" x 0.875" (17.8 cm x 8.9 cm x 2.3 cm)
Weight	6 oz. (170 g)
Operating Temperature Range	40 °F - 90 °F (4 °C - 32 °C)
Power Requirements	100 - 240 VAC, 7 watts (barrel connector or stripped & tinned wire)
Zones	1
Emitter Run Connector Type	RJ-45 (Bent 3-tyne)
Aux. Audio Inputs	1 fixed terminal blocks
Aux. Audio Input Level	-10 dBV Nominal, 2 Vrms max
Emitter Capacity	60 per run, 120 total
Max. Coverage Area (10' Ceiling)	12,000 ft ² (1,115 m ²)
Masking Spectrum	Preset at factory to CSM standard spectrum
Masking Channels	4 per zone
Module control	Front Panel
Security	Software-based front-panel lock; fixed terminal block contact closure

10_ System Options - Qt™ 300

The Qt 300 control module is a sound masking generator, controller, third octave band equalizer and amplifier, with two aux audio inputs to allow for distribution of audio from paging controllers and/or (background) music players.

The Qt 300 control module is a compact three-zone networkable controller suitable for installations of up to 36,000 square feet (3,345 m²). Each zone can be independently adjusted for masking and aux audio levels and spectra. Levels can be adjusted from the unit's front panel or from a remote desktop leveraging the unit's network connectivity and browser-based GUI.

Dimensions: W x H x D	11" x 3.5" x 3.8" (27.9 cm x 8.9 cm x 9.7 cm)
Weight	1.5 lbs (0.68 kg)
Operating Temperature Range	40 °F - 90 °F (4 °C - 32 °C)
Power Requirements	100 - 240 VAC, 15 watts
Zones	3
Emitter Run Connector Type	RJ-45 (Bent 3-tyne)
Aux. Audio Inputs	2 fixed terminal blocks
Aux. Audio Input Level	-10 dBV Nominal, 2 Vrms max
Aux. Input Equalization	Adjustable +/- 12 dB in ISO standard octave bands
Emitter Capacity	60 per run, 120 per zone, 360 total
Max. Coverage Area (10' Ceiling)	36,000 ft ² (3,345 m ²)
Masking Spectrum	Preset at factory to CSM standard spectrum (recommended).
Masking Spectrum Equalization	Adjustable +/- 12 dB in ISO standard 1/3 octave bands
Masking Channels	4 per zone
Time of Day Masking Level Control	RTC with battery backup. Per-zone day/night levels and start times, ramping interval, and weekday/Sat/ Sun behaviour
Network Access for Control and Monitoring	Yes
Security	"Hidden" front-panel lock switch; username and password required for network access; fixed terminal block contact closure

11_System Options - Qt™ 600

The Qt 600 control module is a sound masking generator, controller, third octave band equalizer and amplifier, with two aux audio inputs to allow for distribution of audio from paging controllers and/or (background) music players.

The Qt 600 control module is a compact six-zone networkable controller suitable for installations of up to 72,000 square feet (6,689 m²). Each zone can be independently adjusted for masking and aux audio levels and spectra. Levels can be adjusted from the unit's front panel or from a remote desktop leveraging the unit's network connectivity and browserbased GUI.

Dimensions: W x H x D	13.5" x 3.5" x 3.8" (34.3 cm x 8.9 cm x 9.7 cm)
Weight	3.0 lbs (1.4 kg)
Operating Temperature Range	40 °F - 90 °F (4 °C - 32 °C)
Power Requirements	100 - 240 VAC, 27 watts
Zones	6
Emitter Run Connector Type	RJ-45 (Bent 3-tyne)
Aux. Audio Inputs	2 fixed terminal blocks
Aux. Audio Input Level	-10 dBV Nominal, 2 Vrms max
Aux. Input Equalization	Adjustable +/- 12 dB in ISO standard octave bands
Emitter Capacity	60 per run, 120 per zone, 720 total
Max. Coverage Area (10' Ceiling)	72,000 ft ² (6,689 m ²)
Masking Spectrum	Preset at factory to CSM standard spectrum (recommended).
Masking Spectrum Equalization	Adjustable +/- 12 dB in ISO standard 1/3 octave bands
Masking Channels	4 per zone
Time of Day Masking Level Control	RTC with battery backup. Per-zone day/night levels and start times, ramping interval, and weekday/Sat/ Sun behaviour
Network Access for Control and Monitoring	Yes
Security	"Hidden" front-panel lock switch; username and password required for network access; fixed terminal block contact closure

12_Don't just take our word for it...

Take a look at what some Humm users have to say

““ The employees were being distracted by conversations 60 feet away. When the system's on, speech becomes unintelligible at a distance of about 20 feet. ””

Steve Shanks, Manager of Audio, Video, Surveillance and Security, Denbury Resources, Inc.

““ Libraries are supposed to be quiet, but whispers could be heard 40 feet away. With the help of Humm, we now have a library that seems quieter and is still beautiful. We're delighted. ””

**Bob Jarvis, Buildings and Grounds Manager
Williams College**

““ The Bank of America National Helpline site in Boston houses over 200 associates. Even with all that talking, our work environment is private and productive, thanks to Humm. The solution is straightforward and effective. I wouldn't open a call center without it. ””

**Edward Klemm, Vice President
Bank of America National Helpline**

““ With CSM's Qt 600 in place, there is less distraction from unwanted sounds and conversations. Patients and staff can now experience the positive ambiance we wanted to achieve through the open design concept, and we gained a greater level of patient satisfaction. ””

**Alison Brisson, Plant Operations Manager,
Wentworth Douglas Hospital**

““ Utilizing Humm keeps the cross talk between the offices and corridors down so you don't hear inter-office conversations. I highly recommend Humm as a solution for open-concept office spaces. ””

**Ron Rivet, Network Operations Section Manager,
Amica Mutual Insurance Company**

““ We installed QtPro in one of our branches years ago to cut down on overheard cross-talk and also to prevent conversations in private offices from being heard in the open office area. We've been so impressed with the results that QtPro is now installed every time we renovate or relocate a branch. It's now in most of our locations. ””

**Edward Klemm, Vice President
Bank of America National Helpline**



13_Contact

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