

AgeNT™ Heater Demonstrator

CHASM's nanotube hybrid material for printed electronics, AgeNT, is the only transparent and flexible heating materials commercially available today capable of delivering uniform heat up to 2,000 W/m².

From headlights to architectural glass, AgeNT is available in a variety of optimally tuned versions capable of delivering the heat density required for your application without unsightly visual distractions.

Whether it's collision avoidance, intrusion detection/ security or even process control systems - transparent heaters allow modern systems to remain active even in harsh weather, keeping their field of view clear from ice, rain, and condensation. Don't rely on microwires or other work arounds for heating any longer.

Target Applications

Automotive & Transportation:

Windshield (front and rear), headlights and sensors, applications where heaters need to be compatible with optical cameras, LIDAR & RADAR

Security camera for trains, buses or intrusion detection

Transparent heaters for avionics, aerospace & defense

Any application requiring a transparent, flexible heater!

Specifications

- Size: 100mm x 160mm
- Available in 1 (Ω/\square), 10 (Ω/\square) and 30 (Ω/\square)
- Maximum operating temperature for AgeNT Demo Heaters is 70 °C
- Tin plated brass 6mm rivet connection
- Uniform heat across entire heating surface
- Ease of Integration: AgeNT heating films are flexible, formable, can be bonded to target substrate, can be overmolded, can be laminated in between glass and more

Demonstrator Options

AgeNT 1

94% VLT
20 mil PC
1.6 mil OCA
1 Ω/\square Cu MM
4 mil PET

AgeNT 10

90.9% VLT
20 mil PC
2 mil OCA
10 Ω/\square Ag NW
7 mil PC

AgeNT 30

95.8% VLT
20 mil PC
2 mil OCA
30 Ω/\square Ag NW
7 mil PC

Power Supply

- AgeNT 1: 3.3V
- AgeNT 10: 12V, 18V
- AgeNT 30: 18V, 24V

Resistance

Resistance of 100mm x 160mm Heaters:

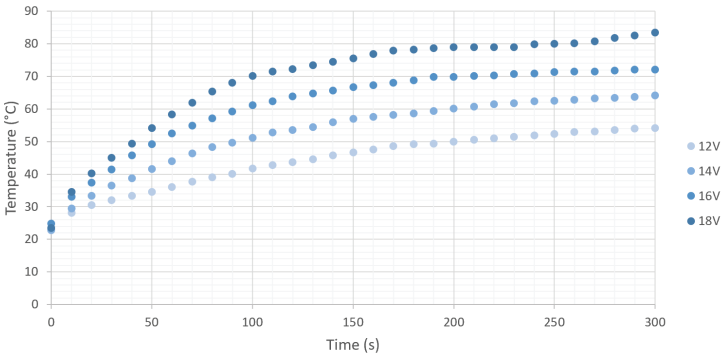
- AgeNT 1: 1.3 ohm
- AgeNT 10: 13 ohm
- AgeNT 30: 33 ohm

Heater Performance: Dial in Desired Temperature by Selectively Varying Input Voltage on any AgeNT Heater

Power Density (W/m ²)	Power	AgeNT 1		AgeNT 10		AgeNT 30	
		Voltage	Temp	Voltage	Temp	Voltage	Temp
0	0W	0V	21 Degrees C	0V	21 Degrees C	0V	21 Degrees C
500	8W	2V	35 Degrees C	10V	41 Degrees C	16V	41 Degrees C
1000	16W	3V	45 Degrees C	14V	61 Degrees C	23V	61 Degrees C
1500	24W	4V	65 Degrees C	18V	81 Degrees C	28V	81 Degrees C
2000	32W	5V	85 Degrees C	20V	101 Degrees C	33V	101 Degrees C
2500	40W	6V	110 Degrees C	23V	121 Degrees C	37V	121 Degrees C

100mm x 160mm Heater (Area 0.016m²)

Temperature vs Time AgeNT 10 Thermal Response



Uniformity of Heater Across Agent Demo Heaters

